ORACLE®

Oracle® Fusion Middleware

Managing and Monitoring Processes with Oracle Business
Process Management

12*c* (12.2.1)

E59336-04

November 2016

Documentation for process participants, process owners,
administrators, and supervisors using Oracle Business Process
Management Workspace to act on tasks, activity guides, and
process instances.

ORACLE®

Oracle Fusion Middleware Managing and Monitoring Processes with Oracle Business Process Management, 12*c* (12.2.1)

E59336-04

Contents

2 Working on Tasks in Process Workspace

3 Working on Process Instances in Process Workspace

8   Working with Adaptive Case Management in Process Workspace

Part II   Administering Process Workspace

9   Managing Process Workspace

10 Managing Your Organization in Process Workspace

Part III   Appendices

A   Creating Custom ADF Applications with Oracle Business Process Management Workspace Task Flows

B   Customizing a Resource Bundle

C   Customizing Applications in Process Workspace and BPM Worklist

D   Deploying Images and JAR files as Part of a Shared Library JAR file

x

Preface

This guide describes how to interact with tasks and business processes in Oracle Business Process Management Workspace.

Audience

This document is intended for all users of Oracle Business Process Management Workspace.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Documents

For more information, see the following Oracle resources:

* *Developing Business Processes with Oracle Business Process Management Studio*

* *Developing Business Processes with Oracle Business Process Composer*

* *Administering Oracle SOA Suite and Oracle Business Process Management Suite*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

What's New in This Guide

This preface introduces the new and changed features of Oracle Business Process Management Workspace and provides pointers to additional information. This document is the new edition of the formerly titled *Oracle Fusion Middleware User's Guide for Oracle Business Process Management.*

Screens shown in this guide might differ from your implementation, depending on the skin used. Any differences are cosmetic.

For a list of known issues (release notes), see `http://www.oracle.com/technetwork/middleware/soasuite/documentation/soaknown-2644661.html`.

New and Changed Features 12*c* (12.2.1)

Oracle Business Process Management Workspace release 12*c* (12.2.1) includes the following new and changed features:

- Process Spaces is not supported in this release. The chapters in Part III Using Oracle Business Process Management Process Spaces were removed.

- Support for Adaptive Case Management in Process Workspace. This new feature is described in Working with Adaptive Case Management in Process Workspace .

- Support for Process Monitor Dashboard. This new feature is described in Using the Process Monitor Dashboard.

- Support to define the after task completion behavior of task details pop up window. This new feature is described in How to Specify After Tasks Completion Behavior of Task Details Pop Up Window.

Part I

Using Oracle Business Process Management Workspace

Oracle Business Process Management Workspace (Process Workspace) is a web-based end user tool that organizes work, provides process analytics and dashboards, and use Adaptive Case Management to model and run unstructured business processes.

This part includes the following chapters:

- Getting Started with Process Workspace

- Working on Tasks in Process Workspace

- Working on Process Instances in Process Workspace

- Working with Activity Guides in Process Workspace

- Creating and Editing Custom Pages in Process Workspace

- Using Dashboards in Process Workspace

- Managing Workloads Among Users in Process Workspace

- Working with Adaptive Case Management in Process Workspace

1

Getting Started with Process Workspace

Oracle Business Process Management Workspace (Process Workspace) is a customizable web-based interface enabling you to access and manage tasks and process instances according to roles and responsibilities.

This chapter discusses how to start and log in to Process Workspace, navigate its interface, and configure your preferences. This chapter includes the following sections:

- Understanding Process Workspace

- Navigating Process Workspace

- About the Process Workspace Tasks Page

- About the Process Workspace Activity Guides Page

- About the Process Workspace Process Tracking Page

- About Process Workspace Dashboards

1.1 Understanding Process Workspace

Process Workspace enables process participants to interact with the applications you create using Oracle BPM.

The Process Workspace user interface provides tabs for each of the following:

- Tasks: This page enables process participants to view and work with their assigned tasks.

- Case Management: Adaptive Case Management supports the modeling and running of very flexible and data-intensive business processes.

- Process Tracking: This page enables process participants to view running process instances.

- Standard Dashboards: This page provides out-of-the-box dashboards for monitoring process performance, task performance, and workload.

- Custom Dashboards: This page enables process participants to define and use custom dashboards based on the measurement data generated by process instances.

Business administrators typically configure and maintain organizations and roles. For more information, see "Modeling Your Organization" in the Developing Business Processes with Oracle Business Process Management Studio guide.

Process analysts typically use the Oracle Business Process Analysis Suite or Business Process Composer to create process models. They can also use the process analyst role within Oracle BPM Studio.

Process developers typically use Oracle BPM Studio to model and implement the components of a business application. They may occasionally use Business Process Composer for modeling basic processes.

Table 1-1 lists and describes the users for whom Process Workspace is designed.

Table 1-1   Users of Oracle Business Process Management Workspace

User Profile	Description
Process Participants	This is the most basic profile, common to all users. It enables you to: • Organize, find, claim, and perform work assigned or delegated either to you or to your group • Delegate work to another user • Create and manage personal rules—for example, whom to send tasks to when you are on vacation • Define and share views • Manage personal preferences • View and create reports and dashboards These users may be spread throughout the organization or work outside the company. A process participant may be one who not only initiates the process, but can also track its progress and, if appropriate, withdraw it.
Process Owners	Users who manage one or more business process. They act on tasks belonging to the process but assigned to other users, in addition to their own end-user access. They want to know how process instances are moving in those processes. To get this perspective, they typically use dashboards. These users usually reside on the business side of the house as part of the operations organization. They may also be supervisors.
Administrators	Includes two types of administrative users: • Business administrators: Users responsible for administering Process Workspace—for example, adding mapped attributes, changing the look and feel, or ensuring that the web application is both running and accessible. Administers tasks that are in an errored state, for example, tasks that must be reassigned or suspended. They can also change application preferences and map attributes, and manage rules for any user or group, in addition to their own end-user access. They typically need access to Fusion Middleware Control Console as well as to the computers where Process Workspace resides. • Process administrators: Users responsible for administering processes—for example, creating shared views; assigning or removing roles, permissions, and groups; and mapping roles.
Supervisors	Users with other process participants reporting to them. To ensure that process instances execute as expected, supervisors can: • Access staff work • Reassign and delegate work as needed • Handle escalations from individuals reporting to them • Generate reports regarding work distribution and productivity • Specify extended user properties

1.1.1 Starting and Logging In to Process Workspace

To start Process Workspace, you must install Oracle SOA Suite, and make sure that the Service Integration server is running. See your installation documentation for more information.

To start and log into Process Workspace:

1. Go to

   `http://host_name:port_number/bpm/workspace/`

   The `host_name` is the name of the host computer on which Oracle SOA Suite is installed.

   The `port_number` is the one used at installation.

2. Enter the user name and password.

   You can use the preseeded user name to log in as an administrator. If you have loaded the demo user community in the identity store, you can use the other users such as jstein or jcooper.

   The user name and password must exist in the user community provided to JAZN.

3. Click **Login**.

   Note:

   - If you expect to have a large number of users using Process Workspace simultaneously, then set the session time-out value to no more than 5 minutes. To do this, expand the Process Workspace `.ear` file, open the `web.xml` file, and update the time-out parameter. This value overrides the timeout value set in `weblogic.xml`.

   - Alternatively, in the WebLogic console, click Deployments, then OracleBPMWorkspace (not oracle.bpm.workspace), then the Configuration tab. Set the **Session Timeout (in seconds)** value. This updates `weblogic.xml`.

   - If user identities are stored in Microsoft Active Directory, then authentication can fail at times because Oracle WebLogic Server, where Process Workspace is running, cannot communicate with the Active Directory installation. This can occur when Oracle WebLogic Server and Active Directory are in separate domains.

     To resolve this issue, add the entry for the Active Directory host's address to the `/etc/hosts` file on machine where Process Workspace is running.

1.1.2 Setting Accessibility Preferences in Process Workspace

After logging in to Process Workspace, you can configure accessibility options from any page. This changes the user preferences, which are retained through all sessions until you change them again.

To set accessibility options:

1. In the upper right corner of Process Workspace, click **Preferences**.

   The Preferences page appears.

2. In the Preferences pane, click **Accessibility**.

   The Select Accessibility page appears, as shown in Figure 1-1.

   Figure 1-1   Select Accessibility panel
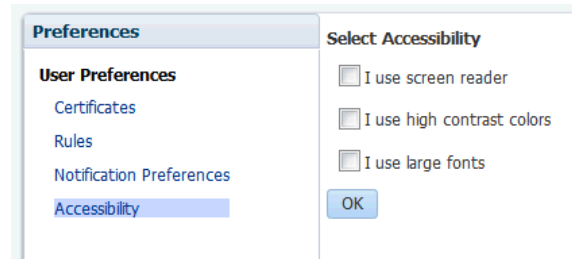
3. Select **I use a screen reader** if you use a screen reader.

4. Select **I use high contrast colors** to increase the contrast between objects on the console.

5. Select **I use large fonts** to increase the font size.

6. Click **OK**.

1.1.3 Providing a Digital Certificate in Process Workspace

A digital certificate establishes the participant's credentials. It is issued by a certification authority (CA). It contains your name, a serial number, expiration dates, a copy of the certificate holder's public key (used for encrypting messages and digital signatures), and the digital signature of the certificate-issuing authority so that a recipient can verify that the certificate is real. For more information, see Using the Evidence Store Service and Digital Signatures.

To provide a digital certificate:

1. In the upper right corner of Process Workspace, click **Preferences**.

2. In the Preferences pane, click **Certificates**.

3. Upload the certificate you want to use to sign your decision, as shown in Figure 1-2.

   When signing a task outcome using your certificate, you must upload the entire chain of certificates through Process Workspace as a .P7B (PKCS7 format) file, not just the one certificate issued to you by the certificate issuer. The entire chain can be exported through Internet Explorer. Mozilla Firefox does not let you export the chain as a .P7B file. Therefore, you can perform the following steps:

   a. Export the chain from Mozilla Firefox as a .P12 file (PKCS12 format that also contains your private key).

   b. Import the .P12 file in Internet Explorer.

c. Export it again from Internet Explorer as a `.P7B` file.

d. Upload it through Process Workspace.

Figure 1-2   Uploading a Certificate

Note the following important points when providing your certificate to the system. Otherwise, you cannot use your certificate to sign your decisions on tasks.

- The PKCS7 file format is a binary certificate format. Select this option if you have a standalone certificate file stored on your disk.

- The PKCS12 file format is a keystore format. Select this option if you have your certificate stored inside a keystore.

Note: An important point to note if you have the certificate stored inside a keystore. The Process Workspace only needs the public key for signature verification. It does not need the private key. Typically, a PKCS12 format may contain the user's private key (if you exported it from the browser). You can prevent access to the private key by following one of the options below:

– Create a PKCS12 keystore with only the public key and the certification chain, but exclude the private key. Upload this keystore to Process Workspace.

– Protect the private key with a separate password that is not entered into the Process Workspace preferences. The private key is normally contained in the PKCS12 within a separately encrypted PKCS8 structure. While the PKCS8 is often encrypted using the same password as the enclosing PKCS12, that is not mandatory. If the PKCS8 private key is encrypted using a different password, then provide the PKCS12 password at upload time.

- If you want to copy and paste the contents of the certificate, select **Type or Paste Certificate Contents** and paste the BASE64-encoded text into the field. Do not paste a certificate in any other format into this field. Likewise, if you choose to upload a certificate, do not upload a BASE64-encoded certificate. Only PKCS12- and PKCS7- formatted files are supported for uploads.

4. Return to the task list by clicking the **Home** link in the upper right corner of Process Workspace.

5. Click a task to approve or reject.

   The task details are displayed.

6. Click either **Approve** or **Reject**.

   Details about the digital signature are displayed.

7. For a task that has a signature policy, click **Sign**.

   The Text Signing Report dialog box appears.

8. Select the certificate from the list to use to sign your decision.

9. Enter the master password of the Web browser that you are using.

10. Click **OK**.

    The Web browser signs the string displayed in the upper half of the Text Signing Request with the certificate you selected and invokes the action (approval or rejection) that you selected. The task status is appropriately updated in the human workflow service.

If you are a developer and want more information about how certificates are uploaded and used, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

1.1.4 Accessing Administration Capabilities

The upper right toolbar contains an **Administration** link that takes you to the Administration Areas.

Table 1-2 lists and describes the categories in the Administration Areas and tells where to find more information about each one.

Table 1-2   Categories in the Administration Areas

Category	Description	Information
Organization	Model an organization by defining organization units, business calendars, business holidays, roles, and other user properties. **Note:** If you are logged into Process Workspace, and changes are made to your organizational membership, you will not see these changes reflected in the interface until you log out and log back in again. This is because, for better performance, the organization unit information is cached when you log into Process Workspace.	Managing Your Organization in Process Workspace

Table 1-2   (Cont.) Categories in the Administration Areas

Category	Description	Information
Flex Fields (Mapped Attributes)	Create mappings needed for populating mapped attributes.	Managing Mapped Attributes (Flex Fields) in Process Workspace
Task Administration	Administer approval groups, task configuration, evidence search, and exceptions	Using Task Configuration in Process Workspace
Application Preferences	Customize the appearance of the worklist. Specify your preferred language and time zone.	Setting the Display of the Work Items Panel in Process Workspace How to Specify the Language Locale Information in Process Workspace

1.1.5 Setting Your Preferences in Process Workspace

The upper right toolbar contains a **Preferences** link.

Table 1-3 lists and describes the preferences you can set and tells you where to find information for setting each preference.

Table 1-3   Preferences

Preference	Description	Information
Providing a digital certificate	Provide a digital certificate from a certification authority to verify your credentials.	Providing a Digital Certificate in Process Workspace.
Setting rules	Set rules for tasks assigned to a user or group.	How to Create User Rules in Process Workspace How to Create Group Rules in Process Workspace

Table 1-3   (Cont.) Preferences

Preference	Description	Information
Setting notification preferences	Configure the notification settings to control how, when, and where you receive messages in cases when you have access to multiple communication channels (delivery types).	Specifying Notification Settings.
Setting accessibility preferences	Select accessibility preferences such as using a screen reader, using high contrast colors, and large fonts.	Setting Accessibility Preferences in Process Workspace

In addition to the preferences mentioned in this section, administrators can also set various preferences for how the Work Items panel is displayed in Process Workspace. For information about setting these application preferences, see Setting the Display of the Work Items Panel in Process Workspace.

1.2 Navigating Process Workspace

You can easily navigate Process Workspace. This chapter describes the various toolbars, buttons, and panels.

Figure 1-3 shows an example of Process Workspace Home page as it appears by default when you log in.

Figure 1-3   Example of Process Workspace Home
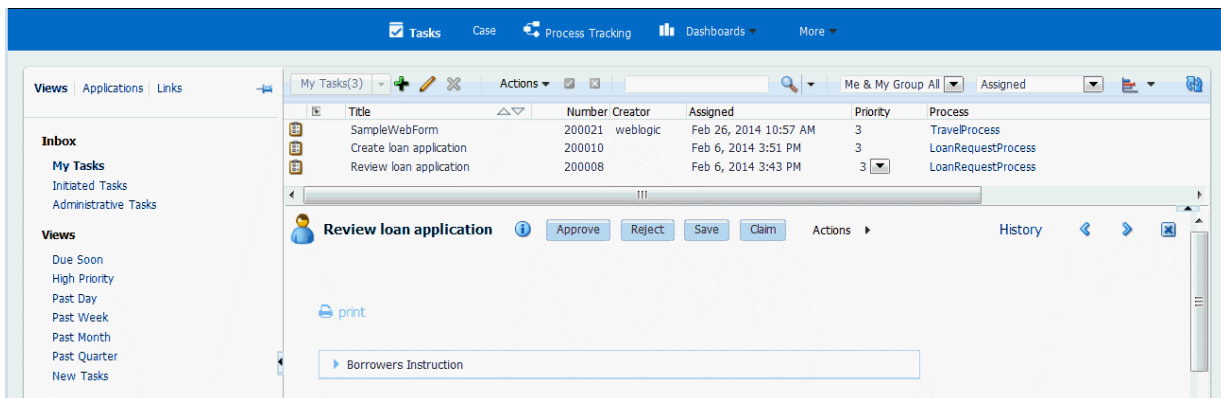
Use the top links to act on tasks, cases, process instances, dashboards, activity guides, reports, and to add custom pages. The links to these parts of Process Workspace are listed and described in Table 1-4.

Table 1-4   Toolbar for Tasks, Activity Guides, Process Instances, Dashboards, and More

Toolbar Link	Description
Tasks	The Tasks page displays tasks for the user based on the user's permissions and assigned groups and roles.

Table 1-4   (Cont.) Toolbar for Tasks, Activity Guides, Process Instances, Dashboards, and More

Toolbar Link	Description
Case	The Case page displays Adaptive Case Management cases, which are less structured ad-hoc processes. See Working with Adaptive Case Management in Process Workspace .
Process Tracking	The Process Tracking page enables you to interact with business processes based on the roles assigned to you.
Dashboards	Dashboards provide analytical information to monitor process execution as well as user workloads. They provide summary information and enable you to navigate to instance-specific information.
More: Activity Guides, Reports, and Add Custom Page	• Activity guides organize your tasks into milestones. Each milestone is a specific set of tasks for you to complete, either on your own or in collaboration with others. • Reports provide analysis of various aspects of tasks and their life cycles. The following reports are available: Unattended Tasks Report, Tasks Priority Report, Tasks Cycle Time Report, Tasks Productivity Report, and Tasks Time Distribution Report. For more information about reports, see How To Create Reports. • Process Workspace provides its own default layout, but you can customize that layout by adding new pages and panels. For more information, see Creating and Editing Custom Pages in Process Workspace.

The global navigation bar at the top right is for configuring and acting on Process Workspace itself—for example, logging out, and setting user preferences. If you are an administrator, then an **Administration** link also appears. Administrative tasks can include the choice to either show or hide the default tabs, or specify which tab page is displayed by default when the user logs in.

Table 1-5 describes the pages you access through the **Home**, **Administration**, and **Preferences** links.

Table 1-5   Toolbar for Oracle Business Process Management Workspace

Page	Description
Home	As described in Table 1-4, the logged-in user's list of tasks, details for a selected task, and all the functions needed to start acting on a task are provided.
Administration	The following administrative functions are available: • Organization administration • Specifying mapped attributes • Specifying application preferences • Administering tasks, including configuring tasks, performing evidence search, and administering approval groups

Table 1-5   (Cont.) Toolbar for Oracle Business Process Management Workspace

Page	Description
Preferences	Preference settings include: • Setting rules for users or groups, including vacation rules, and setting vacation periods • Uploading certificates • Specifying user notification channels and message filters • Specifying accessibility for screen readers, contrast colors, and font size

For more information about creating custom pages, see Creating and Editing Custom Pages in Process Workspace.

For information on specifying, showing, and hiding default tabs, see How to Specify_ Show_ or Hide the Default Tab Pages in Process Workspace.

1.2.1 About Task States

Every task has a state value assigned to it at all times to indicate the status of the task. As tasks are created, processed, and closed, their state value changes appropriately, depending on what is happening with the task.

Table 1-6   Task State Descriptions

Task State	Description	Common Action From State
ALERTED	When there is a recoverable fault that has happened with task assignment, the task is moved to ALERTED state and assigned to the error assignee.	Reassign Route Error Withdraw
ASSIGNED	The assignee state indicates a task has been assigned to a user, role, or group and its ready for action by a user.	Claim (if assigned to a group, role, or set of users). Reassign Custom actions, such as Approve, Reject Escalate Route Delegate Request information
COMPLETED	The task is complete. This is a terminal state.	-
DELETED	Task is deleted logically. Only To-Do tasks can be deleted. DELETED is a terminal state.	Purge to remove the task from the database
ERRORED	The task has encountered an unrecoverable error. This is a terminal state.	-
EXPIRED	The task is past its expiration date and has expired. This is a terminal state.	-

Table 1-6   (Cont.) Task State Descriptions

Task State	Description	Common Action From State
INFO_REQU ESTED	Information is requested on a task.	Submit information, which moves the task back to the ASSIGNED state.
OUTCOME_ UPDATED	A short-lived state to denote that a user has acted on a task. This state is used primarily to keep a historical record of the action.	-
STATE	When the owning SOA composite or BPM project is undeployed, all instances of that version of the composite or project are moved to STATE state.	-
SUSPENDED	Processing has stopped on the task. No action can be performed on the task in this state, and timers are frozen.	Resume, which moves the task back to the ASSIGNED state.
WITHDRAW N	The task is no longer needed. This is a terminal state.	-

1.3 About the Process Workspace Tasks Page

The Tasks page displays tasks for the user based on the user's permissions and assigned groups and roles.

After a user logs in, the Home page displays the My Tasks page by default.

You can configure Process Workspace to display another page or change the order in which the links in the navigation bar appear when a user logs in. This is explained in How to Specify_ Show_ or Hide the Default Tab Pages in Process Workspace. Each user can also configure their own default custom view.

The Tasks page enables you to do the following:

- Perform authorized actions on tasks in the worklist, acquire and check out shared tasks, define personal to-do tasks, and define subtasks.

- Filter tasks in a worklist view based on various criteria.

- Export the tasks to Excel

- Work with standard work queues, such as high priority tasks, tasks that are due soon, and so on.

  Work queues enable users to create a custom view to group a subset of tasks in the worklist—for example, high priority tasks, tasks due in 24 hours, expense approval tasks, and more.

- Define custom work queues.

- Gain proxy access to part of another user's worklist.

- Define custom vacation rules and delegation rules.

- Enable group owners to define task dispatching rules for shared tasks.

- Collect a complete workflow history and audit trail.

- Use digital signatures for tasks.

- Display a pop-up showing details about the process instance related to this task.

- Export tasks to Microsoft Excel.

- The admin can map the task outcomes of all the task types (approve, reject, complete, resolve, and so on.) to the images available through the workflow global configuration in Enterprise Manager.

  After mapping the task outcome to the images, you can take task outcome actions from the worklist task list tool bar by clicking on the available images.

Note:

If you change a user's privileges in Fusion Middleware Control Console while the user is logged in to Process Workspace, the changes take effect only after a subsequent login by the user. This is true for situations in which there are two active worklist sessions: one in which the user is logged in before the privileges are changed, and another in which the same user logs in after the privileges are changed. In the first case, the changes to the user's privileges do not take effect while the user is logged in. In the second case, when the user logs in to the second instance of Process Workspace, the changes to the user's privileges do take effect.

1.3.1 Navigating the Process Workspace Tasks Page

Figure 1-3 shows a sample Process Workspace tasks page as it appears by default when a user first logs in.

This page lists all the tasks and work items assigned to you, depending on your role.

At the far left is a list with **My Tasks** selected. Expand this list to select:

- A particular view showing the number of open tasks for each view.

  Selecting a particular view refreshes the task count to the latest number.

- A list of applications deployed to Process Workspace.

- Any links or applications you may have specified.

To keep this list visible while you work on tasks, click **Pin**. To hide it, click **Unpin**.

Table 1-7 lists and describes the items in the list of views, applications, and links.

Table 1-7   Views, Applications, and Links

Component	Description
Views	• Inbox—Shows all tasks that result from any filters you used. The default shows all tasks. You can set the priority for each task in your inbox by selecting the priority number from the inline list that appears in the Priority column. • Standard Views—Due Soon, High Priority, Past Day, Past Week, Past Month, Past Quarter, and New Tasks. The items displayed in the inbox depend on the role granted to the logged-in user. • Everyone (the user role) sees My Tasks, Initiated Tasks, and Administrative Tasks. • Users who are also supervisors see the My Tasks, Initiated Tasks, My Staff Tasks, and Administrative tabs. • Users who are also administrators (the BPMProcessAdmin), but not supervisors, see the My Tasks, Initiated Tasks, and Administrative Tasks. • Users who are supervisors and administrators see all the tabs— My Tasks, Initiated Tasks, My Staff Tasks, and Administrative Tasks.
Applications	The processes the user is authorized to initiate. This component enables you to search for the authorized applications.
Links	Links to external websites or applications you may have specified. For more information, see How to Enable Customized Applications and Links in Process Workspace.

In addition to the Views, Applications, and Links, the My Tasks page includes other components listed and described in Table 1-8.

Table 1-8   Components of the Tasks Page

Component	Description

Display Filters	Specify search criteria from the Search, Assignee, or Status fields. The category filters available depend on which view is selected.
	
	• From the My Tasks page, the Assignee filters are:
	  – Me
	  – My Group
	  – Me & My Group
	  – Me & My Group All
	  – Me (Previously) - tasks worked on in the past
	  – Me (Review Only)
	• For the following pages, tasks are filtered using the Search function.
	  – From the Initiated Tasks page, click Search to filter tasks on Creator
	  – From the My Staff Tasks page, click Search to filter tasks on Reportees
	  – From the Administrative Tasks page, click Search to filter tasks on Admin
	• The Status filters include:
	  – Any
	  – Assigned
	  – Completed
	  – Suspended
	  – Withdrawn
	  – Expired
	  – Errored
	  – Alerted
	  – Information Requested
	
	You can also perform an advanced search using several other criteria. For more information about searches, see Searching for Tasks in Process Workspace.

Actions List	Select a group action (Claim) or a custom action (for example, Approve or Reject) that was defined for the human task. Claim appears for tasks assigned to a group or multiple users; one user must claim the task before it can be worked. Other possible actions for a task, such as system actions, are displayed on the Task Details page for a specific task. You can also create To-Do tasks and subtasks here. When you select an action from **Actions**, a comment window appears. You must enter a comment and click **OK** to update the task and refresh the task list table. Click **Cancel** to cancel the action.
Export to Excel	You can export tasks in a selected view.
Task Status	A bar chart shows the status of tasks in the current view.
Default Columns	**Title**—The title specified when the human task was created. Tasks associated with a purged or archived process instance do not appear. **Number**— A unique ID number assigned to the task. **Creator**—The user who created the task. For business user tasks, the creator field shows as *null*. **Priority**—The priority specified when the human task was created. The highest priority is 1; the lowest is 5. **Assigned**—The date that the task was assigned. **Process**—If this task is associated with a running process instance, the name of that instance. Clicking this link opens a pop-up with process details.

Table 1-8   (Cont.) Components of the Tasks Page

Component	Description
Task Details	To view task details, select the task in the Inbox. The task details are displayed in the lower half of the worklist. You can double-click a task to display task details in a pop-up browser window. You can also view a task in the same window or a new window by hiding the task details pane in Edit Inbox Settings.
	Buttons on the Task Details page indicate available actions.
	Once you complete a task, • The task details page closes or loads the next task based on settings in each task form. • The task details page shows the next available task. • The task details page closes, and takes the screen back to the task list. The task list refreshes to show the remaining tasks. Select a task to see the details page.
	The behavior of Task details page depends on the options you choose for **After Task Completion** option in the How to Specify After Tasks Completion Behavior of Task Details Pop Up Window.

1.3.2 Using the Process Workspace Task Details Page

Figure 1-4 shows an example of a Task Details page. This page is invoked by selecting a task from the inbox on the Process Workspace Tasks page. You can also view it in a pop-up browser window by double-clicking the task.

The Task Details page may appear differently depending on the tool used during design time to develop the task form it displays.

Figure 1-4   Example of a Task Details Page

The task details page has the following components:

- Basic information including the title of the task—for example, task 1—task number, creator, assignees, state, created date, the person who acquired the task, priority, expiration date, and other flex fields.

- Previous Task/Next Task icons—For moving from one task to the previous or next task in the task list.

- Action buttons—For custom actions defined for this human task during design time—for example, **Resolved** and **Unresolved** for a help desk request, or **Approve** and **Reject** for a loan request. After you complete your role in a task, for example, by making an approval, the task list refreshes accordingly and moves you to the next task in the task list.

  For the administrator, the task initiator, or the manager, **Withdraw** may also appear.

  The available task actions depend on the user role and the task. The task actions do not depend on the which view you have selected.

- Other Actions—System task actions, beyond the custom actions defined for the task —as described in Performing System Actions in Process Workspace.

- Content—The payload. The fields displayed are specific to how the human task was created during design time.

- History Details—These are described in Task History.

- Comments and Attachments:

  – Comments entered by various users who have participated in the workflow. A newly added comment and the commenter's user name are appended to the existing comments. A trail of comments is maintained throughout the life cycle of the task. To add a comment, you must have permission to update the task.

    For information about how to add a comment, see Adding Comments and Attachments to Tasks in Process Workspace.

  – Attachments are documents or reference URLs associated with a task. These are typically associated with the workflow as defined in the human task during design time, or attached and modified by any of the participants using the task list. To add or delete an attachment, you must have permission to update the task. When adding file attachments, you can use an absolute path name or browse for a file.

1.3.2.1 Task History

The task history maintains an audit trail of the actions performed by the participants in the workflow and a snapshot of the task payload and attachments at various points in the workflow. The short history for a task lists all versions created by the following tasks:

- Initiate task

- Reinitiate task

- Update outcome of task

- Completion of task

- Erroring of task

- Expiration of task

- Withdrawal of task

- Alerting of task to the error assignee

You can include the following actions in the short history list by modifying the `shortHistoryActions` element.

- Acquire

- Ad hoc route

- Auto release of task

- Delegate

- Escalate

- Information request on task

- Information submit for task

- Override routing slip

- Update outcome and route

- Push back

- Reassign

- Release

- Renew

- Resume

- Skip current assignment

- Suspend

- Update

The history provides a graphical view of a task flow, as shown in Figure 1-5.

Figure 1-5   History: Graphical View
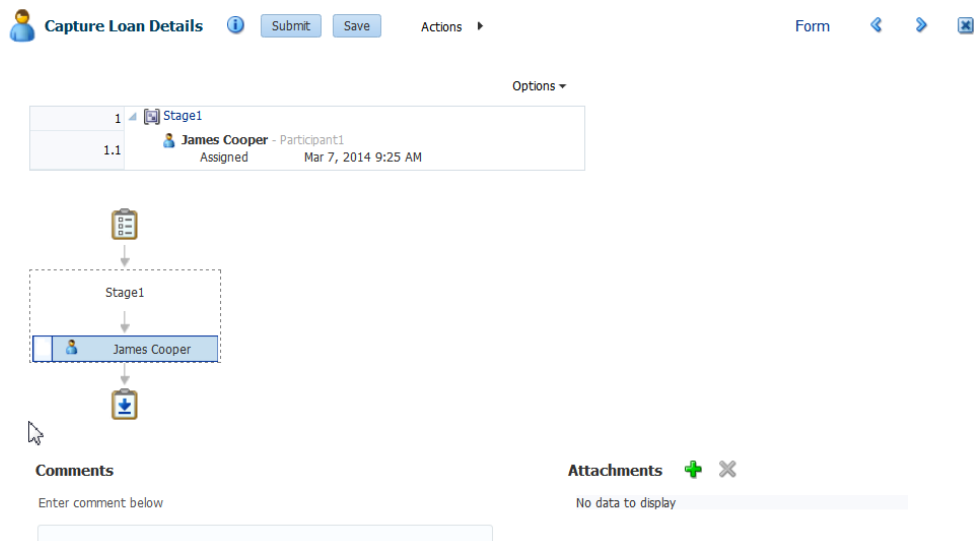
Table 1-9 describes the icons used in the History section.

Table 1-9   Icons for Task History

Icon	Description
	Indicates an approver in an ad hoc routing scenario.
	Indicates that the task has been approved.
	Indicates that the participant just receives a notification task and the business process does not wait for the participant's response. Participant cannot directly impact the outcome of a task, but in some cases can provide comments or add attachments.
	Indicates that a set of people must work in parallel. This pattern is commonly used for voting.
	Indicates that the participant belongs to a management chain.
	Indicates the simple case in which a participant maps to a user, group, or role.
	Indicates that the task is untouched.
	Indicates the end of the task flow.

> **Note:**
>
> The history of a parent task also displays the history of any subtasks it contains.

1.3.2.2 Performing System Actions in Process Workspace

After you select a task from the task list, the Actions list of the Task Details page displays system actions available on all tasks based on the user's privileges. Table 1-10 lists system actions.

Table 1-10   System Task Actions

Action	Description
Claim	Use this action to claim a task that is assigned to a group or multiple users. **Claim** is the only action available in the **Task Action** list for group or multiuser assignments. After a task is claimed, all applicable actions are listed.
Reassign	Use this action to assign a task to someone else. If you are a manager, you can delegate a task to reportees. A user with BPMWorkflowReassign privileges can delegate a task to anyone.
Escalate	Use this action to escalate a task that is assigned to a group or multiple users. You can add an optional comment in the comments area. The task is reassigned to whomever is specified by the administrator. If no escalation path is specified, then the task is escalated to your manager (up one level in a hierarchy).
Release	Use this action to release a claimed task. If a task is assigned to a group or multiple users, it can be released if the user who claimed the task cannot complete the task. Any of the other assignees can claim and complete the task.
Suspend and Resume	Use these actions to suspend or restart a task. These options are available only to users who have been granted the BPMWorkflowSuspend role. Other users can access the task by selecting **Previous** in the task filter or by looking up tasks in the **Suspended** status. A suspension is indefinite. It does not expire until **Resume** is used to resume working on the task.
Withdraw	Use this action to cancel a task. If you are the creator of a task and do not want to continue with it, for example, you want to cancel a vacation request, you can withdraw it and add an optional comment in the Comments area. The business process determines what happens next. You can use the **Withdraw** action on the home page by using the **Creator** task filter.
Pushback	Use this action to send a task down one level in the workflow to the previous assignee.
Renew	Use this task to extend a task's expiration date. You can add an optional comment in the comments area. The task expiration date is extended 1 week. A renewal appears in the task history. The renewal duration for a task can be controlled by an optional parameter. The default value is P7D (7 days).
Submit Information and Request Information	Use these actions if another user requests that you supply more information or to request more information from the task creator or any of the previous assignees. If reapproval is not required, then the task is assigned to the next approver or the next step in the business process.

For more information about the Task Details page, see Using the Process Workspace Task Details Page.

1.3.3 Customizing the Task List in Process Workspace

You can customize your task list in several ways, including adding worklist views, selecting which columns to display, setting the sorting order, and displaying a subset of the tasks based on filter criteria. You can customize your inbox view as well as any other view including views you have created yourself.

To increase the number of tasks retrieved, resize the task list display area.

1.3.3.1 How to Filter Tasks

Figure 1-6 shows the filter fields.

Figure 1-6   Filters: Assignee, Status, and Search
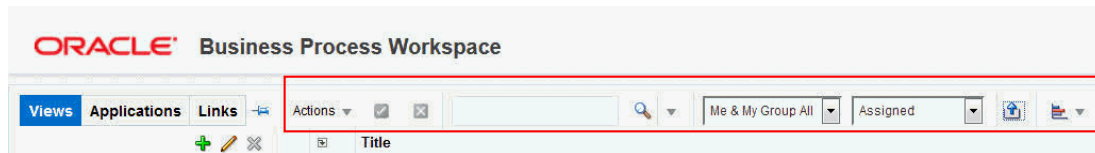
Filters are used to display a subset of tasks and can be applied to your inbox view or other views. Filters are based on the following criteria:

- **Search**: In the **Search** field, enter a keyword to search task titles, comments, identification keys, and the flex string fields of tasks that qualify for the specified filter criterion. Use the **Search** drop-down list to perform a regular or advanced search.

- **Assignee**

  Select one of the following:

  - **Me**: Retrieves tasks directly assigned to the logged-in user.

  - **My Group**: Retrieves the following:

    - Tasks that are assigned to groups to which the logged-in user belongs

    - Tasks that are assigned to an application role that the logged-in user is assigned

    - Tasks that are assigned to multiple users, one of which is the logged-in user

  - **Me & My Group**: Retrieves all tasks assigned to the user, whether through direct assignment, or by way of a group, application role, or list of users.

  - **Me & My Group All**: Retrieves all tasks that are assigned to groups to which the logged-in user belongs including tasks claimed by other group members.

  - **Me (Previously)**: Retrieves tasks that the logged-in user has updated. Use Me (Previously) with the status filter set to Completed to see tasks that are completed.

  - **Me (Review Only)**: Retrieves task for which the logged-in user is a reviewer.

- **State**: Select from the following: **Any**, **Assigned**, **Completed**, **Suspended** (can be resumed later), **Withdrawn**, **Expired**, **Errored** (while processing), **Alerted**, or **Information Requested**.

> **Note:**
>
> If a task is assigned separately to multiple reportees, when a manager looks at the My Staff Tasks list, the manager sees as many copies of that task as the number of reportees to whom that task is assigned.

1.3.3.1.1 Seeing your completed tasks

When you mark a task as Completed, it is no longer displayed in your Task List. To see all completed tasks, select Me (Previously) from the Assignee filter and Completed from the Status filter. The task list is automatically updated to show your completed tasks.

1.3.3.1.2 To filter tasks based on assignee or state

Select options from the **Assignee** and **State** lists. The task list is automatically updated based on the filter selections.

1.3.3.1.3 To filter tasks based on keyword search

1. In the **Search** field, enter a keyword to search task titles, comments, identification keys, and the flex string fields of tasks that qualify for the specified filter criterion.

2. Press **Enter** or click **Search**.

1.3.3.1.4 To filter tasks based on an advanced search

Mapped attribute labels can be used in an advanced search if you select task types for which mapped attribute have been defined.

See How to Specify Mapped Attributes for more information.

1. From the **Search** drop-down list, click **Advanced**.

2. (Optional) Select **Save As View**, provide a view name, and use the **Display** page to provide other information, as shown in Figure 1-7 and Figure 1-8. If you do not select **Save As View**, the **Display** page is not available and the **Definition** page is as seen in Figure 1-9.

> **Note:**
>
> Selecting **Save As View** creates a customized view. The saved view appears under **My Views**.

Figure 1-7   Advanced Search: Definition Page
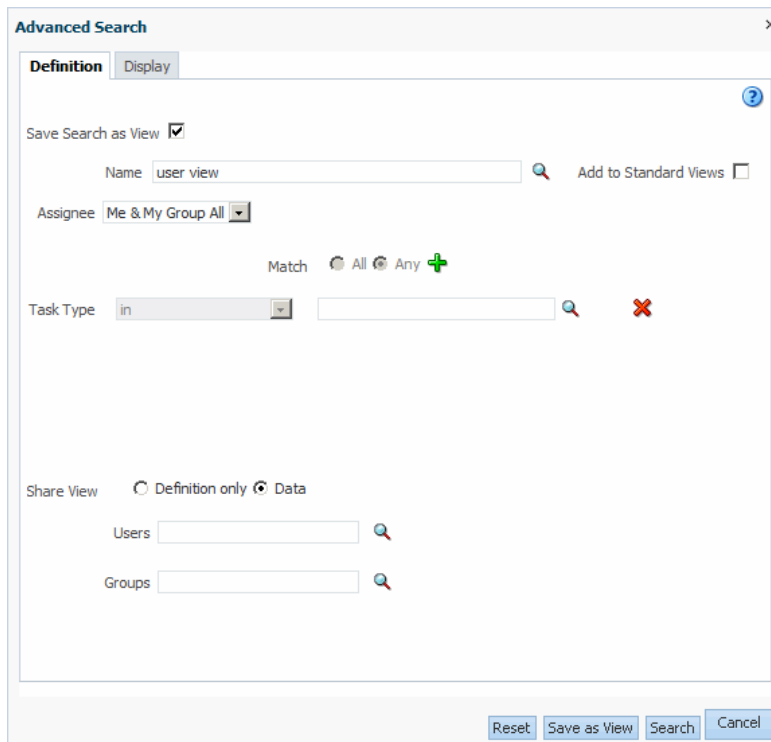
Figure 1-8   Advanced Search: Display Page
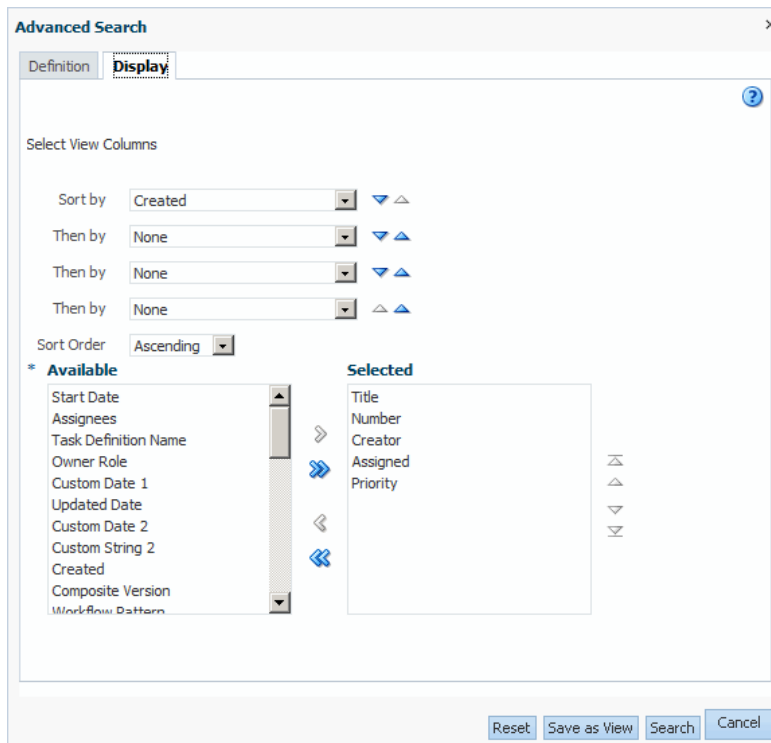
Figure 1-9   Advanced Search Definition Tab - Display Tab Not Available
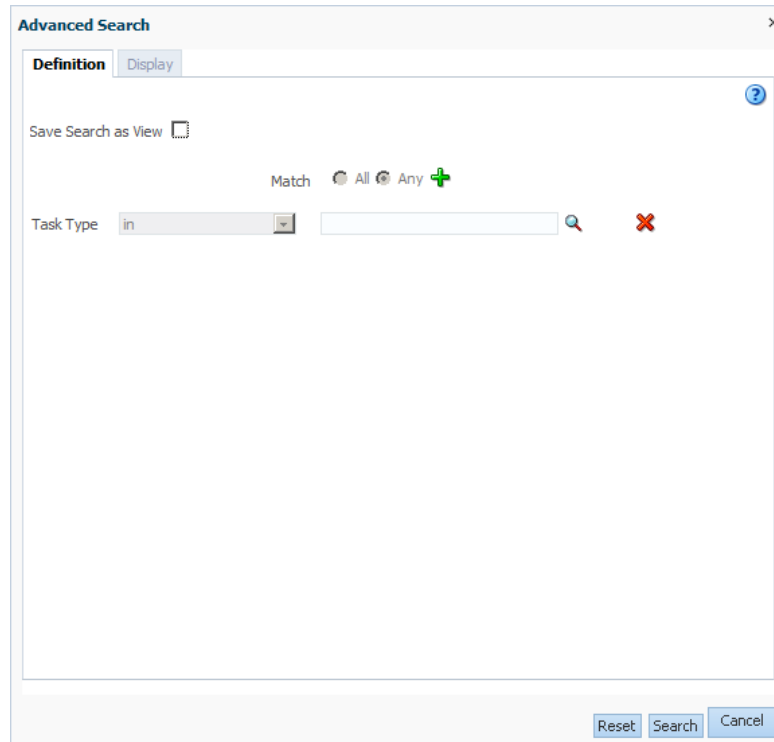
Table 1-11 describes the advanced search view columns available in the **Display** page.

> **Note:**
>
> The titles: **User Conditions**, **Advanced Condition**, **Time Conditions**, **Basic Conditions** and **Custom Conditions** correspond to the menu categories for adding conditions (see Figure 1-12).

The saved view appears in the **Views** panel under **My Views**, as shown in Figure 1-10.

Figure 1-10   Saving a View
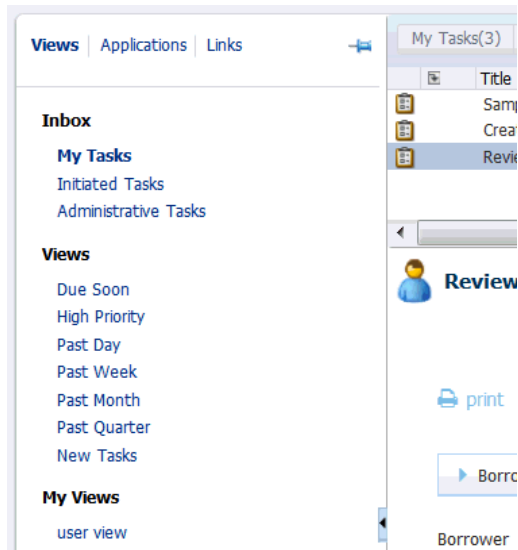
3. Select an assignee, as shown in Figure 1-11.

Figure 1-11   Selecting an Assignee for an Advanced Search
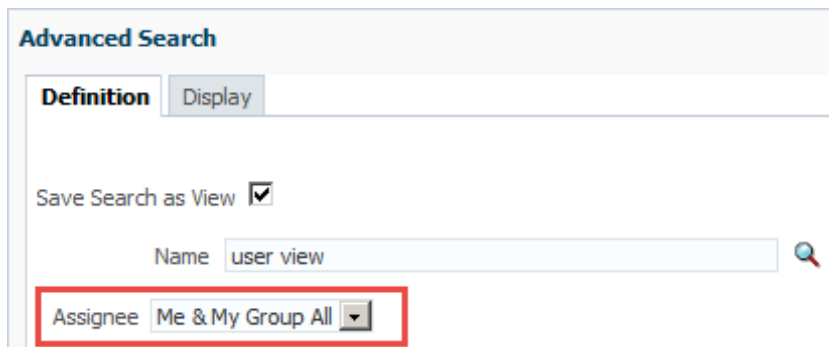
4. Select **Any** or **All** for matching multiple filters.

5. Add conditions (filters), as shown in Figure 1-12.

Figure 1-12   Adding Filters for an Advanced Search on Tasks
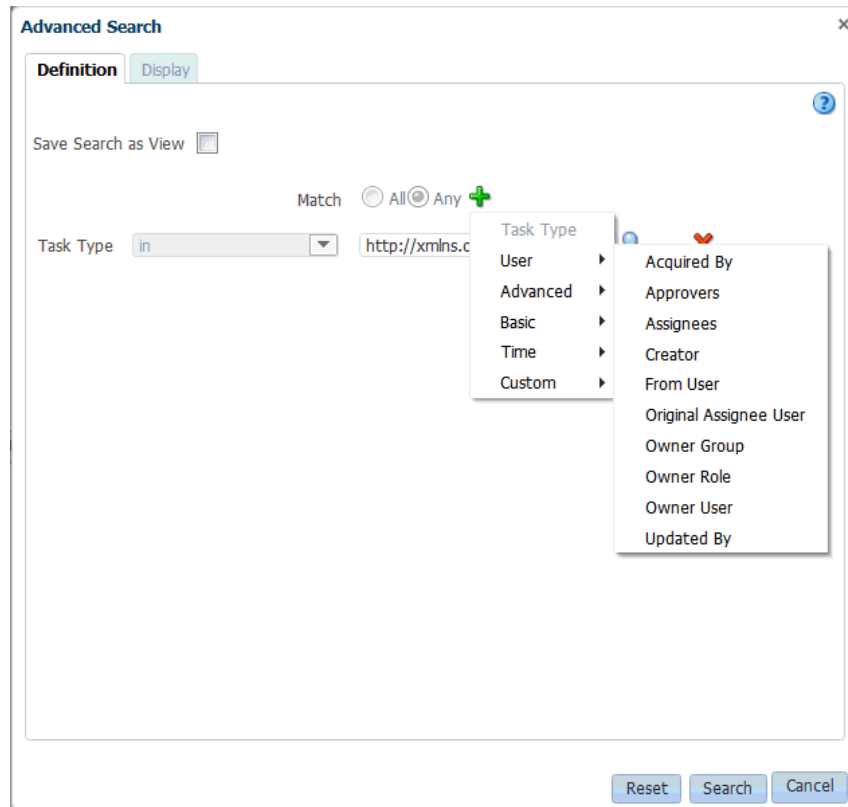
Table 1-11 describes the available conditions.

Table 1-11   Advanced Search: User Conditions

Condition	Description
Acquired By	The name of the user who claimed the task in the case when the task is assigned to a group, application role, or to multiple users, and then claimed by the user.
Approvers	The approvers of the task.
Assignees	The assignees of the task.
Creator	The name of the creator of the task.
From User	The from user for the task.
Original Assignee User	The name of the user who delegated the task in the case when the user delegates a task to another user.
Owner Group	The group (if any) that owns the task instance. Task owners can be application roles, users, or groups. If the owner of the task is a group, this field is set.
Owner Role	The application role (if any) that owns the task instance. Task owners can be application roles, users, or groups. If the owner of the task is an application role, this field is set.

Table 1-11   (Cont.) Advanced Search: User Conditions

Condition	Description
Owner User	The user (if any) that owns the task instance. Task owners can be application roles, users, or groups. If the owner of the task is a user, this field is set.
Updated By	The user who last updated the task.

Table 1-12   Advanced Search: Advanced Conditions

Condition	Description
Application Context	The application to which any application roles associated with the tasks (such as assignees, owners, and so on) belong.
Component	The name of the task component that defines the task instance.
Composite	The name of the composite that contains the task component that defines the task instance.
Composite Distinguished Name	The unique name for the particular deployment of the composite that contains the task component that defines the task instance.
Composite Version	The version of the composite that contains the task component that defines the task instance.
Partition	The domain to which the composite that contains the task component that defines the task instance belongs.
Task Display URL	The URL to display the details for the task.
Workflow Pattern	-

Table 1-13   Advanced Search: Basic Conditions

Condition	Description
Category	The category of the task.
Identifier	The (optional) custom unique identifier for the task. This is an additional unique identifier to the standard task number.
Long Summary	-
Number	An integer that uniquely identifies the task instance. This task number is different from the instance ID shown in Enterprise Manager.
Outcome	The outcome of the task, for example approved or rejected. This is only set on completed task instances.
Percentage Complete	The percentage of the task completed (used with To-Do tasks).

Table 1-13   (Cont.) Advanced Search: Basic Conditions

Condition	Description
Priority	An integer that defines the priority of the task. A lower number indicates a higher priority; typically numbers 1 to 5 are used.
Short Summary	-
State	The state of the task instance.
Task Definition Name	The name of the task component that defines the task instance.
Title	The title of the task.

Table 1-14   Advanced Search: Time Conditions

Condition	Description
Assigned	The date that this task was assigned.
Created	The date that the task instance was created.
Due Date	The due date of the task (used with To-Do tasks).
End Date	The end date of the task (used with To-Do tasks).
Expires	The date on which the task instance expires.
Start Date	The start date of the task (used with To-Do tasks).
Updated Date	The date that the task instance was last updated.

Table 1-15   Advanced Search: Custom Conditions

Condition	Description
Custom Date 1	Custom flex field 1 with Date datatype
Custom Date 2	Custom flex field 2 with Date datatype
Custom Number 1	Custom flex field 1 with Number datatype
Custom Number 2	Custom flex field 2 with Number datatype
Custom String 1	Custom flex field 1 with String datatype
Custom String 2	Custom flex field 2 with String datatype

6. Add parameter values as exemplified in Figure 1-13.

Figure 1-13   Advanced Search
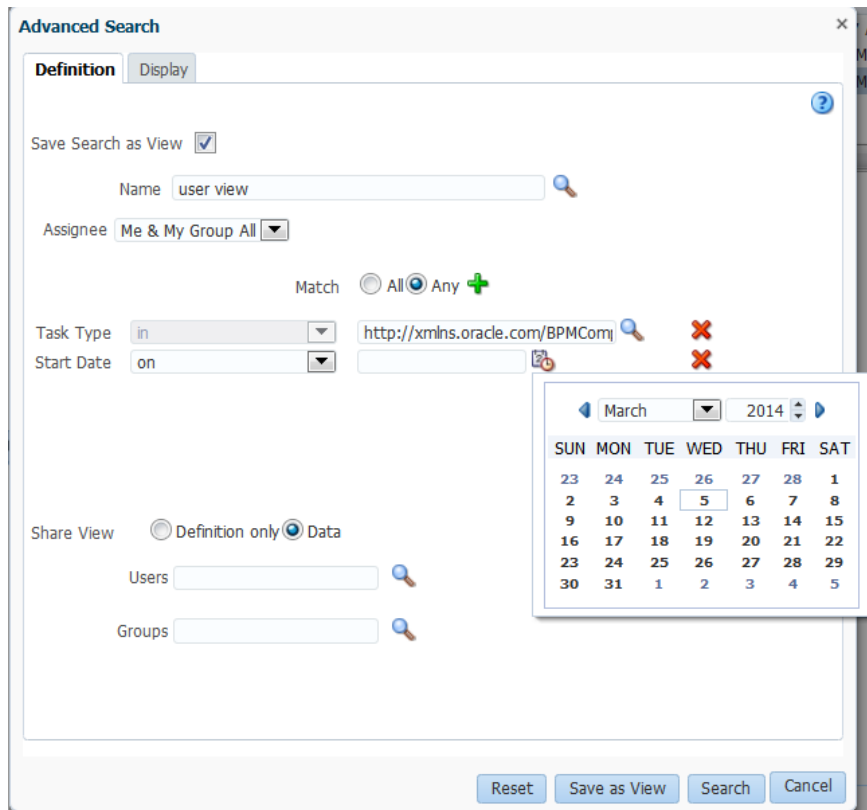
7. Browse for a task type or leave the field blank for all types. Mapped attribute labels can be selected in the query and display columns dialog boxes if the selected task types have mapped attribute mappings defined. Use the search option to search by task type, process name or category as shown in Figure 1-14.

Figure 1-14   Task Type Browser
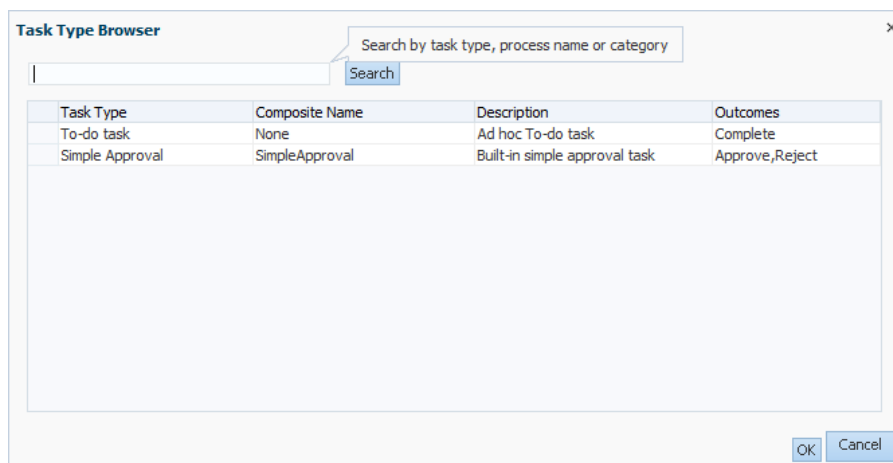
8. Specify whether to share either this view's definition or its data, and the users or groups to share it with.

9. Click **Search**.

The task list appears with the tasks filtered according to your criteria.

1.3.3.2 How to Create and Customize Worklist Views

The **Views** menu, shown in Figure 1-15, displays your inbox, standard views, and any custom views you have created. Use it to create, share, and customize views.

Figure 1-15   Views Menu
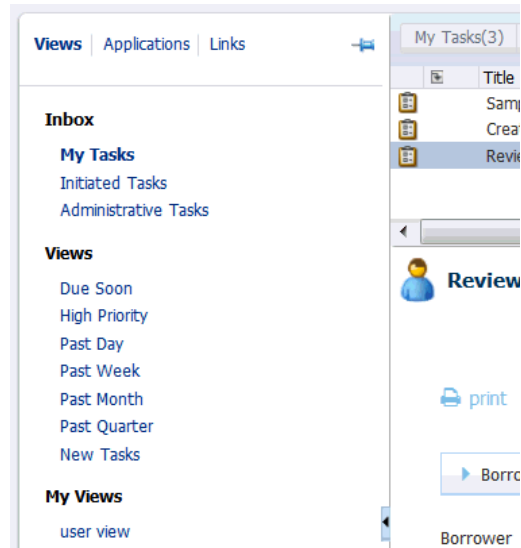
To create a worklist view:

1. In the **Views** section, click **Add View**.

The Create User View dialog box appears as shown in Figure 1-16

Figure 1-16   Creating a Worklist View

2. Use the **Definition** page of the Create User View dialog box to do the following:

   • **Create View** or **Use Public View**—Create your own view or browse for a public view to copy.

   • **Name**—Specify a name for your view.

   • **Add to Standard Views**—This option applies to administrators only. Administrators select this option to create the view as a standard view, which then appears in the **Standard Views** list for *all* worklist users.

   • **Assignee**—Select **Me**, **My Group**, **Me & My Group**, **Me & My Group All**, **Me (Previously)**, **Me (Review Only)**, **Creator**, **Reportees**, **Admin**, **Owner**.

   • **Match**—Select **All** or **Any** to match the conditions you added.

   • **Add Condition**—Select a filter from the list and click **Add**. For example, if you select **startDate**, and click **Add**, then a calendar and a list including **on**, **equals**, **not equals**, **greater than**, **less than**, and so on appears.

   • **Task Type**—Browse for a task type or leave the field blank for all types. Mapped attribute labels can be selected in the query and display columns dialog boxes if the selected task types have mapped attribute mappings defined.

   • **Share View**—You can grant access to another user to either the definition of this view, in which case the view conditions are applied to the grantee's data, or to the data itself, in which case the grantee can see the grantor's worklist view, including the data. Sharing a view with another user is similar to delegating all

tasks that correspond to that view to the other user; that is, the other user can act on your behalf. Shared views are displayed under **My Views**.

3. Use the **Display** page of the Create User View dialog box, shown in Figure 1-17, to customize the fields that appear in the view.

Figure 1-17   Displaying Fields in a Worklist View
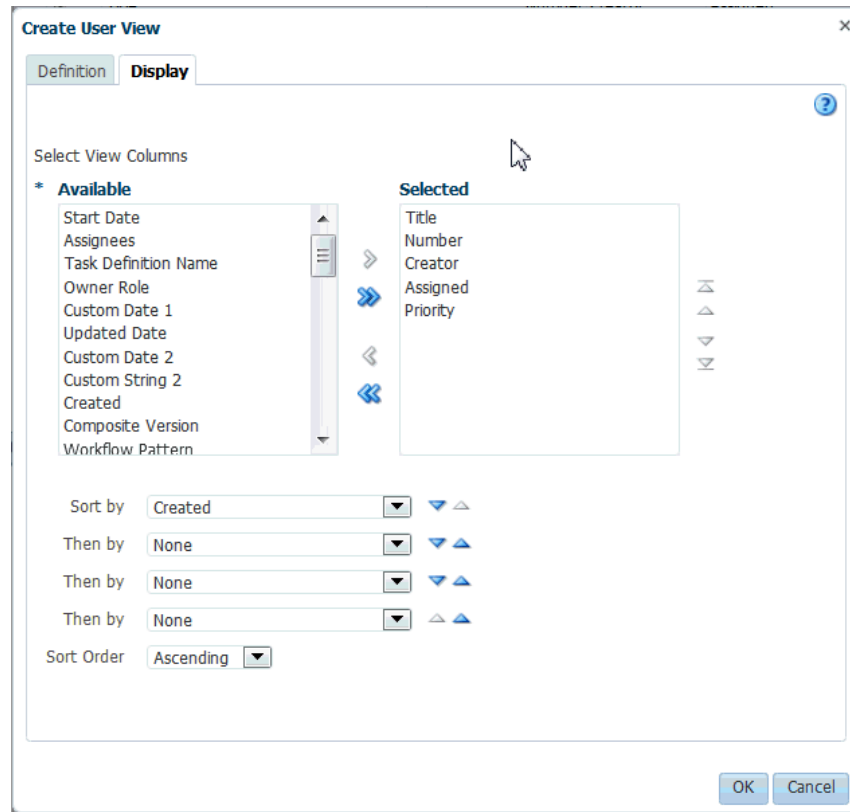
*   **Select View Columns**—Specify which columns you want to display in your task list. They can be standard task attributes or mapped attributes that were mapped for the specific task type. The default columns are the same as the columns in your inbox.

*   **Sort by** —Select a column or multiple columns on which to sort. Use the arrow buttons to specify the preferred sequence.

*   **Sort Order**—Select ascending or descending order.

The sorting options selected are saved as a user preference.

4. Click **OK**.

The saved view appears in the **Views** panel under **My Views**.

1.3.3.2.1 To customize an Inbox view

> **Note:**
>
> If you select to display the **Task Display URL** column, you must have an associated taskflow for the deployed task. The taskflow registration is performed during deployment. At that time, the **Task Display URL** column value is set. If the taskflow is not associated during deployment, the **Task Display URL** column does not display generic URL details for a task.

1. In the Views, Applications, and Links pane, select **Views**, then select the view you want to customize.

2. Click **Edit View**.

   The Edit User View dialog box appears as shown in Figure 1-18.

   Figure 1-18   Customizing Fields in a Worklist View
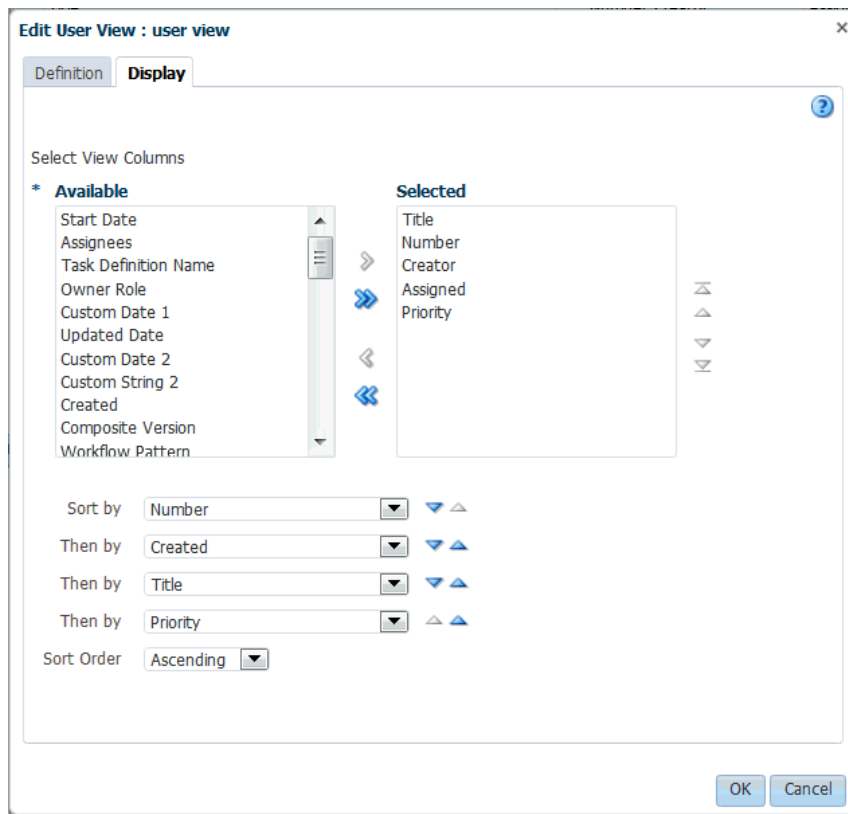
3. Use the Edit User View dialog box to customize the view.

   When you select and move items from the **Available Columns** list to the **Selected Columns** list (or vice-versa), the items remain selected. Therefore, if you select items to move back, the previously selected items are also moved. Ensure that you deselect items after moving them between the lists if you intend to move additional columns.

   When you have finished making your settings, click **OK**.

1.3.4 Searching for Tasks in Process Workspace

For instructions on searching for tasks, see the following topics:

- To filter tasks based on keyword search

- To filter tasks based on an advanced search

1.3.5 Defining and Testing Screenflows in Process Workspace

Screenflows enable users to work on all of the tasks in a process in sequence. For example, when a user completes a task in a process, and if the next task is assigned to the same user, then the next task is automatically shown in the same flow, without the user having to return to the task list.

After deploying the BPM process and human tasks you can test if the screenflow works. Start the process instance and open the human task in Workspace. When you finish a task that is part of the screenflow, it immediately jumps to the next text in the screenflow without you going back to the tasklist.

For more information about defining a screenflow, see Working with Screenflows in the BPM Studio Guide.

To test screenflows:

1. Deploy the BPM Process.

2. Deploy all the Human Tasks that are part of the process. Make sure you have the ScreenFlowMode parameter added in all human tasks that are part of the screenflow, except the last task.

   (Optional) Enter the result of the step here.

3. Instantiate the process.

4. Open the human task that is part of the process in Workspace.

5. Act on the task.

   If the task is part of the screenflow, you will see the next available task.

You can set a timeout parameter for screenflows. For more information, see How to Set a Timeout Parameter for Screenflows.

1.4 About the Process Workspace Activity Guides Page

Activity guides organize your tasks into milestones. Each milestone is a specific set of tasks for you to complete, either on your own or in collaboration with others.

For each milestone, the activity guide tells you which tasks to complete and in which order. You complete a milestone by completing all the tasks it contains for you. Depending on the nature of the task, you can save an unfinished task and resume it later.

Figure 1-19 shows an example of an activity guide.

Figure 1-19   Sample Activity Guide
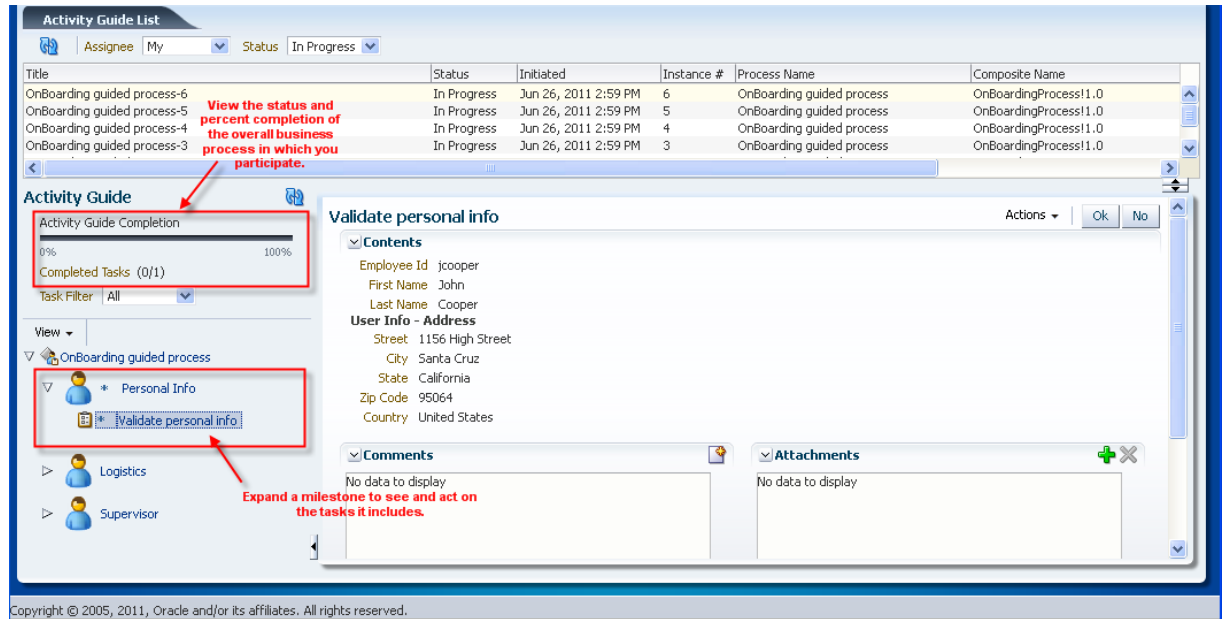
Using an activity guide, you can:

- Expand a milestone to see and act on the tasks it includes.

- View the status and percent completion of the overall business process in which you participate.

For more information about navigating the Activity Guides page, see Navigating Activity Guides.

1.5 About the Process Workspace Process Tracking Page

Use the Process Tracking page to interact with business processes based on the roles assigned to you.

Using the Process Tracking tab, you can do the following:

- View the list of process instances pending in your inbox.

- Execute tasks, that is, carry out a human task on a particular instance.

- Search for instances by different criteria.

- Save the searches as a view.

- View the details of an instance, including the audit trail.

- Create a new instance, if you have permission to do so.

- Attach a file to an instance.

- Add notes to an instance.

1.5.1 Navigating the Process Workspace Process Tracking Page

Figure 1-20   Process Workspace Process Tracking Page

The Process Tracking page has these sections:

- The Applications panel, which shows the list of applications available to you. Here you can perform basic Process Workspace actions, such as creating a new instance performing a given activity, or sorting applications.

  Hovering over the name of an application in the Applications panel displays a tool tip with the application's full name and revision number.

  The applications available in Process Workspace depend on the process design and the roles assigned to the user currently logged in. The list of available applications also depends on the BPM processes that are deployed and running. If no processes are running, or if you are not a participant able to execute an application in any of the processes currently running, then the applications panel is empty.

  In the applications panel, you can sort either of the following:

  - Only the default versions of applications

  - All active versions of applications

  You can sort either by name or by process version. You can filter the same applications by entering in the **Search** field either full or partial names or full or partial versions.

- The Views panel, on the lower left half, displays the views available to you in an expandable tree

- The Pending Components panel shows all suspended processes. If a new version of a process is deployed, and the previously deployed process has instances not yet migrated to the new version, then the previously deployed process is suspended. To resume it, either migrate or suspend any non-migrated instances. For information about resuming suspended processes, see How to Resume the Suspended Process Flow in *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio.*

- The Work Items panel, on the upper right half, shows the task items corresponding to the view you have selected in the Views panel. In this panel, you can choose the columns that are presented in a given view. A particular column arrangement is known as a presentation. Clicking **Add/Remove columns** displays the Presentation dialog box in which you can define columns.

  The following columns are available:

  - Actions

  - Activity

  - Activity Due Date

  - Copy

  - Creation Time

  - Deadline

  - Description

  - Has Attachments

  - Has Notes

  - Initiated

  - Initiator

  - Initiator Name

  - Instance #

  - Parent Copy

  - Participant

  - poID

  - Priority

  - Process Name

  - Process Due Date

  - Received

  - Status

  - Task Participant (that is, the participant that is currently executing an instance.)

  - Title

- The Work Item Detail panel, on the lower right half, shows detailed information about a work item that you have selected in the Work Items panel. It has these sections:

  – Details: Shows the priority, process name, when the instance is due to complete, status, creation time, and the assignee if any.

  – Open Activities: Shows the status of any gateways with threads that are still running.

  – Audit Trail: Shows audit details in either a list view, a tree view, or graphical view. You can select the type of activity or sub-process you want to audit: human activities, service activities business rule activities, subprocesses, events, gateways, script activities, other activities, or all of the above.

    If the process includes an input or output payload, then you can display the audit details for that message in a pop-up. Clicking on a particular activity displays the task history.

    For more information about viewing audit details, see Viewing History.

  – Comments: Enables you to add Comments to the process instance.

  – Attachments: Enables you to add attachments to the process instance.

    For more information about adding comments and attachments to a process instance, see Associating Comments and Attachments with a Process Instance.

1.6 About Process Workspace Dashboards

Dashboards provide analytical information to monitor process execution as well as user workloads.

Two types of dashboards are available in Oracle Business Process Management Workspace (Process Workspace):

- Process Monitor dashboards

- Standard dashboards

Process monitor dashboards allow you to monitor and optimize process execution by identifying bottlenecks and other performance problems.

Standard dashboards present the standard metrics gathered during the execution of a process as graphs. They provide summary information and enable you to navigate to instance-specific information.

Figure 1-21 shows the Standard Dashboards page.

Figure 1-21   Process Workspace Standard Dashboards Page
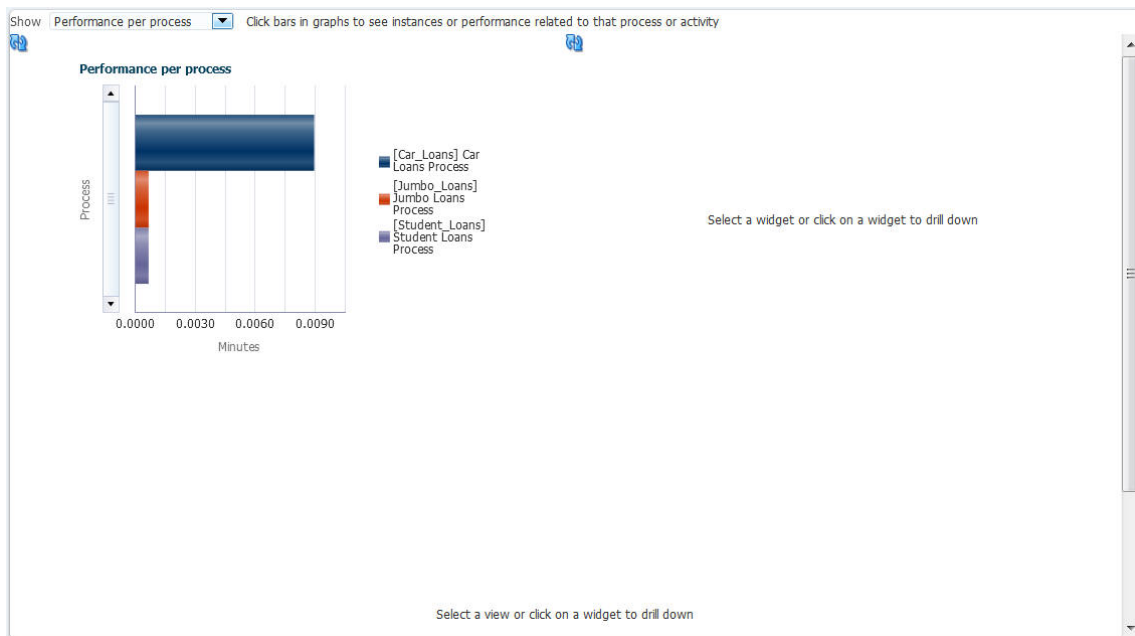
For additional information about dashboards, see Using Dashboards in Process Workspace.

2

Working on Tasks in Process Workspace

You can set user preferences and act on tasks with Oracle Business Process Management Workspace (Process Workspace), including claiming and releasing tasks; reassigning, delegating, and routing tasks; associating comments and attachments to tasks, and setting rules and vacation periods.

This chapter includes the following sections:

- Claiming and Releasing Tasks in Process Workspace

- Modifying History Approval Options in the Task Details Page

- Reassigning and Delegating Tasks in Process Workspace

- Requesting Information in Process Workspace

- Adding Comments and Attachments to Tasks in Process Workspace

- Setting Rules_ Vacation Periods_ and Notification Preferences in Process Workspace

- Creating To-Do Tasks in Process Workspace

- Creating Subtasks in Tasks in Process Workspace

- Acting on Tasks that Require Passwords in Process Workspace

- Acting on a Task that Requires a Digital Signature in Process Workspace

- Routing Tasks in Process Workspace

- Using the Evidence Store Service and Digital Signatures

- Creating Worklist Reports

2.1 Claiming and Releasing Tasks in Process Workspace

If a task is assigned to a group or multiple users, then the task must be claimed first. Claim is the only action available in the Task Action list for group or multiuser assignments. After a task is claimed, all applicable actions are listed.

Note:

If the task has the auto claim option set, then the user must not claim the task. The custom action is available for the user.

If a task is assigned to a group or multiple users, it can be released by the user who claimed it. Any of the other assignees can then claim and complete the task.

Note:

Workspace does not concurrently update tasks by multiple users. If this happens, you may see the message "error occurred while committing the task metadata".

To claim and release tasks:

To claim a task, open it in the Task Details page, then click the **Claim** button. Figure 2-1 shows a Task Details page with the **Claim** button in the top middle of the page.

To release a task, open it in the Task Details page, from the **Actions** list, select **Release**.

Figure 2-1   Claiming a Task
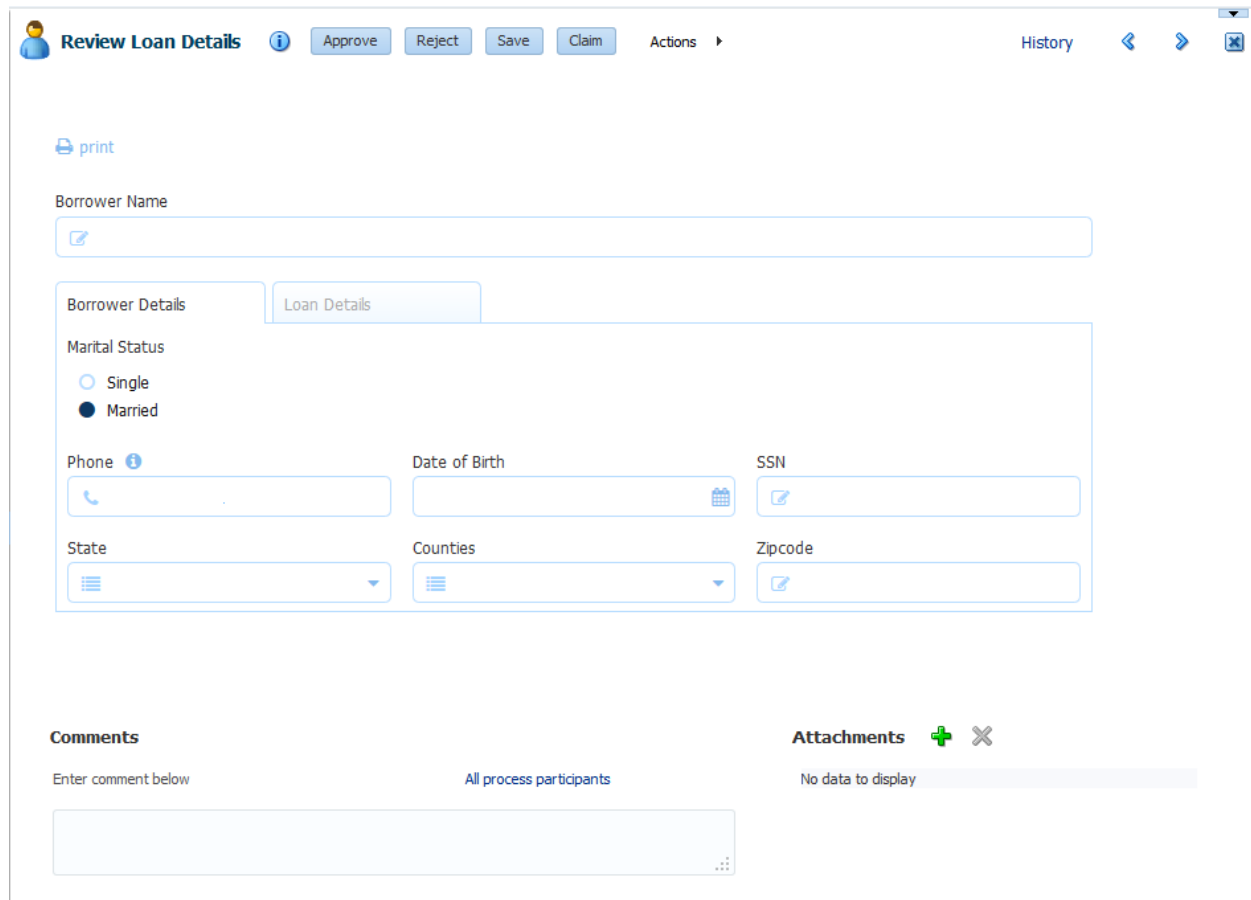
2.2 Modifying History Approval Options in the Task Details Page

You can modify approval options and add new participants to tasks.

This section includes the following topics:

- Combining Repeated Approvals of a Task in the History

- Excluding System Approvals from a Task

- Including New Participants in the History Table for an Existing Task

2.2.1 Combining Repeated Approvals of a Task in the History

At times you may want to combine tasks that have identical approval sequences into one combined approval—for example, to approve a purchase order that has many identical line items each requiring its own approval. Rather than approving each line item one-by-one, you can combine them into a single approval and then approve that combined task.

After you combined tasks into one repeated approval, you cannot alter the sequence of those tasks; for example, you cannot add, edit, or delete a participant in that task.

To combine repeated approvals of a task:

1. In the Process Workspace task list, select a task.

   The task opens in the Task Details pane.

2. In the Task Details pane, click **History**.

   The history for the task appears.

3. Click **Options** as shown in Figure 2-2.

   Figure 2-2   History - Options
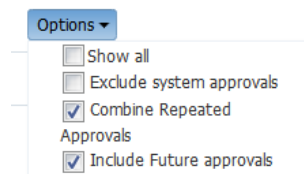
4. Verify that **Combine Repeated Approvals** is selected. This is the default setting.

   To separate the tasks, clear the check box **Combine Repeated Approvals**.

5. Click **Apply**.

2.2.2 Excluding System Approvals from a Task

To remove all system generated updates from the task history, you must select the option to exclude system approvals.

To select Exclude System Approvals:

1. In the Process Workspace task list, select a task.

   The task opens in the Task Details pane.

2. In the Task Details pane, click **History**.

   The history for the task appears.

3. Click **Options** as shown in Figure 2-2.

4. Select **Exclude system approvals.**

5. Click **Apply**.

2.2.3 Including New Participants in the History Table for an Existing Task

To include new participants in a task, you must select the **Including Future Approvals** option from the task history. This option adds participants to the task history and displays the actions they perform on the task.

This is enabled only when the task is configured with the following options:

- Participants are allowed to invite other participants

- Editing of future approvers is allowed

To Include New Participants:

1. In the Process Workspace task list, select a task.

   The task opens in the Task Details pane.

2. In the Task Details pane, click **History**.

   The history for the task appears.

3. Click **Options** as shown in Figure 2-2.

4. Verify that either **Include Future approvals** or **Show All** is selected. The default is for **Include Future approvals** to be selected.

   To disable this option, clear the check box **Include Future approvals**.

5. Click **Apply**.

2.3 Reassigning and Delegating Tasks in Process Workspace

You may go on vacation and need to reassign your tasks to someone else, or you may need to delegate your tasks to an administrative assistant.

To reassign or delegate a task:

1. In the Process Workspace task list, select a task.

   The task opens in the Task Details pane.

2. In the Task Details pane, from the **Actions** list, select **Reassign**.

   The Reassign Task dialog box appears.

3. Select either **Reassign** or **Delegate**.

   Delegate differs from **Reassign** in that the privileges of the delegatee are based on the delegator's privileges. This function can be used by managers' assistants, for example.

4. Enter a user or group name or browse for a user or group name, as shown in Figure 2-3. You can use an asterisk (*) as a wildcard.

Figure 2-3   Reassigning a Task

A supervisor can reassign tasks to any of his or her subordinates at any time.

5. Select the users or groups to which you are reassigning and click **OK**.

    You can reassign to multiple users or groups. One of the assignees must claim the task.

    Note:

    When task details have been upgraded from an earlier release, you may see a "Request Failed" error when executing the **Reassign** action. Actually, the reassign completes, and when you click OK again, a popup says the task is already assigned.

    To eliminate the error message, upgrade your taskflow applications by opening them in Oracle JDeveloper, then redeploy the taskform.

2.4 Requesting Information in Process Workspace

You can request more information about a task from another user.

To request information:

1. In the Process Workspace task list, select a task.

    The task opens in the Task Details pane.

2. In the Task Details pane, from the **Actions** list, select **Request Information**.

3. Request information from a task participant or from another user, as shown in Figure 2-4.

Figure 2-4   Requesting More Information from Past Approvers or Another User, or Pushing the Task Back
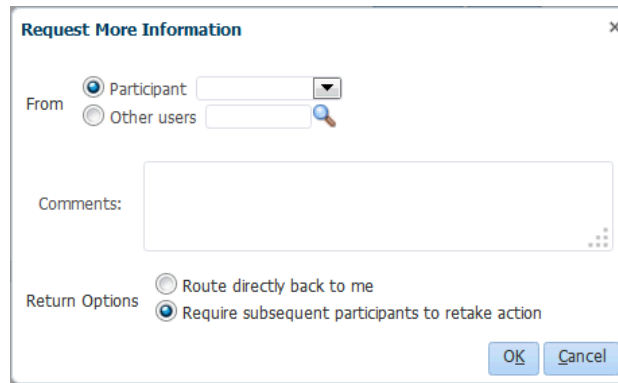
If you use the **Search** icon to find a user name, the Identity Browser appears, as shown in Figure 2-5.

Figure 2-5   Identity Browser
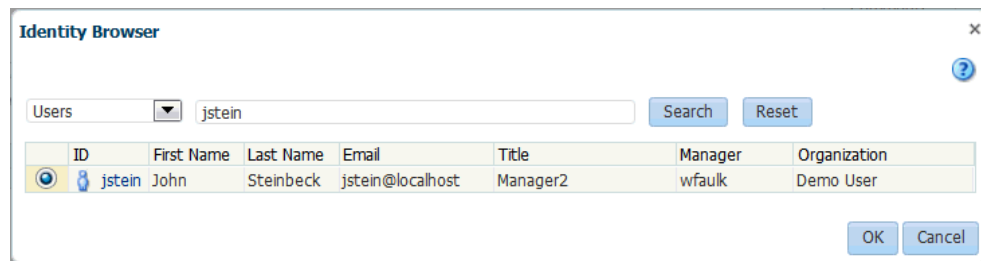
In Figure 2-5, in the ID column, the identifier, *jstein*, is a link. Clicking this link displays a details window with more information about this user.

> **Note:**
>
> If you are in a multi-tenancy environment, search for a user simply by the user identifier and not by the tenant identifier. For example, if the user identifier is *jstein* and the tenant identifier is company_name.jstein, you would search by using *jstein*.

4. Add your comment.

5. Choose one of the following:

   • Route directly back to me.

   • Require subsequent participants to retake action (Previous approvers must reapprove the task after the user submits the information).

6. Click **OK**.

2.5 Adding Comments and Attachments to Tasks in Process Workspace

You can add comments and attachments to a task using the Task Details page.

This section includes the following topics:

• How to Add a Comment to a Task

- How to Add an Attachment to a Task

- How to Delete An Attachment

For details about the Task Details page, see Using the Process Workspace Task Details Page.

2.5.1 How to Add a Comment to a Task

You can add comments to a task.

To add a comment to a task:

1. In the Process Workspace task list, select a task.

   The task opens in the Task Details pane.

2. In the Comments section of the Task Details page, specify who can see the comment by clicking either:

   - **Only task participants**. This option shares the comment with previous and future assignees of this particular task.

   - **All process participants**. This option shares the comment with all participants in the process, regardless of the tasks assigned to them.

3. In the Comment dialog box, enter your comment.

   Note:

   - If you are the initiator of the task, your comment is shared with all process participants and not only with task assignees. The option to share with only task participants is not available to you.

   - Comments added to a task also appear in any subtasks of that task.

2.5.2 How to Add an Attachment to a Task

You can add an attachment to a task. However, you cannot add documents to a human task using task user interface once the task is associated with a case.

To add an attachment to a task:

1. In the Process Workspace task list, select a task.

   The task opens in the Task Details pane.

2. In the Attachments section of the Task Details page, click **Add**.

   The Add Attachment dialog box appears.

3. In the Add Attachment dialog box, select to share the attachment with either of the following:

   - **Only task participants**. This option shares the attachment with previous and future assignees of this particular task.

- **All process participants**. This option shares the attachment with all participants in the process, regardless of the tasks assigned to them.

4. Select the attachment type and specify the file location.

   If the task does *not* use Oracle WebCenter Content, then you see the following options:

   - **URL**. Selecting this option opens fields in which you specify the name and URL of the file.

   - **Desktop File**. Selecting this option opens a search field from which to browse for the file on your computer.

   If the task *does* use Oracle WebCenter Content, then you see the following options:

   - **URL**. Selecting this option opens fields in which you specify the name and URL of the file.

   - **Upload File to UCM**. Selecting this option uploads the desktop file to Oracle WebCenter Content. When you select it, another dialog box prompts you for some or all of the following depending on how the task is modeled:

     - Description (optional)

     - Folder name: The folder in WebCenter Content server to which the attachment is uploaded. You must type the full folder path in WebCenter Content server. To display the Contribution Folders level in WebCenter Content, enter a forward slash (/), as shown in Figure 2-6. To display a list of destination folder within the Contribution Folders level, enter a forward slash (/), as shown in Figure 2-7.

   Figure 2-6   Uploading an Attachment to Oracle WebCenter Content
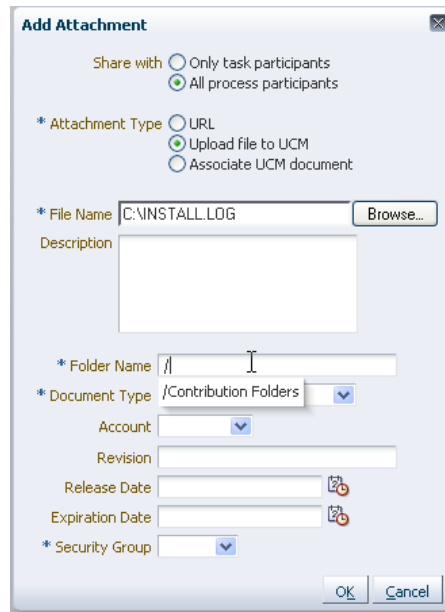
Figure 2-7   Possible Destination Folders
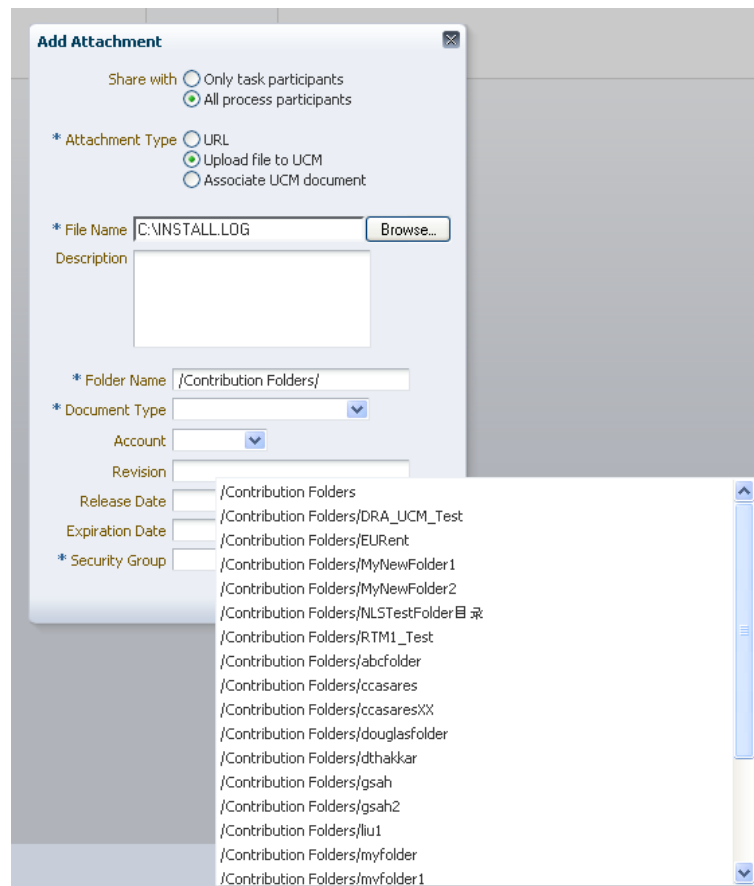
– Document type: From this list, select the WebCenter Content document type.

– Account (optional): From this list, select the account name.

– Revision (optional): Type an integer for revision.

Note:

Enter only integer as the revision number. UCM does not allow any other type of revision numbers.

– Release Date (optional): Select the date at which the document is released. Prior to this date, the WebCenter Content document is not visible to WebCenter Content users.

– Expiration Date (optional): The date when the document expires. After this date, the WebCenter Content document is no longer visible to Oracle WebCenter Content users.

– Security Setup:

• **Associate UCM document**. Selecting this option opens another dialog box prompting you for the document identifier. You can search for it by clicking the spyglass icon and, after you have located it, clicking **OK**.

5. Click **OK**.

6. In the Task Details pane, from the **Actions** list, select **Save** as shown in Figure 2-8.

Figure 2-8   Saving an Attachment to a Task
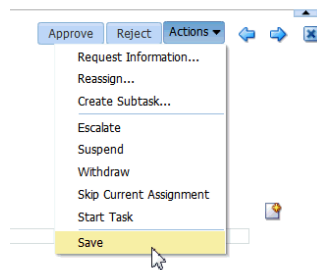
2.5.3 How to Delete An Attachment

You can delete an attachment.

To delete an attachment from a task:

1. In the Process Workspace task list, select a task.

The task opens in the Task Details pane.

2. In the Task Details pane, in the Attachments section, select the attachment you want to delete and click **Delete**.

The Delete Attachment dialog box prompts you to confirm the deletion from UCM.

3. Confirm the deletion and click **OK**.

> **Note:**
>
> If the attachment is stored in a content server, such as WebCenter Content, then it is not deleted from the content server. If the attachment is stored in the SOA workflow repository, then you can access it by viewing the task snapshot from the task history.

2.6 Setting Rules, Vacation Periods, and Notification Preferences in Process Workspace

Rules act on tasks, either a specific task type or all the tasks assigned to a user or group.

To set rules, from the Process Workspace global toolbar, select **Preferences**. The Preferences window appears as shown in Figure 2-9.

Figure 2-9   Preferences: My Rules Page
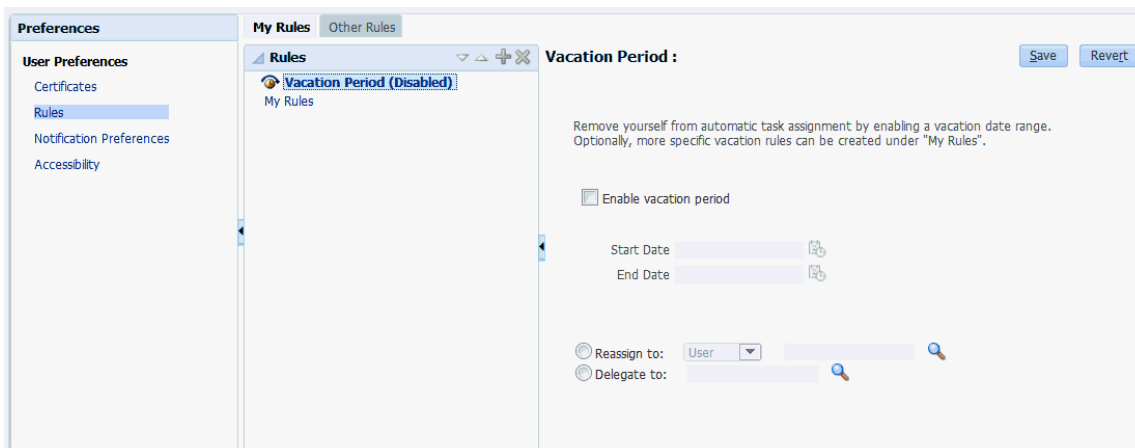
A rule cannot always apply to all circumstances in which it is used. For example, if a rule applies to multiple task types, it may not be possible to set the outcome for all tasks, because different tasks can have different outcomes.

Rules are executed in the order in which they are listed.

If a rule meets its filter conditions, then it is executed and no other rules are evaluated. For your rule to execute, you must be the only user assigned to that task. If the task is assigned to multiple users (including you), the rule does not execute.

You cannot specify business rules for To-Do tasks.

This section contains the following topics:

- How to Create User Rules in Process Workspace

- How to Create Group Rules in Process Workspace

- How to Enable a Vacation Period in Process Workspace

- Specifying Notification Settings

2.6.1 How to Create User Rules in Process Workspace

Note:

The task type browser does not support a search using NLS strings for task name and category.

To create a user rule:

1. From the Process Workspace global toolbar, select **Preferences**.

   The User Preferences pane is displayed.

2. In the User Preferences area, click **Rules**.

   The My Rules and Other Rules pages appear in the right pane. The My Rules page is selected by default.

3. In the **My Rules** page, in the Rules section, select **My Rules**, then click **Add New Rule**.

   The My Rule screen appears in the right pane.

4. Provide a name for the rule.

5. If the rule is a vacation rule, select **Use as a vacation rule**. The start and end dates of the rule are automatically synchronized with the vacation period.

   For instructions about setting a vacation period that is synchronized with the vacation rule, see How to Enable a Vacation Period in Process Workspace.

6. Select **Execute rule only between these dates** and provide rule execution dates.

7. From the Tasks list, select either **All Tasks** or **Tasks matching these conditions**.

   If you select **All Tasks**, then no conditions must be specified. If you select **Tasks matching these conditions**, then specify the conditions by clicking **Add Condition**. The conditions are described in Table 1-9. You cannot search by translated text.

   These conditions further define the rule, such as specifying that a rule acts on priority 1 tasks only, or that a rule acts on tasks created by a specific user. The conditions can be based on standard task attributes and any mapped attributes that were mapped for the specific tasks. See How to Specify Mapped Attributes for more information.

8. In the **ACTION** area, select actions to be taken. User rules perform the following actions:

   - **Reassign to**—You can reassign tasks to subordinates or groups you manage. If you were granted the BPMWorkflowReassign role, then you can reassign tasks to any user or group.

   - **Delegate to**—You can delegate to any user or group. Any access rights or privileges for completing the task are determined according to the original user who delegated the task. (Any subsequent delegations or reassignments do not change this from the original delegating user.)

   - **Set outcome to**—You can specify an automatic outcome if the workflow task was designed for those outcomes, for example, accepting or rejecting the task. The rule must be for a specific task type. If a rule is for all task types, then this option is not displayed.

   - **Take no action**—Use this action to prevent other more general rules from applying. For example, to reassign all your tasks to another user while you are on vacation, except for loan requests, for which you want no action taken, then create two rules. The first rule specifies that no action is taken for loan requests; the second rule specifies that all tasks are reassigned to another user. The first rule prevents reassignment for loan requests.

9. Click **Save**.

The new rule appears under the **My Rules** node.

2.6.2 How to Create Group Rules in Process Workspace

> **Note:**
>
> The task type browser does not support a search using NLS strings for task name and category.

Creating a group rule is similar to creating a user rule, with the addition of a list of the groups that you (as the logged-in user) manage. Examples of group rules include:

- Assigning tasks from a particular customer to a member of the group

- Ensuring an even distribution of task assignments to members of a group by using round-robin assignment

- Ensuring that high-priority tasks are routed to the least busy member of a group

Group rules do the following actions:

- **Assign to member via**—You can specify a criterion to determine which member of the group gets the assignment. This dynamic assignment criterion can include round-robin assignment, assignment to the least busy group member, or assignment to the most productive group member. You can also add your custom functions for allocating tasks to users in a group.

- **Assign to**—As with user rules, you can assign tasks to subordinates or groups you directly manage. If you have been granted the BPMWorkflowReassign role, then you can reassign tasks to any user or group (outside your management hierarchy).

- **Take no action**—As with user rules, you can create a rule with a condition that prevents a more generic rule from being executed.

To create a group rule:

1. From the Process Workspace global toolbar, select **Preferences**.

   The Preferences pane is displayed.

2. In the User Preferences area, click **Rules**.

   The My Rules and Other Rules pages appear in the right pane. The My Rules page is selected.

3. Click the **Other Rules** tab.

4. Select **My Group** from the list.

5. Enter a group name and click **Show Rules**, or click the **Search** icon to search for a group name, then click **Show Rules**.

   If you search for a group name, then the Identity Browser dialog box opens for you to find and select a group.

6. Select the group name under the **Group Rules** node and click **Add New Rule**, as shown in Figure 2-10.

Figure 2-10   Creating a Group Rule
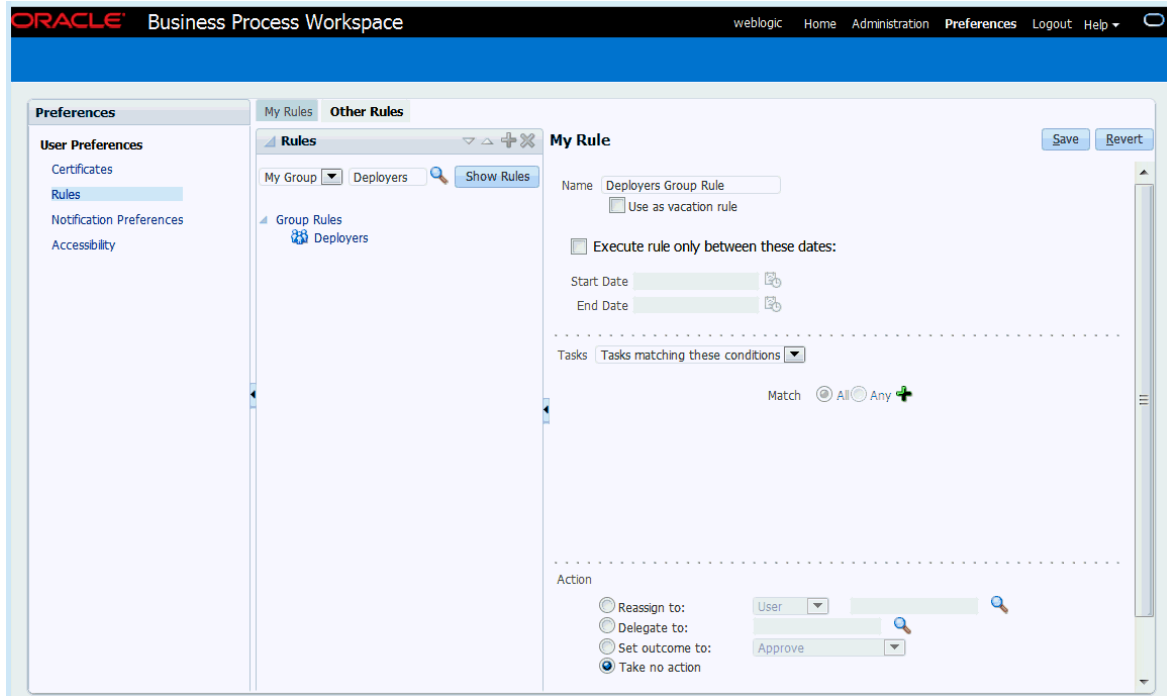
7. Select **Execute rule only between these dates** and provide rule execution dates.

8. From the Tasks list, select either **All Tasks** or **Tasks matching these conditions**.

    If you select **All Tasks**, then no conditions must be specified. If you select **Tasks matching these conditions**, then specify the conditions by clicking **Add condition**. The conditions are described in Table 1-9.

    These conditions further define the rule, such as specifying that a rule acts on priority 1 tasks only, or that a rule acts on tasks created by a specific user. The conditions can be based on standard task attributes and any mapped attributes that were mapped for the specific tasks. See How to Specify Mapped Attributes for more information.

9. In the **ACTION** area, select actions to be taken. User rules perform the following actions:

    *   **Reassign to**—You can reassign tasks to subordinates or groups you manage. If you were granted the BPMWorkflowReassign role, then you can reassign tasks to any user or group.

    *   **Delegate to**—You can delegate to any user or group. Any access rights or privileges for completing the task are determined according to the original user who delegated the task. (Any subsequent delegations or reassignments do not change this from the original delegating user.)

    *   **Set outcome to**—You can specify an automatic outcome if the workflow task was designed for those outcomes, for example, accepting or rejecting the task. The rule must be for a specific task type. If a rule is for all task types, then this option is not displayed.

    *   **Take no action**—Use this action to prevent other more general rules from applying. For example, to reassign all your tasks to another user while you are

on vacation, except for loan requests, for which you want no action taken, then create two rules. The first rule specifies that no action is taken for loan requests; the second rule specifies that all tasks are reassigned to another user. The first rule prevents reassignment for loan requests.

10. Click **Save**.

2.6.3 How to Enable a Vacation Period in Process Workspace

You can set a vacation period so that you are removed from automatic task assignment during the dates you specify.

Vacation rules are not executed for To-Do tasks.

For instructions on setting a vacation rule that is synchronized with the vacation period, see How to Create User Rules in Process Workspace.

To enable a vacation period:

1. From the Process Workspace global toolbar, select **Preferences**.

The Preferences pane is displayed.

2. In the User Preferences area, click **Rules**.

The middle pane displays the Rules pane with the My Rules page selected. Adjacent and to the right of the My Rules pane, the Vacation Period pane appears as shown in Figure 2-11.

Figure 2-11   My Rules - Vacation Period
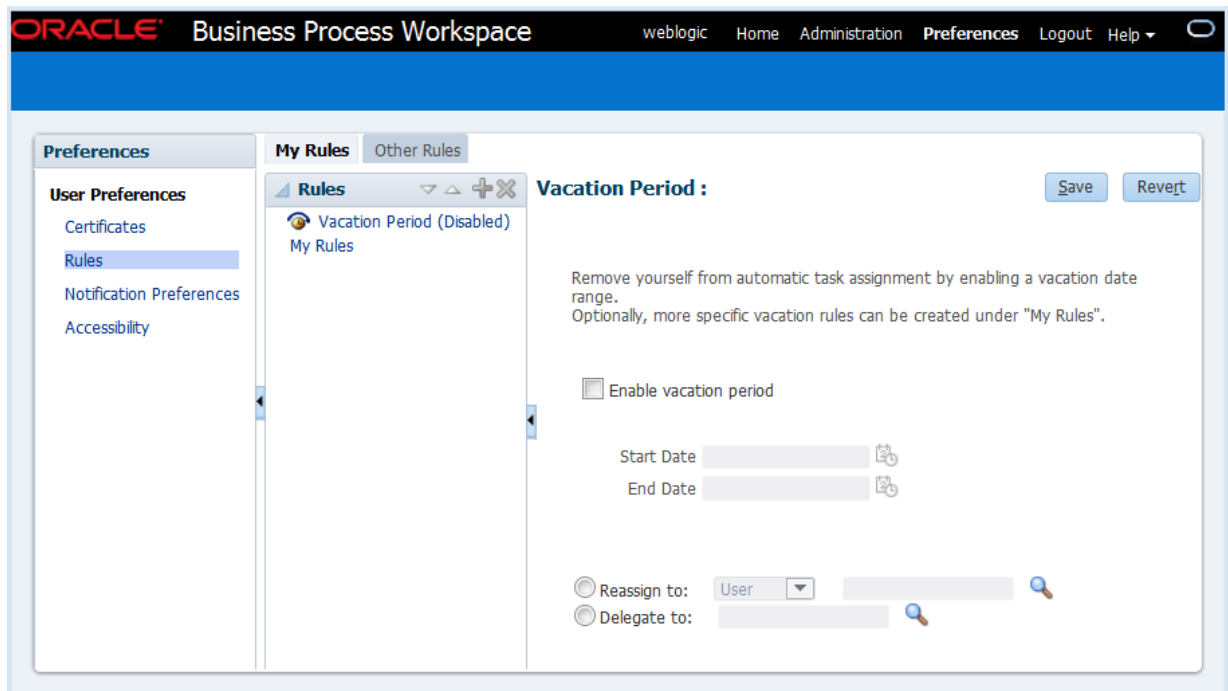
3. Select **Enable vacation period**.

4. Provide start and end dates.

5. Select either **Reassign to:** or **Delegate to:**. If you use the search icon to find a user, then the Identity Browser dialog box appears, as shown in Figure 2-12.

Figure 2-12   Identity Browser Dialog Box
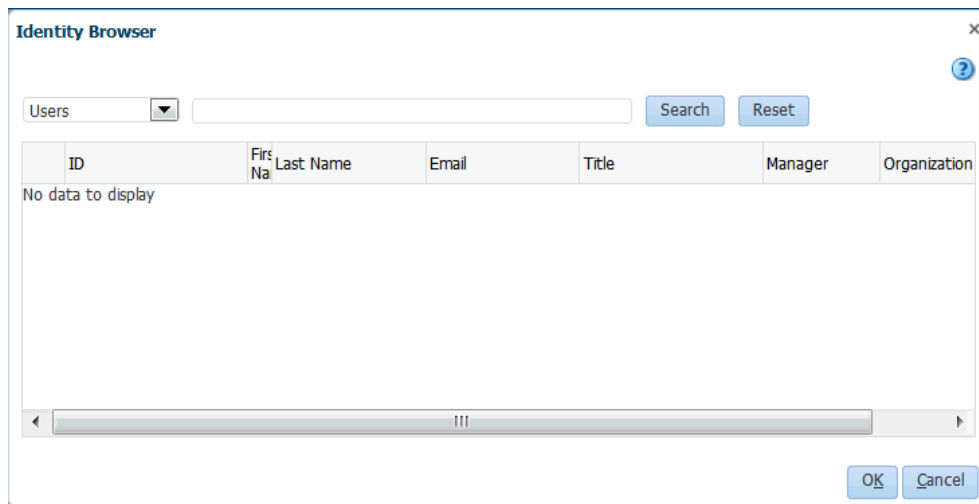
Search for and select a user and click **OK**.

6. Click **Save**.

The vacation period is enabled.

2.6.4 How to Avoid Circular Logic in Reassigned Vacation Rules

When creating vacation rules, ensure that approval tasks are not reassigned in a circular fashion.

For example, jstein is jcooper's manager, and tasks that need to, go to jstein for approval. If jstein creates a vacation rule, ensure that those tasks will not be re-assigned to jcooper.

Alternatively, you can use the delegate option in vacation rules instead of reassign. For more information about the delegate option, see Reassigning and Delegating Tasks in Process Workspace.

How To Avoid Circular Dependency

In this example, we define two rules for User2, who wants to set a vacation period and reassign his tasks to someone else. The first rule states that if the task is not coming from User1, then reassign it to User1. The second rule states that if the task is coming from User1, then reassign it to User3.

The task flow is: jcooper to jstein to wfaulk. The rules are set for jstein.

1. Login to Worklist as `jstein` and go to the **Preferences** page.

2. Ensure that the Vacation Period is disabled, as shown below:

Rules ▽ △ ✛ ✖
👁 Vacation Period (Disabled)
▲ My Rules
◆ User Rule
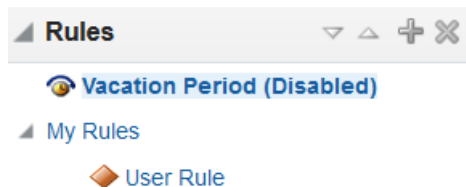
3. Click **My Rules** and click **Add New Rule +**.

4. Enter a name for the rule, for example `VacationRule1.`

5. Clear the **Use as vacation rule** check box.

6. Check the **Execute rule only between these dates** check box and enter the appropriate dates.

7. In the **Tasks** drop down, choose **Tasks matching these conditions.**

8. Click **Add condition +** and select `User, From User.`

9. In the new row, select `isn't.`

10. In the text box next to it, enter `jcooper` for the user name.

11. In the **Action** section, select **Reassign to** and enter `jcooper` for the user name.

12. Click **Save.**

Repeat the steps above to create another rule with these inputs:

13. Enter a name for the second rule, for example VacationRule2.

14. Select the same start and end dates as in VacationRule1.

15. Add a **From User condition** of `is.`

16. Enter `jcooper` for the user name.

17. In the **Action** section, select **Reassign to** and enter `wfaulk` for the user name.

18. Click **Save.**

Invoke the composite and the tasks will be assigned as expected based on these two new rules defined for jstein.

2.6.5 How to Specify Notification Settings

You can configure the notification settings to control how, when, and where you receive messages in cases when you have access to multiple communication channels (delivery types). Specifically, you can define messaging filters (delivery preferences) that specify the channel to which a message should be delivered, and under what circumstances.

For example, you might want to create filters for messages received from customers with different Service Level Agreements (SLA), specifying to be notified through business phone and SMS channels for customers with a premium SLA and by EMAIL for customers with a nonpremium SLA.

2.6.5.1 Messaging Filter Rules

A messaging filter rule consists of rule conditions and rule actions. A rule condition consists of a rule attribute, an operator, and an associated value. A rule action is the action to be taken if the specified conditions in a rule are true.

2.6.5.1.1 Data Types

Table 2-1 lists data types supported by messaging filters. Each attribute has an associated data type, and each data type has a set of predefined comparison operators.

Table 2-1   Data Types Supported by Messaging Filters

Data Type	Comparison Operators
Date	isEqual, isNotEqual, isGreaterThan, isGreaterThanOrEqual, isLessThan, isLessThanOrEqual, Between, isWeekday, isWeekend
Time	isEqual, isNotEqual, Between
Number	isEqual, isNotEqual, Between, isGreaterThan, isGreaterThanOrEqual, isLessThan, isLessThanOrEqual
String	isEqual, isNotEqual, Contains, NotContains

> **Note:**
>
> The String data type does not support regular expressions.

2.6.5.1.2 Attributes

Table 2-2 lists the predefined attributes for messaging filters.

Table 2-2   Predefined Attributes for Messaging Filters

Attribute	Data Type
Total Cost	Number
From	String
Expense Type	String
To	String
Application Type	String
Duration	Number
Application	String
Process Type	String
Status	String
Subject	String
Customer Type	String

Table 2-2   (Cont.) Predefined Attributes for Messaging Filters

Attribute	Data Type
Time	Time
Group Name	String
Processing Time	Number
Date	Date
Due Date	Date
User	String
Source	String
Amount	Number
Role	String
Priority	String
Customer Name	String
Expiration Date	Date
Order Type	String
Organization	String
Classification	String
Service Request Type	String

2.6.5.2 Rule Actions

For a given rule, a messaging filter can define the following actions:

- **Send No Messages**: Do not send a message to any channel.

- **Send Messages to All Selected Channels**: Send a message to all specified channels in the address list.

- **Send to the First Available Channel:** Send a message serially to channels in the address list until one successful message is sent. This entails performing a send to the next channel when the current channel returns a failure status. This filter action is not supported for messages sent from the human workflow layer.

2.6.5.3 Managing Messaging Channels

In Oracle BPM Worklist, messaging channels represent both physical channels, such as business mobile phones, and also email client applications running on desktops. Specifically, Oracle BPM Worklist supports the following messaging channels:

- EMAIL

- IM

- MOBILE

- SMS

- VOICE

- WORKLIST

Note the following about message channels:

- Addresses for messaging channels are fetched from the configured identity store.

- SMS and MOBILE notifications are sent to the mobile phone number.

- VOICE notifications are sent to the business phone number.

- No special notification is sent when the messaging channel preference is WORKLIST. Instead, log in to Oracle BPM Worklist to view tasks.

- EMAIL is the default messaging channel preference when a preferred channel has not been selected.

You can use the **Messaging Channels** tab to view, create, edit, and delete messaging channels.

2.6.5.3.1 Viewing Your Messaging Channels

You can display your existing messaging channels.

To view messaging channels:

1. From the Process Workspace global toolbar, select **Preferences**.

    The Preferences pane is displayed.

2. In the User Preferences area, click **Notification Preferences**.

3. Expand **Available Channels**.

    The Available Channels list appears (Figure 2-13) and displays the following information:

    - **Name**: The name of the messaging channel.

    - **Type**: The type of messaging channel, such as EMAIL or SMS.

    - **Address**: The address for the channel, such as a phone number or email address.

    - **Default**: Specifies whether this channel is the default messaging channel.

Figure 2-13   Available Channels and Messaging Filters
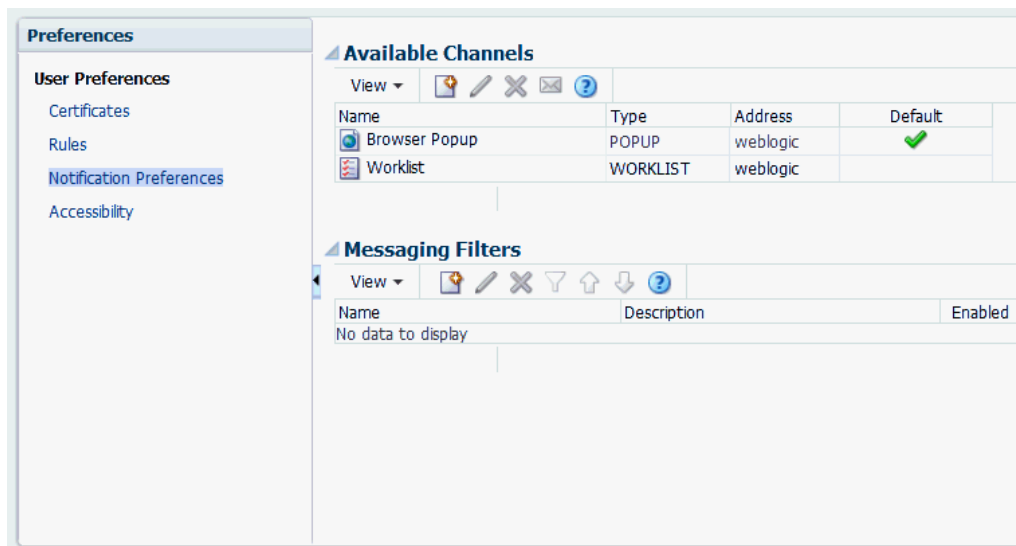
4. Click **View**, click **Columns** and select the columns to display or hide.

    You can also click **View > Reorder Columns** to display a dialog to reorder the displayed columns.

    Messaging channel names and addresses are retrieved from the underlying identity store, such as Oracle Internet Directory.

2.6.5.3.2 Creating, Editing, and Deleting a Messaging Channel

Oracle BPM Worklist uses an underlying identity store, such as Oracle Internet Directory, to manage messaging channels and addresses. Therefore, you cannot directly create, modify, or delete messaging channels using Oracle BPM Worklist.

To perform these actions, contact the system administrator responsible for managing your organization's identity store.

2.6.5.4 Managing Messaging Filters

You can use the **Messaging Filters** tab to define filters that specify the types of notifications you want to receive along with the channels through which to receive these notifications. You can do this through a combination of comparison operators (such as *is equal to*, *is not equal to*), attributes that describe the notification type, content, or source, and notification actions, which send the notifications to the first available messaging channels, all messaging channels, or to no channels (effectively blocking the notification).

For example, you can create a messaging filter called *Messages from Lise*, that retrieves all messages addressed to you from your boss, *Lise*. Notifications that match all of the filter conditions might first be directed to your business mobile phone, for instance, and then to your business email if the first messaging channel is unavailable.

2.6.5.4.1 Viewing Messaging Filters

You can display your existing messaging filters.

To view your messaging filters:

1. From the Process Workspace global toolbar, select **Preferences**.

The Preferences pane is displayed.

2. In the User Preferences area, click **Notification Preferences**.

3. Expand **Messaging Filters.**

The Messaging Filters list appears and displays the following information:

- **Filter Name**: The name of the messaging filter.

- **Description**: An optional description of the messaging filter.

4. Click **View**, click **Columns** and select the columns to display or hide.

You can also click **View > Reorder Columns** to display a dialog to reorder the displayed columns.

2.6.5.4.2 Creating Messaging Filters

To create a messaging filter:

1. Click **Create**.

The Create Filter dialog box appears, as shown in Figure 2-14.

Figure 2-14   Adding a Messaging Filter

2. Specify the following information:

- **Filter Name**: The name of the messaging filter.

- **Description**: An optional description for the messaging filter.

- **Enabled**: By default this option is checked. Uncheck if you do not want this filter used in message handling.

3. Select whether notifications must meet all of the conditions or any of the conditions by selecting either the **match all of the following conditions** or the **match any of the following conditions** options.

4. Click **Create**.

Define the filter conditions in the **Create Condition** dialog box as follows:

a. Select the attribute from the list.

    b. Select the operator, such as **isEqual**, from the list.

    c. Type the value of the condition in the text box.

    d. Click **OK** to add the condition to the list.

    e. Repeat these steps to add more filter conditions. To remove a filter condition, click **Delete**.

5. Select from the following messaging options in the **Action** section:

- **Do not send messages**: Do not send a message to any channel.

- **Send to first available channel**: Send a message serially to channels in the address list until one successful message is sent. This entails performing a send to the next channel when the current channel returns a failure status.

- **Send to all selected channels**: Send a message to all specified channels in the address list.

6. To set the delivery channel, select a channel from the **Add Notification Channel** list and click **Add**. To remove a channel, click **Delete**.

7. Use the up and down arrows to prioritize channels. If available, the top-most channel receives messages meeting the filter criteria if you select *Send to the First Available Channel*.

8. Click **OK**.

The messaging filter appears under the Messaging Filters area. The Messaging Filters area enables you to edit or delete the channel. Click **Cancel** to dismiss the dialog without creating the filter.

2.6.5.4.3 Editing a Messaging Filter

To edit a messaging filter:

1. Select the filter from the Messaging Filters area.

2. Click **Edit**.

3. Click **OK** to update the messaging filter. Click **Cancel** to dismiss the dialog without modifying the filter.

2.6.5.4.4 Deleting a Messaging Filter

To delete a messaging filter:

1. Select the filter from the Messaging Filters area.

2. Click **Delete**. A confirmation dialog appears.

3. Click **OK** to delete the messaging filter. Click **Cancel** to dismiss the dialog without deleting the filter.

2.7 Creating To-Do Tasks in Process Workspace

You can create a To-Do task for yourself or for others. To-Do tasks are not associated with business tasks.

Use the Create To-Do Task dialog, shown in Figure 2-15, to create a top-level To-Do task for yourself or others.

Figure 2-15 The Create To-Do Task Dialog Box

To-Do tasks appear in the assignee's **Inbox**.

To-Do tasks can be reassigned, escalated, and so on, and deleted (logical delete) and purged (physical delete). Reassignment, escalation, and so on of the task does not affect the assignment of any child To-Do tasks. The completion percentage of a To-Do task can be reset to less than 100 percent after it is completed.

Assignment rules (such as vacation rules) are not applied to To-Do tasks. You cannot specify business rules for To-Do tasks.

To create a To-Do task:

1. From the **Actions** list, select **Create To-Do Task**.

2. In the Create To-Do Task dialog box, shown in Figure 2-15, provide the following details:

   • **Task Title**: Enter anything that is meaningful to you.

   • **Category**: Enter anything that is meaningful to you.

   • **Priority**: Select from **1** (highest) to **5** (lowest).

   • **Percentage Complete**: This attribute indicates how much of the task is completed. 100 percent sets the attribute as completed.

   • **StartDate**: The task start date.

   • **Due Date**: The due date does not trigger an expiration.

     You can also see overdue tasks. The start date need not be the current date.

   • **Assignee**: You can assign yourself or someone else.

3. Click **OK**.

2.8 Creating Subtasks in Tasks in Process Workspace

A subtask is a child of a task, either a To-Do task or a business task.

Creating a subtask can be helpful, for example, when a purchase order contains several line items and you need a separate approval process for one of them.

2.8.1 What You May Need to Know About Creating Subtasks

Here are some important points to keep in mind when creating subtasks:

- A To-Do task can only have To-Do subtasks. When all To-Do subtasks are 100 percent complete, the To-Do task is also marked as complete. If the To-Do task is completed, then To-Do subtasks are at 100 percent within the workflow system.

  If the task is a business task and that task is completed, then the subtasks of that task are withdrawn. You can only create a business tasks for other business tasks.

- If you explicitly set a To-Do task to 100 percent, there is no aggregation on the task.

- If you are using a release of Oracle BPM that is prior to 11*g* Release 1 (11.1.1.7.0), then, when you create a subtask from the **Actions** list of the task list, that subtask appear in the task list of the assignee for that subtask.

  However, to enable subtask creation from the **Actions** list of the task details page and display of subtask section in the task details page, you must re-generate the form by using 11g Release 1 (11.1.1.7.0). You may continue to use processes that were deployed in earlier releases even if you do not re-create the task form.

- Sub Tasks created in Process Workspace are not included as composite audit trail in Oracle Enterprise Manager Cloud Control Console.

- Parallel tasks are created when a parallel flow pattern is specified for scenarios such as voting. In this pattern, the parallel tasks have a common task. You can create subtasks using different pattern lines: Single approver, Sequential approver and Parallel approver.

  The subtasks are included in the Tasks Details page of the task. To view the subtasks for a task, select the task from the Task List to display the Task Details page. The subtasks are displayed under the **Sub Tasks** section.

2.8.2 Creating Subtasks from the Actions List

1. From the Task List, select a task.

2. From the **Actions** list, select **Create Sub Task...**.

   The Create Subtask dialog box appears as shown in Figure 2-16.

Figure 2-16   Create Subtask Dialog Box - Task List

3. In the Create Subtask dialog box, define the subtask and provide the following details, if required:

   - **Title**: Enter anything that is meaningful to you (required field).

   - **Priority**: Select from 1 (highest) to 5 (lowest).

   - **Comments:** Enter anything that is meaningful to you.

   - **Routing Type**: Select **Single Approver**, **Group Vote** or **Chain of Single Approvers**.

     For more information on these options, see Routing Tasks in Process Workspace.

   - Provide or search for user or group names and select the approvers by selecting the check box next to the user or group name.

4. When you have finished specifying the subtask, in the Create Subtask dialog box, click **OK**.

   This refreshes the task list. When you select the task, the Task Details page now includes a Subtasks section displaying the details about the subtask you created for that task.

   Note:

   - If you specified more than one participant for the subtask, then the Subtask region displays a separate item for each participant.

   - If a participant completes a subtask, then you must manually refresh the task to show the details for that completed subtask.

   - If you create a subtask, the assignee becomes the creator.

2.8.3 Creating Subtasks from an Existing Task

1. From the Task List, select a task.

2. In the Task Details pane, from the **Actions** list, select **Create Subtask...** as shown in Figure 2-17.

Figure 2-17   Creating a Subtask from the Task Details Page

The Create Subtask dialog box appears as shown in Figure 2-18.

Figure 2-18   Create Subtask Dialog Box - Task Details Page

3. In the Create Subtask dialog box, define the subtask and provide the following details, if required:

   - **Title**: Enter anything that is meaningful to you (required field).

   - **Priority**: Select from 1 (highest) to 5 (lowest).

   - **Comments**: Enter anything that is meaningful to you.

   - **Routing Type**: Select **Single Approver**, **Group Vote** or **Chain of Single Approvers**.

     For more information on these options, see Routing Tasks in Process Workspace.

   - Provide or search for user or group names and select the approvers by selecting the check box next to the user or group name.

4. When you have finished specifying the subtask, in the Create Subtask dialog box, click **OK**.

   This refreshes the task list. When you select the task, the Task Details page now includes a Subtasks section displaying the details about the subtask you created for that task.

   Note:

   - If you specified more than one participant for the subtask, then the Subtask region displays a separate item for each participant.

   - If a participant completes a subtask, then you must manually refresh the task to show the details for that completed subtask.

   - If you create a subtask, the assignee becomes the creator.

2.9 Acting on Tasks that Require Passwords in Process Workspace

When you act to approve or reject a human task that was set up to require a password, you must provide the password when prompted.

2.10 Acting on a Task that Requires a Digital Signature in Process Workspace

A digital signature is an electronic signature that authenticates the identity of a message sender or document signer. This ensures that the original content of the message or document sent is unchanged.

Oracle Business Process Management Workspace supports the signature policy created in the human task:

- **No signature required** — Participants can send and act on tasks without providing a signature.

- **Password required** — Participants must specify their login passwords.

- **Digital certificate (signature) required** —Participants must possess a digital certificate before being able to send and act on tasks. A digital certificate contains the digital signature of the certificate-issuing authority so that anyone can verify that the certificate is real. A digital certificate establishes the participant's credentials. It is issued by a certification authority (CA). It contains your name, a serial number, expiration dates, a copy of the certificate holder's public key (used for encrypting messages and digital signatures), and the digital signature of the certificate-issuing authority so that a recipient can verify that the certificate is real.

The evidence store service is used for digital signature storage and non-repudiation of digitally-signed human workflows.

For more information about digital signatures and the evidence store service, see Using the Evidence Store Service and Digital Signatures.

When you act on a task that has a signature policy, the **Sign** button appears, as shown in Figure 2-19.

Figure 2-19   Digital Signature Task Details

To use a certificate for digitally signing tasks, you must first upload the certificate as described in Providing a Digital Certificate in Process Workspace.

2.11 Routing Tasks in Process Workspace

If a human task was designed to permit ad hoc routing, the task can be routed in an ad-hoc fashion in the worklist.

For such tasks, a **Route** button appears on the task details page. From the Route Task dialog box, you can look up one or more users for routing. When you specify multiple assignees, you can select whether the list of assignees is for simple (group assignment to all users), sequential, or parallel assignment.

If you are a developer and want more information about designing tasks to permit ad hoc routing, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

To route a task:

1. From the **Actions** list, select **Adhoc Route**.

2. Select an action and a routing option, as shown in Figure 2-20.

Figure 2-20   Routing a Task

- **Single Approver**: Use this option for a single user to act on a task.

  If the task is assigned to a role or group with multiple users, then one member must claim the task and act on it.

- **Group Vote**: Use this option when multiple users, working in parallel, must act, such as in a hiring situation when multiple users vote to hire or reject an applicant.

  You specify the voting percentage that is needed for the outcome to take effect, such as a majority vote or a unanimous vote, as shown in Figure 2-21.

Figure 2-21   Providing Consensus Information

- **Chain of Single Approvers**: Use this option for a sequential list of approvers. The list can comprise any users or groups. (Users are not required to be part of an organization hierarchy.)

3. Add optional comments for the next participant on the route.

4. Provide or search for user or group names; then move the names to the **Selected** area.

5. Click **OK**.

2.12 Using the Evidence Store Service and Digital Signatures

The evidence store service is used for digital signature storage and non-repudiation of digitally-signed human workflows. A digital signature is an electronic signature that

authenticates the identity of a message sender or document signer. This ensures that the original content of the message or document sent is unchanged. Digital signatures are transportable, cannot be imitated by others, and are automatically time-stamped. The ability to ensure that the original signed message arrived means that the sender cannot repudiate it later.

Digital signatures ensure that a human workflow document:

- Is authentic.

- Has not been forged by another entity.

- Has not been altered.

- Cannot be repudiated by the sender.

A cryptographically-based digital signature is created when a public key algorithm signs a sender's message with a sender's private key.

During design time, signatures are enabled for the task. During runtime in Process Workspace, when a user approves or rejects the task, the web browser:

- Asks the user to choose the private key to use for signing.

- Generates a digital signature using the private key and task content provided by Oracle BPM Worklist.

Note:

- The certificate refers to a Personal Information Exchange Syntax Standard (PFX) file that includes a certificate and a private key, and is protected by a simple text password. PFX specifies a portable format for storing or transporting a user's private keys, certificates, miscellaneous secrets, and so on.

- The possession of a private key that corresponds to the public key of a certificate is sufficient to sign the data, because the signature is verifiable through the public key in the certificate. However, no attempt is made to correlate the name of a user of a certificate with the person updating it. For example, user *jstein* can sign using the private key of user *cdickens* if *jstein* has that private key.

The following digital signature features are supported:

- PKCS7 signatures based on X.509 certificates.

- Browser-based, digitally-signed content without attachments.

You can search the evidence store, as shown in Figure 2-22.

Figure 2-22   The Evidence Store
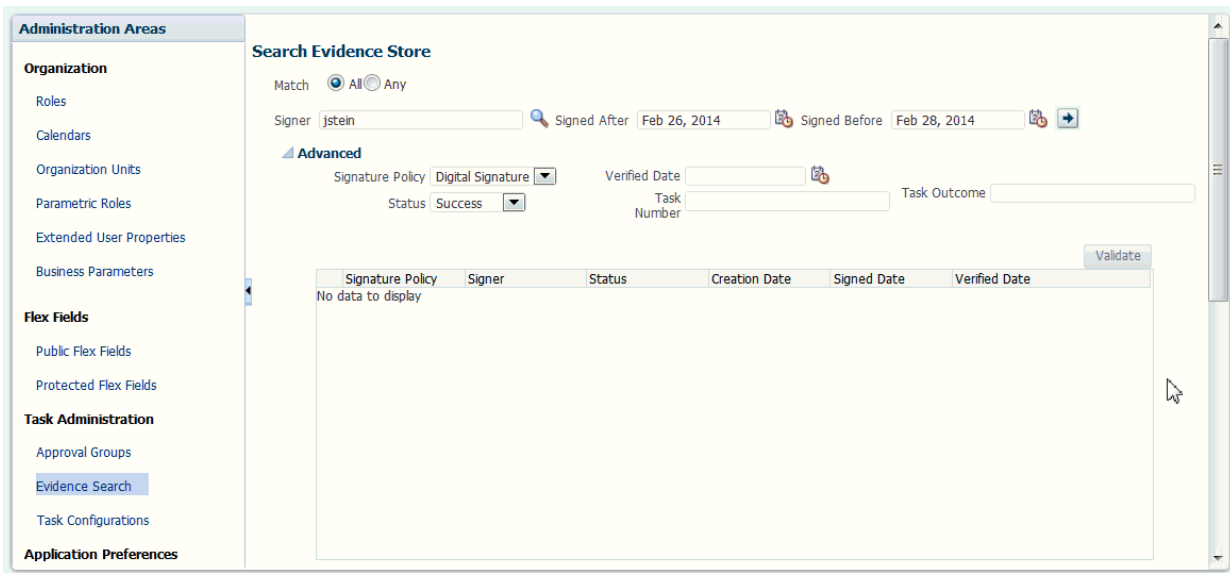
2.13 Exporting Tasks to Microsoft Excel

You can export tasks to Excel based on a selected view.

The export downloads all rows and columns displayed in the selected view. For example, if you select My Tasks view, you will download 16 tasks. If you select the Administrative Tasks view, you will download 49,694 tasks, as shown in :

Figure 2-23   Tasks Views
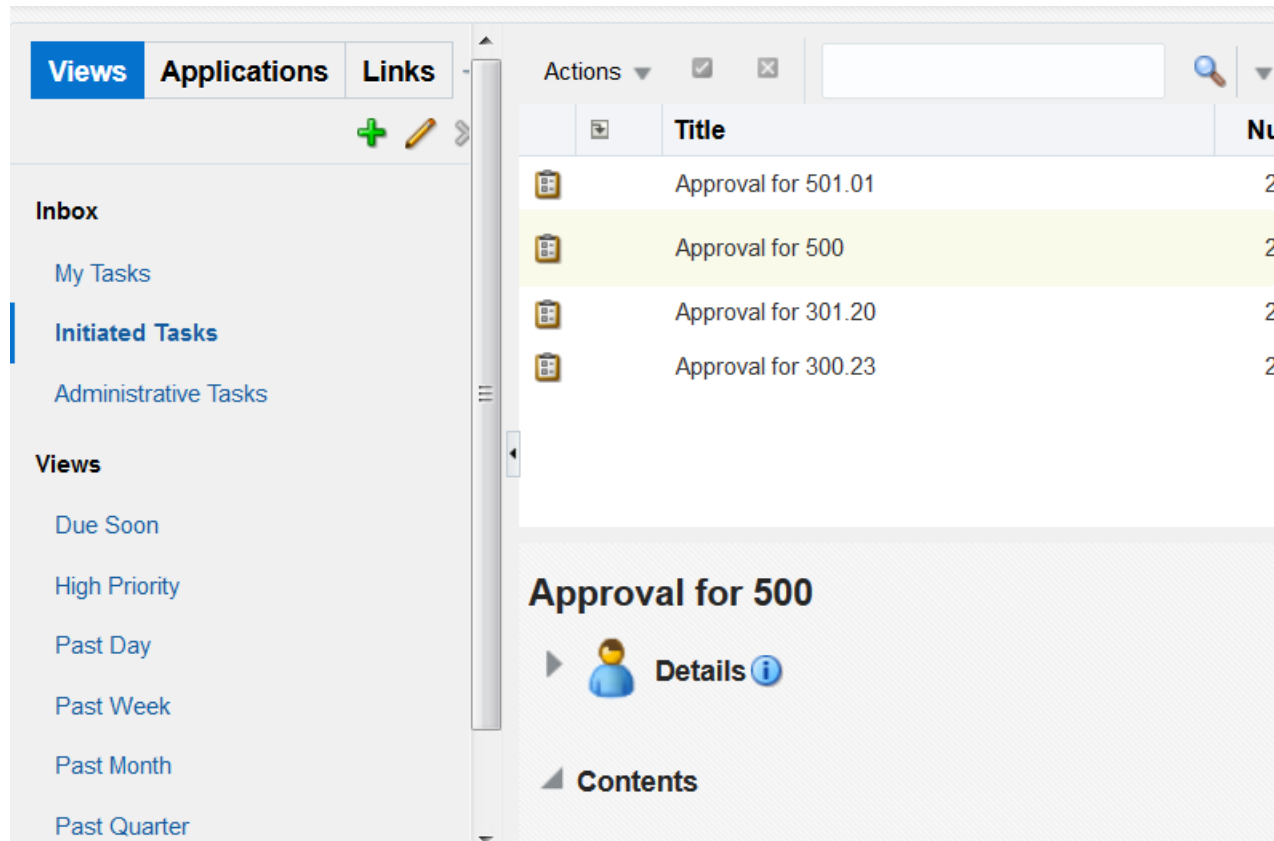
2.13.1 How to Export Tasks to Excel

Any logged-in user can export tasks.

To export tasks:

1. Select the appropriate View from the list.

2. Click the Export button

3. Choose a folder location and enter a filename for the download and click Save.

4. Open the file in Excel to view the downloaded tasks.

2.14 Creating Worklist Reports

Table 2-3 lists the worklist reports available for task analysis.

Table 2-3   Worklist Report Types

Report Name	Description	Input Parameters
Unattended Tasks	Provides an analysis of tasks assigned to users' groups or reportees' groups that have not yet been acquired (the "unattended" tasks).	• Assignee—This option (required) selects tasks assigned to the user's group (My Group), tasks assigned to the reportee's groups (Reportees), tasks where the user is a creator (Creator), or tasks where the user is an owner (Owner). • Creation Date—An optional date range • Expiration Date—An optional date range • Task State—The state (optional) can be Any, Assigned, Expired, or Information Requested. • Priority—The priority (optional) can be Any, Highest, High, Normal, Low, or Lowest.
Tasks Priority	Provides an analysis of the number of tasks assigned to a user, reportees, or their groups, broken down by priority.	• Assignee—Depending on the assignee that you select, this required option includes tasks assigned to the logged-in user (My), tasks assigned to the user and groups that the user belongs to (My & Group), or tasks assigned to groups to which the user's reportees belong (Reportees). • Creation Date—An optional date range • Ended Date—An optional date range for the end dates of the tasks to be included in the report • Priority—The priority (optional) can by Any, Highest, High, Normal, Low, or Lowest.
Tasks Cycle Time	Provides an analysis of the time taken to complete tasks from assignment to completion based on users' groups or reportees' groups.	• Assignee—Depending on the assignee that you select, this required option includes your tasks (My) or tasks assigned to groups to which your reportees belong (Reportees). • Creation Date—An optional date range • Ended Date—An optional date range for the end dates of the tasks to be included in the report • Priority—The priority (optional) can by Any, Highest, High, Normal, Low, or Lowest.

Table 2-3   (Cont.) Worklist Report Types

Report Name	Description	Input Parameters
Tasks Productivity	Provides an analysis of assigned tasks and completed tasks in a given time period for a user, reportees, or their groups.	• Assignee—Depending on the assignee that the user selects, this required option includes the user's tasks (My & Group) or tasks assigned to groups to which the user's reportees belong (Reportees). • Creation Date (range)—An optional creation date range. The default is one week. • Task Type—Use the Search (flashlight) icon to select from a list of task titles. All versions of a task are listed on the Select Workflow Task Type page (optional).
Tasks Time Distribution	Provides the time an assignee takes to perform a task.	• Assignee—Depending on the assignee that the user selects, this required option includes the user's tasks (My & Group) or tasks assigned to groups to which the user's reportees belong (Reportees). • From...to (date range)—An optional creation date range. The default is one week. • Task Type—Use the Search (flashlight) icon to select from a list of task titles. All versions of a task are listed on the Select Workflow Task Type page (optional).

2.14.1 How To Create Reports

Reports are available from the **Reports** link. Report results cannot be saved.

To create a report:

1. From the toolbar at the top center of the Home page, select **More**, then **Reports**.

2. Click the type of report you want to create.

   Figure 2-24 shows the report types available.

   Figure 2-24   Oracle BPM Worklist Reports

3. Define the search parameters of the report.

   Figure 2-25 shows an example of the Unattended Tasks Report input page. The other reports are similar. See Table 2-3 for information about input parameters for all the report types.

Figure 2-25   Unattended Tasks Report—Input Page for Task Analysis

4. Click **Run**.

2.14.2 What Happens When You Create Reports

As shown in Figure 2-26, report results (for all report types) are displayed in both a table format and a bar chart format.

Figure 2-26   Report Display
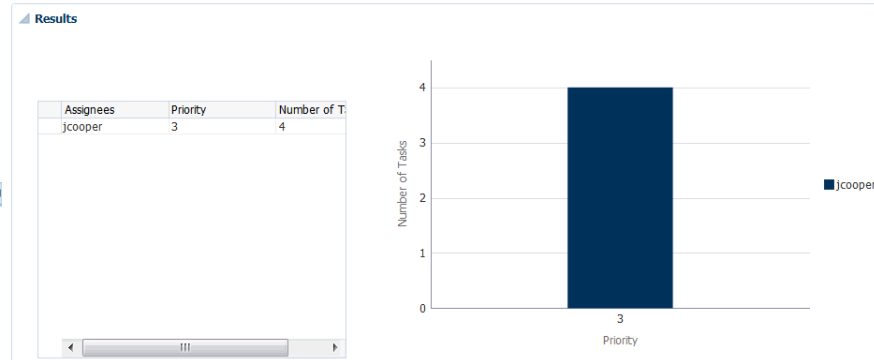
2.14.2.1 Unattended Tasks Report

Figure 2-27 shows an example of an Unattended Tasks report.

Figure 2-27   Unattended Tasks Report
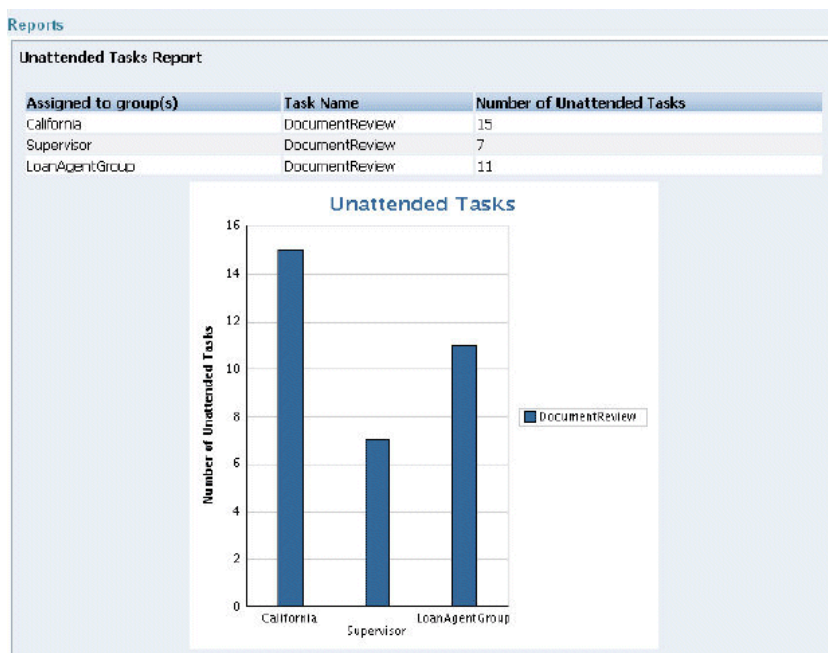
The report shows that the California group has 15 unattended tasks, the Supervisor group has 7 unattended tasks, and the *LoanAgentGroup* has 11 unattended tasks. The unattended (unclaimed) tasks in this report are all *DocumentReview* tasks. If multiple types of unattended task exists when a report is run, all task types are included in the report, and the various task types are differentiated by color.

2.14.2.2 Tasks Priority Report

shows an example of a Tasks Priority report.

Figure 2-28   Tasks Priority Report
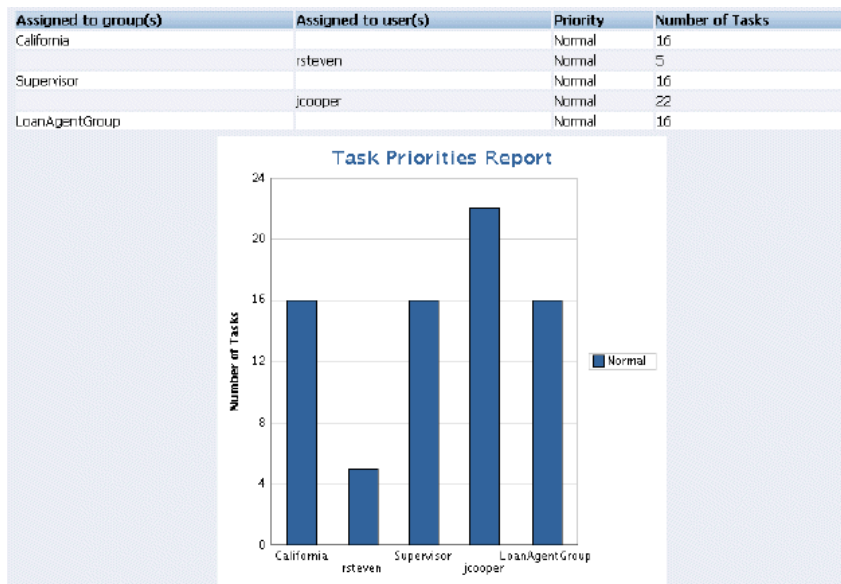
The report shows that the California group, the Supervisor group, and the *LoanAgentGroup* each have 16 tasks of normal priority. The users *rsteven* and *jcooper*

have 5 and 22 tasks, respectively, all normal priority. Priorities (highest, high, normal, low, lowest) are distinguished by different colors in the bar chart.

2.14.2.3 Tasks Cycle Time Report

Figure 2-29 shows an example of a Tasks Cycle Time Report.

Figure 2-29   Tasks Cycle Time Report
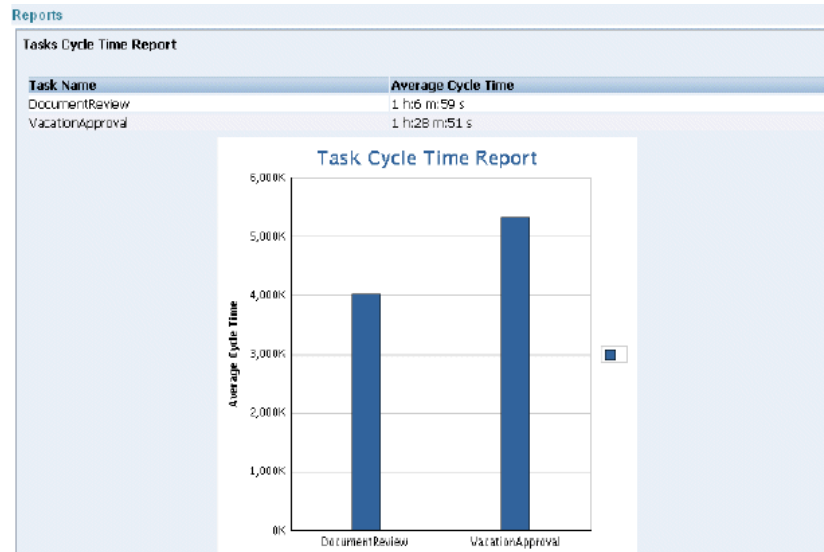
The report shows that it takes 1 hour and 6 minutes on average to complete *DocumentReview* tasks, and 1 hour and 28 minutes on average to complete *VacationApproval* tasks. The bar chart shows the average cycle time in milliseconds.

2.14.2.4 Tasks Productivity Report

Figure 2-30 shows an example of a Tasks Productivity Report.

Figure 2-30   Tasks Productivity Report
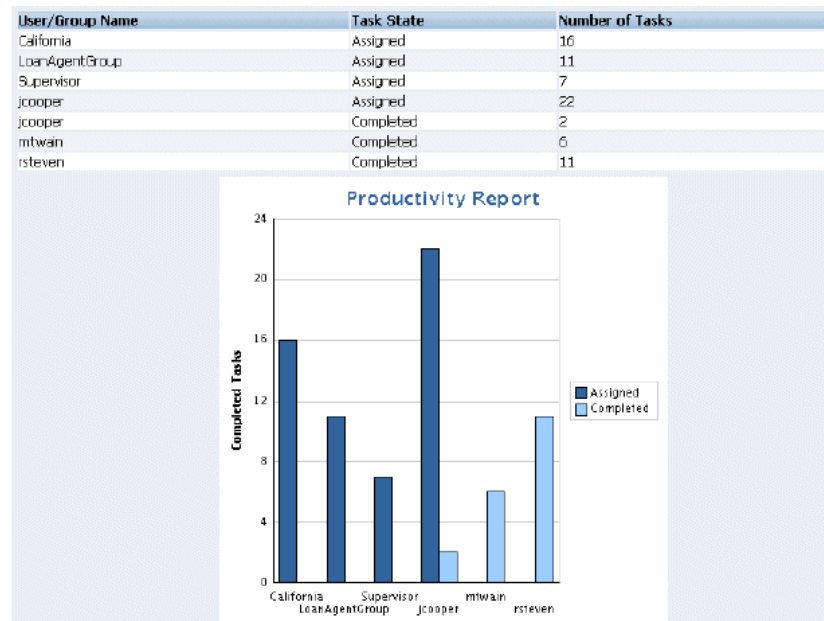
The report shows the number of tasks assigned to the California, *LoanAgentGroup*, and Supervisor groups. For individual users, the report shows that *jcooper* has 22 assigned tasks. In addition to his assigned tasks, jcooper has completed 2 tasks. The report shows that *mtwain* and *rsteven* have completed 6 and 11 tasks respectively. In the bar chart, the two task states—assigned and completed—are differentiated by color.

> **Note:**
>
> The **Me & My Group** and **Reportees** options have been removed from the Productivity Report.

3

Working on Process Instances in Process Workspace

You can use Oracle Business Process Management Workspace (Process Workspace) to initiate and cancel process instances, search, view details, associate comments and attachments, perform bulk operations, and customize the presentation of process instances.

This chapter is primarily for owners of process instances in Process Workspace. This chapter includes the following sections:

- Initiating Process Instances in Process Workspace

- Searching for Process Instances in Process Workspace

- Viewing the Details of a Process Instance in Process Workspace

- Performing a Bulk Operation in Process Workspace

- Canceling a Process Instance in Process Workspace

- Customizing the Presentation of Process Instances in Process Workspace

3.1 Initiating Process Instances in Process Workspace

To initiate a process instance, you begin with the Applications panel located at the top of the navigation pane.

To initiate a process:

1. In the Process Tracking page, in the Applications panel, click the process you want to initiate.

   The dialog box for that process instance appears.

   Note:

   If your browser has pop-up blocking enabled, then enable pop-ups for task flow servers; otherwise the application does not launch and the dialog box does not appear.

   ---

2. Create any comments or add any attachments.

   To add a comment:

   a. In the comments section, click **Create**. The Create Comment dialog box appears.

    b. Enter your comment and click **OK**. The comment is added at the process level.

To add an attachment:

    a. In the Attachments section, click **Add**. The Add Attachment dialog box appears.

    b. Select the attachment type.

       If you select Desktop File, a dialog box enables you to enter the path name of the file or browse to find it. If you select URL, you are prompted for the name of the file and the URL.

    c. After you have specified the attachment, click **OK**. The attachment is added at the process level.

The process instance is initiated and is assigned to you as the initiator.

3.2 Searching for Process Instances in Process Workspace

You can perform either a basic search or an advanced search for process instances. This section contains the following topics:

- How to Perform a Basic Search for Process Instances
- Performing an Advanced Search for Process Instances

3.2.1 How to Perform a Basic Search for Process Instances

For a basic search, you enter all or part of the name of a process instance in the Search field.

To perform a basic search for a process instance:

1. Select the Process Tracking page.

2. In the Search field, enter all or part of the name of the instance for which you are searching.

Note:

the search results are based on the Description column of the Process Tracking page.

---

3. To retrieve a list of all instances, enter a percent sign (%).

Search results are displayed as shown in the example in Figure 3-1.

The Details section displays the priority, process name, when the instance is due to complete, status, creation time, and the assignee.

If the process instance has any gateways resulting in multiple threads (paths) that are still running, the Open Activities section display the status of each thread.

The History section displays audit information—in either tabular form, tree view, or graphically depending on your selection.

3.2.2 How to Perform an Advanced Search for Process Instances

You can perform a search based on one or more conditions as per your specifications.

To perform an advanced search for a process instance:

1. In the Process Tracking page, click **Advanced**.

   The Advanced Search dialog box appears.

2. From the Processes list, select each of the processes you want to include in the view.

3. From the Assigned list, select one of the following: **Anyone, at any Role**; **Anyone, at any Role in the process**; **Me, or unassigned in my Role(s)**; **All instances I participated on**; or **All instances I am a reviewer**.

4. From the Status list, select one the following:

Table 3-1   Add View Status List

Status	Description
All	Displays all instances.
All Open	The work items displayed include all instances that have the following status: In Process, Pending Migration, Suspended, and Errored.
In Process	The work item is active; it has not reached the end of the process.
Completed	The work item reached the end of the process.
Aborted	The work item is no longer active, and did not reach the end of the process.
Errored	The work item has thrown an exception during processing.
Pending Migration	The work item is awaiting migration to a new implementation.
Suspended	The work item is in suspended state. An item is suspended if a new implementation of the same composite revision is deployed, and the previously deployed composite has some components with the newer BPM process definition.

5. Click **OK**.

3.3 Viewing the Details of a Process Instance in Process Workspace

The ability of a user to see process instances depends on the user's roles.

Table 3-2 maps the various roles to their corresponding levels of visibility.

Table 3-2   Visibility into Process Instances

Role	Visibility into Process Instance
Administrator—that is, a user with the WorkflowAdmin role or the Administrator role	Can see all information related to all process instances.
Process owner	At any given time, can see the instance details of the process instance.
User with a swimlane role	Can see any unassigned instance associated with that role.
Task assignee	Can see the instance details of that task.

To view the details of a process instance:

In the Process Tracking page, select an instance from the process instance list. The Work Item Details panel opens in the lower right section of the page as shown in Figure 3-1.

Figure 3-1   Work Item Details Panel

For information about the Work Item Details panel, see Navigating the Process Workspace Process Tracking Page.

You can also use this panel to create comments and add attachments as described in Associating Comments and Attachments with a Process Instance.

3.3.1 Viewing History

The History section of the Work Item Details panel includes audit details, which can be displayed in three different ways - in a list view, a tree view, or a graphical view. Select the view from the drop-down list in the upper left corner of the History as shown in Figure 3-2.

Figure 3-2 Selecting the History View
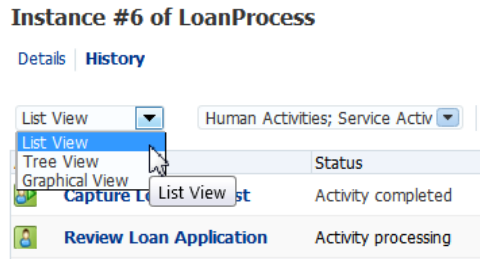
You can select the type of activity, sub-process, gateway, or event you want to view. To do this, select from the list at the top of the History section as shown in Figure 3-3.

Figure 3-3 Selecting Activities for History Details
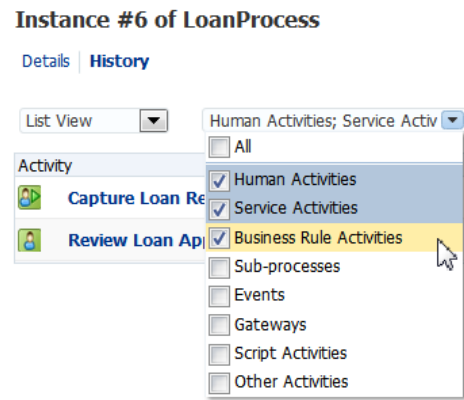
If you are an administrator or process owner, and if the selected activity includes an input or output payload, then you can display the input or output message for that activity. To do this, select the activity, then click either **Input Message** or **Output Message**, The message appears in a pop-up as shown in Figure 3-4.

Figure 3-4   Displaying Activity Input and Output Messages
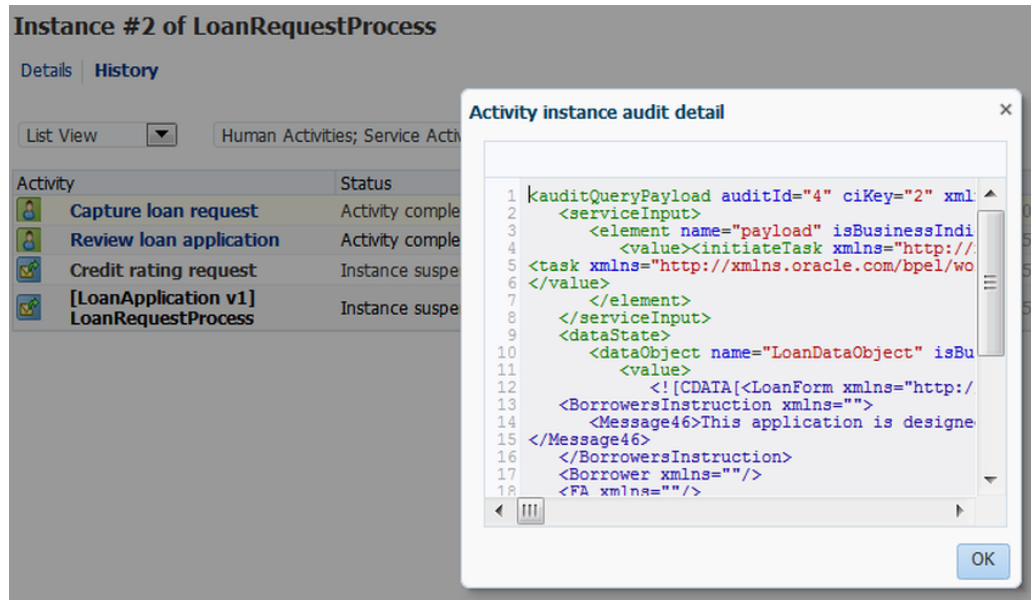
3.3.2 Associating Comments and Attachments with a Process Instance

You can associate comments or attachments with process instances.

3.3.2.1 To associate a comment with a process instance

1. From the worklist, select the process instance with which you want to associate a comment.

2. In the details panel, in the Comments section, click **New**.

3. Enter your comment and click **OK**.

3.3.2.2 To associate an attachment with a process instance

1. From the worklist, select the process instance with which you want to associate an attachment.

2. In the details panel, in the Attachments section, click **New**. The Add Attachment dialog box appears.

3. In the Description field, optionally enter a description for the attachment.

4. In the Filename field, enter the path to the file, or click **Browse** to navigate to it.

5. Click **OK**.

> **Note:**
>
> - If you add an attachment to a process instance, and later delete it from the corresponding task, then the attachment is also deleted from the process instance.
>
> - In an environment with servers clustered for high availability purposes, file uploading is not supported in the event of a failover. If the active server shuts down, then the uploading process is not assumed by the other server, and the upload fails.

3.4 Performing a Bulk Operation in Process Workspace

You can perform Cancel as the only available bulk operation.

To perform a bulk operation:

1. In the Process Tracking page, from the process instance list, select several instances.

   In the Instance Details panel, a message indicates how many instances are currently selected to be processed. Also, the Actions list is updated with the options that can be performed over the group of instances that were selected.

2. Select the operation in the Actions list. The selected operation is performed on the instances you specified.

3.5 Canceling a Process Instance in Process Workspace

Only process owners can cancel a process instance.

To cancel a process instance:

1. From the Actions list at the end of the row for the instance you want to cancel, select **Cancel**.

2. Select the instance, and from the Actions list on the toolbar of the Process Tracking page, select **Cancel**.

3.6 Customizing the Presentation of Process Instances in Process Workspace

A presentation is the column arrangement used when viewing instances in the Work Items panel. You can use an existing presentation or create a new one to be associated with that view. You can choose the columns that are presented in any view displayed in the Work Items panel.

To customize the presentation of a process instance:

1. From the Views panel, select the view whose presentation you want to customize. The view is displayed in the Work Items panel.

2. From the Work Items toolbar, click **Edit Presentation**. This displays the Presentation dialog box in which you can select and sort the columns in your presentation.

3. From the Available Columns list, select the columns you want to include in your view and move them to the Presentation Columns list by clicking the right arrow.

4. To sort the columns:

   a. Select an individual item in the Presentation Columns list.

   b. Move it into place by using the vertical arrows to the right of the list.

   c. Repeat for each column you want to sort.

5. Click **OK**.

Note:

The Work Items panel displays process instances in two places: in the Process Tracking page and when using the Standard Dashboards page. You can customize the presentation of this panel as it appears in both places. However, if you first change the presentation in the Process Tracking page, and then change the presentation in the Standard Dashboards page, the latter configuration overrides whatever presentation you have configured in the Process Tracking page. When you navigate back to the Process Tracking page, the presentation is what you configured in the Standard Dashboards page.

4

Working with Activity Guides in Process Workspace

You can use activity guides in Oracle Business Process Management Workspace (Process Workspace) to organize and lead you through the various processes in which you have assigned tasks.

This chapter includes the following sections:

- Understanding Activity Guides
- Navigating Activity Guides
- Showing or Hiding the Activity Guide Tab Page

4.1 Understanding Activity Guides

Activity guides organize your tasks into milestones. Each milestone has a specific set of tasks for you to complete, either on your own or in collaboration with others. For each milestone, the activity guide tells you which task to complete and in which order. You complete a milestone by completing all the tasks it contains for you. Depending on the nature of the task, you can save an unfinished task and resume it later.

Figure 4-1 shows an example of an activity guide.

Figure 4-1   Sample Activity Guide
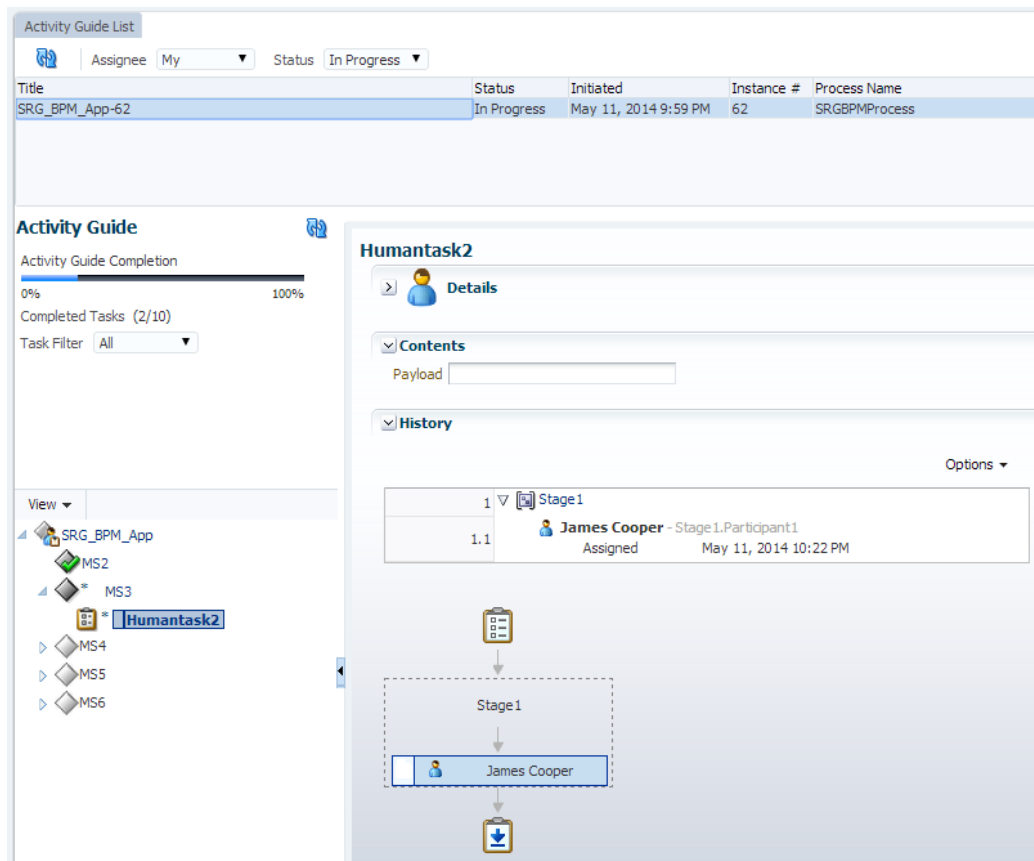
Using an activity guide, you can:

- Expand a milestone to see and act on the tasks it includes.

- View the status and percent completion of the overall business process in which you participate.

4.1.1 Using Activity Guides

As in the example in Figure 4-1, an activity guide can help organize the tasks involved in an process. The activity guide moves the user through the correct sequence of steps in the process. In this example, one milestone is *MS3*, which includes the task *Human Task*.

In an activity guide, users can act on only those tasks that presently need their attention in the current milestone. After they have completed all the tasks for that milestone, they can act on the tasks for the next milestone. They cannot act on tasks in future milestones or on those assigned to other users.

4.2 Navigating Activity Guides

When you select the Activity Guides tab, the tab page displays the Activity Guide List.

The upper section of the Activity Guide List shows a process list displaying all the processes currently moving through the system.

- To get the latest updates to these processes, click the **Refresh Activity Guide process list** icon.

- To filter the data for the Assignee, select from the following:

  - **My**: Retrieves all activity guide process instances that have active tasks assigned to the logged-in user and those that report to that user.

  - **Previous**: All activity guides processes instances whose tasks have been completed by the logged-in user.

  - **Reportees**: Retrieves all activity guide process instances that have active tasks assigned to those that report to the logged-in user.

  - **Reviewer**: Reviews activity guide process instances that have active tasks assigned to the logged-in user.

- To filter the data according to the status of the processes, select one of the following:

  - In Progress

  - Completed

  - Errored

Table 4-1 lists and describes the columns in the process list displayed in the Activity Guide List subtab.

Table 4-1   Process List

Column	Description
Title	Two possible values: • Combination of Process Name and Instance Number • Input provided by the end user when instantiating the process
Status	Current status of the activity guide process.
Initiated	Date the process is initiated.
Instance #	A number assigned to the activity guide process when the process gets instantiated from the Oracle Fusion Middleware Control.
Process Name	Title provided by the process designer in the BPMN editor while modeling the Activity Guides Process.
Composite Name	Oracle BPM composite name with revision number.
Last Updated	Most recent date the activity guide was updated.

To display a process activity guide in the lower section of the page, select the process from the process list. To display a process activity guide in a separate tab page, right-click the process in the process list and select **Open in separate tab**. This separate tab page refreshes to whatever process you later select from the process list.

The left section of the activity guide displays the guide's navigation panel described in Table 4-2.

Table 4-2   Activity Guide Navigation Panel

Element	Description
Activity Guide Refresh	Refreshes the navigation panel if any action is performed in the current activity guide process outside of Process Workspace.
Activity Guide Completion progress bar	Shows the percentage of completion of the current activity guide process.
Completed Tasks	Number of tasks the currently logged-in user has completed out of the total number tasks in the current activity guide process.
Task Filter	For the current activity guide process, specifies the type of task to display in the task details pane. Options: - All - Required - In Progress - Completed - Optional (Tasks that are not mandatory in the process, but that still require a user to explicitly skip)

The right section of the activity guide displays the details of the selected node in the activity guide process tree.

For information about the Task Details page, see Using the Process Workspace Task Details Page.

4.3 Showing or Hiding the Activity Guide Tab Page

If you are an administrator, you can specify whether to show or hide the Activity Guide tab page. If you choose to show it, you can make it the default tab when a user logs in.

For instructions on how to show or hide the Activity Guide tab, and to make it the default, see How to Specify_ Show_ or Hide the Default Tab Pages in Process Workspace.

5

Creating and Editing Custom Pages in Process Workspace

You can customize the default layout in Oracle Business Process Management Workspace (Process Workspace). Process designers and administrators can create new layouts and associate them with different sets of roles. This enables them to define the experience for the various kinds of users of each project.

This chapter includes the following sections:

- Understanding Custom Pages in Process Workspace

- Creating and Editing Custom Pages in Process Workspace

- Establishing Communication Between Panels in Process Workspace

5.1 Understanding Custom Pages in Process Workspace

Process Workspace provides its own default layout, but you can customize the layout by adding new pages and panels. You can set permissions for the group of pages by assigning a role.

You can choose which pages to hide or show by selecting from the **Hide Tabs** list in the toolbar. Depending on your roles, you may see several layouts at the same time.

The custom page has three sections:

- Panel Label, which has a text field for specifying a name for the page.

- Panel Properties, which has a field labeled Data Source, in which you can enter all or part of the name of a data source.

  You can also click the adjacent **Browse** button to search for a data source. This section also has a field labeled **When clicking on the widget**. It has an adjacent list from which you select the action you want triggered when clicking a widget.

- Communication with Other Panels described in Establishing Communication Between Panels in Process Workspace.

This editable display of the panel enables you to define the name and properties for the new page and establish communication with other panels. In addition, the icons in the upper right corner of the new page enable you to:

- Switch to View Mode—that is, the manner in which the page is ordinarily viewed. After you switch to View Mode, you can switch back to Edit Mode.

- Move the panel up, right, left, or down.

- Add another panel to the right, left, above, or below this one.

- Remove this panel.

5.2 Creating and Editing Custom Pages in Process Workspace

You can design and add new pages and panels to customize your layout.

This section contains the following topics:

- How to Create a Custom Page in Process Workspace

- How to Add an External URL to a Customized Page in Process Workspace

- How to Add an Applications Panel to a Customized Page in Process Workspace

- How to Add a Dashboards Panel to a Customized Page in Process Workspace

- How to Add a Process Instance Panel to a Customized Page

- How to Grant and Manage Access to Customized Pages in Process Workspace

5.2.1 How to Create a Custom Page in Process Workspace

To create a custom page:

1. In the Process Workspace navigation bar, select **More**, then select **Add Custom Page.**

   The new page appears.

2. Enter a Name for your new page and click **Apply.**

3. In the upper right corner of the new page, click **Add Panel.**

   The **Add Panel** dialog box appears with the **Applications** item selected, as shown in Figure 5-1.

   Figure 5-1   Adding an Applications Panel
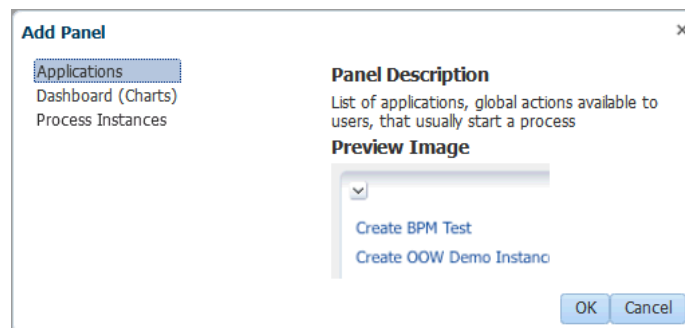
4. You can choose the type of application panel to add: application, dashboard, or process instance.

   For more information, see:

   - How to Add an Applications Panel to a Customized Page in Process Workspace

   - How to Add a Dashboards Panel to a Customized Page in Process Workspace

   - How to Add a Process Instance Panel to a Customized Page

5.2.2 How to Add an External URL to a Customized Page in Process Workspace

You can set your customized page to open any other application you build by configuring the custom page to use that external application's link. For example, you can include a link to a custom application that enables users to complete a new service request. To do this, in the newly created page, check the **Show External URL** check box and add the URL.

> **Note:**
>
> Do not enter the external URL of a website that has frame bursting enabled. To include such websites, add them as external applications as explained in How to Enable Customized Applications and Links in Process Workspace.

5.2.3 How to Add an Applications Panel to a Customized Page in Process Workspace

To add an Applications panel to a customized page:

1. In the Process Workspace navigation bar, select **More**, then select **Add Custom Page**.

   The new page appears.

2. In the upper right corner of the new page, click **Add Panel**.

   The Add Panel dialog box appears with the Applications item selected.

3. From the Add Panel dialog box, select **Applications**, then click **Ok**.

   The Applications panel appears on the page.

4. Specify the name of the Applications panel and any configurable properties.

5. Click **Apply**.

5.2.4 How to Add a Dashboards Panel to a Customized Page in Process Workspace

From the Add Panel dialog box, you can also select Dashboards (Charts), as shown in Figure 5-2.

Figure 5-2 Adding a Dashboards (Charts) Panel
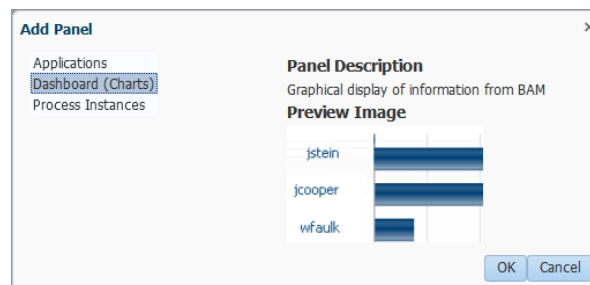
This dialog box enables you to include either charts or a chart selector in your new page. Choosing either one provides you with the corresponding preview image.

To add a Dashboards panel to a customized page:

1. In the Process Workspace navigation bar, select **More**, then select **Add Custom Page**.

    The new page appears.

2. In the upper right corner of the new page, click **Add Panel**.

    The Add Panel dialog box appears with the Applications item selected.

3. From the Add Panel dialog box, select **Dashboards (Charts)**, then click **Ok**.

    The Dashboards panel appears on the page. See Using Standard Dashboards for an explanation of the standard dashboards.

4. In the **Panel Label** section, specify the name of the Dashboards panel.

5. In the **Panel Properties** section, from the **Data Source** list, select a data source for this dashboard panel. The default options are:

    - Workload per process

    - Performance per process

    - Workload per participant

    - Performance per participant

    You can also specify a custom data source. To do this:

    a. In the Dashboards panel, in the **Panel Properties** section, to the right of the **Data Source** field, click the **Search** icon.

        The Data Sources dialog box appears as shown in Figure 5-3.

        Figure 5-3   Custom Data Source
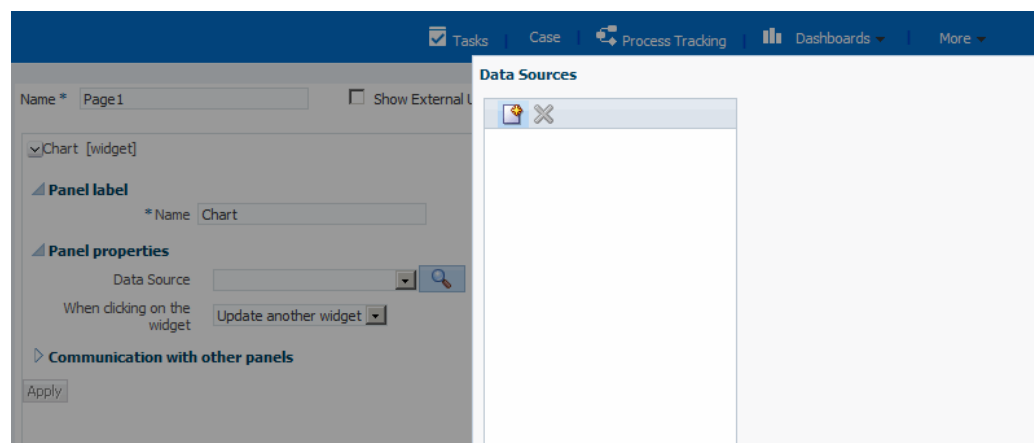
    b. In the navigator pane on the left, click **New**.

        A Data Source dialog box appears for you to create a new data source.

    c. Specify the fields as described in Specifying Graph Content.

    d. When you are finished specifying the data source, click **Ok**.

6. Specify the action to be triggered when clicking the graph or widget. Options are:

- Update another widget: Updates any widget configured to listen to this widget.

- Update a view: Updates any view configured to listen to this widget.

7. Specify any communication that is to take place with other panels.

   For information, see Establishing Communication Between Panels in Process Workspace.

5.2.5 How to Add a Process Instance Panel to a Customized Page

From the Add Panel dialog box, you can select Process Instances, as shown in Figure 5-4.

Figure 5-4   Adding a Process Instances Panel
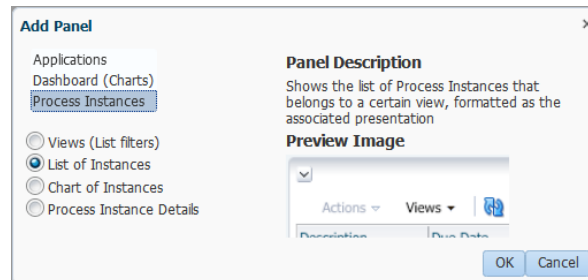
Selecting this option enables you to include one of the following types of process instance panels in your new page: views (list filters), list of instances, chart instances, and process instance details. Choosing any one of these displays the corresponding preview image.

To add a Process Instance panel:

1. In the Process Workspace navigation bar, select **More**, then select **Add Custom Page**.

   The new page appears.

2. In the upper right corner of the new page, click **Add Panel**.

   The Add Panel dialog box appears with the Applications item selected.

3. From the Add Panel dialog box, select **Process Instances**, select the type of Process Instances panel, then click **Ok**.

   The type of Process Instances panel you selected appears on the page.

4. In the **Panel Label** section, specify the name of the Process Instance panel.

5. If the **Panel Properties** section appears for the type of panel you selected, set the properties as required.

6. Specify any communication that is to take place with other panels.

   For information, see Establishing Communication Between Panels in Process Workspace.

5.2.6 How to Grant and Manage Access to Customized Pages in Process Workspace

An administrator can specify the roles that can access a custom page that the administrator has created. Non-administrative users cannot grant access to custom pages.

5.2.6.1 To specify access to a custom page

1. In the custom page you are adding, next to the Access field, click **Add Access Properties**.

Figure 5-5 Specifying Access to a Custom Page
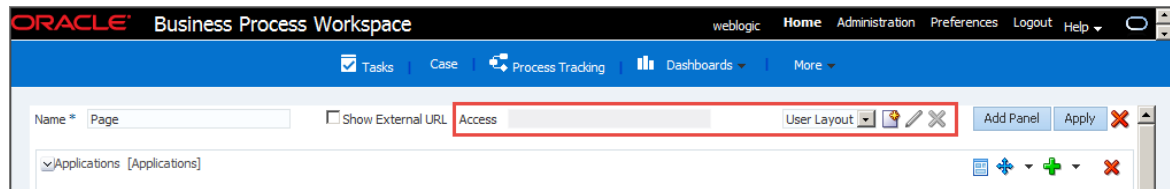
The Add Access Properties dialog appears.

2. In the Add Access Properties dialog box:

- Enter an identifier and a name for this page layout.

- From the Roles list on the left, select the roles to which you are granting access in this layout. Move them to the list on the right by clicking the arrow icons, then click **OK**.

  Note:

  – Every user can create custom pages, however an administrator can create a page and share that page with multiple users by providing access to a role which consists of multiple users.

  – To grant access to a role, the administrator must be associated with that role, else it will not appear in the Role list.

The layout you have just created appears in the Access list. That layout now specifies the roles with access to this custom page.

5.2.6.2 To edit access properties for a custom page

1. In the custom page you are adding, next to the Access field, click **Edit Access Properties**.

The Edit Access Properties dialog box appears.

2. Enter your changes, then click **OK**.

The layout as you have just edited appears in the Access list. It now specifies the roles with access to this custom page.

> **Note:**
>
> You can add new roles to a layout without removing previously granted roles.

5.2.6.3 To delete access properties for a custom page

In the custom page you are adding, next to the Access field, click **Delete Access Properties**.

If the layout is a custom one, then you are prompted to confirm the deletion.

To maintain the custom page for the current user when a custom layout is deleted, the user must first save the page to the default layout. Only then should the user create the custom layout, modify the page, and save it to the new layout. If the user does not first save the page to the default layout, then the page is deleted for all members of the roles defined in the custom layout, including the current user.

If the user had immediately created the custom layout and set it on the page before saving the page, then any custom pages previously associated with this custom layout remain, but are now associated with the default layout.

If the custom page uses the default layout, then the custom page is deleted. Users previously authorized to see this custom page will no longer see it.

5.3 Establishing Communication Between Panels in Process Workspace

You can establish communication between two panels so that an action in one panel is triggered by an action in the other.

For example, you can configure a Process Instance panel to listen for actions that occur in a View List panel. Then, when a user selects a given view in the View List panel, that action triggers the use of that view in the Process Instance panel.

5.3.1 Establishing Communication Between Panels in Process Workspace

To establish communication between panels, you configure one panel, designed with listening capabilities, to monitor actions in one or more source panels. An action occurring in a source panel then triggers an action in the listening panel.

> **Note:**
>
> Communication can be established only between panels on the same page.

To establish communication between panels:

1. In the custom page, click **Edit Mode**.

    The entire page is available for editing.

2. Create a source panel and select the appropriate option from the **Data Source** list.

3. Create a listening panel. This time, do not select anything from the **Data Source** list.

4. Expand **Communication with other panels**, and, in the Selected event sources window, select the source panel created in step 2.

5. In each panel, click **Apply**.

After you have completed the above step, any action in the source panel triggers a corresponding action in the listening panel. For example, when two dashboard panels are communicating, clicking any graphical bars in the source panel triggers the use of that view in the listening panel.

6

Using Dashboards in Process Workspace

Users of Oracle Business Process Management Workspace (Process Workspace) can use and customize process monitor and standard dashboards—that is, the displays, graphs and drill-downs based on data previously computed in a process cube schema. Dashboards reflect the standard metrics gathered during the execution of a process.

This chapter includes the following sections:

- About Process Monitor and Standard Dashboards
- Using the Process Monitor Dashboard
- Using Standard Dashboards
- Creating Custom Dashboards
- Understanding Data Visibility Rules in Dashboards

6.1 About Process Monitor and Standard Dashboards

Process Workspace has two types of dashboards: process monitor dashboards and standard dashboards.

Process monitor dashboards enable you to monitor and optimize process execution by identifying bottlenecks and other performance problems.

Standard dashboards present the standard metrics gathered during the execution of a process as graphs and drill-downs. The information displayed is based on data previously computed in a process cube schema.

6.1.1 Accessing Process Monitor and Standard Dashboards

To access the Process Monitor dashboard, from the Process Workspace home page, select **Dashboards**, then **Process Monitor**.

To access the standard dashboards, from the Process Workspace home page, select **Dashboards**, then **Standard Dashboards**.

6.2 Using the Process Monitor Dashboard

Use the Process Monitor dashboard to monitor process execution performance and identify problems with processes and activities.

6.2.1 Process Monitor Dashboard

Use the process monitor dashboard to select the process to monitor, the time interval over which to view statistics, and to view information and see alerts that enable you to identify process issues that are affecting performance.

In addition, other activity performance statistics related to the activities in the processes are generated and accessible for inspection.

Figure 6-1   Process Monitor Dashboard
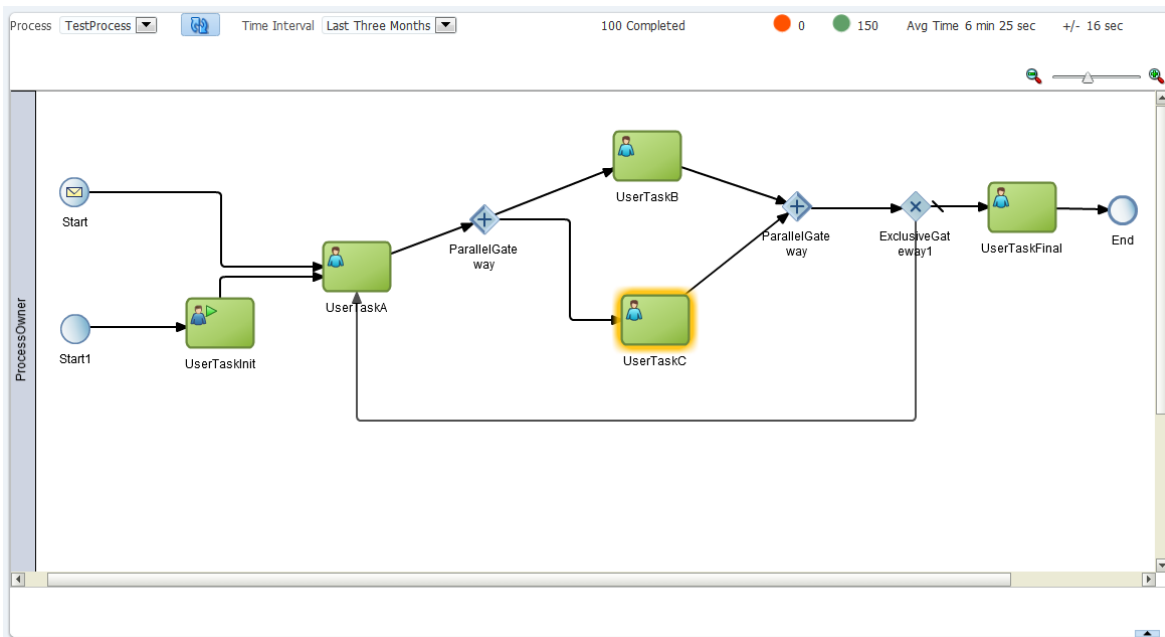
The process monitor dashboard, as shown in Figure 6-1 includes the following controls:

- Process - select the process to monitor

- Time Interval - select the time interval to view. Choices include:

    - Last 24 Hours

    - Last Five Days

    - Last One Month

    - Last Six Months

    - Last One Year

    - All

- Completed Instances - the number of completed process instances over the selected time period

- Faulted Instances - the number of process instances that failed or had other faults

- Avg Time - the average processing time of process instances

- Processing time - deviation (plus or minus times) from the average processing time for process instances

- Zoom control

- Process diagram - interactive diagram of the process, including swimlanes showing roles.

- Restore Pane - displays the performance graphs

6.2.1.1 Identifying and Viewing Alerts and Other Activity Metrics

Activities that have processing issues such as bottlenecks, appear with a yellow or red halo around them, as shown in Figure 6-1.

Alert types include:

- Time Problem

- Queue Problem

- Major Increment From Average

- Bottleneck

In addition to alert details, you can view additional process and activity and statistics

- Metrics

- Human Task

See About the Activity Details Dialog for details on the fields available for each of the alerts and statistics categories.

The color of the halo reflects the type and severity of the processing issue:

- Yellow - the issue is a time problem or a queue problem

- Red - the issue is both a time problem and a queue problem and is therefore a bottleneck, or the issue is a major increase in the historical average processing metrics for an activity

6.2.1.2 Viewing Performance Graphs

To view performance graphs, click Restore Pane in the lower right corner of the process monitor dashboard. This opens the performance graphs pane as shown in Figure 6-2

Figure 6-2   Process Monitor Dashboard Performance Graphs
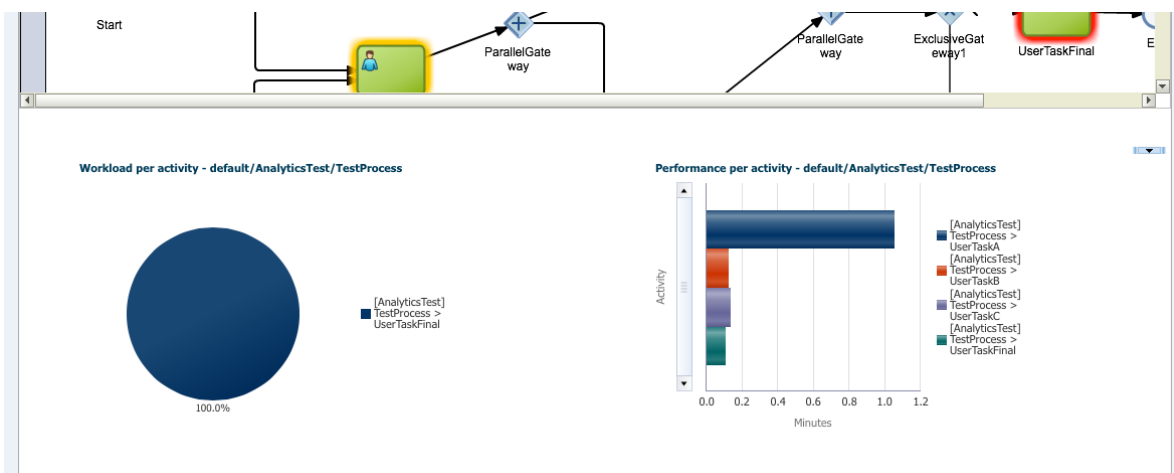
Two graphs are provided - Workload per activity, and Performance per activity. Click the graph elements to display more information about them. These are similar to the graphs discussed in Using Standard Dashboards.

6.2.2 About the Activity Details Dialog

Process monitoring information for activities clicked in the process diagram are displayed in a pop-up Activity Details dialog box.

To see the details for activities with issues, hover over the activity and click the information icon that appears, as shown in Figure 6-3

Figure 6-3   Activity With Processing Alert and Information Icon
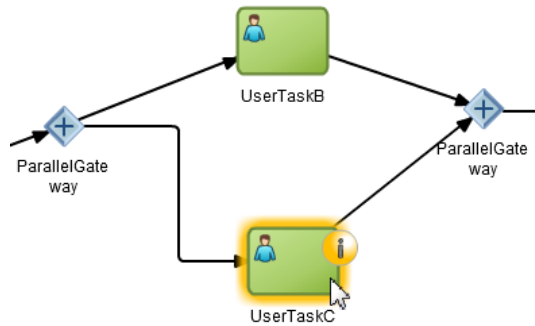
Activity details are displayed in the Activity Details dialog. Select a different type of detail by selecting it from the drop-down list.

Figure 6-4   Activity Details Dialog
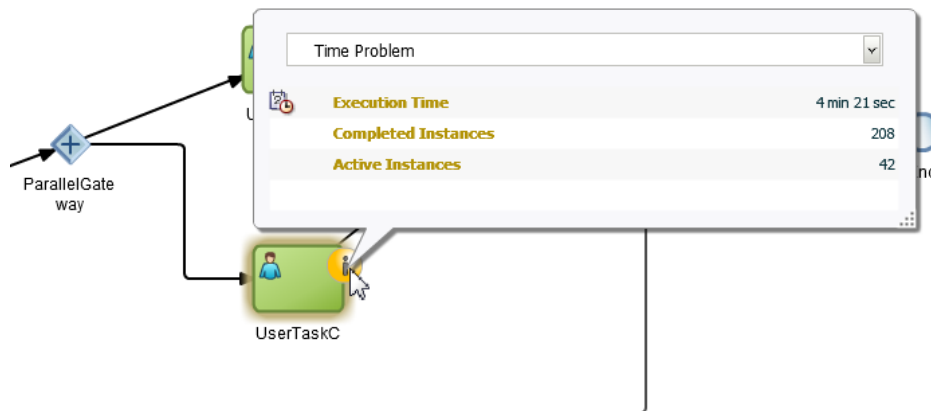
You can view statistics for activities that do not have any critical issues. These include user tasks, and other activities that BAM is configured to collect event metrics for.

Different sets of metrics are displayed in the Activity Details dialog. Select the metrics to view from the drop-down. Choices depend on the activity type, and whether there is a processing issue or not.

The different metric types are discussed in the following section. Note that not all metric types are available for all activities.

Time Problem

A time problem is generated when the time an activity takes to execute a single instance is long enough to impact the overall execution time of the process.

For each process, both the elapsed time and estimated time to completion are calculated (as well as their average, maximum, minimum and variance). These are based on previously completed process instances that have followed the same execution paths as the in-progress processes.

Fields displayed include:

- Execution Time

- Completed Instances

- Active Instances

Queue Problem

A queue problem exists when the number of instances waiting to be executed cause an impact on the process execution time, even though the execution time for a single activity may be acceptable.

Fields displayed include:

- Execution Time

- Completed Instances

- Active Instances

Major Increment From Average

This problem is flagged when the execution time for an activity has increased significantly from the historical average. The analysis is not related to the process execution time per se, but is based on a comparison between how the process behaved in the past and how it is currently behaving.

Fields displayed include:

- Execution Time

- Completed Instances

- Active Instances

Bottleneck

A bottleneck appears when there are activities that are taking significantly longer than the execution time average, and there is a queue problem at the same time. In other words, there are many instances of an activity and the execution time for each of the instances is expected to be too long. As a result, process execution time is negatively affected.

The bottleneck detection algorithm considers the average execution time per activity and deviation from the average, and calculates a threshold value. When activities are over the threshold, they can impact the overall processing times. An estimate of currently running activities is calculated. The total execution time and deviation are calculated to give a threshold value. When total activity execution time is over this threshold, a queue problem is indicated.

Fields displayed in the Activity Details dialog include:

- Execution Time

- Completed Instances

- Active Instances

Metrics

These are generic metrics related to the number of instances that completed that the activity, including elapsed and estimated completion time statistics. This information is available for any activity that is gathering process metrics information.

Fields displayed include:

- Instances

- Avg Elapsed Time

- Max Elapsed Time

- Min Elapsed Time

- Std Dev for Elapsed Time

- Avg Time to Completion

- Max Time to Completion

- Std Dev for Time to Completion

Human Task

These are metrics obtained from the related task execution. This information is available for any human task.

Fields displayed include:

- Total Processing Time

- Total Waiting Time

- Total Unattended Time

- Expired Task

- Tasks Violating Deadline

- Total Time for *<user>* - the user name appears instead of the *<user>* placeholder

6.3 Using Standard Dashboards

Standard dashboards are the graphs and drill-downs based on data previously computed in a process cube schema. They reflect the standard metrics gathered during the execution of a process.

In each of the standard dashboards, clicking a bar graph in the left pane causes data to be displayed graphically in the right pane. Clicking an item in the right pane displays certain data in the Work Items panel in the lower pane. This section explains how each type of dashboard operates.

You can customize the presentation of the Work Items panel in the lower pane. For information on how to do this, see Customizing the Presentation of Process Instances in Process Workspace.

This section contains the following topics:

- Participant Dashboards

- Process Dashboards

6.3.1 Participant Dashboards

Two types of standard participant dashboards enable you to analyze:

- The workload of participants

- The performance of participants

6.3.1.1 Participant Workload Dashboard

Figure 6-5 shows an example of a participant workload dashboard.

Figure 6-5   Participant Workload Dashboard
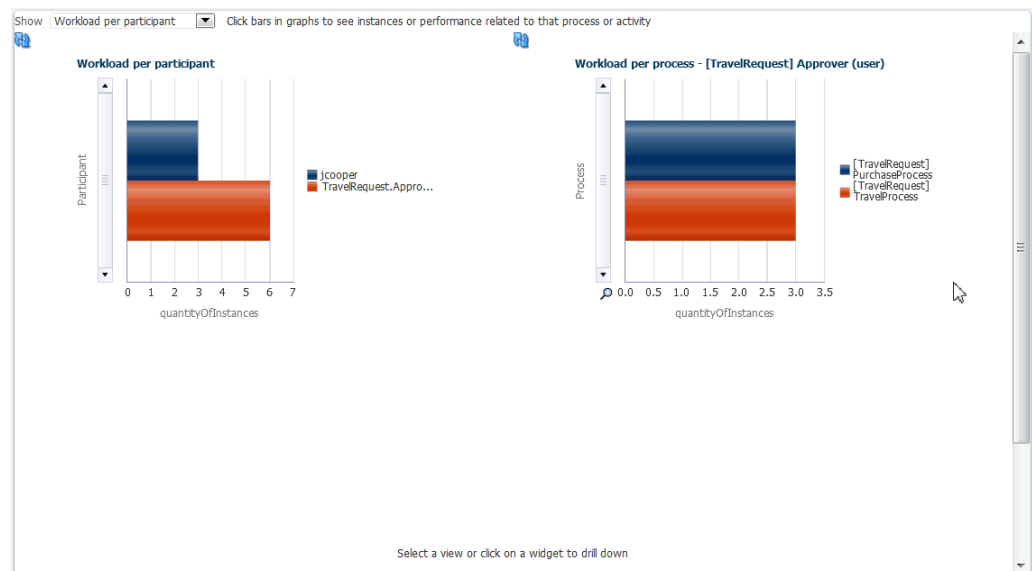
The left panel of a participant workload dashboard displays the total number of active instances waiting for completion for each participant across all processes. When you navigate into the chart for a specific participant, the right panel displays the total number of active instances waiting for completion by process for either the selected participant or the selected role. The last drill-down displays the active instances waiting for completion for either the selected participant or the selected role and process.

6.3.1.2 Participant Performance Dashboard

The left panel of a participant performance dashboard displays the average time taken by participants across all processes. When you navigate into the chart for a specific participant, the right panel displays the average time taken to complete instances by process for the selected participant. The last drill-down displays the list of completed instances for either the selected participant or the selected role and process.

6.3.2 Process Dashboards

Two types of standard process dashboards enable you to analyze:

- The number of process instances waiting for completion

- The average time taken per process

6.3.2.1 Process Workload Dashboard

Figure 6-6 shows a process workload dashboard.

Figure 6-6   Process Workload Dashboard

The left panel in the process workload dashboard displays the total number of active instances waiting for completion per process. When you navigate into a specific process, the right panel displays the total number of active instances waiting for completion for activities in the selected process. The last drill-down displays the active instances waiting for completion for the selected activity and process.

6.3.2.2 Process Performance Dashboard

The left panel in the process performance dashboard displays the average time taken per process. When you navigate into a specific process, the right panel displays the average time taken to complete by activities in the selected process. The last drill-down displays the completed instances for the selected activity and process.

Figure 6-7 shows a process performance dashboard.

Figure 6-7   Process Performance Dashboard
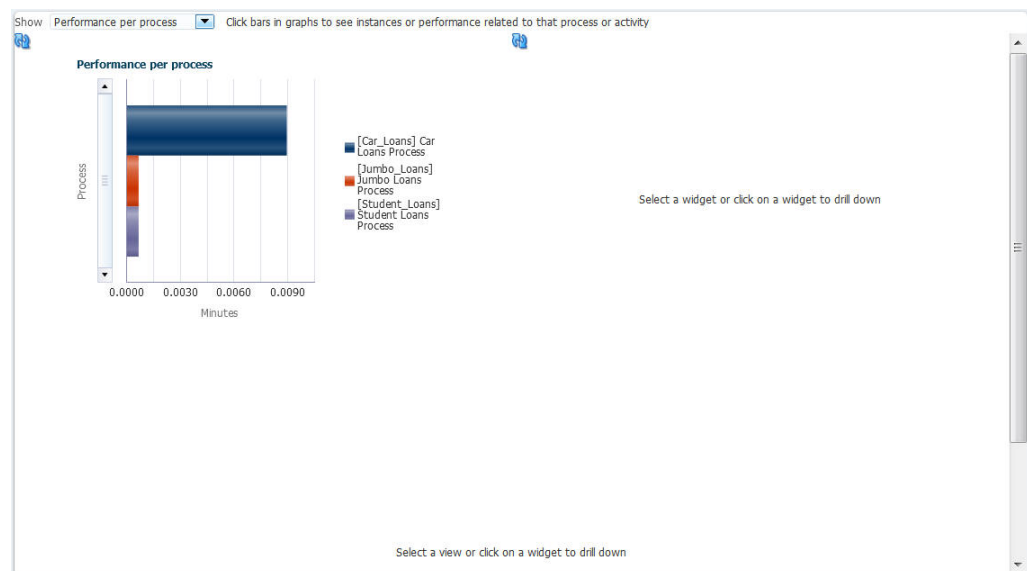
6.4 Creating Custom Dashboards

As with standard dashboards, custom dashboards are the graphs and drill-downs based on data previously computed in a process cube schema. They reflect the standard and user-defined metrics gathered during the execution of the process. They enable you to define new graphs using both standard metrics and user-defined metrics specified by using business indicators.

> **Note:**
>
> From BPM 12c onwards, users are encouraged to model any custom dashboards from BAM 12c composer to leverage the rich dashboard capabilities in BAM 12c.
>
> Workspace 12c custom dashboards created using the participant dimension continue to display participant data with 11g compatibility. That is, for workload custom dashboards, the physical role corresponding to the swimlane for the user task is shown as a participant. For participant performance dashboards, only the last user who acted on the user task is shown as the participant.

For instructions about adding a custom dashboard, see How to Create a Custom Page in Process Workspace.

6.4.1 Specifying Graph Content

Graph content is specified by defining a data source.

For information about invoking the data source dialog box, see How to Add a Dashboards Panel to a Customized Page in Process Workspace.

Specify the following data source information:

- Name: Provide a data source identifier.

- Title: Provide the title used while displaying the data source.

- Graph Type: Select one of the following list of graph types:

  - Area

  - Percent Area

  - Stacked Area

  - Horizontal Bar

  - Horizontal Percent Bar

  - Horizontal Stacked Bar

  - Bar

  - Percent Bar

  - Stacked Bar

  - Line

  - Percent Line

  - Stacked Line

  - Pie

  - Pie Bar

  - Multiple Pie

- Process: Select the process from the list.

  All business indicators associated with the selected process become available for the data source definition.

- Data Type: Select one of the following supported data types:

  - Workload

  - Activity and Measurement Sampling

  - Process Level Sampling

Dimensions

- **Series**: Specify the dimension.

  Series variables categorize the data. The series variable values are displayed in the legend area labels in the chart.

  Use Range: Select to use ranges for dimensions with ranges.

- **Group**: Specify the dimension used to group the dimensions used in a series.

  Group variables also categorize the data. The group variable values are displayed as labels along one of the axis in the chart.

  Use Range: Select to use ranges for dimensions with ranges.

Note:

Group and Series variables can be used together to perform nested categorization of chart data, in which case, series values are displayed under each group. For example, Total revenue by customer (series) and by product (group).

- **Drilldown to Series**: Select a drill-down series variable which is propagated to a listening dashboard panel.

  As a result, a drill-down dashboard is displayed in the listening dashboard panel. For more information, see Establishing Communication Between Panels in Process Workspace.

  Use Range: Select to use ranges for dimensions with ranges.

Table 6-1 summarizes the standard dimensions available based on the Data Type selection. Additionally, all the process specific dimensions are available.

Table 6-1   Available Standard Dimensions

Dimension	Workload	Activity and Measurement Sampling	Process Sampling
Dimension: Series	RevisionRoleActivitiesParticipant	Revision Role Activities Participant Completion Date	Revision Completion Date
Dimension: Group	Participant	Participant Completion Date	Completion Date

Measure

- **Variable:** Specify the measurement.

  Table 6-2 summarizes the list of standard measurements available based on the Data Type selection. Additionally, all the process-specific measurements are available.

Table 6-2   Available Standard Measurements

Variable	Workload	Activity and Measurement Sampling	Process Sampling
Variable	Instances Task Avg. Time Task Median Process Avg. Time Process Median Time	Task Time	Task Time

- **Operation Type:** Specify the aggregation functions to be applied on the measurement variables selected.

Table 6-3 summarizes the operation types that can be used with various Data Type selections.

Table 6-3   Allowed Operation Types

Operation	Workload	Activity and Measurement Sampling	Process Sampling
Operation Type	Avg Sum	Avg Sum Min Max	Avg Sum Min Max

- **Value Type:** Select one of the following values: Value, Day(s), Hours, Minutes, Seconds, or Percentage.

Note:

If a new process is deployed while you have a dashboards page open, the new process is not listed in the Data Sources dialog box until you log out of Process Workspace and then log back in.

Filters

You can add filter conditions based on the measure variables, series, and groups. You can add the filter condition only if a process is selected from the Process list. If "All" is selected in the Process list, then the Filters section is disabled.

Note:

If you add a filter for business indicators, that filter filters out the values initially based on the condition given. Aggregation—either the sum or the average—then applies to the resulting set of items.For example, if the user tries to compute the average of all business indicator values greater than 1000, the user sets a filter for this—for example: BI <Greater or equals> 1000 and set Operation type as "avg". The result is that the business indicator values greater than 1000 are collected first, and then the computation for the average calculation takes place.

6.5 Understanding Data Visibility Rules in Dashboards

This section discusses data visibility rules applicable to dashboards in Process Workspace.

This section contains the following topics:

- Workload Sampling Data

- Activity and Measurement Sampling Data

- Process Level Sampling Data

6.5.1 Workload Sampling Data

The section discusses the restrictions applicable to workload sampling data and the application roles a user must have in order to view certain activities in Process Workspace. The restrictions are:

- The workload for activities and user task participants is seen by the member of the corresponding `swimlane` application role, `processowner` application role or `bpmprocessadmin` application role or `BPMDashboardViewer` application role.

- If a process is associated with an organization unit, the corresponding workload sampling data is restricted to organization unit members, `bpmprocessadmin` application role or `BPMDashboardViewer` application role members.

6.5.2 Activity and Measurement Sampling Data

This section discusses the restrictions applicable to activity and measurement sampling data and the application roles a user must have in order to view certain activities in Process Workspace. The restrictions are:

- Activities are seen by the member of the corresponding `swimlane` application role, `processowner` application role, `bpmprocessadmin` application role or `BPMDashboardViewer` application role.

- If a process is associated with an organization unit, the corresponding activity and measurement sampling data is restricted to organization unit members, `bpmprocessadmin` application role or `BPMDashboardViewer` application role members.

6.5.3 Process Level Sampling Data

This section discusses the restrictions applicable to process level sampling data and the application roles a user must have in order to view certain activities in Process Workspace. The restrictions are:

- If a process is associated with an organization unit, the process data is visible to the organization unit members or `bpmprocessadmin` or `BPMDashboardviewer` application role members.

- If a process is not associated with an organization unit, it is visible to all users.

7

Managing Workloads Among Users in Process Workspace

Supervisors can use Oracle Business Process Management Workspace (Process Workspace) to view and update all tasks assigned to the users who report to them.

This chapter includes the following sections:

- Managing the Availability of Users in Process Workspace
- Distributing Work among Users in a Group
- Setting Rules
- Setting Assignment Rules for Tasks with Multiple Assignees
- Reassigning or Delegating Tasks in Process Workspace
- Using Reports to Manage Workflows in Process Workspace
- Using Dashboards to Manage Workflows in Process Workspace
- Handling Escalations in Process Workspace

For information about troubleshooting human workflow issues, see Human Workflow Troubleshooting in *Administering Oracle SOA Suite and Oracle Business Process Management Suite*.

7.1 Managing the Availability of Users in Process Workspace

If a user is unavailable for a period of time and must delegate some or all assigned tasks to another user, then the user rules can automatically reassign the tasks based on certain conditions.

More specifically, if a user is going on vacation, then a vacation period can be associated with a rule to create a vacation rule.

For more information about creating user rules, see How to Create User Rules in Process Workspace.

For more information about setting a vacation rule, see How to Enable a Vacation Period in Process Workspace.

7.2 Distributing Work among Users in a Group

To distribute work among users in a group, create rules for that group.

Creating group rules is similar to creating a user rule, with the addition of a list of the groups that you, as the logged-in user, manage.

For information about creating user rules, see How to Create User Rules.

Examples of group rules include:

- Assigning tasks from a particular customer to a member of the group.

- Ensuring an even distribution of task assignments to members of a group by using round-robin assignment.

- Ensuring that high-priority tasks are routed to the least busy member of a group.

For information about creating a group rule, see How to Create Group Rules.

7.3 Setting Rules

Rules act on tasks. These tasks can be a specific task type or all of the tasks assigned to a user or group.

Figure 7-1 shows where you set rules, including vacation rules (different from the vacation period settings described in How to Enable a Vacation Period in Process Workspace).

Figure 7-1   Creating a Rule

A rule cannot always apply in all circumstances in which it is used. For example, if a rule applies to multiple task types, it may not be possible to set the outcome for all tasks, since different tasks can have different outcomes.

Rules are executed in the order in which they are listed. Rules can be reordered by using the up and down buttons in the header, as shown in Figure 7-1.

If a rule meets its filter conditions, then it is executed and no other rules are evaluated. For your rule to be executed, you must be the only user assigned to that task. If the task is assigned to multiple users (including you), the rule does not execute.

You cannot specify business rules for To-Do tasks.

7.3.1 How To Create User Rules

Specify the following when creating a user rule:

- Rule name.

- If the rule is a vacation rule, see How to Enable a Vacation Period in Process Workspace, for how to set the vacation period that is synchronized with the vacation rule.

- Which task or task type the rule applies to—If unspecified, then the rule applies to all tasks.

  If a task type is specified, then any attributes mapped for that task type can be used in the rule condition.

- When the rule applies.

- Conditions on the rule—These are filters that further define the rule, such as specifying that a rule acts on priority 1 tasks only, or that a rule acts on tasks created by a specific user.

  The conditions can be based on standard task attributes and any mapped attributes that have been mapped for the specific tasks. See How to Specify Mapped Attributes, for more information.

User rules do the following actions:

- **Reassign to**—You can reassign tasks to subordinates or groups you manage.

- **Delegate to**—You can delegate to any user or group. Any access rights or privileges for completing the task are determined according to the original user who delegated the task. (Any subsequent delegations or re-assignments do not change this from the original delegating user).

- **Set outcome to**—You can specify an automatic outcome if the workflow task was designed for those outcomes, for example, accepting or rejecting the task. The rule must be for a specific task type. If a rule is for all task types, then this option is not displayed.

- **Take no action**—Use this action to prevent other more general rules from applying. For example, to reassign all your tasks to another user while you are on vacation, except for loan requests, for which you want no action taken, then create two rules. The first rule specifies that no action is taken for loan requests; the second rule specifies that all tasks are reassigned to another user. The first rule prevents reassignment for loan requests.

To create a user rule:

1. Click the **Preference**s link

   The Preferences pane is displayed.

2. In the Preferences pane, click **Rules**.

   The corresponding pane appears in the middle of the screen.

3. Click **My Rules** and then click **Add**.

   The My Rule pane appears on the right.

4. In the My Rule pane, do the following and click **Save**:

   - Provide a name for the rule.

- Select **Use as a vacation rule** if you are creating a vacation rule.

  The start and end dates of the rule are automatically synchronized with the vacation period.

- Browse for task types to which the rule applies.

- Select **Execute rule only between these dates** and provide rule execution dates.

- In the **IF** area, add rule conditions.

- In the **THEN** area, select actions to be taken: **Reassign to**, **Delegate to**, **Set outcome to**, or **Take no action**), as shown in Figure 7-2.

The new rule appears under the **My Rules** node.

7.3.2 How To Create Group Rules

Creating a group rule is similar to creating a user rule, with the addition of a list of the groups that you (as the logged-in user) manage. Examples of group rules include:

- Assigning tasks from a particular customer to a member of the group

- Ensuring an even distribution of task assignments to members of a group by using round-robin assignment

- Ensuring that high-priority tasks are routed to the least busy member of a group

Group rules do the following actions:

- **Assign to member via**—You can specify a criterion to determine which member of the group gets the assignment.

  This dynamic assignment criterion can include round-robin assignment, assignment to the least busy group member, or assignment to the most productive group member. You can also add your custom functions for allocating tasks to users in a group.

- **Assign to**—As with user rules, you can assign tasks to subordinates or groups you directly manage.

- **Take no action**—As with user rules, you can create a rule with a condition that prevents a more generic rule from being executed.

To create a group rule:

1. Click the **Preferences** link.

   The Preferences pane is displayed.

2. In the Preferences pane, click **Rules**.

   The corresponding pane appears in the middle of the screen.

3. Click the **Other Rules** tab.

4. Select **My Group** from the list.

5. Enter a group name and click **Show Rules**, or click the **Search** icon to search for a group name, then click **Show Rules**.

If you search for a group name, then the Identity Browser dialog box opens for you to find and select a group.

6. Select the group name under the **Group Rules** node and click **Add New Rule**, as shown in Figure 7-2.

Figure 7-2   Creating a Group Rule

7. Provide group rule information and click **Save**.

- Provide a name for the rule.

- Browse for task types to which the rule applies.

- Provide rule execution dates.

- In the **IF** area, add rule conditions.

- In the **THEN** area, select the actions to be taken (or none) (**Assign to member via**, **Assign to**, or **Take no action**), as shown in Figure 7-2.

The new rule appears under the **Group Rules** node.

7.4 Setting Assignment Rules for Tasks with Multiple Assignees

If a task has multiple assignees, then assignment rules are not evaluated for the task, and the task is not automatically routed. This is because each of the task's assignees can define assignment rules, which can potentially provide conflicting actions to take on the task. Only tasks that are assigned exclusively to a single user are routed by the assignment rules.

For example, consider the following sequence:

1. A rule is created for user *cdickens* to reassign all assigned requests to user *jstein*.

2. User *jcooper* reassigns the allocated tasks to *cdickens* and *cdoyle*.

3. *Cdickens* claims the task, and the task appears in their inbox.

The task is not automatically reassigned to *jstein*. The task is routed to jstein, following the assignment rule set for *cdickens*, only if user *jcooper* explicitly reassigns the task to *cdickens* alone, instead of reassigning the task to multiple users (*cdickens* and *cdoyle*).

7.5 Reassigning or Delegating Tasks in Process Workspace

Supervisors and users can reassign or delegate tasks.

A supervisor can reassign or delegate tasks to reportees. A user with `BPMWorkflowReassign` privileges can delegate a task to anyone.

To reassign or delegate a task:

1. From the **Task Actions** list, select **Reassign**, as shown in Figure 7-3.

   Figure 7-3 Reassigning a Task
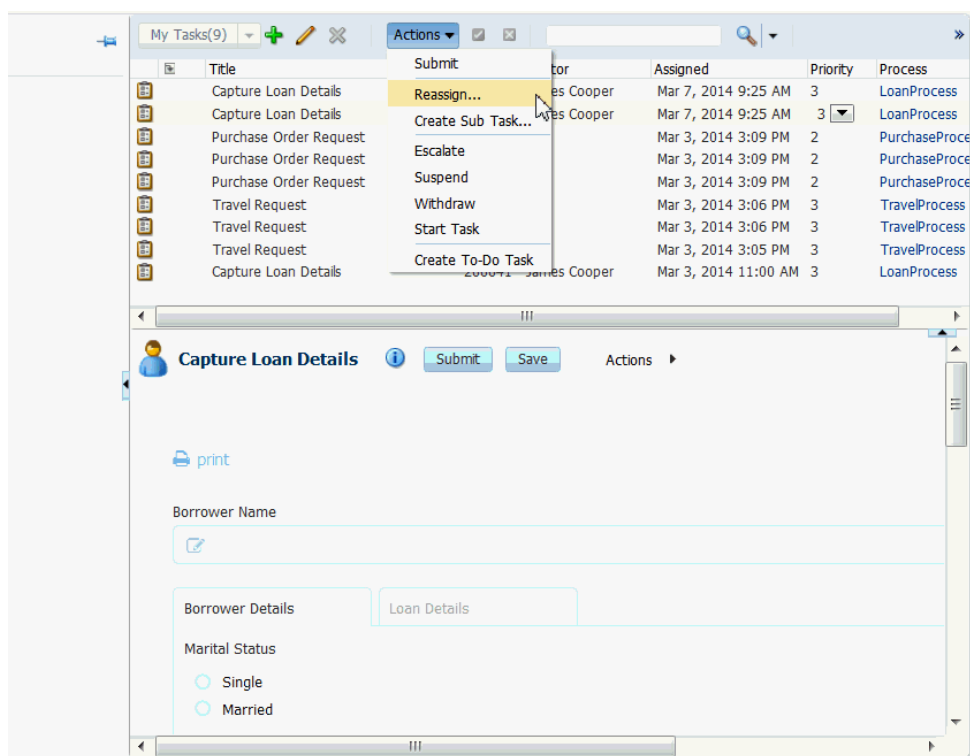
2. Select **Reassign** or **Delegate**.

   Delegate differs from **Reassign** in that the privileges of the delegate are based on the delegator's privileges. This function can be used by managers' assistants, for example.

3. Provide or browse for a user or group name, as shown in Figure 7-4.

Figure 7-4   Reassigning a Task
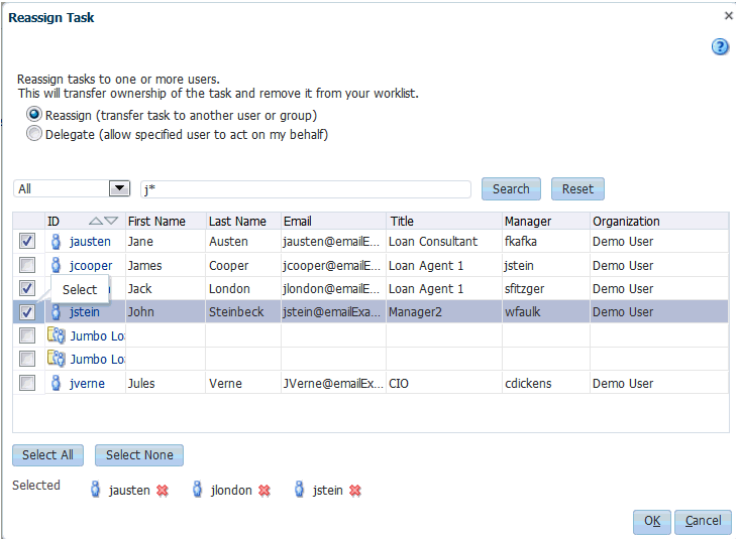
A supervisor can always reassign tasks to any of his reportees.

4. Move names to the **Selected** area and click **OK**.

You can reassign to multiple users or groups. One of the assignees must claim the task, as shown in .

Figure 7-5   Claiming a Task
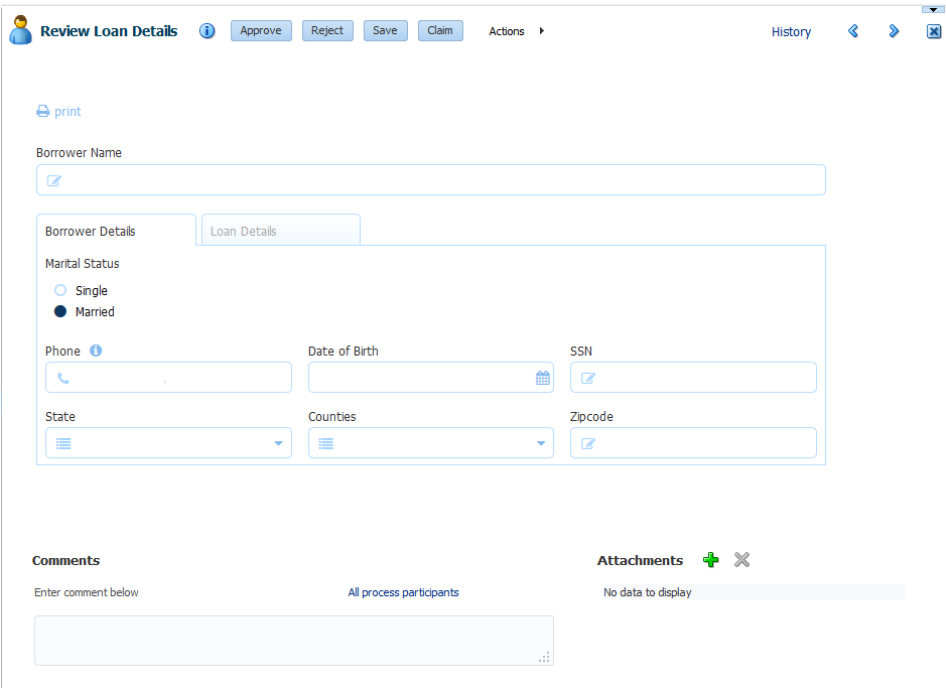
> **Note:**
>
> When task details have been upgraded from an earlier release, you can see a "Request Failed" error when executing the **Reassign** action. Actually, the reassign completes, and when you click OK again, a popup says the task is already assigned.
>
> To eliminate the error message, upgrade your taskflow applications by opening them in Oracle JDeveloper, then redeploy the task form.

7.6 Using Reports to Manage Workflows in Process Workspace

Reports are available on the Tasks page in the Reports panel. Report results cannot be saved.

Figure 7-6 shows the Reports panel displaying the standard report types available.

Figure 7-6   Oracle Business Process Management Workspace Reports

For more information about reports, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

7.7 Using Dashboards to Manage Workflows in Process Workspace

Dashboards provide a variety of analytical information about the workload on users for the different processes being executed.

For example, if a specific user has many tasks assigned to her, and she is making little progress, this would indicate that all those corresponding processes are blocked. Having this information enables you to reassign those tasks to someone else and, if necessary some user or group routing rules can be specified to manage the issue in the short term.

For more information about dashboards, see Using Dashboards in Process Workspace.

7.8 Handling Escalations in Process Workspace

Escalations are among the system actions you can perform from the Task Details page. If a user escalates a task, it is automatically assigned to whomever is specified in the escalation path.

The escalation path is specified by the administrator. If no escalation path is specified, then the task escalates to the user's supervisor who can reassign it from there.

If a task is assigned to a role, but none of the role members have claimed the task, then the task is escalated as specified in the escalation path for that role. If the task is assigned to a role and a role member has claimed the task, then the escalation goes to the role member's supervisor.

For information about how an administrator specifies the escalation path, see How to Specify the Escalation Path for a Role.

For more information about the Task Details page, see Using the Process Workspace Task Details Page.

8

Working with Adaptive Case Management in Process Workspace

Oracle Business Process Management Workspace (Process Workspace) supports the processing of cases implemented using Oracle Business Process Management's Adaptive Case Management.

This chapter includes the following sections:

- About Adaptive Case Management
- Navigating Cases
- Viewing Case Information

8.1 About Adaptive Case Management

Adaptive Case Management supports modeling and running of ad hoc and unstructured business processes.

A case is a business process that is not rigidly predefined in the way a typical Business Process Management process is. Cases are less structured ad-hoc processes that include information, tasks, rules, and services. The tasks you perform while working on a case change as information and activities related to the case are processed. Decisions you make while managing a case can change which processes and tasks are executed.

Some examples of cases that are suitable to be modeled and run using Adaptive Case Management include:

- Insurance claims
- Incident investigations
- Customer complaints

For additional information on Adaptive Case Management, see *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio.*

8.2 Navigating Cases

Cases are accessed through the Case page in the Process Workspace GUI.

To access the Case page, click the **Case** link at the top of the GUI page.

> **Note:** Workspace GUI does not validate XSD or values of input arguments. Implement validator in ADF for validations.

8.2.1 About the Case Page

The Case page displays information for the currently selected case.

Use the Case page to:

- View a list of cases and select one to view or work on.

- View case details for open or closed cases.

- Add comments or raise events on a case.

- View case activities and their details, create new case activities, and filter the display of case activities by their status.

- Link cases.

- View an Audit Trail of case events. Filter the display of case events by event type. View and add new documents to a case. View and modify case data.

- View or add documents to the case.

- View case milestones and mark them as complete.

- View case stakeholders. Add stakeholders. Add stakeholder members to stakeholders.

- View user information for case details.

- Close cases.

8.2.2 About the Navigation Bar

Use the Navigation bar (shown in Figure 8-1) to identify the current case, to move between cases, to close cases, and to get information about cases.

Figure 8-1   Navigation Bar

☰|▾ ⊙ [1] Complaint Case for Daniel Duan ⓘ   Add Comment   Raise Event   Close Case
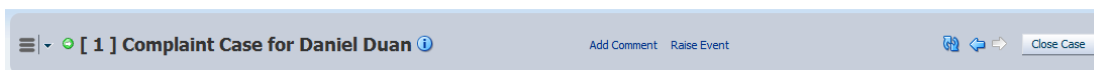
The Navigation bar provides the following elements:

Element	Description
Case Listing	Click the down arrow on the Case Listing control to see a list of current cases. Click a case to navigate to it.
Status Icon	The Status icon indicates the case's status. Hover over the icon to see a text display of the case's status, for example, ACTIVE.
Case Number and Name	The case number and name are displayed in the Navigation bar.

Element	Description
Information Icon	Click the Information icon to display a pop-up window containing high-level details about the case. Fields displayed include: • Title • Identification Key • Number • Name • Priority • Category • Creator • Start Date • State • Document Folder
Add Comment	Click to add a comment to the case. Fields enabling you to add the comment are displayed directly on the Case page.
Raise Event	Click to initiate an event for the case. Fields enabling you to add the event are displayed directly on the Case page. The specific events available to be raised change depending on the composite used to create the case instance.
Refresh	Click the Refresh icon to update the case details displayed in the Case page. When you select an action from Actions, a comment window appears. You must enter a comment and click **OK** to update the task and refresh the task list table. Click **Cancel** to cancel the action.
Navigation arrows	Click the left and right arrows to navigate to the previous and next case, respectively.
Close Case	Click **Close Case** to mark the case instance as closed.

8.2.3 Using the Navigation Bar

Use the Navigation bar to move between cases, to close cases, and to get information about cases. You can also add comments and events to cases.

8.2.3.1 Selecting a Case

Use the controls in the Navigation bar (as well as those in the Case List panel) to select a case to work on. You can select a case by:

• Choosing it from the Case Listing drop-down list

• Choosing it from the Case List panel (visible when the Case Listing is pinned to the Case page)

• Navigating to it using the Previous Case and Next Case buttons (visible when the Case Listing is not pinned to the Case page)

Figure 8-2   Case Listing Drop-down List
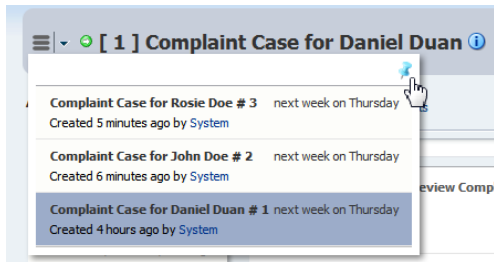
See "Viewing Hidden Panels" for more information about pinning and unpinning the Case List panel.

8.2.3.2 Closing a Case

Close cases using the **Close Case** button on the Navigation bar.

To close a case:

1. Navigate to the case.

2. Click **Close Case**.

   The Close Case details dialog box is displayed.

3. Select an outcome from the Outcome drop-down list.

4. Optionally enter a comment.

5. Click **Close Case**.

   An information dialog box is displayed indicating the results of the close action.

6. Click **OK**.

8.2.3.3 Viewing a Closed Case

You can view closed cases.

To view a closed case:

1. If the **Case List** panel is not displayed, pin the Case Listing drop-down list to display it.

2. Click **Advanced Search**.

   The Advanced Search dialog box is displayed.

3. Ensure that **Closed** is selected in the **State** section of the search criteria.

4. Click **Search**.

   The Case List panel is updated with a list of closed cases matching the other search criteria you used in the Advanced Search dialog box.

5. Click the case to view.

   The Case page is updated with the information for the selected case.

8.2.3.4 Adding a Comment to a Case

Add comments to a case using the **Add Comment** link in the Navigation bar.

To add a comment to a case:

1. Click **Add Comment**.

    The comment entry controls appear at the top of the Case page.

2. Enter the text for your comment.

3. Select a permission level from the **Permission** drop-down list. This determines the user permission level needed to be able to view the comment.

4. Click **Post** to add the comment to the case.

    Note: to close the comment controls without posting the comment, click **Close**.

Comments can be viewed in the Audit Trail panel. See Viewing the Audit Trail

8.2.3.5 Raising an Event on a Case

Raise events on a case using the **Raise Event** link in the Navigation bar. The events that are available to be raised on a case are preconfigured using Oracle Business Process Management Studio JDeveloper.

To raise a comment on a case:

1. Click **Raise Event**.

    The raise event controls appear at the top of the Case page.

2. Select an event name from the **Event Name** drop-down list to specify the type of event.

3. Enter a comment.

4. Select a permission level from the **Permission** drop-down list. This determines the user permission level needed to be able to view the event.

5. Click **Raise Event** to add the event to the case.

    Note: to close the Raise Event controls without posting the event, click **Close**.

Events can be viewed in the Audit Trail panel. See Viewing the Audit Trail

8.3 Viewing Case Information

This section describes the panels available on the Case page and the kinds of information displayed on it, how to filter the displayed information, and how to find and view cases.

You interact with cases using the information provided on the Case page, and using the controls and links on the page to perform work related to the case, such as adding comments or events, reviewing and modifying milestones, creating new case activities and so on.

8.3.1 Viewing Case Instances

To view the details for a case, navigate to it using the Navigation bar. Select the case in the Case Listing control, or use the Previous Case and Next Case icons to navigate between cases.

See Navigating Cases for more information.

Figure 8-3 shows the Case page, which is divided into the following sections:

- Navigation bar

- Activities

- Linked Cases

- Details (which can display Audit Trail, Data, or Comments information)

- Milestones

- Stakeholders

Figure 8-3 Case Page

8.3.2 Viewing the Case List

You can view (and select) cases in two ways:

- Click the Case Listing drop-down list in the Navigation bar to display a list of cases. (See Figure 8-2.)

- When it is pinned to the Case page, use the Case List panel to view and select cases.

To display the Case List panel, click the **Pin** icon in the Case Listing window. The Case List panel includes more case details than the Case Listing control. When the Case List panel is pinned to the Case page, the Case Listing control does not appear on the Navigation bar.

To hide the Case List panel, click the Pin icon in the upper right-hand corner to un-pin it from the Case page. When the Case List panel is unpinned, the Case Listing control appears on the Navigation bar.

8.3.2.1 Viewing Hidden Panels

When the Case List panel is pinned to the page, other panels are hidden. When the Activities and Linked Cases panels are hidden, click **Show Activities** to display them. When the Milestones and Stakeholders panels are hidden, click **Show Milestones and Stakeholders** to display them.

8.3.2.2 Case List Panel

Use the Case List panel of the Case page to locate, display, and select cases. Cases are displayed in a series of sections in the panel.

Element	Description
Search Criteria	Enter the search text. The text is searched for in the following case elements: • Title • Identification Key • Case Number
Search	Click the Search icon to search for cases using the Search Criteria.
Advanced Search	Click the Advanced Search control to display the Advanced Search dialog. The controls on the Advanced Search dialog are shown below:
Match	Use the match control to control how the criteria are used in the search. Choices include: • All: Select to include cases which match all of the search criteria specified in the Advanced Search dialog box. • Any: Select to include cases which match any of the search criteria specified in the Advanced Search dialog box.
Search	Click Search to search on the selected criteria. Cases matching the criteria are displayed in the Case List panel.
Title	Case title to search on.
Identification Key	Identification Key to search on.
Creator	User that created the case.
Updated by	User(s) that updated the case.

Element	Description
State	Select the case state(s) to search on using the check boxes. Choices include: • All: Search on all states as listed: • Active • Closed • Expired • Aborted • Suspended • Errored • Stale
Updated	Select an update day to search on. Choices include: • None • Today • Yesterday • Last Week
Due	Select a due date to search on. Choices include: • None • Overdue • In one day • In one week
Created	Select a creation date to search on. Choices include: • None • Today • Yesterday • Last Week
Sort By	Sorts the cases displayed in the Case List. Choose from: • Created Date • Case Number • Creator • Due Date
Load More Items	This link appears when there are more items than fits in the default panel size. Click to display additional items.

8.3.2.3 Sorting the Case List

Sort the cases displayed in the Case List by selecting a sort criteria from the **Sort By** drop-down list. When you make a selection, the cases are re-displayed in the selected order. Choose from the following sort criteria:

• Created Date

• Case Number

• Creator

• Due Date

8.3.2.4 Searching for Cases

You can search for cases using a simple search, or a more comprehensive advanced search.

1. Enter the search criteria in the **Search Criteria** entry box.

2. Press **Enter** or click the **Search** icon.

8.3.2.5 Using the Advanced Search

To perform an advanced search:

1. Click the **Advanced Search** arrow.

   The Advanced Search dialog box appears.

2. Specify your search criteria in the text fields, check boxes, and selection fields in the Advanced Search dialog box as shown in Figure 8-4.

3. Click **Search**.

   The Case List is updated with the results of your search.

Figure 8-4   Case List Panel Advanced Search
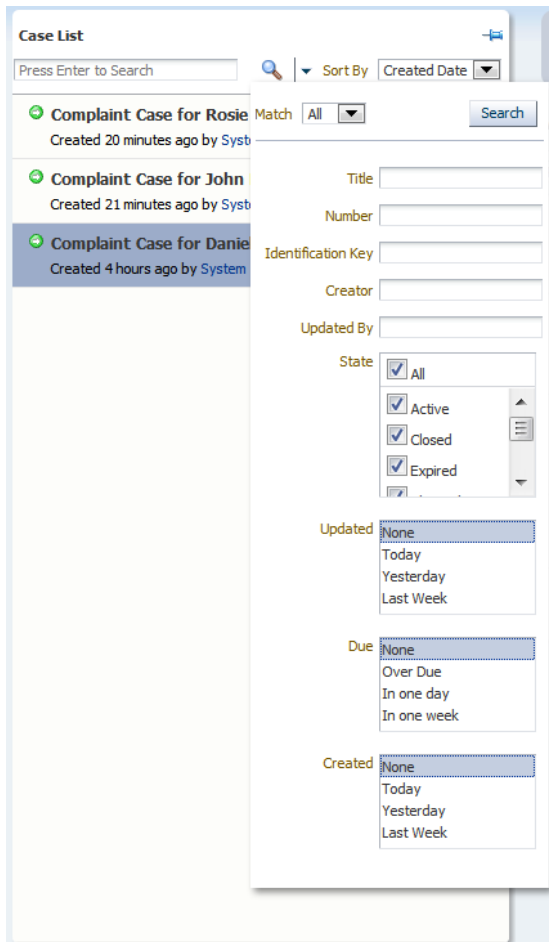
8.3.3 Working With Case Activities

Activities for the selected case are displayed in the Activities panel.

When the Activities panel is hidden, click **Show Activities** to display it.

8.3.3.1 Activities Panel

Use the Activities panel of the Case page to view activities and their details, and to initiate new activities. Activities are displayed in a series of sections in the panel.

Element	Description
Activities Filter	Select the type of activities to display. Choices are: • All • Available • Running • Completed • Errored
Activities List	Activities are displayed in sections, grouped by type. If no activities of a particular type exist, the section is not displayed. Section types include: • Available • Running • Completed • Errored
Add Activities	Click to select an activity to add to the case. The choices available in the drop-down list depend on the case configuration, and whether the activity has already been added.
Load More Items	This link appears when there are more items than fits in the default panel size. Click to display additional items.

8.3.3.2 Filtering the Activities Displayed

Use the Activities drop-down list to select which activities are displayed. Choose from:

• All

• Available

• Running

• Completed

• Errored

Activities for the case are displayed in their own section.

To see the details for an activity, click it.

8.3.3.3 Initiating an Activity

Activities that can be initiated are displayed in the **Available** section of the Activities panel. Activities that are required for a case are marked with an asterisk.

To initiate an activity, click its link in the Activities panel. Provide any required information in the dialog box that is displayed and click **Initiate**.

Note that, in an Activity Form, if a DateTime popup appears, only the date can be chosen. Choosing the time is currently unsupported.

8.3.3.4 Viewing Activity Details

Activities that can be viewed are displayed in the **Available, Running, Completed** and **Errored** sections of the Activities panel.

To view details for an activity, hover the mouse over its link in the Activities panel. Click **More Details...** in the pop-up window that is displayed.

8.3.4 Working with Linked Cases

Cases can be linked with other cases in order to express a relationship between them. Cases can be:

- related

- dependent on another case

- marked as duplicates

- a subcase of another case

8.3.4.1 Linked Cases Panel

Use the Linked Cases panel of the Case page to view cases linked to the current case, and to link additional cases to the current case. Linked cases are displayed in a list in the panel.

Element	Description
Link Cases	Click to link another case to the current case.
Case	Each case linked to the current case is displayed in the list under a heading expressing the type of relationship the cases have. The headings include: • This case depends on - lists cases the current case depends on • This case is duplicate of - lists duplicate cases of the current case • This case is parent of - lists subcases to the current case • Cases related to this case
Go to case	Click to go to a linked case.

8.3.4.2 Linking Cases

You can link cases so that when viewing one case, other cases related to it are listed in the **Linked Cases** panel.

To link a case to the current case:

1. In the Linked Cases panel, click **Link Cases**.

The Link Cases dialog is displayed.

2. Optionally filter the list of cases in the dialog box by entering a search criteria and clicking **Search**.

3. Click a case in the list to select it.

4. Select the relationship between cases from the **This Case** drop-down.

5. Optionally, enter a comment in the comment text box.

6. Click **Link**.

8.3.5 Viewing the Audit Trail

The Audit Trail panel is displayed by default when viewing a case. If it is not visible, click the **Audit Trail** link below the Navigation bar to display it.

You can view only one of the following panels at a time:

- Audit Trail panel

- Data panel: see Data Panel

- Documents panel: see Documents Panel

8.3.5.1 Audit Trail Panel

Use the Audit Trail panel to view case events, details on the users who executed the events, and to set permissions for events. Events are displayed in a series of sections in the panel.

Element	Description
Search Criteria	Enter the text to search for events by title.
Search	Click the Search icon to search for events using the **Search Criteria**.
All	Click to display all events.
Comments	Click to display only events that are comments. Note that comments related to all case activities are displayed.
Event	Use the event drop-down list to filter which event types are displayed in the Audit Trail panel. Choices include: • Activity • Lifestyle • Document • Milestone • User Defined • Data Upload
Update Permission	Click to change the user permissions for the currently selected event. If no event is selected, the Update Permission icon is disabled.

Element	Description
Audit Trail Details	Audit trail events are displayed as a series of sections in the Audit trail panel. Each event includes: • Event type icon • Event name • Event timestamp • Event detail summary (optionally) • User information
Load More Items	This link appears when there are more items than fits in the default panel size. Click to display additional items.

8.3.5.2 Viewing Events in the Audit Trail

Case events are displayed in the Audit Trail panel. Each event is displayed in a section of the panel and includes the following information:

- Event type icon

- Event name

- Event timestamp

- Event detail summary (optionally)

- User who performed the event

To see additional information about the user associated with an event, hover your mouse over the user name.

8.3.5.3 Updating Event Permissions

You can change the user permissions for an event.

To update user permissions for an event

1. Select the event from the Audit Trail panel.

2. Click the **Update Permissions** icon.

   The Permission dialog box displays.

3. Select the desired permission for the event from the drop-down list.

4. Click **Apply**.

8.3.6 Data Panel

Use the Data panel to view and modify the data associated with a case.

The data panel only shows links to case data objects that have been instantiated. When a link is disabled, it indicates that there is no data form registered to display the case data. A case data form must be generated and deployed to enable viewing of the case data in the data panel.

If you are a developer and want more information about designing data forms, see Working with Adaptive Case Management in *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio*.

To view the Data panel, click the **Data** link on the Case page.

You can only view one of the following panels at a time:

- Audit Trail panel: see Viewing the Audit Trail

- Data panel

- Documents panel: see Documents Panel

8.3.6.1 Working with Data Forms in the Data Panel

The specific forms, tabs, fields, and controls that appear in the Data panel are dependent on the Case project design for the case you are working on, and not pre-determined by Process Workspace.

If a Workspace user (an Administrator or a regular user) selects data as "External" in JDeveloper at design-time in Case Management, then during runtime in Workspace, the data displays as external and is disabled and you cannot edit the form for that data. The Save and Edit buttons are also disabled and you will get a message indicating that you do not have permission to edit the data.

If you are a developer and want more information about designing data forms, see Working with Adaptive Case Management in *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio*.

8.3.7 Documents Panel

Use the Documents panel to view and add documents attached to a case.

To view the Documents panel, click the **Documents** link on the Case page.

You can view only one of the following panels at a time:

- Audit Trail panel: see Viewing the Audit Trail

- Data panel: see Data Panel

- Documents panel

8.3.7.1 Documents Panel

Use the Documents panel to view documents attached to the case and details on the users who uploaded them. Without an explicit Read access, you may not be able to view documents in the Documents List, but only upload documents.

You can also upload additional documents, and set permissions for the documents.

Note:

- You cannot add documents to a human task using task user interface once the task is associated with a case.

- If you are uploading a duplicate document, the duplicate copy is saved as Copy of <filename>. There is no error message displayed.

The case project for the case you are working on may be configured to use either database or Enterprise Content Manager-based storage. The controls on this dialog change depending on whether database or Enterprise Content Manager storage is used in the case project.

When the case project is configured to use Enterprise Content Manager, there are options to check out and check in documents. Note that check out does not actually check out and download the document - it marks the document as checked out in the Enterprise Content Manager.

Documents are displayed in a series of sections in the panel.

Element	Description
Upload File	Click to upload a new document to the case. The **Upload File** dialog box is displayed. The controls on this dialog change depending on whether database or Enterprise Content Manager storage is used in the case project.
Document Details	Documents are displayed as a series of sections in the Documents panel. Each document includes: • Document icon • Document title • Document comment • Creator name • Timestamp • Action List control
Action List	Use the Action List to choose an action to perform on the document, such as Delete.
Load More Items	This link appears when there are more items than fits in the default panel size. Click to display additional items.

8.3.7.2 Viewing Documents in the Documents Panel

Documents attached to the case are displayed in the Documents panel. Each document is displayed in a section of the Documents panel and includes the following:

- Document icon

- Document title

- Document comment

- Creator name

- Timestamp

To download the document, click the Document title. A pop-up window is displayed containing the contents of the document.

8.3.7.3 Performing Actions on a Document

You can perform actions on a document attached to a case. For example, you can delete a document if you have the permissions required to do so.

To perform an action on a document

1. Select the document from the Documents panel.

2. Click the **Action List** drop-down list.

   A list of actions available to your user account displays.

3. Select the desired action for the document from the drop-down list.

   The action is taken immediately.

8.3.8 Viewing Milestones

Milestones are checkpoints that indicate the progress of the case.

8.3.8.1 Milestones Panel

Use the Milestones panel on the Case page to view case milestones, and to change the status of milestones. Milestones are displayed in a series of sections in the panel.

Element	Description
Milestone Details	Each milestone section includes: • Status icon: color-coded icons are used to indicate the status of the milestone. See below for details. • Milestone name • Milestone status. See below for details. • Timestamp (optional): includes completion information and the user who completed the milestone • Comment (optional): includes comment information provided when the milestone changed.
Status icon	Color-coded icons indicate the status of the milestone: • Blue: Open. • Green: Completed • Amber: Reopened
Milestone Status	Change the status of a milestone by selecting a value from the milestone status drop-down list. Milestones with status: • **Open**: can be changed to **Completed** • **Closed**: can be changed to **Reopened** (only if the milestone can be reopened). • **Reopened**: can be changed to **Completed**
Load More Items	This link appears when there are more items than fits in the default panel size. Click to display additional items.

8.3.8.2 Changing a Milestone's Status

You can change the status of a milestone. For example, a milestone with status Completed can be changed to Reopened.

Note that in most cases, milestone status changes occur automatically when certain case activities happen.

To change a milestone's status

1. Select the desired status from the **Milestone Status** drop-down list.

   The Comment entry dialog box is displayed.

2. Enter an appropriate comment for the action you are taking.

3. Click **OK**.

   The milestone is updated with the new status.

8.3.9 Working with Stakeholders

Stakeholders represent interested parties in the case. Stakeholders can have users, groups or roles associated with them that are involved in the processing of a case. Stakeholders can also be added without members. Case elements such as activities can be restricted to certain stakeholders, and therefore, to particular users, groups or roles.

8.3.9.1 Stakeholders Panel

Use the Stakeholders panel on the Case page to view and modify case stakeholders. Stakeholders are displayed in a series of sections in the panel.

Element	Description
Add Stakeholder	Click to add a new stakeholder definition to the case. When you click Add Stakeholder, the **Add Stakeholder** dialog is displayed.
Edit Stakeholder	Click to edit the currently selected stakeholder in order to add a new user, role, or group. When you click Edit Stakeholder, the **Edit Stakeholder** dialog is displayed. At least one member must be added in order to save your changes.
Stakeholders Details	Each section in the Stakeholders details panel includes: • Stakeholder name • Stakeholder member icons (user, role or group) and stakeholder members (if any)
Load More Items	This link appears when there are more items than fits in the default panel size. Click to display additional items.

8.3.9.2 Adding Stakeholders

You can add new stakeholders to a case.

To add a new stakeholder

1. Click the **Add Stakeholder** button (green plus sign).

   The Add Stakeholder dialog displays.

2. Enter a name for the new stakeholder.

3. Optionally, specify users, roles or groups.

4. Click **OK**.

8.3.9.3 Editing Stakeholders

You can edit a case's stakeholders (if permissions allow it).

To edit a stakeholder

1. Select the stakeholder you wish to edit from the Stakeholders panel.

2. Click the **Edit Stakeholder** button. The Edit Stakeholder dialog displays.

3. Modify the stakeholder values.

4. Click **OK**.

Part II

Administering Process Workspace

Oracle Business Process Management Workspace (Process Workspace) enables Administrators to configure task-related information, the user interface, model the organization, users and roles, and manage process instances.

This part includes the following chapters:

- Managing Process Workspace

- Managing Your Organization in Process Workspace

- Modifying Running Process Instances in Oracle Business Process Management Workspace

9

Managing Process Workspace

Administrators can perform various tasks in Oracle Business Process Management Workspace (Process Workspace), including setting the display of the Work Items panel, and administering and configuring task-related information.

When an end user launches an application from the Applications panel of the Process Tracking page, the application is launched and a form appears. If the user dismisses that form, then that process instance continues to run as a superfluous instance never to be processed or used. Such superfluous instances can be cleaned up by a background instance that can be specified and scheduled by the administrator of the BPMN service engine. If you are the administrator of the BPMN service engine and want more information about specifying this background instance, see *Administering Oracle SOA Suite and Oracle Business Process Management Suite*.

This chapter includes the following sections:

- Setting the Display of the Work Items Panel in Process Workspace

- Administering Approval Groups in Process Workspace

- Managing Mapped Attributes (Flex Fields) in Process Workspace

- Using Task Configuration in Process Workspace

- Using Evidence Search in Process Workspace

- Managing Exceptions in Process Workspace

- Using the User Metadata Migration Utility
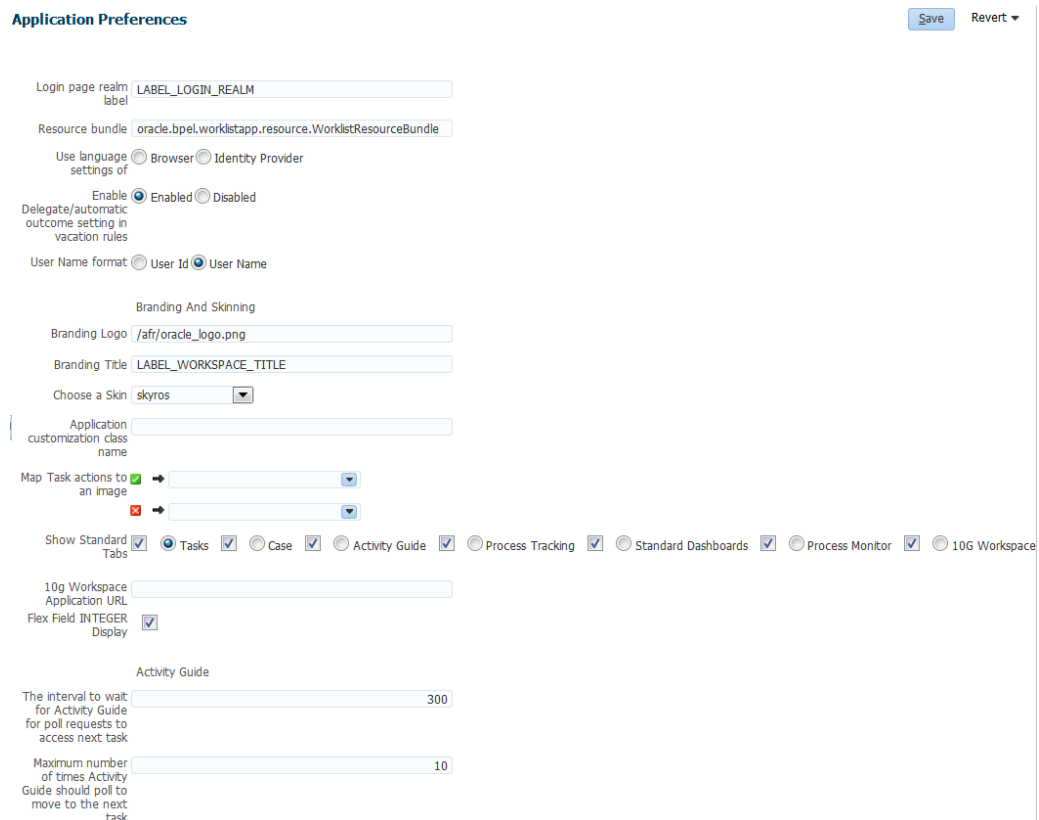
9.1 Setting the Display of the Work Items Panel in Process Workspace

Administrators can specify various application preferences to set the display of the Work Items panel.

To set application preferences:

1. From the Process Workspace global toolbar, click **Administration**.

2. Then click **Application Preferences**.

   The Application Preferences window appears.

Figure 9-1   Setting Application Preferences

This section includes the following topics:

- How to Specify the Login Page Realm Label in Process Workspace

- How to Specify the Resource Bundle in Process Workspace

- How to Specify the Language Locale Information in Process Workspace

- How to Specify a Branding Logo in Process Workspace

- How to Specify the Branding Title in Process Workspace

- How to Choose a Skin in Process Workspace

- How to Enable Customized Applications and Links in Process Workspace

- How to Specify, Show, or Hide the Default Tab Pages in Process Workspace

- Specifying Additional Process Workspace Settings

9.1.1 How to Specify the Login Page Realm Label in Process Workspace

If the identity service is configured with multiple realms, then, when a user logs in to Oracle BPM Worklist, the login page displays a list of realm names. LABEL_LOGIN_REALM specifies the resource bundle key used to look up the label to display these realms. All settings are application specific, set by the Admin user, and apply to all users.

You can change the term *realm* to fit the user community—terms such as *country*, *company*, *division*, or *department* may be more appropriate.

To change the term *realm*, customize the resource bundle, specify a resource bundle key for the string, and then set the **Login page realm label** parameter on the Application Preferences page (see Figure 9-1)to point to that resource bundle key.

For information about customizing the resource bundle, see Customizing a Resource Bundle.

For information about specifying a resource bundle, see How to Specify the Resource Bundle in Process Workspace.

9.1.2 How to Specify the Resource Bundle in Process Workspace

The resource bundle provides the strings displayed in the Worklist Application. By default, the class path to the resource bundle is:

As an administrator, you can add or modify strings shown in the application by creating a custom resource bundle. You can then use the **Resource Bundle** field in the Application Preferences page to specify the class path to your custom resource bundle.

For more information about customizing the resource bundle, see Customizing a Resource Bundle.

9.1.3 How to Enable or Disable Vacation Rules Delegation in Process Workspace

Individual users can set up vacation rules that specify re-assignment or automatic delegation of their tasks when a vacation rule is in effect. Re-assignment/delegation can be enabled or disabled for all users using the **Enable Delegate/automatic outcome setting in vacation rules** property on the Application Preferences page, as shown in Figure 9-1.

9.1.4 How to Specify the Language Locale Information in Process Workspace

From the Application Preferences page, you can specify how the Process Workspace display language is determined. Information about the language locale can be derived from either the user's browser or the identity provider that stores information about Process Workspace users.

You reach the Application Preferences page by clicking **Administration** on the global toolbar at the very top of Process Workspace, then, under Administration Areas, selecting **Application Preferences**. The Application Preferences panel appears in the right pane. To specify the display language, in the **Use language settings of** field, select either **Browser** or **Identity Provider**.

Figure 9-2   Specifying Language Local Information

9.1.5 How to Specify After Tasks Completion Behavior of Task Details Pop Up Window

When you open a task, task details open in a pop up window. From the Application Preferences page, you can specify the behavior of task details pop up window after the completion of the task.

You reach the **Application Preferences** page by clicking **Administration** on the global toolbar at the very top of Process Workspace, then, under Administration Areas, selecting **Application Preferences**. The Application Preferences panel appears in the right pane. For **After Task Completion** option choose,

- Use Task Form Default: After task is completed, the task details page closes or loads the next task based on settings in each task form.

- Load Next Task: After task is completed, the task details page shows the next available task.

- Close Task Details: After task is completed, the task details page closes, and takes the screen back to the task list. The task list refreshes to show only the remaining tasks. Select a task to see the details page.

Figure 9-3   Specifying After Task Completion Behavior of Task Details Pop Up Window

9.1.6 How to Specify the User Name Format

From the Application Preferences page, you can specify how the user name format is displayed in the Creator, Assignee or other name columns throughout Process Workspace. You can select to display the user ID (for example, *jstein*) or the full user name (for example, John Stein).

You reach the Application Preferences page by clicking **Administration** on the global toolbar at the very top of Process Workspace, then, under Administration Areas, selecting **Application Preferences**. The Application Preferences panel appears in the right pane. To specify the display language, in the **User Name Format** field, select **User ID** or **User Name**, as shown in Figure 9-4.

Figure 9-4 User Name Format

9.1.7 How to Specify a Branding Logo in Process Workspace

A branding logo is the image displayed in the top left corner of every page of the Worklist Application. The Oracle logo is the default, and you can change it to one of your choosing.

> **Note:**
>
> The ideal image size is 120px x 40px (length x width) for proper display. Although images with high resolution and size are compressed to fit the branding logo size, smaller images display better.

To specify the branding logo, do one of the following:

- Refer to an external image-hosting website. To do this, in the **Branding Logo** field, enter the URL of the image.

- Upload an image to a particular location on the server and, in the **Branding Logo** field, enter its relative path, for example, /afr/my_logo.png.

- Refer to an image from the shared library. To do this, in the **Branding Logo** field, enter the path of the logo name as found in the shared library, for example, /my_logo.png

> **Note:**
>
> Customizing the branding logo from either the Worklist Application or Process Workspace changes the logo in both applications. For example, if you change the logo from Worklist Application, then the Process Workspace logo is changed automatically.

For more information about deploying images in a shared library, see Deploying Images and JAR files as Part of a Shared Library JAR file.

9.1.8 How to Specify the Branding Title in Process Workspace

You can specify the title for your site, changing the default title, *BPM Worklist*, to one that you choose.

To specify the branding title, do one of the following:

- In the **Branding Title** field, enter a simple string for your title.

- In the **Branding Title** field, enter a label that refers to a key-value pair in the Resource Bundle. In this way, you can internationalize your title, for example, LABEL_WORKLIST_TITLE.

9.1.9 How to Choose a Skin in Process Workspace

A skin determines the look and feel of your graphical interface.

9.1.9.1 To choose a skin, do one of the following

- From the **Choose a Skin** list, select one of the default ADF skins.

  If you want the Human Task flow application to use the skin selected in Process Workspace, you must verify that the trinidad-config.xml file (found in the Human Task flow application) includes the following:

  ```
  <skin-family>#{param.sf}</skin-family>
  ```

- Upload your own customized skin .css file in a .JAR file and deploy it as a part of shared library. Then, when you restart your application from the console, your custom skin appears in the **Choose a Skin** list.

9.1.9.2 To create a customized skin

You can create a customized skin.

1. Create a directory structure similar to the following example:

   ```
   C:\temp\META-INF\adf\oracle\skin\images
        META-INF\skins\custom.css
        META-INF\trinidad-skins.xml
   ```

   Note that, in this example, you can change the word *custom* to the name of your own customized skin.

2. Make sure the content of trinidad-skins.xml file is as follows:

   ```xml
   <?xml version="1.0" encoding="ISO-8859-1"?>
   <skins xmlns="http://myfaces.apache.org/trinidad/skin">
      <skin>
        <id>custom.desktop</id>
        <family>custom</family>
        <extends>custom.desktop</extends>
        <render-kit-id>org.apache.myfaces.trinidad.desktop</render-kit-id>
        <style-sheet-name>skins/custom.css</style-sheet-name>
      </skin>
   </skins>
   ```

3. Create the .JAR file by issuing the following command from the c:\temp directory:

   ```
   jar -cvf customSkin.jar META-INF/
   ```

4. Copy this Jar file to the directory /scratch/*username*/sharedLib.

> **Note:**
>
> Refer to the images in your CSS file this way:
>
> `../adf/oracle/skin/images/example.gif` (include the two leading dots).
>
> This allows the search for the META-INF root to start one directory above the `META-INF/skin` directory in which the `.css` file is located.

For more information about deploying images in a shared library, see Deploying Images and JAR files as Part of a Shared Library JAR file.

9.1.10 How to Enable Customized Applications and Links in Process Workspace

In Process Workspace, you can create customized external applications and links that become available in the Links pane. Moreover, in both Process Workspace and the Worklist Application you can specify the columns that appear in the inbox.

To enable customized applications:

1. In the Application Preferences page, enter the class name of your custom application in the **Application customization class name** field.

2. Restart the application from the console.

   Depending on your customization, you can now see its effects. If your customization is for Process Workspace and involves either creating an external application or specifying inbox columns in the Task Details pane or both, you see the following:

   - Your custom application listed in the Links pane.

   - The columns of the inbox adjusted according to your specifications.

   For information about customizing applications, see Customizing Applications in Process Workspace and the Worklist Application.

9.1.11 How to Set a Timeout Parameter for Screenflows

Screenflows enable users to work on all of the tasks in a process in sequence. For example, when a user completes a task in a process, and if the next task is assigned to the same user, then the next task is automatically shown in the same flow, without the user having to return to the task list.

A timeout defines the length of time a completed screenflow task will wait for the next task to become available before processing continues. The default wait time is 5000 milliseconds.

Do not use the timeout parameter as an alternative to not setting the ScreenFlowMode parameter in the last task of the screenflow. It should be used only to increase or decrease the wait time for all tasks except the last one in the screenflow.

To set the timeout parameter, specify the milliseconds in the Screenflow Timeout Interval in ms field, as shown in Figure 9-5

Figure 9-5   Screenflow Timeout Interval

9.1.12 How to Register Customized Application URLs in Process Workspace

Users with the Administration or Process owner roles can register customized application URLs in Process Workspace. These are displayed in the **Applications** panel.

To register a custom application URL:

1. In the **Applications** panel, click the **Add** (+) button (**Add a new custom application Url**).

   The **Custom Application Registration** dialog displays.

2. Provide the information to register your URL.

   The **Display Name** and **URL** fields are required. If you specify a **Category**, the URL appears under the Category name in the Applications panel. Optionally, specify a **Description**.

3. In the **Accessible to** field, specify the users or groups that have access to the custom application URL.

   If required, click **Select Users, Groups** to launch the **Identity Browser**, from which you can search for and select Users and Groups.

4. Click **OK**.

   Depending on your customization, you can now see its effects in the Applications panel.

9.1.13 How to Map Task Actions to the Bulk Approval Task Actions Buttons

In Process Workspace, you can select multiple tasks, and then approve or reject them using the Task Actions buttons. These buttons appear as a green check mark or red X on the Tasks page. Each of these icons can be configured by an administrator to perform one or more than one approval or rejection task actions.

To specify the task actions which map to an image:

1. Select **Administration**, then **Application Preferences**.

2. From the lists in the **Map task actions to an image** field, select the task actions you want to map to either the approve (green check mark) or reject (red X) buttons.

3. Click **Save**.

9.1.14 How to Show or Hide the Default Tab Pages in Process Workspace

If you are an administrator, then you can specify whether to show or hide the Process Workspace standard tabs, such as Tasks, Case, Process Tracking, and Dashboards. Also, from the tabs you decide to show, you can select the one to be the default tab when a user logs in.

To show or hide the standard Process Workspace tabs:

1. Select **Administration**, then **Application Preferences**.

2. From the **Show Standard Tabs** row, select the check boxes for the tabs you want to show, or clear the check boxes for the tabs you want to hide.

3. For the tabs you decide to show, specify which tab is to be the default when a user logs in.

   Do this by selecting the radio button next to the check box for that tab. If you do not select a default tab, then the standard tabs do not show or hide as you specified.

4. Click **Save**.

Figure 9-6 shows the Application Preferences page with the **Show Standard Tabs** row highlighted.

Figure 9-6   Show Standard Tabs Selection

9.1.15 How to Show or Hide the Worklist Action Menu in Process Workspace

If you are an administrator, then you can specify whether to show or hide the **Actions** drop-down in the header area of a screen in the Process Workspace.

To show or hide the standard Process Workspace tabs:

1. Select **Administration**, then **Application Preferences**.

2. From the **Worklist Action Menu** row, select either show or hide option.

3. Click **Save**.

Actions that can be performed for that screen are shown or hidden in the header area of the screen under **Actions** drop-down, depending on whether you choose show or hide options.

9.1.16 Specifying Additional Process Workspace Settings

From the Application Preferences page, you can specify additional configuration items. These include:

- 10g Workspace Application URL - specifies the URL for an ALBPM 10g Workspace to view from within Process Workspace.

- Flex Field INTEGER Display.

- Activity Guide poll request interval - interval in seconds to wait between polls for the next Activity Guide task.

- Activity Guide poll retries - maximum number of times the Activity Guide should poll to move to the next task.

- File types to upload - Specify the file types that can be uploaded by a user. Enter the file type extensions in the field.

- View task details in separate window - Choose the**Enable** option, if you want the task details to be opened in a separate window.

9.2 Administering Approval Groups in Process Workspace

An approval group consists of a name and a predefined set of users configured to act on a task in a certain pattern. This pattern is similar to a human workflow routing slip pattern where users can act on tasks in serial or in parallel. An approval group also can contain a nested approval group in the pattern.

The name of an approval group is necessary when specifying the approval group list builder. The pattern configured in the approval group is used by default to order the users who must act on the task. However, when creating the list builder, the default pattern can be overridden by specifying the voting method.

Process Workspace enables with administrator rights to manage approval groups.

For more information on any of the following tasks, see Using Approval Management in *Developing Business Processes with Oracle Business Process Management Studio*

This section contains the following topics:

- How to Use Task Forms

- How to Create Mapped Attribute Labels

- How to View Approval Groups

- How to Search for an Approval Group

- How to Add a Static Approval Group

- How to Add a New Member to a Static Approval Group

- How to Delete a Member from an Approval Group

- How to Move an Approval Group's Members

- How to Nest Approval Groups

- How to Rename an Approval Group

- Using Dynamic Approval Groups

- How to Delete an Approval Group

9.2.1 How to Use Task Forms

The human workflow service creates tasks for users to interact with the business process. Each task has two parts—the task metadata and the task form. The task form is used to display the contents of the task to the user's worklist.

The task form is designed in Oracle JDeveloper with Oracle Application Development Framework (Oracle ADF). If you are a process designer and want more information, see Designing Task Display Forms for Human Tasks in *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

Process Workspace displays all worklist tasks that are assigned to a user or a group. When a worklist user drills down into a specific task, the task display form renders the details of that task. For example, an expense approval task may show a form with line items for various expenses, and a help desk task form may show details such as severity, problem location, and so on.

The sections that follow describe the task form in Process Workspace that users with administrator rights use to manage tasks. Figure 9-7 shows a task form.

Figure 9-7   Task Form

9.2.1.1 Header View

The **Header** view, shown in Figure 9-8, is created during design time in Oracle JDeveloper using the header drop handler.

Figure 9-8   Header View in Process Workspace

By default, the JDeveloper drop handler includes the **Header** fields listed in Table 9-1. However, using JDeveloper, the developer can include or remove any of the fields based on the use case.

Table 9-1   Header Fields

Field	Description
Task Number	The number automatically assigned to the task.
State	The current status of the task.
Outcome	The user outcome. For example, if the user clicks **Approve**, the Outcome field displays "Approve."
Priority	The priority level assigned to the task.

Table 9-1 (Cont.) Header Fields

Field	Description
Creator	The user who originated the task.
Created	The task's creation date.
Updated	The date the task was last updated.
Expires	The date the task expires.
Assignees	The name(s) of the administrator(s) to whom the task has been assigned.
Acquired By	The name of the user who claims the task before any action is taken on it.
Due Date	The date by which the task is due.

The **Header** also contains custom and system actions. *Custom actions* are those that depend on task metadata outcomes. For example, if the metadata contains Approve and Reject outcomes, then **Approve** and **Reject** appear in the **Header** as custom actions. If the metadata contains more than two outcomes, then the custom actions appear in the **Header** as a drop-down list instead of separate buttons.

System actions, such as Escalate, Suspend, and Resume, always appear in a drop-down list. The actions that appear depend on what the user is doing. For example, after a task has been initiated it can be withdrawn. Subsequently, if a user logs into Process Workspace to view the details of an initiated task, then **Withdraw** appears in the list containing the available actions.

Figure 9-2 lists all the actions the administrator can perform from the **Header** and their descriptions.

Table 9-2 Header Actions

Action	Description
Reject	Enables the administrator to reject the task.
Approve	Enables the user to approve the task.
Delegate	Enables the administrator to assign a task to another person to act on his or her behalf.
Reassign	Enables the administrator to transfer a task to another administrator.
Suspend	Enables the administrator to suspend the task to work on it at a later time.
Resume	Enables the administrator to resume a suspended task.
Withdraw	Enables the administrator to withdraw an initiated task.
Escalate	Enables the administrator to escalate a task to a supervisor.

Table 9-2 (Cont.) Header Actions

Action	Description
Delete	Enables the administrator to delete a task. Appears for all "To Do" tasks.
Purge	Enables the administrator to purge a task. Appears for all "To Do" tasks.
Go	Enables the administrator to "go" to the action selected from the drop-down list.
Save	Enables the administrator to save the task.

9.2.1.2 Task Payload View

The **Task Payload** view, shown in Figure 9-9, displays the details of the task parameters and provides the ability to update them. Any parameter that has been designed based on SDOs also can be viewed here. While the values of the general parameters are based on what was passed to the task or update by any user, the values of the SDO-based parameters reflect the current value of the business object as it was updated in the underlying application.

Figure 9-9 Task Payload

9.2.1.3 Task History View

The **Task History** view, shown in Figure 9-10, provides a graphical and tabular view of events in the task life cycle. In addition, if the Edit Approver Configuration option was selected in the designer, special controls in the tabular view that allow future approvers to be edited, are available. Any approver added manually can be deleted and new approvers can be added. Approver changes made in the tabular view are immediately reflected in the graphical view. When the task is saved or a custom action, such as approve or reject, is performed on the task, all approver-related changes are also saved.

Figure 9-10   Task History in Process Workspace
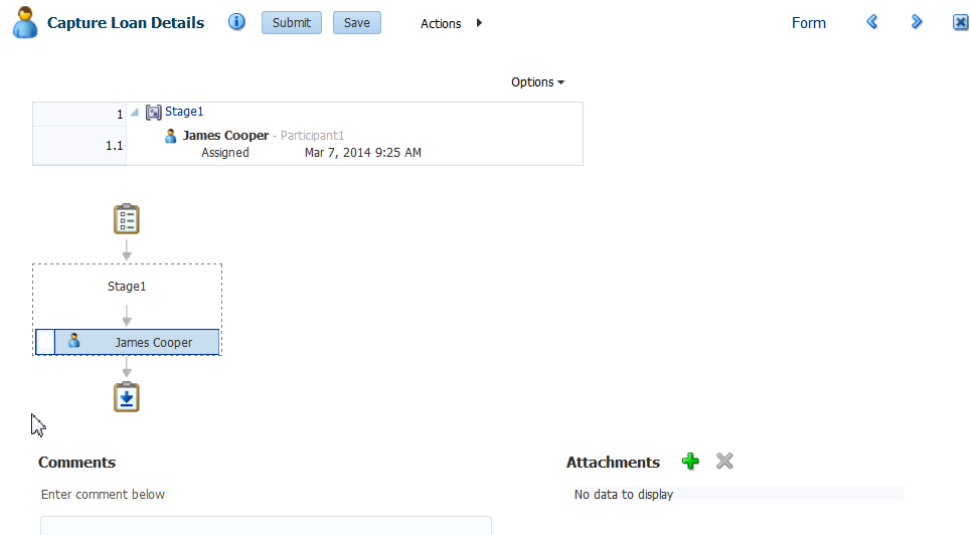
If the **Allow all participants to edit future participants** option is selected while configuring the approval task, the history region displays additional actions that allow a participant to edit the future participants list.

Figure 9-11 shows the addition of the **Apply** and **Reset** buttons.

Figure 9-11   Task History - Additional Actions

Table 9-3 describes all additional approval-task actions.

Table 9-3   Edit Future Participants List Actions

Action	Description
Add	Enabled when the user selects a future participant. When this option is selected, the Add Participant dialog opens and the user can insert ad- hoc participants.
Edit	Enabled when the user selects a participant that has been inserted ad hoc. When this option is selected, the Edit Participant dialog opens and user can move the position of an inserted participant.
Delete	Enabled when the user selects a participant that has been inserted ad hoc. When this option is selected, the corresponding participant is deleted.
Apply	Persists the edits to the future participant list.

Table 9-3   (Cont.) Edit Future Participants List Actions

Action	Description
Reset	Resets the edits from the future participant to a system-generated list.

Table 9-4 lists the actions the administrator can perform from the **Task History** view and their descriptions.

Table 9-4   Task History Actions

Action	Description
Task Snapshot	Displays the task details for the selected version.
Full task actions	If checked, displays the full task-action history. If unchecked, displays only action history. By default, the box is unchecked.
All parent tasks	If checked, displays the parent task in a sub-task view. If unchecked, displays only the sub-task history. By default, the box is checked.
Show future approvers	If checked, displays the future approver with history. By default, the box is unchecked.

9.2.1.4 Comments and Attachments View

The **Comments and Attachments** view, shown in Figure 9-12, is created in JDeveloper by using the task data control drop handler. It includes a text-entry field in which to enter comments about the task, and the functionality to attach supporting documents.

Figure 9-12   Comments and Attachments
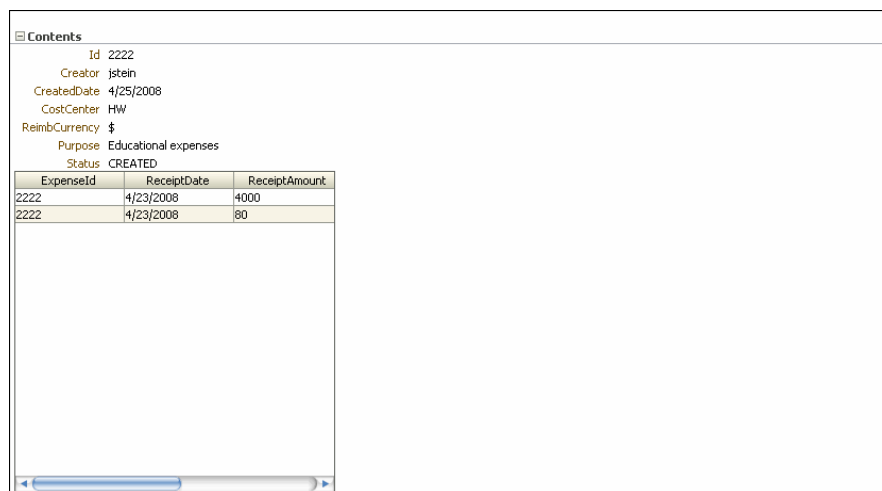
9.2.2 How to Create Mapped Attribute Labels

You use mapped attributes to store use-case-specific data, such as data extracted from a task's payload. You can view and create mapped attribute labels on the server by using Process Workspace.

> **Note:**
>
> You must have the *workflow.mapping.protectedFlexfield* privilege to create protected flex field attributes. The default administrative user, *weblogic*, has this privilege.

For more information, see How to Specify Mapped Attributes.

9.2.2.1 To view attribute labels

1. Click the **Administration** in the upper-right corner of the page.

2. In the Administration pane, click the **Protected Flex Fields** link. A Flex Field Mapping page as shown in Figure 9-13 appears.

Figure 9-13   Flex Field Mapping: Protected

The page displays a list of existing attribute labels. You can filter the list by selecting an attribute type from the **Show** list. Clicking a specific label displays the list of mappings the attribute uses in the **Details** panel.

9.2.2.2 To create an attribute label

1. Click the **Create Label** (+) button.

   The Create Label dialog displays.

2. Select an attribute type and task attribute from the drop-down lists.

3. Enter a unique label name and a description.

4. Click **Create**.

   The label is created and is made available for mapping in task components.

9.2.2.3 To delete an attribute label

1. Select the label you want to delete from the list of attribute labels.

2. Then click the **Delete Label** (-) button.

Note:

Attribute labels can be deleted only if they are not used in any mappings.

9.2.2.4 Importing and Exporting Attribute-Label Definitions

If attribute labels have been defined on one server and must be re-created on another, then you can use the user metadata migration utility to export a list of protected attribute labels from the server on which they were defined to an XML file. The utility then can deploy the attribute labels from this file to a new server. This eliminates the necessity to manually re-create the attribute labels manually in Process Workspace.

For more information, see Using the User Metadata Migration Utility.

9.2.2.5 Internationalizing Attribute Labels

When attribute labels are displayed to end users, for example in the task listing page of the Process Workspace, the label name that is used is the one specified when the label was created. In cases where users of different nationalities may see the label, a translation of the label name appropriate to Process Workspace user's locale can be displayed instead. Translations of attribute labels can be customized using the **WorkflowLabels.properties** resource bundle.

For more information, see How to Specify the Language Locale Information in Process Workspace.

9.2.3 How to View Approval Groups

To view approval groups:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the right pane.

3. In the navigation pane of the Approval Groups page, select an approval group.

   A details page for that approval group appears in the right pane, similar to the one shown in Figure 9-14.

Figure 9-14   Process Workspace: Approval Group Detail

The figure shows that the *Disbursement Team* approval group has two users, *jcooper* and *jstein*. These users act on a task in a specific sequence configuration.

9.2.4 How to Search for an Approval Group

You can search for an approval group either by user name or group name.

9.2.4.1 To search by user name

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Approval Groups page appears in the right pane.

3. Select **User** from the list.

4. Enter the full user name for the user in the field.

   You also can perform a wildcard search (*) with a partial user name.

5. Click the action (>) button.

   A list of all approval groups to which the user belongs displays in the left pane, as shown in Figure 9-15.

   Figure 9-15   User Name Search Results
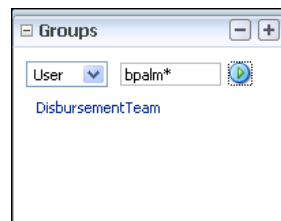
Clicking the approval group name refreshes the details pane on the right with the structure of that group.

9.2.4.2 To search by group name

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the right pane.

3. In the left pane of the Groups page, enter the full group name in the field.

   You also can perform a wildcard search (*) with a partial group name and click **Search**. A list of all matching approval groups displays in the left pane.

   Clicking the approval group name refreshes the Details pane on the right with the structure of that group.

9.2.5 How to Add a Static Approval Group

You can add a static approval group.

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the middle pane.

3. Click the **Add** (+) button and select **Create Static Approval Group** from the list, as shown in Figure 9-16.

   Figure 9-16   Create Approval Group: Select Static Group
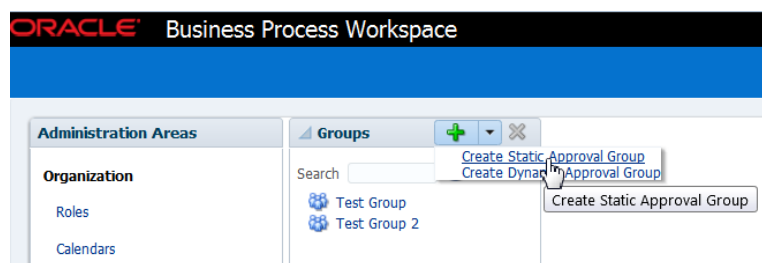
4. Enter a new name for the group.

5. Click **Apply**.

   You can add members to the new approval group.

9.2.6 How to Add a New Member to a Static Approval Group

Members of a static approval group can be either users or other approval groups.

To add a new user member to an approval group:

1. From the Process Workspace toolbar, click **Administration**.

The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the middle pane.

3. In the Groups pane, select an approval group.

4. From the Details page shown in Figure 9-17, click the **Add** (+) icon.

   The other icons enable you to edit, delete, and reorder members in the approval sequence.

   The Add to Group dialog box appears.

5. Select **User**.

6. Do one of the following:

   • Enter a full user name and click **OK**.

     The dialog box closes and the new member appears in the **Members** section of the **Details** pane.

   • Click the magnifying glass to search for a user.

     If you click the magnifying glass, an Identity Browser pop-up dialog appears.

7. Select **Users** from the list.

8. Enter a full name in the text-entry field and click **Search**. (You also can perform a wildcard search (*) with a partial user name.)

   The Identity Browser dialog refreshes and the search results appear.

9. Choose a user from the list.

   The details for that user appear in the **Details** section of the dialog.

10. Click **OK**.

11. Click **OK** again to close the Add to Group dialog.

    A node representing the selected user appears in the approval group structure in the **Members** section of the **Details** pane.

You can add more members to the approval group by repeating the steps above. The resulting approval group structure looks similar to the one shown in Figure 9-17.

Figure 9-17   Approval Group Structure: Multiple Members
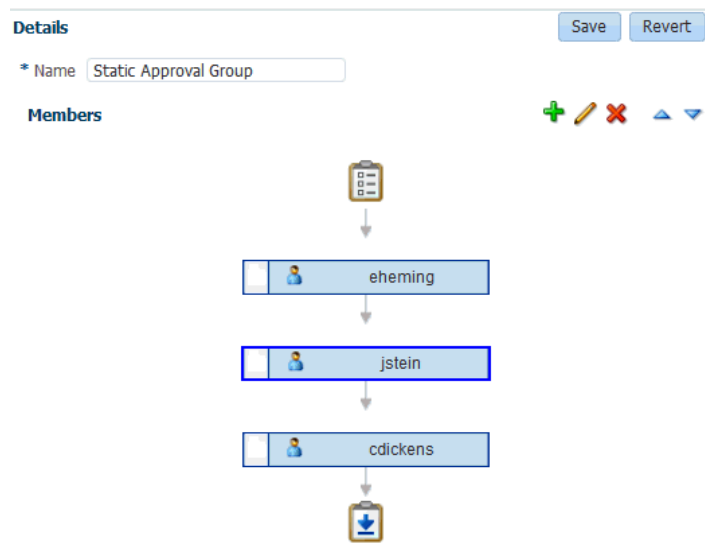
9.2.7 How to Delete a Member from an Approval Group

You can delete members from approval groups.

To delete a member from an approval group:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the middle pane.

3. In the Groups pane, select an approval group.

   The corresponding Details pane appears to the right.

4. Choose the appropriate member node from the approval group structure.

5. Click the **Delete** icon.

   The approval group structure refreshes and the member node has been deleted.

9.2.8 How to Move an Approval Group's Members

You can change the order of approval groups.

To change the sequence order of an approval group:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the right pane.

3. In the Groups pane, select an approval group.

The corresponding Details pane appears to the right.

4. Choose a member node to move.

5. Use the Push Member Up (^) and Push Member Down (v) icons to move the member to the desired location.

9.2.9 How to Nest Approval Groups

Nesting an approval group means making it part of another approval group.

To nest an approval group:

1. From the Process Workspace toolbar, click **Administration**.

The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

The Groups page appears in the right pane.

3. In the Groups pane, select an approval group.

The corresponding Details pane appears to the right.

4. Click the **Add** icon.

The Add to Group dialog box appears.

5. Select **Approval Group**.

6. From the Member list, choose the approval group you want to add.

Its structure appears in the right pane.

7. Click **OK** again to close the Add to Group dialog box.

The new approval group appears in the approval group's structure.

9.2.10 How to Rename an Approval Group

You can rename approval groups.

To rename an approval group:

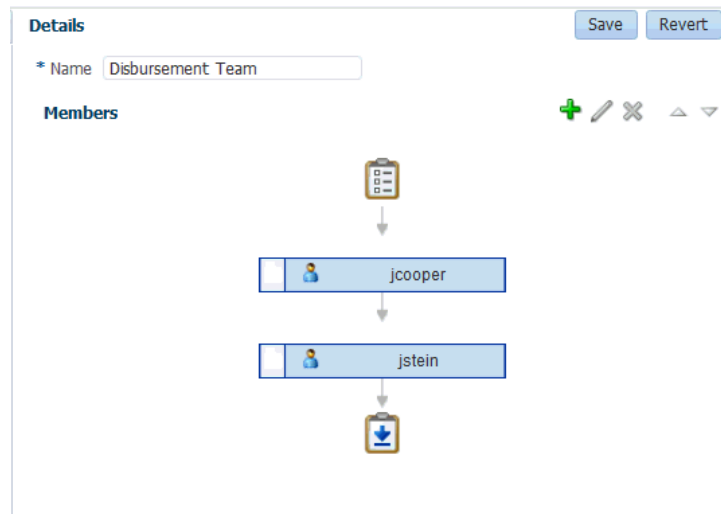**1.** From the Process Workspace toolbar, click **Administration**.

The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

The Groups page appears in the right pane.

3. In the Groups pane, select an approval group.

The corresponding Details pane appears to the right.

4. Enter the new name of the approval group in the **Name** field.

5. Click **Apply**.

The name change is reflected in other approvals groups in which this approval group is nested.

9.2.11 Using Dynamic Approval Groups

Dynamic Approval Groups provide a way to create approval groups through a custom Java class at runtime. This requires the following:

- Writing a custom dynamic approval group class for the custom implementation by the developer.

- Registering the custom dynamic approval group using the worklist apps UI by the IT department.

- Making the class file available in a globally well-known directory that is part of the Service Integration class path.

9.2.11.1 How to Write a Custom Dynamic Approval Group Class

To define a dynamic approval group, the user must define an implementation class using the interface file IDynamicApprovalGroup.java, defined by AMX for dynamic approval groups in the package *oracle.bpel.services.workflow.task*. This package contains only one public method that gets the approval group members. The Task object is the only input parameter. The primary key list can be obtained from the task: *task/systemAttributes/collectionTarget*.

Example 9-2 shows a code snippet for a sample dynamic approval group class.

Example 9-1 Implementation Class

```
************* IDynamicApprovalGroup.java ******************

public interface IDynamicApprovalGroup {

/**
 *  Get members of this dynamic approval group
 *  @param task Property bag containing information required to generate the
approver list
 *  @return list of IApprovalListMember including sequence, member, member_type;
null for empty group
 *  The primary key list can be obtained from task:task/systemAttributes/
collectionTarget
 */

  public List getMembers(Task task )
    throws WorkflowException;
}
```

Example 9-2 Code for Dynamic Approval Group Class

```
************* IDynamicApprovalGroup.java ******************
package oracle.bpel.services.workflow.repos.test;
import java.util.ArrayList;
import java.util.List;
import oracle.bpel.services.worlflow.WorkflowException;
import oracle.bpel.services.worlflow.task.IDynamicApprovalGroup;
import oracle.bpel.services.worlflow.runtimeconfig.impl.RuntimeConfigUtil;
```

```
import oracle.bpel.services.worlflow.runtimeconfig.model.ApprovalGroupMember;
import oracle.bpel.services.worlflow.task.model.Task;
import oracle.bpel.services.worlflow.IWorkflowConstants;
public class SampleDynAprGrp1 implements IDynamicApprovalGroup {
  public List getMembers(Task task )
  throws WorkflowException
  {
    // Todo: add logic to do conditional return of different group members based on
some task attribute
    List approversList=new ArrayList();
    ApprovalGroupMember taskAssignee1 =
RuntimeConfigUtil.getFactory().createApprovalGroupMember();
    taskAssignee1.setMember("jlondon");
    taskAssignee1.setType(IWorkflowConstants. IDENTITY_TYPE_USER);
    taskAssignee1.setSequence(1);
    approversList.add(taskAssignee1);
    ApprovalGroupMember taskAssignee2 =
RuntimeConfigUtil.getFactory().createApprovalGroupMember();
    taskAssignee2.setMember("wfaulk");
    taskAssignee2.setType(IWorkflowConstants. IDENTITY_TYPE_USER);
    taskAssignee2.setSequence(2);
    approversList.add(taskAssignee2);
    ApprovalGroupMember taskAssignee3 =
RuntimeConfigUtil.getFactory().createApprovalGroupMember();
    taskAssignee3.setMember("jstein");
    taskAssignee3.setType(IWorkflowConstants. IDENTITY_TYPE_USER);
    taskAssignee3.setSequence(3);
    approversList.add(taskAssignee3);
    ApprovalGroupMember taskAssignee4 =
RuntimeConfigUtil.getFactory().createApprovalGroupMember();
    taskAssignee4.setMember("achrist");
    taskAssignee4.setType(IWorkflowConstants. IDENTITY_TYPE_USER);
    taskAssignee4.setSequence(4);
    approversList.add(taskAssignee4);
    return approversList;
  }
}
```

9.2.11.2 How to Register the Custom Dynamic Approval Group Class

If you are a process designer and want more information, see Using Approval Management in *Developing Business Processes with Oracle Business Process Management Studio*.

9.2.11.3 How to Make the Custom Dynamic Approval Group Class Available

To make the class file available in a globally well-known directory that is part of the Service Integration class path, put your class files in the following Oracle WebLogic Server directory:

`$BEAHOME/AS11gR1SOA/soa/modules/oracle.soa.ext_11.1.1/classes`

For example, for the Java class *oracle.apps.DynamicAG*, the path would be:

`$BEAHOME/AS11gR1SOA/soa/modules/oracle.soa.ext_11.1.1/classes/
oracle/apps/DynamicAG.class.`

You **must** restart WebLogic Server after you put your class files there.

9.2.11.4 How to Add a Dynamic Approval Group

The following procedure explains how to add a dynamic approval group.

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the right pane.

3. In the left pane, click the **Add** (+) button and select **Create Dynamic Approval Group** from the list

4. Enter a name and a class for the group.

5. Click **Save**.

9.2.12 How to Delete an Approval Group

You can delete members from approval groups.

To delete an approval group:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Under Task Administration, click **Approval Groups**.

   The Groups page appears in the right pane.

3. In the Groups page, choose the approval group you want to delete.

4. Click the **Delete** (-) button.

   A confirmation dialog box appears.

5. Click **OK**.

   The approval group is deleted.

Note:

If the approval group you deleted is nested in other approval groups, it also is deleted from those parent groups.

9.3 Managing Mapped Attributes (Flex Fields) in Process Workspace

Human workflow mapped attributes (formerly referred to as flex fields) store and query use case-specific custom attributes. These custom attributes typically come from the task payload values.

Storing custom attributes in mapped attributes provides the following benefits:

- They can be displayed as a column in the task listing.

- They can filter tasks in custom views and advanced searches.

- They can be used for a keyword-based search.

For example the Requester, PurchaseOrderID, and Amount fields in a purchase order request payload of a task can be stored in the mapped attributes. An approver logging into Process Workspace can see these fields as column values in the task list and decide which task to access. The user can define views that filter tasks based on the mapped attributes. For example, a user can create views for purchase order approvals based on different amount ranges. If the user must also retrieve tasks related to a specific requester or a purchase order ID, the user can specify this in the keyword field and perform a search to retrieve the relevant tasks.

For the mapped attributes to be populated, an administrator must create mapped attribute mappings, as follows:

1. Specify a label for the mapped attribute to be populated.

2. Map the payload attribute that contains the data to the label.

These mappings are valid for a certain task type. Therefore, each task type can have different mapped attribute mappings. After the mapping is complete and a new task is initiated, the value of the payload is transferred to the mapped attribute that has just been mapped. Tasks initiated before the mapping do not contain the value in the mapped attribute. Only top-level simple type attributes in the payload can be transferred to a mapped attribute. Complex attributes or simple types nested inside a complex attribute cannot be promoted. It is important to define the payload for a task in the Human Task Editor, keeping in mind which attributes from the payload may must promoted to a mapped attribute. All text and number mapped attributes are automatically included in the keyword-based search.

Essentially, the Human Task Editor is used only when defining the payload for a task. All other operations are performed at runtime.

Directory naming is not available concomitantly with the flex file naming convention.

> **Note:**
>
> Mapped attributes must be defined before instances of the business process are generated. Only instances generated after mapped attributes are created reflect the correct mapped attributes. Older instances of the business process do not reflect subsequent mapped attribute changes.

9.3.1 How to Specify Mapped Attributes

An administrator, or users with the necessary privileges, can use mapped attributes, shown in Figure 9-18, to transfer data from the payload to inline mapped attributes. By promoting data to mapped attributes, the data becomes searchable and can be displayed as columns on the task list.

Administrators and users with the appropriate privileges can map both public and protected mapped attributes. They see both a **Public Flex Fields** node and a **Protected Flex Fields** node in the **Administration** panel as shown in Figure 9-18.

Figure 9-18 Specifying a Mapped Attribute
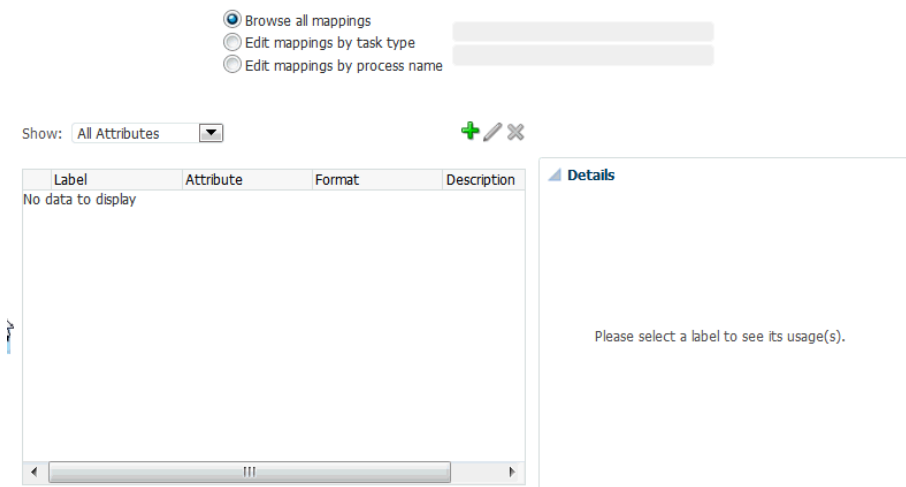
To create a mapped attribute mapping, an administrator first defines a semantic label, which provides a more meaningful display name for the mapped attribute. Click **Add** to use the Create Label dialog box shown in Figure 9-19.

Figure 9-19 Creating a Label
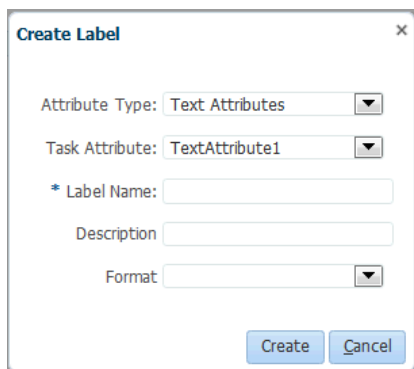
As the figure shows, **labelName** is mapped to the task attribute **TextAttribute1**. The payload attribute is also mapped to the label. In this example, the **Text** attribute type is associated with **labelName**. The result is that the value of the **Text** attribute is stored in the **TextAttribute3** column, and **labelName** is the column label displayed in the user's task list. Labels can be reused for different task types. You can delete a label only if it is not used in any mappings.

A mapped payload attribute can also be displayed as a column in a custom view and used as a filter condition in both custom views and workflow rules. The display name of the payload attribute is the attribute label that is selected when doing the mapping.

Note the following restrictions:

- Only simple type payload attributes can be mapped.

- A mapped attribute (and thus a label) can be used only once per task type.

- Data type conversion is not supported for the `number` or `date` data types. For example, you cannot map a payload attribute that is assigned the `string` datatype to a label that is assigned the datatype `number`.

9.3.1.1 To browse all mappings

1. Click **Browse all mappings**.

2. Select a row in the label table to display all the payload attributes mapped to a particular label.

9.3.1.2 To edit mappings by task type

1. Click **Edit mappings by task type**, optionally provide a task type, and click **Search**.

2. Select a task type and click **OK**.

3. With the task type displayed in the **Edit mappings by task type** field, click **Go**.

4. Select a mapping label and click **Select**.

9.4 Using Task Configuration in Process Workspace

Task Configuration is a web-based application in Process Workspace that enables business users and administrators to review and modify rules that were predefined by the workflow designer. These predefined rules can be changed for a specific customer based on the customer's applicable corporate policies.

For example, suppose that a corporate policy requires two levels of approvals for expense amounts greater than 1000. Suppose further that this policy is changed to require three levels. You can use Task Configuration to change the rule rather than having your IT department modify the rule in the underlying process and then deploy it again. Any change to the rule is applied starting with the next instance, and instances already in progress use the current rule definitions.

Task Configuration enables you to edit the event driven and data-driven rules associated with an approval flow at runtime—that is, when the workflow has already been deployed.

This section contains the following topics:

- How to Access the Task Configuration Page

- How to Edit Workflow Task Settings

- How to Specify Routing Settings

- How to Specify an Expiration Policy

- How to Specify an Escalation Policy

- How to Extend an Expiration Policy Period

- How to Specify Participant Notification Preferences

- How to Enable Task Access

- How to Specify Actions for Acting Upon Tasks

- How to View Settings for Rules

- How to Add a Rule to a Ruleset in Process Workspace

- How to Add and Customize Decision Tables

- How to Add a Variable to a Rule

9.4.1 How to Access the Task Configuration Page

Use the task configuration tab to set aggregation, access, expiration, and notification settings.

To access the Task Configuration page:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

   The Task Configuration page appears in the right pane.

3. To edit the task, click **Edit task**. The task becomes editable, as illustrated in Figure 9-20.

Figure 9-20   Task Configuration: Editable Task Page

The **Tasks to be configured** section in the middle pane lists all workflow tasks configured to use approval-flow rules. It also provides a search capability. When you click a link to one of the tasks, the corresponding data appears in the right pane in two tab pages: Task, shown in Figure 9-20, which displays the default configuration for the task, and Rules, shown in Figure 9-21, which you can use to override the approval-flow list builder configuration. The rule configurations are displayed graphically based on the stages defined in the approval flow.

Figure 9-21   Task Configuration: Rules Tab Page
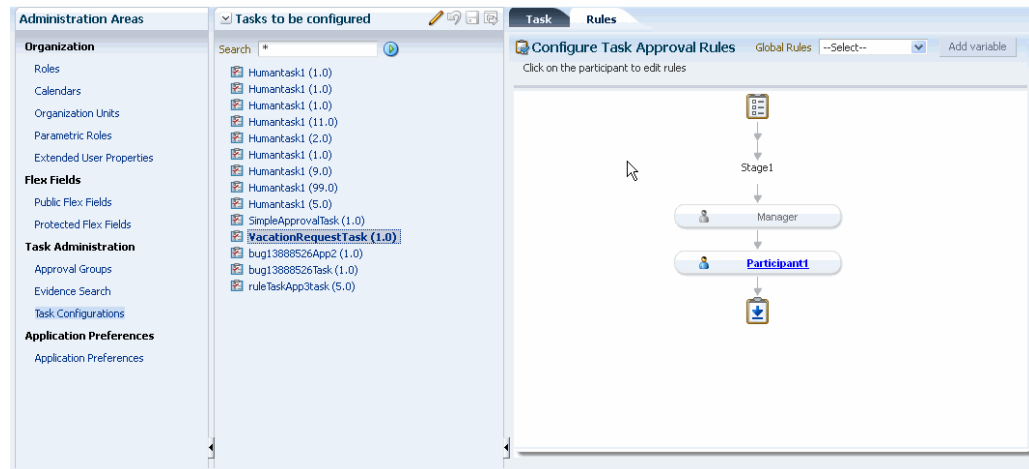
9.4.2 How to Edit Workflow Task Settings

This section contains information about workflow task settings (task metadata).

To edit a task setting:

1. From the Process Workspace toolbar, click **Administration**.

    The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. To search for a particular task, enter all or art of the task name, or enter an asterisk (*) as a wildcard, then click Search Task type.

    The search results appear in the **Tasks to be configured** pane.

4. From the **Tasks to be configured** pane, select a task.

    The corresponding Task tab page appears in the right pane.

5. In the **Tasks to be configured** pane, click the **Edit task** icon.

    The Task tab page becomes editable as shown in .

6. Make your changes and click either **Commit task** to apply the changes or **Save**.

Note:

An improper or incomplete rules definition in a list-creation rule set can cause runtime errors. Errors can be caused by the following:

- No rule was defined in the rule set.

- None of the conditions defined in the rule was met.

Ensure that rules are properly defined to handle all conditions.

9.4.3 How to Specify Routing Settings

Perform the following steps:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

The Task tab page contains a limited set of the routing options. Approval aggregation requirements can be any of the following:

- None

- Once per task

- Once per stage

9.4.4 How to Specify an Expiration Policy

Perform the following steps:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the Task tab page, in the Expiration and Escalation Policy section, select one of the following:

   - Never Expire

   - Expire After. Select **Fixed Duration** to specify the amount of days, hours, and minutes for completing the task. Alternatively, select **By Expression** to dynamically enter a value as an XPath expression.

9.4.5 How to Extend an Expiration Policy Period

You can extend the expiration period when the user does not respond within the allotted time. You do this by specifying the number of times the task can be renewed

upon expiration (for example, renew it an additional three times) and the duration of each renewal (for example, three days for each renewal period).

To extend an expiration policy period:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click **Edit task**.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the Task tab page, in the Expiration and Escalation Policy section, select **Renew after**.

6. Specify the maximum number of times to continue renewing this task.

9.4.6 How to Specify an Escalation Policy

Perform the following steps:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click **Edit task**.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the Task tab page, in the Expiration and Escalation Policy section, select **Escalate after**.

6. Specify the following additional values. When both are set, the escalation policy is more restrictive.

   - **Maximum Escalation Levels**

     Number of management levels to which to escalate the task. This field is required.

   - **Highest Approver Title**

     The title of the highest approver (for example, self, manager, director, or CEO). These titles are compared against the title of the task assignee in the corresponding user repository. This field is optional.

The escalation policy specifies the number of times the task can be escalated on expiration and the renewal duration.

9.4.7 How to Specify Participant Notification Preferences

Notifications indicate when a user or group is assigned a task or informed that the status of the task has changed. Notifications can be sent through email, voice message, instant message, or SMS. Notifications are sent to different types of participants for different actions. Notifications are configured by default with default messages. For example, a notification message is sent to indicate that a task has completed and closed. You can create your own or modify existing configurations.

> **Note:**
>
> Embedded LDAP does not support group email addresses. Therefore, when a task is assigned to a group ID, emails are sent to all of its members instead of to the group email address.
>
> The notification message should be a valid xpath expression. If you must specify a simple string, then specify it in either double quotes or use the string function.

9.4.7.1 How to Make Email Messages Actionable

Perform the following steps:

To make email messages actionable:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the **Notification Settings** section, select **Make notification actionable**.

   This action enables you to perform task actions through email.

   > **Note:**
   >
   > FYI tasks are not actionable and cannot be acknowledged from email messages.

9.4.7.2 How to Secure Notifications to Exclude Details

Perform the following steps:

To secure notifications, make messages actionable, and send attachments:

1. **a.** From the Process Workspace toolbar, click **Administration**.

    The Administration Panel appears in the left pane.

    b. In the Administration Panel, under Task Administration, click **Task Configurations**.

    c. From the **Tasks to be configured** pane, select a task.

    The corresponding Task tab page appears in the right pane.

    d. In the **Tasks to be configured** pane, click the **Edit task** icon.

    The Task tab page becomes editable as shown in Figure 9-20.

    e. In Task tab page, in the **Notification** section, select **Make notifications secure (exclude details)**.

    If selected, a default notification message is used. There are no HTML worklist task details, attachments, or actionable links in the email. Only the task number is in the message.

9.4.7.3 How to Set Up Reminders

You can send task reminders, which can be based on the time the task was assigned to a user or the expiration time of a task. The number of reminders and the interval between the reminders can also be configured.

To set up reminders:

1. From the Process Workspace toolbar, click **Administration**.

    The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

    The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

    The Task tab page becomes editable as shown in Figure 9-20.

5. In the **Notification Settings** section, select the number of reminders to send.

6. If you selected to remind the assignee one, two, or three times, select the interval between reminders, and whether to send the reminder before or after the assignment.

9.4.7.4 How to Notify Recipients of Changes to Task Status

Three default status types display in the **Task Status** column: **Assign**, **Complete**, and **Error**. You can select other status types for which to receive notification messages.

Notifications can be sent to users involved in the task in various capacities. When the task is assigned to a group, and there is no notification endpoint available for the group, then each user in the group is sent a notification.

To notify recipients of changes to task status:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the Task tab page, navigate to the **Notification Settings** area.

6. In the **Task Status** column, select a type to display the complete list of task types:

   - **Assign**

     When the task is assigned to users or a group, this captures the following actions:

     – Task is assigned to a user.

     – Task is assigned to a new user in a serial workflow.

     – Task is renewed.

     – Task is delegated.

     – Task is reassigned.

     – Task is escalated.

     – Information for a task is submitted.

   - **Complete**

   - **Error**

   - **Expire**

   - **Request Info**

   - **Resume**

   - **Suspend**

   - **Update**

     – Task payload is updated.

     – Task is updated.

     – Comments are added.

     – Attachments are added and updated.

- **Update Outcome**

- **Withdraw**

- **All Other Actions**

  - Any action not covered in the above task types. This includes acquiring a task.

7. In the **Recipient** column, click an entry to display a list of possible recipients for the notification message:

- **Assignees**

  The users or groups to whom the task is currently assigned.

- **Initiator**

  The user who created the task.

- **Approvers**

  The users who have acted on the task up to this point. This applies in a serial participant type in which multiple users have approved the task and a notification must be sent to all of them.

- **Owner**

  The task owner.

- **Reviewer**

  The user who can add comments and attachments to a task.

9.4.7.5 How to Edit the Notification Message

A default notification message is available for delivery to the selected recipient. You can modify the default message text.

To edit the notification message:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the Task tab page, navigate to the **Notification Settings** area.

6. In the **Notification Header** column, click the **Edit** icon to display the default notification message.

This message applies to all the supported notification channels: email, voice, instant messaging, and SMS. Email messages can also include the worklist task detail defined in this message. The channel by which the message is delivered is based upon the notification preferences you specify.

7. Modify the message wording as necessary.

8. Click **OK**.

9.4.7.6 How to Prevent Multiple Email Notifications for a Human Task Event

Perform the following steps:

To prevent multiple email notifications for a human task event:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the **Notification Settings** section, select **Don't send multiple notifications for the same human task event**.

   This action enables you to perform task actions through email.

9.4.8 How to Enable Task Access

Access-rule settings can be set to control the actions a user can perform. Content and action permissions can be specified based on the logical role of a user, such as creator (inititator), owner, assignee, and reviewers.

To enable task access:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

   The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the Task tab page, expand the Task Access section at the bottom of the page, then select the Task Content tab.

6. Assign privileges (read, write, or no access) to users to act upon task content.

A user cannot be assigned a privilege above their highest level. For example, an **ADMIN** user cannot be assigned write access on the **PAYLOAD** task content. Table 9-5 shows the maximum privilege each user has on task content.

Table 9-5   Highest Privilege Levels for Users of Task Content

Task Content	Individual with Read Access	Individual with Write Access
Assignees	Admin, Approvers, Assignees, Creator, Owner, Reviewers	--
Attachments	Admin, Approvers	Assignees, Creator, Owner, Reviewers
Comments	Admin, Approvers	Assignees, Creator, Owner, Reviewers
Dates	Admin, Approvers, Assignees, Creator, Owner, Reviewers	--
Flexfields	Admin, Approvers, Reviewers	Assignees, Creator, Owner
History	Admin, Approvers, Assignees, Creator, Owner, Reviewers	--
Payload	Admin, Approvers, Reviewers	Assignees, Creator, Owner
Reviewers	Admin, Approvers, Assignees, Creator, Owner, Reviewers	--
Payload elements	Inherited from payload	Inherited from payload

Note:

Access rules are always applied on top of what the system permits, depending on who is performing the action and the current state of the task.

9.4.9 How to Specify Actions for Acting Upon Tasks

You can specify the actions that specific users can perform when acting on the task content that you specified in the Configure Task Content Access dialog in How to Enable Task Access.

To specify actions for acting upon tasks:

1. From the Process Workspace toolbar, click **Administration**.

The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configurations**.

3. From the **Tasks to be configured** pane, select a task.

The corresponding Task tab page appears in the right pane.

4. In the **Tasks to be configured** pane, click the **Edit task** icon.

   The Task tab page becomes editable as shown in Figure 9-20.

5. In the Task tab page, expand Task Access at the bottom of the page, and select the Task Actions tab.

6. Select the task action for which to specify users.

7. Specify whether participants can or cannot perform the selected actions.

9.4.10 How to View Settings for Rules

Perform the following steps:

To view a rule set for a rule-based participant:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configuration**.

   The Tasks to Be Configured page appears in the middle pane.

3. In the Tasks to Be Configured page, select a rule whose settings you want to modify.

   The corresponding details appear in the Tasks tab page in the right pane.

4. Select **Edit task**. The right pane refreshes in edit mode.

5. In the right pane, select the Rules tab.

   The Rules tab page displays the Configure Task Approval Rules page, similar to what is shown in the example in Figure 9-22.

Figure 9-22   Editing a Task Rule
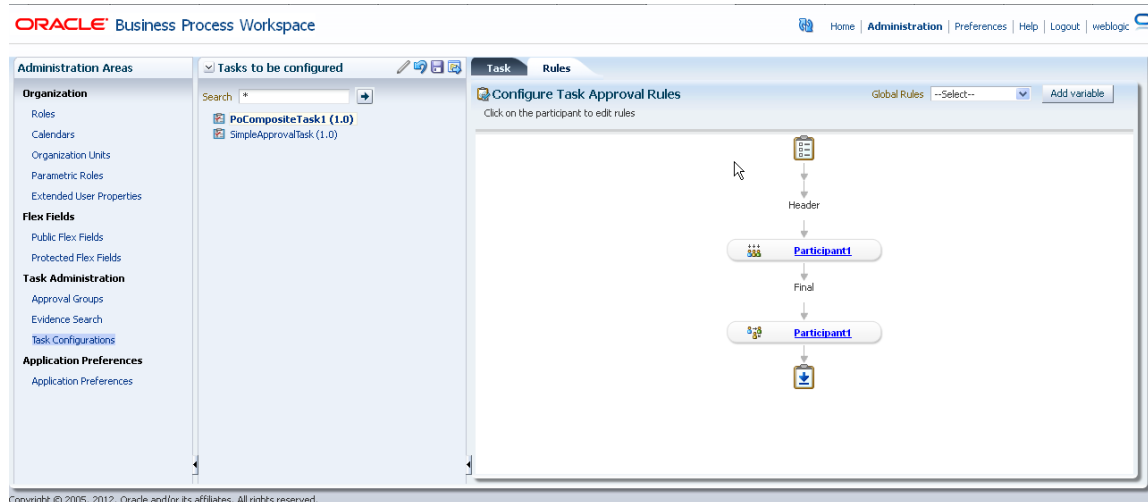
The Configure Task Approval Rules page graphically shows the approval flow for the task. The icon in each participant node indicates the type of participant: single, parallel, serial, or FYI.

To see a tool tip displaying the name of the ruleset for a participant in this task, hover over the link for that participant.

Note that value- based participants are shown but are disabled.

9.4.11 How to Add a Rule to a Ruleset in Process Workspace

You can add a rule to a ruleset, specifying not only conditions, but also a description, the effective date, and priority.

To add rules for a rule-based participant:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configuration**.

   The Tasks to Be Configured pane appears as the middle pane.

3. In the Tasks to Be Configured pane, select a rule whose settings you want to modify.

   The corresponding details appear in the Tasks tab page in the right pane.

4. Select **Edit task**.

   The right pane refreshes in edit mode.

5. In the right pane, select the Rules tab.

   The Rules tab page displays the Configure Task Approval Rules page showing the approval flow for the task. The icon in each participant node indicates the type of participant: single, parallel, serial, or FYI.

6. To edit the rules, click the link for the participant.

   The rules editor page appears with the participant node (ruleset) selected. Here you can either add or edit rules defined for the rule set. (You can also add or edit decision tables as explained in How to Add and Customize Decision Tables.)

7. Click **Add Rule** as shown in Figure 9-23.

Figure 9-23 Adding a Rule
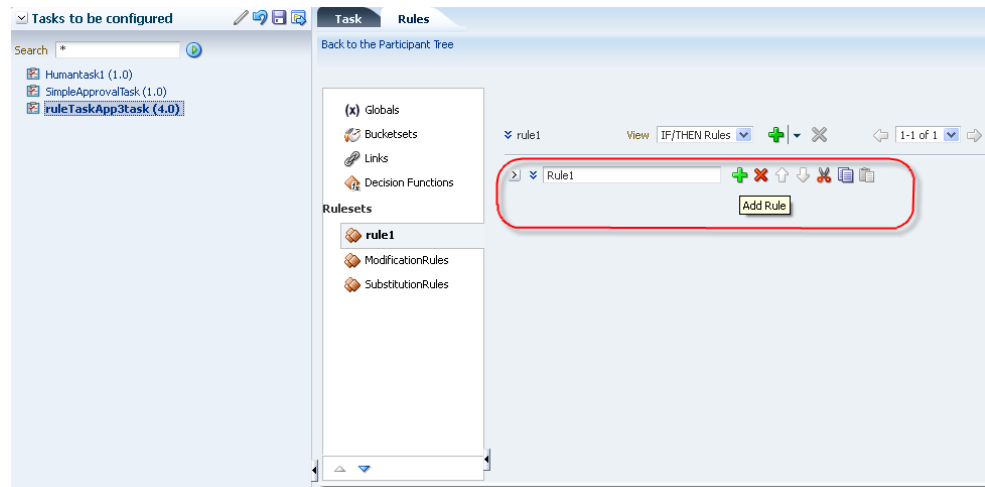
8. To specify the rule, click the **Expand** icon to the left of the rule field.

   This enables you to specify the conditions for the rule as described in How to Define Rule Conditions. To provide a description and specify the effective date and priority, click the **Show Advanced Settings** icon to the left of the rule field.

9. When you have finished making your changes, in the Tasks to Be Configured pane, click **Save**.

   The changes are saved to the rule definitions in the rules dictionary. To commit the changes to MDS, click **Commit**. The task is refreshed and no longer editable.

For more information about adding rules, see Working with Rulesets and Rules in *Oracle Fusion Middleware User's Guide for Oracle Business Rules*.

9.4.11.1 How to Define Rule Conditions

You can set the left and right sides of a condition by selecting operands from condition browsers. Clicking the magnifying glass icon displays the browsers.

The operator for comparing the operands of the condition change based on the type of operand selected for the left side of the condition. You also can define more complex conditions using the Expression Builder.

For more information, see *Creating ADF Data Binding EL Expressions* in *Fusion Developer's Guide for Oracle Application Development Framework*. See also *Creating EL Expressions* in *Web User Interface Developer's Guide for Oracle Application Development Framework*.

9.4.11.2 How to Add Actions

You can add actions to a rule.

To add an action:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configuration**.

The Tasks to Be Configured pane appears as the middle pane.

3. In the Tasks to Be Configured pane, select a rule.

The corresponding details appear in the Tasks tab page in the right pane.

4. Select **Edit task**.

The right pane refreshes in edit mode.

5. In the right pane, select the Rules tab.

The Rules tab page displays the Configure Task Approval Rules page showing the approval flow for the task. The icon in each participant node indicates the type of participant: single, parallel, serial, or FYI.

6. To add an action, click the link for the participant.

The rules editor page appears with the participant node (ruleset) selected.

7. From the **View** drop-down field, select **IF/THEN Rules**.

8. If there are no rules defined, add a rule as described in How to Add a Rule to a Ruleset in Process Workspace

If there are rules defined for the ruleset, go to step 9.

9. Expand the rule as shown in Figure 9-24.

Figure 9-24   Adding Actions to a Rule
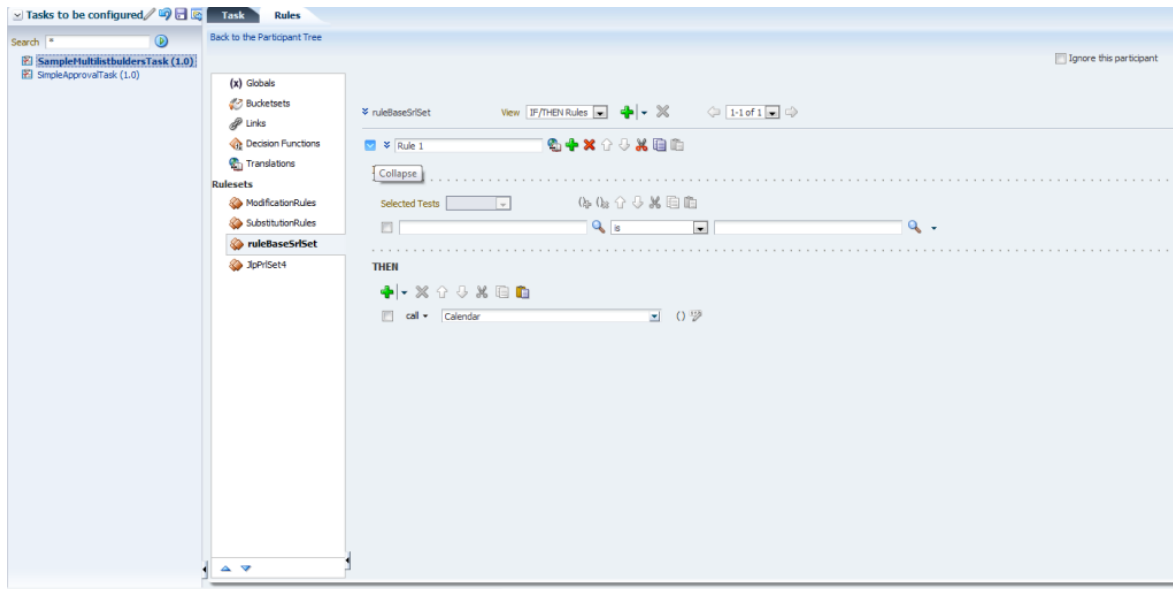
10. Under the THEN pane, click the add icon to add an action.

Select the action you want to add from the displayed list as shown in Figure 9-25.

Figure 9-25   Available Actions for Rules
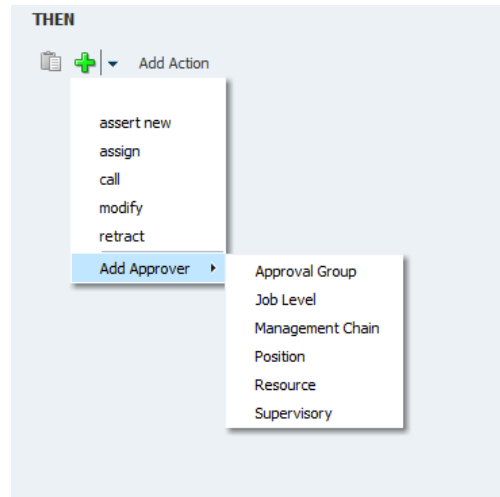
You can add multiple actions for any rule by repeating step 10.

11. After adding a rule, you can perform the following commands:

- Delete

- Copy

- Cut

- Paste

- Up and Down (to change the order of the listed actions)

9.4.11.2.1 To perform commands on an action

Perform the following steps:

1.   Select the action by clicking the check box next to the action as shown in Figure 9-26.

Figure 9-26   Delete, Up, Down, Copy, Cut and Paste Commands
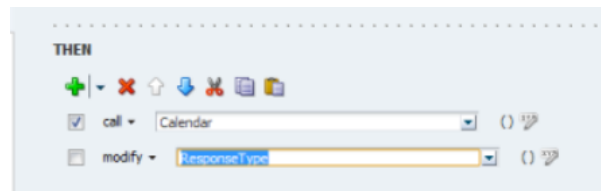
2.   Select any of the possible actions such as **Delete**, **Cut**, **Copy** or **Paste** by clicking the corresponding icons.

3.   If you have multiple actions, you can change the order of the actions by using the up and down arrows.

9.4.12 How to Add and Customize Decision Tables

You can customize existing decision tables or add new ones.

9.4.12.1 How to Customize an Existing Decision Table in Process Workspace

You can specify the actions for a ruleset that were specified in a previously created decision table.

To customize an existing decision table in a ruleset in Process Workspace:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configuration**.

   The Tasks to Be Configured pane appears as the middle pane.

3. In the Tasks to Be Configured pane, select a rule whose settings you want to modify.

   The corresponding details appear in the Tasks tab page in the right pane.

4. Select **Edit task**.

   The right pane refreshes in edit mode.

5. In the right pane, select the Rules tab.

   The Rules tab page displays the Configure Task Approval Rules page showing the approval flow for the task. The icon to the left of each participant in the flow indicates the type of participant: single, parallel, serial, or FYI.

6. To edit the rules, click the link for the participant.

   This displays the ruleset associated with that participant.

7. From the View list, select the decision table you want to customize.

   The selected decision table appears in the lower half of the page.

8. Edit any of the existing rows in the decision table.

9. To add an action, in the decision table, from the **Add** list, select the action you want to add as shown in the example in Figure 9-27.

Figure 9-27   Adding Actions to a Decision Table
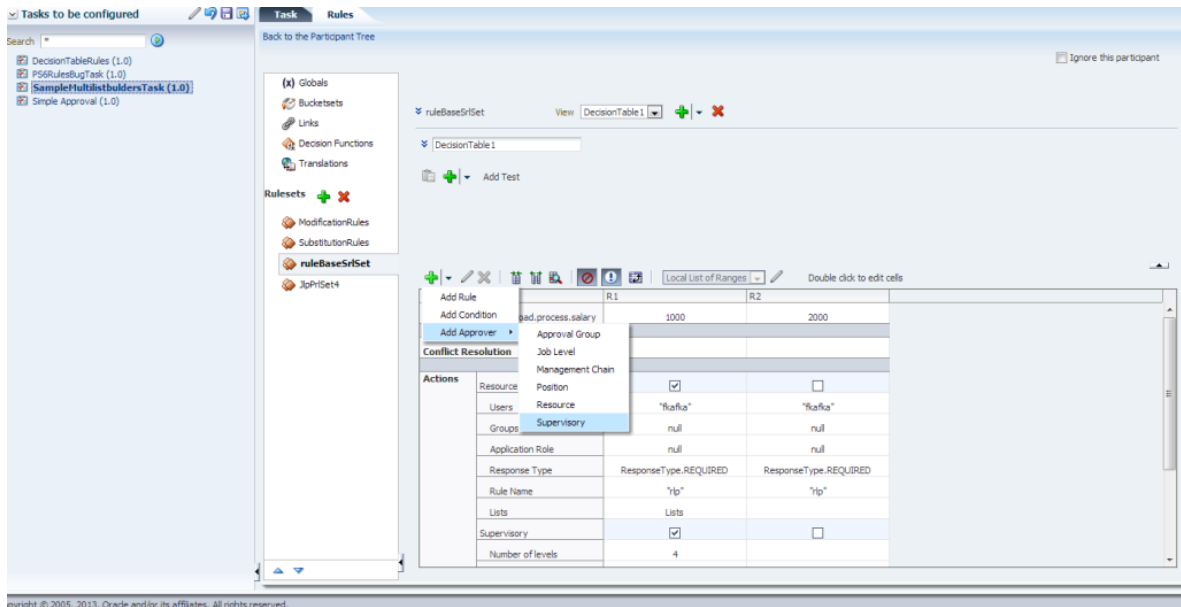
The corresponding actions appear in the table for you to specify.

9.4.12.2 How to Edit an Action (Multiple Parameters: All Rules at a Time)

In the Rules tab, you can edit multiple parameters of an action from the Decision Table.

To edit multiple parameters:

1. From the View list, select the decision table that contains the action you want to edit.

   The selected decision table appears in the lower half of the page as shown in Figure 9-28.

Figure 9-28   Decision Table with Editable Actions
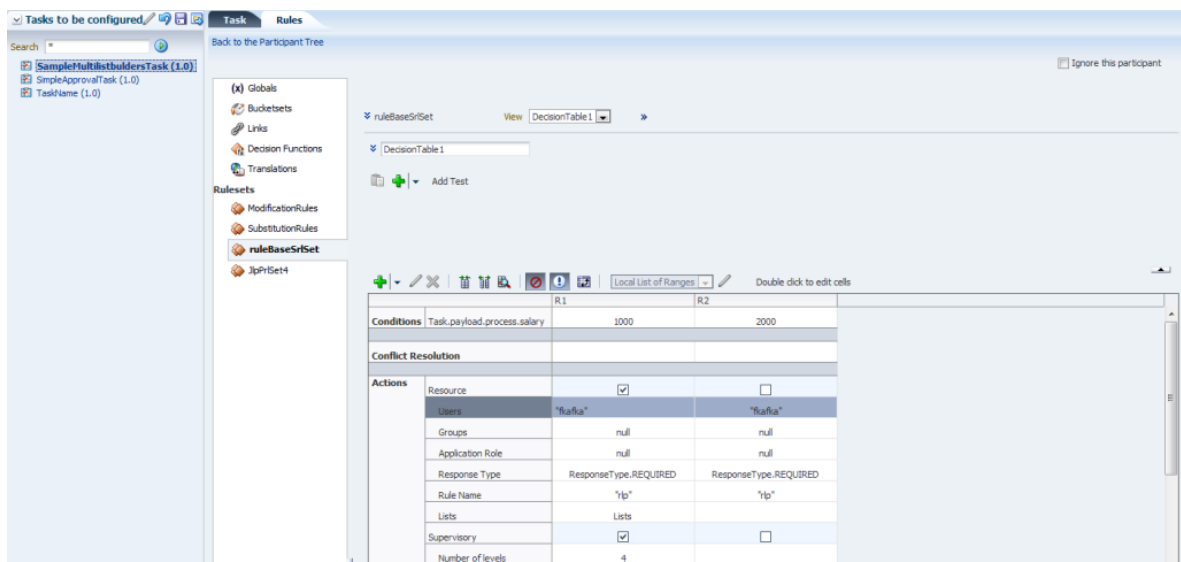
2. Select the action you want to edit and click **Edit Action**.

3. An Action Editor dialog box appears as shown in Figure 9-29.

   You can modify the values available for the action you selected. You can choose not to specify values for all the parameters in the Action Editor dialog box.

   Figure 9-29   Action Editor

4. Click **OK**.

   The values appear in the Decision Table for the selected action for all rules. For more information on Decision Tables, see How to Add and Customize Decision Tables.

9.4.12.3 How to Edit an Action (Single Cell Editing)

You have to option to edit one of the parameters of an action in the Decision Table.

To edit a single cell of any action:

1. From the View list, select the decision table that contains the action you want to edit.

   The selected decision table appears in the lower half of the page as shown in Figure 9-28.

2. In the Decision Table, click the cell you want to modify.

   This makes the cell editable as shown in Figure 9-30.

   Figure 9-30   Single Cell Editing

3. Update the parameter with the specific value/option.

9.4.12.4 How to Add a New Decision Table to a Ruleset in Process Workspace

You can add a table to a ruleset and specify the actions it contains.

To add a new decision table to a ruleset in Process Workspace:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Panel appears in the left pane.

2. In the Administration Panel, under Task Administration, click **Task Configuration**.

   The Tasks to Be Configured pane appears as the middle pane.

3. In the Tasks to Be Configured pane, select a rule whose settings you want to modify.

   The corresponding details appear in the Tasks tab page in the right pane.

4. Select **Edit task**. The right pane refreshes in edit mode.

5. In the right pane, select the Rules tab.

   The Rules tab page displays the Configure Task Approval Rules page showing the approval flow for the task. The icon to the left of each participant in the flow indicates the type of participant: single, parallel, serial, or FYI.

6. To edit the rules, click the link for the participant.

   This displays the ruleset associated with that participant.

7. In the ruleset, from the **View** list, select Add Decision Table as shown in Figure 9-31.

Figure 9-31   Adding a Decision Table
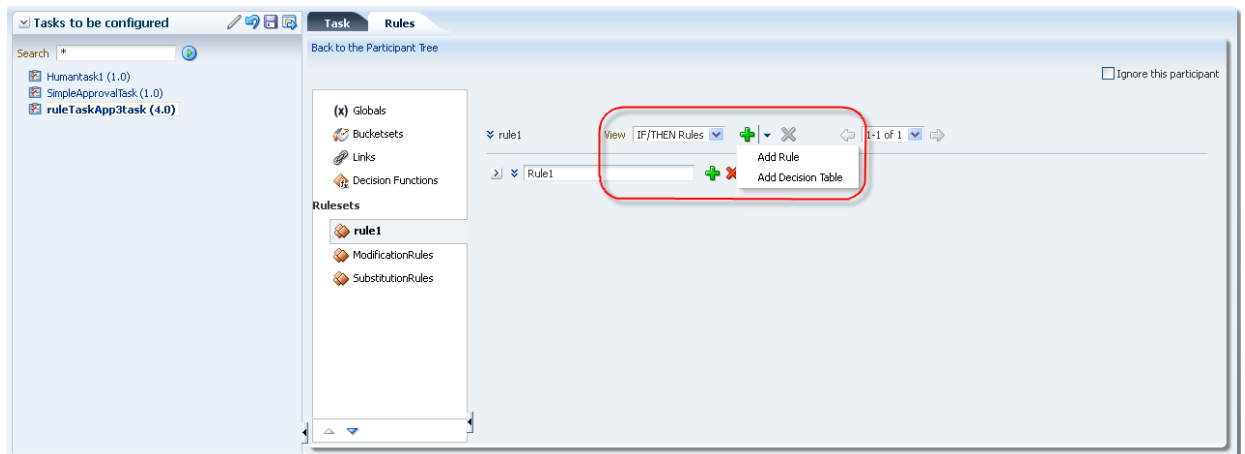
The new decision table appears in the lower half of the page.

8. To add an action, in the decision table, from the **Add** list, select the action you want to add as shown in the example in Figure 9-27.

   The corresponding actions appear in the table for you to specify.

9.4.13 How to Add a Variable to a Rule

Perform the following steps:

To add a variable to a rule:

1. In the Rules page, click **Add variable**.

   The Add Variable window appears.

2. Enter a name for the variable and, optionally, a description.

3. From the Type list, select a variable type.

   The types displayed in the list correspond to those that are available in the rule dictionary (including built-in types by default as well as others that have been registered).

4. Enter a value.

5. Click **OK**.

   The variable can now be used to define conditions.

9.5 Using Evidence Search in Process Workspace

The evidence store service is used for digital signature storage and nonrepudiation of digitally signed human tasks.

To search the evidence store:

1. In the Process Workspace toolbar in the upper right corner, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. In the Administration Areas panel, under Task Administration, select **Evidence Search**.

   The Evidence Search page appears in the right pane, as shown in Figure 9-32.

   Figure 9-32   Searching the Evidence Store

3. Fill in the search fields, then click **Search Evidence Store**.

For information about the evidence store for digital signatures, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

9.6 Managing Exceptions in Process Workspace

Under certain circumstances—for example, an employee who has left the company being assigned to a task—an exception can occur. When an exception occurs, the task gets put into an alerted state. The task then gets assigned to the error assignee or, if one is not specified, to the administrator.

For information about configuring the error assignee, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

There are other scenarios in which an exception can happen.

9.7 Using the User Metadata Migration Utility

The user metadata migration utility, `hwfMigrator`, is a tool that automates the process of migrating workflow user-configurable data from one Service Integration server to another by executing a shell script.

The tool also includes a property file that contains key-value pairs and all the input parameters required to perform the migration operation. You customize the property file and then perform the migration by executing the shell script.

If you are a process designer and want more information about using the User Metadata Migration Utility, see *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio*.

For information about moving from a test site to a production site, see *Moving from a Test to a Production Environment* in *Administering Oracle Fusion Middleware*.

9.8 Integrating with Oracle WebCenter Portal

You can integrate some Oracle Business Process Management functionality into Oracle WebCenter Portal portals and pages, including task lists from which you can view and execute tasks.

WebCenter Portal Integration Architecture — WebCenter Portal

BPM is integrated into WebCenter Portal using a BPEL connection, and a WebCenter Portal resource catalog. With the BPEL connection established, the resource catalog provides task flows that can be embedded in a WebCenter Portal page.

In the WebCenter Portal portal or page, an ADF taskflow contains an in-line frame. The frame's URL points to a page that provides BPM functionality (such as the Task List). This page is hosted from the BPM Workspace application, which resides on the BPM server.

Figure 9-33   WebCenter Portal BPM Integration Architecture
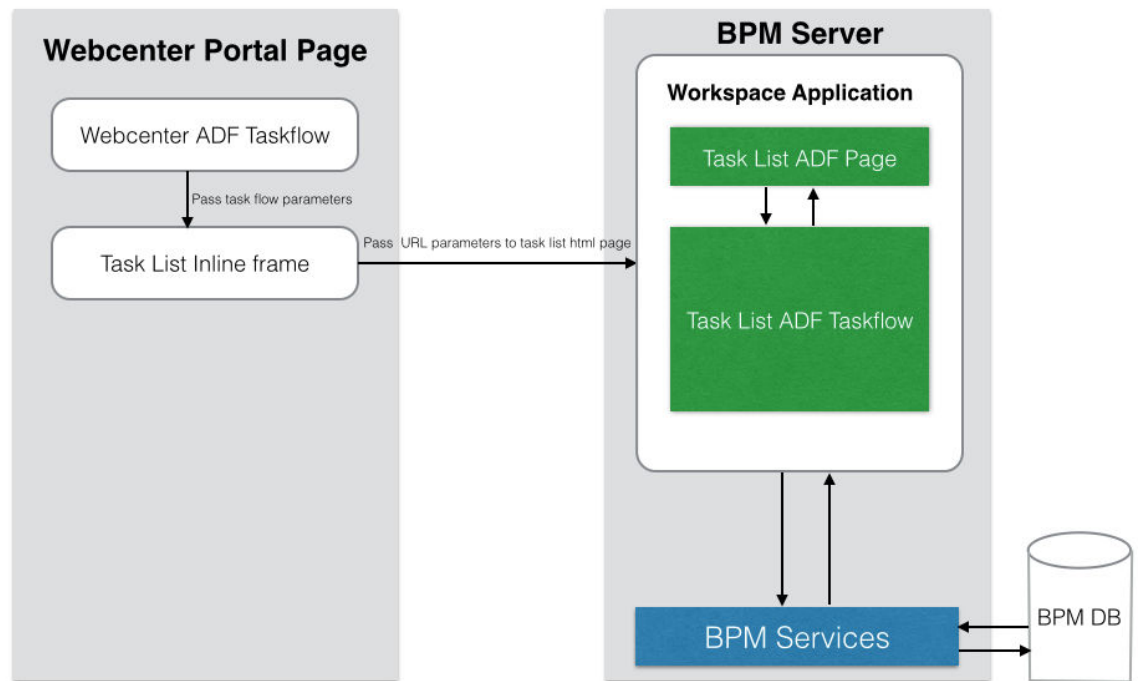
WebCenter Portal Integration Architecture — BPM

The components needed to integrate BPM Task List functionality into WebCenter Portal are built in to the BPM server application. No additional BPM server configuration is needed.

WebCenter Portal Integration Setup Overview

To set up WebCenter Portal integration with BPM, you create a connection to the BPM BPEL server, load the BPM Process Portal Catalog resource catalog, and then integrate BPM resources into a WebCenter Portal portal. Interactive BPM functionality is then available.

For configuration details and steps, see Configuring Oracle WebCenter Portal Integration. For implementation details, see Integrating BPM Functionality into WebCenter Portal.

9.8.1 Configuring Oracle WebCenter Portal Integration

Configure BPM Workspace functionality integration into Oracle WebCenter Portal by creating a BPEL connection to the BPM BPEL server, and loading the BPM Process Portal Catalog resource catalog.

A high level overview of the tasks needed to integrate BPM into WebCenter Portal is:

- create a BPEL connection to the BPM BPEL server

- load the BPM Process Portal Catalog resource catalog

- use the BPM Process Portal Catalog resources to integrate BPM functionality into a portal or page

To configure WebCenter Portal Integration with BPM in a WebCenter Portal installation, with an existing WebCenter Portal portal:

First, create the BPM BPEL service connection as follows:

1. Start the WebLogic scripting tool:`<FMW_HOME>/wcportal/common/bin/wlst.sh`

2. Create a connection to the BPM BPEL service using the WebCenter Portal custom WLST command `createBPELConnection`, specifying the following parameters:

   - appname — specify `'webcenter'`

   - name — specify the BPEL connection name. The default name for the BPEL connection between WebCenter Portal and BPM is `'WebCenter-Worklist'`

   - url — supply the URL and port for the BPM Server, for example, `http://myhost.com:7001`

   - policy — supply the policy `oracle/wss10_saml_token_client_policy`

   An example command to create the connection is:
   ```
   createBPELConnection(appName='webcenter', name='WebCenter-Worklist', url='http://myhost.com:7001', policy='oracle/wss10_saml_token_client_policy').
   ```

3. Restart the WebCenter Portal server.

Next, load the BPM Resource Catalog into your WebCenter Portal portal as follows:

4. Log in to WebCenter Portal as an administrator.

5. Select **Portals** > **Administration**.

6. Select the `Shared Assets` tab.

7. Select the `Resource Catalogs` page.

8. Click `Upload`.

9. In the **Upload New Page Template** dialog box, provide the path to the BPM resource catalog named **BPM_Process_Portal_Resource_Catalog.ear**, located in the BPM environment. For example, `<MW_HOME>/oracle/wcportal/common/lib/BPM_Process_Portal_Resource_Catalog.ear`.

   If the upload works, an **Information** dialog indicates **Asset uploaded successfully** and the BPM Process Portal Catalog appears in the list of Resource Catalogs.

10. Click `OK`.

WebCenter Portal integration with BPM is configured.

For customization of an integrated BPM task list see Customizing an Integrated BPM Task List in WebCenter Portal. For integration configuration details and steps, see Configuring Oracle WebCenter Portal Integration. For an overview of WebCenter Portal integration architecture, see Integrating with Oracle WebCenter Portal.

9.8.2 Integrating BPM Functionality into WebCenter Portal

To integrate BPM functionality into an Oracle WebCenter Portal portal, drag Process Workspace Resources located in the BPM Process Portal Resource Catalog into the content pane.

To add BPM functionality to a portal:

1. Open the portal into which you want to integrate BPM functionality.

2. From the **Pages and Portals Actions** menu, select `Edit Portal`.

3. Click the `Settings` icon.

4. In the **Resource Catalog for...** section, in the **Pages** dropdown, select **BPM Process Portal Catalog**.

5. On the left, click the `Edit Portal` icon.

6. Click `Show Catalog`.

7. Click the `Process Workspace Resources` catalog.

   The list of available BPM resources is displayed

8. Drag and drop desired the BPM resource to integrate into your portal to the Add Content pane. For example, choose **Task List** to add a BPM Task List to the page.

   The live BPM content is displayed

9. If desired, customize the look of the new content by clicking the **View Actions** dropdown menu from the upper right corner of the panel, and selecting **Content Style.** For example, you can specify a larger Height value, such as 800px, to show more of the BPM functionality in the panel. Click **OK** when done customizing.

10. Click **Save** to save the portal changes.

A similar approach can be used to integrate BPM functionality into a page in a portal.

For an overview of WebCenter Portal integration architecture, see Integrating with Oracle WebCenter Portal. For configuration details and steps, see Configuring Oracle WebCenter Portal Integration.

9.8.3 Customizing an Integrated BPM Task List in WebCenter Portal

You can customize which components of the Task List are displayed in integrated BPM functionality in an Oracle WebCenter Portal page, as well as some of their default values.

From the **Pages and Portals Actions** dropdown menu, select **Edit Portal**. Click the **View Actions** dropdown menu from the upper right corner of the panel containing the Task List, and select **Parameters**.

Table 9-6   Parameters, and Default and Possible Values for Customizing an Integrated BPM Task List

Parameter	Description	Data Type	Default Value	Notes
Assignment Filter	Value of the Assignee dropdown task list filter	String	My+Group	Possible values are BPM task list Assignee values: • My • My Group • My+Group • My+Group +All • Reviewer • Previous
Connection Name	Name of the BPEL connection to the BPM instance	String	WebCenter-Worklist	If an additional BPM environment is connected to your WebCenter Portal environment, specify the connection name of the additional BPEL connection here. With a single BPM environment, use the default value, WebCenter-Worklist.
Show Applications Panel	Shows/hides the Applications panel	Boolean	false	Over-ridden by the Show Left Navigation Panel setting
Show Assignment Filter	Shows/hides the Assignment filter in the task list toolbar	Boolean	true	
Show External Links Panel	Shows/hides the Links panel	Boolean	false	Over-ridden by the Show Left Navigation Panel setting

Table 9-6   (Cont.) Parameters, and Default and Possible Values for Customizing an Integrated BPM Task List

Parameter	Description	Data Type	Default Value	Notes
Show Left Navigation Panel	Shows/Hides the navigation panel which appears to the left of the task list	Boolean	false	
Show Status Filter	Shows/hides the Status filter in the task list toolbar	Boolean	true	
Show Task Details Panel	Shows/hides the task details panel	Boolean	true	User settings override this value
Show View Filter	Shows/hides the View Filter above the task list table	Boolean	true	
Show Views Panel	Shows/hides the Views panel	Boolean	false	Over-ridden by the Show Left Navigation Panel setting
Status Filter	Value of the Status dropdown task list filter	String	ASSIGNED	Possible values are BPM task status values. For example, Any, Assigned, Completed, Suspended, Withdrawn, Expired, Errored, Alerted, Information Requested.
View Filter	View to use for the task list	String	My Tasks	Possible values are BPM task list view values. For example, Inbox, Due Soon, High Priority.

See Integrating with Oracle WebCenter Portal for more information.

9.8.4 Adding support for ADF task details

Add `/workflow` to **mod_wl_ohs** to view task details (ADF Form) in Webcenter Portal.

To view task details (ADF Form) in Webcenter Portal add `/workflow` to **mod_wl_ohs** configuration in the **Location** table. For information on the how to add, see *Configuring the WebLogic Proxy Plug-In for Oracle HTTP Server* in *Oracle® Fusion Middleware Using Oracle WebLogic Server Proxy Plug-Ins*.

9.8.5 Configuring with Enterprise Manager

The task details are redirected to the internal URL and frame busting comes into play preventing the task form from getting loaded.

You must add the URL where task details should be displayed in the Oracle Enterprise Manager. To add the URL:

1. In the Weblogic server that is running BPM, navigate to **System MBean Browser**.

2. Click on the Binocular symbol to activate search, and search for `WorkFlowConfig`.

3. Expand **WorkFlowConfig** and select **human-workflow**.

   On the right side parameters related to human-workflow are displayed.

4. Add the value `http://webcenterhost:7777` for **FusionAppsFrontEndHostURL** parameter.

10

Managing Your Organization in Process Workspace

Administrators of Oracle Business Process Management Suite can model an organization by defining organization units, business calendars, business holidays, roles, and other user properties.

This chapter includes the following sections:

- Understanding Deployment of Organization Entities in Process Workspace
- Managing Holiday Rules in Process Workspace
- Managing Calendars in Process Workspace
- Managing Other Users' or Groups' Rules in Process Workspace
- Managing Roles in Process Workspace
- Managing Parametric Roles in Process Workspace
- Managing Extended User Properties in Process Workspace
- Managing Organization Units in Process Workspace

10.1 Understanding Deployment of Organization Entities in Process Workspace

When a process is deployed, the various organization entities—for example, the organization unit, calendar, and so on—are created. Those entities can then be modified only through Process Workspace. Later, when the process is redeployed, data in Oracle BPM Studio does not overwrite any changes made during runtime.

For information about organizational units, see *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio*.

10.2 Managing Holiday Rules in Process Workspace

Business holidays are collections of holidays that can be applied to calendar rules. Then, when computing the duration of a process, the calendar takes into account the specified holidays.

You can create as many holiday rules as needed for different calendar rules. For example, if you apply holiday rules for India, the United States, and China to a given calendar, then those various national holidays are taken into account when the duration of a process is computed.

Figure 10-1   Holiday Rules
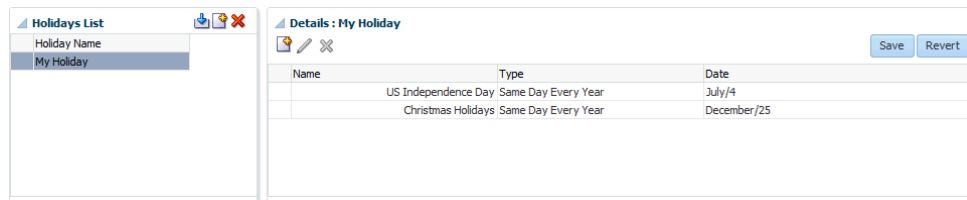
When you create a business holiday rule, you specify the holiday name, date, and holiday type. Table 10-1 lists and describes the holiday types.

Table 10-1   Holiday Types

Holiday Type	Description
Same Day Every Year	On the same day each year.
Current Year	In the current year only.
Nth Week Day of Month	In a specified week, on a specified day, in a specified month each year—for example, in the United States, Thanksgiving Day is celebrated each year on the fourth Thursday of November.
Nth Day of Reference Holiday	On a day in relation to another specified holiday—for example, on the day after Thanksgiving Day.
Closest week day	The closest day to a given date—for example, in the United States, the Independence Day holiday may be celebrated on the weekday closest to the Fourth of July.

> **Note:**
>
> For Holiday Types, only yearly frequency type holidays are supported. **Same Day Every Year** and **Nth Week Day Of Month** are supported in Release 12.1.3.0. Other monthly and weekly frequencies like **Nth Day of Reference Holiday** and **Closest week day** are not supported.

10.2.1 To Create a Holiday Rule

Perform the following steps to create a holiday rule.

To create a holiday rule:

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. In the Organization panel, click **Calendars**.

   The Calendars page appears.

3. In the Holidays List section, click **Add Holiday List**.

   The Add Holiday List dialog prompts you for the name of the new holiday list. You can import a holiday list by using the **Import iCalendar** option. The Import

iCalendar functionality enables you to upload an existing iCalendar (ics) file and convert to holidays. For information on importing a calendar file, see section To Import a Calendar File.

4. Enter the name of the new holidays list and click **OK**.

   The new holidays list appears in the holidays list.

5. Select the new holidays list.

   The details for the new list appear in the right pane.

6. In the holiday details section, click **Add a Holiday**.

   A row appears for you to specify the attributes of the new holiday.

7. Specify the name of the holiday, and the day on which the holiday occurs each year.

   Options for specifying holiday occurrence are described in Table 10-1.

8. Click **Save.**

   The new holiday rule is configured according to your specifications.

10.2.2 To Import a Calendar File

Perform the following steps:

To import a calendar file:

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. In the **Organization** panel, click **Calendars**.

   The Calendars page appears.

3. In the **Holidays List** section, click **Import iCalendar**.

   The **Import iCalendar as BPM holiday** dialog prompts you for the holiday list name and the location of the iCalendar file.

4. Enter the name of the new holiday list and select the location of the iCalendar file.

5. Click **OK**.

   The new holiday list appears in the Holidays List.

> **Note:**
>
> Limitations when importing iCalendar file:
>
> • Multiple holidays with the same name in the iCalendar (ics) file are not supported. If there are repeated holiday names within the same ics file, an error message is displayed.
>
> • Only Event components in the iCalendar file are supported. If there are unsupported components in the file, for example VTimeZone format, the import fails and an error message is displayed specifying the unsupported component name.

10.2.3 To Edit a Holiday Rule

Perform the following steps:

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. Under **Organization**, click **Calendars**.

   The Calendars panel appears in the right pane.

3. In the **Holidays List** section, select the holiday list you want to edit.

   The **Details** page for the list appears in the right pane. Holidays are listed in a table.

4. Select a row in the table and click **Update Holiday.**

   All the holiday entries in the table become editable.

5. Edit holiday details, and click **Save**.

10.2.4 To Delete a Holiday Rule List

Perform the following steps:

1. Access the **Holidays List** as in To Edit a Holiday Rule.

2. Select the Holiday List to delete.

3. Click **Delete Holiday List**.

10.2.5 To Delete a Holiday Rule

Perform the following steps:

1. Access the **Holidays List Details** as in To Edit a Holiday Rule.

2. Select the Holiday rule to delete.

3. Click **Delete Holiday**.

10.3 Managing Calendars in Process Workspace

A business calendar defines a work pattern for each day and a work week structure for each week. In addition, a calendar also defines non-working days by using business holiday rules—that is, the business calendar and holiday rule together define the work period.

Figure 10-2   Calendar Rules

When you create a business calendar, you define the following:

- Calendar name

- Time zone

- Working days in week

- Start time and end time for each day

- Optional holiday rule

You can create as many calendars as necessary.

You can associate business calendars to roles (see How to Add New Application Roles and to organization units (see Managing Organization Units in Process Workspace). For example, you can specify that the InsuranceAgents role in the US-California organization unit follows the US-California business calendar.

> **Note:**
>
> After the project is deployed, you cannot make changes to the calendar rules.

10.3.1 To create a calendar rule

Perform the following steps:

1. From the Process Workspace toolbar, select **Administration**.

    The Administration Areas panel appears.

2. In the Organization panel, click **Calendars**.

    The Calendars page appears in the right pane.

3. In the Calendars section, click **Add Calendar**.

The Add a Calendar dialog prompts you for the name of the new calendar.

4. Enter the name of the new calendar, and click **OK**.

   The new calendar appears in the Calendars list.

5. Select the new calendar.

   The details for the new rule appears in the right pane.

6. Specify the following:

   - The time zone

   - The holiday list, if any, that applies

   - The appropriate starting and finishing times

7. Click **Save**.

   The new calendar is now configured according to your specifications.

10.3.2 To edit a calendar rule

Perform the following steps:

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. In the Organization panel, click **Calendars**.

   The Calendars page appears in the right pane.

3. Select the calendar rule you want to edit.

   The details page for the new rule appears in the right pane.

4. Change the settings, and click **Save**.

   The calendar rule is now modified according to your specifications.

10.3.3 To associate a calendar rule with a role and an organization unit

Perform the following steps:

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. In the Organization panel, click **Roles**.

   The Roles panel displays a list of the roles you are authorized to administer.

3. In the Details panel, in the Calendars section, click **Associate a new calendar rule to an organization unit for the application role**.

   Calendar and Organization Unit lists appear in the Calendar section.

4. Using Calendar and Organization Unit lists, specify the calendar and organization unit to which you want to associate this role.

    5. Click **Save**.

10.3.4 To associate a calendar with an organization unit

Perform these steps:

1. From the Process Workspace toolbar, select **Administration**.

The Administration Areas panel appears.

2. Under Organization, click **Organization Units**.

The Organization Units panel appears.

3. Select the organization unit with which you want to associate a calendar rule.

The details for that organization unit appear in the right pane.

4. In the Details panel, from the Calendars list, select the calendar to associate with this organization unit.

5. Click **Save**.

10.3.5 To delete a calendar rule

Perform these steps:

1. From the Process Workspace toolbar, select **Administration**.

The Administration Areas panel appears.

2. In the Organization panel, click **Calendars**.

The Calendars panel appears in the right pane.

3. In the Calendars section, select the calendar rule you want to delete.

The details for the rule appears in the right pane.

4. Click **Delete Calendar**, and when prompted, confirm the deletion.

The calendar is now deleted.

10.4 Managing Other Users' or Groups' Rules in Process Workspace

Administrators can make changes to rules. This can be useful for correcting a problem with a rule. For example, for a user who no longer works for the company, you can set up a rule automatically assigning that user's tasks to another user or group.

To create a rule for another user or group:

1. From the Process Workspace toolbar, click **Preferences**.

The Preferences pane appears on the left.

2. In the User Preferences pane, click **Rules**.

3. Click the **Other Rules** tab.

4. Search for the user or group for whom rules are to be created, as shown in Figure 10-3.

Figure 10-3   Creating Rules for Another User or Group

5. Click a user rules node, or click a group name (for a group rule).

6. Click the **Add** icon to create a rule.

7. Provide rule information, as shown in Figure 10-4, and click **Save**.

Figure 10-4   Defining Rules for Another User or Group
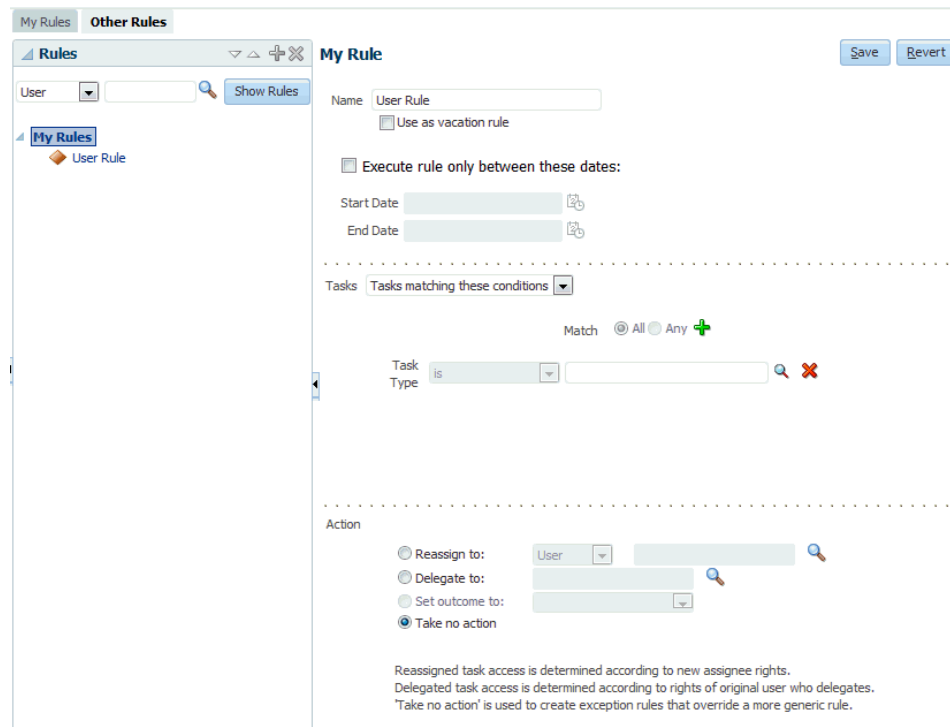
10.5 Managing Roles in Process Workspace

Roles are created as application roles under the application *OracleBPMProcessRolesApp*.

There are two types:

- **Swimlane roles**: Each swimlane role in a BPM process is created during design time in Oracle BPM Studio. It is then mapped to an application role that is created during deployment. This mapping cannot be changed after deployment.

  Members for these application roles can be defined and updated before deployment by using Oracle BPM Studio or after deployment by using Process Workspace.

Swimlanes define the default task assignee and how to initiate a process if the initiator task pattern is used. During runtime, only members of those roles can perform actions such as viewing and acting on tasks and initiating processes.

- **Application roles**: These represent any roles in the organization, and they can be created in addition to the swimlane roles defined during design time. An application role can be used as a task assignee or as a grantee of another application role. They can be created by using either Oracle BPM Studio or Process Workspace.

When you create a role, you define both the role name and the grantees of the role. The grantees can be users, groups, or other application roles. If users are logged in when you grant them a new role, they must log out and log back in to exercise the newly granted role.

10.5.1 How to Add New Application Roles

Perform these steps:

To add a new application role:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears.

2. In the Organization panel, click **Roles**.

   The Roles panel displays a list of the roles you are authorized to administer.

3. In the upper-right corner of the Roles panel, click **Add a new role**.

   The Add Role dialog box appears.

4. Specify a name, optionally, a description for the new role. Click **OK**.

   The new role is now listed in the Roles panel.

   > **Note:**
   >
   > It is recommended that you do not include spaces in Role names.

5. To grant this role to users, groups or application roles, follow the steps in How to Grant Roles .

6. To associate a calendar and its corresponding organization unit with this new role, in the Calendar section:

   a. Select **Associate a new calendar rule to an organization unit for the application role**.

   b. From the Calendar list, select the calendar you want to associate with this new role.

   c. From the Organization Unit list, select the unit that you want to associate with the calendar you just specified.

> **Note:**
>
> When a calendar is associated with an organization unit for a role, this calendar overrides the calendar associated with the calendar page when the particular role is used.

10.5.2 How to Specify the Escalation Path for a Role

An administrator can specify the path an escalated task is to follow.

For more information about the escalation path, see Handling Escalations in Process Workspace.

To specify an escalation path:

1. From the toolbar at the top of the Process Workspace, click **Administration**.

   The Administration Areas page appears in the navigation pane, **Roles** is highlighted, and the corresponding information appears in the right pane.

2. If you want to set the escalation path for an existing role, select that role from the list.

   The corresponding information appears in the lower half of the right pane.

   If you are creating a new role, click **Add a new role** and follow the instructions in How to Add New Application Roles. The new role appears in the list, and its corresponding information appears in the lower half of the right pane.

3. From the list, select either User, Group, or Role. You may also enter or browse for a specific name.

4. When you have specified the escalation path, click **Save**.

10.5.3 How to Grant Roles

You can grant roles to, and revoke them from, users, groups, or application roles.

To grant a role to a user, group, or application role:

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. In the Organization panel, click **Roles**.

   The Roles panel displays a list of the roles you are authorized to administer.

3. Select a role.

   The Details panel displays the details for the selected role.

4. In the Members section, click **Grant the role to user, group, or role.**

5. Specify the parameters of your search, click **Search**, then select the user, group, or application role to whom you want to grant this role.

   The Details section for your selection appears.

6. Click **OK**.

The user or group you specified now appears in the list in the Members section.

7. In the Details panel, click **Save**.

10.5.4 How to Revoke Roles

You can revoke roles from users, groups, or application roles

To revoke a role from a user, group, or application role:

1. From the Process Workspace toolbar, select **Administration**.

The Administration Areas panel appears.

2. In the Organization panel, click **Roles**.

The Roles panel displays a list of the roles you are authorized to administer.

3. Select a role.

The Details panel displays the details for the selected role.

4. In the Members section, click **Revoke the role from user, group, or role.**

5. Click **OK**.

The user or group you specified no longer appears in the Members box.

6. In the Details panel, click **Save**.

Note:

If, during design time, you update a process by removing a member from a role and then re-deploy the process, the member you removed is still listed as a member of that role. This is because permission to remove members from roles is limited to administrators during runtime.

10.5.5 How to Create and Manage Role-Specific Views and Layouts

For information about creating a role-specific layout, see Creating and Editing Custom Pages in Process Workspace.

10.6 Managing Parametric Roles in Process Workspace

Parametric roles are logical roles created by the administrator. Members of parametric roles are dynamically evaluated at runtime by specifying them as a parameterized query.

Parametric roles can be based only on process roles that are created by process deployment or created by using the Administration panel in Process Workspace. More specifically, they can be based on any role defined in the application context *OracleBPMProcessRolesApp* that is already seeded and displayed in the Roles section of the Administration panel.

Parametric roles define either members of an organization unit or the assignees of a task.

10.6.1 Parametric Roles Used for Querying Members of an Organization Unit

These parametric roles are groups of users specified by using a query—for example, all grantees of role InsuranceAgent with expertise in HomeInsurance where expertise is an extended user property.

The query can contain one or more of the following parts:

- Group membership

- Role membership

- Extended user properties from which users select from a list of pre-defined values

  For information about extended user properties, see Managing Extended User Properties in Process Workspace.

  Note:

  Deleting an extended user property already in use by an parametric role causes an error when administering that role.

10.6.2 Parametric Roles Used in Assigning Tasks

Parametric roles have one or more defined parameters that specify the type of person to whom a task can be assigned—for example, a task can be assigned as a parallel task to all users belonging to the Western region and whose skillsets include JAVA. The assignees that are returned by the dynamic parametric role can be used for any type of list builder—for example, sequential, parallel, or management chain.

The parameter values are defined at design time either as plain values or XPath expressions.

10.6.3 How to Create a Parametric Role

Perform these steps:

To create a parametric role:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Select **Parametric Role**.

   The Parametric Role panel appears in the right pane.

3. In the Parametric Role panel, click **Create Parametric Role**.

   This opens an editable Details panel.

4. Enter a name for this parametric role.

5. If you do not want this parametric role to be attached to a task assignee, then skip to Step 6.c.

   If you want this parametric role to be attached to a task assignee, then you must define the parameters to specify the assignee.

To define parameters for a parametric role used in assigning a task:

a. Expand **Parameters** and click **Add Parameter**.

An editable table enables you to specify the name and type of the parameter as in the example in Figure 10-5.

b. Define the parameter by specifying the name and type.

c. To add another parameter, click **Add Parameter** again and repeat.

Figure 10-5   Defining Parameters

Note:

You are not required to use any or all of the parameters that you define.

After a parameter is defined, the role is treated as a parametric role regardless of whether the defined parameters are used in a query.

6. From the Grantees list, select either **Group** or **Application Roles**.

If you select **Group** specify the name of the group in either of the following ways:

- Enter the name of the group in the text field.

- Click **Select Group** to begin a search.

    The Select Group dialog box appears. Specify your search, or use an asterisk (*) as a wildcard, then click **OK**.

    The group you specified is listed as the grantee of this parametric role.

If you select **Application Role**:

a. From the **Application Role** list, select **OracleBPMProcessRolesApp**.

b. Specify a parameter by entering a dollar sign ($), then selecting from the list that appears next to the field.

c. Configure the conditions for the inclusion of the grantees.

To do this, from the **Add Condition** list, select a condition. The listed conditions include the standard LDAP attribute conditions of LDAP repository. There are 2 condition types listed:

- LDAP attribute condition: The LDAP attribute condition appears in title case in the condition list.

- Extended User Properties: The extended user properties condition appears in upper case in the condition list.

d. Click **Add Criteria Row** and specify the values for each condition.

The values can be any of the following: (1) The application role or group to which the users must belong, (2) The extended user properties the users must match. You specified the extended user properties in Managing Extended User Properties in Process Workspace, and (3) Any parameters you may have defined for a parametric role used in assigning a task. When you begin entering a value, precede it with a dollar sign ($). The list of defined parameters appears next to the field as in the example in Figure 10-6.

*Figure 10-6   Selecting Defined Parameters as Conditions of Users with Parametric Roles*
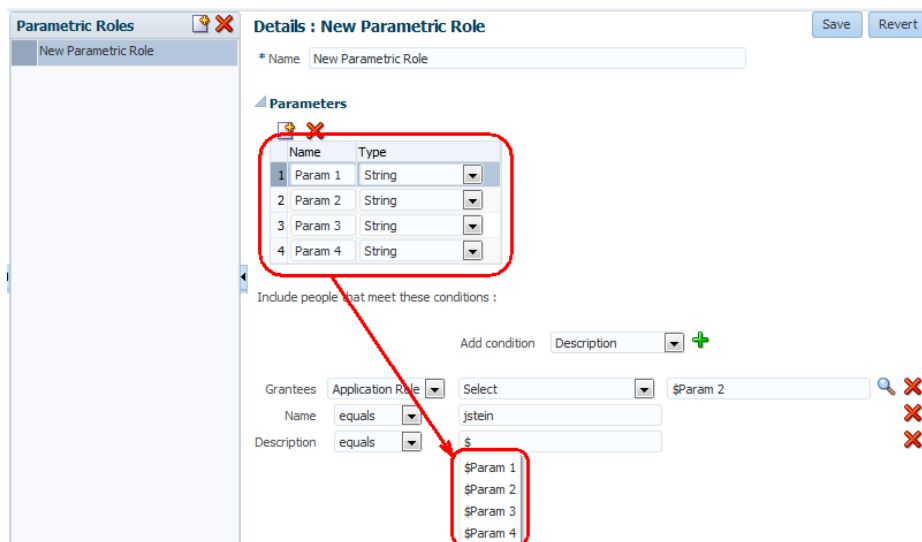
e. After you have selected one or more conditions, the conditions you specified appear in the list of users you want to include.

You can then specify the filter for that condition.

7. Click **Save**.

8. In addition to the standard LDAP attribute condition which is listed by default in the condition list, adding a condition based on custom LDAP attributes is supported.

For custom LDAP attributes condition additional configuration is to be done from Oracle Enterprise Manager Fusion Middleware Control. To add the custom LDAP attribute condition:

a. Log in to the Oracle Enterprise Manager Fusion Middleware Control (`http://<server name>:<port number>/em/`)

b. Expand **Farm_soainfra**, **SOA**, **soa-infra (AdminServer)**

c. Navigate to **SOA Infrastructure**, **Administration**, **System Mbean Browser** as shown in Figure 10-7.

Figure 10-7   Customizing LDAP Attributes in Enterprise Manager
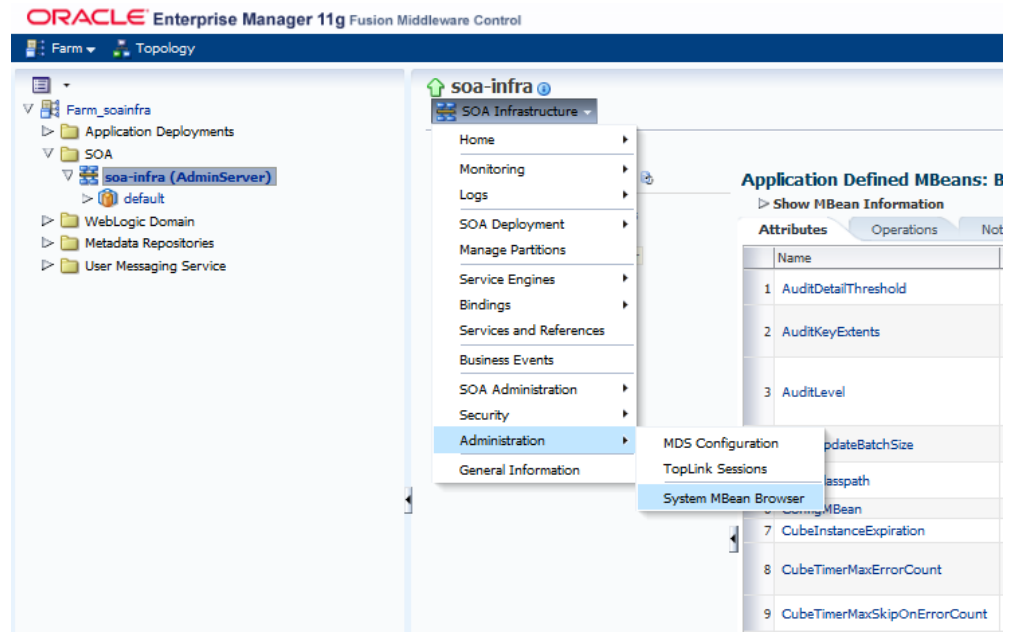
d. Expand **Application Defined MBeans**, **oracle.as.soainfra.config**, **Server: Admin Server**, **WorkflowIdentityConfig**, **human-workflow**, **WorkflowIdentityConfig.ConfigurationType**, **jazn.com**, **WorkflowIdentityConfig.ConfigurationType.ProviderType** as shown in Figure 10-8.

Figure 10-8   Viewing Attributes Tab for JpsProvider
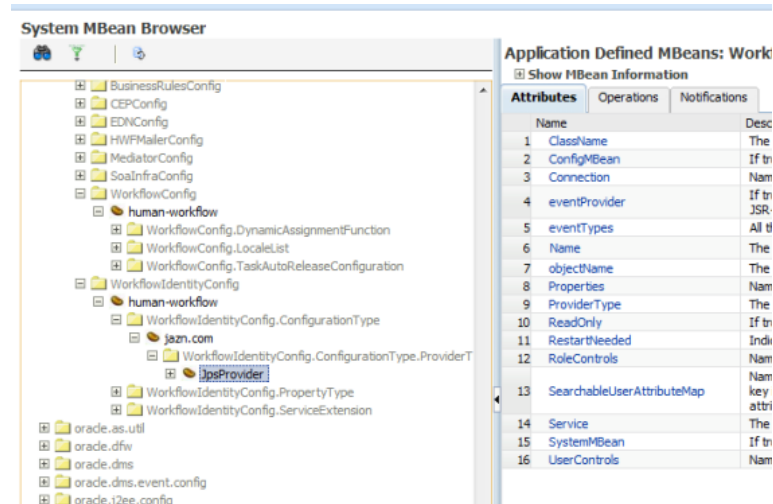
e. Click **JpsProvider** .

The Attributes tab appears on the right pane.

SearchableUserAttributeMap contains the custom attribute mapping a user can add.

f. Navigate to the Operations tab as shown in Figure 10-9.

Figure 10-9   Viewing Operations Tab for JpsProvider

g. Click the *addSearchableUserAttributeMap* operation to populate the needed values as shown in Figure 10-10:

   - The first parameter is the user attribute.

   - The second parameter is the provider specific attribute mapped to in LDAP.

Figure 10-10   Parameters for addSearchableUserAttributeMap

h. Click **Invoke** to save the changes.

   The values are displayed in the Attributes tab.

10.6.4 How to Modify a Parametric Role

Perform these steps:

To modify a parametric role:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Select **Parametric Role**.

   The Parametric Role panel appears in the right pane.

3. From the Parametric Role panel, select the role you want to modify.

The Details panel for that role appears to the right.

4. Enter the new values for the role just as you did when you created the role.

   See To create a parametric role: for more information.

5. Click **Save**.

10.6.5 How to Delete a Parametric Role

Perform these steps:

To delete a parametric role:

1. From the Process Workspace toolbar, click **Administration**.

   The Administration Areas panel appears in the left pane.

2. Select **Parametric Role**.

   The Parametric Role panel appears in the right pane.

3. From the Parametric Role panel, select the role you want to delete.

   The Details panel for that role appears to the right.

4. Click **Delete Parametric Role** and, when prompted, confirm the deletion.

   The Parametric Role is now deleted.

10.7 Managing Extended User Properties in Process Workspace

Extended user properties are used in defining parametric roles, which are described in Managing Parametric Roles in Process Workspace.

Typically, users have some properties specified in Oracle Internet Directory or some other LDAP directory. Often, however, additional properties specific to their organization and roles are necessary. At times, these properties are added on demand when newer business processes are created. At that time, it might not be possible to extend the company's global LDAP directory. In these cases, extended user properties are useful. For example, you can specify that a given user with the sales representative role is located in California. Although, from a functional point of view, there is only one role, the individual user is associated with a property, and that property has a value assigned for that user.

Figure 10-11 shows an example of the Extended User Properties page.

Figure 10-11   Sample Extended User Properties Page
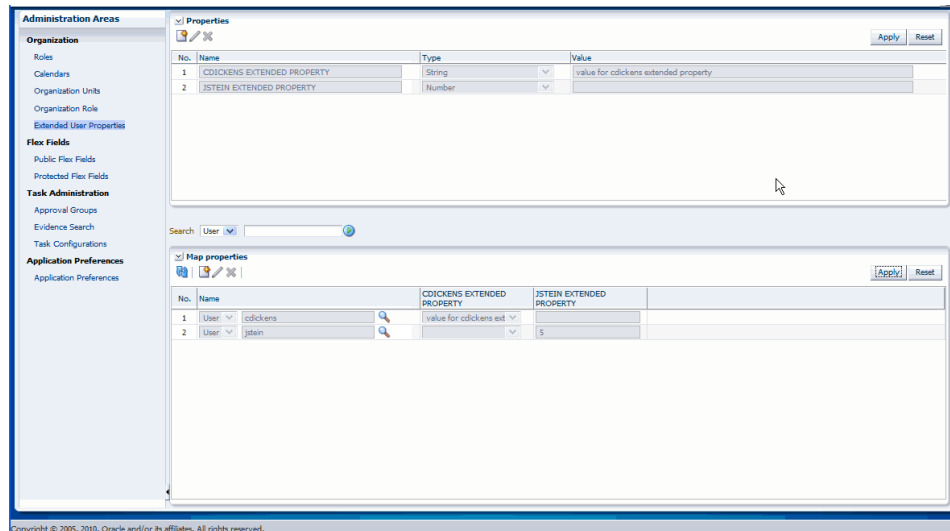
Extended user properties can be assigned to users, groups, or roles.

When you create extended user properties, you define the following:

- Property name.

- Property type, which can be of the following data types: string, number, date and free form text. String data types are enumerated values. Free form strings can have any value.

- Enumeration in case of a string data type.

    Note that only string-typed properties can be assigned values at the time of definition and only those values can be assigned to users when the property is associated with a user.

After properties are defined, they can be associated with any user. During association, values must be assigned to the property for that user

Only users who have Administrator privileges can define new properties.

10.7.1 To Add Extended User Properties

Perform these steps:

1. From the Process Workspace toolbar, select **Administration**.

    The Administration Areas panel appears.

2. In the Organization panel, click **Extended User Properties**.

    The Extended User Properties page appears in the right pane.

3. In the **Properties** pane, click **Add Property**.

    Property fields appear in the table. An Extended User Property has the following fields:

    - Name—The name can be any user defined string that is meaningful to the user or the company. Case does not matter. The system converts all names to uppercase.

- Type—The type field is a drop-down list from which the user must select the data type of the values that the property is expected to hold when it is associated with various users in the organization.

- Value—The value field is meaningful only when the property is assigned the data type string because only string typed properties can be assigned enumerations of values. This value can be a comma-delimited list.

  For all other data types (number, date, and freeform text) no values can be assigned to the property.

  For number, date, and freeform text-typed properties, a value is assigned to the property only when the property is associated to a user and the value assigned can be different for each user.

4. After you specify the property, click **Save**.

   A column for this property appears in the Map Properties pane.

10.7.2 To Modify Extended User Properties

Perform these steps:

To modify extended user properties:

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. In the Organization panel, click **Extended User Properties**.

   The Extended User Properties page appears in the right pane.

3. In the **Properties** pane, select the property you want to edit, then click **Edit Property**.

   The row for that property becomes editable.

4. Enter your changes, then click **Save.**

10.7.3 To Delete Extended User Properties

Perform these steps:

To delete extended user properties:

> **Note:**
>
> Deleting an extended user property already in use by an parametric role causes an error when administering that role.

1. From the Process Workspace toolbar, select **Administration**.

   The Administration Areas panel appears.

2. In the Organization panel, click **Extended User Properties**.

   The Extended User Properties page appears in the right pane.

3. In the Properties pane, select the property you want to delete, then click **Delete Property**.

   A Confirm Delete dialog box advises you that deleting a property dissociates this property from and associated user, if any. If you are sure you want to proceed, click **Yes**.

4. In the Properties pane, click **Save.**

10.7.4 To Associate Extended User Properties to Users

Perform these steps:

To associate extended user properties to users:

1. To specify the user with whom this property is to be associated, in the Map Properties pane, click **Add User**.

   The User field appears.

2. Specify the user.

   You can do this either by entering the user identifier in the field or by clicking **Select User**, and, in the Identity Browser window that appears, performing a search for the user and clicking **OK**.

3. If the property is a string type, then, in the Map Properties pane, from the column for the property, select the property to assign to this user.

   If the property is a number, enter the appropriate value in the text field.

   Note:

   The **All** check box means that you wish to assign all the values defined on the string property to a particular user. It does not mean that you are assigning all the properties defined in the system to the user. The purpose of the **All** check box must be understood in the context that a user can be assigned multiple values for a string and a freeform text-typed property. For string-typed properties the values that you can assign to a user are enumerated at the time of property definition itself and the **All** check box enables you to assign all of them to a user at once. Freeform text-typed properties do not have any values defined on them. To assign multiple values to a freeform text-typed property at the time of associating it to a user, enter the multiple values and separate each value by a comma.

   ---

4. After you map the property to the user, in the Map Properties pane, click **Save**.

10.8 Managing Organization Units in Process Workspace

An organization unit represents departments or divisions within an organization. Organization units can contain child organization units creating a hierarchy that corresponds to your organization.

When you create an organization unit, you define the following:

- General parameters - such as the organization unit name, comments and calendar

- Members - members of the organization unit, which can include users, groups, application roles, or parametric roles. These can be specifically added using the Identity Browser, or added based on user attributes.

- Business Constants - links to pre-defined business parameters.

When a process is associated with an organization unit, only members of that organization unit and its children can see that process and the tasks initiated by it.

> **Note:**
>
> A manager is not a member of an organization unit by default. The manager must be added to the organization unit in order to see the processes and the tasks within it.

If a process is associated with an organization unit, then the tasks initiated by the process can use the business calendar associated with the organization unit. See Managing Calendars in Process Workspace for more information.

10.8.1 To Create an Organization Unit

Perform these steps:

To create an organization unit:

1. From the Process Workspace toolbar, select **Administration**.

    The Administration Areas panel appears.

2. Under Organization, click **Organization Units**.

    The Organization Units panel appears.

3. From the **Add Organization Unit** list, select either **Root Organization Unit** or **Child Organization Unit**.

    The **Create Organization Unit** dialog box prompts you for the name of the organization unit.

4. Enter the name of the organization unit, and click **OK**.

    The new organization unit appears in the Organization Units list as shown in Figure 10-12.

    The controls shown in the Members section change depending on whether the **Add member** control is set to **Manually** or **Based on user attributes**.

Figure 10-12   Adding an Organization Unit
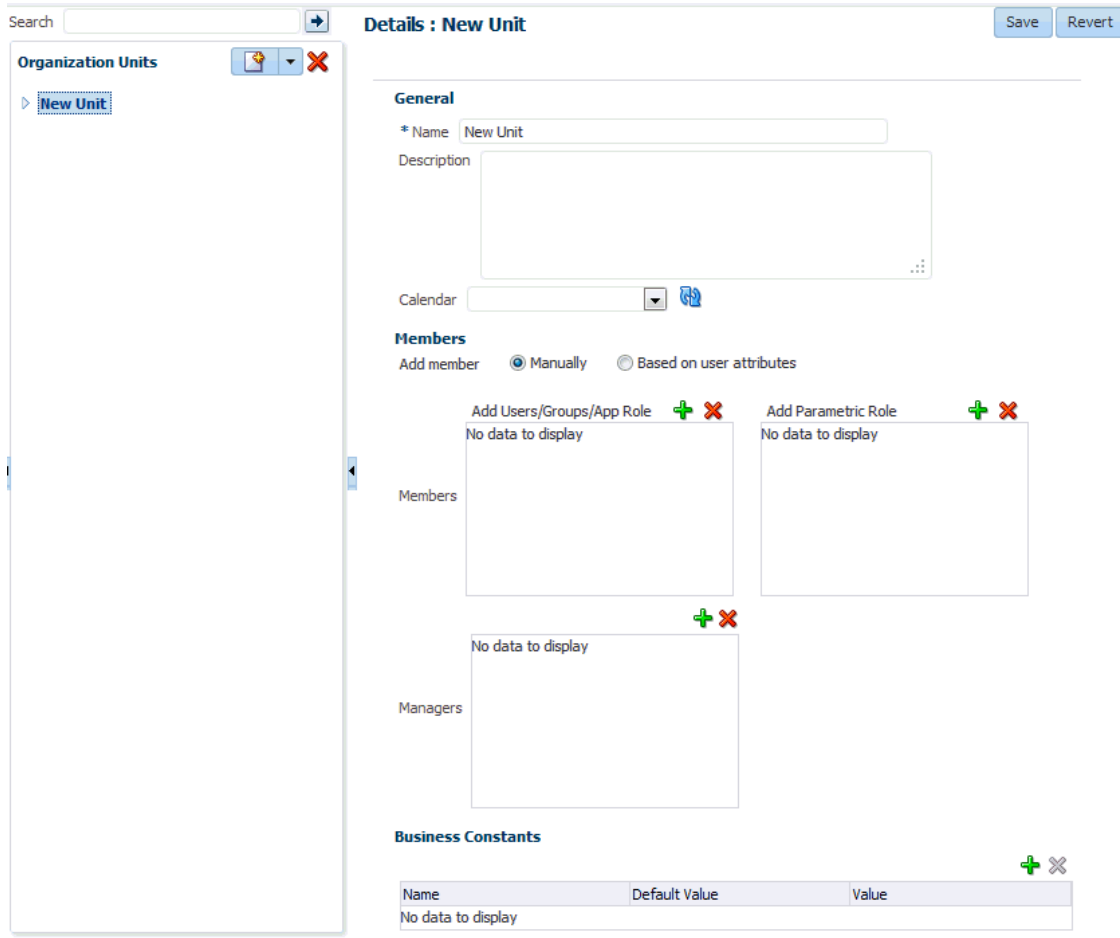
5.   In the right pane, in the **Details** section for the new organization unit:

   a.   In the **General** section, optionally provide a description of the newly created
        organization unit in **Description**.

   b.   From the **Calendar** list, select a calendar rule to associate with this
        organization unit.

        For information about adding a calendar rule, see Managing Calendars in
        Process Workspace.

6.   If adding members manually, select **Manually** for the **Add member** value. The
     Members section changes to display the **Members** and **Managers** controls.

   a.   In the **Members** section, add members.

        The **Select Member** dialog box prompts you to search for a user or group to
        add to this organization unit.

   b.   Enter the name of the user or group you want to add, then click **Search**.

        From the **Available column**, select one or more members you want to add,
        and use the arrow button to move them to the **Selected** column. Click **OK**.
        The members you added appear in the Members window.

   c.   In the **Add Parametric Role**, click **Add new member**.

The Select Member dialog prompts you to select a parametric role. Click **OK**. The parametric roles you added appear in the Parametric Role window.

d. Similarly, in the **Managers** window, click **Add new manager**.

The **Select Manager** dialog box prompts you to search for a user or group to add to this organization unit.

e. Enter the name of the manager you want to add, then click **Search**.

From the **Available column**, select one or more managers you want to add, and use the arrow button to move them to the **Selected** column. Click **OK**. The managers you added appear in the Managers window.

7. If adding members using a logical search, select **Based on user attributes** for the **Add member** value. The Members section changes to display the **Name** and **Equals** controls.

a. Specify a user attribute from the Name drop-down.

b. Specify a search term in the Equals text entry box. Members with the selected user attribute matching the search term is added to the organization unit.

8. In the **Business Constants** area, add any business parameters you want associated with the organization unit to act as business constants. Click **Add Business Constants** and select the desired items from the **Select Business Parameters** dialog box.

9. Click **Save**.

10.8.2 To Edit an Organization Unit

Perform these steps:

To edit an organization unit:

1. From the Process Workspace toolbar, select **Administration**.

The Administration Areas panel appears.

2. Under Organization, click **Organization Units**.

The Organization Units panel appears.

3. In the Organization Units panel, select the organization unit you want to edit.

4. In the right pane, in the Details section for the new organization unit, make the changes you want, then click **Save**.

10.8.3 To Delete an Organization Unit

Perform these steps:

To delete an organization unit:

1. From the Process Workspace toolbar, select **Administration**.

The Administration Areas panel appears.

2. Under Organization, click **Organization Units**.

The Organization Units panel appears.

3. In the Organization Units panel, select the organization unit you want to delete, and click **Delete Organization Unit,** and when prompted, confirm the deletion.

The Organization Unit is now deleted.

11

Modifying Running Process Instances in Oracle Business Process Management Workspace

Process owners and Oracle Business Process Management Workspace (Process Workspace) administrators can alter the flow of running process instances in Process Workspace. They can also migrate instances in Process Workspace.

This chapter includes the following sections:

- Altering the Flow of Running Process Instances in Process Workspace
- Migrating Process Instances in Process Workspace
- What You May Need to Know About Redeploying a Process
- Moving Running Composite Instances from One Revision to Another

11.1 Altering the Flow of Running Process Instances in Process Workspace

You can move the token of a running process instance from a current activity to another, but only within the following structural constraints:

- You can move an instance only to an activity defined at the same process level.
- You cannot move an instance to a boundary event.
- You cannot move an instance into a boundary event flow unless the boundary event is interrupting and is defined at the same level.You cannot move an instance inside or outside an event subprocess.
- You cannot move an instance outside a gateway branch. You can, however, move it to the merging gateway to merge that path.

Note:

When using an exclusive gateway, you can move the instance outside the exclusive gateway branch.

11.1.1 How to Alter the Flow of Running Process Instances in Process Workspace

Perform these steps:

**To alter the flow of a running process instance:**

1. From the Process Tracking tab page, select a process instance.

   The details of that instance appear.

2. From the **Actions** list, select **Alter Flow and Suspend**.

   If you select a single process instance, then the Alter Flow dialog box appears as shown in the example in Figure 11-1.

Figure 11-1   Altering the Flow of a Process Instance
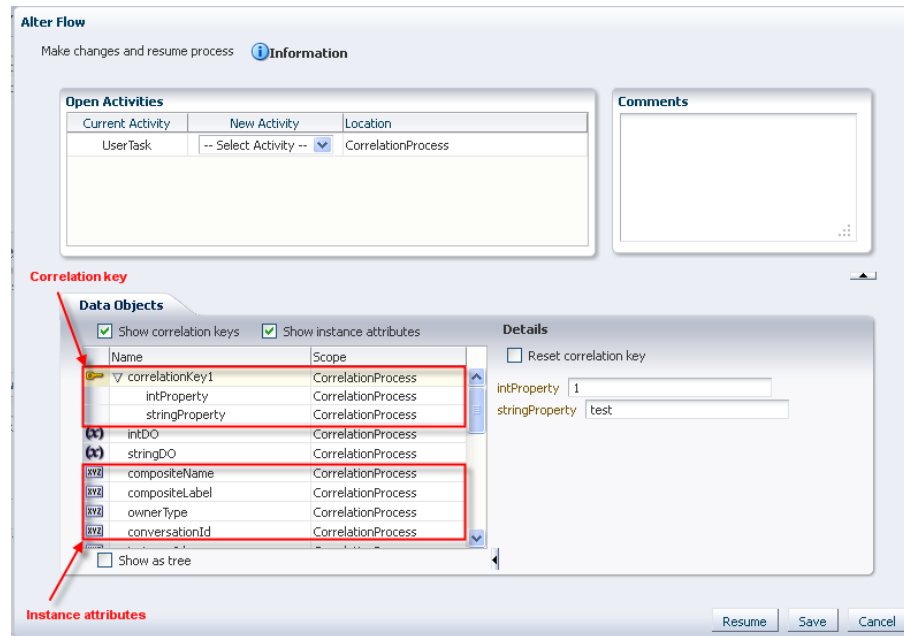
By default, the Alter Flow dialog box shows only the Process and Project data attributes. When you select one of the open activities, it shows the data objects within the context of that open activity. For example, if the open activity is a subprocess, then the Alter Flow dialog box displays any subprocess level data objects.

3. In the Alter Flow dialog box, you can do any or all of the following:

   • View the list of current activities in a running process instance in the Open Activities table.

     You can select the new activity where you want to move the token. Note that the New Activity list includes only those locations to which a token can be moved validly.

   • Include the correlation keys in the list of data objects as shown in Figure 11-1. The correlation keys are visible only if the process is using correlation.

     To do this, select **Show correlation key**. If you select a correlation key, then the details section shows the correlation property that comprises the key. To reset the correlation key, select **Reset correlation key**.

     For information about correlation keys, see *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio*.

- Include process instance attributes in the list of data objects as shown in Figure 11-1.

  To do this, select **Show instance attributes**. To display the details of a particular instance attribute, select the attribute. Note that only those instance attributes that can be modified appear as editable. Others are read-only.

- Add any comments in the Comments field.

4. Click one of the following:

- **Resume** to move the token to another activity and return the process to a running state.

- **Save** to suspend the process instance. You can return to it later to alter its flow and resume it.

- **Cancel** to return the process instance to its last saved state. The process continues in the running state.

Note:

- If you have opened the Alter Flow dialog box and the session times out before you have taken any action, then the process instance is suspended.

- If an activity has more than one running token associated with it, you cannot alter the flow to select and move just one of the tokens to another valid target activity. If you alter the flow for that open activity, then all the tokens move.

- The process instance state may not update to show the new state. Click **Refresh** in the table toolbar to see the updated state.

11.2 Migrating Process Instances in Process Workspace

If a new implementation of the same composite revision is deployed, and the previously deployed composite has some components with the newer BPM process definition, then the affected components go into a suspended state. To resume a suspended component, either migrate or suspend process instances that are in the pending migration state.

Unless you resume the component—either explicitly or automatically when all pending migration instance are resumed—the new process instances are not created as a result of the token having been moved.

Oracle BPM provides a way to retain the existing running instances for a process when that process is redeployed. To do this, while redeploying the process in Fusion Middleware Control Console, select **Keep running instances**. If the redeployment succeeds, then the instance goes into pending migration state and the process component is suspended.

> **Note:**
>
> If the composite being redeployed has more than 100 existing instances, only 100 are migrated during the redeployment and the component is suspended. This limit is used to minimize the deployment time.
>
> To migrate the rest of the instances, use Process Management APIs or Process Workspace.

This section details how to migrate a pending migration instance and how to resume a suspended component.

It contains these topics:

- How to Migrate a Process Instance in Process Workspace

- How to Resume a Suspended Component

> **Note:**
>
> When migrating an environment prior to 11g Release 1 (11.1.1.5.0 Feature Pack), allow any existing active task instances to complete before migrating.
>
> Active task instances in this scenario have their states changed to STALE during the migration.

## 11.2.1 How to Migrate a Process Instance in Process Workspace

You can migrate a process instance in either of two ways:

- Migrate as is: Migrate the instance without moving the token or updating the payload

- Make changes and migrate: Move the token to the new activity you specify, and update the payload as you specify, then migrate the instance

To migrate process instances:

1. Select one or more process instances. From the Actions list, select **Migrate**.

The Migrate dialog box appears. The elements in this dialog box depend on your selection. If you select **Migrate as is**, then only the Comments field is available. If you select a single instance and then select **Make changes and migrate**, then the Migrate dialog box appears as shown in Figure 11-2.

Figure 11-2   Migrating a Process Instance
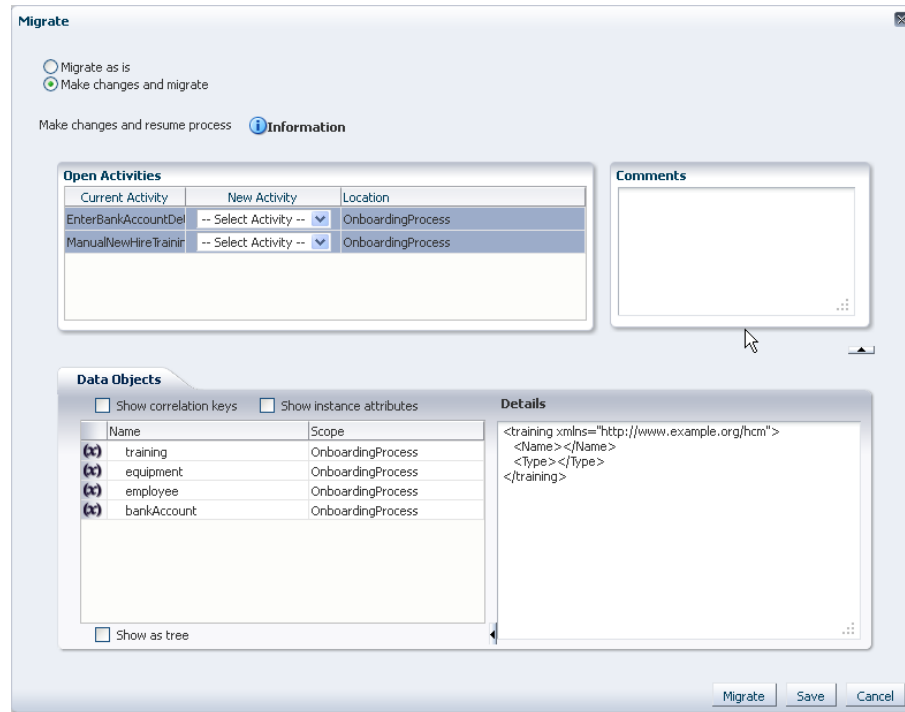
If you select **Make changes and migrate**, you can do any or all of the following:

- In the Open Activities table, you can view the activities where the token is currently running, and you can select the new activity where you want to move the token.

  Note that the New Activity list includes only those locations to which a token can be moved validly.

  Note:

  - For a pending migration instance to resume, all removed activity tokens must be moved to new activities.

  - If you select more than one activity from the Open Activities table, then the Data Objects tab does not appear, and you are not able to modify the payloads.

- Include the correlation keys in the list of data objects.

  To do this, select **Show correlation keys**, then, in the Data Objects tab, select **Show as tree** and expand the data object. If you select a correlation key, then the details section shows the correlation property that comprises the key. To reset the correlation key, select **Reset**.

  For information about correlation keys, see *Oracle Fusion Middleware Developing Business Processes with Oracle Business Process Management Studio*.

- Include process instance attributes in the list of data objects.

  To do this, select **Show instance attributes**, then, in the Data Objects tab, select **Show as tree**, then expand the data object, then expand **Instance Attributes**. To

display the details of a particular instance attribute, select the attribute. Note that only those instance attributes that can be modified appear as editable. Others are read-only.

- Add any comments in the Comments field.

2. Click one of the following:

- **Save** to keep the process in the pending migration state.

- **Migrate** to migrate the process and put it in the running state.

- **Cancel** to return the process instance to its last saved state.

If for some reason the migration fails, then the Migration Confirmation dialog box tells you why, as shown in Figure 11-3.
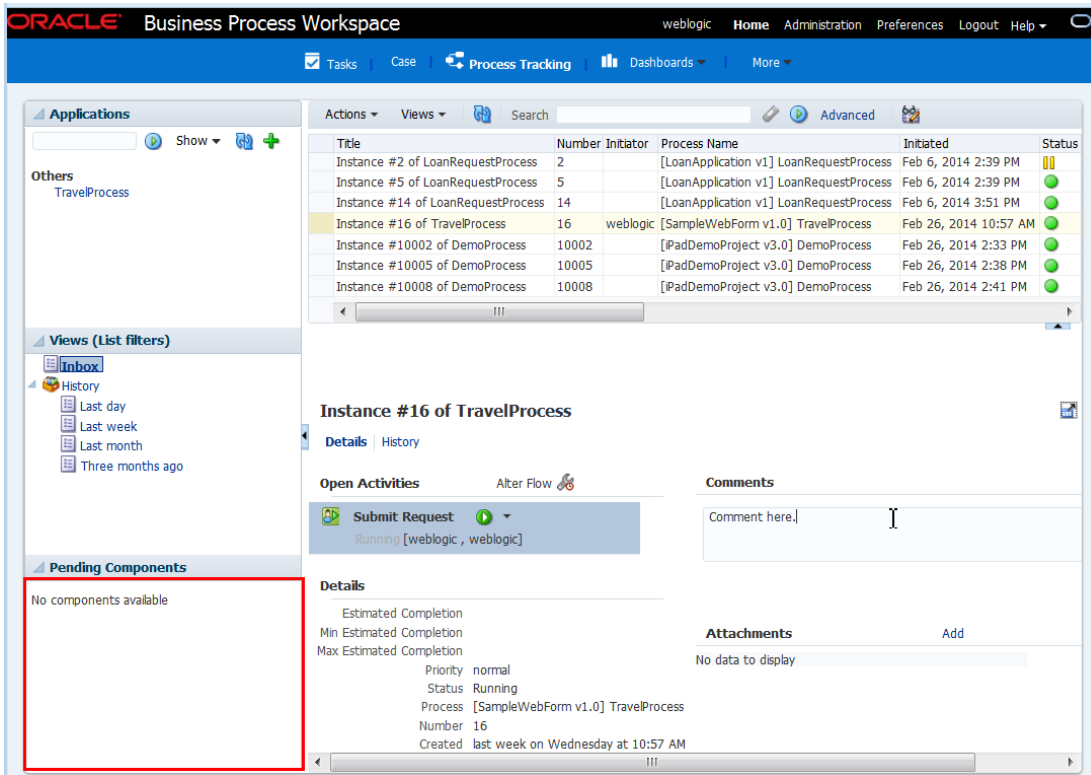
Figure 11-3   Migration Confirmation: Failure Message
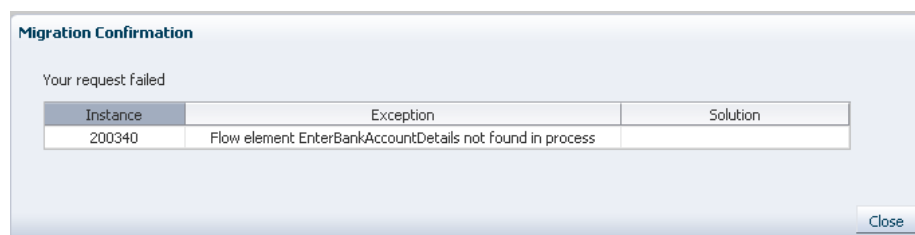
11.2.2 How to Resume a Suspended Component

All suspended components are listed in the Pending Components panel, as shown in the example in Figure 11-4.

*Figure 11-4   Pending Components Panel in the Process Tracking Tab Page*

To resume a suspended component:

1. From the Pending Components panel, select the component you want to resume.

    The Resume Component dialog box appears as shown in the example in Figure 11-5. It tells you how many instances are pending migration for that component.

    Figure 11-5   Resume Component Dialog Box
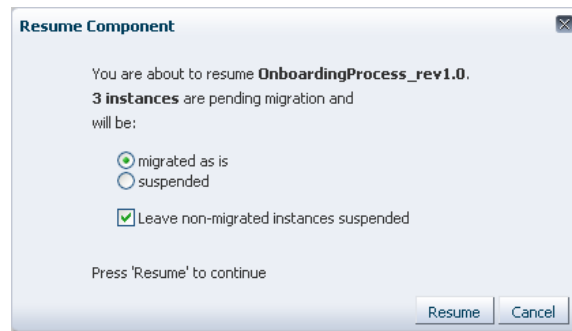
2. In the Resume Component dialog box, choose whether you want the pending migration process instances to be:

    -   Migrated as is

    -   Suspended

    If there are instances that cannot be migrated-as-is, and you want to resume the component, then select **Leave non-migrated instances as suspended**. If you do not

select this option, and there are instances that cannot be migrated as-is, then the component cannot be resumed.

3. Click **Resume**.

The component is resumed and it no longer appears in the Pending Components panel. A Resume Component Confirmation dialog box tells you the result and how many instances are suspended. A new process instance can now be initiated and its requests are processed.

> **Note:**
>
> You can initiate a process instance even if a component is suspended. In this case, however, the requests are queued and are not processed until the component is resumed.

11.3 What You May Need to Know About Redeploying a Process

If you are redeploying a process, and, during design time, the **Keep running instance** option is selected, then redeployment fails in the following scenarios:

- Parallel or inclusive gateway pair is removed

- Inclusive-complex gateway pair is changed to inclusive-inclusive gateway pair

- Subprocess is removed or its loop characteristic is changed

- User task is moved to another branch in gateway pair or outside the gateway pair

- Activity level is changed, for example, the activity is moved inside a subprocess or gateway structure

- Subprocess or event subprocess or a call activity is added

- Event subprocess is changed from interrupting to non-interrupting

- Boundary event is changed from interrupting to non- interrupting

- Boundary event is added

- User task implementation is changed to use another human task

To avoid failure of process redeployment in these scenarios, set the `force.deploy` flag manually by editing the `composite.xml` file in Oracle JDeveloper.

> **Note:**
>
> Ensure that the change to the workflow is compatible with the process, before you set the `force.deploy` flag. If the change to the workflow is not compatible with the process, the deployment process fails and the component is suspended. Resume the suspended component.

To set *force.deploy* at the component level, enter the following:
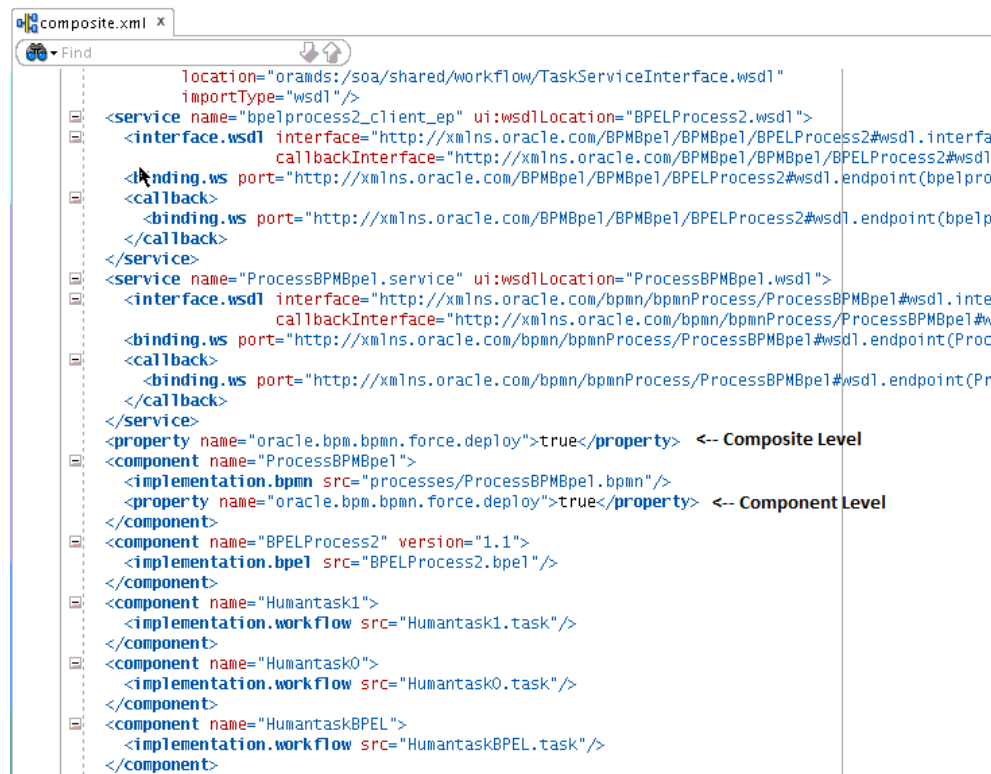
```
<component name="T4">
 <property name="oracle.bpm.bpmn.force.deploy">true</property>
```

```
<implementation.bpmn src="processes/T4.bpmn"/>
</component>
```

To set the *force.deploy* at the composite level, you can use the same .xml element as a child of the composite element as shown in the example in Figure 11-6.

Figure 11-6   Setting the force.deploy Property in Oracle JDeveloper

11.4 Moving Running Composite Instances from One Revision to Another

Instance Migration enables you to migrate selected composite instances between existing compatible composite revisions or from an existing revision to a new revision. Compatibility is driven by the component compatibility within a composite. After migration is complete, the instance audit trail is visible under the new composite revision.

In contrast to Instance Patching, migration is not a part of deployment. It is a separate activity accomplished through Ant tasks and xml files that provide declarative specification of what instances migrate and what actions should be taken (for example, data and flow updates). You can select which instances to migrate.

This section discusses Instance Migration and includes the following topics:

- Important Considerations

- How to Perform a Migration

- Restrictions for Components

- Ant Tasks Elements

- Migration Elements

11.4.1 Important Considerations

These are important considerations you must take into account before performing a migration:

- The same constraints apply when migrating as when performing instance patching.

  For example, you cannot move tokens to a non-interrupting boundary event.

- During migration, composite revision of a source instance is suspended so instances of that revision do not process incoming requests.

- This feature is implemented by using Ant commands.

  These commands require the following artifact that is part of your installation:

  `/AS11gR1SOA/bin/ant-composite-instance-migration.xml`.

  Note that this artifact requires `wlfullclient.jar` in the following directory:

  `$FMW_HOME/wlserver_10.3/server/lib`

  To generate the Oracle WebLogic Server client library:

  ```
  cd $fmw.home/wlserver_10.3/server/lib
  java -jar wljarbuilder.jar
  ```

11.4.2 How to Perform a Migration

This section provides an overview of the steps you must perform to migrate an instance. The steps involved in migrating an instance are:

1. Identify the scope of instances to be migrated and create the composite filter to specify them.

2. Run the migration feasibility report for the specified instances and review the output.

   The output report includes which instances can be automatically migrated, which require a plan to accomplish the migration (for example, an active activity was removed), and which instance cannot be migrated.

3. Develop the migration plan.

4. Run the migration and review the output.

11.4.3 Restrictions for Components

The composite compatibility depends on the components defined inside the composite. If the change to any component is not compatible, then the composite is not eligible for instance migration. Only compatible changes in BPEL, BPMN, Human Workflow, and Business Rules are accepted. Changes in any other components make the composite ineligible for instance migration.

This section describes the restrictions you must consider for each component. It includes the following topics:

- BPEL Components

- BPMN Components

- Human Task Components

- Business Rules Components

- Mediator Components

11.4.3.1 BPEL Components

The only eligible BPEL component for migration is `sync process`. The `sync process` does not include a durable activity like HumanTask, Wait, or Receive.

For sync process instances, BPEL changes the revision for all the completed instances that are part of a running composite instance.

Any other BPEL process is not compatible for instance migration.

11.4.3.2 BPMN Components

The following changes to BPMN components are compatible with automatic instance migration:

- Add Script task

- Change data associations

- Add new data object

- Add any new activities except boundary events

The following changes to BPMN components are compatible with manual instance migration using migration plans:

- Removal of an activity except for *sub process*, *boundary event* and *merging gateways*

The following changes are not compatible with instance migration:

- Delete Gateway (except Exclusive)

- Delete Subprocess

- Update Human Task implementation

- Update Subprocess Loop Characteristics

- Add a Boundary Event

- Update Boundary Event interrupting to non-interrupting

- Add an Event Subprocess

- Update Event Subprocess interrupting to non-interrupting

- Update Activity level (Move an activity inside a Subprocess or Gateway structure)

- Contains Call Activity

11.4.3.3 Human Task Components

Human workflow supports moving instances for all running and completed human tasks. A human task stores the routing slip after initiating the task, so the task metadata change does not affect the running task.

11.4.3.4 Business Rules Components

There are no restrictions for Business Rules Components because the migration is executed synchronously.

11.4.3.5 Mediator Components

The following restrictions apply to Mediator components:

- **Routing Rules**: the older revision of Mediator must have only sequential routing rules.

- **Mediator Instance State**: the Mediator instance must be completed or faulted.

- **Message Patterns**: the supported message patterns are *request only* or *request response*.

11.4.4 Ant Tasks Elements

The elements of the Ant Tasks are (see Figure 11-7):

- `CompositeInstanceFilter`: specifies the criteria to migrate the instance and defines the scope of the migration. This scope is determined by filtering composite instances based on:

    – compositeDN

    – domainName

    – compositeName

    – revision

    – label

    – ecid

    – conversationId

    – compositeInstanceId

    – tenantId

    – title

    – maxCreationDate

    – minCreationDate

    – maxModifyDate

    – minModifyDate

    – like

    – pageStart

    – pageSize

- Task to run feasibility report: The results are Not Possible, Automatic, or Manual. You can review the report and change the criteria to reduce or remove some of the instances from the migration by modifying the `CompositeInstanceFilter`.

- Task to run migration.

Figure 11-7 Example of Ant Task

```
<project name="instance-migration" basedir="." default="test">
    <import file="${basedir}/lib/ant-bpm-instance-migration-lib.xml"/>
    <property file="${basedir}/locator.properties"/>
    <property name="reports.dir" value="${basedir}/../scenarios/output/reports"/>
    <property name="plan.dir" value="${basedir}/../scenarios/plans"/>

    <locatorConfig id="bpm.host" host="${bpm.host}" port="${bpm.port}" user="${bpm.user}" password="${bpm.password}"

    <target name="generate.report" depends="init">
        <compositeInstanceFilterDef id="all.instance" compositeDN="default/MigrateBetweenRevisions!1.0"/>
        <locatorSession configId="bpm.host">
            <generateMigrationReport filterId="all.instance" revision="2.0" outputFile="${reports.dir}/MigrationFeas
        </locatorSession>
    </target>

    <target name="migrate.instances" depends="init">
        <compositeInstanceFilterDef id="all.instance" compositeDN="default/MigrateBetweenRevisions!1.0"/>
        <locatorSession configId="bpm.host">
            <migrateCompositeInstances  filterId="all.instance" revision="2.0" migrationPlan="${plan.dir}/InstanceMi
        </locatorSession>
    </target>

    <target name="init">
        <mkdir dir="${reports.dir}"/>
    </target>

    <target name="clean">
        <delete dir="${reports.dir}" includes="**/*"/>
    </target>
</project>
```

11.4.5 Migration Elements

The migration elements are:

- **Migration Report**: describes the feasibility of migrating the proposed composite instances. The migration report includes:

  - Composite Instance Details

    ◆ Name: Component instance name

    ◆ ID: Component instance Id

    ◆ State: Composite instance state

    ◆ Migrate-ability: Automatic, Migration Plan required (and the required change plan, where applicable)

    ◆ Component Instance Data: Associated component instance details

  - Summary Data:

    ◆ The target revision

    ◆ Total number of matching composite instances

- Number of composite instances that can be automatically migrated

- Number of composite instances that cannot be automatically migrated

- **Migration Result**: describes the outcome of migrating composite instances:

- **Migration Plan**: provides the XML description of what to do with non-trivial composite or component changes. The migration plan is based on the `MigrationPlan` XML schema.

  Migration Plan objects are created using `MigrationPlanFactory`.

  > **Note:**
  >
  > For more information on instance migration, navigate to the BPM Suite 11g Samples Web page [`http://java.net/projects/oraclebpmsuite11g/pages/Samples`] and review the demo samples listed. For a detailed description of the samples, download the PDFs available for each sample.

Part III

Appendices

This part includes the following appendices:

- Creating Custom ADF Applications with Oracle Business Process Management Workspace Task Flows

- Customizing a Resource Bundle

- Customizing Applications in Process Workspace and the Worklist Application

- Deploying Images and JAR files as Part of a Shared Library JAR file

A

Creating Custom ADF Applications with Oracle Business Process Management Workspace Task Flows

Different features available in Oracle Business Process Management Workspace (Process Workspace) are exposed as standalone reusable components, called task flows. This appendix provides basic information about the features in each task flow.

You can embed task flows in any Oracle Application Development Framework (ADF) application. These standalone task flows provide many parameters that enable you to build customized applications. All the task flows are bundled in an ADF library that you can include in the application in which you are embedding.

Later, in Samples: Customizing ADF Applications with Process Workspace Task Flows, a sample task flow using TaskListTaskFlow shows detailed steps for embedding the task flow in the application as well as customizing, deploying, and running it.

This appendix contains the following sections:

- User-Related Task Flows

- Process Task Flows

- Process Analytics Task Flows

- .JAR files for the Task Flows

- Samples: Customizing ADF Applications with Process Workspace Task Flows

- Sample: Wf_client_config.xml File

- Sample: Bean Returning WorkflowServicesClientConfigurationType Object

---

Note:

This appendix assumes that you are familiar with both Oracle Application Development Framework and security.

A.1 User-Related Task Flows

This section contains the following topics:

- Task List Task Flow

- Certificates Task Flow

- Reports Task Flow

- Application Preferences Task Flow

- Flex Fields Task Flow

- Rules Task Flow

A.1.1 Task List Task Flow

The task flow takes in the parameters to control how the embedded region displays. This section discusses the following parameters:

- federatedMode

- federatedServers

- showServerColumn

- wfCtxID

A.1.1.1 federatedMode

If you set this parameter to true, then the task list is shown in the federated mode. For the task flow to run in federated mode, you must pass the list of federated servers to the task flow. For instructions about how to pass a list of federated servers to the task flow, see federatedServers.

A.1.1.2 federatedServers

To pass the federated servers list to the task flow, do one of the following:

- Provide the client configuration file, `wf_client_config.xml`, in the class path. The class path is either `APP-INF\classes\wf_client_config.xml` at the ear level or the `WEB-INF\classes` of the web application. The client configuration file contains all federated server details.

  For a sample `wf_client_config.xml` file, see Sample: Wf_client_config.xml File.

- Construct a JAXB object that contains the federated servers list. This JAXB object can be passed to the task flow through the federatedServers parameter. The object should be returned by a backing bean method.

  For a sample bean with the method returning the `WorkflowServicesClientConfigurationType` object, see Sample: Bean Returning WorkflowServicesClientConfigurationType Object.

If you provide both the client configuration file `wf_client_config.xml` and the JAXB object to the task flow, the JAXB object takes precedence.

A.1.1.3 showServerColumn

If the task flow is run in federated mode, the server column in the task list is not shown by default. To show the server column in the task list, this parameter must be passed as "true".

A.1.1.4 wfCtxID

This is a workflow context token string. It is used to create workflow context inside the task flow.

To get the workflow context identifier:

Run the following:

```
IWorkflowContext wfCtx =  wfSvcClient.getTaskQueryService().authenticate(username,
password,
realm,
null);
wfCtxID = wfCtx.getToken();
```

A.1.2 Certificates Task Flow

A digital certificate contains the digital signature of the certificate authority so that anyone can verify that the certificate is real. A digital certificate establishes the participant's credentials. It is issued by a certification authority. It contains your name, a serial number, expiration dates, a copy of the certificate holder's public key (used for encrypting messages and digital signatures), and the digital signature of the certificate-issuing authority so that a recipient can verify that the certificate is real.

As Figure A-1 shows, when you want to sign a decision, you can upload your digital certificate. When signing a task outcome by using your certificate, you must upload not only the one certificate issued to you by the certification authority but the entire chain of certificates. Upload the chain as a `.P7B` (PKCS7 format) file.

Figure A-1   Uploading a Certificate

To create an application and embed the Certificates task flow in the application, follow all the steps of Samples: Customizing ADF Applications with Process Workspace Task Flows except Step 9. This is because certificates have no parameters.

A.1.3 Reports Task Flow

For information about the Reports task flow, see Using Reports to Manage Workflows in Process Workspace.

To create an application and embed the Reports task flow in the application, follow all the steps of Samples: Customizing ADF Applications with Process Workspace Task Flows except Step 9. This is because Reports have no parameters.

A.1.4 Application Preferences Task Flow

For information about the Application Preferences task flow, see Setting the Display of the Work Items Panel in Process Workspace.

To create an application and embed the Application Preferences task flow in it, follow all the steps of Samples: Customizing ADF Applications with Process Workspace Task Flows except Step 9. This is because application preferences have no parameters.

A.1.5 Flex Fields Task Flow

For information about the Flex Fields task flow, see Managing Mapped Attributes (Flex Fields) in Process Workspace.

To create an application and embed the Flex Fields task flow in it, follow all the steps of Samples: Customizing ADF Applications with Process Workspace Task Flows except Step 9. This is because flex fields have no parameters.

A.1.6 Rules Task Flow

For information about the Rules task flow, see How to Create User Rules in Process Workspace.

The **showOtherUsersRules** parameter takes a Boolean value**.** When it is passed as True, other users rules are displayed; when it is passed as False, other user rules are not shown. In addition, this user must have the required permission to view other user rules.

To create an application and embed the Rules task flow in it, follow all the steps of Samples: Customizing ADF Applications with Process Workspace Task Flows except Step 9. This is because rules fields have no parameters.

A.2 Process Task Flows

This section contains the following topics:

- Process Application Task Flow

- Process Instances Task Flow

- Process Instance Details Task Flow

A.2.1 Process Application Task Flow

The applications available in Process Workspace depend on the process design and the roles assigned to the user currently logged in. The list of applications available also depends on the BPM processes that are deployed and running. The applications panel is empty if no processes are running, or if the user is not able to execute an application in any of the processes currently running. Figure A-2 shows the location of the Applications panel in Process Workspace.

Figure A-2   Applications Panel
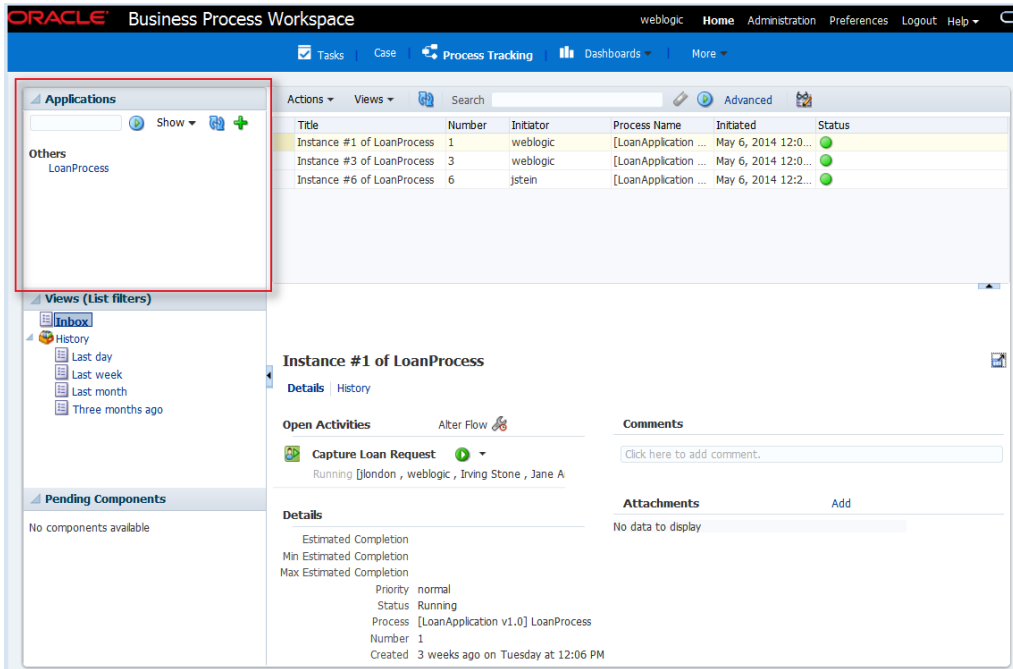
Table A-1   Process Applications Task Flow

Field	Description
Task Flow definition file:	`processApplicationsTaskflow.xml`
Description:	Renders the list of applications available to the user, that is, the list of tasks that, when executed, creates instances in the different deployed processes.
Arguments:	None.

A.2.2 Process Instances Task Flow

Table A-2   Process Instances Task Flow

Field	Description
Task Flow definition file:	`processInstancesTaskflow.xmll`
Description:	Renders the list of instances corresponding to a certain view (by default, Inbox view) in a table format. The columns that this table show are defined by the presentation associated to the selected view, which can be edited from here. It also provides search capabilities.
Arguments:	`viewId`: specifies the view that is rendered initially. By default, Inbox is assumed.

A.2.3 Process Instance Details Task Flow

Table A-3   Process Instances Task Flow

Field	Description
Task Flow definition file:	`processInstanceDetailTaskflow.xmll`

Table A-3   (Cont.) Process Instances Task Flow

Field	Description
Description:	Renders the instance details, including open activities, audit trail (both tabular and graphical), comments and attachments.
Arguments:	`instanceId:` Task Flow renders the details associated to this instance ID.

A.3 Process Analytics Task Flows

This section contains the following topics:

- Dashboard Widget Task Flow

- Application Roles Task Flow

- Organization Units Task Flow

- Parametric Roles Task Flow

- Business Calendar and Holiday Lists Task Flow

- Extended User Properties Task Flow

A.3.1 Dashboard Widget Task Flow

Table A-4   Dashboard Widget Task Flow

Field	Description
Task Flow definition file:	widgetTaskflow.xml
Description:	Renders a widget, that is, a graph displaying information stored in Cubes. This widget could be one of the out of the box ones (like Workload per Participant, Performance per Process, and so on) or a custom one.
Arguments:	`widgetId`: The ID of the widget that is rendered.
	`showSelector`: A Boolean value (true/false) stating whether the task flow renders a drop-down listing all available widgets, so that the user can select and change from one widget to other.

Figure A-3 Process Performance Dashboard
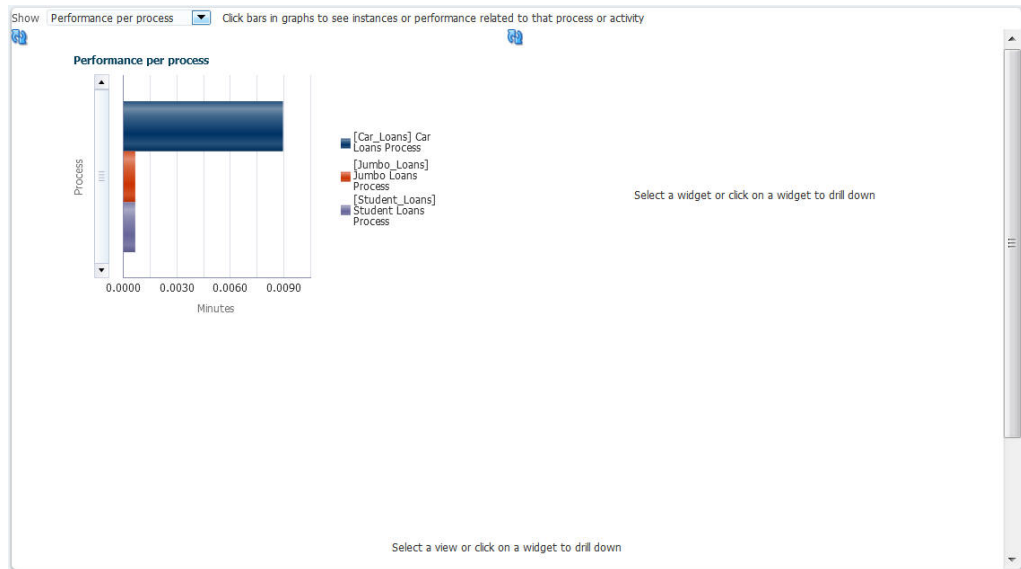
A.3.2 Application Roles Task Flow

Application Roles task flow displays the list of application roles defined in the system for application context OracleBPMProcessRolesApp. The user can search for application roles, select a role and add members (users, groups or other roles) to it or even define business calendar-organization unit mappings for the role.

Figure A-4 shows the Roles Detail Panel.

Figure A-4 Role Details Panel
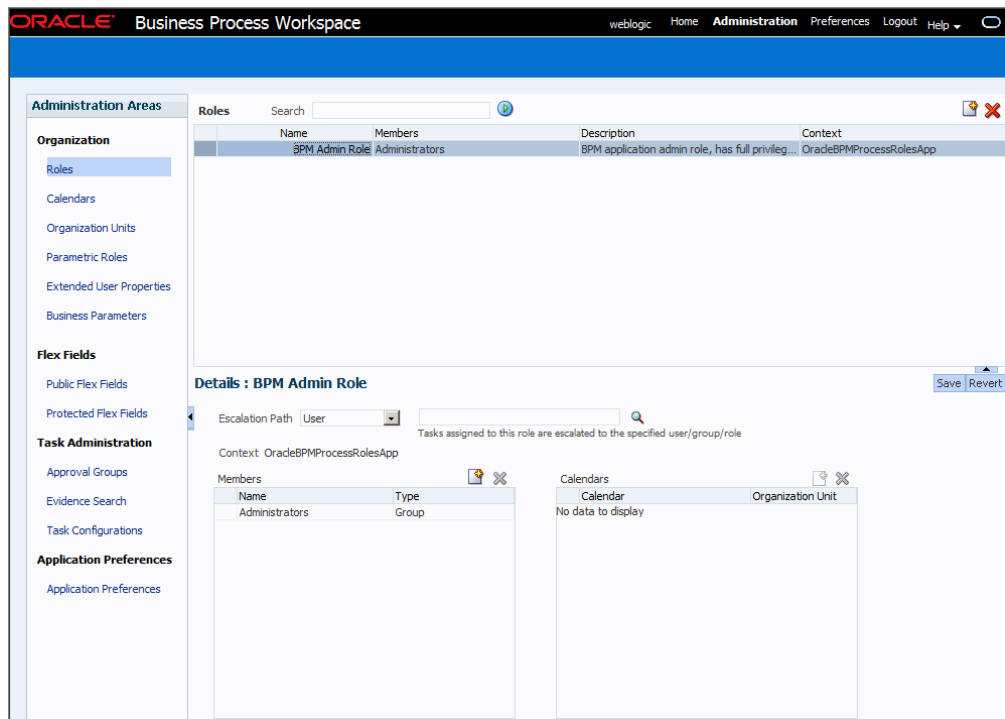
A.3.3 Organization Units Task Flow

This task flow enables users to create new organization units or edit existing ones.

For information about the Organization Units task flow, see Managing Your Organization in Process Workspace .

Figure A-5 shows an Organization Units details panel.

Figure A-5   Organization Units Details Panel
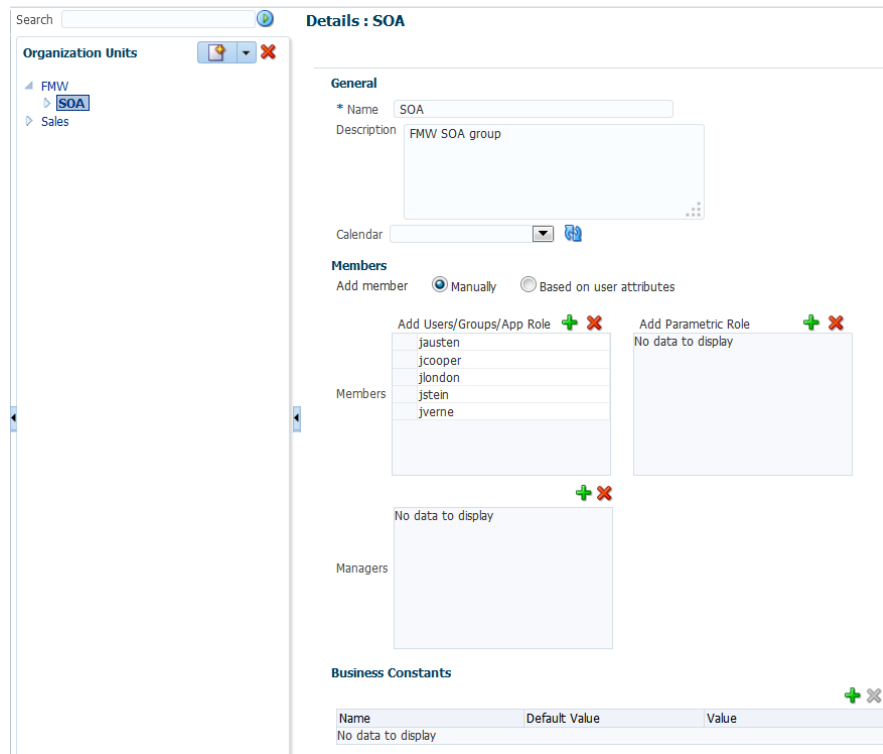
A.3.4 Parametric Roles Task Flow

For information about the Parametric Roles task flow, see Managing Parametric Roles in Process Workspace.

A.3.5 Business Calendar and Holiday Lists Task Flow

For information about the Business Calendar and Holiday List task flow, see Managing Calendars in Process Workspace and Managing Holiday Rules in Process Workspace.

A.3.6 Extended User Properties Task Flow

For information about the Extended User Properties task flow, see Managing Extended User Properties in Process Workspace.

A.4 .JAR files for the Task Flows

Table A-5   JAR Files for Task Flows

JAR File	Location
`adflibTaskListTaskFlow.jar`	`$FMW_HOME/Oracle_WC1/soa/modules/` `oracle.bpm.spaces_11.1.1`
`oracle.bpm.workspace-adflib.jar`	This .jar file is packaged only with a Process Spaces installation. It includes the following libraries that you must specify in your custom ADF application: • adf.oracle.domain • oracle.bpm.runtime • oracle.bpm.client • oracle.soa.workflow.wc • oracle.bpm.webapp.common • oracle.bpm.workspace • oracle.bpm.projectlib
`adflibWorkspaceTaskFlows.jar`	`$FMW_HOME/AS11gR1SOA/soa/modules/` `oracle.soa.worklist_11.1.1`

A.5 Samples: Customizing ADF Applications with Process Workspace Task Flows

This section contains the following topics:

- Sample 1: Creating an Application with an Embedded Tasklist Task Flow

- Sample 2: Creating an ADF Page with Task Flows

A.5.1 Sample 1: Creating an Application with an Embedded Tasklist Task Flow

The sample explains how to create an application and embed the TaskList task flow in it.

Use these same steps to create a new sample.

To embed the Tasklist task flow in your application:

1. Create a new Fusion Web Application in Oracle JDeveloper and name it TaskListTaskFlowSample as shown in Figure A-6.

Figure A-6   Creating New Oracle Fusion Middleware Application
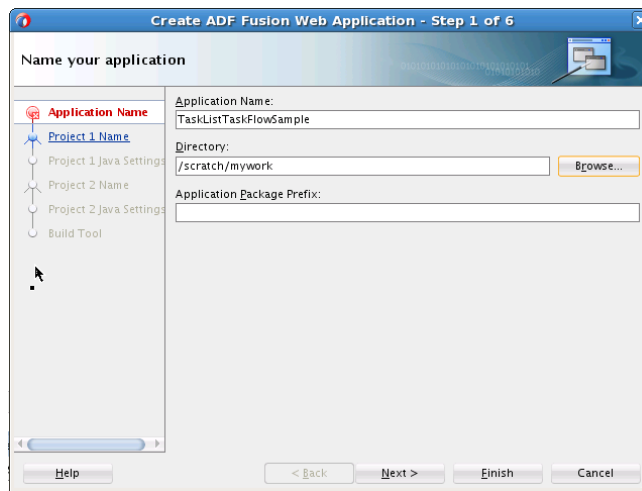
2. Include the "BPM Worklist Components", "BPM Services" and "WSRP Container" libraries as shown in Figure A-7.

    a. Right click on the project and select **Project properties**.

    b. On the **Project Properties** window, select **Libraries and Classpath** and click the **Add Library** button.

    c. Add **BPM Worklist Components**, **BPM Services**, and **WSRP Container**libraries.

Figure A-7   Adding BPM Worklist Component Library
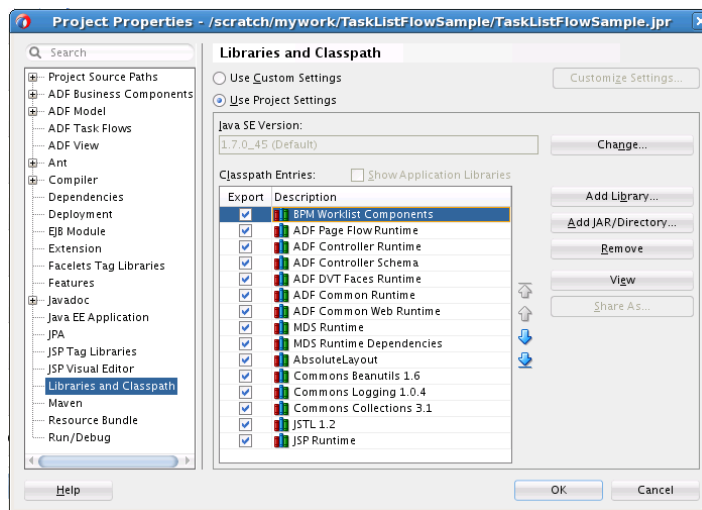
3. If you are running your application on non-SOA server, you must perform two additional steps that are documented in the *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

    a. Install the `oracle.soa.workflow` shared library. If your server already has `oracle.soa.workflow.wc` installed, then you need not install `oracle.soa.workflow`.

        For information about installing the `oracle.soa.workflow` shared library, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

b. Configure foreign JNDI on the non-SOA server.

For information about configuring a foreign JNDI on the non-soa server, see *Oracle Fusion Middleware Programming JNDI for Oracle WebLogic Server*.

4. Create a JSPX file `testSample.jspx` as shown in Figure A-8.

Figure A-8   Creating a a JSPX File
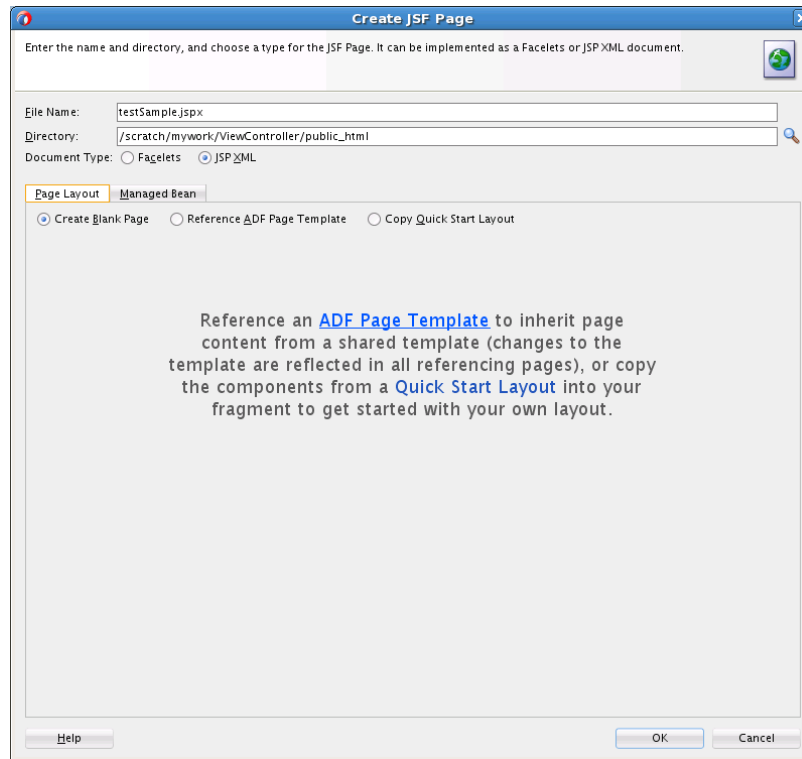
5. Choose `adflibTaskListTaskFlow.jar` from the component palette.

It contains the list of all the Task Flows as shown in Figure A-9.

Figure A-9   Choosing adflibTaskListTaskFlow.jar
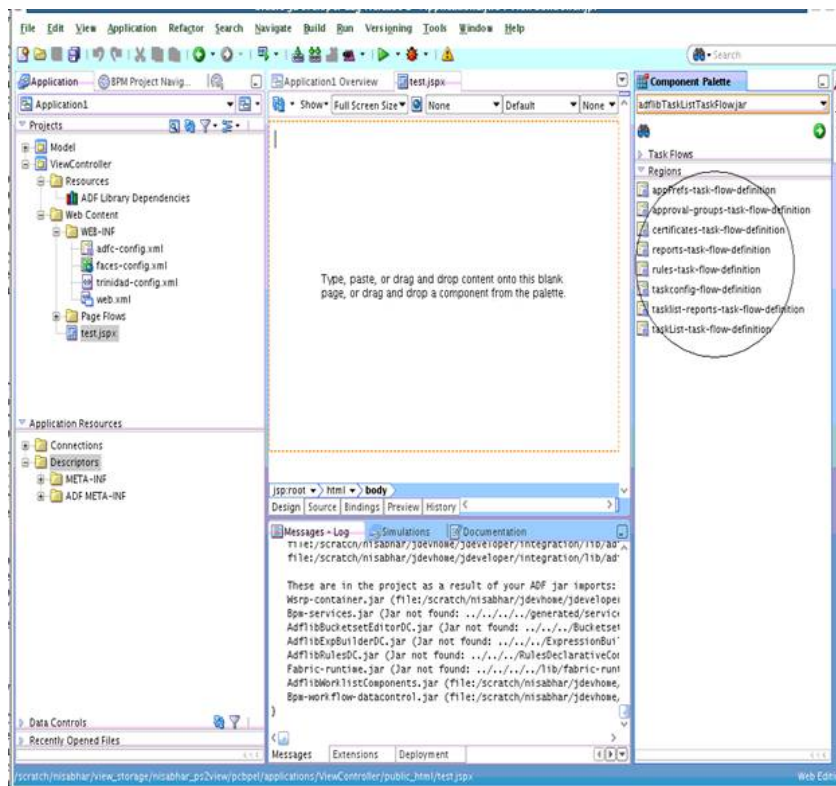
6. Drag and drop one of the Task Flow onto the JSPX page as a region.

   Figure A-10 shows, by way of example, the *TaskListTaskFlow* being dropped onto the JSPX page as a region.

Figure A-10   Oracle JDeveloper with TaskList Task Flow on the JSPX Test Page
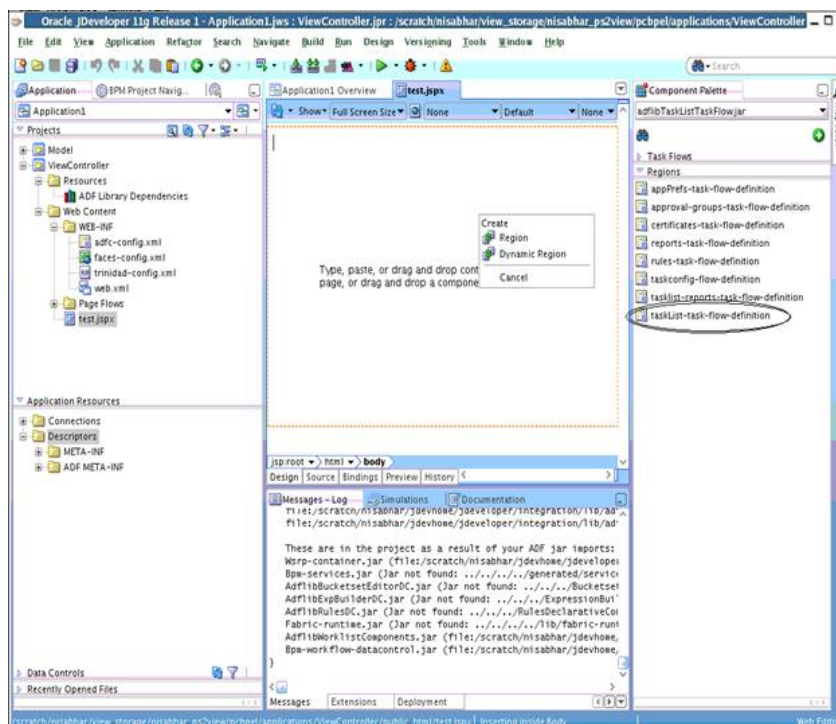
When you drag a task flow onto a JSPX page, a popup shows a list of the available parameters.

The Edit Task Flow Binding dialog box appears.

7. In the Edit Task Flow Binding dialog box, pass the task flow parameters as shown in Figure A-11.

Figure A-11   Passing Task Flow Parameters
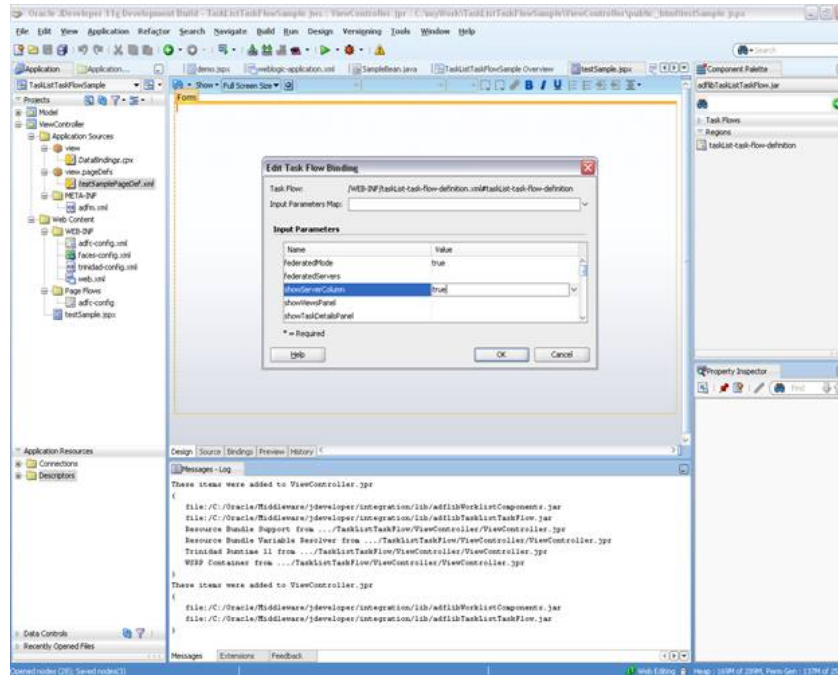
Create the following entry in `testSamplePagedef.xml`.

```
<taskFlow id="taskListtaskflowdefinition1"
taskFlowId="/WEB-INF/taskList-task-flow-definition.xml#taskList-task-flow-
definition"
xmlns="http://xmlns.oracle.com/adf/controller/binding">
  <parameters>

    <parameter id="federatedMode" value="true" xmlns="http://xmlns.oracle.com/
adfm/uimodel"/>

    <parameter id="showServerColumn" value="true" xmlns="http://xmlns.oracle.com/
adfm/uimodel"/>

  </parameters>
</taskFlow>
```

Note:

Set the `federatedMode` value according to your needs. See how to use task flow in federatedMode.

8. Open and edit the WAR deployment profile. To do this:

   a. Right-click **ViewController**.

b. Select **Deployment**.

c. Select **WAR File**.

d. Click **Edit**.

e. Check `adflibTaskListTaskFlow.jar`,
`adflibWorklistComponents.jar` and `wsrp-container.jar`.

Figure A-12 shows an edited WAR deployment profile.

Figure A-12   Editing the WAR Deployment Profile
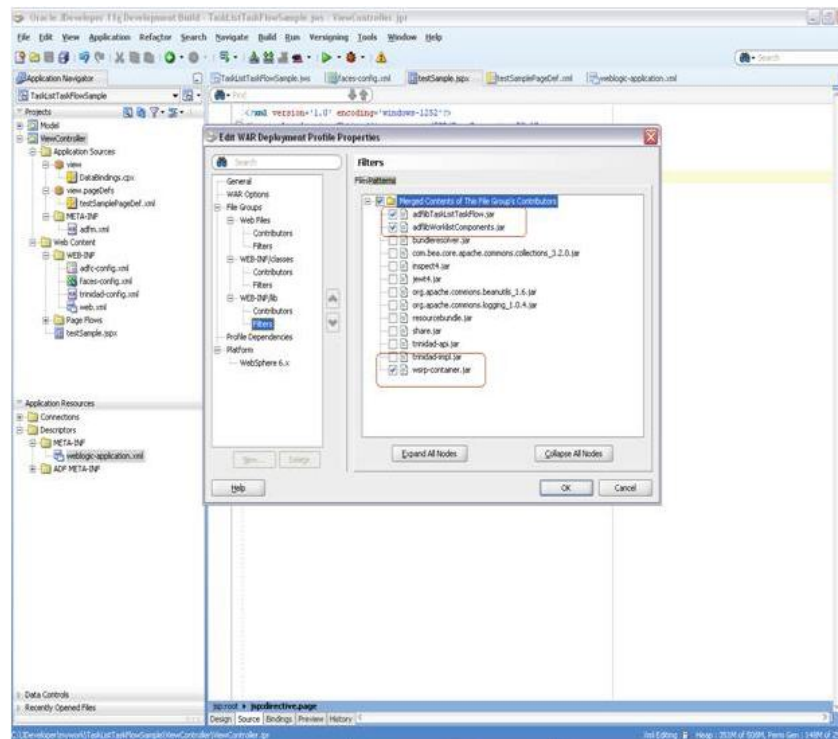
9. Secure the application using ADF Security by navigating to **Secure** then
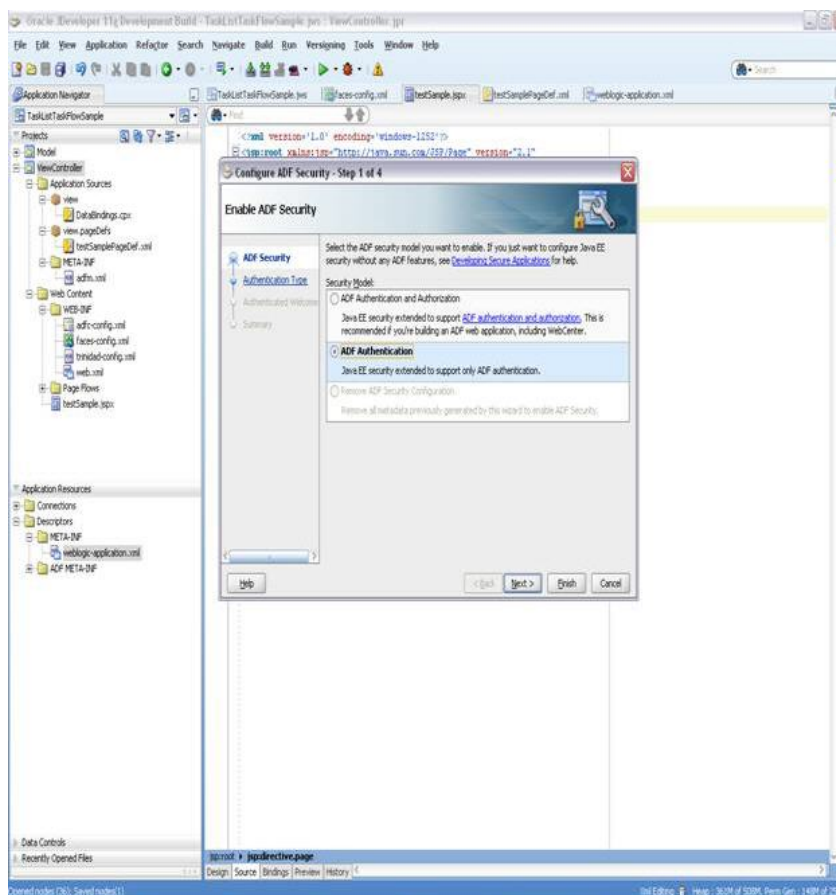**Configure ADF Security…** from the application-level menu as shown in Figure
A-13.

Figure A-13   Navigating to Secure the Application
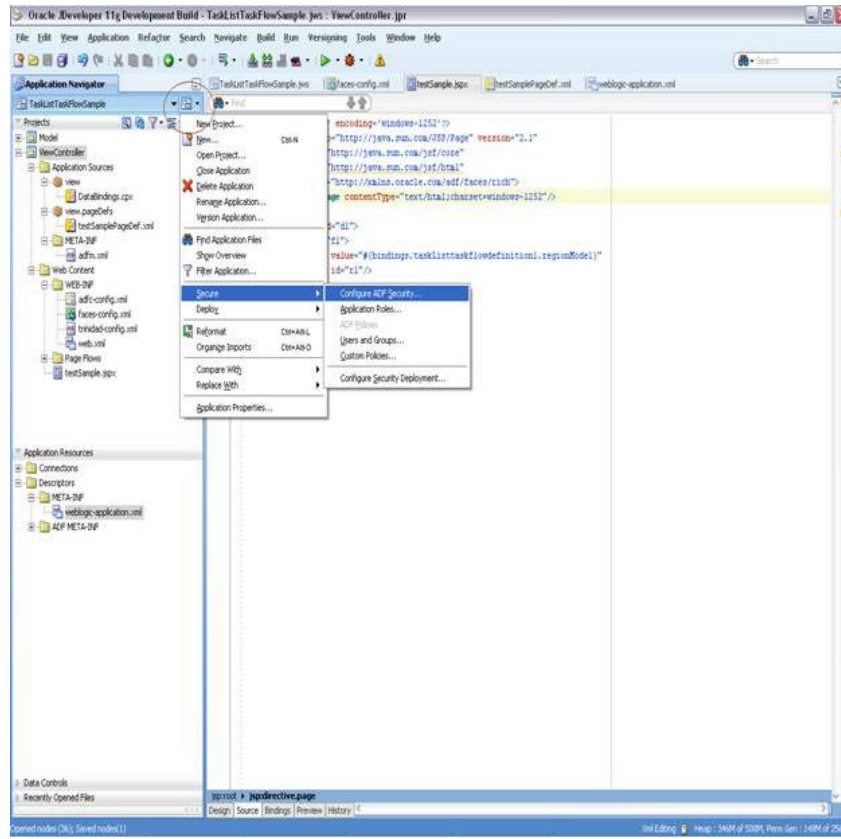
The Enable ADF Security dialog box appears.

10. Select ADF Authentication as shown in Figure A-14.

Figure A-14   Selecting ADF Authentication

Click **Next**.The Select Authentication Type dialog box appears.

Note:

If you choose ADF Authentication and Authorization, do the following:

a. In the Application Resources - Descriptors - META-INFO folder, open `jazn-data.xml`.

b. Select **Resource Grants**.

c. Select **Task Flow type**.

d. Select **Show task flows imported from ADF libraries**.

The taskflows are listed in the Resources listing.

e. Select the appropriate taskflow that you have consumed in the application —for example, `taskList-task-flow-definition` (For the task drill functionality to work, `taskList-task-flow-definition` also requires permission for `/taskDetail-task-flow-definition`).

f. Add **Granted to selected role** for the "view" permission.

---

11. Add a reference to the `oracle.soa.worklist.webapp` and `oracle.soa.workflow` shared libraries to your application:

a. Locate the **weblogic.xml** file in the `WebContent / WEB-INF` folder. "

Note:

If there is no **weblogic.xml** file, create it. To create, select `New`, `From Gallery`, `General`, `Deployment Descriptors`, `Weblogic Deployment Descriptor` and in the resulting screen, select the **weblogic.xml** .
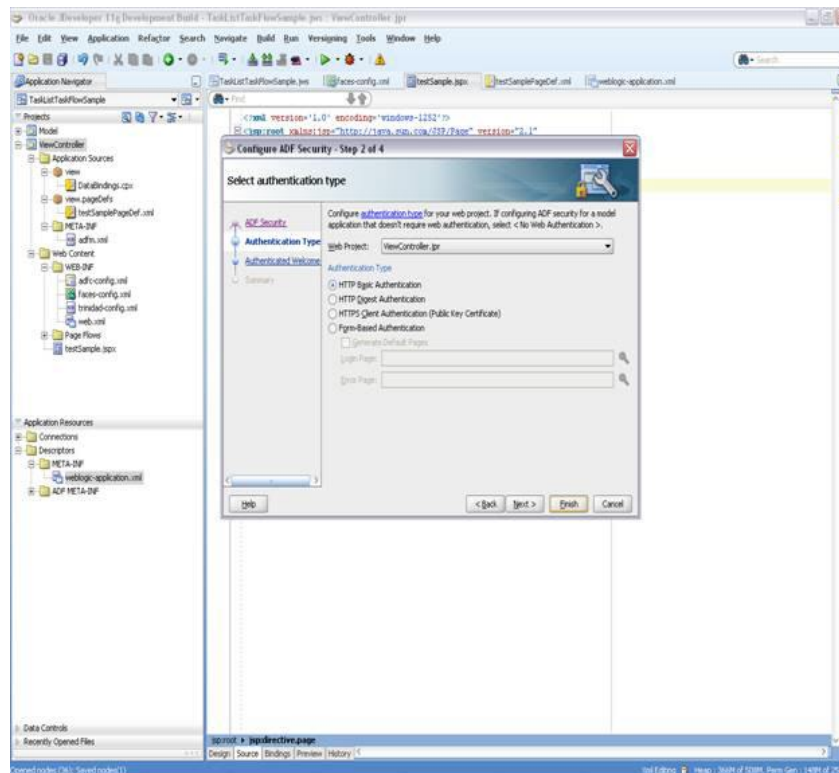
---

b. Add the following entries to the **weblogic.xml**.

```
<library-ref>
    <library-name>oracle.soa.worklist.webapp</library-name>
</library-ref>
<library-ref>
    <library-name>oracle.soa.workflow</library-name>
</library-ref>
```

12. Select HTTP Basic Authentication as shown in Figure A-15.

Figure A-15   Selecting HTTP Basic Authentication

For information about enabling ADF security in a Fusion web application see *Oracle Fusion Middleware Fusion Developer's Guide for Oracle Application Development Framework.*

13. Click **Finish**.

Note:

If you are using the task flow in federated mode, do the following:

- Pass the list of federated servers to the task flow. For more information, see federatedServers.

- Enable global trust between the federated servers. This is done so that the already federated user token is passed to all the federated servers. Do the following:

  a. Login to the Oracle WebLogic Server console.

  b. Under Domain Structures, select the domain name `base_domain`. The domain name may be different if a non-soa server is used. You can rename the domain name during configuration.

  c. Select the **Security** tab.

  d. Click the **Advanced** link (near the bottom Save button.)

  e. Give some password in the "Credential:" field. **(The same password needs to be given for all the federated servers)**.

  f. Click **Save**.

  g. Restart the server.

14. Create an EAR deployment profile, build the EAR, and deploy it.

To deploy the EAR:

a. From the application-level menu, navigate to **Deploy** then **TaskListTaskFlowSample_Appl...** as shown in Figure A-16.

Figure A-16 Deploying the Application
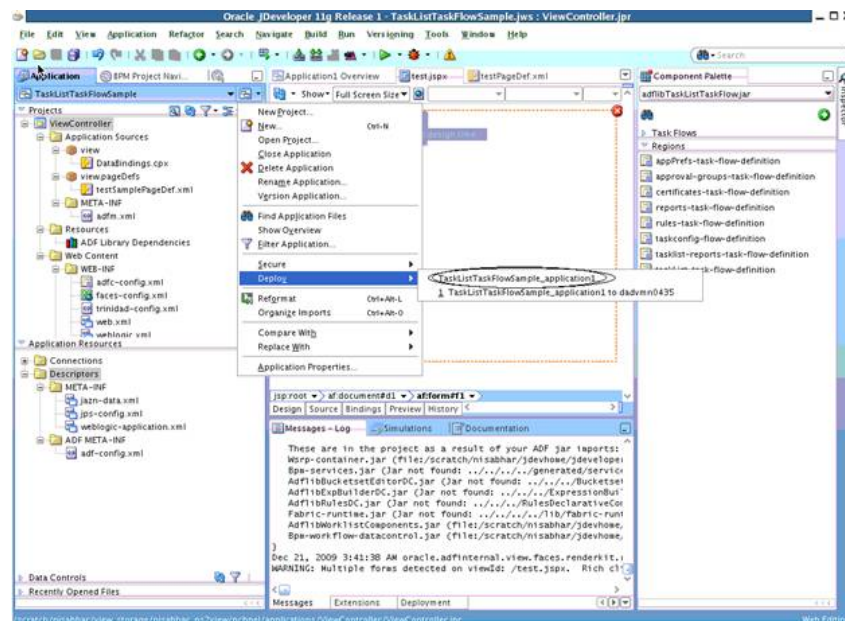
The Deployment Action dialog box appears.

b. Select **Deploy to Application Server** as shown in Figure A-17.

Figure A-17   Deploying to Application Server
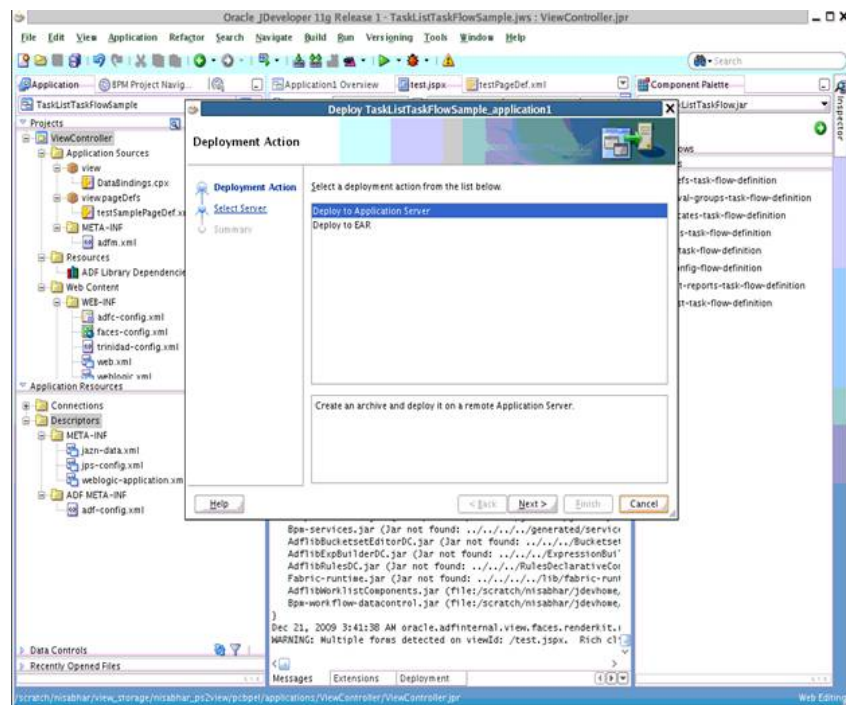
Click **Next**. The Select Server dialog box appears.

15. Select the server. Clear the check box **Deploy to all Server instances in the domain**. Click **Next**.

The Server Instances dialog box appears.

16. Select the server instance and click **Finish**.

17. Access the following link, specifying the proper values for `server` and `port`.
`http://server:port/TaskListTaskFlowSample-ViewController-context-root/faces/testSample.jspx`.

A login pop-up window appears. Log in as any user. The task list appears for the logged-in user as shown in Figure A-18.

If the task flow is used in federated mode, then the list of servers appear in the Show list. Selecting any combination of servers from the list refreshes the task list to show all the tasks belonging to the selected servers. If you passed the parameter `showServerColumn` as true, then the server column appears in the task list and indicates the server to which the task belongs.

Figure A-18   Process Workspace Task List
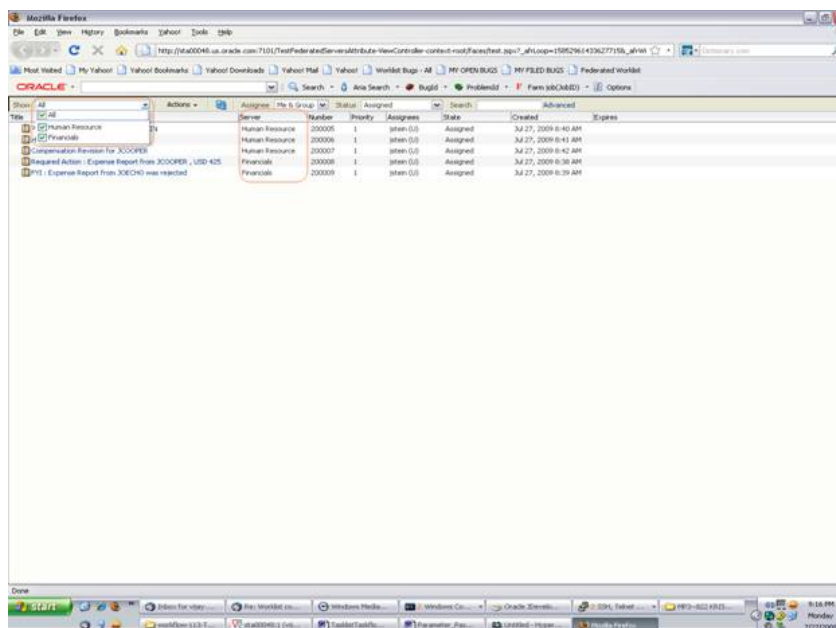
Click any of the tasks title links to see the task details in a new browser window.

If your application is authorized for *taskList-task-flow-definition.xml* (the tasklist dropped into the page in the above procedure), the relevant security permissions must be granted for the task detail navigate functionality to work.

Connect to the Common domain using *wlst.sh* and run the following WLST command to grant the task flow view permission for "`/WEB-INF/taskDetail-task-flow-definition.xml#taskDetail-task-flow-definition`" to the authenticated-role:

```
grantPermission(appStripe="YOUR_APP_STRIPE_NAME",
principalClass="oracle.security.jps.internal.core.principals.JpsAuthenticatedRoleImpl
",
principalName="authenticated-role",
 permClass="oracle.adf.controller.security.TaskFlowPermission",
permTarget="/WEB-INF/taskDetail-task-flow-definition.xml#taskDetail-task-flow-
definition",
permActions="view")
```

A.5.2 Sample 2: Creating an ADF Page with Task Flows

This sample shows how to create an ADF page and add three task flows to the page.

The page is divided into two parts. If the user selects TaskFlow from left side, the corresponding task flow appears on the right side.

To create the ADF page with task flows:

1. Follow Steps 1 to 4 of Sample 1: Creating an Application with an Embedded Tasklist Task Flow.

2. Configure the JSPX page as follows:

   a. In Component Palette, select **ADF Faces**.

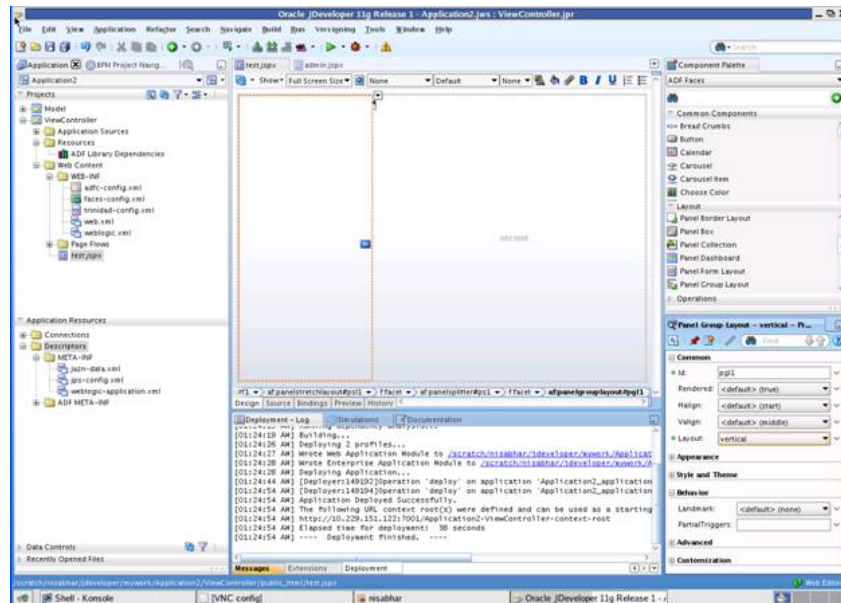   b. Drag and drop the Panel Stretch Layout on to the JSPX page.

c. Delete Top, Start, Bottom, and End from the JSPX page.

The JSPX page looks like Figure A-19.

Figure A-19   Configuring the JSPX Page
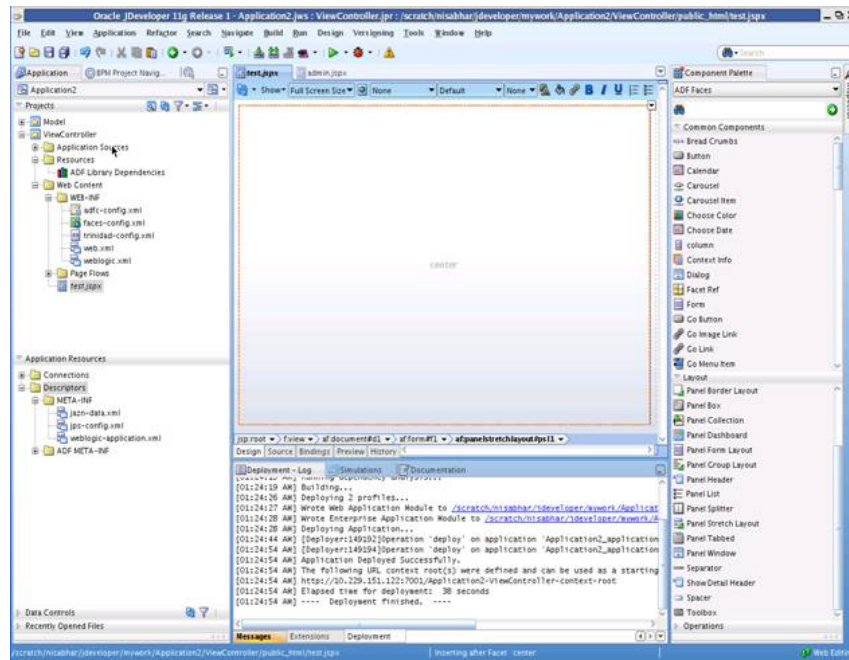
3. Drag and drop the Panel Splitter from the Component Palette into the JSPX page.

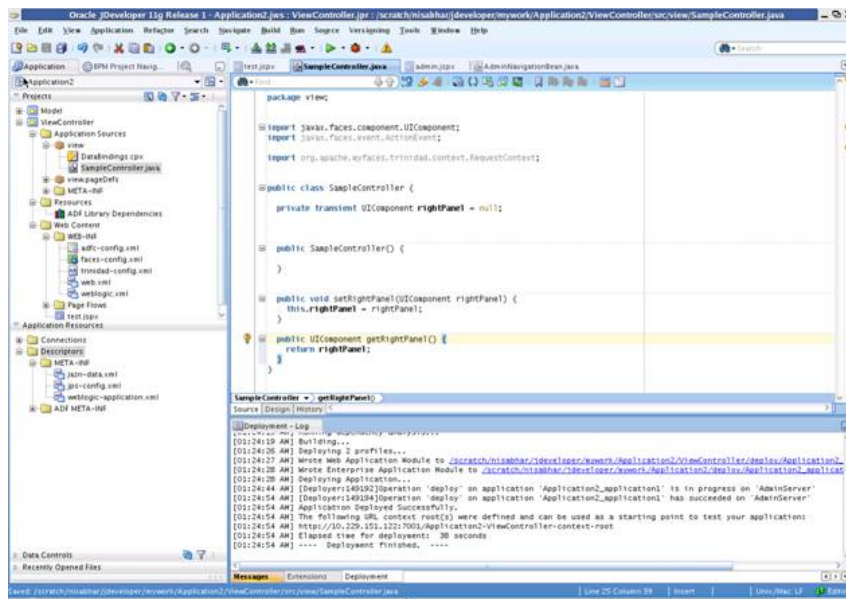The JSPX page now appears as shown in Figure A-20.

Figure A-20   Split Panel in the JSPX Page

4. In the navigator, right-click **View Controller** and create a new Java Class. Name it `SampleController.java`.
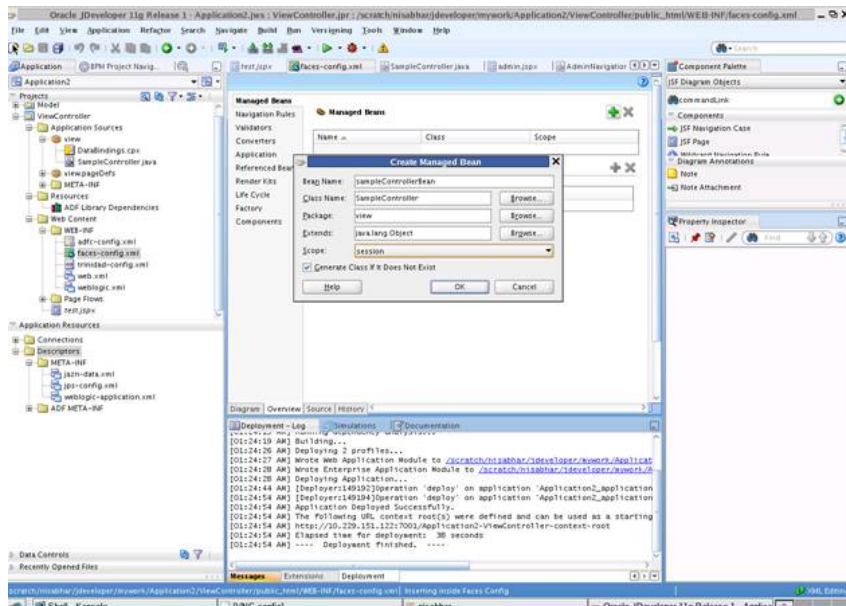
Add `private transient UIComponent rightPanel = null;` with getters and setters as shown in Figure A-21.

Figure A-21   Creating SampleController.java

5. In the navigator, select the *Faces-config.xml* file. Specify the Managed Bean, naming it as `sampleControllerBean` as shown in Figure A-22.

Figure A-22   Specifying the Managed Bean

6. Drag and drop the Panel Stretch Layout on to the Second Facet.

   Delete Top, Start, Bottom, and End from it. Specify a binding for PanelStrechLayout from the Property Inspector as `#{sampleControllerBean.rightPanel}`.

7. Drag and drop a link from the Component Palette into the JSPX page.

   In the Property Inspector specify the text as Rules. In `SampleController` Java file, add the following code:

```
private String selectedLink = "RULES"; with getter and setters
public void displayRules(ActionEvent event){
  setSelectedLink("RULES");
  if(getRightPanel()!= null){
    RequestContext.getCurrentInstance().addPartialTarget(getRightPanel());
  }
}
```

Add the Action Listener property for the rules as follows:

```
#{sampleControllerBean.displayRules}
```

8. Drag and drop a link from the Component Palette into the JSPX page.

   In the Property Inspector, specify the text as Certificates. In the
   SampleController Java file, add following code:

```
public void displayCertificates(ActionEvent event){
  setSelectedLink("CERTIFICATES");
  if(getRightPanel() != null){
    RequestContext.getCurrentInstance().addPartialTarget(getRightPanel());
  }
}
```

   Add the Action Listener property for the certificates as follows:

```
#{sampleControllerBean.displayCertificates}
```

9. Drag and drop a link from the Component Palette into the JSPX page.

   In the Property Inspector, specify the text as Reports. In the SampleController
   Java file, add following code:

```
public void displayReports(ActionEvent event){
  setSelectedLink("REPORTS");
  if(getRightPanel() != null){
    RequestContext.getCurrentInstance().addPartialTarget(getRightPanel());
  }
}
```

   Add the Action Listener property for the reports as follows:
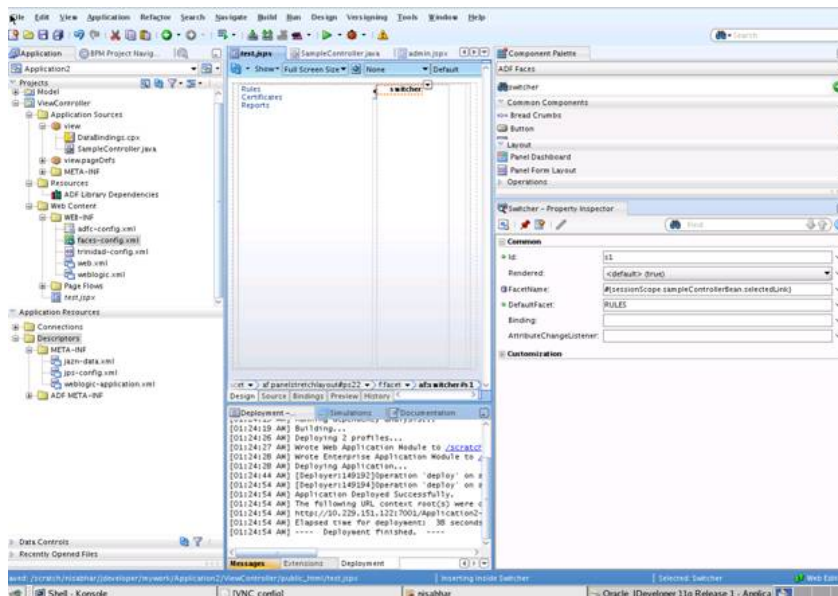
```
#{sampleControllerBean. displayReports}
```

10. Drag and drop a switcher from the Component Palette into the center facet of the
    second facet as shown in Figure A-23.

    In the Property Inspector, specify the facet name as
    #{sessionScope.sampleControllerBean.selectedLink}" and the
    default faces as RULES.

Figure A-23   Adding and Specifying a Switcher

11. Inside `af:switcher` define a facet and name it `f:facet name="RULES"`.

   Inside this facet, drag and drop Rules-Task-Flow-Definition from the Component Palette (inside `adflibTaskListTaskFlow.jar`).

12. Inside `af:switcher` define another facet and name it `f:facet name="CERTIFICATES"`.

   Inside this facet, drag and drop Certificates-Task-Flow-Definition from the Component Palette (inside `adflibTaskListTaskFlow.jar`)

13. Inside `af:switcher` define another facet and name it `f:facet name="REPORTS"`.

   Inside this facet drag and drop Reports-Task-Flow-Definition from the Component Palette (inside `adflibTaskListTaskFlow.jar`)

14. Save your work.

15. Follow Steps #unique_375/unique_375_Connect_42_BACJAGFF to 17 of Sample 1: Creating an Application with an Embedded Tasklist Task Flow.

A.6 Sample: Wf_client_config.xml File

This section provides a sample of the client configuration file, `Wf_client_config.xml`.

If you don't want to include the server in the federated servers list, put `excludeFromFederatedList="true"` in the `<server>` element.

The client type needs to be specified explicitly on the `<server>` element in the XML.

- If you are using a remote client, enter `clientType="REMOTE"`.

- If you are using a SOAP client, enter `clientType="SOAP"`.

In Example A-1, REMOTE client type is used.

Example A-1   Wf_client_config.xml

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<workflowServicesClientConfiguration
xmlns="http://xmlns.oracle.com/bpel/services/client">
<server name="default" default="true" excludeFromFederatedList="true"
clientType="REMOTE">
  <localClient>
    <participateInClientTransaction>false</participateInClientTransaction>
  </localClient>
  <remoteClient>
    <serverURL>t3://sta00048.ex.example.com:7001</serverURL>
    <initialContextFactory>weblogic.jndi.WLInitialContextFactory</
initialContextFactory>
    <participateInClientTransaction>false</participateInClientTransaction>
  </remoteClient>
  <soapClient>
    <rootEndPointURL>http://sta00048.ex.example.com:7001</rootEndPointURL>
      <identityPropagation mode="dynamic" type="saml">
        <policy-references>
          <policy-reference enabled="true" category="security"
            uri="oracle/wss10_saml_token_client_policy"/>
        </policy-references>
      </identityPropagation>
    </soapClient>
  </server>
<server name="ERP" clientType="REMOTE">
  <soapClient>
    <rootEndPointURL>http://sta00147.ex.example.com:7001</rootEndPointURL>
      <identityPropagation mode="dynamic" type="saml">
        <policy-references>
          <policy-reference enabled="true" category="security"
          uri="oracle/wss10_saml_token_client_policy"/>
        </policy-references>
      </identityPropagation>
    </soapClient>
  <remoteClient>
    <serverURL>t3://sta00147.ex.example.com:7001</serverURL>
    <initialContextFactory>weblogic.jndi.WLInitialContextFactory</
initialContextFactory>
    <participateInClientTransaction>false</participateInClientTransaction>
  </remoteClient>
</server>
<server name="CRM" clientType="REMOTE">
  <soapClient>
    <rootEndPointURL>http://sta00048.ex.example.com:7001</rootEndPointURL>
    <identityPropagation mode="dynamic" type="saml">
      <policy-references>
        <policy-reference enabled="true" category="security"
        uri="oracle/wss10_saml_token_client_policy"/>
      </policy-references>
    </identityPropagation>
  </soapClient>
  <remoteClient>
    <serverURL>t3://sta00048.ex.example.com:7001</serverURL>
    <initialContextFactory>weblogic.jndi.WLInitialContextFactory</
initialContextFactory>
    <participateInClientTransaction>false</participateInClientTransaction>
  </remoteClient>
</server>
</workflowServicesClientConfiguration>
```

A.7 Sample: Bean Returning WorkflowServicesClientConfigurationType Object

This section provides a sample: bean with the method returning the
WorkflowServicesClientConfigurationType object.

> **Note:**
>
> You must set the client type explicitly while building the JAXB object. For
> example:
>
> ```
> ServerType server1 = new ServerType();
> server1.setClientType("REMOTE"); // If REMOTE client is to be used.
> ```
>
> Or:
>
> ```
> server1.setClientType("SOAP"); // If SOAP client is to be used.
> ```
>
> If you do not specify anything for the client type, the default is SOAP.

```java
package view;

import java.util.List;

import oracle.bpel.services.workflow.client.config.IdentityPropagationType;
import oracle.bpel.services.workflow.client.config.PolicyReferenceType;
import oracle.bpel.services.workflow.client.config.PolicyReferencesType;
import oracle.bpel.services.workflow.client.config.RemoteClientType;
import oracle.bpel.services.workflow.client.config.ServerType;
import oracle.bpel.services.workflow.client.config.SoapClientType;
import
oracle.bpel.services.workflow.client.config.WorkflowServicesClientConfigurationType;
import weblogic.nodemanager.common.ServerType;

public class WorklistBackingBean {
  WorkflowServicesClientConfigurationType wscct = null;

  public WorklistBackingBean() {
    super();
  }

  public WorkflowServicesClientConfigurationType getWSCC() {
    if (wscct == null) {
      wscct = new WorkflowServicesClientConfigurationType();
      List<ServerType> servers = wscct.getServer();
      /**** Setting default server in the list ****/
      ServerType defaultServer = new ServerType();
      defaultServer.setClientType("SOAP");
      servers.add(defaultServer);
      defaultServer.setDefault(true);
      //If this is true, the server is excluded from federated server list
      //By defalut it is false
      //defalutServer.setExcludeFromFederatedList(true);
      defaultServer.setName("default");
      RemoteClientType rct = new RemoteClientType();
      rct.setServerURL("t3://defaultHost:port");
      rct.setInitialContextFactory("weblogic.jndi.WLInitialContextFactory");
      rct.setParticipateInClientTransaction(false);
      defaultServer.setRemoteClient(rct);
```

```
            SoapClientType sct = new SoapClientType();
            PolicyReferencesType prts = new PolicyReferencesType();
            PolicyReferenceType prt = new PolicyReferenceType();
            prt.setEnabled(true);
            prt.setCategory("security");
            prt.setUri("oracle/wss10_saml_token_client_policy");
            prts.getPolicyReference().add(prt);
            IdentityPropagationType ipt = new IdentityPropagationType();
            ipt.setMode("dynamic");
            ipt.setType("saml");
            ipt.setPolicyReferences(prts);
            sct.setRootEndPointURL("http://defaultHost:port");
            sct.setIdentityPropagation(ipt);
            defaultServer.setSoapClient(sct);
            /****** Setting Federated Server 1 to the list ****/
            ServerType server1 = new ServerType();
            server1.setClientType("SOAP");
            servers.add(server1);
            server1.setName("Human Resource");
            RemoteClientType rct1 = new RemoteClientType();
            rct1.setServerURL("t3://HumanResourcesHost:port");
            rct1.setInitialContextFactory("weblogic.jndi.WLInitialContextFactory");
            rct1.setParticipateInClientTransaction(false);
            server1.setRemoteClient(rct1);
            SoapClientType sct1 = new SoapClientType();
            PolicyReferencesType prts1 = new PolicyReferencesType();
            PolicyReferenceType prt1 = new PolicyReferenceType();
            prt1.setEnabled(true);
            prt1.setCategory("security");
            prt1.setUri("oracle/wss10_saml_token_client_policy");
            prts1.getPolicyReference().add(prt1);
            IdentityPropagationType ipt1 = new IdentityPropagationType();
            ipt1.setMode("dynamic");
            ipt1.setType("saml");
            ipt1.setPolicyReferences(prts1);
            sct1.setRootEndPointURL("http://HumanResourcesHost:port");
            sct1.setIdentityPropagation(ipt1);
            server1.setSoapClient(sct1);
        }
      return wscct;
    }
}
```
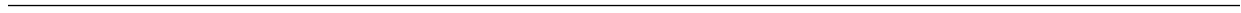
Customizing a Resource Bundle

This appendix explains how an administrator of either Oracle Business Process Management Workspace (Process Workspace) or Oracle BPM Worklist can add or modify strings shown in the application by creating a custom resource bundle.

Note:

Create a temporary directory at any location, for example, /scratch/ jstein/sharedLib. This contains all the individual JAR files as well as the shared library JAR file, custom.client.applib.jar. Do this step before doing any of the following steps.

B.1 How to Customize a Resource Bundle

This section tells you how to customize a resource bundle.

To customize a resource bundle:

1. Create a Java Project in Oracle JDeveloper.

   Figure B-1   Creating a Java Project in JDeveloper
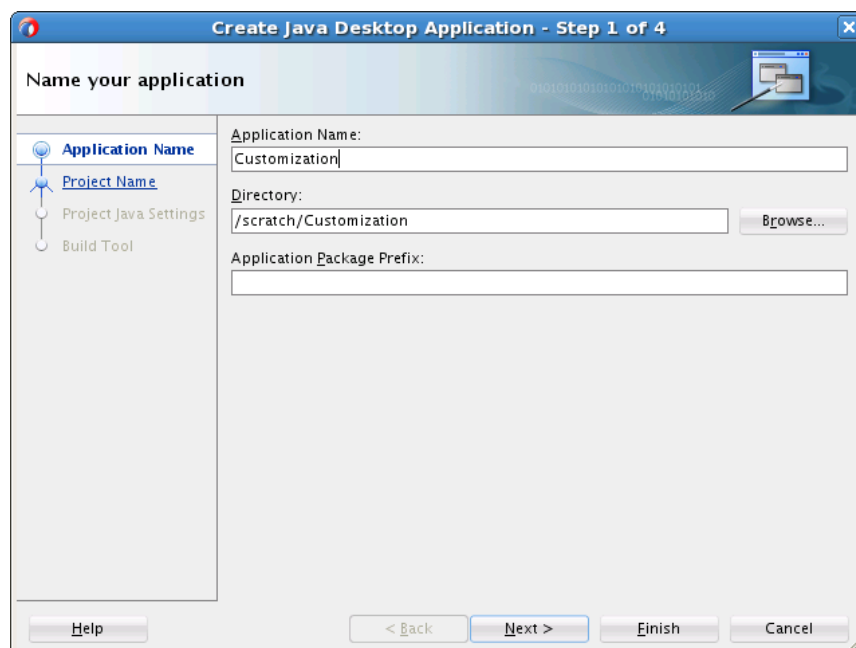
2. Create a Java class and name it CustomResourceBundle. Figure B-2 shows the Create Java Class dialog box.

Figure B-2   Creating a Java Class
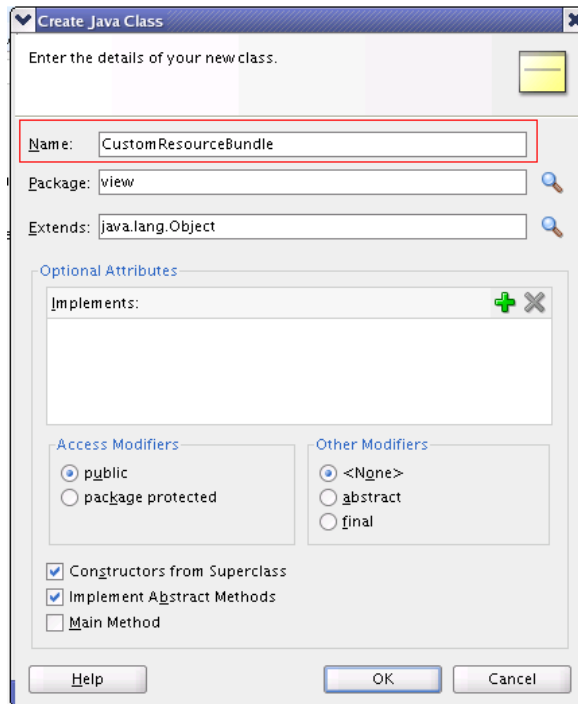
3. Include Worklist Application JAR files. Figure B-3 shows the BPM Worklist Components library being added.

    To include the Worklist Application JAR files:

    a. From the Project Properties panel, select **Libraries and Classpath**.

    b. Select **Add Library**.

    c. From the Libraries list, select **BPM Worklist Components**.

    d. Click **OK**.

Figure B-3   Including Worklist Application in the Library
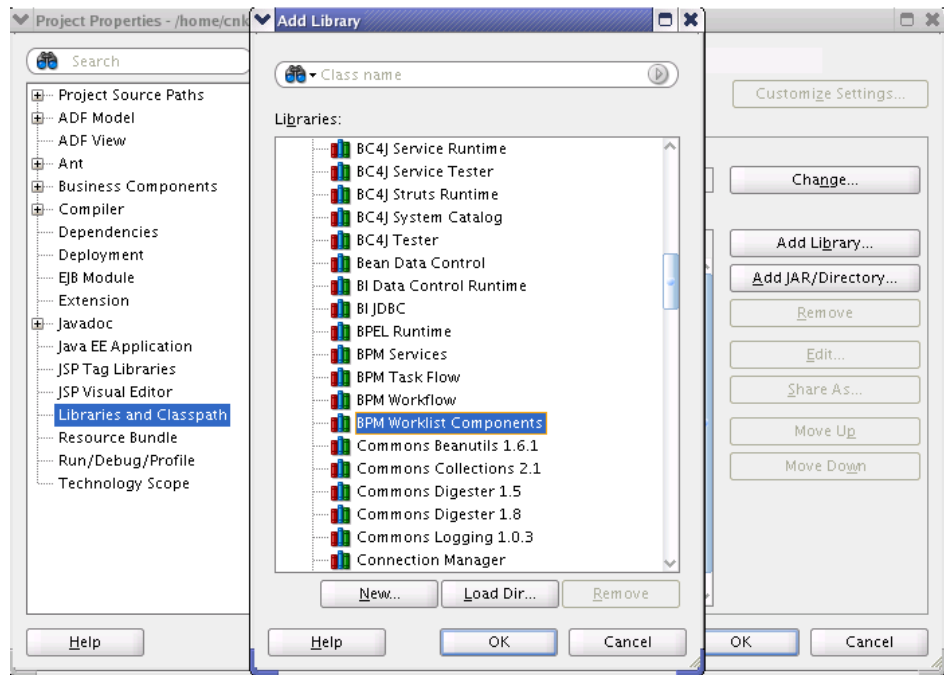
4. Modify the *CustomResourceBundle* class. The class should look as in Figure B-4:

Figure B-4   Modifying the CustomResourceBundle Class

Make sure that this class extends the correct *WorklistResourceBundle* and that the `getContents()` method is implemented the same way in all the supported language bundles.

5. Create various custom resource bundles for other language support.

   You can create various custom resource bundles with different names under the same package. When you do so, you must append the locale to the file name. For example, for English US, your Custom Resource Bundle name is `CustomResourceBundle_en.java`. Make sure you implement the `getContents()` method the same way as described in Step 4.

   Note:

   By default, you must create both the file `CustomResourceBundle.java` and the file `CustomResourceBundle_en.java`. This is because we use the English (_en) resource bundle by default during the application login. Otherwise, login would fail.

   ---

6. Create a new `JAR` deployment profile as shown in Figure B-5.

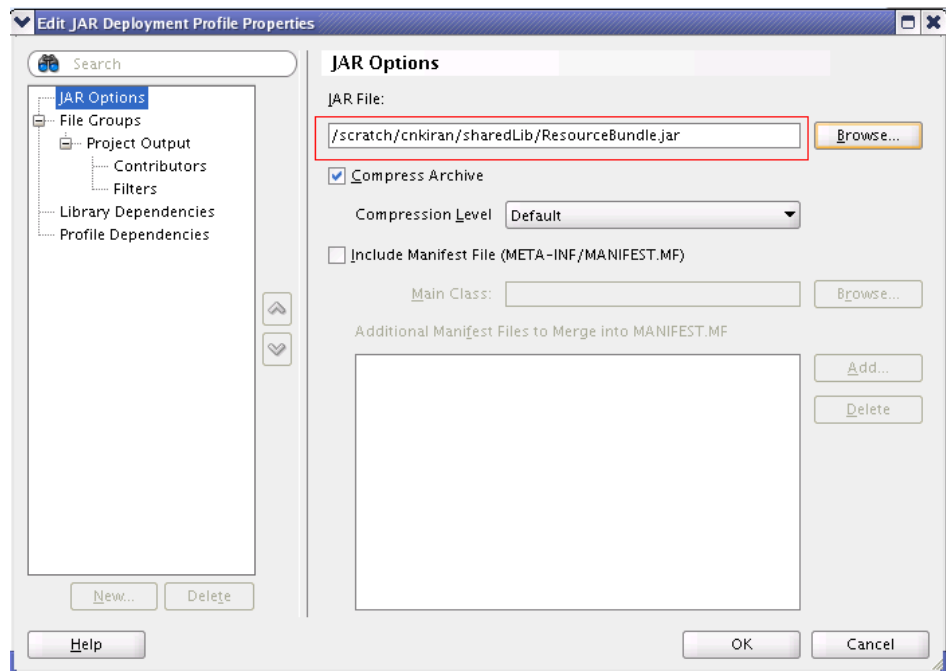   **Figure B-5   Creating a Deployment Profile for a JAR File**
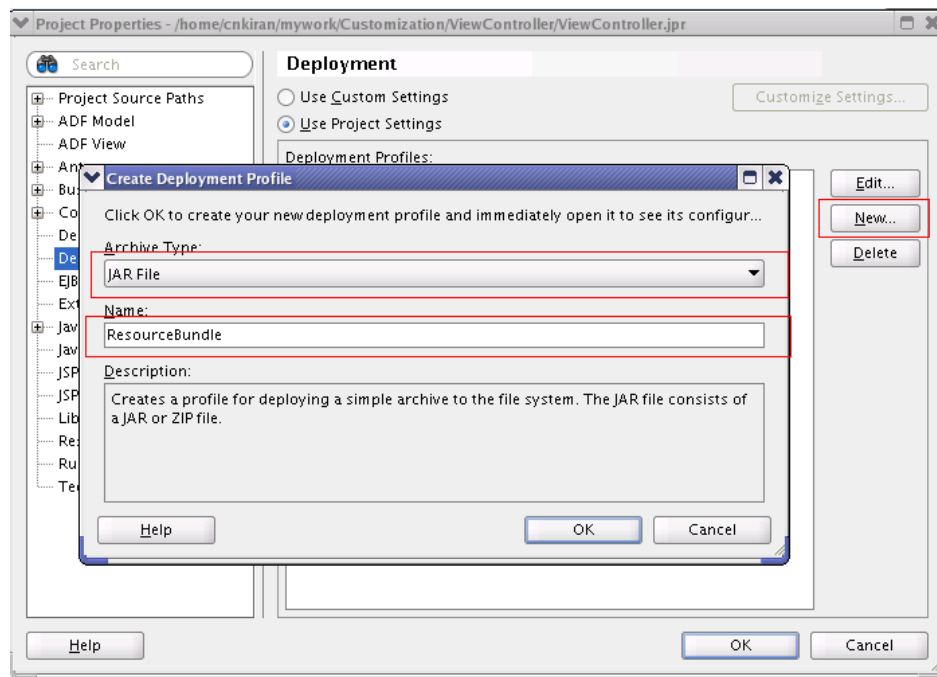
7. Make sure your JAR deployment profile looks like what is shown in Figure B-6.
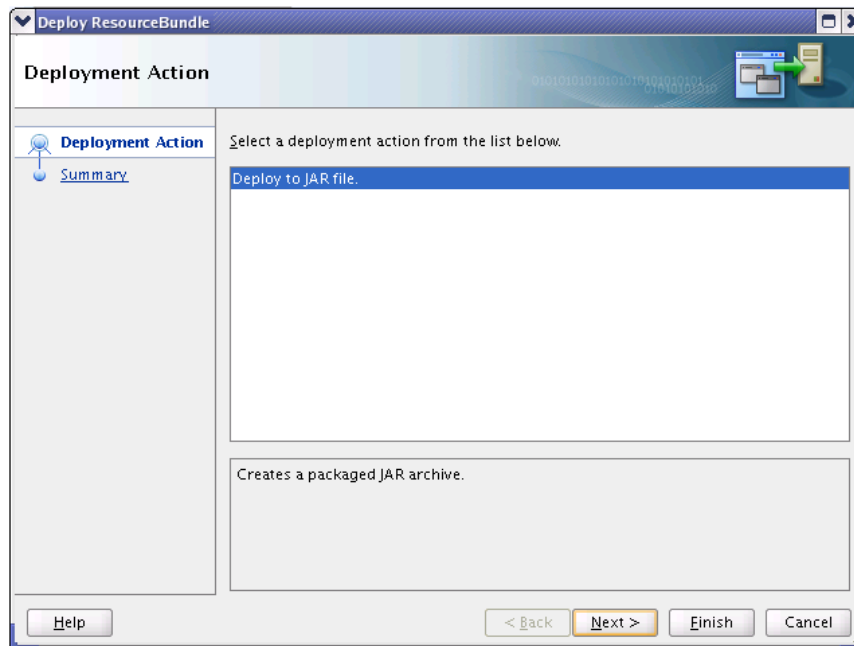
Figure B-6   Verifying JAR Deployment Profile
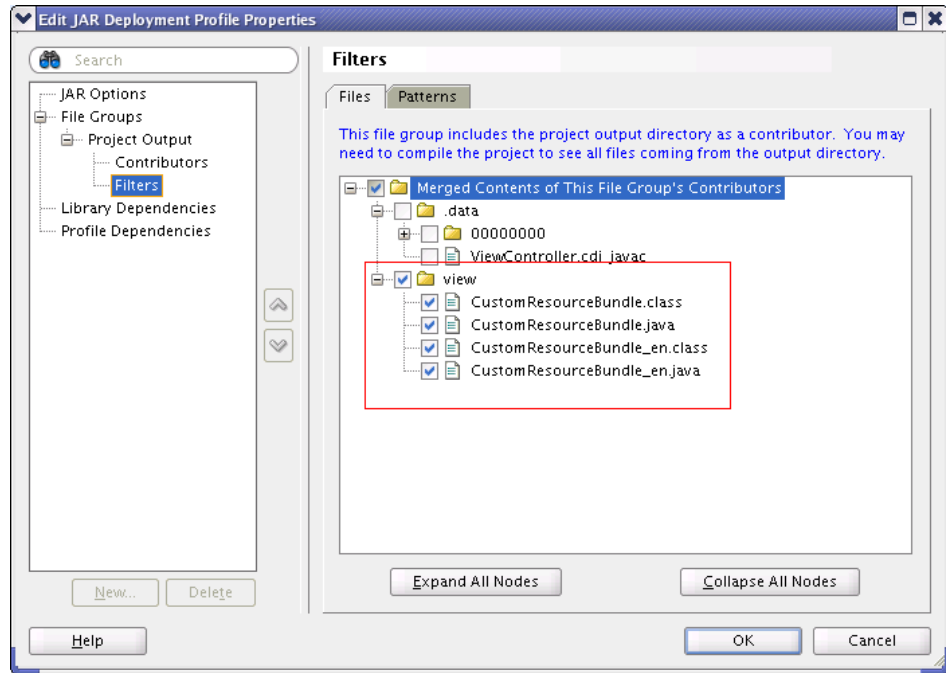
8. Edit the JAR file location to point to the newly created directory as shown in Figure B-7.

Figure B-7   Editing the JAR Deployment Profile

9. Deploy the resource bundle as a JAR file as shown in Figure B-8.

Figure B-8   Deploying the Resource Bundle

The file is then deployed to the pre-defined location, namely, the shared library directory.

For more information about resources bundles and how to customize them, see *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*.

C

Customizing Applications in Process Workspace and BPM Worklist

This appendix explains how, for Oracle Business Process Management Workspace (Process Workspace), you can create customized external applications and links that become available in the Favorites list of the Views, Applications, and Favorites pane. It also explains how, for both Process Workspace and BPM Worklist, you can specify the columns that appear in the inbox.

Note:

Create a temporary directory at any location, for example, `/scratch/jstein/sharedLib`. This contains all the individual JAR files as well as the shared library JAR file, `custom.client.applib.jar`. Do this step before doing any of the following steps.
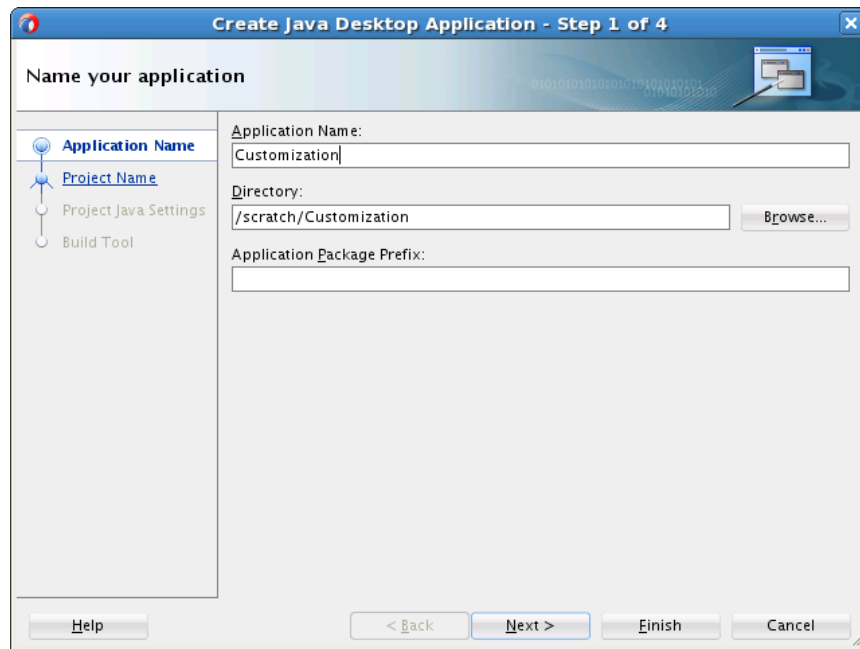

C.1 How to Customize an Application

To customize and application:

1. Create an Oracle Application Development Framework Project in Oracle JDeveloper.

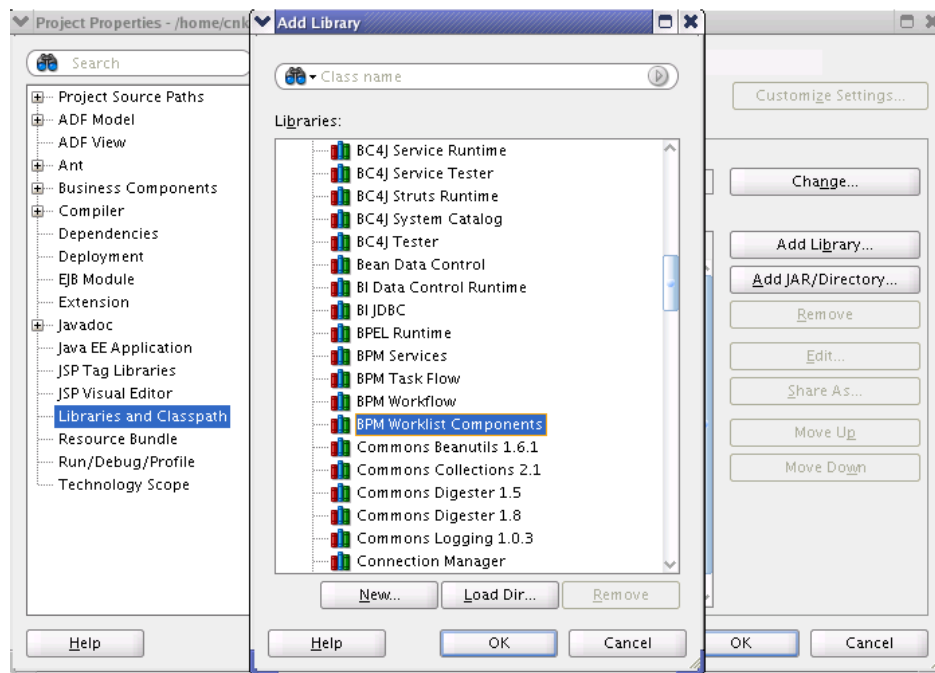   Figure C-1 shows the Create Fusion Web Application (ADF) dialog box.

Figure C-1   Creating an ADF Project in JDeveloper

2. Create a Java class and name it `WorkspaceCustomisationImpl`.

3. Include Worklist Application `JAR` files.

   Figure C-2 shows the BPM Worklist Components library being added.

Figure C-2   Including Worklist Application in the Library

4. Create a customization class. This sample class modifies the inbox columns and customize external application and links.

   WorkspaceCustomisationImpl and its contents are as follows:

```
package view.customisationimpl;

import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;
import java.util.Map;

import oracle.bpel.services.workflow.client.IWorkflowServiceClient;
import oracle.bpel.services.workflow.runtimeconfig.IRuntimeConfigService;
import oracle.bpel.services.workflow.runtimeconfig.model.AttributeLabelType;
import oracle.bpel.services.workflow.runtimeconfig.model.AttributeLabelUsageList;
import oracle.bpel.services.workflow.runtimeconfig.model.AttributeLabelUsages;

import oracle.bpel.services.workflow.verification.IWorkflowContext;

import oracle.bpm.ui.customization.CustomLink;
import oracle.bpm.ui.customization.IBPMUICustomizations;

public class WorkspaceCustomisationImpl implements IBPMUICustomizations {
  private static Map displayNameMap = new HashMap();

  public WorkspaceCustomisationImpl() {
    displayNameMap.put("instanceId", "Instance Id");
    displayNameMap.put("protectedTextAttribute1", "Business Status");
  }

  public List<CustomLink> getCustomGlobalLinks() {
    CustomLink globalLink1 =
      new CustomLink("Oracle Home Page", "www.oracle.com", null);
    CustomLink globalLink2 =
      new CustomLink("Self Services Application", "http://global-
ebusiness.example.com/",
                     null);
    CustomLink globalLink3 =
      new CustomLink("BUG DB", "https://bug.example.com/", null);
    List<CustomLink> globalLinks = new ArrayList<CustomLink>();
    globalLinks.add(globalLink1);
    globalLinks.add(globalLink2);
    globalLinks.add(globalLink3);
    return globalLinks;
  }

  public String getColumnNames() {
    return "title,taskNumber,instanceId,creator,protectedTextAttribute1";
  }

  private static void initDisplayMap(IWorkflowServiceClient client,
                                     IWorkflowContext context) {
    // u can use service to load all label name for text attributes
    if (displayNameMap == null) {
      synchronized (String.class) {
        if (displayNameMap == null) {
          displayNameMap = new HashMap();
          try {
            IRuntimeConfigService service = client.getRuntimeConfigService();
            AttributeLabelUsageList list =
              service.getAttributeLabelUsages(context, "Text");
            List<AttributeLabelUsages> list1 = list.getAttributeLabelUsages();
            for (AttributeLabelUsages usage : list1) {
              AttributeLabelType type = usage.getLabel();
              displayNameMap.put(type.getTaskAttribute(), type.getLabelName());
```

```
          }
        } catch (Exception exc) {
        }
      }
    }
  }
}


    public String getColumnDisplayName(IWorkflowServiceClient client,
                                       IWorkflowContext context,
                                       java.lang.String colName) {
      initDisplayMap(client, context);
      return (String)displayNameMap.get(colName);
    }
}
```

5. Create a JAR deployment profile. Create a JAR file and name it `customer-impl.jar`.

6. Deploy it as a part of the shared library, `custom.client.applib.jar`.

   To do this, update the `MANIFEST.MF` file and update the shared library as explained in Deploying Images and JAR files as Part of a Shared Library JAR file.

Depending on your customization, you can now see its effects. If your customization is for Process Workspace and involves either creating an external application or specifying inbox columns in the Task Details pane or both, you see the following:
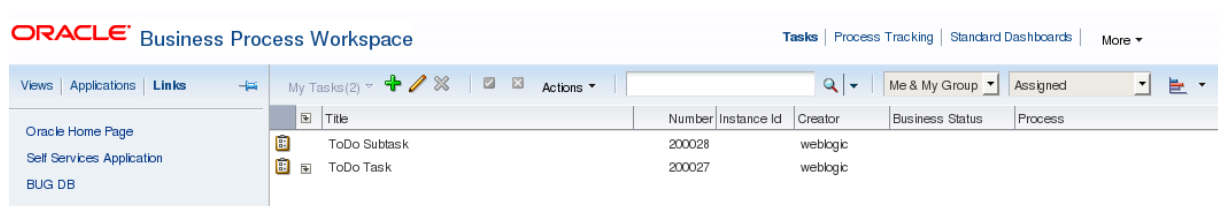
- Your custom application listed in the Links panel of the Process Workspace Home page as shown in Figure C-3.

Figure C-3   Links Panel in Process Workspace
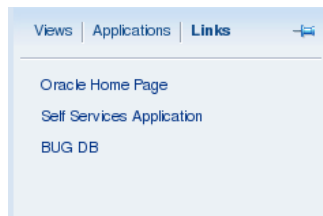
- The columns of the Task Details inbox adjusted according to your specifications as shown in Figure C-4.

Figure C-4   Customized Columns in Task Details Pane

D

Deploying Images and JAR files as Part of a Shared Library JAR file

This appendix explains how to deploy images and JAR files as part of a shared library JAR file. If you have customized an application, a skin, or a resource bundle, you must deploy it as a JAR file within a shared library JAR file.

D.1 How to Deploy Images and JAR Files as Part of a Shared Library JAR File

In this section, we use an example in which you include in a shared library JAR file the files you previously created:

- `customSkin.jar` as described in How to Choose a Skin in Process Workspace

- `customer-impl.jar` as described in Customizing Applications in Process Workspace and the Worklist Application

- `ResourceBundle.jar` as described in Customizing a Resource Bundle.

To deploy images and JAR files as part of a shared library JAR file:

1. Create a temp directory, `mkdir temp`.

2. Unzip all the jar files into the `temp` folder.

   ```
   unzip customSkin.jar -d temp/
   unzip customer-impl.jar -d temp/
   unzip ResourceBundle.jar -d temp/
   ```

   After you do this, you can see a `META-INF` folder included in the temp folder.

   Note:

   You can create an `images` directory inside the `temp` directory and copy your customized logo file into it. Then from the application preferences, you can refer to it as `/images/customizedLogo.jpg`.

   ---

3. Create a `MANIFEST.MF` file under `META-INF` directory.

   This file should contain the following:

   ```
   Manifest-Version: 1.0
   Ant-Version: Apache Ant 1.7.1
   Created-By: 19.1-b02 (Sun Microsystems Inc.)
   Implementation-Vendor: Oracle
   Implementation-Title: Custom Client Applib
   Implementation-Version: 1.0
   Product-Name: Custom Client Applib
   ```

```
Specification-Version: 1.0
Extension-Name: custom.client.applib
```

4. To ensure that all required class files and other skin files are available in the shared library, package everything into the file `custom.client.applib.jar`.

To do this, navigate to the temp directory and run the following command:

```
jar -cvfm custom.client.applib.jar META-INF/MANIFEST.MF *
```

You have now created the shared library under the `temp` directory. It looks like this: `temp/custom.client.applib.jar`.

5. Deploy `custom.client.applib.jar` on the Oracle WebLogic Server as a shared library.

To do this: From the Oracle WebLogic Server Console, click **Deployments and Install**, navigate to the JAR file location, and deploy.

6. Restart the Worklist Application or Process Workspace from the Oracle WebLogic Server.

Figure D-1 shows the interface for restarting the Worklist Application.
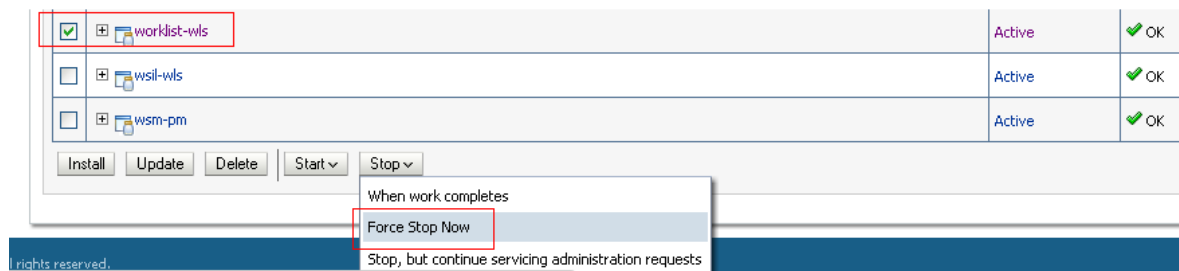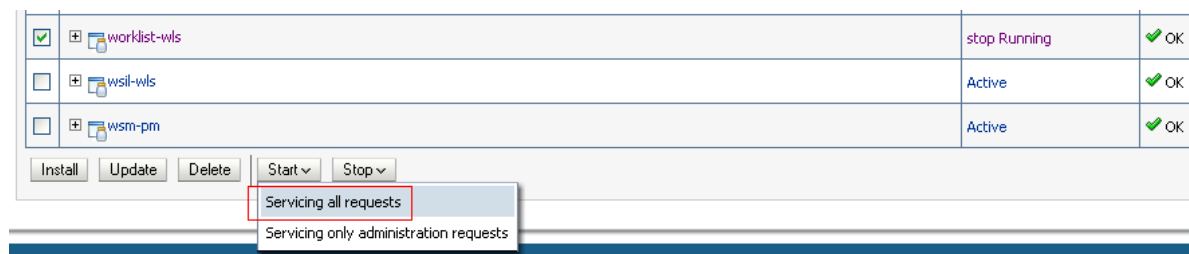
Figure D-1   Stopping Worklist Application

Figure D-2 shows the Oracle WebLogic Server interface for restarting the Worklist Application.

Figure D-2   Restarting Worklist Application

7. Log in to either Worklist Application or Process Workspace, navigate to the Application Preferences page, and specify your customized items.

Figure D-3 highlights the fields to specify.

Figure D-3   Setting Application Preferences

Note:

To be sure that your branding logo is retrieved, in the **Branding Logo** field, be sure to precede the file name of your logo with the path name `/faces/`.