

**Oracle® Database**  
Application Express Installation Guide  
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Oracle Database Application Express Installation Guide, Release 3.0

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# Contents

<b>Preface</b> .....	v
Audience .....	v
Documentation Accessibility .....	v
Related Documents .....	vi
Conventions .....	vii
Third-Party License Information.....	vii
<b>1 Oracle Application Express Installation Overview</b>	
Overview of the Installation Process.....	1-1
Understanding the Installation Process.....	1-1
Upgrading from a Previous Version of Oracle Application Express.....	1-2
<b>2 Oracle Application Express Installation Requirements</b>	
Oracle Database Requirement .....	2-1
Oracle JVM Requirement .....	2-1
Checking the shared_pool_size of the Target Database.....	2-1
Browser Requirement.....	2-2
HTTP Server Requirements .....	2-2
Disk Space Requirement .....	2-3
Oracle XML DB Requirement.....	2-3
Oracle Text Requirement .....	2-3
PL/SQL Web Toolkit .....	2-4
<b>3 Installing the Software</b>	
Recommended Pre-installation Tasks .....	3-1
Installing the Oracle Application Express Software .....	3-2
<b>4 Oracle Application Express Post-installation Tasks</b>	
Restarting Processes.....	4-1
Choosing an HTTP Server.....	4-1
About the Embedded PL/SQL Gateway.....	4-2
About Oracle HTTP Server and mod_plsql .....	4-2
About Configuring the Embedded PL/SQL Gateway.....	4-2
Configuring the Embedded PL/SQL Gateway .....	4-3

Verifying the Oracle XML DB HTTP Server Port.....	4-3
Disabling and Enabling the Oracle XML DB HTTP Server .....	4-4
Disabling Oracle XML DB HTTP Server .....	4-4
Enabling Oracle XML DB HTTP Server.....	4-4
<b>About Configuring Oracle HTTP Server.....</b>	<b>4-5</b>
Copying the Images Directory .....	4-5
Copying the Images Directory After an Upgrade.....	4-5
Copying the Images Directory in a New Installation.....	4-6
Configuring Oracle HTTP Server Release 9.0.3 .....	4-7
Modifying the wdbsvr.app File .....	4-7
Modifying the Oracle9i httpd.conf .....	4-8
Configuring Oracle HTTP Server 11g or Oracle Application Server 10g.....	4-9
Editing the dads.conf File .....	4-9
Stopping and Restarting Oracle HTTP Server.....	4-10
<b>Enabling Network Services in Oracle Database 11g .....</b>	<b>4-11</b>
<b>Security Considerations .....</b>	<b>4-13</b>
<b>Installing Oracle Application Express in Other Languages .....</b>	<b>4-13</b>
<b>Managing JOB_QUEUE_PROCESSES .....</b>	<b>4-14</b>
Viewing the Number of JOB_QUEUE_PROCESSES .....	4-14
Viewing JOB_QUEUE_PROCESSES in the Installation Log File.....	4-14
Viewing JOB_QUEUE_PROCESSES in Oracle Application Express .....	4-15
Viewing JOB_QUEUE_PROCESSES from SQL*Plus .....	4-15
Changing the Number of JOB_QUEUE_PROCESSES.....	4-15
<b>Obfuscating PlsqlDatabasePassword Parameter .....</b>	<b>4-15</b>
Obfuscating Passwords.....	4-15
<b>About Logging In to Oracle Application Express.....</b>	<b>4-16</b>
About Application Express User Roles.....	4-16
About Setting Up Your Local Environment.....	4-16

## **A Oracle Application Express Troubleshooting**

<b>Reviewing a Log of an Installation Session.....</b>	<b>A-1</b>
<b>Cleaning Up After a Failed Installation.....</b>	<b>A-1</b>
Reverting to a Previous Release After a Failed Upgrade Installation .....	A-1
Reverting to Previous Release.....	A-2
Removing the Oracle Application Express Release 3.0 Schema .....	A-2
Removing Schemas After a Failed New Installation .....	A-2
Removing Oracle Application Express from the Database.....	A-3
<b>Images Displaying Incorrectly in Oracle Application Express .....</b>	<b>A-3</b>
<b>Online Help Not Working .....</b>	<b>A-3</b>
Online Help Not Working When Using a Virtual Host .....	A-3
Problems Searching Online Help.....	A-4

## **B Third-Party License**

<b>Apache License .....</b>	<b>B-1</b>
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## **Index**

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# Preface

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

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

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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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## **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
<b>boldface</b>	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

Oracle Application Express contains third-party code. Oracle is required to provide the following notices. Note, however, that the Oracle program license that accompanied this product determines your right to use the Oracle program, including the third-party software, and the terms contained in the following notices do not change those rights.

### 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/>



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# 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 4-5.

4. Configure your HTTP Server. See "[About Configuring the Embedded PL/SQL Gateway](#)" on page 4-2 or "[About Configuring Oracle HTTP Server](#)" on page 4-5.
5. Log in to Oracle Application Express. See "[About Logging In to Oracle Application Express](#)" on page 4-16.

## 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.

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# Oracle Application Express Installation Requirements

This chapter describes the requirements for installing Oracle Application Express.

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:** You can upgrade the version of Application Express in Oracle Database Express Edition 10g Release 2 (10.2), by installing Oracle Application Express version 3.0.1. For more information, see the Oracle Application Express page on Oracle Technology Network (OTN).

## 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

**Note:** Ignore this requirement if your configuration uses non-null values for the database initialization parameters `SGA_TARGET` (in Oracle Database 10g and 11g) or `MEMORY_TARGET` (in Oracle Database 11g).

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
```

## 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 and ["Enabling Network Services in Oracle Database 11g"](#) on page 4-11

## 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`.

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## Installing the Software

This chapter describes how to install Oracle Application Express.

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.

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

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## 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](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:

- On Windows:

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

- On UNIX and Linux:

```
$ 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 SYSaux SYSaux 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` - The account that owns the Application Express schema and metadata.
- `FLows_FILES` - The account that owns the Application Express uploaded files.
- `APEX_PUBLIC_USER` - The minimally privileged account used for Application Express configuration with Oracle HTTP Server and `mod_plsql`.

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.



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# 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:

- [Restarting Processes](#)
- [Choosing an HTTP Server](#)
- [About Configuring the Embedded PL/SQL Gateway](#)
- [About Configuring Oracle HTTP Server](#)
- [Enabling Network Services in Oracle Database 11g](#)
- [Security Considerations](#)
- [Installing Oracle Application Express in Other Languages](#)
- [Managing JOB\\_QUEUE\\_PROCESSES](#)
- [Obfuscating PlsqlDatabasePassword Parameter](#)
- [About Logging In to Oracle Application Express](#)

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**Note:** Within the context of this document, the Apache Oracle home directory (ORACLE\_HTTPSERVER\_HOME) is the location where Oracle HTTP Server is installed.

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## Restarting Processes

After you install Oracle Application Express, you need to restart the processes that you stopped before you began the installation, such as listener and other processes. In addition, restart Oracle HTTP Server.

## Choosing an HTTP Server

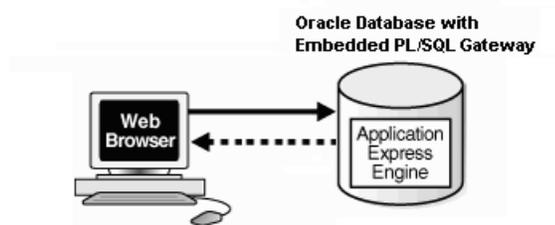
In order to run, Oracle Application Express must have access to either the embedded PL/SQL gateway or Oracle HTTP Server and `mod_plsql`.

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.

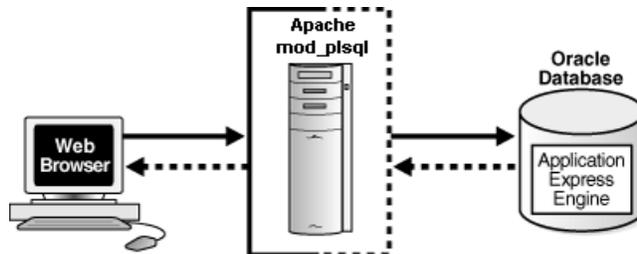


As shown in the previous graphic, the embedded PL/SQL gateway offers a simple two tier architecture: a Web browser and an Oracle database, containing the embedded PL/SQL and Oracle Application Express.

**See Also:** ["About 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 ["About Configuring Oracle HTTP Server"](#) on page 4-5

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.

## About Configuring the Embedded PL/SQL Gateway

Although the embedded PL/SQL gateway installs with the Oracle Database 11g, 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.

**Note:** The Oracle XML DB HTTP Server with the embedded PL/SQL gateway is not supported prior to Oracle Database 11g.

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 4-2

## Configuring the Embedded PL/SQL Gateway

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

To configure the embedded PL/SQL gateway:

1. Change your working directory to the `ORACLE_HOME/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:

- On Windows:

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

- On UNIX and Linux:

```
$ sqlplus sys/SYS_password as sysdba
```

3. Run `apex_epg_config.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_config SYSTEM_DRIVE:\TEMP
```

- On UNIX and Linux:

```
@apex_epg_config /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`:

- On Windows:

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

- On UNIX and Linux:

```
$ 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:

- On Windows:

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

- On UNIX and Linux:

```
$ 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:

- On Windows:

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

- On UNIX and Linux:

```
$ sqlplus sys/SYS_password as sysdba
```

2. Enter a statement similar to the following:

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

For example:

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

**Note:** Port numbers less than 1024 are reserved for use by privileged processes on many operating systems. To enable the XML DB HTTP listener on a port less than 1024, such as 80, review the following documentation:

- "Using Protocols to Access the Repository" in *Oracle XML DB Developer's Guide*.
- "Protocol Address Configuration" and "Port Number Limitations" in *Oracle Database Net Services Reference*.

## About 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 4-5

### 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 `apex\images` directory to the location on the file system containing the Oracle home for Oracle HTTP Server.

Topics in this section include:

- [Copying the Images Directory After an Upgrade](#)
- [Copying the Images Directory in a New Installation](#)

#### Copying the Images Directory After an Upgrade

During an upgrade, you must overwrite your existing images directory. Before you begin the upgrade, to ensure that you can revert to the previous version, Oracle recommends that you create a copy of your existing `images` directory for Oracle Application Express, indicating the release number of the images (for example, `images_2_0`).

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 HTTP Server 11g—see the `marvel.conf` file.
- Oracle Application Server 10g—see the `marvel.conf` file.

When you locate the images directory path, copy the existing images directory to a backup location. Doing so enables you to revert to the previous release, if that becomes necessary.

After you copy the existing images directory, use the following command syntax to copy the `apex\images` directory from the Oracle Database home to the existing images directory path, overwriting the existing images:

- Oracle Application Server 10g:
  - On Windows:

```
xcopy /E /I APEX_HOME\apex\images ORACLE_HTTPSERVER_HOME\Apache\images
```
  - On UNIX and Linux:

```
cp -rf APEX_HOME/apex/images ORACLE_HTTPSERVER_HOME/Apache
```
- Oracle HTTP Server 11g:
  - On Windows:

```
xcopy /E /I APEX_HOME\apex\images ORACLE_HTTPSERVER_HOME\ohs\images
```
  - On UNIX and Linux:

```
cp -rf APEX_HOME/apex/images ORACLE_HTTPSERVER_HOME/ohs
```

In the preceding syntax examples:

- `APEX_HOME` is the directory where the Application Express software was unzipped
- `ORACLE_HTTPSERVER_HOME` is the existing Oracle Application Server or Oracle HTTP Server Oracle home

### Copying the Images Directory in a New Installation

After installation, copy the directory `apex/images`.

- Oracle Application Server 10g:
  - On Windows:

```
xcopy /E /I ORACLE_HOME\apex\images ORACLE_HTTPSERVER_HOME\Apache\images
```
  - On UNIX and Linux:

```
cp -rf $ORACLE_HOME/apex/images ORACLE_HTTPSERVER_HOME/Apache
```
- Oracle HTTP Server 11g:
  - On Windows:

```
xcopy /E /I ORACLE_HOME\apex\images ORACLE_HTTPSERVER_HOME\ohs\images
```
  - On UNIX and Linux:

```
cp -rf $ORACLE_HOME/apex/images ORACLE_HTTPSERVER_HOME/ohs
```

In the preceding syntax examples:

- `ORACLE_HOME` is the Oracle Database Oracle home
- `ORACLE_HTTPSERVER_HOME` is the existing Oracle Application Server or Oracle HTTP Server Oracle home

## 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:

- On Windows, see:

```
ORACLE_HTTPSERVER_HOME\Apache\modplsql\cfg\wdbsvr.app
```

- On UNIX and Linux, see:

```
ORACLE_HTTPSERVER_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
enablenesso = 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 After an Upgrade"](#) on page 4-5

To modify `httpd.conf` file:

1. Use a text editor and open the `httpd.conf` file:
  - On Windows:
 

```
ORACLE_HTTPSERVER_HOME\Apache\Apache\conf\httpd.conf
```
  - On UNIX and Linux:
 

```
ORACLE_HTTPSERVER_HOME/Apache/Apache/conf/httpd.conf
```
2. Add an alias entry that points to the file system path where you copied the images directory.

- Windows example:

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

- UNIX and Linux example:

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

Note that the previous examples assume you specified the image directory alias as `/i/` when you ran the `apexins.sql` script.

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

3. Next, add the following two lines to support SQL Workshop if they do not currently exist:

```
AddType text/xml          xbl
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.
  - On Windows, Stop and restart Oracle HTTP Server:
    - 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**.
  - On UNIX and Linux, execute the following commands:
 

```
ORACLE_HTTPSERVER_HOME/Apache/Apache/bin/apachectl stop
ORACLE_HTTPSERVER_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`).

**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:

- This is a new installation of Application Express (that is, you are not upgrading from a previous release).
- You are running Oracle HTTP Server 11g or Oracle Application Server 10g.
- Oracle HTTP Server is installed in an Oracle home.

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 4-7.

---



---

**Note:** Within the context of this document, `ORACLE_HTTPSERVER_HOME` is the location where Oracle HTTP Server is installed.

---



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### Editing the `dads.conf` File

If this is a new installation of 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`.
  - Oracle Application Server 10g:
    - On Windows see:
 

```
ORACLE_HTTPSERVER_HOME\Apache\modplsql\conf\dads.conf
```
    - On UNIX and Linux see:
 

```
ORACLE_HTTPSERVER_HOME/Apache/modplsql/conf/dads.conf
```

- Oracle HTTP Server 11g:

- On Windows see:

```
ORACLE_HTTPSERVER_HOME\ohs\modplsql\conf\dads.conf
```

- On UNIX and Linux see:

```
ORACLE_HTTPSERVER_HOME/ohs/modplsql/conf/dads.conf
```

2. In the `dads.conf` file, replace `ORACLE_HTTPSERVER_HOME`, `host`, `port`, `service_name`, and `apex_public_user_password` with values appropriate for your environment. Note that the `apex_public_user_password` is the password you defined when you installed Oracle Application Express.

Note that the path listed is only an example. The path in the `dads.conf` file should reference the file system path described in "Copying the Images Directory" on page 4-5.

```
Alias /i/ "ORACLE_HTTPSERVER_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, execute the following:

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

- For Windows, execute the following:

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

## Enabling Network Services in Oracle Database 11g

By default, the ability to interact with network services is disabled in Oracle Database 11g release 1 (11.1). Therefore, if you are running Oracle Application Express with Oracle Database 11g release 1 (11.1), you need to use the new `DBMS_NETWORK_ACL_ADMIN` package to grant connect privileges to any host for the `FLWS_030000` database user. Failing to grant these privileges results in issues with:

- Sending outbound mail in Oracle Application Express.  
Users can call methods from the `APEX_MAIL` package, but issues arise when sending outbound email.
- Using Web services in Oracle Application Express.
- PDF/report printing.
- Searching for content in online Help (that is, using the Find link).

### Granting Connect Privileges

The following example demonstrates how to grant connect privileges to any host for the `FLWS_030000` database user.

```
DECLARE
  ACL_PATH  VARCHAR2(4000);
  ACL_ID    RAW(16);
BEGIN
  -- Look for the ACL currently assigned to '*' and give FLWS_030000
  -- the "connect" privilege if FLWS_030000 does not have the privilege yet.

  SELECT ACL INTO ACL_PATH FROM DBA_NETWORK_ACLS
    WHERE HOST = '*' AND LOWER_PORT IS NULL AND UPPER_PORT IS NULL;

  -- Before checking the privilege, make sure that the ACL is valid
  -- (for example, does not contain stale references to dropped users).
  -- If it does, the following exception will be raised:
  --
  -- ORA-44416: Invalid ACL: Unresolved principal 'FLWS_030000'
  -- ORA-06512: at "XDB.DBMS_XDBZ", line ...
  --
  SELECT SYS_OP_R20(extractValue(P.RES, '/Resource/XMLRef')) INTO ACL_ID
    FROM XDB.XDB$ACL A, PATH_VIEW P
   WHERE extractValue(P.RES, '/Resource/XMLRef') = REF(A) AND
         EQUALS_PATH(P.RES, ACL_PATH) = 1;

  DBMS_XDBZ.ValidateACL(ACL_ID);
  IF DBMS_NETWORK_ACL_ADMIN.CHECK_PRIVILEGE(ACL_PATH, 'FLWS_030000',
    'connect') IS NULL THEN
    DBMS_NETWORK_ACL_ADMIN.ADD_PRIVILEGE(ACL_PATH,
    'FLWS_030000', TRUE, 'connect');
  END IF;

EXCEPTION
  -- When no ACL has been assigned to '*'.
  WHEN NO_DATA_FOUND THEN
    DBMS_NETWORK_ACL_ADMIN.CREATE_ACL('power_users.xml',
    'ACL that lets power users to connect to everywhere',
```

```

        'FLOWS_030000', TRUE, 'connect');
    DBMS_NETWORK_ACL_ADMIN.ASSIGN_ACL('power_users.xml','*');
END;
/
COMMIT;

```

### Troubleshooting an Invalid ACL Error

If you receive an ORA-44416: Invalid ACL error after running the previous script, use the following query to identify the invalid ACL:

```

REM Show the dangling references to dropped users in the ACL that is assigned
REM to '*'.

```

```

SELECT ACL, PRINCIPAL
   FROM DBA_NETWORK_ACLS NACL, XDS_ACE ACE
  WHERE HOST = '*' AND LOWER_PORT IS NULL AND UPPER_PORT IS NULL AND
        NACL.ACLID = ACE.ACLID AND
        NOT EXISTS (SELECT NULL FROM ALL_USERS WHERE USERNAME = PRINCIPAL);

```

Next, run the following code to fix the ACL:

```

DECLARE
    ACL_ID    RAW(16);
    CNT       NUMBER;
BEGIN
    -- Look for the object ID of the ACL currently assigned to '*'
    SELECT ACLID INTO ACL_ID FROM DBA_NETWORK_ACLS
       WHERE HOST = '*' AND LOWER_PORT IS NULL AND UPPER_PORT IS NULL;

    -- If just some users referenced in the ACL are invalid, remove just those
    -- users in the ACL. Otherwise, drop the ACL completely.
    SELECT COUNT(PRINCIPAL) INTO CNT FROM XDS_ACE
       WHERE ACLID = ACL_ID AND
             EXISTS (SELECT NULL FROM ALL_USERS WHERE USERNAME = PRINCIPAL);

    IF (CNT > 0) THEN

        FOR R IN (SELECT PRINCIPAL FROM XDS_ACE
                  WHERE ACLID = ACL_ID AND
                        NOT EXISTS (SELECT NULL FROM ALL_USERS
                                   WHERE USERNAME = PRINCIPAL)) LOOP

            UPDATE XDB.XDB$ACL
               SET OBJECT_VALUE =
                   DELETEXML(OBJECT_VALUE,
                             '/ACL/ACE[PRINCIPAL="' || R.PRINCIPAL || '"]')
               WHERE OBJECT_ID = ACL_ID;
        END LOOP;

    ELSE
        DELETE FROM XDB.XDB$ACL WHERE OBJECT_ID = ACL_ID;
    END IF;

END;
/

REM commit the changes.

COMMIT;

```

Once the ACL has been fixed, you need to run the first script in this section to apply the ACL to the FLOWS\_030000 user. See "[Granting Connect Privileges](#)" on page 4-11.

## 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. Without the use of SSL, passwords could potentially be exposed, compromising security.

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:
  - On Windows:  

```
SYSTEM_DRIVE:\ sqlplus sys/SYS_password as sysdba
```
  - On UNIX and Linux:  

```
$ 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 4-16.
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_HTTPSERVER_HOME/Apache/modplsql/conf
```

- For Windows based systems:

```
ORACLE_BASE\ORACLE_HTTPSERVER_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*

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# 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 After an Upgrade"](#) on page 4-5.
2. Execute the following command in SQL\*Plus:

- a. 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
```

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

```
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 "About Configuring Oracle HTTP Server" 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\apex\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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## A

---

- apex\_epg\_config.sql, 4-3
- apexins.sql, 3-2
- Application Express
  - browser requirement, 2-2
  - database requirement, 2-1
  - disk space requirements, 2-3
  - getting started, 4-16
  - HTTP server requirement, 2-2
  - installing, 3-2
  - logging in to, 4-16
  - Oracle Text requirement, 2-3
  - PL/SQL Web Toolkit requirement, 2-4
  - pre-installation tasks, 3-2
  - setting up, 4-16
  - user roles, 4-16
  - XML DB requirement, 2-3
- Application Express Administration Services, 4-16
- Application Express administrator, 4-16
- Application Express user roles
  - Application Express administrator, 4-16
  - developer, 4-16
  - end user, 4-16
  - workspace administrator, 4-16
- Automatic Storage Management (ASM)
  - shutting down, 3-1

## B

---

- browser
  - requirement, 2-2

## C

---

- configuring
  - embedded PL/SQL gateway, 4-3
  - Oracle Application Server 11g, 4-9
  - Oracle HTTP Server, 4-5
  - Oracle HTTP Server 11g, 4-9

## D

---

- dadTool.pl utility, 4-15
- database requirement
  - Application Express, 2-1
  - shared\_pool\_size, 2-1

- developer, 4-16
- disk space
  - requirements, 2-3

## E

---

- embedded PL/SQL gateway
  - about, 4-2
  - configuring, 4-3
  - disabling, 4-4
  - enabling, 4-4
- end user, 4-16

## G

---

- getting started
  - Application Express, 4-16

## H

---

- HTTP Server
  - choosing, 4-1
  - pre-installation tasks, 3-1
- HTTP server
  - requirement, 2-2
- httpd.conf
  - modifications if running Oracle9i, 4-8

## I

---

- images
  - copying, 4-5
  - copying in new installation, 4-6
  - copying when upgrading, 4-5
- installation
  - overview, 1-1
  - planning, 1-1
  - process, 1-1
  - requirements, 1-1, 2-1
  - steps, 3-2
- installing
  - failures, A-1
  - other languages, 4-13
- installing software, 3-2

## J

---

JOB\_QUEUE\_PROCESSES, 4-14  
  changing number of, 4-15  
  viewing number of, 4-14

## L

---

listener  
  stopping, 3-1  
log file, A-1

## N

---

new installation  
  adding entry for Application Express, 4-7  
  adding new MIME types, 4-8  
  configuring Oracle Application Server 10g, 4-9  
  copying images, 4-6  
  modifications to support SQL Workshop, 4-8  
  modifying httpd.conf, 4-8  
  modifying marvel.conf, 4-9  
  modifying wdbsvr.app, 4-7

## O

---

obfuscate  
  password, 4-15  
online help  
  not working, A-3  
  not working if using a virtual host, A-3  
  problems with Help index, A-4  
Oracle Application Server 10g  
  editing dads.conf, 4-9  
Oracle HTTP Server  
  about, 4-2  
  configuring, 4-5  
  copying images directory, 4-5  
  pre-installation tasks, 3-1  
Oracle HTTP Server 11g  
  configuring, 4-9  
  editing dads.conf, 4-9  
Oracle HTTP Server 9.0.3, 4-7  
  configuring, 4-7  
  modifying wdbsvr.app, 4-7  
Oracle Text  
  default language scripts, 2-3  
  requirement, 2-3  
Oracle XML DB HTTP server  
  about, 4-2  
  configuring, 4-3  
  disabling, 4-4  
  enabling, 4-4  
  verifying HTTP server port, 4-3  
ORACLE\_HTTPSERVER\_HOME, 4-1  
overview, 1-1

## P

---

password  
  obfuscating, 4-15

PL/SQL Web Toolkit  
  requirement, 2-4  
post-installation tasks, 4-1  
  configuring embedded PL/SQL gateway, 4-2  
  configuring Oracle Application Server 11g, 4-9  
  configuring Oracle HTTP Server, 4-5  
  configuring Oracle HTTP Server 9.0.3, 4-7  
  copying images (new installation), 4-6  
  copying images (when upgrading), 4-5  
  copying images directory, 4-5  
  installing in other languages, 4-13  
  installing other languages, 4-13  
  logging in to Application Express, 4-16  
  managing JOB\_QUEUE\_PROCESSES, 4-14  
  obfuscating passwords, 4-15  
pre-installation tasks  
  backing up Oracle database, 3-1  
  shutting down database, 3-1  
  stopping processes, 3-1

## R

---

Real Application Clusters (RAC)  
  shutting down instances, 3-1  
requirements, 2-1  
  browser, 2-2  
  database, 2-1  
  disk space, 2-3  
  HTTP server, 2-2  
  Oracle Text, 2-3  
  Oracle XML DB, 2-3  
  PL/SQL Web Toolkit, 2-4  
running  
  apexins.sql, 3-2

## S

---

shared\_pool\_size  
  changing, 2-1

## T

---

translated version  
  installing, 4-13  
troubleshooting, A-1  
  cleaning up after failed installation, A-1  
  images, A-3  
  online help issues, A-3  
  reviewing log file, A-1

## U

---

upgrading  
  about, 1-2  
  copying images, 4-5  
  obfuscating password, 4-15  
user roles  
  Application Express administrator, 4-16  
  developer, 4-16  
  end user, 4-16  
  workspace administrator, 4-16

## **W**

---

wdbsvr.app

modifications if running Oracle HTTP Server  
9.0.3, 4-7

Web browser

requirements, 2-2

workspace administrator, 4-16

## **X**

---

XML DB

requirement, 2-3

