

Oracle® Database

Application Express Installation Guide

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Oracle Database Application Express Installation Guide, Release 3.0

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Preface

This guide explains how to install and configure Oracle Application Express release 3.0.

This Preface contains these topics:

- [Audience](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)
- [Third-Party License Information](#)

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.

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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 2 Day + Application Express Developer's Guide*
- *Oracle Database Application Express User's Guide*
- *Oracle Database Application Express Advanced Tutorials*
- *Oracle Database Concepts*
- *Oracle HTTP Server Administrator's Guide*
- *Oracle9i Application Server Administrator's Guide*
- *Oracle Database Advanced Application Developer's Guide*
- *Oracle Database Administrator's Guide*
- *Oracle Database SQL Language Reference*
- *SQL*Plus User's Guide and Reference*

For information about Oracle error messages, see *Oracle Database Error Messages*. Oracle error message documentation is available only in HTML. If you have access to the Oracle Database 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://www.oracle.com/technology/membership/>

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

<http://www.oracle.com/technology/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.
<i>italic</i>	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.

Third-Party License Information

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AnyChart

Flash chart support in Oracle Application Express is based on the Anychart Flash Chart Component. Anychart is a flexible Macromedia Flash-based solution that enables developers to create animated, compact, interactive flash charts. Flash charts are rendered by a browser and require Flash player 8 or higher. For more information about Anychart, go to

<http://www.anychart.com>

FCKeditor

Oracle Application Express uses FCKeditor version 2.3.2 for the following item types; HTML Editor Minimal and HTML Editor Standard. This software is licensed under the Apache License, Version 2.0 (the "License"). To view a copy of the Apache License, see [Appendix B, "Third-Party License"](#) on page B-1.

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For more information about FCKeditor, go to:

<http://www.fckeditor.net/>

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](#)
- [Understanding the Installation Process](#)
- [Upgrading from a Previous Version of Oracle Application Express](#)

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:** "[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:
 - "[Installing the Software](#)" describes how to install the software.
 - "[Oracle Application Express Troubleshooting](#)" provides installation troubleshooting advice.
4. **Complete post-installation tasks:** "[Oracle Application Express Post-installation Tasks](#)" describes recommended and required postinstallation tasks.

Understanding the Installation Process

Installing Oracle Application Express consists of the following steps:

1. Install the database objects that make up Oracle Application Express in an Oracle database. See "[Installing the Software](#)" on page 3-1.
2. Choose an HTTP Server. See "[Choosing an HTTP Server](#)" on page 4-1.
3. If you are using Oracle HTTP Server as your Web server, copy the Images Directory. See "[Copying the Images Directory](#)" on page 4-4.

4. Configure your HTTP Server. See "[Configuring the Embedded PL/SQL Gateway](#)" on page 4-2 or "[Configuring Oracle HTTP Server](#)" on page 4-4.
5. Log in to Oracle Application Express. See "[About Logging In to Oracle Application Express](#)" on page 4-12.

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, 2.0.0.00.49, or 2.2.1.00.04 of Oracle Application Express, running this install upgrades your Oracle Application Express instance to version 3.0. This install also creates Oracle Application Express 3.0 database objects in a new schema and migrates the application metadata to the new version.

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](#)
- [Browser Requirement](#)
- [HTTP Server Requirements](#)
- [Disk Space Requirement](#)
- [Oracle XML DB Requirement](#)
- [Oracle Text Requirement](#)
- [PL/SQL Web Toolkit](#)

Oracle Database Requirement

Oracle Application Express version 3.0 requires an Oracle database that is release 9.2 or higher.

Note: Do not install this version of Oracle Application Express on Oracle Database Express Edition (Oracle Database XE).

Oracle JVM Requirement

If plan to run Oracle Application Express with an Oracle database earlier than Oracle Database 10g release 1 (10.1), you must install Oracle Java Virtual Machine (JVM). To learn more, see the *Oracle Database Installation Guide* for your operating environment.

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 (`init sid .ora`) or a server parameter file (`spfile $dbname$.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 (`init sid .ora`).

6. Shut down the database:

```
SQL> SHUTDOWN
```

7. Restart the database:

```
SQL> STARTUP
```

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 later version
- Firefox 1.0 or later

HTTP Server Requirements

In order to run, Oracle Application Express must have access to one of the following:

- Embedded PL/SQL gateway
- Oracle HTTP Server and `mod_plsql`

Oracle XML DB HTTP Server with the embedded PL/SQL gateway installs with Oracle Database 11g. It provides the database with a Web server and also the necessary infrastructure to create dynamic applications.

Oracle HTTP Server uses the `mod_plsql` plug-in to communicate to the Oracle Application Express engine within the Oracle database. The following products include appropriate versions of HTTP Server and `mod_plsql`:

- Oracle9i release 2 (9.2) or higher
- Oracle9i Application Server release 1 (1.0.2.2) or higher
- Oracle Database 10g Companion CD release 1 or 2
- Oracle Database 11g release 1

See Also: ["Choosing an HTTP Server"](#) on page 4-1

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 in order to 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 `drdeflang.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

PL/SQL Web Toolkit

Oracle Application Express requires the PL/SQL Web Toolkit version 10.1.2.0.6 or later. For instructions on determining the current version of the PL/SQL Web Toolkit, and for instructions on installing version 10.1.2.0.6, please review the `README.txt` file contained in the directory `apex/owa`.

Installing the Software

This chapter describes how to install Oracle Application Express release 3.0.

This chapter contains these topics:

- [Recommended Pre-installation Tasks](#)
- [Installing the Oracle Application Express Software](#)

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 User's Guide*

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 3.0:

1. Download the file `apex_3.0.zip` from the Oracle Application Express download page. See:

http://www.oracle.com/technology/products/database/application_express/download.html

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

2. Unzip `apex_3.0.zip` as follows, preserving directory names:
 - UNIX and Linux: Unzip `apex_3.0.zip`
 - Windows: Double click the file `apex_3.0.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`. For example:

```
SYSTEM_DRIVE:\apex\sqlplus sys/SYS_password as sysdba
```

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

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

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/`.

The following examples demonstrate running `apexins.sql` and passing these arguments:

```
@apexins password SYSBAUX SYSBAUX TEMP /i/
```

See Also: *Oracle Database PL/SQL Language Reference* for more information about SQL*Plus

When Oracle Application Express installs it creates three new database accounts:

- FLOWS_030000
- FLOWS_FILES
- APEX_PUBLIC_USER

If you are upgrading from a previous release, FLOWS_FILES, already exists and APEX_PUBLIC_USER is created if it does not already exist.

Tip: Oracle Application Express must be installed from a writable directory on the file system. See "[Reviewing a Log of an Installation Session](#)" on page A-1.

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:

- [Choosing an HTTP Server](#)
- [Configuring the Embedded PL/SQL Gateway](#)
- [Configuring Oracle HTTP Server](#)
- [Security Considerations](#)
- [Installing Oracle Application Express in Other Languages](#)
- [Managing JOB_QUEUE_PROCESSES](#)
- [Obfuscating PlsqlDatabasePassword Parameter](#)
- [About 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.

Choosing an HTTP Server

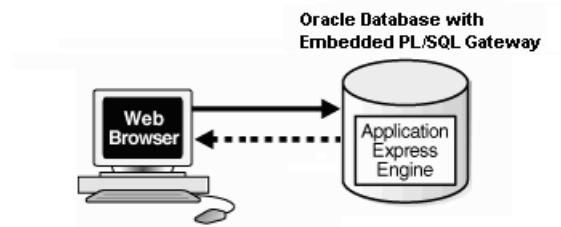
In order to run, Oracle Application Express must have access to either the embedded PL/SQL gateway or Oracle HTTP Server and `mod_plsql`.

Topics in this section include:

- [About the Embedded PL/SQL Gateway](#)
- [About Oracle HTTP Server and `mod_plsql`](#)

About the Embedded PL/SQL Gateway

The embedded PL/SQL gateway installs with Oracle Database 11g. It provides the Oracle database with a Web server and also the necessary infrastructure to create dynamic applications. The embedded PL/SQL gateway runs in the Oracle XML DB HTTP server in the Oracle database and includes the core features of `mod_plsql`. The following graphic illustrates the Oracle Application Express architecture using the embedded PL/SQL gateway.

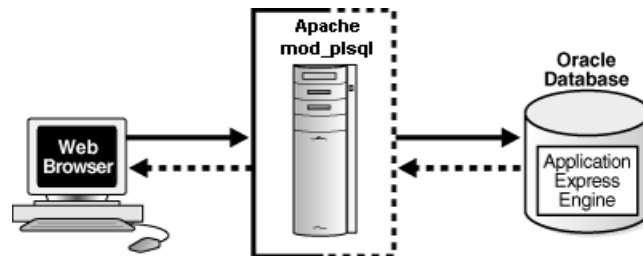


As shown in the previous graphic, the embedded PL/SQL gateway offers a simple two tier architecture: a Web browser and an Oracle database, containing the embedded PL/SQL and Oracle Application Express.

See Also: ["Configuring the Embedded PL/SQL Gateway"](#) on page 4-2

About Oracle HTTP Server and mod_plsql

Oracle HTTP Server uses the `mod_plsql` plug-in to communicate to the Oracle Application Express engine within the Oracle database. It functions as communication broker between the Web server and the Oracle Application Express objects in the Oracle database. More specifically, it maps browser requests into database stored procedure calls over a SQL*Net connection. The following graphic illustrates the Oracle Application Express architecture using Oracle HTTP Server and `mod_plsql`.



See Also: ["HTTP Server Requirements"](#) on page 2-2 and ["Configuring Oracle HTTP Server"](#) on page 4-4

Note that this configuration consists of three tier architecture: a Web browser, Oracle HTTP Server (Apache) with `mod_plsql`, and an Oracle database containing Oracle Application Express.

Configuring the Embedded PL/SQL Gateway

Although the embedded PL/SQL gateway installs with the Oracle database, you must configure it before you can use it with Oracle Application Express. To accomplish, you run a configuration file and unlock the `ANONYMOUS` account.

Topics in this section include:

- [Configuring the Embedded PL/SQL Gateway](#)
- [Verifying the Oracle XML DB HTTP Server Port](#)
- [Disabling and Enabling the Oracle XML DB HTTP Server](#)

See Also: ["Choosing an HTTP Server"](#) on page 4-1 and ["About the Embedded PL/SQL Gateway"](#) on page 4-1

Configuring the Embedded PL/SQL Gateway

In a new installation, you configure the embedded PL/SQL gateway by running the configuration script `apex_epg_config11.sql`. Then, you unlock the `ANONYMOUS` account.

To configure the embedded PL/SQL gateway:

1. Change your working directory to the `apex` directory where you unzipped the Application Express software.
2. Start SQL*Plus and connect the database where Oracle Application Express is installed as `SYS`. For example:

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

3. Run `apex_epg_config11.sql` passing the file system path to the base directory where the Application Express software was unzipped as shown in the following example:

- On Windows:

```
@apex_epg_config11 SYSTEM_DRIVE:\TEMP
```

- On Linux:

```
@apex_epg_config11 /tmp
```

4. Enter the following statement to unlock the `ANONYMOUS` account:

```
ALTER USER ANONYMOUS ACCOUNT UNLOCK;
```

Verifying the Oracle XML DB HTTP Server Port

To verify the port number where the Oracle XML DB HTTP Server is running:

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

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

2. Enter the following statement to verify the port number:

```
SELECT DBMS_XDB.GETHTTPPORT FROM DUAL;
```

If the port number returns 0, the Oracle XML DB HTTP Server is disabled.

3. To enable it, follow the instructions in ["Enabling Oracle XML DB HTTP Server"](#) on page 4-4.

Disabling and Enabling the Oracle XML DB HTTP Server

The embedded PL/SQL gateway runs in the Oracle XML DB HTTP server in the Oracle database. This section describes how to enable or disable the Oracle XML DB HTTP server.

Topics in this section include:

- [Disabling Oracle XML DB HTTP Server](#)

- [Enabling Oracle XML DB HTTP Server](#)

Disabling Oracle XML DB HTTP Server

To disable Oracle XML DB HTTP server:

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

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

2. Run the following command:

```
EXEC DBMS_XDB.SETHTTPPORT(0);
```

Enabling Oracle XML DB HTTP Server

To enable Oracle XML DB HTTP server:

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

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

2. Run the following command:

```
EXEC DBMS_XDB.SETHTTPPORT(port);
```

For example:

```
EXEC DBMS_XDB.SETHTTPPORT(8080);
```

Configuring Oracle HTTP Server

This section describes how to configure Oracle HTTP Server with `mod_plsql`.

Topics in this section include:

- [Copying the Images Directory](#)
- [Configuring Oracle HTTP Server Release 9.0.3](#)
- [Configuring Oracle HTTP Server 11g or Oracle Application Server 10g](#)

See Also: "Installing Oracle HTTP Server" in *Oracle Database Companion CD Installation Guide* for your operating environment "[About Oracle HTTP Server and mod_plsql](#)" on page 4-2, and "[Copying the Images Directory](#)" on page 4-4

Copying the Images Directory

The following section only applies if you are using Oracle HTTP Server as your Web server. After you create all of the required Oracle Application Express database objects, you need to copy the `images` directory into the directory tree of the Oracle HTTP Server. The `apex/images` directory contains Application Express images, templates, cascading style sheets, themes, JavaScript files, and other required file types.

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_2`). 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/`:

- Oracle9i HTTP Server Release 2, see the `httpd.conf` file
- Oracle Application Server 10g, see the `marvel.conf` file
- Oracle HTTP Server 11g, see the `dads.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 Release 9.0.3

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.

Topics in this section include:

- [Modifying the `wdbsvr.app` File](#)
- [Modifying the Oracle9i `httpd.conf`](#)

Modifying the `wdbsvr.app` File

To create the DAD, you modify the `wdbsvr.app` file 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 Oracle9i database where Oracle Application Express was installed. Use the format `host:port:sid`.

If the Oracle9i 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 password for Oracle Application Express ADMIN account you specified when you installed Oracle Application Express. See ["Installing the Oracle Application Express Software"](#) on page 3-2.
- `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 user name setting, as they appear in the previous example.
4. Save and exit the `wdbsvr.app` file.

Modifying the Oracle9i 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.

See Also: ["Copying the Images Directory When Upgrading"](#) on page 4-5

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 or later, 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 11g or Oracle Application Server 10g

Perform the following post-installation steps if:

- You are running Oracle HTTP Server 11g or Oracle Application Server 10g.
- Oracle HTTP Server is installed in an Oracle home.
- You have not previously configured Oracle HTTP Server to work with Oracle Application Express.

Topics in this section include:

- [Editing the dads.conf File](#)
- [Stopping and Restarting Oracle HTTP Server](#)

Note that instructions do not apply if you are running Oracle HTTP Server release 9.0.3. To learn more, see "[Configuring Oracle HTTP Server Release 9.0.3](#)" on page 4-5.

Editing the dads.conf File

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

To edit the `dads.conf` file:

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


```
ORACLE_BASE/ORACLE_HOME/Apache/modplsql/conf/dads.conf
```
 - For Windows based systems, open:


```
ORACLE_BASE\ORACLE_HOME\Apache\modplsql\conf\dads.conf
```
2. Copy the following into the `dads.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` is the password you defined when you installed Oracle Application Express.

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 `dads.conf` file should reference the images directory file system path where you copied the images in the "[Copying the Images Directory](#)" on page 4-4.

```
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_mgr.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 `dads.conf` file.

Stopping and Restarting 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

```

Security Considerations

Oracle highly recommends you configure and use a Secure Sockets Layer (SSL) to ensure that passwords and other sensitive data are not transmitted in clear text in HTTP requests.

SSL is an industry standard protocol that uses RSA public key cryptography in conjunction with symmetric key cryptography to provide authentication, encryption, and data integrity.

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 supports the specific language. If you attempt to install a translated version of Oracle Application Express into a database that does not 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 the database where Oracle Application Express is installed as SYS. For example:

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

3. Execute the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = FLOWS_030000;
```

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 `$ORACLE_HOME/apex/builder`. For example, the German version is located in `$ORACLE_HOME/apex/builder/de` and the Japanese version is located in `$ORACLE_HOME/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 3.0, 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 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 3.0, 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 "[About Logging In to Oracle Application Express](#)" on page 4-12.
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

You 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, run `dadTool.pl` by following the instructions in the `dadTool.README` file.

About Logging In to Oracle Application Express

You access 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. See "[Browser Requirement](#)" on page 2-2.

Topics in this section include:

- [About Application Express User Roles](#)
- [About Setting Up Your Local Environment](#)

About Application Express User Roles

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

- **Oracle Application Express administrators** are superusers that manage an entire hosted instance using the Application Express Administration Services application.
- **Workspace administrators** are users who perform administrator tasks specific to a workspace such as managing user accounts, monitoring workspace activity, and viewing log files.
- **Developers** are users who create and edit applications. Developers can have their own workspace or share a workspace.
- **End users** have no development privileges. You define end users so that they can access applications that do not use an external authentication scheme.

About Setting Up Your Local Environment

How you set up Oracle Application Express depends upon your user role. If you are a **developer** accessing a hosted development environment, an administrator must grant you access to a workspace. If you are an **Oracle Application Express administrator**, you must perform the following steps:

- 1. 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. You log in using the ADMIN account and password created or reset during the installation process.
- 2. 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.
- 3. Create a Workspace.** A **workspace** is a virtual private database allowing multiple users to work within the same Oracle Application Express installation while keeping their objects, data and applications private. Each workspace has a unique ID and name. An Oracle Application Express administrator can create a workspace manually or have users submit requests.
- 4. 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: *Oracle Database 2 Day + Application Express Developer's Guide* or "Quick Start" in *Oracle Database Application Express User's Guide*

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_030000 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_030000 schema.
```

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

Topics in this section include:

- [Reverting to a Previous Release After a Failed Upgrade Installation](#)
- [Removing Schemas After a Failed New Installation](#)
- [Removing Oracle Application Express from the Database](#)

Reverting to a Previous Release 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 3.0.

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 4-5.
2. Execute the following command in SQL*Plus:

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

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

```
ALTER SESSION SET CURRENT_SCHEMA = FLOWS_010500;  
exec flows_010500.wv_flow_upgrade.switch_schemas  
( 'FLOWS_030000', '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.wv_flow_upgrade.switch_schemas  
( 'FLOWS_030000', '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.wv_flow_upgrade.switch_schemas  
( 'FLOWS_030000', 'FLOWS_020000' );
```

- e. To revert to Oracle Application Express release 2.2, execute the following:

```
ALTER SESSION SET CURRENT_SCHEMA = FLOWS_020200;  
exec flows_020200.wv_flow_upgrade.switch_schemas  
( 'FLOWS_030000', 'FLOWS_020200' );
```

Removing the Oracle Application Express Release 3.0 Schema

To remove the release 3.0 schema:

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

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

2. Execute the following commands:

```
DROP user FLOWS_030000 CASCADE;
```

Removing Schemas 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. For example:

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```

2. Execute the following commands:

```
drop user FLOWS_030000 cascade;  
drop user FLOWS_FILES cascade;
```

Removing Oracle Application Express from the Database

This section describes how to remove the Oracle Application Express schema, synonyms, and users from the database without deleting the database. If you are going to delete the database, then you do not need to complete these steps.

Note: Do not follow these steps if you have upgraded your database from a prior release, and still want to use the prior release of Oracle Application Express. This script will determine if a prior release is installed, and will not drop the `FLows_FILES` or `APEX_PUBLIC_USER` user if a prior release is installed. For information about reverting to a prior release, see "A.2.1.1 Reverting to Previous Release" section of *Oracle Database Installation Guide*.

To remove Oracle Application Express from the database:

1. Change your working directory to the `apex` directory where you unzipped the Application Express software.
2. Start SQL*Plus and connect to the database as the privileged user `SYS`, for example:

```
SYSTEM_DRIVE:\sqlplus sys/SYSpassword as sysdba
```

3. Execute the following command:

```
SQL> @apxremov.sql
```

Images Displaying Incorrectly in Oracle Application Express

In "Configuring Oracle HTTP Server" on page 4-4, 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

This section describes issues

Topics in this section include:

- [Online Help Not Working When Using a Virtual Host](#)
- [Problems Searching Online Help](#)

Online Help Not Working When Using a Virtual Host

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 2-3

Problems Searching Online Help

The underlying index that enables search capability in Oracle Application Express online Help is created upon first use. Note that this index must be created over a non-SSL link. If your connection is an SSL link, `https` displays in the URL. To index online help, access Oracle Application Express over a non-SSL link. Once the online Help index is created, you can revert to normal `https` access.

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