Oracle Workflow Installation Supplement

(Release 2.5.2)

Purpose

This supplement explains how to install or upgrade the Oracle Workflow Option server, as well as the Oracle Workflow Option components that reside on a client PC.

> ☞ **Attention: Do not install the Oracle Workflow Option server in an Oracle Applications database.** If you are licensing Oracle Workflow Option to define new workflow processes in Oracle Applications, you can continue to use the version of the Oracle Workflow server embedded in Oracle Applications. You also do not need to reinstall the client–side components of Oracle Workflow Option, because they are identical to the client–side components of Oracle Workflow embedded in Oracle Applications.

Audience

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

- Operating System Administrator
- Oracle Applications System Administrator
- Oracle DBA
- Oracle WebDB, Oracle Web Application Server, or Oracle Application Server Administrator

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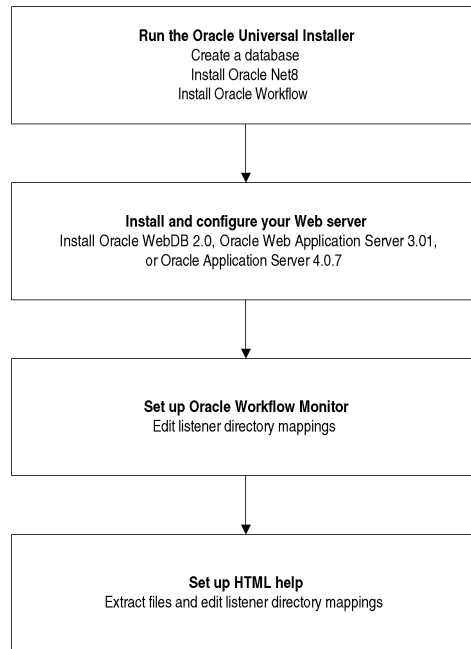# Table of Contents

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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

Installing the Oracle Workflow Server

Run the Oracle Universal Installer
Create a database
Install Oracle Net8
Install Oracle Workflow

↓

Install and configure your Web server
Install Oracle WebDB 2.0, Oracle Web Application Server 3.01,
or Oracle Application Server 4.0.7

↓

Set up Oracle Workflow Monitor
Edit listener directory mappings

↓

Set up HTML help
Extract files and edit listener directory mappings

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Oracle Workflow Server Hardware and Software Requirements

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

- Oracle version 8.1.7 or higher Enterprise Edition database, along with the Oracle Objects Option, installed on a supported server machine

- At least 30 Mb of disk space for Oracle Workflow Server once it is installed in ORACLE_HOME

- Oracle Net8 8.1 or higher

- Oracle WebDB 2.0 or higher, Oracle Application Server 4.0.7 or higher, or Oracle Web Application Server 3.0.1 or higher, installed on a server machine

- A Web browser that supports frames, JavaScript, Java Development Kit (JDK) Version 1.1.4 and AWT, such as Netscape Communicator 4.04 or higher

- Oracle Internet Messaging 4.2, UNIX Sendmail, or a MAPI–compliant mail application

- An unzip utility to extract the Workflow HTML help from the wfdoc252.zip file

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 3.51 or higher

- SQL*PLUS 8.0

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:

    - Oracle Internet Messaging 4.2

    - UNIX Sendmail

    - MAPI–compliant mail applications

- The Oracle Internet Messaging and UNIX Sendmail implementations are installed automatically during the Oracle Workflow Server installation process. Oracle Internet

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Messaging does not have to be installed on the same server as Oracle Workflow, but UNIX Sendmail does.

- The MAPI–compliant implementation is installed on your Windows NT PC using the Oracle Universal Installer from the Oracle8*i* Client CD. It requires a Windows NT MAPI–compliant mail application installed on the PC that is acting as your mail server.

Oracle Workflow Monitor

- Oracle WebDB, Oracle Web Application Server, or Oracle 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 Oracle WebDB, Oracle Web Application Server, or Oracle Application Server architecture. For additional information, refer to the online help provided with Oracle WebDB, Oracle Web Application Server, or Oracle Application Server.

- To use the Workflow Monitor you need access to a Web browser that supports Java Development Kit (JDK) Version 1.1.4 and AWT. Netscape Communicator 4.0.4 or higher is an example of such a client.

Oracle Workflow Notifications

- To view the Notifications web pages, you need access to a Web browser that supports frames and JavaScript. Netscape Communicator 4.0.4 or higher is an example of such a client.

- 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. Netscape Communicator 4.0.4 is an example of such a client.

Oracle Workflow Server Installation

☞ **Attention:** If you already have a previous Release 2.0.3 or 2.5 version of Oracle Workflow installed, do not use these steps to perform a fresh install. If you do a fresh

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install, your server will not be correctly upgraded. Instead, follow the steps to upgrade your server to Release 2.5.2. See: Oracle Workflow Server Upgrade: Page 10.

Note: We use the following typeface to represent commands that you enter, where any variable input is enclosed in brackets and is italicized:

```
cd <workflow_top_directory>
```

Step 1. Install Oracle Workflow Server using the Oracle Universal Installer.

Run the Oracle Universal Installer to create your database, install Oracle Net8, and install Oracle Workflow. Refer to the *Oracle8i Installation Guide* for your platform for detailed instructions on running the Oracle Universal Installer.

To install Oracle Workflow with the Oracle Universal Installer, select the product Oracle8*i* Management and Integration Infrastructure. Then select the Oracle Integration Server installation type. Oracle Workflow is included in this installation type.

> **Note:** When you choose the Oracle Integration Server installation type, Oracle Workflow is installed in US and in the Installer's base language. You can also choose the Custom installation type and select Oracle Workflow from the available product components. When you choose the Custom installation type, you can specify a separate language for the installation by clicking the Product Languages button, and Oracle Workflow will be installed in that language if it is available.

The Oracle Universal Installer automatically creates an Oracle Workflow database account to which the Oracle Workflow database objects are installed. The new account has the following properties:

- User name: OWF_MGR
- Password: OWF_MGR
- Default tablespace: Defaults to USERS
- Temporary tablespace: Defaults to TEMP

> **Attention:** Oracle Workflow is only installed automatically if you install it at the same time as you create your database. If you run the Oracle Universal Installer to install Oracle Workflow on an existing database, then the Oracle Universal Installer only copies the Oracle Workflow files to your file system; it does not automatically run those files to perform the installation. You must manually run an installation/upgrade script to complete the installation. This precaution helps ensure

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that any previous installation of Oracle Workflow in an existing database is upgraded correctly. See: Oracle Workflow Server Upgrade: Page 10.

To verify the status of your Oracle Workflow installation after running the Oracle Universal Installer, you can run a script called wfver.sql. This script is located in the admin/sql subdirectory of the Workflow directory within your ORACLE_HOME. Connect to your Workflow database account (OWF_MGR) using SQL*PLUS to run the script. Refer to the Workflow Administration Scripts chapter in the *Oracle Workflow Guide* for more information.

You can also verify your installation by checking the log file called workflow.log in the Workflow directory within your ORACLE_HOME.

Note: If you are installing Oracle Workflow into multiple accounts or databases from the same Workflow home, use the installation/upgrade script to perform these installations. In this way you can ensure that any patches or customizations you have applied to your Workflow home are included in subsequent installations.

You can run the script to complete the installation of Oracle Workflow on an existing database in two ways: either as an operating system script or as a Java program.

To run the installation script as an operating system script, use the following commands:

On UNIX:

```
$ORACLE_HOME/wf/install/inst252 <wf_account_name> <wf_password> <wf_home> <sys_password>
<system_password> <INSTALL|UPGRADE>
```

On Windows NT:

```
\<ORACLE_HOME>\wf\install\inst252.bat <wf_account_name> <wf_password> <wf_home>
<sys_password> <system_password> <INSTALL|UPGRADE>
```

Replace the variables with your parameters as follows:

- *<wf_account_name>*: The user name of your Oracle Workflow database account. The user name should be OWF_MGR.

- *<wf_password>*: The password for your Oracle Workflow database account. The password should be OWF_MGR.

- *<wf_home>*: The Workflow directory within your ORACLE_HOME.

- *<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.

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- <INSTALL|UPGRADE>: The installation type you want to perform. Enter INSTALL to perform a fresh installation of Oracle Workflow or UPGRADE to upgrade an existing installation of Oracle Workflow.

When you install Oracle Workflow at the same time as you create your database, the Oracle Universal Installer uses the following parameters to automatically complete the installation:

- *<wf_account_name>*: OWF_MGR

- *<wf_password>*: OWF_MGR

- *<wf_home>*: $ORACLE_HOME/wf

- *<sys_password>*: change_on_install

- *<system_password>*: manager

- <INSTALL|UPGRADE>: INSTALL

To run the installation script as a Java program, use the following commands:

On UNIX:

```
$ORACLE_HOME/wf/install/inst252j
```

On Windows NT:

```
\<ORACLE_HOME>\wf\install\inst252j.bat
```

The script prompts you to enter the installation type you want to perform. Enter INSTALL to perform a fresh installation of Oracle Workflow or UPGRADE to upgrade an existing installation of Oracle Workflow.

> **Note:** If you want to upgrade a previous installation of Oracle Workflow, enter UPGRADE as the installation type and follow the instructions to perform an upgrade. See: Oracle Workflow Server Upgrade: Page 10.

Step 2. Edit the database init.ora parameter file.

Before you begin using Oracle Workflow, you must enable the time manager process in Oracle8 Advanced Queues by adding the following line to the init.ora parameter file:

```
AQ_TM_PROCESSES=1
```

Restart your database to make this change effective.

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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.

Step 3. Install and configure your Web server.

Oracle Workflow Option requires that you integrate with one of three possible Web server options: Oracle WebDB 2.0 or higher, Oracle Application Server 4.0.7 or higher, or Oracle Web Application Server 3.0.1 or higher. These Web server options are available separately from Oracle Corporation. Each product includes its own installation and reference documentation. Your Web server installation must be able to access the Oracle Workflow java area, the Oracle Workflow icon area, and the Oracle Workflow HTML help area.

Refer to the instructions pertaining to the Web server option of your choice to perform the appropriate installation steps:

- Installation of Oracle WebDB for Oracle Workflow Option: Page 13

- Installation of Oracle Web Application Server for Oracle Workflow Option: Page 15

- Installation of Oracle Application Server for Oracle Workflow Option: Page 18

Step 4. 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>]/<virtual_path>/wfa_html.home
```

If you are using Oracle WebDB, 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 Oracle WebDB, 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.

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Step 5. Set up the Oracle Workflow Monitor and HTML help.

Before you can use the Oracle Workflow Monitor and the Oracle Workflow HTML help, you must extract the help files and add some virtual directory mappings to your web listener. Refer to the following instructions to perform the appropriate installation steps:

- Oracle Workflow Monitor Setup: Page 23
- Oracle Workflow HTML Help Setup: Page 25

Oracle Workflow Server Upgrade

To upgrade an existing version of Oracle Workflow Server Release 2.0.3 or 2.5, perform the following steps. The upgrade should take approximately 45 minutes.

> ⚠ **Warning:** Before you upgrade your Oracle Workflow server, ensure that there are no users accessing the server; otherwise, locks in the database will prohibit a successful upgrade.

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

Before you upgrade Oracle Workflow, you must enable the time manager process in Oracle8 Advanced Queues by adding the following line to the init.ora parameter file:

```
AQ_TM_PROCESSES=1
```

Restart your database to make this change effective.

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.

Step 2. Load Oracle Workflow files using the Oracle Universal Installer.

Run the Oracle Universal Installer to copy the Oracle Workflow Server files to your file system. Refer to the *Oracle8i Installation Guide* for your platform for detailed instructions on running the Oracle Universal Installer.

When running the Oracle Universal Installer, select the product Oracle8*i* Management and Integration Infrastructure. Then select the Oracle Integration Server installation type. Oracle Workflow is included in this installation type.

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> **Note:** When you run the Oracle Universal Installer to install Oracle Workflow Release 2.5.2 on an existing database, the Oracle Universal Installer only copies the Oracle Workflow files to your file system; it does not automatically run those files to perform the installation. You must manually run the installation/upgrade script to complete the upgrade. This precaution helps ensure that any previous installation of Oracle Workflow is upgraded correctly. See also: Oracle Workflow Server Installation: Page 5.

Step 3. Run the upgrade script.

You can run the script to complete the upgrade of an existing installation of Oracle Workflow in two ways: either as an operating system script or as a Java program.

To run the upgrade script as an operating system script, use the following commands:

On UNIX:

```
$ORACLE_HOME/wf/install/inst252 <wf_account_name> <wf_password> <wf_home> <sys_password>
<system_password> <INSTALL|UPGRADE>
```

On Windows NT:

```
\<ORACLE_HOME>\wf\install\inst252.bat <wf_account_name> <wf_password> <wf_home>
<sys_password> <system_password> <INSTALL|UPGRADE>
```

Replace the variables with your parameters as follows:

- `<wf_account_name>`: The user name of your Oracle Workflow database account. The user name should be `OWF_MGR`.

- `<wf_password>`: The password for your Oracle Workflow database account. The password should be `OWF_MGR`.

- `<wf_home>`: The Workflow directory within your ORACLE_HOME.

- `<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|UPGRADE>`: The installation type you want to perform. Enter `UPGRADE` to upgrade an existing installation of Oracle Workflow, or enter `INSTALL` to perform a fresh installation of Oracle Workflow.

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To run the upgrade script as a Java program, use the following commands:

On UNIX:

```
$ORACLE_HOME/wf/install/inst252j
```

On Windows NT:

```
\<ORACLE_HOME>\wf\install\inst252j.bat
```

The script prompts you to enter the installation type you want to perform. Enter UPGRADE to upgrade an existing installation of Oracle Workflow, or enter INSTALL to perform a fresh installation of Oracle Workflow.

> **Note:** If you want to perform a fresh installation of Oracle Workflow, enter INSTALL as the installation type and follow the instructions to perform a fresh installation. See: Oracle Workflow Server Installation: Page 5.

Step 4. 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.

Step 5. Set up the Oracle Workflow Monitor and HTML Help.

Before you can use the Oracle Workflow Monitor and the Oracle Workflow HTML help, you must extract the help files and add some virtual directory mappings to your web listener. Refer to the following instructions to perform the appropriate installation steps:

- Oracle Workflow Monitor Setup: Page 23
- Oracle Workflow HTML Help Setup: Page 25

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Installation of Oracle WebDB for Oracle Workflow Option

Step 1. Install Oracle WebDB 2.0 or higher components.

1. Perform a custom installation of Oracle WebDB and install the following components:

  - PL/SQL Web Toolkit Version 4.0.5.4.0 or higher

  - WebDB Listener Version 2.0.3.1.3 or higher

        Note: You do not need to install the WebDB component.

    Refer to your Oracle WebDB installation documentation for further details.

2. A WebDB Listener dialog box appears during the installation procedure. Enter the following information in the dialog box:

  - Host Name—enter the name of the server on which your web listener accepts requests.

  - Database Access Descriptor Name—accept the default value. This is the DAD name for your WebDB installation, but since you are not installing the WebDB component, do not worry about this value.

  - WebDB User Name—accept the default value. This is the name of the database schema in which Oracle WebDB will be installed, but since you are not installing the WebDB component, you do not need to change this value.

  - Port #—the TCP/IP port number on which your listener accepts requests.

3. Complete the installation procedure as described in your Oracle WebDB documentation.

    Once the installation procedure finishes, a confirmation dialog box displays two URLs to which you can navigate to make modifications to your WebDB configuration. The URLs are:

    ```
    http://<server_name>[:<portID>]/<DAD>/admin_/gateway.htm
    http://<server_name>[:<portID>]/<DAD>/admin_/listener.htm
    ```

    The `http://<server_name>[:<portID>]/` portion of these URLs is called the base URL for your listener, where `<server_name>` and `<portID>` represent the server and TCP/IP port number on which your web listener accepts requests. For example:

    ```
    http://prod.company.com/
    http://test.company.com:8000/
    ```

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Step 2. Create a DAD for the Oracle Workflow schema.

1. Using your web browser, navigate to the Oracle WebDB PL/SQL Gateway Settings page:

    ```
    http://<server_name>[:<portID>]/<DAD>/admin_/gateway.htm
    ```

2. Create a DAD for Oracle Workflow by entering the information shown below. Make sure you create a new DAD and do not modify the existing default "WebDB" DAD.

    ```
    Database Access Descriptor Name          <WF_DAD>
    Oracle User Name                         <Leave Blank>
    Oracle Password                          <Leave Blank>
    Oracle Connect String                    <CONNECT_STRING>
    Maximum Number of Worker Threads         4
    Keep Database Connection Open between
    Requests?                                Yes
    Default (Home) Page                      wfa_html.home
    Document Table                           <WF_account>.wwv_document
    Document Access Path                     docs
    Document Access Procedure                <WF_account>.wwv_testdoc.process_download
    ```

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

    ☞ **Attention:** If you wish to set up a demonstration or test environment that has no Webdb database authentication, you can enter your Oracle Workflow account username and password in the Oracle User Name and Oracle Password fields and enter wfa_html.login for the Default (Home) Page field. When you navigate to the base URL of your listener, the Oracle Workflow login page appears; in this page you can enter any user name and password to display the Oracle Workflow home page. Please be aware that you should not use this configuration in a production environment as it provides no username/password validation.

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Installation of Oracle Web Application Server for Oracle Workflow Option

Step 1. Install Oracle Web Application Server 3.0.1 or higher on a server machine.

Refer to your Oracle Web Application Server installation documentation for more information.

Step 2. Create at least one web listener for Oracle Workflow and make note of its name and base URL.

Refer to your Oracle Web Application Server documentation for instructions on how to create a Web listener.

The base URL should have the following format, where *<server_name>* and *<portID>* represent the server and TCP/IP port number on which your web listener accepts requests:

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

For example:

```
http://prod.company.com/
http://test.company.com:8000/
```

Step 3. Create an Oracle Web Application Server Database Access Descriptor (DAD) for the Oracle Workflow Schema and register the DAD with a PL/SQL Cartridge.

1. From the Oracle Web Application Server home page, choose Web Application Server Manager to connect to the Oracle Web Application Server Administration Home page.

2. Choose Oracle Web Application Server, then DAD Administration.

3. Choose ″Create New DAD″ and enter the values appropriate for your schema in the Create New DAD page. Refer to your Oracle Web Application Server documentation for more details on how to create a new DAD.

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For example:

```
Parameter                   Value
DAD Name:                   <DAD_name>
Database User:              <wf_username>
Identified by:              Password
Database User Password:     <wf_password>
Confirm Password:           <wf_password>
ORACLE_HOME:                <ORACLE_HOME>
SQL*Net V2 Service:         <SQLNet_alias>
...
NLS Language:               <NLS_language>
Store the user name and password in the DAD
```

☞ **Attention:** If you are using Oracle Net8, then do not input the Oracle SID.

4. From the Oracle Web Application Server Administration Home page, choose Oracle Web Application Server, and then choose Cartridge Administration.

5. In the Cartridge Administration page, choose PL/SQL Cartridge.

6. Choose "Create New PL/SQL Agent" and enter the values appropriate for your schema in the Create New PL/SQL Agent page. For example:

```
Parameter                   Value
Name of PL/SQL Agent:       <agent_name>
Name of DAD to be used:     <DAD_name>
Protect PL/SQL Agent:       True
Authorized Ports:           <port_ID>
```

⚠ **Warning:** Ensure that you select the option "Install Web Application Server Developer's Toolkit PL/SQL packages" when you create the DAD for the schema.

7. Navigate back to the Cartridge Administration page and choose Cartridge Summary (Web Request Broker).

8. In the Web Request Broker Administration page, choose Directories in the left–hand frame to display the Applications and Directories section in the right–hand frame.

9. Scroll to the bottom of the Applications and Directories section and add the following line for your PL/SQL agent:

```
Virtual Path           App      Physical Path
/<plsqlagent>/plsql    PLSQL    <ORAWEB_HOME>/bin
```

Replace <plsqlagent> with name of the PL/SQL agent you created in step 6. Replace <ORAWEB_HOME> with the path of your Oracle Web Application Server home.

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This step enables you to access your PL/SQL agent by appending the virtual path specified above to your web listener base URL as follows:

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

For example:

```
http://prod.company.com/my_plsqlagent/plsql
```

To invoke Oracle Workflow's web services, you simply append the appropriate procedure and arguments to this new base URL. For example, to access the Worklist web page, you would connect to the URL:

```
http://<server_name>[:<portID>]/<plsqlagent>/plsql/wfa_html.home
```

Step 4. Protect the Workflow PL/SQL Agent Virtual Path.

Oracle Workflow's web pages rely on the user authentication feature of Oracle Web Application Server to provide security. To ensure that only authorized users can access workflow processes, the URLs that generate Oracle Workflow's web pages must be protected by the Oracle Web Application Server authentication feature. Refer to your Oracle Web Application Server documentation for more details.

1. Connect to the Oracle Web Application Server Administration page.

2. Choose the Oracle Web Application Server link.

3. Choose the Authorization Server link.

4. Select either the Basic, Digest, or Database authentication scheme by choosing the appropriate link.

   Basic authentication allows you to assign passwords to users, assign users to groups, and define sets of users and groups, called *realms*. You can then assign the users, groups, and realms to specific files and directories, requiring requestors to provide a username and password to gain access. Basic authentication sends unencrypted passwords across the network, making this method subject to subversion. Basic authentication is not recommended when security is critical.

   Digest authentication is the same as basic authentication except that it sends passwords encrypted across the network in the form of a cryptographic checksum, also called a *digest*. You should use this scheme whenever authentication is required, although some older web browsers may not support it.

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Database authentication allows you to authenticate the username and password pair against a database by using the username and password to log on to an Oracle RDBMS. The realm of database authentication consists of two parts: a Database Access Descriptor (DAD) and optionally a database role. The DAD identifies the database to check against. The username and password, if available in the DAD, is ignored. The database role allows that only a subset of database users (those who have the privilege to assume the role) be authenticated.

5. If you select either Basic or Digest authentication, enter usernames and passwords for your users, assign your users to a group, then assign the group to a realm for your authentication method.

    If you select Database authentication, assign groups to a realm, then for each group, specify the DAD to check against, and optionally specify the roles to be authenticated.

6. Choose Modify to save your changes.

7. Navigate back to the Oracle Web Application Server Administration page.

8. Choose Cartridge Administration, then Cartridge Summary (Web Request Broker).

9. Choose the Protection link in the frame on the left side of the page to go to the Protecting Applications section.

10. Enter the following values in these fields to protect your realm:

    ```
    Virtual Path          Scheme                          Realm
    <virtual_path>        <Basic/Digest/Basic_Oracle>     <realm_name>
    ```

11. Choose Modify WRB Configuration to save your changes.

12. Restart the listener.

Installation of Oracle Application Server for Oracle Workflow Option

Step 1. Install Oracle Application Server 4.0.7 or higher on a server machine.

Refer to your Oracle Application Server installation documentation for more information.

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Step 2. Create at least one HTTP listener for Oracle Workflow and make note of its name and base URL.

Refer to your Oracle Oracle Application Server documentation for instructions on how to create a Web listener.

The base URL should have the following format, where *<server_name>*and *<portID>* represent the server and TCP/IP port number on which your web listener accepts requests:

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

For example:

```
http://prod.company.com/
http://test.company.com:8000/
```

Step 3. Install the Oracle Application Server PLSQL Toolkit.

1. From the Oracle Application Server home page, choose OAS Utilities to connect to the Oracle Application Server Utilities page.

2. In the navigation tree in the left–hand frame, expand Utilities and then Install node. Choose "PLSQL Toolkit".

3. In the Install PLSQL Toolkit page enter the required information for the SYS account. See your Oracle DBA if you need more information. Choose Apply when you are done.

Step 4. Create an Oracle Application Server Database Access Descriptor (DAD) for the Oracle Workflow Schema and register the DAD with a PL/SQL Cartridge.

1. From the Oracle Application Server home page, choose OAS Manager to connect to the Oracle Application Server Manager page.

2. In the navigation tree in the left–hand frame, expand Oracle Application Server, then choose DB Access Descriptor.

3. In the DB Access Descriptor page, choose the "+" icon from the toolbar to display the "DAD: Add" dialog window.

4. Enter the values appropriate for your schema in the DAD: Add page.

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```
DAD Name                          <DAD_name>
Database User                     <wf_username>
Database User Password            <wf_password>
Confirm Password                  <wf_password>
Database Location                 <host_server>
...
```

Check the option "Store the user name and password in the DAD" and then choose Apply.

5. Enter your DBA account information and choose Apply to create the DAD. Choose OK on successful completion.

6. In the navigation tree in the left–hand frame, choose Applications to display the Applications screen in the right frame.

7. In the Applications screen, choose the "+" icon from the toolbar to display the "Add Application" dialog window.

8. In the Add Application dialog, specify the following:

```
Application Type:      PL/SQL
Configure Mode:        Manually
```

Choose Apply to display the "Add Application" dialog window.

9. In the Add Application dialog, enter the following suggested values for Oracle Workflow:

```
Application Name:      WF
Display Name:          Workflow
Application Version:   2.5.2
```

When you choose Apply, a Success dialog box appears.

10. In the Success dialog box, choose the Add Cartridge to Application button to display the Add PLSQL Cartridge dialog window.

11. In the Add PLSQL Cartridge dialog, enter values appropriate for Oracle Workflow. The following lists shows some suggested values:

```
Cartridge Name:        WF252
Display Name:          WORKFLOW 2.5.2
Virtual Path:          /wf252
Physical Path:         <Retain Default>
DAD Name:              <DAD_name>
```

Choose Apply when you are done.

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12. In the left–hand frame, select the site node of the navigator tree to return to the Oracle Application Server Manager home page. Select All in the right–hand frame, then choose the Reload icon from the toolbar to put your new configuration changes into effect.

    This step enables you to access your PL/SQL agent by appending the virtual path specified above to your web listener base URL as follows:

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

    For example:

    ```
    http://prod.company.com/wf252
    ```

    To invoke Oracle Workflow's web services, you simply append the appropriate procedure and arguments to this new base URL. For example, to access the Worklist web page, you would connect to the URL:

    ```
    http://<server_name>[:<portID>]/<virtual_path>/wfa_html.home
    ```

Step 5. Protect the Workflow PL/SQL Cartridge Virtual Path.

Oracle Workflow's web pages rely on the user authentication feature of Oracle Web Application Server to provide security. To ensure that only authorized users can access workflow processes, the URLs that generate Oracle Workflow's web pages must be protected by the Oracle Web Application Server authentication feature. Refer to your Oracle Web Application Server documentation for more details.

1. From the Oracle Application Server home page, choose OAS Manager to connect to the Oracle Application Server Manager page.

2. First expand site node of the navigation tree in the left–hand frame, then expand "Oracle Application Server", followed by "Security".

3. Under Security, select either Basic, Digest, or Basic_Oracle to define the authentication and restriction schemes for your PL/SQL cartridges.

    Basic authentication allows you to assign passwords to users, assign users to groups, and define sets of users and groups, called *realms*. You can then assign the users, groups, and realms to specific files and directories, requiring requestors to provide a username and password to gain access. Basic authentication sends unencrypted passwords across the network, making this method subject to subversion. Basic authentication is not recommended when security is critical.

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Digest authentication is the same as basic authentication except that it sends passwords encrypted across the network in the form of a cryptographic checksum, also called a *digest*. You should use this scheme whenever authentication is required, although some older web browsers may not support it.

Basic_Oracle, also called Database Authentication, allows you to authenticate the username and password pair against a database by using the username and password to log on to an Oracle RDBMS. The realm of database authentication consists of two parts: a Database Access Descriptor (DAD) and optionally a database role. The DAD identifies the database to check against. The username and password, if available in the DAD, is ignored. The database role allows that only a subset of database users (those who have the privilege to assume the role) be authenticated.

4. If you select either Basic or Digest authentication, enter usernames and passwords for your users, assign your users to a group, then assign the group to a realm for your authentication method.

   If you select Oracle_Basic authentication, assign groups to a realm, then for each group, specify the DAD to check against, and optionally specify the roles to be authenticated.

5. To protect the virtual path for your PLSQL cartridge, in the navigator tree, expand the site node, then expand "Applications".

6. In the navigator tree, under Applications, expand the Oracle Workflow application you defined earlier. Expand Cartridges, then expand the cartridge you want to protect. Finally, expand Configuration, and select Virtual Path to display the Virtual Paths form in the right–hand frame for your PL/SQL cartridge.

7. In the Virtual Paths form enter the following values in the Protection section:

   ```
   Virtual Path          Scheme                          Realm
   <virtual_path>        <Basic/Digest/Basic_Oracle>     <realm_name>
   ```

   Attention: All virtual paths must include a trailing slash, such as /wf252/.

   Choose Apply when you are done.

8. In the left–hand frame, select the site node from the navigator tree to return to the Oracle Application Server Manager home page. Select All in the right–hand frame, then choose the Reload icon from the toolbar to put your new configuration changes into effect.

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Oracle Workflow Monitor Setup

The Oracle Workflow Monitor is a Java applet that allows users and workflow administrators to view and optionally manipulate workflow process instances. The Workflow Monitor can be accessed by a web browser that supports Java Development Kit (JDK) Version 1.1.4 and AWT, such as Netscape Communicator 4.04 or higher.

> **Note:** Oracle Installer automatically installs the Java code in a directory tree in the Oracle Workflow java area when you install or upgrade the Workflow Server. On UNIX, the java area is `$ORACLE_HOME/wf/java`. On Windows NT, the java area is `\<ORACLE_HOME>\wf\java`.

Add a virtual directory mapping to your web listener that points to the java directory tree you just installed on your file system. Also, add a virtual directory mapping called `/OA_MEDIA/` that points to the Oracle Workflow icon area. On UNIX, the icon area is `$ORACLE_HOME/wf/java/oracle/apps/fnd/wf/icons/`. On Windows NT, the icon area is `\<ORACLE_HOME>\wf\java\oracle\apps\fnd\wf\icons\`. All icon and gif files that are required by Oracle Workflow's web interface must be stored in the `/OA_MEDIA/` virtual directory.

> ☞ **Attention:** If you have Oracle Workflow Release 2.0.3 previously installed, please ensure that you re–map the `/OA_JAVA/` virtual directory. The file–system directory for the java directory tree has changed between Release 2.0.3 and 2.5.

If you are using Oracle WebDB:

1. Using your Web browser, navigate to the Oracle WebDB Listener Settings page:

   ```
   http://<server_name>[:<portID>]/<DAD>/admin_/listener.htm
   ```

2. Refer to your Oracle WebDB documentation for details on how to add virtual directory mappings. Create the following virtual directory mappings for the Oracle Workflow java and media physical directory trees:

   On UNIX:

   ```
   Physical Directory                                    Virtual Directory
   <$ORACLE_HOME>/wf/java/                               /OA_JAVA/
   <$ORACLE_HOME>/wf/java/oracle/apps/fnd/wf/icons/      /OA_MEDIA/
   ```

> ☞ **Attention:** Be sure to add a trailing slash to each file–system and virtual directory name.

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On Windows NT:

```
Physical Directory                                    Virtual Directory
<ORACLE_HOME>\wf\java\                                 /OA_JAVA/
<ORACLE_HOME>\wf\java\oracle\apps\fnd\wf\icons\        /OA_MEDIA/
```

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

If you are using Oracle Application Server or Oracle Web Application Server:

1. From Oracle Web Application Server or Oracle Application Server, display the list of Web HTTP Listeners.

2. Locate and select the Web HTTP listener you previously created from the list shown.

3. Go to the "Directory" or "Directory Mappings" section and add an entry for the java and media directory trees you just installed:

   On UNIX:

```
File-System Directory                              Flag     Virtual Directory
<java>                                             NR       /OA_JAVA/
<ORACLE_HOME>/wf/java/oracle/apps/fnd/wf/icons/    NR       /OA_MEDIA/
```

   For example:

```
File-System Directory                              Flag     Virtual Directory
/oracle/db/wf/java/                                NR       /OA_JAVA/
/oracle/db/wf/java/oracle/apps/fnd/wf/icons/       NR       /OA_MEDIA/
```

   ☞ **Attention:** Be sure to add a trailing slash to each file–system and virtual directory name.

   On Windows NT:

```
File-System Directory                              Flag     Virtual Directory
<java>                                             NR       /OA_JAVA/
<ORACLE_HOME>\wf\java\oracle\apps\fnd\wf\icons\    NR       /OA_MEDIA/
```

   For example:

```
File-System Directory                              Flag     Virtual Directory
\oracle\db\wf\java\                                NR       /OA_JAVA/
\oracle\db\wf\java\oracle\apps\fnd\wf\icons\       NR       /OA_MEDIA/
```

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> ☞ **Attention:** Be sure to add a trailing backslash to each file–system directory name and a trailing slash to each virtual directory name.

4. Save your changes and then restart your Web listener.

Oracle Workflow HTML Help Setup

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 or Oracle Workflow Builder, the Oracle Universal Installer copies a zip file containing the HTML help to the Workflow directory in your ORACLE_HOME.

On UNIX:

```
$ORACLE_HOME/wf/wfdoc252.zip
```

On Windows NT:

```
\<ORACLE_HOME>\wf\wfdoc252.zip
```

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.

   This creates the following subdirectories:

   On UNIX:

   ```
   $ORACLE_HOME/wf/doc/<lang>/wf
   $ORACLE_HOME/wf/doc/<lang>/wfnew
   $ORACLE_HOME/wf/doc/<lang>/wfcust
   ```

   On Windows NT:

   ```
   \<ORACLE_HOME>\wf\doc\<lang>\wf
   \<ORACLE_HOME>\wf\doc\<lang>\wfnew
   \<ORACLE_HOME>\wf\doc\<lang>\wfcust
   ```

   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 Workflow HTML help zip file \<ORACLE_HOME>\wf\wfdoc252.zip to the new directory on your PC. An unzip

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utility such as WINZIP from NicoMak can extract the doc directory tree from the zip file.

2. You can now optionally remove the zip file.

3. Add a virtual directory mapping to your web listener that points to this doc directory tree on your file system.

If you are using Oracle WebDB:

3.1 Using your Web browser, navigate to the Oracle WebDB Listener Settings page:

```
http://<server_name>[:<portID>]/<DAD>/admin_/listener.htm
```

3.2 Refer to your Oracle WebDB documentation for details on how to add virtual directory mappings. Create the following virtual directory mapping for the Oracle Workflow doc physical directory tree:

On UNIX:

```
Physical Directory                                      Virtual Directory
$ORACLE_HOME/wf/doc/                                    /OA_DOC/
```

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

On Windows NT:

```
Physical Directory                                      Virtual Directory
<ORACLE_HOME>\wf\doc\                                    /OA_DOC/
```

☞ **Attention:** Be sure to add a trailing backslash to the physical directory path and a trailing slash to the virtual directory name.

If you are using Oracle Application Server or Oracle Web Application Server:

3.1 From Oracle Web Application Server or Oracle Application Server, display the list of HTTP listeners.

3.2 Locate and select the Web HTTP listener you previously created from the list shown.

3.3 Go to the "Directory" or "Directory Mappings" section and add an entry for the doc directory tree you just installed:

On UNIX:

```
File-System Directory           Flag     Virtual Directory
$ORACLE_HOME/wf/doc/            NR       /OA_DOC/
```

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For example:

```
File-System Directory            Flag      Virtual Directory
/oracle/db/wf/doc/               NR        /OA_DOC/
```

☞ **Attention:** Be sure to add a trailing slash to each file–system and virtual directory name.

On Windows NT:

```
File-System Directory            Flag      Virtual Directory
<ORACLE_HOME>\wf\doc\            NR        /OA_DOC/
```

For example:

```
File-System Directory            Flag      Virtual Directory
c:\orant\wf\doc\                 NR        /OA_DOC/
```

☞ **Attention:** Be sure to add a trailing backslash to each file–system directory name and a trailing slash to each virtual directory name.

3.4 Save your changes and then restart your Web Listener.

4. By adding the virtual directory mapping 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 the virtual path specified above to your web listener base URL.

For the Oracle Workflow Guide:

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

For Oracle Workflow Release 2.5 New Features and Changes:

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

For your Oracle Workflow Customized Help:

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

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Oracle Workflow Client

Oracle Workflow contains several client components that are installed using the Oracle Universal Installer from the Oracle8*i* Client CD:

- Oracle Workflow Builder for Windows NT, Windows 95, Windows 98, or Windows 2000
- MAPI–compliant Notification Mailer for Windows NT
- Oracle Workflow Common Files
- Oracle Workflow HTML Help

Oracle Workflow Client Hardware and Software Requirements

The client components of Oracle Workflow require the following hardware and software configurations.

Oracle Workflow Builder

Oracle Workflow Builder is a GUI tool that allows you to create and edit workflow definitions on a PC running either Microsoft Windows 95, Windows 98, Windows 2000, or Windows NT. A workflow definition can be saved to a flat file or to your Workflow Server database as long as you have Oracle Net8 installed on your PC. Oracle Workflow Builder requires the following hardware and software configurations:

- Oracle Net8 Client Version 8.1 or higher (included)
- Required Support Files Version 8.1 or higher (included)
- An IBM, Compaq or 100% compatible personal computer with the following:
  - A 486 processor or better
  - Clock speed of 66 Mhz or greater (90 Mhz or greater is recommended)
  - Network card
  - SVGA color monitor
  - Modem configured with dialin access for use by Oracle Worldwide Customer Support. At least one PC at your site should be configured with a modem.

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– Remote access and control software to be used by Customer Support for dial–in access through a modem to your PC. The preferred software is Symantec's Norton pcANYWHERE, or Microcom's Carbon Copy.

   Without some form of remote access and control software, Oracle Worldwide Customer Support will not be able to dial in to your site to diagnose problems, nor will they be able to supply patches directly to your client PC.

   ⚠ **Warning:** Please follow the necessary security precautions against viruses and unauthorized access when installing any software that allows remote access.

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

– Microsoft Windows 95, Windows 98, Windows 2000, or Windows NT 3.51 or higher

– At least 45 Mb of available disk space to install Oracle Workflow Builder, Oracle Net8, and Required Support Files.

   Note: The Oracle TCP/IP Protocol Adapter requires and only supports the use of Microsoft's TCP/IP drivers.

   Note: Oracle Workflow Builder is not supported on Microsoft Windows 3.1.

   Note: Oracle Workflow Builder currently cannot be installed on a central file server or be shared by other client PCs over the network.

Notification Mailer

- The notifications component includes a program called the Notification Mailer. The program communicates notifications to users via e–mail, and interprets responses. The Notification Mailer has implementations that can integrate directly with:

  – Oracle Internet Messaging 4.2

  – UNIX Sendmail

  – MAPI–compliant mail applications

- The Oracle Internet Messaging and UNIX Sendmail implementations are installed automatically during the Oracle Workflow Server installation process. Oracle Internet Messaging does not have to be installed on the same server as Oracle Workflow, but UNIX Sendmail does.

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- You can install the MAPI–compliant implementation on a Windows NT PC using the Oracle Universal Installer from the Oracle8*i* Client CD. It requires a MAPI–compliant mail application installed on the PC that is acting as your mail server.

Oracle Workflow Notifications

- To view the Notifications web page, you need access to a Web browser that supports frames and JavaScript. Netscape Communicator 4.0.4 is an example of such a client.

- 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. Netscape Communicator 4.0.4 is an example of such a client.

Oracle Workflow Client Installation

☞ **Attention:** The MAPI–compliant Notification Mailer requires a Windows NT PC.

Step 1. Install Oracle Workflow Client Components using the Oracle Universal Installer.

Run the Oracle Universal Installer to install Oracle Workflow Client on your PC. Refer to your *Oracle8i Installation Guide* for detailed instructions on running the Oracle Universal Installer.

To install Oracle Workflow with the Oracle Universal Installer, select the product Oracle8*i* Client. Then select the Custom installation type, and choose the Oracle Workflow Release 2.5.2 client components you want to install:

- Oracle Workflow Builder

- Oracle Workflow Mailer

- Oracle Workflow Common Files

When you install the Oracle Workflow Builder, the Oracle Workflow Common Files and the HTML help are automatically installed as well. Also, when you install the Oracle Workflow Mailer, the Oracle Workflow Common Files are automatically installed as well.

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If you are installing Oracle Workflow Builder on a Windows 95 or Windows 98 PC, you must exit Oracle Universal Installer after the installation is complete and reboot your PC before starting Oracle Workflow Builder.

> **Attention:** It is very important that you reboot your PC before starting Oracle Workflow Builder for the first time on Windows 95 or Windows 98.

Step 2. Set up the Oracle Workflow HTML help.

Before you can use the Oracle Workflow HTML help, you must extract the help files and add a virtual directory mapping to your web listener. Refer to the following instructions to perform the appropriate installation steps:

- Oracle Workflow HTML Help Setup: Page 25

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Additional Required Setup Steps

After you complete the Oracle Workflow installation process, you must perform some additional steps to set up Oracle Workflow for your site. Refer to the Setting Up Oracle Workflow chapter in the *Oracle Workflow Guide* for information on how to complete these and other setup steps for Oracle Workflow. The setup steps include:

1. 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.

2. Creating a view called WF_LANGUAGES that identifies the languages defined in your Oracle8 installation.

3. Defining an environment variable called http_proxy.

4. Defining an environment variable called WF_RESOURCES.

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

5. Defining a document management system node for Oracle Workflow if you wish to integrate document management attachments in a workflow process.

6. Configuring the default user preferences for your enterprise in the Global User Preferences web page.

7. Configuring and running the Notification Mailer program so users can receive e–mail notifications or e–mail notification summaries.

8. Initiating background Workflow engines to process deferred work and timed out activities.

9. Customizing e–mail notification templates.

10. Customizing the Notification Web page logo.

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