Oracle® Database

Application Express Installation Guide

Release 2.2

B28552-02

September 2006

ORACLE®

Oracle Database Application Express Installation Guide, Release 2.2

B28552-02

Primary Author: Terri Winters

Contributors: Christina Cho, Joel Kallman, Sergio Leunissen, Raj Mattamal, Scott Spendolini, and Jason Straub

Contents

Preface

This guide explains how to install and configure Oracle Application Express release 2.2.

This Preface contains these topics:

Audience

Oracle Database Application Express Installation Guide is intended for anyone responsible for installing Oracle Application Express.

To use this manual, you must have administrative privileges on the computer where you installed your Oracle Database and familiarity with object-relational database management concepts.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

`http://www.oracle.com/accessibility/`

Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

Accessibility of Links to External Web Sites in Documentation

This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

TTY Access to Oracle Support Services

Oracle provides dedicated Text Telephone (TTY) access to Oracle Support Services within the United States of America 24 hours a day, seven days a week. For TTY support, call 800.446.2398.

Related Documents

For more information, see these Oracle resources:

- *Oracle Database Application Express Release Notes*
- *Oracle Database Application Express User's Guide*
- *Oracle Database 2 Day + Application Express Developer's Guide*
- *Oracle Database Concepts*
- *Oracle HTTP Server Administrator's Guide*
- *Oracle9i Application Server Administrator's Guide*
- *Oracle Database Application Developer's Guide - Fundamentals*
- *Oracle Database Administrator's Guide*
- *Oracle Database SQL Reference*

For information about Oracle error messages, see *Oracle Database Error Messages*. Oracle error message documentation is available only in HTML. If you only have access to the Oracle Database 10*g* Release 2 (10.2) Online Documentation Library, you can browse the error messages by range. Once you find the specific range, use your browser's "find in page" feature to locate the specific message. When connected to the Internet, you can search for a specific error message using the error message search feature of the Oracle online documentation.

Many books in the documentation set use the sample schemas of the seed database, which is installed by default when you install Oracle. Refer to *Oracle Database Sample Schemas* for information on how these schemas were created and how you can use them yourself

Printed documentation is available for sale in the Oracle Store at

`http://oraclestore.oracle.com/`

To download free release notes, installation documentation, white papers, or other collateral, please visit the Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at

`http://otn.oracle.com/membership/`

If you already have a username and password for OTN, then you can go directly to the documentation section of the OTN Web site at

`http://otn.oracle.com/documentation/`

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Oracle Application Express Installation Overview

This chapter provides an overview of installing Oracle Application Express and describes issues to consider before installing.

This chapter contains these topics:

Overview of the Installation Process

The installation process consists of four parts:

1. **Plan your installation:** This chapter offers an overview of the steps required to install Oracle Application Express.
2. **Verify installation requirements:** Chapter 2, "Oracle Application Express Installation Requirements" describes the minimum requirements that your system must meet before you install the software.
3. **Install the software:** Use the following sections to install Oracle Application Express:
   - Chapter 3, "Installing the Software" describes how to install the software.
   - Appendix A, "Oracle Application Express Troubleshooting" provides installation troubleshooting advice.
4. **Complete postinstallation tasks:** Chapter 4, "Oracle Application Express Post-installation Tasks" describes recommended and required postinstallation tasks.

Understanding the Installation Process

Installing Oracle Application Express is a two-step process:

1. Install the database objects that make up Oracle Application Express in an Oracle database (Oracle9*i* release 2 (9.2.0.3) or later).
2. Configure an Oracle HTTP Server release 9.0.3 or higher with `mod_plsql` to connect to the Oracle database where Oracle Application Express is installed.

Upgrading from a Previous Version of Oracle Application Express

If you have version 1.5.0.00.33, 1.5.1.00.12, 1.6.0.00.87, 1.6.1.00.03, or 2.0.0.00.49 of Oracle Application Express, running this install upgrades your Oracle Application Express instance to version 2.2. This install also creates Oracle Application Express 2.2 database objects in a new schema and migrates the application metadata to the new version.

2

Oracle Application Express Installation Requirements

This chapter describes the requirements for installing Oracle Application Express, release 2.2.

This chapter contains these topics:

Oracle Database Requirement

Oracle Application Express version 2.2 requires an Oracle database that is release 9.2.0.3 or higher.

Checking the shared_pool_size of the Target Database

Oracle Application Express requires the `shared_pool_size` of the target database to be at least 100 MB.

To check the `shared_pool_size` of the target database:

1. Start the database:

   ```
   SQL> STARTUP
   ```

2. If necessary, enter the following command to determine whether the system uses an initialization parameter file (`initsid.ora`) or a server parameter file (`spfiledbname.ora`):

   ```
   SQL> SHOW PARAMETER PFILE;
   ```

   This command displays the name and location of the server parameter file or the initialization parameter file.

3. Determine the current values of the `shared_pool_size` parameter:

   ```
   SQL> SHOW PARAMETER SHARED_POOL_SIZE
   ```

4. If the system is using a server parameter file, set the value of the SHARED_POOL_SIZE initialization parameter to at least 100 MB:

```
SQL> ALTER SYSTEM SET SHARED_POOL_SIZE='100M' SCOPE=spfile;
```

5. If the system uses an initialization parameter file, change the values of the SHARED_POOL_SIZE parameter to at least 100 MB in the initialization parameter file (initsid.ora).
6. Shut down the database:

```
SQL> SHUTDOWN
```

7. Restart the database:

```
SQL> STARTUP
```

Oracle HTTP Server Requirement

Oracle Application Express must have access to Oracle HTTP Server and mod_plsql in order to run. The following products include the versions of HTTP Server and mod_plsql that meet this requirement:

- Oracle 9i Database release 2 (9.2) or higher
- Oracle 9i Application Server release 1 (1.0.2.2) or higher
- Oracle 10*g* Database companion CD release 1 or 2

Disk Space Requirement

Oracle Application Express disk space requirements are as follows:

- Free space for Oracle Application Express software files on the file system: 450 MB
- Free space in Oracle Application Express tablespace: 100MB
- Free space in SYSTEM tablespace: 85 MB
- Free space in Oracle Application Express tablespace for each additional language (other than English) installed: 30MB

Oracle XML DB Requirement

Oracle XML DB must be installed in the Oracle database that you want to use. If you are using a preconfigured database created either during an installation or by Database Configuration Assistant (DBCA), Oracle XML DB is already installed and configured.

> **See Also:** *Oracle XML DB Developer's Guide* for more information about manually adding Oracle XML DB to an existing database

Oracle Text Requirement

Oracle Text must be installed so that you can use the searchable online Help in Oracle Application Express. By default, Oracle Text is installed as part of Oracle Database.

In addition, make sure that the default language preferences for Oracle Text have been installed. To install the Oracle Text default language, log in to the Oracle database where you plan to install Oracle Application Express and run the appropriate

drdef*lang*.sql script, which by default is located in *ORACLE_BASE**ORACLE_HOME*\ctx\admin\defaults. For example, to run the language preferences script for US English, drdefus.sql:

```
c:\> sqlplus ctxsys/CTXSYS_password
SQL> @c:\oracle\product\10.2.0\db_1\ctx\admin\defaults\drdefus.sql
```

> **See Also:** *Oracle Text Application Developer's Guide* for more information on Oracle Text

Browser Requirement

To view or develop Oracle Application Express applications, Web browsers must support Java Script and the HTML 4.0 and CSS 1.0 standards. The following browsers meet this requirement:

- Microsoft Internet Explorer 6.0 or higher (Windows only)
- Netscape Communicator 7.2 or higher
- Mozilla 1.2 or higher
- Firefox 1.0 or higher

3

Installing the Software

This chapter describes how to install Oracle Application Express release 2.2.

This chapter contains these topics:

Recommended Pre-installation Tasks

If you plan to install Oracle Application Express, Oracle recommends that you complete the following steps before beginning the installation:

1. Shut down any existing Oracle Database instances as well as Oracle-related processes.

   Shut down any existing Oracle Database instances with normal or immediate priority, except for the database where you plan to install the Oracle Application Express schemas. On Real Application Clusters (RAC) systems, shut down all instances on each node.

   If Automatic Storage Management (ASM) is running, shut down all databases that use ASM except for the database where you will install Oracle Application Express, and then shut down the ASM instance.

   You can use the Windows **Services** utility, located either in the Windows Control Panel or from the **Administrative Tools** menu (under **Start** and then **Programs**), to shut down Oracle Database and ASM instances. Names of Oracle databases are preceded with `OracleService`. The Oracle ASM service is named `OracleASMService+ASM`. In addition, shut down the `OracleCSService` service, which ASM uses. Right-click the name of the service and from the menu, choose **Stop**.

2. Back up the Oracle Database installation.

   Oracle recommends that you create a backup of the current installation of Oracle Database installation before you install Oracle Application Express. You can use Oracle Database Recovery Manager, which is included the Oracle Database installation, to perform the backup.

   See Also: *Oracle Database Backup and Recovery Basics*

3. Start the Oracle Database instance that contains the target database.

   After backing up the system, you must start the Oracle instance that contains the target Oracle database. Do not start other processes such as the listener or Oracle

HTTP Server. However, if you are performing a remote installation, make sure the database listener for the remote database has started. To start the database instance or listener, you can use the Windows **Services** utility.

Note: If you are connecting to a remote database, then start the listener.

Installing the Oracle Application Express Software

To install Oracle Application Express release 2.2, you must download and unzip the file `apex_2.2.zip` on a computer where you can connect to the target database using SQL*Plus as the `SYS` user.

> **See Also:** *Oracle Database PL/SQL User's Guide and Reference* for more information about SQL*Plus

To install Oracle Application Express release 2.2:

1. Download the file `apex_2.2.zip`.

   Note that the actual file name may differ if a more recent release has shipped since this document was published.

2. Unzip `apex_2.2.zip` as follows, preserving directory names:

   - **UNIX and Linux:** unzip `apex_2.2.zip`
   - **Windows:** Double click the file `apex_2.2.zip` in Windows Explorer

3. Change your working directory to `apex`.

4. Start SQL*Plus and connect the database where Oracle Application Express is installed as SYS or SYSTEM. For example:

   ```
   c:\> sqlplus sys/SYS_password as sysdba
   ```

5. Run `apexins.sql` passing the following six arguments in the order shown:

   ```
   @apexins password tablespace_apex tablespace_files tablespace_temp images
   connect
   ```

   Where:

   - *`password`* is the password for the Oracle Application Express administrator account, the Application Express schema owner, and the Application Express files schema owner.

     The **Application Express schema owner** is the user or schema into which Oracle Application Express database objects will be installed. The **Application Express files schema owner** is the user or schema where uploaded files are maintained in Oracle Application Express.

   - *`tablespace_apex`* is the name of the tablespace for the Oracle Application Express application user.
   - *`tablespace_files`* is the name of the tablespace for the Oracle Application Express files user.
   - *`tablespace_temp`* is the name of the temporary tablespace.

- *images* is the virtual directory for Oracle Application Express images. To support future Oracle Application Express upgrades, define the virtual image directory as `/i/`.
- *connect* is the Oracle Net connect string to the database. If this is a local install, use `none` or `NONE`.

  The following examples demonstrate running `apexins.sql` and passing these arguments when the target database is Oracle Database 10*g* release 1 (10.1):

  Local installation:

  ```
  @apexins password SYSAUX SYSAUX TEMP /i/ none
  ```

  Using a connect string:

  ```
  @apexins password SYSAUX SYSAUX TEMP /i/ 10g
  ```

4

Oracle Application Express Post-installation Tasks

This chapter describes tasks that you need to complete after you install the software.

This chapter contains these topics:

- Recompiling Invalid PL/SQL Packages and Restarting Processes
- Copying the Images Directory
- Configuring Oracle HTTP Server When Upgrading
- Configuring Oracle HTTP Server in a New Installation
- Applying the PL/SQL Web Toolkit Patch
- Installing Oracle Application Express in Other Languages
- Managing JOB_QUEUE_PROCESSES
- Obfuscating PlsqlDatabasePassword Parameter
- Logging in to Oracle Application Express

> **Note:** Within the context of this document, the Oracle home directory (`ORACLE_HOME`) is the location where Oracle HTTP Server is installed.

Recompiling Invalid PL/SQL Packages and Restarting Processes

After you install Oracle Application Express, you need to complete the following steps:

1. Connect to the database where you installed Oracle Application Express as the `SYS` user.
2. Run the `utlrp.sql` script from the Oracle Database home to recompile all invalid PL/SQL packages now instead of when the packages are accessed for the first time. This step is optional but recommended.

   ```
   SQL> @?/rdbms/admin/utlrp.sql
   ```

3. Restart the processes that you stopped before you began the installation, such as listener and other processes. In addition, restart Oracle HTTP Server.

> **See Also:** "Recommended Pre-installation Tasks" on page 3-1

Copying the Images Directory

Whether you are loading a new installation or upgrading from a previous release, you must copy the images directory from the top level of the unzipped `apex_2.2.zip` file to the location on the file system containing the Oracle home for Oracle HTTP Server.

Topics in this section include:

- Copying the Images Directory When Upgrading
- Copying the Images Directory in New Installation

Copying the Images Directory When Upgrading

If you are upgrading from a previous version of Oracle Application Express, you should rename the existing `images` directory for Oracle Application Express to reflect the release number (for example, `images_2_0`). By renaming the images directory, you have the option of reverting to it later on.

To locate the `images` directory on the file system, review the following files for the text alias `/i/`:

- Oracle9*i* HTTP Server Release 2, see the `httpd.conf file`
- Oracle HTTP Server 10*g*, see the `marvel.conf` file
- Oracle Application Server 10*g*, see the `marvel.conf` file

On a Windows system, you can copy the appropriate directory using Windows Explorer, or execute a command from a command prompt as shown in the following example:

```
xcopy /E /I apex\images ORACLE_BASE\ORACLE_HOME\Apache\Apache\images
```

On UNIX or Linux based systems, you can copy the appropriate directory by executing a command similar to the one shown in the following example:

```
cp -rf apex/images ORACLE_BASE/ORACLE_HOME/Apache/Apache
```

For both Windows and UNIX systems, the target of the copy should match the location of the images directory you located in the previous step.

Copying the Images Directory in New Installation

On a Windows system, you can copy the `apex\images` directory using Windows Explorer or execute a command from a command prompt as shown in the following example:

```
xcopy /E /I apex\images ORACLE_BASE\ORACLE_HOME\Apache\Apache\images
```

On UNIX or Linux based systems, you can copy the `apex/images` directory by executing a command similar to the one shown in the following example:

```
cp -rf apex/images ORACLE_BASE/ORACLE_HOME/Apache/Apache
```

Configuring Oracle HTTP Server When Upgrading

If you are upgrading Oracle Application Express from release 1.5.0.00.33. 1.5.1.00.12, 1.6.0.00.87, 1.6.1.00.03, or 2.0.0.00.49 and the password you provided during your initial installation differs from the one you specified while executing the `apexins.sql` script, you need to modify the file that contains the Database Access

Descriptors (DADs). A DAD is a set of values that specify how the Oracle HTTP Server component `modplsql` connects to the database server to fulfill an HTTP request. The following sections describe the parameter you need to modify, depending upon the type of Oracle HTTP Server in your environment.

Topics in this section include:

- Configuring Oracle HTTP Server Release 9.0.3 When Upgrading
- Configuring Oracle HTTP Server 10g or Oracle Application Server 10g When Upgrading

Configuring Oracle HTTP Server Release 9.0.3 When Upgrading

If you are upgrading Oracle Application Express and are running Oracle HTTP Server release 9.0.3 or higher, you must modify the `password` parameter in the `wdbsvr.app` file. You may also need to modify the `httpd.conf` file to add two new MIME types to support SQL Workshop.

Modifying the wdbsvr.app File

In Oracle HTTP Server Release 9.0.3, the `wdbsvr.app` file contains information about the DAD to access Oracle Application Express.

Perform the following tasks if the password you provided during your initial installation differs from the one you specified while executing the `apexins.sql` script.

To modify the parameter password in the `wdbsvr.app` file:

1. Use a text editor and open the `wdbsvr.app` file.
   - For UNIX and Linux based systems, the file is located at:

     ORACLE_BASE/*ORACLE_HOME*/Apache/modplsql/cfg/wdbsvr.app

   - For Windows based systems, the file is located at:

     *ORACLE_BASE**ORACLE_HOME*\Apache\modplsql\cfg\wdbsvr.app

2. Find the DAD settings for Oracle Application Express by searching for the following:

   ```
   DAD_htmldb
   ```

3. Locate the line containing `nls_lang`.

   The `nls_lang` setting determines the language setting of the DAD. Note that the character set portion of the `nls_lang` value must always be set to `AL32UTF8`, regardless of whether or not the database character set is `AL32UTF8`. For example:

   ```
   nls_lang = American_America.AL32UTF8
   ```

4. Save and exit the wdbsvr.app file.
5. Stop and restart the Oracle HTTP Server.
   - For UNIX and Linux based systems, execute the following commands:

     ```
     ORACLE_BASE/ORACLE_HOME/Apache/Apache/bin/apachectl stop
     ORACLE_BASE/ORACLE_HOME/Apache/Apache/bin/apachectl start
     ```

     Note that if Oracle HTTP Server is listening on a port less than 1024, then these commands must be executed as a privileged user (such as `root`).

- For Windows based systems:
  - Stop Oracle HTTP Server - From the **Start** menu, select **Programs**, **Oracle - OraHome**, **Oracle HTTP Server**, and **Stop HTTP Server**.
  - Restart Oracle HTTP Server - From the **Start** menu, select **Oracle - OraHome**, **Oracle HTTP Server**, and **Start HTTP Server**.

See Also: *Oracle HTTP Server Administration Guide*

Modifying the httpd.conf File

You may also need to modify the `httpd.conf` file to add two new MIME types to support SQL Workshop. If you are upgrading from Oracle HTML DB 2.0, these MIME types should already exist.

To modify `httpd.conf` file:

1. Use a text editor and open the `httpd.conf` file
   - For UNIX and Linux based systems, the file is located at:

     ORACLE_BASE/*ORACLE_HOME*/Apache/Apache/conf/httpd.conf

   - For Windows based systems:

     *ORACLE_BASE**ORACLE_HOME*\Apache\Apache\conf\httpd.conf

2. Add the following line if it does not currently exist:

   ```
   AddType text/xml             xbl
   ```

3. Add the following line if it does not currently exist:

   ```
   AddType text/x-component     htc
   ```

4. Save and exit the `httpd.conf` file.
5. Stop and restart Oracle HTTP Server.
   - For UNIX and Linux based systems, execute the following commands:

     ```
     ORACLE_BASE/ORACLE_HOME/Apache/Apache/bin/apachectl stop
     ORACLE_BASE/ORACLE_HOME/Apache/Apache/bin/apachectl start
     ```

     Note that if the Oracle HTTP Server is listening on a port less than 1024, then these commands must be executed as a privileged user (such as `root`).

   - For Windows based systems:
     - Stop Oracle HTTP Server - From the **Start** menu, select **Programs, Oracle - OraHome**, **Oracle HTTP Server**, and **Stop HTTP Server**.
     - Restart Oracle HTTP Server - From the **Start** menu, select **Programs**, **Oracle - OraHome**, **Oracle HTTP Server**, and **Start HTTP Server**.

See Also: *Oracle HTTP Server Administration Guide*

Configuring Oracle HTTP Server 10*g* or Oracle Application Server 10*g* When Upgrading

The `marvel.conf` file contains information about the DAD to access Oracle Application Express. If you are upgrading Oracle Application Express and are running Oracle HTTP Server 10*g* or Oracle Application Server 10*g*, you must modify the `marvel.conf` file.

To modify the `marvel.conf` file:

1. Use a text editor and open the `marvel.conf` file:
   - For UNIX and Linux based systems, the file is located at:

     ORACLE_BASE/*ORACLE_HOME*/Apache/modplsql/conf/marvel.conf

   - For Windows based systems, the file is located at:

     *ORACLE_BASE**ORACLE_HOME*\Apache\modplsql\conf\marvel.conf

2. Find the DAD settings for Oracle Application Express by searching for the following:

   ```
   /pls/htmldb
   ```

3. Locate the line containing `PlsqlNLSLanguage`.

   The `PlsqlNLSLanguage` setting determines the language setting of the DAD. The character set portion of the `PlsqlNLSLanguage` value must be set to `AL32UTF8`, regardless of whether or not the database character set is `AL32UTF8`. For example:

   ```
   ...
   PlsqlNLSLanguage            AMERICAN_AMERICA.AL32UTF8
   ...
   ```

4. Save and exit the `marvel.conf` file.
5. For Oracle Application Server 10*g*, execute the following commands:
   - For UNIX and Linux based systems:

     ORACLE_BASE/*ORACLE_HOME*/dcm/bin/dcmctl updateConfig -ct ohs

   - For Windows based systems:

     *ORACLE_BASE**ORACLE_HOME*\dcm\bin\dcmctl updateConfig -ct ohs

6. Stop and restart Oracle HTTP Server.
   - For UNIX and Linux based systems, execute the following commands:

     ORACLE_BASE/*ORACLE_HOME*/opmn/bin/opmnctl stopproc ias-component=HTTP_Server
     ORACLE_BASE/*ORACLE_HOME*/opmn/bin/opmnctl startproc ias-component=HTTP_Server

   - For Windows based systems:

     *ORACLE_BASE**ORACLE_HOME*\opmn\bin\opmnctl stopproc ias-component=HTTP_Server
     *ORACLE_BASE**ORACLE_HOME*\opmn\bin\opmnctl startproc ias-component=HTTP_Server

See Also: "Obfuscating PlsqlDatabasePassword Parameter" on page 4-12 and *Oracle HTTP Server Administration Guide*

Configuring Oracle HTTP Server in a New Installation

Oracle Application Express must have access to Oracle HTTP Server with `mod_plsql`. The instructions that follow explain how to configure different versions of Oracle HTTP Server with `mod_plsql`.

Topics in this section include:

Configuring Oracle HTTP Server Release 9.0.3 in a New Installation

In Oracle HTTP Server Release 9.0.3, the `wdbsvr.app` file contains information about the DAD to access Oracle Application Express. A DAD is a set of values that specify how the Oracle HTTP Server component `modplsql` connects to the database server to fulfill an HTTP request.

Modifying the wdbsvr.app File in a New Installation

To create the DAD, you modify the file `wdbsvr.app` and add an entry for Oracle Application Express.

To modify the `wdbsvr.app` file:

1. Use a text editor and open the `wdbsvr.app` file:
   - For UNIX and Linux based systems, the file is located at:

     ORACLE_BASE/*ORACLE_HOME*/Apache/modplsql/cfg/wdbsvr.app

   - For Windows based systems:

     *ORACLE_BASE**ORACLE_HOME*\Apache\modplsql\cfg\wdbsvr.app

2. Add an entry for Oracle Application Express using the following syntax. Only change the settings indicated in italics.

```
[DAD_apex]
 connect_string = localhost:1521:orcl
 password = apex
 username = apex_public_user
 default_page = apex
 document_table = wwv_flow_file_objects$
 document_path = docs
 document_proc = wwv_flow_file_mgr.process_download
 reuse = Yes
 enablesso = No
 stateful = STATELESS_RESET
 nls_lang = American_America.AL32UTF8
```

   Where:

   - `connect_string` refers to the host ID, port number, and Oracle9*i* database where Oracle Application Express was installed. Use the format `host:port:sid`.

     If the Oracle9*i* version of Oracle HTTP Server you want to use is installed in the same Oracle home as the database you specified for use with Oracle Application Express, leave this parameter blank.

   - `password` is the Application Express password you passed as the first argument to the `apexins.sql` script.

   - `nls_lang` determines the language setting of the DAD. The character set portion of the `nls_lang` value must always be set to `AL32UTF8`, regardless of whether or not the database character set is `AL32UTF8`.

If either the territory portion or the language portion of the NLS settings contains a space, you must wrap the value in double quotes as shown in the following example:

```
nls_lang = "ENGLISH_UNITED KINGDOM.AL32UTF8"
```

You can find information about your database's NLS settings by querying the view `NLS_DATABASE_PARAMETERS` as shown in the following example:

```
SELECT parameter,value
FROM nls_database_parameters
WHERE PARAMETER IN ('NLS_CHARACTERSET','NLS_LANGUAGE','NLS_TERRITORY');
```

3. Leave the remaining settings, including the username setting, as they appear in the previous example.
4. Save and exit the `wdbsvr.app` file.

Modifying the Oracle9*i* httpd.conf

You need to modify the `httpd.conf` file to include an alias that points to the file system path where you copied the images directory. You may also need to modify the `httpd.conf` file to add two new MIME types to support SQL Workshop. If you are upgrading from Oracle HTML DB 2.0, these MIME types should already exist.

> **See Also:** "Copying the Images Directory When Upgrading" on page 4-2 and "Installing the Oracle Application Express Software" on page 3-2

To modify `httpd.conf` file:

1. Use a text editor and open the `httpd.conf` file
   - For UNIX and Linux based systems, the file is located at:

     ORACLE_BASE/*ORACLE_HOME*/Apache/Apache/conf/httpd.conf

   - For Windows based systems:

     *ORACLE_BASE**ORACLE_HOME*\Apache\Apache\conf\httpd.conf

2. Add an alias entry that points to the file system path where you copied the images directory. The following examples assume you specified the image directory alias as `/i/`when you ran the `apexins.sql` script.
   - Windows based system example:

     ```
     Alias /i/ "C:\oracle\ora92\Apache\Apache\images/"
     ```

     Note you must include the forward slash (/) at the end of the path.

   - UNIX and Linux based system example:

     ```
     Alias /i/ "/home/oracle/OraHome1/Apache/Apache/images/"
     ```

3. Next, add two new MIME types to support SQL Workshop:
   - Add the following line if it does not currently exist:

     ```
     AddType text/xml             xbl
     ```

   - Add the following line if it does not currently exist:

     ```
     AddType text/x-component     htc
     ```

If you are upgrading from Oracle HTML DB 2.0, these MIME types should already exist.

4. Save and exit the `httpd.conf` file.
5. Stop and restart Oracle HTTP Server.
   - For UNIX and Linux based systems, execute the following commands:

     ```
     ORACLE_BASE/ORACLE_HOME/Apache/Apache/bin/apachectl stop
     ORACLE_BASE/ORACLE_HOME/Apache/Apache/bin/apachectl start
     ```

     Note that if the Oracle HTTP Server is listening on a port less than 1024, then these commands must be executed as a privileged user (such as `root`).
   - For Windows based systems:
     - Stop Oracle HTTP Server - From the **Start** menu, select **Programs, Oracle - OraHome**, **Oracle HTTP Server**, and **Stop HTTP Server**.
     - Restart Oracle HTTP Server - From the **Start** menu, select **Programs**, **Oracle - OraHome**, **Oracle HTTP Server**, and **Start HTTP Server**.

     See Also: *Oracle HTTP Server Administrator's Guide*

Configuring Oracle HTTP Server 10*g* or Oracle Application Server 10*g* in a New Installation

Oracle Application Express must have access to Oracle HTTP Server with mod_plsql. Perform the following post-installation steps if:

- You are running Oracle HTTP Server 10*g* or Oracle Application Server 10*g*.
- Oracle HTTP Server is installed in an Oracle home.
- You have not previously configured Oracle HTTP Server to work with Oracle Application Express.

These instructions do not apply if you are running Oracle HTTP Server release 9.0.3. For more information on configuring Oracle HTTP Server release 9.0.3, see "Configuring Oracle HTTP Server Release 9.0.3 in a New Installation" on page 4-6.

Create a marvel.conf File

If you have not previously configured Oracle HTTP Server to work with Oracle Application Express, you need to create a `marvel.conf` file. The `marvel.conf` file contains the information about the DAD to access Oracle Application Express.

To create the `marvel.conf` file:

1. Use a text editor and create a file named `marvel.conf`.
   - For UNIX and Linux based systems, save to:

     ```
     ORACLE_BASE/ORACLE_HOME/Apache/modplsql/conf
     ```

   - For Windows based systems, save to:

     ```
     ORACLE_BASE\ORACLE_HOME\Apache\modplsql\conf\
     ```

2. Copy the following into the `marvel.conf` file. Replace `ORACLE_HOME`, `host`, `port`, `service_name`, and `apex_public_user_password` with values

appropriate for your environment. Note that `apex_public_user_password` should be the same as the first parameter you supplied to `apexins.sql`.

The following example assumes you specified the image directory alias as `/i/` when you installed Application Express. Note that the path listed is only an example. The path in your `marvel.conf` file should reference the images directory alias for your environment.

```
Alias /i/ "ORACLE_BASE/ORACLE_HOME/apex/images/"
AddType text/xml       xbl
AddType text/x-component       htc

<Location /pls/apex>
 Order deny,allow
 PlsqlDocumentPath docs
 AllowOverride None
 PlsqlDocumentProcedure      wwv_flow_file_manager.process_download
 PlsqlDatabaseConnectString  host:port:service_name ServiceNameFormat
 PlsqlNLSLanguage            AMERICAN_AMERICA.AL32UTF8
 PlsqlAuthenticationMode     Basic
 SetHandler                  pls_handler
 PlsqlDocumentTablename      wwv_flow_file_objects$
 PlsqlDatabaseUsername       APEX_PUBLIC_USER
 PlsqlDefaultPage            apex
 PlsqlDatabasePassword       apex_public_user_password
 Allow from all
</Location>
```

3. Locate the line containing `PlsqlNLSLanguage`.

   The `PlsqlNLSLanguage` setting determines the language setting of the DAD. The character set portion of the `PlsqlNLSLanguage` value must be set to `AL32UTF8`, regardless of whether or not the database character set is `AL32UTF8`. For example:

   ```
   ...
   PlsqlNLSLanguage            AMERICAN_AMERICA.AL32UTF8
   ...
   ```

4. Save and exit the `marvel.conf` file.

Edit the httpd.conf File

Next, you need to edit the `httpd.conf` file to reference the `marvel.conf` configuration file.

To edit the `httpd.conf` file:

1. Use a text editor and open the `httpd.conf` file.
   - For UNIX and Linux based systems:

     ORACLE_BASE/*ORACLE_HOME*/Apache/Apache/conf/httpd.conf

   - For Windows based systems:

     *ORACLE_BASE**ORACLE_HOME*\Apache\Apache\conf\httpd.conf

2. Add an entry to reference the `marvel.conf` configuration file.

   ```
   include "ORACLE_BASE/ORACLE_HOME/Apache/modplsql/conf/marvel.conf"
   ```

3. Save and exit the `httpd.conf` file.

Stop and Restart Oracle HTTP Server

To stop and restart Oracle HTTP Server:

- For UNIX and Linux based systems, execute the following commands:

```
ORACLE_BASE/ORACLE_HOME/opmn/bin/opmnctl stopproc ias-component=HTTP_Server
ORACLE_BASE/ORACLE_HOME/opmn/bin/opmnctl startproc ias-component=HTTP_Server
```

- For Windows based system, execute the following commands:

```
ORACLE_BASE\ORACLE_HOME\opmn\bin\opmnctl stopproc ias-component=HTTP_Server
ORACLE_BASE\ORACLE_HOME\opmn\bin\opmnctl startproc ias-component=HTTP_Server
```

Applying the PL/SQL Web Toolkit Patch

You must apply the PL/SQL Web Toolkit patch to every database where you wish to run Oracle Application Express 2.2. For instructions about applying this patch, please review the `README.txt` file contained in the directory `apex/patch/bug4554072`.

Installing Oracle Application Express in Other Languages

The Oracle Application Express interface is translated into German, Spanish, French, Italian, Japanese, Korean, Brazilian Portuguese, Simplified Chinese, and Traditional Chinese. A single instance of Oracle Application Express can be installed with one or more of these translated versions. At runtime, each user's Web browser language settings determine the specific language version.

The translated version of Oracle Application Express should be loaded into a database that has a character set that can support the specific language. If you attempt to install a translated version of Oracle Application Express into a database that does support the character encoding of the language, the installation may fail or the translated Oracle Application Express instance may appear corrupt when run. The database character set `AL32UTF8` supports all the translated versions of Oracle Application Express.

You can manually install translated versions of Oracle Application Express using SQL*Plus. The installation files are encoded in `UTF8`.

> **Note:** Regardless of the target database character set, to install a translated version of Oracle Application Express, you must set the character set value of the `NLS_LANG` environment variable to `AL32UTF8` prior to starting SQL*Plus.

The following examples illustrate valid `NLS_LANG` settings for loading Oracle Application Express translations:

```
American_America.AL32UTF8
Japanese_Japan.AL32UTF8
```

To install a translated version of Oracle Application Express:

1. Set the `NLS_LANG` environment variable, making sure that the character set is `AL32UTF8`. For example:
   - Bourne or Korn shell:

```
NLS_LANG=American_America.AL32UTF8
```

```
export NLS_LANG
```

- C shell:

```
setenv NLS_LANG American_America.AL32UTF8
```

- For Windows based systems:

```
set NLS_LANG=American_America.AL32UTF8
```

2. Start SQL*Plus and connect to the target database as `SYS`.
3. Execute the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = FLOWS_020200;
```

4. Execute the appropriate language specific script. For example:

```
@load_de.sql
```

The installation scripts are located in subdirectories identified by a language code in the unzipped distribution `/apex/builder`. For example, the German version is located in `/apex/builder/de` and the Japanese version is located in `/apex/builder/ja`. Within each of these directories, there is a language loading script identified by the language code (for example, `load_de.sql` or `load_ja.sql`).

Managing JOB_QUEUE_PROCESSES

`JOB_QUEUE_PROCESSES` determine the maximum number of concurrently running jobs. In Oracle Application Express release 2.2, transactional support and SQL scripts require jobs. If `JOB_QUEUE_PROCESSES` is not enabled and working properly, you cannot successfully execute a script.

Topics in this section include:

- Viewing the Number of JOB_QUEUE_PROCESSES
- Changing the Number of JOB_QUEUE_PROCESSES

Viewing the Number of JOB_QUEUE_PROCESSES

There are currently three ways to view the number of number of `JOB_QUEUE_PROCESSES`:

- In the installation log file
- On the About Application Express page in Oracle Application Express
- From SQL*Plus

Viewing JOB_QUEUE_PROCESSES in the Installation Log File

After installing or upgrading Oracle Application Express to release 2.2, you can view the number of `JOB_QUEUE_PROCESSES` in the installation log files. See "Reviewing a Log of an Installation Session" on page A-1.

Viewing JOB_QUEUE_PROCESSES in Oracle Application Express

You can also view the number of `JOB_QUEUE_PROCESSES` on the About Application Express page.

To view the About Application Express page:

1. Log in to Oracle Application Express. See "Logging in to Oracle Application Express" on page 4-13.
2. On the Administration list, click **About Application Express**.

   The current number JOB_QUEUE_PROCESSES displays at the bottom of the page.

Viewing JOB_QUEUE_PROCESSES from SQL*Plus

Users can also view the number of JOB_QUEUE_PROCESSES from SQL*Plus by running the following SQL statement:

```
SELECT VALUE FROM v$parameter WHERE NAME = 'job_queue_processes'
```

Changing the Number of JOB_QUEUE_PROCESSES

You can change the number of JOB_QUEUE_PROCESSES by running a SQL statement in SQL*Plus:

To update the number of JOB_QUEUE_PROCESSES:

1. Log in to the database as SYSDBA using SQL*Plus.
2. In SQL*Plus run the following SQL statement:

   ```
   ALTER SYSTEM SET JOB_QUEUE_PROCESSES = <number>
   ```

   For example, running the statement ALTER SYSTEM SET JOB_QUEUE_PROCESSES = 20 sets JOB_QUEUE_PROCESSES to 20.

Obfuscating PlsqlDatabasePassword Parameter

The PlsqlDatabasePassword parameter specifies the password for logging in to the database. You can use the dadTool.pl utility to obfuscate passwords in the dads.conf file.

You can find the dadTool.pl utility in the following directory:

- For UNIX and Linux based systems:

  ORACLE_BASE/*ORACLE_HOME*/Apache/modplsql/conf

- For Windows based systems:

  *ORACLE_BASE**ORACLE_HOME*\Apache\modplsql\conf

Obfuscating Passwords

To obfuscate passwords:

1. Use a text editor and copy the entry for /pls/htmldb or /pls/apex from the marvel.conf file into the dads.conf file.
   - For UNIX and Linux based systems, these files are located in:

     ORACLE_BASE/*ORACLE_HOME*/Apache/modplsql/conf/dads.conf

   - For Windows based systems, these files are located in:

     *ORACLE_BASE**ORACLE_HOME*\Apache\modplsql\conf\dads.conf

2. Run dadTool.pl by following the instructions in the dadTool.README file.

3. Copy the entry for `/pls/htmldb` or `/pls/apex` from the `dads.conf` file back into `marvel.conf`.
4. Remove the entry for `/pls/htmldb` or `/pls/apex` from the `dads.conf` file.

Logging in to Oracle Application Express

You open the Oracle Application Express home page in a Web browser. To view or develop Oracle Application Express applications, the Web browser must support JavaScript and the HTML 4.0 and CSS 1.0 standards. The following browsers meet this requirement:

- Microsoft Internet Explorer 6.0 or higher (Windows only)
- Netscape Communicator 7.2 or higher
- Mozilla 1.2 or higher
- Firefox 1.0 or higher

Accessing the Oracle Application Express Login Page

To log in to Oracle Application Express, open the following URL in a Web browser:

```
http://hostname:port/pls/database_access_descriptor/
```

Where:

- `hostname` is the name of the system where Oracle HTTP Server is installed.
- `port` is the port number assigned to Oracle HTTP Server.

  In a default installation, this number is 7777. You can find information about your Oracle HTTP Server installation's port number from the `httpd.conf` file, located in `ORACLE_BASE\ORACLE_HOME\Apache\Apache\conf`, by searching for Port.

  You can also find the port number in the `portlist.ini` file, located in `ORACLE_BASE\ORACLE_HOME\install`. However, be aware that if you change a port number, it is not updated in the `portlist.ini` file, so you can only rely on this file immediately after installation.
- `database_access_descriptor` describes how Oracle HTTP Server connects to the database server so that it can fulfill an HTTP request. The default value is `apex`.

  See Also: `ORACLE_BASE\ORACLE_HOME\Apache\modplsql\conf\dads.readme` for more information on database access descriptors

The Oracle Application Express Login page appears.

In the Oracle Application Express development environment, users log in to a shared work area called a workspace. Users are divided into three primary roles:

- **Developers** create and edit applications.
- **Workspace administrators** perform administrator tasks specific to a workspace such as managing user accounts, monitoring workspace activity, and viewing log files.

- **Oracle Application Express administrator** are superusers that manage an entire hosted instance using the Oracle Application Express Administration Services application.

If you are a developer, an administrator must grant you access to a workspace. If you are an Oracle Application Express administrator, you need to:

- **Log in to Oracle Application Express Administration Services.** Oracle Application Express Administration Services is a separate application for managing an entire Oracle Application Express instance.
- **Specify a provisioning mode.** In Oracle Application Express Administration Services, you need to determine how the process of creating (or provisioning) a workspace will work in your development environment.
- **Create a Workspace.** A workspace is a shared work area within the Oracle Application Express development environment that has a unique ID and name. An Oracle Application Express administrator can create a workspace manually or have users submit requests.
- **Log in to a Workspace.** Once you create a workspace in Oracle Application Express Administration Services, return to the Oracle Application Express Login page and log in to that workspace.

> **See Also:** "Quick Start" in *Oracle Database Application Express User's Guide*

A

Oracle Application Express Troubleshooting

This appendix contains information on troubleshooting.

This chapter contains these topics:

- Reviewing a Log of an Installation Session
- Cleaning Up After a Failed Installation
- Images Displaying Incorrectly in Oracle Application Express
- Online Help Not Working

Reviewing a Log of an Installation Session

The `apexins.sql` script creates a log file in the `apex` directory using the naming convention `installYYYY-MM-DD_HH24-MI-SS.log`. In a successful installation, the log file contains the following text:

```
Thank you for installing Oracle Application Express.
Oracle Application Express is installed in the FLOWS_020200 schema.
```

If the log file contains a few errors, it does not mean that your installation failed. Note that acceptable errors are noted as such in the log file.

Cleaning Up After a Failed Installation

In a successful installation the following banner displays at the end of the installation:

```
Thank you for installing Oracle Application Express.
Oracle Application Express is installed in the FLOWS_020200 schema.
```

To reinstall, you need to drop either one or two database schemas, depending upon the installation type.

After a Failed Upgrade Installation

In the case of a failed upgrade installation, you need to revert Oracle Application Express to a previous release and then remove the schemas associated with release 2.2.

Reverting to Previous Release

To revert to a previous Oracle Application Express release:

1. If you altered your images directory, you need to point the text alias `/i/` back to images directory for release 1.5. See "Copying the Images Directory When Upgrading" on page 4-2.

2. Execute the following command in SQL*Plus:

   a. Start SQL*Plus and connect the database where Oracle Application Express is installed as SYS or SYSTEM. For example:

      ```
      c:\> sqlplus sys/SYS_password as sysdba
      ```

   b. To revert to Oracle Application Express release 1.5, execute the following:

      ```
      ALTER SESSION SET CURRENT_SCHEMA = FLOWS_010500;
      exec flows_010500.wwv_flow_upgrade.switch_schemas
      ('FLOWS_020200','FLOWS_010500');
      ```

   c. To revert to Oracle Application Express release 1.6, execute the following:

      ```
      ALTER SESSION SET CURRENT_SCHEMA = FLOWS_010600;
      exec flows_010600.wwv_flow_upgrade.switch_schemas
      ('FLOWS_020200','FLOWS_010600');
      ```

   d. To revert to Oracle Application Express release 2.0, execute the following:

      ```
      ALTER SESSION SET CURRENT_SCHEMA = FLOWS_020000;
      exec flows_020000.wwv_flow_upgrade.switch_schemas
      ('FLOWS_020200','FLOWS_020000');
      ```

To remove the release 2.2 schema:

1. Start SQL*Plus and connect the database where Oracle Application Express is installed as `SYS` or `SYSTEM`.
2. Execute the following commands:

   ```
   DROP user FLOWS_020200 CASCADE;
   ```

After a Failed New Installation

To remove schemas after a failed new installation:

1. Start SQL*Plus and connect the database where Oracle Application Express is installed as `SYS` or `SYSTEM`.
2. Execute the following commands:

   ```
   drop user FLOWS_020200 cascade;
   drop user FLOWS_FILES cascade;
   ```

Images Displaying Incorrectly in Oracle Application Express

In "Configuring Oracle HTTP Server in a New Installation" on page 4-5, you added an alias entry that points to the file system path where you copied the images directory. If images in Oracle Application Express do not display correctly, you may have more than one definition of the `/i/` alias. To address this issue:

- If possible, rename the first instance of `/i/` to a different alias name.
- Alternatively, copy the images from the `ORACLE_BASE\ORACLE_HOME\marvel\images` directory to the directory defined by the first `/i/` alias.

Online Help Not Working

If users are accessing Oracle Application Express through a Virtual Host, online Help will not work. Consider the following example:

- The hostname of the Oracle HTTP Server where the Oracle Application Express DAD resides is `internal.server.com` and the port is `7777`.
- Users access Oracle Application Express through a Virtual Host. In their Web browsers, users see `external.server.com` and port `80`.

In this example, Oracle Application Express online Help will not work if the users cannot access `internal.server.com`. To resolve this issue, add the following lines to the Oracle Application Express Database Access Descriptor (DAD) to override the CGI environment variables `SERVER_NAME` and `SERVER_PORT`:

```
PlsqlCGIEnvironmentList SERVER_NAME=external.server.com
PlsqlCGIEnvironmentList SERVER_PORT=80
```

> **See Also:** *Oracle HTTP Server mod_plsql User's Guide* for information on overriding the CGI environment variables and "Oracle Text Requirement" on page 2-2

Index

O

P

R

S

T

U

W

X