

Oracle® Application Express

Administration Guide

Release 3.2

E13371-01

February 2009

Oracle Application Express Administration Guide, Release 3.2

E13371-01

Copyright © 2003, 2009, Oracle and/or its affiliates. All rights reserved.

Primary Author: Terri Jennings

Contributors: Marco Adelfio, Drue Baker, Carl Backstrom, Christina Cho, Michael Hichwa, Joel Kallman, Sharon Kennedy, Sergio Leunissen, Anne Romano, Kris Rice, Marc Sewtz, Scott Spadafore, Scott Spendolini, Jason Straub, Simon Watt, and Steve Fogel

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this software or related documentation is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications which may create a risk of personal injury. If you use this software in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure the safe use of this software. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software in dangerous applications.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

This software and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Contents

Preface	ix
Topic Overview	ix
Audience	ix
Documentation Accessibility	x
Related Documents	x
Conventions	xi
1 Workspace and Application Administration	
About Workspace Administration	1-2
Understanding User Roles	1-2
About the Application Administration Page	1-2
Accessing the Application Administration Page	1-3
Resetting Your Password from Application Administration	1-3
Viewing the Application Express Product Information Page	1-3
About the Manage Services Page	1-4
Accessing the Manage Services Page	1-5
Managing Session State and User Preferences	1-5
Managing Session State	1-5
Removing Session State After Reviewing Session Details	1-5
Viewing Session State Details	1-6
Purging Session State for the Current Session	1-6
Purging Sessions by Age	1-7
Managing User Preferences	1-7
Viewing and Resetting Preferences for the Current User	1-7
Viewing Preferences by User	1-8
Setting User Preferences	1-8
Removing User Preferences Programmatically	1-9
Resetting User Preferences Using a Page Process	1-10
Purging Preferences for a Specific User	1-10
Managing Cached Regions and Pages	1-10
Purging Cached Regions	1-10
Purging Cached Pages	1-11
Managing Workspace Preferences	1-11
Disabling PL/SQL Program Unit Editing for a Workspace	1-11
Enabling Login Controls for a Workspace	1-12

Specifying a Workspace Message	1-13
Managing Application Models	1-13
Deleting an Application Model.....	1-13
Managing Demonstration Applications	1-14
Leveraging Application Builder Defaults	1-14
About Application Builder Defaults	1-14
Configuring Application Builder Defaults	1-14
Viewing the Workspace Overview Report	1-15
Viewing Workspace Summary Report	1-15
Viewing Available Storage Space	1-15
Terminating a Workspace Service	1-16
Requesting a Database Schema	1-16
Requesting Additional Storage	1-16
Changing Build Status for Multiple Applications	1-17
Viewing Schema Reports	1-17
Managing Log Files	1-18
Purging the Developer Activity Log	1-18
Purging the External Click Count Log.....	1-18
Managing Application Express Users	1-19
Creating New User Accounts.....	1-19
Editing Existing User Accounts	1-21
Deleting or Locking User Accounts.....	1-22
Changing an End User Password	1-23
Using Groups to Manage Application Express Users	1-23
Creating a Group	1-24
Editing an Existing User Group.....	1-24
Viewing Group Assignment Reports.....	1-24
Adding Users to a Group.....	1-24
Removing Users from a Group.....	1-25
Monitoring Activity within a Workspace	1-25
Viewing Developer Activity and Application Change Information	1-25
Viewing Application Changes by Developer	1-26
Viewing Application Changes by Day.....	1-26
Viewing Active Sessions	1-27

2 Oracle Application Express Hosted Instance Administration

What Is an Oracle Application Express Administrator?	2-1
About the Manage Service Page	2-2
About the Manage Workspaces Page.....	2-2
Logging in to Oracle Application Express Administration Services	2-3
Managing Service	2-4
Creating a Site-Specific Tasks List	2-5
Adding a New Task.....	2-5
Editing an Existing Task	2-5
Deleting a Task.....	2-6
Managing Log Entries	2-6
Deleting SQL Workshop Logs.....	2-6

Deleting Page View Activity Log Entries	2-7
Deleting Developer Activity Log Entries	2-7
Deleting Click Counting Log Entries	2-8
Deleting Mail Log Entries	2-8
Deleting the Login Access Log.....	2-8
Managing Session State	2-9
Purging Sessions by Age.....	2-9
Viewing Session Details Before Purging	2-9
Viewing Session Statistics Before Purging	2-10
Managing Mail.....	2-10
Viewing the Mail Queue	2-10
Viewing the Mail Log.....	2-10
Viewing Installed Translations	2-11
Managing Themes for an Oracle Application Express Instance	2-11
Adding a Public Theme to the Theme Repository	2-11
Deleting a Public Theme	2-12
Modifying a Public Theme	2-12
About Exporting a Public Theme	2-12
Managing Environment Settings	2-13
Managing a Runtime Environment	2-13
Disabling PL/SQL Program Unit Editing for an Instance	2-14
Disabling the Creation of Demonstration Applications in a New Workspace	2-14
Configuring SQL Workshop.....	2-15
Enabling Database Monitoring	2-15
Configuring Security Settings	2-16
Turning Off Cookies Used to Populate the Login Form for Application Express	2-16
Disabling Access to Oracle Application Express Administration Services	2-17
Disabling Access to Oracle Application Express Internal Applications	2-18
Disabling Public File Upload	2-18
Restricting User Access by IP Address	2-19
Requiring HTTPS	2-19
Configuring Session Timeout.....	2-20
Excluding Domains from Regions of Type URL and Web Services.....	2-21
Enabling Login Controls for All Workspaces	2-21
About Password Policies	2-22
Configuring Password Policies	2-22
Restricting Access to Oracle Application Express by Database Access Descriptor (DAD)	2-24
Configuring Email Settings.....	2-25
Configuring Email in a Full Development Environment.....	2-26
Configuring Email in a Runtime Environment	2-26
Determining Email Settings in a Runtime Environment	2-27
Configuring Wallet Information	2-28
Creating a Wallet.....	2-28
Configuring a Wallet in a Full Development Environment	2-28
Configuring a Wallet in a Runtime Environment	2-29
Determining Wallet Settings in a Runtime Environment	2-29

Configuring Report Printing	2-30
Configuring Report Printing in a Full Development Environment	2-30
Configuring Report Printing Settings in a Runtime Environment	2-31
Determining Report Printing Settings in a Runtime Environment	2-32
Requiring a New Schema When Creating a Workspace	2-33
Configuring Workspace Size Options for Requests	2-33
Managing Login and System Messages	2-33
Managing a Login Message	2-34
Managing a System Message	2-34
Managing Schemas	2-35
Determining the Oracle Application Express Engine Schema	2-35
Understanding Oracle Default Schema Restrictions	2-35
Granting the Privilege to Assign Oracle Default Schemas	2-36
Revoking the Privilege to Assign Oracle Default Schemas	2-36
Working with Restricted Schemas	2-36
Determining the Privilege Status	2-37
Creating Workspaces	2-38
About Workspace Provisioning	2-38
Specifying a Provisioning Mode	2-38
Creating a Workspace Manually	2-39
Creating Workspace Manually in a Full Development Environment	2-40
Creating a Workspace Manually in a Runtime Environment	2-40
Managing Workspace to Schema Assignments	2-41
Viewing Schema and Workspace Assignments in a Development Environment	2-41
Viewing Schema and Workspace Assignments in a Runtime Environment	2-41
Editing Existing Schema and Workspace Assignments	2-42
Associating Additional Schemas with a Workspace	2-42
Removing a Schema Mapping from a Workspace in a Runtime Environment	2-43
Creating a New Schema	2-44
Managing Workspace Requests	2-44
Viewing a Pending Workspace Request on the Notifications List	2-45
Viewing Requests from the Workspace Requests Page	2-45
Approving or Declining a Pending Workspace Request	2-46
More About the Approval Process	2-46
When an Error Occurs	2-47
Changing the Status of an Existing Workspace Request	2-47
Deleting a Workspace Request	2-47
Managing Change Requests	2-48
Viewing a Pending Change Request from the Notifications List	2-48
Viewing a Change Request from the Workspace Utilization Report	2-48
Viewing Requests from the Change Requests Page	2-49
Approving or Declining a Pending Change Request	2-49
Managing Users in an Oracle Application Express Instance	2-49
Creating New User Accounts	2-50
Editing an Existing User Account	2-51
Deleting User Accounts	2-51
Managing Existing Workspaces	2-52

Viewing Existing Workspaces.....	2-52
Viewing Workspace Details.....	2-53
About the Workspace Details Page	2-53
Viewing Workspace Database Privileges	2-54
About Deleting Inactive Workspaces.....	2-54
Identifying Inactive Workspaces	2-54
Removing the Resources Associated with Inactive Workspaces.....	2-56
Deleting Inactive Workspaces.....	2-56
Removing a Workspace.....	2-56
Removing Workspaces in a Full Development Environment	2-57
Removing Workspaces in a Runtime Development Environment.....	2-57
Locking a Workspace.....	2-57
Exporting and Importing a Workspace	2-58
Exporting a Workspace	2-58
Importing a Workspace.....	2-58
Managing Applications.....	2-59
Viewing Application Attributes.....	2-59
Changing Application Build Status Set During Deployment.....	2-59
Viewing the Parsing Schemas Report	2-60
Monitoring Activity Across a Development Instance.....	2-60

Index

Preface

Oracle Application Express is a hosted declarative development environment for developing and deploying database-centric Web applications. Oracle Application Express turns a single Oracle database into a shared service by enabling multiple workgroups to build and access applications as if they were running in separate databases.

Oracle Application Express Application Administration Guide describes how to perform administration tasks for an Oracle Application Express workspace, application, or an entire development instance.

This preface contains these topics:

- [Topic Overview](#)
- [Audience](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)

Topic Overview

This document contains the following chapters:

Title	Description
Workspace and Application Administration	Describes how to perform Workspace administration tasks and access many of these reports.
Oracle Application Express Hosted Instance Administration	Describes tasks an Oracle Application Express administrator performs when administering an Oracle Application Express hosted instance.

Audience

Oracle Application Express Administration Guide is intended for application developers who are building database-centric Web applications using Oracle Application Express. The guide describes how to use the Oracle Application Express development environment to build, debug, manage, and deploy applications.

To use this guide, you must have a general understanding of relational database concepts and an understanding of the operating system environment under which you are running Oracle Application Express.

See Also: *Oracle Database 2 Day + Oracle Application Express Developer's Guide*

Documentation Accessibility

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

Accessibility of Code Examples in Documentation

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

Accessibility of Links to External Web Sites in Documentation

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

TTY Access to Oracle Support Services

To reach AT&T Customer Assistants, dial 711 or 1.800.855.2880. An AT&T Customer Assistant will relay information between the customer and Oracle Support Services at 1.800.223.1711. Complete instructions for using the AT&T relay services are available at <http://www.consumer.att.com/relay/tty/standard2.html>. After the AT&T Customer Assistant contacts Oracle Support Services, an Oracle Support Services engineer will handle technical issues and provide customer support according to the Oracle service request process.

Related Documents

For more information, see these Oracle resources:

- *Oracle Application Express Application Builder User's Guide*
- *Oracle Application Express Release Notes*
- *Oracle Application Express Installation Guide*
- *Oracle Database 2 Day + Oracle Application Express Developer's Guide*
- *Oracle Application Express SQL Workshop and Utilities Guide*
- *Oracle Application Express API Reference*
- *Oracle Application Express Migration Guide*
- *Oracle Application Express Advanced Tutorials*
- *Oracle Database Concepts*
- *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.

For additional application examples, please visit the Oracle by Examples (OBES) Application Express page, located on Oracle's Technology Network. The OBES provide step-by-step examples with screenshots on how to perform various tasks within Application Express.

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

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.

Workspace and Application Administration

In an Oracle Application Express development environment, users log in to a shared work area called a workspace. A **workspace** is a virtual private database that enables multiple users to work within the same Oracle Application Express installation while keeping their objects, data and applications private. This flexible architecture enables a single database instance to manage thousands of applications.

Developers can create and edit applications and view developer activity, session state, workspace activity, application, and schema reports. Workspace administrators additionally can create and edit user accounts, manage groups, and manage development services. This section describes how to perform Workspace administration tasks and access many of these reports.

This section contains the following topics:

- [Understanding User Roles](#)
- [About the Application Administration Page](#)
- [About the Manage Services Page](#)
- [Managing Session State and User Preferences](#)
- [Managing Cached Regions and Pages](#)
- [Managing Workspace Preferences](#)
- [Managing Application Models](#)
- [Managing Demonstration Applications](#)
- [Leveraging Application Builder Defaults](#)
- [Viewing the Workspace Overview Report](#)
- [Terminating a Workspace Service](#)
- [Requesting a Database Schema](#)
- [Requesting Additional Storage](#)
- [Changing Build Status for Multiple Applications](#)
- [Viewing Schema Reports](#)
- [Managing Log Files](#)
- [Managing Application Express Users](#)
- [Monitoring Activity within a Workspace](#)

See Also: Oracle Application Express SQL Workshop and Utilities Guide

About Workspace Administration

Oracle Application Express enables a single database to host large numbers of users. Users work in a dedicated work area called a workspace. A **workspace** is a virtual private database that enables multiple users to work within the same Oracle Application Express installation while keeping their objects, data and applications private. This flexible architecture enables a single database instance to manage thousands of applications.

Understanding User Roles

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

- **Developers** create and edit applications.
- **Workspace administrators** are developers who also perform administrator tasks specific to their workspace such as managing user accounts, monitoring workspace activity, and viewing log files. See "[Workspace and Application Administration](#)" on page 1-1.
- **Oracle Application Express administrators** are superusers that manage the entire hosted instance using the Oracle Application Express Administration Services application.

See Also: "[Oracle Application Express Hosted Instance Administration](#)" on page 2-1 for more information on the responsibilities of an Oracle Application Express administrator

About the Application Administration Page

Use the Application Administration page to manage your application development environment. The Application Administration page contains the following icons:

- **Manage Services** links to the Manage Services page. Use this page to manage services, including session state, log files, service termination, schema requests, storage requests, schema reports, preferences, and application models. See "[About the Manage Services Page](#)" on page 1-4.
- **Manage Application Express Users** links to the Manage Application Express Users page. Use this page to manage Application Express user accounts and user groups. See "[Managing Application Express Users](#)" on page 1-19.
- **Monitor Activity** links to the Monitor Activity page. Use this page to monitor changes to page views and entire applications in your workspace. It also shows reports on such information as login attempts and external click counts. See "[Monitoring Activity within a Workspace](#)" on page 1-25.

A Tasks list displays on the right side of the page and displays the following links:

- **Change Password** links to a form you can use to change your password. See "[Resetting Your Password from Application Administration](#)" on page 1-3.
- **About Application Express** links to an About page that lists basic product information. See "[Viewing the Application Express Product Information Page](#)" on page 1-3.

Topics:

This section contains the following topics:

- [Accessing the Application Administration Page](#)
- [Resetting Your Password from Application Administration](#)
- [Viewing the Application Express Product Information Page](#)

Accessing the Application Administration Page

Use the Application Administration page to manage your application development environment.

To access the Application Administration page:

1. Navigate to the Workspace home page.
2. On the Administration list, click **Administration**.

The Application Administration page appears.

Resetting Your Password from Application Administration

To reset your password from the Application Administration page:

1. Log in to Oracle Application Express. See "Logging In to Oracle Application Express" in *Oracle Application Express Application Builder User's Guide*.

2. On the Tasks list, click **Administration**.

The Application Administration page appears.

3. On the Tasks list, click **Change Password**.

4. In Change Password, enter the following:

- Enter Current Password - Enter your current password.
- Enter New Password - Enter your new password.
- Confirm New Password - Enter your new password again.

5. Click **Apply Changes**.

See Also: ["Changing an End User Password"](#) on page 1-23

Viewing the Application Express Product Information Page

The About Application Express page lists basic product information. You can access the About Application Express page from either the Workspace home page or the Application Administration page.

The About Application Express page displays the following product information:

- Product build
- Schema compatibility
- Last DDL time
- Host schema
- Application Owner
- Workspace ID
- Workspace Name
- Current user

- Language Preference
- Current Time (on server)
- NLS_CHARACTERSET
- DAD_CHARACTERSET
- JOB_QUEUE_PROCESSES
- Database Version Information

To view the About Application Express page:

1. Navigate to the Workspace home page.
2. On the Administration list, click **About Application Express**.

The About Application Express page appears.

About the Manage Services Page

You can use the Manage Services page to manage session state, caching, preferences, application models, demonstration applications, log files, service termination, schema requests, storage requests, schema reports, and log files.

The Manage Services page contains the following sections:

- **Session State.** Use these links to purge session state and user preferences. See ["Managing Session State and User Preferences"](#) on page 1-5.
- **Caching.** Use these links to view and purge cached regions and pages. See ["Managing Cached Regions and Pages"](#) on page 1-10.
- **Workspace Preferences.** Use this link to disable and enable application preferences such as PL/SQL program unit editing in Object Browser. See ["Managing Workspace Preferences"](#) on page 1-11.
- **Applications.** Use the Application Models link to search for and delete application models. Use the Demonstration Applications link to manage demonstration applications. See ["Managing Application Models"](#) on page 1-13 and ["Managing Demonstration Applications"](#) on page 1-14.
- **Workspace:**
 - **Request Database Schema.** Use this link to request a new database schema. See ["Requesting a Database Schema"](#) on page 1-16.
 - **Request Storage.** Use this link to submit a request for additional storage space for your workspace. See ["Requesting Additional Storage"](#) on page 1-16.
 - **Request Service Termination.** Use this link to terminate the current workspace. See ["Terminating a Workspace Service"](#) on page 1-16.
 - **Workspace Overview.** Use this link to view a summary report about the current workspace. See ["Viewing the Workspace Overview Report"](#) on page 1-15.
 - **Manage Application Build Status.** Use this link to change the build status of applications within the current workspace. See ["Changing Build Status for Multiple Applications"](#) on page 1-17.
- **Workspace Schema Reports.** Use these links to view detailed reports about the schemas in the current workspace. See ["Viewing Schema Reports"](#) on page 1-17.

- **Logs.** Use these links to purge the Developer Activity and External Count Clicks logs. See "[Managing Log Files](#)" on page 1-18.

Accessing the Manage Services Page

To access the Manage Services Page:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.

The Manage Services page appears.

Managing Session State and User Preferences

A session is a logical construct that establishes persistence (or stateful behavior) across page views. Each session is assigned a unique ID, which the Application Express engine uses to store and retrieve an application's working set of data (or session state) before and after each page view. Sessions persist in the database until purged.

Topics in this section include:

- [Managing Session State](#)
- [Managing User Preferences](#)

See Also: "Managing Session State" in *Oracle Application Express Application Builder User's Guide*

Managing Session State

A session establishes persistence (or stateful behavior) across page views. You can review session details for the current session or for recent sessions. You can also purge the current session state or purge sessions based on their age.

Topics in this section include:

- [Removing Session State After Reviewing Session Details](#)
- [Viewing Session State Details](#)
- [Purging Session State for the Current Session](#)
- [Purging Sessions by Age](#)

See Also: "What Is a Session?" in *Oracle Application Express Application Builder User's Guide*

Removing Session State After Reviewing Session Details

You can determine whether to remove existing sessions by first reviewing session details. From the Session Details page, you can then remove the session record or session state.

To view session details and remove session state:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.

The Manage Services page appears.

3. Under Session State, click **Manage Session State**.

4. Click **Recent Sessions with Drill-Down to Session Details**.
5. To narrow the results, select a time frame, specify a user, and click **Go**.
6. To view session details, select the session ID.

The Session Details page appears.

7. Click one of the following buttons:

- **Remove Session** removes the record of the session from the `SESSIONS` table along with the session state (including collections data) associated with the session.

Any user using a session that is removed will no longer be able to use the session and will be prompted to re-authenticate upon their next page request (in most situations). This option can be used by administrators who need to ensure a specific user can no longer access an Oracle Application Express application.

- **Remove State** clears the session data from the session state tables (including collections data) but does not remove the session record. Removing a session is a good approach for developers during debugging.

This is the equivalent of clearing session state for the current session using the Clear Cache argument value `SESSION` in the f?p URL. This option might also be used by developers during debugging.

See Also: "Debugging an Application" in *Oracle Application Express Application Builder User's Guide*

Viewing Session State Details

To view session state for the current or recent sessions:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Session State, click **Manage Session State**.
4. On the Manage Session State page:
 - To view information about the current session, click **Report Session State for Current Session**. To search for an item in the details, enter the item and click **Go**.
 - To view a list of recent sessions, click **Recent Sessions with Drill-Down to Session Details**.

See Also: "[Removing Session State After Reviewing Session Details](#)" on page 1-5

Purging Session State for the Current Session

To purge session state for the current session:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Session State, click **Manage Session State**.

4. On the Manage Session State page, click **Purge Session State for Current Session**.
5. From the Purge Session State page:
 - To view information about the current session, click **View Session State**.
 - To reset the session state for the current session, click **Purge Session State**.

Purging Sessions by Age

To purge existing sessions by age:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Session State, click **Manage Session State**.
4. Select **Purge sessions by Age**.
5. Make a selection from the Sessions older than list.
6. Click one of the following buttons:
 - **Report Sessions** generates a report detailing the total number of sessions for the workspace, the number of users, and the number of old sessions.
 - **Purge Sessions** purges existing sessions by the age you selected.

See Also: "Viewing Session State" in *Oracle Application Express Application Builder User's Guide*

Managing User Preferences

You can use preferences to store values for a specific Application Express user across distinct sessions. Once set, these preferences can be removed programmatically or manually. You can set user preferences by creating a page process, by the calculation of a preference Item Source Value, or programmatically by using a PL/SQL API.

Topics in this section include:

- [Viewing and Resetting Preferences for the Current User](#)
- [Viewing Preferences by User](#)
- [Setting User Preferences](#)
- [Removing User Preferences Programmatically](#)
- [Resetting User Preferences Using a Page Process](#)
- [Purging Preferences for a Specific User](#)

Viewing and Resetting Preferences for the Current User

To manage user preferences for the current user:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Session State, click **Manage Preferences**.
The Manage Preferences page appears.

4. To view preference information about the current user, click **Report Current User Preferences**.

The Current User Preferences page appears.

5. To view and reset preferences for the current user, click **Purge Preferences for Current User**. On the Purge Preferences page, click the appropriate button:
 - **Reset Preferences**
 - **View Preferences**

Viewing Preferences by User

To view the preferences for specific users:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.

The Manage Services page appears.
3. Under Session State, click **Manage Preferences**.

The Manage Preferences page appears.
4. To view preference information about a specific user, click **Preferences by User**.

Use the search bar at the top of the page to narrow the display.
5. To view and reset preferences for the current user:
 - a. Click **Purge Preferences by User**.
 - b. Select a user from the list and click **Report**.

A report appears.
 - c. To purge user preferences, click **Purge User Preferences**.

Setting User Preferences

You can set user preferences within your application through the creation of a page process, by creating a preference item, or programmatically.

Topics in this section include:

- [Setting User Preferences Using a Page Process](#)
- [Setting the Source of an Item Based on a User Preference](#)
- [Setting User Preferences Programmatically](#)

Setting User Preferences Using a Page Process To set user preference values by creating a page process:

1. Navigate to the appropriate Page Definition. See "Accessing a Page Definition" in *Oracle Application Express Application Builder User's Guide*.
2. Under Processes, click the **Create** icon.

The Create Page Process Wizard appears.
3. For the process category, select **Session State**.
4. For the process type, select one of the following:
 - **Set Preference to value of item**
 - **Set Preference to value of item if item is not null**

5. Specify a process name, sequence, and processing point.
6. Specify the preference value in the field provided using the format:
PreferenceName:Item
7. Click **Page Items** to see a list of available items.
8. Click **Create Process**.

Setting the Source of an Item Based on a User Preference You can set the source of an item based on a user preference by defining the item source type as Preference.

To define the source of item based on a user preference:

1. Navigate to the appropriate Page Definition. See "Accessing a Page Definition" in *Oracle Application Express Application Builder User's Guide*.
2. Under Items, click the **Create** icon.
The Create Item Wizard appears.
3. For the item type, select **Hidden**.
4. Specify the Item Name, sequence, and region.
5. From the Item Source list, select **Preference**.
6. In Item Source Value, enter the name of the preference.
7. Click **Create Item**.

Setting User Preferences Programmatically To set or reference user preferences programmatically, you must use a PL/SQL API. User-level caching is available programmatically. You can use the SET_PREFERENCE procedure to set a user level preference called NAMED_PREFERENCE. For example:

```
APEX_UTIL.SET_PREFERENCE (
  p_preference=>'NAMED_PREFERENCE' ,
  p_value =>:ITEM_NAME);
```

You can reference the value of a user preference using the function GET_PREFERENCE. For example:

```
NVL (APEX_UTIL.GET_PREFERENCE ('NAMED_PREFERENCE' ) , 15)
```

In the previous example, the preference would default to the value 15 if the preference contained no value.

See Also: "GET_PREFERENCE Function and "SET_PREFERENCE Procedure in *Oracle Application Express Application Builder User's Guide*

Removing User Preferences Programmatically

To remove user preferences programmatically, you must use a PL/SQL API. You can use the REMOVE_PREFERENCE procedure to remove a user level preference called NAMED_PREFERENCE. For example:

```
APEX_UTIL.REMOVE_PREFERENCE (
  p_preference=>'NAMED_PREFERENCE' );
```

Resetting User Preferences Using a Page Process

You can reset user preferences by creating a page process and selecting the Reset Preferences process type.

To reset user preferences using a page process:

1. Navigate to the appropriate Page Definition. See "Accessing a Page Definition" in *Oracle Application Express Application Builder User's Guide*.
2. Under Processes, click the **Create** icon.
The Create Page Process Wizard appears.
3. For the process category, select Session State.
4. From Type, select **Reset Preferences**.
5. Specify a process name, sequence, and process point.
6. Follow the on-screen instructions.

Purging Preferences for a Specific User

You can purge preferences for a specific user on the Purge Preferences page.

To purge preferences for a specific user:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Session State, click **Manage Preferences**.
4. Click **Purge preferences by User**.
The Purge Preferences page appears.
5. Select a specific user and click **Report**.
A report appears at the bottom of the page.
6. To purge the displayed user preferences, click **Purge User Preferences**.

Managing Cached Regions and Pages

One way to improve an application's performance is to take advantage of page and region caching. Developers can configure page and region caching by setting the Cache attribute on Edit Page or Edit Region pages. This section describes how Workspace administrators can view and purge cached regions and pages.

Topics:

Topics in this section include:

- [Purging Cached Regions](#)
- [Purging Cached Pages](#)

Purging Cached Regions

To view and purge cached regions:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.

The Manage Services page appears.

3. Under Caching, click **Manage Cached Regions**.
4. To locate an application, page, or region, enter a case-insensitive query in the appropriate field at the top of the page and click **Go**.
5. To purge cached regions, you can:
 - a. Select the regions you want to purge and click **Purge Checked**.
 - b. Click the **Purge by Application** tab, select the application, and click **Purge Cached Regions**.
 - c. Click the **Purge All** tab and then click **Purge All Cached Regions**.

Purging Cached Pages

To view and purge cached pages:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Caching, click **Manage Cached Pages**.
The Manage Cached Pages page appears.
4. To locate an application, page, or region, enter a case-insensitive query in the appropriate field at the top of the page and click **Go**.
5. To purge cached pages, you can:
 - a. Select the pages you want to cache and click **Purge Checked**.
 - b. Click the **Purge by Application** tab, select the application, and click **Purge Cached Pages**.
 - c. Click the **Purge Expired** tab, select the application, and then click **Purge Expired**.

Managing Workspace Preferences

Workspace administrators can set up the following preferences and apply the settings for the current workspace:

- PL/SQL Editing
- Account Login Control
- Specify a workspace message

Topics in this section include:

- [Disabling PL/SQL Program Unit Editing for a Workspace](#)
- [Enabling Login Controls for a Workspace](#)
- [Specifying a Workspace Message](#)

Disabling PL/SQL Program Unit Editing for a Workspace

By default, developers can change and compile PL/SQL source code when browsing database procedures, packages, and functions in SQL Workshop Object Browser.

Workspace administrators can disable PL/SQL program unit editing by selecting **Do not allow PL/SQL program unit editing** on the Preferences page.

To disable PL/SQL program unit editing:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Click **Set Workspace Preferences**.
The Set Workspace Preferences page appears.
4. Under PL/SQL Editing, select one of the following:
 - **Allow PL/SQL program unit editing**
 - **Do not allow PL/SQL program unit editing**If you select **Do not allow PL/SQL program unit editing**, developers can still create and replace PL/SQL program units using scripts or SQL Commands.
5. Click **Apply Changes**.

See Also: ["Disabling PL/SQL Program Unit Editing for an Instance"](#) on page 2-14 and ["Using SQL Commands"](#) in *Oracle Application Express SQL Workshop and Utilities Guide*

Enabling Login Controls for a Workspace

There are two different ways to configure login controls:

- An Oracle Application Express administrator enables account login controls for all Application Express accounts in all workspaces across a development instance.
If your Oracle Application Express administrator configures these preferences for an instance, those settings display as the defaults for all workspaces. See ["Enabling Login Controls for All Workspaces"](#) on page 2-21.
- If the Oracle Application Express administrator does *not* enable login controls across an entire instance, then each Workspace administrator can enable the following controls on a workspace-by-workspace basis:
 - Require end-user account expiration and locking
 - Set up a maximum number of failed login attempts for end-user accounts
 - Set the password lifetime for end-user accounts, that is, the number of days an end-user account password can be used before it expires

Tip: This feature applies only to accounts created using the Application Express user creation and management facilities. It provides additional authentication security for applications. See ["Managing Application Express Users"](#) on page 1-19.

To enable login controls for a workspace:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Workspace Preferences, click **Set Workspace Preferences**.

4. Under Account Login Control:
 - a. Account Expiration and Locking - Click **Enable**.

If you select **Enable**, end-user account passwords will expire after a configurable time period, accounts will be locked after a configurable number of authentication failures, and account passwords can be set to expire after the first use.

If your Oracle Application Express administrator set the Require User Account Expiration and Locking preference to **Yes**, this preference defaults to **Enable** and you cannot update it.
 - b. Maximum Login Failures Allowed - Enter a number for the maximum number of consecutive unsuccessful authentication attempts allowed before an end-user account is locked. If you do not specify a value in this field, the instance-level setting for Maximum Login Failures Allowed is used.
 - c. User Account Lifetime (days) - Enter a number for the maximum number of days an end-user account password may be used before the account expires. If you do not specify a value in this field, the instance-level setting for Account Password Lifetime is used.
5. Click **Apply Changes**.

Specifying a Workspace Message

You can display a message on the workspace home page by defining a Workspace Message on the Set Workspace Preferences page.

To define a workspace message:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.

The Manage Services page appears.
3. Click **Set Workspace Preferences**.

The Set Workspace Preferences page appears.
4. Under Workspace Message, enter a message in the Message field. To format the display include standard HTML tags.
5. Click **Apply Changes**.

Managing Application Models

Running the Create Application Wizard creates an application model. This model contains basic application property values, such as the application pages and page definitions, DML processes, and multi-row operation processes. When you create a new application, you can base it on an existing application model, making the creation process more productive.

This section contains the following topics:

- [Deleting an Application Model](#)

Deleting an Application Model

You can remove unwanted application models on the Application Models page.

To delete an application model:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Applications, click **Application Models**.
4. On the Application Models page:
 - To narrow the results, select the owner and click **Go**.
 - To search for a model, enter a case insensitive query in the Model field and click **Go**.
5. Select the models you want to delete and click **Delete Checked**.

Managing Demonstration Applications

Workspace administrators can review a list of available demonstration applications and install, re-install, edit, or remove them from your workspace.

To manage your demonstration applications:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Applications, click **Demonstration Applications**.
The Demonstration Applications wizard appears.
4. Click the appropriate link.

See Also: "Running a Demonstration Application" in *Oracle Application Express Application Builder User's Guide*

Leveraging Application Builder Defaults

Application Builder Defaults enable developers to reduce the number of steps needed to create a new application. By configuring these attributes, developers can exit the Create Application Wizard early and can create a new application in two simple steps.

Topics in this section include:

- [About Application Builder Defaults](#)
- [Configuring Application Builder Defaults](#)

About Application Builder Defaults

Application Builder Defaults are specific to each workspace. These attributes define preferences for tabs, authentication schemes, themes, and globalization when running the Create Application Wizard. When a Workspace administrator configures these attributes, developers within that workspace can utilize these defaults and exit the Create Application Wizard after two easy steps

Configuring Application Builder Defaults

To configure Application Builder Defaults:

1. On the Workspace home page, click the **Application Builder** icon.
2. From the Tasks list, select **Application Builder Defaults**.
The Manage Application Builder Defaults page appears.
3. For each section of the page, select the appropriate default.
4. To learn more about a specific attribute, click the item label.
When Help is available, the item label changes to red when you pass your cursor over it and the cursor changes to an arrow and question mark.
5. Click **Apply Changes**.

Viewing the Workspace Overview Report

Workspace administrators can view a summary report of the current workspace by selecting **Workspace Overview** on the Manage Services page. Administrators can use this report to view:

- schemas and tablespaces
- schemas utilizing space
- space used within a given tablespace
- applications within the workspace
- developers within the workspace

This section contains the following topic:

- [Viewing Workspace Summary Report](#)
- [Viewing Available Storage Space](#)

See Also: ["Requesting Additional Storage"](#) on page 1-16

Viewing Workspace Summary Report

To view a summary report about the current workspace:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Workspace, click **Workspace Overview**.
4. Scroll down to view the report.

Viewing Available Storage Space

The Detailed Tablespace Utilization Report lists space utilization within a specific tablespace.

To view the Detailed Tablespace Utilization Report:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Click **Workspace Overview**.

4. Scroll down and click the link **Detailed Tablespace Utilization Report (may take several seconds)**.

The resulting report displays the following columns: Tablespace Name, Bytes, Bytes Used, Amount Free, and Percentage Used.

See Also: ["Requesting Additional Storage"](#) on page 1-16

Terminating a Workspace Service

Terminating a workspace service removes all data, database objects, database schemas, tablespaces, applications, scripts, and files from the current Oracle Application Express instance.

To submit a request to the Oracle Application Express administrator to terminate workspace service:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Workspace, click **Request Service Termination**.
4. Click the **Request Termination** button.
5. Confirm your request by clicking **Terminate Service**.

Requesting a Database Schema

To submit a request to the Oracle Application Express administrator for a new database schema:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Workspace, click **Request Database Schema**.
4. For Identify Schema:
 - a. Specify whether to request a new schema or use an existing schema and then click **Next**.
 - b. For Schema Name, enter a new name or select one from the list.
 - c. Click **Next**.
5. Review the online instructions and click **Finish**.

Requesting Additional Storage

To request additional storage space for your workspace you must submit a request to the Oracle Application Express administrator.

See Also: ["Approving or Declining a Pending Change Request"](#) on page 2-49

To submit a request for additional storage space:

1. Navigate to the Workspace home page.

2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under workspace, click **Request Storage**.
4. Specify the amount of storage to add and click **Request Storage**.

Tip: To view a report of available storage space, click **Schemas Utilizing Space in Tablespaces** and then click the **Detailed Tablespace Utilization Report (may take several seconds)** link.

Changing Build Status for Multiple Applications

Every Oracle Application Express application has an application-level attribute called Build Status. You can use this attribute to prevent an application from being modified by other developers. Build Status has two settings:

- **Run and Build Application** - Developers can both run and edit an application.
- **Run Application Only** - Developers can only run an application.

Setting the Build Status to **Run Application Only** is an effective way to prevent other developers from modifying it.

You can change the Build Status of an application as follows:

- Developers and administrators can change the Build Status attribute on the Edit Definition page. See "Availability" in *Oracle Application Express Application Builder User's Guide*.
- Workspace administrators can change the Build Status of applications within the current workspace as described in this section.
- Oracle Application Express administrators can change the Build Status of an application on the Build Status page. See "[Changing Application Build Status Set During Deployment](#)" on page 2-59.

To change the Build Status of applications within the current workspace:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Workspace, click **Manage Application Build Status**.
4. From Build Status, select one of the following:
 - **Run and Build Application** - Developers can both run and edit an application.
 - **Run Application Only** - Developers can only run an application.
5. Click **Apply Changes**.

Viewing Schema Reports

Schema Reports offer summaries of schema tablespace utilization and database privileges by schema and a list of all database schemas available in the current workspace.

To view Schema Reports:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Workspace Schema Reports, click one of the following reports:
 - Schema Tablespace Utilization
 - Database Privileges by Schema
 - Workspace Schemas

See Also: "Viewing Application Reports" in *Oracle Application Express Application Builder User's Guide*

Managing Log Files

Log entries older than one month are automatically deleted. Workspace administrators can manually purge developer logs and the External Count Clicks log on the Log files page.

Topics in this section include:

- [Purging the Developer Activity Log](#)
- [Purging the External Click Count Log](#)

See Also: "Managing Log Entries" on page 2-6

Purging the Developer Activity Log

The Developer Activity Log tracks changes to applications within the current workspace.

To purge the Developer Activity Log:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Logs, click **Manage Developer Activity Log**.
4. Click **Purge Developer Log**.

Purging the External Click Count Log

The external Click Count Log counts clicks from an application to an external site. You can implement this functionality using `APEX_UTIL.COUNT_CLICK` procedure.

See Also: "COUNT_CLICK Procedure" in *Oracle Application Express API Reference*

To purge the external Click Count Log:

1. Navigate to the Workspace home page.
2. Click **Manage Services** on the Administration list.
The Manage Services page appears.
3. Under Logs, click **Manage Click Count Log**.

4. Click **Purge Click Log**.

See Also: ["Monitoring Activity within a Workspace"](#) on page 1-25

Managing Application Express Users

Workspace administrators can create new user accounts, manage existing user accounts, and change user passwords. User accounts are particularly useful if you are using Application Express Authentication. Application Express Authentication checks the user name and password against the Oracle Application Express account repository. The Oracle Application Express account repository contains account information for developers and administrators when they log in to Oracle Application Express applications.

If the workspace administrator enables the Account Locking/Expiration feature for end user accounts, new account management attributes are exposed. Accounts may be locked, unlocked, or expired. Passwords for those accounts can also have restrictions, such as a fixed lifetime, a maximum number of consecutive incorrect passwords when attempting to log in, and a requirement to be changed on first use.

Topics in this section include:

- [Creating New User Accounts](#)
- [Editing Existing User Accounts](#)
- [Deleting or Locking User Accounts](#)
- [Changing an End User Password](#)
- [Using Groups to Manage Application Express Users](#)

See Also: ["Exporting Workspace Users"](#) in *Oracle Application Express Application Builder User's Guide*

Creating New User Accounts

Workspace administrators can create three different types of user accounts:

- **Developers** can create and edit applications and view developer activity, session state, workspace activity, application, and schema reports.
- **Workspace administrators** perform administrator tasks specific to a workspace, such as managing user accounts, managing groups, altering passwords of users within the same workspace, and managing development services.
- **End users** have no development privileges and can access only applications that do not use an external authentication scheme.

See Also: ["Oracle Application Express Hosted Instance Administration"](#) on page 2-1

To create a new user account:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.

The Manage Application Express Users page appears.

3. Click **Create**.

The Create User page appears.

4. Under User Identification, enter the appropriate information.
5. Under Developer Privileges:
 - **Accessible Schemas (null for all)** - Enter a colon-delimited list of schemas for which this developer has permissions when using the SQL Workshop. This list of schemas restricts the user to a subset of the full set of schemas provisioned for the workspace and determines what schema names the user sees in SQL Workshop.
 - **Default Schema** - Identifies the default schema used for data browsing, application creation, and SQL script execution.
 - **User is a developer** - To add this user as a developer, select **Yes**. For end users, select **No**.
 Developers can create and modify applications and database objects and view developer activity, session state, workspace activity, application, and schema reports.
 - **User is a workspace administrator** - To add this user as a workspace administrator, select **Yes**. For developers or end users, select **No**.
 In addition to having developer privileges, workspace administrators can create and edit user accounts, manage groups, alter passwords of users within the same workspace, and manage development services.

Note: You create end users by adding them as users but not defining them as either developers or workspace administrators, restricting their privileges.
6. Under Account Control:
 - **Set Account Availability** - Select **Unlocked** to allow a user to log in to this account. Select **Locked** to prevent a user from logging in to this account. Select **Unlocked** to enable the account to be used.
 - **Require Change of Password on First Use** - Select **Yes** to require the user to change the password immediately after logging in with the current, temporary password.
 This rule applies to the use of this account for developers and workspace administrators. It also applies to all users who use this account when logging in to developed applications.

Tip: An Oracle Application Express administrator can configure these settings for an entire Oracle Application Express instance and define password complexity policies. See ["Enabling Login Controls for All Workspaces"](#) on page 2-21. ["About Password Policies"](#) on page 2-22, and ["Configuring Password Policies"](#) on page 2-22
7. Under User Groups, select an optional user group.
 You can use groups to restrict access to various parts of an application. Groups are primarily useful when using Application Express Authentication.
8. Under Additional Attributes, update the user's name or add descriptive information about the user or account.
9. Click **Create User** or **Create and Create Another**.

See Also: ["Using Groups to Manage Application Express Users"](#) on page 1-23 and ["Removing Users from a Group"](#) on page 1-25

Editing Existing User Accounts

Workspace administrators can edit existing user accounts.

To edit an existing user account:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.

The Manage Application Express Users page appears. You can control how the page displays using the navigation bar at the top of the page. See ["About the Navigation Bar"](#) on page 1-22.

3. Select a user.

The Edit User page appears.

4. Under Edit User, update the username or email address.
5. Under Password, edit the current password by typing a new password in the Password and Confirm Password fields.
6. Under Developer Privileges:
 - **Accessible Schemas (null for all)** - Enter a colon-delimited list of schemas for which this developer has permissions when using the SQL Workshop. This list of schemas restricts the user to a subset of the full set of schemas provisioned for the workspace and determines what schema names the user sees in SQL Workshop.
 - **Default Schema** - Identifies the default schema used for data browsing, application creation, and SQL script execution.
 - Specify the privileges for this user:
 - **User is a developer** - Developers create and modify applications and database objects and view developer activity, session state, workspace activity, application, and schema reports.
 - **User is a workspace administrator** - In addition to having developer privileges, workspace administrators can create and edit user accounts, manage groups, alter passwords of users within the same workspace, and manage development services.
7. Under Account Control:
 - **Account Availability** - Select **Locked** to prevent a user from logging in to this account. Select **Unlocked** to enable the account to be used.
 - **Developer/Administrator Password and End User Password** - Shows the a status of either **valid** or **expired**. A password expires when its lifetime span passes.
 - **Expire Password** - Select this option to force the user to enter a new password the next time they log in. This option does not appear for invalid accounts or for workspaces not using the password expiration/account locking functionality.
 - **Require Change of Password on First Use** - Select **Yes** to require the user to change the password immediately after logging in with the current, temporary password.

This rule applies to the use of this account for developers and workspace administrators. It also applies to all users who use this account when logging in to developed applications.

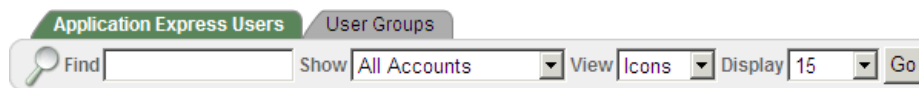
Tip: An Oracle Application Express administrator can configure these settings for an entire Oracle Application Express instance. See ["Configuring Security Settings"](#) on page 2-16.

8. Under User Groups, select an optional user group.
You can use groups to restrict access to various parts of an application. Groups are primarily useful when using Application Express Authentication.
9. Under Additional Attributes, update the user's name or add descriptive information about the user or account.
10. Click **Apply Changes**.

See Also: ["Using Groups to Manage Application Express Users"](#) on page 1-23 and ["Removing Users from a Group"](#) on page 1-25

About the Navigation Bar

A navigation bar displays at the top of the Manage Application Users page.



The Manage Application Users page navigation bar contains the following controls:

- **Find.** Use the Find field to search for an specific user. Enter a case insensitive query and click **Go**.
- **Show.** Select the type of user account to view and click **Go**. Options include:
 - All Accounts
 - Expired Accounts
 - Locked Accounts
 - Unlocked Accounts
 - My Account
 - Developer Accounts
- **View.** Select a display mode and click **Go**. Display options include:
 - **Icons** (the default) displays each user as a large icon. Different colors indicate the user role, and a lock indicates a locked account. An hourglass indicates an expired account.
 - **Details** displays each user as a line in a report. To expand the report, select the **Show Additional Report Columns** check box and click **Go**.
- **Display.** Select the number of users to display on the page and click **Go**.

Deleting or Locking User Accounts

Workspace administrators can delete or lock user accounts.

To delete or lock a user account:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.
The Manage Application Express Users page appears. You can control how the page displays using the navigation bar at the top of the page. See "[About the Navigation Bar](#)" on page 1-22.
3. Select a user.
The Edit User page appears.
4. To delete a user:
 - a. Click the **Delete User** button.
 - b. Confirm your selection and click **OK**.
5. To lock the account:
 - a. Scroll down to the Account Controls section.
 - b. For Account Availability, select **Locked**.
 - c. Click **Apply Changes**.

Changing an End User Password

To change an end user password:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.
The Manage Application Express Users page appears.
3. Select a user.
Tip: To search for an existing user, enter a query in the Find field and click **Go**.
4. Under Password, type a new password in the Password and Confirm Password fields.
5. Click **Apply Changes**.

Using Groups to Manage Application Express Users

You can create groups to restrict access to various parts of an application. Keep in mind, however, that groups are not portable over different authentication schemes. Groups are primarily useful when using Application Express Authentication (Internal Cookie User authentication).

Topics in this section include:

- [Creating a Group](#)
- [Editing an Existing User Group](#)
- [Viewing Group Assignment Reports](#)
- [Adding Users to a Group](#)
- [Removing Users from a Group](#)

See Also: "[Managing Application Express Users](#)" on page 1-19"

Creating a Group

To create a new group:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.
The Manage Application Express Users page appears.
3. Click the **User Groups** tab.
The User Groups page appears.
4. On the User Groups page, click **Create**.
The Create/Edit User Group page appears.
5. Specify a group name and description, and click **Create Group**.

Editing an Existing User Group

To edit an existing group assignment:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.
The Manage Application Express Users page appears.
3. Click the **User Groups** tab.
The User Groups page appears.
4. Select the group you want to edit.
The Create/Edit User Group page appears.
5. Make the appropriate edits and click **Apply Changes**.

Viewing Group Assignment Reports

To view a report of user group assignments:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.
The Manage Application Express Users page appears.
3. Click the **User Groups** tab.
The User Groups page appears.
4. From the Manage Groups list, click **User Group Assignments**.
The User Groups Assignments report appears.
5. To edit a user group assignment, click the **Edit** icon.
The Edit User page appears.
6. Scroll down to User Groups and select a new group and click **Apply Changes**.

Adding Users to a Group

To add a user to a group:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.

The Manage Application Express Users page appears.

3. Select a user.

The Edit User page appears.

4. Scroll down to User Groups.
5. Select a new group and click Apply Changes.

Removing Users from a Group

To remove a user to a group:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Manage Application Express Users**.

The Manage Application Express Users page appears.

3. Click **Existing Users**.

The Existing Users page appears.

4. Select a user.

The Edit User page appears.

5. Scroll down to User Groups.
6. Deselect the group you want to remove the user from and click **Apply Changes**.

Monitoring Activity within a Workspace

You can monitor developer activity and changes within your workspace by accessing the Monitor Activity page. The Monitor Activity page over twenty different reports that track changes to page views and applications, including reports on login attempts and external click counts.

Topics in this section include:

- [Viewing Developer Activity and Application Change Information](#)
- [Viewing Application Changes by Developer](#)
- [Viewing Application Changes by Day](#)
- [Viewing Active Sessions](#)

See Also: "[Monitoring Activity Across a Development Instance](#)" on page 2-60 and "[Creating Custom Activity Reports Using APEX_ACTIVITY_LOG](#)" in *Oracle Application Express Application Builder User's Guide*

Viewing Developer Activity and Application Change Information

To view developer activity and application change information from the Monitor Activity page:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Monitor Activity**.

The Monitor Activity page features activity reports divided into the following sections:

- **Page Views** - Contains reports of page views organized by view, user, application, or application and page.
- **Page View Analysis** - Contains reports analyzing page views, such as top page views by application.
- **Environment** - Contains reports of environments organized by user agent, browser, external clicks, or operating system.
- **Application Changes** - Contains reports that track application changes by developer, day, or application.
- **Sessions** - Lists active sessions with the current workspace.
- **Login Attempts** - Contains reports listing login attempts.

This report includes logins to:

- Application Express environment through the login pages for Oracle Application Express Administration Services or Oracle Application Express
- applications developed using Application Express that use the built-in session management facilities of Application Express

3. Select a report to review.

Viewing Application Changes by Developer

The Application Changes by Developer report displays the number of pages changed by each developer and offers a graphical representation of the information in either a bar chart or pie chart format.

To view Application Changes by Developer:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Monitor Activity**.
3. Under Application Changes, select **By Developer**.
4. Make a selection from the Time list to specify a time frame and click **Go**.
5. To view the data as a bar chart, select **Changes by Developer Bar chart**. To view the data as pie chart, select **Changes by Developer Pie chart**.
6. To view additional details, select a user ID.

A detailed report displays the application, date, component, and action by user.

Viewing Application Changes by Day

The Application Changes by Day report displays a summary of the number of application changes by day. You have the option to view this information by month, as a line chart, or by developer.

To view application changes by day:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Monitor Activity**.
3. Under Application Changes, click **By Day** or **By Day, Monthly View**.

The Application Changes by Day page appears.

4. Select the appropriate report:

- **Month View** offers a listing of application changes by day in a Calendar format.
- **Report** includes a report of application changes by day.
- **Line Chart** displays a line chart of application changes. By default, all developers are selected. To view only a specific developer, make a selection from the Developer list and click **Go**.
- **By Developer Report** displays application changes by developer. Specify a time frame by making a selection from the Time list and clicking **Go**. To view additional details, select a developer. To download the report, click the Download link at the bottom of the report.

Viewing Active Sessions

A session is a logical construct that establishes persistence (or stateful behavior) across page views. The Active Sessions report lists active sessions with the current workspace.

Whenever an application is run, the Application Express engine maintains a record in a database table in the Oracle Application Express schema. This table records a numeric identifier (or session ID), the authenticated (or public) user identifier, the creation date, and other information. The session is the key record that enables session state, or persistence, across page requests. By viewing the Active Sessions report, a developer or administrator can see who has been using applications in a workspace. An **active session** is a session that has not yet been purged from the sessions table. A DBMS job runs every eight hours and purges session records older than 24 hours.

See Also: "What Is a Session?" in *Oracle Application Express Application Builder User's Guide*

To view active session details:

1. Navigate to the Workspace home page.
2. From the Administration list, click **Monitor Activity**.
3. Under Sessions, select **Active Sessions**.
4. Click a session ID to view the Session Details page.

Oracle Application Express Hosted Instance Administration

This section describes tasks an Oracle Application Express administrator performs when administering an Oracle Application Express hosted instance.

This section contains the following topics:

- [What Is an Oracle Application Express Administrator?](#)
- [Logging in to Oracle Application Express Administration Services](#)
- [Managing Service](#)
- [Managing Environment Settings](#)
- [Managing Schemas](#)
- [Creating Workspaces](#)
- [Managing Workspace Requests](#)
- [Managing Change Requests](#)
- [Managing Users in an Oracle Application Express Instance](#)
- [Managing Existing Workspaces](#)
- [Managing Applications](#)
- [Monitoring Activity Across a Development Instance](#)

What Is an Oracle Application Express Administrator?

Oracle Application Express administrators are responsible for managing an entire Oracle Application Express instance.

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

- **Developers** create and edit applications.
- **Workspace administrators** are developers who also perform administrator tasks specific to their workspace such as managing user accounts, monitoring workspace activity, and viewing log files. See "[Workspace and Application Administration](#)" on page 1-1.
- **Oracle Application Express administrators** are superusers that manage the entire hosted instance using the Oracle Application Express Administration Services application.

See Also: Refer to the appropriate installation guide for your platform for information about installing Oracle Application Express

About the Manage Service Page

Oracle Application Express administrators use the Manage Service page to configure service for an Oracle Application Express instance.

In the Manage Service section:

- **Site-Specific Tasks.** See ["Creating a Site-Specific Tasks List"](#) on page 2-5.
- **Logs.** See ["Managing Log Entries"](#) on page 2-6.
- **Session State.** See ["Managing Session State"](#) on page 2-6.
- **Mail Queue.** See ["Managing Mail"](#) on page 2-10.
- **Installed Translations.** See ["Viewing Installed Translations"](#) on page 2-11.

In the Manage Environment Settings section:

- **Feature Configuration:**
 - **Application Development.** See ["Disabling PL/SQL Program Unit Editing for an Instance"](#) on page 2-14 and ["Disabling the Creation of Demonstration Applications in a New Workspace"](#) on page 2-14.
 - **SQL Workshop.** See ["Configuring SQL Workshop"](#) on page 2-15.
 - **Monitoring.** See ["Enabling Database Monitoring"](#) on page 2-15.
- **Security.** See ["Configuring Security Settings"](#) on page 2-16.
- **Instance Settings:**
 - **Self Service.** See ["Specifying a Provisioning Mode"](#) on page 2-38.
 - **Email.** See ["Configuring Email Settings"](#) on page 2-25.
 - **Wallet.** See ["Configuring Wallet Information"](#) on page 2-28.
 - **Report Printing.** See ["Configuring Report Printing"](#) on page 2-30.
 - **New Workspace Request Size.** See ["Configuring Workspace Size Options for Requests"](#) on page 2-33.
- **Messages.** See ["Managing Login and System Messages"](#)

See Also: ["Managing Existing Workspaces"](#) on page 2-52 and ["About the Manage Workspaces Page"](#) on page 2-2

About the Manage Workspaces Page

Oracle Application Express administrators use the Manage Workspaces page to manage workspaces for an Oracle Application Express instance.

In the Manage Requests section:

- **Workspace Requests.** See ["Managing Workspace Requests"](#) on page 2-44
- **Change Requests.** See ["Managing Change Requests"](#) on page 2-44.

In the Manage Workspaces section:

- **Create Workspace.** See ["Creating Workspaces"](#) on page 2-38.

- **Remove Workspace.** See ["Removing a Workspace"](#) on page 2-56.
- **Lock Workspace.** See ["Locking a Workspace"](#) on page 2-57.
- **Manage Workspace to Schema Assignments.** See ["Managing Workspace to Schema Assignments"](#) on page 2-41.
- **Manage Developers and Users.** See ["Managing Users in an Oracle Application Express Instance"](#) on page 2-49.
- **Import Workspace.** See ["Exporting and Importing a Workspace"](#) on page 2-58.
- **Export Workspace.** See ["Exporting and Importing a Workspace"](#) on page 2-58.

In the Workspace Reports section:

- **Existing Workspaces.** See ["Viewing Existing Workspaces"](#) on page 2-52.
- **Workspace Details.** See ["Viewing Workspace Details"](#) on page 2-53.
- **Workspace Database Privileges.** See ["Viewing Workspace Database Privileges"](#) on page 2-54.

See Also: ["Managing Existing Workspaces"](#) on page 2-52

Logging in to Oracle Application Express Administration Services

Oracle Application Express administrators are responsible for managing an entire Oracle Application Express instance. To perform these tasks, an Oracle Application Express administrator logs in to the Oracle Application Express Administration Services application.

To log in to Oracle Application Express Administration Services:

1. In a Web browser, navigate to the Oracle Application Express Administration Services application. By default, Oracle Application Express Administration Services installs to the following location:

- If your setup uses the embedded PL/SQL gateway, go to:

`http://hostname:port/apex/apex_admin`

Where:

- `hostname` is the name of the system where Oracle XML DB HTTP Server is installed.
- `port` is the port number assigned to Oracle XML DB HTTP Server. In a default installation, this number is 8080. See ["Verifying the Oracle XML DB HTTP Server Port"](#) in *Oracle Application Express Application Builder User's Guide*.
- `apex` is the database access descriptor (DAD) defined in the configuration file.

For users who have upgraded from earlier releases, or who have a custom configuration, this value may be `htmldb` or something else. Verify your DAD with your Oracle Application Express administrator.

- If your setup uses Apache and `mod_plsql`, go to:

`http://hostname:port/pls/apex/apex_admin`

Where:

- hostname is the name of the system where Oracle HTTP Server is installed.
- port is the port number assigned to Oracle HTTP Server. In a default installation, this number is 7777. You can find information about your Oracle HTTP Server installation's port number from either of the following files:

```
ORACLE_BASE\ORACLE_HOME\install\portlist.ini
ORACLE_BASE\ORACLE_HTTPSERVER_HOME\Apache\Apache\conf\httpd.conf
```

Be aware that if you change a port number, it is not updated in the portlist.ini file. You can only rely on this file immediately after installation.

- pls is the indicator to use the mod_plsql cartridge.
- apex is the database access descriptor (DAD) defined in the mod_plsql configuration file.

For users who have upgraded from earlier releases, or who have a custom configuration, this value may be htmldb or something else. Verify your DAD with your Oracle Application Express administrator.

The Login page appears.

2. In Username, enter admin.

Tip: admin is the default Oracle Application Express administrator account. To create additional Oracle Application Express administrator accounts, see "[Creating New User Accounts](#)" on page 2-50

3. In Password, enter the Oracle Application Express administrator account password you specified when you installed Oracle Application Express.
4. Click **Login**.

Oracle Application Express Administration Services appears.

See Also: "Managing Oracle Database Port Numbers" in *Oracle Database Installation Guide* for information about installing Oracle Application Express

Managing Service

Oracle Application Express administrators use the settings under Manage Service to create a site-specific tasks list, manage activity log entries, manage session state, monitor the mail queue, and view a report of installed translations.

Topics in this section include:

- [Creating a Site-Specific Tasks List](#)
- [Managing Log Entries](#)
- [Managing Session State](#)
- [Managing Mail](#)
- [Viewing Installed Translations](#)
- [Managing Themes for an Oracle Application Express Instance](#)

Creating a Site-Specific Tasks List

The Site-Specific Tasks list is a list of links that appears on the Workspace home page. If links are defined, a Site-Specific Tasks region appears. If no Site-Specific Tasks are defined, the region does not display. This feature enables Oracle Application Express administrators to customize the Workspace home page for an entire development instance. Typical uses for the Site-Specific Tasks list include links to training, discussion forums, and user feedback applications.

Topics in this section include:

- [Adding a New Task](#)
- [Editing an Existing Task](#)
- [Deleting a Task](#)

Adding a New Task

To add a new task to a Site-Specific Tasks list:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Site-Specific Tasks**.
The Site-Specific Tasks page appears.
4. To create a new link, click **Create**.
5. On the Create/Edit Site-Specific Tasks page, you can specify the following:
 - a. **Display Sequence** - Indicate the relative order of this task within the list.
 - b. **Display Location** - Indicate the page on which the task should display (that is, the Workspace Login page or Workspace home page).
 - c. **Task Name** - Enter a name for this task.
 - d. **Tasks Link** - Enter the link target for this task using either a relative URL (for example, using `f?p` syntax) or an absolute URL (such as `http://otn.oracle.com`).
 - e. **Displayed** - Select **Yes** to display the task link.
6. Click **Create**.

See Also: "Using `f?p` Syntax to Link Pages" in *Oracle Application Express Application Builder User's Guide*

Editing an Existing Task

To edit an existing task:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Site-Specific Tasks**.
The Site-Specific Tasks page appears.
4. Select the task name.
5. On the Create/Edit Site-Specific Tasks page, edit the appropriate attributes.

6. Click **Apply Changes**.

Deleting a Task

To delete an existing task:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Site-Specific Task Lists**.
The Site-Specific Tasks page appears.
4. Select the task name.
5. Click **Delete**.

Managing Log Entries

Oracle Application Express administrators can delete log entries on the Logs page.

Topics in this section include:

- [Deleting SQL Workshop Logs](#)
- [Deleting Page View Activity Log Entries](#)
- [Deleting Developer Activity Log Entries](#)
- [Deleting Click Counting Log Entries](#)
- [Deleting Mail Log Entries](#)
- [Deleting the Login Access Log](#)

Deleting SQL Workshop Logs

The SQL Workshop logs maintain a history of recent commands and scripts run in the SQL Commands

To delete log files entries:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Logs**.
The Logs page appears.
4. Click **SQL Workshop logs**.
5. Click one of the following:
 - Script File executions log entries
 - SQL Command Processor history entries
6. On the Clean up Logs page:
 - To delete entries by age, specify the age of the entries to be deleted and click **Delete Entries**.
 - To delete all entries, click **Truncate Log**.

See Also: "Accessing a Command from Command History" in *Oracle Application Express SQL Workshop and Utilities Guide*

Deleting Page View Activity Log Entries

Page view activity logs track user activity for an application. Developers enable logging within their application using the Logging attribute on the Edit Definition page.

See Also: "About the Edit Definition Page" in *Oracle Application Express Application Builder User's Guide*

The Application Express engine actually uses two logs to track user activity. At any given time, one log is designated as current. For each rendered page view, the Application Express engine inserts one row into the log file. A log switch occurs at the interval listed on the Manage Activity Logs page. At that point, the Application Express engine removes all entries in the noncurrent log and designates it as current.

To truncate the activity logs manually:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Logs**.
The Logs page appears.
4. Click **Page View Activity Log, with option to truncate**.
5. Click **Truncate Logs**.
6. Click either **Truncate Log 1** or **Truncate Log 2**.

See Also: ["Monitoring Activity within a Workspace"](#) on page 1-25

Deleting Developer Activity Log Entries

The Developer Activity Log tracks changes to applications within an individual workspace. Log entries older than one month are automatically deleted.

To delete Developer Activity Log entries:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Logs**.
The Logs page appears.
4. Click **Developer Activity Logs, with option to delete entries**.
5. On the Developer Activity Log page, click **Manage**.
6. Specify the age of the entries to be deleted and click **Delete Entries**.

See Also: ["Viewing Application Changes by Developer"](#) on page 1-26 for information about the Developer Activity Log

Deleting Click Counting Log Entries

The External Clicks Log counts clicks from an Oracle Application Express application to an external site. You can implement this functionality using the `APEX_UTIL.COUNT_CLICK` procedure.

To delete click counting log entries:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Logs**.
The Logs page appears.
4. Click **External Click Counting Log, with option to truncate**.
5. On the External Click Counting Log page, click **Manage**.
6. Specify the age of the entries to be deleted and click **Delete Entries**.

See Also: "COUNT_CLICK Procedure" in *Oracle Application Express API Reference*

Deleting Mail Log Entries

The Oracle Application Express Mail Log records the message header information and send date of successfully sent mail message.

To truncate the mail log:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Logs**.
The Mail Logs page appears.
4. To control the number of rows that display, make a selection from the Display list and click **Go**.
5. Click **Mail Log**.
6. On the Mail Log page, click **Truncate**.

See Also: "[Managing Mail](#)" on page 2-10

Deleting the Login Access Log

This table records authentication events by developers and administrators accessing the Oracle Application Express environment and by end users of Oracle Application Express applications that use the built-in login APIs available to developers. Log entries are aged out of the log tables and purged periodically.

To truncate the Login Access log:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Login Access Log**.

The Login Access Log page appears.

4. Click **Manage**.
5. On the Manage Login Access Log page, click **Delete Entries**.

Managing Session State

A session is a logical construct that is used to establish persistence (or stateful behavior) across page views. Each session is assigned a unique ID, which the Application Express engine uses to store and retrieve an application's working set of data (or session state) before and after each page view. An automatic process clears sessions older than 24 hours every eight hours. Oracle Application Express administrators can also purge them manually.

An Oracle Application Express administrator can view session state statistics and purge the session state on the Session State page.

Topics in this section include:

- [Purging Sessions by Age](#)
- [Viewing Session Details Before Purging](#)
- [Viewing Session Statistics Before Purging](#)

See Also: "Managing Session State" in *Oracle Application Express Application Builder User's Guide*

Purging Sessions by Age

Using the Purge Session page, Oracle Application Express administrators can purge sessions by age.

To view specific session details:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Session State**.
4. Click **Purge Sessions, by age**.
5. On the Purge Sessions page, specify:
 - The maximum number of sessions to be purged
 - The age of sessions to be purged
6. To view a report of session statistics, click **Count Sessions**.
7. To purge the selected sessions, click **Purge Sessions**.

Viewing Session Details Before Purging

Before purging sessions, Oracle Application Express administrators can use the Recent Sessions page to first view a listing of recent sessions and then drill down on session details.

To purge sessions by age:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.

3. Under Manage Service, click **Session State**.
4. Click **Recent Sessions**, with drill down to session details.
5. On the Recent Sessions page, you can:
 - Click a session number to view additional details.
 - Click **Purge Sessions** to delete the displayed sessions.

Viewing Session Statistics Before Purging

On the Session State Statistics page, Oracle Application Express administrators can view statistics about current sessions before purging.

To view session state statistics:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Session State**.
4. Select **Session State Statistics**.
5. Click **Purge Sessions** to delete the current sessions.

Managing Mail

Oracle Application Express administrators can manage email sent from applications by monitoring email messages in the mail queue and Mail Log.

Topics in this section include:

- [Viewing the Mail Queue](#)
- [Viewing the Mail Log](#)

See Also: "Sending Email from an Application" in *Oracle Application Express Application Builder User's Guide*

Viewing the Mail Queue

Oracle Application Express administrators can use the Manage Mail Queue page to monitor email messages in the mail queue.

To monitor messages in the mail queue:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Mail Queue**.
The Mail Queue page appears.
4. To send email messages, click **Send All Mail**.
5. To delete email messages, select the messages to be deleted and click **Delete**.

Viewing the Mail Log

The Oracle Application Express Mail Log records the message header information and send date of successfully sent mail message.

To view the mail log:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Logs**.
The Logs page appears.
4. Click **Mail log**.
The Mail Log appears.
5. To control the number of rows that display, make a selection from the Display list and click **Go**.
6. To delete all log entries, click **Truncate**.

Viewing Installed Translations

Oracle Application Express administrators can view a page showing what translated languages have been installed within the current development instance.

To view the list of installed translations:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Service, click **Installed Translations**.

The Installed Translations page appears, displaying a list of languages and indicating if the translations have been loaded.

See Also: "Managing Application Globalization" in *Oracle Application Express Application Builder User's Guide*

Managing Themes for an Oracle Application Express Instance

Oracle Application Express administrators manage the theme repository for an entire Oracle Application Express instance. Oracle Application Express administrators can add a theme to the repository or delete a theme.

Topics in this section include:

- [Adding a Public Theme to the Theme Repository](#)
- [Deleting a Public Theme](#)
- [Modifying a Public Theme](#)
- [About Exporting a Public Theme](#)

See Also: "Managing Workspace Themes" in *Oracle Application Express Application Builder User's Guide*

Adding a Public Theme to the Theme Repository

To add a theme to the Theme repository:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.

2. Click **Manage Service**.
3. Under Manage Shared Components, click **Public Themes**.
The Public Themes page appears.
4. Select **Create**.
5. For Workspace, select a workspace and click **Next**.
6. For Application, select an application and click **Next**.
7. For Theme, select a theme and click **Next**.
8. For Name, specify the following:
 - a. Theme Number - Enter a number that uniquely identifies a theme within a workspace.
 - b. Theme Name - Enter a name for the workspace theme.
 - c. Description - Enter a description.
 - d. Click **Next**.
9. Click **Create Public Theme**.

Deleting a Public Theme

To delete a public theme:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Shared Components, click **Public Themes**.
The Public Themes page appears.
4. Select the theme to be deleted.
5. Click **Delete**.

Modifying a Public Theme

You cannot edit a public theme directly. To modify a public theme, you must create a new application using the theme, modify it, and then manually add it to the theme repository.

To modify a public theme:

1. Create an application using the theme you want to modify. See "Creating an Application" in *Oracle Application Express Application Builder User's Guide*.
2. Modify the theme. See "Editing a Theme" in *Oracle Application Express Application Builder User's Guide*.
3. Delete the existing public theme. See "[Deleting a Public Theme](#)" on page 2-12.
4. Add the modified theme to the theme repository. See "[Adding a Public Theme to the Theme Repository](#)" on page 2-11.

About Exporting a Public Theme

You export a theme in the same way you export any related application files.

Exporting a public theme involves the following steps:

1. Create an application using the theme. See "Creating an Application" in *Oracle Application Express Application Builder User's Guide*.
2. Export the application. See "Exporting an Application" in *Oracle Application Express Application Builder User's Guide*.
3. Import the exported file into the target Oracle Application Express instance. See "Importing an Application or Page" in *Oracle Application Express Application Builder User's Guide*.
4. Install the exported file from the Export Repository. See "Installing Export Files" in *Oracle Application Express Application Builder User's Guide*.

Managing Environment Settings

Environment settings control Oracle Application Express configuration and apply to all workspaces within the current Oracle Application Express instance.

Topics in this section include:

- [Managing a Runtime Environment](#)
- [Disabling PL/SQL Program Unit Editing for an Instance](#)
- [Disabling the Creation of Demonstration Applications in a New Workspace](#)
- [Configuring SQL Workshop](#)
- [Enabling Database Monitoring](#)
- [Configuring Security Settings](#)
- [Configuring Email Settings](#)
- [Configuring Wallet Information](#)
- [Configuring Report Printing](#)
- [Requiring a New Schema When Creating a Workspace](#)
- [Configuring Workspace Size Options for Requests](#)
- [Managing Login and System Messages](#)

See Also: ["Specifying a Provisioning Mode"](#) on page 2-38 to learn more about the Self Service section of the Instance Settings page

Managing a Runtime Environment

An Oracle Application Express runtime environment enables you to run production applications, but it does not provide a Web interface for administration. A runtime environment only includes the packages necessary to run your application, making it a more hardened environment.

You administer the Oracle Application Express runtime environment using SQL*Plus and the APEX_INSTANCE_ADMIN API. To learn more, see "APEX_INSTANCE_ADMIN" in *Oracle Application Express Application Builder User's Guide*.

To install an exported application into a runtime installation, you must:

1. Export the workspace from the Application Express instance where the application was developed as described in ["Exporting and Importing a Workspace"](#) on page 2-58.
2. Use SQL*Plus to import your workspace in to the runtime environment:

- Connect as APEX_030200, SYS, SYSTEM, or any schema to which the role APEX_ADMINISTRATOR_ROLE has been granted.
- Run the workspace import file.

If the workspace export file was created with a version of Oracle Application Express lower than 3.2, you must connect as APEX_030200.

3. Export and then import your application using SQL*Plus in to the runtime environment. See "Exporting an Application and Related Files" in *Oracle Application Express Application Builder User's Guide*.

See Also: ["Creating a Workspace Manually in a Runtime Environment"](#) on page 2-40, ["Viewing Schema and Workspace Assignments in a Runtime Environment"](#) on page 2-41, ["Removing a Schema Mapping from a Workspace in a Runtime Environment"](#) on page 2-43, and ["Removing Workspaces in a Runtime Development Environment"](#) on page 2-57

Disabling PL/SQL Program Unit Editing for an Instance

By default, developers can change and compile PL/SQL source code when browsing database procedures, packages, and functions in Object Browser. As an Oracle Application Express administrator, you can control PL/SQL program unit editing for an entire instance by making a selection from Allow PL/SQL Program Unit Editing.

To disable PL/SQL program unit editing:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Feature Configuration**.
4. Locate the Application Development section.
5. For Allow PL/SQL Program Unit Editing, select **No**.
6. Click **Apply Changes**.

See Also: ["Disabling PL/SQL Program Unit Editing for a Workspace"](#) on page 1-11 for information about disabling PL/SQL program unit editing for a specific workspace

Disabling the Creation of Demonstration Applications in a New Workspace

When an Oracle Application Express administrator creates a new workspace, Oracle Application Express automatically creates a demonstration application within the workspace.

To disable the creation of demonstration applications:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Feature Configuration**.
4. Locate the Application Development section.
5. For Create demonstration objects in new workspaces, select **No**.

6. Click **Apply Changes**.

Configuring SQL Workshop

As an Oracle Application Express administrator, you can use the attributes under SQL Workshop to configure basic SQL Workshop behavior.

To configure SQL Workshop:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Feature Configuration**.
4. Under SQL Workshop, enter the attributes described in [Table 2–1](#).

Table 2–1 SQL Workshop Attributes

Attribute	Description
SQL Commands Maximum Inactivity in minutes	Identify the maximum amount of time a transactional command in the SQL Command Processor waits before timing out.
SQL Scripts Maximum Script Output Size in bytes	Identify the maximum amount of output a single SQL script can generate. SQL scripts are run from the SQL Workshop.
SQL Scripts Maximum Workspace Output Size in bytes	Identify the maximum amount of space all scripts within a workspace may consume. SQL script results are the output generated when running SQL scripts from the Script Editor or from the SQL Scripts home page.
SQL Scripts Maximum Script Size in bytes	Identify the maximum size of a SQL script used within the SQL Workshop.
Enable Transactional SQL Commands	Select Yes to enable transactional SQL commands for the entire Oracle Application Express instance. Enabling this feature permits SQL Command Processor users to issue multiple SQL commands within the same physical database transaction. When you select Yes , an Autocommit check box appears on the SQL Command Processor page. By default, this option is set to No .

5. Click **Apply Changes**.

Enabling Database Monitoring

Setting Enable Database Monitoring to **Yes** enables monitoring withing SQL Workshop. Before you can access the Database Monitoring page, an Oracle Application Express administrator must enable database monitoring.

See Also: "Monitoring the Database" in *Oracle Application Express SQL Workshop and Utilities Guide*

To enable database monitoring:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Feature Configuration**.

4. Scroll down to Monitoring.
5. For Enable Database Monitoring, select **Yes**.
6. Click **Apply Changes**.

Note: Only users having a database user account that has been granted a DBA role can access the Database Monitor page.

Configuring Security Settings

Oracle Application Express administrators can configure security settings, such as turning off cookies used to populate the login form in Application Express, controlling access to accounts, and setting up password policies.

Topics in this section include:

- [Turning Off Cookies Used to Populate the Login Form for Application Express](#)
- [Disabling Access to Oracle Application Express Administration Services](#)
- [Disabling Access to Oracle Application Express Internal Applications](#)
- [Disabling Public File Upload](#)
- [Restricting User Access by IP Address](#)
- [Requiring HTTPS](#)
- [Configuring Session Timeout](#)
- [Excluding Domains from Regions of Type URL and Web Services](#)
- [Enabling Login Controls for All Workspaces](#)
- [About Password Policies](#)
- [Configuring Password Policies](#)
- [Restricting Access to Oracle Application Express by Database Access Descriptor \(DAD\)](#)

Turning Off Cookies Used to Populate the Login Form for Application Express

Oracle Application Express administrators can control if a convenience cookie is sent to the user's computer whenever a developer or administrator logs in to a workspace from the Application Express Login page. By default, the Set Workspace Cookie option is set to Yes.

If selected, Oracle Application Express sends a persistent cookie that:

- combines the last used workspace name and user name
- has a lifetime of six months
- is read to populate the Application Express Workspace Login form (but not the Oracle Application Express Administration Services Login form)

Note: If your computer has received this cookie, you can physically remove it from its persistent location on disk using browser tools or system utilities. The cookie is named `ORA_WWV_REMEMBER_UN`. In older releases of Oracle Application Express, this cookie was named `ORACLE_PLATFORM_REMEMBER_UN`. It may exist for each Oracle Application Express service accessed having distinct hostname and path components.

To prevent a cookie from being sent to the user's computer when logging in:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Locate the Security section.
5. For Set Workspace Cookie, select **No**.
6. Click **Apply Changes**.

Disabling Access to Oracle Application Express Administration Services

Oracle Application Express administrators can restrict user access to Oracle Application Express Administration Services. This prevents any user from logging in to Oracle Application Express Administration Services.

To disable user access to Oracle Application Express Administration Services:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Locate the Security section.
5. For Disable Administrator Login, select **Yes**.
6. Click **Apply Changes**.

Setting this value and logging out prevents anyone from logging in to Oracle Application Express Administration Services.

Enabling Administrator Login To reverse this setting and enable administrator login:

1. Connect in SQL*Plus and connect to the database where Oracle Application Express is installed as `SYS`, for example:
 - On Windows:


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


```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200;
```

3. Run the following statements:

```
BEGIN
  APEX_INSTANCE_ADMIN.SET_PARAMETER('DISABLE_ADMIN_LOGIN', 'N');
  commit;
END;
/
```

Disabling Access to Oracle Application Express Internal Applications

The applications that constitute Oracle Application Express (such as Application Builder and SQL Workshop) exist within a workspace named Internal. To restrict user access to Internal applications, select **Yes** from Disable Workspace Login. Selecting **Yes** in production environments prevents all users from running applications (such as Application Builder and SQL Workshop) in the Internal workspace. Administrators who use this feature should also consider disabling user access to Oracle Application Express Administration Services.

See Also: ["Disabling Access to Oracle Application Express Administration Services"](#) on page 2-17

To disable user access to the Internal workspace:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Locate the Security section.
5. From Disable Workspace Login, select **Yes**.

Selecting **Yes** prevents users from logging in to the Internal workspace.

6. Click **Apply Changes**.

Disabling Public File Upload

Use the **Allow Public File Upload** attribute to control whether unauthenticated users can upload files in applications that provide file upload controls.

To control file upload:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Locate the Security section.
5. From Allow Public File Upload, select one of the following:
 - **Yes** enables unauthenticated users to upload files in applications in the Internal workspace.
 - **No** prevents unauthenticated users from uploading files in applications in the Internal workspace.

6. Click **Apply Changes**.

Restricting User Access by IP Address

Oracle Application Express administrators can restrict user access to an Oracle Application Express instance by creating a Runtime setting named `RESTRICT_IP_RANGE`.

To restrict user access by IP address:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Locate the Security section.
5. For Disable Administrator Login, select **No**.
6. In Restrict Access by IP Address, enter a comma-delimited list of IP addresses. Use an asterisk (*) to specify a wildcard.

You can enter IP addresses from one to four levels. For example:

```
141, 141.* ...
192.128.23.1 ...
```

Note: When using wildcards, do not include additional numeric values after wildcard characters. For example, `138.*.41.2`.

7. Click **Apply Changes**.

Requiring HTTPS

Secure Sockets Layer (SSL) is a protocol for managing the security of data transmitted on the Internet. For Web applications, SSL is implemented by using the HTTPS protocol. Oracle recommends that you run Oracle Application Express applications using SSL (HTTPS protocol) to prevent any sensitive data from being sent over an unencrypted (cleartext) communication channel.

You can configure both your Oracle Application Express instance and all related applications to require HTTPS by setting the Require HTTPS attribute to **Yes** on the Manage Service page.

Note: If you set Require HTTPS to **Yes**, you will only be able to log in to an Oracle Application Express workspace or Oracle Application Express Administration Services over HTTPS.

To require HTTPS for an Oracle Application Express instance:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Locate the Security section.

5. For Require HTTPS, select **Yes**.
6. Click **Apply Changes**.

Reversing HTTPS Requirement To reverse the Require HTTPS instance-level requirement:

1. Connect in SQL*Plus or SQL Developer with the Application Express engine schema as the current schema, for example:

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200;
```

3. Run the following statements:

```
BEGIN
  APEX_INSTANCE_ADMIN.SET_PARAMETER('REQUIRE_HTTPS', 'N');
  commit;
end;
/
```

Configuring Session Timeout

Use the attributes under Session Timeout to reduce exposure to abandoned computers with an open Web browser at the application level.

To manage session settings for an Oracle Application Express instance:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Under Session Timeout For Application Express, specify the following attributes:
 - **Maximum Session Length in Seconds** - Enter a positive integer representing how many seconds a session can exist for Oracle Application Express applications (that is, Application Builder, SQL Workshop, and so on). Leave the value NULL to revert the value to the default of 28800 seconds (or 8 hours). This session duration may be superseded by the operation of the job that runs every eight hours which deletes sessions older than 24 hours.
 - **Maximum Session Idle Time in Seconds** - Enter a positive integer representing how many seconds a session may remain idle for Oracle Application Express applications (that is, Application Builder, SQL Workshop, and so on). Leave the value null to revert the value to the default of 1 hour (3600 seconds).
5. Click **Apply Changes**.

See Also: "Session Timeout" in *Oracle Application Express Application Builder User's Guide*

Excluding Domains from Regions of Type URL and Web Services

It is possible to restrict regions of type URL and Web services for the entire Oracle Application Express instance. The Oracle Application Express administrator defines excluded domains and regions of type URL. If a Web reference or region of type URL contains an excluded domain, an error displays informing the user that it is restricted.

To exclude a domain from regions of type URL and Web services:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. In Domain Must Not Contain, enter a colon-delimited list of excluded domains.
5. Click **Apply Changes**.

Enabling Login Controls for All Workspaces

By default, no login controls are enabled across an Oracle Application Express instance. Oracle Application Express administrators can enable login controls for all accounts in all workspaces across an entire development instance. Account login controls include:

- Require user account expiration and locking
- Set up a maximum number of failed login attempts
- Set the lifetime of a password before prompted for a new one

If the Oracle Application Express administrator does *not* enable login controls for an entire instance then each Workspace administrator can enable the following controls on a workspace-by-workspace basis. See "[Enabling Login Controls for a Workspace](#)" on page 1-12.

Note that Account Login control affect applications that use the Application Express user account creation facilities and authentication against those accounts.

To enable login controls for all workspaces:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. Scroll down to Account Login control.
5. Under Account Login Control:
 - a. **Require User Account Expiration and Locking** - Select **Yes** to enable this feature for all workspaces across an entire Oracle Application Express instance. This feature applies to end-user accounts created using the Application Express end-user account management interface.
Select **No** to relinquish control to each Workspace administrator.
 - b. **Maximum Login Failures Allowed** - Enter a number for the maximum number of consecutive unsuccessful authentication attempts allowed before a

developer or administrator account is locked. If you do not specify a value in this field, the default value is 4.

This setting applies to Application Express administrator and developer accounts. It does not apply to end user accounts.

The value you enter is used as the default for the workspace-level Maximum Login Failures Allowed preference, if the Workspace administrator does not specify a value. That preference is used for end-user accounts within the respective workspace.

- c. **Account Password Lifetime (days)** - Enter a number for the maximum number of days a developer or administrator account password may be used before the account expires. If you do not specify a value in this field, a default value is 45 days.

This setting applies to accounts used to access the Application Express administration and development environment only. It does not apply to end-user accounts used by applications developed in Application Express.

The value you enter is used as the default workspace-level End User Account Lifetime preference, if the Workspace administrator specifies no value. That preference is used for end-user accounts within the respective workspace.

6. Click [Apply Changes](#).

Tip: This feature applies only to accounts created using the Application Express user creation and management facilities. It provides additional authentication security for applications. See ["Managing Application Express Users"](#) on page 1-19.

About Password Policies

Oracle Application Express administrators can enable password policies for:

- All users across all workspaces (that is, Workspace administrators, developers, and end users).

Oracle Application Express administrators can set up restrictions for all users, including password characters, lengths, words, and differences in consecutive passwords.

- Users logging in to Oracle Application Express Administration Services

Turning on the strong password requirement for Oracle Application Express adds another layer of security to prevent hackers from determining an administrator's password. When this option is selected, passwords must meet these requirements:

- consist of at least six characters
- contain at least one lowercase alphabetic character, one uppercase alphabetic character, one numeric digit, and one punctuation character
- cannot include the username
- cannot include the word Internal
- cannot contain any words shown in the Must Not Contain Workspace Name field in this section

Configuring Password Policies

To configure password policies:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Security**.
4. To set up a password policy for Workspace administrators, developers, and end users, scroll down to Workspace Password Policy and specify the attributes described in [Table 2-2](#).

Table 2-2 Workspace Password Policy Attributes

Attribute	Description
Minimum Password Length	Enter a number for the minimal character length for passwords.
Minimum Password Differences	Enter a positive integer or 0. When users change their password, the new password must differ from the old password by this number of characters. The old and new passwords are compared, character-by-character, for differences such that each difference in any position common to the old and new passwords counts toward the required minimum difference.
Must Contain At Least One Alphabetic Character	Select Yes to require that user passwords contain at least one alphabetic character. The Alphabetic Characters field lists the letters considered alphabetic characters.
Must Contain At Least One Numeric Character	Select Yes to require that user passwords contain at least one numeric character: 0,1,2,3,4,5,6,7,8, 9.
Must Contain At Least One Punctuation Character	Select Yes to require that user passwords contain at least one punctuation character. The Punctuation Characters field lists the symbols considered punctuation characters.
Must Contain At Least One Upper Case Character	Select Yes to require that user passwords contain at least one uppercase alphabetic character.
Must Contain At Least One Lower Case Character	Select Yes to require that passwords for users contain at least one lowercase alphabetic character.
Must Not Contain Username	Select Yes to prevent user passwords from containing the username, regardless of case.
Must Not Contain Workspace Name.	Select Yes to prevent user passwords from containing the workspace name, regardless of case.
Must Not Contain	Enter words, separated by colons, that may not be included in user passwords. These words may not appear in the password in any combination of uppercase or lowercase. This feature improves security by preventing the creation of some simple, easy-to-guess passwords based on words like hello, guest, welcome, and so on.
Alphabetic Characters	Enter new text or edit the existing text. This is the set of characters used in password validations involving alphabetic characters.
Punctuation Characters	Enter new text or edit the existing text. This is the set of characters used in password validations involving punctuation characters.

Next, set up a password policy for service administrators.

5. Scroll down to the Service Administrator Password Policy and specify one of the following:

- a. **Use policy specified in Workspace Password Policy** - Applies the password rules specified above in Workspace Password Policy to service administrator passwords.
 - b. **Use default strong password policy** - Applies the default strong password policy to service administrator passwords. To learn more, see item Help.
6. Click **Apply Changes**.

Restricting Access to Oracle Application Express by Database Access Descriptor (DAD)

`mod_plsql` and the embedded PL/SQL gateway support a directive which enables you to name a PL/SQL function which will be called for each HTTP request. You can use this functionality to restrict the procedures that can be invoked through the embedded PL/SQL gateway or `mod_plsql`. The function returns `TRUE` if the named procedure in the current request is allowed and `FALSE` if it is not allowed. You can use this function to enforce access restrictions for Oracle Application Express on a per-database access descriptor (DAD) basis.

Oracle Application Express ships with a request validation function named `wwv_flow_epg_include_modules.authorize`. This function specifies access restrictions appropriate for the standard DAD configured for Oracle Application Express.

During installation, the installer also creates a PL/SQL function in the Oracle Application Express product schema (`APEX_030200`). You can change and recompile this function to restrict access. The source code for this function is not wrapped and can be found in the Oracle Application Express product core directory in the file named `wwv_flow_epg_include_local.sql`. The source code is as follows

```
CREATE OR REPLACE FUNCTION
wwv_flow_epg_include_mod_local(
    PROCEDURE_NAME IN VARCHAR2)
RETURN BOOLEAN
IS
BEGIN
    RETURN FALSE; -- remove this statement when
you add procedure names to the "IN" list
    IF UPPER(procedure_name) IN (
        '' ) THEN
        RETURN TRUE;
    ELSE
        RETURN FALSE;
    END IF;
END wwv_flow_epg_include_mod_local;
/
```

To add names of procedures that should be allowed:

1. Remove or comment out the `RETURN FALSE` statement that immediately follows the `BEGIN` statement:

```
...
BEGIN
    RETURN FALSE; -- remove this statement when
you add procedure names to the "IN" list
...
```


2. Add names to the clause representing procedure names that should be allowed to be invoked in HTTP requests. For example to allow procedures PROC1 and PROC2 the IN list you would write `IN ('PROC1' , 'PROC2')`.

After changing the source code of this function, alter the Oracle Application Express product schema (APEX_030200) and compile the function in that schema.

To alter the product schema, APEX_030200

1. Log in to SQL Command Line (SQL*Plus) as SYS.
2. Alter the product schema (APEX_030200) by entering the following command:

```
ALTER SESSION SET CURRENT_SCHEMA APEX_030200;
```

3. Compile the function `wwv_flow_epg_include_local.sql`.

The `wwv_flow_epg_include_mod_local` function is called by Oracle Application Express's request validation function which itself is called by the embedded PL/SQL gateway or `mod_plsql`. The Oracle Application Express function first evaluates the request and based on the procedure name, approves it, rejects it, or passes it to the local function, `wwv_flow_epg_include_mod_local`, which can evaluate the request using its own rules.

When you create new Database Access Descriptors for use with Oracle Application Express, the request validation function directive should be specified. Specifically, the function `wwv_flow_epg_include_modules.authorize` should be named in the directive `PlsqlRequestValidationFunction` in the Database Access Descriptor entry in `dads.conf`.

If you have no additional restrictions beyond those implemented in the `wwv_flow_epg_include_modules.authorize` function, there is no need to take any action with respect to the source code for the `wwv_flow_epg_include_mod_local` function.

The PL/SQL Request Validation Function directive is only available in Oracle Application Server 10g and Oracle HTTP Server 11g or later, as well as the embedded PL/SQL gateway in Oracle Database 11g or later. This directive is not available in Oracle HTTP Server Release 9.0.3.

Configuring Email Settings

To enable Oracle Application Express to send mail, an Oracle Application Express administrator must configure email settings

Additionally, if you are running Oracle Application Express with Oracle Database 11g release 1 (11.1), you need to enable outbound mail. In Oracle Database 11g release 1 (11.1), the ability to interact with network services is disabled by default. For more information, see "Enabling Network Services in Oracle Database 11g" for your configuration scenario in *Oracle Application Express Installation Guide*.

Tip: You can configure Oracle Application Express to automatically email users their login credentials when a new workspace request has been approved. To learn more, see "[Specifying a Provisioning Mode](#)" on page 2-38.

Topics in this section include:

- [Configuring Email in a Full Development Environment](#)
- [Configuring Email in a Runtime Environment](#)

- [Determining Email Settings in a Runtime Environment](#)

See Also: "Sending Email from an Application" in *Oracle Application Express Application Builder User's Guide*

Configuring Email in a Full Development Environment

To configure Oracle Application Express to send mail in a full development environment:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Instance Settings**.
4. Under Email, enter the following:
 - a. **SMTP Host Address** - Defines the server address of the SMTP server. By default on installation, this is set to localhost. If you are using another server as an SMTP relay, change this parameter to that server's address.
 - b. **SMTP Host Port** - Defines the port the SMTP server listens to for mail requests. The default setting is 25.
 - c. **Administration Email Address** - Defines the "from" address for administrative tasks that generate email, such as approving a provision request or resetting a password.
5. Click **Apply Changes**.

Configuring Email in a Runtime Environment

To configure Oracle Application Express to send mail in a runtime environment:

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


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


```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
BEGIN
APEX_INSTANCE_ADMIN.GET_PARAMETER ( PARAMETER_NAME, PARAMETER_VALUE );
END;
```

For a description of email parameters, see [Table 2-3](#).

Table 2–3 Email Parameters

Parameter Name	Description
SMTP_FROM	<p>Defines the "from" address for administrative tasks that generate email, such as approving a provision request or resetting a password.</p> <p>Enter a valid email address, for example:</p> <p>someone@somewhere.com</p>
SMTP_HOST_ADDRESS	<p>Defines the server address of the SMTP server. If you are using another server as an SMTP relay, change this parameter to that server's address.</p> <p>Default setting:</p> <p>localhost</p>
SMTP_HOST_PORT	<p>Defines the port the SMTP server listens to for mail requests.</p> <p>Default setting:</p> <p>25</p>

See Also: "SET_PARAMETER Procedure" in *Oracle Application Express Application Builder User's Guide*

Determining Email Settings in a Runtime Environment

To determine email settings in runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
SELECT
APEX_INSTANCE_ADMIN.GET_PARAMETER (PARAMETER_NAME)
FROM DUAL;
```

For a description of email parameters, see [Table 2–3](#) on page 2-27.

See Also: "GET_PARAMETER Function" in *Oracle Application Express Application Builder User's Guide*

Configuring Wallet Information

Secure Sockets Layer (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. When SSL is enabled, `https` displays in the URL.

If you call a SSL-enabled URL (for example, by invoking a Web service), or create a region of type URL that is SSL-enabled, you must create a wallet. A wallet is a password-protected container that stores authentication and signing credentials (including private keys, certificates, and trusted certificates) needed by SSL.

Topics in this section include:

- [Creating a Wallet](#)
- [Configuring a Wallet in a Full Development Environment](#)
- [Configuring a Wallet in a Runtime Environment](#)
- [Determining Wallet Settings in a Runtime Environment](#)

Creating a Wallet

To create a wallet:

1. The database administrator must create a wallet on the Oracle Application Express database instance. See "Using Oracle Wallet Manager" in *Oracle Database Advanced Security Administrator's Guide*.
2. The Oracle Application Express administrator configures the Wallet section of the Instance Settings page to specify the file system path to the wallet and the wallet password (if required).

See Also: "Working with SSL Enabled Web Services" in *Oracle Application Express Application Builder User's Guide* and "Using Oracle Wallet Manager" in *Oracle Database Advanced Security Administrator's Guide*

Configuring a Wallet in a Full Development Environment

To specify wallet settings in a full development environment:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Instance Settings**.
4. Scroll down to Wallet.
5. In Wallet, enter the path on the file system where the wallet is located using the following format:
`file:directory-path`
6. If a password is required to open the wallet:
 - a. Enter a password in the Wallet Password field.
 - b. Select **Check to confirm that you wish to change the wallet password**.
7. Click **Apply Changes**.

Configuring a Wallet in a Runtime Environment

To specify wallet settings in a runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
BEGIN
  APEX_INSTANCE_ADMIN.SET_PARAMETER ( PARAMETER_NAME, PARAMETER_VALUE );
END;
```

For a description of wallet parameters, see [Table 2–4](#) on page 2-29.

Table 2–4 *Wallet Parameters*

Parameter Name	Description
WALLET_PATH	The path to the wallet on the file system, for example: file:/home/<username>/wallets
WALLET_PWD	The password associated with the wallet.

See Also: "SET_PARAMETER Procedure" in *Oracle Application Express Application Builder User's Guide*

Determining Wallet Settings in a Runtime Environment

To determine wallet settings in a runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
SELECT  
APEX_INSTANCE_ADMIN.GET_PARAMETER (PARAMETER_NAME)  
FROM DUAL;
```

For a description of wallet parameters, see [Table 2-4](#) on page 2-29.

See Also: "GET_PARAMETER Function" in *Oracle Application Express Application Builder User's Guide*

Configuring Report Printing

Oracle Application Express provides several features so that end users can download and print reports in various formats, including PDF. To set up this functionality, different users must configure the following printing settings:

1. **Site Level:** Oracle Application Express service administrators must specify the level of functionality (Standard or Advanced) for an entire Oracle Application Express instance, as described in this section.
2. **Application Level:** Workspace administrators and developers can define Report Queries and Report Layouts. Report Queries and Report Layouts are stored under Shared Components and are not tied to a specific page.
3. **Page/Region Level:** Developers can edit the Report regions on specific pages to enable printing. This, in turn, enables end users to print regions as reports in various formats. See "Configuring Classic Report Region Print Attributes" in *Oracle Application Express Application Builder User's Guide*.

Tip: If you are running Oracle Application Express with Oracle Database 11g Release 1 (11.1), you must enable network services to use report printing. See "Enabling Network Services in Oracle Database 11g" for your configuration scenario in *Oracle Application Express Installation Guide*.

Topics in this section include:

- [Configuring Report Printing in a Full Development Environment](#)
- [Configuring Report Printing Settings in a Runtime Environment](#)
- [Determining Report Printing Settings in a Runtime Environment](#)

Configuring Report Printing in a Full Development Environment

To configure the printing of reports in a full development environment:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Instance Settings**.
4. Scroll down to Report Printing:
5. For Oracle BI Publisher, select one of the following:
 - **Standard Support** - This is the default setting. Standard Support enables you to print report regions and report queries using either the built-in templates

provided with Oracle Application Express or other XSL-FO compatible formats you provide. This setting does not support RTF (rich text format).

Standard Support provides declarative formatting of report regions and report queries with basic control over page attributes, including orientation, size, column heading formats, page header, and page footer.

- **Advanced Support** - Requires a valid license of Oracle BI Publisher (also known as Oracle XML Publisher). Advanced Support provides you with all the capabilities of the Standard setting plus the ability to define RTF-based report layouts developed using the BI Publisher Word Template Builder.

See Also: *PDF Printing in Application Express 3.1* to learn more about installing and configuring Oracle BI Publisher. Go to:

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

6. For Print Server Protocol, select the protocol that the print server uses.
7. For Print Server Host Address, specify the host address of the print server engine.
8. For Print Server Port, define the port of the print server engine. By default, this is set to 8888 when the report server is installed.
9. For Print Server Script, define the script that is the print server engine. The default setting is:

```
/xmlpserver/convert
```

10. Click **Apply Changes**.

Configuring Report Printing Settings in a Runtime Environment

To configure report printing settings in a runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
BEGIN
  APEX_INSTANCE_ADMIN.SET_PARAMETER ( PARAMETER_NAME, PARAMETER_VALUE );
END;
```

For a description of available parameters, see [Table 2-5](#).

Table 2–5 Report Printing Parameters in Runtime Environment

Parameter Name	Description
PRINT_BIB_LICENSED	Specify either standard support or advanced support. Advanced support requires an Oracle BI Publisher license. Valid values include: <ul style="list-style-type: none"> ■ STANDARD ■ ADVANCED
PRINT_SVR_PROTOCOL	Valid values include: <ul style="list-style-type: none"> ■ http ■ https
PRINT_SVR_HOST	Specifies the host address of the print server converting engine, for example, localhost. Enter the appropriate host address if the print server is installed at another location.
PRINT_SVR_PORT	Defines the port of the print server engine, for example 8888. Value must be a positive integer.
PRINT_SVR_SCRIPT	Defines the script that is the print server engine, for example: /xmlpsserver/convert

See Also: "SET_PARAMETER Procedure" in *Oracle Application Express Application Builder User's Guide*

Determining Report Printing Settings in a Runtime Environment

To determine report printing settings in a runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
SELECT
APEX_INSTANCE_ADMIN.GET_PARAMETER (PARAMETER_NAME)
FROM DUAL;
```

For a description of available parameters, see [Table 2–5](#) on page 2-32.

See Also: "GET_PARAMETER Function" in *Oracle Application Express Application Builder User's Guide*

Requiring a New Schema When Creating a Workspace

Oracle Application Express administrators can require a new schema when user's request a new workspace.

To require a new schema when creating a workspace:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Instance Settings**.
4. Scroll down to Schema.
5. From Require New Schema, select Yes or No to determine if a user requesting a workspace can select an existing schema or must request a new schema.
6. Click **Apply Changes**.

Configuring Workspace Size Options for Requests

Oracle Application Express administrators can configure the workspace sizes available when users request:

- a new workspace and schema
- additional space for an existing workspace

To configure workspace size options:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Instance Settings**.
4. Scroll down to New Workspace Request Size and Workspace Change Request Size, specify the appropriate information:
 - Size in Megabytes - Edit the default numbers to change the size options.
 - Display - Select **Yes** for all the size options you want to appear in the select list for workspace size.
 - Default - Select the default value to appear in the storage field for workspace and change requests.
5. Click **Apply Changes**.

Managing Login and System Messages

Oracle Application Express administrators can communicate with all users in an Oracle Application Express instance by creating login and system messages. Typically, administrators use a login message in conjunction with a system message to communicate with all system users, such as regarding privacy notices or access restrictions.

Topics in this section include:

- [Managing a Login Message](#)
- [Managing a System Message](#)

Managing a Login Message

A login message displays on the Oracle Application Express login page. Oracle Application Express administrators can create a login message using the Login Message section of the Messages page.

To create a login message:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Messages**.
4. For Login Message, select **Custom Message**.
5. In Message, enter a message. The message can contain any text and can optionally include HTML formatting.
6. Click **Apply Changes**.

To disable a login message:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Messages**.
4. For Login Message, select **No Message**.
5. Click **Apply Changes**.

Managing a System Message

System messages display on the Workspace home page, Application Builder home page, Application home page, SQL Workshop home page, and the Oracle Application Express Utilities page.

Oracle Application Express administrators can create a system message using the System Message section of the Messages page.

Create a System Message To create a system message:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Messages**.
4. For System Message, select **Custom Message**.
5. In Message, enter a message. The message can contain any text and can optionally include HTML formatting.
6. Click **Apply Changes**.

Disable a System Message To disable a system message:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Messages**.

4. For System Message, select **No Message**.
5. Click **Apply Changes**.

Managing Schemas

This section describes how to manage the schemas within an Oracle Application Express instance.

Topics in this section include:

- [Determining the Oracle Application Express Engine Schema](#)
- [Understanding Oracle Default Schema Restrictions](#)
- [Managing Workspace to Schema Assignments](#)

Determining the Oracle Application Express Engine Schema

A schema is a logical container for the database objects. Oracle Application Express administrators may need to perform certain actions within the Application Express engine schema. For example, in order for an Oracle Application Express administrator to have the ability to assign Oracle default schemas, the database administrator (DBA) must explicitly grant the privilege by running the `APEX_SITE_ADMIN.UNRESTRICT_SCHEMA` procedure within the Application Express engine.

See Also: "[Understanding Oracle Default Schema Restrictions](#)" on page 2-35 for information about the `APEX_SITE_ADMIN.UNRESTRICT_SCHEMA` procedure

To determine the current Application Express engine schema for your Oracle Application Express instance:

1. Use SQL*Plus to connect to the database.
2. Run the following query in a schema with DBA privileges (for example, `SYSTEM`).

```
SELECT TABLE_OWNER FROM all_synonyms
WHERE SYNONYM_NAME = 'WV_FLOW' and OWNER = 'PUBLIC'
```

Understanding Oracle Default Schema Restrictions

When Oracle Application Express installs, the Oracle Application Express administrator does not have the ability to assign Oracle default schemas to workspaces. Default schemas (such as `SYS`, `SYSTEM`, and `RMAN`) are reserved by Oracle for various product features and for internal use. Access to a default schema can be a very powerful privilege. For example, a workspace with access to the default schema `SYSTEM` can run applications that parse as the `SYSTEM` user.

In order for an Oracle Application Express administrator to have the ability to assign Oracle default schemas to workspaces, the database administrator (DBA) must explicitly grant the privilege using SQL*Plus to run a procedure within the `APEX_SITE_ADMIN_PRIVS` package.

Note: All schema and workspace names used as arguments to procedures in the `APEX_SITE_ADMIN_PRIVS` package are used exactly as they are provided by the caller.

For example, if you pass an argument value such as `p_schema => 'system'`, the lower-case schema name 'system' will be recorded and referenced. This example could return unexpected results if you really meant to reference the common schema name `SYSTEM`, which would be referenced using upper case.

Topics in this section include:

- [Granting the Privilege to Assign Oracle Default Schemas](#)
- [Revoking the Privilege to Assign Oracle Default Schemas](#)
- [Working with Restricted Schemas](#)

Granting the Privilege to Assign Oracle Default Schemas

The DBA can grant an Oracle Application Express administrator the ability to assign Oracle default schemas to workspaces by using SQL*Plus to run the `APEX_SITE_ADMIN_PRIVS.UNRESTRICT_SCHEMA` procedure from within the Application Express engine schema. For example:

```
EXEC APEX_030200.APEX_SITE_ADMIN_PRIVS.UNRESTRICT_SCHEMA(p_schema => 'SYSTEM');
COMMIT;
```

This example would enable the Oracle Application Express administrator to assign the `SYSTEM` schema to any workspace.

See Also: ["Determining the Oracle Application Express Engine Schema"](#) on page 2-35

Revoking the Privilege to Assign Oracle Default Schemas

The DBA can revoke this privilege using SQL*Plus to run the `APEX_SITE_ADMIN_PRIVS.RESTRICT_SCHEMA` procedure from within the Application Express engine schema. For example:

```
EXEC APEX_030200.APEX_SITE_ADMIN_PRIVS.RESTRICT_SCHEMA(p_schema => 'SYSTEM');
COMMIT;
```

This example would prevent the Oracle Application Express administrator from assigning the `SYSTEM` schema to any workspace. It does not, however, prevent workspaces that have already had the `SYSTEM` schema assigned to them from using the `SYSTEM` schema.

See Also: ["Determining the Oracle Application Express Engine Schema"](#) on page 2-35

Working with Restricted Schemas

If a schema has been designated as restricted using the `RESTRICT_SCHEMA` procedure, the DBA can designate specific workspaces as exceptions by running the `APEX_SITE_ADMIN_PRIVS.CREATE_EXCEPTION` procedure. For example:

```
EXEC APEX_030200.APEX_SITE_ADMIN_PRIVS.CREATE_EXCEPTION(p_schema => 'SYSTEM', p_
workspace=> 'DBA_WORKSPACE');
EXEC APEX_030200.APEX_SITE_ADMIN_PRIVS.CREATE_EXCEPTION(p_schema => 'SYSTEM', p_
```

```
workspace => 'AUDITOR_WORKSPACE');
COMMIT;
```

This example would prevent the Oracle Application Express administrator from assigning the SYSTEM schema to the workspace named AUDITOR_WORKSPACE. However this restriction only applies to workspace provisioning requests processed after the REMOVE_EXCEPTION procedure has been run. If the AUDITOR_WORKSPACE already had the SYSTEM schema assigned to it, this method would not prevent that workspace from continuing to use the schema.

Removing Workspace Exceptions for a Schema The DBA can remove all workspace exceptions for a schema by using SQL*Plus to run the APEX_SITE_ADMIN_PRIVS.REMOVE_WORKSPACE_EXCEPTIONS procedure from within the Application Express engine schema. For example:

```
EXEC APEX_030200.APEX_SITE_ADMIN_PRIVS.REMOVE_WORKSPACE_EXCEPTIONS(p_schema =>
'SYSTEM');
COMMIT;
```

This example would prevent the Oracle Application Express administrator from assigning the SYSTEM schema to any workspaces if the SYSTEM schema were already restricted, but had one or more exceptions previously created for it.

Removing Schema Exceptions for a Workspace The DBA can remove all schema exceptions for a workspace by using SQL*Plus to run the REMOVE_SCHEMA_EXCEPTIONS procedure from within the Application Express engine schema. For example:

```
EXEC APEX_030200.APEX_SITE_ADMIN_PRIVS.REMOVE_WORKSPACE_EXCEPTIONS(p_workspace =>
'AUDITOR_WORKSPACE');
COMMIT;
```

This example would prevent the Oracle Application Express administrator from assigning any restricted schemas to the workspace named AUDITOR_WORKSPACE if that workspace had exceptions previously created for it with respect to any restricted schemas.

Determining the Privilege Status

The DBA can determine the current status of the privilege by using SQL*Plus to run the APEX_SITE_ADMIN_PRIVS.REPORT procedure. For example:

```
SET SERVEROUTPUT ON
EXEC APEX_030200.APEX_SITE_ADMIN_PRIVS.REPORT;
```

This example would display the text of a query that dumps the tables that defines the schema and workspace restrictions.

```
SELECT a.schema "SCHEMA",b.workspace_name "WORKSPACE" FROM WWV_FLOW_RESTRICTED_
SCHEMAS a, WWV_FLOW_RSHEMA_EXCEPTIONS b WHERE b.schema_id (+)= a.id;
```

When reviewing the output of this query, remember the following:

- A schema name in the SCHEMA column indicates that the schema is restricted.
- Schemas that are not listed are not restricted and may be assigned to any workspace.
- A workspace name next to a schema name means that an exception exists for the schema for the named workspace.

You can run this query in SQL*Plus as shown above, or you can change it and format the output.

Creating Workspaces

When users log in to Oracle Application Express, they log in to a shared work area called 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 numeric ID and name.

To make changes to their workspace, Workspace administrators submit change requests to an Oracle Application Express administrator. Only an Oracle Application Express administrator can approve change requests or provision new workspaces.

Topics in this section include:

- [About Workspace Provisioning](#)
- [Specifying a Provisioning Mode](#)
- [Creating a Workspace Manually](#)
- [Managing Workspace to Schema Assignments](#)

See Also: ["Managing Workspace Requests"](#) on page 2-44 and ["Managing Existing Workspaces"](#) on page 2-52

About Workspace Provisioning

When an Oracle Application Express administrator creates a new workspace with a new schema, a new tablespace and datafile are created for that schema. The datafile for the new tablespace is managed by Oracle-managed files if Oracle-managed files is enabled.

Using Oracle-managed files simplifies the administration of the Oracle database and eliminates the need for the database administrator (DBA) to directly manage the operating system files that comprise the database. Using Oracle-managed files, the DBA specifies operations in terms of database objects rather than file names. The datafile for the new tablespaces are named according to the Oracle-managed files conventions. The placement of these files is determined by the database initialization parameter `DB_CREATE_FILE_DEST`.

If the Oracle-Managed Files is not enabled, the datafile is created in the same directory as the first datafile of the tablespace in which Oracle Application Express is installed.

See Also: ["Using Oracle Managed Files"](#) in *Oracle Database Administrator's Guide*

Specifying a Provisioning Mode

As an Oracle Application Express administrator, you determine how the process of provisioning (or creating) a workspace works for your Oracle Application Express development instance.

In **Manual** provision mode, an Oracle Application Express administrator creates new workspaces and notifies the Workspace administrator of the login information. In **Request** or **Email Verification** provision modes, users request workspaces directly in a self-service fashion. In this scenario, users use a link on the login page to access a

request form. After the workspace request has been granted, users are automatically emailed the appropriate login information.

To specify a provisioning mode:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Service**.
3. Under Manage Environment Settings, click **Instance Settings**.
4. Under Self Service, select a provisioning status:
 - **Manual** - An Oracle Application Express administrator manually creates new workspaces and notifies the Workspace administrator of the login information.
 - **Request** - Users request workspaces directly in a self-service fashion. Selecting this option displays a link on the Login page enabling users to request a workspace. When a user requests a workspace, each request is submitted to a queue for approval. When the request is approved, the user is sent an email containing login credentials (the workspace name, User ID, and password).
 - **Email Verification** - Works similar to **Request** except each user receives an initial email containing a verification link. Clicking this link validates the user's email address and then the request is processed. Then another email is sent to the user containing login credentials (that is, the workspace name, User ID, and password).
5. Selecting **Disabled** from Email Provisioning, completely disables workspace provisioning when provisioning with Email Verification. Use the Message field to display a message to the user that explains why email provisioning is disabled.
6. If you select **Request** or **Email Verification** in the previous step, enter a URL in Development Service URL (optional).

The value you enter is used in the email when the request is approved. This setting defines the URL for the service. If this setting is not present, the URL is derived from your environment.
7. Click **Apply Changes**.

Note: To enable users to request a workspace using a link on the Login page, an Oracle Application Express administrator must choose the provisioning status of **Request** or **Email Verification** as described in the previous procedure. If the provisioning status is set to **Manual**, no link appears on the login page.

See Also: ["Configuring Email Settings"](#) on page 2-25 and ["Managing Workspace Requests"](#) on page 2-44

Creating a Workspace Manually

Oracle Application Express administrators can provision a workspace manually in either a full development environment or a runtime environment.

Topics in this section include:

- [Creating Workspace Manually in a Full Development Environment](#)
- [Creating a Workspace Manually in a Runtime Environment](#)

Creating Workspace Manually in a Full Development Environment

Oracle Application Express administrators can provision a workspace manually by running the Create Workspace Wizard.

To create a workspace manually:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Create Workspace**.

The Create Workspace Wizard appears.

4. For Identify Workspace, enter a workspace name and description and click **Next**.
5. For Identify Schema, specify whether you are re-using an existing schema or creating a new one.

If you are using an existing schema:

- a. For Re-use existing schema, select **Yes**.
- b. Select a schema from the list.
- c. Click **Next**.

If you are creating a new schema:

- a. For Re-use existing schema, select **No**.
 - b. Enter a schema name and password.
 - c. Specify a space quota.
 - d. Click **Next**.
6. For Identify Administrator, enter the Workspace administrator information and click **Next**.
 7. Confirm your selections and click **Create**.

Creating a Workspace Manually in a Runtime Environment

To add a workspace in a runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog  
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog  
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
BEGIN
```



```
APEX_INSTANCE_ADMIN.ADD_WORKSPACE(WORKSPACE_ID,WORKSPACE_NAME, SCHEMA_NAME,
SCHEMA_LIST)
END;
```

Where:

- `WORKSPACE_ID` is the ID for the workspace. Auto-assigned if NULL.
- `WORKSPACE_NAME` is the name of the workspace.
- `SCHEMA_NAME` is the name of the primary schema to associate with the workspace.
- `SCHEMA_LIST` is a colon delimited list of additional schemas to associate with the workspace.

Managing Workspace to Schema Assignments

When users log in to Oracle Application Express, they log in to a shared work area called a **workspace**. Each workspace can have multiple associated (or mapped) schemas. By associating a workspace with a schema, developers in that workspace can:

- Build applications that interact with the database objects in that schema.
- Create new database objects in that schema.

Topics in this section include:

- [Viewing Schema and Workspace Assignments in a Development Environment](#)
- [Viewing Schema and Workspace Assignments in a Runtime Environment](#)
- [Editing Existing Schema and Workspace Assignments](#)
- [Associating Additional Schemas with a Workspace](#)
- [Removing a Schema Mapping from a Workspace in a Runtime Environment](#)
- [Creating a New Schema](#)

Viewing Schema and Workspace Assignments in a Development Environment

Oracle Application Express administrators can view the existing schema to workspace assignment on the Manage Workspace to Schema Assignments page.

To view the existing schema to workspace assignment:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Manage Workspace to Schema Assignments**.

The Manage Workspace to Schema Assignments page appears. It lists all workspaces in your environment along with their associated schemas.

Viewing Schema and Workspace Assignments in a Runtime Environment

To view the existing schema to workspace assignment in a runtime environment:

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

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
SELECT APEX_INSTANCE_ADMIN.GET_SCHEMAS (WORKSPACE_NAME)
FROM DUAL;
```

Where `WORKSPACE_NAME` is the name of the workspace.

Editing Existing Schema and Workspace Assignments

To edit an existing schema and workspace assignment:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Manage Workspace to Schema Assignments**.
The Manage Workspace to Schema Assignments page appears.
4. To edit an existing workspace to schema assignment:
 - a. Select the workspace name.
The Edit Schema to Workspace Assignment page appears.
 - b. Select a new workspace or schema.
 - c. Click **Apply Changes**.

Associating Additional Schemas with a Workspace

Oracle Application Express administrators can associate (or map) additional existing schemas to a workspace.

Associating Additional Schemas in a Full Development Environment To associate additional schemas with a workspace:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Manage Workspace to Schema Assignments**.
The Manage Workspace to Schema Assignments page appears.
4. Click **Create**.
The Add Schema wizard appears.
5. For New or Existing Schema, select **Existing** and click **Next**.
6. Follow the on-screen instructions to associate the existing schema to a workspace.

7. To verify that the new schema is added to the workspace:
 - a. Log in to the workspace on Oracle Application Express.
 - b. Review the Workspace Schemas list on the Workspace home page. The list shows all schemas currently associated with this workspace.

Associating Additional Schemas in a Runtime Environment To associate additional schemas with a workspace in a runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
BEGIN
APEX_INSTANCE_ADMIN.ADD_SCHEMA(WORKSPACE_NAME, SCHEMA_NAME)
END;
```

Where:

- *WORKSPACE_NAME* is the name of the workspace.
- *SCHEMA_NAME* is the name of the schema.

Removing a Schema Mapping from a Workspace in a Runtime Environment

To remove a schema mapping from a workspace in a runtime environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
BEGIN
APEX_INSTANCE_ADMIN.REMOVE_SCHEMA (WORKSPACE_NAME, SCHEMA_NAME)
END;
```

Where:

- WORKSPACE_NAME is the name of the workspace.
- SCHEMA_NAME is the name of the schema.

Creating a New Schema

Oracle Application Express administrators can create a new schema and associate it with a workspace.

To create a new schema for a workspace:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.

2. Click **Manage Workspaces**.

3. Under Manage Workspaces, click **Manage Workspace to Schema Assignments**.

The Manage Workspace to Schema Assignments page appears.

4. Click **Create**.

The Add Schema wizard appears.

5. For New or Existing Schema, select **New** and click **Next**.

6. For Choose Workspace, select the workspace that you want to associate the new schema with and click **Next**.

7. For Identify Schema:

- a. Schema - Enter a unique name containing only letters.

Tip: To verify that the new schema name is unique, open the select list and search for the name.

- b. Password - Enter a case-sensitive password.

- c. Default Tablespace - Identify the default tablespace that you want this schema to use.

- d. Temporary Tablespace - Identify the temporary tablespace you want this schema to use.

- e. Click **Next**.

8. Confirm the information and click **Add Schema**.

9. To verify that the new schema is added to the workspace:

- a. Log in to the workspace on Oracle Application Express.

- b. Review the Workspace Schemas list on the Workspace home page. The list shows all schemas associated with this workspace.

Managing Workspace Requests

An Oracle Application Express administrator is responsible for reviewing requests for a new workspace. To manage workspace requests, you need to have selected either the **Request** or **Email Verification** provisioning status.

With either **Request** or **Email Verification** provisioning status, users request workspaces directly in a self-service fashion. For example, users could click a link on the login page to access a request form. Once the workspace request has been approved, each user is emailed the appropriate login information.

See Also: ["Specifying a Provisioning Mode"](#) on page 2-38

Topics in this section include:

- [Viewing a Pending Workspace Request on the Notifications List](#)
- [Viewing Requests from the Workspace Requests Page](#)
- [Approving or Declining a Pending Workspace Request](#)
- [Changing the Status of an Existing Workspace Request](#)
- [Deleting a Workspace Request](#)

Viewing a Pending Workspace Request on the Notifications List

The Notifications list on the Oracle Application Express Administration Services home page displays pending or approved workspace requests.

Figure 2–1 Notifications List



To view workspace requests on the Notifications list:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. On the right side of the Administration Services home page, review the Notifications list.

The Notifications list displays a summary of total and pending workspace requests.

3. To view additional details, click the appropriate workspace request number.

Viewing Requests from the Workspace Requests Page

To view workspace requests from the Workspace Requests page:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Requests, click **Workspace Requests**.

The Workspace Requests page appears.

4. To filter the report, make a selection from the Status list and click **Go**.
5. To view request details, click the **Edit** icon for the appropriate request.

Approving or Declining a Pending Workspace Request

To approve or decline a pending workspace request:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Requests, click **Workspace Requests**.
The Workspace Requests page appears.
4. From the Status list, select **Requested** and click **Go**.
5. Locate a request to review.
6. To edit or review the request details, click the **Edit** icon. On the Provision Request page you can:
 - Edit the request and click **Apply Changes**.
 - Delete the request by clicking **Delete**.
7. Return to the Workspace Requests page.
8. To approve a request:
 - a. Click **Provision** in the Actions column.
 - b. On the Provisioning Administration page, click **Approve**.
 - c. Review the email message.
 - d. If needed, update the message and click **Approve and Send Email**.
If you selected the Provisioning Status, **Email Verification**, an email containing a verification link is sent to the user. To create the workspace, the user must click the verification link to create the workspace. See "[Specifying a Provisioning Mode](#)" on page 2-38.
9. To decline a request:
 - a. Click **Provision** in the Actions column.
 - b. On the Provisioning Administration page, click **Decline**.
 - c. Review the email message.
 - d. To add information, such as the reason for declining a request, update the message and then click **Decline and Send Email**.

The email is sent to the user notifying them the request was declined.

More About the Approval Process

If you are using Email Verification, when an Oracle Application Express administrator approves a workspace request, the following events occur:

1. An email containing a verification link is sent to the user.
2. When user clicks the verification link, the workspace is created.
3. Another email is sent to the user containing login credentials (that is, the workspace name, User ID, and password).
4. The status of the workspace request changes from **Accepted** to **Approved**.

If the user fails to click the verification link, you can quickly delete the request by clicking the **DELETE** link in the Action column.

When an Error Occurs

If an error occurs during the workspace creation process, the status of the request reverts to **Requested** and an email is sent to the user containing the following message:

Please contact administrator.

Once the issue is resolved, the administrator can again repeat the previous procedure and approve the request.

Changing the Status of an Existing Workspace Request

To change the status of an existing workspace request:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Requests, click **Workspace Requests**.
The Workspace Requests page appears.
4. To filter the report, make a selection from the Status list and click **Go**.
5. Locate a request to review.
6. Click the link in the Actions column.
The Adjust Request page appears.
7. From the Project Status list, select a new status.
8. Click **Apply Changes**.

Note: Be careful when setting the Project Status to **Requested**. Although **Requested** enables you to reprovision a workspace, it could result in data corruption due to the manner in which accounts are provisioned. The provisioning system assumes Requested workspace requests do not have the corresponding schemas and dictionary entries for a Workspace administrator or developers. If you must change the Project Status for an **Approved** workspace to **Requested**, terminate the service first and then change the status to Requested.

Deleting a Workspace Request

To delete a workspace request:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Requests, click **Workspace Requests**.
The Workspace Requests page appears.
4. From Status, select the type of request you want to delete.
5. Click the **Edit** icon for the request you want to delete.
6. On the Provision Request page, click the appropriate button:
 - If the request Status is **Approved**, click **Terminate or Delete**.

- If the request Status is Declined, Requested, Terminated, or Accepted, click **Delete**.
7. Click **Delete Request**.

Managing Change Requests

Oracle Application Express administrators can modify a workspace (for example, add a new schema or increase the disk space limit) by approving a change request.

Topics in this section include:

- [Viewing a Pending Change Request from the Notifications List](#)
- [Viewing a Change Request from the Workspace Utilization Report](#)
- [Viewing Requests from the Change Requests Page](#)
- [Approving or Declining a Pending Change Request](#)

Viewing a Pending Change Request from the Notifications List

Oracle Application Express administrator can view existing workspace requests and change requests from the Notifications list on the Oracle Application Express Administration Services home page.

Figure 2–2 Notifications List



To view change requests from the Notifications list:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. On the right side of the Administration Services home page, review the Notifications list.

The Notifications list displays a summary of total and pending change requests.

3. To view additional details, click the appropriate change request number.

The appropriate Change Requests page appears.

Viewing a Change Request from the Workspace Utilization Report

To view pending requests from the Workspace Utilization Report:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Workspace Reports, click **Workspace Details**.
4. From the Workspace list, select the workspace and click **Go**.

The Workspace Details page appears.

5. Scroll down to the **Change Requests** section.

Viewing Requests from the Change Requests Page

To view change requests from the Workspace Requests page:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspace**.
3. Under Manage Requests, click **Change Requests**.
4. From Status, select the type of requests you want to view and click **Go**.

Approving or Declining a Pending Change Request

To approve or decline a pending change request:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspace**.
3. Under Manage Requests, click **Change Requests**.
4. Locate the request and click **View Request** under the Action column.
The View Change Request page appears. Note that the buttons that display depend upon the nature of the change request.
5. Select one of the following:
 - To approve a request for a schema, click **Create Schema**.
 - To approve a request for additional disk space, click **Add Space**.
 - To approve a request to terminate the service, click **Terminate Service**.
 - To deny a request, click **Deny Request**.
 - To delete a request and deny it, select **Delete this request if denying?** and then click **Deny Request**.

Managing Users in an Oracle Application Express Instance

Oracle Application Express administrators can manage all user accounts within an Oracle Application Express instance on the Manage Developers and Users page. User accounts are particularly useful if a workspace utilizes Application Express Authentication.

When setting up user accounts, Oracle Application Express administrators can take advantage of some manageability attributes, such as allowing the accounts to be locked, their password to have a fixed lifetime, and their password to require change on first use.

See Also:

- "[Workspace and Application Administration](#)" on page 1-1
- "[Managing Application Express Users](#)" on page 1-19
- "Application Express Account Credentials" in *Oracle Application Express Application Builder User's Guide*

Topics in this section include:

- [Creating New User Accounts](#)
- [Editing an Existing User Account](#)
- [Deleting User Accounts](#)

Creating New User Accounts

To create a new user account:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Manage Developers and Users**.
The Manage Developers and Users page appears.
4. Click **Create**.
The Create/Edit User page appears.
5. Under User Attributes, enter the appropriate information.

Tip: To learn more about a specific attribute, click the item label. When Help is available, the item label changes to red when you pass your cursor over it and the cursor changes to an arrow and question mark.
6. Under Password, type a case-sensitive password for this account.
If your organization has set up a password policy, be sure the password meets the requirements. See "[About Password Policies](#)" on page 2-22.
7. Under Developer Privileges:
 - **User is a developer** - To add this user as a developer, select **Yes**. For end users, select **No**.
Developers can create and modify applications and database objects and view developer activity, session state, workspace activity, application, and schema reports.
 - **User is a workspace administrator** - To add this user as a Workspace administrator, select **Yes**. For developers or end users, select **No**.
In addition to having developer privileges, workspace administrators can create and edit user accounts, manage groups, alter passwords of users within the same workspace, and manage development services.

Note: You create end users by adding them as users but not defining them as either developers or Workspace administrators, restricting their privileges.
8. Under Account Control:
 - **Account Availability** - Select **Unlocked** to enable a user to log in to this account. Select **Unlocked** to enable the account to be used.
 - **Require Change of Password on First Use** - Select **Yes** to require the user to change the password immediately after logging in with the current, temporary password.

This rule applies to the use of this account for developers and Workspace administrators. It also applies to all users who use this account when logging in to developed applications.

Tip: An Oracle Application Express administrator can configure these settings for an entire Oracle Application Express instance and define password complexity policies. See ["Enabling Login Controls for All Workspaces"](#) on page 2-21. ["About Password Policies"](#) on page 2-22, and ["Configuring Password Policies"](#) on page 2-22

9. Click **Create User** or **Create and Create Another**.

Editing an Existing User Account

To edit an existing user account:

1. Log in to Oracle Application Express Administration Services. See ["Logging in to Oracle Application Express Administration Services"](#) on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Manage Developers and Users**.
4. Locate a user:
 - To narrow the list, select a workspace from the Workspace list and click **Go**.
 - To locate a specific user, type a user name or partial string in the Find User field and click **Go**.
 - To view all users, leave the Find User field blank and click **Go**.
5. To edit account details, select the user name.

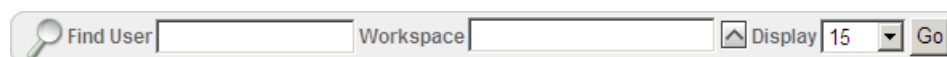
To learn more about a specific attribute, click the item label. When Help is available, the item label changes to red when you pass your cursor over it and the cursor changes to an arrow and question mark.

6. Make the appropriate changes.
7. Click **Apply Changes**.

See Also: ["Creating New User Accounts"](#) on page 2-50

About the Navigation Bar

A navigation bar displays at the top of the Manage Developers and Users page.



The Manage Developers and Users page navigation bar contains the following controls:

- **Find User.** Use the Find field to search for an specific user. Enter a case insensitive query and click **Go**.
- **Workspace.** Select a workspace and click **Go**.
- **Display.** Select the number of users to display on the page and click **Go**.

Deleting User Accounts

To delete a user account:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
Under Manage Workspaces, click **Manage Developers and Users**.
3. Use the navigation bar at the top of the page to control the display. See "[About the Navigation Bar](#)" on page 2-51.
 - To narrow the list, select a workspace from the Workspace list and click **Go**.
 - To locate a specific user, type a user name or partial string in the Find User field and click **Go**.
 - To view all users, leave the Find User field blank and click **Go**.
4. Select a user.
The Create/Edit User page appears.
5. Click **Delete User**.
6. Confirm your selection and click **OK**.

Managing Existing Workspaces

This section describes how Oracle Application Express administrators can manage existing workspaces within an Oracle Application Express instance.

Topics in this section include:

- [Viewing Existing Workspaces](#)
- [Viewing Workspace Details](#)
- [Viewing Workspace Database Privileges](#)
- [About Deleting Inactive Workspaces](#)
- [Removing a Workspace](#)
- [Locking a Workspace](#)
- [Exporting and Importing a Workspace](#)

See Also: "[Creating Workspaces](#)" on page 2-38, "[Managing Schemas](#)" on page 2-35, "[Managing Users in an Oracle Application Express Instance](#)" on page 2-49

Viewing Existing Workspaces

Use the Existing Workspaces page to view a report of existing workspaces, delete an existing workspace, or create a new workspace.

To view existing workspaces:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Workspace Reports, click **Existing Workspaces**.

The Existing Workspaces page appears with a navigation bar at the top:

- Search - To search for a workspace, enter a case insensitive query in the Search field and click **Go**.
 - Display - To change the number of workspaces that appear in the list, make a selection from the Display list and click **Go**.
4. To create a new workspace, click **Create Workspace** and follow the on-screen instructions.
 5. To view workspace details, click the workspace name. See "[About the Workspace Details Page](#)" on page 2-53.

Viewing Workspace Details

Oracle Application Express administrators can view and edit workspace information on the Workspace Details page.

To view workspace details:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Workspace Reports, click **Workspace Details**.
The Workspace Details page appears.
4. Make a selection from the Workspace list at the top of the page and click **Go**.
The Workspace Details page appears.

About the Workspace Details Page

The Workspace Details page is divided into the following sections:

- **Name**. Displays high-level information about the workspace: ID, Short Name, and the First Schema Provisioned. To edit the workspace name, click **Edit Attributes** and follow the on-screen instructions.
- **Schemas**. Displays the default tablespace for each workspace schema.
When users log in to Oracle Application Express, they log in to a shared work area called a workspace. Each workspace can have multiple associated schemas. By associating a workspace with a schema, developers can build applications that interact with the objects in that schema and create new database objects in that schema. To edit workspace to schema assignments, click **Workspace to Schema Assignments**. See "[Managing Schemas](#)" on page 2-35.
- **Privileges**. Lists the database system privileges for each workspace schema.
- **Role Privileges**. Lists the database roles granted to each workspace schema.
- **Tablespace Utilization**. Displays the tablespace used with each workspace schema.
- **Applications**. Lists all applications within the workspace.
- **Developers**. Lists all application developers within the workspace. To edit a developer, click **Manage Application Developers**. See "[Managing Users in an Oracle Application Express Instance](#)" on page 2-49.
- **Application Express Users**. Lists all defined users within the workspace. To edit a user, click **Manage Users**. See "[Managing Users in an Oracle Application Express Instance](#)" on page 2-49.

- **Objects by Type.** Lists objects used by the schemas in the workspace.
- **Change Requests.** Lists all change requests in an Oracle Application Express instance.
- **User Activity.** Lists user activity by date.
- **Developer Activity.** Lists developer activity by developer name and application.

Viewing Workspace Database Privileges

Oracle Application Express administrators can view a summary of workspace database privileges on the Workspace Database Privileges page.

To view workspace database privileges:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Workspace Reports, click **Workspace Database Privileges**.
The Workspace Database Privileges page appears.
4. To search for a workspace, enter a case insensitive query in the Find field and click **Go**.
5. To control the number of workspaces that display, make a selection from the Display list and click **Go**.
6. To view workspace details, click the workspace name.

The Workspace Details page appears. See "[Viewing Workspace Details](#)" on page 2-53.

About Deleting Inactive Workspaces

If you are managing a large hosted Oracle Application Express instance, periodically purging inactive workspaces can free up resources for other users. The process of purging inactive workspaces consists of the following steps:

1. Identify inactive workspaces.
2. Remove the resources associated with each inactive workspace.
3. Delete the inactive workspaces.

Topics in this section include:

- [Identifying Inactive Workspaces](#)
- [Removing the Resources Associated with Inactive Workspaces](#)
- [Deleting Inactive Workspaces](#)

Identifying Inactive Workspaces

The first step in determining if a workspace is inactive is to establish some basic rules. A common approach is to base the rules on the Oracle Application Express activity records found in the current Application Express engine schema.

See Also: "[Determining the Oracle Application Express Engine Schema](#)" on page 2-35

The following DDL (data definition language) creates a table of all workspaces requested before June 28, 2004 but that have been inactive since June 10, 2004. In this example, inactivity is determined by checking a key within the Application Express engine schema for the most recent updates by each workspace.

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200;
CREATE TABLE ws_to_purge AS
  SELECT c.security_group_id, c.company_name, c.admin_email, c.request_date,
  SYSDATE last_updated_on, 'Y' ok_to_delete
  FROM wwv_flow_provision_company c
  WHERE
c.request_date <= to_date('20040628','YYYYMMDD') AND
  ( not exists
  (SELECT NULL /* Activity Log */
    FROM wwv_flow_activity_log l
    WHERE l.security_group_id = c.security_group_id
    AND l.time_stamp > to_date('20040610','YYYYMMDD'))
  )
  AND NOT EXISTS
  (SELECT NULL /* workspace applications */
    FROM wwv_flows f
    WHERE f.security_group_id = c.security_group_id
    AND f.last_updated_on > to_date('20040610','YYYYMMDD'))
  AND NOT EXISTS
  (SELECT NULL /* Pages */
    FROM wwv_flow_steps s
    WHERE s.security_group_id = c.security_group_id
    AND s.last_updated_on > to_date('20040610','YYYYMMDD'))
  AND NOT EXISTS
  (SELECT NULL /* Regions */
    FROM wwv_flow_page_plugs p
    WHERE p.security_group_id = c.security_group_id
    AND p.last_updated_on > to_date('20040610','YYYYMMDD'))
  AND NOT EXISTS
  (SELECT NULL /* Items */
    FROM wwv_flow_step_items i
    WHERE i.security_group_id = c.security_group_id
    AND i.last_updated_on > to_date('20040610','YYYYMMDD'))
  AND NOT EXISTS
  (SELECT NULL /* Templates */
    FROM wwv_flow_templates t
    WHERE t.security_group_id = c.security_group_id
    AND t.last_updated_on > to_date('20040610','YYYYMMDD'))
  AND NOT EXISTS
  (SELECT NULL /* Files uploaded */
    FROM wwv_flow_file_objects$ o
    WHERE o.security_group_id = c.security_group_id
    AND o.created_on > to_date('20040610','YYYYMMDD'))
  AND NOT EXISTS
  (SELECT NULL /* SQL Workshop history */
    FROM wwv_flow_sw_sql_cmds s
    WHERE s.security_group_id = c.security_group_id
    AND s.created_on > to_date('20040610','YYYYMMDD'));
```

After you identify inactive workspaces, you can purge them. Purging inactive workspaces is a two-step process:

- First, remove the resources (that is, the database schemas, tablespaces, and data files) associated with each inactive workspace.
- Second, drop the inactive workspaces from Oracle Application Express.

Removing the Resources Associated with Inactive Workspaces

After you have identified inactive workspaces in a single table, the next step is to remove them.

Note: Before removing the schemas, tablespaces, or data files associated with inactive workspaces, make sure these resources are not being used in any other workspace or application.

To remove the resources associated with inactive workspaces:

1. Identify the schemas used by the workspaces to be deleted by joining the table containing the identified inactive workspaces to `wwv_flow_company_schemas`.
2. Drop the schemas, tablespaces, and data files used exclusively by the inactive workspaces from the database. You can identify the schemas to drop by running a query similar to the following:

```
SELECT s.schema
      FROM ws_to_purge ws,
           wv_flow_company_schemas s
     WHERE s.security_group_id = ws.security_group_id
           AND ws.ok_to_delete = 'Y';
```

Deleting Inactive Workspaces

Once you remove the resources associated with an inactive workspace, you can delete the workspace. You can delete inactive workspaces manually using the Oracle Application Express Administration Services application. Or, you can delete them programmatically as shown in the following PL/SQL example.

```
BEGIN
  FOR c1 IN (SELECT security_group_id
            FROM ws_to_purge
            WHERE ok_to_delete = 'Y')
  LOOP
    WWV_FLOW_PROVISIONING.TERMINATE_SERVICE_BY_SGID(c1.security_group_id);
  END LOOP;
END;
```

Removing a Workspace

Removing a workspace does not remove any of the associated database objects. To remove the associated schemas, a database administrator (DBA) must use a standard database administration tool, such as Oracle Enterprise Manager or SQL*Plus.

See Also:

- *SQL*Plus User's Guide and Reference*
- ["Viewing Workspace Details"](#) on page 2-53
- ["Creating Workspaces"](#) on page 2-38

Topics in this section include:

- [Removing Workspaces in a Full Development Environment](#)
- [Removing Workspaces in a Runtime Development Environment](#)

Removing Workspaces in a Full Development Environment

To remove a workspace in a full development environment:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Workspace Reports, click **Existing Workspaces**.
4. Under the Action column, click **Delete**.
5. Follow the on-screen instructions.

Removing Workspaces in a Runtime Development Environment

To remove a workspace in a runtime development environment:

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

- On Windows:

```
SYSTEM_DRIVE:\ sqlplus /nolog
connect sys as sysdba
```

- On UNIX and Linux:

```
$ sqlplus /nolog
connect sys as sysdba
```

When prompted enter the appropriate password.

2. Run the following statement:

```
ALTER SESSION SET CURRENT_SCHEMA = APEX_030200
```

3. Run the following statement:

```
BEGIN
APEX_INSTANCE_ADMIN.REMOVE_WORKSPACE(WORKSPACE_NAME, DROP_USER, DROP_
TABLESPACE)
END;
```

Where:

- WORKSPACE_NAME is the name of the workspace.
- DROP_USER is either Y or N. The default is N.
- DROP_TABLESPACE is either Y or N. The default is N.

Locking a Workspace

Oracle Application Express administrators can lock a workspace to address security or performance issues. Locking a workspace immediately locks all workspace administrator, developer and user accounts in the workspace. It also changes the status of all applications in the workspace to Unavailable.

Warning: Locking a workspace makes it permanently inaccessible.

To lock a workspace:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Lock Workspace**.
4. For Workspace, select the workspace you want to lock and click **Next**.
5. Review the information about applications and users and click **Lock Workspace**.

Exporting and Importing a Workspace

To move a workspace and all associated users to a new Oracle Application Express instance, an Oracle Application Express administrator must export the workspace. When you export a workspace, Oracle Application Express generates a text file. This file contains information about your workspace, all the users in your workspace, and any groups in your workspace (if applicable). You can use this file to import your workspace into another Oracle Application Express instance.

Keep in mind, this method only imports workspace, users, and groups. This file does not contain:

- The schemas associated with this workspace or the objects in those schemas.
- Any applications, images, cascading style sheets, and static text files.

These items must be exported separately.

See Also: "Deploying an Application" in *Oracle Application Express Application Builder User's Guide*

Topics in this section include:

- [Exporting a Workspace](#)
- [Importing a Workspace](#)

Exporting a Workspace

To export a workspace:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Export Workspace**.
4. Select a workspace and then click **Export Workspace**.
5. To export the selected workspace, click **Save File**.
6. Follow the on-screen instructions.

Importing a Workspace

To import a workspace:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Workspaces**.
3. Under Manage Workspaces, click **Import Workspace**.

4. Click **Browse**, select a workspace export file, and click **Next**.
5. To install the workspace, click **Install**.
6. Follow the on-screen instructions.

Managing Applications

Oracle Application Express administrators can use the Manage Applications page to view reports on key attributes of applications in all workspaces across a development instance.

Topics in this section include:

- [Viewing Application Attributes](#)
- [Changing Application Build Status Set During Deployment](#)
- [Viewing the Parsing Schemas Report](#)

Viewing Application Attributes

Oracle Application Express administrators can view applications by workspace on the Application Attributes page.

To view the Application Attributes page:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Applications**.
3. Click **Application Attributes**.

The Application Attributes page appears.

4. Use the Navigation bar at the top of the page to filter the page view. Make a selection from the Workspace, Application, Parsing Schema, and Display lists and click **Go**.
5. To sort by column, select a column heading.

Changing Application Build Status Set During Deployment

Every Oracle Application Express application has an application-level attribute called Build Status. You can use this attribute to prevent an application from being modified by other developers. Build Status has two settings:

- **Run and Build Application** - Developers can both run and edit an application.
- **Run Application Only** - Developers can only run an application.

Setting the Build Status to **Run Application Only** is an effective way to prevent other developers from modifying it.

You can change the Build Status of an application as follows:

- Developers and administrators can change the Build Status attribute on the Edit Definition page. See "Availability" in *Oracle Application Express Application Builder User's Guide*.
- Workspace administrators can change the Build Status of applications within the current workspace on the Manage Application Build Status page. See "[Changing Build Status for Multiple Applications](#)" on page 1-17.

- Oracle Application Express administrators can change the Build Status of an application on the Build Status page.

To change a Build Status as an Oracle Application Express administrator:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Applications**.
3. Click **Build Status**.

The Build Status page appears.

4. Locate an application by making selections from the Build Status, Application, and Workspace lists and clicking **Go**.
5. Click the **Edit** icon adjacent to the appropriate application.
The Edit Build Status page appears.
6. Select an alternate build status and click **Apply Changes**.

Tip: Note that if you select **Build Application Only** during deployment, the only way to change this setting is change it on the Build Status page in Oracle Application Express Administration Services.

Viewing the Parsing Schemas Report

To view the Parsing Schemas report:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Manage Applications**.
3. Click **Parsing Schemas**.

The Parsing Schemas page appears.

4. Filter the display by making selections from the Parsing Schema, Application, and Workspace lists and clicking **Go**.

Monitoring Activity Across a Development Instance

Oracle Application Express administrators can monitor end user and developer activity for an Oracle Application Express instance on the Monitor Activity page.

To monitor user activity:

1. Log in to Oracle Application Express Administration Services. See "[Logging in to Oracle Application Express Administration Services](#)" on page 2-3.
2. Click **Monitor Activity**.
3. Select report to review. Categories include:
 - Page Views
 - Calendar Reports
 - Login Attempts
 - Developer Activity
 - Environment Reports

See Also: [Monitoring Activity within a Workspace](#) on page 1-25

Index

A

About Using Zero as a Session ID, 2-17

Administration Services

enabling access, 2-17

logging in to, 2-3

restricting access, 2-17

administrator

roles, 1-2

APEX_SITE_ADMIN_PRIVS, 2-35

CREATE_EXCEPTION, 2-36

REMOVE_WORKSPACE_EXCEPTIONS, 2-37

REPORT, 2-37

RESTRICT_SCHEMA, 2-36

UNRESTRICT_SCHEMA, 2-36

application

reports, 1-25

Application Administration page, 1-2

Application Builder Defaults, 1-14

configuring, 1-14

Application Express

about, 1-3

Application Express end users

change password on first use, 1-21

changing user password, 1-23

creating accounts, 1-19

deleting accounts, 1-22

editing accounts, 1-21

locking accounts, 1-21

managing, 1-19

password expiration, 1-21

Application Express engine

determining schema for, 2-35

Application Express user groups

adding users, 1-24, 1-25

creating, 1-24

editing, 1-24

report, 1-24

Application Express users

controlling account availability, 2-50

creating, 2-50

deleting accounts, 2-51

editing accounts, 2-51

grouping, 1-23

requiring password change, 2-50

application models

deleting, 1-13

applications

managing demonstration, 1-14

B

build status

changing as instance administrator, 2-59

changing as workspace administrator, 1-17

C

change requests, 2-48

approving, 2-49

managing, 2-48

Change Requests page, 2-49

Create Workspace Wizard, 2-40

D

DAD

restricting access, 2-24

database

about version, 1-3

database monitoring

enabling, 2-15

demonstration applications

disabling creation of, 2-14

managing, 1-14

Developer activity log

deleting, 2-7

developer logs

purging, 1-18

E

email

configuring, 2-25

configuring for a runtime instance, 2-26

configuring for development instance, 2-26

determining email settings in runtime

instance, 2-27

mail queue, 2-10

viewing mail log, 2-10

environment settings

access to Administration Services, 2-17

- configuring workspace size options, 2-33
- defining, 2-13
- disabling access to Internal applications, 2-18
- enabling database monitoring, 2-15
- including demonstration applications, 2-14
- PL/SQL program unit editing, 2-14
- restricting access by IP address, 2-19
- SQL Workshop attributes, 2-15

export

- workspace, 2-58

External click counting log

- deleting, 2-8

External Clicks Log

- purging, 1-18

G

groups

- adding users, 1-24
- creating, 1-24
- editing, 1-24
- managing Application Express users, 1-23
- removing users, 1-25
- report, 1-24

H

HTTPS

- requiring for an instance, 2-19
- reversing requirement for an instance, 2-20

I

Installed Translations page, 2-11

Internal

- disabling access, 2-18
- disabling public file upload, 2-18

IP address

- restricting by IP address, 2-19

L

Login Access log

- deleting entries, 2-8

Login controls

- enabling for workspace, 1-12

login controls

- configuring, 2-21

login message

- creating, 2-34
- disabling, 2-34

logs

- purging, 1-18

M

mail log

- deleting entries, 2-8
- viewing, 2-10

mail queue

- viewing, 2-10

Manage Service page, 2-2

Manage Services page, 1-4

Manage Workspaces page, 2-2

messages

- login, 2-33
- system, 2-33

N

Notifications list, 2-45

O

Oracle Application Express

- application owner, 1-3
- current time (on server), 1-4
- current user, 1-3
- DAD_CHARACTERSET, 1-4
- database version, 1-4
- host schema, 1-3
- JOB_QUEUE_PROCESSES, 1-4
- language preference, 1-4
- last DDL time, 1-3
- NLS_CHARACTERSET, 1-4
- schema compatibility, 1-3
- version, 1-3
- workspace ID, 1-3
- workspace name, 1-3

Oracle Application Express administrator, 2-1

- approving a change request, 2-49
- approving a workspace request, 2-46
- changing a workspace request, 2-47
- changing build status, 2-59
- creating a workspace manually, 2-39
- creating user accounts, 2-50
- deleting a workspace, 2-56
- deleting a workspace request, 2-47
- deleting log entries, 2-6
- deleting user accounts, 2-51
- editing user accounts, 2-51
- exporting and importing a workspace, 2-58
- locking a workspace, 2-57
- managing email, 2-10
- managing environment settings, 2-13
- managing schemas, 2-41
- managing session state, 2-9
- managing users, 2-49
- Oracle default schemas, 2-35
- provisioning a workspace, 2-38
- purging inactive workspaces, 2-54
- viewing Parse as Schemas report, 2-60
- viewing pending change requests, 2-48
- viewing pending workspace requests, 2-45
- viewing report attributes, 2-59
- viewing workspaces, 2-52

Oracle default schemas

- determining administrator privilege status, 2-35
- removing default restrictions, 2-35
- revoking administrator privileges, 2-35

P

- Page View Activity logs
 - deleting, 2-7
- pages
 - purging cached, 1-10
- password
 - resetting, 1-3
- password policies
 - about, 2-22
 - configuring, 2-22
- PL/SQL editing
 - disabling for workspace, 1-11
- PL/SQL program unit editing
 - controlling, 2-14
- preferences
 - creating a workspace message, 1-13
 - login controls, 1-12
 - PL/SQL editing, 1-11
 - purging for a specific user, 1-10
 - workspace, 1-11
- provisioning mode
 - specifying, 2-38
- public themes
 - adding, 2-11
 - deleting, 2-12
 - exporting, 2-12
 - managing, 2-11
 - modifying, 2-12

R

- regions
 - purging cached, 1-11
- REMOVE_SCHEMA_EXCEPTIONS, 2-37
- report printing
 - configuring, 2-30
 - configuring in full development instance, 2-30
 - configuring in runtime instance, 2-31
 - determining settings in runtime instance, 2-32
- reports
 - Active Sessions, 1-27
 - Application Attributes, 2-59
 - Application Changes by Application, 1-26
 - Application Changes by Developer, 1-26
 - monitor activity, 1-25
 - Parse as Schemas, 2-60
 - schema, 1-17
 - User Groups Assignments, 1-24
- restricting access by IP address, 2-19
- runtime settings
 - RESTRICT_IP_RANGE, 2-19

S

- schema
 - associating with workspace, 2-42
 - creating new, 2-44
 - determining for Application Express, 2-35
 - editing schema mapping, 2-42
 - reports, 1-17

- schema mapping, 2-41
 - editing, 2-42
 - removing in runtime instance, 2-43
 - viewing in development instance, 2-41
 - viewing in runtime instance, 2-41
- Secure Sockets Layer (SSL), 2-28
- security settings
 - configuring password policies, 2-22
 - configuring session timeout, 2-20
 - disabling access to Internal, 2-18
 - disabling cookies to populate login form, 2-16
 - disabling public file upload, 2-18
 - enabling access to Administration Services, 2-17
 - enabling login controls, 2-21
 - excluding domains, 2-21
 - excluding URL regions, 2-21
 - requiring HTTPS, 2-19
 - restricting access by DAD, 2-24
 - restricting access by IP address, 2-19
 - restricting by IP address, 2-19
 - reversing HTTPS requirement, 2-20
- service
 - terminating, 1-16
- services
 - viewing overview, 1-15
- session
 - purging by age, 1-7
- session state
 - managing, 1-5, 2-9
 - purging current session, 1-6
 - removing, 1-5
 - viewing session details, 1-5
- site-specific tasks lists, 2-5
 - adding a task, 2-5
 - deleting a task, 2-6
 - editing a task, 2-5
- SQL Workshop
 - configuring, 2-15
 - deleting logs, 2-6
- SSL-enabled URLs, 2-28
- system message
 - creating, 2-34
 - disabling, 2-34

T

- tablespaces
 - Oracle-managed files, 2-38
- translation
 - viewing installed, 2-11

U

- user access
 - restricting by IP address, 2-19
- user account
 - creating, 2-50
 - deleting, 2-51
 - editing, 2-51
- user accounts

- controlling account availability, 2-50
- requiring password change, 2-50
- user preferences
 - managing, 1-5
 - managing by user, 1-8
 - managing for current user, 1-7
 - purging, 1-10
 - removing programmatically, 1-9
 - resetting using a page process, 1-10
 - setting, 1-8
- user roles
 - developer, 1-2, 2-1
 - Oracle Application Express administrator, 1-2, 2-1
 - Workspace administrator, 1-2
 - Workspace administrators, 1-2, 2-1
- changing, 2-47
- configuring size options, 2-33
- managing, 2-44
- Workspace Requests page, 2-45
- workspaces
 - deleting inactive, 2-56
 - identifying inactive, 2-54
 - purging, 2-54
 - removing resources, 2-56

W

- wallet
 - configuring, 2-28
 - configuring in full development instance, 2-28
 - configuring in runtime instance, 2-29
 - creating, 2-28
 - determining settings in runtime instance, 2-29
- wizards
 - creating a workspace, 2-40
- workspace
 - administration, 2-1
 - creating manually, 2-39
 - creating new tablespaces, 2-38
 - deleting, 2-56
 - exporting and importing, 2-58
 - locking, 2-57
 - login controls, 1-12
 - managing, 1-1
 - preferences, 1-11
 - provisioning, 2-38
 - size options for requests, 2-33
 - specifying a provisioning mode, 2-38
 - utilization, 2-48
 - viewing, 2-52
- Workspace administrator, 1-1
 - requesting a database schema, 1-16
 - requesting additional storage, 1-16
 - requesting service termination, 1-16
 - viewing schema reports, 1-17
 - viewing workspace overview, 1-15
- workspace administrator
 - changing build status, 1-17
- workspace message
 - creating, 1-13
- workspace report
 - applications, 1-15
 - developers, 1-15
 - schemas utilizing space, 1-15
 - space used, 1-15
 - storage space, 1-15
- workspace requests
 - approving, 2-46