Oracle® Workflow Server Installation Notes
(Release 2.6.1)

Purpose

These notes explain how to install or upgrade the Oracle Workflow server.

> ☞ **Attention: Do not install the Oracle Workflow server in an Oracle E–Business Suite database.** If you are licensing Oracle Workflow to define new workflow processes in Oracle E–Business Suite, you can continue to use the version of the Oracle Workflow server embedded in Oracle E–Business Suite.

Audience

These notes are written for the person or persons responsible for installing or upgrading Oracle Workflow server components. The person(s) performing this installation may need assistance from the:

- Operating System Administrator
- Oracle System Administrator
- Oracle DBA
- Oracle9*i* Application Server Administrator

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Oracle Workflow Server

Oracle Workflow Server contains several components that are installed using the Oracle Universal Installer:

- Oracle Workflow server objects

- Oracle Workflow server executables

- Oracle Workflow Monitor

- Oracle Workflow HTML help

Oracle Workflow Server Hardware and Software Requirements

The components of Oracle Workflow Server require the following hardware and software configurations:

- Oracle9*i* Enterprise Edition database version 9.0.1 or higher, along with the Oracle Objects and JServer Options, installed on a supported server machine

- At least 40 Mb of available disk space for Oracle Workflow Server once it is installed in your Oracle Home

- At least 128 Mb of memory, 256 Mb recommended

- Oracle Net 9.0.1 or higher

- SQL*Plus 9.0.1 or higher

- The following components of Oracle9*i* Application Server, installed on a server machine:

  – Oracle HTTP Server (powered by Apache)

  – Oracle Mod PL/SQL Gateway

  Oracle Workflow supports Oracle9*i* Application Server 1.0.1 or higher. We recommend using the versions of Oracle HTTP Server (powered by Apache) and mod_plsql that are included on the Oracle9*i* database server CD.

- A Web browser that supports frames, JavaScript, Java Development Kit (JDK) Version 1.1.8 and AWT, such as Netscape Communicator version 4.73 or a higher 4.7x version, or Microsoft Internet Explorer version 5.0x or 5.5

- UNIX Sendmail or a MAPI–compliant mail application

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- An unzip utility, such as WINZIP from NicoMak, to extract the Workflow HTML help from the wfdoc261.zip file

- Java Runtime Environment (JRE) Version 1.1.8, or a higher 1.1.x version, to run the Oracle Workflow 2.6.1 Java Function Activity Agent and the Workflow XML Loader

If you are installing Oracle Workflow Server on Microsoft Windows NT, the following additional hardware and software configurations are required:

- ISO 9660 format CD–ROM available as a logical drive

- Microsoft Windows NT 4.0 or higher

Notification Mailer

- The notifications component includes a program called the Notification Mailer. This program communicates notifications to users via e–mail and interprets responses. The Notification Mailer has implementations that can integrate directly with UNIX Sendmail or MAPI–compliant mail applications.

- The UNIX Sendmail implementation is installed automatically during the Oracle Workflow Server installation process. This implementation requires UNIX Sendmail to be installed on the same server as Oracle Workflow.

- The MAPI–compliant implementation is installed on your Windows NT PC using the Oracle Universal Installer from the Oracle client CD. This implementation requires a Windows NT MAPI–compliant mail application installed on the PC that is acting as your mail server.

Oracle Workflow Monitor

- The Oracle HTTP Server (powered by Apache) and mod_plsql components of Oracle9*i* Application Server must be installed on a server machine with access to an ISO 9660 format CD–ROM. If you do not have access to a CD–ROM drive from the workstation, then you must be able to copy files using binary file transfer from a PC or other machine with a CD–ROM drive.

> **Note:** These notes assume that you have an understanding of web technology and the Oracle9*i* Application Server architecture. For additional information, refer to the online help provided with Oracle9*i* Application Server.

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- To use the Workflow Monitor you need access to a Web browser that supports Java Development Kit (JDK) Version 1.1.8 and AWT, such as Netscape Communicator version 4.73 or a higher 4.7x version, or Microsoft Internet Explorer version 5.0x or 5.5.

Oracle Workflow Notifications

- To view the Notifications web pages, you need access to a Web browser that supports frames and JavaScript. Examples of such a client are Netscape Communicator version 4.73 or a higher 4.7x version, or Microsoft Internet Explorer version 5.0x or 5.5.

- To respond to e–mail notifications with HTML attachments, your e–mail application must support HTML attachments and you must use a Web browser application that supports frames and JavaScript to view the attachment. Examples of such a client are Netscape Communicator version 4.73 or a higher 4.7x version, or Microsoft Internet Explorer version 5.0x or 5.5.

Oracle Workflow Server Installation

Perform the following steps to install Oracle Workflow Server or to upgrade an existing version of Oracle Workflow Server Release 2.5 to Release 2.6.1.

> **Attention:** To upgrade to Release 2.6.1, your existing Oracle Workflow Server must be Release 2.5.0 or higher. If you have an earlier version of Oracle Workflow, you must upgrade Oracle Workflow to Release 2.5 before you can upgrade your database to Oracle9*i* and Oracle Workflow to Release 2.6.1.

> **Attention:** Before you upgrade an existing Oracle Workflow server, ensure that there are no users accessing the server. Otherwise, locks in the database will prohibit a successful upgrade.

> **Attention:** The Oracle Workflow 2.6.1 server installation and upgrade are available only in English. However, Oracle Workflow server translation patches will become available in other languages. To support access to Oracle Workflow in another language, you must apply the translation patch for your language preference after you complete the installation steps described in these notes.

> **Note:** The following typeface represents commands that you enter for your environment. Any variable input is enclosed in brackets and is italicized.

```
cd <workflow_top_directory>
```

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Step 1. Edit the database init.ora parameter file.

You must set the following parameters in the database init.ora file:

- **AQ_TM_PROCESSES**—Enable the time manager process in Oracle9*i* Advanced Queuing (AQ) by adding the following line to the init.ora parameter file:

    ```
    AQ_TM_PROCESSES = 1
    ```

    The time manager process is required by Oracle Workflow to monitor delay events in queues, as in the case of the Oracle Workflow standard Wait activity. The minimum recommended number of time manager processes for Oracle Workflow is one.

- **JOB_QUEUE_PROCESSES**—Specify the number of SNP job queue processes for your instance. For example, to set the number of job queue processes to two, add the following line to the init.ora parameter file:

    ```
    JOB_QUEUE_PROCESSES = 2
    ```

    Oracle9*i* Advanced Queuing requires job queue processes to handle message propagation. You must start at least one job queue process to enable message propagation. The minimum recommended number of processes for Oracle Workflow is two.

You can either modify these parameters in the init.ora file and restart your database to make the changes effective, or you can use the ALTER SYSTEM statement to dynamically modify the parameter values for the duration of the instance. For more information, refer to *Oracle9i Reference* and *Oracle9i Application Developer's Guide – Advanced Queuing*.

Step 2. Install Oracle Workflow Server Files using the Oracle Universal Installer.

Run the Oracle Universal Installer to copy the Oracle Workflow Server files to your system. Refer to the *Oracle9i Installation Guide* for your platform for detailed instructions on running the Oracle Universal Installer.

> **Note:** Before you begin running the Oracle Universal Installer, you should close other applications you may have running, including Java applications, Oracle–based applications, and any other applications that consume large amounts of memory, hard disk space, or CPU time. However, you should not close any components of the Oracle9*i* database where you want to install Oracle Workflow.

Within the Oracle Universal Installer, select the product Oracle9*i* Management and Integration Infrastructure. Then select the Oracle Integration Server installation type. Oracle Workflow is

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included in this installation type. You can also choose the Custom installation type and select Oracle Workflow from the available product components.

The Oracle Universal Installer copies Workflow files to your system. You must also run the Workflow Configuration Assistant to load Oracle Workflow into your database by creating the Workflow database objects in the database.

- If you choose the Oracle Integration Server installation type, the Workflow Configuration Assistant is automatically launched from the Oracle Universal Installer when the installation is complete.

- If you choose the Custom installation type, a Launch Configuration Assistant Options window appears to let you select whether you want to launch the Workflow Configuration Assistant from the Oracle Universal Installer or not. If you do not launch the Workflow Configuration Assistant from the Oracle Universal Installer, you must later run the Workflow Configuration Assistant manually to complete your configuration.

For instructions on performing the configuration, see Step 3. Run the Workflow Configuration Assistant: Page 7.

Step 3. Run the Workflow Configuration Assistant.

Run the Workflow Configuration Assistant to load Oracle Workflow into your database. You can either launch the Workflow Configuration Assistant automatically from the Oracle Universal Installer, or you can run it manually at a later time. The configuration should take approximately 10 minutes, depending on your system's speed and capacity.

> **Note:** Before you begin running the Workflow Configuration Assistant, you should close other applications you may have running, including Java applications, Oracle–based applications, and any other applications that consume large amounts of memory, hard disk space, or CPU time. However, you should not close any components of the Oracle9*i* database where you want to load Oracle Workflow.

1. Start the Workflow Configuration Assistant.

   – If you chose to launch the Workflow Configuration Assistant automatically during your installation, then the Oracle Universal Installer launches the Workflow Configuration Assistant for you when the installation is complete. See: Step 2. Install Oracle Workflow Server files using the Oracle Universal Installer: Page 6.

   – You can also run the Workflow Configuration Assistant manually. Use the following commands:

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On UNIX:

```
$<ORACLE_HOME>/wf/install/wfinstall
```

On Windows NT:

```
\<ORACLE_HOME>\wf\install\wfinstall.bat
```

2. In the Oracle Workflow Configuration Assistant window, enter the following user information:

- **Workflow Account**—The user name of your Oracle Workflow database account. The default Workflow account for a fresh installation is OWF_MGR.

- **Workflow Password**—The password for your Oracle Workflow database account.

  Note: If you are performing a fresh installation of Oracle Workflow, the Workflow Configuration Assistant creates a new database account for Oracle Workflow with the user name and password you specify. The default tablespace for this account defaults to USERS, and the temporary tablespace defaults to TEMP.

  If you are upgrading an existing installation of Oracle Workflow, you should enter the user name and password for your existing Oracle Workflow database account.

- **SYS Password**—Your SYS password. See your Oracle DBA if you need more information.

- **SYSTEM Password**—Your SYSTEM password. See your Oracle DBA if you need more information.

- **Install Option**—Select Install to perform a fresh installation of Oracle Workflow, or select Upgrade to upgrade an existing installation of Oracle Workflow.

  ☞ **Attention:** To upgrade to Release 2.6.1, your existing Oracle Workflow Server must be Release 2.5.0 or higher.

- **Connect Method**—Select Local to connect to a local database using the Oracle SID, or select Remote to connect to a remote database through Oracle Net using LOCAL on Windows or TWO_TASK on UNIX.

- **Connect String**—If you choose the Remote connect method, enter the connect string for the remote database.

3. Click Submit to begin the configuration. You can also click Quit to exit the Workflow Configuration Assistant without performing the configuration.

4. When the configuration is complete, a confirmation window appears. Click OK.

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5. You can check the status of the configuration by reviewing the workflow.log file located in the wf/install subdirectory within your Oracle Home.

Step 4. Install the XML Parser JAR Files (conditionally required)

Oracle Workflow requires the XML Parser JAR files to be installed in the database with public synonyms to enable XML–based Workflow features. If you did not select the Complete Online Transaction Processing (OLTP) database environment when you installed your database, or if your database does not already have these JAR files loaded for any other reason, you must install the files manually.

Use the following SQL script to determine which XML Parser class files have not been created as public synonyms. The script returns one row for each Java class, showing the object name, object type, and EXIST or NOT EXIST as the status of the public synonym.

- If the status is EXIST for each class file, then the public synonyms have been created already, and you can skip this step.

- If the status is NOT EXIST for any class, then the class has been installed, but the public synonym for that class has not yet been created. You should either create the public synonym or reinstall the JAR files manually.

- If the script does not retrieve any records, then the JAR files have not been loaded. You must install the files manually.

To check the XML Parser files, connect to the SYS account in your database and run the following script:

```
prompt ** Checking Account for XML Parser JAR files
prompt ** which have public synonyms
set pagesize 100
col OBJECT_NAME for a30 Head "Object Name"
col OBJECT_TYPE for a14 Head "Object Type"
col PUBLIC_SYNONYM for a14 Head "Public Synonym"
select ao.object_name, ao.object_type,
decode(asy.synonym_name,ao.object_name, 'EXIST','NOT EXIST') PUBLIC_SYNONYM
from all_objects ao, all_synonyms asy
where ao.object_type = 'JAVA CLASS'
and ao.object_name like 'oracle/xml/parser%'
and ao.object_name = asy.synonym_name(+)
/
```

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To install the XML Parser JAR files manually, perform the following steps:

1. Set the environment variable ORACLE_SID to the database where Oracle Workflow is installed.

2. Load the XML Parser JAR files to the SYS account in your database, creating public synonyms. Use the following commands:

```
loadjava –r –s –user SYS/<SYS password> –v <WF_TOP>/xml/java/lib/xmlparserv2.jar
```

```
loadjava –r –s –user SYS/<SYS password> –v <WF_TOP>/xml/plsql/lib/java/xmlplsql.jar
```

Replace *<SYS password>* with the password for the SYS account, and *<WF_TOP>* with the path where the Workflow files are located on your system.

Step 5. Install and configure your Web server.

Oracle Workflow requires that you integrate with Oracle9*i* Application Server as your Web server. Your Web server installation must be able to access the Oracle Workflow java area, the Oracle Workflow icon area, and the Oracle Workflow documentation area.

> **Note:** Oracle Workflow supports Oracle9*i* Application Server 1.0.1 or higher. We recommend using the versions of Oracle HTTP Server (powered by Apache) and mod_plsql that are included on the Oracle9*i* database server CD. Oracle9*i* Application Server is also available separately from Oracle Corporation and includes its own installation and reference documentation.

1. Install the following Oracle9*i* Application Server components:

    – Oracle HTTP Server (powered by Apache)

    – Oracle Mod PL/SQL Gateway

    Refer to your Oracle9*i* Application Server installation documentation for further details.

2. Using your web browser, navigate to the following URL:

    ```
    http://<server_name>[:<portID>]/
    ```

    Replace *<server_name>* and *<portID>* with the server and port number on which your web listener accepts requests. For example:

    ```
    http://test.company.com:80/
    ```

3. In the Oracle HTTP Server Components page, choose "mod_plsql".

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4. In the Gateway Configuration Menu page, choose "Gateway Database Access Descriptor Settings".

5. In the Database Access Descriptors page, choose "Add Default (blank configuration)".

6. Create a DAD for Oracle Workflow by entering the information shown below.

```
Database Access Descriptor Name                    <your Workflow DAD>
Schema Name                                        <Leave Blank>
Oracle User Name                                   <Leave Blank>
Oracle Password                                    <Leave Blank>
Oracle Connect String                              <CONNECT_STRING>
Authentication Mode                                Basic
Session Cookie Name                                <Leave Blank>
Create a Stateful Session?                         No
Keep Database Connection Open Between Requests?    Yes
Default (Home) Page                                wfa_html.home
```

Attention: Be sure you leave the Oracle User Name and Oracle Password null to enable mod_plsql database authentication.

7. To access Oracle Workflow's web services, navigate to the following URL:

```
http://<server_name>[:<portID>]/pls/<your Workflow DAD>/wfa_html.home
```

Note: The icons on the Oracle Workflow web pages will appear as broken images until you add a virtual directory mapping to the Oracle Workflow icon area. See Step 6. Set up the Oracle Workflow Monitor: Page 11.

Step 6. Set up the Oracle Workflow Monitor.

The Oracle Workflow Monitor is a Java applet that allows users and workflow administrators to view and optionally manipulate workflow process instances. The Oracle Workflow Monitor can be accessed by a web browser that supports Java Development Kit (JDK) Version 1.1.8 and AWT, such as Netscape Communicator version 4.73 or a higher 4.7x version, or Microsoft Internet Explorer version 5.0x or 5.5.

Add a virtual directory mapping called /OA_JAVA/ to your web listener that points to the Oracle Workflow JAR files on your file system. The JAR files are in a directory called <ORACLE_HOME>/jlib. The Oracle Universal Installer automatically installs the Java code in this directory when you install or upgrade the Oracle Workflow Server.

Also, add a virtual directory mapping called /OA_MEDIA/ that points to the Oracle Workflow icon area on your file system. The icon area is <ORACLE_HOME>/wf/java/oracle/apps/fnd/wf/icons/. All

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icon and gif files that are required by Oracle Workflow's web interface must be stored in the `/OA_MEDIA/` virtual directory.

1. To add the required virtual directory mappings in Oracle9*i* Application Server, add aliases for the jlib directory and the Oracle Workflow icon area to the `<ORACLE_HOME>/Apache/Apache/conf/httpd.conf` or `httpds.conf` file. This configuration file defines the behavior of Oracle HTTP Server. Add the aliases using the following format:

   On UNIX:

   ```
   Alias /OA_JAVA/ "<$ORACLE_HOME>/jlib/"
   Alias /OA_MEDIA/ "<$ORACLE_HOME>/wf/java/oracle/apps/fnd/wf/icons/"
   ```

   For example:

   ```
   ...
   #
   # Aliases: Add here as many aliases as you need (with no limit). The format is
   # Alias fakename realname
   #
   ...
   Alias /OA_JAVA/ "/oracle9i/jlib/"
   Alias /OA_MEDIA/ "/oracle9i/wf/java/oracle/apps/fnd/wf/icons/"
   ...
   ```

   On Windows NT:

   ```
   Alias /OA_JAVA/ "<ORACLE_HOME>\jlib/"
   Alias /OA_MEDIA/ "<ORACLE_HOME>\wf\java\oracle\apps\fnd\wf\icons/"
   ```

   For example:

   ```
   ...
   #
   # Aliases: Add here as many aliases as you need (with no limit). The format is
   # Alias fakename realname
   #
   ...
   Alias /OA_JAVA/ "C:\oracle9i\jlib/"
   Alias /OA_MEDIA/ "C:\oracle9i\wf\java\oracle\apps\fnd\wf\icons/"
   ...
   ```

   ☞ **Attention:** Be sure to add a trailing slash to each alias name and physical directory path.

2. Restart Oracle HTTP Server.

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Step 7. Set up Oracle Workflow HTML help.

Oracle Workflow provides access to HTML help from the Help button on each of its web pages. The HTML help that appears is context–sensitive and provides links to the entire contents of the *Oracle Workflow Guide*.

When you install Oracle Workflow Server, the Oracle Universal Installer copies a zip file containing the HTML help to the Workflow directory in your Oracle Home. The zip file is `<ORACLE_HOME>/wf/wfdoc261.zip`. To set up the HTML help, you must extract the doc directory tree from the zip file and add a virtual directory mapping called `/OA_DOC/` to your web listener that points to the documentation area on your file system.

1. Use an unzip utility to extract the doc directory tree from the zip file within the Workflow directory.

    > **Note:** You need at least 4 Mb of free disk space to extract the zip file.

    The doc directory tree that is created includes the Oracle Workflow documentation area, `<ORACLE_HOME>/wf/doc`, and the following subdirectories:

    - `<ORACLE_HOME>/wf/doc/<lang>/wf`—Oracle Workflow Guide.

    - `<ORACLE_HOME>/wf/doc/<lang>/wfnew`—Oracle Workflow Release 2.6 New Features and Changes.

    - `<ORACLE_HOME>/wf/doc/<lang>/wfcust`—Custom Help. You can optionally add your own customized Workflow help in this directory.

        > **Note:** You can also install the doc directory tree on a PC file system. Create a directory for the HTML help on your PC. Then transfer the HTML help zip file, `wfdoc26.zip`, from the Workflow subdirectory within your Oracle Home to the new directory on your PC. Use an unzip utility to extract the doc directory tree from the zip file in that directory.

2. After extracting the doc directory tree, you can optionally remove the zip file.

3. Add a virtual directory mapping called `/OA_DOC/` to your web listener that points to the new Oracle Workflow documentation area on your file system.

    - In *i*AS, add an alias for the Oracle Workflow documentation area to the `<ORACLE_HOME>/Apache/Apache/conf/httpd.conf` or `httpds.conf` file. This configuration file defines the behavior of Oracle HTTP Server. Add the alias using the following format:

    On UNIX:

    ```
    Alias /OA_DOC/ "<$ORACLE_HOME>/wf/doc/"
    ```

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For example:

```
...
#
# Aliases: Add here as many aliases as you need (with no limit). The format is
# Alias fakename realname
#
...
Alias /OA_DOC/ "/oracle9i/wf/doc/"
...
```

On Windows NT:

```
Alias /OA_DOC/ "<ORACLE_HOME>\wf\doc/"
```

For example:

```
...
#
# Aliases: Add here as many aliases as you need (with no limit). The format is
# Alias fakename realname
#
...
Alias /OA_DOC/ "C:\oracle9i\wf\doc/"
...
```

Attention: Be sure to add a trailing slash to each alias name and physical directory path.

– After adding the alias, restart Oracle HTTP Server.

4. After the /OA_DOC/ virtual directory mapping is added to your web listener, you can access the HTML help from the Help button on any Oracle Workflow web page. You can also access any HTML help file directly by appending its virtual path to your web listener base URL.

The path for the contents page of the Oracle Workflow Guide is:

```
http://<server_name>[:<portID>]/OA_DOC/<lang>/wf/toc.htm
```

The path for the contents page of the Oracle Workflow Release 2.6 New Features and Changes is:

```
http://<server_name>[:<portID>]/OA_DOC/<lang>/wfnew/wfnew.htm
```

The path for the contents page of your Oracle Workflow Custom Help is:

```
http://<server_name>[:<portID>]/OA_DOC/<lang>/wfcust/wfcust.htm
```

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Step 8. Verify your base URL.

To invoke Oracle Workflow's web services, you simply append the appropriate procedure and arguments to your base URL. Once you define your web security and web users, you can verify your base URL by connecting as a valid user to the Oracle Workflow home page:

```
http://<server_name>[:<portID>]/pls/<your Workflow DAD>/wfa_html.home
```

If you are using Oracle9*i* Application Server, you can authenticate yourself with a database username and password. When you install Oracle Workflow and its demonstration workflow processes, you also install a demonstration data model that seeds a set of demonstration users in the directory service and creates these same users as database accounts. The users are: sysadmin, wfadmin, blewis, cdouglas, kwalker, and spierson. Their passwords are the same as their usernames.

With Oracle9*i* Application Server, you can authenticate your connection to an Oracle Workflow web page with any of these database user names and passwords. Public grants and synonyms were created so that these database accounts have full access to Oracle Workflow's web–based user interface.

> **Attention:** For security reasons, the installation process automatically locks these user accounts after they are created. Before you can begin using the accounts, you must unlock them using a script called wfdemoul.sql. This script is located in the wf/demo subdirectory within your Oracle Home. Connect to the SYSTEM database account using SQL*Plus and run the script using the following command:
>
> ```
> sqlplus SYSTEM/<SYSTEM pwd> @wfdemoul
> ```
>
> See your Oracle DBA if you need more information about the SYSTEM account and password.

Step 9. Verify your directory service data model.

Run the script wfdirchk.sql in SQL*Plus to verify the integrity of your directory service data model. The script is located on your Oracle Workflow server in the Oracle Workflow *admin\sql* subdirectory. Refer to the Workflow Administration Scripts chapter of the *Oracle Workflow Guide* for more information.

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Additional Setup Steps

After you complete the Oracle Workflow installation process, you must perform some additional steps to set up Oracle Workflow for your site. Some of the setup steps are required; other steps are optional, depending on the Oracle Workflow features you want to implement. Refer to the Setting Up Oracle Workflow and the Managing Business Events chapters in the *Oracle Workflow Guide* for information on how to complete these and other setup steps for Oracle Workflow. The setup steps include:

1. (Required) Configuring the default global user preferences for your enterprise.

2. (Required) Mapping Oracle Workflow's directory service views to your organization's users and roles. Oracle Universal Installer automatically executes the *wfdirouv.sql* script to map the directory service views to your native Oracle users and roles. You can either create your own script or customize and rerun this script to map the directory service views to the users and roles defined in your organization's directory repository.

    ☞ **Attention:** The *wfdirouv.sql* script sets each native Oracle user's e–mail address to the user's respective username. As a minimal setup step, you should edit the *wfdirouv.sql* script to either link your native Oracle users to an existing mail directory store through the WF_ROLES view definition or, if the usernames and e–mail account names match, then simply add the domain for your organization, such as '@oracle.com', to the usernames in the WF_USERS view definition. Typically, the columns that you change are EMAIL_ADDRESS in WF_USERS and EMAIL_ADDRESS in WF_ROLES.

3. (Required) Creating a view called WF_LANGUAGES that identifies the languages defined in your Oracle9*i* installation. The *wfdirouv.sql* script run by the Oracle Universal Installer automatically creates a sample WF_LANGUAGES view for you. If you want to use this view, you should verify it first by connecting to SQL*Plus using your Workflow database account and querying the view for all languages defined in your Oracle9*i* installation.

4. (Required) Defining an environment variable called WF_RESOURCES if your Workflow Server is installed on a UNIX platform.

    ☞ **Attention:** Do not enclose environment variable values in double quotes (" ") as this is not supported.

5. (Optional) Defining a document management system node for Oracle Workflow if you want to integrate document management attachments in a workflow process.

6. (Required) Initiating background Workflow engines to process deferred work and timed out activities.

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7. (Optional) Configuring and running the Notification Mailer program, to allow users to receive e–mail notifications or e–mail notification summaries.

8. (Optional) Customizing e–mail notification templates.

9. (Optional) Customizing the logo displayed on Oracle Workflow's web pages.

10. (Optional) Adding custom icons to Oracle Workflow.

11. (Optional) Starting the Java Function Activity Agent to run external Java functions.

12. (Optional) Setting up database links and queues for the Business Event System to communicate events between systems.

13. (Optional) Scheduling Business Event System listeners and propagations to receive and send event messages.

14. (Optional) Setting up event subscriptions to synchronize Business Event System data on different systems.

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