



**P6 Oracle BPM 10g Integration Administrator's Guide
Release 8.0**

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P6 EPPM Documentation

You can access reference manuals and administrator's guides from the P6 EPPM Documentation Center, located in the \Documentation\<language> folder of the P6 EPPM physical media or download. Most documentation assumes a standard setup of the product, with full access rights to all features and functions.

Media packs include all files necessary to install P6 EPPM applications, all manuals and technical documents related to the installation, administration, and use of P6 EPPM components, and the Quick Install Guide. For information on the contents of the P6 EPPM Media Pack, see the *P6 EPPM Quick Install Guide*.

The following table describes documentation publications and lists the recommended readers by role. P6 EPPM roles are described in Installation Process Overview in the *P6 EPPM Administrator's Guide*.

Title	Description
<i>P6 EPPM Administrator's Guide</i>	Explains how to set up the P6 EPPM database, servers, and components; it also provides an overview of all the components in the P6 EPPM solution. The guide describes the procedures required to administer P6 EPPM, including setting up security and configuring global preferences.  The P6 EPPM network administrator/database administrator and P6 administrator should read this guide.
<i>P6 EPPM User's Guide</i>	This guide explains how to plan, set up, and manage projects in a multiuser environment. If you are new to P6 EPPM, start with this guide to learn how to use the software effectively to plan and manage projects. When you need more detail, refer to the P6 Help. The program manager, project manager, resource/cost manager, and team leader should read this guide.
<i>P6 Professional Help</i>	Explains how to use P6 Professional to plan, set up, and

Title	Description
	manage projects in a multiuser environment. If you are new to P6 Professional, use this Help to learn how to use the software effectively to plan and manage projects. The P6 Professional administrator, program manager, project manager, resource/cost manager, and team leader should read this Help.
<i>P6 Help</i>	Describes how to create, manage, plan, and schedule projects, group projects into portfolios, administer all enterprise data, application settings, user accounts, and security profiles, maintain both the organizational breakdown structure (OBS) and enterprise project structure (EPS), manage resources and roles, track risks, issues, and notebooks, create and reuse templates, evaluate budgets, analyze performance and ROI for project portfolios, participate in workflows and document reviews, approve timesheets, and generate reports. The operations executive, P6 EPPM and P6 administrator, program manager, project manager, resource/cost manager, and team leader should read this Help.
<i>P6 Progress Reporter Administrator Help</i>	Describes how to enter database connection information for the P6 Progress Reporter server and modify P6 Progress Reporter server and application settings. The P6 EPPM network administrator/database administrator should read this Help.
<i>P6 Progress Reporter Help</i>	Describes how to use P6 Progress Reporter to enter and update time spent on assignments. Team members should read this Help.
<i>Primavera Timescaled Logic Diagram Help</i>	Describes how to create, modify, and manage Timescaled Logic Diagrams. Timescaled Logic Diagrams condense the project schedule displayed in the Gantt Chart into a more readable, easier to understand format that provides a snapshot of the entire project plan and the chains of activities that drive the project schedule.
<i>P6 Integration API Administrator's Guide</i>	Explains how to install and configure the P6 Integration API, which allows direct access to P6 EPPM via Java. Those creating client code in Java and needing direct access to the P6 EPPM database should read this guide.
<i>P6 Web Services Administrator's Guide,</i>	Explains how to install and configure P6 Web Services, which enables organizations to seamlessly integrate P6

Title	Description
<i>P6 Web Services Programmer's Guide</i> , and <i>P6 Web Services Reference Manual</i>	EPPM functionality into other applications using web services standards. The <i>P6 Web Services Programmer's Guide</i> , available as an HTML help system, describes how to invoke, use, and troubleshoot the available services/operations within supported environments. The <i>P6 Web Services Reference Manual</i> , also available as an HTML help system, describes all services and operations available in P6 Web Services in a comprehensive manner.
<i>P6 SDK Web-based documentation</i>	Describes how to use the P6 SDK to connect to the P6 EPPM database. The tables, fields, and stored procedures that you can access through the P6 SDK are described. Examples are also provided to show how you can use the P6 SDK to perform several basic tasks, such as creating a new project or assigning a resource to a project activity. The P6 EPPM network administrator/database administrator and P6 administrator should read this documentation, which is available in <i>local drive\Program Files\Oracle\Primavera P6 Professional\PMSDK\Doc\</i> by default. Double-click the INDEX.HTML file to open the Table of Contents.
<i>P3 to P6 EPPM Migration Guide</i>	This guide provides best practices for migrating your P3 data to P6 EPPM, and details how P3 functionality maps to P6 EPPM functionality.
<i>P6 Reporting Database Administrator's Guide</i>	This document explains how to install and configure the P6 Reporting Database application, and generate the ODS database. It describes how to install and configure the Oracle Gateway if the P6 Reporting Database is installed on a Microsoft SQL Server. It also provides information about how to run the Configuration Utility.
<i>P6 Reporting Database User's Guide</i>	Provides information about using ODS and Star (if you purchased P6 Analytics) with the P6 EPPM database to extract data that you can use to create reports.
<i>P6 Analytics Administrator's Guide</i>	This guide explains how to install and configure P6 Analytics, and how to generate Operational Data Store (ODS) and Star Schema Database (Star) databases.

Title	Description
<i>P6 Analytics User's Guide</i>	This guide explains how to use Operational Data Store (ODS) and Star Schema Database (Star) to extract data for use in creating reports through the Oracle Business Intelligence Suite.

Distributing Information to the Team

You can copy the online documentation to a network drive for access by project participants. Each team member can then view or print those portions that specifically relate to his or her role in the organization.

For the latest updates to the P6 EPPM 8.0 Documentation library, go to **http://download.oracle.com/docs/cd/E17266_01/index.htm**.

Where to Get Support

If you have a question about using Oracle Primavera products that you or your network administrator cannot resolve with information in the documentation or help, go to:

<http://www.oracle.com/us/support/index.html>

This page provides the latest information on contacting Oracle Global Customer Support and the support renewals process.

Overview

The Oracle Business Process Management (BPM) Suite provides an integrated environment for developing, administering, and using business applications centered around business processes. BPM supports BPMN and BPEL standards from modeling and implementation to run time and monitoring.

P6 directly integrates with BPM 10g and 11g allowing you to initiate and manage workflows. Take advantage of the ready-to-run project initiation workflow sample included with P6 EPPM or design your own workflows.

Looking toward the future, you can optionally expand your investment in BPM to include workflows representing more stages of your application, program, project, or product development life cycle from design-time and implementation to run-time and application management.

The Oracle BPM Suite enables you to:

- ▶ Create and customize business processes, models, and standards using pre-defined components for web-based applications.
- ▶ Collaborate between process developers and process analysts.
- ▶ Expand business process management to include flexible, unstructured processes.
- ▶ Add dynamic tasks and support approval routing using declarative patterns and rules-driven flow determination.
- ▶ Unify different stages of your development life cycle by addressing end-to-end requirements for developing process-based applications. Oracle BPM 11g unifies the design, implementation, run time, and monitoring stages based on a Service Component Architecture (SCA) infrastructure. This allows different personas to participate through all stages of the workflow life-cycle.

To use Oracle BPM with P6, first determine whether you will be using BPM version 10g or 11g. Then, follow the instructions in the 10g or 11g edition of this guide.

Note: Separate guides are available based on your version of BPM (10g or 11g). Make sure you are using the guide for your version of BPM.

Integrating P6 with Oracle BPM 10g

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Pre-Integration Requirements: Start Here

Before continuing, make sure the following required conditions have been addressed:

- 1) You should already have installed and configured P6 EPPM. This includes already having completed any licensing requirements and downloading any documentation for P6 EPPM, including P6 and P6 Web Services.
 - a. Make sure you have a working configuration of P6. The term P6 refers to the web application and user interface for the main component in the P6 EPPM suite.
 - b. Make sure you have installed P6 Web Services and configured its authentication mode to match the same mode you intend to implement with BPM. For example, *Username Token Profile*, *SAML*, or *Cookies*. In order to verify the sample workflow, use the P6 Administrator application to make the following Web Services\Security settings:
 - a. Set Authentication mode to *Username Token Profile*.
 - b. Set Username Token Profile/Nonce to Require Nonce: false.
 - c. Set Username Token Profile/Created to Require Created: false.
 - d. Set Message Protection to Require Timestamp: false.
- 2) Download the Oracle BPM 10g Suite documentation from http://download.oracle.com/docs/cd/E13154_01/bpm/docs65/index.html.
- 3) Visit www.oracle.com/technetwork/middleware/bpm/downloads/index-100737.html to accept a license agreement and download a BPM package.
- 4) Install Oracle BPM 10gR3 (10.3). Refer to the BPM documentation to guide you on this step. If you will be designing and developing your own workflows in 10g, you will need BPM Studio for 10g.
- 5) Read the *P6 Read Me* file to familiarize yourself with a few known issues relating to P6 and BPM.
- 6) Configure the BPM database by performing the steps in **Configuring the BPM 10g Database** (on page 14) in this guide.

- 7) Configure both BPM and P6 to work together by performing the steps in ***Integrating P6 and Oracle BPM 10g*** (see "***Integrating Oracle BPM 10g with P6***" on page 15) in this guide.

Configuring the BPM 10g Database

You should already have configured BPM before attempting to integrate it with P6. However, as a convenience and "pre-check" only, the following BPM database configuration steps are included below.

- 1) Click **Start/All Programs/Oracle/BPM/Enterprise/Admin Center** to launch the Oracle BPM Admin Center. (For example, the default full path is `C:\OraBPMEnterpriseHome\bin\obpmadmcenter.exe.`)
- 2) On the **Oracle BPM Admin Center** page, click **Configuration**.
- 3) In the **Configuration** dialog box, click **Add**.
- 4) In the **Configuration Wizard Tasks** dialog box, verify the defaults and click **Next**.
- 5) In the **Directory Provider Type** dialog box, verify the defaults and click **Next**.
- 6) In the **Directory Provider Selection** dialog box, enter the following information:
 - a. In the **Directory Configuration name** field, verify default.
 - b. In the **Description** field, verify default.
 - c. In the **Directory Provider** field, choose your database provider.
 - d. In the **BPM Administrator User** field, enter `admin`.
 - e. In the **BPM Administrator Password** field, enter your password that you defined when you set up BPM.
 - f. Click **Next**.
- 7) In the **Configure Directory Provider** dialog box, enter the following information:
 - a. In the **Host** field, enter the name or IP location of the database.
 - b. In the **Port** field, enter the port number that Oracle is using. The default is 1521.
 - c. In the **User** field, verify `OBPMDir`.
 - d. In the **Password and Confirm Password** field, enter and confirm the password.
 - e. In the **SID** field, enter your **SID**. (For example, `xe`.)
 - f. Click **Next**.
- 8) In the **Enter Directory Creation Information** dialog box, enter the following information:
 - a. In the **DBA User** field, type in your system user name.
 - b. In the **DBA Password** field, type your system password.
 - c. In the **Organizational logical name** field, verify `oracle`.
 - d. Select the **Enable SSO** option.

Note: See *Configuring P6 to Connect to Oracle BPM* in the next section.

- e. Click **Next**.
- 9) In the **Process Engine Provider Selection** dialog box, verify your **Engine Database Provider** and click **Next**.
- 10) In the **Process Engine Provider Configuration** dialog box, enter the following information:
 - a. In the **Host** field, type the name of your computer or IP address.
 - b. In the **Port** field, verify 1521.
 - c. In the **User** field, verify OBPMEngine.
 - d. In the **Password** and **Confirm Password** fields, enter and confirm the password.
 - e. In the **SID** field, enter your SID.
 - f. Click **Next**.
- 11) In the **Enter Process Engine Creation Information** dialog box, enter the following information:
 - a. In the **DBA User** field, type in your system user name.
 - b. In the **DBA Password** field, type your system password.
 - c. In the **Process Engine name** field, verify the default.
 - d. In the **Process Engine Home Folder** field, verify the default.
 - e. Click **Next**.
- 12) In the **Ready to Execute** screen, click **Next**.

Integrating Oracle BPM 10g with P6

Modifying the P6 Environment

Use the following connector files to configure BPM 10g with P6 Release 8:

- 1) Locate the `bpm_connector` folder in the P6 media pack and navigate to the 10g subfolder. Verify you can copy the appropriate connector files for your version of P6 and the BPM Suite:
 - ▶ `commons-lang.jar`
 - ▶ `org.jaxen_1.1.1.jar`
 - ▶ `osdt_cert.jar`
 - ▶ `osdt_core.jar`
 - ▶ `osdt_saml.jar`
 - ▶ `osdt_wss.jar`
 - ▶ `osdt_xmlsec.jar`
 - ▶ `p6-process-sso.jar`
 - ▶ `p6-workspace-sso.jar`
 - ▶ `prm-bpm-connector-10g-v1.0.jar`
 - ▶ `prm-bpm-sso.jar`

- 2) Copy the connector files listed above to the local drive of the P6 web application server. Determine the location of the BPM installation that you are using to integrate with P6.
- 3) Copy all the jars from the **<BPM 10g install root>\client\papi\lib** directory of the BPM installation that you are using to integrate with P6 to a separate directory on the host where P6 is running.

Notes:

- The jars must be from the same BPM installation that will be integrated with P6.
 - Copy the P6/BPM connector files in one folder, and the jars from the BPM installation in a separate sibling folder. Do not use the same folder. This makes it easier to identify which DLLs came from where, without having to refer back to documentation. For example, when an administrator later needs to update just the connector files or jars for any reason, it would be less confusing for them if they were in separate directories.
-

Configuring P6 to Connect to Oracle BPM 10g

- 1) In the P6 Administrator application, locate **Database/Instance/BPM Settings**.
- 2) For the **Connector file location** setting, enter the full path to the location where you copied the connector files. For example, it might be:

`C:\bpm-connector\10g\prm-bpm-connector-10g-v1.0.jar`

- 3) Set the **BPM library path** setting with the following information:
 - ▶ The directory where you copied all the 10g jars.
 - ▶ The directory containing the connector jars you downloaded for 10g.

Notes:

- To satisfy these requirements, this admin setting can contain multiple path elements. To facilitate this, on any OS, multiple path elements must be separated by a semicolon. For example,
`C:\bpm10g-client-jars;C:\bpm10g-connector-jars`
 - If the above settings are incorrect or the BPM jar files are incomplete, you will be prompted with an error message when you try to configure the BPM. Verify that your settings and jar files are correct.
-

- 4) Right-click **BPM Configuration**, then choose **Configure** to select options from the dialog box.

If you get an error, check your values from the previous steps in this section.

5) To configure P6 to use BPM 10g, add the following settings:

Caution: Do not put a forward slash / at the end of the URL. For example, it should read only `http://host:port`, and not `http://host:port/`.

a. **bpm.workspace.url**

Enter an address in the form of `http://host:port` that indicates where the BPM Workspace application is hosted.

Note: The default BPM port is 8686. The host can be an IP address or a host name such as a machine name.

b. **bpm.directory.file**

Enter the full path to the local copy of the `directory.xml` file that you copied from your BPM installation. The BPM 10g installation generates the file at: `<BPM install dir>/conf/directory.xml`.

c. **bpm.sso.enabled**

Check this box if you want to configure the form to use SSO. Configuring the form to use SSO allows users to log in without being prompted for authentication when they open a BPM form from P6.

d. **bpm.sso.keystore.location**

Enter this setting only if you checked **bpm.sso.enabled** above. Enter the full path to the keystore file.

e. **bpm.sso.keystore.password**

Enter this setting only if you checked **bpm.sso.enabled** above. Enter the keystore password.

f. **bpm.sso.publickey.alias**

Enter this setting only if you checked **bpm.sso.enabled** above. Enter the alias to the public key stored in the keystore.

6) Click **OK** and save changes. When the configuration is complete, you will see a **BPM properties have been configured** message.

7) Restart the P6 application server.

Configuring Oracle BPM 10g to connect to P6

Perform the following required configuration adjustments to administrative settings.

- 1) **Create a 10g Directory Service:** When creating your 10g directory service, check the **Enabled SSO** check box during the creation process. If the directory service already exists, see the section *Oracle BPM Trusted configuration manually in Configuring Single Sign On with Oracle BPM 10gR3* available at <http://www.oracle.com/technetwork/middleware/bpm/oraclebpmsso-129663.pdf>

- 2) **Create an Enterprise Process Engine:** When BPM is running IBM WebSphere or Oracle WebLogic, the BPM engines have to be created as *Enterprise*. On a BPM Enterprise, WebLogic, or WebSphere application server, you normally have the option of creating process engines that run on the server. Typically, there are three types of process engines, with the key difference between them being how BPM 10g clients connect to them. For the *Enterprise* engine type, a socket connection is used. For *WebLogic* and *WebSphere* engine types the connection is done via JNDI that connects the client to an EJB. At this time, on 10g, only the *Enterprise* engine type is supported. For example, if you deploy to WebLogic with the *WebLogic* engine type, as a workaround, delete that engine type and instead create and use an *Enterprise* engine such as BPM running standalone on an embedded Tomcat server.
- 3) **Change the Engine Node Protocol from SSL to TCP:** When P6 is running on IBM WebSphere you may receive an error message stating that the BPM connector was unable to connect because the WebSphere TrustManager was not allowing a connection to the BPM engine via SSL. The issue can be fixed by changing the engine node protocol from SSL to TCP. Full details are available at <http://www.ibm.com/developerworks/java/jdk/security/142/secguides/jssedocs/JSSERefGuide.html>. Specifically, refer to the following note in the guide:

Although anonymous cipher suites are enabled, the IBM JSSE TrustManager does not allow anonymous cipher suites. The default implementation can be overridden by providing your own TrustManager that allows anonymous cipher suites. See the section *Accepting Anonymous Cipher Suites* in *Creating Your Own X509TrustManager*.

- 4) **For SSO Authentication Only:** If configuring BPM workflow forms for SSO only, complete the following steps:
 - a. The BPM workspace must be set up for SSO. See the BPM documentation. When setting up the BPM workspace for SSO, use the fully qualified name of the SSO implementation class, which is `com.primavera.bpm.workspace.sso.P6SSOWorkspaceLogin`.
 - b. Add the connector jar files listed above in step 1 of *Modifying the P6 Environment* to the classpath of the workspace and BPM processes. This path is build-specific. The BPM documentation contains information about adding JAR files to the BPM classpath. You can set the classpath in the BPM Admin Center application.
 - c. Create a file named `p6sso.properties` at the root of the classpath. This file should contain the following keystore information:
 - `bpm.workspace.sso.privatekey.password=your private key password`
 - `bpm.workspace.sso.privatekey.alias=your alias`
 - `bpm.workspace.sso.keystore.password=your keystore password`
 - `bpm.workspace.sso.keystore.location=/your/keystore/location.jks`

Note: An easy way to get the `p6sso.properties` file on the classpath is to save the file to `<bpm install>/webapps/workspace/WEB-INF/classes` for a standalone install.

- 5) **Required Change For All Configurations:** You must make the following required BPM Workspace change for all configurations of BPM 10g including SSO or non-SSO. An *HTTP Status 403 - Invalid WAPI Session Id* error could otherwise occur when attempting to load a workflow form in P6. To resolve this issue, add the following line to the `workspace.properties` file installed with BPM:

```
fuego.workspace.WAPISessionIdValidation.enabled=false
```

After making this change, restart BPM Web Applications.

Post-Integration: Verifying the Sample Workflow

After performing the integration procedures in this guide, run the following post-integration steps to verify you can process a sample workflow.

Publishing a Sample Workflow





Simulate creation of your own new workflow by publishing a sample workflow.

- 1) Open **BPM Admin Center**.
- 2) On the **BPM Admin Center** page, click **Launch Process Administrator**. Or, directly open the Process Administrator application. Its default protocol, hostname, and port are `http://BPMServerName:8686/webconsole`.
- 3) Log into the BPM Process Administrator.
- 4) In the **BPM Process Administrator** pane, select **Projects**.
- 5) On the **Published Projects** page, click **Publish**.
- 6) In the **Publication Source** section:
 - a. Select **Exported Project**.
 - b. Click **Browse** and select the sample workflow titled `ProjectInitiation_BPM10g.exp`.
- 7) In the **Publication Properties** section, select the **Smart Publish** check box.
- 8) In the **Deployment Properties** section:
 - a. Select **Deploy Processes** after publishing them.
 - b. Select **Import the project's custom views and presentations after the deployment**.
 - c. Select **Import the project's custom layouts after the deployment**.
- 9) Select **OK**.
- 10) In the **Publish Process** pane:
 - a. Expand **Role Mapping**.

- b. Map the roles you want to use.
- c. Select **Publish**.
- 11) In the **Deployment Topology** pane, select **OK**.
- 12) On the **Published Projects** page, verify that the StageGate project has been completely deployed.
- 13) In the **BPM Process Administrator** pane, select **External Resources**.
- 14) In the **External Resources** table, click a resource link in the **Name** column.
- 15) On the **Edit External Resource** page:
 - a. Select the protocol from the **Protocol** list. For example, choose `http`.
 - b. Enter the host IP address or server name.
 - c. Enter the port number.
 - d. Click **Save**.

Configuring User Accounts in P6 and BPM

In order to use the new workflow from within P6, a username logging into P6 must match a username in BPM and must be assigned the appropriate roles based on how the workflow was set up. Perform the following steps to set up a user in P6 and an equivalent user in BPM. For demo purposes, all roles can be assigned to one user, so a single user will own all the action required phases of the workflow.


- 1) Log into P6 as an administrator.
- 2) Click the **Administer** ▼ menu and select **User Access**.
- 3) In the **User Access** pane, click **Users**.
- 4) On the **Users** page:
 - a. Click  **Add** to add a new user account. The screen elements vary depending on your authentication mode. See *Creating User Accounts for P6 EPPM* in the P6 Help.
 - b. Click  **Select Columns** and select **Module Access** and **Global Security Profile** to include them in the Users table.
 - c. Select the new table row representing the new user.
 - d. Click the **Module Access** column and then click  to open the **Module Access** detail window.
 - e. On the **Module Access** detail window, select at least one of the following modules to permit the new user to view the **Workflows** portlet on a dashboard: *Team Member*, *Enterprise Reports*, *Portfolios*, *Projects*, or *Resources*.
 - f. In the **Global Security Profile** column, select a profile with administrative privileges. Do not unnecessarily limit privileges at this time; the goal here is to verify that the workflow configuration is valid.  However, for security reasons, remember to set a more appropriate profile or even to delete this temporary user account after verifying the configuration.
 - g. Click **Save** and exit P6 by clicking the **Logout** link.






- 5) Log into the BPM Process Administrator, or, if already logged in, open the BPM Process Administrator.
- 6) In the **BPM Process Administrator** pane, expand **Organization** and select **Participants**.
- 7) Click **Add**.
- 8) Create a new user with the following required attributes:
 - a. User ID (must match the user ID created in P6)
 - b. Last Name
 - c. Display Name
 - d. Password (does not have to match P6)
 - e. Confirm Password (does not have to match P6)
 - f. Click **Save**.
- 9) Select the new user you just created, expand **Advanced Properties**, and click **Assigned Roles**.
- 10) Click **Add**.
- 11) Assign all available roles to the user.

Note: Assign all available roles to the same user. All roles would typically not be assigned to a single user; however, in order to verify the configurations in P6 and BPM under one user login, you should assign all roles to the same test user account. All tasks in the workflow will be assigned to the test user and will appear in the user's **Action Required** tab in their P6 **Workflows** portlet.

- 12) When finished assigning all the roles you want to test, log out of BPM Process Administrator.

Testing the Workflow in the P6 Workflows Portlet

- 1) Log into P6 with the new user account you set up in P6 with a matching user account in BPM.
- 2) Click  **Dashboards**.
- 3) On the Dashboards page, select a dashboard.
- 4) On the dashboard, click **Customize**.
- 5) On the **Customize** page, click the **Content** tab.
- 6) On the **Content** tab:
 - a. Expand the **Workflow** section.
 - b. Select the **Workflows** check box.
 - c. Specify the number of days to filter the **MyWorkflows** tab. Only workflows initiated in the time period you specify will appear.
 - d. Click **Save and Close**.
- 7) On the dashboard, expand the **Workflows** portlet.
- 8) In the **Workflows** portlet, select the **My Workflows** tab.

- 9) On the **My Workflows** tab, click  **Initiate a Workflow**.
- 10) In the **Select Workflow** dialog box:
 - a. Select a predefined workflow template.
 - b. Click **OK**.
 - c. P6 will alert you with a message confirming the success of the new workflow initiation. Click **OK**.
- 11) On the **My Workflows** tab:
 - a. Verify your new workflow has been initiated and appears in the list.
 - b. You can also verify the new status and fresh history of the new tasks by clicking  **View Status** and  **History**.
- 12) In the **Workflows** portlet, select the **Action Required** tab.
- 13) On the **Action Required** tab:
 - a. Select the required task to simulate the successful response from participants of your new workflow. If the task is assigned to another user or role, log out of P6 and log back in as that user to see their assigned tasks.
 - b. Click  **View Form**.
- 14) This step applies only to configurations not using SSO. In the **BPM Workflow Form** dialog box:
 - a. In the BPM Workspace window, click **OK** at the session prompt.
 - b. Log in with the user created in BPM which matches the P6 user.
 - c. Close the BPM window.
 - d. On the **Action Required** tab in the P6 **Workflows** portlet, click  **View Form** again.
- 15) On the **BPM Workflow Form** dialog box:
 - a. Review the resulting form or message and, if applicable, select an action to perform. The title and available screen elements of this form vary depending on the selected workflow, stage, task, and steps.
 - b. Click **Submit**, **Save**, or a similar command to complete the action required for this particular workflow task.
- 16) Continue performing the action required steps until you complete the "test" provided by this sample workflow.

Troubleshooting

Use the BPM and P6 Web Services log viewers to troubleshoot problems if they arise.

Note: As a general rule when troubleshooting workflow failures, first check the BPM diagnostics to determine at what point in the process the workflow failed. If the failure is related to retrieving data from P6, then you should check the P6 Web Services logs. Also be sure to check the P6 Help and other documentation for both P6 and BPM.

Checking the P6 Web Services Logs

P6 Web Services use the Java Logging API to handle log messages. Message levels that P6 Web Services log range from FINEST to SEVERE, in which FINEST logs the most messages and SEVERE logs the least messages. Additionally, there is a level ALL, which logs all messages; however, this setting could potentially impact performance.

You configure the logging level by specifying and then editing your own declared logging configuration file (see <http://download.oracle.com/javase/>) by adding or modifying the following lines:

```
com.primavera.integration.level = <level>
com.primavera.ws.level = <level>
```

Where <level> is one of the following values: FINEST, FINER, FINE, CONFIG, INFO, WARNING, SEVERE, ALL, OFF. For example, to set the logging level to ALL, use the following:

```
com.primavera.integration.level = ALL
com.primavera.ws.level = ALL
```

Setting P6 Web Services Logging On and Off

By default P6 Web Services logging is turned off. You can turn P6 Web Services logging on by uncommenting the following line in the cxf.xml that is supplied in the default P6 Web Services server deployment:

```
<!-- <cxf:logging /> -->
```

After removing the comment markers, the line would appear as follows:

```
<cxf:logging />
```

Oracle BPM 10g Logging

For Oracle BPM 10g, refer to the <BPM 10g home>/log/workspace.log file to access BPM messages.

Troubleshooting Scenarios

Outside of the scope of general issues with BPM or P6 EPPM, the P6-BPM Integration can potentially yield two types of issues:

- 1) connector configuration issues
- 2) data implementation issues rooted in either P6 or the BPM server

Troubleshooting connector failures to load due to configuration issues:

- 1) In P6 Administrator application, set the **Log/Console Logger/Severity Level** to *debug* or *info*.
- 2) Check the P6 log for BPM related messages. The log file is `P6WebAccess.html` and its location is specified in `BREBootStrap.xml`. These messages should indicate the cause of the connector failing to load.

Troubleshooting P6 Workflows portlet failures to load data, show forms, status images, or initiate a process:

These type of errors could have their root cause in either the P6 web application or the BPM server.

- 1) In P6 Administrator application, set the **Log/Console Logger/Severity Level** to *debug* or *info*.
- 2) Check the P6 log for BPM related messages. The log file is `P6WebAccess.html` and its location is specified in `BREBootStrap.xml`. These messages should indicate why the BPM code failed to process normally.
- 3) Check the BPM logs in these cases to make sure that the cause of the failure is not due to the BPM server.

Appendix A: BPM Workflows in P6

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What is a Workflow?

A workflow is an automated business process that routes information and tasks between participants according to a defined set of procedures or rules designed to coordinate a specific business goal. Workflows are primarily characterized by their level of procedural automation involving one or more dynamic related series of processes, and their combination of human and machine-based tasks involving interaction with software and systems.

The following industry segments, marked by relatively high office labor costs and transaction volume, have demonstrated successful workflow implementations:

- ▶ Insurance
- ▶ Banking
- ▶ Legal
- ▶ General & Administrative
- ▶ Design
- ▶ Engineering
- ▶ Manufacturing

Business process modeling and workflow automation allow transactions to be conducted electronically without the need for manual intervention such as conducting certain validations or re-keying data. When workflow IT systems are processing repetitive, mundane, and often error-prone work, talented staff resources become available to handle activities that add real value to the enterprise.

P6 includes a sample *Project Initiation and Review* workflow used to evaluate proposed work. It automates the process of reviewing and approving new project requests. You can also create your own workflows implemented through the use of templates created using BPM. Each workflow template defines the data, business processes, review phases, and approval requirements for the varying types of workflows specific to your organization. The necessary security privileges must be in place for you to create, initiate, or participate in workflows.

Working with Workflows in P6

Use workflows to route business processes such as project initiation requests through your organization to gather information and visibility before a go/no go decision is made. Template data, routing designators, and approval rules can be set for each stage of a workflow. To illustrate these options, pretend we have a workflow involving five key approval managers. You can define the workflow such that all five must approve and even specify a particular sequence, if any. A much more relaxed approval rule would require only one out of the five to approve.

Workflows begin in BPM where your administrator defines the actual workflow tasks involved and assigns them to specific users, roles, or groups. Then, in P6, an actual business need kicks off a separate instance of the workflow and its required tasks are automatically routed to their users, roles, or groups.

When a specific user or any user assigned to a role or group logs into P6, the **Workflows** portlet on their dashboard will display their relevant tasks at this stage of the workflow, as authenticated by BPM. As a workflow participant, you can select a task in the workflow instance and claim ownership for it. This means you will be responsible for performing the task. The application refreshes itself to show only the actions permitted for this particular stage of the workflow for you (the currently logged in user).

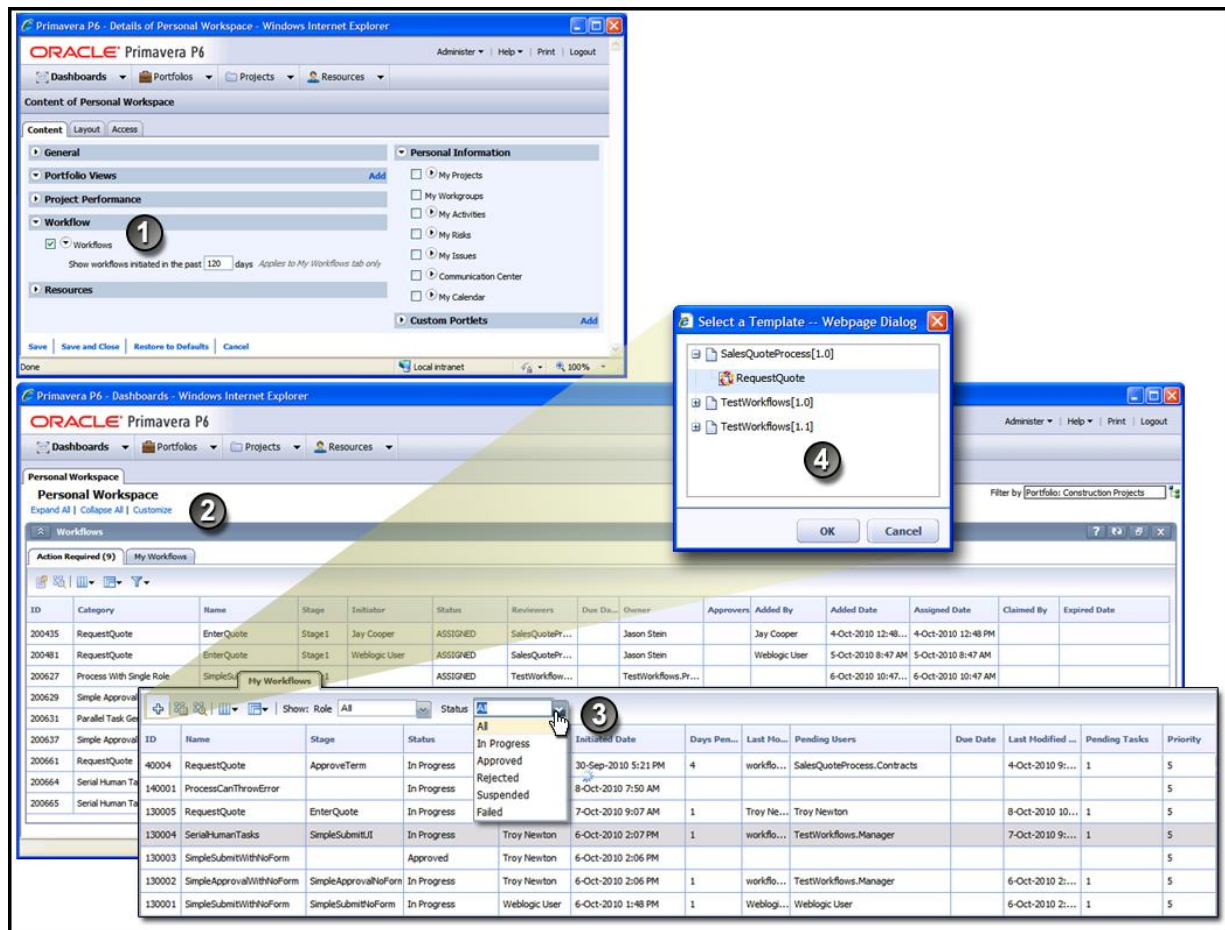


Table 1 of 2: Key Workflow Screen Elements

Item	Description
1	Setup and Configuration: After your administrator sets up BPM, configure a dashboard to display the Workflows portlet.
2	Action Required Tab: This tab shows the tasks that are important to you (the currently logged in user).
3	My Workflows Tab: This tab enables you to view all workflows according to role and status filters you can set.
4	Initiate a Workflow: Click + Initiate a Workflow to start a new instance of a workflow based on a predesigned template.

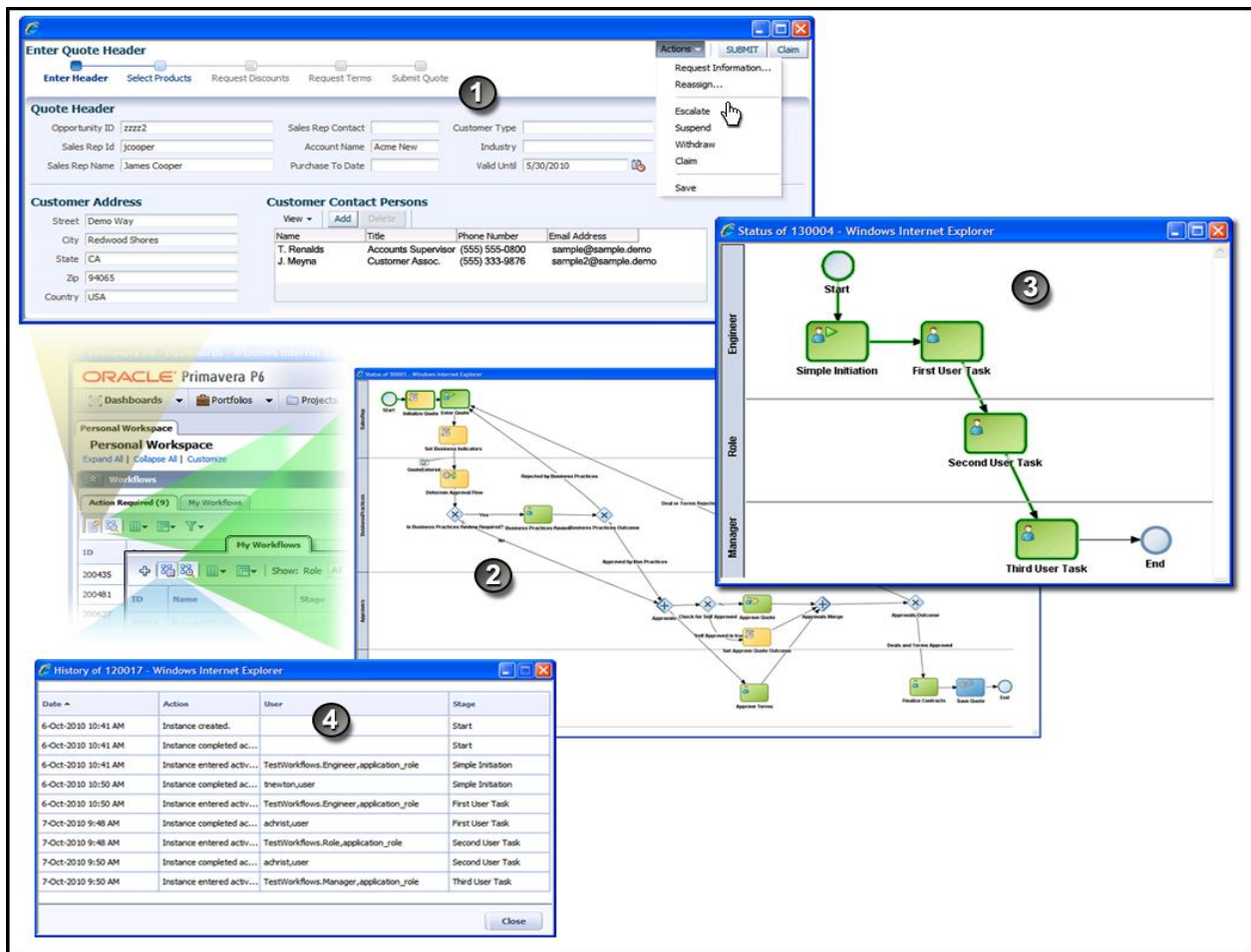



Table 2 of 2: Key Workflow Screen Elements

Item	Description
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Workflow Form: Most workflows include forms which enable you to update the progress of each task. In general, possible actions you can perform on a task during the routing of a workflow include: escalate, suspend, purge, delete, withdraw, submit, reassign, claim, approve, and reject. For workflow tasks with no associated form, this icon is disabled. To perform an action on a workflow task with no associated form, log into BPM and use the available menus, buttons, and other options on the form. It is also possible to design a solution using the P6 Integration API.

Note: If using BPM 11g (which always uses secure sign-on or SSO authentication) or if using BPM 10g with SSO configured, you will see the form in a new window. If SSO authentication is not configured with BPM 10g, you must log into BPM in the resulting window, close that window, and then return to P6 and click  **View Form** again. This procedure is required whenever your BPM session expires.

Item	Description
2	Workflow Status: The Workflow Status image is accessible from either tab in the Workflows portlet. It shows the sequence of events in the workflow. Items shown with a colorized border indicate the furthest level of progress within the workflow. The current status of the workflow corresponds with the last item to receive the special coloring. BPM 10g integrations show status using red, while BPM 11g integrations show status using green.
3	Sample Workflow: A basic workflow image with tasks for an engineer, a second task for an assigned role, and a third task for a manager to complete the workflow. The current workflow task is Third User Task because it is the last item in the sequence that has a green outline.
4	Workflow History: View a chronological sequence of all the previous activities, users, and stages in the current workflow.