Oracle® Application Express

End User's Guide

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Contents

Preface ix

Topic Overview ix
Audience ix
Documentation Accessibility x
Related Documents x
Conventions xi

1 About Oracle Application Express

About Oracle Application Express 1-1
About Websheet Applications 1-1
About Database Applications 1-1
About Browser Requirements 1-2

2 Using Websheets

Running a Websheet 2-1
About Using Websheets 2-2
Using Breadcrumbs and Navigation Sections 2-2
About the Help Link 2-4
About the Logout Link 2-4
About Websheet Search 2-4
About the Control Panel 2-5
Managing Websheet Pages 2-6
Adding a New Page 2-6
Copying an Existing Page 2-7
Editing Page Details 2-7
About Adding and Editing Page Sections 2-7
About Section Types 2-8
About Editing Sections 2-8
Deleting Page Sections 2-8
Editing Section Titles and Display Order 2-9
About Text Sections 2-9
Adding a Text Section 2-9
Editing a Text Section 2-10
About Navigation Sections 2-11
Adding a Navigation Section 2-11

About Adding Data Grids 2-12
About Data Grids 2-12
Creating a Data Grid 2-13
Creating a Data Grid from Scratch 2-13
Creating a Data Grid by Copying and Pasting Spreadsheet Data 2-14
Copying a Data Grid 2-15
Viewing and Editing a Data Grid 2-15
Accessing the Data Page 2-15
Editing Data Grid Data 2-17
Editing Data Grid Columns Manually 2-17
Editing Data Grid Rows Manually 2-18
Editing a Single Data Grid Row 2-19
Editing Data Grid Properties 2-21
Viewing the Data Grid Change History Log 2-21
Deleting a Data Grid 2-21
About Adding and Editing Data Content 2-22
About Available Data Sources 2-22
About Enabling Support for Creating Data Reports 2-22
About Incorporating Data into Websheet Pages 2-22
About Adding Data Reports 2-23
About Data Reports 2-23
Creating a Data Report 2-23
Viewing and Modifying a Data Report 2-24
Deleting a Data Report 2-24
About Data Sections 2-25
Adding a Data Section to a Page 2-25
Editing a Data Section 2-25
About Chart Sections 2-26
Adding a Chart Section 2-26
Editing a Chart Section 2-27
About PL/SQL Sections 2-27
Adding a PL/SQL Section 2-27
Editing a PL/SQL Section 2-28
Understanding Markup Syntax 2-28
Linking to a Page 2-28
Linking to a Section 2-29
Linking to External URLs 2-29
Linking to a Data Grid 2-30
Using SQL and SQLVALUE Syntax 2-30
About Advanced Data Grid Queries Rules 2-31
Managing Annotations 2-32
Managing Uploaded Files and Images 2-32
Uploading Files and Images 2-32
Including a Download Link in a Page Section 2-33
Displaying an Uploaded Image Inline 2-33
Editing or Deleting Uploaded Files 2-33
Adding Tags 2-34

Adding Tags 2-34
Editing Existing Tags 2-34
Adding Notes 2-34
Adding Notes 2-34
Editing or Deleting Existing Notes 2-35
Viewing and Deleting Annotations 2-35
Accessing the Annotations Page 2-35
Deleting Annotations 2-36
Managing Websheet Applications 2-36
Changing Your Websheet Password 2-36
Emailing a Websheet Page 2-37
Printing a Websheet Page 2-37
Viewing Websheets 2-38
About Presentation Mode 2-38
Viewing the Page Directory 2-39
Viewing Page History 2-40
Viewing the Application Directory 2-40

3 Using Interactive Reports

Running an Interactive Report 3-1
What is an Interactive Report? 3-1
Using the Column Heading Menu 3-2
Using the Search Bar 3-3
Using the Select Columns To Search Icon 3-3
Using the Actions Menu 3-4
About the Actions Menu 3-5
Selecting Columns to Display 3-6
Adding a Filter 3-7
Adding a Column Filter 3-7
Adding a Row Filter 3-8
Specifying Rows Per Page 3-9
Selecting Column Sort Order 3-10
Creating a Control Break 3-10
Adding Highlighting 3-11
Computing Columns 3-13
Deleting a Computation 3-14
Aggregating a Column 3-14
Removing an Aggregate 3-15
Creating a Chart from the Actions Menu 3-15
Editing a Chart 3-17
Deleting a Chart 3-17
Grouping Columns 3-17
Editing a Group By 3-19
Deleting a Group By 3-19
Executing a Flashback Query 3-19
Saving an Interactive Report 3-20
About Configuration Dependencies 3-20

Saving a Public or Private Interactive Report 3-20
Renaming a Public or Private Interactive Report 3-21
Deleting a Public or Private Interactive Report 3-21
Resetting a Report 3-22
Downloading a Report 3-22
Subscribing to Emailed Reports 3-22

4 About Uploading Data

About Using the Data Loading Wizard 4-1
Importing Data from a File into Your Application 4-2
Copying and Pasting Data into Your Application 4-5
Automatically Supported Date, Timestamp and Number Formats 4-8

Index

Preface

Oracle Application Express End User's Guide offers an introduction to using Oracle Application Express applications from an end user's perspective. This guide explains how to use Websheets and interactive reports as well as use applications that include the ability to upload data.

To learn more about developing Oracle Application Express applications, see *Oracle Database 2 Day + Application Express Developer's Guide* and "Quick Start" in *Oracle Application Express Application Builder User's Guide*.

Topics:

- Topic Overview
- Audience
- Documentation Accessibility
- Related Documents
- Conventions

Topic Overview

This document contains the following sections:

Title	Description
About Oracle Application Express	Offers a brief introduction to the Oracle Application Express development environment.
Using Websheets	Offers an overview of Oracle Application Express Websheet applications.
Using Interactive Reports	Offers an overview of using Oracle Application Express interactive reports.
About Uploading Data	Describes how to import data into an Oracle Application Express application using an existing application Data Loading Wizard.

Audience

Oracle Application Express End User's Guide is intended for end users who running Oracle Application Express 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.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

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Accessibility of Code Examples in Documentation

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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.

Related Documents

For more information, see these Oracle resources:

- *Oracle Application Express Release Notes*
- *Oracle Application Express Installation Guide*
- *Oracle Database 2 Day + Application Express Developer's Guide*
- *Oracle Application Express Application Builder User's Guide*
- *Oracle Application Express Administration Guide*
- *Oracle Application Express SQL Workshop Guide*
- *Oracle Application Express API Reference*
- *Oracle Application Express Migration Guide*

For additional Oracle Application Express application examples, go to the Learning Library. Search for free online training content, including Oracle by Example (OBE), demos, and tutorials. To access the Oracle Learning Library, go to:

http://www.oracle.com/technetwork/tutorials/index.html

Printed documentation is available for sale in the Oracle Store at:

http://shop.oracle.com/

If you 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/technetwork/indexes/documentation/index.html

Conventions

The following text conventions are used in this document:

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

1

About Oracle Application Express

This document offers an introduction to using Oracle Application Express applications from an end user's perspective. To learn more about developing Oracle Application Express applications, see *Oracle Database 2 Day + Application Express Developer's Guide* and "Quick Start" in *Oracle Application Express Application Builder User's Guide*.

Topics:

- About Oracle Application Express
- About Websheet Applications
- About Database Applications
- About Browser Requirements

About Oracle Application Express

Oracle Application Express is a rapid Web application development tool for the Oracle Database. Through wizards or direct input, developers can assemble an HTML interface (or application) on top of database objects. Each application is a collection of linked pages using tabs, buttons, or hypertext links.

By creating an application, users can manage, manipulate, and display data in the Oracle Database. Using Oracle Application Express, developers can build two types of applications:

- Websheet applications
- Database applications

About Websheet Applications

A Websheet is an interactive Web page that enables end users to manage structured and unstructured data without developer assistance. Websheet applications include navigation controls, search capability, and the ability to add annotations such as files, notes, and tags. To learn more, see "Using Websheets" on page 2-1.

About Database Applications

Using only a Web browser and with limited programming experience, Oracle Application Express enables developers to create powerful database applications. A database application is an interactive user interface (UI) that enables users to quickly add, update, or display information stored in the Oracle Database. This information

can be displayed in many formats, including static and interactive reports, forms, maps, charts, and maps.

This guide explains how end users can customize an interactive report. With an interactive report, end users can customize the appearance of report data through searching, filtering, sorting, column selection, highlighting, and other data manipulations. Plus, end users can save their customizations as well as download the report locally. To learn more, see "Using Interactive Reports" on page 3-1.

This guide also explains how to import data into an Oracle Application Express application using an existing application Data Loading Wizard. To learn more, see "About Uploading Data" on page 4-1.

About Browser Requirements

Running an Oracle Application Express application requires a Web browser that supports Java Script and the HTML 4.0 and CSS 1.0 standards. The following browsers meet these requirements:

- Microsoft Internet Explorer 7.0 or later version
- Mozilla Firefox 3.6 or later version
- Google Chrome 4.0 or later version
- Apple Safari 4.0 or later version

2

Using Websheets

Websheet applications are interactive Web pages that combine text with data. These applications are highly dynamic and defined by their users. Websheet applications include navigation controls, search capabilities, and the ability to add annotations such as files, notes, and tags. Websheet applications can be secured using access control lists and several built-in authentication models.

Topics:

- Running a Websheet
- About Using Websheets
- Managing Websheet Pages
- About Adding and Editing Page Sections
- About Text Sections
- About Navigation Sections
- About Adding Data Grids
- About Adding and Editing Data Content
- About Adding Data Reports
- About Data Sections
- About Chart Sections
- About PL/SQL Sections
- Understanding Markup Syntax
- Managing Annotations
- Managing Websheet Applications
- Viewing Websheets

> **See Also:** "About Websheet Applications" in *Oracle Application Express Application Builder User's Guide*

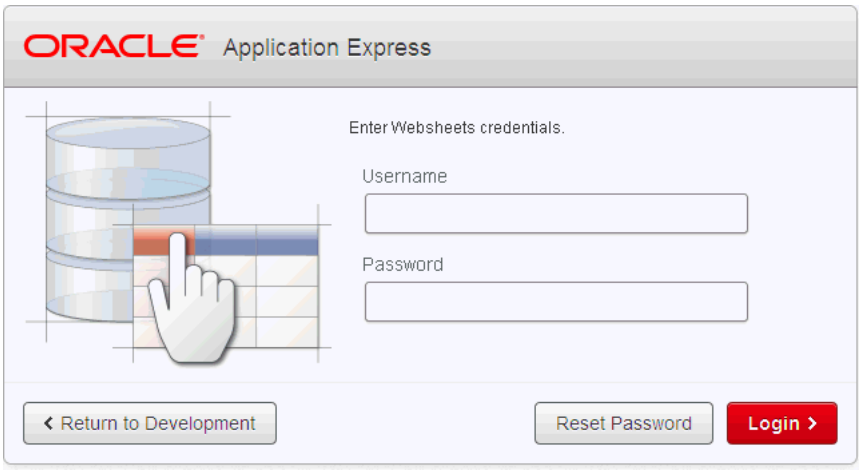
Running a Websheet

To run a Websheet, a developer typically provides you with a URL and login credentials (that is, a username and password).

To run a Websheet:

1. Click the supplied URL, or enter it in your browser's Address field.

A Login page appears.



2. On the Login page:
   a. Username - Enter your username.
   b. Password - Enter your password.
   c. Click **Login**.

   The Websheet application appears.

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

About Using Websheets

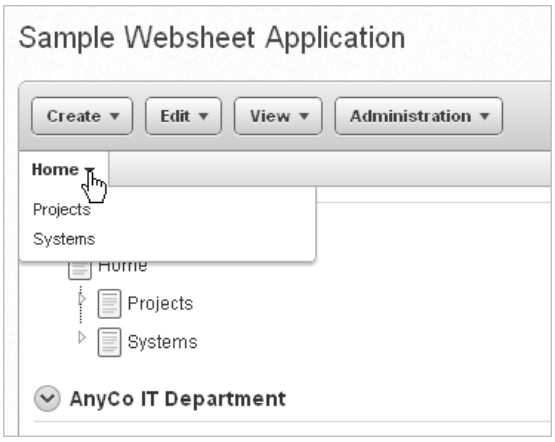
This section describes interface elements common to all Websheet applications.

Topics:

- Using Breadcrumbs and Navigation Sections
- About the Help Link
- About the Logout Link
- About Websheet Search
- About the Control Panel

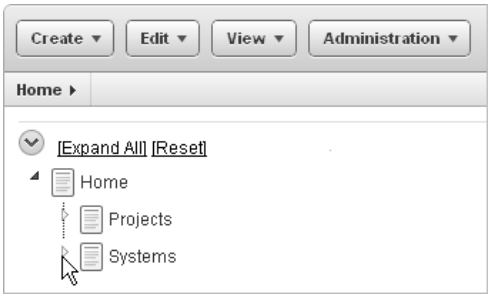
Using Breadcrumbs and Navigation Sections

A breadcrumb displays at the top of every Websheet page. Positioning the mouse over the **Home** breadcrumb displays a submenu of links to all Websheet pages. To view another page, click the child breadcrumb entry.



About Navigation Sections

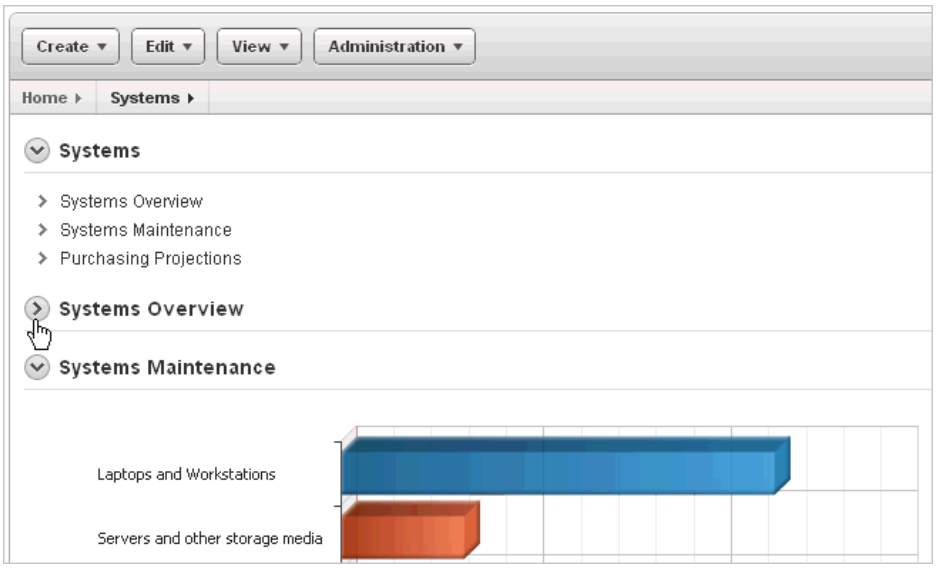
Websheets can contain multiple pages. Each navigation section includes a hierarchical tree that enables you to navigate between pages or page sections.



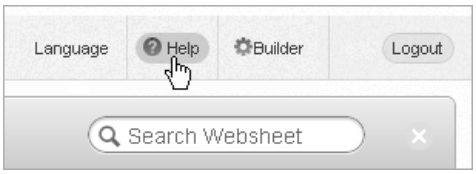
Click the arrows on the left to expand or collapse the tree. To link to a specific section or page, simply click it. Click **Expand All** to view all pages and page subsections and click **Reset** to return the tree to the default display. To learn more, see "About Navigation Sections" on page 11.

Showing and Hiding Page Sections

You can hide and show page sections. To hide and show a section, click the arrow to the left of a section name.



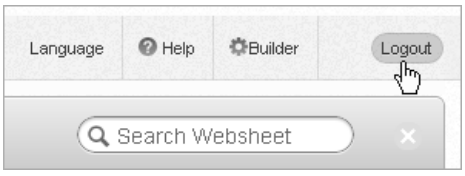
About the Help Link



A **Help** link display in the upper right corner of each page. Clicking the **Help** link displays a small Help system that provides an overview of Websheet functionality. Available tabs include: About, Overview, Access Control, Markup Syntax, Access Control, SQL Generator for Data Grids, Application Content and FAQ.

> **Tip:** The content in this online Help system is also covered in depth in "About Websheet Applications" in *Oracle Application Express Application Builder User's Guide*.

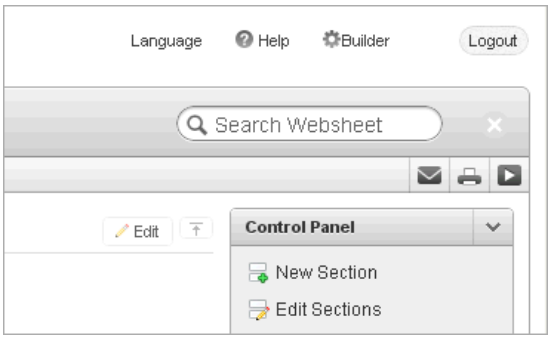
About the Logout Link



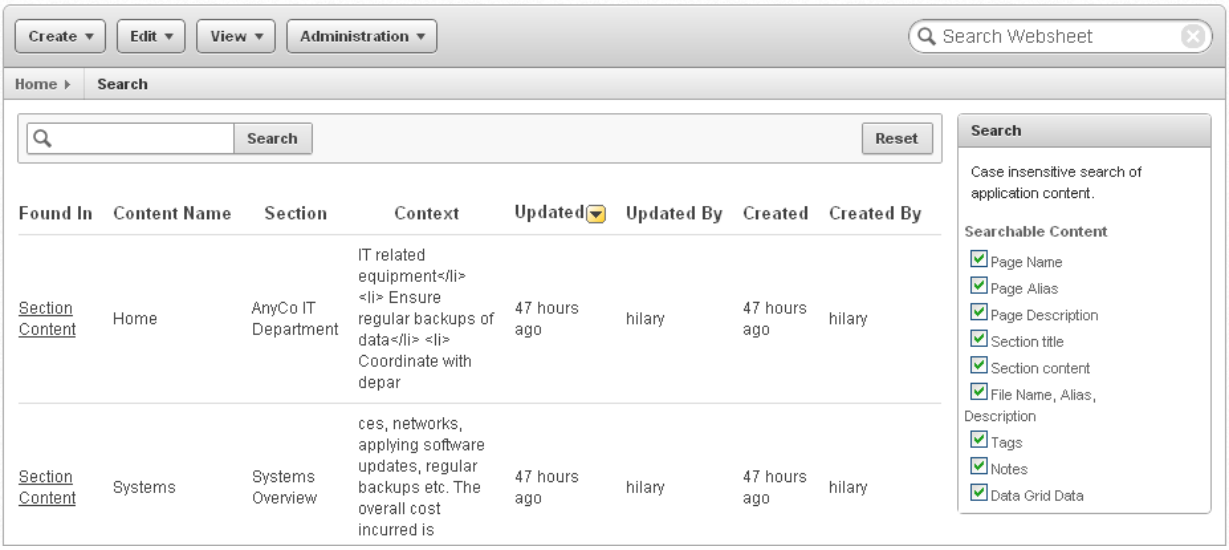
To log out of a running a Websheet, click the **Logout** link in the upper right of the page. The Login page appears. To return to Application Builder, click **Return to Development**.

About Websheet Search

The Search Websheet field displays in the upper right of each Websheet page.



Use **Search Websheet** to perform case insensitive searches of application content. Search results display in a report.



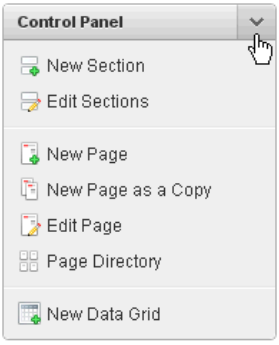
Once the search result display, use the Search region on the right side of the page to control what content to search. Searchable Content options include:

- Page Name
- Page Alias
- Page Description
- Section title
- Section content
- File Name, Alias, Description
- Tags
- Notes
- Data Grid Data

To view content, click **Search**.

About the Control Panel

The Control Panel displays on the right side of most Websheet pages. To hide or display the Control Panel, click the arrow to the right of the region title.



The Websheet Control Panel contains the following options:

- New Section. See "About Adding and Editing Page Sections" on page 2-7.
- Edit Sections. See "About Adding and Editing Page Sections" on page 2-7.
- New Page. See "Adding a New Page" on page 2-6.
- New Page as a Copy. See "Copying an Existing Page" on page 2-7.
- Edit Page. See "Editing Page Details" on page 2-7.
- Page Directory. See "Viewing the Page Directory" on page 2-39.
- New Data Grid. See "Creating a Data Grid" on page 2-13.

Managing Websheet Pages

You can add pages to a Websheet manually, or copy existing pages.

Topics:

- Adding a New Page
- Copying an Existing Page
- Editing Page Details

> **Tip:** You can also add a new page by clicking **New Page** and **New Page as a Copy** on the Control Panel.

Adding a New Page

To add a new Websheet page:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the Create menu, select **New Page**.
3. On Create Page:
   a. Name - Enter a page name. The page name displays as the window title as well as in the breadcrumb.
   b. Page Alias - Identify the page alias. This alias enables you to link to this page. See "Linking to a Page" on page 2-28.
   c. Parent Page - If this page is part of a page hierarchy, select the parent page.
   d. Click **Create Page**.

Copying an Existing Page

To copy an existing page:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the Create menu, select **New Page as a Copy**.
3. In New Page Name, enter the name of the new page.
4. Click **Copy Page**.

   A success message appears.
5. Select one of the following:
   - **View Current Page**
   - **View New Page**

   Tip: If a newly copied page needs to have a different parent page, you can change the parent page by editing the Page Details. See "Editing Page Details" on page 2-7.

Editing Page Details

On Page Details, you can change the page name, alias, parent page, or page description.

To edit page details:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the Edit menu, select **Edit Page**.
3. On the Details Page.
   - Name - Identifies the name of the page. The page name displays in the window title as well as in the breadcrumb.
   - Alias - A page alias enables you to create links in page sections to other pages. A page alias must be unique within an application. See "Linking to a Page" on page 2-28.
   - Owner - Identifies the owner of the page.
   - Parent Page - Identifies the parent page. The defined parent page is used to construct breadcrumbs and navigation between pages.
   - Page Description - Descriptive text that describes the page.
4. Click **Apply Changes**.

   A success message appears.

   Tip: You can also edit page details by clicking **Edit Page** on the Control Panel.

About Adding and Editing Page Sections

This section describes how to add and edit page sections.

Topics:

- About Section Types
- About Editing Sections

- Deleting Page Sections
- Editing Section Titles and Display Order

About Section Types

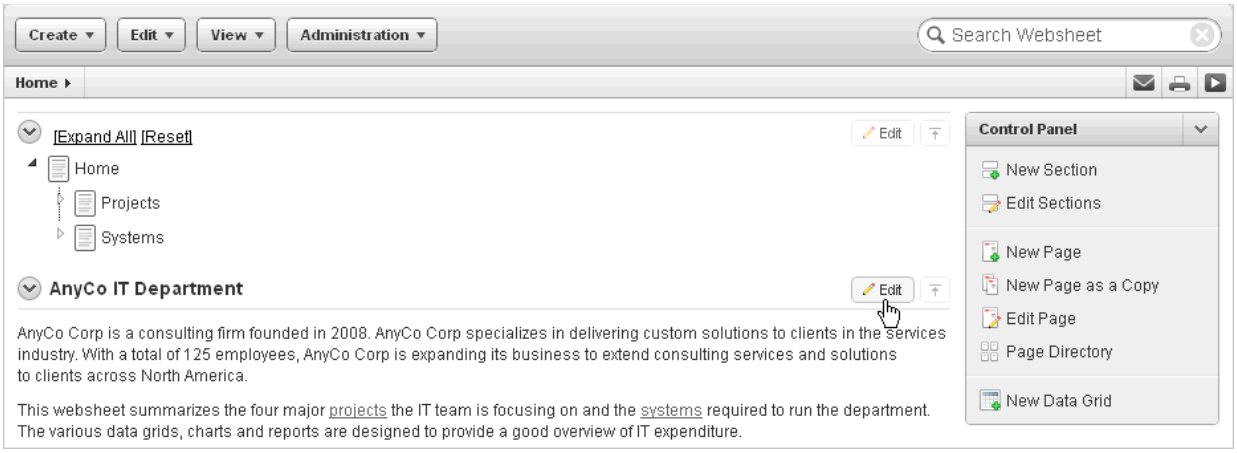
Websheets are organized into pages which consist of containers called **sections**. To each Websheet page, you can add the following section types:

- **Text** - Display entered text, inline images, and inline reports, and links to reports, data grids, other pages, files, external URLs, and so on. You can create and modify text sections using an intuitive WYSIWIG editor. See "About Text Sections" on page 9.
- **Navigation** - Add dynamically generated navigation to subordinate pages or page sections. See "About Navigation Sections" on page 11.
- **Data** - Create inline reports based upon a data grid or report. See "About Data Sections" on page 25 and "About Adding Data Reports" on page 23.
- **Chart** - Create inline charts based upon a data grid or report. See "About Chart Sections" on page 26.
- **PL/SQL** - Select a data grid to generate SQL and SQLVALUE queries to use within your application. See "About PL/SQL Sections" on page 27.

About Editing Sections

To edit a page section:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. Click the **Edit** icon that displays in the upper right of each section.



The Edit Section page appears.

> **Tip:** The left side of the Edit Section page lists all sections on the current page. The current section is highlighted. To go to another section, simply select it.

3. Edit the section and click **Apply Changes**.

Deleting Page Sections

To delete a page section:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. Click the **Edit** icon that displays in the upper right of the section.

   The Edit Section page appears.
3. Click **Delete**.

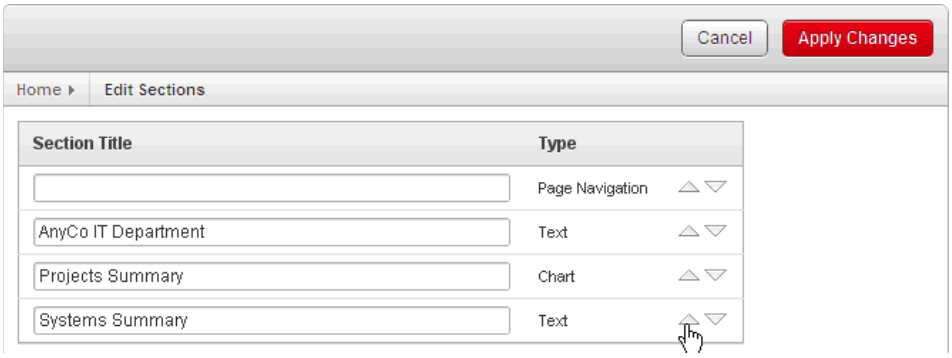
Editing Section Titles and Display Order

You can change the section title or display order on the Edit Sections page.

To edit all sections:

1. Run the Websheet application. See "Running a Websheet" on page 1.
2. From the Edit menu, select **Edit Sections**.

   The Edit Sections page appears.



3. To edit the section title, enter a new title.
4. To change the section order, click the Up and Down arrows adjacent to the section title.
5. Click **Apply Changes**.

> **Tip:** You can also edit sections by clicking **Edit Sections** on the Control Panel.

About Text Sections

To add text to a Websheet page, you create a Text section. You can type directly into a Text section, or copy and paste content from a spreadsheet. Copying and pasting from a spreadsheet creates a new section for each spreadsheet row.

Topics:

- Adding a Text Section
- Editing a Text Section

> **See Also:** "Deleting Page Sections" on page 2-8 and "Understanding Markup Syntax" on page 2-28

Adding a Text Section

To add a text section:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.

2. From the Create menu, select **New Section**.
3. When prompted for the section type, select **Text** and click **Next**.
4. On Create Text Sections select either:
   - **Create single text section**
   - **Create multiple text section from Spreadsheet**
5. If you select **Create single text section**:
   a. Sequence - Enter the section display sequence.
   b. Title - Enter a section title.
   c. Content - Enter text. To learn more about formatting text, see "Editing a Text Section" on page 2-10.
   d. Click **Create Section**.
6. If you select **Create multiple text section from Spreadsheet**:
   a. First Row Contains Column Headings - Select this option if applicable.
   b. Paste Spreadsheet Data - Paste a two column spreadsheet or other tab delimited data. The first column must contain the section title and the second column must contain the section content.
   c. Click **Create Section**.

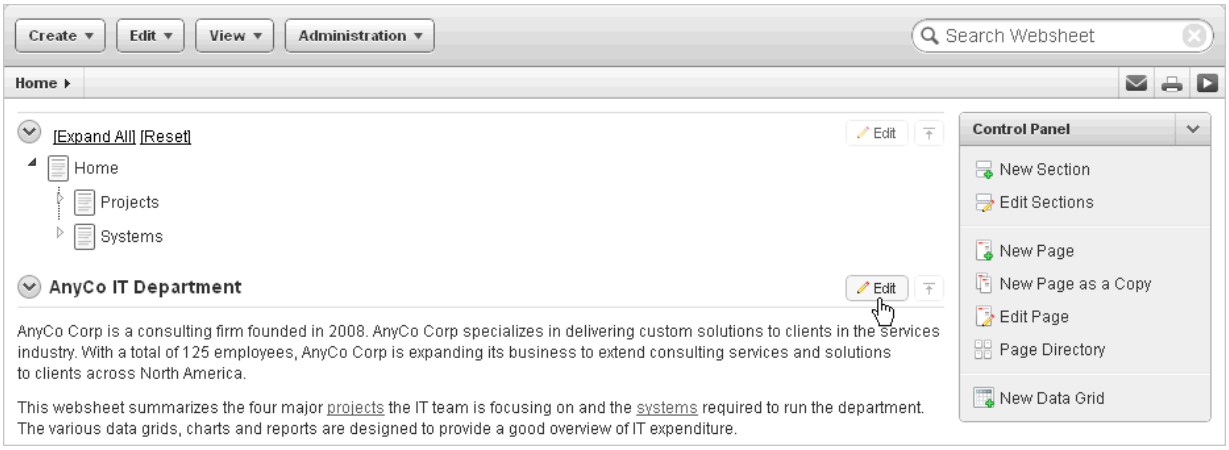
Tip: You can also add a new section by selecting **New Section** on the Control Panel.

Editing a Text Section

You can edit and format text sections using an intuitive WYSIWIG editor.

To edit a text section:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. Click the **Edit** icon that displays in the upper right of the section.

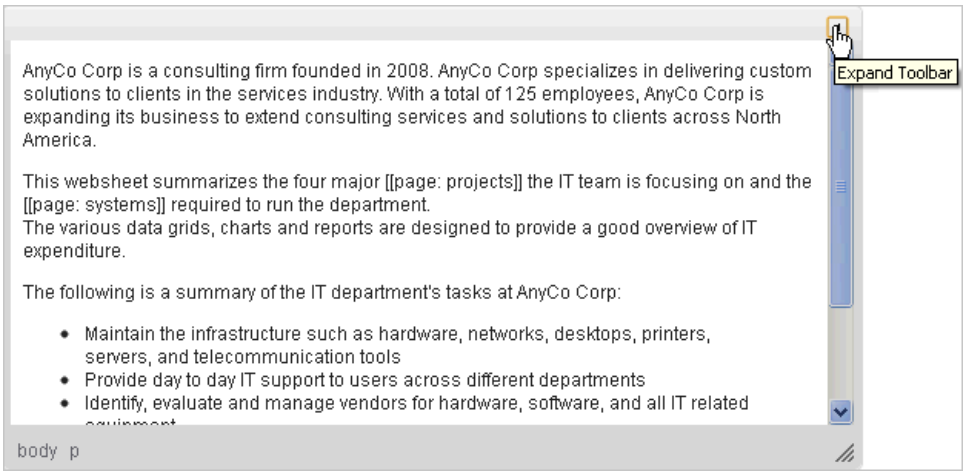


The Edit Section page appears.

3. Edit the text in the field provided.

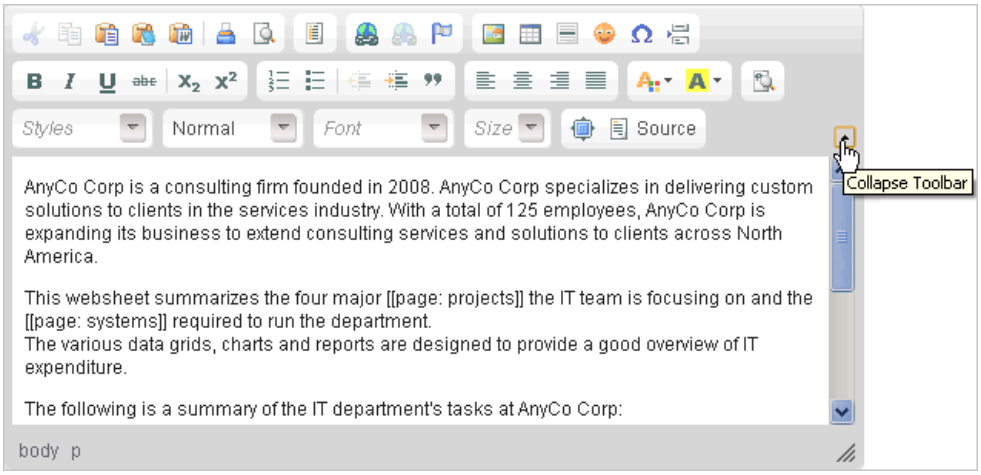
Tip: To learn more about adding or embedding links, see "Understanding Markup Syntax" on page 2-28.

4. To change the formatting, click the **Expand Toolbar** icon in the upper right corner.



The Toolbar appears. When you pass your cursor over an icon, a descriptive tooltip displays.

5. To hide the toolbar, click the **Collapse Toolbar** icon.



6. To save your changes, click **Apply Changes**.

About Navigation Sections

By creating a Navigation section, you can add dynamically generated navigation to subordinate pages or page sections.

> **See Also:** "About Navigation Sections" on page 2-3, "Deleting Page Sections" on page 2-8, and "Editing Section Titles and Display Order" on page 2-9

Adding a Navigation Section

Once you create your Websheet pages, you can create dynamically generated navigation to subordinate pages or page sections.

To add a navigation section:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.

2. From the Create menu, select **New Section**.
3. When prompted for the section type, select **Navigation** and click **Next**.
4. For Navigation Type:
   a. Select either:
      – **Page Navigation** - Creates navigation of all pages in the Websheet.
      – **Section Navigation** - Creates navigation for all section on a page.
   b. Click **Next**.
5. If you select **Page Navigation**:
   a. Sequence - Enter the section display sequence.
   b. Title - Enter a section title.
   c. Starting Page - Select the starting page from which to display hierarchical navigation.
   d. Maximum Levels - Select the maximum number of levels (or tree depth) to display.
   e. Order Siblings - Select the order of siblings by column. If not defined, the siblings are sorted by the page name.
   f. Click **Create Section**.
6. If you select **Section Navigation**:
   a. Sequence - Enter the section display sequence.
   b. Title - Enter a section title.
   c. Click **Create Section**.

About Adding Data Grids

Data grids are sets of data displayed in rows and columns. Data grids store data in a similar way to how spreadsheets store data. Once created, the structure can be modified as needed over time.

Topics:

- About Data Grids
- Creating a Data Grid
- Copying a Data Grid
- Viewing and Editing a Data Grid
- Viewing the Data Grid Change History Log
- Deleting a Data Grid

See Also: "About Adding and Editing Data Content" on page 2-22 and "Understanding Markup Syntax" on page 2-28

About Data Grids

You can define the structure of a data grid using column names, data sources, and basic validations, or you can create a data grid by pasting spreadsheet data. Once created, the structure can be modified as needed.

Users can alter the layout of report data by selecting columns or by applying filters, highlighting, and sorting. Users can also define breaks, aggregations, group bys, computations, and different charts. Additionally, users can create multiple variations of a data grid and save them as named reports, for either public or private viewing. In addition to being available under the View menu, data within a data grid can be included as a chart or report within any page.

See Also: "About Chart Sections" on page 26

Creating a Data Grid

You can create a data grid by either defining the structure (that is, the column names, data sources, and basic validations), or by pasting in spreadsheet data. In addition to the defined columns, the following standard columns are always included within each data grid: owner, created by, created on, updated by, updated on, row order, and annotation (files, notes, links, and tags).

Topics:

- Creating a Data Grid from Scratch
- Creating a Data Grid by Copying and Pasting Spreadsheet Data

Creating a Data Grid from Scratch

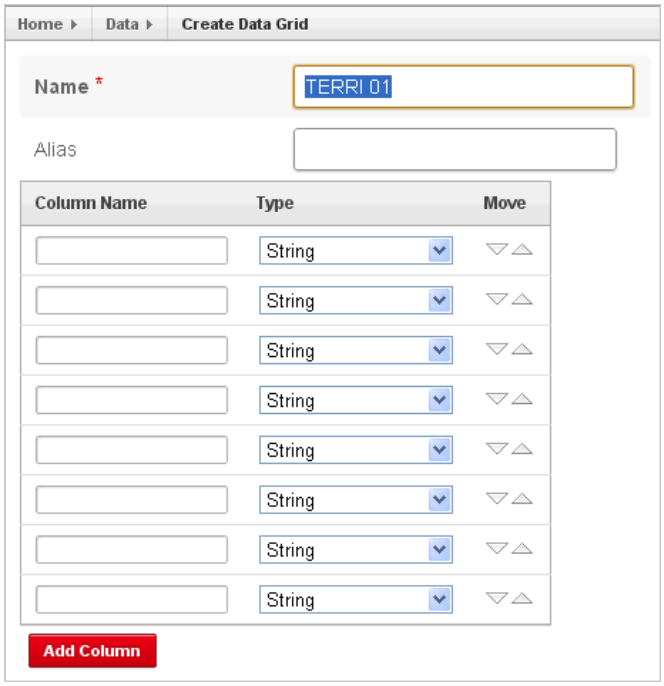
When you create a data grid from scratch you must define the column names, data types, and basic values. Once you have created the basic structure, you can then populate it with data.

To create a data grid from scratch:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the Create menu, select **New Data Grid**.

   Tip: You can also select **New Data Grid** on the Control Panel.

3. When prompted for the section type, select **From Scratch** and click **Next**.



4. Specify the following:
   a. Name - Enter a data grid name.
   b. Alias - Enter a data grid alias. Use this alias to link to this data grid within other page sections. A data grid alias must be unique within an application.
   c. Define the data grid structure by specifying the column name and data type. To change the order, click the **Up** and **Down** arrow under Move.

      To add more columns, click **Add Column**.
   d. Click **Create Data Grid**.

   The Data Grid appears.
5. To add data, click **Add Row**. See "Editing Data Grid Data" on page 2-17.

Creating a Data Grid by Copying and Pasting Spreadsheet Data

To create a data grid by copying an pasting spreadsheet data:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the Create menu, select **New Data Grid**.

   Tip: You can also select **New Data Grid** on the Control Panel.
3. When prompted for the section type, select **Copy and Paste** and click **Next**.
4. Specify the following:
   a. Name - Enter a data grid name.
   b. Alias - Enter a data grid alias. You can use this alias to link to this data grid within page sections. A data grid alias must be unique within an application.
   c. First Row Contains Column Headings - Select this option if applicable.

d. Paste Spreadsheet Data - Copy and paste the data you want to load from a spreadsheet program.

e. Click **Upload.**

A data grid appears.

5. To add data, click **Add Row**. See "Editing Data Grid Data" on page 2-17.

Copying a Data Grid

To copy a data grid:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select the data grid you want to edit.

   The data grid appears.
4. From the Manage menu, select **Copy**.
5. Enter a new data grid name and click **Copy**.

Viewing and Editing a Data Grid

Once you create a data grid, you can view and edit it on the Data page.

Topics:

- Accessing the Data Page
- Editing Data Grid Data
- Editing Data Grid Columns Manually
- Editing Data Grid Rows Manually
- Editing a Single Data Grid Row
- Editing Data Grid Properties

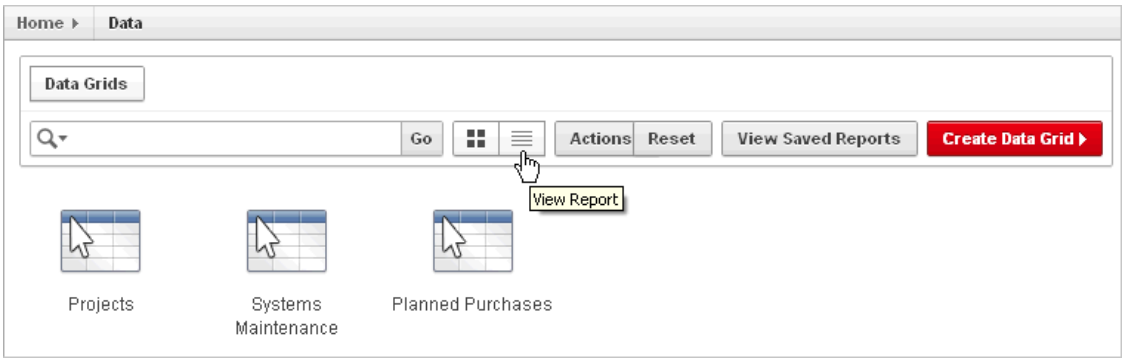
> **Tip:** Data grids display as an interactive report. To learn more about interactive reports and using the Actions menu, see "Using Interactive Reports" on page 3-1 and "Using the Actions Menu" on page 3-4.

Accessing the Data Page

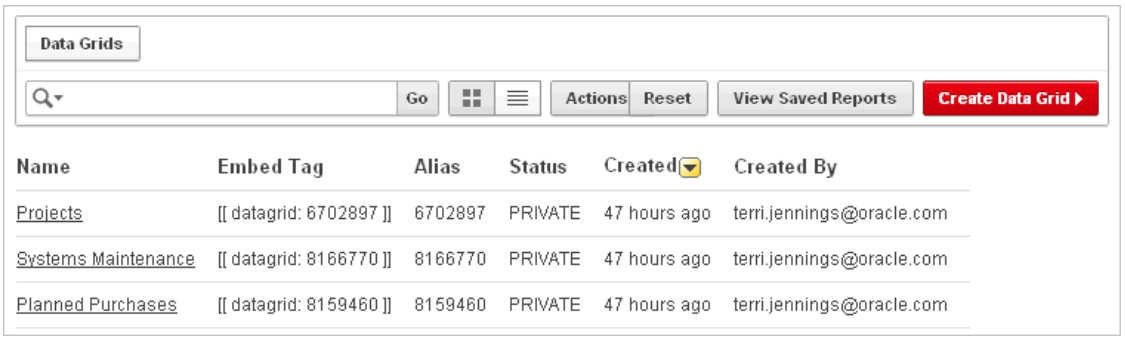
To access the Data page:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   An interactive report appears displaying all data grids.
3. Click the **View Report** icon.



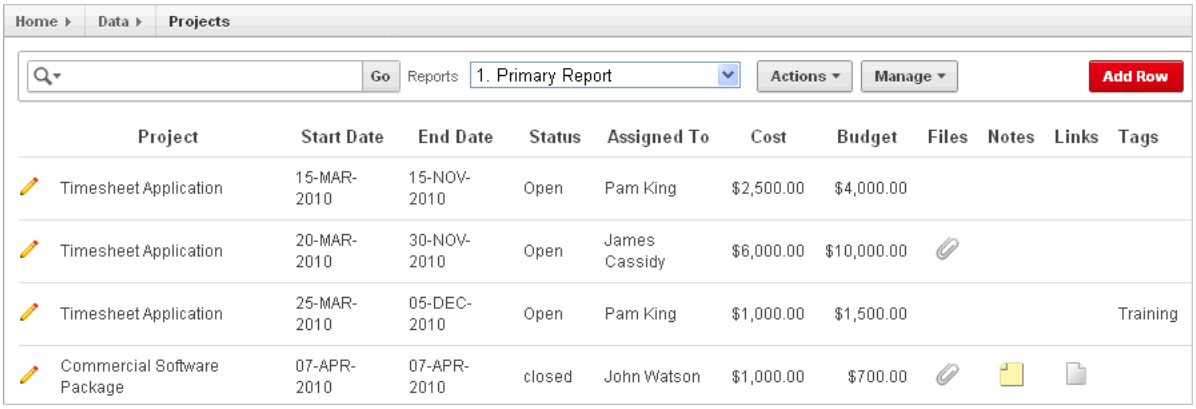
The Report view appears.



By default, Report view displays the data grid Name, Alias, Status, Created, and Created By columns. The Embed Tag column displays the syntax used to include a link to the report or data grid from within a section of a page.

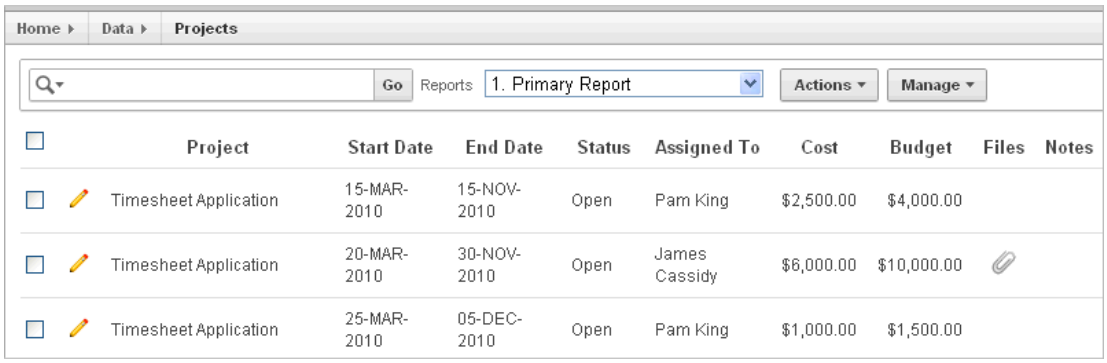
4. To view a data grid, select the data grid name.

   The data grid appears.



Note: If a Data Grid report includes files, notes, or links, those columns are excluded when you download the report using the Actions menu.

Toggling Check Boxes When viewing a data grid, you can enable and disable check boxes. From the Manage menu, select **Toggle Check Boxes**. By selecting this option, check boxes display to the left of each row.



Editing Data Grid Data

To edit data grid data:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select the data grid you want to edit.

   The data grid appears.
4. To add another row:
   a. Click the **Add Row** button.

      A form appears.
   b. Edit the fields provided and click either **Save** or **Save and Add Another**.

Editing Data Grid Columns Manually

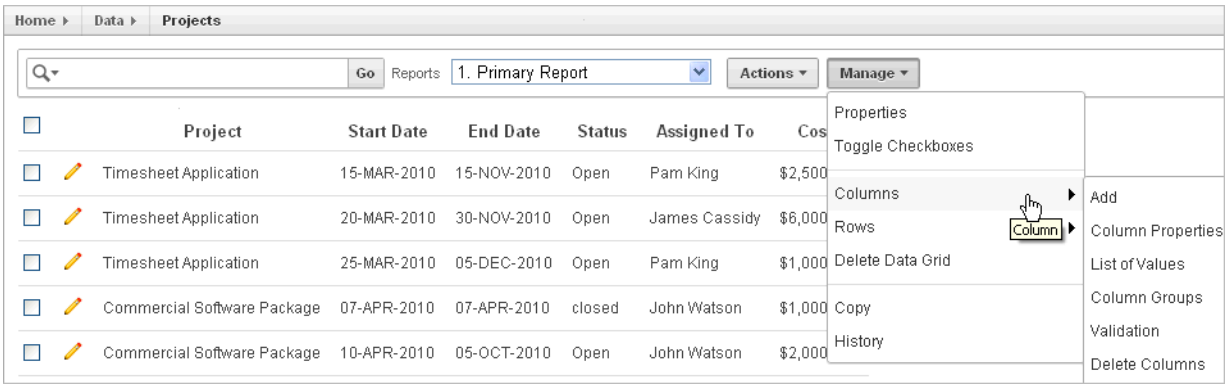
You can manually edit the columns structure of a data grid by selecting Columns and on the Manage menu.

To manually edit data grid columns:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select the data grid you want to edit.

   The data grid appears.
4. From the Manage Menu, select **Columns**.



The following options display:

- **Add** - Adds a new column. Enables you to define all column properties such as the column name, type, whether a value is required, list of values, default type, and default text.
- **Column Properties** - Editable properties include sequence, group, required value, label, format, heading, width and height, column type, default text, list of values, and help text.
- **List of Values** - Enables you to restrict the values a user can enter. You associate a list of values with a column on Column Properties.
- **Column Groups** - Create a group and add columns to the group. Add / Edit row page displays groups as a subsection under the Data region and lists columns within the group. By using groups, you can control the Add / Edit row page display.
- **Validation** - Create a column validation and error message.
- **Delete Columns** - Select columns to be deleted.

Editing Data Grid Rows Manually

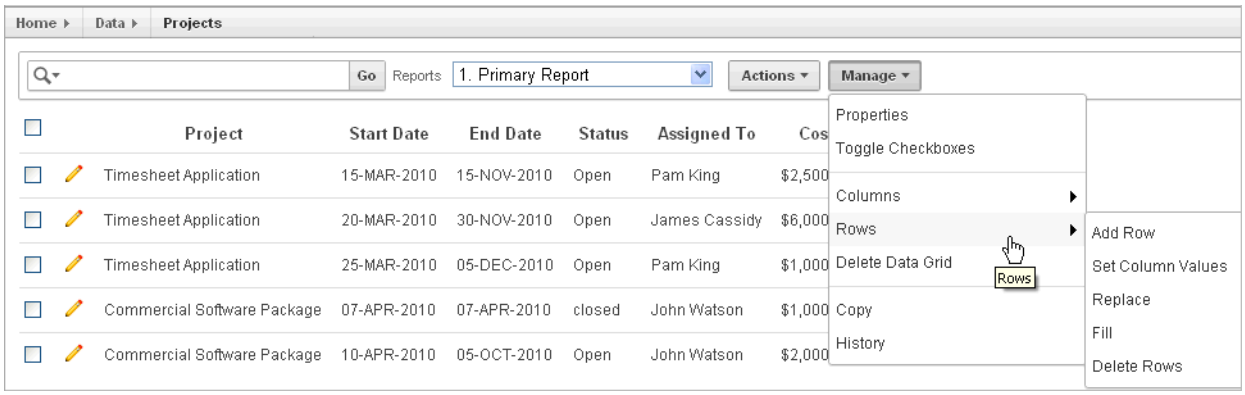
You can manually edit the rows of a data grid by selecting Rows and on the Manage menu.

To manually edit data grid rows:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select the data grid you want to edit.

   The data grid appears.
4. From the Manage Menu, select **Rows**.



The following options display:

- **Add** row - Adds a new row.
- **Set Column Values** - Set a predefined value for a column.
- **Replace** - Search and replace row values.
- **Fill** - Fill NULL column values with a column value from the above cell.
- **Delete Rows** - Select rows to be deleted.

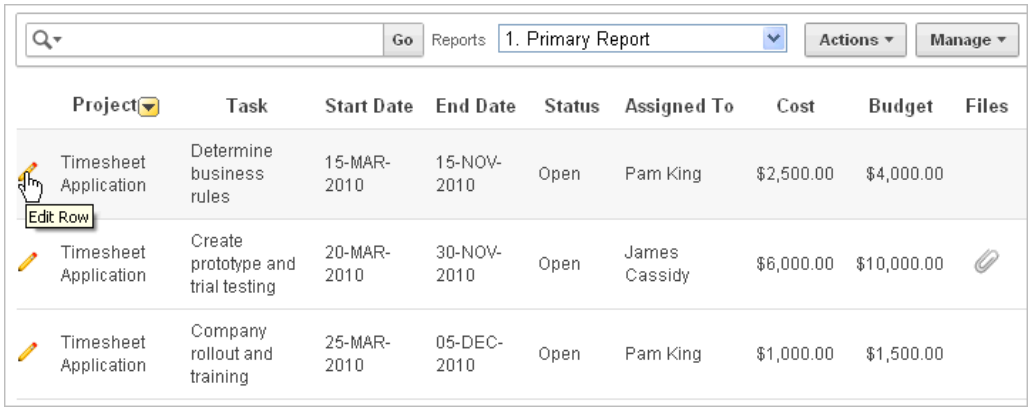
Editing a Single Data Grid Row

To manually edit a single data grid row:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select the data grid you want to edit.

   The data grid appears.
4. Locate the row to be edited and click the **Edit Row** icon.



The Add/Edit Row page appears.

5. Edit the appropriate rows and click **Apply Changes**.

Tip: You can use the Actions region on the Add/Edit Row page to add a new row, add annotations, view a history of changes, edit column properties and group, delete columns, and create a lists of values or a validation.

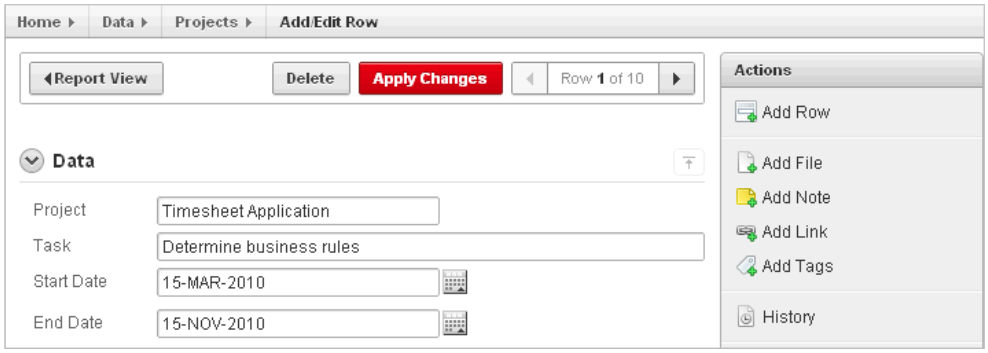
Adding Annotations to a Single Data Grid Row To add annotations (that is, files, notes, links, and tags) to a single data grid row:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select the data grid you want to edit.

   The data grid appears.
4. Locate the row to be edited and click the **Edit Row** icon.

   The Add/Edit Row page appears.



5. On the Actions region, select one of the following:
   - Add File
   - Add Note
   - Add Link
   - Add Tags
6. Follow the on-screen instructions.

See Also: "Managing Annotations" on page 2-32

Displaying Annotation Columns in a Data Grid Report To display annotation columns in a data grid report:

1. Add annotations to the data grid report as described in "Adding Annotations to a Single Data Grid Row" on page 2-20.
2. To include the columns in the data grid report:
   a. View the data grid report.
   b. Click the **Actions** menu and then **Select Columns**.
   c. In the Select Columns region, move the columns (for example, Files, Notes, Links, and Tags) to Display in Report.
   d. Click **Apply**.

3. To ensure all users can see the columns, developers can save the revised layout as the default report:
   a. Click the **Actions** menu and select **Save Report**.

      The Save Report Region appears.

   b. In Save Report:
      a. **Save** - Select **As Default Report Settings**.
      b. **Name** - Enter a name for the report.
      c. **Description** - Enter an optional description.
      d. Click **Apply**.

Editing Data Grid Properties

You can change the name, alias, and description of a data grid on the Data Grid Properties page.

To edit data grid properties:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select the data grid you want to edit.

   The data grid appears.
4. From the Manage menu, click **Properties**.

   The Data Grid Properties page appears.
5. Edit the fields provided and click **Apply**.

Viewing the Data Grid Change History Log

The View Change History log displays a report of data grid changes. This report lists the row, column name, old value, new value, user who authored the change, and how long ago the change occurred.

To view a history of data grid changes:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.
3. Select a data grid

   The data grid appears.
4. From the Manage menu, select **History**.

Deleting a Data Grid

To delete a data grid:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Data Grids**.

   The Data page appears.

3. Select the data grid you want to edit.

   The data grid appears.

4. From the Manage menu, select **Delete Data Grid**.

5. Confirm your selection and click **Delete**.

> **Tip:** When you delete a Data Grid, chart, or report on a page, referencing the Data Grid will not work.

About Adding and Editing Data Content

This section describes how to add and edit data content.

Topics:

- About Available Data Sources
- About Enabling Support for Creating Data Reports
- About Incorporating Data into Websheet Pages

About Available Data Sources

Websheets can include data sources. Once defined, you can incorporate these data sources into Websheet page sections. Websheets can include the following data sources:

- Data Grids - Data grids are highly customizable, editable tabular reports. Data grids enable you to maintain data within the Websheet that is stored within the Oracle Database. See "About Adding Data Grids" on page 2-12.
- Reports - Reports are queries defined against tables or views that already exist within your Oracle Database. See "About Adding Data Reports" on page 2-23.

About Enabling Support for Creating Data Reports

To define a data report, your Websheet developer must enable the **Allow SQL and PL/SQL** attribute on the Application Properties page. By default, this attribute is disabled.

> **Tip:** Only a Websheet application developer can edit the **Allow SQL and PL/SQL** attribute on the Application Properties page. To learn more, see "Editing Websheet Application Properties" in *Oracle Application Express Application Builder User's Guide*.

About Incorporating Data into Websheet Pages

Data grids and data reports can be incorporated into page sections in the following ways:

- Within a data section. See "About Adding Data Reports" on page 23.
- Within a chart section. See "Adding a Chart Section" on page 2-26.
- Linking to a Data Grid. See "Linking to a Data Grid" on page 2-30.
- Include a single value or tabular results of queries See "Using SQL and SQLVALUE Syntax" on page 2-30.

About Adding Data Reports

Data reports are contributor defined queries on tables or views within the underlying Oracle Database.

> **Tip:** Before you can add a data report, your Websheet application developer must enable the **Allow SQL and PL/SQL** attribute on the Websheet properties page. By default, this attribute is disabled. To learn more, see "Editing Websheet Application Properties" in *Oracle Application Express Application Builder User's Guide*.

Topics:

- About Data Reports
- Creating a Data Report
- Viewing and Modifying a Data Report
- Deleting a Data Report
- Managing Uploaded Files and Images

> **See Also:** "About Adding and Editing Data Content" on page 2-22 and "Understanding Markup Syntax" on page 2-28

About Data Reports

Data reports, unlike data grids, are query-only and based on existing data from the Oracle Database. You can specify the table or view name and retrieve all columns or write a SQL statement to retrieve the required data.

Users can alter the layout of report data by selecting columns or by applying filters, highlighting, and sorting. Users can also define breaks, aggregations, group by, computations, and different charts. Additionally, users can create multiple variations of a data grid and save them as named reports, for either public or private viewing. In addition to being available under the View menu, data within a data report can be included as a chart or report within any page.

> **See Also:** "About Data Sections" on page 2-25 and "About Chart Sections" on page 2-26

Creating a Data Report

You can create a data report by either simply entering the table or view name, or by providing a SQL query.

To create a data report:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. From the Create menu, select **New Report**.

   > **Tip:** You can also select **New Report** on the Control Panel.

   The Edit Section page appears.
3. For Report Source, identify how to develop your source. Select one of the following:
   a. **Table** - Select **Table** and enter the following:
      – Table or View Name - Select the table name the report is to be based on.

- Report Name - Enter the name of the report.
- Report Alias - Enter a report alias. A Report alias is used for linking to the Report within page sections. A Report alias must be unique within an application.

b. **SQL Query** - Select SQL Query and enter the following:

- Report Name - Enter the name of the report.
- Report Alias - Enter a report alias. A Report alias is used for linking to the Report within page sections. A Report alias must be unique within a Websheet.
- Query - Enter the SQL query that defines your report.

c. Click **Next**.

4. Confirm your selections and click **Create Report**.

Viewing and Modifying a Data Report

To view or modify a data report:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. From the View menu, select **Reports**.

   The Report page appears.
3. Select the report.

   The report appears.
4. To edit report attributes:
   - From the Manage menu, click **Edit Attributes**.

     The Report Attributes page appears.
   - Edit the attributes and click **Apply Changes**.
5. To edit report attributes:
   - From the Manage menu, click **Edit Query**.

     The Report Query page appears.
   - To save your changes, click **Apply Changes**.

Deleting a Data Report

To delete a data report:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. From the View menu, select **Reports**.

   The Report page appears.
3. Select the report.

   The report appears.
4. From the Manage menu, click **Edit Attributes**.

   The Report Attributes page appears.
5. Click **Delete**.

About Data Sections

You can create data sections based upon a data grid or report.

Topics:

- Adding a Data Section to a Page
- Editing a Data Section

See Also: "About Adding and Editing Data Content" on page 2-22

Adding a Data Section to a Page

Once you create a data grid or report, you add it to a page by adding a data section.

See Also: "About Adding Data Grids" on page 2-12 and "About Adding Data Reports" on page 2-23

To add a data section:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the Create menu, select **New Section**.
3. When prompted for the section type, select **Data** and click **Next**.
4. Specify the following:
   a. Data Selection Source - Select either **Data Grid** or **Report**.
   b. Display Sequence - Enter the section display sequence.
   c. Data Grid - Select the data grid to be used to display the data section.
   d. Report Settings to Use - For the selected data grid or report, select the report settings to use. Use this option to filter the rows and columns you want to display as well as set the columns to display. If you do not have a saved report with the settings you need, create it now before adding the section.
   e. Title - Enter the section title.
   f. Style - Choose a user interface style.
   g. Click **Next**.
5. Click **Create Section**.

Editing a Data Section

Once you have added a data report to a page, you can change the section sequence, title, and user interface style.

To edit a data section:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. Click the **Edit** icon that displays in the upper right of the section.

   The Edit Section page appears.
3. Edit the fields provided. See item Help for more details.
4. To save your changes, click **Apply Changes**.

About Chart Sections

You can create inline charts based upon a data grid or report.

Topics:

- Adding a Chart Section
- Editing a Chart Section

See Also: "About Adding and Editing Data Content" on page 2-22

Adding a Chart Section

To add a chart section:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. Create a data grid or report. See "About Adding Data Grids" on page 12 and "About Adding Data Reports" on page 23.
3. From the Create menu, select **New Section**.
4. When prompted for the section type, select **Chart** and click **Next**.
5. On Select Chart Type:
   a. Select one of the following:
      - **Column**
      - **Horizontal Bar**
      - **Pie**
      - **Line**
   b. Click **Next**.
6. Specify the following:
   a. Display Sequence - Enter the section display sequence.
   b. Data Grid - Select a data grid.
   c. Report Settings to Use - For the selected data grid or report, select the report settings to use. Use this option to filter the rows and columns you want to display.

      If you do not have a saved report with the settings you need, create it now before adding the section.
   d. Section Title - Enter the section title.
   e. Click **Next**.
7. Specify the following:
   a. Chart Label - Select the column to be used as the Label.

      In Axis Title for Label, enter the title to display on the axis associated with the column selected for Label.
   b. Chart Value - Select the column to be used as the Value. If your function is a COUNT, a Value does not need to be selected.

      In Axis Title for Value, enter the title to display on the axis associated with the column selected for Value.

c. Function - Select a function to be performed on the column selected for Value.

d. Sort - Select the chart sort direction.

Check **Enable 3D** to display the chart in 3D.

e. Click **Next**.

8. On the summary page, confirm your selections and click **Create Section**.

Editing a Chart Section

To edit a chart section:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. Click the **Edit** icon that displays in the upper right of the section.

The Edit Section page appears.

3. Edit the fields provided. See item Help for more details.
4. Click **Apply Changes**.

About PL/SQL Sections

Users with PL/SQL knowledge can use PL/SQL sections to write their own code against the associated schema.

> **Tip:** PL/SQL sections are only available if the Websheet application developer has enabled the **Allow SQL and PL/SQL** attribute on the Application Properties page. To learn more, see "Editing Websheet Application Properties" in *Oracle Application Express Application Builder User's Guide*.

Topics:

- Adding a PL/SQL Section
- Editing a PL/SQL Section

> **See Also:** "Deleting Page Sections" on page 2-8

Adding a PL/SQL Section

To add a PL/SQL section:

1. Run the Websheet application. See "Running a Websheet" on page 2-1.
2. From the Create menu, select **New Section**.

> **Tip:** You can also select **New Section** on the Control Panel. See "About the Control Panel" on page 2-5.

3. When prompted for the section type, select **PL/SQL** and click **Next**.
4. Specify the following:

a. Sequence - Enter the section display sequence.

b. Title - Enter the section title.

c. Enter PLSQL - Enter a PL/SQL anonymous block of code.

d. If applicable, select **Do not validate PL/SQL code (parse PL/SQL code at runtime only)**. Select this option to create the section even if an errors occurs. Use this option to create the section and then debug it later.

Tip: To view an example, click **PL/SQL Example**.

5. Click **Create Section**.

Editing a PL/SQL Section

To edit a PL/SQL section:

1. Run the Websheet as described in "Running a Websheet" on page 1.
2. Click the **Edit** icon that displays in the upper right of the section.

   The Edit Section page appears.
3. Edit the following:
   a. Sequence - Enter the section display sequence.
   b. Title - Enter the section title.
   c. Enter PL/SQL - Enter a PL/SQL anonymous block of code.
4. To save your changes, click **Apply Changes**.

Understanding Markup Syntax

This section describes syntax for adding links to Websheet pages, page sections, external URLs, data grids, or for including SQL or SQLVALUE syntax.

Tip: Clicking **Help** from within a Websheet displays the Markup Syntax page which lists all the different syntax options described in this section.

Topics:

- Linking to a Page
- Linking to a Section
- Linking to External URLs
- Linking to a Data Grid
- Using SQL and SQLVALUE Syntax
- About Advanced Data Grid Queries Rules

See Also: "Managing Uploaded Files and Images" on page 32

Linking to a Page

To include links in page sections to other pages in a Websheet, use the syntax described below. If the page exists, a link displays. If the page does not exist, a link to create the page displays. Note that the use of the `page:` identifier is optional.

Syntax:

```
[[ page: <page alias> | <link name> ]]
[[ <page alias> | <link name> ]]
```

Syntax Example:

```
[[page: home]]
[[mypage | My Page]]
```

In Context Example:

```
One of the most colorful fish is the [[ clownfish | Clown fish]].
```

Linking to a Section

To include links to a page section, use the syntax below. If the section exists, a link displays. If the section does not exist, a link to create the section displays. Note that if the section is not prefaced by a page, it is assumed the section is on the current page.

Syntax:

```
[[ section: <page alias> . <page section> | <link name> ]]
[[ section: <page section> | <link name> ]]
```

Syntax Example Linking Within the Current Page:

```
[[section: clownfish | Clown Fish]]
```

Syntax Example Linking to a Different Page:

```
[[section: fish.clownfish | Clown Fish]]
```

In Context Example:

```
One of the most colorful fish is the [[ section: clownfish | Clown fish]].
Visit or fish page to see the [[ section: fish . clownfish | Clown fish]], also
known as Nemo.
```

Linking to External URLs

To include links to external URLs in page sections, use the syntax below. Note that the use of the `url:` identifier is optional. To have the link open in a new browser window, use the popup prefix.

Syntax:

```
[[ url: <url> | <link name> ]]
[ popupurl: <url> | <link name> ]]
[[ <url> | <link name> ]]
```

Syntax Example:

```
[[url: http://www.company.com/store | commpanystore]]
[[popupurl: http://www.company.com/store | commpanystore]]
[[http://www.searchengine.com | searchengine]]
[[http://www.searchengine.com ]]
```

In Context Example:

```
You can buy Company software on the [[http://www.company.com/store | Company
Store]] web site.
```

Linking to a Data Grid

To include links to data grids within page sections, use the syntax below. You can use these links to view the data grid or to create new data. Note that data grid can be one or two words.

Syntax:

```
[[ data grid: <datagrid alias | <link name> ]]
[[ datagrid: <datagrid alias | <link name> ]]
[[ datagrid: <datagrid alias . <saved report name (may not be private)> | <link
name> ]]
```

Syntax Example:

```
[[ data grid: todo list | To Do List ]]
[[ data grid: todo list . open todo items | To Do List ]]
[[ datagrid: todo list | To Do List ]]
```

In Context Example:

```
Please review the [[ data grid: todo list | To Do List ]] and ensure
your tasks can be accomplished by Friday.
```

Using SQL and SQLVALUE Syntax

Using `SQL` or `SQLVALUE` syntax, you can include single value and tabular results of queries against data grids or tables and views within sections of a page. The `SQLVALUE` tag displays the first column of the first row returned by the SQL query. Use this syntax to embed data within a sentence (for example: There are currently 5 types of cats.). For tabular results, use the `SQL` tag. Using `SQL` tag produces a searchable report. However, you can disable the search option by using the `NOSEARCH` syntax.

When working with data grids, there are a few more options (shown under Syntax) and a few more rules. Basic rules when writing a data grid query include:

- The data grid name or data grid alias must be enclosed with curly brackets. For example:

  ```
  {Cat Facts}
  ```

- The Data Grid column names must be enclosed with double quotes. For example:

  ```
  "Type of Cat"
  ```

To learn more about advanced rules, see "About Advanced Data Grid Queries Rules" on page 31.

Syntax for Queries Against Tables and Views:

```
[[sql: <select statement> ]]
[[sql: <select statement | limit="<maximum rows>" nosearch style="<style number>"
]]
[[sqlvalue: <select statement> ]]
```

Syntax for Data Grid Queries:

```
[[sql: <select statement> ]]
[[sql: <select statement | limit="<maximum rows>" nosearch style="<style number>"
edit_row add_row show_sql ]]
[[sqlvalue: <select statement> ]]
[[sqlvalue: <select statement> | show_sql ]]
```

In Context SQL Tag Syntax Examples:

Here is a report of at most 10 employees who work in department 10:

```
[[sql: select ename "Employee Name", sal "Salary" from emp order by sal desc |
limit="10" style="2"]].
[[sql: select "Type of Cat",
              "Estimated Population",
              "Largest Threats",
              "Top Speed",
              "Scientific Name",
              "IUCN Status",
              "Weight",
              "Study Date"
       from {Cat Facts} | add_row edit_row ]]
```

In Context SQLVALUE Tag Syntax Examples:

```
We have [[sqlvalue: select count(*) from emp]] employees in our database,
[[sqlvalue: select count(*) from emp where deptno=10 ]] work in department 10.
We are currently tracking [[sqlvalue: select count(*) from {Cat Facts} ]] types of
cats.
```

About Advanced Data Grid Queries Rules

Advanced data grid query rules include:

- In order to include an edit or add a row link, the query must only reference the data grid once. In other words, you cannot join the data grid to itself within the query.
- The first column must be the primary key of the data grid to include an edit row link (that is, the column that uniquely identifies the row of data). If the "edit_row" option is included and the query has a single select statement, the primary key column is included automatically. If the query contains multiple `SELECT` statements, you can use the `"APXWS_DATA_GRID_PK"` substitution (always enclosed with double quotes) as the first column in the `SELECT` statement to include the primary key in order to include an edit row link.
- Report column names will be the column name from the data grid, but can be modified using standard SQL column aliasing syntax. For example, the following displays the data from the `Minimum Number` column but the heading will display as `Min`:

  ```
  select "Minimum Number" "Min" from ...
  ```

- If a column name is longer than 30 characters, you only include the first 30 characters as the name. For example, use:

  ```
  "% of Estimated Lions per Regio"
  ```

  Instead of:

  ```
  "% of Estimated Lions per Region"
  ```

- To display the query that is executed, include the "`show_sql`" option. The causes the query to display above the included report. Although this is a good approach for debugging, Oracle does not recommend "`show_sql`" for a production application.

Managing Annotations

You can add commentary and additional details to a Web page by adding annotations. Annotations can be in the form of uploaded files, notes, links, and tags. Annotations can be added to both pages and data grid records.

Topics:

- Managing Uploaded Files and Images
- Adding Tags
- Adding Notes
- Viewing and Deleting Annotations

See Also: "Adding Annotations to a Single Data Grid Row" on page 2-20

Managing Uploaded Files and Images

You can upload files and images to a Websheet page using the Files region. Once uploaded, you can display uploaded images within a page section or embed download links to files.

Topics:

- Uploading Files and Images
- Including a Download Link in a Page Section
- Displaying an Uploaded Image Inline
- Editing or Deleting Uploaded Files

Uploading Files and Images

To upload files and images to a Websheet:

1. Log in to and run the Websheet. See "Running a Websheet" on page 1.
2. Under Files on the right side of the page, click the **Add File** icon.

3. On the Add File page:
   a. File - Browse to locate the file to be uploaded. Once uploaded, the file is associated a file with the current page. You can reference an uploaded file in any page using the image or file syntax. See "Displaying an Uploaded Image Inline" on page 33 or online Help, Markup Syntax.
   b. Alias - A file alias enables you to embed download links or image links within page sections. A file alias must be unique within an application.
   c. Description - Enter descriptive text to describe the file.
4. Click **Add File**.

Including a Download Link in a Page Section

You can embed a download link within a page section to uploaded files using the following syntax.

Syntax:

```
[[ file: < file name > | < link name > ]]
[[ file: < file alias > | < link name > ]]
```

Syntax Examples:

```
[[file: myfile ]]
[[file: myfile.xls ]]
[[file: myfile | My File ]]
```

File Markup Example:

```
This [[file: parts01.xls | spreadsheet ]] documents our part numbers.
```

Displaying an Uploaded Image Inline

After you upload an image, you can display it within any page section of an application by embedding a download link using the following syntax. You can reference an uploaded image using the image name or image alias.

Images defined for the current page are used before images associated with other pages. If image names are ambiguous, the most recently created image displays.

Syntax:

```
[[ image: < file name > | < properties > ]]
[[ image: < file alias > | < properties > ]]
```

Syntax Examples:

```
[[image: myimage ]]
[[image: theimagename.jpg ]]
[[image: myimage | width="600" alt="my image" ]]
```

Example:

```
This diagram [[image: diagram1]] illustrates the work flow.
```

Editing or Deleting Uploaded Files

To edit details or delete uploaded files:

1. Log in to and run the Websheet. See "Running a Websheet" on page 1.
2. In the Files region, click the **Edit File** icon.

   The Details page appears.
3. To edit file details:
   a. Edit the fields provided. See item Help for more details.
   b. To accept your changes, click **Apply Changes**.

4. To delete a file:
   a. Click **Delete**.
   b. To accept your changes, click **OK**.

Adding Tags

Tags facilitate keyword searching within a Websheet.

Topics:

- Adding Tags
- Editing Existing Tags

Adding Tags

To add tags to a Websheet page:

1. Log in to and run the Websheet. See "Running a Websheet" on page 1.
2. Under Tags on the right side of the page, click the **Add Tag** icon.

3. Enter tags in the field provided. Separate multiple tags with a comma.
4. Click **Add Tags**.

Editing Existing Tags

To edit existing tags:

1. Log in to and run the Websheet. See "Running a Websheet" on page 1.
2. In the Tags region, click the **Edit Tag** icon.

   The Details page appears.
3. Edit the tags and click **Add Tags**.

Adding Notes

Notes record user comments.

Topics:

- Adding Notes
- Editing or Deleting Existing Notes

Adding Notes

To add notes to a Websheet page:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. Under Notes on the right side of the page, click the **Add Note** icon.

3. Enter text in the field provided.
4. Click **Add Note**.

Editing or Deleting Existing Notes

To edit or delete existing notes:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. In the Notes region, click the **Edit Note** icon.
3. To edit file details:
   a. Edit the fields provided. See item Help for more details.
   b. To accept your changes, click **Apply Changes**.
4. To delete a note, click **Delete**.

Viewing and Deleting Annotations

You can view and delete all Websheet annotations on the Annotations page. Annotations include uploaded files, notes, links, and tags that were either added to a Websheet page or to a specific row in a data grid.

Topics:

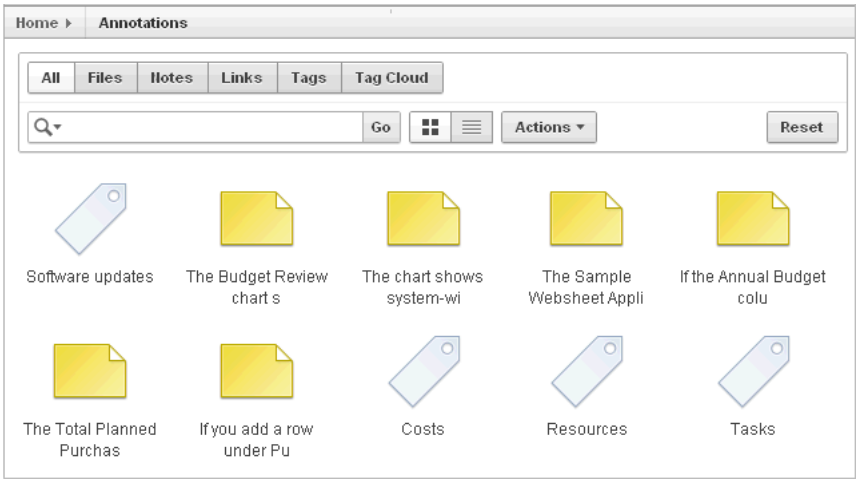
- Accessing the Annotations Page
- Deleting Annotations

Accessing the Annotations Page

To access the Annotations page:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Annotations**.

   The Annotations page appears.



The Annotations page displays as an interactive report. To learn more about interactive reports, see "Using Interactive Reports" on page 3-1 and "Using the Actions Menu" on page 3-4.

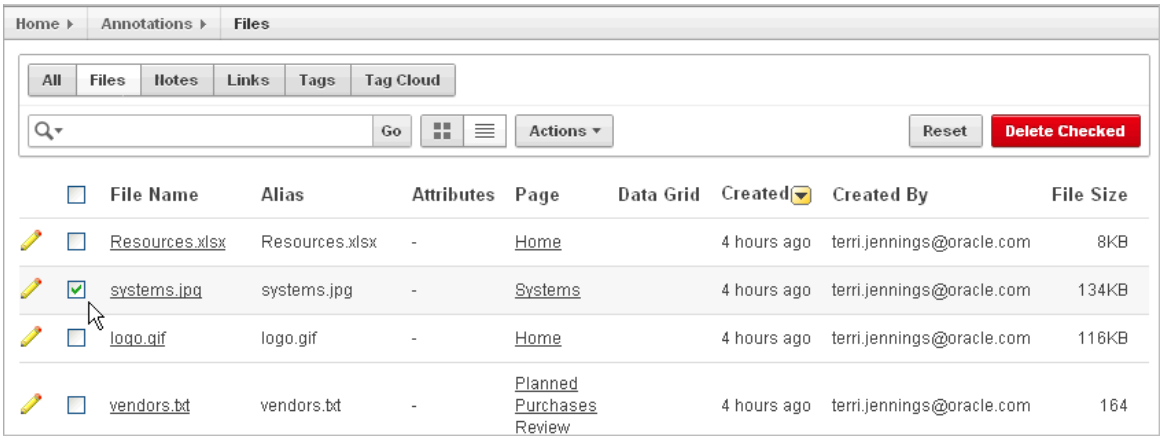
3. To view specific type of annotation, click the **Files**, **Notes**, **Links**, **Tags**, or **Tag Cloud** tabs.

Deleting Annotations

To delete uploaded files, notes, link, or tags:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. From the View menu, select Annotations.

   The Annotations page appears.
3. Select an annotation type by clicking the appropriate tab at the top of the page.
4. If not already selected, click the **View Report** icon.
5. Select the annotations to delete.



6. Click **Delete Checked**.

Managing Websheet Applications

This section describes how to change your Websheet password, email a Websheet to another user, and print a Websheet.

Topics:

- Changing Your Websheet Password
- Emailing a Websheet Page
- Printing a Websheet Page

Changing Your Websheet Password

To change your Websheet password:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. From the Administration menu, select **Change My Password**.

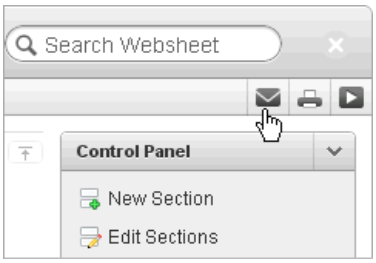
   The Change Password page appears.

3. Follow the on-screen instructions and click **Change Password**.

Emailing a Websheet Page

To email a Websheet page:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. Locate the page you want to email.
3. Click the **Email Page** icon above the Control Panel.



4. On the Email Page:
   a. To - Enter the target email address.
   b. Subject - Enter a description of this email.
   c. Body - Enter the email content you want to include along with the Websheet page link.
5. Click **Send**.

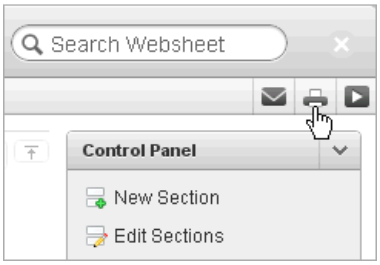
An email link to the currently selected page will automatically be included in your email message.

> **See Also:** "Configuring Email" in *Oracle Application Express Administration Guide*

Printing a Websheet Page

To print e Websheet in printer-friendly mode:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. Click the **Print** icon above the Control Panel.



The page displays in printer-friendly mode.

Viewing Websheets

Use the options on the View menu to access presentation mode, view a page directory, access a page history, and view an application directory.

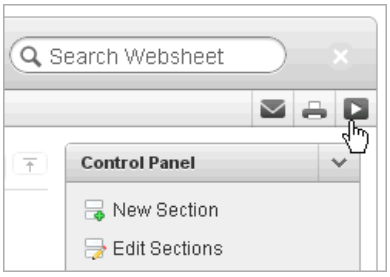
Topics:

- About Presentation Mode
- Viewing the Page Directory
- Viewing Page History
- Viewing the Application Directory

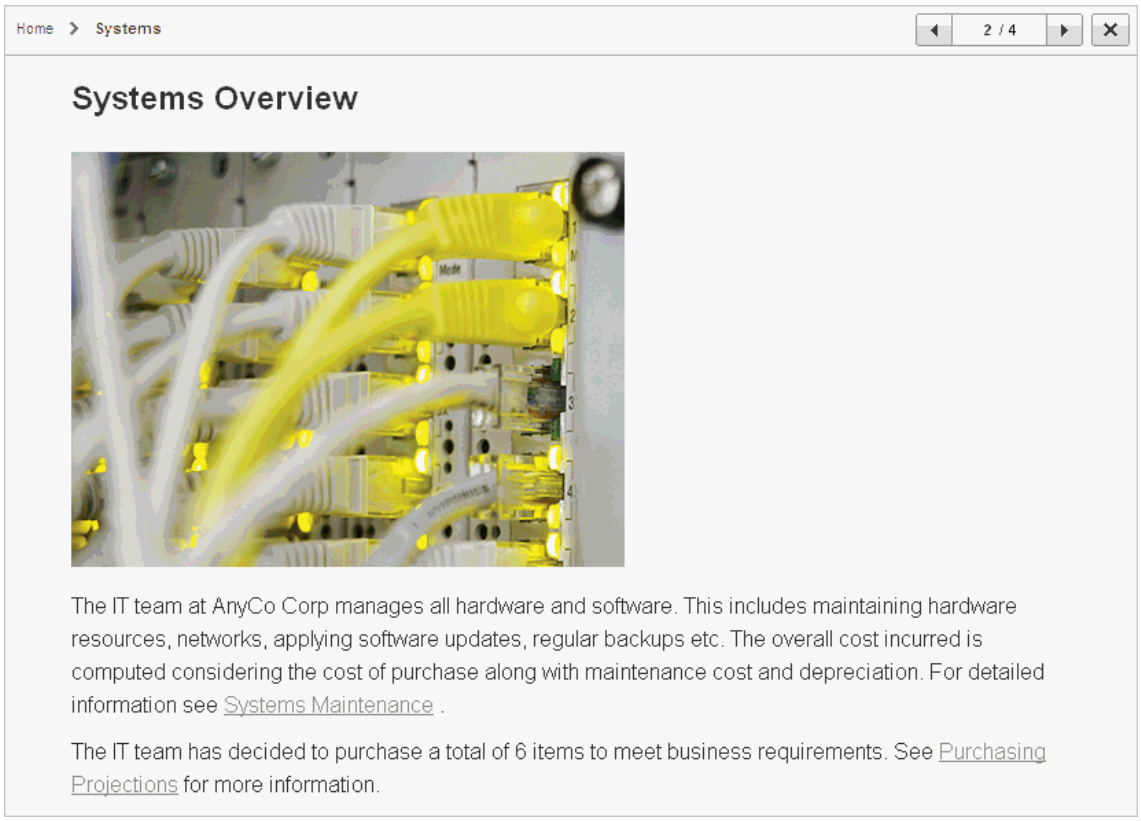
> **See Also:** "Managing Annotations" on page 2-32 and "About Adding Data Grids" on page 2-12

About Presentation Mode

Presentation mode enables a single Websheet page to be viewed as if it were a presentation. Each page section displays one at a time as a slide. To view a Websheet in presentation mode, click the **Presentation** icon on the far right side of the page.



In Presentation mode, each page section displays as a separate page.



Use the navigation bar on the upper right of the page to scroll forward and backward from section to section. To exit Presentation mode, click the **Exit** icon or press **ESC**.

Viewing the Page Directory

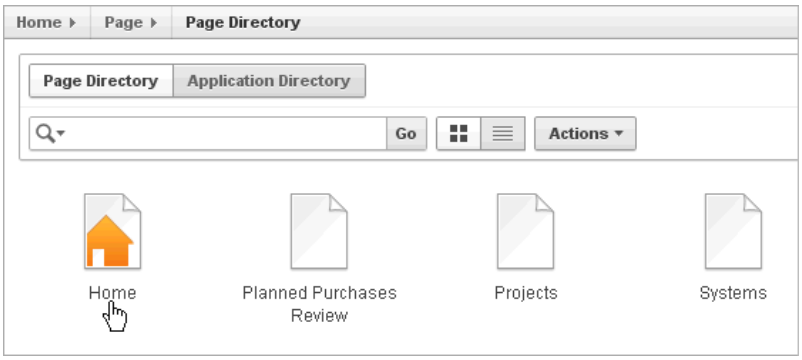
Use the Page Directory to view all pages in the current Websheet. Each Websheet can be comprised of any number of pages.

To access the Page Directory:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Page Directory**.

   The Page Directory displays as an interactive report. To learn more about interactive reports and using the Actions menu, see "Using Interactive Reports" on page 3-1 and "Using the Actions Menu" on page 3-4.

   By default, the Page Directory displays in icon view.



One page in each Websheet is designated as the Home page. The Home page is the starting page that displays when you run the Websheet. In Icon view, the home page displays as a page with orange outline of home.

3. To view the page as a report, click the **View Report** icon.

   By default, Report view displays the following columns: Name, Doc Type, Created, Created By, Updated On, Updated By, Parent Page, and Grand Parent Page.

Viewing Page History

Use the Page History to view a log of all changes to the current page.

To view the Page History:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. Select a page.
3. From the View menu, select **Page History**.
4. From the Page list, select a page and click **Set**.
5. To return to the default display, click **Reset**.

   The Page History displays as an interactive report. To learn more about interactive reports and using the Actions menu, see "Using Interactive Reports" on page 3-1 and "Using the Actions Menu" on page 3-4.
6. To view a page, click the page name.

Viewing the Application Directory

Use the Application Directory to navigate between Websheet applications.

To access the Application Directory:

1. Log in to and run the Websheet. See "Running a Websheet" on page 2-1.
2. From the View menu, select **Application Directory**.

   The Application Directory displays as an interactive report. To learn more about interactive reports and using the Actions menu, see "Using Interactive Reports" on page 3-1 and "Using the Actions Menu" on page 3-4.
3. To view an application, select it.

3

Using Interactive Reports

An Oracle Application Express database application is a collection of pages linked together using tabs, buttons, or hypertext links. This section describes how to use Oracle Application Express interactive reports.

Topics:

- Running an Interactive Report
- What is an Interactive Report?
- Using the Column Heading Menu
- Using the Search Bar
- Using the Actions Menu

> **See Also:** "Creating Reports" in *Oracle Application Express Application Builder User's Guide*.

Running an Interactive Report

An interactive report is contained in a page within a database application. In order to run an interactive report you must log into the database application and then navigate to the report page. To accomplish this, you need the URL for the database application and the account credentials (that is, a username and password).

To run an interactive report:

1. Click the supplied URL, or enter it in your browser's Address field.

   A Login page appears.

2. On the Login page:

   a. Username - Enter your username.

   b. Password - Enter your password.

   c. Click **Login**.

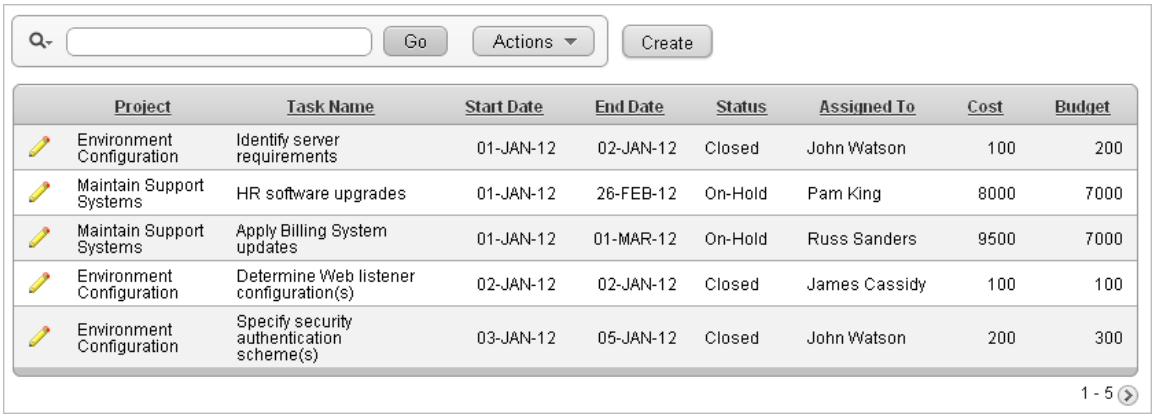
   The interactive report appears.

What is an Interactive Report?

Oracle Application Express includes two main report types, an interactive report and a classic report. The main difference between these two report types is that interactive reports enable the user to customize the appearance of the data through searching, filtering, sorting, column selection, highlighting, and other data manipulations.

About Interactive Reports

The following is an example of an interactive report.

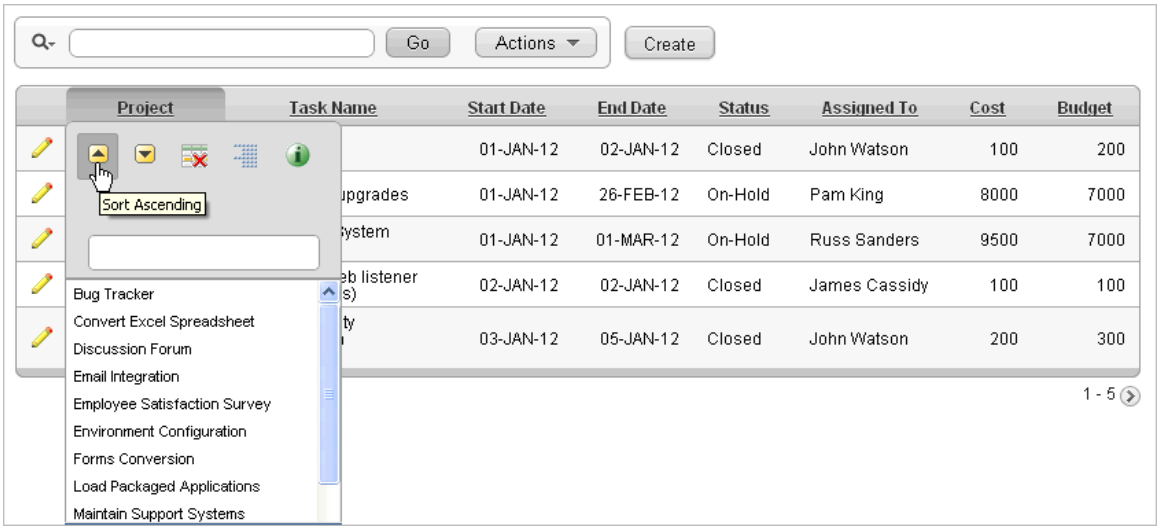


Interactive reports enable end users to create highly customized reports. Users can alter the report layout by hiding or exposing specific columns and applying filters, highlighting, and sorting. They can also define breaks, aggregations, charts, group data, and add their own computations. Once customized, the report can be saved as either a private or public report. Most interactive reports includes a search bar, Actions menu, Column Heading menu, and edit icons in the first column of each row.

In contrast, classic reports support general keyword search capability, the ability to specify the number of rows that display, and basic column sorting.

Using the Column Heading Menu

Clicking a column heading in an interactive report exposes the Column Heading menu. Positioning the cursor over each icon displays a tooltip that describes its function.

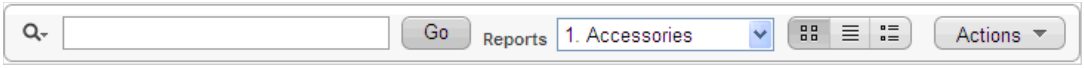


Column Heading menu options include:

- Sort Ascending - Sorts the report by the column in ascending order.
- Sort Descending - Sorts the report by the column in descending order.

- Hide Column - Hides the column. Not all columns can be hidden. If a column cannot be hidden, the Hide Column icon does not display.
- Control Break - Creates a break group on the column. This pulls the column out of the report as a master record. See "Creating a Control Break" on page 3-10.
- Column Information - Displays help text about the column, if available.
- Text Area - Used to enter a case insensitive search criteria. Entering a value reduces the list of values at the bottom of the menu. You can then select a value from the bottom. The selected value will be created as a filter using either the `equal` sign (=) or `contains` depending on the List of Values Column Filter Type.
- List of Unique Values - Contains the first 500 unique values that meets your filter criteria. If the column is a date, a list of date ranges is displayed instead.

Using the Search Bar



A search bar displays at the top of most interactive reports and may include the following features:

- Select Columns icon - Resembles a magnifying glass. Click this icon to narrow your search to specific columns. To search all columns, select **All Columns**. See "Using the Select Columns To Search Icon" on page 3-3.
- Text area - Enter case insensitive search criteria (wildcard characters are implied) and then click **Go**.
- Go button - Executes a search.
- Reports - Displays alternate default and saved private or public reports. See "Saving an Interactive Report" on page 3-20.
- View icons - Switches between icon, report and detail view of the default report (if enabled). May also include Chart and Group By View (if defined).
- Actions menu - Clicking the icon displays the Actions menu. Use this menu to customize an interactive report. See "About the Actions Menu" on page 3-5.

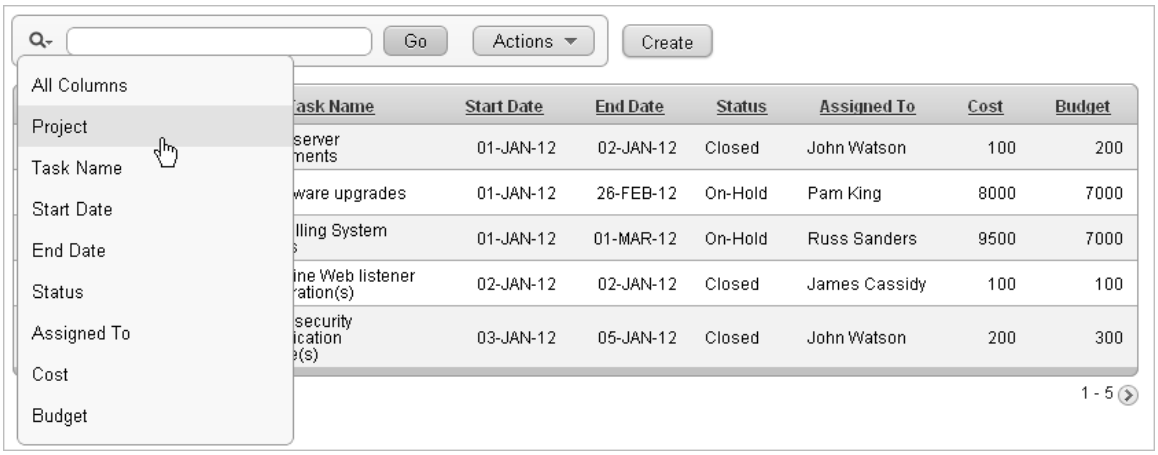
> **Tip:** Developers can customize what displays on the Search bar. To learn more, see "Customizing the Interactive Search Bar" in *Oracle Application Express Application Builder User's Guide*.

Using the Select Columns To Search Icon

The Select columns to search icon displays to the left of the search bar. Clicking this icon displays a listing of all columns in the current report.

To search specific columns:

1. Click the **Select columns to search** icon and select a column.



2. Enter keywords in the Text area and click **Go**.
3. To disable the filter, select the **Enable/Disable Filter** check box.
4. To delete the filter, click the **Remove Filter** icon.

See Also: "Selecting Columns to Display" on page 3-6

Using the Actions Menu

You can customize an interactive report by selecting options on the Actions menu.

Tip: Not all options described in this section are available on every Actions menu. Developers can customize what options appear. To learn more, see "Customizing the Interactive Search Bar" in *Oracle Application Express Application Builder User's Guide*.

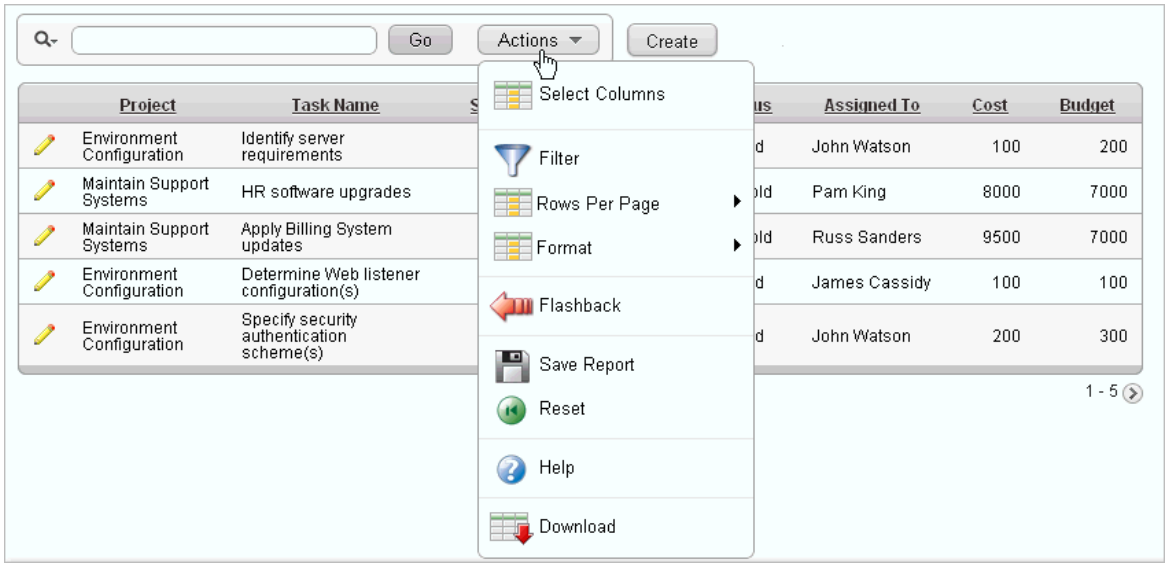
Topics:

- About the Actions Menu
- Selecting Columns to Display
- Adding a Filter
- Specifying Rows Per Page
- Selecting Column Sort Order
- Creating a Control Break
- Adding Highlighting
- Computing Columns
- Aggregating a Column
- Creating a Chart from the Actions Menu
- Grouping Columns
- Executing a Flashback Query
- Saving an Interactive Report
- Resetting a Report
- Downloading a Report

- Subscribing to Emailed Reports

About the Actions Menu

The Actions menu appears to the right of the Go button on the Search bar. Use this menu to customize an interactive report.



The Actions menu contains the following options:

- **Select Columns** specifies which columns to display and in what order. See "Selecting Columns to Display" on page 3-6.
- **Filter** focuses the report by adding or modifying the filter clause on the query. See "Adding a Filter" on page 3-7.
- **Rows Per Page** determines how many rows display in the current report. See "Specifying Rows Per Page" on page 3-9.
- **Format** contains the following submenu:
  - **Sort** - Changes the columns to sort on and determines whether to sort in ascending or descending order. See "Selecting Column Sort Order" on page 3-10.
  - **Control Break** - Creates a break group on one or several columns. This pulls the columns out of the interactive report and displays them as a master record. See "Creating a Control Break" on page 3-10.
  - **Highlight** - Defines a filter that highlights the rows that meet the filter criteria. See "Adding Highlighting" on page 3-11.
  - **Compute** - Enables users to add computed columns to a report. See "Computing Columns" on page 3-13.
  - **Aggregate** - Enables users to perform mathematical computations against a column. See "Aggregating a Column" on page 3-14.
  - **Chart** - Displays the report data as a chart. See "Creating a Chart from the Actions Menu" on page 3-15.

  - **Group By** - Enables users to group the result set by one or more columns and perform mathematical computations against columns. See "Grouping Columns" on page 3-17.

- **Flashback** - Enables you to view the data as it existed at a previous point in time. See "Executing a Flashback Query" on page 3-19.
- **Save Report** - Saves the interactive report. Depending upon their user credentials, users can save different types of reports. See "Saving an Interactive Report" on page 3-20.
- **Reset** - Enables users to reset the report back to the default report settings. See "Resetting a Report" on page 3-22.
- **Help** - Provides descriptions of how to customize interactive reports.
- **Download** - Enables users to download a report. Available download formats depend upon your installation and report definition. See "Downloading a Report" on page 3-22.
- **Subscription** - Enables users to send themselves an interactive report by email. See "Subscribing to Emailed Reports" on page 3-22

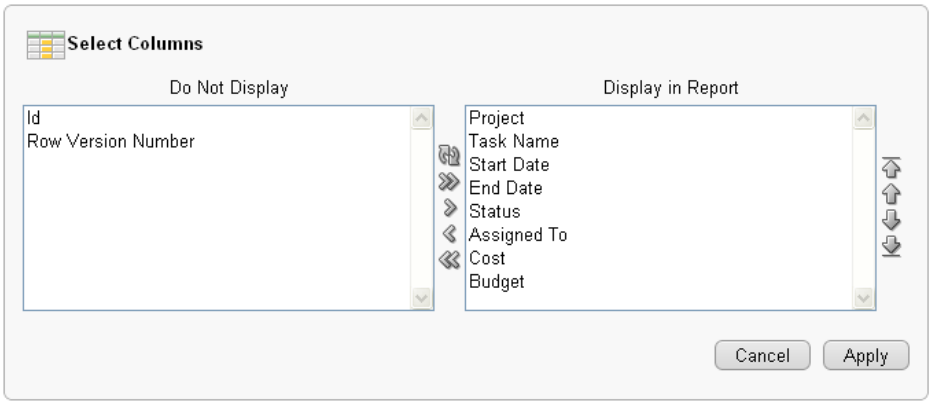
Selecting Columns to Display

To customize a report to include specific columns, select **Select Columns** on the Actions menu.

To use the Select Columns option:

1. Click the **Actions** menu and select **Select Columns**.

   The Select Columns region appears.



2. Select the columns you want to move. Click the center arrows to move a column from the Display in Report box to the Do Not Display box. To select multiple columns at once, press and hold the **CTRL** key.
3. To change the order of the columns, click the **Top**, **Up**, **Down**, and **Bottom** arrows on the right.
4. Click **Apply**.

   A revised report appears.

   See Also: "Resetting a Report" on page 3-22

Adding a Filter

You can create a filter on an interactive report by adding or modifying the filter clause on the query. You can create two types of filters:

- **Column** - Creates a custom column filter. Select a column (it does not need to be one that displays), select a standard Oracle operator, and enter an expression to compare against. Expressions are case sensitive. Use % as a wild card. For example:

  ```
  STATE_NAME like A%
  ```

- **Row** - Creates a custom row filter. This filter creates a complex filter clause using column aliases and any Oracle functions or operators. For example:

  ```
  G = 'VA' or G = 'CT'
  ```

  Where `G` is the alias for the `CUSTOMER_STATE` column and you want to filter the results to see Virginia and Connecticut.

Adding a Column Filter

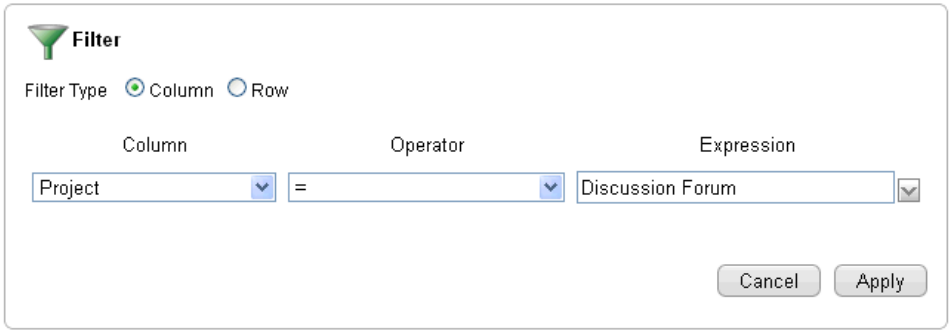
To add a column filter:

1. Click the **Actions** menu and select **Filter**.

   The Filter region appears.

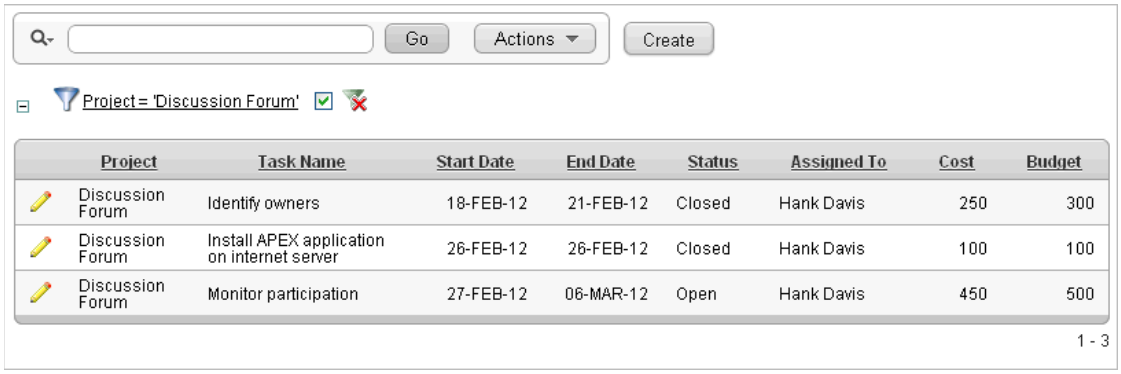
2. For Filter Type, select **Column**.

3. In the Filter region, specify a column, an operator, and expression.



   This examples narrows the display to Discussion Forum projects.

4. Click **Apply**.



Notice the filter `Project = 'Discussion Forum'` has been added to the Report Settings area above the report.

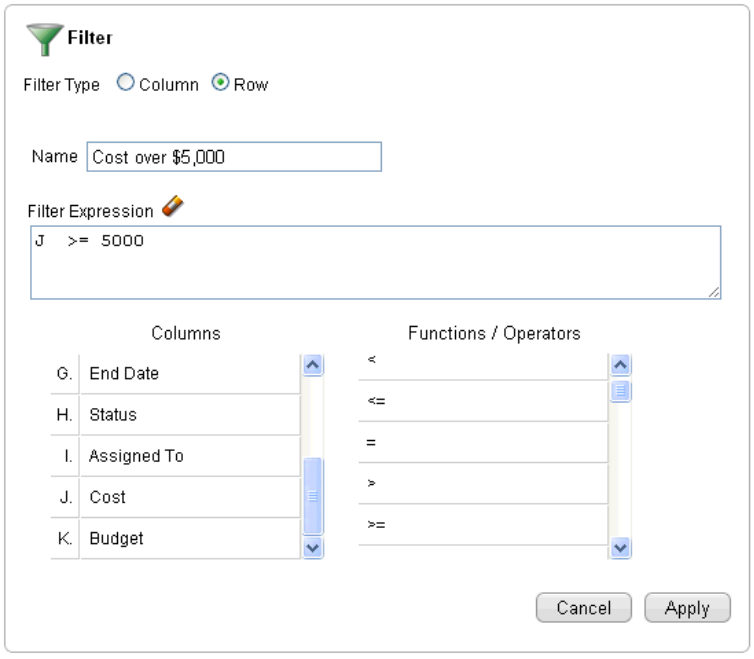
5. To revise the filter:
   a. Click the filter name (in this example, `Project = 'Discussion Forum'`).
   b. Edit your selections and click **Apply**.
6. To disable the filter, select the **Enable/Disable Filter** check box.
7. To delete the filter, click **Remove Filter**.

Adding a Row Filter

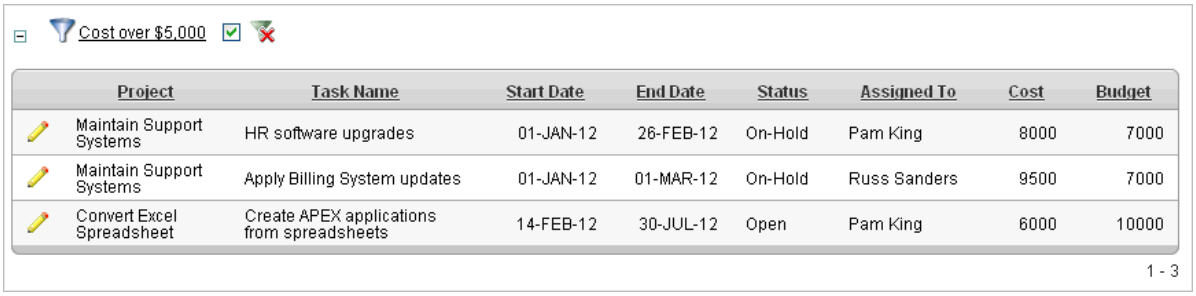
To add a row filter:

1. Click the **Actions** menu and select **Filter**.

   The Filter region appears.
2. For Filter Type, select **Row**.
3. In the Filter region:
   a. Name - Enter a name that describes this filter.
   b. Filter Expression - Enter an expression. Select a column and function or operator at the bottom of the region.



4. Click **Apply**.



Project	Task Name	Start Date	End Date	Status	Assigned To	Cost	Budget
Maintain Support Systems	HR software upgrades	01-JAN-12	26-FEB-12	On-Hold	Pam King	8000	7000
Maintain Support Systems	Apply Billing System updates	01-JAN-12	01-MAR-12	On-Hold	Russ Sanders	9500	7000
Convert Excel Spreadsheet	Create APEX applications from spreadsheets	14-FEB-12	30-JUL-12	Open	Pam King	6000	10000

1 - 3

The Row Filter narrows the display to projects with a cost of $5000 or more.

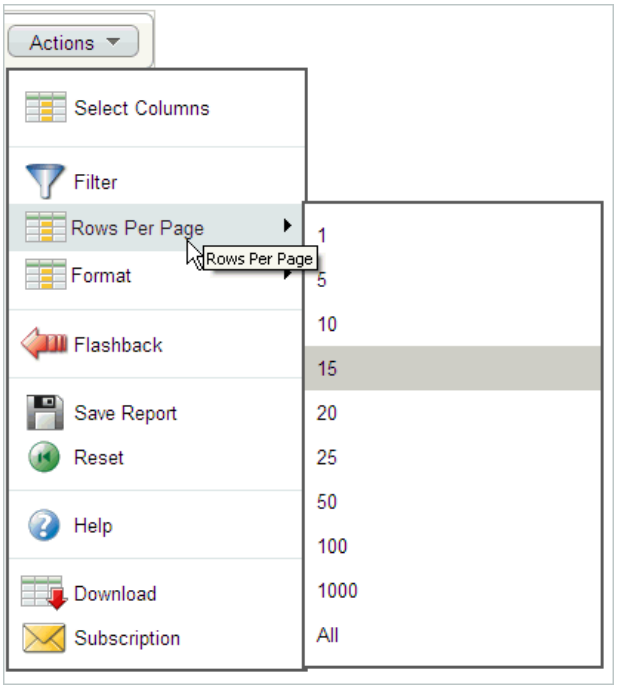
5. To revise the filter:
   a. Click **Row Filter**.
   b. Edit your selections and click **Apply**.
6. To disable the filter, select the **Enable/Disable Filter** check box.
7. To delete the filter, click **Remove Filter**.

Specifying Rows Per Page

You can specify the number of rows that display on a page by selecting **Rows Per Page** on the Actions menu.

To specify the number of rows that display:

1. Click the **Actions** menu and select **Rows Per Page**.
2. From the submenu, select a number.



Selecting Column Sort Order

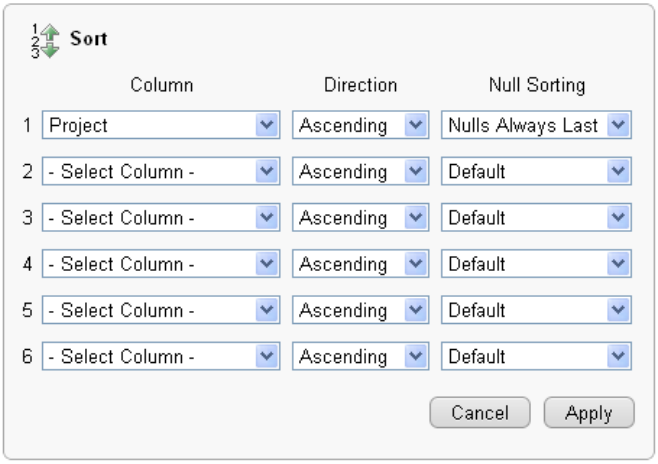
You can specify column display sort order (ascending or descending) by selecting **Sort** on the Format submenu. You can also specify how to handle `NULL` values. Using the default setting always displays `NULL` values last or always display them first.

To sort by column:

1. Click the **Actions** menu and select **Format** and then **Sort**.

   The Sort region appears.

2. Select a column, the sort direction (**Ascending** or **Descending**), and Null Sorting behavior (**Default**, **Nulls Always Last**, or **Nulls Always First**).



3. Click **Apply**.

Creating a Control Break

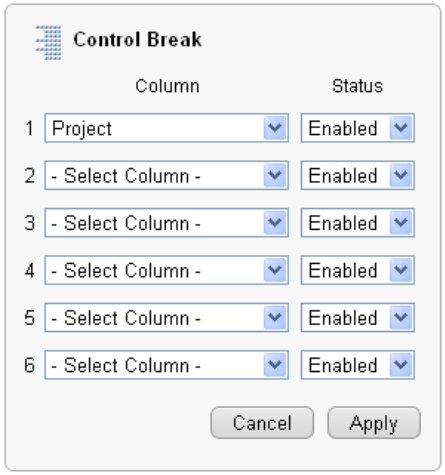
You can create a break group of one or several columns by selecting **Control Break** from the Actions, Format submenu. Creating a break group pulls the columns out of the interactive report and displays them as a master record.

To create a break group:

1. Click the **Actions** menu and select **Format** and then **Control Break**.

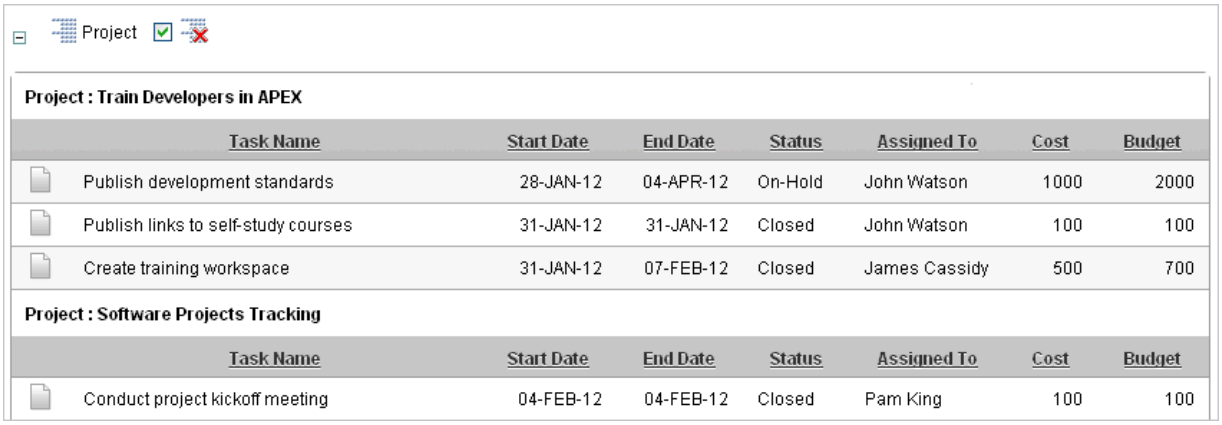
   The Control Break region appears.

2. Select a column and then a status (**Enable** or **Disable**)



3. Click **Apply**.

   A revised report displays.



   Note the defined break groups display in the Report Settings area above the report.

4. To collapse the break group, click the plus (+) sign.
5. To disable the Control Break filter, deselect the **Enable/Disable Filter** check box. Select is again to enable the filter.
6. To delete the filter, click **Remove Breaks**.

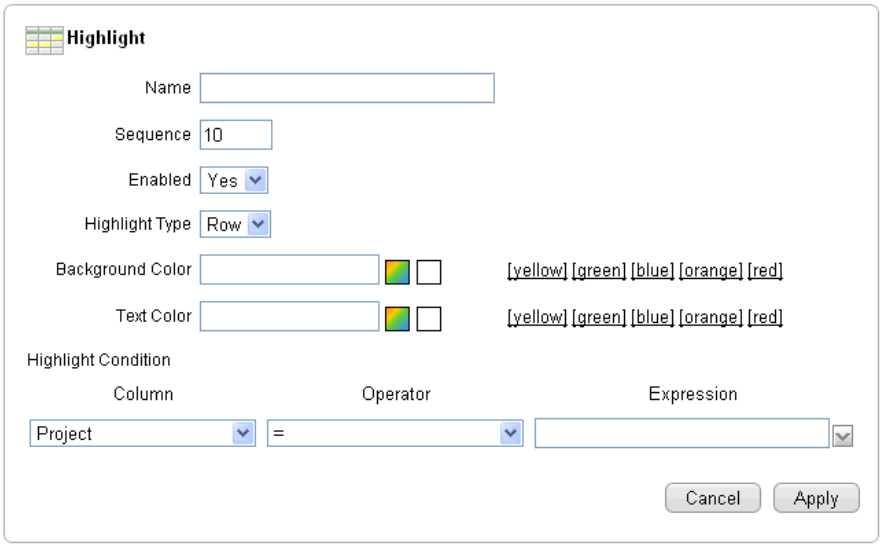
Adding Highlighting

You can customize the display to highlight specific rows in a report by selecting **Highlight** on the Actions, Format submenu.

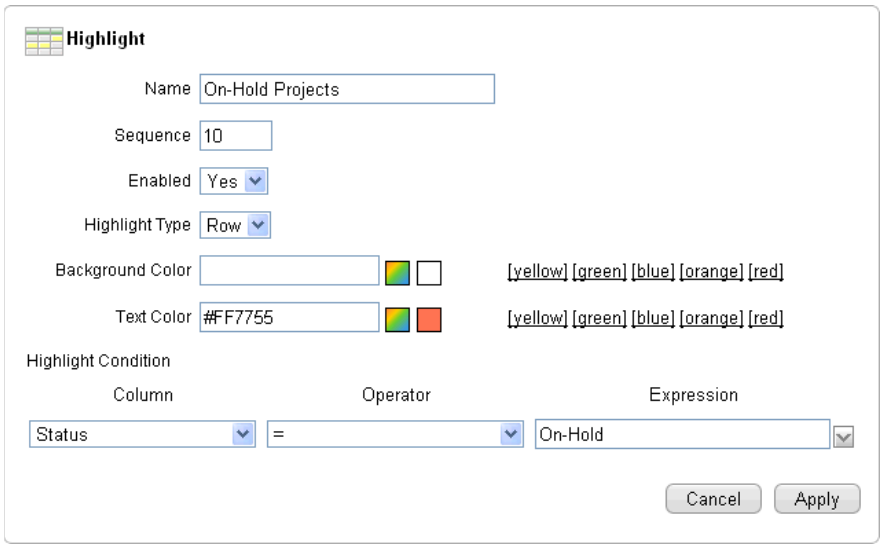
To add highlighting:

1. Click the **Actions** menu and select **Format** and then **Highlight**.

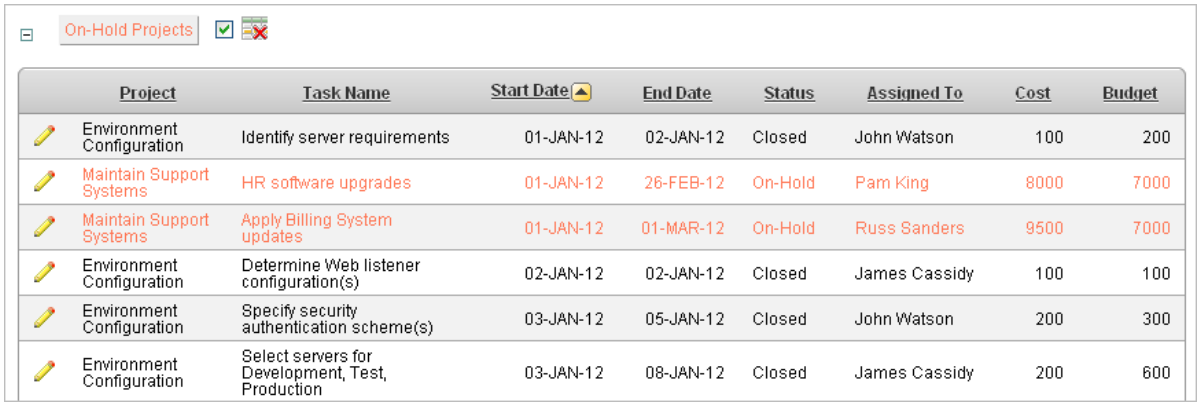
   The Highlight region appears.



2. Edit the following information:
   a. Name - Enter a name that describes this filter.
   b. Sequence - Enter a numeric value to identify the sequence in which highlighting rules are evaluated.
   c. Enabled - Select **Yes**.
   d. Highlight Type - Select **Cell** or **Row**.
   e. Background Color - Select a new color for the background of the highlighted area.
   f. Text Color - Select a new color for the text in the highlighted area.
   g. Highlight Condition - Select a column, an operator, and expression.



3. Click **Apply**.



On-Hold Projects

Project	Task Name	Start Date	End Date	Status	Assigned To	Cost	Budget
Environment Configuration	Identify server requirements	01-JAN-12	02-JAN-12	Closed	John Watson	100	200
Maintain Support Systems	HR software upgrades	01-JAN-12	26-FEB-12	On-Hold	Pam King	8000	7000
Maintain Support Systems	Apply Billing System updates	01-JAN-12	01-MAR-12	On-Hold	Russ Sanders	9500	7000
Environment Configuration	Determine Web listener configuration(s)	02-JAN-12	02-JAN-12	Closed	James Cassidy	100	100
Environment Configuration	Specify security authentication scheme(s)	03-JAN-12	05-JAN-12	Closed	John Watson	200	300
Environment Configuration	Select servers for Development, Test, Production	03-JAN-12	08-JAN-12	Closed	James Cassidy	200	600

Note the highlight `On-Hold Projects` appears in the Report Settings area above the report.

4. To revise the highlight, click the highlight name and make the following edits:
   a. Background Color - Select **yellow**.
   b. Text Color - Select **green**.
   c. Click **Apply**.
5. To disable the highlight, select the **Enable/Disable** check box.
6. To delete the highlight, click **Remove Highlight**.

Computing Columns

You can add computations to columns by selecting **Compute** from the Actions, Format submenu. These computations can be mathematical computations (for example, `NBR_HOURS/24`) or standard Oracle functions applied to existing columns.

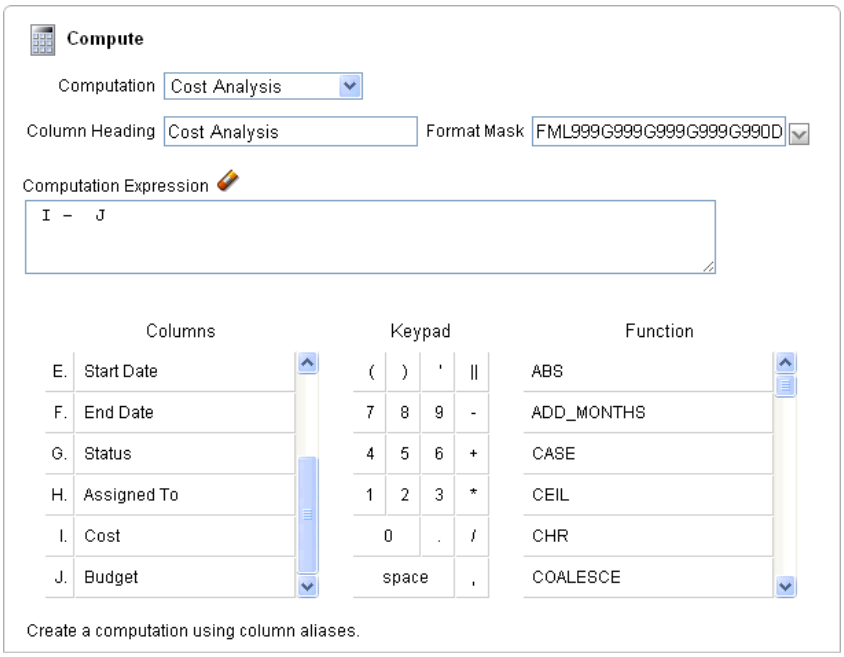
To create a computation:

1. Click the **Actions** menu and select **Format** and then **Compute**.

   The Compute region appears.
2. In the Compute region:
   a. Computation - Select **New Computation**.
   b. Column Heading - Enter the name of the new column to be created.
   c. Format Mask - Select an Oracle format mask to be applied to the new column. (for example, `$9999`).

      Next, create the computation.
   d. Create the computation:
      – Columns - Select a column or alias.
      – Keypad - Select a shortcut for commonly used keys.
      – Functions - Select the appropriate function.

      In the following example, a new column compares the actual cost to the budgeted amount, using the formula `I - J`, where `I` is the cost and `J` is the budgeted amount.



3. Click **Apply**.

   The revised report appears containing a new Cost Analysis column.

Task Name	Start Date	End Date	Status	Assigned To	Cost	Budget	Cost Analysis
Identify server requirements	01-JAN-12	02-JAN-12	Closed	John Watson	100	200	-$100.00
HR software upgrades	01-JAN-12	26-FEB-12	On-Hold	Pam King	8000	7000	$1,000.00
Apply Billing System updates	01-JAN-12	01-MAR-12	On-Hold	Russ Sanders	9500	7000	$2,500.00
Determine Web listener configuration(s)	02-JAN-12	02-JAN-12	Closed	James Cassidy	100	100	$0.00

Deleting a Computation

To delete a computation:

1. Click the **Actions** menu and select **Format** and then **Compute**.

   The Compute region appears.

2. From Computation, select a computation.

   The computation appears.

3. Click **Delete**.

Aggregating a Column

You can define a aggregation against a column by selecting **Aggregate** from the Actions, Format menu. Aggregates are displayed after each control break and at the end of the report within the column for which they are defined.

To aggregate columns:

1. Click the **Actions** menu and select **Format** and then **Aggregate**.

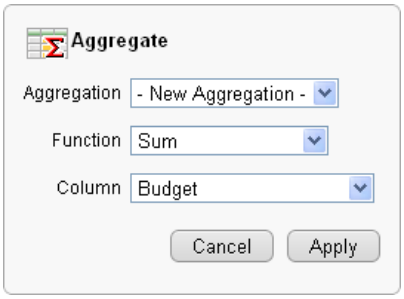
   The Aggregate region appears.

2. In the Aggregate region:

a. Aggregation - Select New Aggregation.

b. Function - Select one of the following: Sum; Average, Count, Count Distinct, Minimum, Maximum, or Median.

c. Column - Select a column.



This example creates a sum of the Budget column.

3. Click **Apply**.

The computation appears at the bottom of the report.

	Project	Task Name	Start Date	End Date	Status	Assigned To	Cost	Budget
	Migrate from SQL Server	Notify users	06-MAY-12	09-MAY-12	Pending	Mark Nile	0	200
	Forms Conversion	End-user Training	20-MAY-12	01-AUG-12	Pending	Myra Sutcliff	0	2500
	Forms Conversion	Rollout migrated Forms in APEX	23-JUL-12	03-AUG-12	Pending	Pam King	0	500
								134350

In this example, the aggregate shows the sum of all amounts in the Budget column.

Removing an Aggregate

To remove aggregate columns:

1. Click the **Actions** menu and select **Format** and then **Aggregate**.

   The Aggregate region appears.

2. From Aggregation, select a previously defined aggregation.

3. Click **Delete**.

Creating a Chart from the Actions Menu

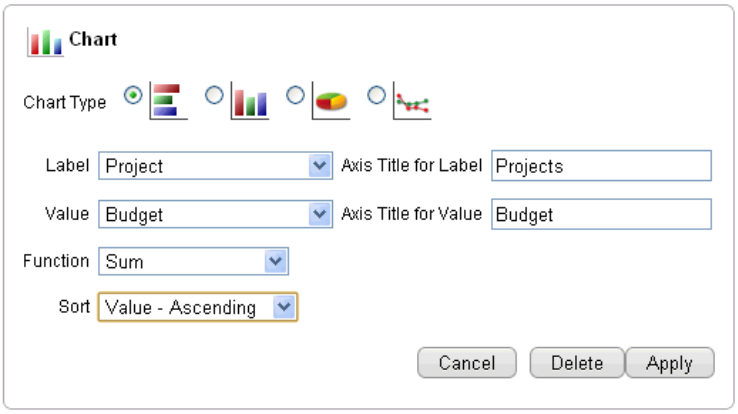
To create a chart, select **Chart** on the Actions, Format menu. You can create one chart for each interactive report. Once defined, you can switch between the chart and report views using links on the Search bar.

To create a chart:

1. Click the **Actions** menu and select **Format** and then **Chart**.

   The Chart region appears.

2. In the Chart region, specify the appropriate options.



The following attributes are for bar charts:

a. Chart Type - Select the type of chart you want to create (horizontal bar, vertical bar, pie, or line.).

b. Label - Select the column to be used as the label.

c. Axis for Title for Label - Enter title to be displayed on the axis associated with the column selected for Label (not available for pie chart).

d. Value - Select the column to be used as the Value. If your function is a `COUNT`, a Value does not need to be selected.

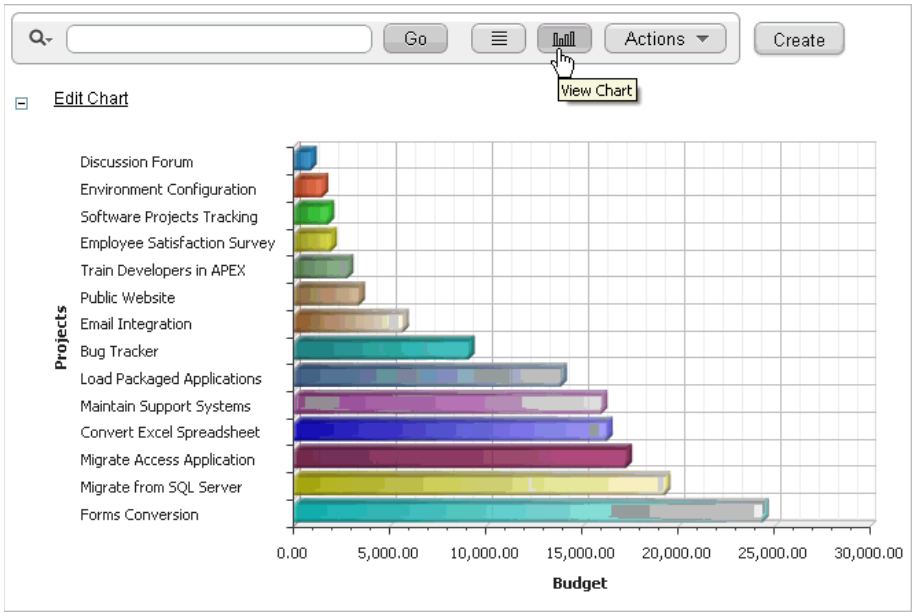
e. Axis Title for Value - Enter the title to display on the axis associated with the column selected for Value (not available for pie chart).

f. Function - (Optional) Select a function to be performed on the column selected for Value.

g. Sort - Select a sorting method.

3. Click **Apply**.

   The chart appears.



Note the Search bar now contains two icons: View Report and View Chart.

4. Click these icons to toggle between chart and report views.

Editing a Chart

To edit a chart:

1. While viewing a report:
   a. Click the **Actions** menu and select **Format** and then **Chart**.

      The Chart region appears.

   b. Edit your selections and click **Apply**.
2. While view the chart:
   a. Click **Edit Chart**.
   b. Edit your selections and click **Apply**.

Deleting a Chart

To delete a chart:

1. While viewing a report:
   a. Click the **Actions** menu and select **Format** and then **Chart**.

      The Chart region appears.

   b. Click **Delete**.
2. While viewing a chart:
   a. Click **Edit Chart**.
   b. Click **Delete**.

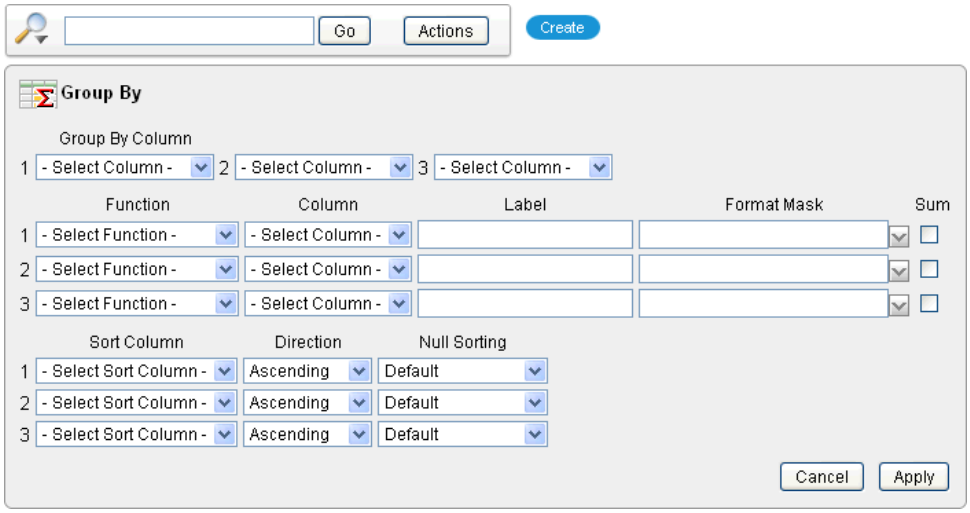
Grouping Columns

Group By enables users to group the result set by one or more columns and perform mathematical computations against the columns. Once users define the group by, they can switch between the group by and report views using the View Icon on the Search bar.

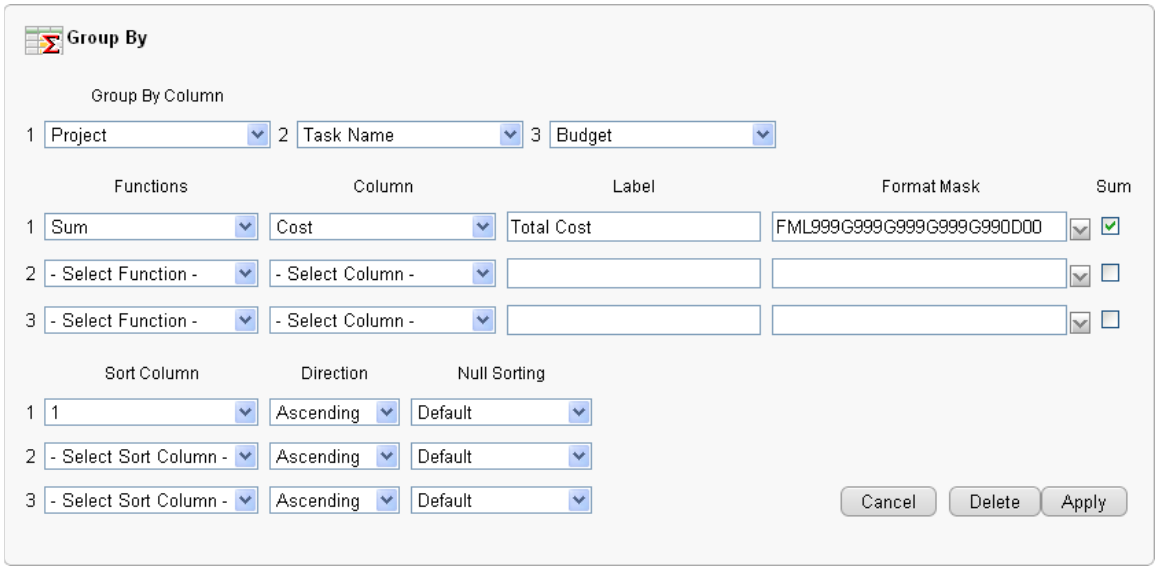
To use Group By:

1. Click the **Actions** menu and select **Format** and then **Group By**.

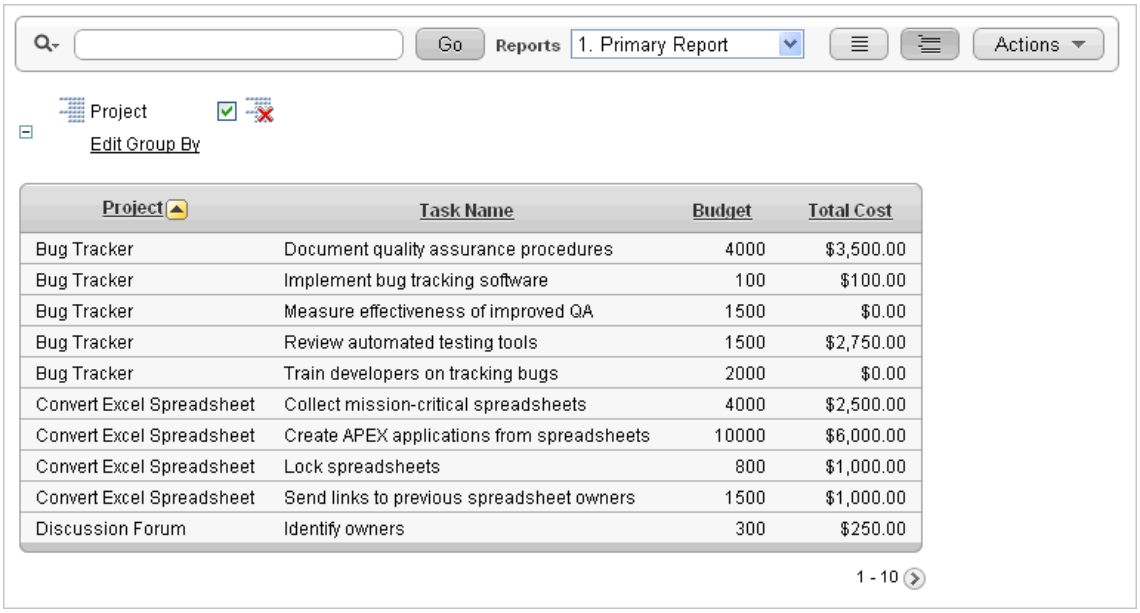
   The Group By region appears.



2. From Group by Column, select up to three columns to display.
3. To include a computation, select the function, column, label, and format mask.
4. To specify sorting, select a sort column, sort direction, and preferences for NULL values.



5. Click **Apply**.



A Group By icon appears below the Search bar. The resulting report displays the Project, Task Name, and Budget columns. Additionally, a new column, Total Cost, displays on the right side.

Editing a Group By

To edit a group by:

1. Click **Edit Group By**.

   The Group By region appears.

2. Edit the attributes.
3. Click **Apply**.

Deleting a Group By

To delete a group by:

1. Click **Edit Group By**.

   The Group By region appears.

2. Click **Delete**.

Executing a Flashback Query

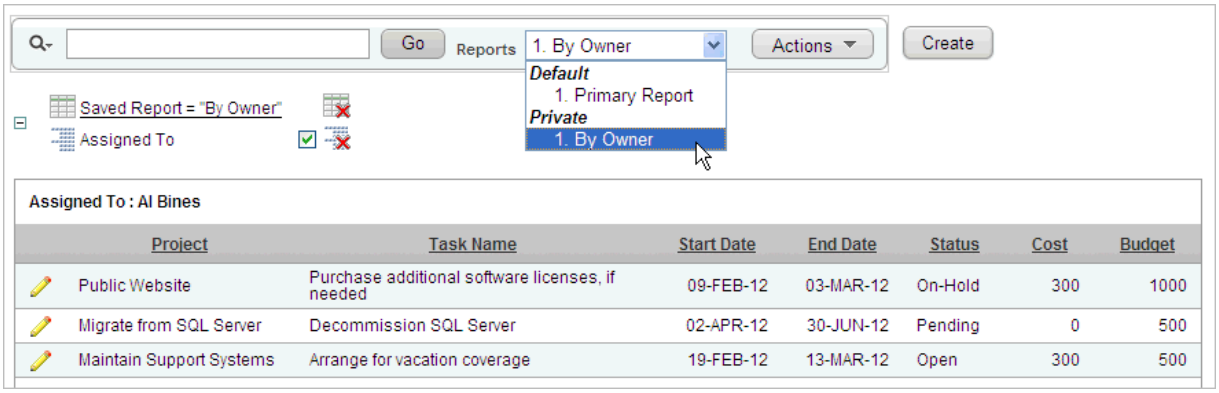
You can execute a flashback query by selecting **Flashback** from the Actions menu. A flashback query enables you to view the data as it existed at a previous point in time. The default amount of time that you can flashback is 3 hours (or 180 minutes) but the actual amount will differ for each database.

To execute a flashback query:

1. Click the **Actions** menu and select **Flashback**.
2. In the Flashback region, enter the number of minutes.
3. Click **Apply**.

Saving an Interactive Report

As an end user, you can save a private or public interactive report. Only the user who creates a private report can view, save, rename, or delete it. The following shows the Reports list on the Search bar of an interactive report.



This example shows two reports:

- **Default - Primary Report**. This is the initial report created by the application developer. Default, Primary reports cannot be renamed or deleted.
- **Private - 1. By Owner**. This is a Private report. Only the user who creates a private report can view, save, rename, or delete it.

Topics:

- About Configuration Dependencies
- Saving a Public or Private Interactive Report
- Renaming a Public or Private Interactive Report
- Deleting a Public or Private Interactive Report

About Configuration Dependencies

The ability to save an interactive report is configurable by your application developer. To learn more, see "*Customizing the Search Bar*" and "*Saving an Interactive Report*" in *Oracle Application Express Application Builder User's Guide*.

Saving a Public or Private Interactive Report

End users can save an interactive report and classify it as being either:

- **Public**. The report can be saved, renamed, or deleted by the end user who created it. Other users can view and save the layout as another report.
- **Private**. Only the end user that created the report can view, save, rename or delete the report.

To save a public or private interactive report:

1. Go to the page containing the interactive report you want to save.
2. Customize the report (for example, hide columns, add filters, and so on). See "Using the Actions Menu" on page 3-4.
3. Click the **Actions** menu and select **Save Report**.

   The Save Report region appears.

4. In Save Report:
   a. **Name** - Enter a name for the report.
   b. **Description** - Enter an optional description.
   c. **Public** - Select this check box to make the report viewable to all users. Deselect this check box to make the report private.

      Tip: The ability to save an interactive report as Public is determined by your application developer. See "About Configuration Dependencies" on page 3-20.

   d. Click **Apply**.

Renaming a Public or Private Interactive Report

To rename a public or private interactive report:

1. Run the report as a developer.
2. Click the Rename Report link.

3. Edit the attributes (for example, enter a new name).
4. Click **Apply**.

Deleting a Public or Private Interactive Report

To delete a public or private interactive report:

1. Run the report as a developer.
2. To edit the report:
   a. Click the alternative report name link.
   b. Edit the attributes (for example, enter a new name).
   c. Click **Apply**.
3. Click the **Delete Report** icon next to the report name link.

4. Click **Apply**.

Resetting a Report

You can reset a report back to the default settings by selecting **Reset** from the Actions menu. Resetting a report removes any customizations you have made.

To reset a report:

1. Click the **Actions** menu and select **Reset**.
2. Click **Apply**.

Downloading a Report

You can download an interactive report back by selecting **Download** from the Actions menu. Available download formats depend upon your installation and report definition. Supported formats include comma-delimited file (CSV) format, HTML, Email, Microsoft Excel (XLS) format, Adobe Portable Document Format (PDF), and Microsoft Word Rich Text Format (RTF).

> **Tip:** The ability to download an interactive report is configurable by your application developer. To learn more about configuring download options, see "Configuring Download Options on the Actions Menu" in *Oracle Application Express Application Builder User's Guide*.

To download a report:

1. Click the **Actions** menu and select **Download**.
2. Select a report download format and follow the provided instructions.

Subscribing to Emailed Reports

End users can receive updated versions of a report by subscribing to it. To subscribe to a report, click **Subscription** on the Actions menu.

To utilize Subscription:

- An Oracle Application Express administrator must configure email at the Instance level.
- The application developer must enable the Subscription check box on the Interactive Report Attributes page. See "Customizing the Interactive Report Search Bar" in *Oracle Application Express Application Builder User's Guide*.

To receive updated report results by email:

1. Click the **Actions** menu and select **Subscription**.

   The Add Subscription region appears.
2. Under Add Subscription:

a. Email Address - Enter the email addresses to receive the report. To include multiple email addresses, separate each email address with a comma.

b. Subject - Enter text to display in the email subject line.

c. Frequency - Select the interval at which the report is sent.

d. Starting From - Select a start date and time.

e. Ending - Select a end date and time. Select a day, week, month, or year.

f. Click **Apply**.

See Also: "Managing Interactive Report Subscriptions" in *Oracle Application Express Administration Guide*

4

About Uploading Data

This section describes how to import data into an Oracle Application Express application using an existing application Data Loading Wizard.

> **Tip:** In order to use the functionality described in this section, your application must have been built with Data Upload capability. To learn more, see "Creating Applications with Data Loading Capability" in *Oracle Application Express Application Builder User's Guide*.

Topics:

- About Using the Data Loading Wizard
- Importing Data from a File into Your Application
- Copying and Pasting Data into Your Application
- Automatically Supported Date, Timestamp and Number Formats

About Using the Data Loading Wizard

Applications with data loading capability enable end users to dynamically import data into a table within any schema to which the user has access. To do this, end users run a Data Load Wizard that uploads data from a file or copies and pastes data entered by the end user directly into the wizard.

The Data Loading wizard for your application may have been built to include the ability to apply table lookup and transformation rules during the data upload process. Before the data is actually imported into the database, you are given the opportunity to review the data after all look up and transformation rules have been applied.

- Table Lookups - These rules automatically map data in the import file or copy and paste field to data that is found in another table. For example, if the import file contains a department name for the DEPTNO column but the upload table requires a number for that column, use a table lookup rule to find the corresponding department number for that department name in another table.
- Data transformation rules - These rules automatically perform formatting transformations such as changing import data to uppercase, lowercase, and so on. For example, if the import file includes column data with both upper and lowercase and the destination table requires all uppercase, data transformation rules can automatically insert only uppercase into that column during data upload

Importing Data from a File into Your Application

In order to upload data to your application, the application must have been built with Data Upload capability and the file must be formatted properly.

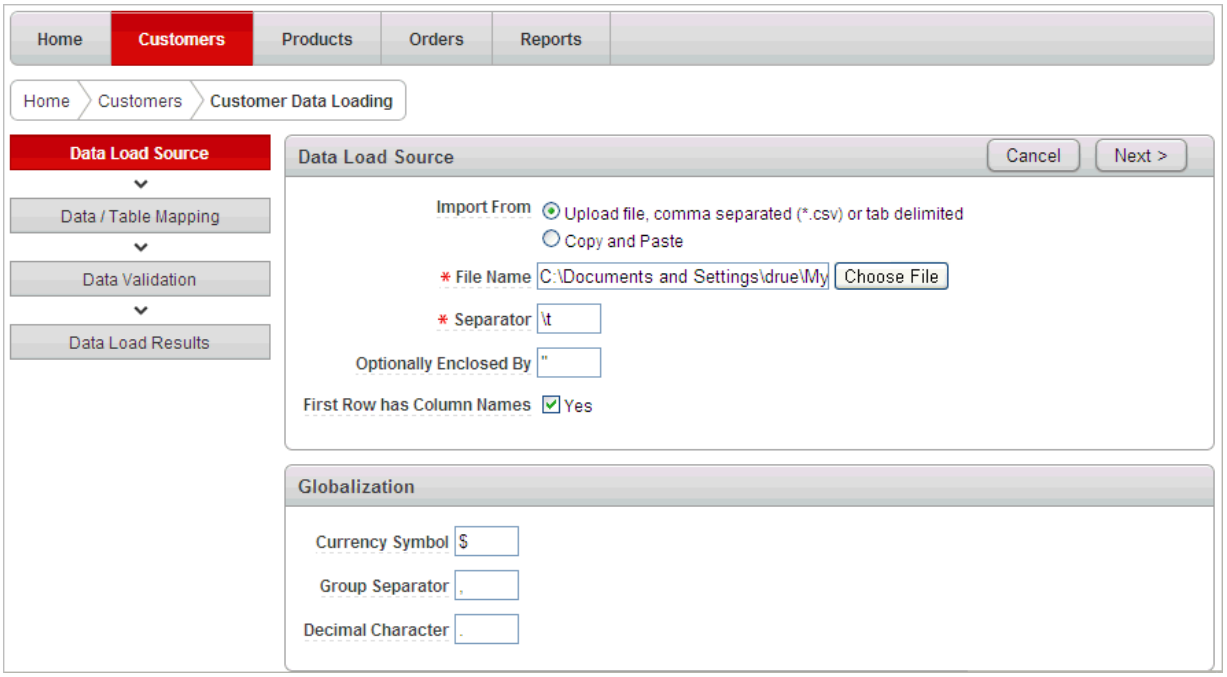
To illustrate how you can use the Data Load wizard to import data from a text file, the following section demonstrates the upload process and includes examples from the sample database application, *Product Portal*.

To import data from a file into your application:

1. Log into your application.
2. Launch the Data Load wizard.

   The first page of the Data Load wizard appears.
3. For Import From, select **Upload file, comma separated (*.csv) or tab delimited.**

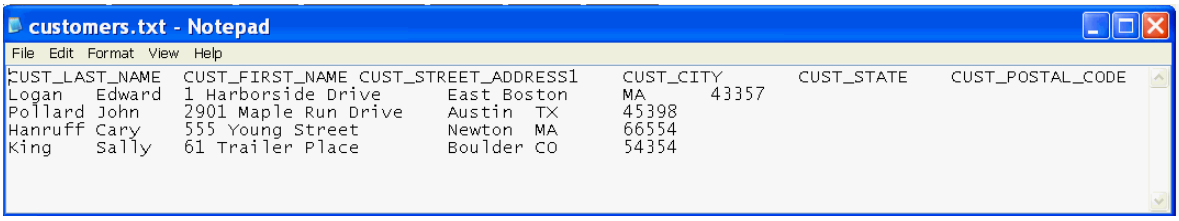
   The Data Load Source page appears with options for loading from a data file. The following example shows an example Data Load Source page for the Sample Application.



4. For Data Source Load, make the following additional selections and entries:

   a. File Name - Browse to or enter the path and file name containing the data to upload.

      The following example shows an example `customer.txt` data load file.



   b. Separator - Enter the column separator character. Use `\t` for tab separators.

c. Optionally Enclosed By - Enter a delimiter character if you want to delineate the start and end boundary of a data value.

d. First Row has Column Names - Select **Yes** if your data contains column names in the first row.

5. For Globalization, make the following entries:

a. Currency Symbol - If your data contains an international currency symbol, enter it here. For example, if your data has "$1,234.56" or "¥1,234.56", enter **$** or ¥. Otherwise the data may not load correctly.

b. Group Separator - If your data contains a group separator enter it here. A group separator is a character that separates integer groups, for example to show thousands and millions.

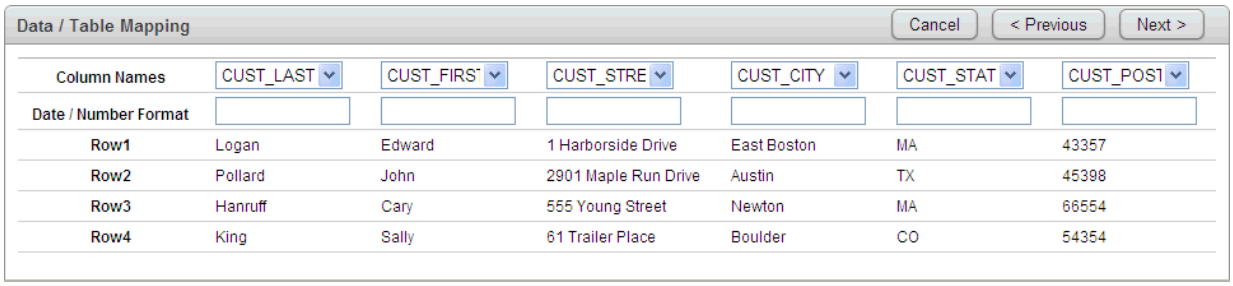
Any character can be the group separator. The character specified must be single-byte, and the group separator must be different from any other decimal character. The character can be a space, but cannot be a numeric character or any of the following: plus (+), hyphen (-), less than sign (<), or greater than sign (>).

c. Decimal Character - If your data contains a decimal character, enter it here. The decimal character separates the integer and decimal parts of a number. Any character can be the decimal character. The character specified must be single-byte, and the decimal character must be different from any other group separator. The character can be a space, but cannot be a numeric character or any of the following: plus (+), hyphen (-), less than sign (<), or greater than sign (>)

6. Click **Next**.

The Data/Table Mapping page appears.

The example below is an example Data/Table Mapping page after importing data from the `customer.txt` file.



Column Names	CUST_LAST	CUST_FIRS	CUST_STRE	CUST_CITY	CUST_STAT	CUST_POST
Date / Number Format						
Row1	Logan	Edward	1 Harborside Drive	East Boston	MA	43357
Row2	Pollard	John	2901 Maple Run Drive	Austin	TX	45398
Row3	Hanruff	Cary	555 Young Street	Newton	MA	66554
Row4	King	Sally	61 Trailer Place	Boulder	CO	54354

7. For Data/Table Mapping, make the following selections and entries:

a. Column Names - The destination column name that will be uploaded with the data in this column.

If the first row does not contain the column names and the **First Row has Column Names** option was set to Yes, the Column Names fields will be populated with the column names from the first row of the upload data file. You can change these names by selecting the destination column name this data will be uploaded to, or set to **do not load** if you do not want to upload data in this column.

If the **First Row has Column Names** option was not set to Yes, the column sets the default to **do not load**. In this case you need to select from the drop down

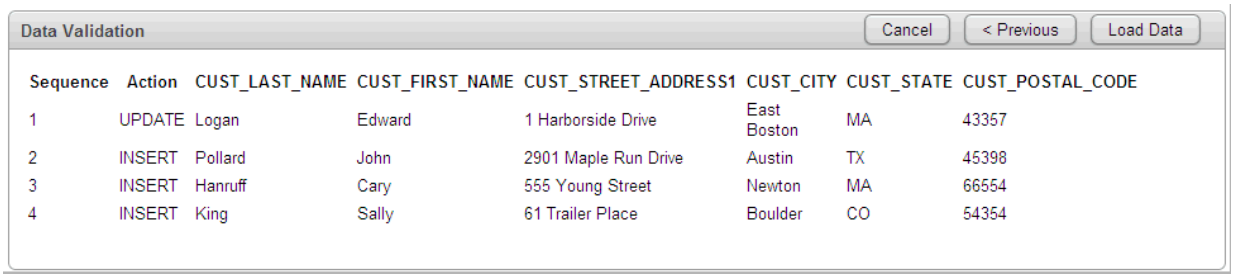
list for each column name, the name of the column this data will be uploaded to.

b. Date/Number Format - Most of the standardized date and number formats are automatically parsed and then passed to the database. If you want to define your own format or the format is not an automatically parsed format, use this field to define your own. See "Automatically Supported Date, Timestamp and Number Formats" on page 8.

8. Click **Next**.

The Data Validation page appears showing the data that will be inserted or updated after any table lookup and transformation rules have been applied. For more information regarding table look up and transformation rules, see "About Using the Data Loading Wizard" on page 4-1.

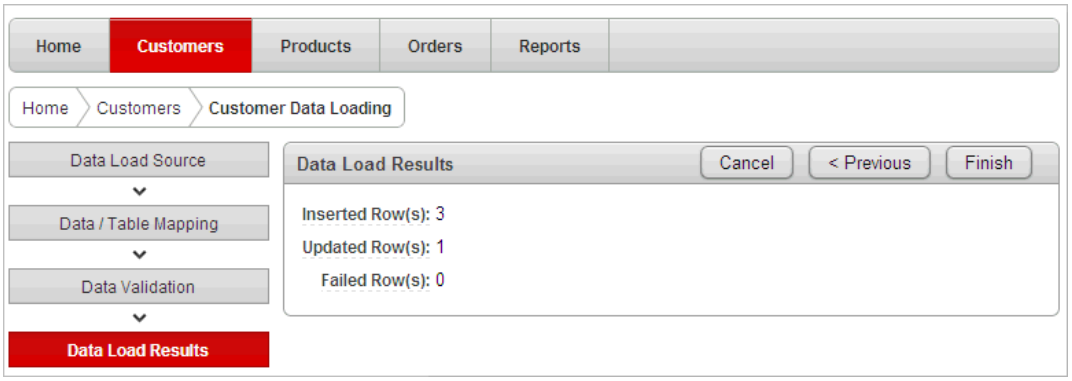
The following illustration shows that once the data from the `customer.txt` file is uploaded, customer information for Edward Logan will be updated and three new customers will be added.



9. For Data Validation, review the data to be uploaded and click **Load Data**.

The Data Load Results page appears.

This illustration shows the Data Load Results page after the Sample Application has imported the data contained in the `customer.txt` file.



10. The Data Load Results page shows the following:

- Inserted Row(s) - This is the number of new rows uploaded to the table.
- Updated Row(s) - This is the number of rows in the table updated with new information.
- Failed Row(s) - This is the number of rows from the upload file that were not added or updated.

11. Click **Finish** to exit the wizard.

Copying and Pasting Data into Your Application

In order to upload data to your application, the application must have been built with Data Upload capability and the pasted data must be formatted properly.

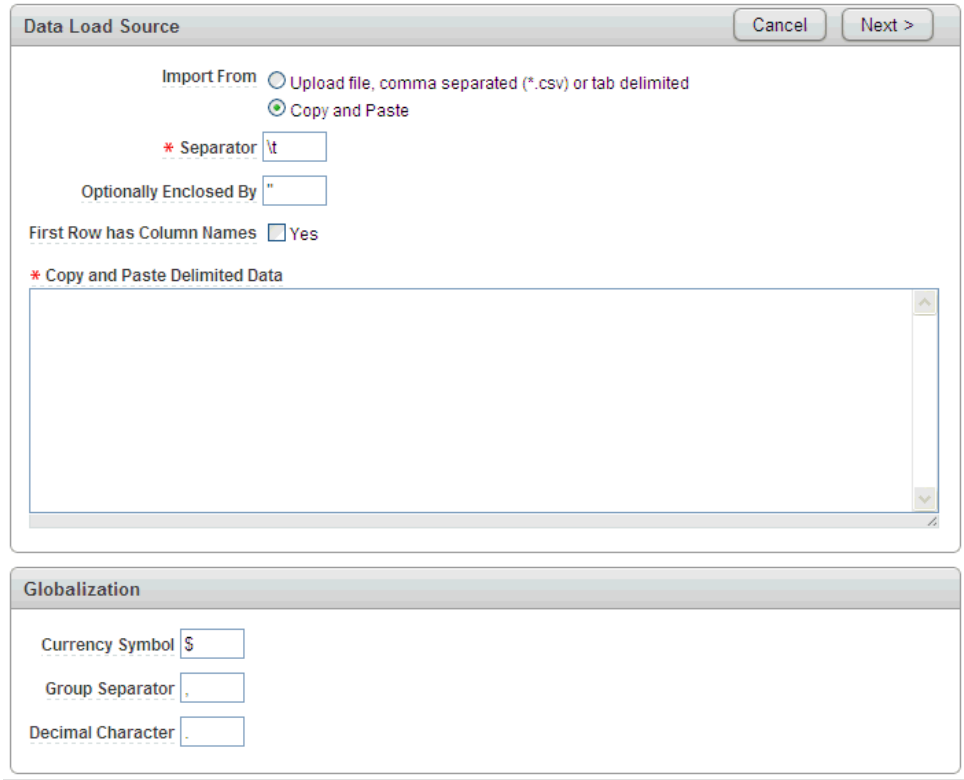
To illustrate how you can use the Data Load wizard to import data from a text file, the following section demonstrates the upload process and includes an illustration of the sample database application, *Product Portal*.

Follow these steps to cut and paste data into your application:

1. Log into your application.
2. Launch the Data Load wizard.

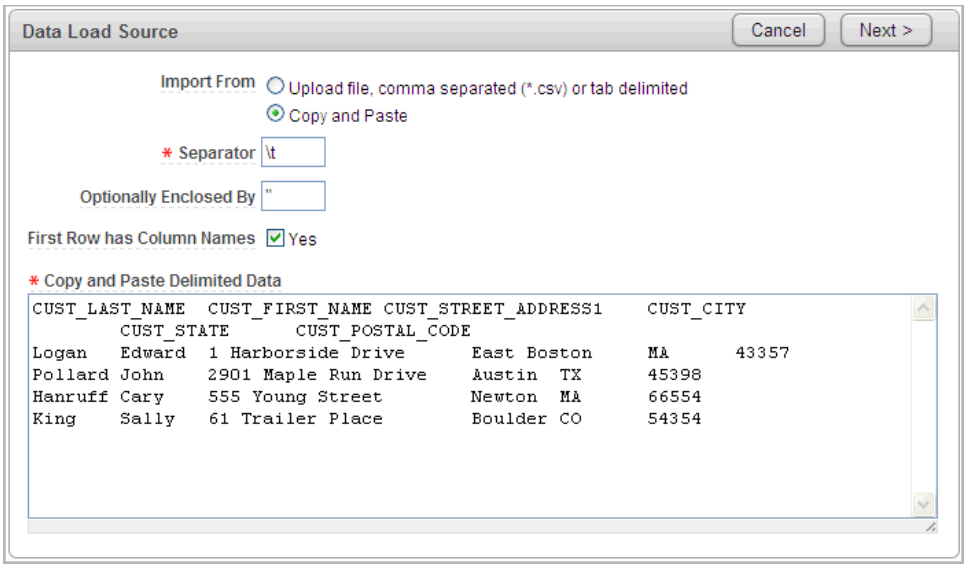
   The Data Load Source page of the wizard appears.

   The following illustration shows an example Data Load Source page.



3. For Data Source Load, make the following selections and entries:
   a. Import From - Select **Copy and Paste**.
   b. Separator - Enter the column separator character. Use `\t` for tab separators.
   c. Optionally Enclosed By - Enter a delimiter character if you want to delineate the start and end boundary of a data value.
   d. First Row has Column Names - Select **Yes** if your data contains column names in the first row.
   e. Copy and Paste Delimited Data - Copy the data to be uploaded with the appropriate delimiters and paste into this field.

The following is an example Data Load Source page after data from the `customer.txt` file has been copied and pasted in to the Copy and Paste Delimited Data field.



4. For Globalization, make the following entries:

   a. Currency Symbol - If your data contains an international currency symbol, enter it here. For example, if your data has "$1,234.56" or "¥1,234.56", enter **$** or **¥**. Otherwise the data will not load correctly.

   b. Group Separator - If your data contains a group separator enter it here. A group separator is a character that separates integer groups, for example to show thousands and millions.

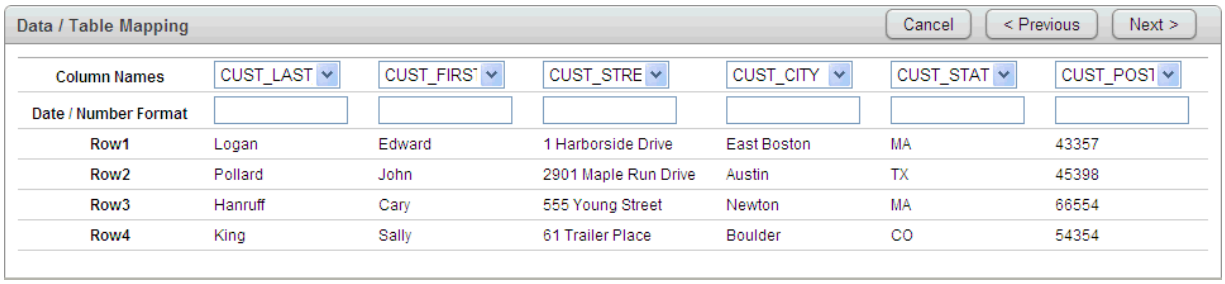
      Any character can be the group separator. The character specified must be single-byte, and the group separator must be different from any other decimal character. The character can be a space, but cannot be a numeric character or any of the following: plus (+), hyphen (-), less than sign (<), or greater than sign (>).

   c. Decimal Character - If your data contains a decimal character, enter it here. The decimal character separates the integer and decimal parts of a number. Any character can be the decimal character. The character specified must be single-byte, and the decimal character must be different from any other group separator. The character can be a space, but cannot be a numeric character or any of the following: plus (+), hyphen (-), less than sign (<), or greater than sign (>)

5. Click **Next**.

   The Data/Table Mapping page appears.

   The following is an example Data/Table Mapping page after copying and pasting data from the `customer.txt` file.



6. For Data/Table Mapping, make the following selections and entries:

   a. Column Names - The destination column name that will be uploaded with the data in this column.

      If the first row does not contain the column names and the **First Row has Column Names** option was set to Yes, the Column Names fields will be populated with the column names from the first row of the upload data file. You can change these names by selecting the destination column name this data will be uploaded to, or set to **do not load** if you do not want to upload data in this column.

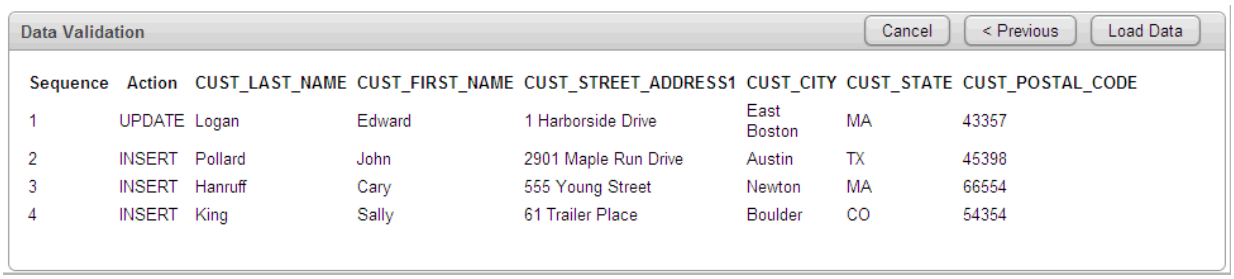
      If the **First Row has Column Names** option was not set to Yes, the column names default to **do not load**. In this case you need to select from the drop down list for each column name, the name of the column this data will be uploaded to.

   b. Date/Number Format - Most of the standardized date and number formats are automatically parsed and then passed to the database. If you want to define your own format or the format is not an automatically parsed format, use this field to define your own. See "Automatically Supported Date, Timestamp and Number Formats" on page 8.

7. Click **Next**.

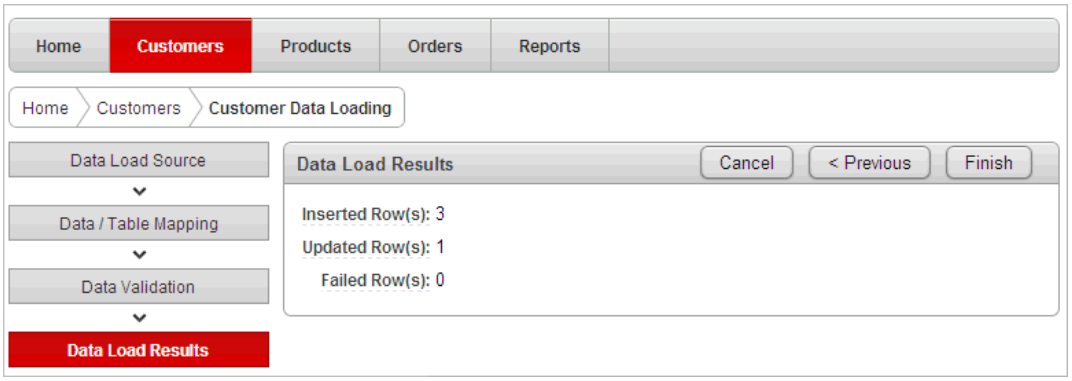
   The Data Validation page appears showing the data that will be inserted or updated after any table lookup and transformation rules have been applied. For more information regarding table look up and transformation rules, see "About Using the Data Loading Wizard" on page 4-1.

   The following illustration shows that once the data from the `customer.txt` file is uploaded, customer information for Edward Logan will be updated and three new customers will be added.



8. For Data Validation, review the data to be uploaded and click **Load Data**. The Data Load Results page appears.

   The following illustration shows the Data Load Results page after the Sample Application has imported the data contained in the `customer.txt` file.



9. The Data Load Results page shows the following:
   - Inserted Row(s) - This is the number of new rows uploaded to the table.
   - Updated Row(s) - This is the number of rows in the table updated with new information.
   - Failed Row(s) - This is the number of rows from the upload file that were not added or updated.
10. Click **Finish** to exit the wizard.

Automatically Supported Date, Timestamp and Number Formats

During the data upload process the following date, timestamp and number formats are automatically parsed and passed to the database.

Automatically Supported Date Format Masks

'MM/DD/RRRR'

'DD/MM/RRRR'

'DD/MM/RR'

'fmMM/DD/RRRR'

'fmDD/fmMM/RRRR'

'RRRR.MM.DD.'

'DD-MM-RR'

'DD.MM.RRRR'

'DD/MON/RR'

'RRRR-MM-DD'

'DD-MM-RRRR'

'fmDD/MM/RRRR'

'RRRR/MM/DD'

'DD.MM.RR'

'fmRRRR/MM/DD'

'fmDD.MM.RRRR'

'MM/DD/RRRR'

'RRRR.MM.DD'

'fmDD-MM-RRRR';

'RRRR-MM-DD"T"hh24:mi:ss'

Automatically Supported Timestamp Format Masks

'DD/MM/RR HH24.MI.SSXFF'

'DD.MM.RR HH:MI:SSXFF PM'

'DD/MM/RR HH:MI:SSXFF PM'

'DD-MON-YYYY HH24:MI'

'DD-MON-YYYY HH24.MI.SSXFF'

'DD-MON-YYYY HH:MI:SSXFF PM'

'DD-MON-YYYY HH24:MI TZR'

'DD-MON-YYYY HH24.MI.SSXFF TZR'

'DD-MON-YYYY HH.MI.SSXFF PM TZR'

Automatically Supported Number Format Masks

'FML999G999G999G999G990D00'

'999G999G999G999G990D00'

'999G999G999G999G990D0000'

'999G999G999G999G999G999G990'

'999G999G999G999G990D00MI'

'S999G999G999G999G990D00'

'999G999G999G999G990D00PR'

Index

A

Actions menu
- about, 3-4
- Aggregate, 3-5
- Chart, 3-5
- Compute, 3-5
- Control Break, 3-5
- Download, 3-6
- Filter, 3-5
- Flashback, 3-6
- Format, 3-5
- Group By, 3-6
- Help, 3-6
- Highlight, 3-5
- Reset, 3-6
- Rows Per Page, 3-5
- Save Report, 3-6
- Select Columns, 3-5, 3-6
- Sort, 3-5
- Subscription, 3-6

Allow SQL and PL/SQL
- about enabling, 2-22

annotations
- adding to Websheet, 2-35
- deleting, 2-36

B

browser requirements, 1-2

D

data
- about adding, 2-22
- about editing, 2-22
- incorporating into Websheet pages, 2-22

data grid
- accessing Data page, 2-15
- adding annotation to single data row, 2-20
- copying, 2-15
- creating, 2-13
- deleting, 2-21
- editing columns manually, 2-17
- editing properties, 2-21
- editing rows manually, 2-18
- editing single row, 2-19
- viewing and editing, 2-15
- viewing Change History log, 2-21

Data Loading Wizard
- about, 4-1
- example import from text file, 4-2
- example of copying and pasting, 4-5
- supported date formats, 4-8
- supported number formats, 4-8
- supported timestamp formats, 4-8
- using, 4-1

data reports
- about, 2-23
- creating, 2-23
- deleting, 2-24
- editing, 2-24, 2-25
- viewing, 2-24

data section
- adding to a Websheet page, 2-25

database application
- about, 1-1

G

group by
- about, 3-17
- deleting, 3-19
- editing, 3-19

I

interactive report
- deleting private report, 3-21

interactive reports
- about, 3-2
- about Actions menu, 3-4
- about Column Heading menu, 3-2
- about search bar, 3-3
- adding computations, 3-13
- adding filters, 3-7
- adding highlighting, 3-11
- aggregating a column, 3-14
- creating a chart, 3-15
- creating a control break, 3-10
- deleting public report, 3-21
- downloading, 3-22

executing a Flashback query, 3-19
group by, 3-17
grouping results by column, 3-17
renaming private report, 3-21
renaming public report, 3-21
resetting, 3-22
saving, 3-20
saving as private, 3-20
saving as public, 3-20
Select columns to search icon, 3-3
selecting column sort order, 3-10
selecting columns to display, 3-6
selecting sort order, 3-10
specifying rows per page, 3-9
subscribing to, 3-22
using, 3-1
using Actions menu, 3-5

N

notes
adding to Websheets, 2-34
deleting from Websheets, 2-35
editing, 2-35

O

Oracle Application Express
browser requirements, 1-2

S

single data grid row
editing, 2-19
single data row
adding annotation, 2-20

W

Websheet applications
about, 1-1, 2-1
about adding charts, 2-26
about adding data, 2-12
about adding data sections, 2-12
about annotations, 2-32
about data grids, 2-12
about data sections, 2-25
about data sources, 2-22
about PL/SQL sections, 2-27
about sections, 2-8
about text sections, 2-9
accessing Presentation Mode, 2-38
adding chart sections, 2-26
adding data sections, 2-25
adding navigation, 2-11
adding new pages, 2-6
adding notes, 2-34
adding PL/SQL sections, 2-27
adding tags, 2-34
adding text sections, 2-9
breadcrumb, 2-2
changing your password, 2-36
common UI elements, 2-2
Control Panel, 2-5
copying a page, 2-7
deleting sections, 2-8
displaying tabular data, 2-13
displaying uploaded images inline, 2-33
editing charts, 2-27
editing page details, 2-7
editing PL/SQL sections, 2-28
editing section order, 2-9
editing section titles, 2-9
editing sections, 2-8
editing text sections, 2-10
emailing, 2-37
including links to uploaded files, 2-33
linking to a page, 2-28
linking to data grid, 2-30
linking to sections, 2-29
linking to URLs, 2-29
logging out, 2-4
markup syntax, 2-28
navigation sections, 2-2
online Help, 2-4
printing, 2-37
running, 2-1
uploading files and images, 2-32
using breadcrumbs, 2-2
using SQL and SQLVALUE syntax, 2-30
viewing Application Directory, 2-40
viewing Page Directory, 2-39
viewing Page History, 2-40
Websheet Search, 2-4