

Oracle® Endeca Information Discovery Studio

Studio User's Guide

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Preface

Endeca Information Discovery Studio is an industry-leading application composition environment and discovery experience that allows business users to easily upload and mash up multiple diverse data sources, and then quickly configure discovery applications - all within the context of an enterprise framework that maintains existing governance and enterprise definitions.

Studio includes world-class search, guided navigation, and filtering, as well as offering an array of powerful interactive visualizations, for rapid intuitive analysis that requires zero training.

About this guide

This guide contains information about using Oracle Endeca Information Discovery Studio to build component-based applications for exploring and analyzing business data from Oracle Endeca Server.

Who should use this guide

The *Studio User's Guide* provides information about using Studio to create and use information discovery applications.

The target audience for this guide includes:

- Users who build information discovery applications
- End users who navigate, search, and analyze the data in an application

Conventions used in this document

The following conventions are used in this document.

Typographic conventions

The following table describes the typographic conventions used in this document.

Typeface	Meaning
User Interface Elements	This formatting is used for graphical user interface elements such as pages, dialog boxes, buttons, and fields.
Code Sample	This formatting is used for sample code phrases within a paragraph.
<i>Variable</i>	This formatting is used for variable values. For variables within a code sample, the formatting is <i>Variable</i> .
File Path	This formatting is used for file names and paths.

Symbol conventions

The following table describes symbol conventions used in this document.

Symbol	Description	Example	Meaning
>	The right angle bracket, or greater-than sign, indicates menu item selections in a graphic user interface.	File > New > Project	From the File menu, choose New, then from the New submenu, choose Project.

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Part I

Introduction to Studio

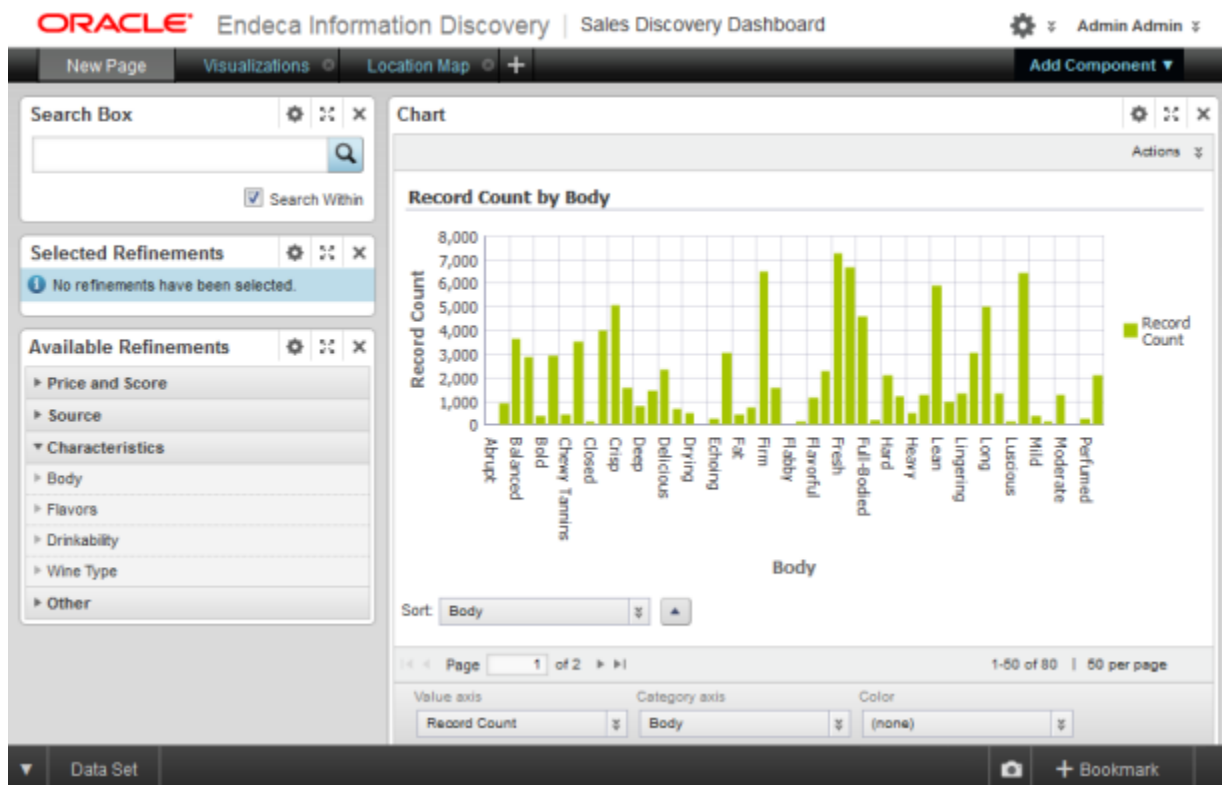


Chapter 1

About Studio

Studio is a web-based tool for building and using applications to search and analyze data from Oracle Endeca Server data domains.

Studio applications promote information discovery, allowing Studio users to uncover previously unknown relationships and trends as they investigate business issues.



The applications can be built quickly using Studio's set of data display and visualization tools.

Each application consists of one or more pages, with each page containing a set of graphical components. Studio components include functions to:

- Navigate to or search for specific data
- Display detailed information about data
- Display graphical representations of the data
- Manipulate and analyze the data
- Highlight specific data values



Chapter 2

Overview of the Studio User Interface

The Studio user interface includes tools for assembling and viewing discovery applications, as well as administrator tools for configuring and monitoring Studio.

[About the user menu](#)

[About the administrator menu](#)

[About the Discovery Applications page](#)

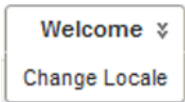
[About the Studio application user interface](#)

[About the Application Settings page](#)

About the user menu

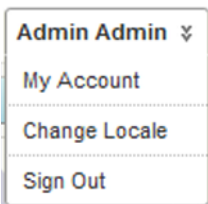
The user menu, located in the upper right corner of Studio, contains options common to all Studio users.

If you are not logged in, then the menu label is **Welcome**, and only the **Change Locale** option is available.



User Menu Option	Purpose
Change Locale	Allows you to change the locale used to display Studio. This includes the language and also default display formats for values.

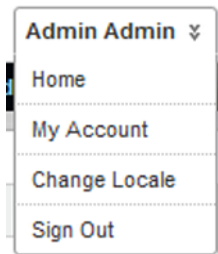
For logged-in users, the **Discovery Applications** page is the Studio home page. It provides access to Studio applications. On the **Discovery Applications** page, options become available to manage your account and log out.



The additional menu options are:

User Menu Option	Purpose
My Account	Allows you to edit your Studio user profile information.
Sign Out	Logs you out of Studio.

When you are within an application, an option is added to return to the **Discovery Applications** page.



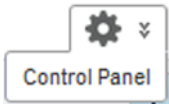
The additional menu option is:

User Menu Option	Purpose
Home	Returns you to the Discovery Applications page.

About the administrator menu

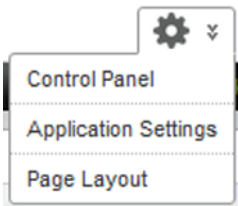
The administrator menu, located to the left of the user menu, contains options for Studio administrators and application administrators.

On the **Discovery Applications** page, the menu only displays for Studio administrators, and only contains an option to display the **Control Panel**.



Administrator Menu Option	Purpose
<p>Control Panel</p>	<p>Displays the Control Panel, which provides access to administrative functions for Studio, including:</p> <ul style="list-style-type: none"> • Monitoring Studio usage • Creating and managing data sources • Creating and managing Endeca Server connections • Configuring the connection to the Provisioning Service • Configuring Studio settings • Monitoring Studio performance • Managing and configuring applications • Managing Studio users and user access <p>For details on using the Control Panel functions, see the <i>Studio Administration and Customization Guide</i>.</p>

Within an application, for both Studio administrators and application administrators, options are added to configure the application and change the page layout.



Administrator Menu Option	Purpose
<p>Application Settings</p>	<p>Displays the Application Settings page, which allows you to configure the application and manage the views and groups for the application data.</p>

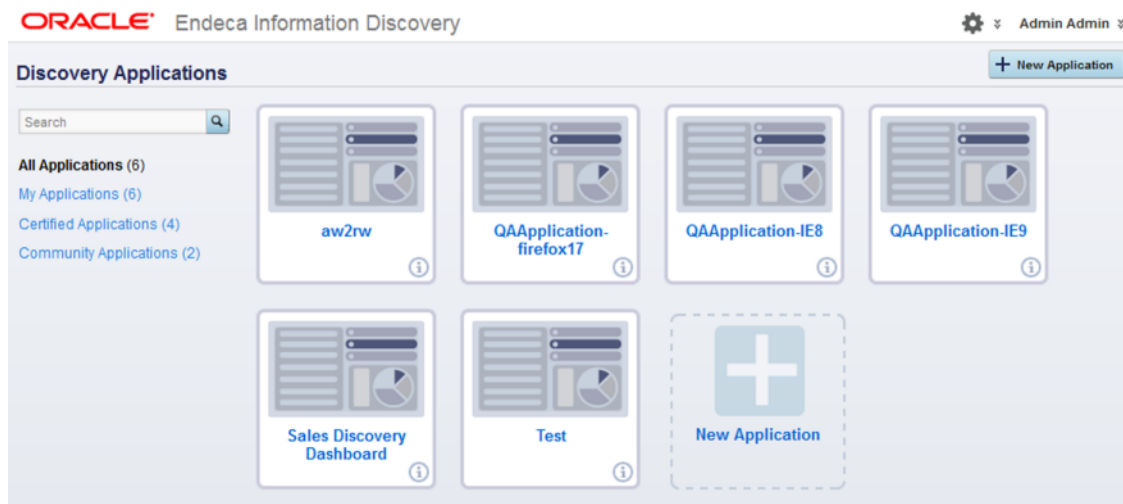
Administrator Menu Option	Purpose
Page Layout	Allows you to apply a different layout to the currently displayed application page.

From the **Control Panel**, you can use the administrator menu to navigate to the **Application Settings** page. From the **Application Settings** page, Studio administrators can use the administrator menu to navigate to the **Control Panel**.

About the Discovery Applications page

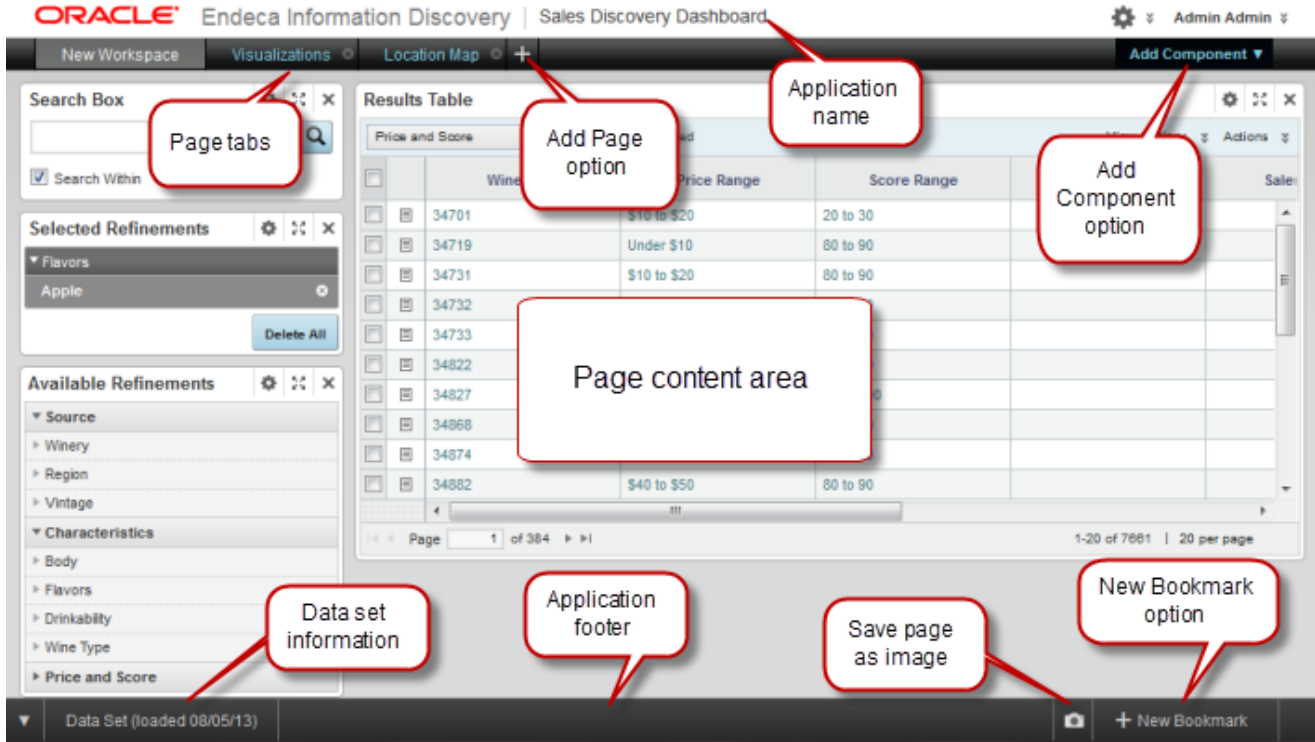
The **Discovery Applications** page is the home page for Studio.

It provides access to Studio applications.



About the Studio application user interface

Studio applications include the following user interface elements.



Item	Description
Application name	The name of the currently displayed application.
Page tabs	The application pages contain Studio components. You use the page tabs to select the page to view. Grouping components across multiple pages instead of on a single page can provide a more useful navigation experience for end users.
Add Page option	Allows users to add a page to the current application.
Add Component option	Allows users to add components to the current page of the application.
Page content area	The page content area for the selected page is where users view and manage the components.

Item	Description
Application footer	<p>The application footer displays at the bottom of every application page. Users can use the expand/collapse arrow at the left to show and hide the footer.</p> <p>The footer includes:</p> <ul style="list-style-type: none"> • Information about the application data • An option to create a screen capture of the current page • A link to create a bookmark

About the Application Settings page

The **Application Settings** page, available from the administrator menu, provides access to functions for configuring the current application and managing the application's data.

The **Application Settings** page includes options to:

- Configure the application. The **Application Configuration** option is selected by default when the **Application Settings** page is first displayed.
- Manage the data sets for the application. For each data set, you can add data, configure a base filter, and enrich the attributes.
- Configure views for the application data. Each view can include attributes from one or more of the application data sets.
- Configure attribute groups for the application views
- Configure refinement rules, to allow refinements to an attribute in one data set to also affect an attribute in another data set
- Localize the application name, application description, page titles, and component titles

The screenshot shows the Oracle Endeca Information Discovery Studio interface. At the top, the breadcrumb is "ORACLE Endeca Information Discovery | Sales Discovery Dashboard". The user is logged in as "Admin Admin". The left sidebar shows the navigation menu with "Application Settings" selected. The main content area is titled "Application Settings" and "Application Configuration". It includes a "Back to Sales Discovery Dashboard" link, "Revert to Last Save" and "Save" buttons, a "Name" field with the value "Sales Discovery Dashboard", and a "Description" field with the text "Dashboard for exploring recent sales data.". Below this is the "Application Access" section set to "Private" and the "Application Membership Access" section with an "Add Members" button. A table shows the current user "Admin Admin" as the "Creator" and a note that "No User Groups added.". At the bottom, there is a link for "Advanced Settings".

Part II

Using Studio for Information Discovery



Chapter 3

Getting Access to Studio

Studio users can have Studio-specific accounts, or may use single sign-on to log in to Studio using an existing account.

[Options for Studio access](#)

[Logging in to Studio](#)

Options for Studio access

Users may be created and managed within Studio, or may be integrated with an external user management system.

For details on configuring how user accounts are managed, including how to integrate with LDAP and single sign-on (SSO), see the *Studio Administration and Customization Guide*.

Logging in to Studio

If you are not logged in automatically using single sign-on, then when you navigate to Studio, the **Sign In** panel is displayed to allow you to log in with either your Studio or LDAP credentials.

To log in to Studio from the **Sign In** panel:

1. Assuming that your user name is your email address, then in the **Email Address** field, type your email address.

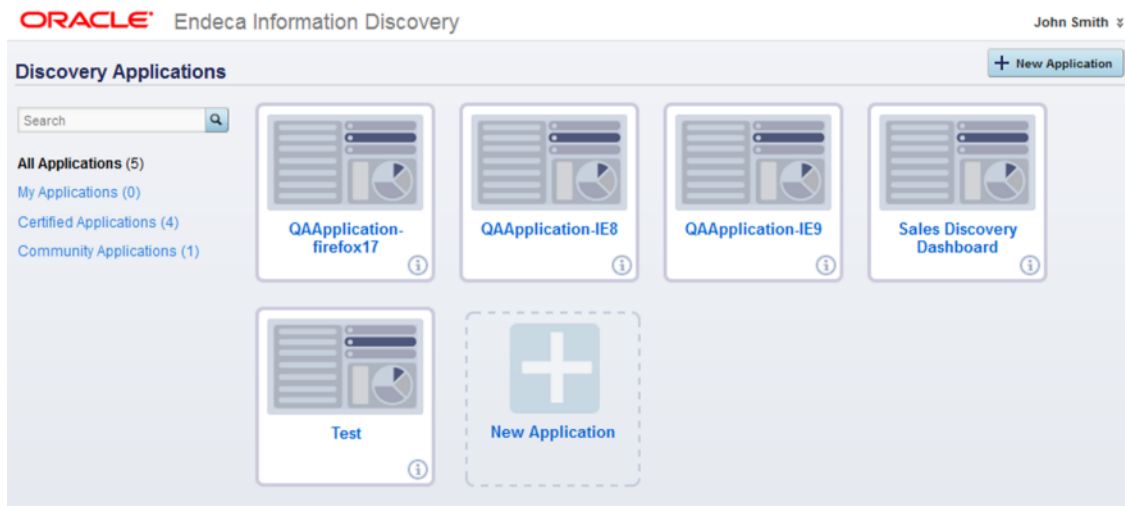
If Studio is configured to use a screen name or user ID instead of an email address, then the field label is updated to reflect the type of user name.

2. In the **Password** field, type your Studio password.

To have Studio remember your login information, check the **Remember Me** checkbox.

3. Click **Sign In**.

The **Discovery Applications** page is displayed.



4. If you forget your password, then to have Studio email it to you:

(a) Click the **Forgot your password?** link.

The forgot password panel is displayed.

To return to the **Sign In** panel, click **Sign In**.

(b) In the **Email Address** field, type your email address.

This must be the address associated with your Studio user account.

(c) In the **Text Verification** field, type the text displayed above the field.

(d) Click **Send New Password**.

Studio resets your password and sends it to your email address.



Chapter 4

Selecting the Locale to Use for Studio

Studio is available in multiple locales. You can select the locale you want to use.

[About locales](#)

[Configuring the locale for your user account](#)

[Using the user menu to select the locale to use](#)

About locales

In Studio, the locale determines the language in which the user interface is displayed, as well as the default formatting for data values such as numbers and dates.

Studio is configured with a default locale, as is each user account.

Studio supports the following locales:

- French
- German
- Italian
- Spanish
- Japanese
- Korean
- Simplified Chinese
- Traditional Chinese
- Portuguese-European

Note that this is a subset of the languages supported by Oracle Endeca Server.

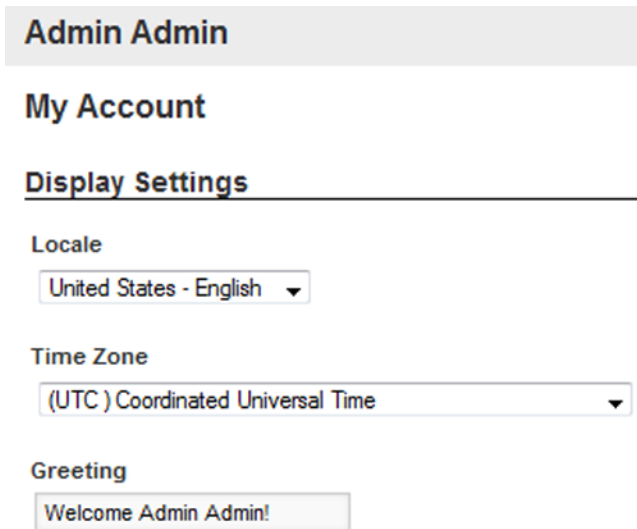
For more details on how Studio determines the locale to use, and how to configure the available and default Studio locales, see the *Studio Administration and Customization Guide*.

Configuring the locale for your user account

When your user account is first created, the preferred locale is set to **Use Browser Locale**, which indicates to use the browser locale for Studio. If Studio doesn't support the browser locale, then Studio uses its default locale.

To select a different preferred locale for your user account:

1. From the user menu, select **My Account**.
2. On the **My Account** page, in the menu at the right, click **Display Settings**.
3. From the **Locale** drop-down list, select your preferred locale.



Admin Admin

My Account

Display Settings

Locale
United States - English ▼

Time Zone
(UTC) Coordinated Universal Time ▼

Greeting
Welcome Admin Admin!

4. To save the change, click **Save**.

Using the user menu to select the locale to use

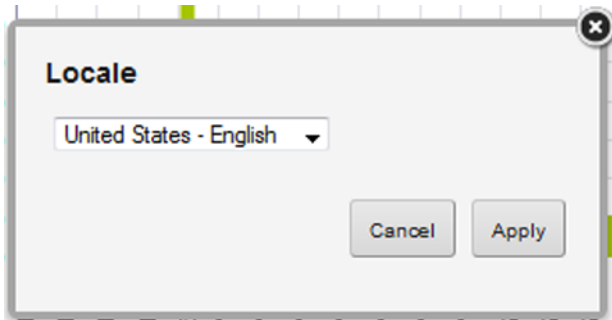
The user menu includes an option to select the locale to use.

If you are logged in to Studio, then if you use the user menu to change the locale, your user account also is updated to reflect that selection.

To select the locale to use:

1. From the user menu, select **Change locale**.

2. On the change locale dialog, from the **Locale** drop-down list, select the locale.



3. Click **Apply**.

The Studio user interface is updated to use the selected locale. This includes:

- User interface labels
- Names of attributes displayed on components
- Values of attributes
- Formatting of data values

Values listed on the **Selected Refinements** component are not affected.

If you are logged in, then your user account also is updated to use the selected locale as your preferred locale.



Chapter 5

Viewing and Using Studio Applications

After you log in to Studio, you can select an available Studio application to view.

[Selecting an application to view](#)

[Navigating within an application](#)

[Displaying information about the application data](#)

[Using common component functions](#)

[Saving a screen capture of an application page](#)

[Removing yourself as a member of an application](#)

[Using an iPad to view Studio applications](#)

Selecting an application to view

The **Discovery Applications** page lists the available applications.

[Displaying the list of available applications](#)

[Displaying information about an application](#)

[Navigating to an application](#)

Displaying the list of available applications

The **Discovery Applications** page displays when you first log in to Studio, and contains the applications that are available to you.



To return to the **Discovery Applications** page from within an application, either:

- From the user menu, select **Home**
- Click the Oracle logo or the Endeca Information Discovery text at the top of the page

By default, the **Discovery Applications** page displays all of the applications that are available to you. To filter the list, you can then either:

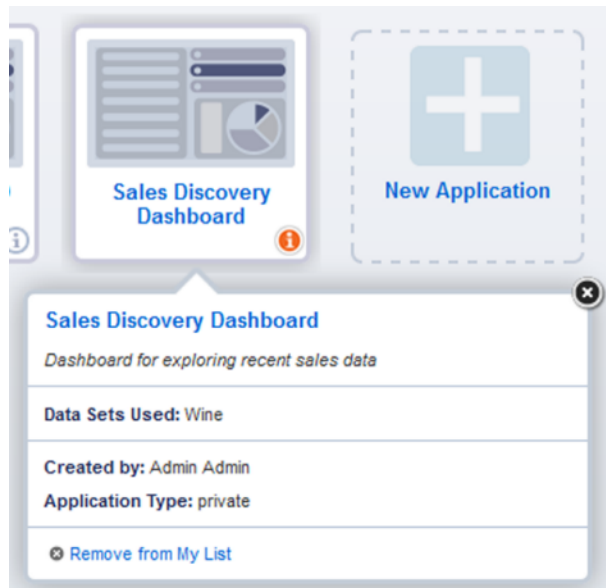
- Click one of the links to display a subset of the available applications:

Application Subset	Description
My Applications	Displays applications for which you are an application administrator. Incomplete applications are not displayed in this list.
Certified Applications	Displays applications that a Studio administrator has certified.
Community Applications	Displays applications that have not been certified.

- Use the filter field at the top to find applications based on their name.

Displaying information about an application

On the **Discovery Applications** page, you use the information icon for the application to display additional information and options for the application.



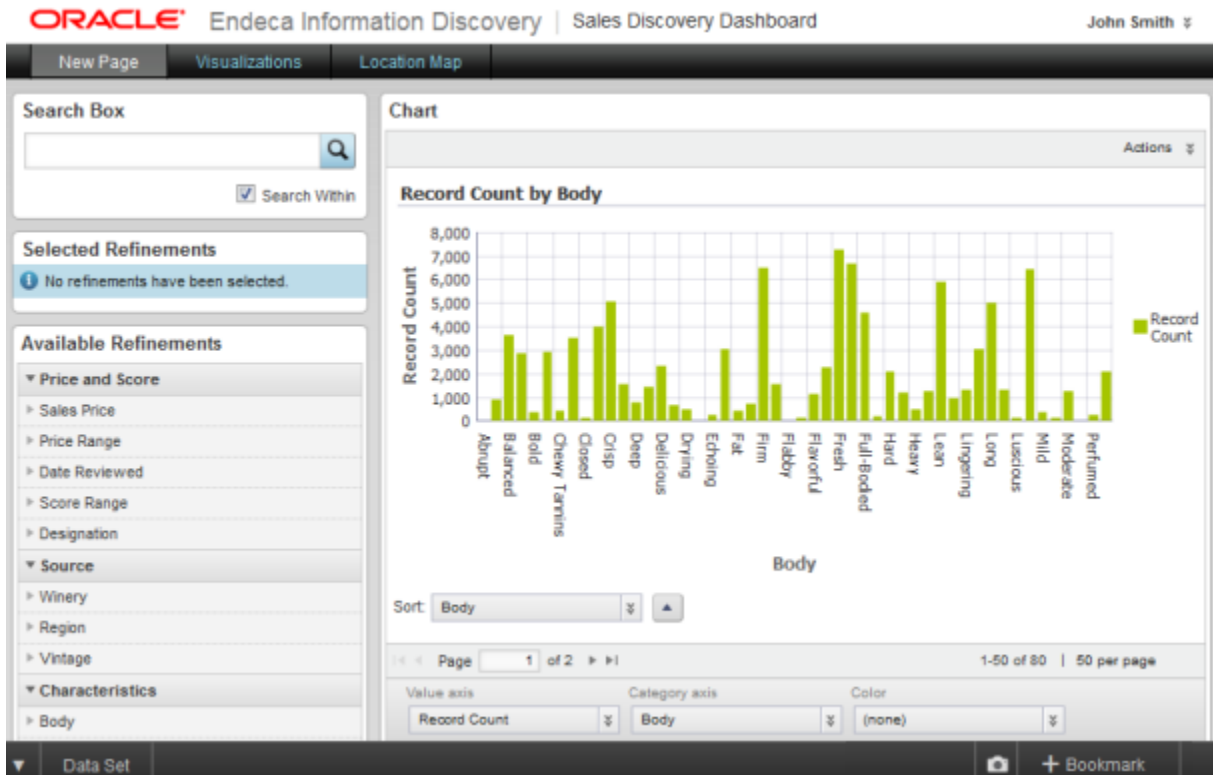
Navigating to an application

On the **Discovery Applications** page, to navigate to an application, click the application tile.

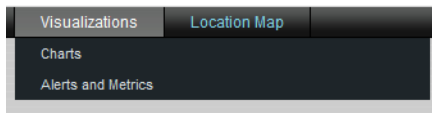
Navigating within an application

Studio applications consist of one or more pages. Each page contains components used to filter or display data.

On the application, each page is represented by a tab. To display a page, click the page tab.



Pages may also have child pages. To display a child page, hover the mouse over the page tab. The list of child pages is displayed. In the list, click the child page.

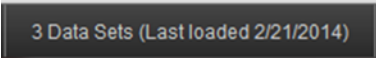


For details on using specific components, see the component documentation.

Displaying information about the application data

The application footer provides access to information about the data sets used by the application.

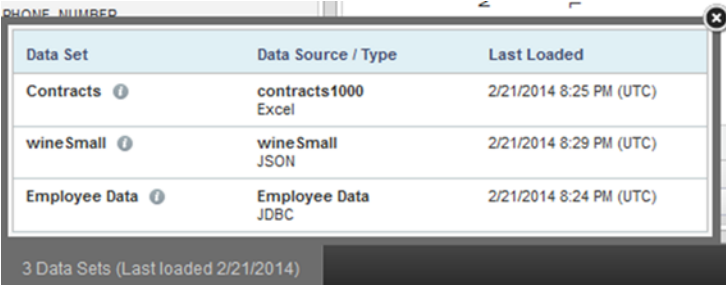
The data set section of the footer initially displays the number of data sets and the date on which data was last loaded.



3 Data Sets (Last loaded 2/21/2014)

The footer includes an indicator if the data is loading or has some other problem.

When you click the data set section of the footer, Studio displays the list of data sets associated with the application.



Data Set	Data Source / Type	Last Loaded
Contracts ⓘ	contracts1000 Excel	2/21/2014 8:25 PM (UTC)
wineSmall ⓘ	wineSmall JSON	2/21/2014 8:29 PM (UTC)
Employee Data ⓘ	Employee Data JDBC	2/21/2014 8:24 PM (UTC)

3 Data Sets (Last loaded 2/21/2014)

For each data set, the list includes:

- The data set name
- The type of data source for the data set
- When the data was last updated
- Information about the status of the data set, to indicate when a data set is loading or has a problem

To display a tooltip that includes the description and filter information, click the information icon for the data set.

Using common component functions

These functions are common to many Studio components.

[Paging through component data](#)

[Using a component to refine data](#)

[Exporting data from a component](#)

[Printing from a component](#)

[Displaying details for a component item](#)

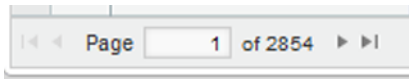
[Comparing items from a component](#)

Paging through component data

Components that display a set of data may be configured to allow you to page through the data. If so, then the component includes a pagination toolbar.

To use the pagination tools to page through component data:

1. To navigate using the paging toolbar:



- To navigate to the next or previous page, click the next or previous page button.
 - To navigate to the first or last page, click the first or last page icon.
 - To jump to a specific page, type the page number in the field, then press **Enter**.
2. To change the amount of data displayed on each page:
 - (a) Click the **x per page** label.
 - (b) From the pop-up list, select the number of items to display per page.



Using a component to refine data

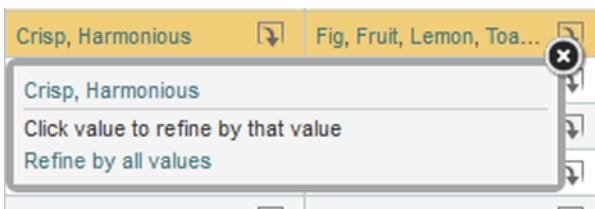
You can use component values to refine the data displayed on the application. For example, you can display only data for a specific region or product line, or only data for sales greater than 5000 dollars.

The **Available Refinements** and **Search Box** components are specifically designed for refinement, but other components can allow you to click attribute values in order to refine the data.

When you click a value that is enabled for refinement, other components that are tied to the same data set are updated to reflect the change. The refinement may also send you to a different page in the application.

For a list of values:

- To refine by an individual value, click that value
- To refine by all of the values, click the icon that is displayed after the list, then click **Refine by all values**.



If you can only refine by one value at a time, then the **Refine by all values** option is not displayed.

For attributes that have a hierarchy, when you select a value at a higher level of the hierarchy, Studio displays the values at the next level of the hierarchy. For example, for a Product Type attribute, the first level of values might be Shirts, Pants, and Shoes. When you refine by Shirts, Studio displays data for the specific shirt types (T-shirts, Dress Shirts, Blouses, Tank Tops).

Date/time values have an implicit hierarchy that uses the available subsets of date/time units. For example, if a component is currently displaying the year for a date value, then when you refine by a specific year, Studio could display data for the months of that year. If you then refine by a specific month, Studio could display data for the days of that month.

Components may also be configured to allow cascading of values. Cascading means that when you refine by a specific attribute value, the component is updated to display values from a different attribute. For example:

1. When you refine by the country United States, the component displays data for all of the states in the United States.
2. When you refine by California, the component displays data for cities in California.

Refinements are always added to the **Selected Refinements** component, to allow you to:

- See what you have refined by
- Remove refinements

See [Using Selected Refinements on page 279](#).

Exporting data from a component

The **Actions** menu for a component can include an option to export data from the component to a CSV file that uses UTF-16LE encoding.

The export option is not available if you are viewing the application on an iPad.

The exported file includes:

Component	Exported Data
Chart	Contains columns for the currently selected dimensions and metrics.
Pivot Table	Contains the data used to create the Pivot Table display.
Record Details	Contains a single row for the displayed data.
Results List	You can select specific records to export. The exported data contains the displayed attributes for the exported records.
Results Table	You can select the specific rows to export. The data includes all of the columns from all of the available column sets. For aggregated tables, only the displayed dimensions are included in the export.

To export data from a component:

1. From the **Actions** menu, select **Export**.

On the export dialog, if the amount of data currently selected to export is greater than the maximum allowed, a warning is displayed indicating that the data will be truncated to the maximum allowed.

2. In the **Name** field, set the name of the exported file.

By default the file name is *ComponentNameYYYY-MM-DD*.

For example, if you export a **Results Table** component on October 5, 2013, then the default file name for the exported data is `ResultsTable2013-10-05.csv`.

3. By default, the exported file uses commas to separate the fields. Under **CSV Format**, to use a custom separator:
 - (a) Click the **Custom separator** radio button.
 - (b) From the **Fields separated by** drop-down list, select the character to use to separate the fields.
 - (c) From the **Fields enclosed by** drop-down list, select whether to use quotes to enclose the values.

You can use single quotes, double quotes, or no quotes.

For example, if you use a pipe as the separator, and enclose the value in single quotes, a row from the exported file might look something like:

```
| '10234' | 'Bordeaux' | 'Valmaison' | 'Bordeaux Philibert Bourgeois' | '$5' |
```

4. Under **Value Formatting**, click a radio button to indicate whether to export the raw data before formatting, or the formatted values.
5. If the data is available in multiple locales, then under **Include data from**, click a radio button to indicate whether to export data for the current locale only, or for all of the available locales.

The localized values are exported in separate columns. For example:

```
Product_Category, Product_Category_zh_CN, Product_Category_es, Product_Category_fr
```

6. If the component has individual records selected, then under **Export**, click a radio button to indicate whether to export the selected records only, or all of the records.
7. Click **Start Export**.
8. When the export is completed, you are prompted to save or open the file.

The prompt varies based on the current browser.

Printing from a component

The component **Actions** menu can include an option to print the component.

When you select the **Print** option, Studio displays a preview of the printout.

At the top of the printout are any refinements that have been applied to the data.

For **Results Table**, only the current page is printed.

For **Pivot Table**, only the currently displayed data is printed.

Displaying details for a component item

Some component hyperlinks display the **Record Details** dialog, which displays information from the current component item. For example, you could display details for a row in a **Results Table**, a record in a **Results List**, or a location on a **Map** component.

The **Record Details** dialog displays attributes within the context of their attribute groups.

If the original item reflects a record from a data set, the **Record Details** dialog displays all of the attribute groups that an administrator configured to include in record details. For example, a **Results List** item may only display a few attributes, but the **Record Details** dialog contains all of the applicable attribute groups for the associated record.

For aggregated data, the **Record Details** dialog only includes the displayed data:

- The dimensions are displayed in their attribute groups
- The metrics are displayed in the Other group

From the **Record Details** dialog, you can print the displayed data, or export the data to a spreadsheet. See [Printing from a component on page 36](#) and [Exporting data from a component on page 35](#).

Comparing items from a component

Some components allow you to compare selected items. If the component supports the compare function, then the component **Actions** menu includes a **Compare** option.

Selecting the items to compare

On the component, to select the records to compare using the **Compare** component:

1. Check the checkbox for each item you want to compare.
2. From the **Actions** menu, select **Compare**.

The selected items are displayed on the **Compare** dialog.

The screenshot shows the 'Compare' dialog box with the following data:

	Record 1	Record 2	Record 3	Record 4
Price and Score (5 attributes)				
Sales Price	\$18.00	\$4.00	\$7.00	\$30.00
Price Range	\$10 to \$20	Under \$10	Under \$10	\$30 to \$40
Date Reviewed	6/15/1993	4/15/1994	4/15/1994	12/15/1994
Base Score	25	78	79	82
Score Range	20 to 30	70 to 80	70 to 80	80 to 90
Source (3 attributes)				
Winery	Adegas Morgadio	Adega Cooperativ...	Roquevale	Bouchard Pere &
Region	Spain	Portugal	Portugal	Burgundy
Vintage	1992	1992	1992	1992
Identification (3 attributes)				
Name	Albarino Rias Baixas	Alentejo Convento ...	Alentejo Tinto da T...	Aloxe-Corton
Description	Dry, tart and crisp,...	Fresh, jammy and ...	Soft, generous an...	Simple and appea
Wine Type	White	Red	Red	Red
Characteristics (4 attributes)				
Body	Crisp	Fresh	Soft	Bright, Simple
Flavors				

If the component items reflect records from the data set, then the **Compare** dialog displays all of the attribute groups configured to be used for record details. For example, a **Results Table** row may only display a few attributes, but the **Record Details** dialog contains all of the applicable attribute groups for the associated record.

If the original items were aggregated, then the **Compare** dialog only includes the displayed data. The dimensions used for aggregation are displayed in their attribute groups, and the metrics are displayed in the Other group.

To restore the initial display for the **Compare** dialog, from the **Actions** menu, select **Reset view**.

Selecting a baseline item

To select an item to be the baseline, in the heading, click the lock icon.

The selected item becomes the first column in the list, and cannot be moved. The lock icon is changed to indicate that the item is the baseline. If another item was previously selected as the baseline, it becomes a non-baseline item.

Compare				
Comparing 3 record(s) to baseline Record 3 0 Record(s) Currently Selected				
Filter attributes...	Record 3	Record 1	Record 2	Record 4
▼ Price and Score (5 attributes)				
Sales Price	\$7.00	\$18.00	\$4.00	\$30.00
Price Range	Under \$10	\$10 to \$20	Under \$10	\$30 to \$40
Date Reviewed	4/15/1994	6/15/1993	4/15/1994	12/15/1994
Base Score	78	78	82	82

To remove the designation as a baseline record, click the lock icon again. The record column remains at the left of the table, but can now be moved.

You can drag non-baseline records left or right in the display, to allow you to do a side-by-side comparison of selected records.

Managing the displayed attributes and attribute groups

You also can drag and drop attribute groups to move them up or down in the display. You can reorder attributes within a group, but cannot drag attributes to other groups.

To expand or collapse an attribute group, click the group name.

To expand all of the attribute groups, from the **Actions** menu, select **Expand all groups**.

To collapse all of the attribute groups, from the **Actions** menu, select **Collapse all groups**.

You can also use the filter field to search for a specific attribute.

Highlighting differences between the items

To highlight the differences in attribute values, from the **Actions** menu, select **Highlight Differences**.

If you haven't selected a baseline, then the **Compare** dialog highlights attribute values that are not the same across all of the selected items.

Wine Type	White	Red	Red	Red
▼ Source (3 attributes)				
Winery	Adegas Morgadio	Adega Cooperativ...	Roquevale	Bouchard Pere &
Region	Spain	Portugal	Portugal	Burgundy
Vintage	1992	1992	1992	1992
▼ Price and Score (5 attributes)				
Sales Price	\$18.00	\$4.00	\$7.00	\$30.00

If there is a baseline, then in the non-baseline items, the **Compare** dialog highlights attribute values that are different from the baseline record:

Score Range	70 to 80	20 to 30	70 to 80	80 to 90
▼ Source (3 attributes)				
Winery	Roquevale	Adegas Morgadio	Adega Cooperativ...	Bouchard Pere &
Region	Portugal	Spain	Portugal	Burgundy
Vintage	1992	1992	1992	1992
▼ Identification (3 attributes)				

When the highlighting is displayed, to remove the highlighting, from the **Actions** menu, select **Hide Highlights**.

Removing items from the display

To remove records from the **Compare** dialog:

1. Check the checkbox for each record to remove.
2. From the **Actions** menu, select **Remove selected**.

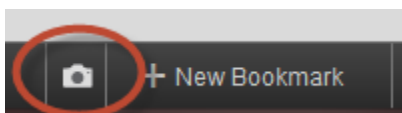
Saving a screen capture of an application page

You can save an image of the currently displayed page. The saved image uses the .png image format. The image shows the current status of the components and data.

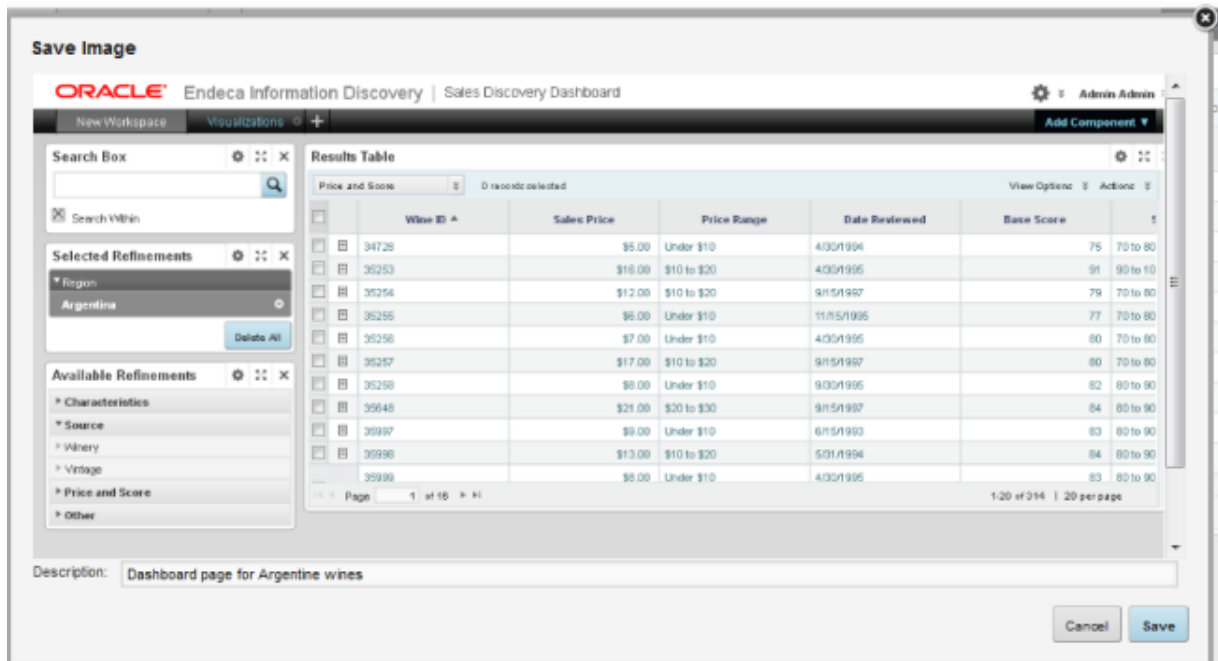
Note that Internet Explorer 8 does not support this option. If you are using Internet Explorer 8, then you cannot save the current page as an image.

To save an image of the current page:

1. In the application footer, click the image capture (camera) icon.



- On the **Save Image** dialog, you can use the **Description** field at the bottom to provide an additional comment to add to the screen capture.



- To save the image, click **Save**.
You are prompted to save or open the image.
The default image file name is `Endeca_Full_Page.png`.

Removing yourself as a member of an application

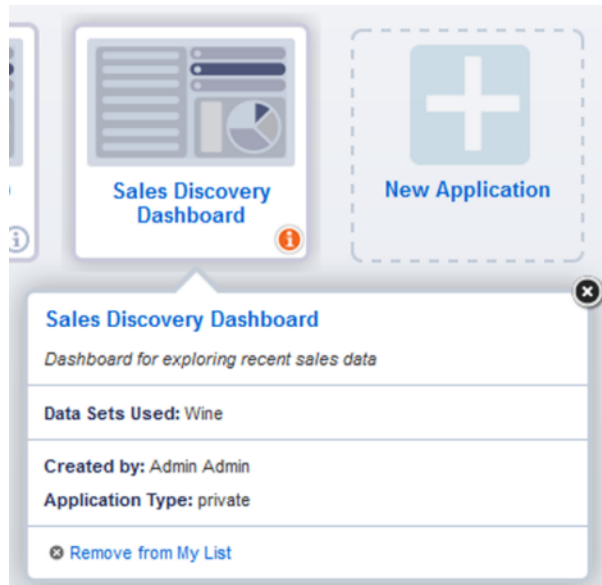
Private applications are only visible to application members. If you are a member of a private application, then from the **Discovery Applications** page, you can remove yourself as a member.

After you remove yourself as a member, the application is no longer visible on the **Discovery Applications** page.

Note that because public applications are visible to all logged-in users, they are always visible whether or not you are a member. There is no option to remove them from the **Discovery Applications** page.

To remove yourself from the membership of a private application:

1. On the **Discovery Applications** page, display the information for the application.



2. Click **Remove from My List**.
3. On the confirmation dialog, click **Remove**.

Using an iPad to view Studio applications

You can use the Safari browser on an iPad to log in to Studio and view Studio applications. You cannot use an iPad to create or configure applications.

While the iPad can support most component functions, it does not support the export function.

When you are viewing an application on an iPad, the component export option is disabled.

Part III

Building and Managing Studio Applications



Chapter 6

About Studio Applications

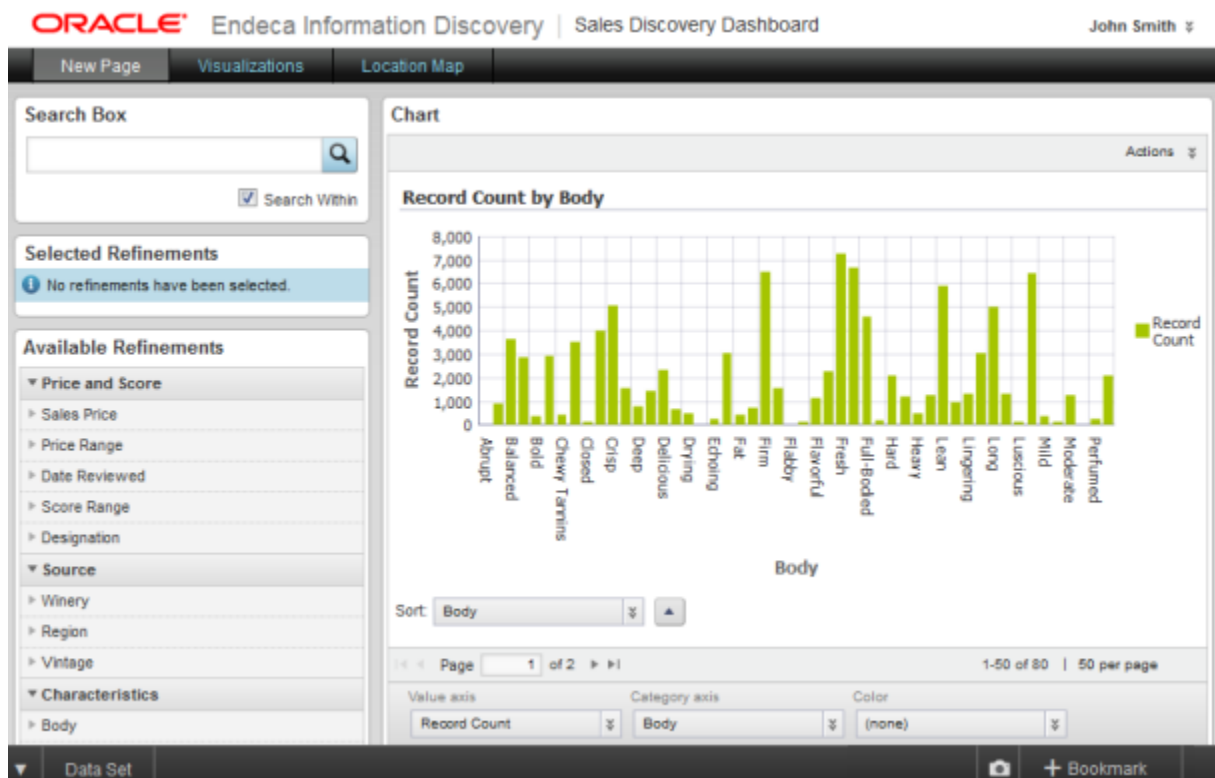
Studio applications are business intelligence tools that provide end users with ways to view, navigate, compare, and analyze data.

How is a Studio application structured?

Sample page layouts for different types of end user tasks

How is a Studio application structured?

Each Studio application is made up of one or more pages. On the Studio user interface, the pages are represented as tabs.



Each page contains a set of components. Each component is designed to perform a specific type of function, such as:

- Displaying lists of records or record attributes
- Filtering the data displayed on other components

- Displaying visual representations of data
- Highlighting specific values

Sample page layouts for different types of end user tasks

As you design your application, here are some sample layouts that you can use as a guide.

[*About these sample layouts*](#)

[*Sample layout - status and alerts dashboard*](#)

[*Sample layout - visualization dashboard*](#)

[*Sample layout - visual discovery and analysis*](#)

[*Sample layout - unstructured visual discovery*](#)

About these sample layouts

You can set up each page in your application to support different types of data exploration and discovery.

For example, one page may enable end users to view and compare different subsets of the data. Other pages may foster more in-depth analysis and visualization of the data. Or you may want to provide a quick visual snapshot of the current data, highlighting important values and showing trends over time.

These sample page layouts show how different components and arrangements of components can support these different types of user tasks. They can be used as a starting point for designing your own applications.

Sample layout - status and alerts dashboard

This type of layout is designed to present end users with a quick summary of key data points, to allow them to monitor changes to the data over time.



The **Summarization Bar** component is used to highlight important details in the data such as key performance indicators.

The **Chart** component provides a visual display of key data.

The **Pivot Table** component provides a broader set of data.

Sample layout - visualization dashboard

This page layout also provides a quick snapshot of data, but in a more visual format.

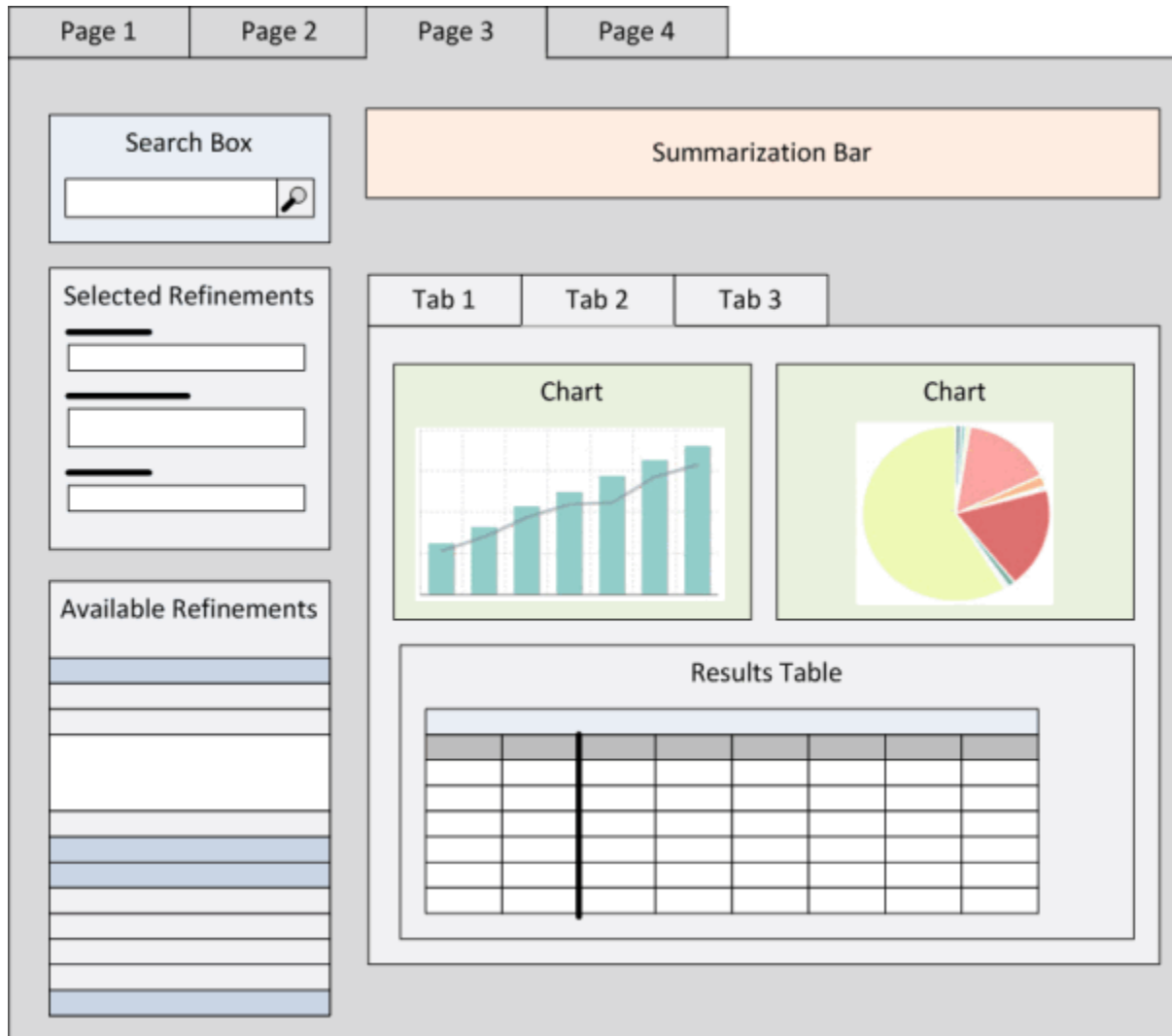


Each **Chart** component highlights a specific set of data, to compare values or show trends.

The **Pivot Table** component provides a broader set of data.

Sample layout - visual discovery and analysis

This type of layout allows end users to explore and filter the data in order to do more analysis and comparison.



The **Search Box** and **Available Refinements** components allow users to refine the displayed data using search terms or selected attribute values. As users refine the data, the other components may be updated to only include the data for the current refinement.

The **Selected Refinements** component displays the current refinements, and is used to remove refinements.

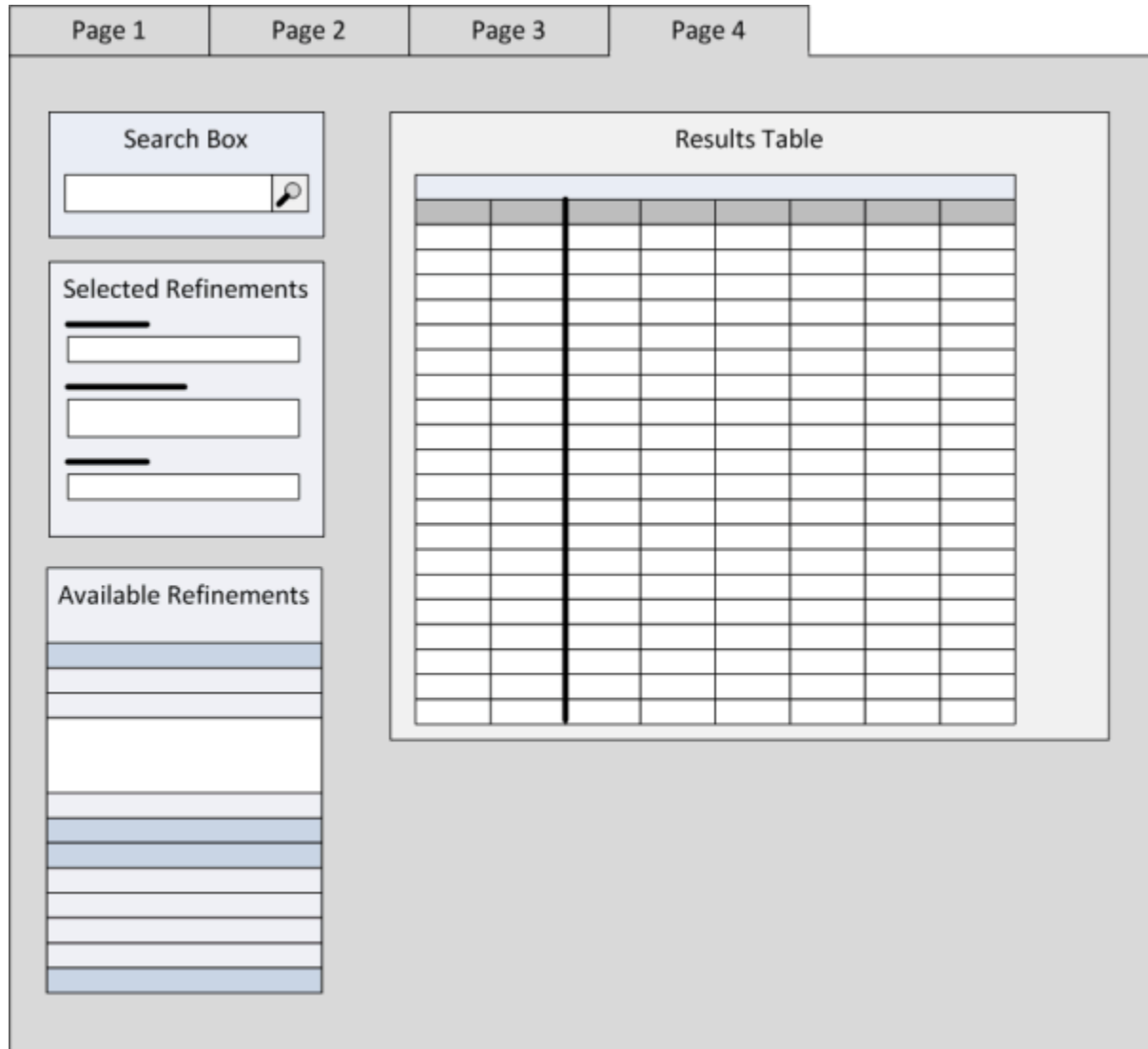
The **Summarization Bar** highlights key values.

The **Results Table** component provides a list of records or generated values, with the **Chart** components providing a more visual analysis of the current data.

This layout also includes a tabbed container to provide different views.

Sample layout - unstructured visual discovery

This type of layout provides basic tools to explore and understand the data.



The **Search Box** and **Available Refinements** components allow users to refine the displayed data using search terms or selected attribute values. As users refine the data, the other components may be updated to only include the data for the current refinement.

The **Selected Refinements** component displays the current refinements, and is used to remove refinements.

The **Results Table** component contains a list of records or generated metrics. From the **Results Table**, users can:

- Display the **Record Details** function to see an expanded list of attributes for a selected record
- Use the **Compare** function to analyze differences among selected records



Chapter 7

Creating a Studio Application

The **Discovery Applications** page includes an option to create a new Studio application, which consists of a single page with a standard set of starting components.

The new application option is only available to Studio administrators and users with the Power User role. Users who only have the User role cannot create applications.

For all applications, you first set the application name and description, then decide the type of data to use.

To create a new application:

1. On the **Discovery Applications** page, click **New Application**.
The **New Discovery Application** page is displayed.
2. In the **Application name** field, type the name of the application.
3. In the **Application description** text area, type a description of the application.
4. Under **Select a Data Source**, click an option to indicate the type of data to use for the application.

New Discovery Application


Cancel Next ▶

To create a new discovery application, simply name the application, then define the initial data to use. A basic application is generated so that you can immediately begin exploring your data. You can later enhance the application by adding and configuring charts, maps, tables, and other components.


Application name:
Sales Discovery Dashboard

Application description:
Dashboard for exploring recent sales data


Select a Data Source:
Click to select the type of source to use for the new data set, then select the data.



Upload a File
Create a data set from your own Excel or JSON file. You can later add other data sets to your application.



Load Data from a Database
Create a data set from Oracle BI or an enterprise database set up by your administrator. You can later add other data sets to your application.



Use a Pre-built Endeca Server
Connect your application to a fully assembled and indexed group of data sets. If you use a managed Endeca Server, you cannot add to or change the underlying data.

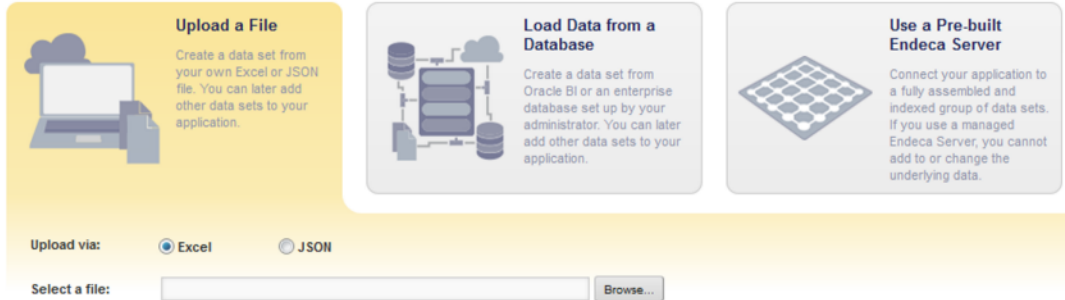
The possible options are:

Data Option	Description
<p>Upload a File</p>	<p>Indicates that you will create the first data set for this application from an uploaded Excel or JSON file.</p> <p>This option is only displayed if:</p> <ul style="list-style-type: none"> • The Provisioning Service has been installed. • The connection to the Provisioning Service has been configured. See the <i>Studio Administration and Customization Guide</i>. • On the Endeca Server, the number of data domains created using the Provisioning Service is less than the maximum allowed. <p>The maximum is configured using the <code>df.provisioningServiceLimit</code> framework setting. For information on configuring framework settings in Studio, see the <i>Studio Administration and Customization Guide</i>.</p>
<p>Load Data from a Database</p>	<p>Indicates that you will create the first data set for this application using an Oracle BI or JDBC data source from the Data Source Library.</p> <p>This option has the same Provisioning Service requirements as the file upload option.</p> <p>In addition, at least one valid data source must be configured on the Data Source Library</p>
<p>Use a Pre-built Endeca Server</p>	<p>Indicates that the application will use an Endeca Server connection created and made available by a Studio administrator.</p> <p>If you connect to a shared Endeca Server, then you cannot add data sets to the application.</p> <p>Whether you can configure the views and attribute groups is based on whether the administrator has configured the Endeca Server domain to be read-only.</p>

- If you selected the **Upload a File** option, then Studio displays fields for selecting the file to upload.

Select a Data Source:

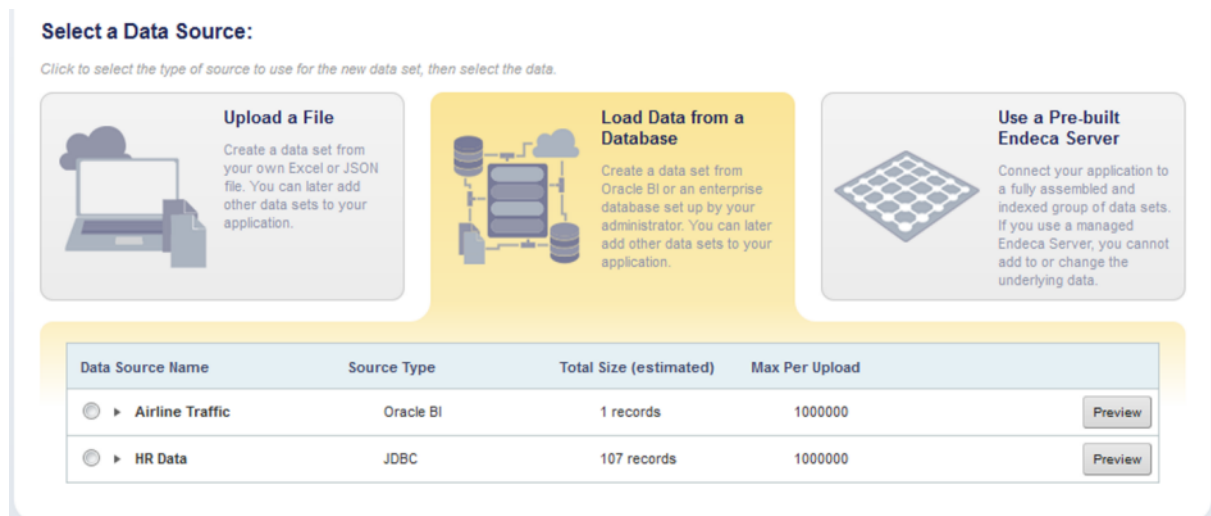
Click to select the type of source to use for the new data set, then select the data.



For details on creating a data set from an uploaded file, see [Creating an application data set from an uploaded file on page 81](#).

After you create the data set, Studio displays the new application.

- If you selected the **Load Data from a Database** option, then Studio displays the list of available data sources.



For details on creating a data set from the **Data Source Library**, see [Creating an application data set from the Data Source Library on page 83](#)

After you create the data set, Studio displays the new application.

7. If you selected the **Use a Pre-built Endeca Server** option:

- (a) From the drop-down list, select the Endeca Server connection to use for the application.

Select a Data Source:

Click to select the type of source to use for the new data set, then select the data.

Upload a File
Create a data set from your own Excel or JSON file. You can later add other data sets to your application.

Load Data from a Database
Create a data set from Oracle BI or an enterprise database set up by your administrator. You can later add other data sets to your application.

Use a Pre-built Endeca Server
Connect your application to a fully assembled and indexed group of data sets. If you use a managed Endeca Server, you cannot add to or change the underlying data.

Select a managed data connection: ▼

- (b) Click **Done**.

Studio displays the new application.

The new application contains a page for each data set in the selected Endeca Server connection.

Each page contains the same default set of components, and is named for the corresponding data set.



Each Studio application is made up of one or more pages that you create and maintain.

[Adding a page](#)

[Renaming a page](#)

[Changing the layout of a page](#)

[Deleting a page](#)

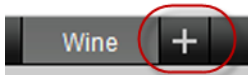
Adding a page

When you create a new Studio application, it consists of a single page containing **Search Box**, **Selected Refinements**, **Available Refinements**, and **Results Table** components. You can then add additional pages.

Adding pages to your application maximizes application logic while minimizing visual clutter. Spreading components among several pages also helps improve the performance of the application.

To add a page to your Studio application:

1. Click the add page icon.



An empty page label is created.

2. In the label field, type a name for your new page.



3. Click **Save**.

A new page tab is added to the application.

After you create the page, you can add Studio components to it. See [Adding and Configuring Studio Components on page 182](#).

Renaming a page

After you create a page, you can change the display name that appears on its tab.

When you rename a page, you are only changing the display name, so you do not have to change any existing page transitions.

To rename a page:

1. Click the page tab.
2. Click the page tab again.

The page name is displayed in an editable field.



3. In the field, type the new name.
4. Click **Save**.

You can also use the **Localization** page to edit and localize the page name. See [Localizing the application name, description, page names, and component titles on page 61](#).

Changing the layout of a page

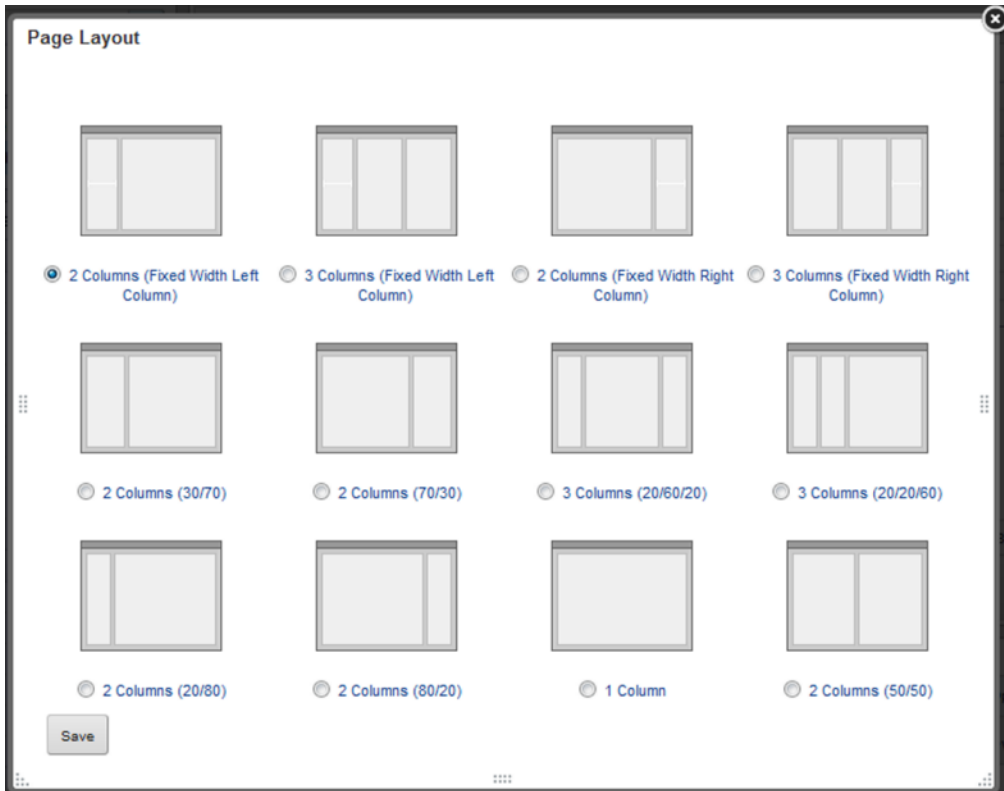
Studio allows you to select the layout to use for each page in your application.

The page layout determines how components are organized on each page. A page may have one, two, or three columns. One column width may be fixed, or all of the column widths may be proportional.

To change the layout of a page:

1. Click the page tab.
2. From the administrator menu, select **Page Layout**.

3. On the **Page Layout** dialog, click the radio button for the layout you want to apply to the page.



4. Click **Save**

The new layout is applied to the page, with any existing components organized accordingly.

Deleting a page

You can delete pages from the application. When you delete a page, any components on the page also are deleted.

You cannot delete the currently selected page. Before deleting a page, you must navigate to a different page.

To delete a page:

1. Navigate to a different page from the one you want to delete.
2. Click the delete icon in the top corner of the page that you want to delete.
A delete confirm prompt is displayed.
3. To delete the page, click **OK**.

When you delete a page, any bookmarks created for that page are also deleted.



Chapter 9

Managing Studio Application Access and Membership

Applications can have different levels of access for different users.

[Configuring the application type](#)

[Managing membership in an application](#)

[Exception to application access rules for Studio administrators](#)

Configuring the application type

The application type determines whether the application is visible to users on the **Discovery Applications** page.

The application types are:

Application Type	Description
Public	<p>The application is visible to all logged-in users, and all logged-in users can select the application in order to view public pages.</p> <p>Application members can also see private pages.</p> <p>Membership must be granted by an application administrator.</p> <p>Applications created by Studio administrators from the Applications page on the Control Panel are by default public applications.</p>
Private	<p>The application is visible only to application members.</p> <p>Membership must be granted by an application administrator.</p> <p>Applications created from the Discovery Applications page are by default private applications.</p>

From the **Application Settings** page, to change the application type for an application:

1. On the **Application Configuration** page, from the **Application Access** drop-down list, select the application type.

Application Configuration

Name:

Description:

Application Access: ?

Application Member: ?

Users	User Groups
Admin Admin Creator	No User Groups added.

▶ **Advanced Settings**

2. To save the change, click **Save**.

Managing membership in an application

Applications can have members with different application roles.

[Types of application roles](#)

[Adding and removing application members](#)

Types of application roles

Within an application, a user may either be a simple member or an administrator.

These different levels of members have different access to the application content and membership:

Membership Level	Description
Application member	<p>Application members have view access to all of the content in an application, but cannot edit or configure the application or its membership.</p> <p>This is the default application role for a new application member.</p>

Membership Level	Description
Application administrator	<p>Application administrators have complete control over an application. They can edit the application content, configure the application, and control application membership, including whether a member is an administrator.</p> <p>The user who creates the application is automatically an application administrator.</p> <p>An application administrator can also assign other users as application administrators.</p>

Adding and removing application members

Application administrators can use the **Application Configuration** page to add and remove application members. They can also determine whether a member is an application administrator.

You can add members individually, or by user group. Note that user groups cannot be application administrators.

To add and remove members:

1. From the administrator menu, select **Application Settings**.

The **Application Settings** page is displayed, with the **Application Configuration** option selected automatically.

At the bottom of the page is the current list of application members.

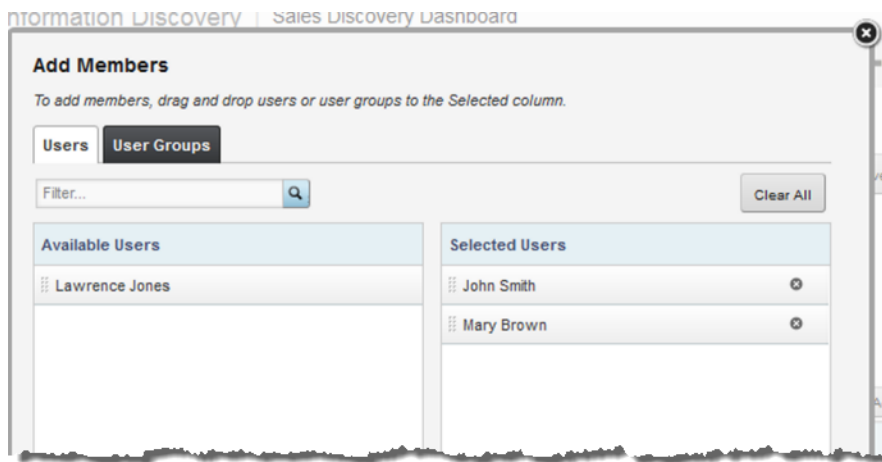
The screenshot shows the 'Application Configuration' page. At the top right are 'Revert to Last Save' and 'Save' buttons. The 'Name' field contains 'Sales Discovery Dashboard'. The 'Description' field contains 'Dashboard for exploring recent sales data.'. The 'Application Access' dropdown is set to 'Private'. Below this is the 'Application Membership Access' section with an 'Add Members' button. It contains a table with two columns: 'Users' and 'User Groups'. The 'Users' column lists 'Admin Admin' with the role 'Creator'. The 'User Groups' column contains the text 'No User Groups added.'. At the bottom left, there is a link for 'Advanced Settings'.

2. To add new members to the application:
 - (a) Click the **Add Members** button above the member list.

The **Add Members** dialog is displayed.

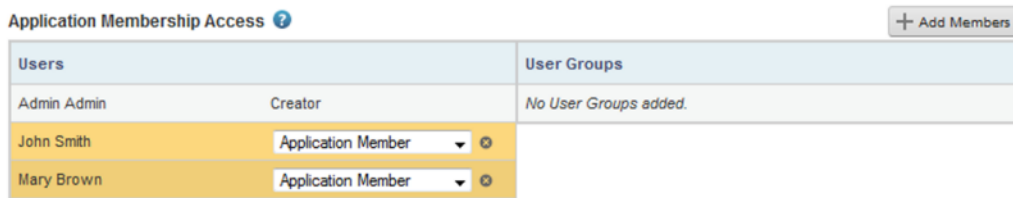
On the **Users** and **User Groups** tab, the **Available** list shows the available users or groups.

- (b) To select a user or group to add as a new member, drag the user or group from the **Available** list to the **Selected** list.



- (c) To clear the list of selected users or groups, click **Clear All**.
- (d) When you finish selecting the new members, click **Add**.

The new members are added to the list on the **Application Configuration** page. They are initially added as application members.



- In the **Users** list, you can use the drop-down list next to each member to change them into an administrator.
User groups cannot be made into administrators.
- To remove a user or group from the application membership, click the delete icon next to that user or group.
You cannot remove the original creator of the application.
- To save the changes to the application membership, click **Save**.

Exception to application access rules for Studio administrators

For users who have the Administrator user role in Studio (as opposed to being an application administrator), the application access rules do not apply. They always have unlimited access to all applications and pages.



Chapter 10

Configuring and Deleting Studio Applications

Application administrators and Studio administrators can configure and delete applications.

Localizing the application name, description, page names, and component titles

Deleting an application

Localizing the application name, description, page names, and component titles

On the **Application Settings** page, you use the **Localization** page to localize the application name, description, page names, and component titles.

If you localize these items, then when end users select a different locale, these items can be displayed in the correct languages.

To localize the application name, description, page names, and component titles:

1. From the administrator menu, select **Application Settings**.
2. On the **Application Settings** page, in the menu, click **Localization**.

The **Localization** page contains a table listing:

- Application name
- Application description
- Pages

- Under each page, the list of components

Localization

Select a locale to customize text for that language and location.
 To change default values for all locales, edit "United States | English" locale values.

Revert to Last Save Save

United States | English ▼

Element	Use Current Default	Override Default
Application Name	<input type="radio"/>	<input checked="" type="radio"/> Sales Discovery Dashboard
Application Description	<input type="radio"/>	<input checked="" type="radio"/> Dashboard for exploring recent sales data.
Page Title	<input type="radio"/>	<input checked="" type="radio"/> Location Map
Component:Map	<input checked="" type="radio"/> Map	<input type="radio"/>
Page Title	<input type="radio"/>	<input checked="" type="radio"/> Visualizations
Component:Pivot Table	<input checked="" type="radio"/> Pivot Table	<input type="radio"/>
Component:Summarization Bar	<input checked="" type="radio"/> Summarization Bar	<input type="radio"/>
Component:Tag Cloud	<input checked="" type="radio"/> Tag Cloud	<input type="radio"/>
Page Title	<input type="radio"/>	<input checked="" type="radio"/> Results Dashboard
Component:Chart	<input checked="" type="radio"/> Chart	<input type="radio"/>
Component:Available Refine...	<input checked="" type="radio"/> Available Refinements	<input type="radio"/>
Component:Search Box	<input checked="" type="radio"/> Search Box	<input type="radio"/>
Component:Selected Refine...	<input checked="" type="radio"/> Selected Refinements	<input type="radio"/>
Component:Results Table	<input checked="" type="radio"/> Results Table	<input type="radio"/>

For the application name and description, you can only localize these values in other languages. You use the **Application Configuration** page to change the default values. For page names and component titles, you can change the value for both the default language and for other languages.

3. To provide localized values for a specific locale:
 - (a) From the locale drop-down list, select the locale.

By default, each item in the list has the **Use Current Default** radio button selected, indicating to use the value for the default locale.

Localization

Select a locale to customize text for that language and location.
 To change default values for all locales, edit "United States | English" locale values.

Revert to Last Save Save

Spain | Spanish

Element	Use Current Default	Replace Default
Application Name	<input checked="" type="radio"/> Sales Discovery Dashboard	<input type="radio"/>
Application Description	<input checked="" type="radio"/> Dashboard for exploring recent sales data.	<input type="radio"/>
Page Title	<input checked="" type="radio"/> Location Map	<input type="radio"/>
Component:Map	<input checked="" type="radio"/> Mapa	<input type="radio"/>
Page Title	<input checked="" type="radio"/> Visualizations	<input type="radio"/>
Component:Pivot Table	<input checked="" type="radio"/> Tabla dinámica	<input type="radio"/>
Component:Summarization Bar	<input checked="" type="radio"/> Barra de resumen	<input type="radio"/>
Component:Tag Cloud	<input checked="" type="radio"/> Conjunto de Etiquetas	<input type="radio"/>
Page Title	<input checked="" type="radio"/> Results Dashboard	<input type="radio"/>
Component:Chart	<input checked="" type="radio"/> Gráfico	<input type="radio"/>
Component:Available Refine...	<input checked="" type="radio"/> Acotaciones disponibles	<input type="radio"/>
Component:Search Box	<input checked="" type="radio"/> Cuadro de Búsqueda	<input type="radio"/>
Component:Selected Refine...	<input checked="" type="radio"/> Acotaciones seleccionadas	<input type="radio"/>
Component:Results Table	<input checked="" type="radio"/> Tabla de resultados	<input type="radio"/>

- (b) For each item you want to localize, click the **Replace Default** radio button.
 A field for the localized value is displayed.
 - (c) In the field, type the localized value, then press **Enter**.
4. To save the changes to the localization, click **Save**.

Deleting an application

From the **Discovery Applications** page, application administrators and Studio administrators can delete applications from Studio.

When you delete an application, if:

- It is connected to data that was created from a file upload or the **Data Source Library**, and
- No other applications are connected to that Endeca Server data domain

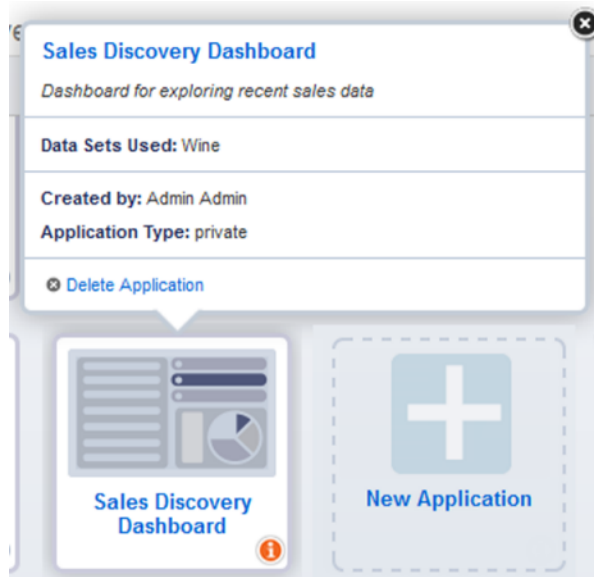
then the associated Endeca Server connection, as well as the Endeca Server data domain, are also deleted.

For applications created by linking to a shared Endeca Server connection, the data is not deleted.

From the **Discovery Applications** page, to delete an application from Studio:

1. Click the information icon for the application.

2. On the application details panel, click the **Delete Application** link.



When you delete an application, Studio automatically deletes any bookmarks for that application.



Chapter 11

Recommendations for Better Performance

When building a Studio application, to prevent the application from slowing down, keep the following recommendations in mind.

Reduce the number of components per page

Reduce the number of displayed records

Display the minimum number of columns needed

Reduce the number of components per page

One way to ensure good performance is to keep the number of components per page down to the minimum needed.

Because each component makes a separate query to the Endeca Server, adding a component adds additional work to load the page.

Rendering each component also adds to the work.

To help avoid this issue, you can group components across multiple pages. For example, you can have one page devoted to basic data exploration, and another with charts for data analysis.

Reduce the number of displayed records

Components may include a threshold setting that controls the maximum number of records to display or process. For better performance, you should make this value relatively small.

The components do not display content until the number of records is lower than the defined threshold. A smaller threshold allows the page to perform better when working with large sets of data.

Display the minimum number of columns needed

For components such as **Results Table**, **Pivot Table**, and **Chart**, only display the columns you need.

On a similar note, for the **Available Refinements** component, only display the attribute groups you need, and avoid expanding attribute values by default.

Retrieving all of the data needed to generate a large number of columns can cause the components to render much more slowly.

For the **Results Table**, you can use attribute groups to limit the number of columns shown at any given time.



Chapter 12

Creating Links to Studio Applications

Studio uses a concept called deep linking to allow users to construct URLs to navigate to a page in a Studio application.

[About deep links](#)

[Basic syntax for the deep link URL](#)

[Navigating to a specific tab on a Tabbed Component Container](#)

[Specifying the locale to use in a deep link URL](#)

[Adding filters to a deep link URL](#)

[Notes on the length of deep link URLs](#)

[Examples of deep link URLs](#)

About deep links

Deep links are essentially external bookmarks to a Studio application. They also can specify the filter state for the application data.

Deep links are most useful for integrating with other systems. For example, when a user is viewing sales data in your accounting system, you can add a link to a Studio application to allow them to explore related data.

Note that Studio does enforce security when displaying a page from a deep link. The user is prompted to log in, and if the user does not have permission to see the page, then Studio displays an error. In addition to using the filters provided in the deep link, the page only displays data that the user has access to.

Basic syntax for the deep link URL

The basic deep link URL contains the path to a Studio application page.

The general form of the URL is:

```
http://<portalhost>:<port>/<pathToPage>
```

Where:

- *<portalhost>* is the Studio server name.
- *<port>* is the Studio port.
- *<pathToPage>* is the path from Studio to the specific page.

For a simple configuration, the path is `eid/web/<application friendly URL>/<internalPageName>`.

The application friendly URL is by default the original application name with spaces and special characters removed. For example, for an application named Sales Discovery Dashboard, the friendly URL is `sales-discovery-dashboard`.

You can view and edit the application friendly URL from the **Advanced Settings** section of the **Application Configuration** page.

The internal page name is the page name used in the URL, which is different from the label on the page tab. The internal page name is the original page name with any spaces and special characters removed. For example, for a page named **Data Results**, the internal page name is **data-results**.

Here is an example of a basic deep link URL:

```
http://localhost:8080/eid/web/sales-discovery-dashboard/data-results
```

Navigating to a specific tab on a Tabbed Component Container

If the page you are navigating to includes a **Tabbed Component Container**, then you use the `pageTransitionTabState` parameter to direct the user to a specific tab.

The basic format for a deep link URL that specifies a **Tabbed Component Container** tab is:

```
http://<portalhost>:<port>/<pathToPage>?com.endeca.discovery.  
pageTransitionTabState=<tabcomponentname>[<tabnumber>]
```

Where:

- `<tabcomponentname>` is the name of the component.
- `<tabnumber>` is the number of the tab.

For example, to display the second tab on a component named **ChartTabs**, the value of `pageTransitionTabState` would be:

```
pageTransitionTabState=ChartTabs[2]
```

Specifying the locale to use in a deep link URL

The deep link URL can include the locale to use.

To specify the locale, add the `doAsUserLanguageId` parameter to the URL:

```
http://localhost:8080/eid/web/sales-discovery-dashboard/data-results?doAsUserLanguageId=<localeID>
```

Where `<localeID>` is the Java locale ID for the locale. For example, to display Studio in simplified Chinese:

```
http://localhost:8080/eid/web/sales-discovery-dashboard/data-results?doAsUserLanguageId=zh_CN
```

If the provided locale is not valid, then Studio reverts to the default locale.

Adding filters to a deep link URL

To set the initial state of the data as part of the deep link URL, you add the `deeplink` parameter to the URL.

Note that Studio ignores any filters for base filter attributes.

The basic format syntax for the deep link filter is:

```
http://<portalhost>:<port>/<pathToPage>?deeplink=[<dataState>]
```

Where `<dataState>` contains the corresponding filters to apply, either:

```
deeplink=[{"queryFunctions": [<queryFunctionFilters>]}
```

or

```
deeplink=[{"navByValue": {<navByValueFilters>}}]
```

If the deep link is also pointing to a specific tab on a **Tabbed Component Container** (see [Navigating to a specific tab on a Tabbed Component Container on page 67](#)), then the full URL syntax is:

```
http://<portalhost>:<port>/<pathToPage>?com.endeca.discovery.  
pageTransitionTabState=<tabcomponentname>[<tabnumber>]&deeplink=[<dataState>]
```

The filters use JSON syntax.

Types of queryFunctions filters

The `queryFunctions` parameter can include the following types of filters:

- `DataSourceFilter`
- `SelectionFilter`
- `RefinementFilter`
- `NegativeRefinementFilter`
- `RangeFilter`
- `SearchFilter`

DataSourceFilter

A `DataSourceFilter` uses EQL to filter the data.

A `DataSourceFilter` is not added to the **Selected Refinements** component.

The properties for a `DataSourceFilter` are:

Property	Description
<code>filterString</code>	<p>The EQL snippet containing the filter information.</p> <p>This is essentially the content of a <code>WHERE</code> clause for an EQL statement.</p> <p>For example:</p> <pre>"Regions='Napa Valley' and P_Price<40"</pre> <p>Remember that if an attribute name contains EQL reserved characters, such as a dot, then the attribute name must be enclosed in double quotes. Because the filters use JSON syntax, you must also use a backslash to escape those double quotes.</p> <p>For example:</p> <pre>"\"wine.region\"='Napa Value' "</pre> <p>For details on EQL syntax, see the <i>Oracle Endeca Server EQL Guide</i>.</p>
<code>viewKey</code>	<p>The key name (not the display name) of the data set against which to execute the EQL.</p>

In the following example, the data is filtered to only show records from the Napa Valley region with a price lower than 40 dollars.

```
"queryFunctions":[{"class":"DataSourceFilter",
"filterString":"Regions='Napa Valley' and P_Price<40",
"viewKey":"Wines"}]
```

SelectionFilter

You can also use `SelectionFilter`. `SelectionFilter` uses the same syntax as `DataSourceFilter`. Also like `DataSourceFilter`, `SelectionFilter` is not added to the **Selected Refinements** component.

For example:

```
"queryFunctions":[{"class":"SelectionFilter",
"filterString":"WineType='White' ",
"viewKey":"Wines"}]
```

RefinementFilter

A `RefinementFilter` is used to filter data to include records with the provided attribute values. The properties for a `RefinementFilter` are:

Property	Description
<code>attributeValue</code>	String The attribute value to use for the refinement.
<code>attributeKey</code>	String The attribute key. Identifies the attribute to use for the refinement.
<code>multiSelect</code>	AND OR NONE For multi-select attributes, how to do the refinement if the filters include multiple values for the same attribute. If set to <code>AND</code> , then matching records must contain all of the provided values. If set to <code>OR</code> , then matching records must contain at least one of the provided values. If set to <code>NONE</code> , then multi-select is not supported. Only the first value is used for the refinement.
<code>viewKey</code>	The key name (not the display name) of the data set that contains the attribute.

In the following example, the data is refined to only include records that have a value of 1999 for the Year attribute.

```
"queryFunctions": [{
  "class": "RefinementFilter",
  "attributeValue": "1999",
  "attributeKey": "Year",
  "viewKey": "Wines"
}]
```

NegativeRefinementFilter

A `NegativeRefinementFilter` is used to filter data to exclude records that have the provided attribute value. The properties for a `NegativeRefinementFilter` are:

Property	Description
<code>attributeValue</code>	String The attribute value to use for the refinement.

Property	Description
attributeKey	String The attribute key. Identifies the attribute to use for the refinement.
attributeType	BOOLEAN STRING DOUBLE LONG GEOCODE DATETIME TIME DURATION The type of value to use for the refinement. The default is STRING. If the attribute is a standard attribute of a type other than string, then you must provide the type.
attributeValueName	String Optional. The value to display on the Selected Refinements component for the refinement. If you do not provide a value for attributeValueName, then the Selected Refinements component displays the value of attributeValue. You may want to provide a separate display value if the selected attribute is a managed attribute for which the value names are different from the actual stored value.
ancestors	String List Optional. A list of the display names of the ancestor values to display on the Selected Refinements component. You would most likely want to provide ancestor values when selecting a managed attribute value from a value hierarchy.
viewKey	The key name (not the display name) of the data set that contains the attribute.

In the following example, the data is refined to only include records that do NOT have a value of Washington for the Region attribute. Because Region is a string attribute, no other configuration is needed.

```
"queryFunctions":[{
  "class":"NegativeRefinementFilter",
  "attributeValue":"Washington",
  "attributeKey":"Region",
  "viewKey":"Wines"
}]
```

In the following example, the data is refined to only include records that do NOT have a value of 1997 for the P_Year attribute. Because P_Year is not a string attribute, the attribute type LONG is specified.

```
"queryFunctions":[{
  "class":"NegativeRefinementFilter",
  "attributeValue":"1997",
  "attributeKey":"P_Year",
  "attributeType":"LONG",
}]
```

```
"viewKey": "Wines"
}]
```

In the following example, the data is refined to only include records that do NOT have Caterer as the value for the Outlet attribute. The values for Outlet are stored as codes, so a display name to use for the refinement is provided. Also, Outlet is a hierarchical attribute, and the refinement indicates that Caterer is a subcategory of Nonstore Retailers under the category Retail Sales.

```
"queryFunctions": [{
  "class": "NegativeRefinementFilter",
  "attributeValue": "454210",
  "attributeKey": "Outlet",
  "attributeValueName": "Caterer",
  "ancestors": ["Retail Sales\\", "Nonstore Retailers\\"],
  "viewKey": "Wines"
}]
```

RangeFilter

A RangeFilter is used to filter data to include records with attribute values within the specified range. The properties for a RangeFilter are:

Property	Description
attributeKey	String The attribute key. Identifies the attribute to use for the filter.
rangeOperator	LT LTEQ GT GTEQ BTWN GCLT GCGT GCBTWN The type of comparison to use. <ul style="list-style-type: none"> • LT - Less than • LTEQ - Less than or equal to • GT - Greater than • GTEQ - Greater than or equal to • BTWN - Between. Inclusive of the specified range values. • GCLT - Geocode less than • GCGT - Geocode greater than • GCBTWN - Geocode between
rangeType	DECIMAL INTEGER DATE GEOCODE TIME DURATION The type of value that is being compared.

Property	Description
selectionLevel	<p>YEAR MONTH DAY</p> <p>If <code>rangeType</code> is <code>DATE</code>, then this is the date/time subset to use for the range.</p> <ul style="list-style-type: none"> • <code>YEAR</code> - Use year for the range. This is the default. • <code>MONTH</code> - Use year-month for the range. • <code>DAY</code> - Use year-month-day for the range.
value1	<p>Numeric</p> <p>The value to use for the comparison.</p> <p>For <code>BTWN</code>, this is the low value for the range.</p> <p>For the geocode range operators, the origin point for the comparison.</p>
value2	<p>Numeric</p> <p>For a <code>BTWN</code>, this is the high value for the range.</p> <p>For <code>GCLT</code> and <code>GCGT</code>, this is the value to use for the comparison.</p> <p>For <code>GCBTWN</code>, this is the low value for the range.</p>
value3	<p>Numeric</p> <p>Only used for the <code>GCBTWN</code> operator. The high value for the range.</p>
viewKey	<p>The key name (not the display name) of the data set that contains the attribute.</p>

In the following example, the data is refined to only include records where the value of `P_Score` is a number between 80 and 100:

```
"queryFunctions": [{
  "class": "RangeFilter",
  "attributeKey": "P_Score",
  "rangeOperator": "BTWN",
  "rangeType": "INTEGER",
  "value1": "80",
  "value2": "100",
  "viewKey": "Wines"
}]
```

SearchFilter

A `SearchFilter` is used to filter the data to include records that have the provided search terms. The properties for a `SearchFilter` are:

Property	Description
<code>searchInterface</code>	<p>String</p> <p>Either the name of the search interface to use, or the name of an attribute that is enabled for text search.</p> <p>Note that if the search interface supports relevance ranking, it can affect the display order of results on certain components. For more information on how relevance ranking affects search results, see Effect of a Search Box search on page 271.</p>
<code>terms</code>	<p>String</p> <p>The search terms for the search.</p>
<code>matchMode</code>	<p>ALL PARTIAL ANY ALLANY ALLPARTIAL PARTIALMAX BOOLEAN</p> <p>The match mode to use for the search.</p> <p>The match modes are described in Configuring search options for the Search Box component on page 274.</p>
<code>searchWithin</code>	<p>boolean</p> <p>Whether to only search only within the refined set of data.</p> <p>The default is <code>false</code>, indicating to search the entire set of data, without applying any filters.</p> <p>If you are applying any other filters before the <code>SearchFilter</code>, and only want to search within the filtered data, you must set <code>searchWithin</code> to <code>true</code>.</p>
<code>enableSnipping</code>	<p>boolean</p> <p>Whether to enable snipping.</p> <p>Optional. If not provided, the default is <code>false</code>.</p>
<code>snippetLength</code>	<p>int</p> <p>The number of characters to include in the snippet.</p> <p>Required if <code>enableSnipping</code> is <code>true</code>.</p> <p>To enable snipping, set <code>enableSnipping</code> to <code>true</code>, and provide a value for <code>snippetLength</code>.</p>

Property	Description
viewKey	The key name (not the display name) of the data set against which to execute the search. If you do not provide a data set key, then the search is executed against the entire data domain.

In the following example, the filter uses the default search interface to search for the terms "California" and "red". The matching records must include all of the search terms, and the search is only within the current refinement. Snippeting is supported, with a 100-character snippet being displayed.

```
"queryFunctions":[{"class":"SearchFilter",
"searchInterface":"default",
"terms":"red, California",
"matchMode":"ALL",
"searchWithin":"true",
"enableSnippeting":"true",
"snippetLength":"100",
"viewKey":"Wines"}]}
```

Using a navByValue filter for managed attributes

Deep linking URLs also support navByValue filters, which are similar to RefinementFilter in that they refine the data based on attribute values.

For the navByValue filters, the parameters are:

Property	Description
viewKey	The key name (not the display name) of the data set that contains the attributes.
values	Contains the list of attribute values for the filter: <pre>"values":{ "attributeKey1":"value1", "attributeKey2":"value2" }</pre> To specify multiple values for an attribute, use the format: <pre>"values":{ "attributeKey":["value1","value2"] }</pre>

For example:

```
"navByValue":{
"viewKey":"Wines",
"values":{
"Wine Type":"Red",
"Region":"Other France",
"Body":["Fresh","Full","Rich","Ripe"]
}
```

```
}
```

In most cases, it is preferable to use a `RefinementFilter`, because it is usually faster and more reliable.

Notes on the length of deep link URLs

When creating a deep link URL with a large number of filters, you need to be aware of any limits to the request size for your application server.

Encoding also can add to the size of the original request.

For example, for Tomcat, the default maximum size of the request HTTP header is 8192.

If you need to support longer URLs, you may need to update the relevant settings on your application server.

In addition to any application server limits, note that Microsoft Internet Explorer cannot process URLs longer than 2083 characters.

Examples of deep link URLs

Here are some examples of deep link URLs.

DataSourceFilter with locale selection

The following link displays the **data-results** page of the **sales-discovery-dashboard** application.

The data is refined using a `DataSourceFilter` to only show records in the Wines data set that have a Designation of "Best Buy". The locale is set to Spanish.

```
http://localhost:8080/web/sales-discovery-dashboard/data-results?doAsUserLanguageId=es_ES&deeplink=[{"queryFunctions":[{"class":"DataSourceFilter","filterString":"Designation='Best Buy'","viewKey":"Wines"}]}
```

Page and tab transition with a RefinementFilter

The following link displays the **data-results** page of the **sales-discovery-dashboard** application.

On the page, the second tab of the **Tabbed Component Container** named **Charts** is displayed.

The data is refined using a `RefinementFilter` to only show records that have a value of 1999 for the Vintage attribute.

```
http://localhost:8080/web/sales-discovery-dashboard/data-results?com.endeca.discovery.pageTransitionTabState=Charts[2]&deeplink=[{"queryFunctions":[{"class":"RefinementFilter","attributeValue":"1999","attributeKey":"Vintage","viewKey":"Wines"}]}
```

Multiple filters

The following deep link goes to the **data-results** page of the **sales-discovery-dashboard** application.

The data is refined:

- Using a `RangeFilter` to only show records where `P_Price` is between 50 and 100
- Using a `SearchFilter` to only show records that include the search term "red"

- Using a `navByValue` filter to only show records where Region is "Other France"

```
http://localhost:8080/web/sales-discovery-dashboard/data-results?deeplink=[
{"queryFunctions":[{"class":"RangeFilter",
"attributeKey":"P_Price","rangeOperator":"BTWN","rangeType":"INTEGER","value1":"50","value2":"100","viewKey":"Wines"},
{"class":"SearchFilter","searchInterface":"default","terms":"red","matchMode":"ALL","searchWithin":"true","enableSnipping":"true","snippetLength":"100","viewKey":"Wines"}]},
{"navByValue":{"viewKey":"Wines","values":{"Region":"Other France"}}}
]
```

Part IV

Managing Data for an Application



Chapter 13

Setting Up a New Data Set

For applications created from file uploads or the Data Source Library, you create the data sets used in the application. You cannot add a data set to an application created from a shared Endeca Server connection.

[Adding a data set to an existing application](#)

[Creating an application data set from an uploaded file](#)

[Creating an application data set from the Data Source Library](#)

[Reviewing and revising the attributes for a new data set](#)

[Default configuration for new data sets](#)

Adding a data set to an existing application

When you create a new application based on a file upload or the **Data Source Library**, you create the first data set in the application. You can then add additional data sets to the application.

To add a new data set to an existing application:

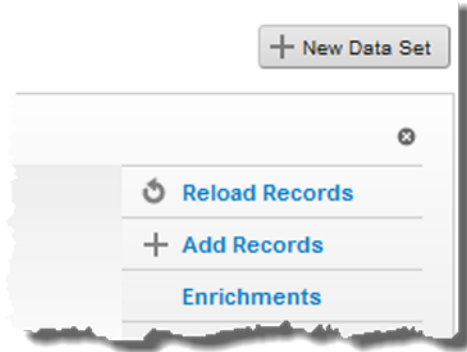
1. Click the **+ New Data Set** button, which is available from either:
 - The data set popup displayed from the application footer

Data Set	Data Source / Type	Last Loaded
Contracts ⓘ	contracts1000 Excel	2/21/2014 8:25 PM (UTC)
wineSmall ⓘ	wineSmall JSON	2/21/2014 8:29 PM (UTC)
Employee Data ⓘ	Employee Data JDBC	2/21/2014 8:24 PM (UTC)

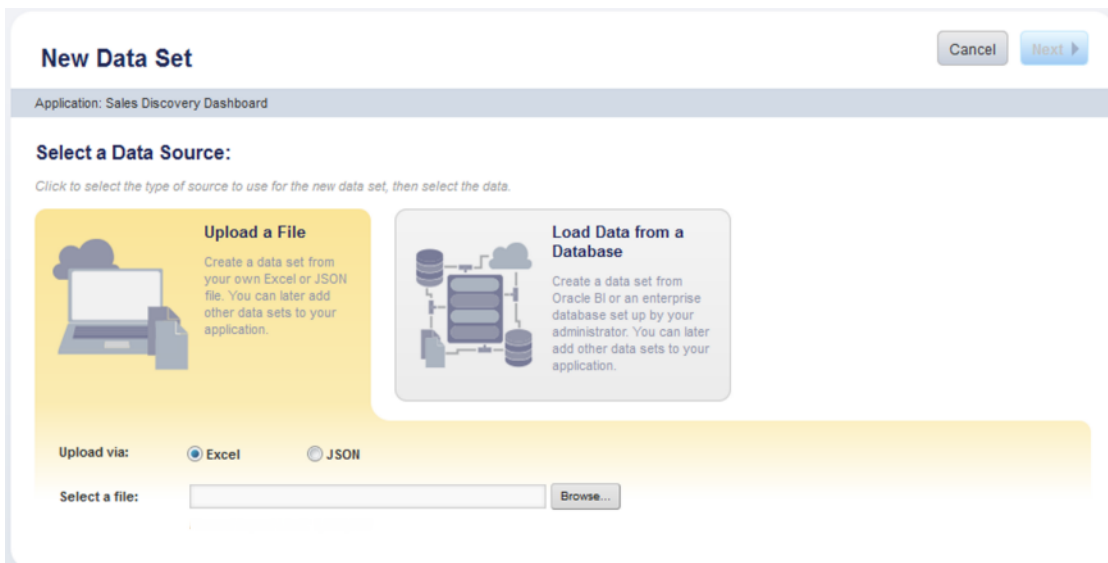
Manage Data Sets + New Data Set

3 Data Sets (Last loaded 2/21/2014)

- The top right of application **Data Sets** page, which is part of the **Application Settings** page for the application



2. On the **New Data Set** page, click the type of source for the new data set.



The options are:

Data Option	Description
<p>Upload a File</p>	<p>Indicates to create the data set from an uploaded Excel or JSON file.</p> <p>See Creating an application data set from an uploaded file on page 81.</p>
<p>Load Data from a Database</p>	<p>Indicates to create the data set using an Oracle BI Server or JDBC data source from the Data Source Library.</p> <p>See Creating an application data set from the Data Source Library on page 83.</p>

If no data sources are available, then Studio automatically displays the fields to select a file to upload.

Creating an application data set from an uploaded file

The file upload option for creating an application data set allows you to upload data from an Excel or JSON file.

Before uploading data from a file, make sure to clean up the data to remove:

- Tabs
- Line breaks
- Carriage returns

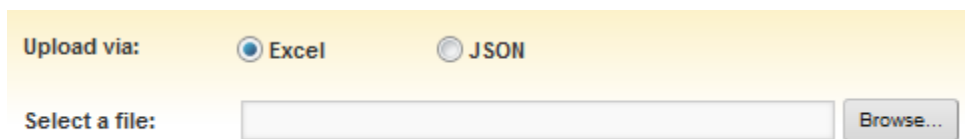
If these are present in an attribute value, then users may not be able to use that value for refinement.

You should also remove any unnecessary spaces.

For a data set created from an uploaded file, Studio always generates an attribute called `dataSetName_eid-reserved-spec`, which acts as the unique identifier for each record.

After selecting the file upload option, to create a data set from an uploaded file:

1. Click the radio button to indicate whether you want to upload an Excel spreadsheet or a JSON file.



The screenshot shows a yellow background for the upload options. Under the heading "Upload via:", there are two radio buttons: "Excel" (which is selected) and "JSON". Below this, there is a text input field labeled "Select a file:" and a "Browse..." button to its right.

2. To search for and select the file to upload, click the **Browse** button.

Note that Excel spreadsheets must have been created using Excel 2000 or later, and must have the .xls or .xlsx file extension.

JSON files must have the .json file extension, and must use UTF-8 encoding.

Studio processes the file, and displays a subset of the data.

For Excel spreadsheets, Studio displays data from the first worksheet. The columns may not be in exactly the same order as they are in the file.

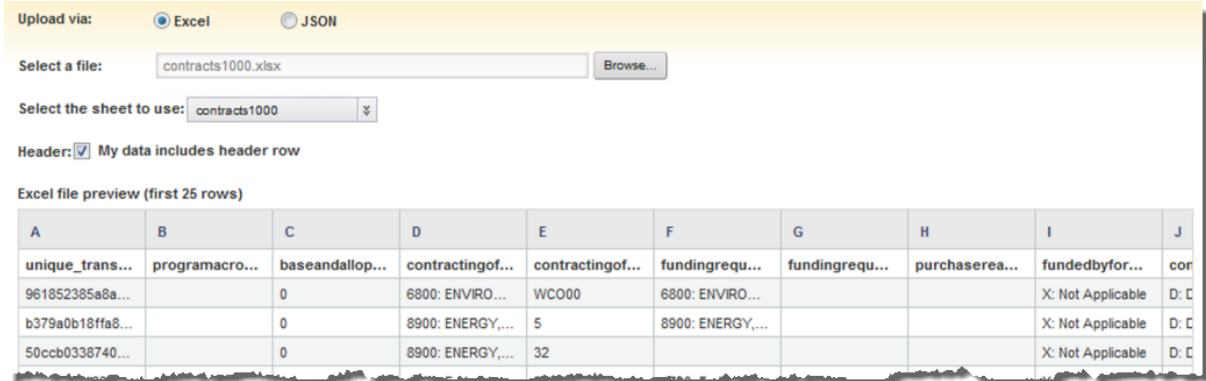
For JSON files, when Studio parses the file, it also identifies the available arrays in the file. The list of arrays is used to populate the **Get records from** drop-down list for that file. In the data set, Studio creates a record for each item in the selected array.

Also note that date/time values are displayed using the default Studio date/time format, which does not include the time. However, the full date/time value will be included in the data set.

If an attribute is not present in the first 1000 records, then it is not displayed on the attribute configuration page, and is not added to the data set.

If the JSON file is malformed, then Studio parses as much of the file as it can.

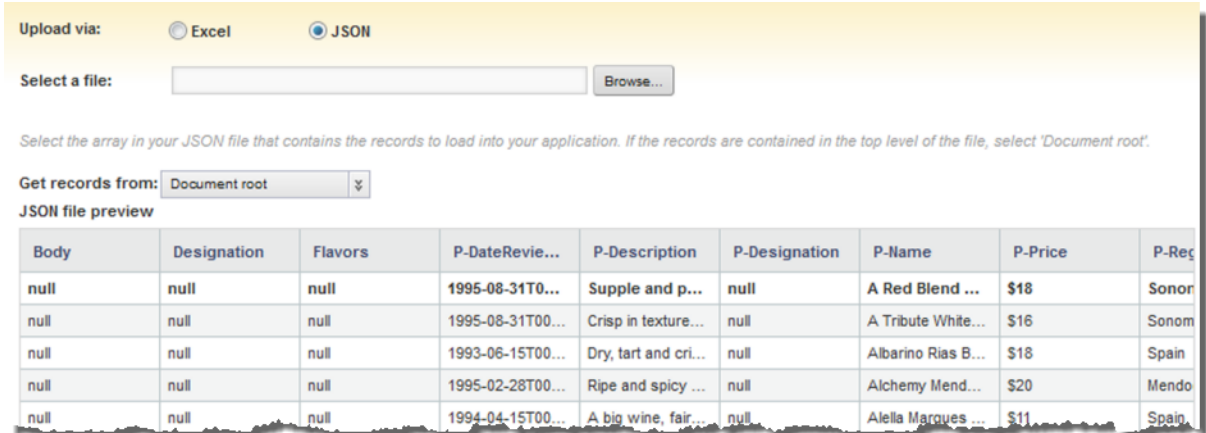
3. For an Excel file:



- (a) If there are multiple worksheets, then from the **Select the sheet to use** drop-down list, select the worksheet to use for the upload.
- (b) If the data has a header row, check the **My data includes header row** checkbox.
- (c) Click **Next**.

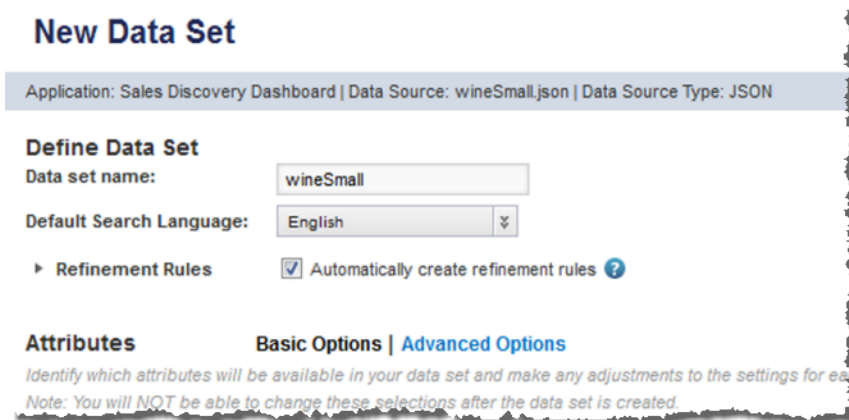
The next page, used to define the data set attributes, is displayed.

4. For a JSON file:



- (a) From the **Get records from** drop-down list, select the array to use to create the data set.
 Studio creates a record for each item in the selected array.
 To create the data set from the root level of the JSON file, select **Document root**.
- (b) Click **Next**.
 The next page, used to define the data set attributes, is displayed.

5. On the next page, under **Define Data Set**:



New Data Set

Application: Sales Discovery Dashboard | Data Source: wineSmall.json | Data Source Type: JSON

Define Data Set

Data set name:

Default Search Language:

▶ Refinement Rules Automatically create refinement rules ?

Attributes **Basic Options** | **Advanced Options**

Identify which attributes will be available in your data set and make any adjustments to the settings for each attribute.
 Note: You will NOT be able to change these selections after the data set is created.

- (a) In the **Data set name** field, type the name of the data set.
- By default, the data set name is the file name without the file extension.
- (b) From the **Default Search Language** drop-down list, select the language to use to index the data for search.
- You can select from any of the languages supported by the Endeca Server.
- (c) When adding an additional data set to an existing application, to automatically create refinement rules between the two data sets, check the **Automatically create refinement rules** checkbox.
- If you enable the automatic refinement rules, then Studio creates rules to link attributes that have the same name, multi-value setting, data type, and refinement behavior.
- (d) Configure the attributes for the data set. See [Reviewing and revising the attributes for a new data set on page 86](#).

6. After configuring the attributes, click **Done**.

Studio creates the data set and displays the application.

While Studio is creating the data set, the Endeca Server domain is temporarily set to be read-only. Once the data set is complete, it becomes writeable again.

When you add a new data set to an existing application, Studio adds a new page to the application. The page is named for the data set.

Note that if there is a problem creating the data set, the new page may still be created. You can either update the components to link to views from other data sets, or remove the page.

Creating an application data set from the Data Source Library

The **Load Data from a Database** option for creating a new data set allows you to create a data set from a data source in the **Data Source Library**. When you create the data set, you provide filters to limit the amount of data.

This option is only available if the **Data Source Library** has available data sources that you have access to.

The data set created from a data source in the **Data Source Library** includes an automatically generated attribute called `dataSetName_eid-reserved-spec`, which acts as the unique identifier for each record.

After selecting the **Load Data from a Database** option, to create an application data set from the **Data Source Library**:

1. In the list of available data sources, to display details about a data source, click the drop-down arrow next to it.

Data Source Name	Source Type	Total Size (estimated)	Max Per Upload	
<input type="radio"/> ▶ Airline Traffic	Oracle BI	1 records	1000000	<input type="button" value="Preview"/>
<input checked="" type="radio"/> ▼ HR Data	JDBC	107 records	1000000	<input type="button" value="Preview"/>
Data from the HR database. URL: jdbc:oracle:thin:@atcloud-hdp-02.us.oracle.com:1521:orcl				

2. To display a preview of the data, click the **Preview** button.
3. To select the data source you want to use, click its radio button.
4. Click **Next**.

For an Oracle BI data source, you are prompted to provide a user name and password to verify your access to the data.

After the authentication is verified, if you are able to filter the data, the **Define Data Scope** page is displayed.

Define Data Scope

Maximum Records per Upload : 1000000 (Estimated Total Records in the Data Source: ~ 107 records)

To optimize the performance of your application, only include data that is essential to your application. Make selections below to narrow the scope of the included data.

Select Data to Include
▶ EMPLOYEE_ID
▶ HIRE_DATE
▶ LAST_NAME
▶ SALARY

The page lists the attributes for which you can create filters.

5. To display the filter fields for an attribute, click the expand/collapse arrow for the attribute.
6. For numeric and date/time values, you can set up a range of values.

Select Data to Include
▶ EMPLOYEE_ID
▼ HIRE_DATE
<div style="display: flex; align-items: center;"> <div style="border: 1px solid #ccc; padding: 2px; margin-right: 5px;">Between</div> <div style="border: 1px solid #ccc; width: 80px; height: 20px; margin-right: 5px;"></div> <div style="margin: 0 5px;">-</div> <div style="border: 1px solid #ccc; width: 80px; height: 20px;"></div> </div> <div style="margin-top: 5px; text-align: center;"> <input type="button" value="Get Sample Values"/> </div>
▶ LAST_NAME
▶ SALARY

- (a) From the comparison type drop-down list, select the type of comparison to use.

(b) In the field or fields, enter the value or values to use for the comparison.

For a string attribute, you set up a list of values to include:

To add a value to the filter:

- (a) In the field, type the value to include in the filter. The values are case-sensitive.
- (b) Click **Add Value**.

When entering filter values, you can either type the value manually, or select from sample values. To use sample values to populate a filter field:

- (a) Click **Get Sample Values**.

A partial list of available values for the attribute is displayed.

- (b) To add a sample value to the filter field, click the value.

7. When you are finished creating the filters, click **Next**.

8. On the next page, under **Define Data Set**:

- (a) In the **Data set name** field, type the name of the data set.
- (b) From the **Default Search Language** drop-down list, select the language to use to index the data for search.
- (c) When adding a data set to an existing application, to automatically create refinement rules between the two data sets, check the **Automatically create refinement rules** checkbox.
- If you enable the automatic refinement rules, then Studio creates rules to link attributes that have the same name, multi-value setting, data type, and refinement behavior.
- (d) Configure the attributes for the data set. See [Reviewing and revising the attributes for a new data set on page 86](#).
9. After configuring the attributes, click **Done**.

Studio adds the data set to the application.

While Studio is creating the data set, the Endeca Server domain is temporarily set to be read-only. Once the data set is complete, it becomes writeable again.

When you add a new data set to an existing application, Studio adds a new page to the application. The page is named for the data set.

Note that if there is a problem creating the data set, the new page may still be created. You can either update the components to link to views from other data sets, or remove the page.

Reviewing and revising the attributes for a new data set

When you create a new data set, you can adjust the attributes that are derived from the file or data source.

[Excluding attributes from a new data set](#)

[Editing the attribute names for a new data set](#)

[Changing an attribute's data type](#)

[Handling invalid or empty values](#)

[Creating multi-value attributes by splitting or merging attribute values](#)

[Selecting the refinement behavior for an attribute](#)

[Indicating whether an attribute is searchable](#)

Excluding attributes from a new data set

By default, when you create a new data set, it includes all of the available attributes.

In the attribute list, to not include an attribute, uncheck the **Include** checkbox for that attribute.

Attributes **Basic Options** | **Advanced Options**

Identify which attributes will be available in your data set and make any adjustments to the attribute list.
Note: You will NOT be able to change these selections after the data set is created.

Include	Attribute Name	Data Type
<input checked="" type="checkbox"/>	EMAIL	String
<input checked="" type="checkbox"/>	EMPLOYEE_ID	Number (decimal)
<input checked="" type="checkbox"/>	FIRST_NAME	String
<input checked="" type="checkbox"/>	HIRE_DATE	Date Time
<input checked="" type="checkbox"/>	LAST_NAME	String
<input checked="" type="checkbox"/>	PHONE_NUMBER	String
<input checked="" type="checkbox"/>	SALARY	Number (decimal)

Editing the attribute names for a new data set

In the list of attributes for a new data set, the **Attribute Name** column contains an editable text field with the name of the attribute. When you review the attribute list, you can change the name assigned to each attribute.

The attribute names must be unique within the data set.

Note that for an Excel file, if the data has a heading row, then:

- The default attribute names are taken from that row
- If the original file contains multiple columns with the same name, then those columns are automatically combined into a single multi-value attribute, and are displayed as a single row in the attribute list.

For example, if the file contains three columns with the heading "Color", then a single Color attribute is created. For each record, the Color attribute is then assigned all of the values from the original three columns.

If an Excel file does not have a heading row, the attributes are initially named using the Excel letter column headings (A, B, C, etc.).

Changing an attribute's data type

In the list of attributes for a new data set, the **Data Type** column lists the data type for the attribute. The data type controls the available formatting and aggregation options for the attribute value.

Studio uses the data type from the original data to determine the data types. For a file upload, if a column is completely empty, then Studio automatically makes that attribute a string attribute.

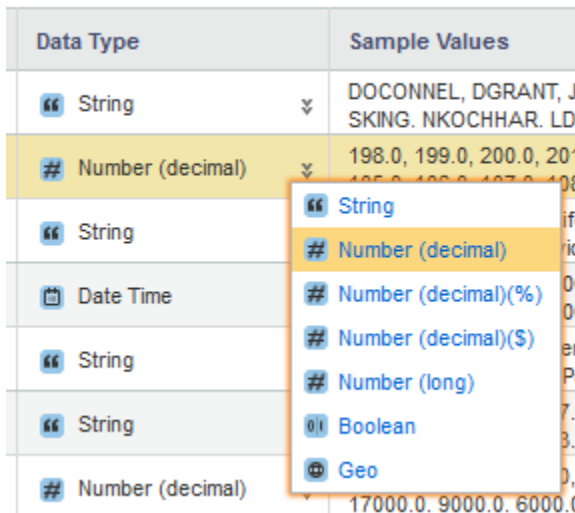
Studio will identify an attribute as a date/time value if:

Source	Identified as Date/Time When
JDBC	The original column is identified as a date column.
Oracle BI	The original column is identified as a date column.
Excel	The original column is identified as a date column.
JSON	The values for the attribute are in one of the formats listed in a Provisioning Service configuration file. For information on how to define the list of allowed date formats for JSON files, see the <i>Provisioning Service Administration Guide</i> .

Note also that for Excel file uploads:

- If a column contains a calculated duration, Studio does not recognize it as a duration attribute.
- For a column to be identified as a time attribute, the value must include the hour.

You can use the drop-down list in the **Data Type** column to select a different data type from the one that Studio selects.



- Selecting a different data type does not guarantee that the value can be converted to that data type.
- You cannot change any other data type to a date/time value, even if the value seems to look like a date/time.
- You can only change a value to a geocode if it uses the correct format, which is two decimal numbers separated by a white space. Geocode attributes are only supported for Excel files.
- If you select **Number(decimal)(%)** to format the value as a percentage, then Studio automatically multiplies the value by 100 before displaying it.

Handling invalid or empty values

For each attribute in a new data set, you can indicate how to handle invalid or empty values. Invalid values can only occur to attributes with a type other than String, and are values whose format does not match the attribute data type, and cannot be converted to that data type. For example, for a numerical attribute, some records might have "None" or "null" as the value.

To configure how to handle the invalid and empty values for an attribute:

1. On the **Add Data Set** page, click **Advanced Options**.

Adjustment Rules	Split ?	Merge ?	Refinement Behavior ?	Searchable ?
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Single ▾	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	

2. In the **Adjustment Rules** column, click the **Edit Rules** button.
3. Under **Fix non-matching data type values**, click a radio button to indicate how to handle values that cannot be converted to the selected data type. You can either:
 - Replace the invalid values with a blank value
 - Replace the invalid values with a custom value

- Remove records that have invalid values

Note that for string attributes, you cannot configure rules for adjusting invalid values. String attributes never have non-matching values.

4. Under **Fix missing values**, click a radio button to indicate how to handle empty values. You can either:
 - Leave the blank values as is
 - Provide a custom value to use wherever a value is missing
 - Remove records that have empty values
5. To save the configuration, click **Apply**.

Creating multi-value attributes by splitting or merging attribute values

When creating a new data set, you can create multi-value attributes, either by splitting an attribute value based on a delimiter, or by merging values from multiple attributes.

For example, for an attribute with the value "blue;white:red", you can indicate that these are actually 3 individual values delimited by a semicolon. Studio also trims any white space between the values.

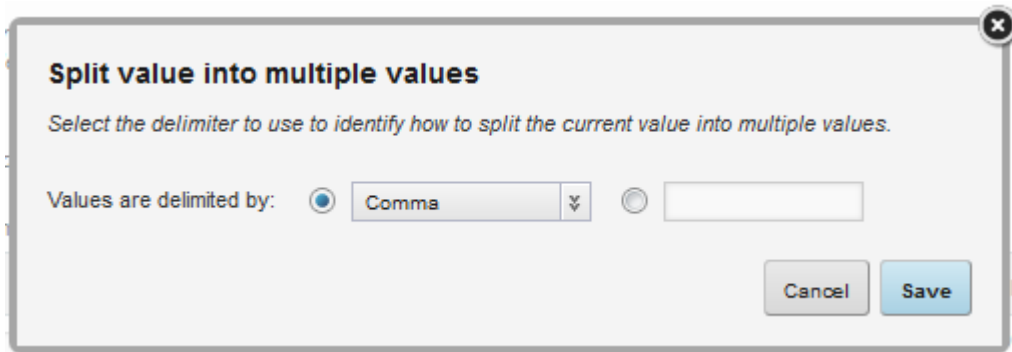
Or for data with the attributes Color1, Color2, and Color3, you can merge the Color2 and Color3 values with the Color1 value to create a single multi-value attribute. When you merge attribute values, the default separator for the current locale is used.

To create multi-value attributes:

1. On the **Add Data Set** page, click **Advanced Options**.

Adjustment Rules	Split ?	Merge ?	Refinement Behavior ?	Searchable ?
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Single ▾	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	

2. To split the value of an attribute:
 - (a) Check the **Split** checkbox for the attribute.
 - (b) On the split value dialog, under **Values are delimited by**, specify the delimiter used to separate the values.

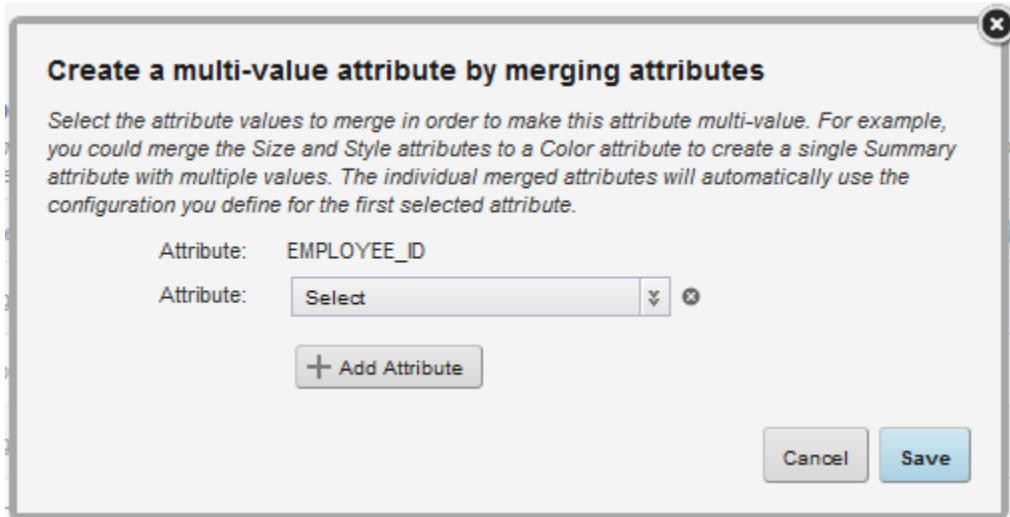


Select the delimiter from the drop-down list.

If the delimiter used is not in the drop-down list, click the other radio button, then type the delimiter in the field.

- (c) To save the split configuration, click **Save**.
 - (d) If you need to change the split configuration, click the edit icon in the **Split** column.
 - (e) To not split the attribute value, uncheck the **Split** checkbox.
3. To merge other attribute values to an attribute:
 - (a) Check the **Merge** checkbox for the attribute.

- (b) On the merge dialog, from the **Attribute** drop-down list, select the first attribute to merge with the original attribute.



You can only merge attributes that have the same data type.

- (c) To add an attribute, click the **Add Attribute** button, then select the attribute from the drop-down list.
- (d) To remove an attribute, click its delete icon. You cannot remove the original attribute.
- (e) To save the merge configuration, click **Save**.

On the **Add Data Set** page, you can no longer edit the merged attributes. They automatically inherit all of the configuration options you specify for the original attribute.

The **Merge** checkbox for the merged attributes is also checked.

- (f) If you need to change the merge configuration, click the edit icon in the **Merge** column.
- (g) To remove the merge, uncheck the **Merge** checkbox.

Selecting the refinement behavior for an attribute

For attributes in a new data set, you can select how refinement works. The refinement behavior includes whether users can refine by multiple values, and whether multiple values use AND or OR.

The available options are:

Option	Description
Multi-Or	<p>Indicates that end users can refine by more than one value at a time. For multi-or, a record matches if it has at least one of the selected values.</p> <p>So if an end user selects the values Red, Green, and Blue, then matching records only need to have one of those values (Red or Green or Blue).</p>

Option	Description
Multi-And	<p>Indicates that end users can refine by more than one value at a time.</p> <p>For multi-and, a record matches only if it has all of the selected attribute values. Multi-and should therefore only be used with multi-value attributes.</p> <p>So if an end user selects the values Red, Green, and Blue, then matching records must have all of those values (Red and Green and Blue).</p>
Single	Indicates that end users can only refine by one value at a time.

The default configuration is based on a sampling of the first 1000 records:

Data Type	Default Refinement Behavior
String	<p>If the sample values contain fewer than 75 characters, the default refinement behavior is Multi-Or.</p> <p>If the values contain more than 75 characters, the default refinement behavior is Single.</p>
Numeric	<p>If there are fewer than 100 unique values in the sample, then the default refinement behavior is Multi-Or.</p> <p>If there are more than 100 unique values, then the default refinement behavior is Single.</p>
Date/Time	<p>Multi-Or.</p> <p>You cannot change the refinement behavior for date/time attributes.</p>
Boolean	Multi-Or
Geocode	Single

To configure the refinement behavior:

1. On the **Add Data Set** page, click **Advanced Options**.

Adjustment Rules	Split ?	Merge ?	Refinement Behavior ?	Searchable ?
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Single ▾	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	<input checked="" type="checkbox"/> Use Default ▾
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▾	

2. If you can change the refinement behavior, then from the **Refinement Behavior** drop-down list, select the refinement behavior.

Indicating whether an attribute is searchable

For string attributes in a new data set, you can indicate whether to support text search for attribute values.

When using the **Search Box** component to search for values, string attributes with values containing fewer than 75 characters always support value search, which is represented by the type-ahead function. As users type, matching attribute values are displayed.

When end users choose to use text search to simply search for a search term, then Studio only searches within the searchable attribute values. This type of search can be especially useful for attribute values containing large amounts of text.

Searchable attributes also have snippeting enabled by default.

To configure whether attributes are searchable:

1. On the **Add Data Set** page, click **Advanced Options**.

The **Advanced Options** view includes the **Searchable** checkbox, which indicates whether to support text search for attribute values.

Adjustment Rules	Split ?	Merge ?	Refinement Behavior ?	Searchable ?
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▼	<input checked="" type="checkbox"/> Use Default ▼
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▼	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▼	<input checked="" type="checkbox"/> Use Default ▼
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Single ▼	
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▼	<input checked="" type="checkbox"/> Use Default ▼
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▼	<input checked="" type="checkbox"/> Use Default ▼
<input type="button" value="Edit Rules"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multi-Or ▼	

The **Searchable** checkbox is only displayed and checked by default for string attributes. You cannot enable text search for other types of attributes.

2. To exclude an attribute from text search, uncheck the checkbox.
3. For the searchable attributes, if the attribute values are in a different language from the default search language, then from the drop-down list, select the language in which to index the attribute for search.

You can select from any of the languages supported by Endeca Server.

Default configuration for new data sets

When you create a new data set, Studio automatically determines which attributes are dimensions and metrics, creates a default search interface, and creates default attribute groups.

[Default dimensions for new data set attributes](#)

[Search configuration for a new data set](#)

[Default attribute groups for new data sets](#)

Default dimensions for new data set attributes

For a new data set, whether each attribute can be used as a dimension is based on the data type and number of values.

If an attribute is a dimension, then the attribute values can be used to aggregate metric values.

For each data type, Studio uses the following rules to determine whether an attribute is a dimension:

Data Type	Dimension?
String	Yes, if the attribute values have fewer than 75 characters, or if the attribute is multi-value.
Numeric	Yes, if the attribute has a low number of unique values.
Date/Time	Yes
Boolean	Yes
Geocode	No

The string lengths and number of unique values are determined based on a sampling of the first 1000 records.

Search configuration for a new data set

For a new data set, Studio generates a single search interface for it.

The search interface is named `ALL`, and its configuration is as follows:

- All of the attributes marked as searchable in the attribute list are added as members. The members do not have an assigned relevance ranking.
- The search interface does not support partial matching or snippeting.
- The search interface uses an `ALL_Strategy` relevance ranking strategy, which includes the following relevance ranking modules:
 - `REL_RANK_NTERMS`
 - `REL_RANK_NUMFIELDS`
 - `REL_RANK_GLOM`
 - `REL_RANK_EXACT`

For details on the configuration options for search interfaces and relevance ranking, see the *Oracle Endeca Server Developer's Guide*.

Default attribute groups for new data sets

When you create a new data set, Studio automatically creates default attribute groups. The groups are associated with the base view for the data set, and the group membership is based on the attribute data types.

The default groups are:

Group Name	Group Attributes	Display in Available Refinements?	Display in Record Details?
Record Identifiers	Contains the identifying attribute for the data set records.	No	No
General	Contains: <ul style="list-style-type: none"> String attributes with values containing fewer than 75 characters Multi-value string attributes All numeric attributes All Boolean attributes All date/time attributes 	Yes	Yes
Details	Contains string attributes with values containing 75 or more characters	No	Yes
Geospatial	Contains all geocode attributes	No	No

By default, the attributes in each attribute group are displayed in alphabetical order by display name.

The string lengths are determined based on a sampling of the first 1000 records.

If there are no applicable attributes for a group, then the group is not created. For example, if the data does not contain any geocode attributes, then the Geospatial group is not created.



Chapter 14

Managing Data Sets for an Application

Applications contain one or more data sets. Each data set can represent a different type or source of data. For data generated by the Provisioning Service, a data set may be created from an uploaded Excel or JSON file, or be a subset of data from a data source in the Data Source Library.

[*Displaying data set information from the application footer*](#)

[*Selecting the default data set for an application*](#)

[*Displaying the Data Sets page for an application*](#)

[*Changing the name and description of a data set*](#)

[*Adding records to a data set*](#)

[*Reloading data into a data set*](#)

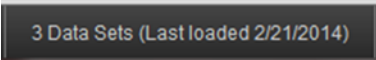
[*Enriching data set attributes*](#)

[*Managing the base filter for a data set*](#)

[*Deleting a data set*](#)

Displaying data set information from the application footer

In an application, the footer includes a link to display the list of data sets in the application.



3 Data Sets (Last loaded 2/21/2014)

The list includes:

- The data set name
- The type of source data
- When the data was last loaded

- Information about the status of the data set, to indicate when a data set is loading or has a problem. The status information can include links to allow you to try to correct the problem.

Data Set	Data Source / Type	Last Loaded
Contracts ⓘ	contracts1000 Excel	2/21/2014 8:25 PM (UTC)
wineSmall ⓘ	wineSmall JSON	2/21/2014 8:29 PM (UTC)
Employee Data ⓘ	Employee Data JDBC	2/21/2014 8:24 PM (UTC)

Manage Data Sets + New Data Set

3 Data Sets (Last loaded 2/21/2014)

To display a tooltip that includes the description and filter information, click the information icon for the data set.

For application and Studio administrators, the footer includes options to add and manage data sets.

For applications created from shared Endeca Server connections, the data is usually read-only, meaning you cannot make any changes to the data. You cannot add or edit views or attribute groups. Even if the data is not read-only, you cannot add new data sets to a shared Endeca Server connection, only to data sets created from a file upload or the **Data Source Library**.

Selecting the default data set for an application

For applications that have multiple data sets, you can select the default data set to use for new components. Note that the default data set is used for all new components, even components added to a page that was originally created for another data set.

The default data set is initially set to the first data set added to the application.

To change the default data set:

- On the **Application Configuration** page, expand the **Advanced Settings** section.

▼ **Advanced Settings**

When you first add a component to a page, it is bound to the default data set.

Data Set:

Changing these settings may invalidate the configuration of existing components.

Friendly URL:

Endeca Server connection:

Maintain existing component preferences

- From the **Data Set** drop-down list, select the default data set to use.

Displaying the Data Sets page for an application

The **Data Sets** page is available from the **Application Settings** page. The application footer also contains a link to the **Data Sets** page.

From within an application, to display the data sets for an application:

1. To display the **Data Sets** page from the administrator menu:
 - (a) From the menu, select **Application Settings**.
 - (b) On the **Application Settings** page, click **Data Sets**.
2. To display the **Data Sets** page from the application footer:
 - (a) In the footer, click the data sets link.
 - (b) On the data sets list, click **Manage Data Sets**.

The **Data Sets** page displays a block for each data set in the application.

Data Sets

View and manage the data sets associated with this application.

The screenshot shows the 'Data Sets' page interface. At the top right, there is a '+ New Data Set' button. Below it, two data set blocks are displayed. Each block has a title, a 'Data Source' field, a 'Size' field, a 'Last Loaded' field, a 'Preview' button, and a vertical menu of actions: 'Reload Records', '+ Add Records', 'Enrichments', and 'Overview'.

Contracts		
Data Source:	contracts500A (Excel)	Contract details
Size:	499 records	
Last Loaded:	9/25/2013 6:24 PM (UTC)	
Preview		Reload Records
		+ Add Records
		Enrichments
		Overview

Employee Data		
Data Source:	JDBC_WithFilters (JDBC)	Employee data from the HR database.
Size:	107 records	
Last Loaded:	9/25/2013 3:07 PM (UTC)	
Preview		Reload Records
		+ Add Records
		Enrichments
		Overview

The block includes the following information:

- The source of the data.
 - For data sets created from a file upload, this is the file name, followed by the file type in parentheses.
 - For data sets created from the **Data Source Library**, this is the data source name, followed by the data source type in parentheses.
 - For data sets created from a shared Endeca Server connection, the source is set to Unknown.
- The number of records in the data set
- The date and time (in UTC) the data was last loaded
- The data set description

To display a preview of records from the data set, click its **Preview** button.

For data sets created from a file upload or the **Data Source Library**, the block includes links to:

- Reload records. See [Reloading data into a data set on page 103](#).
- Add records. See [Adding records to a data set on page 102](#).

For writable data sets, you can enrich the data set attributes, by creating new attributes based on terms in the existing attributes. See [Enriching data set attributes on page 104](#).

For all data sets, the **Overview** link displays the **Overview** tab, containing details about the data set.

Data Sets > Data Set: Employee Data

The screenshot shows the 'Overview' tab for a data set named 'Employee Data'. The interface includes a navigation bar with 'Overview', 'Enrichments', and 'Base Filter' tabs. Below the navigation bar, there are several action buttons: 'Reload Records', '+ Add Records', 'Manage Attributes', 'Delete Data Set', 'Preview', 'Revert to Last Save', and 'Save'. The main content area displays the following information:

Data Set name:	Employee Data
Data Set description:	Employee data from the HR database.
Size:	107 records
Last Loaded:	9/25/2013 3:07 PM (UTC)
Created:	9/25/2013 3:07 PM (UTC)

At the bottom, there is a link for 'Data Details'.

From the **Overview** tab, you can:

- Update the data set name and description.
- Reload and add records.
- Use the **Manage Attributes** link to display the **Views** page. On the page, the base view corresponding to the data set is selected.
- Use the **Enrichments** tab to enrich the data set attributes.
- Use the **Base Filter** tab to configure a base filter for the data set. See [Managing the base filter for a data set on page 116](#).

Changing the name and description of a data set

From the **Data Sets** page, you can rename the data set and edit the description. Note that when you change the name of the data set, you also change the name of the base view for the data set.

From the **Data Sets** page, to change the data set name and description:

1. Click the **Overview** link for the data set.
The **Overview** tab for the data set is displayed.

Clicking the data set name on the **Data Sets** page or in the footer list also displays the **Overview** tab for the data set.

Data Sets > Data Set: Employee Data

Overview **Enrichments** Base Filter

[Reload Records](#)
[+ Add Records](#)
[Manage Attributes](#)
[Delete Data Set](#)
[Preview](#)
[Revert to Last Save](#)
[Save](#)

Data Set name:

Data Set description:

Size: 107 records

Last Loaded: 9/25/2013 3:07 PM (UTC)

Created: 9/25/2013 3:07 PM (UTC)

[Data Details](#)

2. In the **Data Set name** field, type the new name for the data set.
3. In the **Data Set description** field, type the new description for the data set.
4. To save the changes, click **Save**.

Adding records to a data set

For data sets created using a file upload or from the **Data Source Library**, you can add records.

You cannot add records to a data set while an enrichment on that data set is running.

When you add records, Studio does not allow you to make any changes to the attribute configuration. It takes the selected data and adds it as new records to the existing data.

Note that Studio does not check whether a record is a duplicate of an existing record, so it is possible to add duplicate records to the data set.

From the **Data Sets** page, to add records to a data set:

1. Click the **Add Records** link for the data set.
The link is available both on the main **Data Sets** page and on the **Overview** tab for the data set.
2. For a file upload data set:
 - (a) To search for and select the file containing the new records, click **Browse**.

Add Records to: Contracts [Cancel](#) [Add Records ▶](#)

i Your schema and all of your settings will be maintained without changes. All of the existing records in your data set will not change. All of the selected data will be added as new records, even if the new data duplicates existing records.

Upload a File

Select a file: [Browse...](#)

The file must be the same type of file used to create the original data set.

Studio processes the file, then displays a subset of the data. For Excel spreadsheets, Studio displays data from the first worksheet.

- (b) For an Excel file, if there are multiple worksheets, then from the **Select the sheet to use** drop-down list, select the worksheet to use for the upload.
 - (c) For an Excel file, if the data has a header row, check the **My data includes header row** checkbox.
 - (d) Click **Add Records**.
3. For a **Data Source Library** data set:
- (a) For an Oracle BI data source, you are prompted to provide credentials to verify your access to the data.
 - (b) Select the filters to use to determine the data to add.

Add Records to: Employee Data Cancel Add Records ▶

ⓘ Your schema and all of your settings will be maintained without changes. All of the existing records in your data set will not change. All of the selected data will be added as new records, even if the new data duplicates existing records.

Application: contract-and-hr-data

Define Data Scope

Maximum Records per Upload : 1000000 (Estimated Total Records in the Data Source: ~ 107 records)

To optimize the performance of your application, only include data that is essential to your application. Make selections below to narrow the scope of the included data.

Select Data to Include
▶ HIRE_DATE
▶ LAST_NAME
▶ SALARY

The filters initially reflect the last filters used when data was added to the data set.

- (c) Click **Add Records**.

Reloading data into a data set

For data sets created using a file upload or from the **Data Source Library**, you can reload records.

When you reload records, Studio does not allow you to make any changes to the attribute configuration. It takes the selected data and uses it to replace all of the existing data.

From the **Data Sets** page, to reload the data:

1. Click the **Reload Records** link for the data set.

The link is available both on the main **Data Sets** page and on the **Overview** tab for the data set.

Note that you cannot reload records when an enrichment for the data set is running.

2. For a file upload data set:
 - (a) To search for and select the file containing the replacement records, click **Browse**.

The file must be the same type of file used to create the original data set.

Studio processes the file, and displays a subset of the data. For Excel spreadsheets, Studio displays data from the first worksheet.

- (b) For an Excel file, if there are multiple worksheets, then from the **Select the sheet to use** drop-down list, select the worksheet to use for the upload.
 - (c) For an Excel file, if the data has a header row, check the **My data includes header row** checkbox.
 - (d) Click **Reload Data**.
3. For a **Data Source Library** data set:
 - (a) For an Oracle BI data source, you are prompted to provide credentials to verify your access to the data.
 - (b) Select the filters to use to determine the data to add.

- (c) Click **Reload Data**.

Enriching data set attributes

For data sets that are not read-only, Studio allows you to use data enrichments to create new attributes based on data in existing attributes.

[About data set enrichments](#)

[About the Enrichments tab for a data set](#)

[Adding and editing enrichments](#)

[Configuring an Extract Terms enrichment](#)

[Configuring a Whitelist Tagging enrichment](#)

[Running an enrichment](#)

[Deleting enrichments](#)

About data set enrichments

Data set enrichments allow you to enhance your data by having Studio create new attributes containing selected terms extracted from the values of other attributes. These new attributes are created without you having to reload the data.

Enrichments are processed using the Endeca Server data enrichment plugins, which are installed automatically with Endeca Server. However, you can only use enrichments if the data enrichment plugins have been registered.

Studio currently supports the following types of enrichments, each of which is processed using its associated enrichment plugin:

Enrichment Type	Description
Extract Terms	<p>Uses an algorithm to extract relevant terms or phrases from values of a selected attribute. The terms are selected based on relevance - how frequently they occur in the attribute value across the data as a whole.</p> <p>To help ensure the relevance of the extracted terms, you can provide a blacklist of terms to ignore, to exclude terms that may be extracted but are not necessarily relevant. The blacklist terms may be either:</p> <ul style="list-style-type: none"> • Terms provided in a text file • Terms entered manually in the enrichment configuration <p>The Extract Terms enrichment uses the extracted terms to create a new multi-value attribute.</p>
Whitelist Tagging	<p>Extracts terms from the value of a selected attribute.</p> <p>The terms may be either:</p> <ul style="list-style-type: none"> • Terms provided in a text file • Terms entered manually in the enrichment configuration <p>The Whitelist Tagging enrichment uses the extracted terms to create a new multi-value attribute.</p>

Here is an example of input and output for one of these enrichments:

Input Value	Output Value
Dry, tart and crisp, offering spicy, resinous notes to liven up the basic grapefruit and green apple flavors. Try with fish. Drink now. (2500 cases produced)	tart, crisp, apple

The resulting attributes can be used in the same way as any other string attribute, but the Extract Terms and Whitelist Tagging enrichments are probably most useful for streamlining searches and for populating a **Tag Cloud** component.

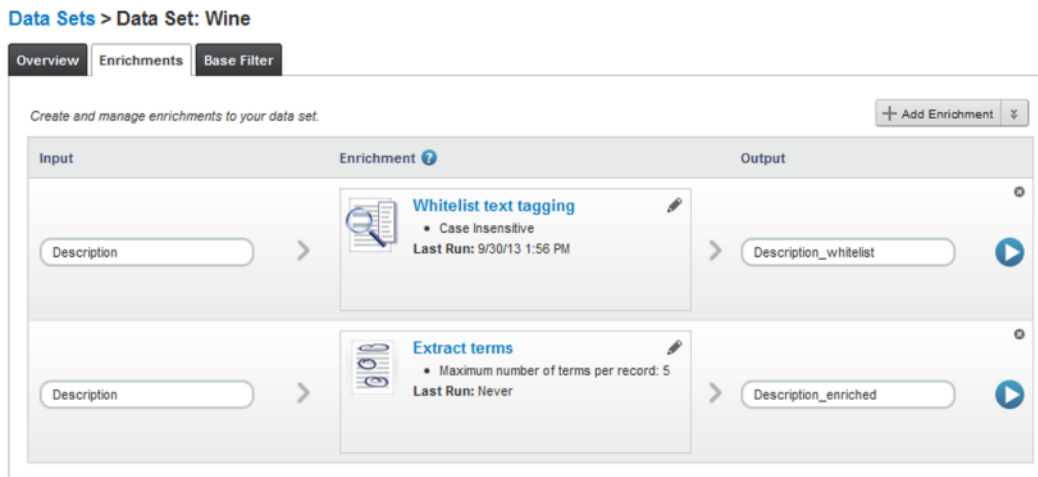
For example, if your data includes an attribute containing customer comments, you could use one of these enrichments to create an attribute containing lists of terms found in the attribute values. You could then use a **Tag Cloud** to see the relative frequency of the terms.

While both enrichments perform a similar function, the main difference is in how the terms are selected. For an Extract Terms enrichment, Studio selects the terms. For a Whitelist Tagging enrichment, you provide the terms.

So if you aren't looking for specific terms, and just want to get a sense of the trends within the data, you would use an Extract Terms enrichment. If you want to analyze the frequency of specific terms that you already know, you would use a Whitelist Tagging enrichment.

About the Enrichments tab for a data set

For each data set, the **Enrichments** tab displays the list of enrichments that have been created for that data set.



For each enrichment, the list includes:

Column	Description
Input	The name of the input attribute for the enrichment.

Column	Description
Enrichment	Some details about the enrichment, including: <ul style="list-style-type: none"> • Enrichment type • Configuration options • When the enrichment was last run The column also contains an edit icon, to edit the configuration of the enrichment.
Output	The name of the output attribute for the enrichment. The Output column also contains the run icon, to run the enrichment, and the delete icon, to remove the enrichment.

The **Enrichments** tab also indicates whether an enrichment is currently running.

Adding and editing enrichments

From the **Enrichments** tab of the data set details, you can add a new enrichment or change the configuration of an existing enrichment.

Note that the data set does not reflect a new or edited enrichment until you manually run the enrichment. See [Running enrichments on page 114](#).

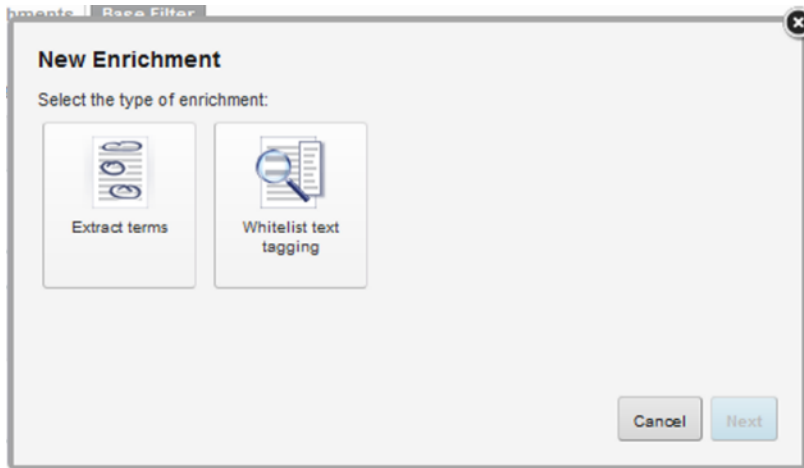
You cannot edit an enrichment while it is running.

You cannot save a new or updated enrichment unless the enrichment configuration is valid. You cannot save incomplete or invalid enrichments.

To add or edit enrichments:

1. Click the **Enrichments** link for the data set.
2. From the **Enrichments** tab, to add an enrichment:
 - (a) Click the **+ Add Enrichment** button.

- (b) On the **New Enrichment** dialog, click the type of enrichment you want to create.

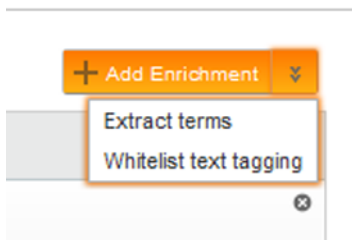


- (c) Click **Next**.

The configuration dialog for the enrichment type is displayed.

You can also add an enrichment using the **+ Enrichment** drop-down list:

- (a) Click the drop-down arrow on the **+ Add Enrichment** button.
- (b) From the drop-down list, select the type of enrichment you want to create.



The configuration dialog for the enrichment type is displayed.

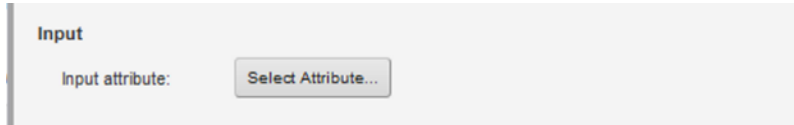
- 3. To change the configuration of an existing enrichment, click the enrichment name, or click its edit icon.



The configuration dialog for the enrichment type is displayed. Note that you cannot change the configuration of an enrichment that is currently running.

4. For each enrichment, you must select the attribute to enrich. On the configuration dialog, under **Input**, to select the attribute to enrich:

- (a) Click **Select Attribute**.



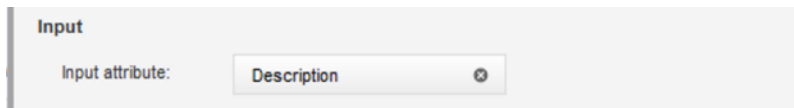
- (b) On the attribute selection dialog, click the attribute.

You can only select string attributes.

- (c) Click **Apply**.

To change the selected input attribute:

- (a) Click the delete icon for the attribute.



- (b) Click **Select Attribute**.

- (c) On the attribute selection dialog, click the attribute.

- (d) Click **Apply**.

5. Select the configuration options for the specific enrichment type.

For details, see:

- [Configuring an Extract Terms enrichment on page 109](#)
- [Configuring a Whitelist Tagging enrichment on page 112](#)

6. When you have finished editing, click **Save**.

Studio validates the enrichment. If the enrichment is valid, then Studio saves the enrichment and closes the dialog.

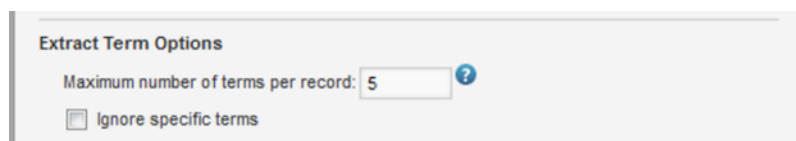
Configuring an Extract Terms enrichment

An Extract Terms enrichment uses an algorithm to extract relevant words or phrases from an attribute value. The terms are selected based on relevance. The Extract Terms enrichment uses the extracted terms to create a new multi-value attribute. The value is a delimited list of the extracted terms.

To help ensure the relevance of the extracted terms, you can provide a blacklist of terms to ignore, to exclude terms that are likely to be extracted, but are not necessarily relevant.

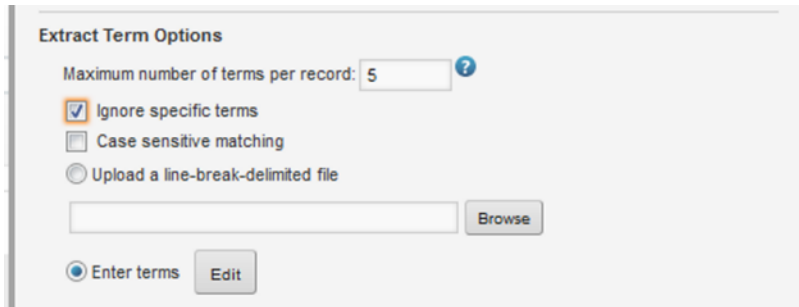
For an Extract Terms enhancement:

1. In the **Maximum number of terms per record** field, type the maximum number of terms to extract for each record.



For example, if you set this to 5, then only the 5 most relevant terms from each record are extracted.

2. To provide specific values to ignore, check the **Ignore specific terms** checkbox.



3. If you are providing terms to ignore, then to only ignore terms that use the same case as the provided terms, check the **Case sensitive matching** checkbox.

For example, if the term to ignore is entered as "wine", then if the matching is case sensitive, the term "Wine" is not ignored.

4. To upload a file containing the terms to ignore:
 - (a) Click the **Upload a line-break-delimited file** radio button.
 - (b) To search for and select the file, click **Browse**.

The file must be a plain text file in UTF-8 format, with each term on a separate line. For example:

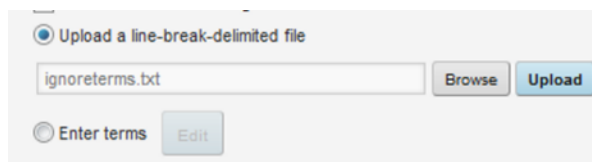
```
white wine
red wine
```

The terms in the blacklist match exactly the terms that would be extracted by the enrichment. For example, if the enrichment process extracts the term "white wine", but you only list "white" as a term to ignore, then "white wine" is still included in the extracted terms.

The characters must match exactly. For example, "resume" and "résumé" would not match.

Lines preceded by a # are considered comments, and are not processed as enrichments. You can, however, use the # character within a term.

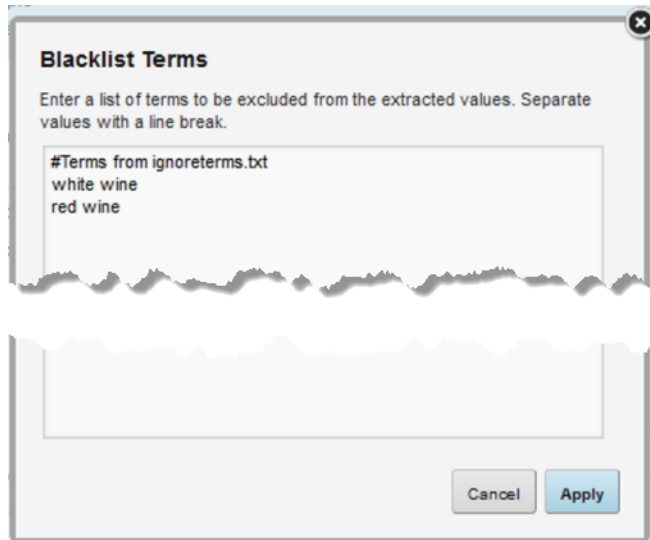
- (c) After selecting the file, to upload the contents into the enrichment configuration, click **Upload**.



5. To manually enter the terms to ignore:
 - (a) Click the **Enter terms** radio button.

- (b) To enter the terms, click the **Edit** button.

Note that if you previously uploaded a file with terms to ignore, then Studio displays the content of the file at the top of the **Blacklist Terms** dialog, with the file name included as a comment.



- (c) Enter the terms. Put each term on a separate line.
 (d) When you are finished entering the terms, click **Apply**.

6. Under **Output Options**:

- (a) In the **Output attribute** field, type the name of the attribute to populate with the extracted terms.

If the value is NCName-compliant, then Studio uses the value as entered for both the attribute key name and display name. If the value is not NCName-compliant, then Studio:

- Uses the value as entered for the display name
- For the key name, makes adjustments to the entered value, such as removing spaces and special characters, to create an NCName-compliant key name

Studio also makes adjustments to make the key name unique, so that it does not overwrite an existing attribute.

Also, if you change the name of output attribute after the enrichment has been run, then the next time you run the enrichment, a new output attribute is created. The original output attribute is still present, and remains unchanged.

- (b) To change the case of the extracted terms, check the **Change case of output values** checkbox, then click the radio button to select the case to use.



This setting only applies if the data is in a language that supports capitalization.

Configuring a Whitelist Tagging enrichment

A Whitelist Tagging enrichment extracts terms from an attribute, then uses the extracted terms to create a new multi-value attribute. The value is a comma-separated list of the extracted phrases.

The terms may be either:

- Terms provided in a whitelist file
- Terms entered manually for the enrichment configuration

For a Whitelist Tagging enhancement:

1. To only include terms that are in the same case as the provided terms, check the **Case-sensitive matching** checkbox.

For example, if the term entered is "Burgundy", then if the matching is case-sensitive, the term "burgundy" is not included.

2. To upload a text file containing the terms to extract:
 - (a) Click the **Upload a line-break-delimited file** radio button.
 - (b) To search for and select the file, click the **Browse** button.

The file must be a plain text file in UTF-8 format, with each term on a separate line. For example:

```
helpful
very knowledgeable
rude
return
polite
```

Lines preceded by a # are considered comments, and are not processed as enrichments. You can, however, use the # character within a term.

The characters must match exactly. For example, "resume" and "résumé" would not match.

Whitelist tagging also supports syntax where when Studio finds selected terms, instead of setting the value of the output attribute to the list of found terms, it sets the value to a specific value that you provide.

The syntax for this is:

```
(value|value|value)->outputValue
```

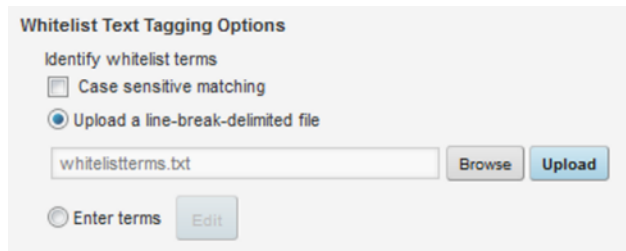
Where:

- *value* is a term to search for. You use the | character to separate multiple terms.
- *outputValue* is the value to assign to the output attribute if one of the terms is found in the input attribute.

In the following example, if the term "nice" or "pleasant" or "fun" is found, then the value of the output attribute is set to "Positive". If the term "poor" or "awful" is found, then the value of the output attribute is set to "Negative".

```
(nice|pleasant|fun)->Positive
(poor|awful)->Negative
```

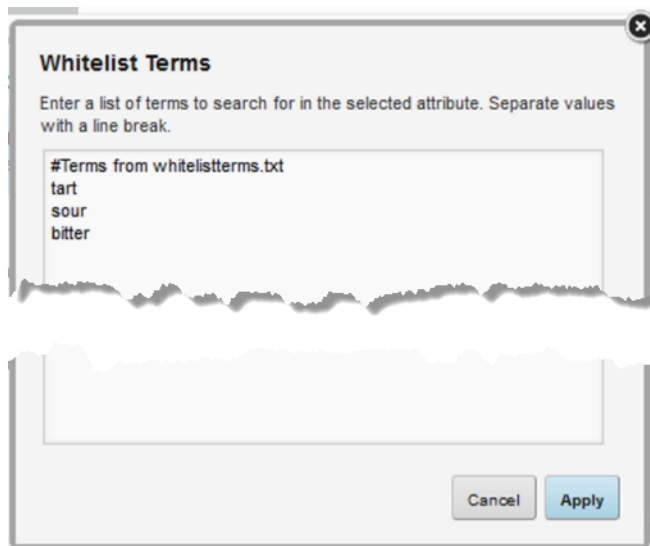
(c) To upload the selected file, click the **Upload** button.



3. To manually enter the terms to extract:

- (a) Click the **Enter terms** radio button.
- (b) Click the **Edit** button.

Note that if you previously uploaded a file with terms to ignore, then Studio displays the content of the file at the top of the **Whitelist Terms** dialog, with the file name included as a comment.



- (c) On the dialog, enter the terms. Place each term on a separate line.
- (d) When you are finished entering the terms, click **Apply**.

4. Under **Output Options**:

(a) In the **Output attribute** field, type the name of the attribute to populate with the extracted terms.

If the value is NCName-compliant, then Studio uses the value as entered for both the attribute key name and display name. If the value is not NCName-compliant, then Studio:

- Uses the value as entered for the display name
- For the key name, makes adjustments to the entered value, such as removing spaces and special characters, to create an NCName-compliant key name

Studio also makes adjustments to make the key name unique, so that it does not overwrite an existing attribute.

Also, if you change the name of output attribute after the enrichment has been run, then the next time you run the enrichment, a new output attribute is created. The original output attribute is still present, and remains unchanged.

- (b) To change the case of the extracted terms, check the **Change case of output values** checkbox, then click the radio button to select the case to use.

This setting only applies if the data is in a language that supports capitalization.

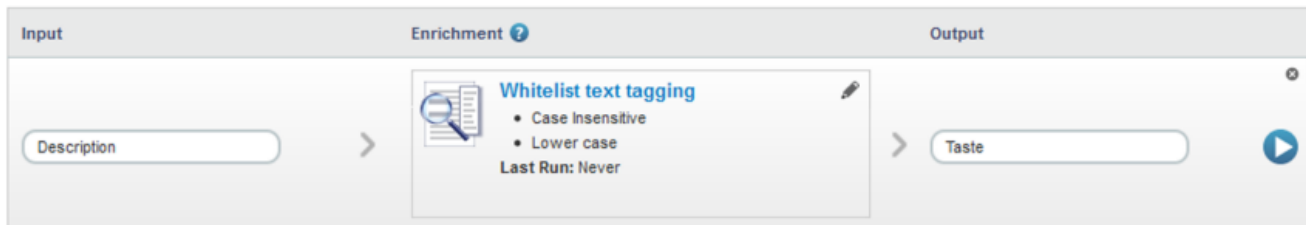
The screenshot shows a dialog box titled "Output". It contains the following elements:

- Output attribute:** A text input field containing the word "Taste".
- Change case of output values:** A checked checkbox.
- Case selection:** Three radio buttons labeled "Title case", "Upper case", and "Lower case". The "Lower case" radio button is selected.
- Buttons:** "Cancel" and "Save" buttons located at the bottom right of the dialog.

Running an enrichment

Running an enrichment processes the enrichment rule and makes the appropriate updates to the data set.

From the **Enrichments** tab of a data set, to run an enrichment, click its run button in the **Output** column.



Studio runs the enrichment, which includes:

1. For an Extract Terms enrichment, completing a training pass to get a sense of the terms that are present in the data.

Note that for an Extract Terms enrichment, if your data set is very small, Studio may not be able to find any relevant terms. If it can't determine which terms are relevant, then it does not create the output attribute.

2. Extracting the terms from the selected input attribute.
3. Using the extracted terms to populate the output attribute.

The first time you run the enrichment, Studio adds the output attribute to the data set.

When you run the enrichment subsequently, Studio replaces the values of the output attribute.

Note that unless you have changed the data (for example, by adding or reloading records), or changed the blacklist or whitelist terms, you will get the same results each time you run the enrichment.

While an enrichment is running, you cannot:

- Run any other enrichments
- Save changes to the configuration of any enrichments
- Delete any enrichments
- Add records to the data set
- Reload records into the data set

When the enrichment finishes running, Studio displays a message indicating that the run process is complete. When that message is displayed, before you can resume configuring and running enrichments, you must reload the page.

The output attribute:

- Is a multi-value string attribute.
- Can be used as a dimension.
- By default, uses the Multi-And refinement behavior.

You can, if needed, use the **Views** page to change this. See [Configuring the Available Refinements behavior for base view attributes on page 148](#).

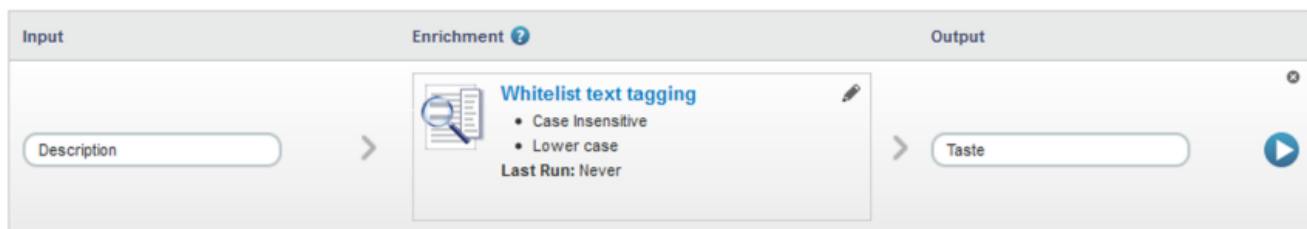
- Is enabled for both value search (**Search Box** type-ahead) and text (keyword) search.

However, you must manually update the **Search Box** configuration to indicate to include the new attribute in the type-ahead results. See [Configuring search options for the Search Box component on page 274](#).

- Is added to the first search interface associated with the Endeca Server data domain.

Deleting enrichments

From the **Enrichments** tab of a data set, to delete an enrichment, click its delete icon, which is in the **Output** column.



You cannot delete an enrichment that is currently running.

Note that when you delete an enrichment, you are only deleting the enrichment itself. Deleting the enrichment does not undo any changes made as a result of running the enrichment. For example, it does not delete the output attributes.

Managing the base filter for a data set

A base filter allows you to provide a restricted view of the data set data. You might want to use a base filter if the full data set would not be meaningful or useful to end users.

For each data set, you can create a single base filter that restricts the data based on the value of an attribute. Data sets can also inherit base filters from other data sets because of refinement rules.

You can configure whether end users can see the base filter value on the **Selected Refinements** component. If the filter value is displayed, then you can also determine whether end users can select a different value for the base filter attribute.

End users cannot remove base filters, and cannot add refinements for other values from the same attribute. So if you create a base filter for an attribute, especially an attribute that allows multi-OR selection, you should exclude that attribute from the **Available Refinements** component.

If the base filter attribute is also part of a refinement rule, then the other attributes that belong to that rule are also refined. Other refinements to the other attributes in the same refinement rule do not affect the base filter attribute.

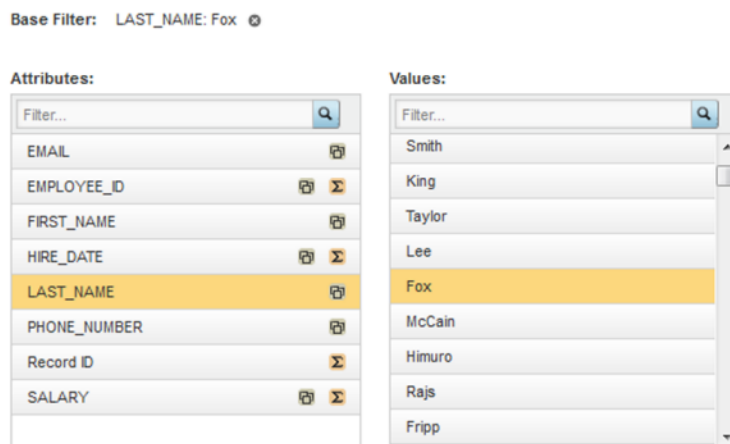
Studio also rejects any filters for the base filter attribute from deep link URLs.

For each data set, from the **Data Sets** page, you can manage the base filter. The configuration includes the attribute value and the available end user options.

To configure the base filter for a data set:

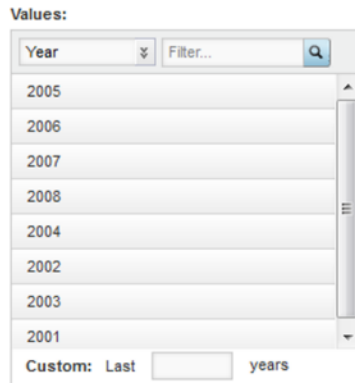
1. Click the **Overview** link for the data set.
The **Overview** tab of the data set page is displayed.
2. Click the **Base Filter** tab.
3. On the **Base Filter** tab, to select an value for a non-date attribute:
 - (a) In the **Attributes** list, click the name of the attribute.
You can use the filter field to find a specific attribute.
The **Values** list is updated with the values for the selected attribute.
 - (b) In the **Values** list, click the value you want to use.

The filter is displayed above the attribute and value lists.



4. To use a date attribute:
 - (a) In the **Attributes** list, click the name of the attribute.

The **Values** list is updated with the values for the selected attribute.



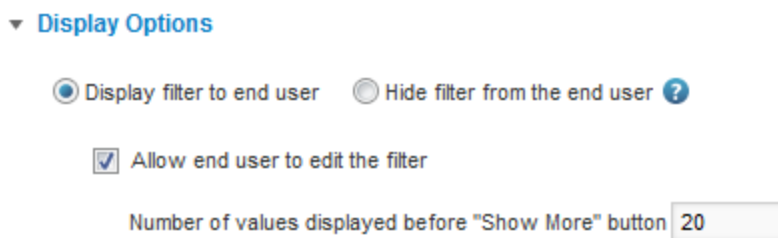
- (b) From the date unit drop-down list, select the date/time subset to use for the list of values.

The list of values is updated to reflect the selected date/time subset.

The **Custom** setting below the list is updated to reflect the lowest unit in that date/time subset.
- (c) To select a specific date/time value, click the value in the list.
- (d) To instead select a range from the current date (for example, last 2 years or last 6 months), in the **Custom** field, enter the number.

The range uses the displayed unit of time. For example, if you select Year-Month as the date subset, then the range would be the last *n* months. If you select Year-Month-Day, then the range would be the last *n* days.

5. Under **Display Options**, to configure the end user options for the filter:



- (a) By default, the filter is displayed on the **Selected Refinements** component. To hide the filter, click the **Hide filter from the end user** radio button.
- (b) If the filter is displayed, then to allow end users to select a different value for the attribute, check the **Allow end user to edit the filter** checkbox.

End users can never edit "last *n*" filters for dates. For example, if you set the filter to include records with a date attribute within the last 6 months, then end users cannot change that filter.

- (c) If end users can edit the filter, in the **Number of values to display before "Show More" button** field, type the number of values to display initially when end users display the list of available values.

If there are more values than that number, Studio displays a **Show More** button to allow end users to see the rest of the values.

6. To remove the base filter, click its delete icon.
7. To save the change to the data set configuration, click **Save**.

Deleting a data set

From the **Data Sets** page, to remove a data set from the application, click its delete icon.

When you delete a data set, Studio:

- Removes the data set
- Removes the base view associated with the data set
- For other views based on the data set, if the view contains data from multiple data sets, displays a warning that the view is no longer valid.

Components tied to related views also display a message indicating that the data has changed.

Do not delete the only data set in an application. There should always be at least one data set present in the application.



Chapter 15

Using Refinement Rules to Link Attributes from Different Data Sets

Refinement rules allow refinements to an attribute in one data set to also affect attributes in one or more other data sets.

About refinement rules

Displaying the refinement rules for an application

Enabling and disabling refinement rules

Adding a refinement rule to an application

Changing the configuration of a refinement rule

Deleting a refinement rule

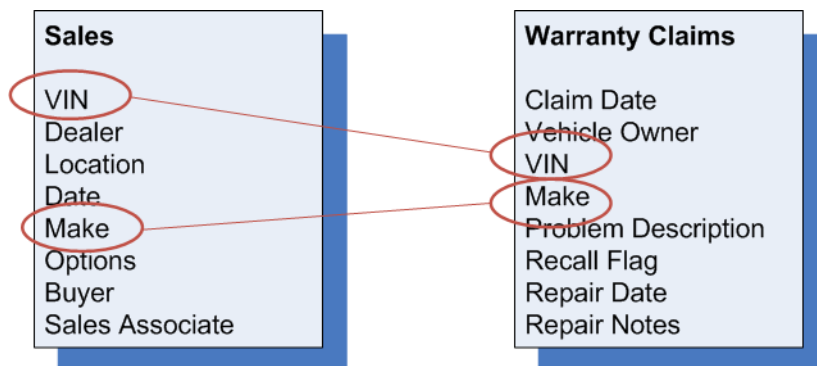
About refinement rules

For applications that contain multiple data sets, refinement rules allow you to connect attributes from the different data sets.

When end users refine a data set by an attribute that belongs to a refinement rule, other data sets are refined by other attributes that belong to the refinement rule.

Refinement rules work best with attributes that have the same or similar set of values.

For example, a sales data set for automotive data includes the make and vehicle ID number (VIN) of cars that were sold. Another data set containing warranty claims also includes the make and VIN of cars for which warranty claims were filed.



If you then create refinement rules for the make and VIN attributes, then when users refine one data set by a make or VIN, the other data set also is refined by that make or VIN.

Date attributes are another type of attribute that benefit from refinement rules. For example, when refining a sales transaction data set by the sales date, the Twitter posts data set is refined by the post date.

When you add a data set to an existing application, you can have Studio automatically create refinement rules for attributes that have the same attribute name, data type, multi-value setting, and refinement behavior. You can then use the **Refinement Rules** page to edit and remove those rules.

A refinement rule can only contain one attribute from each data set.

Displaying the refinement rules for an application

The **Refinement Rules** page is available from the **Application Settings** page. If an application only has a single data set, then the **Refinement Rules** option is not displayed.

From within an application, to display its refinement rules:

1. From the administrator menu, select **Application Settings**.
2. On the **Application Settings** page, click **Refinement Rules**.

The **Refinement Rules** page displays the list of refinement rules for the application.

Each tile contains a data set/attribute combination. If the rule items do not fit within the page, then use the arrow icon at the right to display additional items.

The area at the left of the rule is used to indicate when a refinement rule is invalid.

To display the details as to why a refinement rule is invalid, click the error icon.

- To only display rules that contain an attribute from a specific data set, from the **Show rules for** drop-down list, select the data set.
- To display the sample values for each attribute in a rule, click the expand icon for the rule.

<input checked="" type="checkbox"/>	Product Category Name Products	Sales_ProductCategoryName Sales	+	e
	Sample values Accessories Bikes Clothing Components	Sample values Accessories Bikes Clothing Components		

If the sample values do not match well, then Studio displays a warning message.

Enabling and disabling refinement rules

On the **Refinement Rules** page, the **Enable all refinement rules** checkbox allows you to enable or disable all of the refinement rules. You can also enable and disable individual refinement rules.

Refinement rules that are invalid are disabled automatically and cannot be enabled.

To control whether refinement rules are enabled or disabled:

- To enable all of the valid refinement rules, check the **Enable all refinement rules** checkbox.

When you check the checkbox, the checkboxes for all of the valid refinement rules are checked.

Checkboxes for invalid rules are not checked.

If there is a mix of enabled and disabled rules, the **Enable all refinement rules** checkbox displays using a third state (neither checked nor unchecked).

in a refinement rule, the refinement is automatically disabled if the rule does not contain attributes from at least two data sets.

Enable all refinement rules ?

Full Name abc

- To enable an individual refinement rule, check its checkbox.
- To disable all of the refinement rules, uncheck the **Enable all refinement rules** checkbox.
When you uncheck the checkbox, the checkboxes for all of the refinement rules are unchecked.
- To disable an individual refinement rule, uncheck its checkbox.

Adding a refinement rule to an application

When you add a new refinement rule, you select the data sets and attributes to include. The attributes must have the same data type, multi-value setting, and refinement behavior. A new refinement rule must contain at least two data set/attribute combinations.

To add a refinement rule to an application:

1. On the **Refinement Rules** page, click **+ Refinement Rule**.
2. On the **New Refinement Rule** dialog, from the **Data Set** drop-down list, select a data set to include in the refinement rule.

The **Attribute** list is updated to display the refinable attributes for that data set.

3. In the **Attribute** list, double-click the attribute you want to use.

New Refinement Rule

A refinement rule links attributes with shared values from across two or more data sets. When end users refine by an attribute included in a refinement rule, the refinement is automatically applied to the other attributes in the rule. Each refinement rule must include valid attributes from at least two data sets.

Select the data set from the drop-down list, then click to select an attribute.

Data Set: Products

Filter...

Attribute

Product_Class	☺
Product_DaysToManufacture	☺
Product_FinishedGoodsFlag	☺
Product_Key	☺
Product_Line	☺
Product_ModelName	☺
Product_Size	☺
Product_Status	☺
Product_Style	☺

Cancel Add to Rule

You can also click the attribute, then click **Add to Rule**.

The attribute is displayed at the top of the dialog, and the data set and attribute selections are cleared to allow you to select the second data set and attribute.

- From the **Data Set** drop-down list, select the second data set for the refinement rule.

The **Attribute** list is updated to show the available attributes. You can only select attributes that:

- Can be used for refinement
- Have the same data type as the first attribute
- Have the same refinement behavior (single, multi-or, or multi-and) as the first attribute
- Have the same multi-value setting as the first attribute. So if the first attribute is multi-value, the other attributes also must be multi-value.
- Are not already being used in another refinement rule

Note that if an attribute is being used as a base filter for a data set, then it will not accept any other refinements from other attributes. The base filter refinement will automatically apply to the other attributes in the refinement rule, and cannot be removed.

- In the **Attribute** list, double-click the attribute for the second data set.

New Refinement Rule

Product_Line
Products
Data type: String | Single-select | Single-value

Select the data set from the drop-down list, then click to select an attribute.

Data Set: Sales

Filter...

Attribute	
Carrier Tracking Number	☺
Customer PO Number	☺
Order Time	☺
Product Line	☺
Record Spec	☺

Cancel Add to Rule Apply

- When you have finished adding attributes to the refinement rule, click **Apply**.
- To save the changes to the refinement rule list, on the **Refinement Rules** page, click **Save**.

Changing the configuration of a refinement rule

For an existing refinement rule, you can add attributes, change the selected attribute for a data set, and remove attributes.

To change the refinement rule configuration:

1. To add attributes to a refinement rule:

- (a) For the refinement rule, click the **+** button for that rule.

If there are no additional attributes to add to the rule, then the add option is not available.

You cannot add attributes to a rule if:

- The rule already contains attributes from all of the data sets.
- The other data sets do not contain any attributes with the same data type, refinement behavior, and multi-value setting.

When you click the **+** button, the **Edit Refinement Rule** dialog displays. At the top of the dialog are the currently selected data sets and attributes.

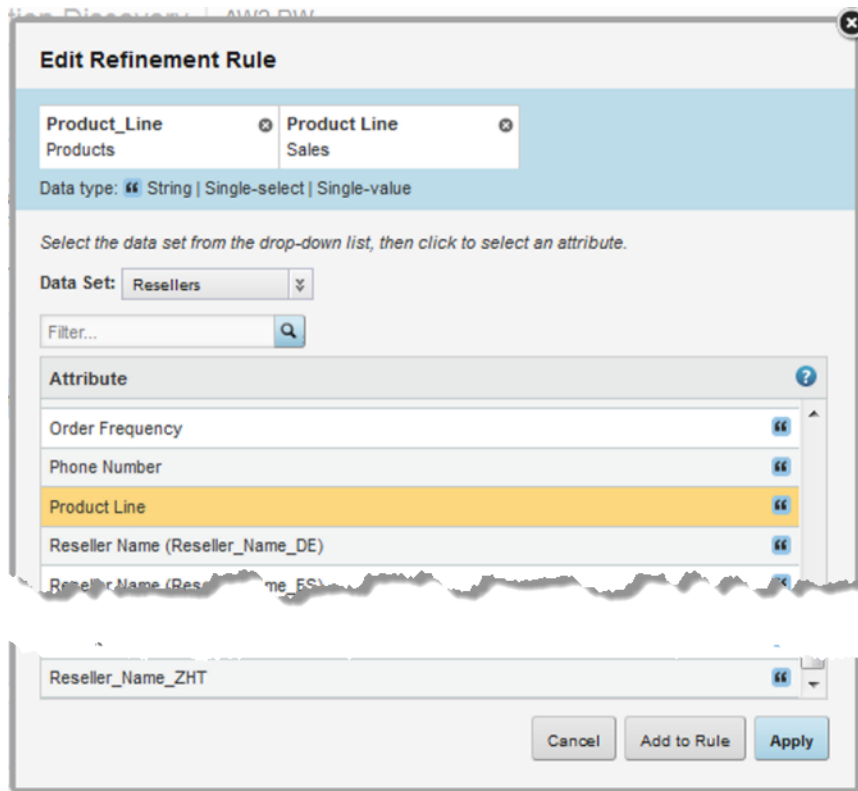
- (b) On the **Edit Refinement Rule** dialog, from the **Data Set** drop-down list, select the data set.

If there is only one available data set, then it is selected automatically.

When you select the data set, the **Attribute** list is updated to show attributes that:

- Can be used for refinement
- Have the same data type as the other attributes
- Have the same refinement behavior (single, multi-or, or multi-and) as the other attributes
- Have the same multi-value setting as the other attributes. So if the other attributes are multi-value, the new attribute also must be multi-value.
- Are not already being used in another refinement rule

- (c) In the **Attribute** list, to add the attribute to the refinement rule, double-click the attribute.



You can also click the attribute, then click **Add to Rule**.

- (d) You can continue adding attributes until you have added attributes from all of the data sets.
- (e) To save the changes, and close the dialog, click **Apply**.
2. To remove an attribute from a refinement rule, click the delete icon for the data set.
 3. To change the selected attribute for a data set:
 - (a) Remove the attribute from the refinement rule.
 - (b) Add the attribute you want to change to.
 4. To save the changes to the refinement rule list, on the **Refinement Rules** page, click **Save**.

Deleting a refinement rule

To delete an entire refinement rule, on the **Refinement Rules** page, click the delete icon for the entire rule.

To save the changes to the refinement rule list, click **Save**.



Chapter 16

Defining Views of Application Data

You can use the **Views** page to configure a set of views for application data. Views are used by components to determine the data to display.

[About views](#)

[About base views](#)

[Displaying the list of views for an application](#)

[Displaying details for a view](#)

[Managing locale-specific attributes](#)

[Creating views](#)

[Configuring a view](#)

[Previewing the content of a view](#)

[Determining whether a view is published](#)

[Deleting a view](#)

About views

A view is a logical collection of information that is derived from the records in application data sets.

For example, the original records in a data set may represent individual sales transactions. However, from those transaction records, you could derive:

- A list of products
- A list of customers
- A summary of sales data grouped by year

Each of those could be a view.

All views are made up of attributes. Some attributes may be the physical attributes from a data set, while others may be calculated from the original data.

For example, for a list of products derived from a list of sales transactions, the product name comes directly from the data, while the total sales for that product is calculated from the individual sales records.

Views can optionally have predefined metrics, which are values calculated from view attributes using EQL expressions.

For example, for sales transaction data, a predefined metric might be the profit margin.

About base views

Each data set is automatically configured with a base view, which contains all of the physical attributes from the data set. The base view uses the name and description from the data set.

While you cannot change the definition of a base view, or add predefined metrics to a base view, you can configure base view attributes.

Displaying the list of views for an application

On the **Application Settings** page, the **Views** page allows you to view and edit the views for the current application's data.

To display the list of views for an application:

1. From the administrator menu, select **Application Settings**.
2. In the **Application Settings** menu, click **Views**.

On the **Views** page, the **Views** list is populated with the views for the application. For each view, the list shows the display name, key, type, data sets, and identifying attributes. The first base view is selected by default.

Views

Configure the data views for your application. Select a view from the list at the top to see and configure its details.

Publish	View Name	View Key	Type	Data Set(s)	Record Identifier(s)	Actions
<input checked="" type="checkbox"/>	Bizwine Denormalized	bizwine-classic	Base	Bizwine Denormalized	Transaction Id	
<input checked="" type="checkbox"/>	Caterers	Caterers	Custom	Bizwine Denormalized	Customer Id	
<input checked="" type="checkbox"/>	Customers	Customers	Custom	Bizwine Denormalized	Customer ID	
<input checked="" type="checkbox"/>	Exporters	CaterersCopy	Custom	Bizwine Denormalized	Customer Id	

Selected View: Bizwine Denormalized (bizwine-classic) View Definition Preview Revert to Last Save Save View

Publish

Display name: Bizwine Denormalized

Default view description: The classic bizwine data set, in which dimensional data about wine suppliers, products, and business accounts are denormalized onto sales transaction facts.

Record Identifier(s): Transaction Id

Attributes

Display Name	Attribute Key	Refinable	Multi-Value	Data Type	Standard Format	Dimension
Booking Month		

Displaying details for a view

To display the details for a view, in the views list, click the view name.

The view details section is populated with

- Whether the view is published.
If the view is not published, then it is not available to use for components. You cannot publish views that do not have a valid view definition.
- View name
- View description
- Identifying attributes for the view
- Attributes list.
The attributes list does not display for views that do not have a valid view definition.
- Predefined metrics list.
The predefined metrics list does not display for views that do not have a valid view definition.

Views + View

Publish	View Name	View Key	Type	Data Set(s)	Record Identifier(s)	Actions
✓	Bizwine Denormalized	bizwine-classic	Base	Bizwine Denormalized	Transaction Id	
✓	Caterers	Caterers	Custom	Bizwine Denormalized	Customer Id	
✓	Customers	Customers	Custom	Bizwine Denormalized	Customer ID	
✓	Exporters	CaterersCopy	Custom	Bizwine Denormalized	Customer Id	

Selected View: Customers (Customers) Validate Edit Definition Preview Revert to Last Save Save View

Publish

Display name:

Default view description:

Record Identifier(s): Customer ID

▼ Attributes

Display Name	Attribute Key	Refinable	Multi-Value	Data Type	Standard Format	Dimension
Business Type	Business_Types	✓	—	String	(string)	<input checked="" type="checkbox"/>
Cases Purchased	TotalCustomerCases	—	—	Number (long)	Number	<input type="checkbox"/>
City	Cities	✓	—	String	(string)	<input checked="" type="checkbox"/>

Managing locale-specific attributes

The physical data can include locale-specific versions of attribute values. When users select a different locale, the locale-specific data is displayed. For example, for a Product Category attribute, when users change to the Spanish locale, the value "Dresses" changes to "Vestidos".

Each locale-specific version of an attribute value is implemented as an individual attribute in Endeca Server.

The schema record for the default locale version of the attribute includes the `system-
eid_localizedAttribute` parameter, which maps the other locales to the locale-specific versions of that attribute.

Here is an example of mapping locales to locale-specific attributes:

```
{ "zh_CN": "Product_Category_zh_CN",  
  "es": "Product_Category_es",  
  "fr": "Product_Category_fr" }
```

The **Views** page and the **Attribute Groups** page list all of the locale-specific attributes separately. When creating attribute groups, you must manually add all of the locale-specific attributes to a group. They are not added automatically.

When you are editing a component, you only see the default locale version of the attribute.

On the **Views** page, attributes identified as localized versions of other attributes are read-only. They automatically inherit formatting and other settings from the default locale version of the attribute. To set the display names and descriptions for these attributes, you localize the default locale version of the attribute. See [Editing and localizing an attribute display name and description on page 140](#).

Display Name ▲	Attribute Key
Business Type 	Reseller_Business...
Business Type 	Reseller_Business...
Business Type 	Reseller_Business...
Business Type 	Reseller_Business...
Business Type 	Reseller_Business...

To display a tooltip listing the attribute for which an attribute is the localized version, hover the mouse over the display name or attribute key.

If the localized versions of the attributes were not identified when the data was initially added, then in the base views, you can use the **Views** page to identify them.

For base views, to identify the localized versions of an attribute:

1. Click the flag icon for the default locale version of the attribute.
2. On the **Configure Locale Options** dialog, click the **Attributes** tab.
3. For each locale for which there is a localized version of the attribute:
 - (a) From the locale drop-down list, select the locale.
 - (b) In the attributes list, click the localized version of the attribute.
 - (c) To change to a different attribute, click the new attribute.
 - (d) To remove the assignment, and not have a localized version, click the currently selected attribute again.

The selected attribute is no longer highlighted.

4. After selecting all of the localized versions, click **Apply**.

Creating views

From the **Views** page, you can either create a new empty view, or make a copy of an existing view.

[Creating a completely new view](#)

[Copying an existing view](#)

Creating a completely new view

One option for creating a new view is to create a completely new view.

On the **Views** page, to add a new view to the application:

1. On the views list, click **+ View**.

The **Create View Definition** dialog is displayed.

2. In the **Display Name** field, type a name for the view.
3. In the **Description** field, type a description of the view.
4. In the EQL text area, enter the view definition.

For details on defining a view definition, see [Guidelines for using EQL to define a view on page 135](#).

To the right of the text area is the **Available Attributes** list, which contains the list of base attributes. You can show or hide this list.

You can use the attributes list as a reference as you compose the view definition. To add an attribute to the definition, you can also double-click or drag and drop the attribute from the list. Studio automatically adds quotes around the inserted attribute, in case the attribute name contains reserved characters in EQL.

Note that if you include a base attribute that has locale-specific versions, then for those locale-specific versions to be available in the new view, you must manually include them in the view definition.

- To validate the definition, click **Validate**.

If the definition is not valid, then Studio displays error messages to help you troubleshoot the definition.

- To save the new view, click **Save**.

If the view definition is valid, then the view is saved and can be published.

If the view definition is not valid, then you are prompted to confirm that you want to save an invalid view. If you save the view, it is flagged as invalid and cannot be published.

Copying an existing view

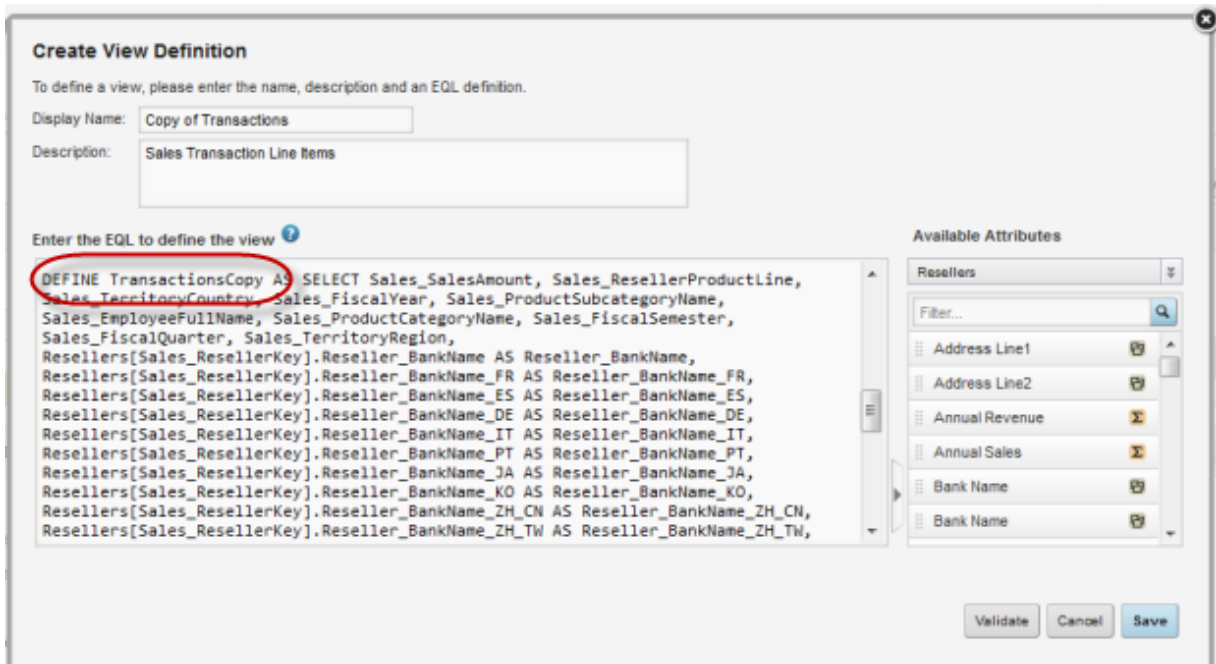
You can create a view by copying another view. The new view initially has the same definition, attributes, and metrics as the original view. Studio also copies the attribute groups.

To create a view by copying an existing view:

- In the view list, in the **Actions** column, click the copy icon for the view you want to copy.

The **Create View Definition** dialog is displayed. By default:

- The view display name is "Copy of <copiedViewName>".
- The view key in the view definition is set to "<copiedViewKeyName>Copy".
- The view description and the rest of the view definition are identical to the copied view.



2. Update the view name, description, view key, and definition as needed.

Note that you cannot change the view key after you save the new view, so make sure you update the value before saving.

Remember also that the view key must be NC-Name compliant.

3. To validate the new view, click **Validate**.
4. To save the new view, click **Save**.

Configuring a view

From the **Views** page, you can edit each view's display name, description, definition, attributes, and predefined metrics.

[Editing and localizing the view display name and description](#)

[Editing the view definition](#)

[Guidelines for using EQL to define a view](#)

[Configuring the view attributes](#)

[Defining predefined metrics for a view](#)

Editing and localizing the view display name and description

On the **Views** page, when you select a view from the view list, the view details include the **Display name** and **Default view description** fields.

The screenshot shows the configuration interface for a view named 'Customers'. At the top, it says 'Selected View: Customers (Customers)'. Below this are several buttons: 'Validate', 'Edit Definition', 'Preview', 'Revert to Last Save', and 'Save View'. The main configuration area includes a 'Publish' checkbox which is checked. Below that are three fields: 'Display name' with the value 'Customers' and a localize icon; 'Default view description' with the text 'Customer information, including summaries of their sales transactions.' and a localize icon; and 'Record Identifier(s)' with the value 'Customer ID'. At the bottom left, there is a dropdown menu for 'Attributes'.

The display name and description are used when showing the list of available views to assign to a component.

For views other than base views, you can create localized versions of the name and description. Base views use the name and description of the data set. To edit or localize the name and description of a base view, you edit the data set. See [Changing the name and description of a data set on page 101](#).

To edit and localize the view display name and description:

1. To edit the default display name and description:
 - (a) In the **Display name** field, type the display name for the view.
 - (b) In the **Default view description** field, type a description of the view.
2. To localize the view display name and description, click the localize icon next to either field.

3. To localize the view display name:

- (a) On the **Configure Locale Options** dialog, click the **Display Name** tab.

The **Default display name** field contains the default name. If you edit the name here, it will be reflected on the main **Views** page.

- (b) From the locale drop-down list, select a locale for which to provide a version of the display name.

The screenshot shows the 'Configure Locale Options' dialog box for the 'Customer' view. At the top, the title is 'Configure Locale Options' and the view name is 'Customer'. Below this, there is a locale selector showing 'France | French'. The 'Display Name' tab is active, indicated by an orange header. The 'Description' tab is also visible. The 'Display name' section contains a text area with the instruction: 'For each locale, you can use the default view display name, or provide a localized value.' Below this, there is a 'Default display name:' field with the value 'Customer'. A checkbox labeled 'Use default value' is checked. At the bottom, there is a 'Display name:' field, also containing the value 'Customer'.

- (c) To use the default display name for the selected locale, leave the **Use default value** checkbox checked.
 - (d) To provide a localized display name, uncheck the checkbox. In the field, type the localized name.
4. To localize the view description:
 - (a) On the **Configure Locale Options** dialog, click the **Description** tab.

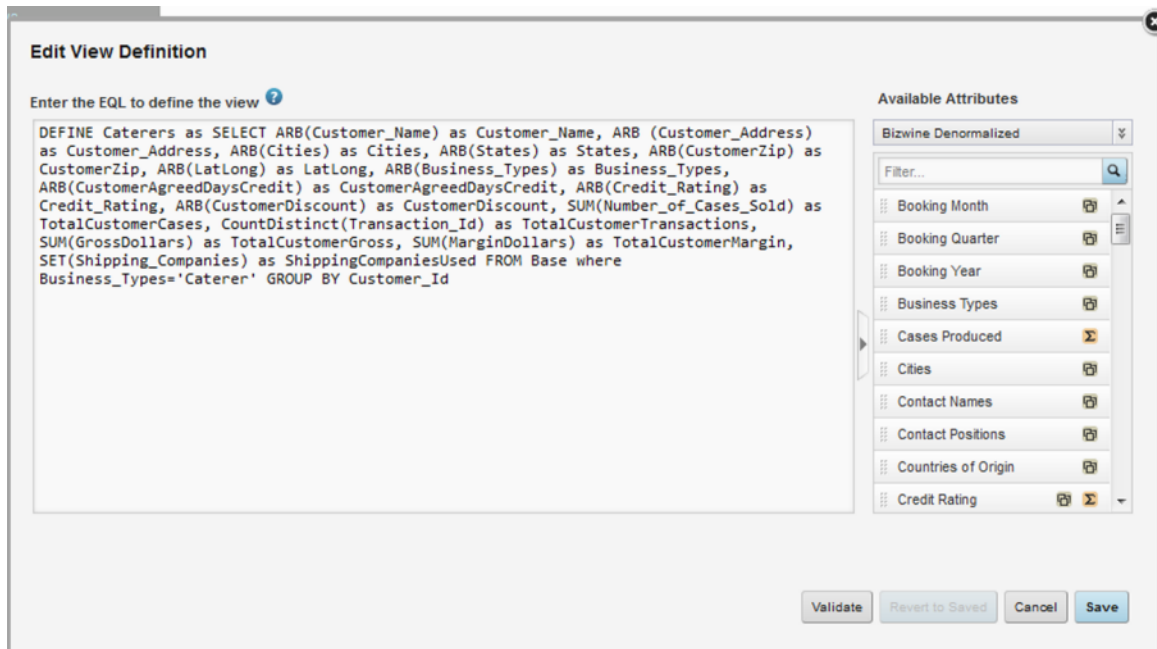
The **Default description** text area contains the default description. If you edit the description here, it is reflected on the main **Views** page.
 - (b) From the locale drop-down list, select a locale for which to provide a version of the description.
 - (c) To use the default description for the selected locale, leave the **Use default value** checkbox checked.
 - (d) To provide a localized description, uncheck the checkbox. In the text area, type the localized description.
 5. After providing all of the localized versions of the name and description, click **Apply**.
 6. To save the changes to the view, click **Save View**.

Editing the view definition

From the **Views** page, after you create a custom view, you can update the view EQL definition. Note that if you change the definition, you could affect components that are using the view, as well as other views that may use attributes from this view.

To edit a view definition:

1. In the view list, click the view.
2. Click **Edit Definition**.
3. On the **Edit View Definition** dialog, update the view definition.



For details on the rules for setting a view definition, see [Guidelines for using EQL to define a view on page 135](#).

4. To validate the new definition, click **Validate**.

If the definition is invalid, then Studio displays error messages to help you troubleshoot the definition.

5. To save the new definition, click **Save**.

If the view definition is valid, then the attribute and metrics lists are updated to reflect the new definition.

If the view definition is not valid, then you are prompted to confirm that you want to save an invalid view. If you save the view, it is flagged as invalid and cannot be published.

Guidelines for using EQL to define a view

The view definition EQL defines the content of the view. When defining a view, you need to keep the following guidelines in mind. For complete details on EQL syntax, see the *Oracle Endeca Server EQL Guide*.

View DEFINE and SELECT statements

A view definition may contain multiple `DEFINE` and `SELECT` statements.

The last statement must be a `DEFINE` statement that contains all of the view attributes. The name of that `DEFINE` statement is used as the view key, and cannot be changed. If you try to change the view key for an existing view, the corresponding components will no longer work.

Providing the source view for the view attributes

For all custom view definitions, you must use the `FROM` parameter to provide the original source of the view attributes.

For example, if you create a copy of a base view, you will see that the view definition includes the view key for that base view.

```
DEFINE Customers as SELECT
ARB(Customer_Name) as Customer_Name,
ARB (Customer_Address) as Customer_Address,
ARB(Cities) as Cities,
ARB(States) as States,
ARB(CustomerZip) as CustomerZip,
ARB(LatLong) as LatLong,
ARB(Business_Types) as Business_Types,
ARB(CustomerAgreedDaysCredit) as CustomerAgreedDaysCredit,
ARB(Credit_Rating) as Credit_Rating,
ARB(CustomerDiscount) as CustomerDiscount,
SUM(Number_of_Cases_Sold) as TotalCustomerCases,
CountDistinct(Transaction_Id) as TotalCustomerTransactions,
SUM(GrossDollars) as TotalCustomerGross,
SUM(MarginDollars) as TotalCustomerMargin,
SET(Shipping_Companies) as ShippingCompaniesUsed
FROM "wine-sales"
GROUP BY Customer_Id
```

When identifying the source view, make sure to use the view key, and not the view display name.

Also, when referring to another view, you can only refer to the final `DEFINE` statement that identifies the attributes for other view. You cannot refer to any intermediate `DEFINE` or `SELECT` statements in that view definition.

Grouping a view

All custom views should have at least one grouping (`GROUP BY`) attribute.

Studio uses the `GROUP BY` attributes as the identifying attributes for the view records.

If there are no `GROUP BY` attributes, then there are no identifying attributes, and the view cannot be used for **Record Details** or **Compare**. On component edit views, the **Record Details** and **Compare** options are then automatically disabled.

Using multi-value attributes for grouping

When using a multi-value attribute for grouping, you must indicate whether to group by the individual values, or by the sets of values assigned to the records.

- To group by the sets of values, use `GROUP BY`.
- To group by the individual values, use `GROUP BY MEMBERS`. The syntax for `GROUP BY MEMBERS` is slightly different from `GROUP BY`:

```
GROUP BY MEMBERS(attributeName) as attributeName
```

For example, the following data shows available product colors, and the number of outlets that carry each product:

ItemColors	AvailableOutlets
Red, Blue	3
Red	5
Red, Blue, White	6
Red, Blue, White	4
Red, Blue	1

If you are calculating the total number of available outlets grouped by the item color, then:

- If you use `DEFINE NewView as SELECT TotalOutlets as sum(AvailableOutlets) FROM Sales GROUP BY ItemColors`, then the result is:

ItemColors	TotalOutlets
Red, Blue	4
Red	5
Red, Blue, White	10

- If you use `DEFINE NewView as SELECT TotalOutlets as SUM(AvailableOutlets) FROM Sales GROUP BY MEMBERS(ItemColors) as ItemColors`, then the result is:

ItemColors	TotalOutlets
Red	19
Blue	14
White	10

Providing aggregation methods when grouping view attributes

When defining a view, if you are using grouping, then you must provide an aggregation method for all of the attributes in the view, except for the grouping attributes.

If you are using aggregation to derive attributes from the physical attributes, then you can use the applicable aggregation methods for the attribute data type. See [Aggregation methods and the data types that can use them on page 150](#).

In some cases, you may want to display the actual values of physical attributes in a grouped view. For example, when you are grouping by product identifier, then you may want to include the product name, product description, and available sizes. When using grouping for a view, to include the actual values of physical attributes:

- For a single-value attribute, use the ARB aggregation method. For example:

```
SELECT ARB(Region) as Region
```

Note that if there are different values for an attribute within the grouping, Studio chooses a single, arbitrary value.

- For a multi-value attribute:
 - To get a single, arbitrary value for the attribute from each record, use the ARB aggregation method. For example:

```
SELECT ARB(ItemColors) as ItemColors
```

- To get the complete set of values for the records, use the SET_UNIONS aggregation method. For example:

```
SELECT SET_UNIONS(ItemColors) as ItemColors
```

If you are not using grouping, then you do not need an aggregation method. For example:

```
SELECT ProductName as ProductName
```

In this case, you do not need to specify the name, so you could also use:

```
SELECT ProductName
```

Naming view attributes

When naming attributes in a view:

- Do not change the name of (also referred to as aliasing) attributes from the physical data.

For example, for a "Region" attribute, when you add the attribute to a view, define it as "Region".

```
SELECT ARB(Region) AS Region
```

Do not define the attribute under a different name, such as:

```
SELECT ARB(Region) AS RegionList
```

End users can only refine by attributes that are present in the physical data. If you alias an attribute, then end users cannot use it for refinement.

- Do not give a derived attribute the same name as an attribute from the physical data.

For example, for an attribute that averages the values of the "Sales" attribute, do not define the new attribute as:

```
SELECT AVG(Sales) as Sales
```

Instead, use something like:

```
SELECT AVG(Sales) as AvgSales
```

This is also to prevent end users from trying to refine by an attribute that is not in the physical data.

Sample view definition

Here is an example of an EQL query for generating a list of products, including price, available colors, and sales numbers, from a single data set consisting of individual transactions.

```
DEFINE Products AS SELECT
ARB(ProductSubcategoryName) AS ProductSubcategoryName,
ARB(ProductCategoryName) AS ProductCategoryName,
ARB(Description) AS Description,
SET_UNIONS(AvailableColors) AS AvailableColors,
AVG("FactSales_SalesAmount") AS AvgSales,
SUM("FactSales_SalesAmount") AS SalesSum,
AVG(StandardCost) AS AvgStandardCost,
AVG(ListPrice) AS AvgListPrice,
(AvgListPrice - AvgStandardCost) AS Profit
FROM Sales
GROUP BY ProductName
```

Configuring the view attributes

For each attribute in the view, you can configure the display name and aggregation methods.

About the view attributes list

On the **Views** page, the attributes list for a view consists of the attributes from the view definition. This includes both the defined attributes and the grouping attributes. If there are locale-specific versions of attributes, they are all listed as separate attributes.

The list includes the following information about each attribute:

Attribute List Column	Description
Display Name	The display name for the attribute. Used to identify the attribute throughout the UI. You can edit and localize the display name at any time. See Editing and localizing an attribute display name and description on page 140 .
Attribute Key	The attribute identifier. Read-only. You cannot change the attribute key unless you update the view definition.

Attribute List Column	Description
Refinable	<p>Whether the attribute can be used for refinement.</p> <p>Only attributes from the physical data can be used for refinement.</p> <p>Read-only.</p>
Multi-Value	<p>Whether the attribute can be assigned multiple values.</p> <p>For a base view, this indicates whether the physical attributes are configured to be multi-value.</p> <p>For views you create, an attribute can be multi-value if you used the set aggregation for that attribute in the view definition.</p> <p>Read-only.</p>
Data Type	<p>The data type for the attribute.</p> <p>You cannot change the data type.</p> <p>For base views, for date/time attributes, you can configure the available subsets of date/time units that can be used for filtering and display. See Determining the available subsets of date/time attributes on page 142.</p>
Standard Format	<p>The default display format for the attribute values.</p> <p>For most data types, you can customize the default display format.</p> <p>String attributes can only be customized if they are multi-value.</p> <p>See Configuring the default display format for an attribute on page 143.</p>
Dimension	<p>Whether the attribute can be used as a dimension for aggregating metric values.</p> <p>To allow the attribute to be used as a dimension, check the checkbox.</p> <p>Note that multi-value date/time attributes cannot be used as dimensions.</p>
Available Aggregations	<p>The available aggregation methods for aggregating the values for this attribute into a metric.</p> <p>You can enable or disable available aggregation methods.</p> <p>See Selecting the available and default aggregation methods for an attribute on page 147.</p>

Attribute List Column	Description
Default Aggregation	The default aggregation method. You can change the default aggregation method. See Selecting the available and default aggregation methods for an attribute on page 147 .
Refinement Behavior	Displayed and editable for base views only. The type of refinement allowed for the attribute. Indicates whether users can select more than one value to refine by. See Configuring the Available Refinements behavior for base view attributes on page 148 .
Refinement Ordering	Displayed and editable for base views only. How to determine the display order of the available attribute values. See Configuring the Available Refinements behavior for base view attributes on page 148 .
Description	A short description of the attribute. You can edit and localize the attribute description at any time. See Editing and localizing an attribute display name and description on page 140 .

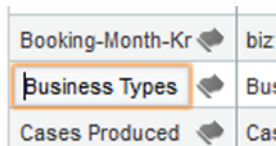
Editing and localizing an attribute display name and description

The attribute display name is used on the Studio user interface as the default label for the attribute. By default, the attribute display name is the same as the attribute key. The description provides additional information. You can edit both values, and also create localized versions for each of the supported locales.

In the attributes list on the **Views** page, to edit and localize an attribute's display name and description:

1. To edit the display name:
 - (a) Click the display name.

The name displays in an editable field.



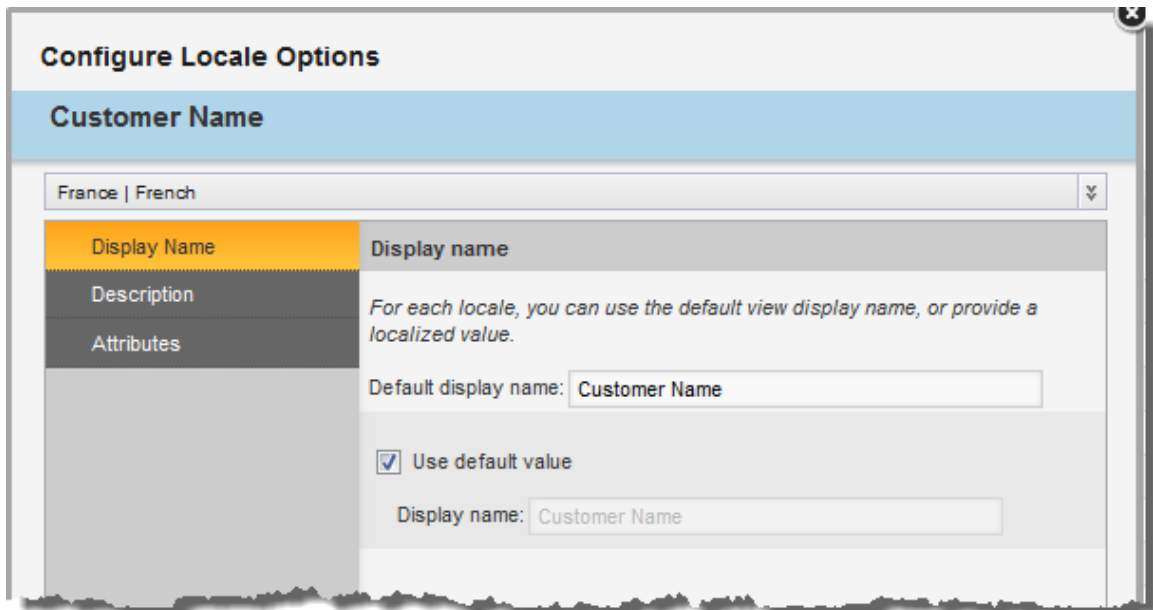
- (b) In the field, type the new name.

2. To localize the display name, in the **Display Name** column, click the localize icon.

On the **Display Name** tab of the **Configure Locale Options** dialog, the **Default display name** field contains the value you entered in the **Display Name** column. If you edit the value here, it also is updated in the attributes list.

For each locale:

- (a) From the locale drop-down list, select the locale for which to configure the display name value.



- (b) To use the default value, leave the **Use default value** checkbox checked.
 - (c) To provide a localized value for the selected locale, uncheck the checkbox. In the **Display name** field, enter the localized value.
 - (d) After entering the localized values, click **Apply**.
3. From the **Description** column, to edit the description:
 - (a) Click the description.

The description displays in an editable field.

- (b) In the field, type the new description.
4. To localize the description, in the **Description** column, click the localize icon.

On the **Description** tab of the **Configure Locale Options** dialog, the **Default description** field contains the value you entered in the column. If you edit the value here, it also is updated in the attributes list.

For each locale:

- (a) From the locale drop-down list, select the locale for which to configure the description.
- (b) To use the default description, leave the **Use default value** checkbox checked.
- (c) To provide a localized value for the selected locale, uncheck the checkbox. In the **Description** text area, enter the localized value.
- (d) After entering the localized values, click **Apply**.

- To save the changes to the attribute display name and description, click **Save View**.

Determining the available subsets of date/time attributes

For a date/time attribute, you can select the available combinations of date "parts" that can be used to display and filter by the attribute.

For example, you may want to allow users to filter by the specific month or combination of month and year.

On a component, users may choose to display an individual date/time element (Year, Month, Day, Hour, Minute, Second), or may be able to select one of the following date/time combinations:

Date/Time Display Option	Sample Value
Year-Month	January 2012
Year-Month-Day	January 1, 2012
Year-Month-Day-Hour-Minute-Second	January 1, 2012 3:15:05 am

On the **Views** page, you configure the available subsets of date/time units on base views only. The configuration then also applies in any other view that contains that attribute.

To configure the available subsets of date/time units:

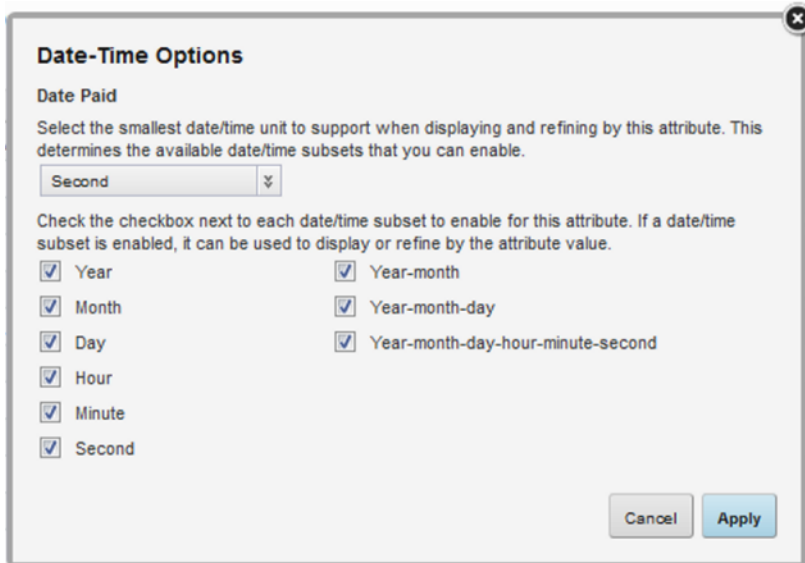
- In the **Data Type** column for a date/time attribute, click the edit icon.

The screenshot shows a table with three columns: an empty column, 'Data Type', and 'Standard'. The rows contain the following data:

	Data Type	Standard
	String	(string)
	String	(string)
	Date/Time	Date/Time
	String	(string)
	Date/Time	Date/Time
	String	(string)
	String	(string)

2. On the **Date-Time Options** dialog, from the drop-down list, select the smallest date/time unit to allow for this attribute.

Studio updates the checkboxes below the drop-down list to reflect the available options based on that lowest unit.



For example, if you set the lowest unit to day, then you cannot enable the display of hours, minutes, or seconds.

3. Check the checkbox next to each option to enable.
4. Click **Apply**.

Configuring the default display format for an attribute

By default, the display format for attribute values is based on the attribute's data type plus the user's current locale. You can change the default display format used for each attribute. Within specific components, you can then make some updates to the display format.

Note that you only configure the display format for the default locale version of the attribute. You do not configure formatting for the locale-specific attributes. Because the formatting configuration already takes the current locale into account, you do not need to configure the formatting for the locale-specific attributes separately.

From the attributes list on the **Views** page, to change the default display format for an attribute:

1. Click the edit icon in the **Standard Format** column.

The **Format Option** dialog is displayed.

At the top of the dialog is a sample value that displays the current formatting selection based on your current locale.

2. For numeric attributes:

Sample formatting (United States | English): 1,234,567.00 / -1,234,567.00 ⓘ

Type: number currency percentage

Decimal places: use default automatic ? 2 digits

Include grouping separator: use default ▼

▶ **Advanced Formatting**

- (a) Click the radio button to indicate the type of number.

A numeric attribute may be displayed as a regular number, a currency value, or a percentage.

Note that if you set a numeric attribute to be a currency or percentage, that selection cannot be overridden at the component level.

- (b) If the number is a currency value, then from the
- Currency**
- drop-down list, select the type of currency. This selection determines the symbol to display next to each value.

Sample formatting (United States | English): \$1,234,567.00 / (\$1,234,567.00) ⓘ

Type: number currency percentage

Currency: \$ ▼

Decimal places: use default automatic ? 2 digits

Include grouping separator: use default ▼

- (c) If the number is a percentage, then from the
- Include percentage sign**
- drop-down list, select whether to display the percentage (%) sign with the value.

Sample formatting (United States | English): 98.00% / -98.00% ⓘ

Type: number currency percentage

Include percentage sign: default ▼

Decimal places: use default automatic ? 2 digits

Include grouping separator: use default ▼

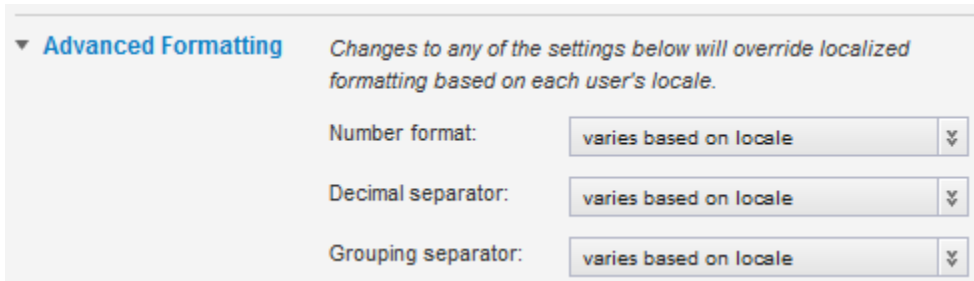
Note that if you use percentage as the format, Studio automatically multiplies the value by 100. So if the actual value is 0.05, Studio displays the value as 5%.

- (d) Under
- Decimal places**
- , to display all numbers using the same default number of decimal places, leave the
- use default**
- radio button selected.

To display all of the decimal places from the original value, up to 6 places, click the **automatic** radio button. Studio truncates any decimal places after 6, and removes any trailing zeroes.

To specify the number of decimal places to use for all numbers, click the custom radio button, then in the field, type the number of decimal places to display.

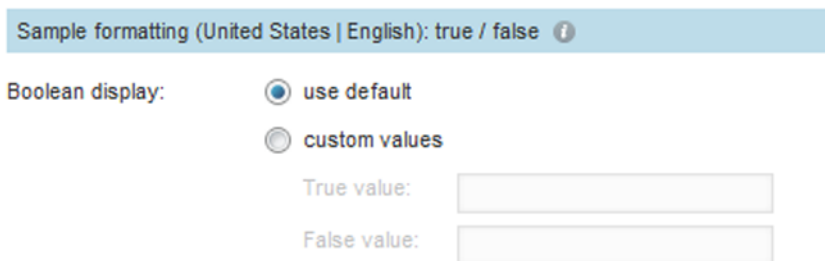
- (e) From the **Include grouping separator** drop-down list, select whether to display the grouping separator (used to separate thousands).
- (f) The **Advanced Formatting** section provides additional format options. To display those options, click the section heading.



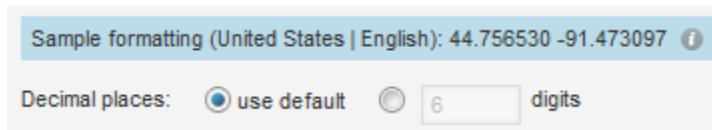
For each of the advanced items, you can choose to have the display determined automatically based on the user's locale, or select a specific option.

- (g) Under **Advanced Formatting**, from the **Number format** drop-down list, select how to display positive and negative numbers.
 - (h) From the **Decimal separator** drop-down list, select the character to use for the decimal point.
 - (i) From the **Grouping separator** drop-down list, select the character to use for the grouping (thousands) separator.
3. For a Boolean attribute, you can determine the values to display for each Boolean value.

By default, 1 is displayed as the localized version of "True", and 0 is displayed as the localized version of "False". To set specific (but non-localized) values to display:



- (a) Click the **custom values** radio button.
 - (b) In the **True value (1)** field, type the value to display if the attribute value is 1 (True).
 - (c) In the **False value (0)** field, type the value to display if the attribute value is 0 (False).
4. For a geocode, to set a specific number of decimal places to display for the latitude and longitude values:



- (a) Click the custom radio button.

(b) In the field, type the number of decimal places.

5. For a date/time attribute:

(a) From the **Date display** drop-down list, select the format to use for the date.

The selected format is adjusted for locale. For example, for some locales the month displays first, and for others the day displays first.

(b) From the **Time display** drop-down list, select the format to use for the time.

6. For a time attribute, from the **Time display** drop-down list, select the format to use for the time.

7. For a duration attribute:

(a) From the **Duration precision** drop-down list, select the unit to use when displaying the duration.

For example, for a duration of 1 day, 15 hours, and 20 minutes, if you choose days as the precision, the value displays as 1.63 days. If you choose hours, the value displays as 39.33 hours.

(b) From the **Include precision unit** drop-down list, select whether to display the precision unit next to the value.

(c) Under **Decimal places**, to specify the number of decimal places to display for the duration value, check the custom radio button, then enter the number in the field.

8. For all value types, the **Multi-Value Formatting** section indicates how to display multiple values.

The setting is applied whenever multiple values are displayed for an attribute, including when an attribute is by definition multi-value, and when the set aggregation is applied to an attribute.

From the **Multi-value separator** drop-down list, select the character to use to separate the values.

9. To confirm the format configuration, click **Apply**.

10. To save the changes to the view settings, click **Save View**.

Selecting the available and default aggregation methods for an attribute

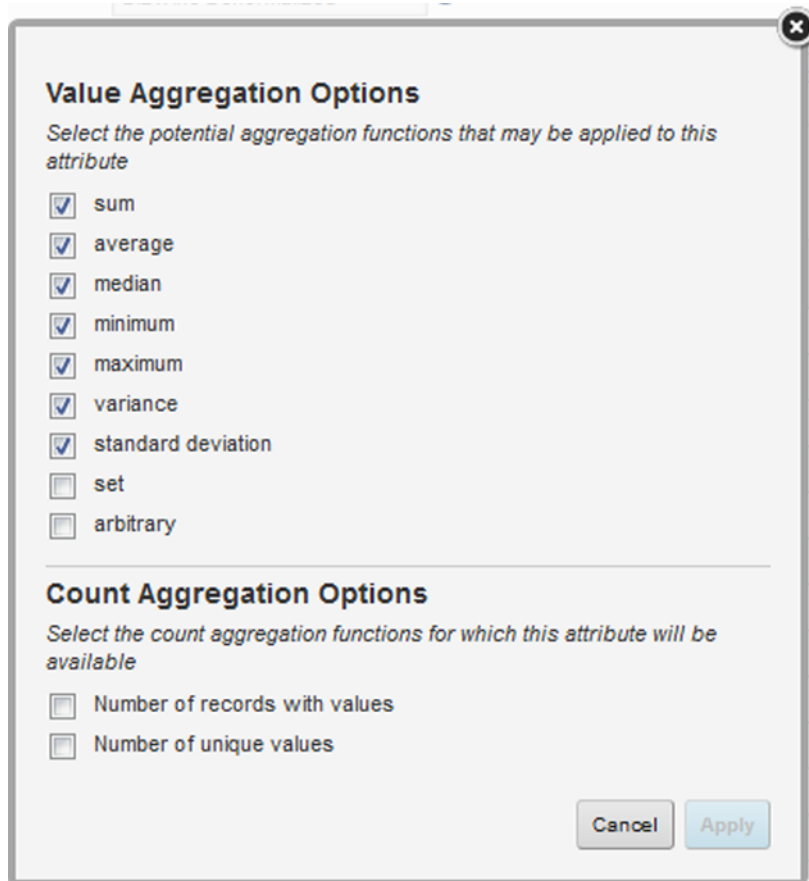
Aggregation methods are used to aggregate attribute values into metrics displayed on components such as **Chart**, **Pivot Table**, and **Results Table**.

Based on its data type, each attribute can support specific aggregation methods. You can then configure attributes to only support a subset of the applicable aggregation methods.

Each attribute also is assigned a default aggregation method. You can change the default used for each attribute.

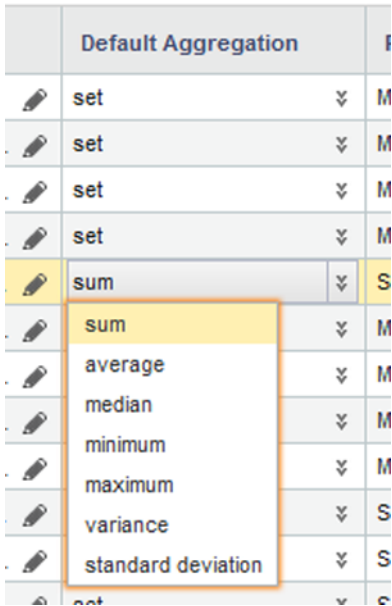
From the attributes list on the **Views** page, to configure the available and default aggregation methods for an attribute:

1. To configure the available aggregation methods for an attribute:
 - (a) In the **Available Aggregations** column, click the edit icon.
 - (b) On the aggregation methods dialog, to enable an available aggregation method, check the checkbox.



- (c) To disable an aggregation method, uncheck the checkbox.
- (d) To confirm the settings, click **Apply**.

- From the **Default Aggregation** drop-down list, select the default aggregation to use.



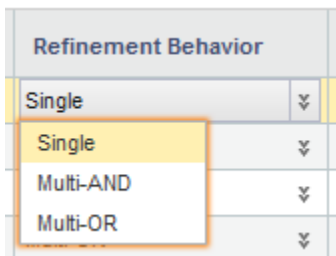
- To save the changes to the view configuration, click **Save View**.

Configuring the Available Refinements behavior for base view attributes

For each attribute in a base view, the **Views** page attributes list allows you to configure settings for how to handle selection and sorting of attribute values on the **Available Refinements** component.

In the attributes list for a base view, to configure the value selection and sorting for each attribute:

- From the **Refinement Behavior** drop-down list, select whether users can select multiple values, and if so, whether the records must contain all of the selected values.

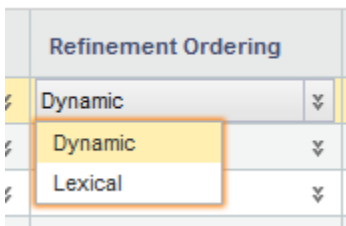


The available options are:

Option	Description
Single	Indicates that end users can only refine by one value at a time.

Option	Description
<p>Multi-Or</p>	<p>Indicates that end users can refine by more than one value at a time.</p> <p>For multi-or, a record matches if it has at least one of the selected values.</p> <p>So if an end user selects the values Red, Green, and Blue, then matching records only need to have one of those values (Red or Green or Blue).</p> <p>Note that date/time attributes are always multi-or. You cannot change the refinement behavior for a date/time attribute.</p>
<p>Multi-And</p>	<p>Indicates that end users can refine by more than one value at a time.</p> <p>For multi-and, a record matches only if it has all of the selected attribute values. Multi-and should only be used with multi-value attributes.</p> <p>So if an end user selects the values Red, Green, and Blue, then matching records must have all of those values (Red and Green and Blue).</p>

- From the **Refinement Ordering** drop-down list, select how to determine the display order of the list of available attribute values on the **Available Refinements** component.



The available options are:

Option	Description
<p>Lexical</p>	<p>Indicates to display the values in alphabetical or numeric order.</p> <p>For example, for the values Red (15 records), Green (25 records), and Blue (5 records), if the sorting is lexical, the values are displayed as:</p> <ul style="list-style-type: none"> • Blue (5 records) • Green (25 records) • Red (15 records)

Option	Description
Dynamic	<p>Indicates to display the values in descending order by the number of matching records.</p> <p>For example, for the values Red (15 records), Green (25 records), and Blue (5 records), if the sorting is dynamic, the values are displayed as:</p> <ul style="list-style-type: none"> • Green (25 records) • Red (15 records) • Blue (5 records)

Aggregation methods and the data types that can use them

Aggregation methods are types of calculations used to group attribute values into a metric for each dimension value. For example, for each country (each value of the Country dimension), you might want to retrieve the total value of transactions (the sum of the Sales Amount attribute).

On the component edit view, you select the aggregation method from a drop-down list. When using these aggregation methods in definitions of views and predefined metrics, you use the EQL syntax.

The available aggregation methods are:

Aggregation Method	Description	EQL Syntax
sum	<p>Calculates the total value for the metric.</p> <p>You can use this aggregation method for numbers and durations.</p> <p>You cannot use this aggregation method for multi-value attributes.</p>	<code>sum(attributeName)</code>
average	<p>Calculates the average value for the metric.</p> <p>You can use this aggregation method for numbers, dates, times, and durations.</p> <p>You cannot use this aggregation method for multi-value attributes.</p>	<code>avg(attributeName)</code>

Aggregation Method	Description	EQL Syntax
median	<p>Calculates the median value for the metric.</p> <p>You can use this aggregation method for numbers, dates, times, and durations.</p> <p>You cannot use this aggregation method for multi-value attributes.</p>	<code>median(<i>attributeName</i>)</code>
minimum	<p>Selects the minimum value for the metric.</p> <p>You can use this aggregation method for numbers, dates, times, and durations.</p> <p>You cannot use this aggregation method for multi-value attributes.</p>	<code>min(<i>attributeName</i>)</code>
maximum	<p>Selects the maximum value for the metric.</p> <p>You can use this aggregation method for numbers, dates, times, and durations.</p> <p>You cannot use this aggregation method for multi-value attributes.</p>	<code>max(<i>attributeName</i>)</code>
variance	<p>Calculates the variance (square of the standard deviation) for the metric values.</p> <p>You can use this aggregation method for numbers, dates, times, and durations.</p> <p>You cannot use this aggregation method for multi-value attributes.</p>	<code>variance(<i>attributeName</i>)</code>
standard deviation	<p>Calculates the standard deviation for the metric values.</p> <p>You can use this aggregation method for numbers, dates, times, and durations.</p> <p>You cannot use this aggregation method for multi-value attributes.</p>	<code>stddev(<i>attributeName</i>)</code>

Aggregation Method	Description	EQL Syntax
set	<p>Instead of performing a calculation, creates a list of all of the unique values.</p> <p>You can use this aggregation method for any attribute.</p>	<pre>set(attributeName)</pre> <p>For multi-value attributes, use <code>set_unions(attributeName)</code>.</p>
arb	<p>Instead of performing a calculation, arbitrarily selects one of the values.</p> <p>You can use this aggregation method for any attribute.</p> <p>The arb aggregation method is typically not provided as an option for aggregating metric values on components.</p>	<pre>arb(attributeName)</pre>

When configuring components, the following count aggregation options are applied using separate system metrics.

For the other aggregation methods, such as sum and average, you select an attribute, and then apply the aggregation method. For the count aggregation methods, you first select the system metric, then select the attribute to use.

When using these aggregation methods in definitions of views and predefined metrics, you use the EQL syntax.

Aggregation Method	Description	EQL Syntax
Number of records with values	<p>Calculates the number of records with a value for the selected attribute.</p> <p>You can use this aggregation method for all data types.</p> <p>You apply this aggregation by adding the Number of records with values system metric to the component.</p>	<pre>count(attributeName)</pre>

Aggregation Method	Description	EQL Syntax
Number of unique values	<p>Calculates the number of unique values for the metric.</p> <p>You can use this aggregation method for all data types.</p> <p>You apply this aggregation by adding the Number of unique values system metric to the component.</p>	<p><code>countdistinct(attributeName)</code></p> <p>Note that for multi-value attributes, <code>countdistinct</code> calculates the number of unique combinations of values, not the number of unique individual values.</p> <p>To get the number of unique individual values for a multi-value attribute, the syntax is <code>cardinality(set_unions(attributeName))</code>. This is the syntax used when you add the Number of unique values system metric to a component and select a multi-value attribute.</p> <p>For example, if the data contains three records, which have following values for the <code>ItemColors</code> attribute:</p> <ol style="list-style-type: none"> 1. Red, Blue 2. Red, Blue, White 3. Red, Blue <p>Then:</p> <ul style="list-style-type: none"> • <code>countDistinct(ItemColors)</code> is 2, because there are two unique combinations of colors. • <code>cardinality(set_unions(ItemColors))</code> is 3, because there are three unique colors.

To show how each of the aggregation methods work, we'll use the following data:

Country	Amount of Sale	Shipping Company
US	125.00	UPS
US	50.00	UPS
US	150.00	FedEx

Based on these values, the aggregation for Amount of Sale and Shipping Company for the US would be:

Aggregation Method	Amount of Sale (US)	Shipping Company (US)
sum	325.00	Cannot be aggregated
avg	108.33	Cannot be aggregated
median	125.00	Cannot be aggregated
min	50.00	Cannot be aggregated
max	150.00	Cannot be aggregated
variance	2708.33	Cannot be aggregated
standard deviation	52.04	Cannot be aggregated
set	125.00, 50.00, 150.00	UPS, FedEx
arb	Could be either 125.00, 50.00, or 150.00	Could be either UPS or FedEx
Number of records with values	3	3
Number of unique values	3	2

Defining predefined metrics for a view

Custom views can also have predefined metrics, which are values calculated from the view attributes.

About predefined metrics

Predefined metrics are values calculated from view attributes. For example, if the attributes for a view include product price and cost information, you could calculate predefined metrics such as the ratio of retail price to cost.

Predefined metrics are optional. By default, views do not have predefined metrics. They are always added manually.

Predefined metrics should only be used for calculated values that are only meaningful within the context of the view, and that stand on their own as values. When configuring a component, you can assign simple aggregations such as sum or average to any attribute, so you don't need to create those as predefined metrics. Predefined metrics are more appropriate for more complex values such as ratios.

On the **Views** page, the **Metrics** section, which lists the predefined metrics, is displayed below the view attribute list. By default, the section is collapsed. To expand the section, click the section heading.

▼ Metrics + Metric

Display Name	Attribute Key	Multi-Value	Data Type	Standard Format	Definition	Description
○ Sales Share	➔ SalesShare	---	Number (double)	Number	sum(Sales_SalesAmount)/GL...	Ratio of Total Sales of the C

Adding a predefined metric to a view

Adding a predefined metric to a view consists of specifying the metric key and EQL definition.

On the **Views** page, to add a predefined metric to a view:

1. From the **Metrics** list, click **+ Metric**.

The **Create Metric Definition** dialog is displayed.

2. On the **Create Metric Definition** dialog, in the **Metric Key Name** field, type the key name for the metric.

The key name must be NCName-compliant.

Once you save the new metric, you cannot change the key name.

3. In the **Display name** field, type the display name for the metric.

This is the name used to select the metric to add to a component. You can edit and localize the display name at any time.

4. In the text area, type the EQL expression for calculating the predefined metric value.

The expression is an EQL snippet that is inserted into a `SELECT` statement when a query using the predefined metric is issued. The snippet can only refer to attributes from the current view. For example:

```
count(1) WHERE (SalesAmountSum > 3000000)
```

To the right of the EQL text area is the list of attributes in the current view for you to use as a reference. You can show or hide the attribute list.

For information on aggregation methods, including the EQL syntax for including them in predefined metrics, see [Aggregation methods and the data types that can use them on page 150](#). For detailed information on EQL syntax, see the *Oracle Endeca Server EQL Guide*.

5. To validate the expression, click **Validate**.

If the expression is invalid, Studio displays error messages to help you troubleshoot.

6. To confirm adding the metric, click **Save**.

Configuring a predefined metric for a view

From the predefined metrics list on the **Views** page, you can configure the metric name, description, definition, and display. The display name and definition can be localized for each of the available locales.

Display Name	Attribute Key	Multi-Value	Data Type	Standard Format	Definition	Description
Sales Share	SalesShare	---	Number (double)	Number	sum(Sales_SalesAmount)/GL...	Ratio of Total Sales of the C

To configure a predefined metric:

1. In the **Display name** field, type a display name for the predefined metric.

Display names do not need to be NCName-compliant.

2. To localize the display name, in the **Display name** column, click the localize icon.

On the **Configure Locale Options** dialog, the **Default display name** field contains the value you entered in the column. If you edit the value here, it also is updated in the metrics list. For each locale:

(a) From the locale drop-down list, select the locale for which to configure the display name value.

(b) To use the default value, check the **Use default value** checkbox.

(c) To provide a localized value for the selected locale, uncheck the checkbox. In the **Display name** field, enter the localized value.

(d) After entering the localized values, click **Apply**.

3. To configure the display format for a predefined metric, click the edit icon in the **Standard Format** column.

The display format configuration is the same as that for attributes. See [Configuring the default display format for an attribute on page 143](#).

4. To change the definition of a predefined metric, click the edit icon in the **Definition** column.

5. In the **Description** field, type a brief description of the predefined metric.

6. To localize the description, in the **Description** column, click the localize icon.
On the **Configure Locale Options** dialog, the **Default description** field contains the value you entered in the column. If you edit the value here, it also is updated in the metrics list. For each locale:
 - (a) From the locale drop-down list, select the locale for which to configure the description.
 - (b) To use the default description, check the **Use default value** checkbox.
 - (c) To provide a localized value for the selected locale, uncheck the checkbox. In the **Description** field, enter the localized value.
 - (d) After entering the localized values, click **Apply**.
7. To save any changes to the predefined metrics, click **Save View**.

Deleting a predefined metric

You can delete predefined metrics from a view. Before deleting a predefined metric, try to make sure that it is not being used by a component.

From the **Views** page, to delete a predefined metric from the current view, click the delete icon for that metric.

To save the change to the view configuration, click **Save View**.

Previewing the content of a view

From the **Views** page, you can display a preview list of the records in a view.

To preview the contents of a view:

1. In the views list, click the view.
2. Click **Preview**.

The **Preview** dialog is displayed, containing a list of records for the view.

The list only displays the view attributes. Because the preview list is not grouped by a specific dimension, it cannot display the predefined metrics.

3. To close the **Preview** dialog, click **Close**.

Determining whether a view is published

For each view, the **Publish** checkbox controls whether the view is published. Only published views are available to use in an application.

Base views are always published.

Custom views can only be published if the view definition is valid.

Deleting a view

From the **Views** page, you can delete custom views. You cannot delete base views. If you delete a view, any component that uses that view can no longer display correctly. Also, any other view whose definition includes references to this view becomes invalid.

Note that Studio cannot automatically check whether a view is being used in the definition of another view.

To delete a view, in the **Actions** column of the view list, click the delete icon for that view.



Chapter 17

Managing Attribute Groups for an Application

From the **Attribute Groups** page, you can create, edit, and delete attribute groups for each view in the application data.

[About attribute groups and the Attribute Groups page](#)

[Displaying the groups for a selected view](#)

[Displaying attribute information for a group](#)

[Creating an attribute group](#)

[Deleting an attribute group](#)

[Configuring an attribute group](#)

[Saving the attribute group configuration and reloading the attribute group cache](#)

About attribute groups and the Attribute Groups page

Attribute groups are used to group attributes within a view. For example, for a view containing sales information, one group might contain attribute related to the payment (credit card type, cost, billing address) and another group might contain attributes related to the shipping (shipping address, shipping company, shipping cost).

For each group, you select the specific attributes in the group.

Attribute Groups

Display Name	Attribute Key	Info	Data Type	Dimension
Sales Price	P_Price	?	#	---
Price Range	PriceRange	?	ff	✓
Date Reviewed	P_DateReviewed	?	ff	✓
Base Score	P_Score	?	#	---
Score Range	ReviewScore	?	ff	✓
Designation	Designation	?	ff	✓

From the **Attribute Groups** page, you create and edit the attribute groups for the current application data. To display the **Attribute Groups** page:

1. From the administrator menu, select **Application Settings**.
2. On the **Application Settings** panel, click **Attribute Groups**.

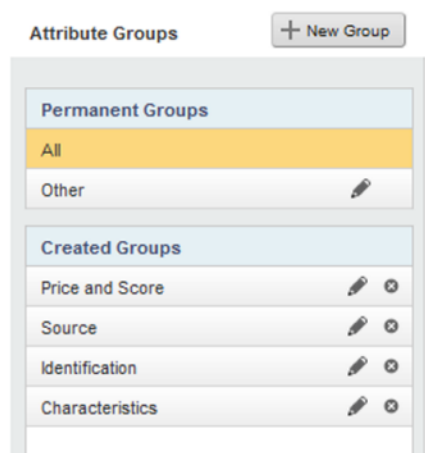
Displaying the groups for a selected view

When the **Attribute Groups** page is first displayed, the groups for the first base view are displayed by default. You can then change the selected view.

On the **Attribute Groups** page, to select the view for which to display the attribute groups:

1. From the **View** drop-down list, select the view.
2. If there are unsaved changes in the current view, you are prompted to either save the changes, discard the changes, or cancel and return to the current view.

When you select a view, the **Attribute Groups** section is updated to display the groups for the current view.



The **Permanent Groups** list contains the **All** group and the **Other** group. These groups are automatically part of every view.

- The **All** group always contains all of the attributes in the view.
- The **Other** group always contains the attributes that are not members of any of the created groups.

The **Created Groups** list contains the groups you create for this view.

Displaying attribute information for a group

For each group on the **Attribute Groups** page, you can display a list of attributes and attribute metadata.

[Displaying the list of attributes for a group](#)

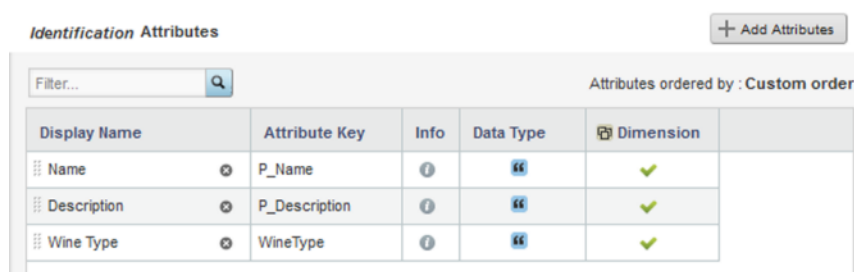
[Displaying the full list of metadata values for an attribute](#)

[Selecting the metadata columns to display for each attribute](#)

Displaying the list of attributes for a group

From the **Attribute Groups** list on the **Attribute Groups** page, to display the current contents of a group, click the group name. The attribute list is updated to display the current membership of the group.

The attribute list consists of attribute metadata for each attribute. By default, the list includes the attribute name, attribute key, data type, and whether the attribute is a dimension.



Display Name	Attribute Key	Info	Data Type	Dimension
Name	P_Name		String	Yes
Description	P_Description		String	Yes
Wine Type	WineType		String	Yes

Note that locale-specific versions of an attribute are listed as separate attributes in the group. However, in an application, only the version for the current locale is displayed.

Displaying the full list of metadata values for an attribute

From the **Attribute Groups** page, to display the full list of metadata values for an attribute, hover the mouse over the information icon in the **Info** column.

The metadata includes the list of groups that the attribute belongs to.

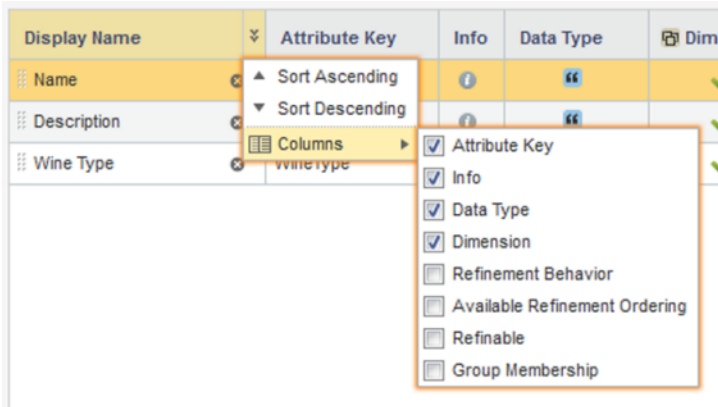
Selecting the metadata columns to display for each attribute

By default, the attribute list on the **Attribute Groups** page displays basic information for each attribute. You can add columns to and remove columns from the attribute list.

To change the displayed columns:

1. Hover the mouse over the right edge of any column.
A drop-down arrow is displayed.
2. Click the drop-down arrow.
3. In the drop-down menu, click **Columns**.
The full list of available columns is displayed.

Columns currently in the list are checked.



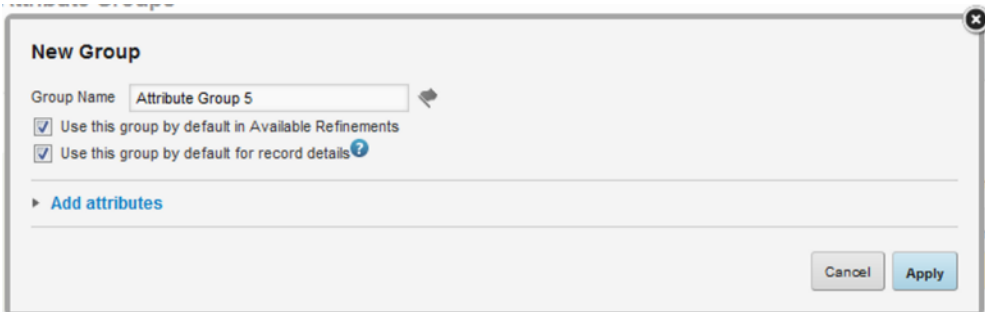
- To add a column, check the checkbox.
To remove a displayed column, uncheck the checkbox.

Creating an attribute group

When you create a group, you give the group a name, select default options for how the group is used, and then select the attributes that belong to the group.

From the **Attribute Groups** page, to create a new attribute group:

- Click **New Group**.
- On the **New Group** dialog, in the **Group name** field, enter the name of the new group.



- For a group in a base view, to have this group enabled by default in a **Available Refinements** component, check the **Use this group by default in Available Refinements** checkbox.

Note that because the **Available Refinements** component can only use a base view, this checkbox is not displayed for groups created in other views.

- To have this group enabled by default when displaying record details information for this view, including on the **Record Details** and **Compare** components, and in the default configuration for a **Results Table** component, check the **Use this group by default for record details** checkbox.
- Configure the group membership.

See [Configuring the group membership on page 164](#).

6. After completing the configuration, click **Apply**.

Deleting an attribute group

From the **Attribute Groups** page, you can delete attribute groups.

You cannot delete the default **Other** or **All** attribute groups.

Deleting an attribute group does not delete its attributes from the Endeca Server or from your other attribute groups.

To delete an attribute group, in the **Created Groups** list, click the delete icon for the attribute group. The attribute group is removed from the **Created Groups** list.

When you save the attribute group changes for the current view, then the attribute group is also removed from the Endeca Server, and is no longer displayed on components.

If an attribute does not belong to any of your other groups, it is restored to the default **Other** group.

Configuring an attribute group

From the **Attribute Groups** page, for each group, you can configure the display name, the group membership, and the attribute display order.

[Changing the group name and default use](#)

[Configuring the group membership](#)

[Configuring the sort order for a group](#)

Changing the group name and default use

The group name is used as the display name for the group on the Studio user interface. You can edit and localize the name. You can also change whether a group is used by default for available refinement and record detail display.

To change the name and default use of an existing group:

1. In the groups list, click the edit icon for the group.
2. On the **Edit Group** dialog, in the **Group Name** field, type the new display name for the group.

Edit Group

Group Name ↗

Use this group by default in Available Refinements

Use this group by default for record details ?

▶ [Add attributes](#)

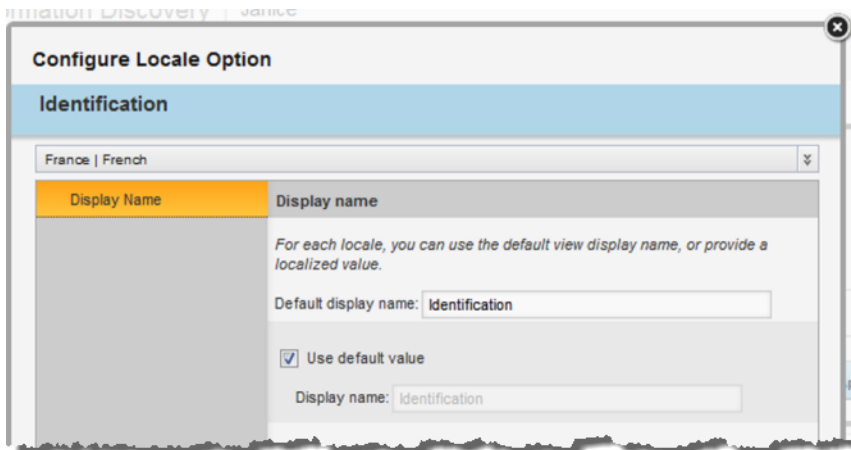
Cancel Apply

- To localize the display name, click the localize icon next to the **Display Name** field.

On the localization dialog, the **Default display name** field contains the value you entered in the **Display Name** field. If you edit the value here, it also is updated on the **Edit Group** dialog and in the group list.

For each locale:

- From the locale drop-down list, select the locale for which to configure the display name value.



- To use the default value, leave the **Use default value** checkbox checked.
 - To provide a localized value for the selected locale, uncheck the checkbox. In the **Display name** field, enter the localized value.
 - After entering the localized values, click **Apply**.
- For a group in a base view, to have this group enabled by default in an **Available Refinements** component, check the **Use this group by default in Available Refinements** checkbox.
Note that because the **Available Refinements** component can only use a base view, this checkbox is not displayed for groups in other views.
 - To have this group enabled by default when displaying record details information for this view, including on the **Record Details** and **Compare** dialogs, and in the default configuration for a **Results Table** component, check the **Use this group by default for record details** checkbox.
 - To save the changes, click **Apply**.

When you save the changes to the group configuration, the new display name is updated automatically on components. Changes to the default usage will not affect existing **Available Refinements** components, but will affect existing **Results Table** components that use the default configuration.

Configuring the group membership

For each group, you select the specific attributes that belong to the group.

If an attribute has locale-specific versions, you must add them manually to the group membership.

From the **Attribute Groups** page, to add and remove attributes for a group:

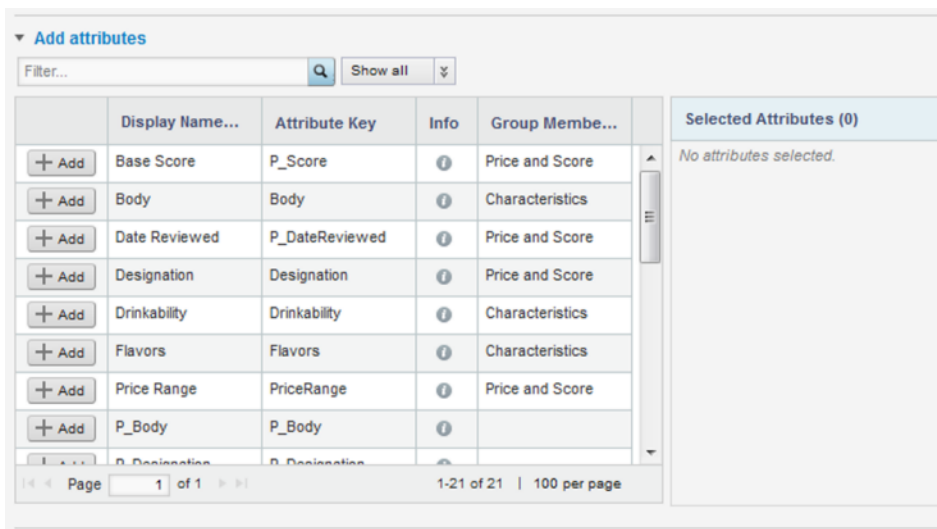
1. To add attributes:
 - (a) Display the **Add Group** or **Edit Group** dialog.

The **Add Group** dialog is displayed when you create a new group.

To display the **Edit Group** dialog for an existing group, either:

- From the groups list, click the edit icon.
- From the attributes list for the group, click the **Add Attributes** button.

The **Add attributes** section contains the list of attributes in the view that do not belong to the group.



- (b) To filter the list, either:
 - Use the search field above the attribute list to search based on the attribute display name.
 - Use the data type drop-down list to only display attributes for a specific data type.
 - (c) In the attribute list, click the **Add** button next to each attribute you want to add to the group.

For attributes with locale-specific versions, you must manually add all of those versions to the group. Studio does not add them automatically.

The attributes are added to the **Selected Attributes** list. The **Add** button for the selected attributes is disabled.

To remove a selected attribute from the list of attributes to add, click the delete icon for that attribute. The **Add** button for that attribute is then re-enabled.

- (d) To add the selected attributes, click **Apply**.
2. To remove an attribute from a group, in the attribute list, click the delete icon for that attribute.

Configuring the sort order for a group

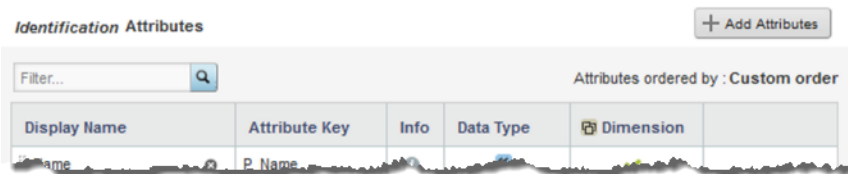
For each group, you can either sort the list using a metadata value, or set the sort order manually. The sort order on the **Attribute Groups** page determines the display order of attributes on Studio components.

By default, the group is sorted by attribute display name in alphabetical order. For attributes that do not have a display name, the attribute key is used.

The **Attributes ordered by** field at the top of the attribute list shows the current sort order, including the metadata used and whether the sort is in ascending or descending order.

When you click a column heading, the sort order is updated to use that value for the sort. Clicking the same column heading twice switches the sort between ascending and descending order.

You also can move an attribute to a specific location in the list. When you do that, the sort order is updated to be **Custom order**.



If you then click a column heading, the sort order changes to use that metadata value.

Saving the attribute group configuration and reloading the attribute group cache

Changes to the group configuration do not become permanent until you save them. To immediately reflect the saved group configuration changes on the application components, reload the attribute group cache.

When you have unsaved changes, you can use the **Revert to Last Save** button to undo those changes.

To save the current group configuration, click **Save**.

When Studio first loads the application data, it stores the attributes and groups in the cache. To reload the cache, so that the application components immediately reflect any updates to the group configuration, click **Reload Attribute Cache**.

Part V

Studio Components



Chapter 18

Summary of Studio Components

Here is a brief overview of each of the Studio components. The components are grouped by the type of function they provide.

[Layout components](#)

[Results components](#)

[Filtering components](#)

[Data visualization components](#)

[Personalization components](#)

[Web-based content components](#)

Layout components

Layout components allow users to group other components on the page.

Component Container

Used to group components on the page.

The screenshot displays two side-by-side windows from the Studio interface. The left window, titled "Component Container", has a "Selected Refinements" section at the top with a message "No refinements have been selected." Below this is an "Available Refinements" section with a tree view containing categories like "Source", "Price and Score", "Characteristics", and "Wine Type". The right window, titled "Data Explorer", shows a "Data Set" of "Wine" sorted by "None". It displays a list of wine records, with the first record (ID 78240) expanded to show detailed attributes such as "Body: Drying,Firm,Intensity,Tannins", "Drinkability: Drink now through 2006", "Flavors: Berry,Cherry,Dried,Dry", "P_Body: Drying,Firm,Intensity,Tannins", "P_DateReviewed: 9/15/2000", "P_Description: Impresses with its intensity and rang ...", "P_Drinkability: Drink now through 2006", "P_Flavor: Berry,Cherry,Dried,Dry", "P_Name: Pinot Noir Russian River Valley", "P_Price: 35.000000", "P_Region: Sonoma", "P_Score: 88", "P_WineID: 78240", "P_Winery: Joseph Swan", "P_WineType: Pinot Noir,Red", "P_Year: 1997", "PriceRange: \$30 to \$40", "Region: Sonoma", "ReviewScore: 80 to 90", and "Vintage: 1997". A second record (ID 60414) is partially visible below. At the bottom of the Data Explorer, it shows "Page 1 of 5708" and "1-10 of 57076 | 10 per page".

The **Component Container** configuration includes:

- The layout to use
- Whether to display the component border around the container

Tabbed Component Container

Used to create a tabbed interface. Each tab can contain a different set of components.



The **Tabbed Component Container** configuration includes:

- The number of tabs to display
- The tab display order
- The label on each tab
- The layout of each tab
- Whether to display the component border around the container

Results components

Results components allow users to view lists of records.

Data Explorer

Displays each record in a selected data set as a complete set of attribute-value pairs. The attributes can be displayed:

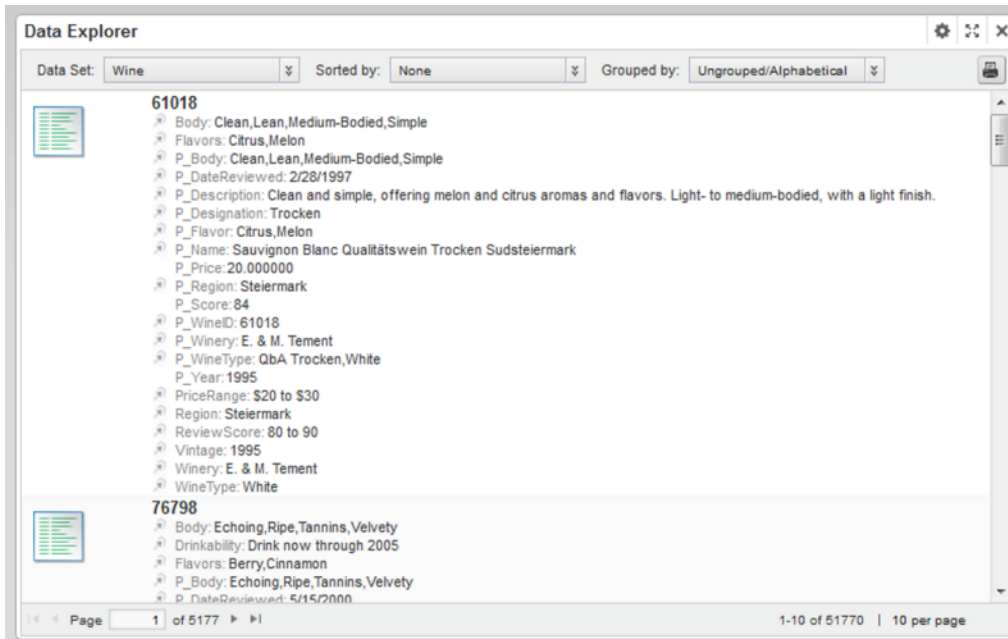
- In alphabetical order

- By data type
- Within their base view attribute groups

Users can also use the **Data Explorer** component to display the schema records for the application data.

The **Data Explorer** component is usually used to verify newly loaded data.

Users can print the list.



The **Data Explorer** component configuration includes:

- The default grouping for the attributes
- The pagination and sorting options for the list

Results List

Displays the list of records for the current refinement. The list format is similar to regular Web search results. Each record contains a selected set of attributes.

Users can export and print the list. The component can also include options to compare records, display details for a record, and refine the data.



The **Results List** component configuration includes:

- The attributes to include for each record, including whether to use the attributes for refinement or to display related content
- The sorting options for the list
- The images to display next to each record
- The display and pagination options for the list

Results Table

Displays a table containing either:

- A list of records for the current refinement

The screenshot shows a 'Results Table' window with a search filter set to 'Characteristics'. The table contains 10 records with columns for Wine ID, Body, Flavors, Drinkability, and Wine Type. The records are as follows:

Wine ID	Body	Flavors	Drinkability	Wine Type
34699	Elegant, Firm, Firm Ta...	Berry, Cedar, Cherry, ...		Red
34700	Crisp, Harmonious	Fig, Fruit, Lemon, Toa...		White
34701	Crisp	Apple, Dry, Fruit, Gra...	Drink now	White
34702	Ripe	Citrus, Fig, Honey, W...	Drink now	White
34703	Fresh, Soft	Earthy, Melon		White
34704	Balanced, Luscious, ...	Black Cherry, Cherry,...	Drink now	Red
34705	Bright, Fresh, Tannins	Cherry, Pepper		Red
34706	Fresh	Jam, Pepper		Red
34707		Cherry, Plum		Red
34708	Supple	Raisin, Spice, Tobacco		Red

- A set of metrics aggregated by one or more dimensions

The screenshot shows a 'Results Table' window with a search filter set to 'Cases Made and Sold'. The table displays aggregated metrics for various wineries, including A. Rafanelli, Abbey Vale, and Abundance. The columns are Wineries, Booking Year, Cases Produced, Number of Cases, and Product Rating. Summary rows are highlighted in grey.

Wineries	Booking Year	Cases Produced (...)	Number of Cases ...	Product Rating (av...)
A. Rafanelli	1997	2,800.00	10	90.00
A. Rafanelli	1999	12,650.00	59	89.00
A. Rafanelli	2001	6,150.00	5	90.00
A. Rafanelli Summary		21,600.00	74	89.50
Abbey Vale	1998	1,000.00	21	85.00
Abbey Vale	2000	400.00	4	87.00
Abbey Vale	2001	1,000.00	22	85.00
Abbey Vale Summary		2,400.00	47	85.67
Abundance	1999	780.00	10	80.00
Abundance	2001	780.00	10	80.00
Grand Summary (3646 results)		77,870,930.00	170,822	86.23

Users can export and print the list. They also may be able to use the **Compare** dialog to compare selected rows.

The table can include links to display the **Record Details** dialog, refine the data set, or display related content. Selected values also may be highlighted.

The **Results Table** component configuration includes:

- The type of table
- The columns to display in the table

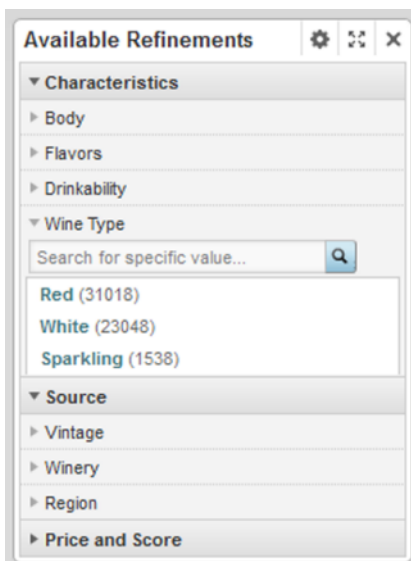
- Whether to highlight values that fall within selected ranges
- The available actions for the table
- The pagination and sorting options for the table

Filtering components

Filtering components allow users to search, refine, and filter the data displayed in other components.

Available Refinements

Allows users to filter data to only include specific attribute values or ranges of values from a selected data set. The selected values or ranges are added to the **Selected Refinements** component that is tied to the same data set.



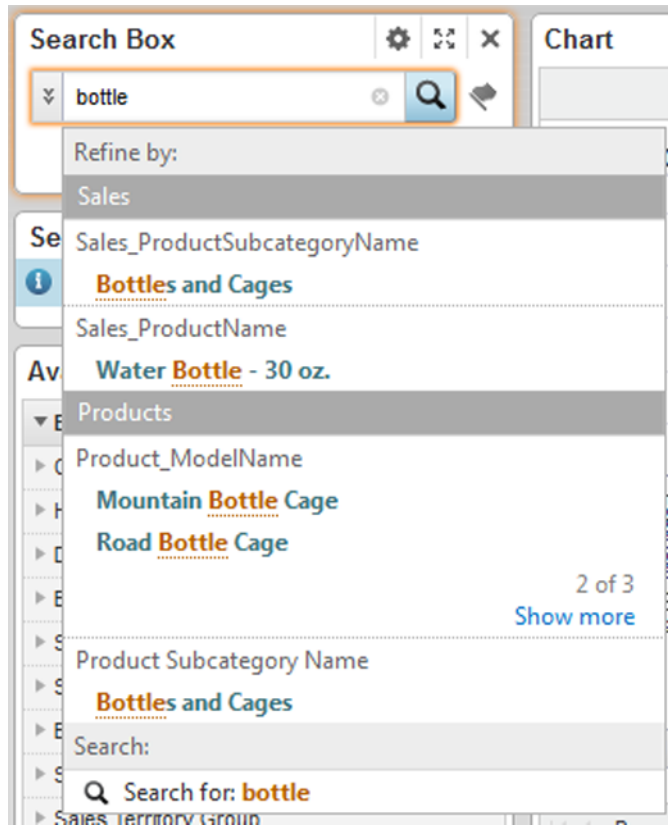
The **Available Refinements** component configuration includes:

- The data for which to display available refinements. **Available Refinements** components are always tied to a data set base view.
- The attribute groups and attributes to include
- For some attributes, whether to use a value list or a range filter to select the refinement
- Whether to allow negative refinements, to search for records that do NOT have a selected value
- For value lists, the number of values to display
- For range filters, the histogram size and minimum and maximum values

Search Box

Allows users to filter data using a search. When users perform a search, the search term is added to the **Selected Refinements** component for the appropriate data set.

As users type, they may be prompted to select a matching attribute value, or just search for the entered text.



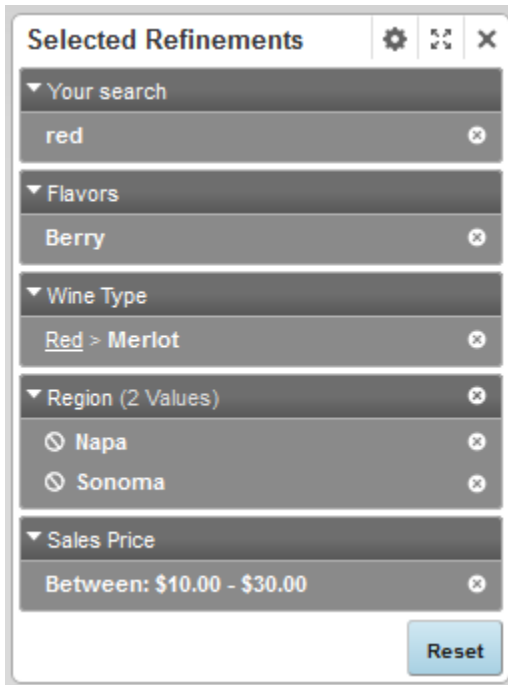
The **Search Box** component configuration includes:

- The available search options. There can be a search option for each combination of data set and search interface.
- For each data set, whether to provide type-ahead suggestions as users type the search term
- For each search option:
 - Whether to allow keyword searches
 - The rule for determining a match
 - The page to display when the search is executed

Selected Refinements

Tracks the attribute values and search terms that have been used to filter the data from a selected data set.

Users can then remove items from the list of current filters.



The **Selected Refinements** component configuration includes:

- The data for which to display refinements. **Selected Refinements** components are always tied to a base view, and display refinements for those base view attributes, regardless of what view those attributes are used in.
- Whether to collapse by default lists of multiple values selected from the same attribute.

Data visualization components

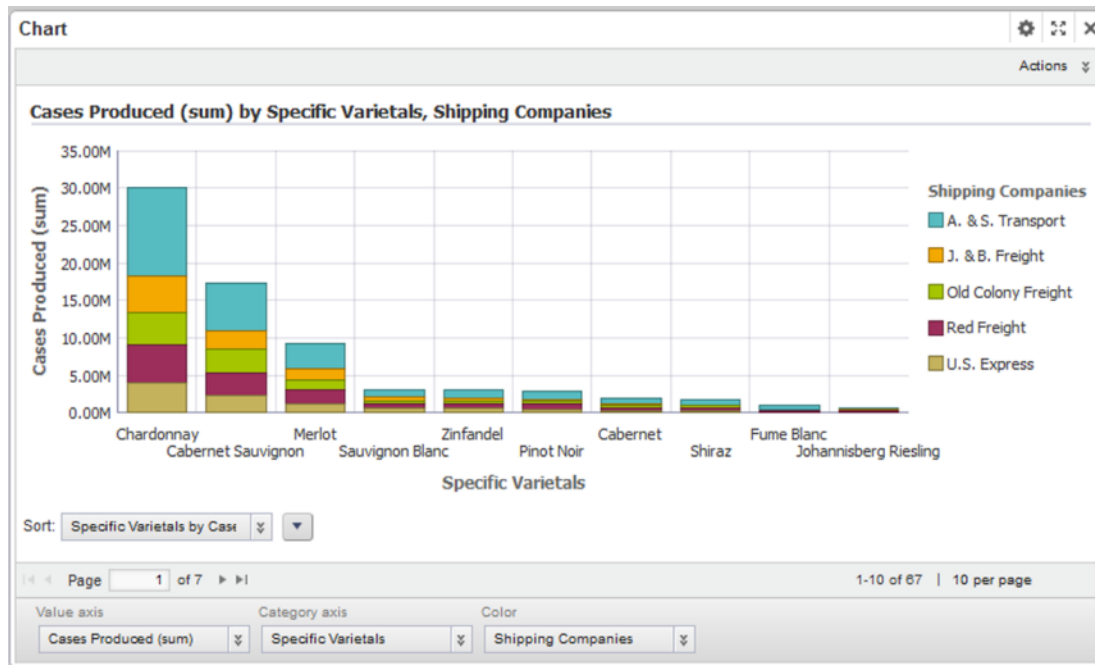
Data visualization components provide more detailed or alternate views of the data.

Chart

Displays data using standard chart formats, including:

- Bar charts
- Line charts
- Area charts
- Pie charts
- Scatter charts
- Bubble charts

Users may be able to select different metric or dimensions in order to change the chart display. They can also save the currently displayed chart as an image.



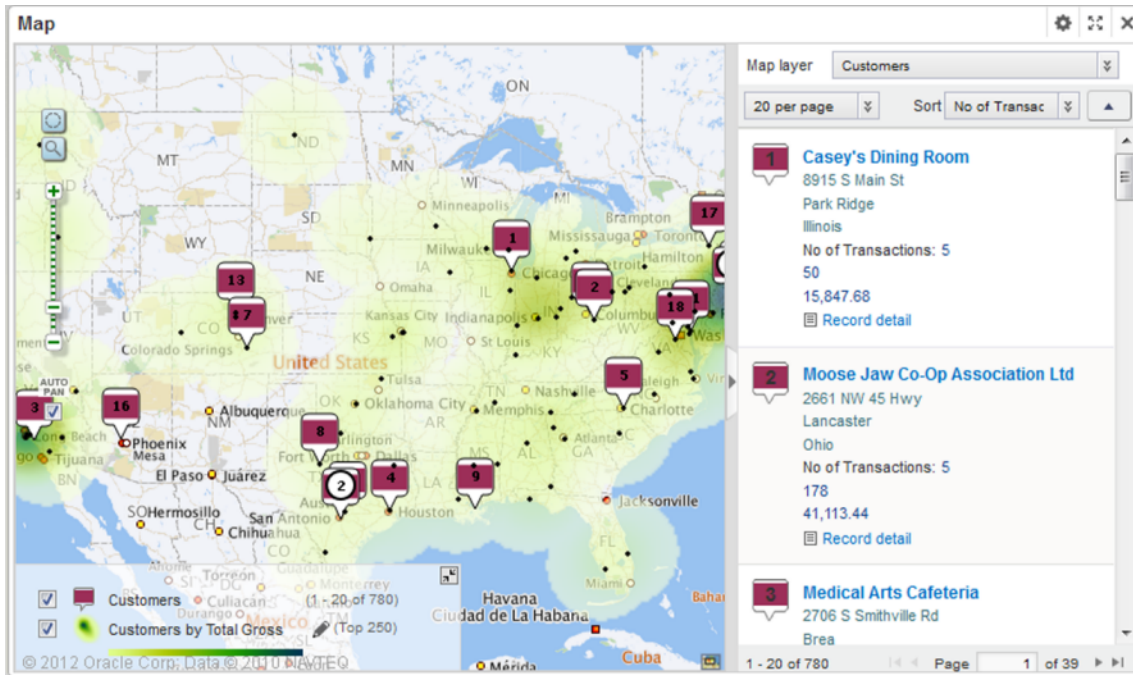
The **Chart** component configuration includes:

- The chart type
- The dimensions and metrics to display on the chart
- The chart style, including options for displaying the chart legend and axes
- Whether end users can change the chart metrics and dimensions

Map

Displays one or more map layers. Each layer represents a set of geographic locations.

Users can search for locations, and display details for a specific location.



The **Map** component configuration includes:

- The lists of locations, including:
 - The geocode attribute representing the location
 - Display options for the map layer points
 - Sorting and pagination options
 - The attributes to include in the location details
- The available search options

Pivot Table

Generates a table that allows users to perform comparisons and identify trends across several cross sections of data.

Users can export the data to a spreadsheet, and may be permitted to change the table layout.

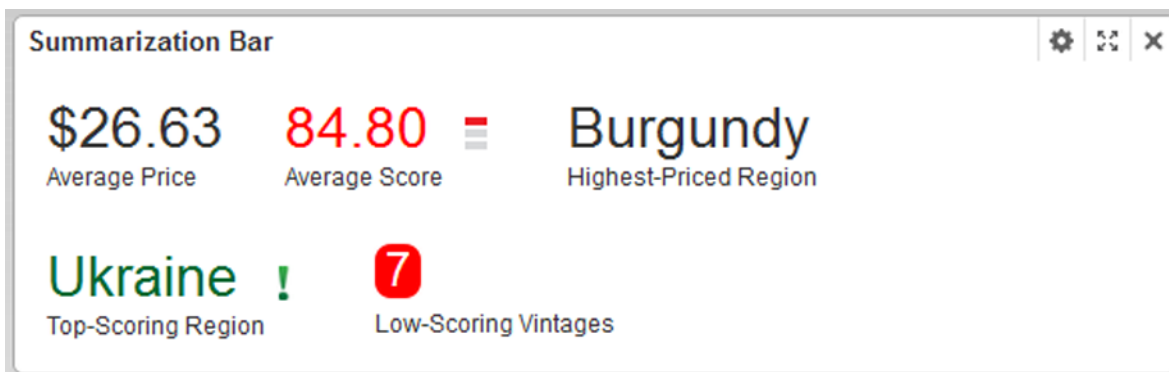
Vintage		1992		1993		1994		1995	
Desig...	Wine ...	Base Sc...	Sales P...	Base Sc...	Sales P...	Base Sc...	Sales P...	Base Sc...	Sales P...
Best Buy	Red	85.24	\$8.05	85.85	\$8.40	85.84	\$8.63	85.86	\$8.00
	Sparkling	86.00	\$10.00	86.00	\$7.00				
	White	85.00	\$7.56	85.72	\$7.79	86.14	\$7.95	86.55	\$8.00
	Best Buy...	85.11	\$7.79	85.78	\$8.05	86.00	\$8.27	86.17	\$8.00
Cellar Se...	Red	92.15	\$46.94	92.03	\$108.74	92.93	\$93.46	93.47	\$113.00
	White	93.33	\$63.33	91.43	\$47.14	91.75	\$75.00	92.33	\$58.00
	Cellar Se...	92.33	\$49.46	91.93	\$98.48	92.73	\$90.45	93.22	\$101.00
Classi...	Red	80.93	\$13.61	83.06	\$20.21	83.91	\$19.54	84.06	\$22.00
	Sparkling								

The **Pivot Table** component configuration includes:

- The metrics and dimensions to display
- Highlighting for specific metric values
- Available actions
- Other display options such as the table height and the column width

Summarization Bar

Display a set of summary items that contain summary values from the data. A summary value can be a metric (such as average sales), a dimension value associated with the lowest or highest value of a metric (such as the region with the highest sales), or a number of flags. Flags indicate dimension values for which associated metric values have passed a specified threshold.

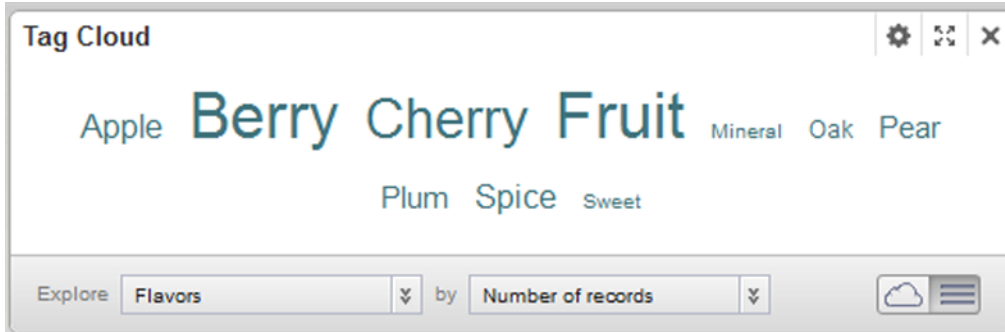


The **Summarization Bar** configuration includes:

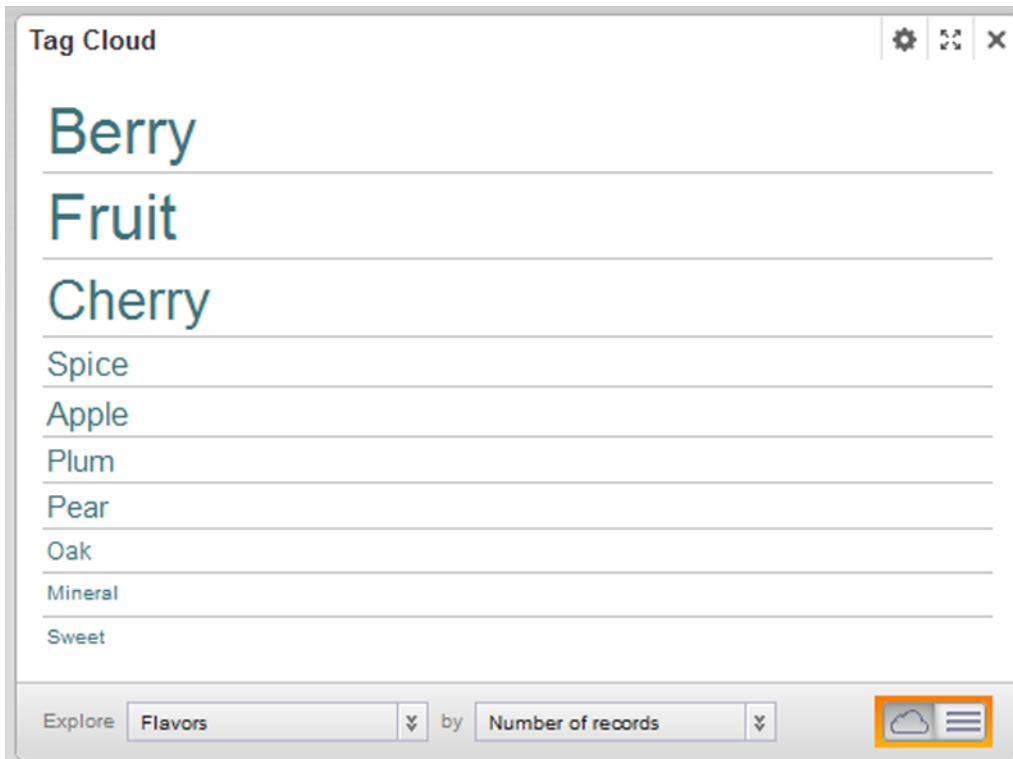
- The metric and dimension values to display
- Conditional formatting to highlight the summary item for specific ranges of metric values
- The text size for the summary item title and value

Tag Cloud

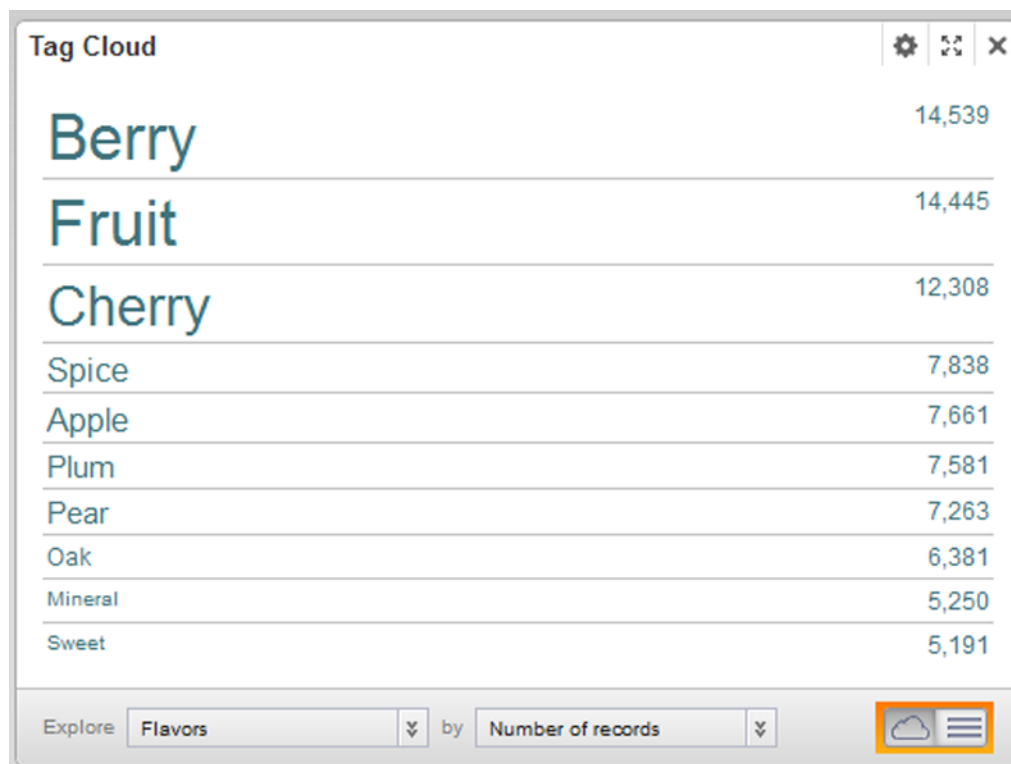
Displays a distribution of terms based on the value of an associated metric. The font size reflects the metric value. The higher the metric value, the larger the font.



The component can display in cloud view, with the terms in alphabetical order, or in list view, with the terms ordered by the metric value.



For both formats, the **Tag Cloud** can display the associated metric value:



Term	Metric Value
Berry	14,539
Fruit	14,445
Cherry	12,308
Spice	7,838
Apple	7,661
Plum	7,581
Pear	7,263
Oak	6,381
Mineral	5,250
Sweet	5,191

Users can refine by the displayed terms.

The **Tag Cloud** component configuration includes:

- The available dimensions (**Tag Cloud** terms) and metrics (values used to organize the terms)
- Whether to display the metric value next to each **Tag Cloud** term
- The number of terms to display
- The default display format (cloud of list)
- The range of text sizes for the displayed terms

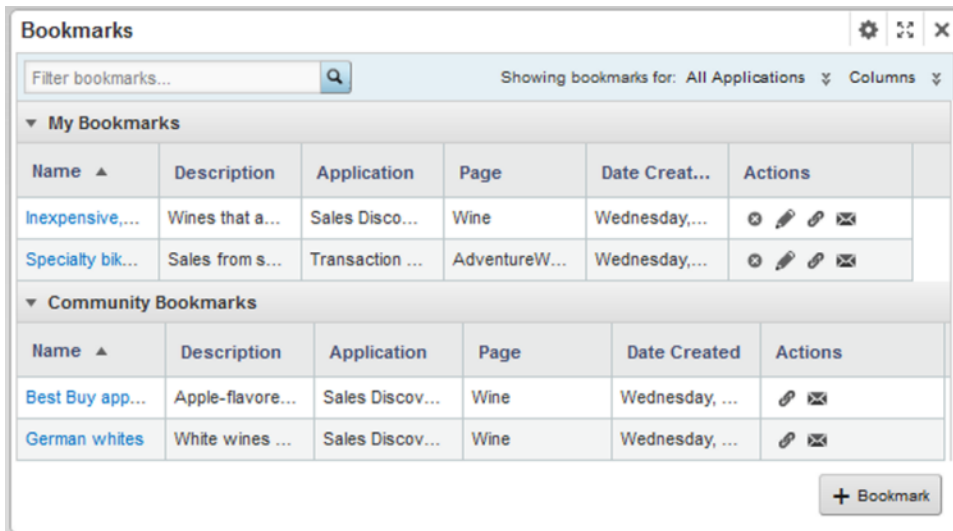
Personalization components

Personalization components allow users to customize the display of a Studio application.

Bookmarks

Allows users to save the current state of a Studio application page in order to return to it at a later time. Users can create shared bookmarks that are available to all application users.

Users may also be able to obtain the URL for and email bookmarks, to allow other users to see the same view of the data.



The **Bookmarks** component configuration includes:

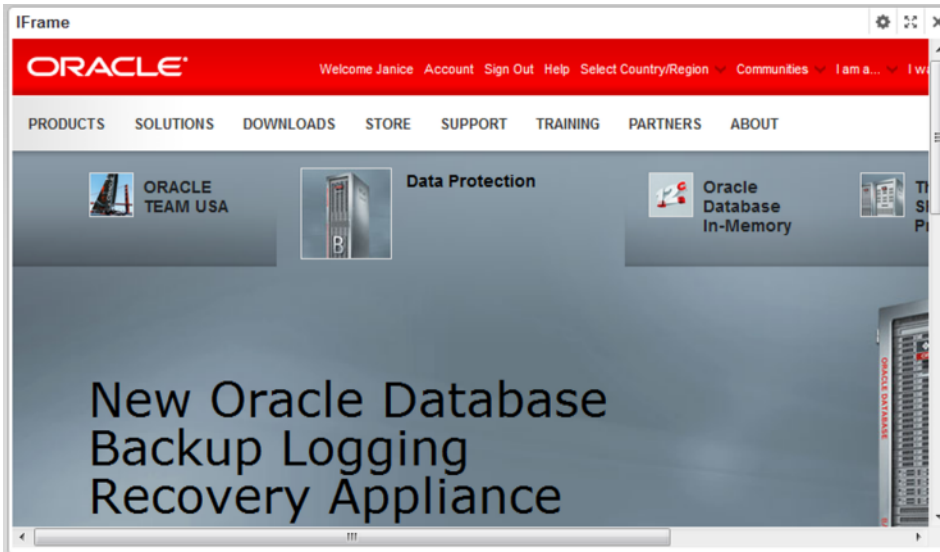
- Whether users can:
 - Create bookmarks
 - View and manage the current list of bookmarks
 - See shared bookmarks
- Whether to only display bookmarks for the current page or current application
- The columns to include in the bookmarks list
- Whether to customize the bookmark URLs

Web-based content components

Web-based content components are used to display web-based content on a page. The content may be custom HTML content created and stored in Studio, or may be content from external URLs.

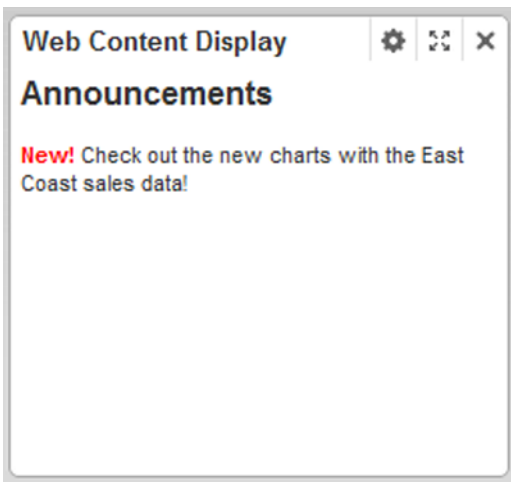
IFrame

The **IFrame** component displays the content of an external URL on the page.



Web Content Display

The **Web Content Display** component displays HTML content. The content is created and edited within the component.





Chapter 19

Adding and Configuring Studio Components

On each page in a Studio application, you add and configure Studio components. Studio components provide the end user with tools to explore and analyze the data.

[Adding and removing components on a page](#)

[Renaming components](#)

[Configuring components](#)

[Selecting and configuring the data displayed on a component](#)

[Configuring component actions](#)

[Configuring pagination options for components](#)

[Previewing a component](#)

Adding and removing components on a page

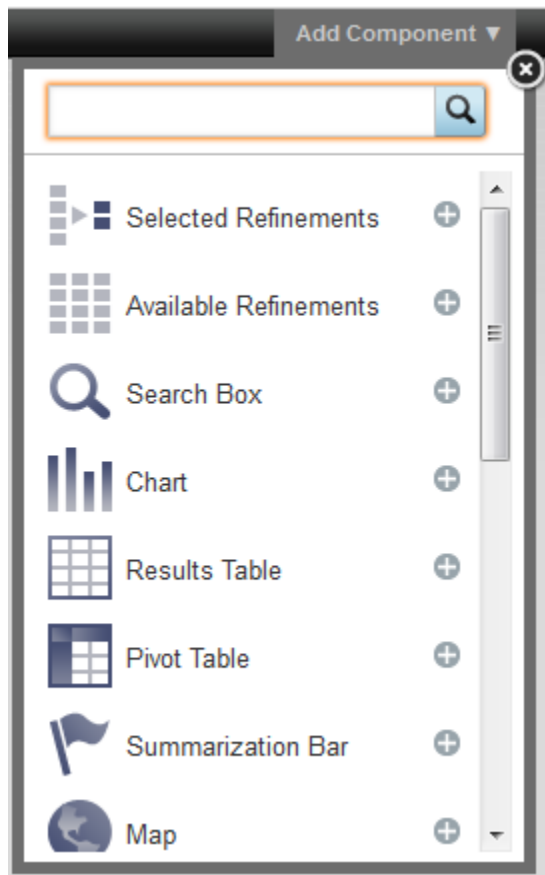
If you are able to edit an application, then you can add and remove components. The Studio components provide functions to filter, display, and create different visualizations of the application data.

To add and remove components on a Studio application page:

1. To add a component:

- (a) Click **Add Component**.

The **Add Component** drop-down list is displayed.



- (b) To display a description of a component, hover the mouse over the component icon.
- (c) To find a specific component, use the search field.
- (d) To add a component to the page, either:
 - Click the add icon for the component. If the page contains more than one column, then the component is added to the leftmost column.
 - Drag the component from the **Add Component** drop-down list to the appropriate location on the page.
- (e) To close the **Add Component** drop-down, click its close icon.

2. To remove a component from a page, click its delete icon.



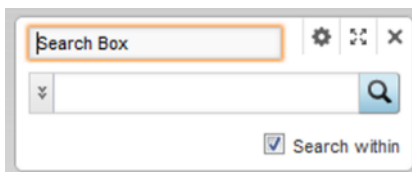
Renaming components

After you add a component to your application, you can rename it to reflect your own terminology or the content being displayed.

To rename a component:

1. Click the title bar of the component.

The default title becomes editable.



2. In the field, type the new title for the component.
3. Click outside of the title bar.

The component now uses the new title.

You can also use the **Localization** page to edit and localize the component title. See [Localizing the application name, description, page names, and component titles on page 61](#).

Configuring components

You can customize Studio components to determine details for the displayed data and formatting. Many components have a workable default configuration, while others require you to provide a specific configuration.

The general process for editing a component is the same for each component. For detailed information about configuring specific components, see the component documentation.

Note that when working with attribute values on a component edit view, only the default locale version is displayed. On the end user view, when the locale is selected, the appropriate locale-specific value is displayed.

To edit a Studio component:

1. In the component title bar, click the configuration icon.



The edit view for the component is displayed.

The edit view covers the entire page. You cannot see or edit any other components.

2. Select the data to use for the component.
3. Edit the other settings for the component.

4. To save your changes, click **Save**.
5. To revert any changes since the last save, click **Revert to Last Save**.
6. To exit the edit view, click the **Exit** link at the top right corner of the edit view.

If you have unsaved changes, then you are prompted to choose whether to save the changes before exiting, discard the changes before exiting, or cancel the exit and return to the edit view.

Selecting and configuring the data displayed on a component

Most components display data from a specific view. You select the view to use, and then select and configure values from that view.

[Selecting the view to use for a component](#)

[Selecting the attributes to use on a component](#)

[Selecting the aggregation method to use for a metric](#)

[Configuring the format of values displayed on a component](#)

Selecting the view to use for a component

When configuring a component, you select the view to use for the component data.

Most components are tied to a specific view from the application data sets. Other components can be associated with more than one view. For example, for the **Map** component, each map layer is tied to a view. For the **Summarization Bar** component, each summary item is tied to a view.

Components used for filtering (**Available Refinements** and **Search Box**), and components that display a flat list of records (**Data Explorer**) are always tied to base views.

On the component edit view, to select the view to use:

1. Click the **Data Selection** tab for the component or sub-component.

The tab contains the list of views for the application. If a view is not valid for the current component or sub-component, then it is disabled. For example, for the **Map** component, views that do not include a geocode attribute cannot be used for a map layer.

Bizwine Denormalized: Data Selection

Select the data view for this layer to use. Views that do not include a valid geocode attribute cannot be used for the map.

View Name	Type	Data Set(s)	Record Identifier	Description
<input checked="" type="radio"/> Bizwine Denorma... <i>i</i>	Base	Bizwine Denorm...	Transaction Id	The classic bizwine data set, in which dimensional data about wine s...
<input type="radio"/> Customer <i>i</i>	Custom	Bizwine Denorm...	Customer Id	List of customers with a summary of their credit and transaction infor...
<input type="radio"/> Customers - No g... <i>i</i>	Custom	Bizwine Denorm...	Customer Id	List of customers with a summary of their credit and transaction infor...

In addition to the view name and description, the view list includes whether the view is a base or custom view, the data sets the view is created from, and the identifying attributes for the view.

2. To display the list of attributes in a view, click its information icon.

- To select a view to use, click its radio button.

Selecting the attributes to use on a component

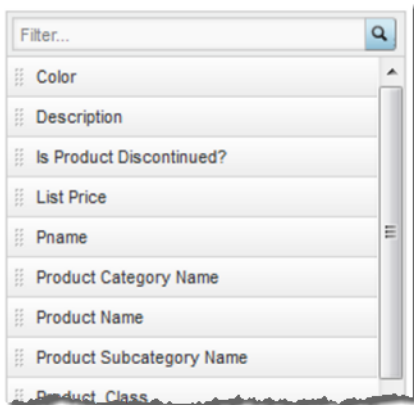
For many Studio components, you need to select the attributes to use for the component.

If you only need to select a single value, then the component edit view includes a button or link to display the list of available attributes.

Metric:

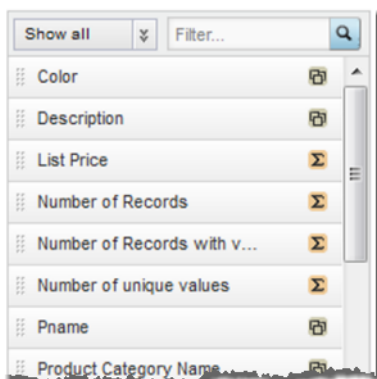
If you can set up lists of values, then the list of available attributes is displayed directly on the edit view, and you can drag and drop attributes from the list.

In some cases, such as **Results List** or a record list **Results Table**, you are simply selecting attributes to display, without any aggregation. The available attributes list then only displays attributes.



For other components, such as **Chart** and **Pivot Table**, you are selecting aggregated metric values, and the dimensions to use for the aggregation. For components that display aggregated data, the attributes list:

- Uses icons to indicate whether each attribute can be used as a metric or a dimension



Note that multi-value date/time attributes cannot be used as dimensions, and are not included in the list.

- Includes the predefined metrics from the selected view

- Includes the following system metrics:

Metric Name	Description
Number of records	<p>Displays the number of records in the underlying data set that have the combination of dimension values for the current row.</p> <p>For example, a component is aggregated using the dimensions Country and Product Line. The current item has United States for the country and Apparel for the product line.</p> <p>The number of matching records is the number of records that have the value United States for Country and Apparel for Product Line.</p>
Number of records with values	<p>Displays the number of records that have a value (any value other than NULL) for a selected attribute for the current dimension values.</p> <p>When you add this metric, you are prompted to select the attribute to use. You can only select an attribute that has the count aggregation enabled.</p> <p>For example, a component is aggregated using Country and Product Line. The current item has United States for the country and Apparel for the Product line.</p> <p>Of the 15 records with United States as the Country and Apparel as the product line, 4 records have Color set to Blue, 3 have Color set to Green, and 8 have no value for Color.</p> <p>The number of records with values for the Color attribute is then 7.</p>
Number of unique values	<p>Displays the number of unique values (other than NULL) for a selected attribute for the current dimension values.</p> <p>When you add this metric, you are prompted to select the attribute to use. You can only select an attribute that has the count distinct aggregation method enabled.</p> <p>For example, a component is aggregated using Country and Product Line. The current item has United States for the country and Apparel for the product line.</p> <p>Of the 15 records with United States as the Country and Apparel for the product line, 4 records have Color set to Blue, 3 have Color set to Green, and 8 have no value for Color.</p> <p>The number of unique values for Color is then 2.</p>

To select values for a component:

1. To select a single value:
 - (a) Click the link or button.
 - (b) On the attribute list dialog, click the attribute to select.

You can use the filter field to search for a particular attribute.

(c) Click **Apply**.

When you select a metric attribute, Studio assigns the default aggregation method for that attribute.

When you select the **Number of records with values** or **Number of unique values** metric, Studio prompts you to select the attribute to use.

2. To populate lists of values for a component:

(a) To add an attribute to a list, drag it from the available attributes list to the appropriate destination location on the component edit view.

You can use the filter field to search for a particular attribute.

When you begin dragging the attribute, Studio highlights the locations where you are allowed to drop it.

For example, if you are dragging a metric, you cannot drop it into a dimensions list.

(b) Drop the attribute into the destination location.

When you drop an attribute into a metrics list, Studio assigns the default aggregation method for that attribute.

When you drop a **Number of records with values** or **Number of unique values** attribute, Studio prompts you to select the attribute to use.

3. To configure a selected attribute, click its edit icon.

4. To remove a selected attribute, click its delete icon.

Selecting the aggregation method to use for a metric

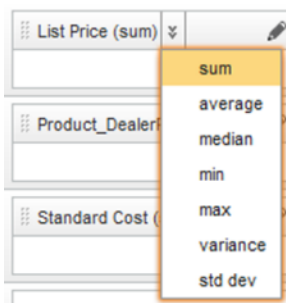
For metrics other than system metrics or predefined metrics, when you first select a metric to add to a component, Studio uses the default aggregation method for that attribute. You can then select a different aggregation method.

For information on aggregation methods and how they work, see [Aggregation methods and the data types that can use them on page 150](#).

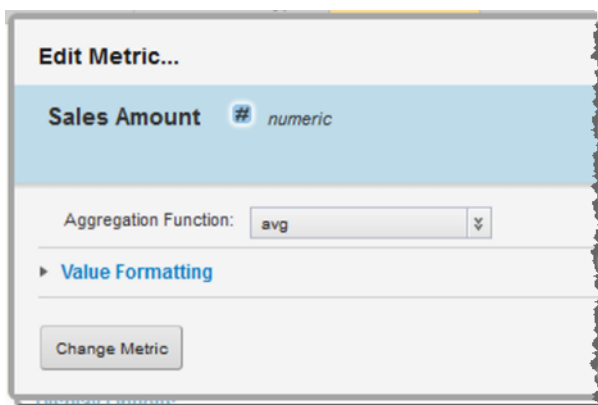
You configure the default and available aggregation methods for each attribute on the **Views** page. For information on configuring the available and default aggregation methods, see [Selecting the available and default aggregation methods for an attribute on page 147](#).

To change the aggregation method used for a metric value:

1. On the edit view of the component, the selected metric includes a drop-down icon to allow you to select a different aggregation method.



- The configuration dialog for the metric also contains an aggregation method drop-down list you can use to change the aggregation method.



Configuring the format of values displayed on a component

For values displayed on a component, you can configure the display format.

Displayed values on a component could be:

- Actual attribute values from a view
- Predefined metrics from a view
- Component-specific metrics calculated from view attribute values

For attributes and predefined metrics, the default display format is configured in the **Views** page. See [Configuring the default display format for an attribute on page 143](#). You can then either use this format, or use a customized format.

For component-specific metrics, the default display depends on the type of aggregation:

Aggregation Method	Default Metric Format
Sum Average Median Min Max Set Arb	Default display format for the original attribute.
Variance Standard Deviation	Default format (adjusted for locale) for a decimal number.

Aggregation Method	Default Metric Format
Count (Number of records with values) Count Distinct (Number of unique values)	Default format (adjusted for locale) for an integer number.

Configuration dialogs for displayed values can include a **Value Formatting** section to control the display format. In the drop-down lists and radio button labels, **Use default** indicates to use the default format configured on the **Views** page.

At the top of the display settings is a sample value showing the current configuration adjusted for your locale.

From the configuration dialog, to set the display format for a value displayed on a component:

1. To customize the display of a numeric value:

- (a) If the number is formatted by default as a regular number, then you can change the display to be a currency value or a percentage. Note that if you select the percentage format, the value is multiplied by 100.

To change the type of formatting for a number, click the radio button next to the formatting type to use.

If the number is formatted by default as a currency or a percentage, then you cannot select a different type of number formatting.

- (b) If you have changed the formatting of a number to be a currency value, then from the **Currency** drop-down list, select the type of currency.

If the number was originally formatted as a currency, then the currency selection is displayed as a read-only value.

- (c) If the number is a percentage, then from the **Include percentage sign** drop-down list, select whether to display the percentage (%) sign with the value.

- (d) Under **Decimal places**, to use the decimal place configuration from the **Views** page, leave the use default radio button selected.

To display the full raw number if possible, click the **automatic** radio button. For extremely long numbers, Studio may still need to truncate the decimal places.

To specify the number of decimal places, click the custom radio button, then in the field, type the number of decimal places to display.

- (e) From the **Include grouping separator** drop-down list, select whether to display the grouping separator (used to separate thousands).

2. For numeric values, the **Advanced Formatting** section provides additional format options. To display those options, click the section heading.

For each of the advanced items, you can choose to have the display use the default configured for the view, or select a specific option for this particular component. Under **Advanced Formatting**:

▼ **Advanced Formatting** *Changes to any of the settings below will override localized formatting based on each user's locale.*

Number format: varies based on locale ▼

Decimal separator: varies based on locale ▼

Grouping separator: varies based on locale ▼

- (a) From the **Number format** drop-down list, select how to display negative numbers.
 - (b) From the **Decimal separator** drop-down list, select the character to use for the decimal point.
 - (c) From the **Grouping separator** drop-down list, select the character to use for the grouping (thousands) separator.
3. For a Boolean attribute, to set the values to display for each Boolean value:

▼ **Value Formatting** Sample formatting (United States | English): true / false ⓘ

Boolean display: use default custom values

True value:

False value:

- (a) Click the custom values radio button.
 - (b) In the **True value** field, type the value to display if the attribute value is 1 (True).
 - (c) In the **False value** field, type the value to display if the attribute value is 0 (False).
4. For a geocode, to set a specific number of decimal places to display for the latitude and longitude values:

▼ **Value Formatting** Sample formatting (United States | English): 44.756530 -91.473097 ⓘ

Decimal places: use default 6 digits

- (a) Click the custom radio button.
 - (b) In the field, type the number of decimal places.
5. For a date/time attribute:

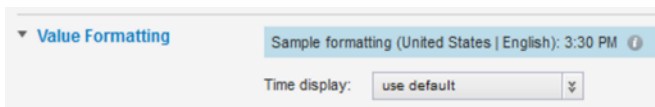
▼ **Value Formatting** Sample formatting (United States | English): 1/18/99 ⓘ

Date display: use default ▼

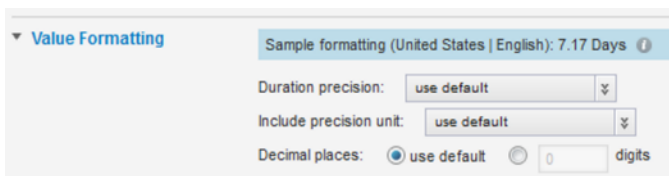
Time display: use default ▼

- (a) From the **Date display** drop-down list, select the format to use for the date.
For each format, the display is controlled by the locale. For example, for some locales, the month is displayed first, and for others the day is displayed first.
- (b) From the **Time display** drop-down list, select the format to use for the time.

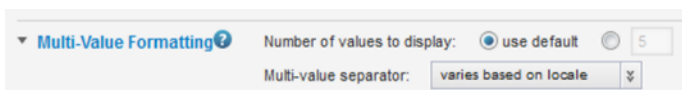
6. For a time attribute, from the **Time display** drop-down list, select the format to use for the time.



7. For a duration attribute:



- (a) From the **Duration precision** drop-down list, select the unit to use when displaying the duration.
For example, for a duration of 1 day, 15 hours, and 20 minutes, if you choose days as the precision, the value displays as 1.63 days. If you choose hours, the value displays as 39.33 hours.
- (b) From the **Include precision unit** drop-down list, select whether to display the precision unit next to the value.
- (c) Under **Decimal places**, to specify the number of decimal places to display for the duration value, check the custom radio button, then enter the number in the field.
8. If multiple values are displayed, either because the selected attribute is multi-value, or the set aggregation is being applied, then the configuration includes the **Multi-Value Formatting** section.



You can configure the number of values to display, and the separator to use between the values.

- (a) Under **Number of values to display**, to use the default, leave the use default radio button selected. To specify a number, click the other radio button, then type the number in the field.
- (b) From the **Multi-value separator** drop-down list, select the character to use to separate the values.

Configuring component actions

Part of configuring a component is configuring any available fort that component, such as refining data and displaying details. Some actions are specific to a displayed value, while others may apply to the entire component.

[Configuring the Actions menu for a component](#)

[Configuring actions for displayed values](#)

[Selecting the target page for a refinement or hyperlink](#)

[Configuring cascading for dimension refinement](#)

[Configuring hyperlinks to external URLs from Studio components](#)

Configuring the Actions menu for a component

A component **Actions** menu contains options that apply either to the entire component or to selected items from the component.

About the component Actions menu

A component can include an **Actions** menu to allow end users to perform component-level actions such as printing the component and exporting data.

Some components also support options that require users to first select one or more items, such as comparing records, refining by attribute values in selected records, or using POST to pass parameters to a URL.

The available actions for a component **Actions** menu are:

Action	Description
Print	<p>Allows users to print the component.</p> <p>The Actions menu can only contain one Print option, which is included in the menu by default.</p>
Export	<p>Allows users to export data from a component.</p> <p>The Actions menu can only contain one Export option, which is included in the menu by default.</p>
Compare	<p>Displays the Compare dialog to allow users to do a more detailed comparison of selected items.</p> <p>The Actions menu can only contain one Compare option, which is enabled by default.</p> <p>If the view used for the component does not have any identifying attributes, then the Compare checkbox is disabled and locked.</p>
Pass Parameters	<p>Allows users to create a hyperlink that generates an HTTP POST request containing attribute values from the selected records as POST parameters.</p> <p>The Pass Parameters option is only available for the Results List and Results Table components.</p> <p>The Actions menu can contain multiple Pass Parameters options, each with a different label, URL, and parameters.</p> <p>By default, there are no Pass Parameters options in the menu.</p>

Action	Description
Refinement	<p>Allows users to refine the data using selected attribute values from the selected records. The attributes must allow users to refine using multiple values (have multi-or or multi-and refinement behavior).</p> <p>For example, users could select three records and then refine the data to only include records that have values for available colors and available sizes that are used in those selected records.</p> <p>The Refinement option is only available for the Results List and Results Table components.</p> <p>The actions menu can contain multiple Refinement options, each with a different label and attributes.</p> <p>By default, there are no Refinement options in the menu.</p>

Selecting the actions to include in the Actions menu

On the **Actions** tab of the component edit view, you use the **Actions menu** list to select the available options in the **Actions** menu. For some actions, you can only enable or disable them. For other actions, you can add one or more instances to the menu.

To select the options to include in the **Actions** menu:

1. To exclude the **Print** option, uncheck the **Print** checkbox. To restore the **Print** option in the **Actions** menu, check the checkbox.
There are no configuration options for the **Print** option.
2. To exclude the **Export** option, uncheck the **Export** checkbox. To restore the **Export** option in the **Actions** menu, check the checkbox.
There are no configuration options for the **Export** option.
3. To exclude the **Compare** option, uncheck the checkbox. To restore the **Compare** option in the **Actions** menu, check the **Compare** checkbox.

For the **Compare** option, you can configure the label to display in the column heading for each record. To configure the column heading:

- (a) Click the edit icon for the **Compare** option.
- (b) On the **Compare Configuration** dialog, in the **Header** field, type the header to display.

The default is `Record {counter}`, which indicates to display the word "Record" plus the column number based on the order in which the records were selected. For example, Record 1, Record 2, etc.

In addition to the `{counter}` token, you can also use the `{attributeKey}` token, where *attributeKey* is the key name (not the display name) of an attribute for which to display the associated value. For example, entering `{Name}` would indicate to use the value of the Name attribute for the record as the column heading.

The attribute must be in a group that is configured to display for record details. If the attribute is not included in the attributes on the **Compare** dialog, then the value is not displayed in the column heading.

4. The **Actions menu** list initially does not contain any **Pass Parameters** options. You can add one or more of these options, each with unique settings:
 - (a) To add a **Pass Parameters** option, click the **+Action** button. From the drop-down menu, select **Pass parameters**.
 - (b) By default, the option is enabled when you add it. To exclude the option, uncheck its checkbox. To reenable the option, check the checkbox.
 - (c) To remove a **Pass Parameters** option, click its delete icon.
5. The **Actions menu** list initially does not contain any **Refinement** options. You can add one or more of these options, each with unique settings:
 - (a) To add a **Refinement** option, click the **+Action** button. From the drop-down list, select **Refinement**.
 - (b) By default, the option is enabled when you add it. To exclude the option, uncheck its checkbox. To reenable the option, check the checkbox.
 - (c) To remove a **Refinement** option, click its delete icon.
6. To change the display order of the **Actions menu** options, drag each option to the appropriate location in the list.

Configuring a Pass Parameters Actions menu action

For a **Pass Parameters** option in a component **Actions menu**, you can configure the URL and whether to display it in a new browser window. You can also include attribute values as POST parameters.

To configure a **Pass Parameters** option:

1. Click its edit icon.
2. On the configuration dialog, in the **Action name** field, type the label to use for this option.
3. To display the URL in a new browser window, check the **Open link in a new window** checkbox.
4. In the **URL** field, type the URL to post to.

Make sure that the URL is correctly formed, and that special characters are properly encoded. You must provide the full URL, starting with the protocol (HTTP, HTTPS, etc.).
5. To add attribute values as POST parameters:
 - (a) Click the **Add POST parameters** button.

The list of available attributes is displayed.
 - (b) For each attribute you want to add, click its add icon.

The add icon is replaced by a delete icon. If you decide to not add a selected attribute, click the delete icon.

- (c) When you are finished selecting the attributes to add, click **Apply**.

The selected attributes are displayed in a list.

New Pass Parameters

Action name:

Open link in a new window

URL:

POST parameters: ?

Display Name	Parameter Name
⊖ Booking Year	Booking_Year
⊖ Cases Produced	Cases_Produced

[▶ Conditional Action Display](#)

- (d) To remove a parameter, click its delete icon.

6. To save the action configuration, click **Apply**.

Configuring a Refinement Actions menu action

For a **Refinement** option in a component **Actions** menu, you can configure the attributes to use for the refinement and the page on which to apply the refinement.

To configure a **Refinement** option:

1. Click its edit icon.
2. On the configuration dialog, in the **Action name** field, type the label to use for this option.
3. In the attribute list, check the checkbox next to each attribute to include in the refinement.

Note that you can only select attributes that allow you to select multiple values for refinement. On the **Views** page, these attributes have **Refinement Behavior** set to **Multi-Or** or **Multi-And**.

4. Use the **Target page** setting to specify the page on which to execute the refinement.

To stay on the current page, click the **Current page** radio button.

To navigate to a different page, click the **Other page** radio button, then in the field, specify the page.

For information on specifying a different page in the application, see [Selecting the target page for a refinement or hyperlink on page 200](#).

5. To save the configuration, click **Apply**.

Configuring actions for displayed values

For many components, you can allow users to click displayed values in order to refine data, display record details, or navigate to a specified page or external URL.

When configuring a displayed value, there is an **Actions** section to configure the action.

To select and configure an action for a displayed value:

1. If more than one action is available, then from the action drop-down list, select the action.

The available actions are:

Action Name	Description
No Action	Indicates that the value is not hyperlinked. For attributes that do not support refinement, this is the default option.
Show Details	When users click the value, the Record Details dialog is displayed and is populated with the details for that record or row.
Refinement	When users click the value, the data is refined to only include records with that value. If the displayed attribute supports refinement, then this action is selected by default.
Hyperlink	When users click the value, they navigate to the specified URL. A hyperlink can be to another page in the same application, or to an external URL. Hyperlinks to external URLs can include attribute values as parameters.

2. For a **Show Details** action, use the **Window Name** setting to configure the title of the **Record Details** dialog.
3. For a **Refinement** action, use the **Target page** setting to specify the page to navigate to when users click the value.

To stay on the current page, click the **Current page** radio button.

To navigate to a different page, click the **Other page** radio button, then in the field, specify the page.

For details on providing a target page for refinement, see [Selecting the target page for a refinement or hyperlink on page 200](#).

4. For a **Hyperlink** action:
 - (a) To display a tooltip for the value containing a description of the action, check the **Display action description in tooltip** checkbox. In the **Action Description** field, type a description of the hyperlink action.
 - (b) To display the destination in a new browser window, check the **Open link in a new window** checkbox. The box is checked by default.
 - (c) In the **URL** field, type the hyperlink destination. The link can be to:
 - A different page in the same application. For details on providing a target page for a hyperlink, see [Selecting the target page for a refinement or hyperlink on page 200](#).
 - An external URL. For an external URL, make sure the URL is correctly formed, and that you have properly encoded special characters.

You must provide the full URL, starting with the protocol (HTTP, HTTPS, FTP, etc.)

A hyperlink to an external URL can include attribute values.

The values may be query parameters:

```
http://www.acme.com/index.htm?p1="Red"&p2="1995"
```

Or may be part of the URL path:

```
http://www.acme.com/wines/1995/
```

To add attribute values to an external URL:

- (a) Click **Add URL Parameters**.
- (b) On the add parameters dialog, in the attribute list, click the add icon next to each attribute to add.

For each attribute you select, the add icon changes to a delete icon.

To not include a selected attribute in the URL parameters to add, click the delete icon.

- (c) When you are finished selecting attributes, click **Apply**.

The selected attributes are displayed in a table, with each attribute assigned an ID to use when inserting the attribute into the URL.

The attributes are also inserted as query parameters, where the parameter name is the attribute key, and the parameter value is `{IDNumber}`, where `IDNumber` is the ID for that attribute. For example: `http://www.acme.com/index.htm?Region={0}&WineType={1}`

By default, the value is encoded. To not encode the value, change the format to `{{IDNumber}}`. For example: `{{0}}`

You can also use the ID numbers to insert the attribute values manually.

For details on component hyperlinks and encoding inserted attribute values, see [Configuring hyperlinks to external URLs from Studio components on page 203](#).

- (d) To remove a URL parameter from the table, click its delete icon.

If you did not edit the inserted query parameter, then Studio also removes it from the URL.

If you did edit the inserted query parameter, then you must remove the parameter from the URL manually.

If you inserted the attribute value manually, then you also must remove it manually.

Selecting the target page for a refinement or hyperlink

When configuring component actions to refine data, you can also indicate to display a different page in the application. You can also provide a page as the destination for a hyperlink.

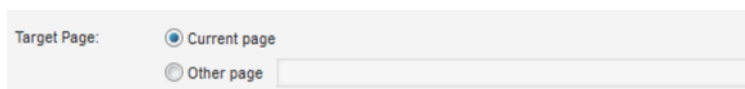
About selecting a target page for refinement or a hyperlink

You can configure refinement actions to display a different page. You can also create hyperlink actions that navigate to a different page.

For example, when users refine by a value on an **Available Refinements** component on one page, a different page could be displayed. Note, however, that the refinement is applied to all of the application components that use the same data set, no matter what page they are displayed on.

For some components, such as **Available Refinements**, you use a single **Target page** field to indicate the page to display when users do the refinement. If you leave the field empty, then users remain on the current page. If you provide a page name, then that page is displayed.

For other components, such as **Results Table**, the target page setting for a refinement uses radio buttons to indicate whether to stay on the current page or navigate to a different page.



For a hyperlink action, to link to a page in the same application, you specify the internal page name as the value of the URL.

Syntax for specifying a target page

When you configure the target page for a refinement or hyperlink, you use the internal page name. For pages with a **Tabbed Component Container**, you can specify the tab to display.

About using the internal page name

When specifying the target page for a refinement or hyperlink, you must use the internal page name used in the URL, not the display name used on the page tab.

Studio creates the internal name automatically when you create the page. The internal name removes spaces and special characters.

For example, if the page name displayed on the page tab might be **Data Results**, then the page name in the URL might be **data-results**.

While you can change the display name for a page, the internal page name does not change.

Selecting a tab on a Tabbed Component Container

If the target page includes a **Tabbed Component Container** component, then to specify the tab that is selected, you append to the page name:

```
#tabComponentName[tabNumber]
```

Where:

- *tabComponentName* is the name of the **Tabbed Component Container**.

- *tabNumber* is the number (1, 2, 3, etc.) of the tab to select.

So for example, for the following target value:

```
analyze#Sales Numbers[1]
```

- The end user is redirected to the `analyze` page.
- On the page, the first tab of the **Sales Numbers** tabbed component is selected.

To select the tab to display for multiple tabbed components, use a double colon (::) to delimit the components.

For example, for the following target value:

```
analyze#Sales Numbers[1]::Quarterly Forecast[2]
```

- The user is redirected to the `analyze` page.
- On the **Sales Numbers** tabbed component, tab 1 is selected.
- On the **Quarterly Forecast** tabbed component, tab 2 is selected.

Using component IDs to specify a Tabbed Component Container

Because the double colon (::) is part of the target page syntax, you should avoid using it in your tab titles. You also should avoid multiple tabbed component containers with duplicate titles.

If you cannot avoid these naming features, then when defining a target page, you must use a component's ID rather than its name.

To find a component's ID:

1. Hover your mouse over the tab until the URL appears in the browser status bar.
2. Extract the `p_p_id` parameter from the URL.

```
/dashboard?p_p_id=nested_tabs_INSTANCE_7r3l&p_p_lifecycle=1&p_p_state:
```

For example, for the following target value:

```
analyze#nested_tabs_INSTANCE_0CbE[2]::nested_tabs_INSTANCE_Ja6E[1]
```

- The end user is redirected to the `analyze` page.
- On the tabbed component with ID `nested_tabs_INSTANCE_0CbE`, tab 2 is selected.
- On the tabbed component with ID `nested_tabs_INSTANCE_Ja6E`, tab 1 is selected.

Configuring cascading for dimension refinement

When users can refine by dimension values on a component, you can configure the dimension to use cascading. You can configure cascading for the **Chart** and **Pivot Table** components.

Cascading means that when the data is refined to a single value for the dimension value, the component is updated to use a different dimension.

When there are no more dimensions to cascade to, the component remains on the last dimension in the cascade.

For example, a component includes a Country dimension. The Country dimension is configured to cascade to State and then to Supplier. With this configuration:

1. When users refine the data to only show records for the United States, the component uses the State dimension (for states within the United States).
2. If users then refine the data to only show records for California, the component uses the Supplier dimension (for suppliers within California).
3. If users then refine the data by a specific supplier, the component displays the data for the selected supplier, and the cascade stops.



Important: Some behaviors to be aware of when dealing with refinement and cascades:

- As a general rule, if the dimension is not available in the **Available Refinements** component, then on the component, the dimension cannot be used for hierarchical refinement, and is skipped in a cascade.
- For multi-or or multi-and dimensions, where users can refine by more than one value, then if the data is refined by any one of the dimension values, the cascade continues to the next dimension, even if there are still available values to refine by.
- For dimensions based on managed attributes, whether the dimension can be used in a cascade is based on precedence rules and other settings in the Endeca Server. See the *Oracle Endeca Server Developer's Guide* for more information. These rules may cause a managed attribute in a cascade to be skipped unexpectedly, even if it is at the top of the cascade.

When configuring a dimension, to configure cascading for refinement:

1. Check the **Enable dimension cascade** checkbox.

The cascade configuration is displayed. The current dimension is automatically at the top of the cascade.

A drop-down list is displayed for you to select the next dimension in the cascade.

2. To add a new layer to the cascade, select the dimension for that layer from the drop-down list, then click **Add Layer**.

The new layer is added to the end of the cascade.

3. To remove a layer from the cascade, click the delete icon next to that layer.
4. To clear the entire cascade, click **Clear Cascade**.

Configuring hyperlinks to external URLs from Studio components

Components can include hyperlinks to external URLs, which can present security risks.

About Studio component hyperlinks

Some components can include hyperlinks from the displayed records to external URLs.

In some cases, the URLs are static, with the exact same target displayed for every record.

More commonly, a URL contains one or more variable placeholders, each representing an attribute from the underlying data. At runtime, Studio replaces the placeholders with the actual attribute values for the current record.

For example, for a list of products, a **Results List** component might include a hyperlink to the product web page. To find the correct page, the hyperlink includes the product identifier as a dynamic URL parameter.

When configuring these hyperlinks and inserting dynamic URL parameters, you should be aware of the security risks and recommendations associated with them, including:

- Encoding versus not encoding the inserted values
- Using non-HTTP (file or FTP) links
- Storing full URLs as attribute values

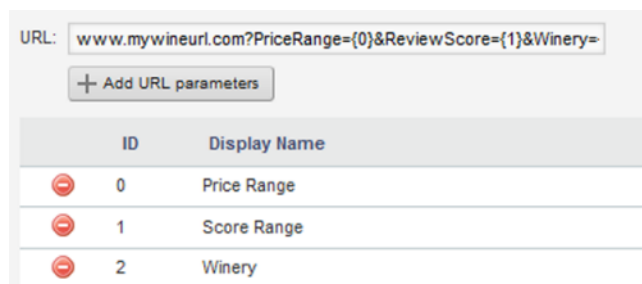
Indicating whether to encode inserted attribute values

When you insert an attribute value as a URL parameter, you can specify whether Studio encodes the value before inserting it into the URL.

URLs must use ASCII characters, and must avoid using certain reserved characters used as part of the URL syntax. URL encoding replaces any non-conforming characters with a percent sign followed by a hexadecimal numeric representation of the character.

For example, the forward slash (/) is a reserved character. If a URL includes the phrase "CD/DVD", then URL encoding would change that to "CD%2FDVD".

To insert parameters into a URL, you first select a list of attributes, each of which is assigned a number. You then use the number to insert the parameter.



The screenshot shows a configuration window for a URL. At the top, there is a text input field containing the URL: `www.mywineurl.com?PriceRange={0}&ReviewScore={1}&Winery=`. Below the input field is a button labeled "+ Add URL parameters". Underneath the button is a table with two columns: "ID" and "Display Name". The table contains three rows, each with a red minus icon in the first column, a numeric ID in the second column, and a display name in the third column.

ID	Display Name
0	Price Range
1	Score Range
2	Winery

The format uses the single and double braces to indicate encoding versus not encoding. By default, the values are encoded, and the parameters are enclosed by a single set of braces:

```
{parameterNumber}
```

For example:

```
http://www.acme.com/index.htm?p1={0}&p2={1}
```

To have Studio not encode a hyperlink parameter, use a double set of braces:

```
{{parameterNumber}}
```

For example:

```
http://www.acme.com/index.htm?p1={{0}}&p2={{1}}
```

It is important to understand that avoiding encoding can pose a security risk, because data retrieved from the underlying Endeca Server is rendered in the user's browser without intervention, potentially allowing scripts or HTML to be injected directly into a user's browser.

Similarly, if the attribute contains reserved characters that are disallowed in a URL, the resulting hyperlink may be invalid or incorrect and therefore not work for the end user.

As a result, using the non-encoding syntax is not recommended. Unless you know that the underlying data is already encoded, you should always use the encoding syntax.

About using non-HTTP protocol links

While Studio does not prevent you from inserting links that use a non-HTTP protocol, such as `file://` or `ftp://`, using these types of links is not recommended.

Most modern browsers are configured by default to disallow file URLs on web pages retrieved over HTTP. This is a security precaution to ensure web pages cannot execute files on a user's system.

When users click these types of links, the browser ignores them and does not display the link target.

Similarly, not all browsers are guaranteed to support FTP links, and users may not have FTP clients available to get access to content hosted over this protocol.

If users need to reach content on a file system or FTP server, it is recommended that you set up a configuration such as a web servlet to stream files through an HTTP interface. This allows all of your links to be secure HTTP links, and ensures consistent access for users with all browser configurations.

Recommendations for attribute values that are complete URLs

It is possible that your source data contains complete URLs (including the protocol, host, port, and path) that are ingested into the Endeca Server when the data is loaded. For example, company data could include links to pages on the company web site.

If you store the full value, and then insert the value as the hyperlink URL, you would not be able to encode it. Because Studio does not parse the attribute value as part of an absolute URL, encoding it would corrupt the URL, and the link would not work.

For example, `http://www.mycompany.com/page1` would become `http%3A%2F%2Fwww.mycompany.com%2Fpage1`.

Because of this, storing the full URL in your Endeca Server data is not recommended.

For these types of attributes, during the data ingest process, it is recommended that you use one of the following approaches:

1. **Use one or more attributes to store only the parameter values for each record's URL.**

When you configure the URL in a component, you would then manually type the standard part of the URL into the component configuration, and use encoded attributes for the querystring parameters. For example:

```
http://server.mycompany.com/path/to?file={0}
```

0 is a number from the list of selected parameters.

You can only use this approach if all of the URLs have the same structure. If this is not the case, then you may need to use one of the other approaches.

2. Store the structural portions of the URL in a separate attribute from the parameter values.

In this approach, the structural portions of the URL such as the protocol, hostname, port, and context path/delimiters are stored in one or more attributes. The parameter portions of the URL that represent identifiers are stored in separate attributes as in approach 1 above.

When you enter the URL in the component, you would not encode the structural attributes, but would encode the parameters. For example:

```
{{0}}/path/to/{1}?file={2}
```

0, 1, and 2 are numbers from the list of selected parameters.

3. Use a single attribute for the full URL, but have the data ingest process encode any non-structural portions of the URL, such as querystring parameters.

This prevents script injection and addresses any disallowed characters. When you enter the URL, you can then use the attribute value without further encoding. For example:

```
{{0}}
```

0 is a number from the list of selected parameters.

Configuring pagination options for components

For components that allow end users to page through the displayed data, you can configure the number of results to display per page, and whether to allow end users to change that number.

On the **Display Options** tab of the component edit view, to configure the pagination options:

1. To allow end users to select the number of results to display on each page, check the **Enable end user results per page controls** checkbox.

Enable end user results per page controls

Available results per page options

20,50,100

Default results per page: 20 ▾

2. If you are allowing end users to select the number of results per page, then:
 - (a) In the **Available results per page options** field, type a comma-separated list of the options.
 - (b) From the **Default results per page** drop-down list, select the default number of results to display per page.
3. If you are not allowing end users to select the number of results per page, then in the **Results per page** field, type the number of results to display per page.

Previewing a component

When configuring a component, once the minimum configuration is established, you may be able to display a preview of the end user view.

The preview is designed to show the default display for the component.

Not all of the component functions are necessarily available. For example, you can't print or export from the component preview.

To preview the component:

1. To display the component preview, click the **Show Preview** button.

The button is displayed at the bottom of the component edit view, and is only enabled when the component is configured enough for the preview to display.

The **Show Preview** button changes to **Hide Preview**. Depending on the complexity of the component, an **Update** button is displayed.

The component preview is displayed below the preview buttons.

2. When the preview is displayed, to update the preview to reflect changes to the configuration, click **Update**.

If there is no **Update** button, then the preview is updated automatically whenever you make changes to the component.

3. To hide the preview, click **Hide Preview**.

The **Hide Preview** button changes back to **Show Preview**, and the **Update** button is removed.



Layout components allow you to group components on a page.

[Component Container](#)

[Tabbed Component Container](#)

Component Container

The **Component Container** groups components into a single component.

[About the Component Container](#)

[Configuring a Component Container](#)

About the Component Container

The **Component Container** allows you to organize components by grouping them in a single container.

The components can then be viewed and moved as a set.

The screenshot displays two side-by-side windows from the Oracle Endeca Information Discovery Studio. The left window, titled 'Component Container', has a 'Selected Refinements' section with a message 'No refinements have been selected.' Below it is the 'Available Refinements' section, which is organized into several expandable categories: 'Source' (with sub-items Winery, Region, Vintage), 'Price and Score' (with sub-items Sales Price, Price Range, Date Reviewed, Base Score, Score Range, Designation), and 'Characteristics' (with sub-items Body, Flavors, Drinkability, Wine Type). The right window, titled 'Data Explorer', shows a list of wine records. The 'Data Set' is 'Wine' and it is 'Sorted by: None'. The first record, with ID '78240', includes details such as 'Body: Drying, Firm, Intensity, Tannins', 'Drinkability: Drink now through 2006', 'Flavors: Berry, Cherry, Dried, Dry', 'P_Body: Drying, Firm, Intensity, Tannins', 'P_DateReviewed: 9/15/2000', 'P_Description: Impresses with its intensity and rang ...', 'P_Drinkability: Drink now through 2006', 'P_Flavor: Berry, Cherry, Dried, Dry', 'P_Name: Pinot Noir Russian River Valley', 'P_Price: 35.000000', 'P_Region: Sonoma', 'P_Score: 88', 'P_WineID: 78240', 'P_Winery: Joseph Swan', 'P_WineType: Pinot Noir, Red', 'P_Year: 1997', 'PriceRange: \$30 to \$40', 'Region: Sonoma', 'ReviewScore: 80 to 90', 'Vintage: 1997', and 'wine.Description_enriched: berry flavor, cases prod ...'. The second record, with ID '60414', shows 'Body: Bright'. At the bottom of the Data Explorer, it indicates 'Page 1 of 5708' and '1-10 of 57076 | 10 per page'.



Note: Do not add a **Component Container** component to a **Tabbed Container** component or to another **Component Container** component.

Configuring a Component Container

For a **Component Container**, you can configure the layout to use, and whether to display a border around the component.

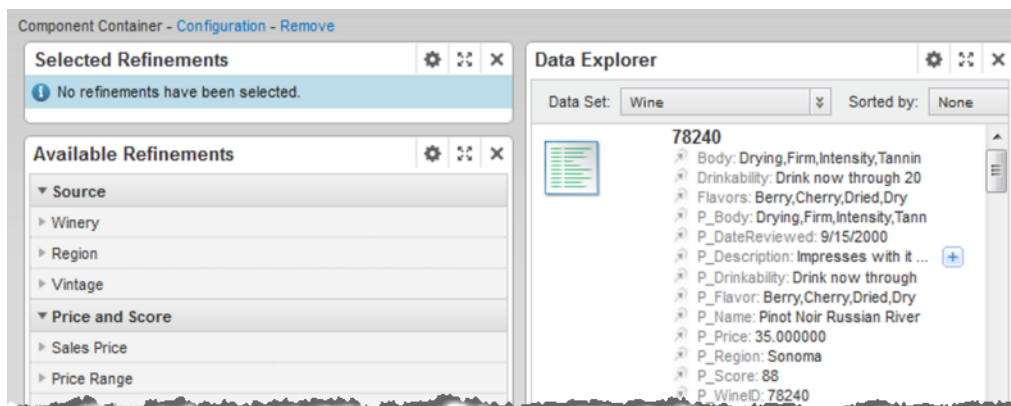
To configure a **Component Container**:

1. On the component edit view, under **Page Layout**, click the radio button next to the layout you want to use for the container.

You can select from the same layouts as for a page.

2. Under **Display Settings**, to hide the borders for the container, uncheck the **Show Borders** checkbox.

If you hide the borders, then the title bar does not display, and the buttons are replaced by links. The change applies both to the end user and edit views.



3. To save the changes to the configuration, click **Save**.
4. To return to the end user view, click **Exit**.

After configuring the **Component Container**, you can drag other components onto the component and configure them as usual.

Tabbed Component Container

The **Tabbed Component Container** groups components into multiple tabs.

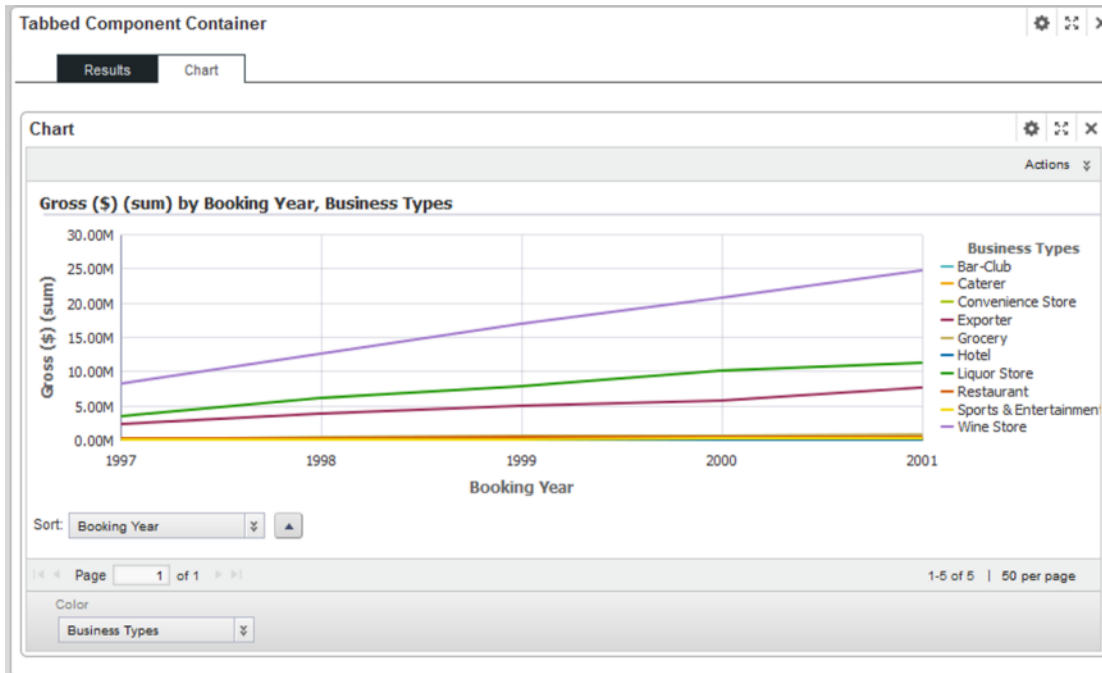
[About the Tabbed Component Container](#)

[Configuring a Tabbed Component Container](#)

About the Tabbed Component Container

The **Tabbed Component Container** creates a tabbed interface.

Each tab can contain a different set of components.



When working with a **Tabbed Component Container**:

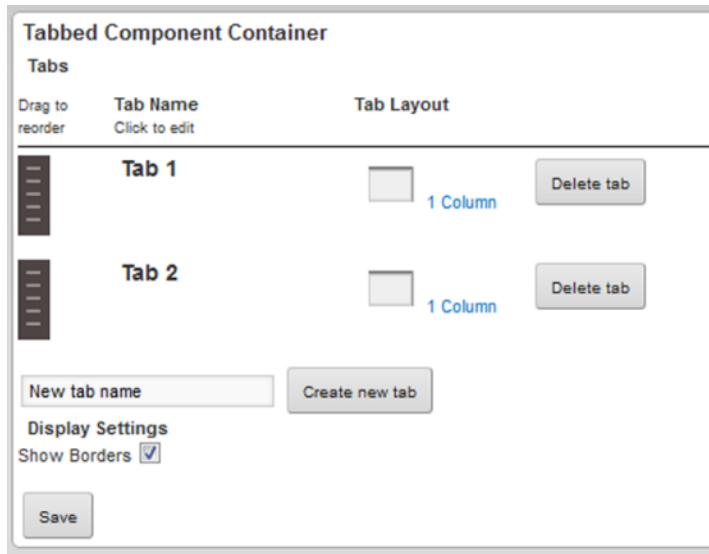
- Do not add a **Component Container** component to a **Tabbed Component Container**.
You also cannot add a **Tabbed Component Container** to another **Tabbed Component Container**.
- After placing the **Tabbed Component Container** on the page, make sure to refresh the page before you add other components to the tabs.

Configuring a Tabbed Component Container

For a **Tabbed Component Container** component, you can add and remove tabs, and determine whether to display a border around the container.

To configure a **Tabbed Component Container**:

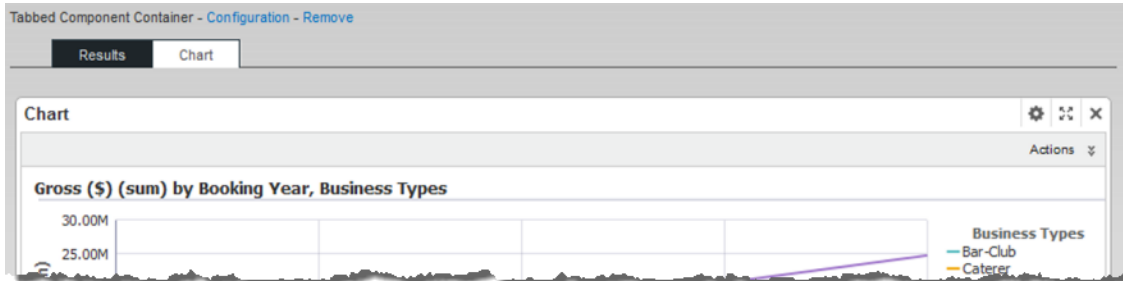
1. On the component edit view, to add a new tab to the component:



- (a) In the **New tab name** field, type the name of the new tab.
 - (b) Click **Create new tab**.
2. To remove a tab, click the **Delete tab** button for the tab.
 3. To rename a tab:
 - (a) Click the tab name.
The tab name becomes an editable field.
 - (b) In the field, type the new label for the tab.
 - (c) Click **OK**.
 4. To change the layout of a tab:
 - (a) Click the layout name.
The list of available layouts is displayed, with the current layout selected.
 - (b) Click the radio button for the layout you want to use.
The layout list is closed, and the new layout is selected.

5. Under **Display Settings**, to hide the regular component border around the **Tabbed Component Container**, uncheck the **Show Borders** checkbox.

If **Show Borders** is unchecked, then the **Tabbed Component Container** title bar and border do not display. The buttons are replaced by links. The change applies both to the end user and edit views.



6. To save the changes to the configuration, click **Save**.
7. To exit the edit view, click **Exit**.

After configuring the **Tabbed Component Container**, you can drag other components onto each tab and configure them as usual.



Chapter 21

Results Components

These components provide a detailed view of records for the current refinement.

[Data Explorer](#)

[Results List](#)

[Results Table](#)

Data Explorer

The **Data Explorer** component displays a complete set of attribute-value pairs for each record in a selected data set, or the schema records for the application data.

[About the Data Explorer component](#)

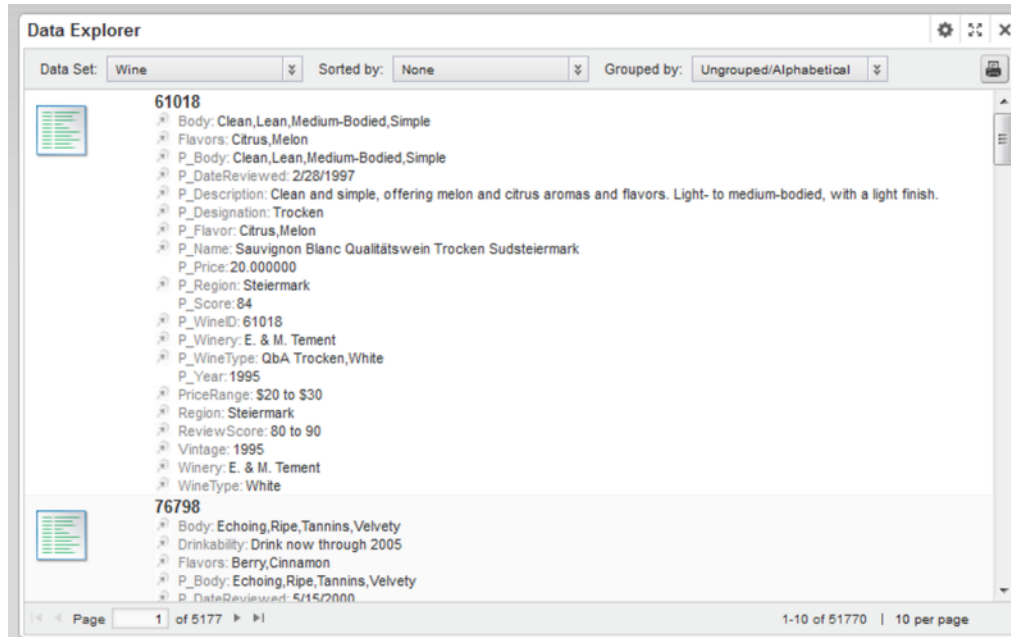
[Using the Data Explorer component](#)

[Configuring the Data Explorer component](#)

About the Data Explorer component

The **Data Explorer** component is designed as a data viewing and verification tool rather than as a data exploration tool.

For example, administrators may use the component to verify that newly loaded data is complete and accurate.



Using the Data Explorer component

On the **Data Explorer** component, you can either display the data records for a selected data set, or the schema records for the application data.

Schema records define the attributes in the data records. For each attribute in the data records, there is an attribute configuration record with settings such as:

- The data type for the attribute value
- Whether the attribute value must be unique for each data record
- Whether a data record can have multiple values for the attribute
- Behavior for search and refinement
- The base view groups the attribute belongs to

A global configuration record contains general settings for features such as search and spelling correction.

For more details on the structure of these configuration records, see the *Oracle Endeca Server Developer's Guide*.

There are also configuration records for each setting in the attribute and global configuration records. For example, the attribute configuration records include an `mdex-property_Type` setting to determine the data type for the attribute value. There is also an attribute configuration record for `mdex-property_Type`.

To select the data to display:

- To display the records for a specific data set, from the **Data Set** drop-down list, select the data set.
Each record in the data set is displayed as the record ID followed by a complete list of attribute/value pairs.

In the list, the managed attributes are indicated by an icon in front of the attribute name.

For each attribute, the list shows the attribute key and value. To see the display name and data type for an attribute, hover the mouse over the attribute key.



- To change how the attributes are grouped within each record, from the **Grouped by** drop-down list, select the new grouping option.

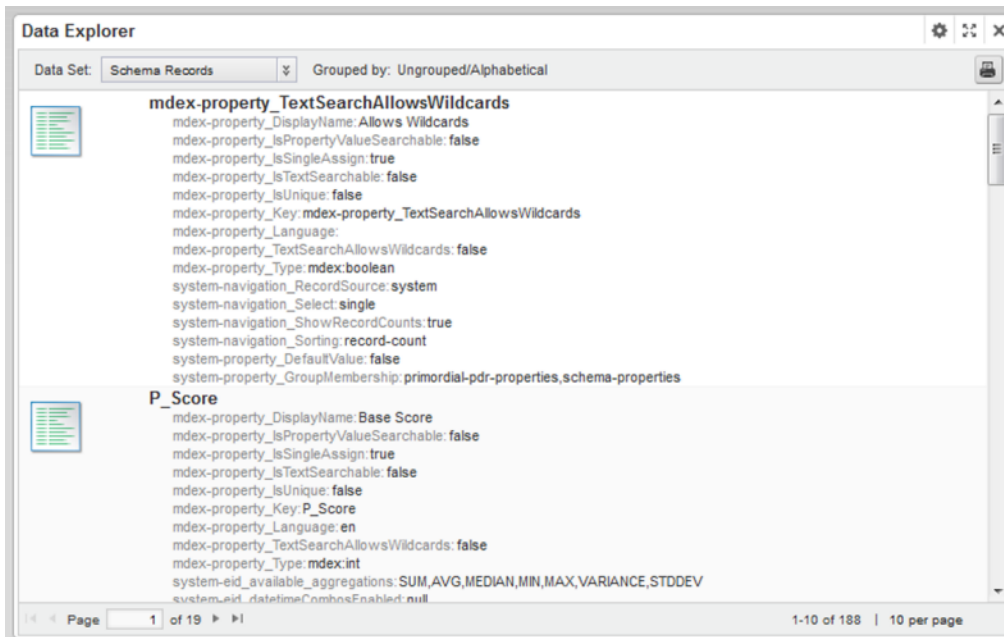
The options are:

Grouping Option	Description
Data Type	In this mode, the attributes are grouped by the data type of the attribute value. For example, all integer values are in one group, and all string values are in another group.
Attribute Group	In this mode, the attributes are displayed within their base view attribute groups.
Ungrouped/Alphabetical	In this mode, the attributes are displayed in alphabetical order by attribute name. They are not grouped.

- To sort the list of records, from the **Sorted by** drop-down list, select the combination of attribute and sort direction to use.

Note that when you use a search to refine the data, then if the associated search option uses relevance ranking, the list automatically is sorted by search relevance, and a **Search Relevance** option is added to the **Sorted by** drop-down list.

- To display the schema records for the application data, from the **Data Set** drop-down list, select **Schema Records**.



Note that when schema records are displayed, you cannot sort or change the grouping of the data.

Configuring the Data Explorer component

From the edit view of a **Data Explorer** component, you can select the default grouping for the attributes. You also can configure the component height and pagination.

To configure the default grouping, pagination, and navigation options for a **Data Explorer** component:

- From the **Default grouping** drop-down list, select the default grouping for the attributes. You can either:
 - Display the attributes in alphabetical order
 - Group the attributes by data type
 - Display the attributes within their attribute groups
- To specify a height for the component, in the **Data Explorer height (in pixels)** field, type the height value in pixels.
- To display the pagination bar to allow end users to navigate through the entire list, check the **Pagination** checkbox. The box is checked by default.

If the box is not checked, then end users cannot navigate through the list. The component only displays a number of records equal to the value of the **Default results per page** field. To see other records, the user must further refine the data.

- You use the remaining settings to configure the available results per page options for end users. For details on configuring pagination, see [Configuring pagination options for components on page 205](#).

Results List

The **Results List** component displays a list of records in a list format similar to regular web search results.

[About the Results List component](#)

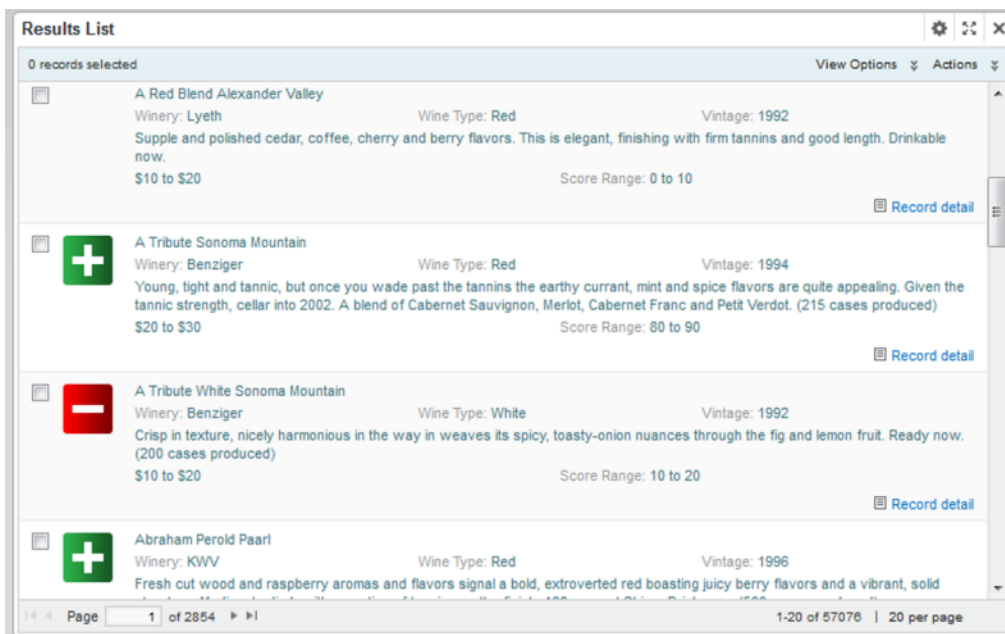
[Using the Results List component](#)

[Configuring a Results List component](#)

About the Results List component

The **Results List** component is designed to provide a meaningful summary of results, and is especially useful for records that include unstructured data such as long text fields.

In the list, each record includes a selected set of attributes.



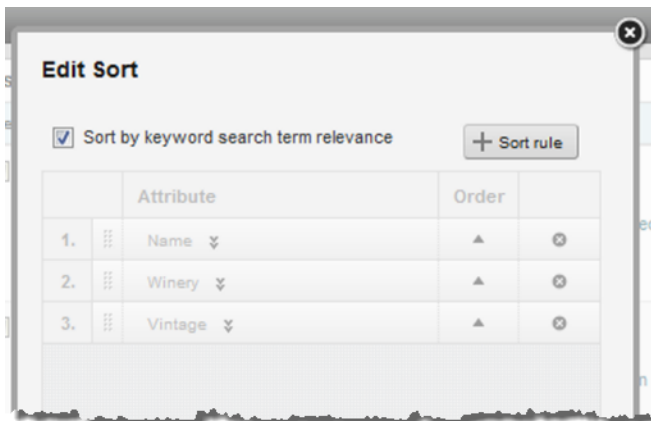
Using the Results List component

The **Results List** component is used to view record information. The list looks very similar to the search results from a standard web search.



The **View Options** menu includes a **Sort** option to allow you to sort the records based on the displayed attributes.

If there is currently a search refinement in place, then when you select the **Sort** option, the **Edit Sort** dialog includes a checkbox to indicate whether to sort by search relevance.



To change back to the default display, from the **View Options** menu, select **Reset to default**.

The displayed attributes can be links to refine the data, display record details, or navigate to a URL. Each record can also have a separate link to display the **Record Details** dialog with the details for that record.

From the **Actions** menu, you may be able to print and export the results. You may also be able to select records in order to compare them using the **Compare** dialog.

See [Using common component functions on page 33](#).

Configuring a Results List component

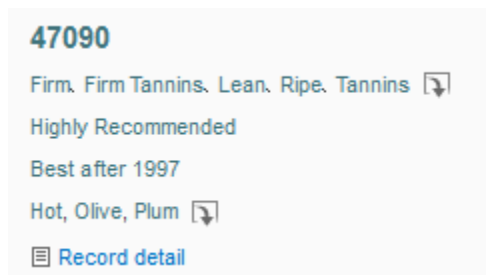
When the **Results List** component is first added, it displays the first five refinable attributes for each record. You determine how the component is displayed and how end users can interact with each displayed attribute.

For information on selecting the data to use for the component, see [Selecting the view to use for a component on page 186](#).

Default configuration for a Results List component

When you first add a **Results List** component to a page it includes five attributes - the identifying attributes from the first base view, plus up to four additional attributes.

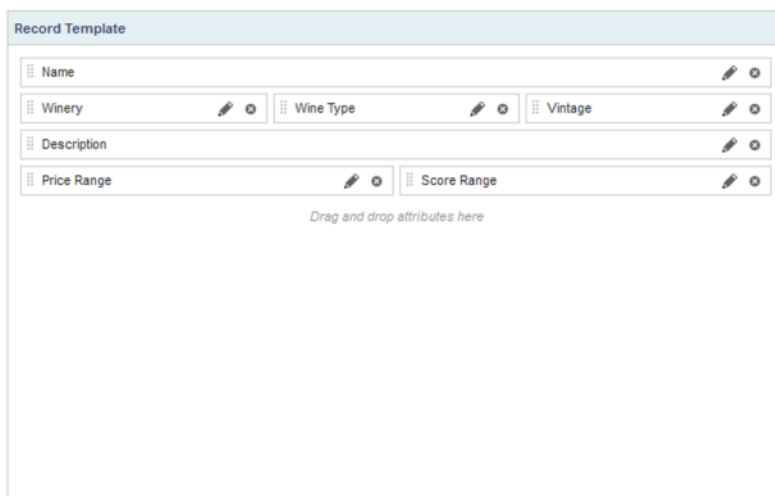
The attributes are each displayed in a separate row. The identifying attributes are displayed at the top, and in a slightly larger, bold font.



Selecting the attributes to display for each Results List record

On the **List Template** tab of the **Results List** component edit view, you select the attributes to display for each record.

The record display consists of multiple rows. Each row can contain values for up to 3 attributes. You can add additional rows and additional blocks to each row. For information on selecting attributes for a component, see [Selecting the attributes to use on a component on page 187](#).



To select the attributes to display for each **Results List** record:

1. To add an attribute to the template, drag the attribute from the attributes list to the appropriate location in the list template.
You can use the attribute to create a new row or add a new block to an existing row.
2. To change the location of an attribute, you can drag it to another location in the template.
3. To remove an attribute from the template, click its delete icon.

Configuring the attributes in a Results List record

For each attribute selected to display for a **Results List** component, you configure the display and behavior of the attribute value.

From the **List Template** tab of the **Results List** edit view, to configure an attribute:

1. Click the edit icon for that attribute.

The **Edit Attribute Display** dialog is displayed.

2. To display the attribute name as well as the value, check the **Display attribute name** checkbox. The box is unchecked by default.
3. To preserve any line breaks and white space in the attribute value, check the **Preserve white space and line breaks** checkbox. The box is checked by default.

This option is useful for longer text values that may include some HTML formatting. Except for the white space and line breaks, all HTML code is stripped from the attribute value.

4. Under **Truncation**, to determine how longer values will be truncated:
 - To display the value up to a specific number of lines of text, click the **Display up to** radio button. In the field, type the number of lines to display.
 - To display the full text of the value, up to the maximum allowed, click the **Show full record text** radio button.
5. Under **Display Options**, configure the text formatting for the value. This includes:
 - The size of the text
 - Whether to display the value in bold type
 - The horizontal alignment within the template block

- For a multi-value attribute, whether to display the values in rows or as a single, comma-separated string
6. If the attribute has formatting options, then use the **Value Formatting** section to configure the format. For multi-value attributes, the **Multi-Value Formatting** section allows you to configure the number of values and the delimiter. For details on formatting displayed values, including values for multi-value attributes, see [Configuring the format of values displayed on a component on page 190](#).
 7. From the **Actions** drop-down list, select an option to indicate whether the attribute value is clickable, and if so, what happens when end users click the value. For details on configuring actions for displayed values, see [Configuring actions for displayed values on page 197](#).
 8. To save the attribute configuration, click **Apply**.

Configuring the sorting options for a Results List component

You can configure whether end users can change the sort order for the list.

Sort Options

Options for setting the Sort Options.

Enable end user sorting controls

Default Sort Order: + Sort rule

	Attribute	Order	
1.	Winery ▼	▲	⊗
2.	Vintage ▼	▲	⊗

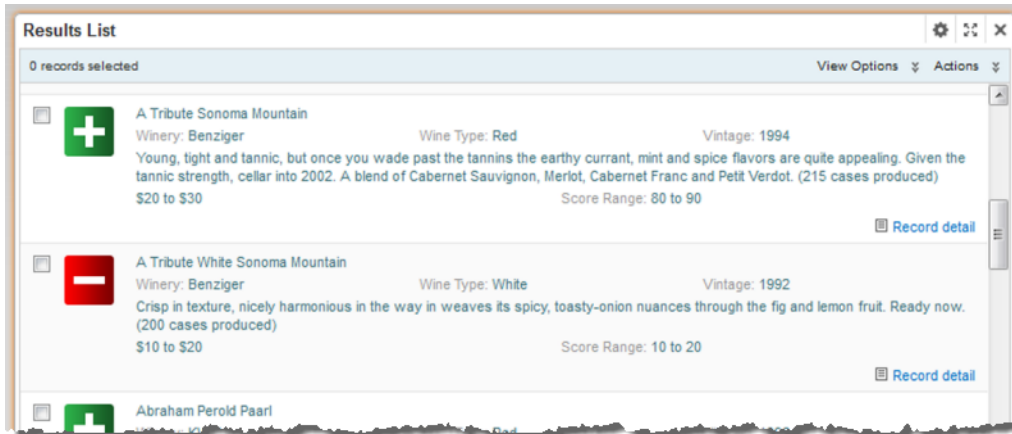
On the **Sort Options** tab of the **Results List** edit view, to configure the sorting options for the component:

1. By default, end users can change the sort order, and the **Enable end user sorting controls** checkbox is checked. To not allow end users to control the sort order, uncheck the checkbox.
2. To configure the default sort order:
 - (a) To add a new sort rule, click the **+Sort rule** button.
 - (b) To change the attribute assigned to a sort rule, in the **Attribute** column, click the drop-down arrow next to the attribute name, then select the new column. You can only sort using attributes that are displayed on the component.
 - (c) To change the sort direction for a sort rule, in the **Order** column, click the sort direction toggle.
 - (d) To change the order in which to apply the sort rules, drag each sort rule to the appropriate location in the list.

- (e) To remove a sort rule, click its delete icon.

Configuring the images to display next to each Results List record

For a **Results List** component, you can configure an image to display next to each record.



Studio supports the following image sources:

Image Type	Description
<p>Icons selected from Studio's image gallery</p>	<p>Studio provides a basic set of icon images. If you use this option, you can assign one of these images to each value of a selected attribute.</p> <p>The icon images provided by Studio include:</p> <ul style="list-style-type: none"> • "Document" images with different colors • File type images • Sentiment images • Social media images <p>This option is typically used when the icons represent a category or other high-level classification of the records.</p> <p>You can also upload your own images to use as icons on the Results List.</p> <p>Studio supports the .gif, .jpeg/.jpg, .bmp, and .png file types.</p> <p>When you upload images, they become available to use for any Results List component in the same application.</p>
<p>Images from a URL that you provide</p>	<p>If you select this option, then you provide the URL for the image. The URL can include a token to represent the value of a selected attribute.</p> <p>This is typically used when most of the records in the system have associated images published to a Web or application server (for example, a unique preview image for products represented by each record).</p>

From the **Images** tab of the **Results List** edit view, to configure the images:

1. To not display an image next to each record, under **Type of image**, click the **None** radio button.
This is the default configuration.
2. To display an icon from a set provided by Studio for each value of a selected attribute:
 - (a) Under **Type of image**, click the **Icon from gallery** radio button.
 - (b) To select the attribute to use, click the **Select Attribute** button. Click the attribute you want to use, then click **Apply**.

The attribute selection dialog displays the attributes that can be used for the image selection. The attribute must have fewer than 15 values, and must be displayed on the component.

For a hierarchical attribute, only the top level of values is displayed. On the end user view, records use the image for the top level value.

For example, for a Wine Type attribute, the top level values might be Red, White, and Sparkling. If a record has a Wine Type value of Merlot (Red --> Merlot), that record would use the image selected for the Red value.

- (c) For each attribute value, to select the image to use, click the **Select** button.
- (d) On the **Select Image** dialog, click the image you want to use.
To never display an image for a value, click the **No Image** option.
- (e) To upload your own image, click the **Browse** button to search for and select the image. After selecting the file, click **Upload**.

The uploaded image is added to a new **My Images** category on the **Select Image** dialog.



If the image is too large, Studio crops it.

(f) Click **OK**.

The list is updated with the selected image.

Images

Select images to display next to each record. Images can be from either the image gallery, or can be custom images (40x40 pixels) accessed via a URL.

Type of image: None Icon from gallery Thumbnail from URL (40X40 pixels)

Select an attribute to determine the icon to be displayed:

Score Range

Select an icon for each attribute value:

Attribute Value	Icon to Display
60 to 70	<input type="button" value="Select"/>
70 to 80	<input type="button" value="Select"/>
80 to 90	<input type="button" value="Select"/>
90 to 100	<input checked="" type="button" value="+"/>

Default image to display if selected image is not available:

None

(g) To clear a selected image, and display the default image for that attribute value, click the delete icon.

(h) To select a different image for an attribute value, click the edit icon.

3. To display images from a URL:

(a) Under **Type of image**, click the **Thumbnail from URL** radio button.

(b) In the field, type the URL for the image file.

(c) To add attribute values as parameters in the URL, click **Add URL Parameters**.

(d) On the add parameters dialog, in the attribute list, click the add icon next to each attribute to add.

For each attribute you select, the add icon changes to a delete icon.

To not include a selected attribute in the URL parameters to add, click the delete icon.

(e) When you are finished selecting attributes, click **Apply**.

The selected attributes are displayed in a table, with each attribute assigned an ID to use when inserting the attribute into the URL.

The attributes are also inserted as query parameters, where the parameter name is the attribute key, and the parameter value is $\{IDNumber\}$, where $IDNumber$ is the ID for that attribute. For example: `http://www.acme.com/index.htm?Designation={0}`

Images

Select images to display next to each record. Images can be from either the image gallery, or can be custom images (40x40 pixels) accessed via a URL.

Type of image: None Icon from gallery Thumbnail from URL (40x40 pixels)

URL:

Example: `www.mywebdestination.com?a={0}&b={1}&c={2}`

ID	Display Name
<input type="button" value="x"/> 0	Designation

Default image to display if selected image is not available:

None

By default, the value is encoded. To not encode the value, change the format to $\{\{IDNumber\}\}$. For example: $\{\{0\}\}$

You can also use the ID numbers to insert the attribute values manually.

For details on component hyperlinks and encoding inserted attribute values, see [Configuring hyperlinks to external URLs from Studio components on page 203](#).

- (f) To remove a URL parameter from the table, click its delete icon.

If you did not edit the inserted query parameter, then Studio also removes it from the URL.

If you did edit the inserted query parameter, then you must remove the parameter from the URL manually.

If you inserted the attribute value manually, then you also must remove it manually.

4. The default image setting determines the default image to display if Studio can't find the configured image, or, for icons, if you selected the **No Image** option for a value . You can also use this setting if you want to display the same image for all of the records.

To not display a default image, click the **None** radio button.

To select a default image, click the other radio button, then click the **Change Icon** button.

On the **Select Image** dialog, click the image you want to use, then click **OK**.

Enabling the Record Details link and Actions menu actions for a Results List component

For the **Results List** component, you can disable or enable the **Record Details** link that displays for each record. You can also configure the **Actions** menu for the component.

On the **Actions** tab of the **Results List** edit view, if the **Enable Record Details action** checkbox is checked, then on the end user view, the **Record detail** link is displayed next to each record. For the **Record Details** action, you can configure the title to display on the **Record Details** dialog.

From the **Actions** tab, you can also control the available options in the **Actions** menu. In addition to the **Print**, **Export**, and **Compare** options, you can add **Refinement** options, to refine by attribute values from selected records. For details on configuring the **Actions** menu for a component, see [Configuring the Actions menu for a component on page 194](#).

Configuring display and pagination options for a Results List component

For a **Results List** component, you can configure the component height, whether to enable pagination, and, if pagination is enabled, whether to allow end users to select the number of results per page.

On the **Display Options** tab of the **Results List** edit view, to configure the pagination and navigation options for a **Results List** component:

1. In the **Component height** field, type the height in pixels for the component.
2. Use the remaining fields to configure the pagination options. See [Configuring pagination options for components on page 205](#).

Results Table

The **Results Table** component displays a set of data in a table format.

[About the Results Table component](#)

[Using a Results Table](#)

[Configuring a Results Table component](#)

About the Results Table component

The **Results Table** component displays a set of data in a tabular format.

The data displayed in the **Results Table** component is either:

- A flat list of records from a selected view. Each row represents a single record. The columns contain attribute values for that record.

Wine ID	Body	Flavors	Drinkability	Wine Type
34699	Elegant, Firm, Firm Ta...	Berry, Cedar, Cherry, ...		Red
34700	Crisp, Harmonious	Fig, Fruit, Lemon, Toa...		White
34701	Crisp	Apple, Dry, Fruit, Gra...	Drink now	White
34702	Ripe	Citrus, Fig, Honey, W...	Drink now	White
34703	Fresh, Soft	Earthy, Melon		White
34704	Balanced, Luscious, ...	Black Cherry, Cherry,...	Drink now	Red
34705	Bright, Fresh, Tannins	Cherry, Pepper		Red
34706	Fresh	Jam, Pepper		Red
34707		Cherry, Plum		Red
34708	Supple	Raisin, Spice, Tobacco		Red

- An aggregated list of metric values calculated from view attribute values. The metric values are aggregated using dimension values displayed at the left of the table. Each row contains the values for a unique combination of dimension values.

Wineries	Booking Year	Cases Produced (...)	Number of Cases ...	Product Rating (av...)
A. Rafanelli	1997	2,800.00	10	90.00
A. Rafanelli	1999	12,650.00	59	89.00
A. Rafanelli	2001	6,150.00	5	90.00
A. Rafanelli Summary		21,600.00	74	89.50
Abbey Vale	1998	1,000.00	21	85.00
Abbey Vale	2000	400.00	4	87.00
Abbey Vale	2001	1,000.00	22	85.00
Abbey Vale Summary		2,400.00	47	85.67
Abundance	1999	780.00	10	80.00
Abundance	2001	780.00	10	80.00
Grand Summary (3646 results)		77,870,930.00	170,822	86.23

Using a Results Table

You can page through and sort the results. You may be able to select the columns to display, and use displayed values to refine the data or display related content.

For information on using common component functions such as paging, printing, exporting, comparing, and displaying details, see [Using common component functions on page 33](#).

About the Results Table display

A **Results Table** always contains a set of persistent columns, and can also contain one or more column sets.

Persistent columns are always displayed to the left of the table.

- For a record list, any column can be a persistent column. One use of persistent columns in a record list might be to display identifying information for each record, such as an ID or name.
- For aggregated tables, the persistent columns always contain the dimension values used to aggregate the metric values.

For example, the table could have persistent columns for the Country and Product Line dimensions. The values in the other columns are then aggregated by the country and product line values.

For an aggregated table, the persistent columns are by default locked to the left of the table, and do not scroll horizontally with the other columns. For a record list, the persistent columns are unlocked by default.

The columns for the currently selected column set display after the persistent columns. For aggregated tables, the columns contain the aggregated metric values.

Aggregated tables can also contain summary rows. There can be summary rows to aggregate values across a dimension value, as well as a summary row that aggregates the values across the entire table. The same aggregation method is used for a metric throughout the table.

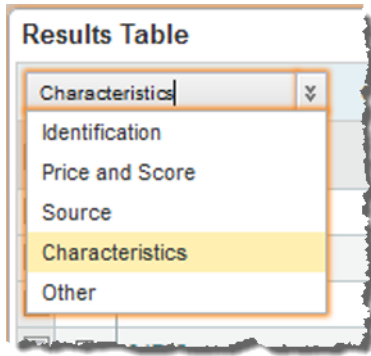
Results Table					
Cases Made and Sold		0 records selected		View Options	
Wineries	Booking Year	Cases Produced (...)	Number of Cases ...	Product Rating (av...)	
A. Rafanelli	1997	2,800.00	10	90.00	
A. Rafanelli	1999	12,650.00	59	89.00	
A. Rafanelli	2001	6,150.00	5	90.00	
A. Rafanelli Summary		21,600.00	74	89.50	
Abbey Vale	1998	1,000.00	21	85.00	
Abbey Vale	2000	400.00	4	87.00	
Abbey Vale	2001	1,000.00	22	85.00	
Abbey Vale Summary		2,400.00	47	85.67	
Abundance	1999	780.00	10	80.00	
Abundance	2001	780.00	10	80.00	
Grand Summary (3646 results)		77,870,930.00	170,822	86.23	

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Selecting the column set to display on a Results Table

If a **Results Table** has multiple available column sets, then a drop-down list of the column sets is displayed above the table.

From the column set drop-down list, select the column set you want to display.



The column set columns are displayed to the right of the persistent columns.

Changing the layout of a Results Table

You may be able to change the **Results Table** layout, including the columns that are displayed, the display order, and whether to display summary rows for an aggregated table.

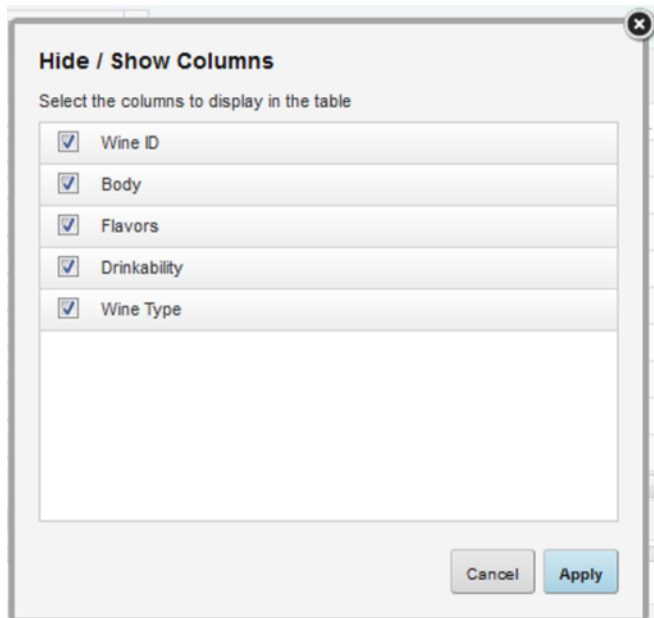
Showing and hiding columns

You may be able to show and hide columns in the **Results Table**. For aggregated tables, when you show a hidden dimension, it is always added to the dimension columns area.

To show and hide columns:

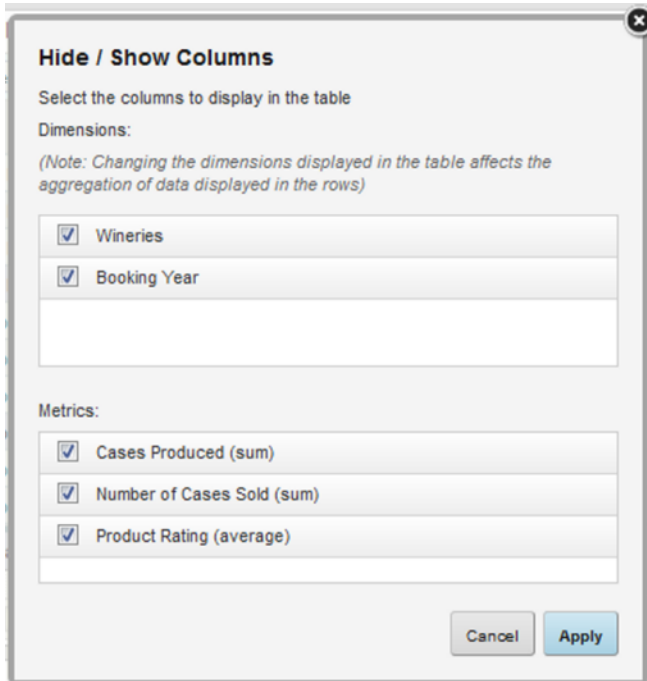
1. From the **View Options** menu, select **Hide / Show Columns**.

The complete list of available columns is displayed.



Columns that are currently displayed have their checkbox checked.

For aggregated tables, the dimension and metric columns are in separate lists.



2. To hide a currently displayed column, uncheck its checkbox.
3. To display a currently hidden column, check its checkbox.
4. When you have finished selecting the columns, click **Apply**.
5. To restore the default column configuration, from the **View Options** menu, select **Reset table to default**.

Changing the column display order

You can change the display order of the currently displayed **Results Table** columns.

To move a column, click the column heading, then drag the column to the new location.

You can only move persistent columns or dimensions within the persistent columns area of the table. You also cannot move columns from a column set into the persistent columns.

To restore the default column configuration, from the **View Options** menu, select **Reset table to default**.

Changing the aggregation method used for a metric

In an aggregated **Results Table**, each metric has an associated aggregation method (for example, sum or average). If the aggregation is not built into the metric, then you can assign a different aggregation method.

For example, you could change a column to display the average of the values across the selected dimension values instead of the sum.

To change the aggregation method for a metric:

1. Click the drop-down arrow immediately to the right of the column heading.
2. From the drop-down list, select the aggregation method.

Showing and hiding summary rows on an aggregated table

If an aggregated **Results Table** is configured to allow summary rows, then you can show or hide those rows.

To show or hide the dimension summary rows:

1. Click **View Options**.
2. In the **View Options** menu, to show or hide the summary rows for each dimension, check or uncheck the **Summary rows** checkbox.
3. To show or hide the summary row for the entire table, check or uncheck the **Grand summary row** checkbox.

Showing and hiding conditional formatting

A **Results Table** can include conditional formatting, where individual cells that contain numbers are highlighted based on the value in the cell. For example, the table may be configured to highlight in red all Sales values that are lower than 1000.

If the formatting is available, then to show or hide the formatting:

1. Click **View Options**.
2. In the **View Options** menu, to show the formatting, check the **Conditional formatting** checkbox.
3. To hide the formatting, uncheck the **Conditional formatting** checkbox.

Changing the Results Table sort order

You can sort the **Results Table**. The sorting works slightly differently when an aggregated table has summary rows.

Sorting a record list table or an aggregated table without summary rows

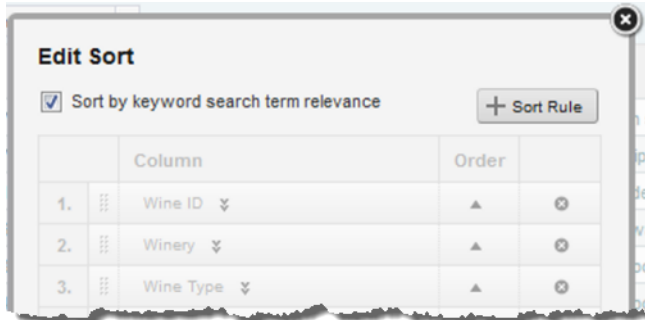
For a record list **Results Table**, or an aggregated table without summary rows, you can sort the table using any of the displayed columns. You can also create a compound sort, where the table is sorted by multiple columns in order.

So for example, you could set up a compound sort to sort by Country, then by Year. So all of the records for the United States would be grouped together, with those records then sorted by Year.

To set the sorting for a table:

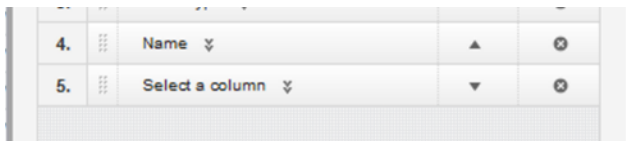
1. To sort by a single column, click the column heading.
The rows are sorted by the column values in ascending (A-Z or low-high) order.
To reverse the sort order, click the column heading again.
2. To set up a compound sort:
 - (a) In the **View Options** menu, click **Sort**.
The **Edit Sort** dialog is displayed. It shows the current sort order for the table.
On the dialog, you create the list of sort rules. Each rule includes the column to sort by and the sort direction. The rule at the top of the list is used first.

Note that if there is currently a search refinement in place, then the **Edit Sort** dialog includes a checkbox to indicate whether to sort by search relevance.



- (b) To add a sort rule to the list, click **+Sort Rule**.

An empty sort rule is added to the bottom of the list.



- (c) To select a column to use for a sort rule, click the drop-down arrow for the column name, then from the drop-down list, select the column.

You cannot select a column that is already being used in a sort rule.

- (d) To switch the sort direction for a sort rule, click the sort direction arrow in the **Order** column.
- (e) To change the order in which to apply the sort rules, drag and drop each rule to the appropriate location in the list.
- (f) To remove a sort rule, click its delete icon.
- (g) To save and implement the compound sort, click **Apply**.

Sorting an aggregated table with summary rows

For an aggregated **Results Table** that includes summary rows, when you sort by a specific column other than the first dimension, the sort is applied within the parent dimension.

For example, an aggregated table is grouped by Country, then by Year, then by Product Line. The table includes Total Sales and Average Sales for each combination of Country and Year, with summary rows to show the total and average across the entire year and the entire country.

So if you sort by Year, the year values are only sorted in the context of each Country. If you sort by Total Sales, the sales values are sorted within each year.

Using Results Table values to refine the data

You can use the values in a **Results Table** to refine the data.

The table can include options to:

Option	Description
Refine by a specific attribute value	For a record list table, the displayed values may be hyperlinked to allow you to refine by that value. When you click the hyperlink, the data is refined to only include records with that attribute value.
Refine by multiple attributes in the same row	A record list table can also include a column with a link to refine by selected attribute values in the row.
Refine by attribute values from multiple rows	<p>The Actions menu can also include options to refine by selected attribute values from the selected rows.</p> <p>To use this option, you must first check at least one row. You can select multiple rows across different pages.</p> <p>To uncheck all of the selected rows, click delete icon next to the number of selections.</p>

Navigating to other URLs from a Results Table

A **Results Table** can include hyperlinks to other URLs. The hyperlink can pass parameters in the form of attribute values from a row or rows.

For individual rows, a column can contain a hyperlink to another URL. The URL can include attribute values for that record as part of the URL or as query parameters for the URL.

The **Actions** menu can also contain options to send attribute values from selected rows as POST parameters.

Configuring a Results Table component

When the **Results Table** is first added, it uses the default configuration. You can then configure the table type, layout, and available end user options.

For information on selecting the view to use for the component, see [Selecting the view to use for a component on page 186](#).

Selecting the type of Results Table

A **Results Table** may be either a flat list of records or an aggregated list of calculated values grouped by dimension values.

On the **Table Type** tab of the **Results Table** edit view, click the type of table you want to create.

- To create a flat list of records, click **Details table**.
- To create an aggregated list of metric values, click **Analytics table**.

If you change the table type after you have configured the table layout, then you lose the entire table configuration.

Setting up the data columns for a record list Results Table

A record list table contains attributes from the selected view.

About the default record list column configuration

For a record list **Results Table**, the default column configuration contains the identifying attributes (for a base view) and the view group-by attributes (for other views), and the default record detail groups. The identifying or group-by attributes are used for the persistent columns, and the record detail groups are used for the column sets.

Each view is defined using group-by attributes. For example, from a set of sales data, you could create a view listing the available products. The view might be grouped by product ID, and so the grouping attribute would be the product ID.

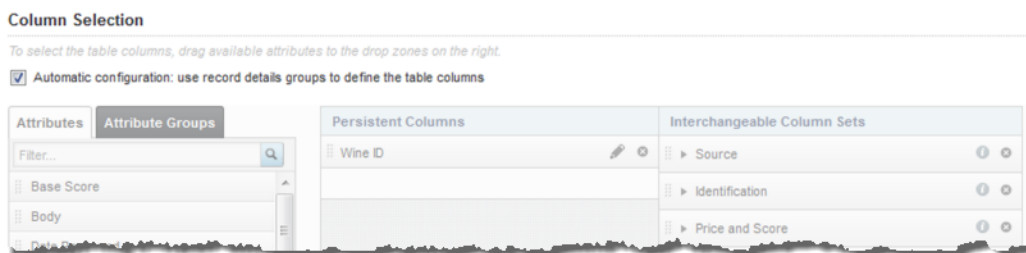
Base views do not have group-by attributes, but have attributes that are flagged as identifying attributes for the record. For a data set created from a file upload, the identifying attribute is `eid-reserved-spec`.

Each view can be configured with a set of attribute groups. Each group is configured to indicate whether to use it by default when viewing record details.

Determining whether to use the default record list column configuration

For a record list **Results Table**, you can either use the default configuration, or manually select the columns.

On the **Column Selection** tab of the **Results Table** edit view, the **Automatic configuration: use record details groups to define the table columns** checkbox determines whether the table uses the default column configuration.



By default, the box is checked, and the rest of the tab is disabled.

To use a custom column configuration, uncheck the checkbox. The default configuration remains, but the lists are enabled to allow you to change the configuration.

If you check the checkbox again, the default configuration is restored, and any customization is lost.

Available data for a record list table

On the left of the **Column Selection** tab of the **Results Table** edit view for a record list table are the available items to add to a record list table, if you are not using the default column configuration.

In the list, the **Attributes** tab contains the complete list of attributes in the selected view. It does not include predefined metrics. You can add these attributes either to the **Persistent Columns** list or to manually created column sets.

The **Attribute Groups** tab contains the list of attribute groups in the selected view. You can use an attribute group to create a column set. To display the list of attributes in a group, click the information icon for that group.

Selecting the persistent columns for a record list table

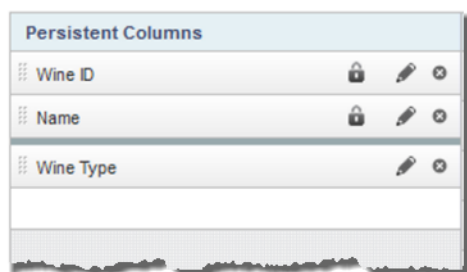
On the **Column Selection** tab of the **Results Table** edit view for a record list table, the **Persistent Columns** list contains the columns that are always displayed. In the default column configuration, the list contains the identifying or group-by attributes for the view.

Note that you can create a record list table containing only persistent columns.

By default, the persistent columns are not locked, meaning that on the end user view they can scroll horizontally in the end user view.

If you use the default column configuration, you cannot lock the persistent columns.

If you use a custom column configuration, then you can lock the persistent columns. If you lock a column, it is moved to the top of the **Persistent Columns** list, and is locked to the left of the table in the end user view. Locked columns do not scroll horizontally.



For general information on selecting attributes to use for a component, see [Selecting the attributes to use on a component on page 187](#).

On the **Column Selection** tab, to manually select the columns for the **Persistent Columns** list:

1. To add a column to the **Persistent Columns** list, drag an attribute from the **Attributes** tab to the empty slot in the **Persistent Columns** list.
2. To set the display order of the columns, drag each attribute to the appropriate location in the list. The column at the top of the list is displayed at the far left of the table.
3. To remove a column from the **Persistent Columns** list, click its delete icon.

For information on configuring columns, including how to lock persistent columns, see [Configuring columns for a Results Table on page 239](#).

Creating and configuring column sets for a record list table

On the **Results Table**, a column set is a group of columns. While the persistent columns are always displayed, only one column set is displayed at a time. If there are multiple column sets, then end users use a drop-down list to select the column set to display.

Column sets are optional. You can configure a table with only persistent columns.

For a record list table, a column set may be either:

- An attribute group from the original view. For this type of column set, you cannot change the column set name, and you cannot add or remove columns from the set.

- A manually created column set. For this type of column set, you name the set and select the attributes that are in the set.

For the default column configuration, the columns sets consist of the attribute groups configured to be used by default for record details.

On the **Column Selection** tab of the edit view, the column sets are displayed in the **Interchangeable Column Sets** list. If you are not using the default column configuration, then the list always contains an empty set, used to add a new set to the list.

You can expand and collapse each column set to show or hide the list of columns.



The order of the column sets in the list determines the display order in the end user drop-down list. The column set at the top of the list is selected by default on the end user view.

To create and configure column sets:

1. To create a new column set from an attribute group, drag the group from the **Attribute Groups** tab to the **Interchangeable Column Sets** list.

The column set uses the attribute group name. You cannot change the name of a column set created from an attribute group.

The column set uses the attributes and attribute display order configured for the attribute group. For column sets created from an attribute group, you cannot add or remove columns, and you cannot change the display order of the columns.

2. To create and configure manual column sets:

- (a) To create a new manual column set, drag an attribute from the **Attributes** tab into the empty column set slot.

A new empty set slot is added to the bottom of the list. The default name for a new manual column set is "New set" plus a number if needed to differentiate the name from other column sets.

For information on selecting attributes for a component, see [Selecting the attributes to use on a component on page 187](#).

- (b) To edit the name of a manual column set, click its edit icon.
- (c) To add an attribute to a manual column set, drag the attribute from the **Attributes** tab to the empty slot in the column set.

When you add an attribute to a set, a new empty attribute slot is added.

- (d) To control the display order of the columns in a manual column set, drag the attribute to the appropriate location in the list. You can also drag attributes to other manually created sets.
 - (e) To remove a column from a manual column set, click its delete icon.
3. To determine the display order of the sets in the end user drop-down list, drag each set to the appropriate location in the list.
 4. To remove a column set, click its delete icon.

For information on configuring individual columns, see [Configuring columns for a Results Table on page 239](#).

Setting up the data columns for an aggregated Results Table

For an aggregated table, you select the dimensions to use for the aggregation, and the metrics to display.

Adding dimension columns to an aggregated table

On the **Column Selection** tab of an aggregated **Results Table** edit view, the **Dimension Columns** list contains the dimensions used to aggregate the metrics in the column sets. Dimension columns are always displayed to the left of the table.

By default, the dimension columns are locked, meaning that they do not scroll horizontally in the end user view.



If you do not select any dimension columns, then the table consists of a single row, with the metric values aggregated across the entire data set.

To manage the **Dimension Columns** list:

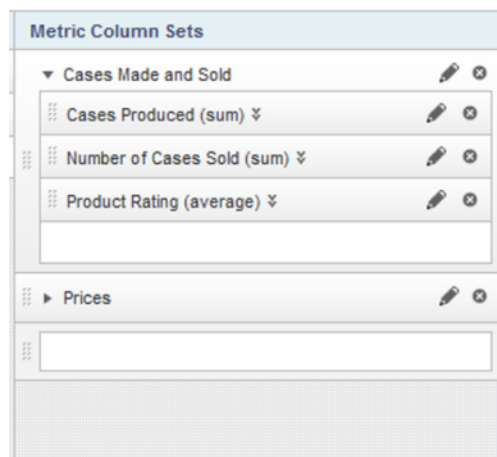
1. To add a dimension to the list, drag the dimension from the attributes list to the **Dimension Columns** list.
For additional information on selecting dimensions for a component, see [Selecting the attributes to use on a component on page 187](#).
2. To determine the display order of the dimension columns, drag each dimension to the appropriate location in the list.
3. To remove a dimension column, click its delete icon.

For information on configuring columns, see [Configuring columns for a Results Table on page 239](#).

Adding column sets to an aggregated table

For an aggregated **Results Table**, a column set is a group of metric values. All metric values display in column sets. While the dimension columns are always displayed, only one column set is displayed at a time. If there are multiple column sets, then end users use a drop-down list to select the column set to display.

On the **Column Selection** tab of the edit view, the **Metric Column Sets** list contains the column sets. Each column set can be collapsed to allow you to see more of the list.



The list always contains an empty column set slot, to allow you to add new sets.

The display order of the **Metric Column Sets** list determines the order in which they display in the end user drop-down list. The column set at the top of the list is selected by default when the component is first displayed.

To manage the column sets:

1. To add a new column set, drag a metric from the attributes list into the empty column set slot.
For information on selecting metrics for a component, see [Selecting the attributes to use on a component on page 187](#).
A new column set is created containing the selected metric, and a new empty column set slot is added.
The default name for a new column set is "New set", plus a number if needed to differentiate the name from other column sets.
2. To add a column to an existing column set, drag a metric into the empty metric column slot for the column set.
3. To determine the order of the column sets in the end user drop-down list, drag each set to the appropriate location in the list.
4. Within each column set, to determine the display order of the columns, drag each column to the appropriate location in the column set.
5. To configure the column set, click its edit icon.
From the **Edit column set** dialog, you can configure the column set name.
6. To remove a column set, click its delete icon.

For information on configuring columns, see [Configuring columns for a Results Table on page 239](#).

Configuring columns for a Results Table

From the **Column Selection** tab of the **Results Table** edit view, you can configure the width, formatting, and other options for all of the table columns.

Note that for a record list table, if you are using the default column configuration, then you cannot configure the columns. Only default settings are used.

To configure the display of a column:

1. From the **Column Selection** tab, to display the **Edit column** dialog, click the edit icon for the column.
2. For aggregated tables, you can select the aggregation method for each metric.

See [Selecting the aggregation method to use for a metric on page 189](#).

3. For a date/time attribute, from the **Date/time subset to enable** drop-down list, select the date/time subset to display.

The selected date/time subset is included in the column heading on the end user view.



4. For persistent columns and dimensions, you can lock the column, so that it is always visible at the left of the table.

To lock the column, check the **Lock column** checkbox.



To unlock the column, uncheck the checkbox. If the column is not locked, it is still at the left of the table, but can scroll horizontally.

5. By default, all of the columns are visible. However, you can configure a column to be hidden when the table is first displayed.

To hide the column by default, check the **Hide column** checkbox.

On the **Column Selection** tab, hidden columns are flagged with an icon.

6. For record list tables, you can indicate whether to highlight search terms that appear in the attribute value. To highlight search terms, check the **Highlight search term in context** checkbox.
7. For dimension columns in an aggregated table, there are additional settings to control attribute hierarchies and cascading:

- (a) Under **Show values**, select how to display the dimension values if the dimension has a hierarchy of values.

The default option is **Use hierarchy**, which indicates to only display one level of the hierarchy at a time. When the table is first displayed, it only shows the top level of the hierarchy. When end users refine by a value, the next level of values is then displayed.

To display the specific values assigned to records, regardless of the hierarchy level, select **Ignore hierarchy**.

- (b) If you are allowing users to refine by the dimension value, then you use the **Attribute Cascade** section to configure the dimension cascade.

For information on configuring a dimension cascade, see [Configuring cascading for dimension refinement on page 201](#).

8. In the **Display Options** section:

- (a) Under **Column alignment**, to select the horizontal alignment to use for the column value, click its radio button.

- (b) Under **Column width**, by default the **Use default** radio button is selected.

To override the default width, click the other radio button, then in the field, type the width in pixels of the column.

9. The **Value Formatting** section is used to set the format for displaying the column values.

When the dialog is first displayed, the section is collapsed. To expand or collapse the section, click the section heading.

For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 190](#).

10. The **Column Actions** section allows you to configure the action that occurs when users click the value.

When the dialog is first displayed, the section is collapsed. To expand or collapse the section, click the section heading.

For general information on configuring column actions, see [Configuring actions for displayed values on page 197](#).

In addition to the basic action configuration, for **Results Table** columns, you can also set a condition to determine whether to enable the action based on the value of an attribute in the table. For example, you can configure the **Winery** column to only be used for a hyperlink if the **Date Reviewed** column has a non-null value.

URL:

ID	Display Name
0	Winery

If **Date Reviewed** is **null** then **disable**

For details on configuring action conditions, see [Configuring conditions for enabling Results Table actions on page 248](#).

Highlighting Results Table values that fall within a specified range

The **Conditional Formatting** tab of the **Results Table** edit view allows you to highlight specific numeric values in a **Results Table**.

Enable conditional formatting

Metrics	Conditional Formatting Rules									
Cases Produced (sum)(0)										
Number of Cases Sold (sum)(2)	<table border="1"> <thead> <tr> <th>Condition Rule</th> <th>Color</th> <th>Tooltip Description</th> </tr> </thead> <tbody> <tr> <td>1. less than 50</td> <td>Orange</td> <td>Very low</td> </tr> <tr> <td>2. between 500 - 100</td> <td>Green</td> <td>Great!</td> </tr> </tbody> </table>	Condition Rule	Color	Tooltip Description	1. less than 50	Orange	Very low	2. between 500 - 100	Green	Great!
Condition Rule	Color	Tooltip Description								
1. less than 50	Orange	Very low								
2. between 500 - 100	Green	Great!								
Product Rating (average)(0)										
Unit Sale Price (\$) (average)(0)										
Product MSRP (\$) (sum)(0)										

To configure whether to use conditional formatting, and to set the values to highlight:

1. To allow conditional formatting, make sure that the **Enable conditional formatting** checkbox is checked.

If the checkbox is not checked, then there is no conditional formatting.

2. In the list, click the attribute or metric for which to configure conditional formatting.

Only numeric attributes and metrics are included in the list.

Each item in the list includes the number of conditional formatting rules configured for it.

3. To add a new range of values to highlight for that attribute, click **Add condition**.

4. To configure a condition:

(a) From the **Condition Rule** drop-down list, select the type of comparison.

(b) In the field (or fields, for the "is between" or "is range from" options), enter the value(s) against which to do the comparison.

Note that for the "is between" option, the values are inclusive. So if you specify a range between 20 and 30, values of 20 and 30 also are highlighted.

- (c) From the **Color** drop-down list, select the color to use for the highlighting.
 - (d) In the **Tooltip Description** field, type a brief description of the highlighting. The description is included in the tooltip for each highlighted cell.
5. The conditions are applied based in the order they are listed. So a condition at the top of the list has a higher priority than a condition lower in the list.
To change the priority of the conditions, drag and drop them to the appropriate location in the list.
 6. To remove a condition, click its delete icon.

Adding action columns for row-level Results Table actions

You can add actions columns to the **Results Table** to allow end users to perform an action on the specific row.

For information on configuring the **Actions** menu, see [Configuring the Actions menu for a component on page 194](#).

Available row-level actions

For row-level action columns in a **Results Table**, the link to the action can be either a text string or an icon.

The available row-level actions are:

Action	Description
Detail	<p>Displays the Record Details dialog, which contains data associated with the selected row.</p> <p>For record list tables, the component displays the attribute groups configured on the Views page to be used to display record details.</p> <p>For aggregated tables, the component displays the columns from the current row.</p> <p>There can be only one Detail action column, which is disabled by default.</p> <p>If the view used for the table does not have any identifying attributes, then the Detail checkbox is disabled and locked.</p> <p>For a Detail action column, you can configure the title of the Record Details dialog.</p>
Hyperlink	<p>Allows users to navigate to a specified URL. The link can include attribute values from the current row.</p> <p>Users can create multiple Hyperlink action columns, each with unique settings.</p> <p>By default, there are no Hyperlink action columns.</p>

Action	Description
Refinement	<p>Refines the data based on one or more attribute values from the current row.</p> <p>Users can create multiple Refinement action columns, each with unique settings.</p> <p>By default, there are no Refinement action columns.</p>

Selecting the action columns to include

On the **Actions** tab of the **Results Table** edit view, you use the **Record actions** list to manage the action columns. For the **Detail** action, you can only enable or disable the action. For other actions, you can add one or more instances to the table.

To select the row-level action columns:

1. To include the **Detail** action, check its checkbox. To exclude the **Detail** action, uncheck the checkbox.
2. The table initially does not contain any **Hyperlink** options. You can add one or more of these columns, each with unique settings:
 - (a) To add a **Hyperlink** action column, click the **+ Action** button. From the drop-down menu, select **Hyperlink**.
 - (b) By default, the column is enabled when you add it. To exclude the action column, but not remove it, uncheck its checkbox.
 - (c) To remove a **Hyperlink** action column from the list, click its delete icon.
3. The table initially does not contain any **Refinement** action columns. You can add one or more of these columns, each with unique settings:
 - (a) To add a **Refinement** action column, click the **Action** button. From the drop-down menu, select **Refinement**.
 - (b) By default, the column is enabled when you add it. To exclude the action column, but not remove it, uncheck its checkbox.
 - (c) To remove a **Refinement** action column, click its delete icon.

Configuring a Hyperlink action column

For a **Hyperlink** row-level action column in a **Results Table**, you can configure the name, URL, and whether to display the URL in a new browser window. You can also include attribute values as URL parameters.

To configure a **Hyperlink** row-level action column:

1. On the **Actions** tab of the **Results Table** edit view, click the edit icon for the **Hyperlink** action.

- In the **Action name** field, type a name for the action.

- To display the hyperlink in a separate browser window, check the **Open link in a new window** checkbox.
- In the **URL** field, type the URL to link to.
Make sure that the URL is correctly formed, and that any special characters are properly encoded.
- The URL can include attribute values. The values could be query parameter names or values:

`http://www.acme.com/index.htm?p1="Red"&p2="1995"`

Or could be part of the URL path:

`http://www.acme.com/wines/1995/`

To add attribute values to the URL:

- Click **Add URL Parameters**.
- On the add parameters dialog, in the attribute list, click the add icon next to each attribute to add.
For each attribute you select, the add icon changes to a delete icon. To not include a selected attribute in the URL parameters to add, click the delete icon.
- When you are finished selecting attributes, click **Apply**.

The selected attributes are added to a table, with each attribute assigned an ID number.

The attributes are also inserted as query parameter values, where the parameter name is the attribute key, and the parameter value is `{IDNumber}`, where `IDNumber` is the ID for that attribute.

For example: `http://www.acme.com/index.htm?Region={0}&WineType={1}`

ID	Display Name
0	Price Range
1	Vintage
2	Wine Type

By default, the value is encoded. To not encode the value, change the format to `{{IDNumber}}`.

For example: `{{0}}`

You can also use the ID numbers to insert the attribute values manually.

For details on component hyperlinks and encoding inserted values, see [Configuring hyperlinks to external URLs from Studio components on page 203](#).

- (d) To remove a URL parameter from the table, click its delete icon.

If you did not edit the inserted query parameter, then Studio also removes it from the URL.

If you did edit the inserted query parameter, then you must remove the parameter from the URL manually.

You must also remove manually any attribute values that you added manually.

- To save the configuration, click **Apply**.

Configuring a Refinement action column

For a **Refinement** action column on a **Results Table**, you can select the attributes to use for the refinement, and the page on which to apply the refinement.

To configure a **Refinement** action column:

- On the **Actions** tab of the **Results Table** edit view, click the edit icon for the action.
- On the configuration dialog, in the attributes list, check the checkbox next to each attribute to use for the refinement.

Note that for aggregated tables, you can only use the dimension columns for refinement.

- Use the **Target page** setting to specify the page to display when users do the refinement.

For information on specifying a different page in the application, see [Selecting the target page for a refinement or hyperlink on page 200](#).

Configuring how each Hyperlink or Refinement action column is displayed

The configuration dialog for each **Hyperlink** or **Refinement** action column in a **Results Table** contains a **Display Options** section. This section is collapsed by default, and is the same for each action. It determines how the column is displayed in the table.

In the **Display Options** section, to configure the display for an action column:

- To expand or collapse the section, click the section heading.

- Under **Column alignment**, click a radio button to indicate how to align the action icon or hyperlink within the column.
- Under **Column width**, to have the width set automatically, click the **Use default** radio button. To set a specific width, click the other radio button. In the field, type the default width in pixels.
- Under **Display column as**, configure how to display the action column to end users.

To display the action name as a hyperlink:

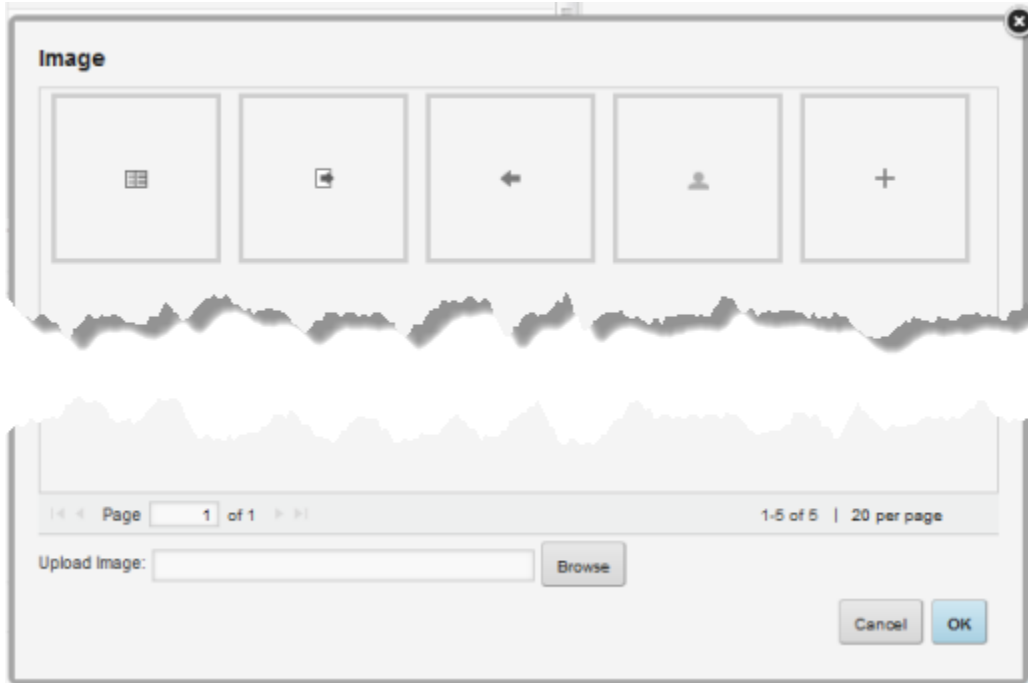
- Click the **Hyperlinks** radio button.
- To also display the action name in the column heading, check the **Display action name in column header** checkbox.

To display a clickable icon:

- Click the **Icons** radio button. This is the default.
 - When you display an icon in the action column, the column heading is empty.
- To display an icon other than the default, click the **Custom icon** radio button.

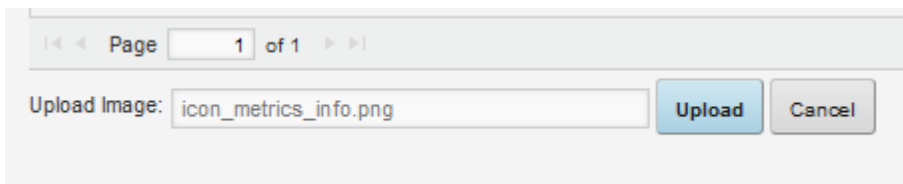
- (c) To select the custom icon, click the **Select Icon** button.

The image selection dialog is displayed. The dialog lists any images that have been uploaded for any **Results Table** component in the current application.

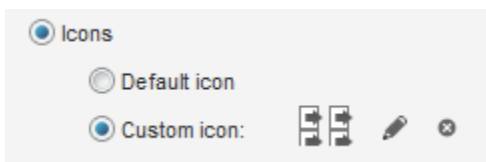


The list does not include images from other component types or applications.

- (d) To search for and select a new image file to upload, click the **Browse** button.
Studio supports the .gif, .jpeg/.jpg, .bmp, and .png file types.
- (e) After you select the file, to clear the current selection, click **Cancel**.



- (f) To add the image to the list, click **Upload**.
- (g) To select an image to use for the action, click the image in the list, then click **OK**.
If the image is too large, Studio crops it.
- (h) To change to a different image, click the edit icon next to the selected image.



- (i) To remove the selected image, click the delete icon.

5. By default, action columns display at the far left of the table, in front of the persistent columns. Under **Custom position**, to change the column location:
 - (a) Click the radio button for the custom location.
 - (b) From the location drop-down list, select whether to display the column before or after the selected column set.
 - (c) From the column sets drop-down list, select the column set in which to display the action column.

The drop-down list includes all of the table sets, plus an entry to display the column in the persistent columns.

Configuring conditions for enabling Results Table actions

For most **Results Table** actions, including column actions, action columns, and the **Actions** menu, you can set up a condition to determine whether the action is enabled.

Note that for the **Actions** menu, you can only configure conditions for the **Refinement** and **Pass Parameters** actions. For action columns, you can only configure conditions for the **Refinement** and **Hyperlink** actions. **Print**, **Export**, **Compare**, and **Details** actions never have conditions.

For column values, the condition fields display in the **Column Actions** section of the column configuration dialog.

For **Actions** menu and action column actions, the configuration dialog contains a separate **Conditional Action Display** section.

To configure the condition to control whether the action is available:

1. To select the attribute for the condition, click the **Select Attribute** button. On the attribute selection dialog, click the attribute to use, then click **Apply**.

You can select any of the columns in the table.

- From the **is** drop-down list, select the comparison operator to use for the condition.

The options are:

Option	Description
Equal to	Indicates that the condition applies if the column value is equal to the comparison value.
Not equal to	Indicates that the condition applies if the column value is not equal to the comparison value.
null	Indicates that the condition applies if the column value is null.
not null	Indicates that the condition applies if the column value is a value other than null.

- For the equal to and not equal to comparisons, in the value field, type the value to use for the comparison.
- From the **then** drop-down list, select whether to enable or disable the action if the condition is met.

When an action has an associated condition, then on the end user view:

Action Type	Effect of Action Condition
Column values	For rows that should not have the action, the column value is not hyperlinked.
Action columns	For rows that should not have the action, the action column is empty. It does not display the icon or hyperlink.
Actions menu	<p>For Actions menu options, users must first select at least one row to perform the action on.</p> <ul style="list-style-type: none"> If all of the selected rows should not have the action, the action is disabled (grayed out) in the Actions menu. If at least one of the selected rows can have the action, the action is enabled.

Configuring the default Results Table sort order and summary row display

The **Sorting & Summaries** tab on the **Results Table** edit view allows you to configure the default sort order to use for the table. For aggregated tables, the tab also determines whether to enable the dimension and table summary rows.

For record list tables and aggregated tables without dimension summary rows, you create a list of sort rules, which are applied in order. For each sort rule, you can select a different column and determine whether to sort in ascending or descending order.

Default Sort Order: + Sort Rule

	Column	Order	
1.	Wine ID ▾	▲	⊗
2.	Winery ▾	▲	⊗
3.	Wine Type ▾	▲	⊗
4.	Name ▾	▲	⊗

For aggregated tables with dimension summary rows, the sort rules use the dimension columns from left to right, with each dimension sorted in ascending order. You cannot change the order of the sort rules, and you cannot add or remove sort rules. You can only:

- Change the sort direction of each dimension (ascending or descending)
- Change the attribute used in the last sort rule. By default, it is the last dimension in the dimension list, but you can instead select a metric column. The values in the metric column then determine the order of the values for the last dimension column.

Note that on the end user view, only the currently visible columns can affect the sort order. Dimensions that are hidden by default are not available to include in the default sort order.

On the **Summaries & Sorting** tab, to configure the sorting:

1. In the **Maximum number of sort rules** field, type the maximum number of rules that can be used in a compound sort.
2. For record list tables, or aggregated tables that do not display dimension summary rows, to configure the list of sort rules:
 - (a) To add a new sort rule, click the **+Sort Rule** button.
If the maximum number of sort rules already has been added, then the button is disabled.
 - (b) To change the column assigned to a sort rule, click the drop-down arrow next to the column name, then select the new column.
 - (c) To switch the sort direction for a sort rule, click sort arrow in the **Order** column.
 - (d) To change the order in which to apply the sort rules, drag each sort rule to the appropriate location in the list.
 - (e) To remove a sort rule, click its delete icon.
If there is only one entry, you cannot remove it.
3. For an aggregated table that does display dimension summary rows, to configure the sort rules:
 - (a) To switch the sort direction for a sort rule, click the sort direction icon in the **Order** column.

- (b) To change the column used in the last sort rule, click the drop-down arrow next to the column name, then select the new column.
- 4. For an aggregated table, the **Summaries** section of the **Sorting & Summaries** tab also allows you to configure whether to display summary rows by default:
 - (a) By default, the dimension summary rows are not displayed. To display by default the dimension summary rows, check the **Show summary rows by default** checkbox.
 - (b) By default, the grand summary row is displayed. To not show the grand summary row, uncheck the **Show a grand summary row by default** checkbox.

Configuring the Results Table display and navigation

The **Display Options** tab of the **Results Table** edit view contains options for displaying and navigating through the table.

To configure these settings:

1. Under **Table height**, in the text field, type the number of rows to display at one time.
2. Use the pagination fields to configure whether users can select the number of results per page, and the available options. See [Configuring pagination options for components on page 205](#).
3. In the **Default column width** field, type the default width in pixels of a table column.
4. To allow end users to show and hide columns, check the **Allow end user to show and hide columns** checkbox.

If the checkbox is checked, then the **View Options** drop-down menu includes the **Hide / Show Columns** option.



Chapter 22

Filtering Components

Filtering components allow you to search and refine your data.

[Available Refinements](#)

[Search Box](#)

[Selected Refinements](#)

Available Refinements

The **Available Refinements** component allows users to filter data based on attribute values.

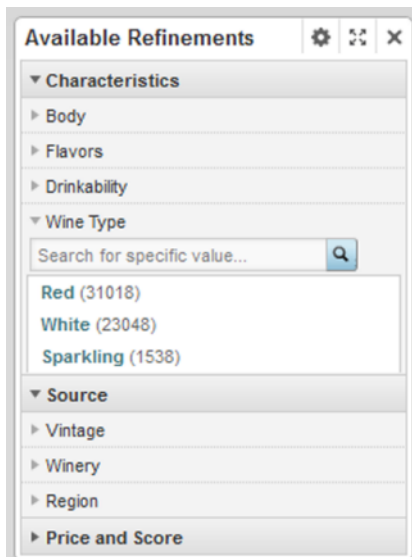
[About the Available Refinements component](#)

[Using Available Refinements](#)

[Configuring an Available Refinements component](#)

About the Available Refinements component

The **Available Refinements** component displays the currently available values or value ranges for selected attributes. It can display the number of matching records for each value.



As users select attribute values or ranges of values to refine by, the remaining values for all of the attributes are updated or removed.

To remove the selected refinements, users use the corresponding **Selected Refinements** component. If there is no **Selected Refinements** component, then users cannot remove the refinements.

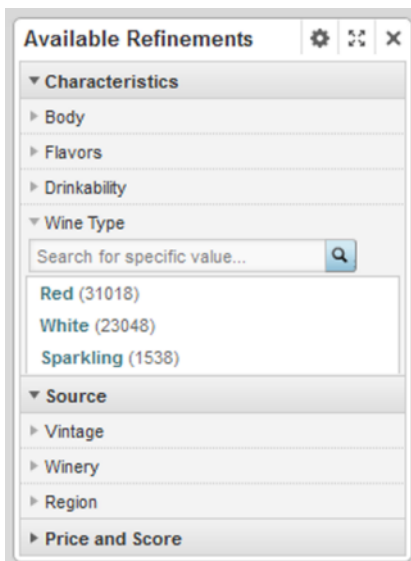
Using Available Refinements

From the **Available Refinements** component, you select values to refine the displayed data.

Displaying the available attributes and values

On the **Available Refinements** component, the attributes are displayed within attribute groups.

When the component is first displayed, each group may be configured to display the list of attributes in that group. To expand or collapse the list of attributes, click the group heading.



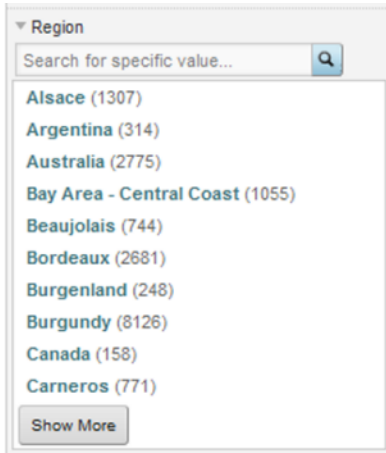
For a date/time attribute, when you expand the attribute, you see the available subsets of date/time values that you can use for filtering.



Each attribute or date/time subset is configured to allow you to use either a value list or a range filter to select the refinement. When the attribute is first displayed, the list or filter may be displayed by default.

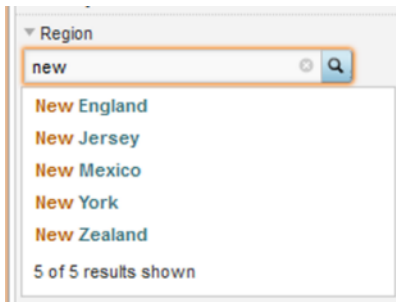
To show or hide the value list or range filter, click the attribute name.

For a value list, if the number of values is too large, then a **Show More** button is displayed.



To display the remaining values, up to the configured total maximum, click the button.

To search for a specific value in a value list, begin typing the value in the attribute search box. As you type, the matching values are displayed.



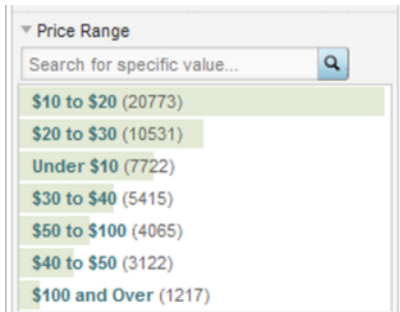
Using a value list to select refinements

For a value list on the **Available Refinements** component, you may be able to select either one or many values to refine by. You also may be able to select a refinement to show records that do NOT have the selected values.

For each available value, the component may display the number of matching records, or shaded bars to show the relative number of matching records for the values.

Selecting a single, non-hierarchical attribute value

For attributes that are not hierarchical, and do not allow multiple selections, the list of values is displayed.

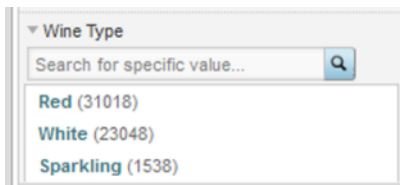


When you click a value:

- The data is filtered to only display records with that value.
- The selected value is added to the **Selected Refinements** component.
- The attribute is removed from the **Available Refinements** component.

Selecting hierarchical attribute values

For a hierarchical attribute, only **Available Refinements** component initially displays the top level of the hierarchy.



When you click an attribute value:

- The data is filtered to only display records with that value.
- The selected value is added to the **Selected Refinements** component.
- On the **Available Refinements** component, the child values for the selected value are displayed, with the parent value displayed above the list.



To return to the top level of the hierarchy, click the delete icon for the parent value.

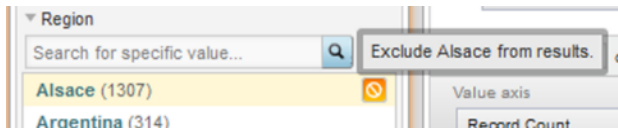
When you click a child attribute value, the selected value is added to the existing refinement for that attribute.

If there is another level of child values, those values are displayed on the **Available Refinements** component. When you click a value that does not have any children, the attribute is removed from the **Available Refinements** component.

Selecting a negative refinement for an attribute value

Attributes also can be configured to allow negative refinement. Negative refinement means that the data is refined to only include records that do NOT have the selected attribute value.

If an attribute allows negative refinement, then when you move the mouse over the value, the negative refinement icon displays to the right of the value.

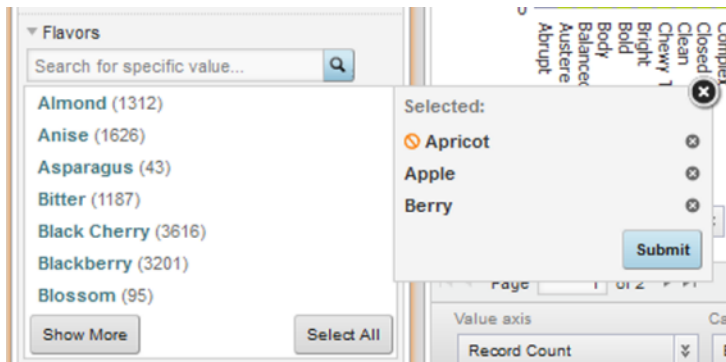


To refine the data to only include records that have that value, click the value.

To refine the data to only include records that do NOT have that value, click the negative refinement icon. When you do a negative refinement, then the negative refinement icon is displayed in front of the value.

Selecting multiple values for an attribute

If users can select multiple values for an attribute, then when you select a value, it is added to a list of values to add. If you select a negative refinement for a value, then the negative refinement icon is displayed in front of the value.



After selecting all of the values you want to add, to use those values for filtering, click **Submit**. When you filter by multiple values:

- Depending on the attribute configuration, the data is filtered to include records that either:
 - Have any one or more of the selected values
 - Have all of the selected values
- The selected values are added to the **Selected Refinements** component.
- The selected values are removed from the **Available Refinements** component.

You can still select the other remaining values. If you select all of the values, then the attribute is removed from the **Available Refinements** component.

Using a range filter to select refinements

In the **Available Refinements** component, range filters allow users to refine by a range of values instead of by specific values.

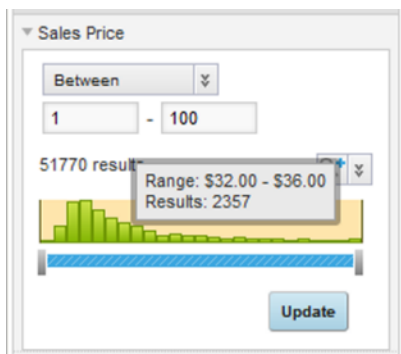
About range filters

Range selections can be used for numeric values, date values, time values, and duration values.

Each filter displays the current minimum and maximum values for the selected attribute. Each value is either:

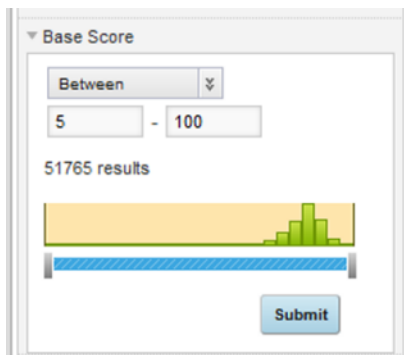
- A specific configured value
- The actual value for the current refinement

Range filters can also display a histogram, which shows how the values are distributed within the range. Hover over a histogram bar to see the range of values for that bar and the number of matching records in that range.



Selecting a value range

To select value ranges, you select the type of range, then select the range value or values.



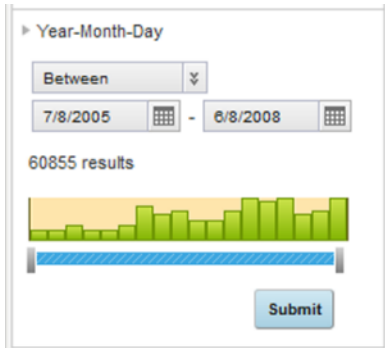
To select a range of values:

1. From the drop-down list, select whether to define the range:
 - Between two values or two dates or times (the default)
 - Less than a value, or before a date or time
 - Greater than a value, or after a date or time

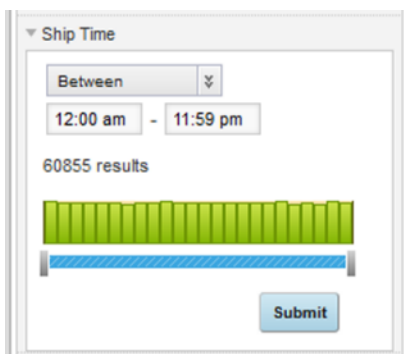
2. To specify the value or values to use, either:

- Enter the values in the fields.

For date values, you can use the date picker to select the dates.



For time values, you can use either the displayed format (for example, 9:00 am or 1:00 pm) or 24-hour format (for example, 09:00 or 13:00).

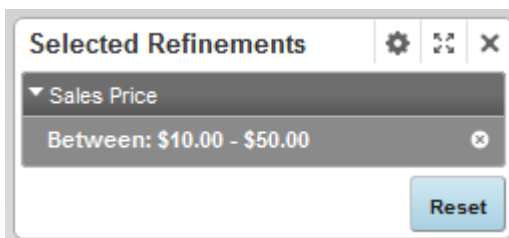


- Use the histogram slider bar to set the values.

3. Click **Submit**.

Effect of selecting a range

When you submit a range filter, a refinement for the attribute is added to the **Selected Refinements** component.



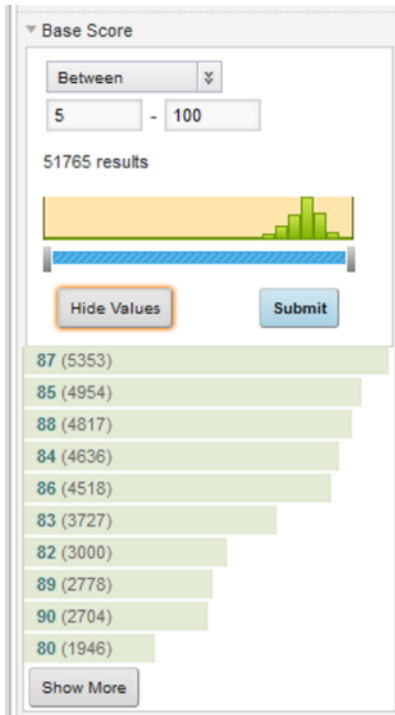
However, the attribute remains available for you to select a different range. If you submit a different range value, the existing refinement is replaced by a refinement for the new range.

Displaying the value list for a range filter attribute

The attribute also may be configured to allow you to use a value list to refine the data.

If the value list is available, then a **Show Values** button is displayed at the bottom of the filter.

To display the values, click **Show Values**.



To hide the values, click **Hide Values**.

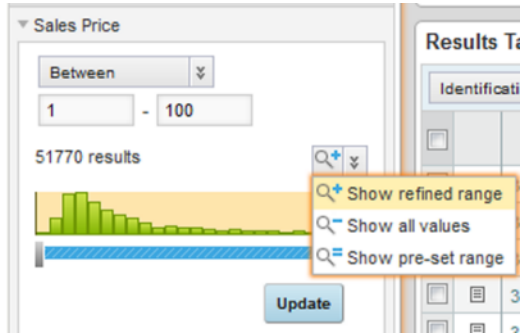
The value list behaves the same way as any other value list. See [Using a value list to select refinements on page 254](#).

Changing the displayed histogram range

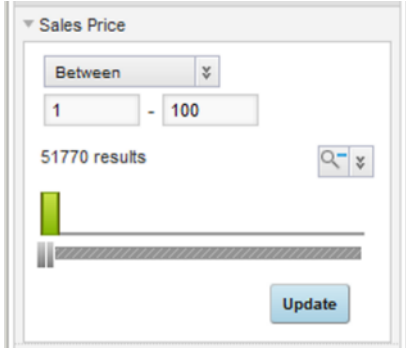
When the filter is first displayed, the histogram shows the distribution of values between the maximum and minimum values. These may be the actual minimum and maximum values in the data, or minimum and

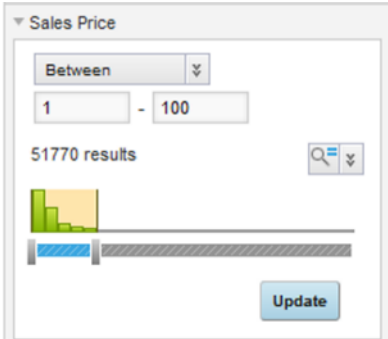
maximum values configured for the component. The displayed histogram range is affected when you select refinements.

After you submit a range filter refinement, the histogram includes a drop-down list to allow you to change the displayed range on the histogram. This does not affect the current refinements.



The options in the drop-down list are:

Option	Description
<p>Show refined range</p>	<p>The refined range is the current range of available values based on all of the current refinements, including refinement by the current attribute.</p> <p>The refined range reflects the configured minimum and maximum, unless you have specifically asked for a value outside of that range.</p>
<p>Show all values</p>	<p>This option displays the full range of available values based on the current refinements, except for any refinement on the current attribute. It does not reflect the configured minimum and maximum.</p> <p>When you display all of the values, the portion of the histogram showing the refined range is highlighted.</p> 

Option	Description
Show pre-set range	<p>The pre-set range is the configured minimum and maximum value for the attribute.</p> <p>If there are no configured minimum or maximum values for the attribute, then this option is not available.</p> <p>When you display the pre-set range, the portion of the histogram containing the refined range is highlighted.</p> 

Configuring an Available Refinements component

For the **Available Refinements** component, you determine the available attributes and how they can be used to select refinements.

Selecting the groups and attributes to display

On the edit view of the **Available Refinements** edit view, you select the base view to use, and the attribute groups from that view to display to end users. Within each displayed group, you can show or hide individual attributes.

The component by default uses the base view for the first data set. For that base view, the component initially displays the groups that are configured on the **Attribute Groups** page to be included by default in the **Available Refinements** component.

To configure the displayed groups and attributes:

1. On the **Data Selection** tab, to select the view to use for the component, click its radio button.

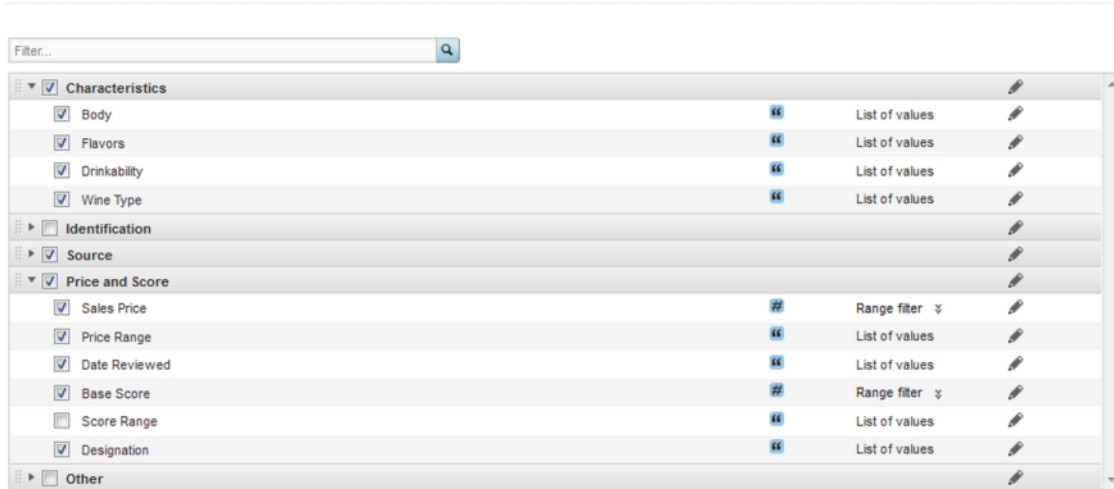
The **Available Refinements** component can only use a data set base view.

2. On the **Attribute Selection** tab, to include or exclude an attribute group on the **Available Refinements** end user view, check or uncheck its checkbox.

By default, for a displayed group, all of the attributes in the group are displayed.

3. Within a group, to not display an attribute on the end user view, uncheck its checkbox.

Attribute Selection



4. To change the display order of the attribute groups, drag each group to the new location in the list. You cannot change the display order of the attributes within a group.

Selecting the selection mode for an attribute

On the **Available Refinements** component, end users may use either a list of values or a range filter to select the refinement.

Some attributes, such as string attributes, are restricted to the value list selection type. For these attributes, the selection type is displayed as a text string next to the attribute.

However, if an attribute can support either selection type, then a drop-down list is displayed for you to select the type to use.

For numeric and date/time attributes, the selection mode defaults to use a range filter.



Note that when a date/time attribute is configured to use the range filter option, the range filter is only used for the date/time subsets that can support it. For example, the Month subset is always displayed as a value list.

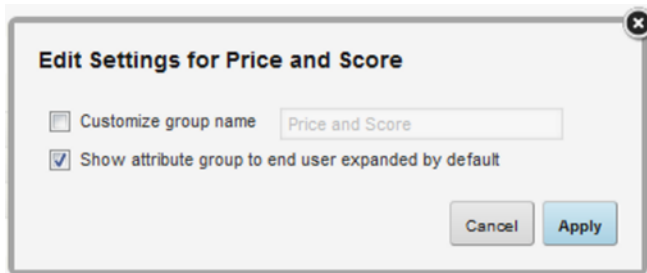
Configuring an attribute group

For attribute groups, you can configure a custom display name, and whether to show by default the list of attributes in the group.

On the **Attribute Selection** tab of the **Available Refinements** edit view, to configure an attribute group:

1. Click the edit icon for the group.

The group configuration dialog is displayed.



2. To display a customized name for the attribute group, check the **Customize group name** checkbox, then type the new name.

The customized name is only used in the context of this component.

3. To expand the list of values by default when the component is first displayed, check the **Show attribute group to end user expanded by default** checkbox.
4. Click **Apply**.

Configuring an attribute

For each **Available Refinements** attribute, you can configure how to display either the list of values or the range filter. To display the edit dialog for the attribute, click its edit icon.

Configuring a value list selection attribute

For a value list selection attribute, you can configure whether to allow negative refinements, whether to display the record count, and whether to display the value list by default.

On the edit attribute dialog, to configure a value list selection attribute:

1. By default, the attribute uses the default setting for the component. Under **Negative refinements**, the **use default** radio button is selected.

The screenshot shows a dialog box titled "Edit Attribute Settings" for the attribute "Wine Type". The attribute is identified as a "string attribute". The "Selection method" is set to "List of values". Under "Negative refinements", the "Use default" radio button is selected, and there is a dropdown menu currently showing "On". Under "Record count display", the "Number" checkbox is checked, while "Value distribution bars" and "Show list of values expanded by default" are unchecked. "Cancel" and "Apply" buttons are at the bottom right.

To use a specific setting, click the other radio button. From the drop-down list, select whether to allow negative refinements for this attribute.

If you select a value manually, it remains the same even when you change the component default.

2. Under **Record count display**, select how to indicate the number of matching records for each value.

To display the actual number of matching records, check the **Number** checkbox.

To display shaded bars indicating the relative number of matching records, check the **Value distribution bars** checkbox.

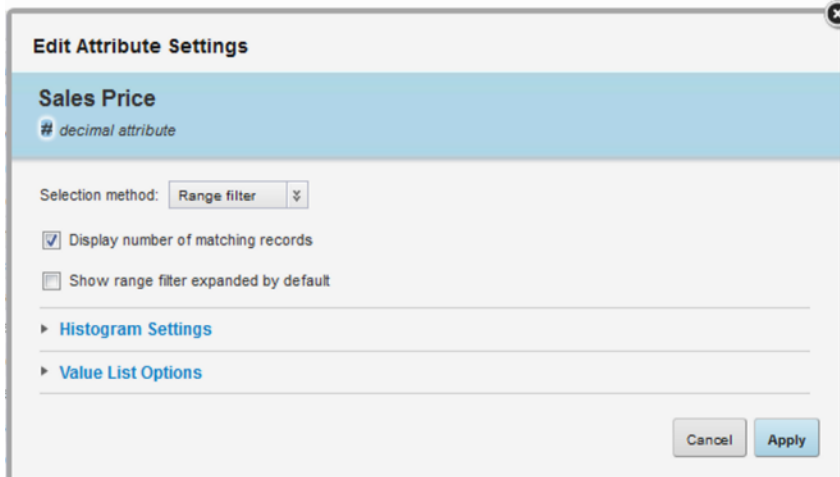
You can check both checkboxes to display both the number and the bars.

If neither checkbox is checked, then end users do not see any record count information.

3. To expand the list of values by default when the component is first displayed, check the **Show list of values expanded by default** checkbox.
4. After completing the configuration, click **Apply**.

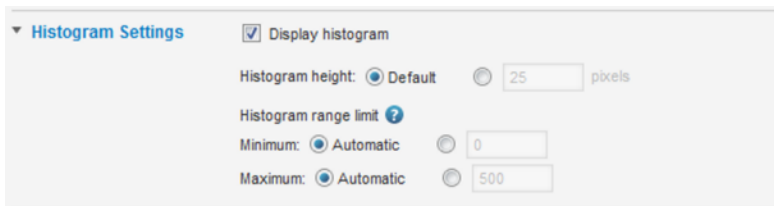
Configuring a range filter selection attribute

For a range filter selection attribute, you configure the histogram display, the value format, and whether to also display a list of values. There are also individual settings for specific types of range values.



On the edit attribute dialog, to configure a range filter selection attribute:

1. To display the number of matching records on the range filter, check the **Display number of matching records** checkbox.
2. To display the range filter expanded by default when the attribute group is expanded, check the **Show range filter expanded by default** checkbox.
3. The **Histogram Settings** section of the edit attribute dialog controls the display of the histogram.



- (a) To expand or collapse the **Histogram Settings** section, click the section heading.
- (b) To display a histogram as part of the filter, check the **Display histogram** checkbox.
If you uncheck the checkbox, then the rest of the histogram settings are disabled.
- (c) Use the **Histogram height** setting to configure the height in pixels of the histogram.
By default, the height is set automatically, and the **Default** radio button is selected.
To provide a specific height value, click the other radio button, then in the field, enter the height value.
- (d) Use the **Histogram range limit** settings to determine the minimum and maximum values for the range.

4. The **Value List Options** section controls the display of a value list in addition to the range filter. End users can then use either the range filter or the list to select the refinement.

The screenshot shows a configuration panel for 'Value List Options'. It includes the following elements:

- A section heading 'Value List Options' with a dropdown arrow.
- A checkbox labeled 'Enable value list option' which is checked.
- A 'Negative refinements' section with two radio buttons: 'Use default' (selected) and 'On'. To the right of the 'On' radio button is a dropdown menu.
- A 'Record count display' section with two checkboxes: 'Number' (checked) and 'Value distribution bars' (unchecked).

- (a) To expand or collapse the section, click the section heading.
- (b) By default, the list of values is not displayed. To display the list of values, check the **Enable value list option** checkbox.

If the box is unchecked, then the rest of the value list settings are disabled.

- (c) If you are displaying a value list, then under **Negative refinements**, indicate whether the attribute should allow negative refinements.

By default, the attribute uses the component-wide setting, and the **Use default** radio button is selected.

To specify a setting, click the other radio button, then from the drop-down list select whether to allow negative refinements.

If you specify a setting, then the attribute maintains this setting even when you change the component default.

- (d) If you are displaying a value list, then under **Record count display**, indicate whether to indicate the number of records for each value.

To display the number of records, check the **Number** checkbox.

To display shaded bars for each value indicating the relative number of matching records, check the **Value distribution bars** checkbox.

You can check both checkboxes to display both numbers and bars.

5. After completing the configuration, click **Apply**.

Configuring Available Refinements display options

The **Configuration Options** tab of the **Available Refinements** edit view provides default options for displaying either value lists or range filters. It also controls the target page to display.

To configure these options:

1. Under **List of Values Settings**:

List of Values Settings

Negative refinement available by default

Enable type-ahead

Maximum type-ahead suggestions:

20

Maximum values to show in a single attribute:

500

Number of values to display before "Show More" button:

10

- (a) To allow negative refinement by default, check the **Negative refinement available by default** check box.

You can override this default for individual attributes.

- (b) To allow end users to do a type-ahead search for a value, check the **Enable type ahead for filtering** checkbox.

In the **Maximum type-ahead suggestions** field, type the maximum number of matching values to display.

- (c) In the **Maximum values to show for a single attribute** field, type the maximum number of values that can be displayed.

If the number of values is larger, then end users must use type-ahead to find specific values.

- (d) In the **Number of values to display before "Show More"** button field, type the number of values to display initially.

If the number of records is greater than this number, the **Show More** button displays to allow end users to display the remaining values, up to the maximum values to show setting.

2. Under **Range Filter Settings**:

Range Filter Settings

Minimum width of individual histogram bars:

5 pixels

Default histogram height:

25 pixels

- (a) In the **Minimum width for individual histogram bars** field, type the minimum width in pixels for a histogram bar.

Studio uses this value, along with the minimum increment for a histogram bar and the number of values, to determine the number of bars it can display.

- (b) In the **Default histogram height** field, type the default height in pixels of the histogram.

3. In the **Target page for refinement selection** field, type the name of the page to display when end users select a refinement.

If you leave the field empty, then end users stay on the current page.

See [Syntax for specifying a target page on page 200](#).

Search Box

The **Search Box** component provides a search function for a Studio application.

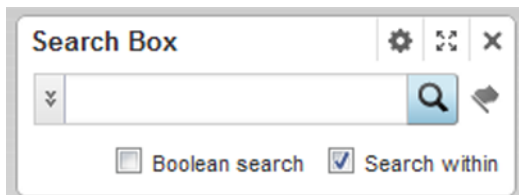
[About the Search Box component](#)

[Using Search Box](#)

[Configuring the Search Box component](#)

About the Search Box component

The **Search Box** component allows users to submit keyword searches. It also can be configured to provide type-ahead suggestions listing attribute values that match the typed text.



Using Search Box

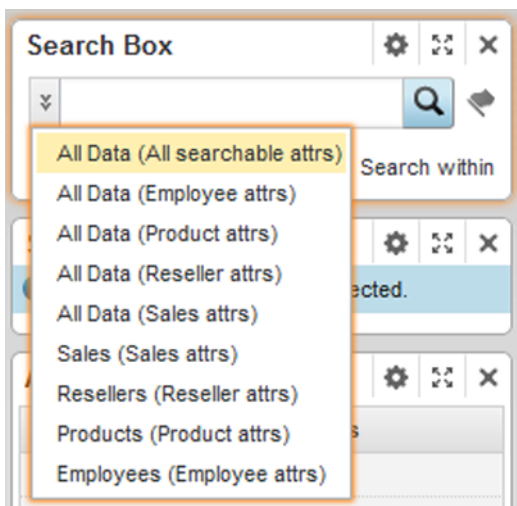
You use the **Search Box** component to find records that contain a specified search term. You may also be able to use the type-ahead function to search for and select attribute values.

Completing a Search Box search

When using the **Search Box** component for a search, you select the search options, then provide the search terms.

To complete a search:

1. If the application contains multiple data sets, or there are multiple available search options, then from the search option drop-down list, select the search option to use.



There may be search options for each data set, as well as options for All Data, indicating to search across data sets.

If the selected search option supports keyword searches, then the search icon is displayed.

2. If the **Search Box** component is configured to allow Boolean searches, then to use a Boolean search, check the **Boolean search** checkbox.

Boolean searches support the following operators:

- AND
- OR
- NOT
- NEAR
- ONEAR

3. To only search within the currently displayed data, make sure that the **Search within** checkbox is checked.

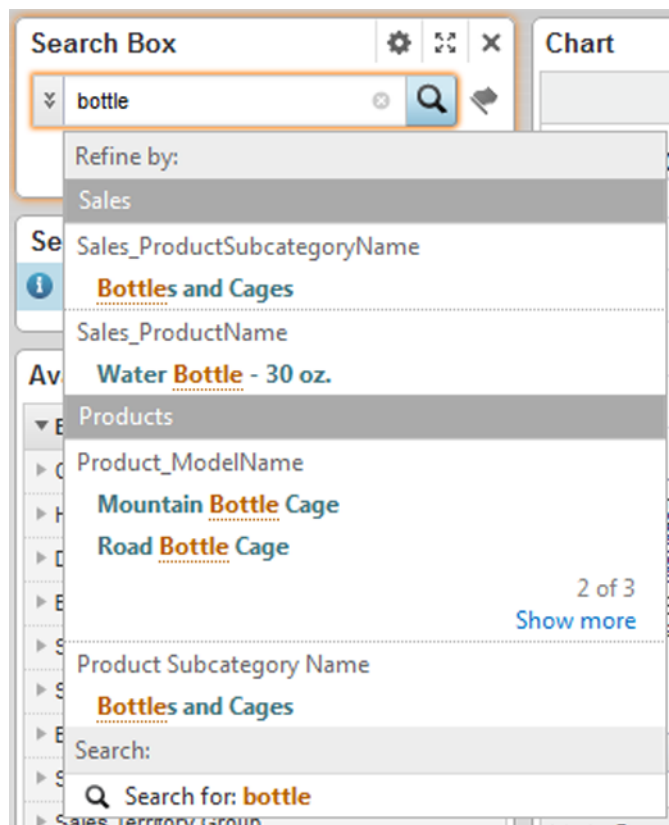
If the checkbox is not checked, then the search refinement replaces all of the current refinements on the **Selected Refinements** component.

4. By default, keyword searches use the currently selected locale. If the **Search Box** component is configured to allow you to select the search language, then to execute a keyword search using a different language:
 - (a) Click the flag icon next to the search field.
 - (b) On the **Search Language** dialog, from the language drop-down list, select the language to use for the search.
 - (c) Click **Save**.

Once you select a search language, then this selection is maintained throughout your Studio session.

5. In the field, type the search terms.

If type-ahead search is supported, then as you type the search term, a list of attribute values containing the search terms is displayed.



To assemble the list of matching values, Studio appends a wildcard to a value search. Within the list, the matching values are grouped by attribute, and then within each attribute, displayed based on relevance ranking. If you are searching across data sets, then the attributes are grouped by data set.

For details on value search and relevance ranking, see the *Oracle Endeca Server Developer's Guide*. For information on using Integrator ETL to use load the relevance ranking configuration files, see the *Integrator ETL User's Guide*.

To filter using an attribute value, click the value.

If you can do a keyword search, then below the matching attribute values is an option to just do a keyword search. This option performs the same function as the search icon.

6. To do a keyword search for the terms you entered, either:
 - Click the search icon
 - Click the keyword search option displayed on the type-ahead panel
 - Press **Enter**

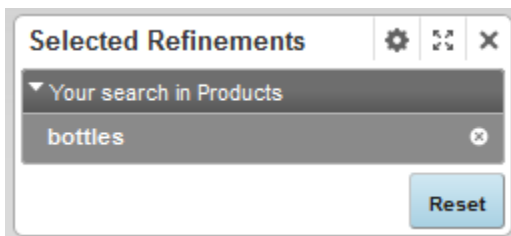
Effect of a Search Box search

When you complete the search, the data is refined to only include records with the matching search terms or selected attribute value.

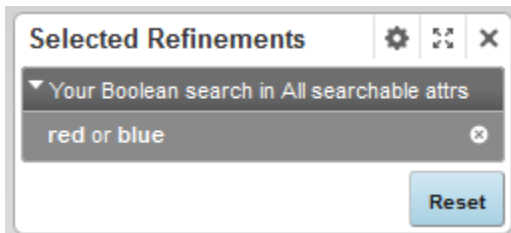
The **Selected Refinements** component that is bound to the appropriate data set also is updated to add the appropriate refinement.

If you selected an attribute value, then the refinement is an attribute value refinement. The selected value also is removed from the available values on the **Available Refinements** component.

If you performed a keyword search, then the refinement is a search refinement. The refinement includes the search option used for the search.



For Boolean searches, the refinement indicates that a Boolean search was used.



Search refinements may also include spelling correction and "did you mean" suggestions. Note that Boolean searches do not support spelling correction or "did you mean".

If the **Search within** checkbox was checked, then the search refinement is added to the list. If the box was not checked, the refinement replaces the current list.

For more information on how refinements are displayed, see [Using Selected Refinements on page 279](#).

For regular keyword searches, on the **Data Explorer**, **Results List**, and **Results Table** components, the search terms may be highlighted. For attributes that support snippeting, the search snippet is displayed. The snippet displays the portion of the attribute value that contains the search terms.



For details on configuring snippeting for searches, see the *Oracle Endeca Server Developer's Guide*.

Relevance ranking can affect the display order of results on the following components:

Component	Effect of Relevance Ranking
Data Explorer	<p>When the search is submitted, the results are automatically sorted based on search relevance.</p> <p>A Search Relevance option is added to the Sorted by drop-down list. You can then switch between the Search Relevance option and the other available sorting options.</p>
Results List	<p>If there is no default sort order for the Results List, and you haven't applied a sort to the list, then when a search is submitted, the results are sorted based on search relevance.</p> <p>If a specific sort order has been applied to the table, then the relevance ranking settings are not applied.</p>
Results Table	<p>If there is no default sort order for the Results Table, and you haven't applied a sort to the table, then when a search is submitted, the results are sorted based on search relevance.</p> <p>If a specific sort order has been applied to the table, then the relevance ranking settings are not applied.</p>
Map	<p>When the search is submitted, the results are automatically sorted based on search relevance.</p> <p>A Search Relevance option is added to the Sorted by drop-down list. You can then switch between the Search Relevance option and the other available sorting options.</p>

Note that Boolean searches do not support relevance ranking.

For details on relevance ranking and how it works, see the *Oracle Endeca Server Developer's Guide*. For information on using Integrator ETL to use load the relevance ranking configuration files, see the *Integrator ETL User's Guide*.

Configuring the Search Box component

For the **Search Box** component, you create a list of available search options.

About search options for the Search Box component

If the application has one or more associated search interfaces, then you can configure text search options for the **Search Box** component. If there are no search interfaces, then only type-ahead search is supported.

The **Search Box** component can have:

- A search option for each combination of data set and application search interface. When end users select one of these search options, Studio uses the selected application search interface to search within only that data set.
- When there are multiple data sets, search options for "All Data".
"All Data" is specific to the **Search Box** component, and is used to indicate to search across all of the application data sets.

A search interface determines the search behavior for attributes or groups of attributes, and can include rules for:

- Relevance ranking
Note that in order for the **Search Box** to work correctly, each search interface associated with a Studio application must have a relevance ranking strategy.
- Matching across multiple attributes
- Keywords in context results
- Partial matches

For details on available settings for search interfaces, see the *Oracle Endeca Server Developer's Guide*.

For applications created from file uploads or the **Data Source Library**, Studio automatically creates a single search interface. See [Search configuration for a new data set on page 96](#).

For shared Endeca Server connections, search interfaces are added manually using Integrator ETL. For details on creating search interfaces using Integrator ETL, see the *Oracle Endeca Information Discovery Integrator ETL User's Guide*.

Configuring search options for the Search Box component

From the edit view of the **Search Box** component, you configure the available search options.

The **Configuration** tab of the edit view displays the list of application data sets, plus an entry for All Data. For each data set, you can enable and disable type-ahead searches. Below each data set, as well as below All Data, are listed the search interfaces associated with the application.

Configuration
Select and configure the combinations of data sets and search interfaces end users can use to constrain their searches.

Data Set / Search Interface	Enable Type-Ahead ?	Enable Keyword Search	Default Selection	Match Mode ?	Target Page ?
All Data <input checked="" type="checkbox"/>					
All searchable attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	All > Partial ▾	<input type="text"/>
Employee attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Product attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Reseller attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Sales attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Sales <input checked="" type="checkbox"/>					
All searchable attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Employee attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Product attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Reseller attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Sales attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>
Resellers <input checked="" type="checkbox"/>					
All searchable attrs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	All > Partial ▾	<input type="text"/>

If there is only one data set, and one search interface, then the list contains a single row.

Configuration

Select and configure the combinations of data sets and search interfaces end users can use to constrain their searches.

Data Set	Enable Type-Ahead ?	Enable Keyword Search	Default Selection	Match Mode ?	Target Page ?
Wine	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	All > Partial ▾	<input type="text"/>

For each combination of data set and search interface, you can configure additional details for keyword searches, as well as the target page to display when users complete a search.

To configure the text search options:

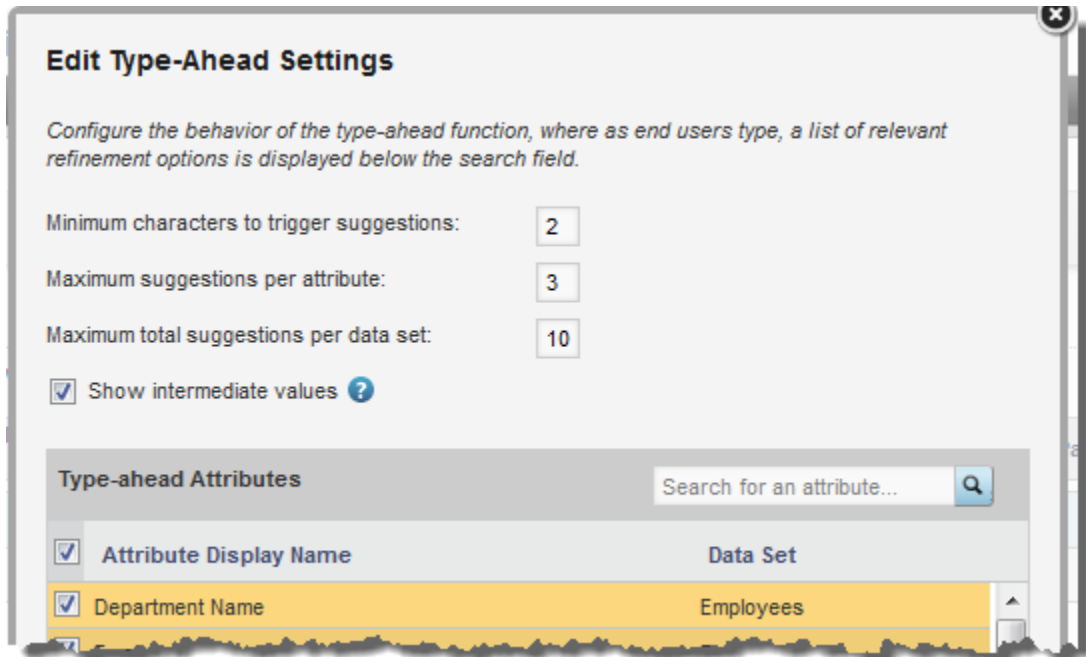
1. To enable type-ahead search for a data set, check the **Enable Type-Ahead** checkbox.

If the box is not checked, then when end users search within this data set, when they begin to type the search term, Studio does not check for matching attribute values.

To configure the type-ahead search:

- (a) Click the edit icon in the **Enable Type-Ahead** column.

The **Edit Type-Ahead Settings** dialog is displayed.



- (b) In the **Minimum characters to trigger suggestions** field, set the minimum number of characters that end users must type before type-ahead suggestions are offered.

The default is 2.

- (c) In the **Maximum suggestions per attribute** field, set the maximum number of type-ahead suggestions to initially display for each attribute.

The default is 3. If more values are available for an attribute than are displayed, then a link displays to allow end users to see the other values.

- (d) In the **Maximum total suggestions per data set** field, set the maximum total number of type-ahead suggestions for each data set.

The default is 10.

So if the maximum number of suggestions is 10, then only the first 10 suggestions across all of the attributes in a data set are displayed.

Note that this can cause the number of suggestions initially displayed for an individual attribute to be less than the maximum per attribute.

- (e) To display the full path for hierarchical attributes, check **Show intermediate values**.

For example, if an end user types Merlot into the field, and the attribute value Merlot is a child of the attribute value Red, then:

- If the box is checked, the type-ahead value is displayed as Red > Merlot.
- If the box is not checked, the value is displayed as Merlot.

- (f) In the **Type-ahead Attributes** list, check the checkbox next to each attribute for which you want to display type-ahead suggestions.

To find a specific attribute, use the search filter field.

- (g) To save the type-ahead configuration, click **Save**.

2. To enable keyword search for a search option, check the **Enable Keyword Search** checkbox. This checkbox only displays for search options associated with a search interface.
3. To select a search option to be the default for the **Search Box** component, click the radio button in the **Default Selection** column.
4. If keyword search is enabled, then from the **Match Mode** drop-down list, select a match mode for the search option.

The available match modes are:

Match Mode	Description
All	<p>For this mode, a record only is returned if it contains all of the search terms.</p> <p>For example, if the end user types California red, then only records containing both "California" and "red" are included.</p> <p>Note that if the <code>CROSS_FIELD_BOUNDARY</code> setting for the search interface is set to <code>NEVER</code>, then a record is only included if all of the terms occur in a single field.</p> <p>For example, for the California red search, if a record contains "California" in the Name field, and "red" in the Wine Type field, then the record is not a match.</p> <p>For other values of <code>CROSS_FIELD_BOUNDARY</code>, the terms can be in different fields.</p>
Any	<p>For this mode, a record is returned if it contains any of the search terms.</p> <p>For example, if the end user types California red, then records that contain either "California" or "red" are included. The records do not have to include both terms.</p>

Match Mode	Description
Partial	<p>For this mode, a record is returned based on the partial search rules for the selected search interface.</p> <p>Each search interface can be configured with either:</p> <ul style="list-style-type: none"> • A "Match at Least" rule, indicating the minimum number of matching terms • An "Omit at Most" rule, indicating the maximum number of terms that to not be found in the record <p>So if the search interface has a "Match at Least" rule, then records are only returned if they match at least that number of the search terms.</p> <p>For example, if the end user types <code>California red berry sweet</code>, and the search interface "Match at Least" rule is 2, then only records with at least two of those terms are included.</p> <p>If the search interface has an "Omit at Most" rule, then records are only returned if they aren't missing more than that number of the search terms.</p> <p>For example, if the end user types <code>California red berry sweet</code>, and the search interface "Omit at most" rule is 1, then only records with at least three of those terms are included.</p> <p>Note that if the <code>CROSS_FIELD_BOUNDARY</code> setting for the search interface is set to <code>NEVER</code>, then a record is only included if the required number of terms are present in a single field.</p>
Partial Max	<p>This mode is similar to the partial mode, except that the search stops when it finds records that contain the largest number of matching values.</p> <p>So it first looks for records that match all of the search terms. If it finds any, it stops looking, and returns those records.</p> <p>If it does not find any records with all of the search terms, it next looks for records that have all but one of the search terms. If it finds any, it then stops looking and returns those records.</p> <p>The "Match at Least" and "Omit at Most" rules still apply. The system will not search for records with fewer than the "Match at Least" rule, and will not remove more terms than the "Omit at Most" rule.</p>
All > Any	<p>For this mode, the search first looks for records that have all of the terms.</p> <p>If it finds any, it stops looking and returns those records.</p> <p>If none of the records have all of the search terms, then the search looks for records that have any of the search terms.</p>

Match Mode	Description
All > Partial	<p>For this mode, the search first looks for records that have all of the terms.</p> <p>If it finds any, it stops looking and returns those records.</p> <p>If none of the records have all of the search terms, then the search changes to partial mode.</p> <p>This is the default mode.</p>

Note that while Boolean is treated as a separate match mode for Endeca Server, it is not included in this drop-down list. Instead, you configure whether to allow Boolean searches from the **Search Box** component.

End users then select for themselves whether to use a Boolean search. If they don't opt to use a Boolean search, then the search uses the match mode for the selected text search option.

- In the **Target Page** field, enter the page to display when the search is executed. To stay on the current page, leave the field empty.

For details on providing target pages, see [Selecting the target page for a refinement or hyperlink on page 200](#).

Configuring search properties for the Search Box component

For the **Search Box** component, you can configure search properties, including the default setting for the **Search within** checkbox, whether to allow Boolean searches, and whether to allow users to select the search language.

On the **Display Options** tab of the **Search Box** edit view, to configure the search properties:

- To check the **Search Within** checkbox by default when end users select a keyword search option, check the **Search within current records by default** checkbox.
- To allow end users to perform Boolean keyword searches, check the **Allow Boolean search** checkbox.

If this checkbox is checked, then when end users select a search option that supports keyword searches, the **Boolean search** checkbox is displayed.

- To allow users to select the language to use for the search, check the **Enable language selection** checkbox.

If this checkbox is checked, then the flag icon displays next to the search field, to allow users to select a search language.

Selected Refinements

The **Selected Refinements** component displays all the of values the user has selected to filter the data.

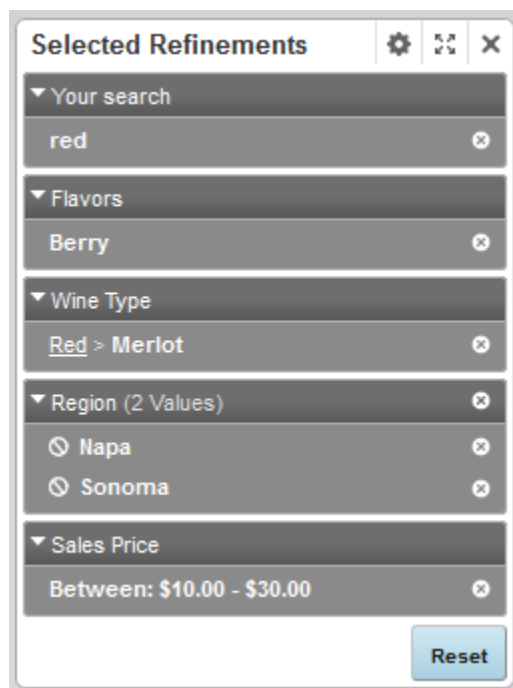
[About the Selected Refinements component](#)

[Using Selected Refinements](#)

Configuring a Selected Refinements component

About the Selected Refinements component

The **Selected Refinements** component allows users to view and quickly make adjustments to the current refinement state for a data set.



The component includes entries for:

- **Available Refinements** selections
- Keyword searches

It also includes:

- Attribute refinements selected when end users click values displayed on other components
- The base filter for the data set, if it is configured to be displayed
- Filters from deep links

Using Selected Refinements

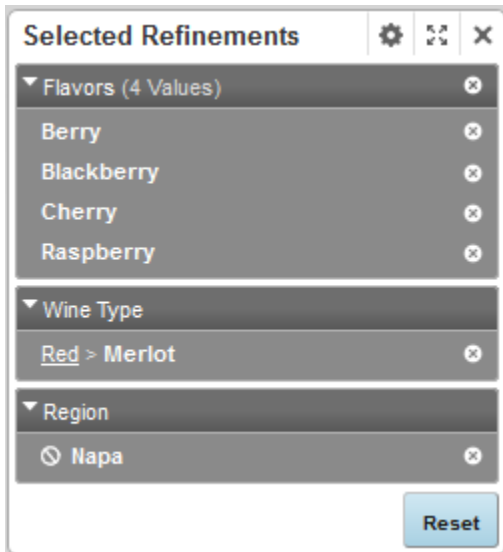
You use the **Selected Refinements** component to view and edit your refinement selections.

Note that each **Selected Refinements** component only displays refinements for attributes that belong to its associated data set.

How the refinements are displayed

Each refinement displays as a collapsible section on the component.

For attribute value selections, the refinement displays the attribute name as a heading.

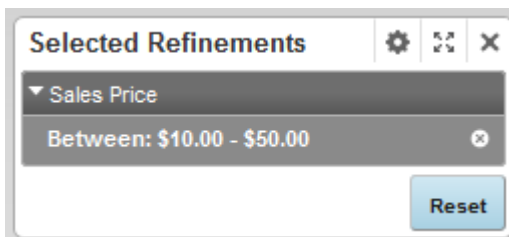


For negative refinements (refining data to show records that do NOT have the selected value), the negative refinement icon is displayed in front of the attribute value.

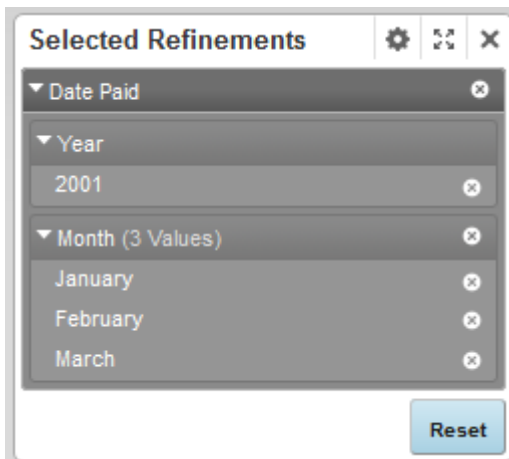
If multiple values for an attribute are selected, they are displayed in sequential order. Depending on the number of records selected, the list may be collapsed by default.

For a hierarchical attribute value, the refinement may include all of the ancestor values.

For range filters, the refinement contains the selected range of values.



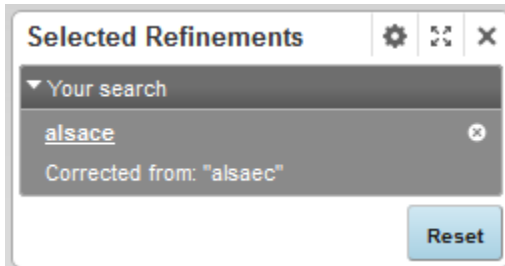
For date/time values, the refinement lists the values selected for each date/time subset separately.



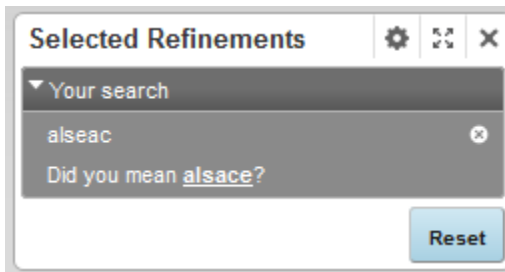
For search term values, the heading indicates that the value is a search term.



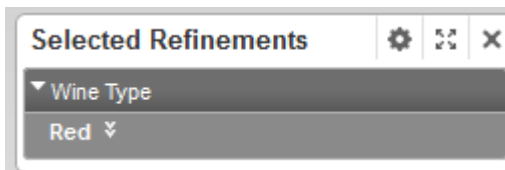
If the search function made an automatic spelling correction, it is included in the refinement.



The refinement may also include a "did you mean" option to suggest a search term that closely matches the specified term:



If a data set has a base filter, then the attribute value for the filter may be displayed as a refinement on the **Selected Refinements** component. A base filter refinement cannot be removed, and so does not display a delete icon. If you can change the value selected for the base filter attribute, then a drop-down list icon is displayed next to the value.



Removing refinements

From the **Selected Refinements** component, to remove a single refinement, click the delete icon for that refinement. For attributes that have multiple values selected, you can either remove a single value or all of the values.

You cannot remove refinements from base filters.

For hierarchical attributes, to filter by an ancestor value, click the ancestor value.

To remove all of the refinements, and reset the data set to its initial state, click the **Reset** button. When you click reset:

- All refinements that you added manually are removed
- Any other visible filters, such as a filter from a deep link, are removed
- Base filters are restored to their original state. Base filters are never removed.

Filters that are not visible on the **Selected Refinements** component always remain in place.

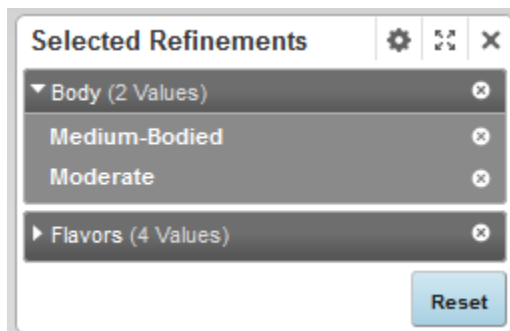
Configuring a Selected Refinements component

For a **Selected Refinements** component, you selected the base view to use and whether to expand a list of multi-select attribute values.

On the **Selected Refinements** component edit view, to configure a **Selected Refinements** component:

1. On the **Data Selection** tab, click the radio button next to the view to use.
The **Selected Refinements** component can only use a base view.
2. On the **Display Options** tab, in the **Multi-select collapse/expand threshold** field, set the number of attribute values after which the list can be collapsed.

When end users select multiple values for an attribute, if they select more than this number, then on the **Selected Refinements** component, the list of selected values is initially collapsed.



End users can then use the expand/collapse button to display or hide the full list.



Chapter 23

Data Visualization Components

These components provide a more detailed view of your data.

[Chart](#)

[Map](#)

[Pivot Table](#)

[Summarization Bar](#)

[Tag Cloud](#)

Chart

The **Chart** component displays a graphical chart based on the application data.

[About the Chart component](#)

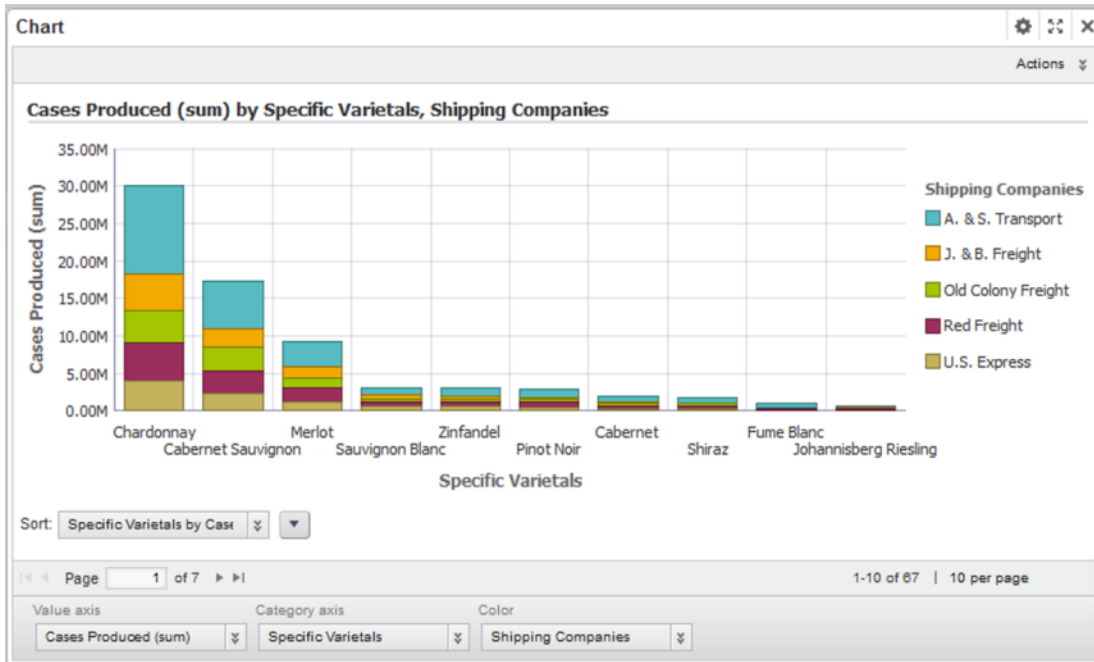
[Using the Chart component](#)

[Configuring the Chart component](#)

[Sample charts](#)

About the Chart component

The **Chart** component supports several types of charts, and can include options for users to select the specific data to display.



The supported chart types are:

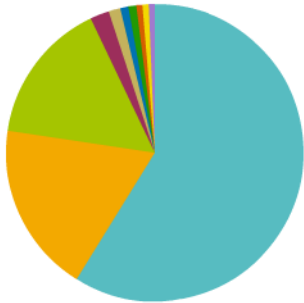
Chart Type	Description
Pie chart	<p>A pie chart shows a single series metric aggregated across a group dimension.</p>  <p>For example, a pie chart could show the number of transactions for each region. Pie charts are good for doing a quick assessment of how each value contributes to the whole.</p> <p>The values are displayed as a pie wedge for each group dimension value. The size of the wedge reflects the relative size of the metric value.</p>

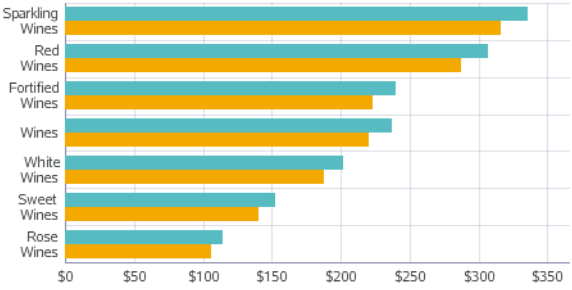
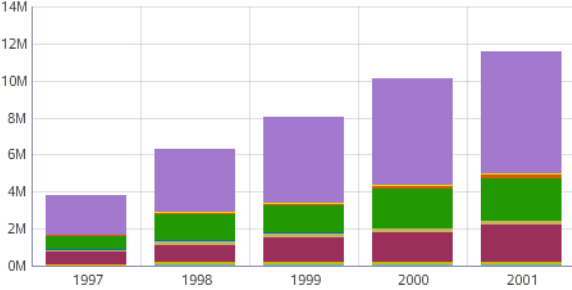
Chart Type	Description
<p>Bar chart (basic)</p>	<p>Basic bar charts show one or more series metric values aggregated across a single group dimension.</p>  <p>For example, a bar chart could show both the total sales and projected sales for each region.</p> <p>Bar charts are good for more precise comparisons of one or more values.</p> <p>On a basic bar chart, for each group dimension value, the series metric values are displayed as a cluster of bars.</p> <p>Each series metric value may be subdivided using a series dimension value. For example, the chart could show the total sales and projected sales per region for each product line.</p> <p>If there is a series dimension, then for each group dimension value, the chart displays a separate bar for each combination of series metric and series dimension.</p>
<p>Bar chart (stacked)</p>	<p>Like basic bar charts, stacked bar charts also show one or more series metric values aggregated across a single group dimension.</p> <p>However, instead of displaying a cluster of bars for each metric, the chart creates sections within a single bar.</p>  <p>The stacked bar chart is useful if it is important to see the total value for the series metric.</p>

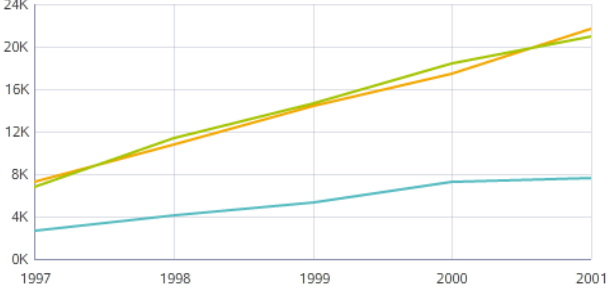
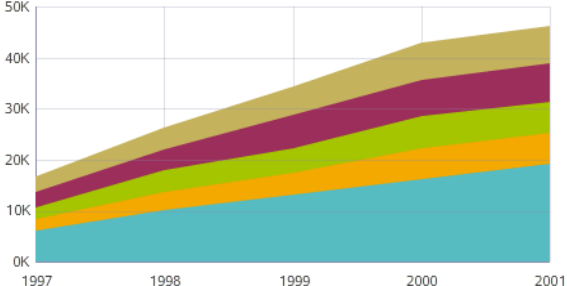
Chart Type	Description
<p>Line chart</p>	<p>Line charts show one or more series metric values aggregated across a single group dimension.</p>  <p>For example, a line chart could show the change in total sales and the change in sales margins over several years.</p> <p>Line charts are usually designed to show changes or trends.</p> <p>For each group dimension value, the series metric value is a data point on the line. Each metric is plotted on a separate line.</p> <p>Each series metric value may be subdivided using series dimensions. For example, the chart could show the change in total sales per year for each region.</p> <p>Each combination of series metric and series dimension displays as a separate line on the chart.</p>
<p>Area chart</p>	<p>Area charts are similar to line charts, but display a shaded area instead of a single line.</p>  <p>For each group dimension value, the series metric value is a data point along the top of the shaded area. Multiple metrics are represented by multiple stacked shaded areas.</p> <p>Each series metric value may be subdivided further using a series dimension.</p>

Chart Type	Description
<p>Bar-Line chart</p>	<p>Bar-Line charts show two or more series metric values aggregated across a single group dimension.</p>  <p>The values for some metrics are displayed as bars, and the values for others as lines.</p> <p>In the single-axis version of the chart, both the bars and lines are plotted against the left vertical axis.</p> <p>If the lines and bars have different scales, then you can use the dual-axis version, where the bars are plotted against the left vertical axis and the lines against the right vertical axis.</p>
<p>Scatter chart</p>	<p>Scatter charts display data points, with each point representing a dimension value.</p> <p>The color dimension determines the number of colors, and the detail dimension controls the number of points in each color. Each color also uses a different shape.</p> <p>The location of each data point corresponds to the values of the X-axis and Y-axis metrics.</p>  <p>Scatter charts allow you to show correlations between metrics. Hovering the mouse over a data point displays the complete set of dimension and metric values for that point.</p>

Chart Type	Description
Bubble chart	<p>Bubble charts are similar to scatter charts, but display data points as bubbles, with each bubble representing a dimension value. The color dimension controls the number of colors, and the detail dimension controls the number of bubbles in each color.</p> <p>The location of each bubble corresponds to the values of the X-axis and Y-axis metrics. The size of each bubble indicates the relative value of a third metric.</p> <p>Bubble charts allow you to show correlations among multiple metrics. Hovering the mouse over a bubble displays the complete set of dimension and metric values for that bubble.</p>

Using the Chart component

You may be able to change the data displayed on the chart.

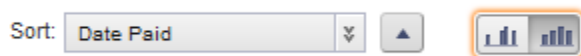
For information on using common component functions such as exporting and printing, see [Using common component functions on page 33](#).

Selecting and sorting the values to display on the chart

Each chart may be configured with multiple options for the specific metrics and dimensions to display on the chart.

To select the data to display on the current view:

1. To change the dimensions and metrics displayed on the chart, from the drop-down lists at the bottom of the chart, select the specific items to display.
2. If the category axis consists of date/time values, then you can use the date gap toggle to determine whether to include date/time values for which the corresponding metric value is NULL.



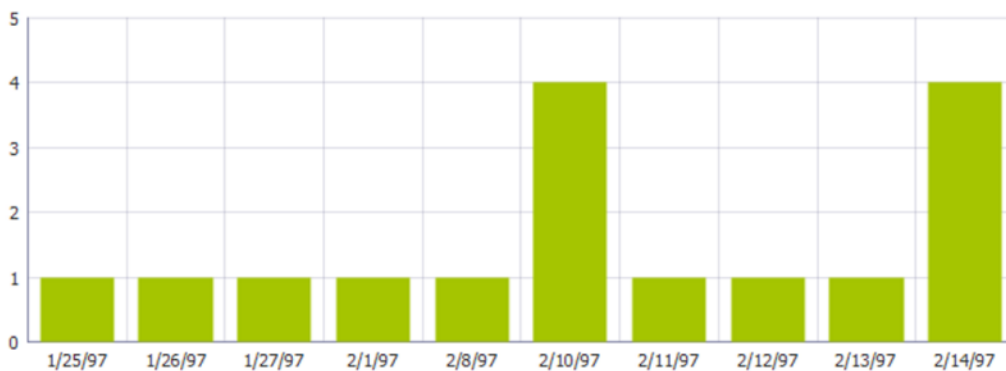
For example, if you are looking at values over time for each month, then you may want to see all of the months in order, including the months for which there is no value.

The toggle does not display for pie, scatter, and bubble charts.

By default, the gaps are displayed. Here is an example of a chart with the gaps displayed:



And here is the same chart with the gaps hidden:



3. If you are able to change the chart sorting, then:
 - (a) From the drop-down list, select the item to use for the sort.
 - (b) To change the sort order between ascending and descending, click the sort direction toggle.

Displaying details for chart values

When you hover over a chart object (for example, line, bar, wedge, or bar section), it is highlighted and a tooltip displays with the exact dimension and metric values.

Using dimension values to refine the data

You may be able to use the dimension values to refine the data.

If the dimensions can be used for refinement, then:

- When you click a data point on the chart, the data is refined by both the all of the applicable dimension values.
- When you click a label on the category axis, the data is refined by that value only.
- When you click a legend entry, the data is refined by the that value only.

For example, if the data is grouped by sales year, then when you click the category axis label for 2010, the data is refined to only include records for 2010.

The selected value is added to the **Selected Refinements** component.

Chart dimension values may also allow for cascading. See [Using a component to refine data on page 34](#).

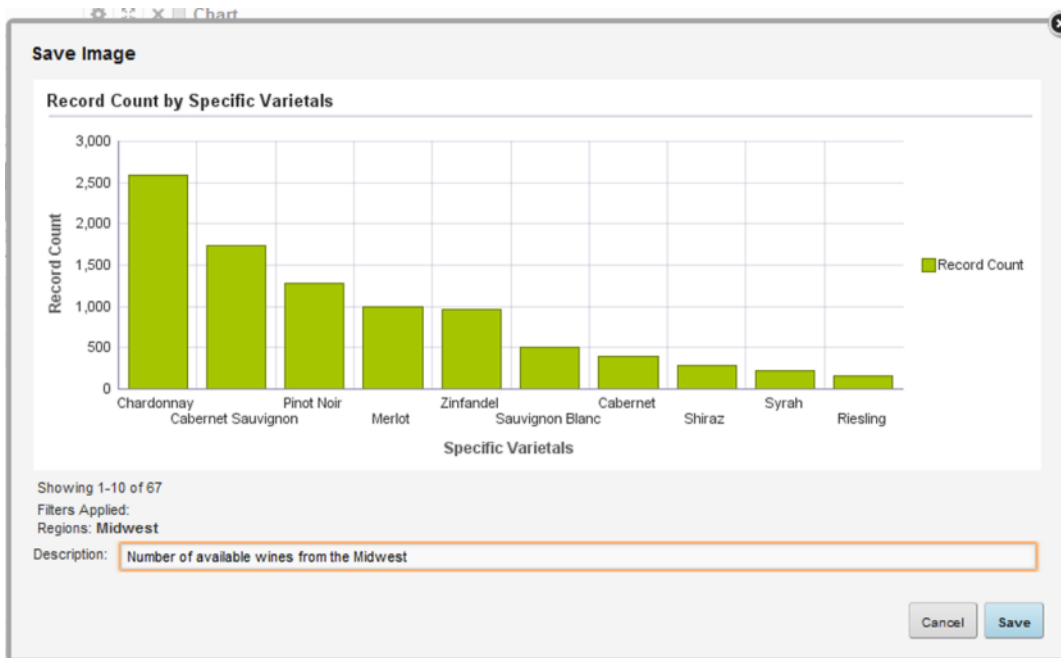
Saving an image of the chart

You can save an image of the currently displayed chart on the **Chart** component. The saved image uses the .png image format, and includes the current refinements to the chart data.

Note that Internet Explorer 8 does not support this option. If you are using Internet Explorer 8, then you cannot save a chart as an image.

To save an image of the **Chart** component:

1. From the **Actions** menu, select **Save Image**.
2. On the **Save Image** dialog, you can use the **Description** field at the bottom to provide an additional comment about the screen capture.



3. To save the image, click **Save**.

You are prompted to save or open the image. The default image name is `Endeca_Chart.png`.

Configuring the Chart component

For the **Chart** component, you can configure the chart data and the chart display options.

Configuring the color palette for the chart display

The colors used to display the charts are based on the framework setting `df.defaultChartColorPalette`.

The value of the setting is a comma-separated list between 16 and 30 hex color values.

For reference, the default value is:

```
#57BCC1, #F3A900, #A5C500, #9C2E5B, #C4B25D, #0072B1, #229903, #D55E00,
#F2D900, #A279CD, #ABDEE0, #AA7600, #D2E280, #6D2040, #E2D9AE, #00507C,
#91CC81, #954200, #F9EC80, #71548F, #3D8387, #F9D480, #738A00, #CE97AD,
#897C41, #80B9D8, #186B02, #EAAF80, #A99700, #D1BCE6
```

For details on how to configure framework settings, see the *Studio Administration and Customization Guide*.

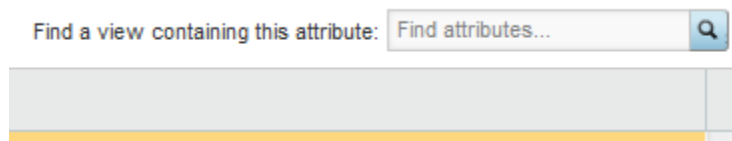
Selecting the source of the chart data

On the **Data Selection** tab, you select the view or views to use as the source of the chart data. You also determine the maximum number of records to display on the chart.

To select the view or views and configure the maximum records:

1. To select a single view to use for the chart, click its radio button.

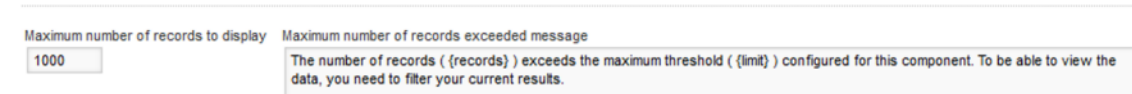
To search for a specific view based on an attribute found in that view, use the search field at the top right of the **Data Selection** tab.



You can also configure a chart to use data from more than one view. For details on configuring a chart to use multiple views, see [Configuring a chart to use data from multiple views on page 300](#).

For general information on selecting a view for a component, see [Selecting the view to use for a component on page 186](#).

2. In the **Maximum number of records to display** field, type the maximum number of records to display on the chart.



If the number is greater than this value, then the chart is not displayed, and an error message is displayed to the end user.

3. In the **Maximum number of records exceeded message** field, type the message to display when the number of records to process is greater than the number you specified.

In the message, you can use the following dynamic values:

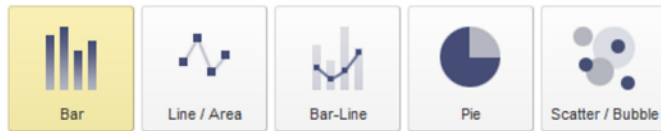
- `{records}` is replaced by the total number of records
- `{limit}` is replaced by the maximum number of records to display

Selecting the chart type and subtype for a new chart

On the **Chart Type** tab, you select the type of chart you want to create.

When you select a chart type, you may be prompted to also select the specific chart subtype within the selected type.

Select a chart type:



Bar charts allow side-by-side comparisons of values.



Basic bar charts display a cluster of vertical bars for each group dimension value.

On the **Chart Type** tab, to select the chart type and subtype:

1. Under **Select a chart type**, click the image representing the type of chart you want to create.
 - **Bar**
 - **Line/Area**
 - **Bar-Line**
 - **Pie**
 - **Scatter/Bubble**
2. If you selected the **Bar** chart type:
 - (a) Click the radio button to select the chart subtype:

Chart Subtype	Description
Basic bars	Displays each combination of series metric and series dimension values as a separate bar. The bars are clustered for each group dimension value.
Stacked bars	Displays a single bar for each group dimension value. Each bar contains a section for each combination of series metric and series dimension values.

Chart Subtype	Description
Percentage stacked bars	<p>Displays a single bar for each group dimension value. The bars are all the same height.</p> <p>Each bar contains a section for each combination of series metric and series dimension values.</p> <p>The size of each bar section reflects the percentage of the total series metric value for that combination of series metric and series dimension.</p> <p>You would use this if you are more interested in the relative values than the exact values.</p>

(b) Click the radio button to indicate whether to create vertical bars or horizontal bars.

3. If you selected the **Line/Area** chart type, click the radio button to select the chart subtype:

Chart Subtype	Description
Basic lines	<p>Displays a separate line for each combination of series metric and series dimension values.</p> <p>Each line has a data point for each group dimension value. If there are missing data points, then the line may have breaks or may be missing.</p>
Stacked area	<p>Displays a shaded area showing the total of the series metric values for each group dimension value.</p> <p>The shaded area is divided into sections for each combination of series metric and series dimension values.</p>
Percentage stacked area	<p>Displays a shaded area. The height of the shaded area is uniform.</p> <p>For each group dimension value, the shaded area is divided into sections to show the percentage of the total series metric value for each combination of series metric and series dimension value.</p>

4. If you selected the **Bar-Line** chart type, click the radio button to indicate whether to create a single axis or dual axis chart.

For a dual axis chart, the bars are plotted against the primary (left) value axis, and the lines are plotted against the secondary (right) value axis. Dual-axis charts are used to compare trends between metrics that have a different scale. For example, the gross sales may be in the millions of dollars, but the number of sales may only be in the thousands.

5. If you selected the **Pie** chart type, there are no subtypes.

6. If you selected the **Scatter/Bubble** chart type, click the radio button to select the chart subtype:

Chart Subtype	Description
Scatter	Displays a separate scatter point for each combination of color dimension and detail dimension values. Each color also uses a different shape. The scatter point locations reflect the associated X-axis and Y-axis metric values.
Bubble	Displays a separate bubble for each combination of color dimension and detail dimension values. The bubble locations reflect the associated X-axis and Y-axis metric values. The bubbles can also be different sizes to reflect the relative value of a third bubble size metric.

Changing the chart type for an existing chart

You can change the chart type for an existing chart. If the new chart type is compatible with the current chart type, then all of the chart configuration is maintained. If the new chart type is not compatible, Studio maintains as much of the configuration as possible.

All of the Bar and Line/Area chart types are compatible with each other. Bar-Line and Pie charts are only partially compatible with other chart types, so when you change to these chart types, you may lose some of the configuration options. For example, series dimensions are removed.

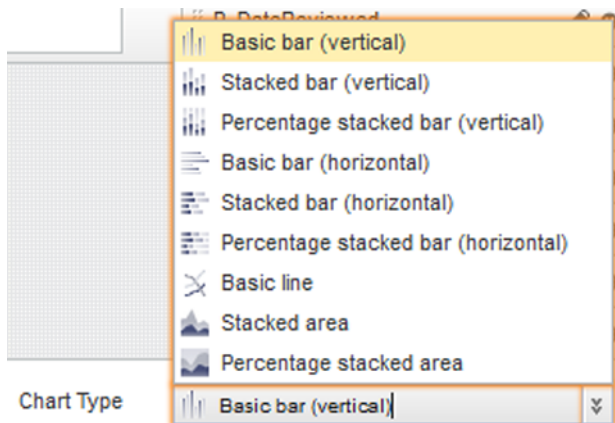
The **Chart Configuration** tab contains a **Chart type** drop-down list containing only the fully compatible chart types.

To select a non-compatible chart type, you must return to the **Chart Type** tab.

To change the chart type:

1. On the **Chart Configuration** tab, from the **Chart type** drop-down list, select the new type.

The drop-down list options include both the type and subtype.



2. On the **Chart Type** tab, click the new chart type, then select the chart subtype.

Configuring the data to display on the chart

The **Chart Configuration** tab contains settings for selecting and configuring the chart values.

Default configuration of the Chart component

When you first add a **Chart** component to the page, it uses a default configuration.

The default **Chart** component configuration:

- Is a basic vertical Bar chart
- Uses the base view of the default application data set
- For the chart metrics, allows end users to select from the first 20 available metrics in the view.

Each metric uses its default aggregation method.

The available metrics also include the Record Count system metric, which is selected by default.

- For the chart group (category axis) and series (color) dimensions, allows end users to select from the first 20 available dimensions in the view.

By default, the category axis displays the first dimension.

The chart is initially displayed with no color dimension selected. End users can then select a color dimension. The chart is also reset to display without a color dimension whenever the chart configuration is changed.

Selecting the available metrics and dimensions

You use the **Chart Configuration** tab to select the available metrics and dimensions to display on the chart.

The available options are based on the chart type:

Chart Type	Available Options
Bar and Line/Area	<p>Bar and Line/Area charts can display multiple metrics at the same time.</p> <p>Each option in the end user Metric drop-down list contains one or more metrics.</p> <p>Bar and Line/Area charts support both group dimensions (category axis) and series (color) dimensions.</p>
Bar-Line	<p>Bar-Line charts can display multiple bar and line metrics at the same time.</p> <p>Each option in the end user Metric drop-down list contains one or more bar metrics and one or more line metrics.</p> <p>Bar-Line charts only support group dimensions (category axis). They do not support series dimensions.</p>
Pie	<p>Pie charts can display one metric at a time.</p> <p>Pie charts only support group dimensions (wedge colors). They do not support series dimensions.</p>

Chart Type	Available Options
Scatter/ Bubble	<p>Scatter and bubble charts both support X-axis and Y-axis metrics. Only one X-axis and Y-axis metric can be used at a time.</p> <p>Bubble charts also support a third metric, the bubble size metric. Only one size metric can be used at a time.</p> <p>Bubble and scatter charts support color and detail dimensions.</p>

For information on selecting attributes for a component, see [Selecting the attributes to use on a component on page 187](#).

To populate the available metrics and dimensions for a chart:

- To add a metric to a chart, drag it from the list to the appropriate drop zone.
When you add a metric, a new empty slot is added to the metric group or metric list.
For metric groups, if needed, a new empty metric group is added.
For information on selecting the aggregation method for a metric, see [Selecting the aggregation method to use for a metric on page 189](#).
- To add a dimension to a chart, drag it from the list to the appropriate drop zone. When you add a dimension, a new empty slot is added to the list.
- To control the order in which metrics or dimensions are displayed in the end user drop-down list, drag and drop each item to the appropriate location in the list.
The item at the top of the list is selected by default when the chart is first displayed.
- To remove an item from a list, click its delete icon.
- To clear the entire chart configuration, and start over, click **Clear Configuration**.

For information on configuring columns for a chart that uses multiple views, see [Configuring a chart to use data from multiple views on page 300](#).

Configuring metric groups

For charts that can display multiple metrics at once, each option in the end user **Metric** drop-down list is a group of metrics. For each metric group, you can configure the labels to use in the drop-down list and on the data axis. You also configure the minimum and maximum values for the axis, and the format to use for the axis and tooltip values.

To configure a metric group:

- In the **Series Metrics** list, click the edit icon for the metric group.
- On the **Metric Group** dialog, under **Metric group display name**, the default setting uses a comma-separated list of the series metric display names. To provide a custom display name for the group:
 - Click the **Custom name** radio button.

- (b) In the field, type the display name.

3. If you are configuring a dual-axis Bar-Line chart, then you configure each axis separately. From the drop-down list, select the axis to work with.

4. Under **Axis title**, the default setting uses the metric group display name as the axis title. To provide a custom axis title:

- (a) Click the **Custom title** radio button.
 (b) In the field, type the axis title.

5. For charts other than Pie charts, you can configure the minimum and maximum values to display on the value axis.

If you know that your values always fall within a specific range, then setting a range can give the chart a consistent scale, even if the values are all large or all small. For example, because credit scores fall between 300 and 850, if you are displaying credit score values, you might want to set the minimum value to 300 and the maximum value to 850.

Under **Limit metric axis range**:

- (a) To have the chart set the maximum value, click the **Automatically determine maximum value to display** radio button.

- (b) To set a specific maximum value, click the **Customize maximum value to display** radio button. In the field, enter the maximum value.
 - (c) To have the chart set the minimum value, click the **Automatically determine minimum value to display** radio button.
 - (d) To set a specific minimum value, click the **Customize minimum value to display** radio button. In the field, enter the minimum value.
6. Under **Axis and Tooltip Formats**, use the **Value Formatting** fields to specify the metric value format.

The screenshot shows the 'Value Formatting' configuration panel. At the top, it displays 'Sample formatting (United States | English): \$1.23M / (\$1.23M)'. Below this, there are several settings:

- Include currency symbol:** A dropdown menu set to 'use default'.
- Decimal places:** Radio buttons for 'use default' (selected), 'automatic', and a text input field for '2' digits.
- Automatic number scaling:** Radio buttons for 'on' (selected) and 'off'.
- Include grouping separator:** A dropdown menu set to 'use default'.

At the bottom of the panel, there is a link for 'Advanced Formatting'.

For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 190](#).

For the **Chart** component, the formatting configuration includes whether to automatically scale numbers. For example, if automatic scaling is enabled, the value 1,500 might display as 1.5K.

By default, automatic scaling is enabled. To always display the actual value without scaling, under **Automatic number scaling**, click the **off** radio button.

7. To save the configuration, click **Apply**.

Configuring dimensions

For each available dimension, you can configure whether to allow refinement by the dimension values, and whether to allow cascading of the dimension. For multi-value dimensions, you can also choose how to use the values for aggregation.

To configure a dimension:

1. On the **Chart Configuration** tab, click the edit icon for the selected dimension.
2. For a date-time attribute, you can select the date-time subset to display.
By default, the chart uses the largest available data-time subset.
3. Under **Show values**, select how to display the dimension values if the dimension has a hierarchy of values.

The default option is **Use hierarchy**, which indicates to only display one level of the hierarchy at a time. When the chart is first displayed, it only shows the top level of the hierarchy. When end users refine by a value, the next level of values is then displayed.

To display the specific values assigned to records, regardless of the hierarchy level, select **Ignore hierarchy**.

4. You use the **Attribute Cascade** section to configure the dimension cascade.

For details on configuring a dimension cascade, see [Configuring cascading for dimension refinement on page 201](#).

5. If the dimension is a multi-value attribute, then under **Multi-Value Dimension Behavior**, click a radio button to indicate how to aggregate by the dimension values.

To aggregate by each individual value, click **Group by individual values**. This is the default value.

To aggregate by the specific sets of values assigned to the records, click **Group by set**.

For example, in the following set of records, the Color attribute is multi-value:

Record	Color	Sales
Record 1	Blue, White, Red	\$15
Record 2	Blue	\$10
Record 3	Red, White	\$25
Record 4	Blue, White	\$20
Record 5	Red, White	\$10

If you create a chart with Color as the dimension, and Sales (sum) as the metric, then:

- If you group by individual values, the chart data would be:

Color	Sales (sum)
Blue	\$45
Red	\$50
White	\$70

- If you group by set, then the chart data would be:

Color	Sales (sum)
Blue, White, Red	\$15
Blue	\$10
Red, White	\$35
Blue, White	\$20

6. To save the dimension configuration, click **Apply**.

Configuring a chart to use data from multiple views

You can configure a chart to use data from multiple views. For example, you can allow users to see both the total sales per product line from the Sales view, and the total number of products per product line from the Products view.

When you create a chart against multiple views, then each available dimension is actually a group of dimensions, with a dimension from each of the views. The dimensions must either:

- Have the same values
- Be date/time attributes that support the same subsets of date/time units.

For example, if the date/time attribute from one view only supports Year and Year-Month, and the date/time attribute from the other view only supports Month and Day-of-Month, then these two attributes cannot be used together in a multi-view chart.

On the end user view, the dimension drop-down list contains a single entry for each dimension group.

To create a chart from multiple views:

1. On the **Data Selection** tab:
 - (a) Check the **Enable charting across multiple views** checkbox.

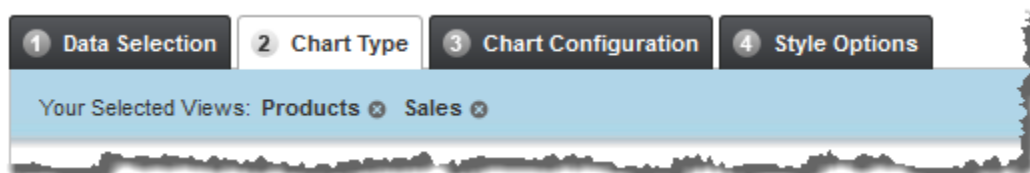
When this checkbox is checked, the radio buttons for selecting the view are changed to checkboxes, and the default chart configuration is cleared.

View Name	Type	Data Set(s)
<input checked="" type="checkbox"/> Employees ?	Base	Employees
<input type="checkbox"/> Products ?	Base	Products
<input type="checkbox"/> Resellers ?	Base	Resellers
<input type="checkbox"/> Sales ?	Base	Sales
<input type="checkbox"/> Employee Summary ?	Custom	Employees
<input type="checkbox"/> Product Sales ?	Custom	Sales, Products
<input checked="" type="checkbox"/> Enable charting across multiple views		

- (b) Check the checkbox next to each view you want to use.

A warning is displayed if the views do not have corresponding attributes to use as dimensions.

When more than view is selected, then the selected views are displayed at the top of each of the configuration tabs.



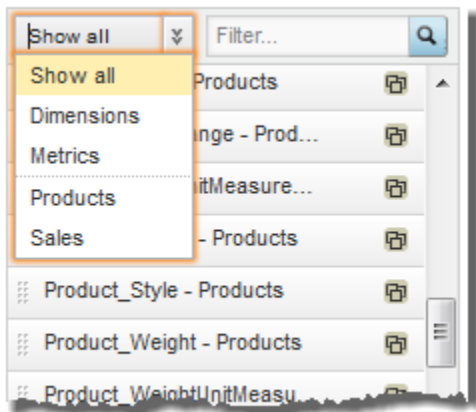
From the **Data Selection** tab, to remove a view from the selected views, uncheck its checkbox. On the other tabs, in the list of selected views, click the delete icon for that view.

If you remove a view, then Studio automatically removes from the chart configuration selected attributes from that view.

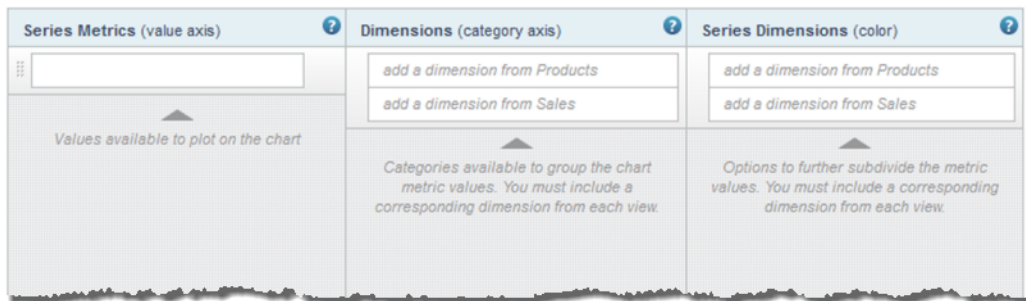
2. On the **Chart Configuration** tab, if multiple views are selected, then the attribute list contains the available attributes from all of the selected views.

The view name is displayed after each attribute name.

The filter drop-down list allows you to narrow the list to only display items from a specific view.



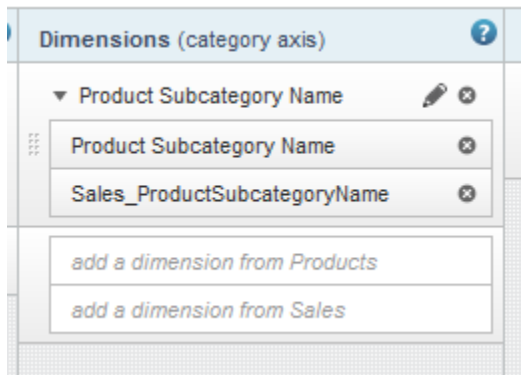
3. You can add metrics from any of the available views.
4. For each dimension option, you must provide a dimension from each of the views.



If you select a dimension that is identical (has the same name and values) in all of the dimensions, then when you select one of those dimensions, the dimensions from the other views are selected automatically.

If you select a dimension that belongs to a refinement rule, then the other dimensions from the refinement rule are selected automatically.

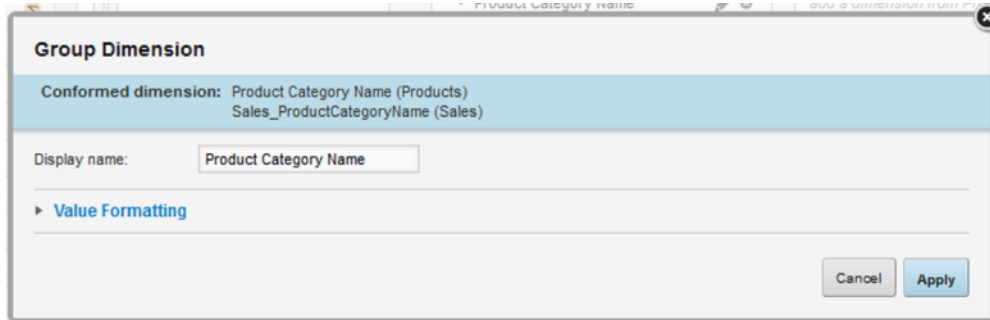
Otherwise, you must manually select a dimension from each view.



Studio displays warnings if the selected dimensions do not have corresponding values.

5. For a multi-view chart, the configuration for dimensions is at the group level. To configure a dimension group for a multi-view chart:
 - (a) Click the edit icon for the dimension group. At the top of the configuration dialog is the list of dimensions selected.
 - (b) In the **Display name** field, set the text of the dimension option in the end user drop-down list.

The value is initially set to the display name of the first dimension added.



- (c) The remaining configuration is the same as for dimensions in single-view charts, except that multi-view charts do not support cascading.

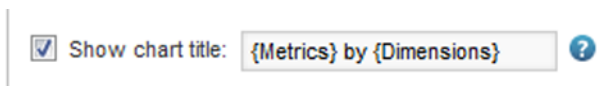
Configuring the display of the chart title

At the bottom of the **Chart Configuration** tab are fields for configuring the display of the chart title. The title can include variables to display the names of the current metrics and dimensions.

The chart title, if displayed, is above the chart.

To configure the chart title:

1. To display a title for the chart, check the **Show chart title** checkbox.



2. In the text field, enter the title to display.

In the title text, you can use the following dynamic values:

- `{Metrics}`, to show all of the current metrics
- `{Dimensions}`, to show all of the current dimensions. This includes both group and series dimensions.
- `{Group}`, to show the current group dimension
- `{Series}`, to show the current series dimension. Remember that end users can choose to remove the series dimension, in which case this value will be empty.
- `{X-Metric}`, to show the current X-axis metric. This can only be used for Scatter/Bubble charts.
- `{Y-Metric}`, to show the current Y-axis metric. This can only be used for Scatter/Bubble charts.

For example, `{Metrics}` for each `{Group}` and `{Series}` might display as "Sales (sum) for each Region and Product Line".

The default is `{Metrics}` by `{Dimensions}`, which might display as "Sales (sum) by Region, Product Line".

Configuring the chart sorting and pagination

For each chart, you can determine the default display order for the chart results and whether to limit the number of results displayed at one time. If the number of results displayed is limited, you can allow end users to page through the chart results.

The chart types have the following sorting options and pagination behavior:

Chart Type	Available Items to Sort By	How Paging Works
Bar	Group dimension value First metric value	Paging is scrolling left/right (for vertical charts) or up/down (for horizontal charts) to show the previous/next set of bars.
Line/Area	Group dimension value First metric value	Paging is scrolling left/right to see the previous/next portion of the line or shared area.
Bar/Line	Group dimension value First bar metric value First line metric value	Paging is scrolling left/right to show the previous/next bars and line portions.
Pie	Dimension value Metric value	No paging available. Users can only use the sort option to see the top or bottom set of values.

Chart Type	Available Items to Sort By	How Paging Works
Bubble	Size metric values If there is no bubble size metric, then end users cannot change the sort order.	No paging available. If the number of values displayed is limited, users can only use the sort option to see the top or bottom set of bubbles.
Scatter	No sorting available	No paging available

To configure the sorting and pagination for a chart:

1. On the **Chart Configuration** tab, click **Sort options**.
2. From the default sort drop-down list, select the default sort order. The default includes both the item to sort by and whether to sort in ascending or descending order.

Note that for bubble charts, the drop-down list is only enabled if you are limiting the number of bubbles to display. If you do not limit the number of bubbles, then the chart is automatically sorted using the size metric value in descending order.

3. To allow end users to change the sort order, check the **Enable end user sorting** checkbox.
4. To limit the number of results displayed on the chart at a time, check the limit number displayed checkbox.

If the box is checked, then the remaining pagination settings are enabled.

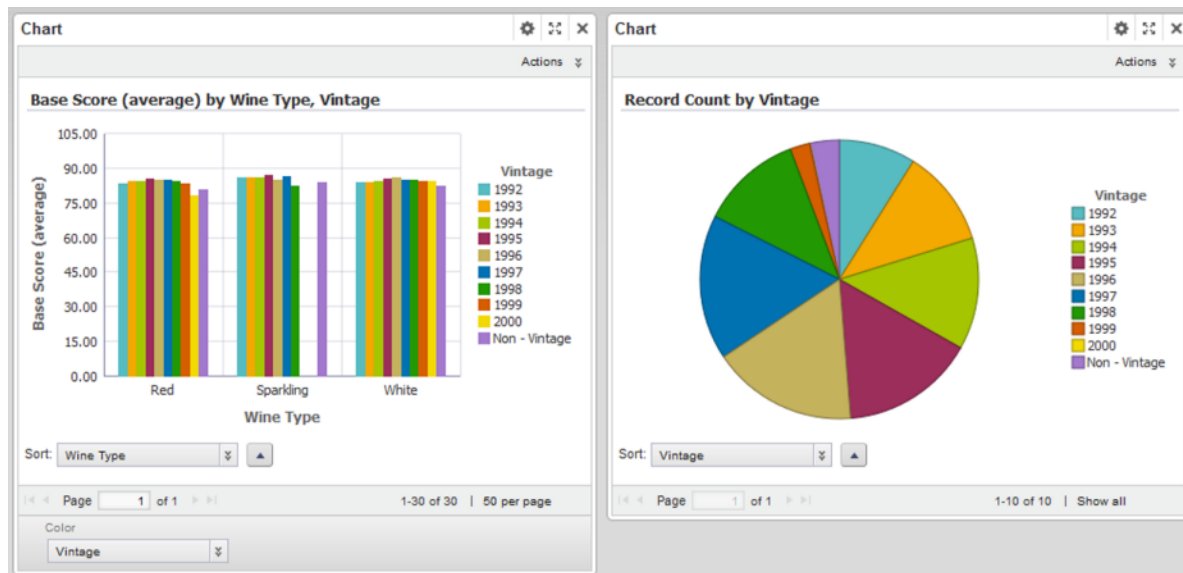
5. If you are limiting the number of results displayed at a time, then to not allow users to change the displayed number of items:
 - (a) Click the **Fixed number** radio button.
 - (b) In the field, type the number of results.
6. To provide a list of options for users to select the number of results to display per page:
 - (a) Click the **Enable end user to change** radio button.
 - (b) In the number of results options field, type a comma-separated list of options.
 - (c) From the default number of results drop-down list, select the default value to use.
7. To save the sorting and pagination configuration, click **Apply**.

Enabling color pinning for the chart dimension values

On the **Configuration** tab of the **Chart** component edit view, the **Enable chart color pinning** checkbox determines whether Studio always uses the same color for each dimension value.

If the box is checked, then a dimension value is always displayed using the same color. Within the chart, the color stays the same when users refine the application data. The color is also consistent across all chart components that use color pinning.

For example, for a chart that displays values for a **Vintage** dimension, the chart element (such as a bar, line, or pie chart wedge) representing 1992 is the same color on all charts that use color pinning.



If not checked, then the dimension value color on a chart can change when users refine the data. For **Chart** components that do not use color pinning, the color of a dimension value may be different on each chart.

The component uses the color palette defined by the framework setting `df.defaultChartColorPalette`. The default palette has 30 color values, but can be set to between 16 and 30 values. See [Configuring the color palette for the chart display on page 290](#).

If color pinning is enabled, then while each dimension value always displays in the same color, it may be possible for colors to repeat:

- If the number of values for the dimension is less than or equal to the number of values in the color palette, then Studio can assign a unique color to each value, and the colors are never repeated.

- If the number of values for the dimension is greater than the number of values in the color palette, then the same color may be used for more than one value.

For example, when the default color palette is used, if there are fewer than 30 values for the Vintage dimension, then each vintage displays using a unique color. If there are more than 30 vintages, then 1992 and the 2001 could display using the same color.

The colors are assigned based on the total number of values for the dimension, not on the number of values for the current refinement. So even if the data is refined to include a smaller number of values, if the total number is greater than the number of values in the palette, you may still see repeated colors.

If the chart configuration cannot support color pinning, then color pinning is disabled automatically. The following configurations do not allow color pinning:

- Bar charts that do not have color dimensions
- Bar-line charts
- Any chart that displays groups of multiple metrics

Configuring other chart display and style options

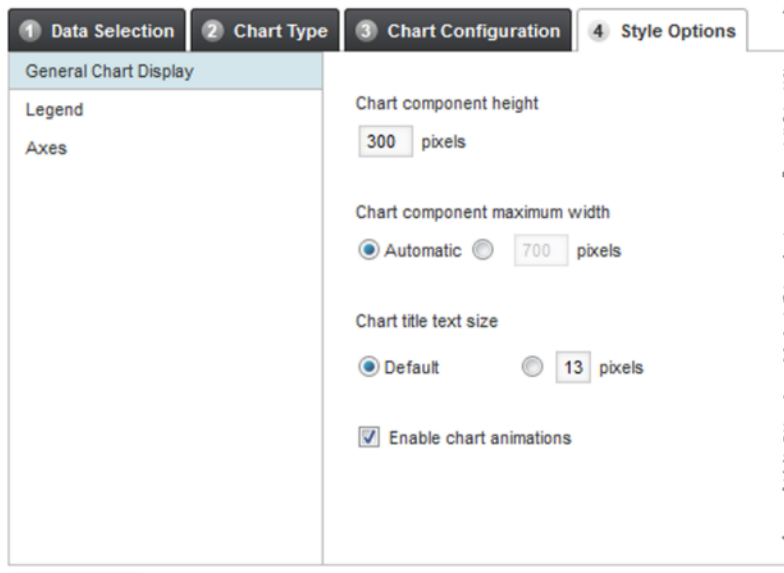
From the **Style Options** tab, you can configure the chart size, legend, and axis settings.

Configuring general chart display

The chart edit view includes settings to configure the size of the **Chart** component, the size of the chart title text, and whether to animate the chart display.

On the **Style Options** tab, to configure the chart size options:

1. Click the **General Chart Display** section heading.



2. In the **Chart component height** field, type the height in pixels for the component.

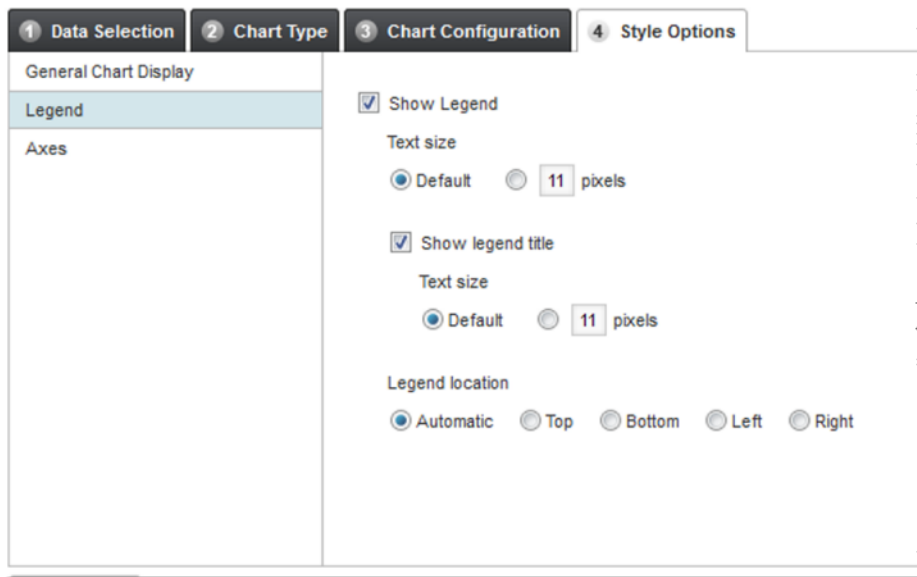
3. Under **Chart component maximum width**, to set the maximum width for the component:
 - To have the size set automatically, click the **Automatic** radio button.
 - To set a custom maximum size, click the other radio button, then in the field, type the size in pixels.
4. Under **Chart title text size**, to set the size of the chart title text:
 - To use the default size, click the **Default** radio button.
 - To set a custom size, click the other radio button, then in the field, type the size in pixels.
5. The **Enable chart animations** checkbox determines whether the end user view uses animations to display the chart. For example, for a bar chart, the bars can rise up from the category axis.
 To enable these animations, check the checkbox.
 To disable the animations, uncheck the checkbox.

Configuring the chart legend

The chart legend identifies by color each displayed data series. Each pie wedge, bar section, line, or shaded area is represented by an item on the legend.

On the **Style Options** tab, to configure the legend for the chart:

1. Click the **Legend** section heading.



2. To display the legend on the chart, check the **Show Legend** checkbox.
 If the box is unchecked, then there is no legend on the chart.
3. If the legend is displayed, then:
 - (a) Under **Text size**, indicate how to determine the size of the legend text.
 To use the default text size for the legend, click the **Default** radio button. This is the default setting.

To specify a text size, click the other radio button, then in the field, type the size in pixels.

- (b) To display a title for the legend, click the **Show legend title** checkbox.
- (c) If the title is displayed, then under **Text size**, indicate how to determine the size of the legend title.
- (d) Under **Legend location**, click the appropriate radio button to indicate where on the chart to display the legend.

To have the location set automatically based on the size and configuration of the chart, click the **Automatic** radio button. This is the default setting.

You also can display the legend above the chart (**Top**), below the chart (**Bottom**), to the left of the chart (**Left**), or to the right of the chart (**Right**).

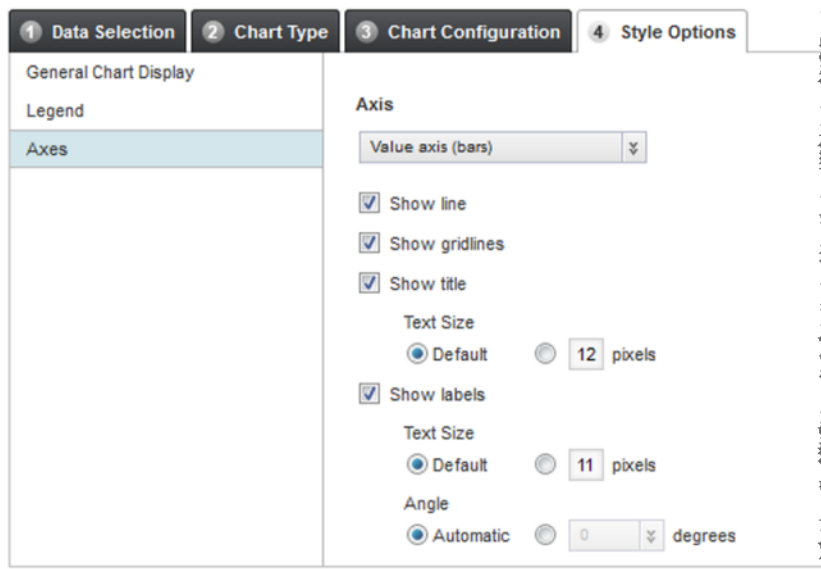
If the legend is at the left or right, then it becomes scrollable if there are too many items to display at once. Legends above or below the chart do not scroll.

Configuring the chart axis display options

For each axis on a Bar, Line/Area, Bar-Line, or Scatter/Bubble chart, you can configure how the axis displays. This includes whether to display lines, gridlines, titles, and labels. For a Pie chart, there is no axis configuration.

On the **Style Options** tab, to configure the display of each axis:

1. Click the **Axes** section heading.



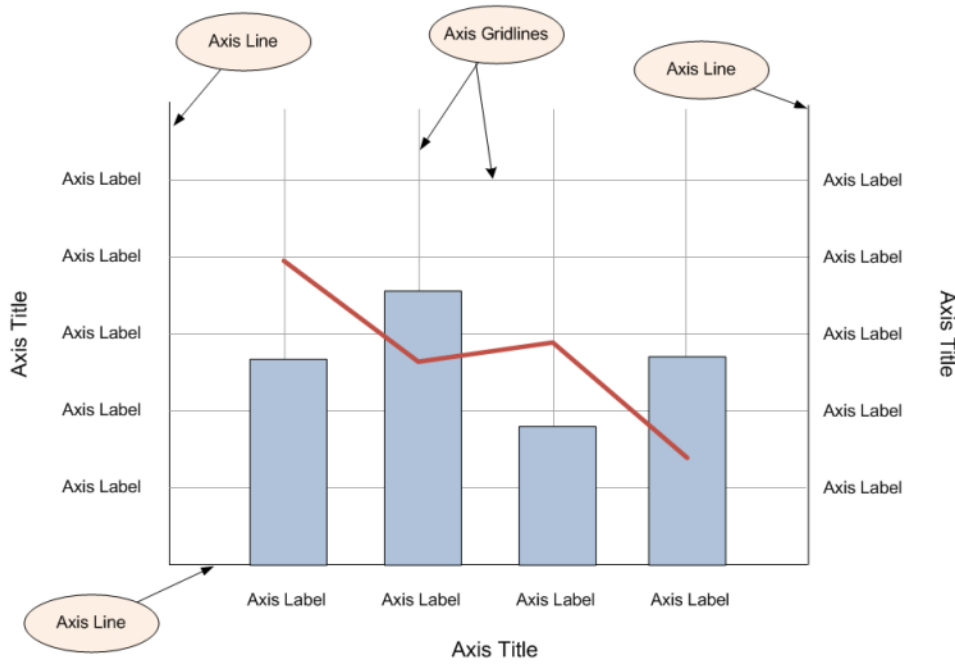
2. From the **Axis** drop-down list, select the axis you want to configure.

For Bar, Line/Area, and Bar-Line chart types, the options are:

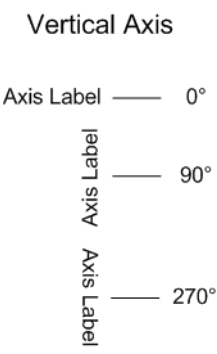
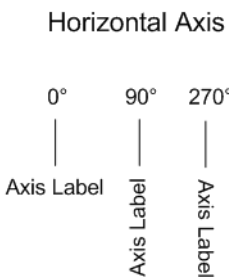
- **Value axis** - the axis for the series metric values. This is usually the left vertical axis, except for horizontal Bar charts, where it is the horizontal axis.
- **Secondary Value axis** - only displayed for dual-axis Bar-Line charts. This is the right vertical axis.
- **Category axis** - the axis for the group dimension values. This is usually the horizontal axis, except for horizontal Bar charts, where it is the vertical axis.

For Scatter/Bubble charts, the options are **X axis** and **Y axis**.

3. For each axis, the settings are:



Setting	Description
Show line	If this checkbox is checked for an axis, then the chart displays a line for that axis.
Show gridlines	If this checkbox is checked for an axis, then the chart displays gridlines for the axis.
Show title	If this checkbox is checked for an axis, then the chart displays a title for the axis. If you are displaying the axis title, then use the Text size setting to determine the size of the axis title text.

Setting	Description
<p>Show labels</p>	<p>If this checkbox is checked for an axis, then labels are displayed on the axis.</p> <p>For the category axis, the labels are the group dimension values. For the value axes, the labels are interval values based on the scale needed for the displayed series metric values.</p> <p>If you are displaying the axis labels, then:</p> <ul style="list-style-type: none"> • Use the Text size setting to determine the size of the label text. • Use the Angle setting to determine the angle of the label text. <p>If you do not have Studio automatically determine the angle, then the available values are 0, 90, and 270.</p> <p>The angles work as follows:</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Vertical Axis</p>  </div> <div style="text-align: center;"> <p>Horizontal Axis</p>  </div> </div>

Sample charts

Here are examples of each of the chart types. Each example includes the selected data and the resulting chart display.

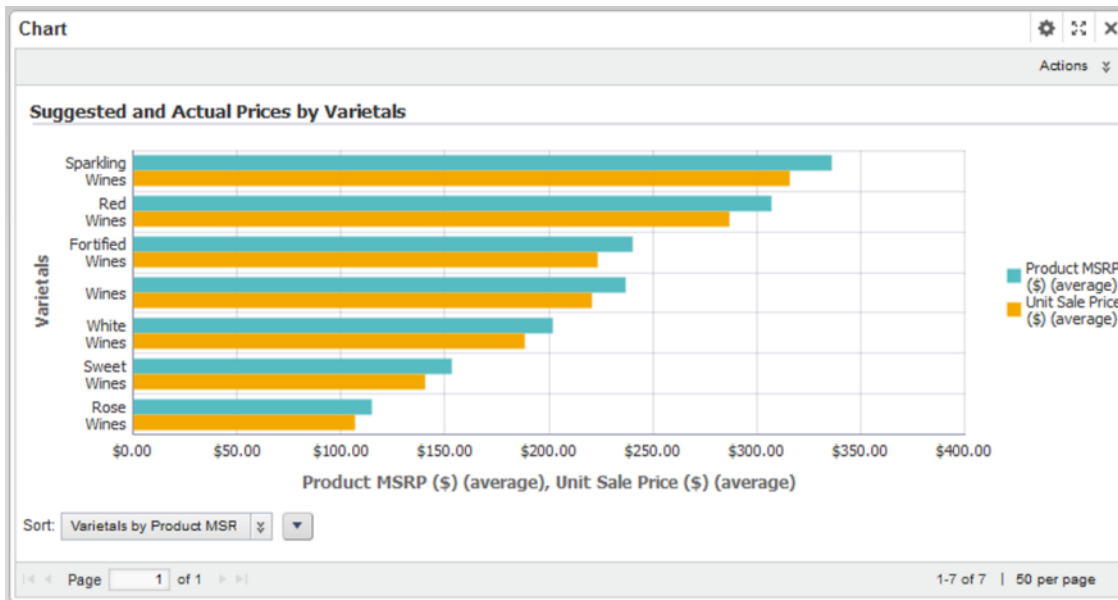
About the sample chart data

The data for the sample charts contains transaction information from a wine distributor. For the purposes of these examples, we won't be using any predefined metrics.

Basic bar chart example

Here is an example of a basic bar chart.

The chart compares the suggested and actual prices for each varietal.



The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Bar (Basic Horizontal)
Series metric (aggregation)	Product MSRP (\$) (average) Unit Sale Price (\$) (average)
Group dimension	Varietals
Series dimension	No series dimension
Sorting	First metric high to low

Stacked bar chart example

Here is an example of a stacked bar chart.

The chart shows the total gross sales for the last several years. The gross sales figures are subdivided by business type. This stacked bar allows users to compare the totals across the years.



The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Bar (Stacked Vertical)
Series metric (aggregation)	Gross (\$) (sum)
Group dimension	Booking Year
Series dimension	Business Types
Sorting	Group dimension A to Z

Percentage stacked bar chart example

Here is an example of a percentage stacked bar chart.

Like the other stacked bar example, this chart also shows the total gross sales for each year, divided by business type.

However, with the percentage stacked bar, instead of comparing the total values, users compare the relative percentages for each business type across the years. They could then see, for example, that the percentage

of sales from grocery stores remained fairly constant, while the percentage from wine stores changed significantly.



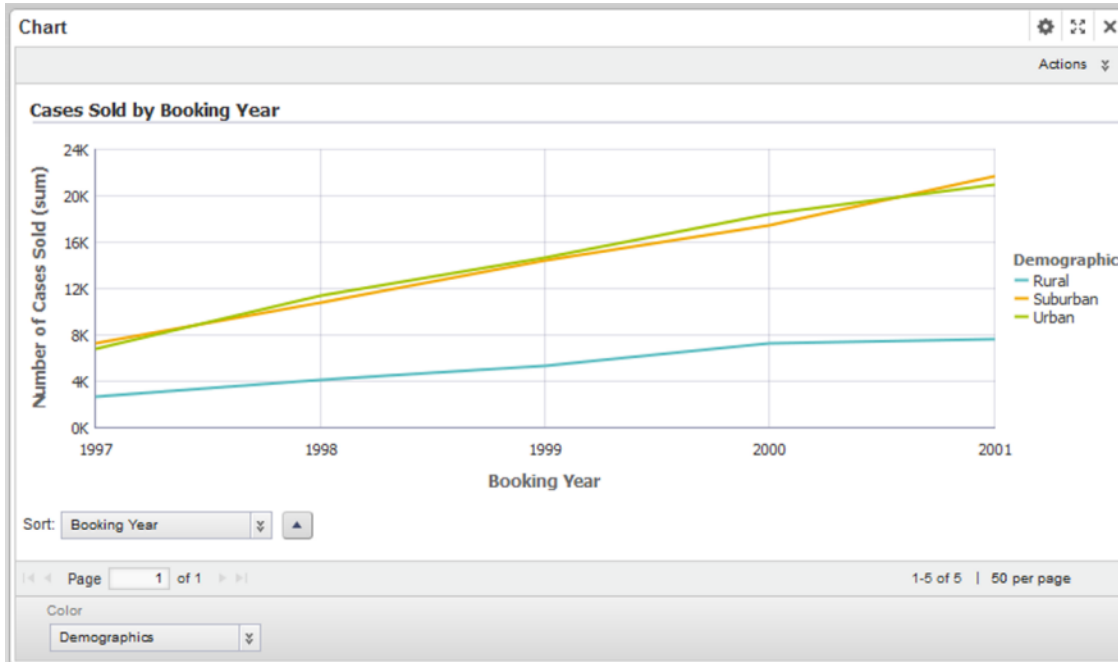
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Bar (Percentage Stacked Vertical)
Series metric (aggregation)	Gross (\$) (sum)
Group dimension	Booking Year
Series dimension	Business Types
Sorting	Group dimension A to Z

Line chart example

Here is an example of a basic line chart.

This chart shows the number of cases sold for each booking year for each demographic.



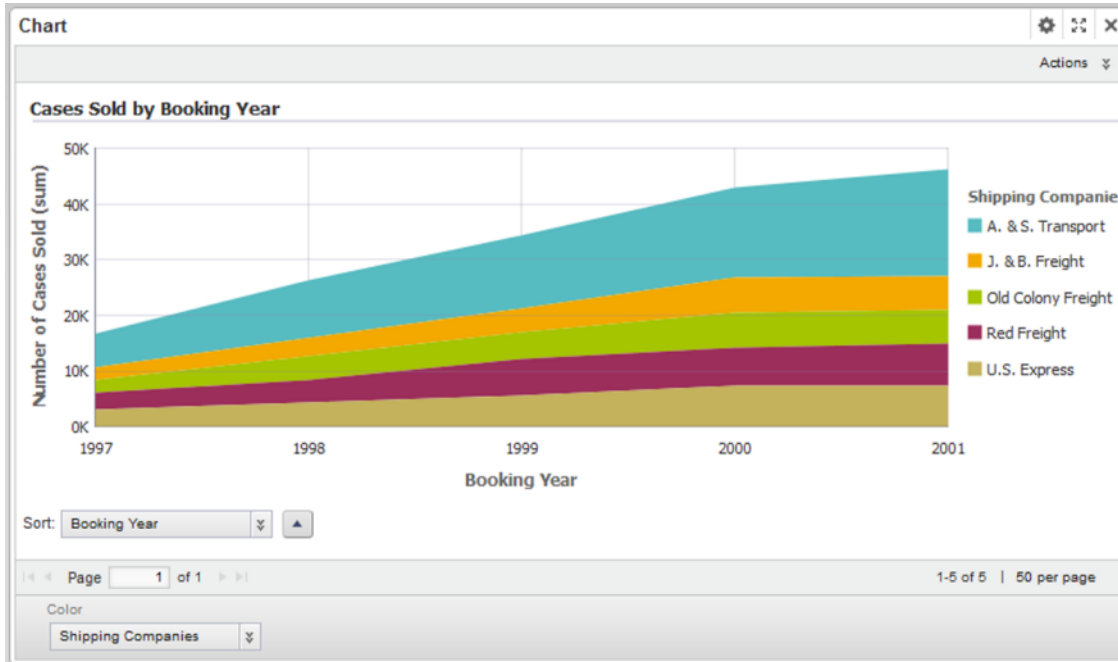
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Line
Series metric (aggregation)	Number of Cases Sold (sum)
Group dimension	Booking Year
Series dimension	Demographics
Sorting	Group dimension A to Z

Stacked area chart example

Here is an example of a stacked area chart.

This chart shows the number of cases sold for each shipping company for each booking year.



The configuration for this chart is:

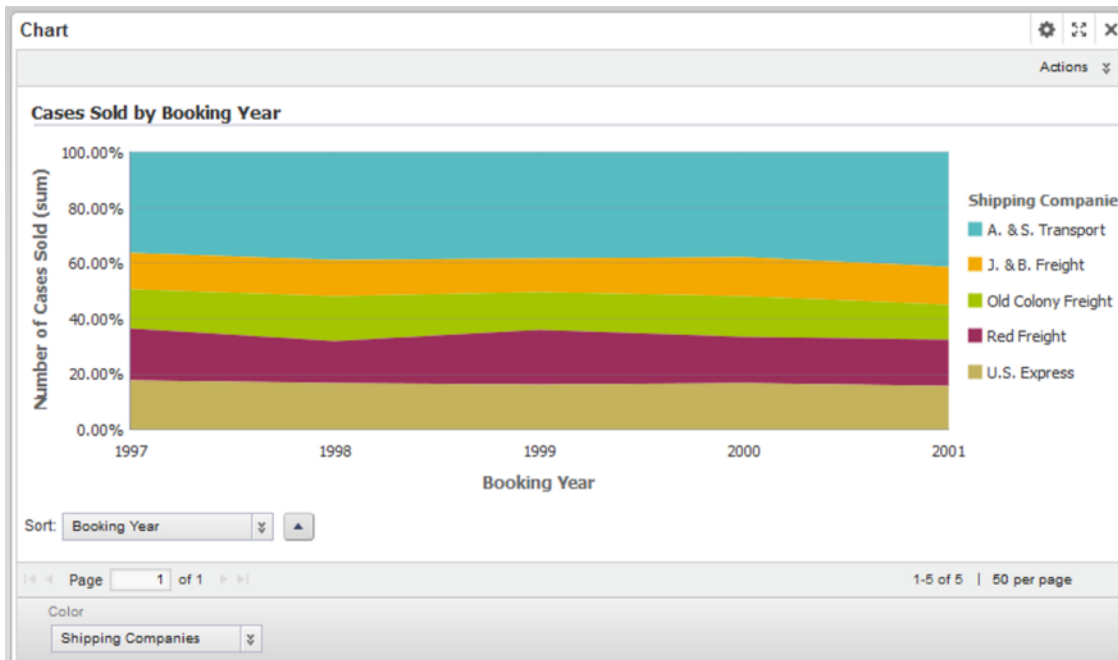
Chart Setting	Value
Chart type (Subtype)	Area (Stacked)
Series metric (aggregation)	Number of Cases Sold (sum)
Group dimension	Booking Year
Series dimension	Shipping Companies
Sorting	Group dimension A to Z

Percentage stacked area chart example

Here is an example of a percentage stacked area chart.

Like the other stacked area example, this chart also shows the number of cases sold for each year, divided by shipping company.

However, with the percentage stacked area, instead of comparing the total values, users compare the relative percentages for each shipping company across the years.



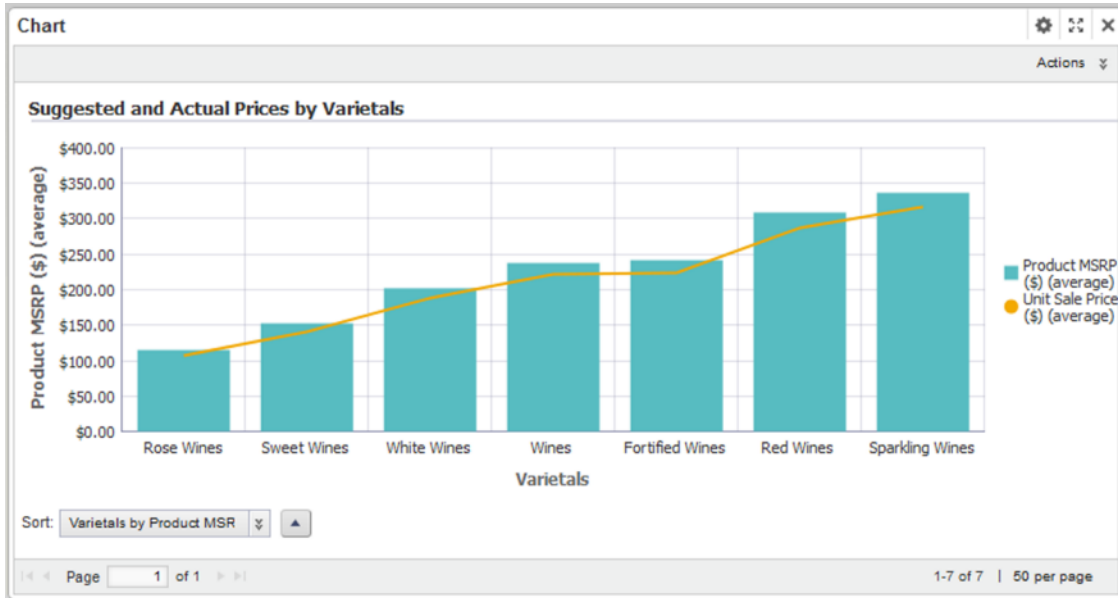
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Area (Percentage Stacked)
Series metric (aggregation)	Number of Cases Sold (sum)
Group dimension	Booking Year
Series dimension	Shipping Companies
Sorting	Group dimension A to Z

Single axis bar-line chart example

Here is an example of a single axis bar-line chart.

This chart shows the suggested and actual price for each varietal.



The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Bar-Line (Single axis)
Bar series metric (aggregation)	Product MSRP (\$) (average)
Line series metric (aggregation)	Unit Sale Prices (\$) (average)
Group dimension	Varietals
Sorting	First bar metric low to high

Dual axis bar-line chart example

Here is an example of a dual axis bar-line chart.

This chart shows the gross sales and the number of cases sold for each booking year.



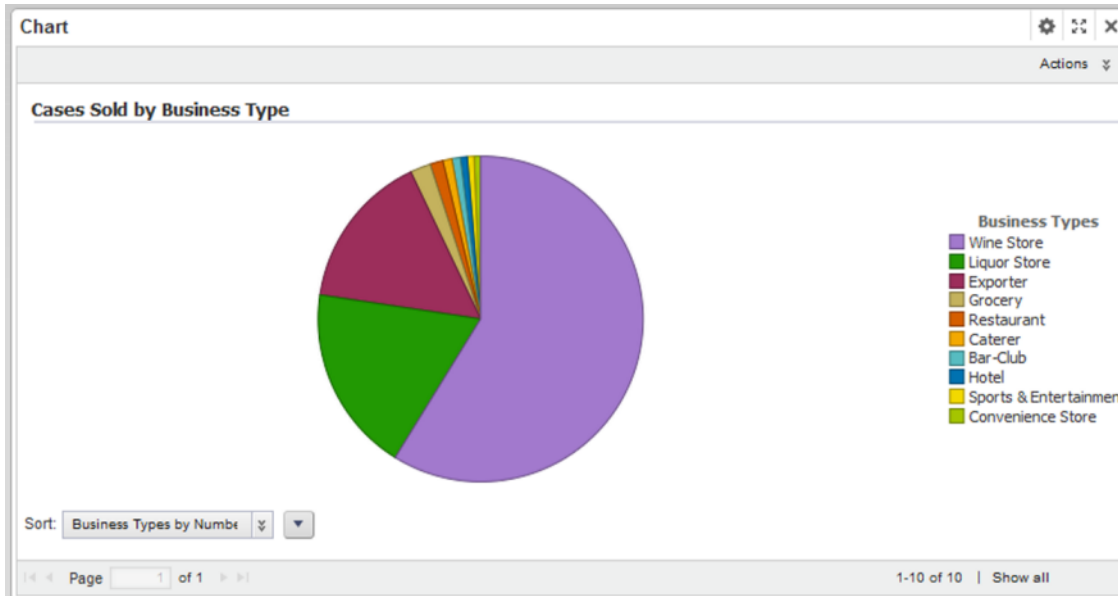
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Bar-Line (Dual axis)
Bar series metric (aggregation)	Number of Cases Sold (sum)
Line series metric (aggregation)	Gross (\$) (sum)
Group dimension	Booking Year
Sorting	Group dimension A to Z

Pie chart example

Here is an example of a pie chart.

This chart shows the number of cases sold for each business type. This is good for an overview of the relative market share for each business type, rather than comparing the exact number of cases.



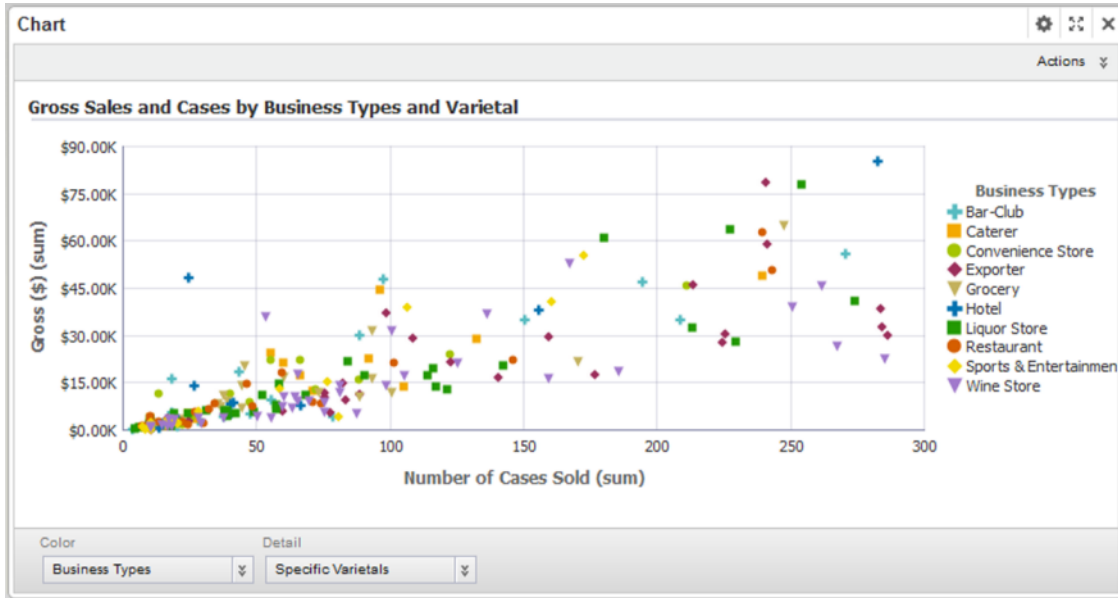
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Pie
Series metric (aggregation)	Number of Cases Sold (sum)
Group dimension	Business Types
Sorting	Metric value high to low

Scatter chart example

Here is an example of a scatter chart.

The chart shows the gross sales and number of cases sold for each business type and varietal.



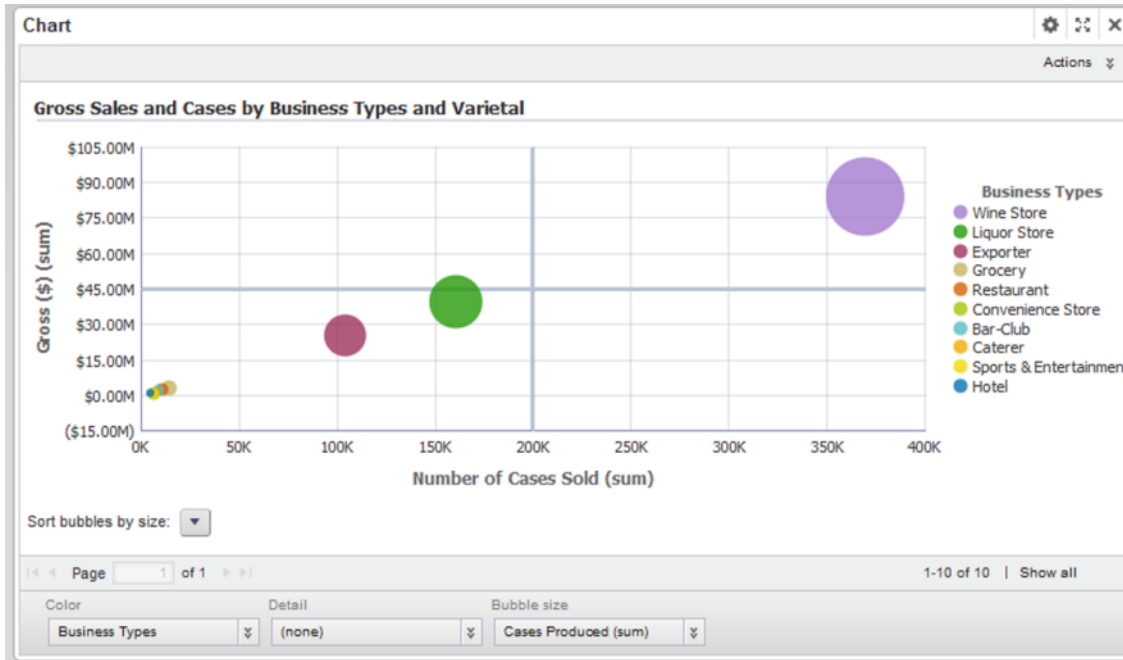
The configuration for this chart is:

Chart Setting	Value
Chart type (subtype)	Scatter/Bubble (Scatter)
X axis metric (aggregation)	Number of Cases Sold (sum)
Y axis metric (aggregation)	Gross \$ (sum)
Dimension (color)	Business Types
Dimension (detail)	Specific Varietals
Sorting	The data points are not sorted, but the legend displays the color dimension values in alphabetical order.

Bubble chart example

Here is an example of a bubble chart.

The chart shows the gross sales and number of cases sold for each business type and varietal. The bubble size reflects the number of cases produced.



The configuration for this chart is:

Chart Setting	Value
Chart type (subtype)	Scatter/Bubble (Bubble)
X axis metric (aggregation)	Number of Cases Sold (sum)
Y axis metric (aggregation)	Gross (\$) (sum)
Size metric (aggregation)	Cases Produced (sum)
Dimension (color)	Business Types
Dimension (detail)	Varietals
Sorting	Size metric descending

Map

The **Map** component displays one or more sets of geographic locations.

[About the Map component](#)

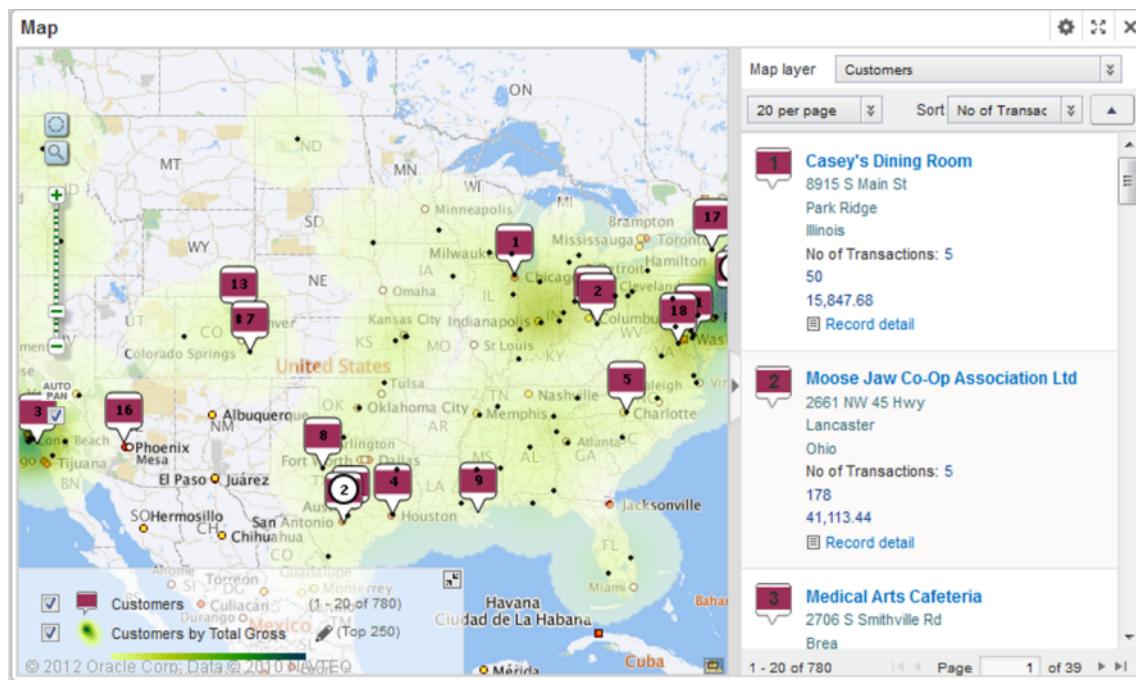
[Configuring the connection to Oracle MapViewer](#)

[Using the Map component](#)

[Configuring the Map component](#)

About the Map component

The **Map** component allows users to analyze data based on geographic location. It can only be used if the data contains at least one geospatial attribute.



Configuring the connection to Oracle MapViewer

The **Map** component uses Oracle's MapViewer (version 11g, patch set 5 or later) to display the map. Studio includes framework settings to configure the connection to MapViewer.

By default, Studio is configured to use the public instance of MapViewer. If you are using that instance, and your browser has access to the Internet, then you should not need to make any configuration changes.

Studio includes the following framework settings related to the MapViewer connection. If you are using your own instance of MapViewer, or if your browser does not have Internet access, then you will need to change

these settings. For details on configuring framework settings in Studio, see the *Studio Administration and Customization Guide*.

Framework Setting	Description
df.mapLocation	<p>The URL for the MapViewer eLocation service.</p> <p>The eLocation service is used for the text location search, to convert the location name entered by the user to latitude and longitude.</p> <p>By default, this is the URL of the global eLocation service.</p> <p>If you are using your own internal instance, and do not have Internet access, then set this setting to "None", to indicate that the eLocation service is not available. If the setting is "None", Studio disables the text location search.</p> <p>If this setting is not "None", and Studio is unable to connect to the specified URL, then Studio disables the text location search.</p> <p>Studio then continues to check the connection each time the page is refreshed. When the service becomes available, Studio enables the text location search.</p>
df.mapViewer	<p>The URL of the MapViewer instance.</p> <p>By default, this is the URL of the public instance of MapViewer.</p> <p>If you are using your own internal instance of MapViewer, then you must update this setting to connect to your MapViewer instance.</p>
df.mapTileLayer	<p>The name of the MapViewer Tile Layer.</p> <p>By default, this is the name of the public instance.</p> <p>If you are using your own internal instance, then you must update this setting to use the name you assigned to the Tile Layer.</p>


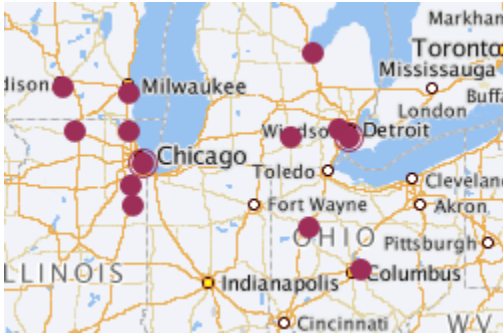
Using the Map component

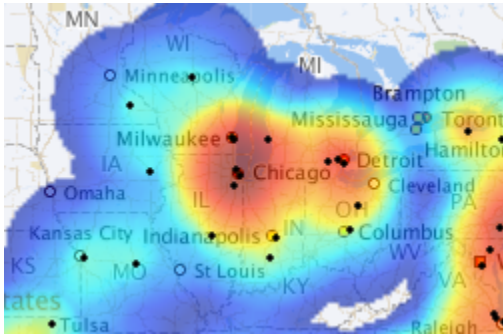
You use the **Map** component to view geographic locations.

Types of map layers

Each **Map** component is configured with one or more map layers. Each map layer uses a specific layer type.

The available map layer types are:

Layer Type	Description
<p>Numbered point layer</p>	<p>A numbered point layer displays a numbered point for each location on the map.</p>  <p>The layer includes a separate list containing the details for each point.</p> <p>The Map component can display multiple numbered point layers at the same time, with color used to differentiate the layers.</p>
<p>Point layer</p>	<p>A point layer displays a point for each location on the map.</p>  <p>The Map component can display multiple point layers at the same time, with color used to differentiate the layers.</p>

Layer Type	Description
Heat map layer	<p>A heat map layer can display:</p> <ul style="list-style-type: none"> • A point for each location on the map. • A shaded cloud with color gradients to show either the relative density of the points on the map, or the change in an associated metric value between locations. The cloud colors are also reflected on the map points.  <p>You can choose whether to display just the points, just the cloud, or both.</p> <p>The Map component can only display one heat layer at a time.</p>

Showing and hiding map layers

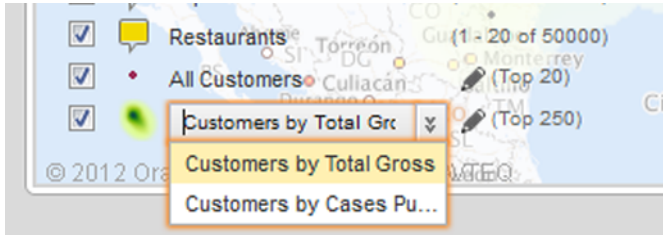
At the bottom left of the **Map** component is the layer list, which shows the available layers configured for the component.

You can use the icon at the top right to expand or collapse the layer list.



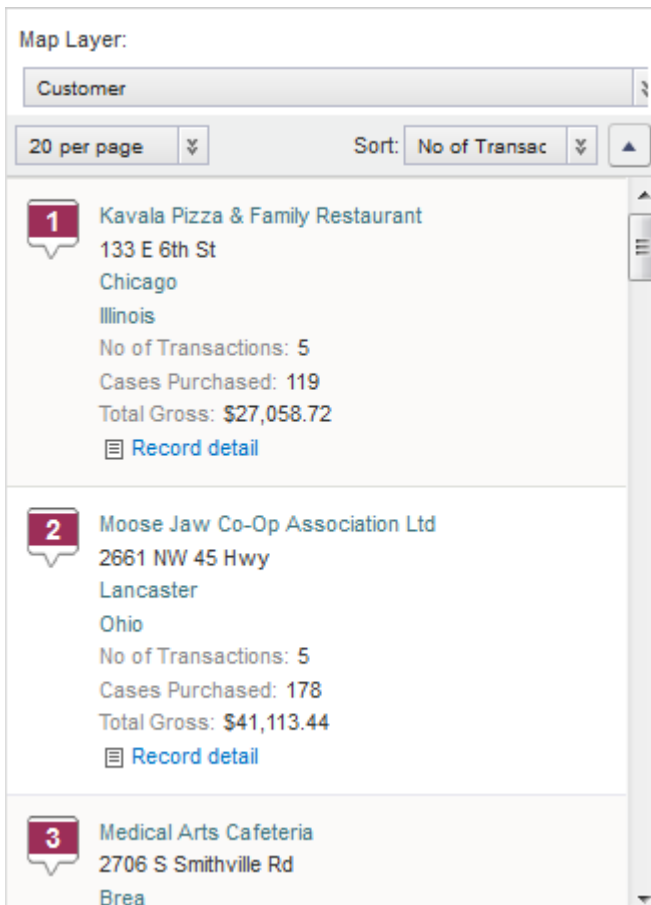
The layer list contains a checkbox for each numbered point and point layer. To hide a numbered point or point layer, uncheck its checkbox.

If any heat layers are available for the **Map** component, then there is a single heat layer checkbox, with a drop-down list containing all of the available heat layers. From the heat layer drop-down list, select the heat map to display. To not display a heat layer on the map, uncheck the heat layer checkbox.



Using the numbered points list

When a numbered point layer is displayed on the **Map** component, the component by default displays the numbered point list to the right of the map.



You can use the expand/collapse icon to the left of the list to show or hide the list.

The list also uses the standard pagination to allow you to page through the list and control the number of points to display per page. See [Paging through component data on page 34](#).

From the numbered point list:

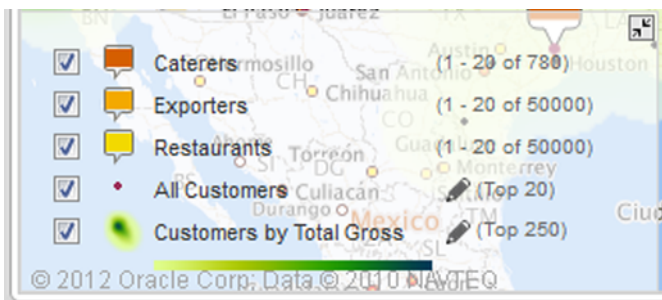
1. If there is more than one numbered point layer, then from the **Map Layer** drop-down list, select the layer for which to display the numbered point list.
2. To change the sort order for the numbered point list:
 - (a) From the **Sort** drop-down list, select the attribute to use for the sort.
 - (b) To switch the sort direction, click the sort direction toggle. When you change the sort for a numbered point layer, it affects the points displayed on the map.

Changing the display of point and heat map layers

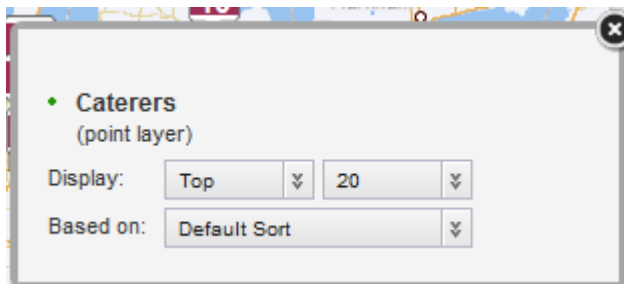
From the layer list, for point and heat map layers, you can change the amount of information displayed.

To adjust the display of point and heat map layers:

1. In the layer list, the point layer name is followed by the number of points displayed. To change the point layer display:



- (a) Click the edit icon for the point layer.
- (b) On the layer dialog, from the **Display** drop-down list, select whether to display the top or bottom set of points.

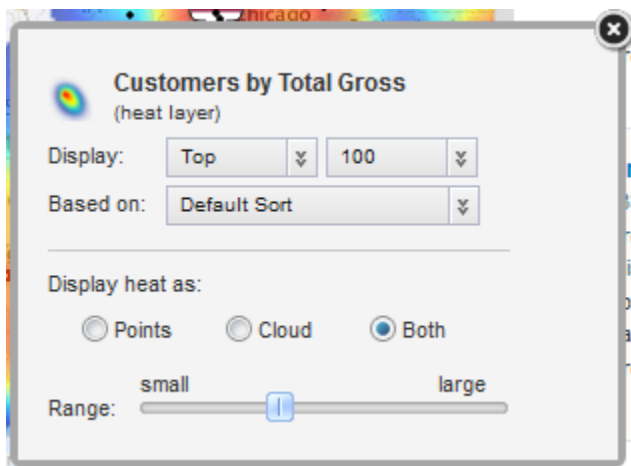


- (c) From the number drop-down list, select the number of points to display.
- (d) From the **Based on** drop-down list, select the value to use to determine the top or bottom points.

2. In the layer list, the heat layer information includes the number of points. To change the heat layer display:



- Click the edit icon for the heat map.
- On the layer dialog, from the **Display** drop-down list, select whether to display the top or bottom set of points.



- From the number drop-down list, select the number of points to display.
- Under **Display heat as**, click the radio button to indicate whether to display only the points, only the cloud, or both the points and the cloud.
- Use the **Range** slider to determine the range for calculating the cloud.

The range determines how much a point affects the cloud calculation. The larger the range, the more impact each point has on the cloud calculation.

Searching the map

The **Map** component can include both text and range filter search tools to allow you to find specific locations.

The text search allows you to display locations based on their proximity to a specified place name. For example, you can display locations within 10 miles of Boston, Massachusetts.



Note: The version of MapViewer used by the component may be limited to selected geographic areas. If you try to do a text search based on a location outside those geographic areas, then an error is displayed.

The range search allows you to only display locations in a selected area of the map.

To do text and range searches on the **Map** component:

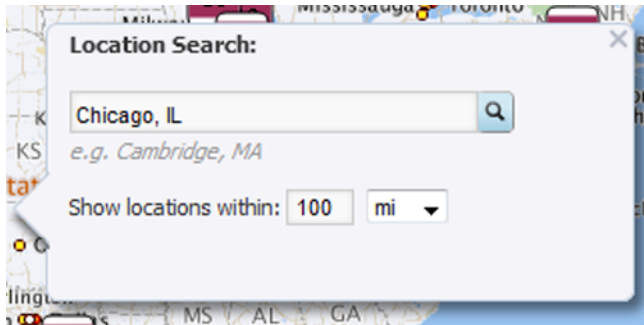
1. To do a text search:

- (a) Click the text search icon.

The **Location Search** pop-up is displayed.

- (b) In the field, type the search text.

- (c) In the **Show locations within** field, specify the number of miles or kilometers, then select the unit of measurement.



- (d) Click the search icon.

The map is updated to only show pins for locations within the specified area.

If the **Auto Pan** checkbox is checked, the map shifts automatically to display all of the pins for the first page of results.

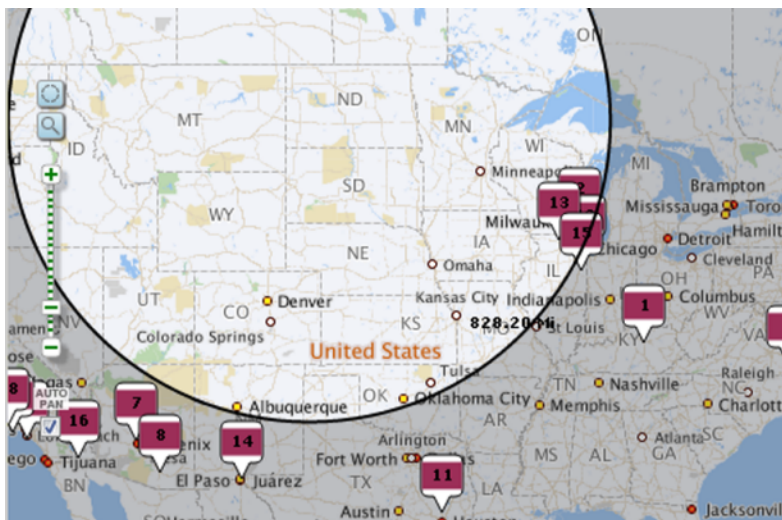
A **Range Filter** entry also is added to the **Selected Refinements** component.

2. To do a range search:

- (a) Click the range search icon.

- (b) On the map, click and drag the mouse from the middle to the edge of the area to select.

As you drag the mouse, the distance from the point you started at is displayed.



- (c) When you have selected the area you want, release the mouse.

The map is updated to only display pins for locations within that selected area.

A **Range Filter** entry also is added to the **Selected Refinements** component.

If the **Auto Pan** checkbox is checked, the map shifts automatically to display all of the pins for the first page of results.

Displaying details for a map point

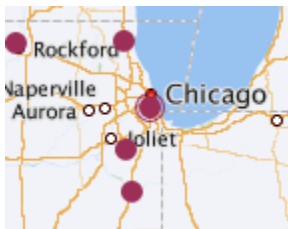
When you click a map point, Studio displays additional information about that location.



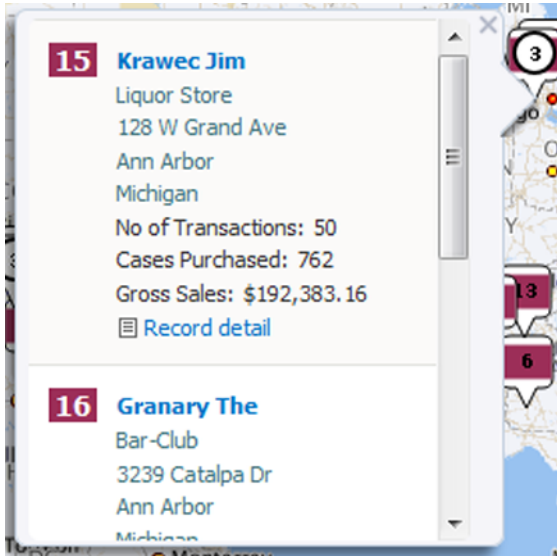
If several numbered points are clustered together, then the **Map** component displays the number of points in the cluster.



For point layers, when there is a cluster of points, Studio displays a circle around the cluster.



When you click a cluster of points, the **Map** component displays the details for all of the points in the cluster.



The values in the point details may be configured to allow you to refine the data. See [Using a component to refine data on page 34](#).

The point details may also include a link to display record details. See [Displaying details for a component item on page 37](#).

Configuring the Map component

The **Map** component configuration allows you to configure the map layers.

About the default Map configuration

When the **Map** component is first added, it uses the default configuration. For each base view that has a geocode attribute, the component includes a numbered point layer. The layer name is set to the view name.

The details for the default layers contain the identifying attributes for the view.

The automatically created layers are all visible by default. When using the default configuration, you cannot customize any of the layer settings, and you cannot add or remove map layers.



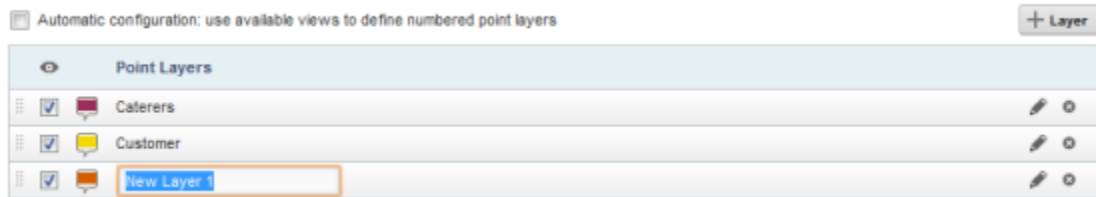
Creating, editing, and deleting map layers

From the **Map Layers** tab of the **Map** component edit view, you manage the list of layers.

To add, edit, and remove map layers:

1. To add a new layer to the map, click the **+Layer** button.

A new layer is added to the list. The name is in an editable field.



Type the name of the layer, then press **Enter**.

2. To edit a layer, click the edit icon for that layer, or click the layer name in the menu at the left.
3. To delete a layer, click its delete icon.

Configuring a map layer

For each map layer, you select the data to use and configure the display.

Selecting the view to use for the map layer

The **Data Selection** tab for the map layer contains the list of views from the application data. Map layers can only use views that contain a geocode attribute.

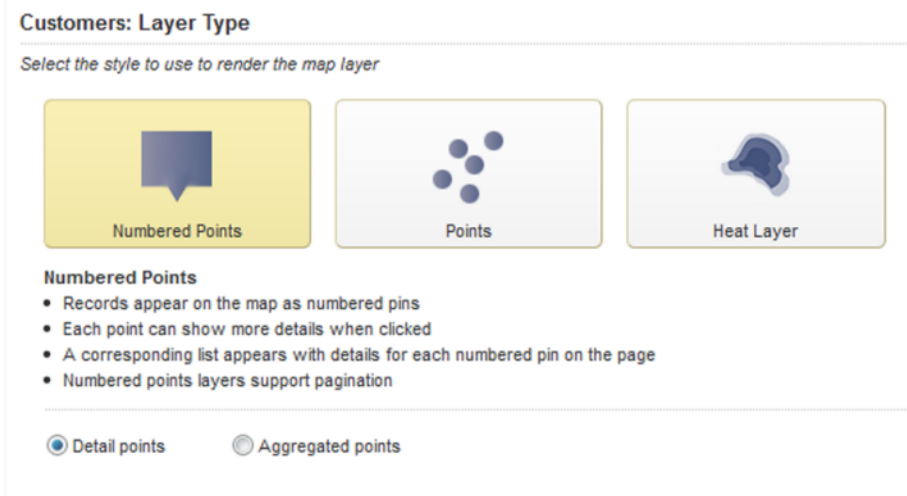
Views that do not contain a geocode attribute are disabled. For details on selecting views for a component, see [Selecting the view to use for a component on page 186](#).

Selecting the map layer type

By default, a new map layer is a numbered point layer. After you create the layer, you can select the type of layer, and whether the geocode values need to be aggregated.

On the **Layer Type** tab for a layer:

- To select the type of display for the layer, click the icon.



The available options are:

Layer Type	Description
Numbered Points	Displays each location on the map as a numbered point. The numbered points are also displayed in a corresponding list. End users can page through the list of numbered points. This is the default layer type for a new map layer.
Points	Displays each location on the map as a point.
Heat Layer	Can display: <ul style="list-style-type: none"> A point for each location on the map. The points are color coded based on the value of a selected metric. Shaded clouds to show the change in metric values across a geographic area. End users can display one or the other or both.

- You also select whether the map locations need to be aggregated.
 - To not aggregate the map locations, click the **Detail points** radio button.
 - To aggregate the map locations, click the **Aggregated points** radio button.

For example, if the view contains a simple list of stores, with the geocode being the store location, you would not need to aggregate the locations, and could use the detail points option.

But if the view contains a list of sales transactions, with the geocode being the store location for the sale, then to generate a single list of store locations, you might aggregate by a dimension such as the store name.

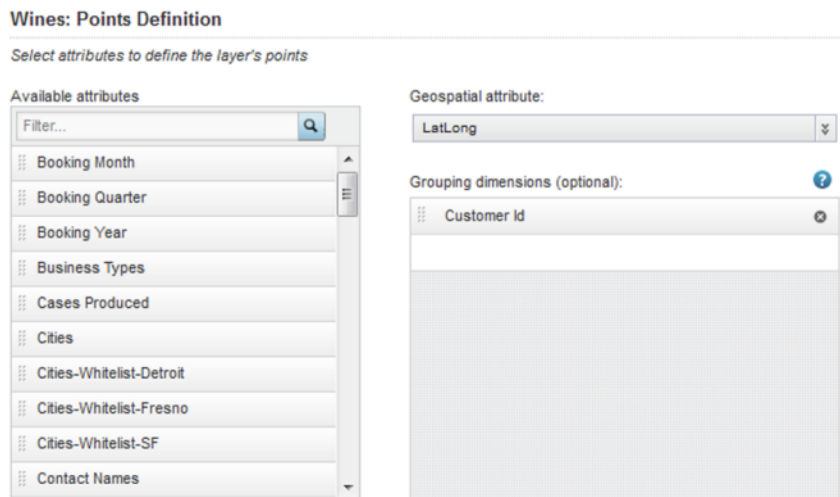
Defining the map points for the map layer

On the **Points Definition** tab for the map layer, you select the geocode attribute to use for the map points.

For an aggregated layer, you also select the group dimensions to use for the aggregation. For a heat map layer, you select the metric to use to determine the point colors.

To define the map points:

1. From the **Geospatial attribute** drop-down list, select the geocode attribute to use for the map locations.
2. If you are creating an aggregated map layer, then you configure the list of grouping dimensions to use for the aggregation.
 - (a) To add a dimension to the list, drag a dimension from the **Available attributes** list to the **Grouping dimensions** list.



- (b) To determine the order in which to apply the aggregation, drag each dimension to the appropriate location in the list. The dimension at the top of the list is applied first.
 - (c) To remove a dimension from the list, click its delete icon.
3. For a heat map layer, you can select a metric to use for setting the layer point and heat cloud colors.

For example, if the locations are stores, then the heat map layer colors could reflect the total sales at each store.

If you do not select a metric, then the heat map colors are based on the relative density of the points on the map. So if the locations are stores, then the heat map colors would change based on the number of stores in a given area.



Note: Heat maps without a metric require HTML5, and do not work on Internet Explorer 8. If you configure a heat map without a metric, then for end users using Internet Explorer 8, the map layer is disabled.

To select the metric, click the **Select Metric** button. On the metric dialog, click the metric, then click **Apply**.

Customers by Total Sales: Points Definition

Select attributes to define the layer's points

Geospatial attribute:

LatLong

Metric:

Select a metric to use to display the relative heat. If you do not select a metric, then the heat is based on the density of the points on the map.

Gross Sales

For predefined metrics or system metrics, the aggregation method is built in.

For other attributes, the default aggregation method is assigned. You can then use the drop-down list to select a different aggregation method.

To select a different metric, click the delete icon, then click **Select Metric**.


Configuring the layer name and display options

On the **Layer Properties** tab for the map layer, you configure the layer name and options for displaying the map locations, and, for heat map layers, the cloud overlay.

On the **Layer Properties** tab:

1. In the **Layer name** field, type the name of the layer.
The layer name is used to identify the layer on the map legend.
For numbered point layers, the name is also used in the layer drop-down list on the numbered point list.
2. If the view contains multiple geocode attributes, then from the **Geo filtering attribute** drop-down list, select the attribute to use when searching or filtering the locations.
By default, the map layer uses the same geocode attribute for both the map points and the filtering.
3. For point layers and heat map layers, from the **Size of points** drop-down list, select the size of the map location points.
4. For numbered point and point map layers, from the **Layer color** drop-down list, select the color to use to display the points.

5. For a heat map layer, to configure the color and metric value range:

Color Options	Heat Options
Layer color: 	<input type="radio"/> Show heat points by default <input type="radio"/> Show heat cloud by default <input checked="" type="radio"/> Show both by default <input checked="" type="checkbox"/> Enable end user to adjust heat range
<input checked="" type="radio"/> Dynamically determine min / max values <input type="radio"/> Fixed values on color ramp	
Minimum: <input type="text"/> Maximum: <input type="text"/>	

- (a) From the **Layer color** drop-down list, select the color range to use for the map points and cloud.
- (b) To automatically calculate the minimum and maximum metric values for the color range, click the **Dynamically determine min/max values on color ramp** radio button.
- (c) To specify the minimum and maximum values, click the **Fixed values on color ramp** radio button, then in the **Minimum** and **Maximum** fields, type the minimum and maximum values.
6. For a heat map layer, under **Heat Options**:
- (a) Click the radio button to indicate whether to display by default the location points, heat cloud, or both.
- (b) To allow end users to adjust the heat range, check the **Enable end user to adjust heat range** checkbox.

Selecting and configuring the details to display for each map point

On the **Details Template** tab for the map layer, you configure the information to display when users click a point on the map. You can also determine whether to include a separate link to display record details.

Available attributes <input type="text" value="Filter..."/> <input type="button" value="Q"/> <ul style="list-style-type: none"> Business Type Cases Purchased City Credit Rating Customer ID Customer Name Days Credit Discount Gross Sales 	<input checked="" type="checkbox"/> Use same configuration for pin and list detail templates Pin Details Template <ul style="list-style-type: none"> Customer Name Business Type Street Address City States No of Transactions Cases Purchased Gross Sales <input type="checkbox"/> Show link to record details
---	--

To configure the map location details:

- For a numbered point layer, you can configure a different set of details to display in the numbered points list and when users click the point on the map. To enable the different sets of details, uncheck the **Use same configuration for pin and list detail templates** checkbox.

Use same configuration for pin and list detail templates

Pin Details Template	List Details Template
Customer Name	Customer Name
Business Type	Business Type
Credit Rating	Street Address
Days Credit	City
Discount	State
	No of Transactions
	Cases Purchased
	Gross Sales

Show link to record details

- To add an item to a details template, drag it from the **Available attributes** list to the template. See [Selecting the attributes to use on a component on page 187](#).
- To determine the display order of the template items, drag each item to the appropriate location in the list.
- To remove an item from a template, click its delete icon.
- To configure the item display, click its edit icon. On the configuration dialog:
 - For a metric other than a system or predefined metric, from the **Aggregation function** drop-down list, select the aggregation method to use.

Edit attribute ✕

Gross Sales(sum) Numeric attribute

Aggregation function:

Show attribute name in the template

Allow sorting by this attribute (when sorting is enabled)

▶ Value Formatting

▼ Attribute actions

- (b) To include the attribute display name as well as the value, check the **Show attribute name in the template** checkbox.
- (c) To allow users to sort by the attribute, check the **Allow sorting by this attribute** checkbox.
- (d) Under **Value Formatting**, configure the display format for the value. See [Configuring the format of values displayed on a component on page 190](#).
- (e) Under **Attribute actions**, configure the action for when the user clicks the value.

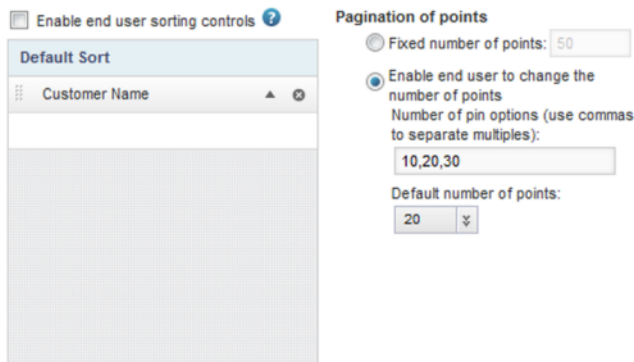
For information on configuring actions for displayed values, see [Configuring actions for displayed values on page 197](#).

- (f) To save the configuration, click **Apply**.

6. To display a link to record details, check the **Show link to record details** checkbox.

Configuring sorting and pagination for the map layer

On the **Sorting and Pagination** tab for the map layer, you configure the available sort options and pagination for the layer.



To configure the sorting and pagination:

1. To allow end users to change the sort order, check the **Enable end user sorting controls** checkbox. If this checkbox is checked, then end users can sort the map using any of the values in the details template.
2. To configure the default sort order:
 - (a) To select the attributes to include in the default sort, drag the attributes from the **Available attributes** list to the **Default Sort** drop zone.
 - (b) To determine the order in which to apply the sort, drag each attribute to the appropriate location in the list.
 - (c) For each sorting attribute, use the sort order icon to indicate whether to sort in ascending or descending order.
 - (d) To remove an item from the default sort, click its delete icon.
3. To always display the same fixed number of locations on the map:
 - (a) Click the **Fixed number of points** radio button.
 - (b) In the field, enter the number. For a numbered points layer, this is the number of points to display per page. Users can then page through the list.

4. To allow end users to change the number of locations to display:
 - (a) Click the **Enable end user to change number of points** radio button.
 - (b) In the **Number of pin options** field, type a comma-separated list of options for the number of locations to display.
 - (c) From the **Default number of points** drop-down list, select the default number of locations to display.

Determining which map layers are visible

If you are using the default map layer configuration, then all of the automatically generated map layers are visible on the end user view of the **Map** component. If you are not using the default configuration, then you can control whether the layer is visible.

On the **Map Layers** tab, to not display the map layer on the end user view of the **Map** component, uncheck the layer's checkbox.

Configuring general display settings for the Map component

On the **General Settings** tab of the **Map** component edit view, you configure general settings for the component as a whole. These settings are not specific to a map layer.

On the **General Settings** tab:

1. Under **Filtering**:

Filtering

- Enable geospatial filtering via marquee
- Enable geospatial range filtering via text search

- (a) To allow users to search the map using the range search, check the **Enable geospatial range filtering via marquee** checkbox.
- (b) To allow users to search the map using the location text search, check the **Enable geospatial filtering via text search** checkbox.

2. Under **Display Settings**:

Display Settings

- Show the numbered list overlay panel by default when numbered point layers are visible on the map

Map height: pixels

Units of measure:

- (a) If the map includes a numbered pin layer, then to display the numbered pin list by default when the component is first displayed, check the **Show numbered list overlay panel by default** checkbox.
- (b) In the **Map height** field, type the height in pixels for the **Map** component.

(c) From the **Units of measure** drop-down list, select the unit of measurement to use for the map.

To use the preferred unit of measurement based on the current locale, select **use locale default**.

Otherwise, you can have the map always use either miles or kilometers.

Pivot Table

The **Pivot Table** component is a more complex table containing calculated and grouped values.

[About the Pivot Table component](#)

[Using Pivot Table](#)

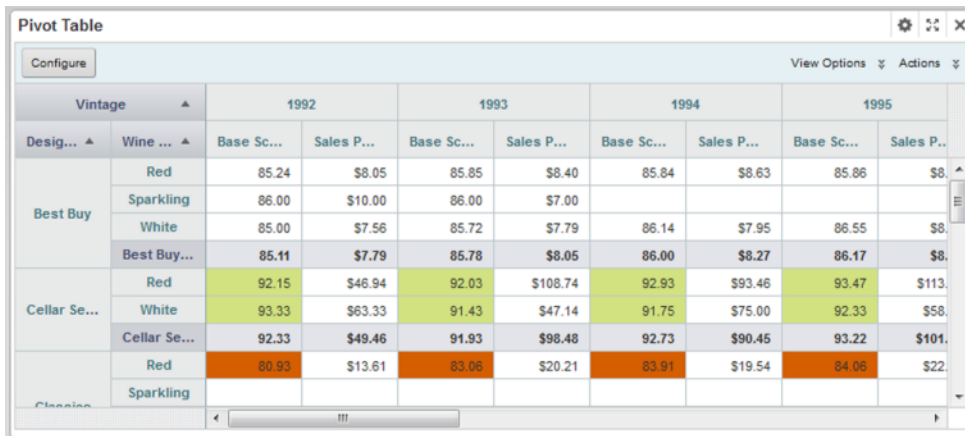
[Configuring a Pivot Table component](#)

About the Pivot Table component

The **Pivot Table** component allows users to perform comparisons and identify trends across several cross sections of data.

The values in the header rows and columns represent every possible grouping of the selected data fields.

Each body cell contains a metric value that corresponds to the intersection of the values in the heading rows and columns. In the following example, the first (top left) summary cell contains the average score for Best Buy red wines in 1992.



Vintage		1992		1993		1994		1995	
Desig...	Wine ...	Base Sc...	Sales P...	Base Sc...	Sales P...	Base Sc...	Sales P...	Base Sc...	Sales P...
Best Buy	Red	85.24	\$8.05	85.85	\$8.40	85.84	\$8.63	85.86	\$8.00
	Sparkling	86.00	\$10.00	86.00	\$7.00				
	White	85.00	\$7.56	85.72	\$7.79	86.14	\$7.95	86.55	\$8.00
	Best Buy...	85.11	\$7.79	85.78	\$8.05	86.00	\$8.27	86.17	\$8.00
Cellar Se...	Red	92.15	\$46.94	92.03	\$108.74	92.93	\$93.46	93.47	\$113.00
	White	93.33	\$63.33	91.43	\$47.14	91.75	\$75.00	92.33	\$58.00
	Cellar Se...	92.33	\$49.46	91.93	\$98.48	92.73	\$90.45	93.22	\$101.00
Classic	Red	80.93	\$13.61	83.06	\$20.21	83.91	\$19.54	84.06	\$22.00
	Sparkling								

Cells may also be highlighted based on the displayed value. In the example, values are highlighted in red if they are below a certain number, and in green if they are above a certain number.

Using Pivot Table

In addition to viewing the **Pivot Table** data, you may be able to change the table layout.

For information on using common component functions such as paging, exporting, and printing, see [Using common component functions on page 33](#).

Showing and hiding highlighting and summaries in the Pivot Table

The **Pivot Table** component can include summaries of individual row or column dimensions as well as summary rows and columns for the entire table. Individual values may also be highlighted. The **Pivot Table** may be configured to allow you to show or hide the summaries, and to show or hide the highlighting.

If you can control these features, then a **View Options** button is displayed at the top of the table.

To enable and disable these options:

1. Click the **View Options** button.

A drop-down list of checkboxes is displayed. There are options for enabling and disabling the highlighting, the dimension summaries, and the table summaries.

2. To show the value highlighting, check the **Conditional Formatting** checkbox.

To hide the highlighting, uncheck the **Conditional Formatting** checkbox.

3. To show the summaries for each dimension, check the **Summaries** checkbox.

To hide the dimension summaries, uncheck the **Summaries** checkbox.

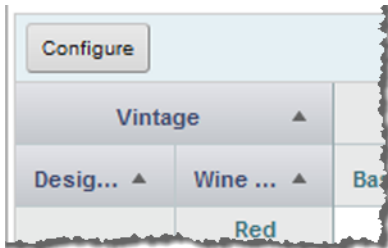
4. To show the table summaries, which aggregate all of the values in a row or column, check the **Grand Summary** checkbox.

To hide the table summaries, uncheck the **Grand Summary** checkbox.

Sorting the Pivot Table dimension values

For each **Pivot Table** row and column dimension, you can determine the order in which to display the dimension values.

At the top left of the **Pivot Table** are the headings with the dimension names.



To switch the display order of the values for a dimension, click the dimension heading.

Changing the layout of the Pivot Table

You may be able to change the layout of the **Pivot Table**, including the dimensions and metrics that are displayed and the row and column display order.

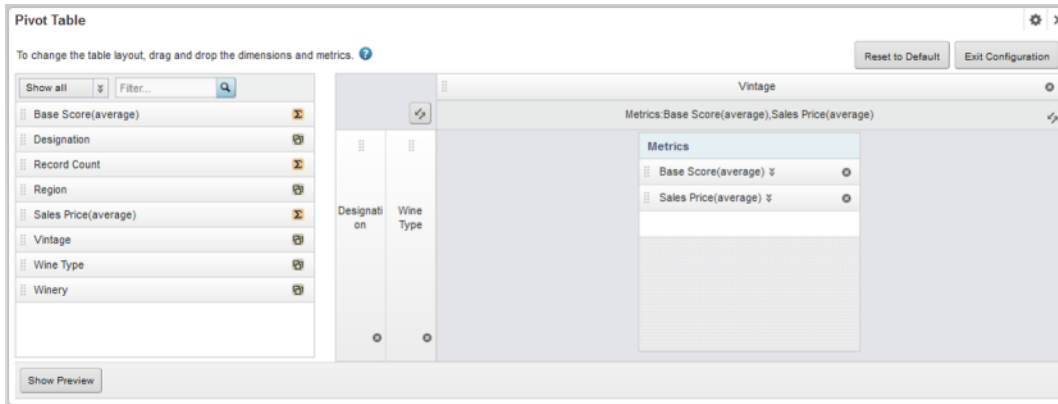
If the **Pivot Table** is configured to allow you to change the table layout, then a **Configure** button is displayed at the top of the component.

To change the layout of the **Pivot Table** table:

1. Click the **Configure** button.

On the configuration view, the list at the left shows the available metrics and dimensions that are not currently displayed on the table.

The rest of the configuration view shows a mockup of the displayed dimension columns and rows, with the list of displayed metrics in the middle. A metrics placeholder indicates whether the metrics are displayed as rows or columns.



2. To change the order of the displayed dimension rows or columns, drag the dimension to the new location.
3. To remove a dimension or metric, click its delete icon.

The dimension or metric is removed from the table and added to the available list.

4. To add a new dimension, drag the dimension from the available list to the appropriate location in the row or column groups.
5. To add a new metric, drag the metric from the available list to the appropriate location in the metrics list.

If the metrics are displayed as columns, then the metric at the top of the list is displayed in the leftmost column.

If the metrics are displayed as rows, then the metric at the top of the list is displayed in the top row.

6. To swap all of the rows and columns, including the metrics, click the swap icon in the top left corner of the layout.
7. To only switch whether the metrics are displayed as rows or columns, click the swap icon in the metrics placeholder.
8. To change the display order of the metric rows or columns, drag each metric to the appropriate location in the list.
9. To display a preview of the table, click the **Show Preview** button.
To hide the preview, click **Hide Preview**.
To update the preview after making changes, click **Update**.
10. To revert the layout back to the original default, click **Reset to Default**.

11. To exit the configuration view, click **Exit Configuration**.

The currently displayed layout is used.

Using the Pivot Table to refine the application data

You can use the **Pivot Table** dimension values to refine the application data.

If a dimension allows refinement, then when you click the dimension values in the row and column headings, the data is refined by that value.

When you click a metric value, then the data is refined by all of the dimension values that apply to that cell and that allow refinement.

So for example, if a cell displays an average price of \$25.55 for Red wines in the Bordeaux region for the year 1992, then when you click the value \$25.55, the data is refined by the values:

- Red for the Wine Type attribute
- Bordeaux for the Region attribute
- 1992 for the Vintage attribute

For more details on refining by data on a component, including hierarchies and cascading, see [Using a component to refine data on page 34](#).

Configuring a Pivot Table component

For a **Pivot Table** component, you select the view to use and configure how the table is displayed.

Selecting the source of the Pivot Table data

On the **Data Selection** tab of the **Pivot Table** edit view, you select the view to use for the **Pivot Table** data. You also configure the maximum number of cells to display.

For information on selecting the view to use for a component, see [Selecting the view to use for a component on page 186](#).

To configure the maximum number of cells to display:

1. In the **Maximum number of cells to display** field, type the maximum number of cells that can be displayed.

The screenshot shows two parts of the configuration interface. On the left, there is a label 'Maximum number of cells to display:' followed by a text input field containing the number '3000'. On the right, there is a label 'Maximum number of cells exceeded message:' followed by a text area containing the message: 'The number of cells ((cells)) exceeds the maximum threshold ((limit)) configured for this component. To be able to view the data, you need to filter your current results.'

If the number of cells is greater than this number, then the **Pivot Table** displays an error. End users can then refine the data to try to reduce the number of cells.

The default maximum is 3000 cells.

2. In the **Maximum number of cells exceeded message** field, type the error message to display to end users when the number of cells for the current data is greater than the maximum allowed.

In the message text, you can use the following dynamic values:

- {cells} - The number of cells in the **Pivot table**.
- {limit} - The value of the **Maximum number of cells to display** field.

Configuring the layout of the Pivot Table

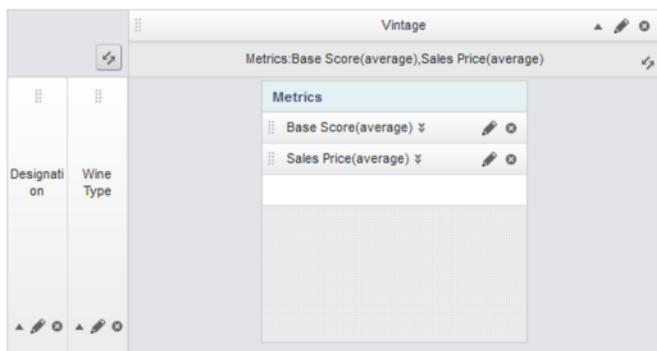
Once you select the view to use, you can configure the layout of the dimensions and metrics on the **Pivot Table** table.

About configuring the Pivot Table layout

You use the **Table layout** tab of the **Pivot Table** edit view to configure the layout of the **Pivot Table**.

The layout includes:

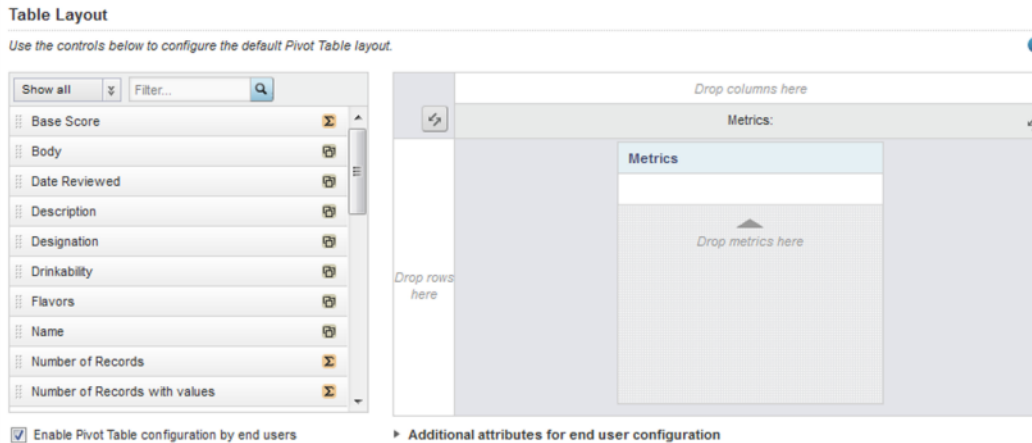
- The dimensions to use to aggregate the **Pivot Table**
- How to group the dimension values into nested rows and columns
- The metrics to display on the **Pivot Table**
- Whether to display those metrics as rows or columns. By default, the metrics display as columns, with the headings in the last row of column headings.



Adding dimensions and metrics to the Pivot Table

Each **Pivot Table** consists of dimension rows and columns to determine the aggregation, and metrics to determine the displayed values.

At the right of the **Table Layout** tab is a mockup of the **Pivot Table** format, with drop zones to add dimensions to the row and column groups, and to add metrics. A placeholder block indicates whether the metrics are displayed as columns or rows.



To populate the default view of the **Pivot Table**:

1. To add a dimension to a row or column group, drag the dimension from the list to either the row or column group drop zone.

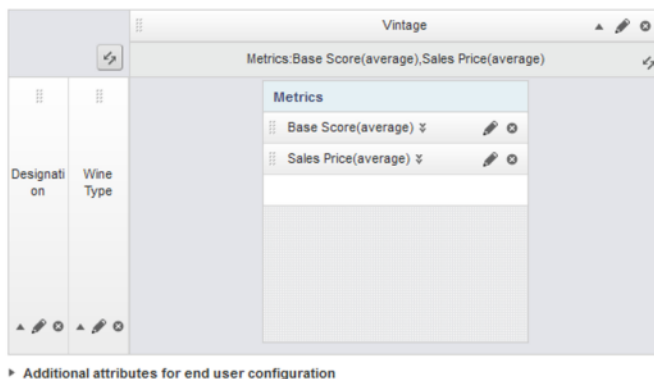
If there are existing row or column dimensions, you can drop the new dimension before or after those dimensions.

You can also drag and drop the dimensions within the mockup to change the order of the row and column groups.

For additional information on selecting values to display on a component, see [Selecting the attributes to use on a component on page 187](#).

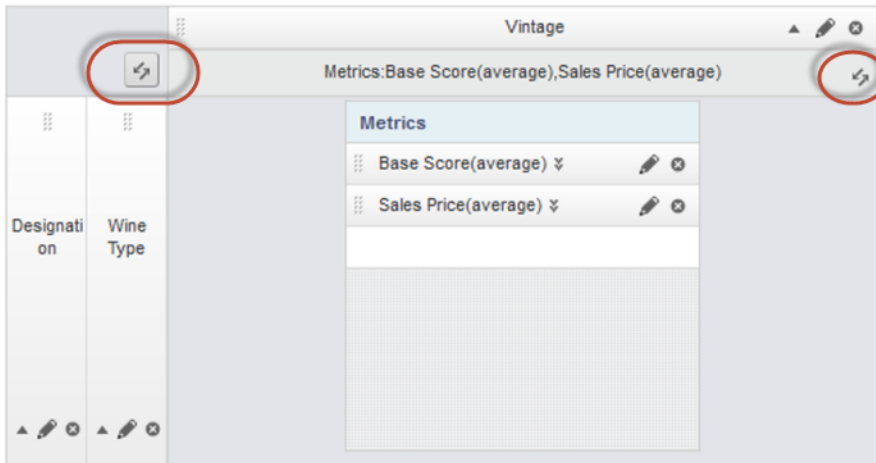
2. To add a metric to the **Pivot Table**, drag the metric from the list to the metric drop zone.

The order of the metrics in the list determines the order (from left to right for columns or top to bottom for rows) of the metrics in the **Pivot Table**. The placeholder also lists the selected metrics.



Changing the orientation of the Pivot Table

The **Table Layout** tab on the **Pivot Table** edit view includes options to switch whether dimensions and metrics are displayed as rows or columns.



To switch the **Pivot Table** row and column groups, click the swap icon at the top left of the mockup. The swap includes the metrics, so for example if your metrics were displayed as columns, when you click **Swap**, they are changed to display as rows.

To only change the location of the metrics, click the swap icon on the metrics placeholder.

Adding additional available dimensions and metrics

If you are allowing end users to change the configuration of the **Pivot Table**, you can provide additional available dimensions and metrics that are not displayed on the default view of the table.

On the **Table Layout** tab of the **Pivot Table** edit view, the **Available attributes for end user configuration** section below the **Pivot Table** mockup contains the lists of these available dimensions and metrics.

▼ Additional attributes for end user configuration

Dimensions	Metrics
Region	Number of Records
Winery	

To add the additional dimensions and metrics:

1. To expand or collapse the section, click the section heading.
2. To add additional available dimensions, drag the dimensions from the attributes list to the **Dimensions** list.
3. To add additional available metrics, drag the metrics from the attributes list to the **Metrics** list.

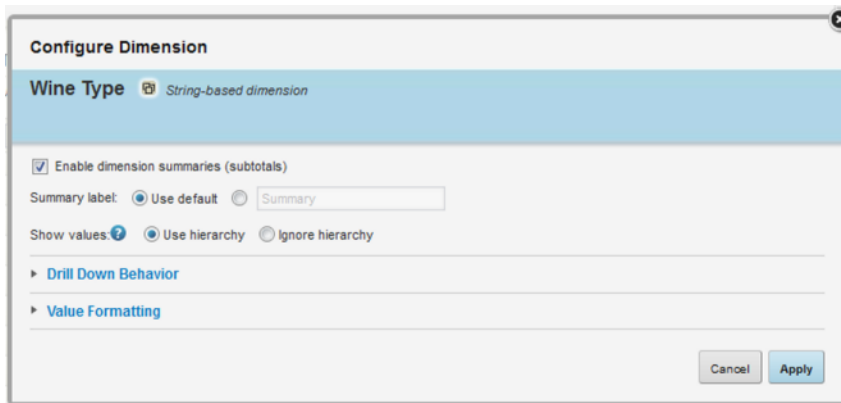
Configuring a dimension

For each **Pivot Table** dimension, you can configure the label for the dimension, whether to display a summary row or column for the dimension, and whether the column or row heading can be used to refine the data.

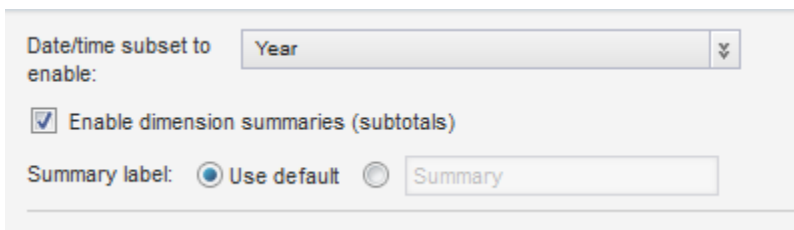
From the **Table Layout** tab of the **Pivot Table** edit view, to configure a dimension:

1. Click the edit icon for the dimension you want to configure.

The **Configure Dimension** dialog is displayed.



2. If the dimension is a date/time attribute, then from the **Date/time subset to enable** drop-down list, select the default date/time subset to display.



By default, Studio selects the largest date/time unit that is available for that attribute.

3. On the edit dimension dialog, to display a summary row or column for the dimension, check the **Enable dimension summaries (subtotals)** checkbox.
4. Under **Summary label**, by default, the summary label is "Summary", and the **Use default** radio button is checked.

To provide a custom label, click the other radio button, then type the new label into the field.

5. Under **Show values**, select how to display the dimension values if the dimension has a hierarchy of values.

The default option is **Use hierarchy**, which indicates to only display one level of the hierarchy at a time. When the table is first displayed, it only shows the top level of the hierarchy. When end users refine by a value, the next level of values is then displayed.

To display the specific values assigned to records, regardless of the hierarchy level, select **Ignore hierarchy**.

6. The **Drill Down Behavior** section is used to configure whether users can refine by the dimension values. To expand or collapse the section, click the heading.

7. To allow the dimension values to be used for refinement, check the **Enable drilldown refinement on this value** checkbox.
8. To allow the dimension to cascade, check the **Enable dimension cascade** checkbox, then configure the cascade.
For details on dimension cascading and how to configure it, see [Configuring cascading for dimension refinement on page 201](#).
9. To save the dimension configuration, click **Apply**.

Configuring a metric

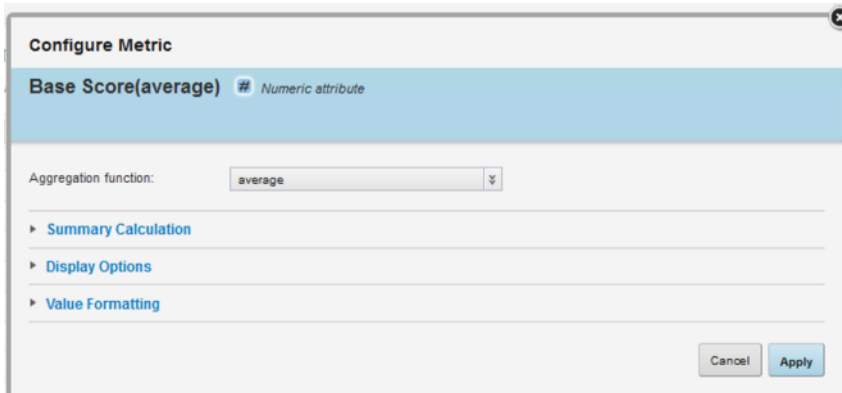
For a **Pivot Table** metric, you can configure the aggregation method for the metric, the tooltip for summary values, and the format of the metric value.

For information on selecting the aggregation method for a metric, see [Selecting the aggregation method to use for a metric on page 189](#).

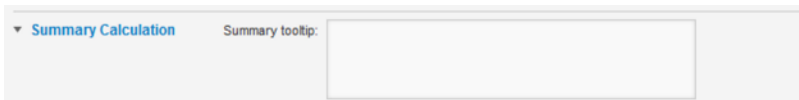
To configure all of the options for a metric:

1. On the **Table Layout** tab, click the edit icon for the metric you want to edit.

The **Configure Metric** dialog is displayed.



2. The **Summary Calculation** section contains the **Summary tooltip** field, used to add a description to the tooltip displayed when users hover the mouse over a metric value in a summary row or column.



3. The **Display Options** section contains a setting to determine the horizontal alignment of the value in the metric column. When the dialog is first displayed, the section is collapsed.

To expand or collapse the section, click the section heading.



To select the alignment, click the radio button.

4. The **Value Formatting** section contains settings to customize the format of the metric values. When the dialog is first displayed, the section is collapsed.

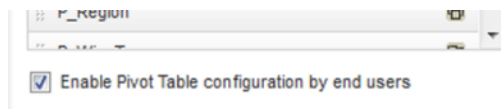
For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 190](#).

5. To save the metric configuration, click **Apply**.

Allowing end users to configure the table layout

You can configure the **Pivot Table** to allow end users to change the layout.

On the **Table Layout** tab of the **Pivot Table** edit view, to allow end users to change the layout, check the **Enable Pivot Table configuration by end users** checkbox.



Highlighting Pivot Table metric values that fall within a specified range

The **Conditional Formatting** tab of the **Pivot Table** edit view allows you to highlight specific metric values.



To configure whether to use conditional formatting, and select the values to highlight:

1. To allow conditional formatting, make sure that the **Enable conditional formatting** checkbox is checked. It is checked by default.

If the checkbox is not checked, then there is no conditional formatting.

2. In the **Metrics** list, click the metric for which to configure conditional formatting.
For each metric, the list displays the number of conditional formatting rules created for it.

3. To add a new range of values to highlight for that metric, click **+Add Condition**.

4. To configure a condition:

- (a) From the **Condition Rule** type drop-down list, select the type of comparison.
- (b) In the field (or fields, for the "is between" option), enter the value(s) against which to do the comparison.

Note that for the "is between" option, the values are inclusive. So if you specify a range between 20 and 30, values of 20 and 30 also are highlighted.

- (c) From the **Color** drop-down list, select the color to use for the highlighting.
- (d) In the **Tooltip Description** field, type the text to display in the tooltip for a highlighted cell.

5. The conditions are applied based in the order they are listed. So a condition at the top of the list has a higher priority than a condition lower in the list.

To change the priority of the conditions, drag and drop them to the appropriate location in the list.

6. To remove a condition, click its delete icon.

Configuring display options for the Pivot Table

The **Display Options** tab of the **Pivot Table** edit view contains options for setting size and other display options for the **Pivot Table** table.

To configure the **Pivot Table** display options:

1. Under **Table height**, in the field, type the number of rows that are visible at a time.
2. In the **Column width** field, type the width in pixels to use for each column.
3. Under **Grid display**, to hide any empty rows or columns, check the **Hide empty rows/columns** checkbox.
4. Under **Summaries**, use the checkboxes to indicate whether to display the summary and grand summary rows by default.

Summarization Bar

The **Summarization Bar** displays one or more summary values from the application data.

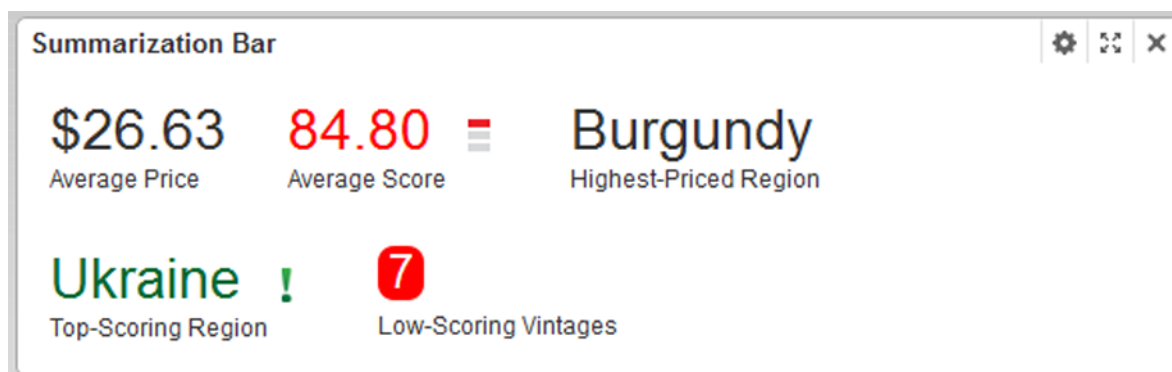
[About the Summarization Bar component](#)

[Using Summarization Bar](#)

[Configuring a Summarization Bar](#)

About the Summarization Bar component

The **Summarization Bar** allows users to quickly view metric or dimension values that summarize aspects of the underlying data.



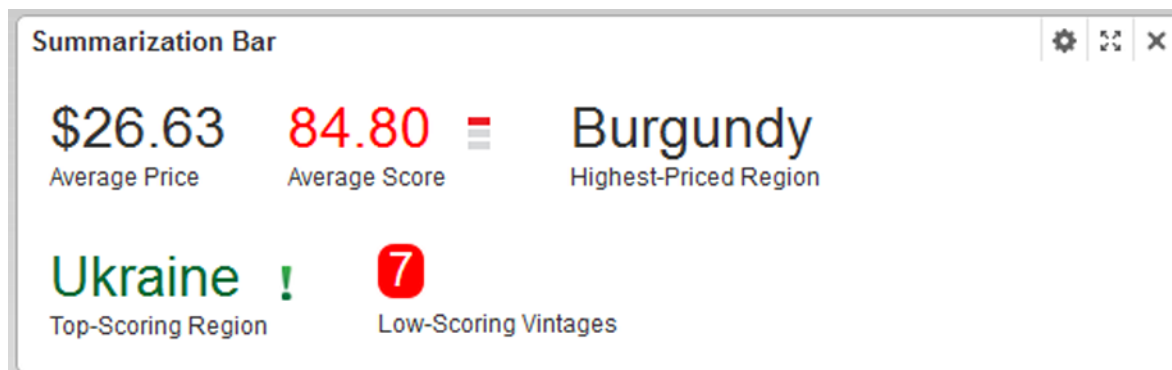
Using Summarization Bar

The **Summarization Bar** displays one or more summary items. You may be able to display additional information about an item, or use an item to refine the data or navigate to another page or site.

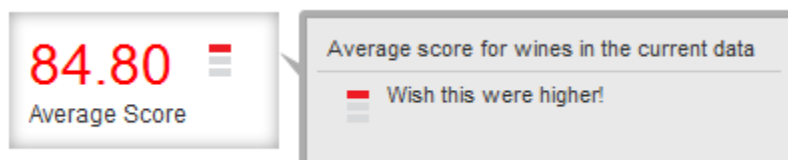
Each summary item contains one of the following types of values:

Summary Item	Value Description
Metric value	The actual value of a specific metric. For example, an item could display the total sales or average profit.
Dimension value	The dimension value associated with either the top or bottom value of an associated metric value. For example, an item could display the product category that has the highest total sales.
Number of flags	The number of flags. Flags are based on the value of a metric for a selected dimension or dimensions. For example, a flag summary item could reflect the number of product categories for which the total number of sales is greater than 500.

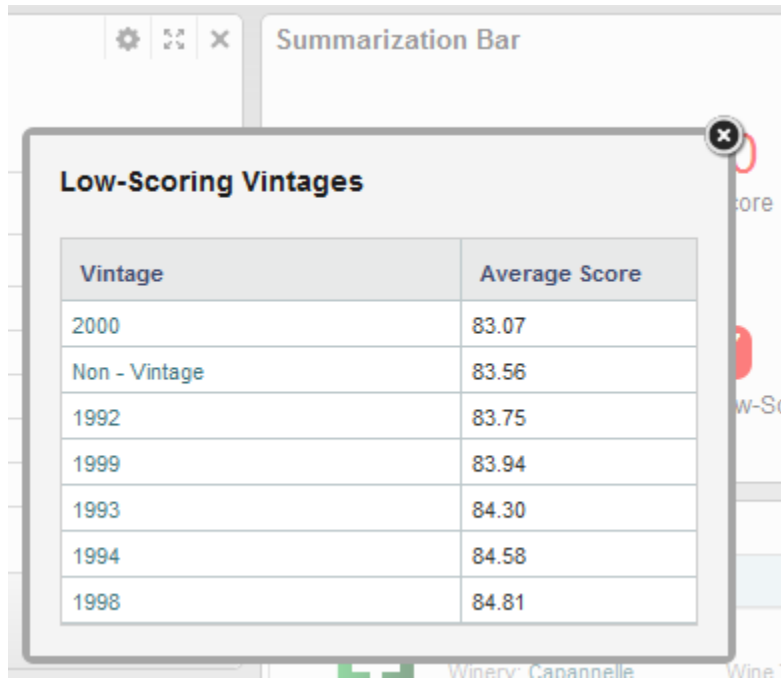
Summarization Bar values can use icons and color highlighting to provide additional context for that value.



You can also display a tooltip containing a description and value details.



For flags, you can click the number to display the list of values.



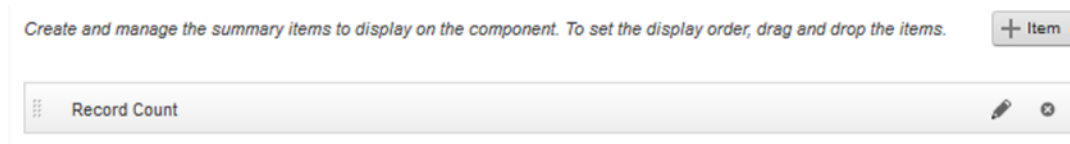
You also may be able to use summary item values to navigate to a different page or URL. For dimension values, you may also be able to use the value to refine the data. See [Using a component to refine data on page 34](#).

Configuring a Summarization Bar

For a **Summarization Bar** component, you create and configure the summary items to display.

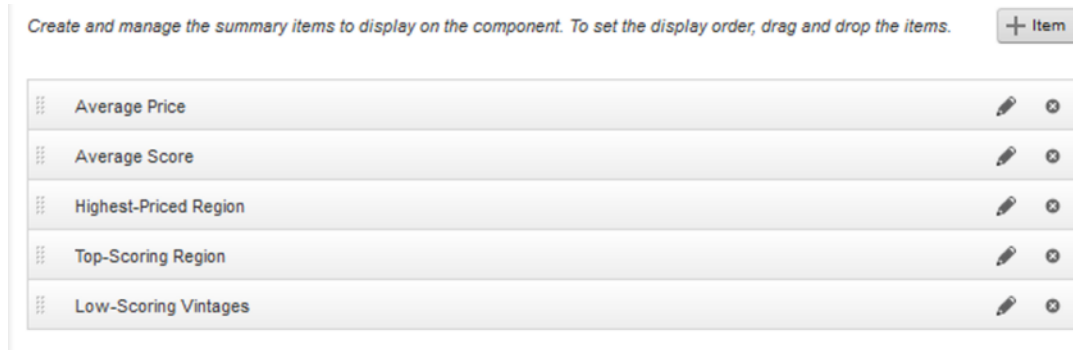
Default configuration of a Summarization Bar component

When you first add a **Summarization Bar** component to an application page, it automatically displays a single metric value summary item that shows the number of records in the base view of the first data set.



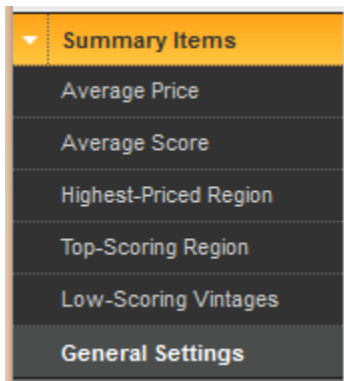
Adding, editing, and deleting summary items

On the **Summarization Bar** edit view, the **Summary Items** tab displays the current summary items.



To add, edit, and delete summary items:

1. To add a summary item to the **Summarization Bar**, on the **Summary Items** tab of the edit view, click **Add Item**.
A new summary item is added to the list, with the name displayed as an editable field. To change the name of the new summary item, type the new name, then press **Enter**.
2. To edit the name of a summary item:
 - (a) On the **Summary Items** tab, click the item name.
The name is displayed as an editable field.
 - (b) Type the new name, then press **Enter**.
3. To edit the configuration of a summary item, either:
 - Click the edit icon on the summary item
 - Click the summary item name in the **Summary Items** list in the left menu



For a new summary item, the **Select Data** tab is displayed to allow you to select the view to use. For details on selecting a view to use for a component, see [Selecting the view to use for a component on page 186](#).

For an existing summary item, the **Define Item** tab is displayed to allow you to change the item configuration.

4. To return to the **Summary Items** list after editing a summary item, click the **Summary Items** option in the left menu.
5. To determine the order in which to display the items on the end user view, drag each item to the appropriate location.
6. To delete a summary item, click its delete icon.

Selecting the type of summary item

On the **Select Item Type** tab for a summary item configuration, you select the type of summary item you want to create.

To select the item type to use, click it.

The options are:

Summary Item Type	Description
Metric Value	Displays a single aggregated metric value, such as total sales or average score.
Dimension Value Spotlight	Displays a single dimension value. The displayed dimension value is associated with the top or bottom value for a single metric. For example, you could display the name of the product category that has the highest or lowest total sales.
Flag	Displays the number of values for a selected dimension or combination of dimensions that meet a set of metric conditions. For example, you could display the number of combinations of product category and sales region that had more than 500 sales and for which the percentage of total sales was at least 90% of expected sales.

Configuring metric and dimension spotlight summary items



For metric and dimension spotlight summary items, you configure the values, how to display them, and whether to apply conditional formatting.

Selecting and configuring the metric for a metric summary item

For a metric summary value, on the **Define Item** tab of the **Summarization Bar** edit view, you select the metric value to display.

Average Price

Define the metric value to display on this summary item.

Metric:  

Display Name: Use metric name:
Sales Price (avg)

Custom name:

▶ [Display Options](#)

▶ [Actions](#)

To select and configure the summary item value for a metric summary item:

1. To select the metric:
 - (a) Click the **Select Metric** button.

Average Price

Define the metric value to display on this summary item.

Metric:

- (b) On the **Select a Metric** dialog, click the metric you want to use. You can use the filter field to search for a specific metric.
 - (c) Click **Apply**.
2. To select a different aggregation method for a metric, you can use the drop-down list next to the metric name.
You cannot select a different aggregation method for a predefined metric.
3. To select a different metric:
 - (a) Click the delete icon for the current metric.
 - (b) Click the **Select Metric** button.
 - (c) On the **Select a Metric** dialog, click the metric you want to use.

- (d) Click **Apply**.
- 4. To configure the metric:
 - (a) Click its edit icon.
 - (b) For metrics that are not predefined, the configuration dialog includes a drop-down list to select the aggregation method.
 - (c) The **Value Formatting** section allows you to customize the format of the displayed value.

For details on customizing a displayed value on a component, see [Configuring the format of values displayed on a component on page 190](#).

Selecting and configuring the values for a dimension value spotlight summary item

For a dimension value spotlight summary item, on the **Define Item** tab of the **Summarization Bar** edit view, you select the dimension and metric to use.

Highest-Priced Region

Select the dimension to display, and the metrics to use to determine the dimension value.

Dimension:

Top value Bottom value

Metric:

Display Name: Use dimension & metric names:
Top Region by Sales Price (avg)

Custom name:

▶ **Display Options**

▶ **Actions**

To select the summary item values:

1. To select the dimension for which to display a value:
 - (a) Click the **Select Dimension** button.

Highest-Priced Region

Select the dimension to display, and the metrics to use to determine the dimension value.

Dimension:

Metric:

- (b) On the **Select a Dimension** dialog, click the dimension you want to use.

- (c) Click **Apply**.
2. To display the dimension value with the highest metric value, click the **Top Value** radio button.
To display the dimension value with the lowest metric value, click the **Bottom Value** radio button.
3. To select a different dimension:
 - (a) Click the delete icon for the current dimension.
 - (b) Click the **Select Dimension** button.
 - (c) On the **Select a Dimension** dialog, click the dimension you want to use.
 - (d) Click **Apply**.
4. To select the metric value:
 - (a) Click the **Select Metric** button.
 - (b) On the **Select a Metric** dialog, click the metric you want to use. You can use the filter field to find a specific metric.
 - (c) Click **Apply**.
5. To select a different aggregation method for the metric, you can use the drop-down list next to the metric name.
You cannot select a different aggregation method for a predefined metric.
6. To select a different metric:
 - (a) Click the delete icon for the current metric.
 - (b) Click the **Select Metric** button.
 - (c) On the **Select a Metric** dialog, click the metric you want to use.
 - (d) Click **Apply**.
7. To configure the metric or dimension:
 - (a) Click its edit icon.
 - (b) For date/time dimensions, from the **Date/time Subset** drop-down list, select the date/time subset to display on the component.
By default, the largest available subset is used.
 - (c) For metrics that are not predefined, the configuration dialog includes a drop-down list to select the aggregation method.
 - (d) For both the dimension and the metrics, the **Value Formatting** section allows you to customize the format of the displayed value.

For details on customizing a displayed value on a component, see [Configuring the format of values displayed on a component on page 190](#).

Configuring the display and actions for metric and dimension value spotlight summary items

For metric and dimension value spotlight summary items, the summary item includes a label above or below the displayed metric or dimension value. You can also configure the display options and action for the summary item.

On the **Summarization Bar** edit view, on the **Define Item** tab for the summary item:

1. The **Display Name** setting determines the label displayed below the metric or dimension value.

Display Name: Use dimension & metric names:
 Top Region by Sales Price (avg)

Custom name:

You can either display the dimension and metric names, or use a custom name. The custom name is also used as the name of the summary item.

2. Under **Display Options**, use the **Tooltip** setting to provide a description of the summary item.

▼ Display Options

Tooltip: *Provide an additional description or details for the summary item metric. The description can include tokens to represent values associated with the selected metric.*

Example: "Rating: 93"

Width: *Summary items are truncated if they don't fit within the defined maximum width.*

Default max width (350 pixels) Custom max width pixels

In the tooltip text, use the `{MetricValue}` token to represent the metric value.

3. The **Width** setting determines the maximum width of the summary item block.

You can use the default maximum width, or set a custom maximum width.

If the value doesn't fit within the maximum width of the summary item, then Studio truncates it.

4. For a metric summary item, you can allow users to click the metric value in order to navigate to a different page in the application or to an external URL.

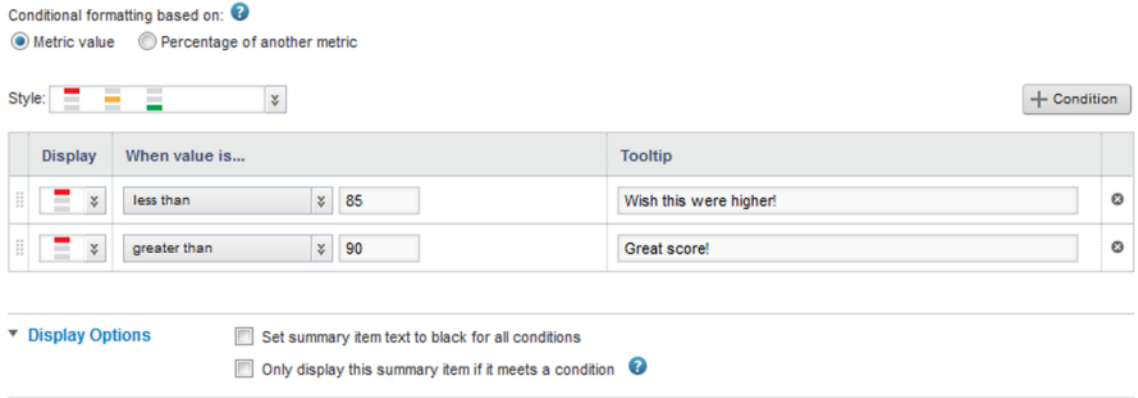
To enable the hyperlink, you must at least provide the page name or URL. See [Configuring actions for displayed values on page 197](#).

5. For a dimension value spotlight item, you can allow users to click the dimension value in order to either refine by the value, or to navigate to a different page in the application or to an external URL.

Under **Actions**, from the **Actions** drop-down list, select the action. For details on configuring an action from a component value, see [Configuring actions for displayed values on page 197](#).

Configuring conditional formatting for metric and dimension spotlight summary items

For a metric or dimension spotlight value summary item, you can configure different formatting based on the metric value.



On the **Conditional Formatting** tab for a summary item, to configure the conditional formatting:

1. Select the type of value to use to determine whether the condition is met:
 - (a) Click the radio button to indicate the value to use.

The options are:

Comparison Type	Description
Metric value	Indicates to apply the conditional formatting based on the actual summary item value.
Percentage of another metric	Indicates to apply the conditional formatting based on the ratio of the summary item metric value to another metric. For example, if a summary item displays total sales, then you could configure formatting based on the ratio of total sales to expected sales. So you might configure the total sales to display in green if they are greater than or equal to 100% of the expected sales.

- (b) For a ratio to another metric, to select the other metric, click the **Select Metric** button.
 - (c) On the **Select a Metric** dialog, click the metric you want to use, then click **Apply**.
2. From the **Style** drop-down list, select the style to use for the conditional formatting.
The style determines the available set of icons to display on the summary item.
3. To add a condition to the list, click the **+Condition** button.
4. To configure a condition:
 - (a) From the **Display** drop-down list, select the icon to display when the condition is met.

Note that you can have multiple rows that use the same display. For example, you may want to use the same formatting to highlight both very low and very high outlying values.

- (b) Under **When value is**, select the comparison to use, then enter the appropriate values.
 - (c) In the **Tooltip** column, type a tooltip to display when the condition is met.
5. To remove a condition, click its delete icon.
 6. In the **Display Options** section:
 - (a) By default, the text color on the summary item matches the icon color, if color is used. To always display the summary item value in black, check the **Set summary item text to black for all conditions** checkbox.
 - (b) To only display the summary item if the value meets one of the conditions, check the **Only display this summary item if it meets a condition** checkbox.

For example, if you create a condition for total sales for when the value is less than 1,000,000, then if this checkbox is checked, the summary item does not display at all when total sales are greater than or equal to 1,000,000.

Configuring flag summary items

For a flag summary item, on the **Define Flags** tab of the **Summarization Bar** edit view, you select the dimensions and set up the metric conditions.

If you select multiple dimensions, then the conditions are applied to combinations of those dimension values.

For example, if you select the product category and region dimensions, and set the flag condition to total sales greater than 500, then the flag summary item is displayed if any combination of product category and region has total sales greater than 500.

To configure a flag summary item:

1. In the **Display Name** field, type the text to display on the summary item.

Low-Scoring Vintages

Select a combination of dimensions and conditions to determine the type of information to flag and when to flag it.

Display Name:

Flag Color: ▼

Select Dimension(s)

Select one or more dimensions to identify the values that you're interested in. To change the order of the dimensions, drag them up or down in the list.

Vintage ✎ ⌵

The display name is also used as the name of the summary item.

2. From the **Flag Color** drop-down list, select the background color to use for the number of values that match the flag criteria.
3. To add a dimension to the flag summary item:
 - (a) Click the **+ Dimension** button.
 - (b) On the **Select a Dimension** dialog, click the dimension you want to use.

(c) Click **Apply**.

If you select a date/time attribute as a flag dimension, then by default, Studio uses the largest available date/time subset. For example, if the attribute has Year, Year-Month, and Year-Month-Day enabled, then the Year subset is used.

4. The dimension values are applied in the order they are listed. To change the order, drag each dimension to the appropriate location in the list.
5. To remove a dimension from the list, click its delete icon.
6. Use the **Define Conditions** list to select the list of conditions that must be met in order for the flag summary item to display.

A flag summary item is only displayed on the end user view if at least one value matches all of the conditions in the list.

Define Conditions
 Define the conditions (metrics and thresholds) that determine when a dimension value is flagged. A dimension value is only flagged if ALL of the conditions are met. To change the order of the conditions, drag them up or down in the list. + Condition

Condition based on	Metric	Threshold
Metric value	new Base Score (avg)	less than 85

- (a) To add a condition to the list, click the **+Condition** button.
 - (b) To remove a condition from the list, click its delete icon.
 - (c) To change the order in which to apply the conditions, drag and drop the conditions to the appropriate location in the list.
7. For each condition in the **Define Conditions** list:
 - (a) From the **Condition Based On** drop-down list, select whether the condition is based on:
 - A single metric value. For example, display the flag summary item if any of the dimension values have more than 500 sales.
 - A ratio of two metrics. For example, display the flag summary item if the total sales for any of the dimension values is greater than 90% of the projected sales.
 - (b) To select a metric, click the **Select Metric** button.
 - (c) To select a different aggregation method for a metric, you can use the drop-down list next to the metric name. You cannot select a different aggregation method for a predefined metric.
 - (d) In the **Threshold** column, configure the condition comparison. From the drop-down list, select the comparison operator, then in the field or fields, type the comparison value or values.
 8. To configure a dimension or metric:
 - (a) Click its edit icon.
 - (b) For date/time dimensions, from the **Date/time Subset** drop-down list, select the date/time subset to display on the component.
 By default, the largest available subset is used.
 - (c) For metrics that are not predefined, the configuration dialog includes a drop-down list to select the aggregation method.

Configuring general settings for the Summarization Bar display

The **General Settings** tab of the **Summarization Bar** edit view contains general settings to control the label position and text size for all of the summary items.

To configure the general display settings:

1. On the **Summarization Bar** edit view, click the **General Settings** tab.

General Settings

Edit the display options across all of your summary items

Display name position: Below value Above value

Value text size: smaller larger

Label text size: smaller larger

2. Under **Display name position**, click a radio button to indicate whether to display the summary item display name above or below the summary item value.
3. Under **Value text size**, use the slider to adjust the size in pixels of the summary item value.
You can set the size anywhere between 11 and 48 pixels. The default size for the summary item value is 28 pixels.
4. Under **Label text size**, use the slider to adjust the size in pixels of the summary item display name.
You can set the size anywhere between 11 and 48 pixels. The default size for the summary item display name is 12 pixels.

Tag Cloud

The **Tag Cloud** component displays a collection of terms from a selected attribute. The terms are highlighted or ordered based on the value of an associated metric.

[About the Tag Cloud component](#)

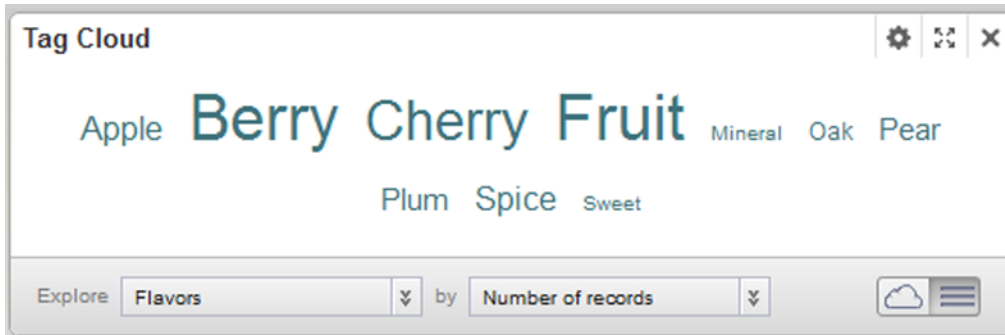
[Using Tag Cloud](#)

[Configuring a Tag Cloud component](#)

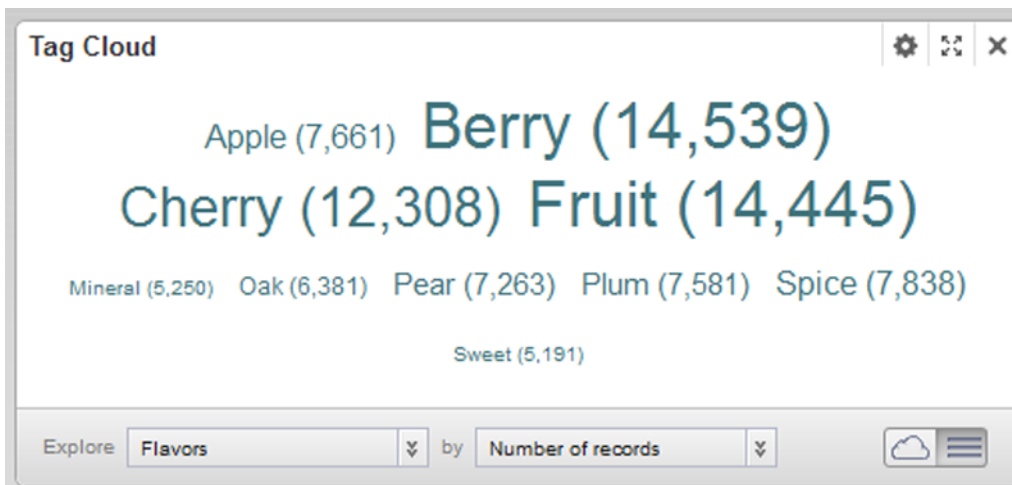
About the Tag Cloud component

The **Tag Cloud** component allows users to quickly compare a set of displayed terms based on the value of an associated metric, such as the number of times the term occurs.

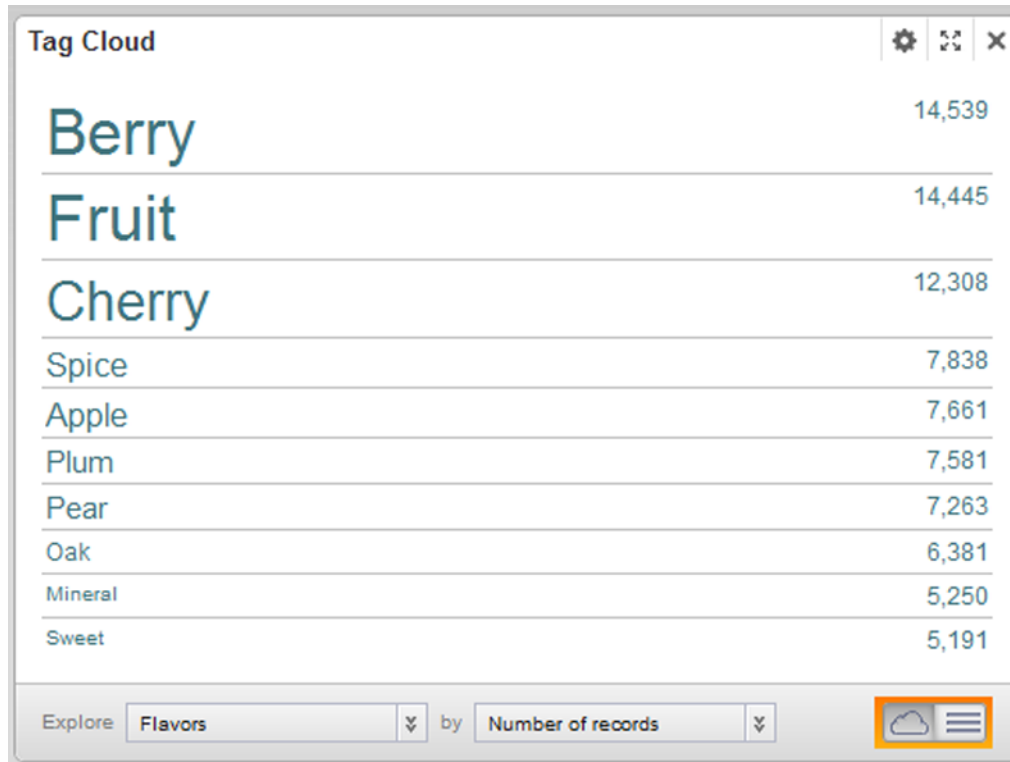
For example, a **Tag Cloud** component might display a list of wine flavors, organized based on the number of wines that include each flavor.



The component can also display the metric value associated with each term.



The **Tag Cloud** terms can display in a cloud, or as a simple list.



Term	Count
Berry	14,539
Fruit	14,445
Cherry	12,308
Spice	7,838
Apple	7,661
Plum	7,581
Pear	7,263
Oak	6,381
Mineral	5,250
Sweet	5,191

Explore by

Using Tag Cloud

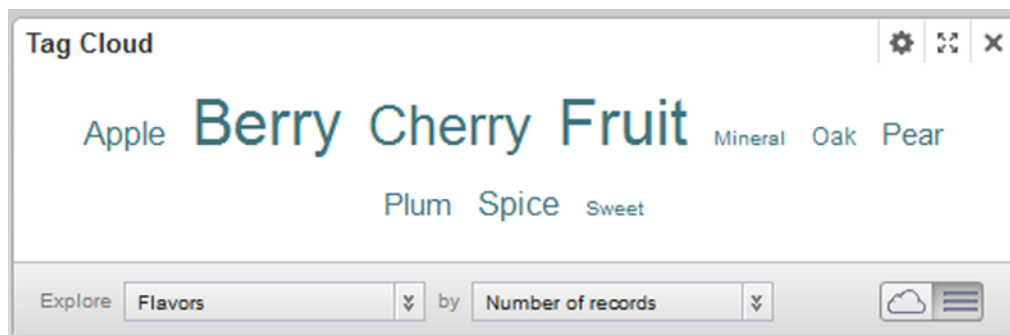
On the **Tag Cloud**, you can select the display type (cloud or list) and the terms to display. You may also be able to use the tag cloud terms to refine the data.

For information on using common component functions such as refining data, see [Using common component functions on page 33](#).

Selecting the type of Tag Cloud display

You can display the **Tag Cloud** in either cloud layout or list layout.

In cloud layout, the terms display in alphabetical order, and are not separated by a line break.

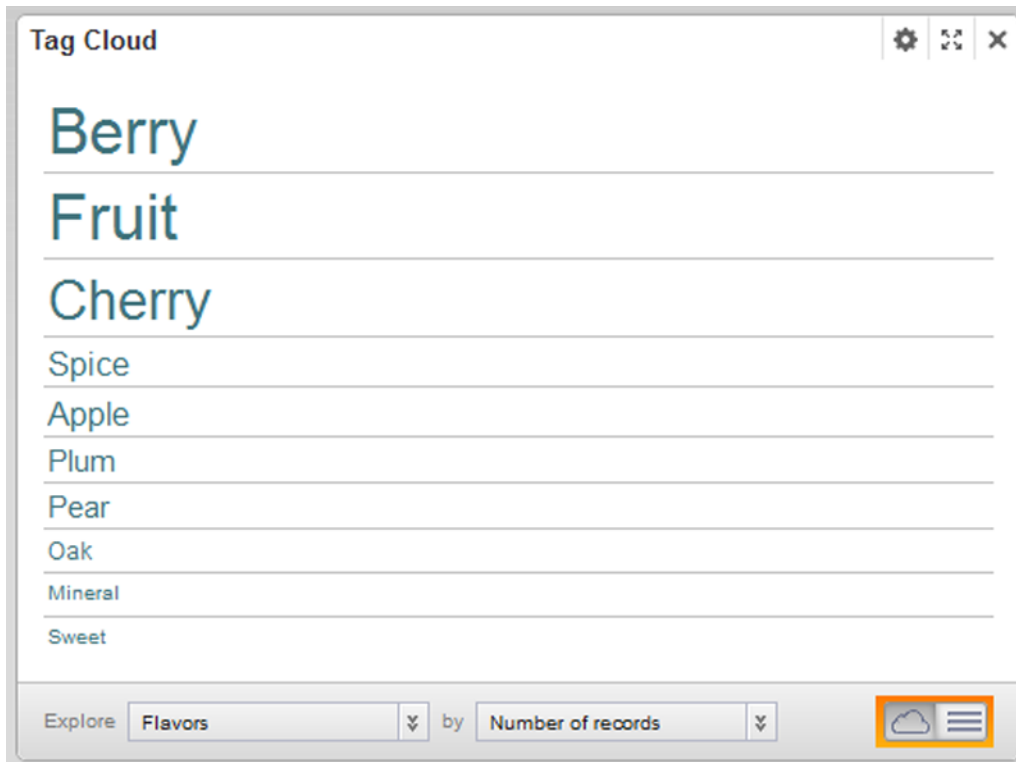


Tag Cloud

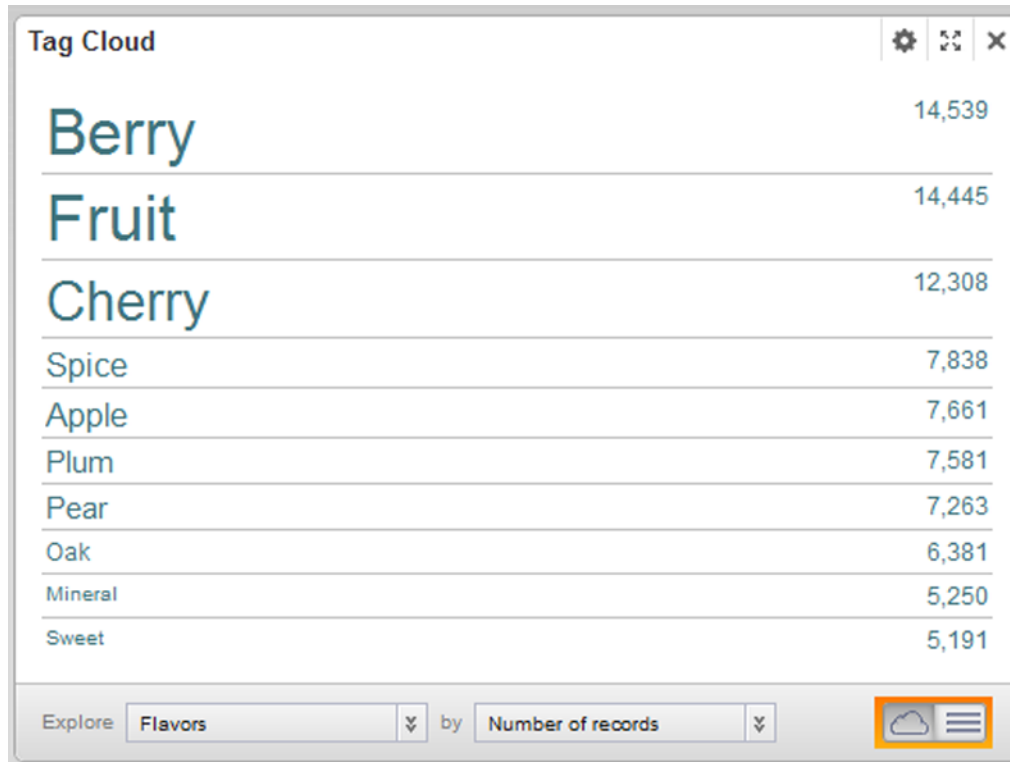
Apple Berry Cherry Fruit Mineral Oak Pear
Plum Spice Sweet

Explore by

In list layout, each term displays on a separate line. The terms are displayed in descending order based on the value of the associated metric.



For either layout, each term may be followed by the value of the associated metric.



The **Tag Cloud** component provides a toggle icon to allow you to toggle between the two layouts. On the toggle icon, the currently displayed format is highlighted.

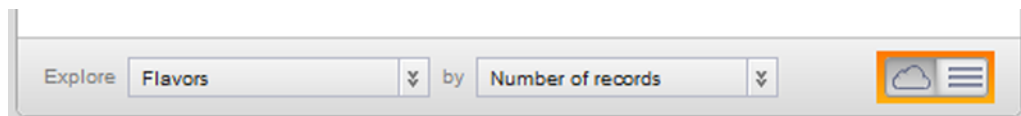
To toggle to the other layout, click the toggle icon.

Selecting the values to display on the Tag Cloud

A **Tag Cloud** component can be configured with multiple options for the set of terms to display and the metric used to determine the relative size or display order of those terms.

If there are multiple sets of terms available, then the component includes an **Explore** drop-down list. From the **Explore** drop-down list, select the set of terms to display.

If there are multiple metrics available, then a **by** drop-down list is displayed. From the **by** drop-down list, select the metric to use to compare the displayed terms.



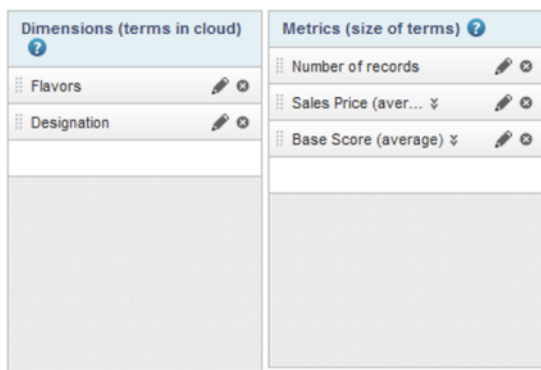
Configuring a Tag Cloud component

For a **Tag Cloud** component, you select the available values to display and the format in which to display them

Selecting the available dimensions for the Tag Cloud

The terms displayed on the **Tag Cloud** are values from a selected dimension. From the edit view of the **Tag Cloud** component, you can configure a list of available dimensions for end users to select from.

On the **Configuration** tab of the **Tag Cloud** edit view, the **Dimensions** list contains the available dimensions.



By default, the **Tag Cloud** component contains the first available multi-value dimension that allows refinement.

For additional information on selecting attributes for a component, see [Selecting the attributes to use on a component on page 187](#).

To select the available **Tag Cloud** dimensions:

1. To add a dimension to the **Dimensions** list, drag it from the attributes list.
Note that you cannot use date/time attributes in a **Tag Cloud**.
2. To determine the order in which to display the dimensions in the **Explore** drop-down list, drag each dimension to the appropriate location in the list.
The dimension at the top of the list is selected by default when the component is first displayed.
3. To remove a dimension from the **Dimensions** list, click its delete icon.

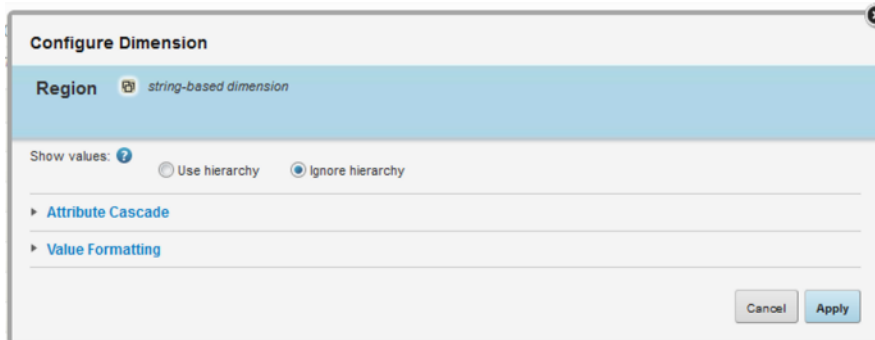
Configuring the available Tag Cloud dimensions

For each **Tag Cloud** dimension, you can configure the capitalization to use for the displayed terms. You can also set up a cascading hierarchy for when users refine by a **Tag Cloud** term.

To configure the **Tag Cloud** dimensions:

1. In the **Dimensions** list, click the edit icon for the dimension you want to configure.

The **Configure Dimension** dialog is displayed.



2. Under **Show values**, select how to display the dimension values if the dimension has a hierarchy of values.

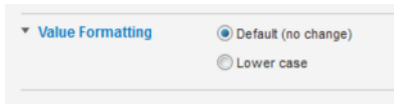
The default option is **Use hierarchy**, which indicates to only display one level of the hierarchy at a time. When the values are first displayed, they only include the top level of the hierarchy. When end users refine by a value, the next level of values is then displayed.

To display the specific values assigned to records, regardless of the hierarchy level, select **Ignore hierarchy**.

3. To allow the dimensions to cascade when users refine by a **Tag Cloud** term, in the **Attribute Cascade** section, check the **Enable dimension cascade** checkbox.

For details on how to configure a dimension cascade, see [Configuring cascading for dimension refinement on page 201](#).

4. The **Value Formatting** section allows you to control the capitalization of the displayed terms. To expand or collapse the section, click the section heading.



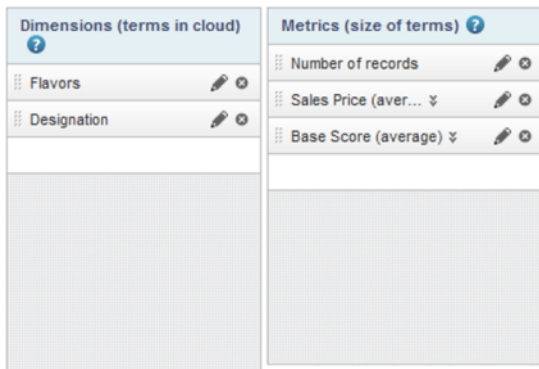
Under **Value Formatting**:

- To display the **Tag Cloud** terms exactly as they are stored in the data, click the **Default (no change)** radio button.
 - To display all of the terms in lowercase, click the **Lower case** radio button.
5. To save the configuration, click **Apply**.

Selecting the available metrics to determine the relative size or order of the Tag Cloud terms

On the **Tag Cloud**, the value of the selected metric determines the relative size of the **Tag Cloud** terms. For list view, it also determines the display order.

On the **Configuration** tab of the **Tag Cloud** edit view, the **Metrics** list contains the available metrics for end users to select from.



For additional information on selecting attributes to use for a component, see [Selecting the attributes to use on a component on page 187](#).

In addition to regular attributes and system metrics, the **Tag Cloud** also provides a Relevancy metric. The Relevancy metric applies when the data has been refined, and determines how relevant each term is to the current refinement. To determine the relevancy of each term, Studio compares the frequency of the term in the current refinement to the frequency in the data as a whole.

- If a term occurs more frequently in the current refinement than in the data as a whole, then that term is more relevant, and is larger.
- If a term does not occur any more frequently in the current refinement, then the term is less relevant, and is smaller.

For example, a **Tag Cloud** contains wine types. The Sparkling wine type occurs in 30% of the records. When users refine by a specific region, if the Sparkling wine type now occurs in more than 30% of the records, then the Sparkling wine type is more relevant. If the Sparkling wine type only occurs in 30% or fewer of the records, then it is less relevant.

To select the available **Tag Cloud** metrics:

1. To add a metric to the **Metrics** list, drag the metric from the attributes list to the **Metrics** list.
Note that you cannot use date/time attributes in a **Tag Cloud**.
2. To determine the order in which the metrics display in the **by** drop-down list, drag each metric to the appropriate location in the list.
The metric at the top of the list is selected by default when the **Tag Cloud** component is first displayed.
3. To remove a metric from the list, click its delete icon.

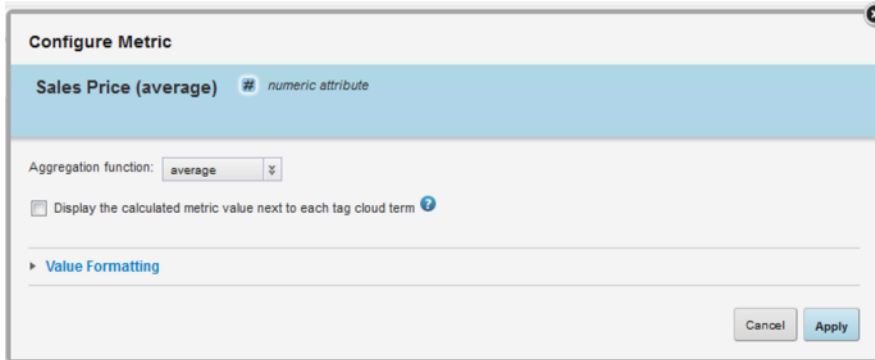
Configuring the available Tag Cloud metrics

For each **Tag Cloud** metric, you can configure the aggregation function to use. You also determine whether to display the metric values on the **Tag Cloud**, and the format to use for those values.

On the **Configuration** tab of the **Tag Cloud** edit view, to configure a metric:

1. In the **Metrics** list, click the edit icon for the metric.
2. On the **Configure Metric** dialog, from the **Aggregation** method drop-down list, select the aggregation method to use to calculate the metric value.

For information on selecting a metric aggregation method, see [Selecting the aggregation method to use for a metric on page 189](#).



3. To display the calculated metric value for each **Tag Cloud** term, check the **Display calculated metric value next to each tag cloud term** checkbox.
4. If you are displaying the metric values, then use the **Value Formatting** section to customize the display format.

For details on customizing the format of values displayed on a component, see [Configuring the format of values displayed on a component on page 190](#).

5. To save the configuration, click **Apply**.

Configuring the general Tag Cloud display options

The **Display Options** tab of the **Tag Cloud** edit view provides additional display configuration options for the **Tag Cloud**.

The configuration includes the number of terms to display, the default format, and the text size for the terms.

Display Options

Configure the size, format, and optional features for the tag cloud.

Maximum number of keywords:
Enter a value between 1 and 100

Maximum component height for list view: pixels

Tag Cloud format: Cloud List

Allow end user to toggle format

Text size:

To configure the display:

1. In the **Maximum number of keywords** field, type the maximum number of terms to display on the **Tag Cloud**.
2. In the **Maximum component height for list view** field, type the maximum height in pixels of the **Tag Cloud** component when displayed in list view.
If the list does not fit within the specified height, then end users can scroll through the list.
3. Under **Tag Cloud** format:
 - (a) Click a radio button to select the default display format (**Cloud** or **List**) for the tag cloud.
 - (b) By default, end users can toggle between cloud and list view. To prevent them from changing the format, uncheck the **Allow end user to toggle format** checkbox.
4. Under **Text size**, use the sliders to set the minimum and maximum size in pixels of the **Tag Cloud** terms.

By default, the text size ranges from 10 pixels to 32 pixels.

You can set the text size down to a minimum of 8 pixels, and up to a maximum of 48 pixels.

You can also put the sliders on top of each other to set a single text size for all of the terms. For example, for a list view that includes the number of values next to each term, you may just want to display all of the terms at a size of 11 pixels.



Personalization components allow end users to customize the Studio application.

[Bookmarks](#)

Bookmarks

The **Bookmarks** component provides a bookmarking function for users.

[About the Bookmarks component](#)

[Configuring the outbound email server for sending bookmarks](#)

[Using Bookmarks](#)

[Bookmark data saved for each component](#)

[Configuring a Bookmarks component](#)

About the Bookmarks component

Bookmarks allows users to save a given navigation and component state so that they can return to it at a later time or email it to other users.

The component can include both bookmarks created by the current user and shared bookmarks created by other users. Depending on the component configuration, it can include bookmarks for only the current page, for only the current application, or for all applications the current user has access to.

Bookmarks					
Filter bookmarks...		Showing bookmarks for: All Applications Columns			
▼ My Bookmarks					
Name ▲	Description	Application	Page	Date Creat...	Actions
Inexpensive,...	Wines that a...	Sales Disco...	Wine	Wednesday,...	✖ ✎ ✏ ✉
Specialty bik...	Sales from s...	Transaction ...	AdventureW...	Wednesday,...	✖ ✎ ✏ ✉
▼ Community Bookmarks					
Name ▲	Description	Application	Page	Date Created	Actions
Best Buy app...	Apple-flavore...	Sales Discov...	Wine	Wednesday, ...	✎ ✉
German whites	White wines ...	Sales Discov...	Wine	Wednesday, ...	✎ ✉

+ Bookmark

Note that a bookmark is only guaranteed to work if the page that it points to has not been changed. If components have been added, removed, or modified, then the bookmark may no longer be valid.

When a page or application is removed, then any associated bookmarks for that page or application are also removed.

When a user is removed, then any bookmarks created by that user are also removed.

Configuring the outbound email server for sending bookmarks

In order for users to be able to email bookmarks, you must configure the outbound email server. The email address associated with the outbound server is used as the from address on the bookmark email message.

To configure the email server:

1. From the administrator menu, select **Control Panel**.
2. In the **Server** section of the **Control Panel** menu, click **Server Administration**.
3. On the **Server Administration** page, click the **Mail** tab.
4. Fill out the fields for the outbound mail server:

Outgoing SMTP Server	<input type="text" value="acme.com.s7a1.pstmp.com"/>
Outgoing Port	<input type="text" value="25"/>
Use a Secure Network Connection	<input type="checkbox"/>
User Name	<input type="text" value="user_user@acme.com"/>
Password	<input type="password" value="*****"/>

- (a) In the **Outgoing SMTP Server** field, enter the name of the SMTP server to use to send the email.
 - (b) In the **Outgoing Port** field, enter the port number for the SMTP server.
 - (c) If you are not using the SMTPS mail protocol to send the email, then the **Use a Secure Network Connection** checkbox must be unchecked.
 - (d) In the **User Name** field, type the email address to associate with the mail server.
This is the email address used as the from address when end users email bookmarks.
 - (e) In the **Password** field, type the email password associated with the email address.
5. Click **Save**.

Using Bookmarks

In addition to creating and navigating to bookmarks, you can also send links to bookmarks.

About the Bookmarks lists

The **Bookmarks** component displays bookmarks created by the current user, and can include shared bookmarks created by other users. Other than shared bookmarks, you cannot see bookmarks created by other users.

Depending on the component configuration, you may only be able to see bookmarks that were created in the current application or on the current page. You can never see bookmarks for applications or pages you do not have access to.

The **Bookmarks** component can contain two lists of bookmarks. The **My Bookmarks** list contains bookmarks created by the current user. The **Community Bookmarks** list contains bookmarks created by other users and configured to be available to all users with access to the bookmark's application.

The screenshot shows a 'Bookmarks' window with a search bar and a filter dropdown set to 'All Applications'. It displays two sections: 'My Bookmarks' and 'Community Bookmarks'. Each section contains a table of bookmark entries.

My Bookmarks					
Name ▲	Description	Application	Page	Date Creat...	Actions
Inexpensive,...	Wines that a...	Sales Disco...	Wine	Wednesday,...	✕ ✎ ✎ ✉
Specialty bik...	Sales from s...	Transaction ...	AdventureW...	Wednesday,...	✕ ✎ ✎ ✉

Community Bookmarks					
Name ▲	Description	Application	Page	Date Created	Actions
Best Buy app...	Apple-flavore...	Sales Discov...	Wine	Wednesday, ...	✎ ✉
German whites	White wines ...	Sales Discov...	Wine	Wednesday, ...	✎ ✉

+ Bookmark

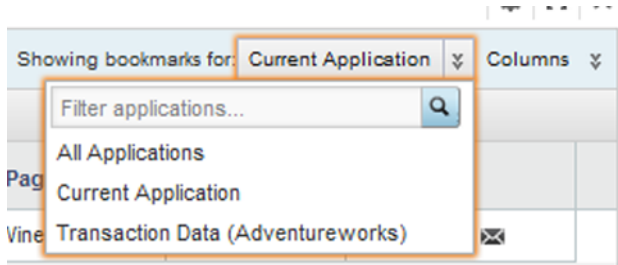
You can use the filter field at the top of the component to find a specific bookmark based on the bookmark name or description.

Customizing the display of the Bookmarks lists

For the **Bookmarks** component, you can determine the columns to include in the lists. If the **Bookmarks** component can display bookmarks from multiple applications, you can select the applications for which to display bookmarks.

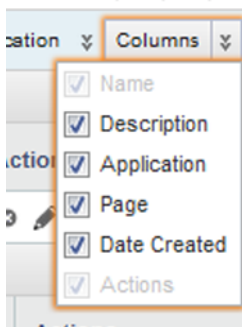
To configure the applications and columns to include:

1. If the **Bookmarks** component allows you to display bookmarks from other applications, then the **Show Bookmarks for** drop-down list is enabled.



- (a) To display bookmarks for all of the applications, select **All Applications**.
 - (b) To select a specific application for which to display bookmarks, select the application.
2. The bookmark lists always contain the bookmark name with the link to the bookmark, and the available actions for the bookmark. The list can also include other information about each bookmark. To select the columns to include:

- (a) Click the **Columns** drop-down.
- (b) In the **Columns** list, check the checkbox next to each column to display. To remove a column, uncheck its checkbox.



You may be able to choose to show or hide:

- The bookmark description
- The application the bookmark was created from
- The page the bookmark was created from
- The user who created the bookmark
- The date the bookmark was created

Creating, editing, and deleting bookmarks

The **Bookmarks** component may allow you to create new bookmarks. You can also edit and remove bookmarks that you have created.

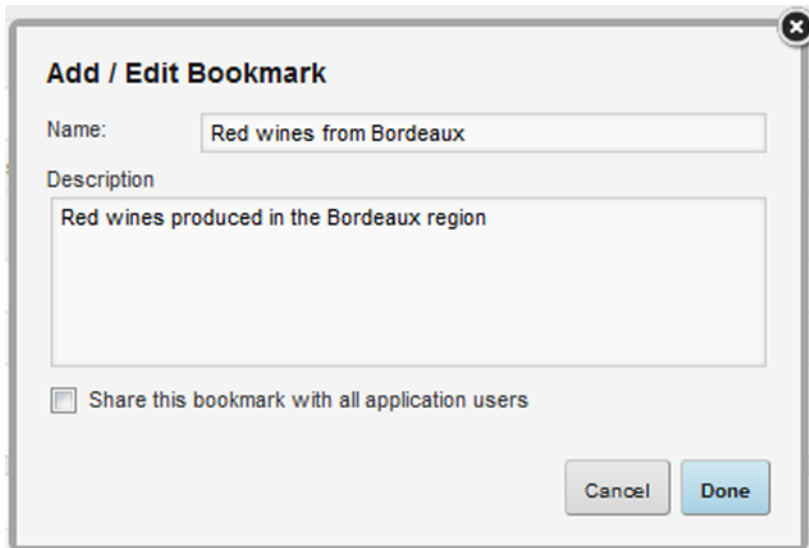
To create, edit, and remove bookmarks:

1. To create a new bookmark:

- (a) Click **+ Bookmark**.

The option is displayed on the **Bookmarks** component, and is also available from the application footer.

The **Add / Edit Bookmark** dialog is displayed.



- (b) In the **Name** field, enter a name for the bookmark.
All bookmarks you create must have a unique name.
 - (c) In the **Description** field, provide an optional description for the bookmark.
 - (d) To make the bookmark a shared bookmark available to all users with access to the current application, check the **Share this bookmark with all application users** checkbox.
 - (e) Click **Done**.
2. To edit an existing bookmark:
 - (a) In the **Actions** column, click the edit icon for the bookmark.
 - (b) On the **Add / Edit Bookmark** dialog, make the necessary edits to the bookmark.
You can change the name, description, and whether the bookmark is shared.
 - (c) Click **Done**.
 3. To remove a bookmark from the list, in the **Actions** column, click its delete icon.

Generating and emailing bookmark links

Users can get access to bookmarks using a URL. From the **Bookmarks** component, you can generate the bookmark URL, or email the URL to other users.

Users who try to navigate to a bookmark using a URL are prompted to log in to Studio. Even if they are sent the URL, users cannot navigate to a bookmark for an application or page they do not have access to.

To generate or email a link to a bookmark:

1. To generate the URL for a bookmark:
 - (a) In the **Actions** column, click the link icon for the bookmark.

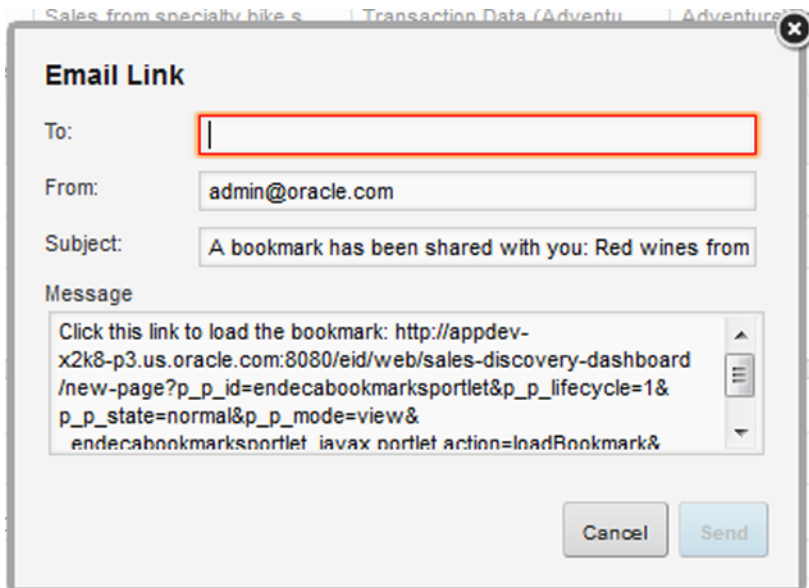
The **Bookmark URL** dialog is displayed.



- (b) To select the URL so that you can copy and paste it, click **Select**.

2. To email the bookmark:
 - (a) Click the email icon for the bookmark.

The **Email Link** dialog is displayed, with all of the fields pre-populated except for the **To** field.



- (b) In the **To** field, enter the email address for the recipient.

Use commas to separate multiple email addresses.

- (c) In the **From** field, you can customize the address used as the reply-to address on the email message.

Note that this is not the from address. The from address on the email is the address associated with the outbound email server.

- (d) In the **Subject** field, you can customize the subject line for the email.

- (e) In the **Message** field, you can add any additional text to the email message.

Make sure you do not change the bookmark URL.

- (f) To send the email, click **Send**.

Bookmark data saved for each component

For each component on the application page where the bookmark was created, the **Bookmarks** component saves the following information about the component state.

There is no bookmark data for the **Bookmarks** component itself.

Component	Persisted States	Comments
Available Refinements	Expanded attributes and collapsed attribute groups	When a bookmark is loaded, the groups and attributes are expanded and collapsed the same as when the bookmark was saved.
Chart	Dimension and metric drop-down lists	When a bookmark is loaded, the chart uses the options from the dimension and metric drop-down lists that were selected when the bookmark was saved.
Data Explorer	Selected sorting, records per page, and Grouped by options	When a bookmark is loaded, the component uses the same sorting and grouping options that were selected when the bookmark was saved, and displays the same number of records per page.
Map	Records per page selection, sort order, map searches	When a bookmark is loaded, the component shows the number of records per page that was selected when the bookmark was saved. The map sort order and any refinements from a map search also are saved.
Pivot Table	None	
Results List	Selected sorting and pagination options	When a bookmark is loaded, the component uses the same sorting and records per page options that were selected when the bookmark was saved.

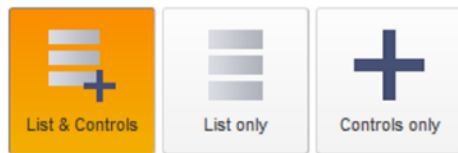
Component	Persisted States	Comments
Results Table	Sort state and number of records per page	When a bookmark is loaded, the component uses the same sorting and records per page options that were selected when the bookmark was saved.
Search Box	None	
Selected Refinements	Expanded multi-select attributes	When users select multiple values for an attribute, the Selected Refinements component may group those values in a collapse/expand control. A bookmark stores whether each collapse/expand control is expanded or collapsed.
Summarization Bar	None	
Tabbed Component Container	The tab in focus	When a bookmark is loaded, the component has the same tab selected as when the bookmark was saved.
Tag Cloud	Display format (cloud vs list), selected dimension, selected metric	

Configuring a Bookmarks component

For the **Bookmarks** component, you configure how the component is displayed to end users, and make any needed customization to the context path and URL.

Configuring the bookmarks list and available options

On the **Configuration** tab of the **Bookmarks** component edit view, you determine the content of the component, including the bookmarks to display, the information for each bookmark, and the available options.



Display bookmarks for:

- All applications
- This application only
- This page only

Include:

- All bookmarks (My Bookmarks and Community Bookmarks)
- Personal bookmarks only (My Bookmarks)

Make these columns available in the "Columns" menu:

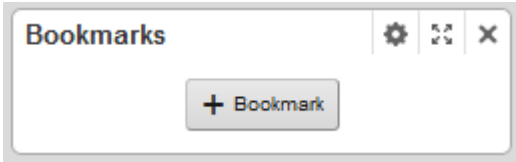
Column Name	Available	Display
Name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Description	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Application	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Page	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Author	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Date Created	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Actions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

To configure the **Bookmarks** component content:

1. Click the icon to select the display mode to use.

The options are:

Option	Description
List & Controls	End users can both create new bookmarks and see the list of existing bookmarks. This is the default.

Option	Description
<p>List only</p>	<p>End users can see the list of existing bookmarks, but cannot create a new bookmark.</p> <p>Because users can create bookmarks from the application footer, you might want to just display the list on the component.</p>
<p>Controls only</p>	<p>End users can create new bookmarks, but cannot see the list of saved bookmarks.</p> <div data-bbox="662 577 1175 737" style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;">  </div> <p>If you select this option, then the rest of the Configuration tab settings are disabled.</p> <p>A controls-only Bookmarks component can be used to allow end users to create bookmarks from more than one application page without repeating the full list. So on the main page, you would add a Bookmarks component with the full list and controls, and on the other pages, you would add a controls-only version of the component.</p> <p>Note that users can also create bookmarks using the link in the application footer.</p>

2. Under **Display bookmarks for**, click a radio button to indicate whether to display bookmarks for all applications, the current application only, or the current page only.
 Note that even if the **Bookmarks** component displays bookmarks from other applications, end users can only see bookmarks for applications that they have access to.
3. Under **Include**, click a radio button to indicate whether to only display both the **My Bookmarks** and **Community Bookmarks** list, or to only display the **My Bookmarks** list.
 If the **Community Bookmarks** list is not displayed, then users can only see bookmarks that they have created.
4. If end users can see the list of bookmarks, then under **Make these columns available in the "Columns" menu**:
 - (a) In the **Available** column, check the checkbox next to each column that end users can show and hide.
 - (b) In the **Display** column, check the checkbox next to each column to display by default.

By default, the **Name**, **Description**, and **Actions** columns are displayed.

You cannot hide the **Name** or **Actions** columns. The bookmark name and the available actions are always displayed.

You can show or hide, and allow end users to show or hide, the following columns:

Column	Description
Description	The description of the bookmarks provided by the bookmark author.
Application	The name of the application in which the bookmark was created.
Page	The name of the page on which the bookmark was created.
Author	The name of the user who created the bookmark.
Date Created	The date the bookmark was created.

Configuring the bookmarks list size and pagination

The **Display Options** tab of the **Bookmarks** component edit view contains options to control the size and pagination for the bookmarks list. If the component is configured to not display the list, then these settings have no effect.

Display Options

Use these options to configure the component size and pagination.

Table Height

Maximum number of rows for My Bookmarks:

Maximum number of rows for Community Bookmarks:

Enable end user results per page controls

Available results per page options:

Default results per page:

To configure the bookmark list size and pagination:

1. In the **Maximum number of rows for My Bookmarks** field, type the number of bookmarks that should be visible in the **My Bookmarks** list.
2. In the **Maximum number of rows for Community Bookmarks** field, type the number of bookmarks that should be visible in the **Community Bookmarks** list.
3. Use the remaining settings to configure the pagination for the bookmarks lists.

For information on configuring pagination for components, see [Configuring pagination options for components on page 205](#)

Configuring settings for the bookmarks context path and URL

The **URL Settings** tab of the **Bookmarks** component edit view allows you to customize the context path and URL for the bookmarks. In most cases, these advanced settings are not needed.

Context path: Use a custom context path if this component is located outside of a Studio application (for example, within an iframe) and needs specific routing information.

Use default

Custom context path:

Bookmarks URL: Whether to add Protocol, Host name, and Port settings to the bookmark URL (rarely needed).

Use default

Custom URL:

Protocol: ▾

Host name:

Port:

Additional parameters: Additional parameters to add to the bookmark URL if needed.

URL Preview:

To configure the context path and URL:

- Under **Context path**, you can determine whether to customize the context path for a bookmark. You would probably only need to customize the context path if Studio is embedded within another application. To customize the context path, click the **Custom context path** radio button, then update the path. As you update the path, the URL preview is updated to show the resulting URL.
- Under **Bookmarks URL**, you can determine whether to customize the URL used for bookmarks. You usually do not need to change from the default URL. The most likely reason to customize the URL is if Studio is embedded within another web-based application. To customize the URL, click the **Custom URL** radio button, then update the appropriate portions of the URL. The **URL Preview** field at the bottom of the tab displays the current URL.
- In the **Additional parameters** field, type the parameter string to append to the URL. For example, `param1=Value1¶m2=Value2`. Studio automatically inserts the `?` between the URL and the parameter string. The parameters are included in the URL preview.

Additional parameters: Additional parameters to add to the bookmark URL if needed.

URL Preview: `http://appdev-x2k8-p3.us.oracle.com:8080/eid/web/janice/new-workspace?&user=jsmith`



Chapter 25

Web-Based Content Components

Web-based content components are used to display web-based content on a page. The content may be custom content created and stored in Studio, or may be content from external URLs displayed within a component.

[IFrame](#)

[Web Content Display](#)

IFrame

The **IFrame** component can display the content of any external URL.

[About the IFrame component](#)

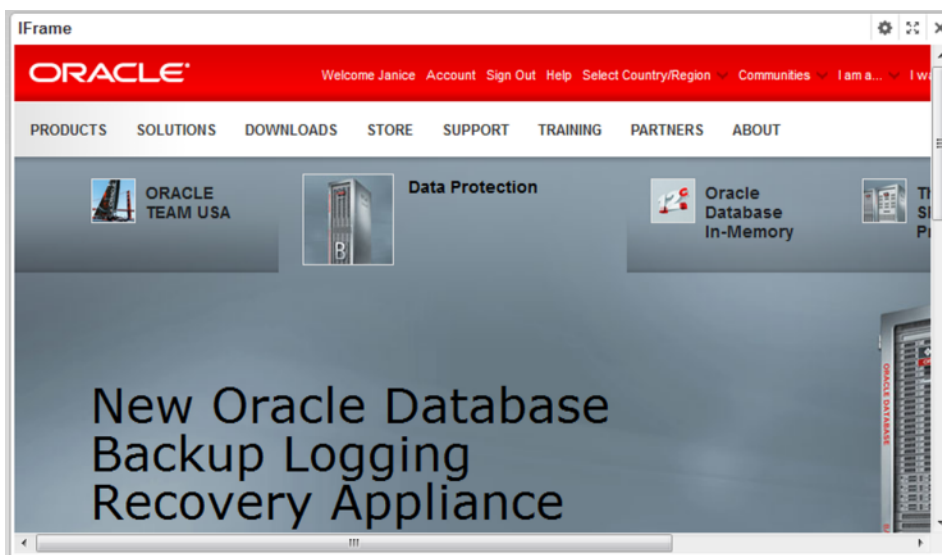
[Using the IFrame component](#)

[Configuring an IFrame component](#)

About the IFrame component

The **IFrame** component allows users to view content from an external URL in a Studio application.

For example, you might want to display your company's home page, or provide access to tools to allow users to share their findings.



Using the IFrame component

The **IFrame** component displays the content of the URL associated with the component.

Link targets from the URL also display within the **IFrame** component, unless they are specifically configured to display in another browser window.

Configuring an IFrame component

For an **IFrame** component, you configure the URL to display, and determine whether to require additional authentication in order to view the content.

To configure an **IFrame** component:

1. On the **IFrame** edit view, in the **Source URL** field, type the URL.

2. If the URL is relative to the context path for the Studio application, check the **Relative to Context Path** checkbox.
3. If the page you are embedding in the **IFrame** component requires authentication, then you can provide the authentication information as part of the component configuration. To do this:
 - (a) Check the **Authenticate** checkbox.

The authentication fields are displayed.

- (b) From the **Authentication Type** drop-down list, select the type of authentication.

Basic authentication simply provides the user name and password required by the embedded page.

Form authentication uses POST or GET to validate the user.
- (c) For **Basic** authentication, to specify the user name and password, enter the values in the fields.

- (d) For **Form** authentication, from the **Form Method** drop-down list, indicate whether to use GET or POST to validate the user.

Authentication		
Authenticate	<input checked="" type="checkbox"/>	
Authentication Type	Form	
Form Method	Post	
User Name	Field Name	Value
	<input type="text"/>	<input type="text"/>
Password	Field Name	Value
	<input type="text"/>	<input type="text"/>
Hidden Variables	var1=hello;var2=world	

For the user name and password, provide the field names and values to send.

In the **Hidden Variables** field, provide any hidden variables to include in the authentication request.

4. Use the **HTML Attributes** field to provide any additional display parameters for the content.
5. To save the configuration, click **Save**.
6. To return to the end user view, click **Exit**.

Web Content Display

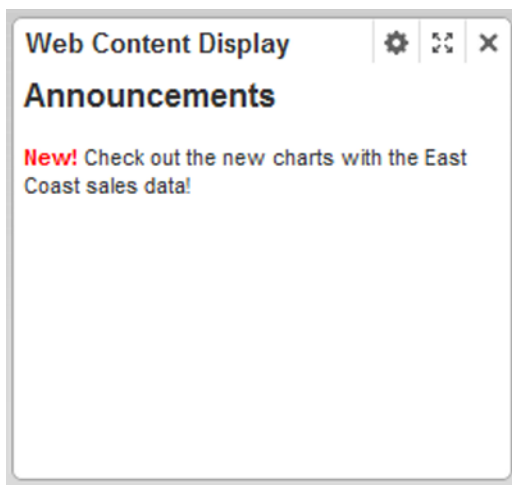
The **Web Content Display** component allows you to create and display HTML content in your application.

[About the Web Content Display component](#)

[Configuring a Web Content Display component](#)

About the Web Content Display component

The **Web Content Display** component allows you to display HTML-based content on a Studio page. For example, you could use the component for a brief welcome note, announcement, or instructions.

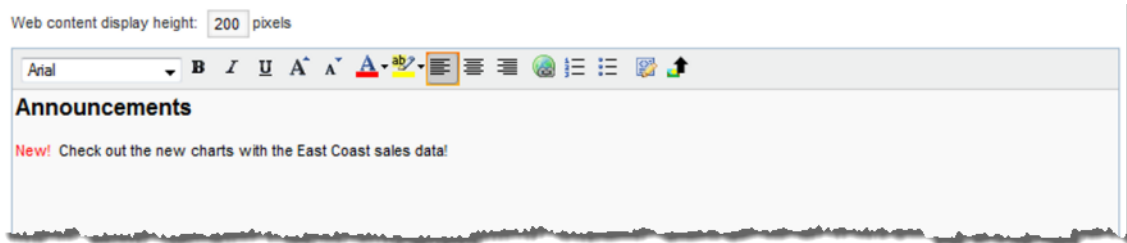


Configuring a Web Content Display component

For the **Web Content Display** component, you provide the content to display. You can also customize the component height.

To configure the **Web Content Display** component:

1. By default, the component is 200 pixels high. Use the **Web content display height** field to change the height.
2. Use the text editor to create or edit the component content.

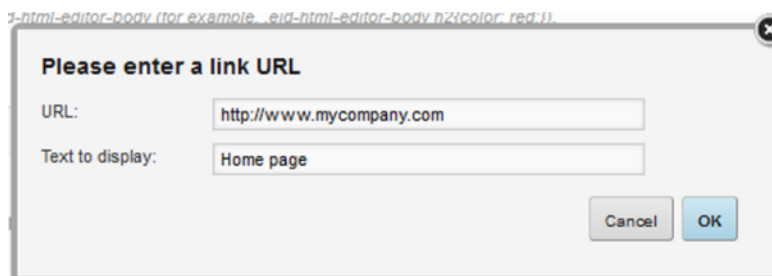


The text editor provides options to:

- Select the font
- Highlight text
- Change the text alignment
- Create numbered and bulleted lists

Note that you cannot include script tags or a separate style tag. If you do include these items, they are removed when you save the component.

3. To add a hyperlink:
 - (a) Select the link text.
 - (b) In the text editor toolbar, click the hyperlink icon.
 - (c) On the hyperlink dialog, in the **URL** field, type the URL.



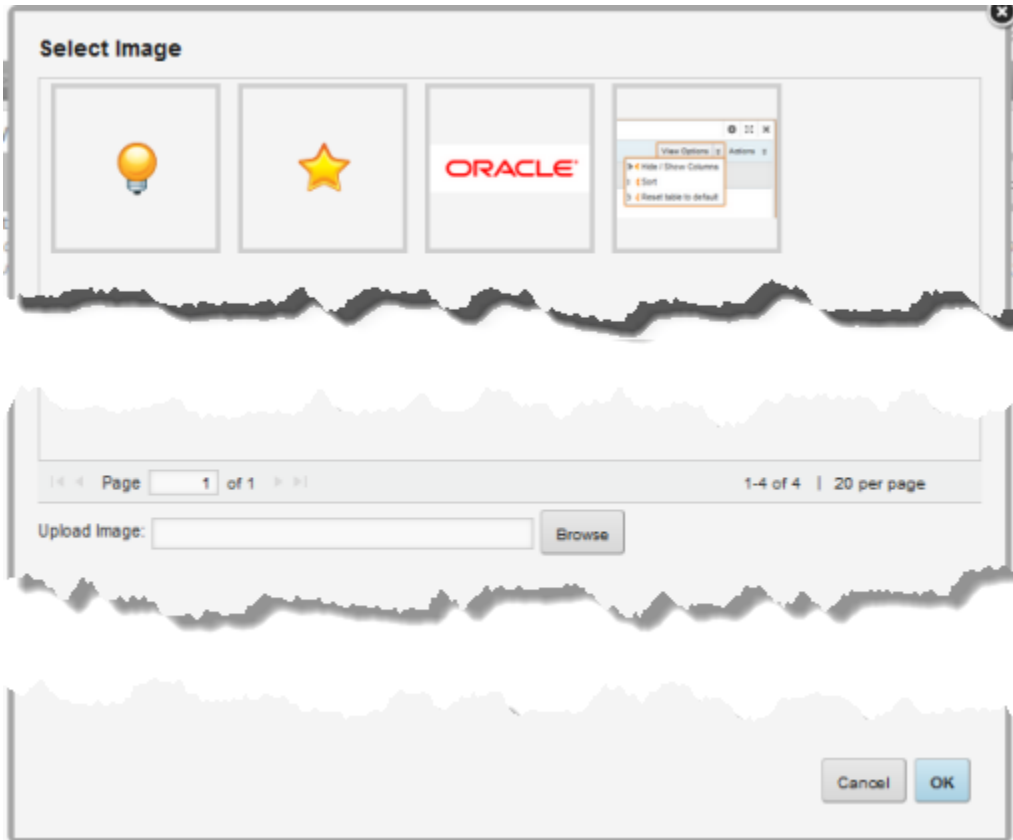
- (d) You can also edit the link text.
- (e) To save the link, click **OK**.

When end users click links in a **Web Content Display** component, the target URL automatically displays in a new browser window.

To edit an existing link, click anywhere in the link text, then click the hyperlink icon.

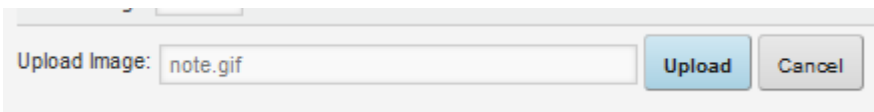
4. To insert an image:
 - (a) In the text editor toolbar, click the image upload icon.

The image upload dialog is displayed. The dialog displays any images that have been uploaded for this or any other **Web Content Display** component in the current application.



The list does not include images uploaded in other components or other applications. The images are stored in the Studio database.

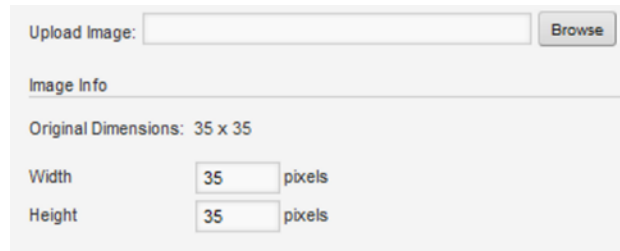
- (b) To use an existing image in the list, click the image, then click **OK**.
- (c) If you need to upload a new image, click the **Browse** button to search for and select the image.



Studio supports the .gif, .jpeg/.jpg, .bmp, and .png file types. To clear the image file selection, click **Cancel**.

- (d) To upload the selected file, click **Upload**.

The image is added to the list, and the dialog is updated to display the image width and height.



Upload Image:

Image Info

Original Dimensions: 35 x 35

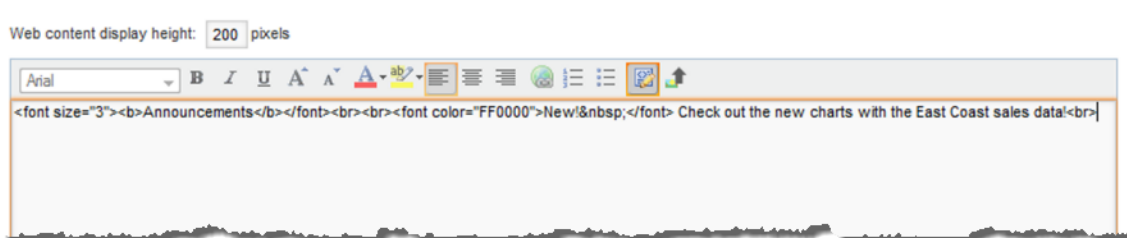
Width pixels

Height pixels

You can use the **Width** and **Height** fields to customize the displayed size of the image. The image always maintains its original aspect ratio. So for example when you edit the width, the height is automatically updated.

- (e) To insert the currently selected image, click **OK**.

5. To display the source HTML, click the source view icon.



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