

Oracle® Endeca Information Discovery Studio

Studio User's Guide

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Preface

Oracle® Endeca Information Discovery Studio is an enterprise data discovery platform for advanced, yet intuitive, exploration and analysis of complex and varied data.

Information is loaded from disparate source systems and stored in a faceted data model that dynamically supports changing data. This integrated and enriched data is made available for search, discovery, and analysis via interactive and configurable applications. Oracle Information Discovery Studio includes a Provisioning Service that allows you to upload data directly from spreadsheet files.

Oracle Endeca Information Discovery Studio enables an iterative “model-as-you-go” approach that simultaneously frees IT from the burdens of traditional data modeling and supports the broad exploration and analysis needs of business users.

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 Servers.

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
- Data architects who configure data sources used to provide the application data. Data sources are connected to Endeca Servers.
- 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.

Typeface	Meaning
<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

Oracle Endeca Information Discovery's 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.

Wine ID	Body	Flavors	Drinkability	Wine Type
34699	Elegant, Firm, Firm Tannin...	Berry, Cedar, Cherry, Cof...		Red
34700	Crisp, Harmonious	Fig, Fruit, Lemon, Toasty		White
34701	Crisp	Apple, Dry, Fruit, Grape, ...	Drink now	White
34702	Ripe	Citrus, Fig, Honey, Wood	Drink now	White
34703	Fresh, Soft	Earthy, Melon		White
34704	Balanced, Luscious, Rich	Black Cherry, Cherry, Ch...	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

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 Studio menu](#)

[About the Discovery Applications page](#)

[About the Studio application user interface](#)

[About the Control Panel](#)

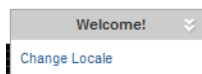
[About the Application Settings page](#)

About the Studio menu

The Studio menu, located in the upper right corner of Studio, contains the main menu for Studio.

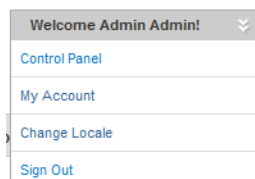
To display the menu options, hover the mouse over the Studio menu.

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



Studio 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.

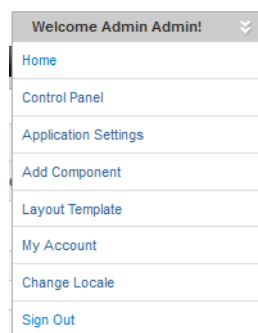
For logged-in users, the **Discovery Applications** page is the Studio home page. It provides access to Studio applications. On the **Discovery Applications** page, options become available to configure Studio, manage your account, and log out.



The additional menu options are:

Studio Menu Option	Purpose
Control Panel	Displays the Control Panel , which provides access to administrative functions for Studio. You can only see this option if you are a Studio administrator.
My Account	Allows you to edit your Studio user profile information.
Sign Out	Logs you out of Studio.

When you are within an application, application-specific options become available, as well as an option to return to the **Discovery Applications** page.



The additional menu options are:

Studio Menu Option	Purpose
Home	Returns you to the Discovery Applications page.
Application Settings	Displays the Application Settings page, which allows you to configure the application and manage the views and groups for the application data. You can only see this option if you are able to edit the application.
Add Component	Allows you to add components to the current application page. You can only see this option if you are able to edit the application.
Layout Template	Allows you to apply a different layout to the current application page. You can only see this option if you are able to edit the application.

About the Discovery Applications page

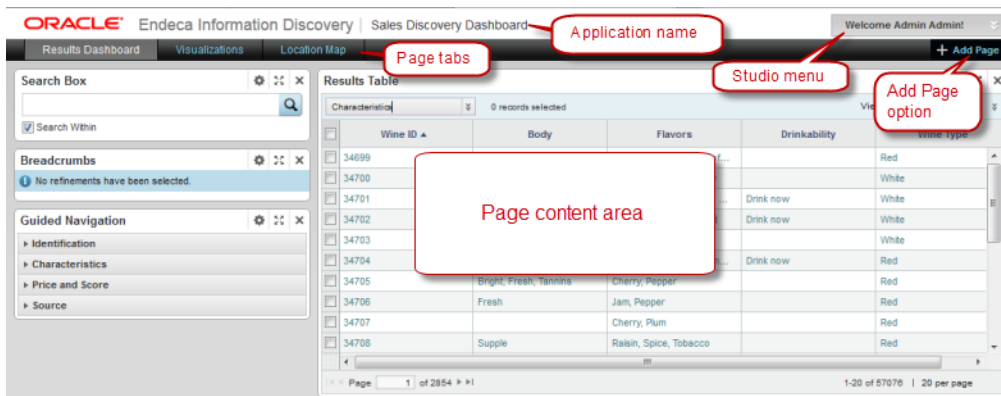
The **Discovery Applications** page is the home page for Studio.

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.
Studio menu	Provides access to functions such as: - Returning to the Discovery Applications page to select or create an application - Configuring Studio - Configuring the current application - Adding components to the current page - Logging out of Studio
Add Page option	Allows users to add pages to the current application.

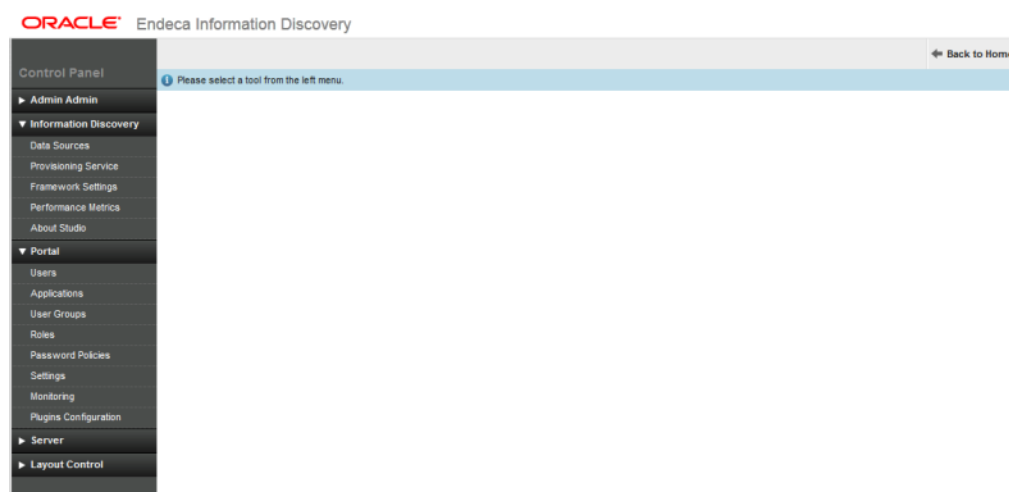
Item	Description
Page tabs	The application pages contain Studio components. You use the page tabs to select the page to view. Grouping components across multiple pages instead of on a single page can provide a more useful navigation experience for end users.
Page content area	The page content area for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

About the Control Panel

The **Control Panel**, available from the Studio menu, is only available to Studio administrators.

The **Control Panel** includes options to:

- Manage and configure applications
- Create and manage data sources
- Configure the connection to the Provisioning Service
- Configure Studio settings
- Manage Studio users and user access
- Monitor Studio performance



For details on administrative functions such as configuring framework settings, managing users, and monitoring performance, see the *Studio Administration and Customization Guide*.

About the Application Settings page

The **Application Settings** page, available from the Studio 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.
- Select data sources for application components. This option is only available if the application data source has related data sources.
- Configure views for the application data
- Configure attribute groups for the application data

The screenshot shows the Oracle Endeca Information Discovery Studio interface. The top bar includes the Oracle logo and the text "Endeca Information Discovery". The main header is "Application Settings" with a "Back to Sales Discovery Dashboard" link. A left sidebar contains a menu with "Application Settings" (selected), "Information Discovery", "Application Configuration" (selected), "Data Source Bindings", "View Manager", and "Attribute Group Manager". The main content area is titled "Application Configuration" and contains a "Save" button, a "Cancel" button, and a "Back to Sales Discovery Dashboard" link. The configuration fields include: Name (Sales Discovery Dashboard), FriendlyURL (/sales-discovery-dashboard1), Description (Dashboard for exploring recent sales data.), Data Source (free for all), and Application Access (Public). There is also a checkbox for "Maintain existing component preferences". Below these fields is a section for "Application Membership Access" with an "Add/Edit" button. At the bottom, there are two tables: "Users" with one entry "Admin Admin" and "User Groups" with one entry "No User Groups available".

Users	User Groups
Admin Admin	No User Groups available.

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 Your Password?** panel is displayed.

The screenshot shows the 'Forgot Your Password?' panel. It includes an 'Email Address:' label above a text input field. Below this is a CAPTCHA image showing the handwritten text '0648'. Underneath the CAPTCHA is a 'Text Verification:' label and another text input field. At the bottom left is a 'Sign In' link, and at the bottom right is a 'Send New Password' button.

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 in 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 Studio 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.

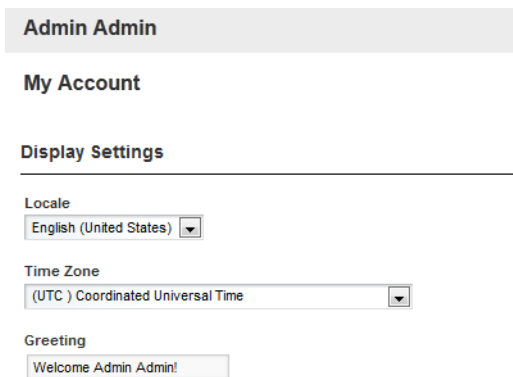
For more details on how Studio determines the locale to use, and how to configure the available and default Studio locales, see the *Studio Administration and Customization Guide*.

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 Studio 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
English (United States) ▼

Time Zone
(UTC) Coordinated Universal Time ▼

Greeting
Welcome Admin Admin!

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

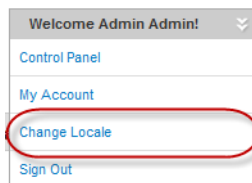
Using the Studio menu to select the locale to use

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

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

To select the locale to use:

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



Welcome Admin Admin! ▼

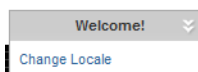
Control Panel

My Account

Change Locale

Sign Out

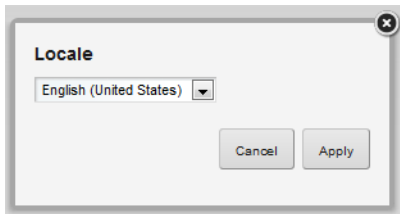
The option also is available for users who are not yet logged in.



Welcome! ▼

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.

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](#)

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

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 Studio menu, select **Home**
- Click the Oracle logo

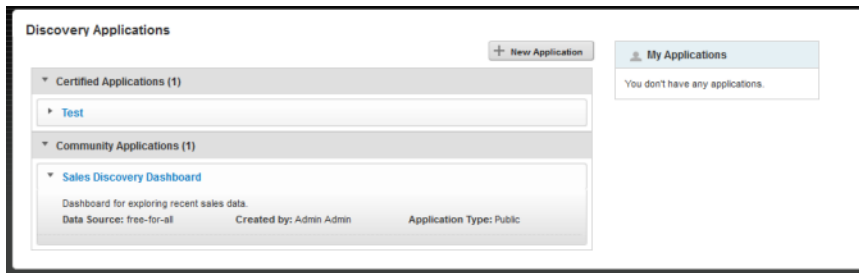
On the **Discovery Applications** page, the **Certified Applications** list contains applications that a Studio administrator has certified.

The **Community Applications** list contains applications that have not been certified.

The **My Applications** list to the right contains all of the complete applications for which you are an application administrator. Incomplete applications are not displayed in this list.

Displaying information about an application

On the **Discovery Applications** page, you use the expand/collapse icon next to the application name to display and hide additional information and options for an application.



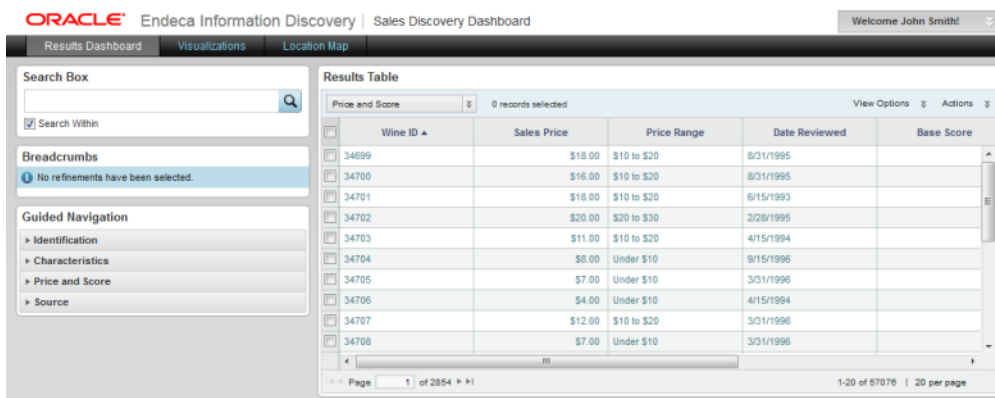
Navigating to an application

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

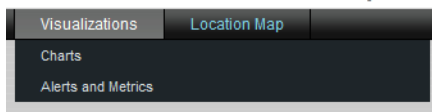
Navigating within an application

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.

Removing yourself as a member of an application

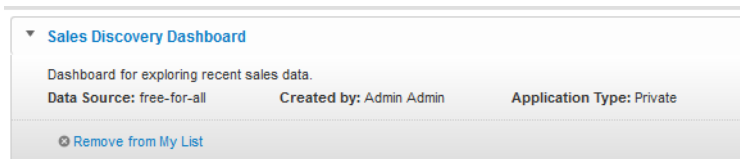
Private applications are only visible to application members. If you are a member of a private application, then from the **Discovery Applications** page, you can remove yourself as a member.

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, expand the information for the application.



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

Part III

Working with Studio Application Data



Chapter 6

Defining Data Sources

Every component that needs to query a data domain on an Endeca Server is backed by a data source. From Studio, you can create, edit, and remove data sources.

[About data sources](#)

[Using the Data Sources page to define data sources](#)

[Syntax for the data source definition](#)

About data sources

A data source represents a pointer to a specific data domain on an Endeca Server.

Each data source is a JSON string that contains:

- Connection information for the Endeca Server
- The name of the specific data domain to connect to
- Optional filters to restrict the returned data
- Optional settings to restrict who can connect an application to a data source

Data sources can be grouped into data source families. Data sources in the same family are connected to the same data domain, but may have different filters or security applied.

Each Studio application is connected to a specific data source. All of the components in an application are connected to that data source. Within an application, components can be connected to members of the same data source family.

Using the Data Sources page to define data sources

The **Data Sources** page, available from the Studio **Control Panel**, provides access to data sources.

[About the Data Sources page](#)

[Displaying the Data Sources page](#)

[Adding a data source](#)

[Editing a data source](#)

[Deleting a data source](#)

[Testing the connection to a data source](#)

About the Data Sources page

The **Data Sources** page displays the list of current data sources, including data sources created by the Provisioning Service from uploaded spreadsheets.

From the **Data Sources** page, you can:

- See whether each data source is available, read-only, and SSL-enabled
- Add a new data source
- Edit a data source definition
- Remove a data source
- Test the connection to a data source

Displaying the Data Sources page

The **Data Sources** page is available from the **Information Discovery** section of the **Control Panel** menu.

To display the **Data Sources** page:

1. From the Studio menu, select **Control Panel**.
2. In the **Information Discovery** section of the **Control Panel** menu, click **Data Sources**.

Each data source is represented by a block on the **Data Sources** page. The block contains the following information:

- Data source name and ID
- Oracle Endeca Server and port
- If applicable, the update server and port
- Data domain name
- Whether the data source is read-write or read-only
- Whether the data source is SSL-enabled (indicated by a lock icon in the bottom right corner)
- Whether the data source is unavailable. Unavailable data sources cannot be used by applications.

Data Sources

+ New Data Source	
default (default)	Test Connection Edit Delete
Oracle Endeca Server: appdev-x64-rhel5-p16.us.oracle.com:7006 Data Domain Name: wine-readonly-shared Read/write	
free for all (free-for-all)	Test Connection Edit Delete
Oracle Endeca Server: appdev-x64-rhel5-p16.us.oracle.com:7006 Data Domain Name: free-for-all Read/write	
ssl-enabled (ssl-enabled)	Test Connection Edit Delete
Oracle Endeca Server: appdev-x64-rhel5-p16.us.oracle.com:7004 Data Domain Name: wine-ssl-enabled Read-only	
unavailable (unavailable)	Test Connection Edit Delete
Connection failure at 1/17/13 1:07 AM Oracle Endeca Server: appdev-x64-rhel5-p2.us.oracle.com:1234 Data Domain Name: unavailable Read-only	

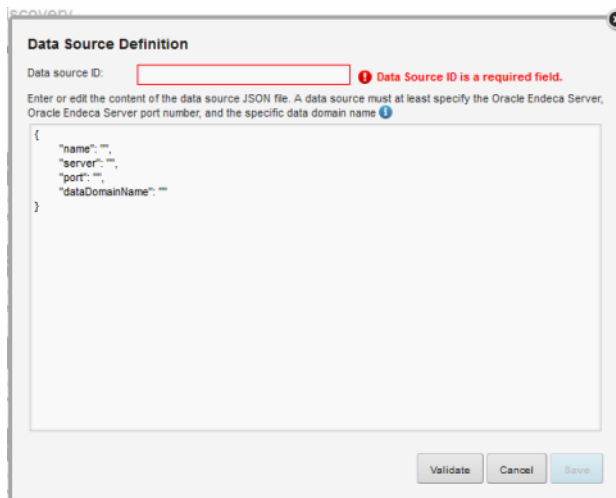
Adding a data source

From the **Data Sources** page, you can add a data source. You must provide a data source ID and the data source definition.

To add a new data source:

1. Click the **New Data Source** button.

The **Data Source Definition** dialog is displayed. The data source definition text area contains an empty template definition with the key fields.



Data Source Definition

Data source ID: ❗ Data Source ID is a required field.

Enter or edit the content of the data source JSON file. A data source must at least specify the Oracle Endeca Server, Oracle Endeca Server port number, and the specific data domain name [?](#)

```
{
  "name": "",
  "server": "",
  "port": "",
  "dataDomainName": ""
}
```

2. In the **Data source ID** field, type the ID of the data source.

The ID must be unique, and can only contain letters, numbers, underscores, and hyphens.

3. In the text area, type the data source definition.

The data source definition must at least specify:

- The name of the server hosting the Endeca Server
- The port number for the Endeca Server
- The name of the data domain

For details on the data source definition syntax, see [Syntax for the data source definition on page 22](#).

4. To validate the data source definition, click **Validate**.

A message is displayed indicating whether the definition is valid and whether Studio was able to connect to the data source.

5. To save the new data source, click **Save**.

If the data source definition is not valid, then the data source is flagged as unavailable on the **Data Sources** page, and cannot be selected for applications or components.

Editing a data source

From the **Data Sources** page, you can edit the definition of an existing data source.

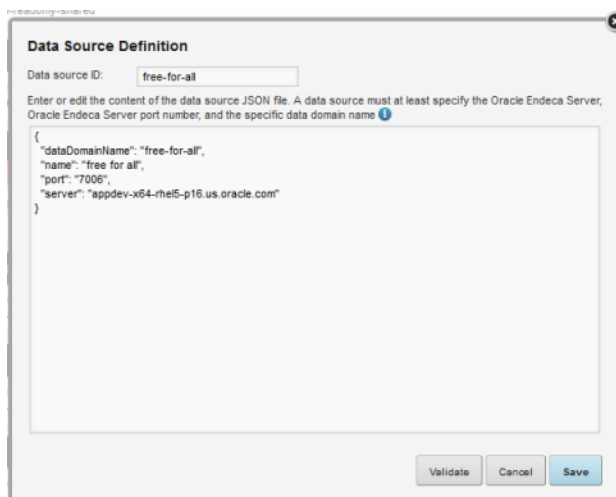
For data sources you created manually, if you change the data source ID, you will need to update any application or component that uses the data source.

For data sources generated from the Provisioning Service, you cannot change the data source ID, which is generated automatically. If you change the data source ID, then Studio is no longer able to connect to the data source. You would then have to remove and recreate the data source.

Note that if you change the ID of a data source, then you will need to update any component that uses the data source. If the data source is connected to a secured Endeca Server, then you must replace the masking asterisks with the actual SSL passwords.

To edit a data source:

1. On the **Data Sources** page, click the **Edit** button for the data source.
2. On the **Data Source Definition** dialog, make the changes to the data source.



Note that if you change the data source ID, then you will need to update any component that uses the data source.

If the data source is connected to a secured Endeca Server, then you must replace the masking asterisks with the actual SSL passwords. If you save the data source without replacing the passwords, then the asterisks are saved as the password value.

3. To validate that the updated definition is valid, click **Validate**.

A message is displayed indicating whether the definition is valid and whether Studio was able to connect to the data source.

4. To save the changes to the data source, click **Save**.

If the data source definition is not valid, then the data source is flagged as invalid on the **Data Sources** page, and cannot be selected for components.

Deleting a data source

From the **Data Sources** page, you can delete a data source. Before deleting a data source, make sure it is not being used by an application. Do not use this option to delete data sources created by a file upload.

To delete a data source:

1. On the **Data Sources** page, click the **Delete** button for the data source you want to delete.

You are prompted to confirm that you want to delete the data source.

Do not use this option to delete a data source that was created from a file upload, because Studio cannot perform the proper cleanup on the Provisioning Service. These types of data sources are deleted automatically when the associated application is deleted from the **Discovery Applications** page.

2. To delete the data source, click **Delete**.

If any applications were using the deleted data source, then any components using the data source can no longer display data, and the applications or components will need to be updated to select a different data source.

Testing the connection to a data source

Each data source is connected to an Endeca Server data domain. The **Data Sources** page allows you to test the connections, so that you can verify that the data source is available.

To test the connection to a data source, click the **Test Connection** button for the data source you want to test. A message displays on the data source block indicating whether the test was successful.

Syntax for the data source definition

The data source definition JSON string must contain at minimum the connection information for the Endeca Server plus the name of the specific data domain on that server. Additionally, you can add filters and security restrictions, and configure a data source hierarchy.

[*Escaping special characters in data source definitions*](#)

[*Basic data source properties*](#)

[*Adding filters to a data source*](#)

[*Configuring parent and child data sources*](#)

[*Configuring role-based security for viewing data source data*](#)

[*Viewing configuration records for a data domain*](#)

[*Connecting a data source to a secured Endeca Server*](#)

[*Connecting a data source to an Endeca Server cluster*](#)

[*Limiting who can connect an application to the data source*](#)

Escaping special characters in data source definitions

JSON requires you to use a backslash (\) to escape some special characters.

The characters that must be escaped are:

- Backspace
- Form feed
- New line
- Carriage return
- Tab
- Vertical tab
- Apostrophe or single quote
- Double quote
- Backslash

Basic data source properties

Each data source is assigned an identifier. The data source definition is written as a JSON string, and must contain the Endeca Server server name, port number, and the data domain name. Optionally, the data source definition can include a context path, the data source name, and a description.

Data source identifier

Every data source is assigned an identifier, used internally to manage the data source.

The identifier:

- Must begin with a letter (A-Z or a-z)
- Can contain letters, numbers, underscores, and hyphens. No other characters or spaces are permitted.

For data sources generated by the Provisioning Service, the identifier is generated automatically and cannot be changed.

Connection and data domain name settings (required, except for the context path)

Every data source definition must at a minimum contain the following settings for the Endeca Server connection and data domain name:

Setting	Description
server	The name of the server on which the Endeca Server is running.
port	The port on which the Endeca Server is listening.
dataDomainName	The name of the specific data domain on the Endeca Server.

Here is an example of the most basic data source definition, with just the connection information and data domain name.

```
{
  "server": "server01.lab.acme.com",
  "port": "15000",
  "dataDomainName": "acmeDB"
}
```

If the Endeca Server is installed on a context path other than `endeca-server`, then you need to add a setting to provide the context path:

Setting	Description
contextPath	The context path for the Endeca Server. If this setting is not present, then the context path defaults to <code>endeca-server</code>, which is Endeca Server's default context path. To specify a root context, set the value to either <code>""</code> or <code>/</code>.

Here is an example of a basic data source definition with the context path specified.

```
{
  "server": "server01.lab.acme.com",
  "port": "15000",
  "dataDomainName": "acmeDB"
  "contextPath": "/acme/context/path/"
}
```

Data source name and description settings

The data source definition can optionally contain name and description settings:

Setting	Description
name	The name of the data source. This is the value displayed on the Studio user interface, including on the Data Sources component and in data source drop-down lists. If you do not provide a value for name, then the ID is used.
description	A longer description of the data source. Used for logging and debugging.

For example:

```
{
  "server": "server01.lab.acme.com",
  "port": "15000",
  "dataDomainName": "acmeDB",
  "name": "Wine Transactions",
  "description": "Transaction data for the Midwest Region"
}
```

Adding filters to a data source

The `baseFunctions` setting in the data source definition allows you to include filters in order to restrict the returned data. Some filters are permanent, while others provide a starting point only and can be removed by end users.

The basic format for the `baseFunctions` setting is:

```
"baseFunctions": [
  {
    "class": "com.endeca.portal.data.functions.<class name>",
    "<property name>": "<property value>"
  }
]
```

Where:

- `<class name>` is the name of the filter class.
- `<property name>` is the name of a configuration property for the filter.
- `<property value>` is the value of the configuration property.

Note that the filters may require you to escape special characters. For details, see the *Oracle Endeca Server Developer's Guide*.

This escaping is in addition to the escaping required for JSON. So for example, if a filter includes a backslash, then:

- JSON requires you to escape the backslash, which creates a double backslash (`\\`).
- The filter also requires you to escape backslashes. You have to escape both of the backslashes, so you end up with four backslashes (`\\\\`).

When a data source includes filters, all components that use that data source automatically use those filters.

Studio comes with the following filters:

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

DataSourceFilter

A `DataSourceFilter` uses EQL to filter the data.

A `DataSourceFilter` is permanent. It is not added to the **Breadcrumbs** component and cannot be removed.

The properties for a `DataSourceFilter` are:

Property	Description
<code>filterString</code>	The EQL snippet containing the filter information. For a <code>DataFilter</code>, this would essentially be the content of a <code>WHERE</code> clause for an EQL statement. For details on EQL syntax, see the <i>Oracle Endeca Server EQL Guide</i>.

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

```
{
  "class": "com.endeca.portal.data.functions.DataSourceFilter",
  "filterString": "Regions='Napa Valley' and P_Price<40"
}
```

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 AND, then matching records must contain all of the provided values. If set to OR, then matching records must contain at least one of the provided values. If set to NONE, then multi-select is not supported. Only the first value is used for the refinement.

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

```
{
  "class": "com.endeca.portal.data.functions.RefinementFilter",
```

```
"attributeValue":"1999",
"attributeKey":"Year"
}
```

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.
<code>attributeKey</code>	String The attribute key. Identifies the attribute to use for the refinement.
<code>attributeType</code>	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.
<code>attributeValueName</code>	String Optional. The value to display on the Breadcrumbs component for the refinement. If you do not provide a value for <code>attributeValueName</code> , then the Breadcrumbs component displays the value of <code>attributeValue</code> . 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.
<code>ancestors</code>	String List Optional. A list of the display names of the ancestor values to display on the Breadcrumbs component. You would most likely want to provide ancestor values when selecting a managed attribute value from a value hierarchy.

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.

```
{
  "class":"com.endeca.portal.data.functions.NegativeRefinementFilter",
  "attributeValue":"Washington",
```

```
"attributeKey":"Region"
}
```

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.

```
{
  "class":"com.endeca.portal.data.functions.NegativeRefinementFilter",
  "attributeValue":"1997",
  "attributeKey":"P_Year",
  "attributeType":"LONG"
}
```

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 breadcrumb is provided. Also, Outlet is a hierarchical attribute, and the breadcrumb indicates that Caterer is a subcategory of Nonstore Retailers under the category Retail Sales.

```
{
  "class":"com.endeca.portal.data.functions.NegativeRefinementFilter",
  "attributeValue":"454210",
  "attributeKey":"Outlet",
  "attributeValueName":"Caterer",
  "ancestors":["Retail Sales\\","Nonstore Retailers\\"]
}
```

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. - 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
value1	Numeric The value to use for the comparison. For BTWN, this is the low value for the range. For the geocode range operators, the origin point for the comparison.
value2	Numeric For a BTWN, this is the high value for the range. For GCLT and GCGT, this is the value to use for the comparison. For GCBTWN, this is the low value for the range.
value3	Numeric Only used for the GCBTWN operator. The high value for the range.

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:

```
{
  "class": "com.endeca.portal.data.functions.RangeFilter",
  "attributeKey": "P_Score",
  "rangeOperator": "BTWN",
  "rangeType": "INTEGER",
  "value1": "80",
  "value2": "100"
}
```

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
searchInterface	String Either the name of the search interface to use, or the name of an attribute that is enabled for text search. 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 relevance ranking on the display order of results on page 254 .

Property	Description
terms	String The search terms for the search.
matchMode	ALL PARTIAL ANY ALLANY ALLPARTIAL PARTIALMAX BOOLEAN The match mode to use for the search. The match modes are described in Managing the list of search configurations on page 256 .
searchWithin	boolean Whether to only search only within the refined set of data. The default is false, indicating to search the entire set of data, without applying any filters. If you are applying any other filters before the SearchFilter, and only want to search within the filtered data, you must set searchWithin to true.
enableSnipping	boolean Whether to enable snipping. Optional. If not provided, the default is false.
snippetLength	int The number of characters to include in the snippet. Required if enableSnipping is true. To enable snipping, set enableSnipping to true, and provide a value for snippetLength.

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. Snipping is supported, with a 100-character snippet being displayed.

```
{
  "class": "com.endeca.portal.data.functions.SearchFilter",
  "searchInterface": "default",
  "terms": "red, California",
  "matchMode": "ALL",
  "searchWithin": "true",
  "enableSnipping": "true",
  "snippetLength": "100"
}
```

Permanent versus removable filters

Only a DataSourceFilter provides permanent filtering for the data.

Other types of filters only provide a starting point. They are displayed on the **Breadcrumbs** component and can be removed.

For a `DataSourceFilter`, there is no indication on the Studio user interface that the filter has been applied.

Example data source with filters

The following example data source contains a `DataSourceFilter` and a `RefinementFilter`. The data is filtered to only include transaction records from the Midwest region for the year 1999.

```
{
  "server": "server01.lab.acme.com",
  "port": "15000",
  "dataDomainName": "acmeDB",
  "name": "Wine Transactions",
  "description": "Transaction data for the Midwest Region",
  "baseFunctions": [
    {
      "class": "com.endeca.portal.data.functions.DataSourceFilter",
      "filterString": "Regions='Midwest'"
    },
    {
      "class": "com.endeca.portal.data.functions.RefinementFilter",
      "attributeValue": "1999",
      "attributeKey": "Year"
    }
  ]
}
```

Configuring parent and child data sources

Studio data sources can have parents and children. A child data source is essentially a subset of its parent data source.

For example, a parent data source contains all of the transaction records for a company. A child data source may contain only transactions from the United States.

Child data sources may themselves have children. For example, the child data source containing United States transactions may have a child data source that contains only transactions for New York, or transactions processed by a specific distributor.

You can configure whether refinements to related data sources affect the current data source.

Creating a child data source

A child data source usually has the same server, port, and data domain name as its parent data source.



Note: You cannot configure different attribute groups for data sources that have the same host, port, and data domain name. They are simply different views of the same source data, and any change to the attribute groups in one data source automatically updates the groups in the other data source.

To identify the data source as a child data source, and also identify its parent, you add the following setting to the data source definition:

Setting	Description
parentDataSource	The id of the parent data source.

You then configure baseFunctions setting with the filters for the child data source.

Default effect of query state changes on parent and child data sources

By default, the current query state for a child data source is the current query state of the parent data source plus any filters from the child data source. For example, if the parent data source has been refined to only include transactions for 1999, then the child data source only includes transactions for the United States (the child data source filter) from 1999 (the parent data source refinement).

Changes to the query state for any data source are applied to the entire family hierarchy that the data source belongs to:

- Changes to the query state for a child data source are applied to its parent data source.

For example, if an end user selects a refinement from a **Guided Navigation** component that is bound to a child data source, components bound to the parent data source also are updated with that refinement.

If that parent data source is itself a child data source, the change is then applied to its parent as well.

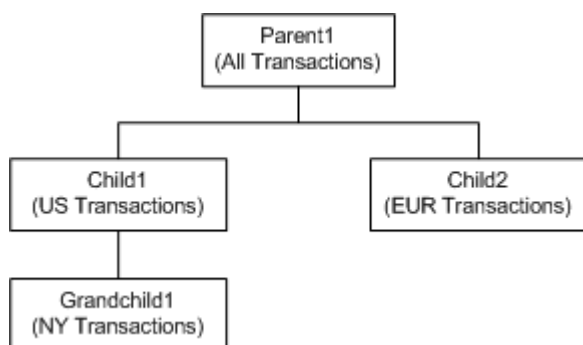
The operation is applied to each parent in turn until it reaches a data source that does not have a parent.

- Changes to the query state for a parent data source are applied to all of its children.

If that child data source itself has children, the change is then applied to those children as well.

The operation is applied to each child in turn until it reaches a data source that does not have any children.

For example, for the following data source hierarchy:



- If an end user refines Parent1 to only show transactions for 1999:
 - Child1 and Child2 are refined to only show transactions for 1999, plus their original base filters.
 - The refinement to Child1 causes Grandchild1 to be refined to only show transactions for 1999, plus its original base filters and the filters from Child1.

- If an end user refines Child1 to only show credit card transactions:
 1. Parent1 and Grandchild1 are refined to only show credit card transactions, plus their original filters.
 2. The refinement to Parent1 causes Child2 to be refined to only show credit card transactions, plus its original base filters.
- If an end user refines Grandchild1 to only show cash transactions:
 1. Child1 is refined to only show cash transactions, plus its original base filters.
 2. The refinement to Child1 causes Parent1 to be refined to only show cash transactions, plus any original filters.
 3. The refinement to Parent1 causes Child2 to be refined to only show cash transactions, plus its original base filters.

Configuring selective refinement for the data source

For a data source with related data sources, you can use selective refinement to override the default refinement behavior. Selective refinement allows you to control how refinements to related data sources affect the current data source.

The minimum configuration is to enable selective refinement. If you enable selective refinement, then a refinement to a related data source only affects the current data source if the attribute used for the refinement is present in both data sources.

You can configure the selective refinement to use a regular expression to select the attributes to include. You can also exclude and include specific attributes.

To implement selective refinement, you add the `selectiveRefinements` setting to the data source definition. The `selectiveRefinements` setting can use the following parameters:

selectRefinements Parameter	Description
<code>enabled</code>	Required. Whether to enable selective refinements. If set to <code>true</code>, then a refinement to a related data source is only applied to the current data source if the attribute used for the refinement is present in both data sources. If set to <code>false</code> (the default), then all refinements from related data sources are applied to the current data source.
<code>autoDetect</code>	Required. Whether to automatically detect the attributes to use for refinement. If set to <code>true</code> (the default), then the attributes are detected automatically. You can also use <code>autoDetectPattern</code> to create a regular expression for detecting the attributes for which to apply refinements. If set to <code>false</code>, then the only attributes used for refinement are those provided by the <code>includedAttributes</code> parameter.

selectRefinements Parameter	Description
autoDetectPattern	A regular expression used to determine the attributes for which to respect refinements from related data sources. For example, setting this to "^Supplier.+" indicates to only respect refinements from attributes whose attribute keys start with "Supplier".
excludedAttributes	Optional. A comma-separated list of attributes for which to ignore refinements from related data sources. When specifying the attributes, use the attribute key. For example, the following configuration excludes refinements by color and sleeve type: <pre data-bbox="662 741 1450 846"> "selectiveRefinements":{ "enabled":true, "excludedAttributes":["Color","Sleeve_Type"] } </pre>
includedAttributes	Optional. A comma-separated list of attributes for which to respect refinements. When specifying the attributes, use the attribute key. If autoDetect is false, then if you do not provide attributes here, Studio does not apply any refinements from related data sources. If you are using autoDetectPattern to detect attributes, then the attributes provided here are used in addition to the automatically detected ones. For example, the following configuration adds refinement by price and region to the automatically detected attributes: <pre data-bbox="662 1276 1450 1402"> "selectiveRefinements":{ "enabled":true, "autoDetectPattern":"Customer.+", "includedAttributes":["Price","Sales_Region"] } </pre>

Note that if the attributes in the Endeca Server data domain are changed, the change may not be immediately reflected in the cached selective refinements configuration. To make sure that the selective refinement configuration is current, either:

- Update the configuration to edit the specific included and excluded attributes
- If the attributes are detected automatically, then manually edit and save the data source configuration. You do not need to actually make any changes. Clicking **Save** on the **Data Source Definition** dialog forces Studio to recalculate the attributes to include.

Example of a child data source

In the following example of a child data source, the ID of the parent data source is `all-transactions`.

This child data source includes data from `all-transactions`, filtered to only include records for the Importer supplier type.

The selective refinement indicates to respect customer-related attributes, except for the customer discount, and adds sales region and sales rep to the respected refinements.

```
{
  "server": "server01.lab.acme.com",
  "port": "5555",
  "dataDomainName": "acmeDB"
  "name": "Importer Transactions"
  "parentDataSource": "all-transactions",
  "baseFunctions": [
    { "class": "com.endeca.portal.data.functions.DataSourceFilter",
      "filterString": "Supplier_Types='Importer'"
    }
  ]
  "selectiveRefinements": {
    "enabled": true,
    "autoDetect": true,
    "autoDetectPattern": "^Customer.+",
    "includedAttributes": ["Sales_Region", "Sales_Rep"],
    "excludedAttributes": ["Customer_Discount"]
  }
}
```

Configuring role-based security for viewing data source data

You can also configure a data source to control who can view data source data based on user roles.

The data source settings related to role-based security are:

Setting	Description
<code>securityEnabled</code>	Whether to enable the security filters for queries to the data source. If set to "true", then the data source uses the filters configured under <code>securityFilters</code> .
<code>securityFilters</code>	Defines all of the security filters to be used by the data source.  Note: Data source filters are the only supported type of <code>securityFilter</code> .

Setting	Description
rolePermissionsMultiOr	For users who have more than one security role, whether to use logical OR to combine the filters from each role into a single, combined security role filter. If set to "true", then logical OR is used, and users have access to data that matches at least one of the filters for their security roles. If set to "false" (the default value), then logical AND is used, and users only have access to data that matches all of the filters associated with all of their security roles. Note that if logical OR is used, it is only used to combine filters from different security roles. The filters from each individual role are still applied using logical AND before they are combined with the filters from the other roles. Other non-security filters that apply to the entire data source, such as the filters under <code>baseFunctions</code>, are also applied using logical AND.
rolePermissions	Maps the user roles to the security filters. For each mapping, the format is: <pre>"<role name>" : [<filter list>]</pre> where: • <code><role name></code> is the name of the user role. • <code><filter list></code> is a comma-separated list of filter names to apply for the specified role. Each name is in quotes. For example, ["filter1", "filter2", "filter3"].
inheritSecurity	For a child data source, whether the data source should inherit the security filters configured in its ancestor data sources. If set to "true", then the list of security filters to apply includes both: • All of the security filters for every ancestor data source • All of the security filters defined in the child data source

Example of a data source with security filtering

In the following example, users with the role "French Wine" can only see data from the Bordeaux and Burgundy regions, while users with the role "Austrian Wine" can only see data from the Austria, Burgenland, and Steiermark regions.

Because `rolePermissionsMultiOr` is set to true, users who have both of these roles can view records from any of the five regions.

```
{
  "server": "server01.lab.acme.com",
  "port": "15000",
  "dataDomainName": "acmeDB",
  "name": "European Wines",
  "description": "Sales transactions for European wines",

```

```

"securityEnabled":"true",
"inheritSecurity":"true",
"securityFilters": {
  "frenchFilter": {
    "class":"com.endeca.portal.data.functions.DataSourceFilter",
    "filterString":"Region='Bordeaux' OR Region='Burgundy'"
  },
  "austrianFilter": {
    "class":"com.endeca.portal.data.functions.DataSourceFilter",
    "filterString":"Region='Austria' OR Region='Burgenland' OR Region='Steiermark'"
  }
},
"rolePermissionsMultiOr":"true",
"rolePermissions": {
  "French Wine": ["frenchFilter"],
  "Austrian Wine": ["austrianFilter"]
}
}

```

Viewing configuration records for a data domain

You can set up a data source to only retrieve the configuration records from the specified data domain.

About configuration records

The data represented by a data source consists of both data records and configuration records, sometimes referred to as schema records.

Data records contain the actual data content. You use these records in the Studio applications you create for end users.

Configuration 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 guided navigation
- The groups the attribute belongs to

There is also a global configuration record with 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`.

You can use components to view in Studio all of the attribute configuration records for a data source.

Configuring data sources to display configuration records

By default, a data source only displays the data records.

To configure a data source to only display configuration records, you add the setting "mdexRecords": "propertyRecords" to the data source definition. For example:

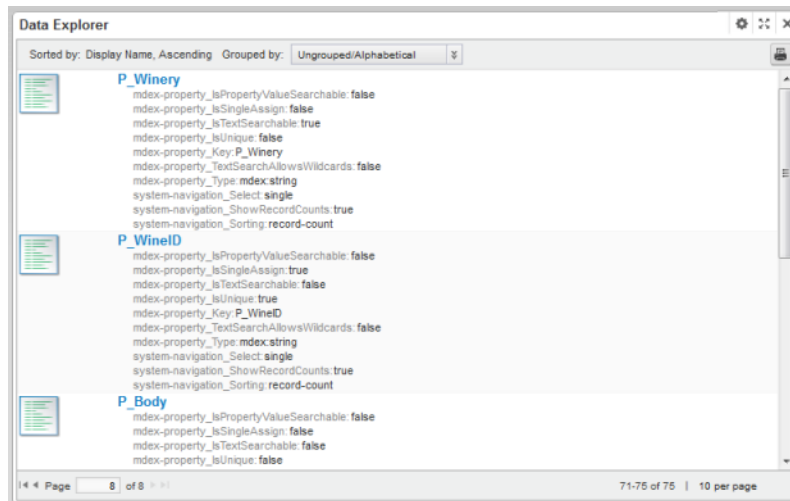
```
{
  "server": "server01.lab.acme.com",
  "port": "15000",
  "dataDomainName": "acmeDB",
  "name": "mydata schema records",
  "mdexRecords": "propertyRecords"
}
```



Note: You cannot configure different attribute groups for a configuration-only version of a data source. If you create two data sources with the same host, port, and data domain, with one displaying data records and the other displaying configuration records, they are simply different views of the same source data, and any change to the attribute groups in one data source automatically updates the groups in the other data source.

When a data source is configured to only display configuration records, then when you use that data source for a Studio component, only the configuration records are shown.

For example, the following **Data Explorer** component is bound to a data source configured to only display configuration records:



With configuration-only data sources, you can use Studio functions such as search and guided navigation to analyze the attribute configuration.

Connecting a data source to a secured Endeca Server

When you install Endeca Server, the default option is to use SSL to secure it. To connect to a secured Endeca Server, you copy the Endeca Server certificate files to Studio. In the data source configuration, you then include the certificate file names and passwords.

To connect to a secured Endeca Server:

1. Stop Studio.

2. From the Endeca Server \$DOMAIN_HOME/config/ssl directory, copy the following files:

- endecaServerClientCert.ks
- endecaServerTrustStore.ks

3. Place the files into the endeca-data-sources directory.

If Studio was installed using the Tomcat bundle, the directory is endeca-portal\data\endeca-data-sources.

If Studio was installed on a standalone instance of Tomcat, without using the bundle, then you will need to create the endeca-portal\data\endeca-data-sources directory.

If Studio was installed on WebLogic, then the directory is the data\endeca-data-sources directory in the Liferay Home directory.

4. In the data source definition, add the sslConfig setting, which contains the following settings:

Setting	Description
caFile	The name of the truststore file. For the default secured Endeca Server configuration, the file is endecaServerTrustStore.ks.
caPassword	The password for the truststore file. You need to obtain the password from whoever installed the Endeca Server and generated the certificates. Note that on the Data Source Definition dialog, once you save the data source, the value of caPassword is masked as *****. The value also is encrypted in the Studio database. When you edit the data source, you must re-type the actual password value before saving. Otherwise, Studio uses the masking asterisks as the password value.
certFile	The name of the keystore file. For the default secured Endeca Server configuration, the file is endecaServerClientCert.ks.
certPassword	The password for the keystore file. You need to obtain the password from whoever installed the Endeca Server and generated the certificates. Note that on the Data Source Definition dialog, once you save the data source, the value of certPassword is masked as *****. The value also is encrypted in the Studio database. When you edit the data source, you must re-type the actual password value before saving. Otherwise, Studio uses the masking asterisks as the password value.

For example:

```
"sslConfig": {
  "caFile": "endecaServerTrustStore.ks",
  "caPassword": "*****",
  "certFile": "endecaServerClientCert.ks",
  "certPassword": "*****"
}
```

5. Restart Studio.

Example of a data source connected to secured Endeca Server

The following data source connects to a secured Endeca Server.

```
{
  "server": "server01.lab.acme.com",
  "port": "7002",
  "dataDomainName": "acmeDB",
  "sslConfig": {
    "caFile": "endecaServerTrustStore.ks",
    "caPassword": "*****",
    "certFile": "endecaServerClientCert.ks",
    "certPassword": "*****"
  }
  "name": "High End Midwest Wines",
  "description": "Transactions for Midwest wines priced over 25 dollars",
  "baseFunctions": [
    {
      "class": "com.endeca.portal.data.functions.DataSourceFilter",
      "filterString": "Regions='Midwest'"
    },
    {
      "class": "com.endeca.portal.data.functions.RangeFilter",
      "property": "P_Price",
      "rangeOperator": "GTEQ",
      "rangeType": "Decimal",
      "value1": "25"
    },
    {
      "class": "com.endeca.portal.data.functions.RefinementFilter",
      "attributeValue": "1999",
      "attributeKey": "Year"
    }
  ]
}
```

Connecting a data source to an Endeca Server cluster

The Endeca Server can use a clustered configuration. When configuring an Endeca Server cluster to use with Studio, you should always have a load balancer in front of the cluster. For details on Endeca Server clustering, including how to set up a load balancer in front of the cluster, see the *Oracle Endeca Server Clustering Guide*.

Data source definition settings for connecting to a cluster

When configuring the definition for data source that is connecting to an Oracle Endeca Server cluster, the relevant settings are:

Data Source Setting	Description
server	Required. The server for the load balancer.
port	Required. The port number for the load balancer.
dataDomainName	Required. The name of the data domain.
sslConfig	Optional. If applicable, the SSL settings for connecting to the load balancer. Includes the following settings: - caFile - The truststore file. - caPassword - The truststore password. Note that on the Data Source Definition dialog, once you save the data source, the value of caPassword is masked as *****. The value also is encrypted in the Studio database. - certFile - The name of the keystore file. - certPassword - The keystore password. Note that on the Data Source Definition dialog, once you save the data source, the value of certPassword is masked as *****. The value also is encrypted in the Studio database.

Example of a data source connected to an Endeca Server cluster

The following data source is configured to connect to a cluster.

```
{
  "server": "loadbalancer1.acme.com",
  "port": "7002",
  "dataDomainName": "acmeDB",
  "sslConfig": {
    "caFile": "truststore.ks",
    "caPassword": "*****",
    "certFile": "keystore.ks",
    "certPassword": "*****"
  }
  "name": "Sales Data",
}
```

Limiting who can connect an application to the data source

When configuring a data source, you can specify which users and roles can connect an application to that data source.

Users who are not allowed to bind an application to the data source do not see the data source in the list of available data sources.

Note that these settings do not control who can view the data in an application. To control the displayed data, you would use filters or role-based security. The settings also do not control who can view applications that are linked to this data source. That access is based on the application type and membership. See [Managing Studio Application Access and Membership on page 96](#).

Also, these restrictions are not inherited by child data sources. Each data source has its own independent set of restrictions.

When you create a data source from the **Data Sources** page, by default access to connect applications to the data source is not restricted. For data sources created when users upload spreadsheet files, by default only the user who created the application can use the data source.

To limit the access, you use the following settings:

Setting	Description
<code>restrictedToUsers</code>	Comma-separated list of screen names of Studio users who can connect an application to the data source. For example: <pre>restrictedToUsers:["jmsith", "mbrown"]</pre>
<code>restrictedToRoles</code>	Comma-separated list of Studio user roles (not application roles) that can connect an application to the data source. For example: <pre>restrictedToRoles:["Administrator", "Power User"]</pre>

Users can connect the data source to an application if they are either in the user list or have a role in the role list. For example, if a user is in the `restrictedToUsers` list, then they can use the data source even if they do not have a role that is in the `restrictedToRoles` list. If a user has a role in the `restrictedToRoles` list, then they can use the data source even if they are not in the `restrictedToUsers` list.

Also, users who are Studio administrators (have the Administrator user role), can always connect to any data source. They are not bound by the restriction settings.

Example of a data source that restricts who can connect an application to it

For the following data source, only users with the Administrator user role can connect an application to the database.

The users `jmsith` and `rjones` can also connect an application to the data source, even if they do not have the Administrator user role.

```
{
  "server": "server01.lab.acme.com",
```

```
"port": "15000",  
"dataDomainName": "acmeDB",  
"restrictedToUsers": ["jsmith", "rjones"],  
"restrictedToRoles": ["Administrator"]  
}
```



Chapter 7

Configuring the Connection to the Provisioning Service

In order for users to be able to create applications by uploading a spreadsheet file, you must first configure the connection to the Provisioning Service.

If the connection configuration is not valid, then when users create an application, they do not see the file upload option.

The syntax for configuring the connection uses the same basic syntax as a data source definition.

The general connection settings are:

Setting	Description
server	The name of the server on which the Provisioning Service is running.
port	The port on which the Provisioning Service is listening.

By default, the Provisioning Service has SSL enabled, and the configuration must include the `sslConfig` setting, which contains the following settings:

Setting	Description
caFile	The name of the truststore file for the SSL connection to the Provisioning Service. This is the truststore file from the secured Endeca Server configuration. For the default configuration, the file is <code>endcaServerTrustStore.ks</code>.
caPassword	The password for the truststore file for the SSL connection to the Provisioning Service. This is the password generated during the Endeca Server installation. Note that once you save the Provisioning Service configuration, the value of <code>caPassword</code> is masked as <code>*****</code>. The value also is encrypted in the Studio database. When you edit the Provisioning Service connection, you must re-type the actual password value before saving. Otherwise, Studio uses the masking asterisks as the password value.
certFile	The name of the keystore file for the SSL connection to the Provisioning Service. This is the keystore file from the secured Endeca Server configuration. For the default configuration, the file is <code>endecaServerClientCert.ks</code>.

Setting	Description
certPassword	The password for the keystore file for the SSL connection to the Provisioning Service. This is the password generated during the Endeca Server installation. Note that once you save the Provisioning Service configuration, the value of certPassword is masked as *****. The value also is encrypted in the Studio database. When you edit the Provisioning Service connection, you must re-type the actual password value before saving. Otherwise, Studio uses the masking asterisks as the password value.

For example:

```
"sslConfig": {
  "caFile": "endecaServerTrustStore.ks",
  "caPassword": "*****",
  "certFile": "endecaServerClientCert.ks",
  "certPassword": "*****"
}
```

The **Control Panel** includes a **Provisioning Service** page you use to configure the connection.

To configure the Provisioning Service connection:

1. From the Studio menu, select **Control Panel**.
2. In the **Control Panel** menu, click **Provisioning Service**.
3. On the **Provisioning Service** page, update the placeholder configuration with the connection information for your Provisioning Service.

Provisioning Service

Enter or edit the JSON string to configure the connection to the Provisioning Service. You must at least specify the server and port number. [?](#)

```
{
  "port": "7001",
  "server": "",
  "sslConfig": {
    "caFile": "endecaServerTrustStore.ks",
    "caPassword": "*****",
    "certFile": "endecaServerClientCert.ks",
    "certPassword": "*****"
  }
}
```

Save

4. Click **Save**.



Chapter 8

Connecting Data Sources to Applications

Each application is bound to a specific data source. Within an application, individual components can be bound to members of the data source family.

Selecting a different data source for an application

Selecting a different data source for components within an application

Selecting a different data source for an application

When you first create an application, you select the data source to bind to that application. From the **Application Configuration** page, you can select a different data source to use.

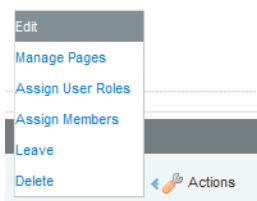
When you select a different data source for the application, you can choose whether to maintain the component configuration for the application components.

To select a different data source for the application:

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

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

2. Studio administrators can also display the **Application Configuration** page from the **Control Panel**:
 - (a) From the Studio menu, select **Control Panel**.
 - (b) In the **Control Panel** menu, click **Applications**.
 - (c) On the **Applications** page, click the **Actions** link for the application you want to work with, then click **Edit**.



- On the **Application Configuration** page, from the **Data Source** drop-down list, select the data source to use.

- To try to maintain the component configuration when the data source is changed, check the **Maintain existing component preferences** checkbox.

Note that the **Alerts** and **Search Box** components are not updated when you change the data source from the **Application Configuration** page. You must manually change the data sources from the component edit view.

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

Selecting a different data source for components within an application

If the application data source has family members (is part of a hierarchy of parent and child data sources), then you can bind different data source family members to the application components.

For individual components, if the application data source has a family, then the component edit view contains a data source drop-down list to select a different data source family member.

You can also use the **Data Source Bindings** option on the **Application Settings** page to bind a data source family member to multiple components. If there are no related data sources, then the **Data Source Bindings** option is not displayed. Note that the data source bindings for **Alerts** and **Search Box** components cannot be updated from the **Data Source Bindings** page.

To use the **Data Source Bindings** page to select the component data sources:

- From the Studio menu, select **Application Settings**.

2. In the **Application Settings** menu, click **Data Source Bindings**.

The **Data Source Bindings** page lists the pages and components in the current application.

3. Check the checkbox next to each component for which to change the data source.

Data Source Bindings

Component	Selected
Welcome	
Breadcrumbs bizwine	☐
Guided Navigation bizwine	☐
Results Table bizwine	☐
Summary Charts	
Chart bizwine child	☐
Chart bizwine sibling	☐
Location Map	
Breadcrumbs bizwine	☐
Map Portlet bizwine	☐

Select a data source ▼ Update data source

☐ Maintain existing component preferences.

4. From the **Select a data source** drop-down list, select the data source to bind to the selected components.
5. To try to keep the component configuration when the data source is changed, check the **Maintain existing component preferences** checkbox.
6. To complete the change, click **Update data source**.



Chapter 9

Defining Views of Application Data Source Attributes

You can use the **View Manager** to configure a set of views for an application's data source. Views are used by components to determine the data to display.

[About views](#)

[About the Base view](#)

[Displaying the list of views for a data source](#)

[Displaying details for a view](#)

[Creating views](#)

[Configuring a view](#)

[Previewing the content of a view](#)

[Deleting a view](#)

About views

A view is a logical collection of information that is derived from the records in an application data source.

For example, the original records in your data source 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 attributes from the original data source, 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 the Base view

Each data source is automatically configured with a Base view, which contains all of the attributes from the original data source.

The Base view does not contain any predefined metrics.

Displaying the list of views for a data source

On the **Application Settings** page, the **View Manager** allows you to view and edit the views for the current application's data source.

To display the list of views for an application data source:

1. From the Studio menu, select **Application Settings**.
2. In the **Application Settings** menu, click **View Manager**.
3. If the application data has related data sources, then from the **Data source** drop-down list, select the data source you want to manage.

The **Views** list is populated with the views for the data source. For each view, the list shows the display name, description, and identifying attributes for the view records. The Base view is selected by default.

View Manager
Configure the views for your data sources.

Views + New View

	Display Name	Record Identifier(s)	Description
	Base	Record Spec	
	Employees	Full Name	Employee Information
	Products	Product Name , Year-Month	Product Sales Information rolled up by Month
	Transactions		Sales Transaction Line Items

Base View Definition Preview Save View

Default view display name:

Record identifier(s):

Default view description:

Attributes

Display Name	Attribute Key	Data Type	Standard Format	Refineable	Dimens...	Available Aggregations	Default Aggr...	Refineme...
Address Line1	DimReseller_A...	String	(none)	✓	☒	count,count distinct	(none)	Single
Address Line2	DimReseller_A...	String	(none)	✓	☒	count,count distinct	(none)	Single

Displaying details for a view

To display the details for a view, in the views list, click the view display name. You can also click the edit icon for the view.

The view details section is populated with the view name, identifying attributes, description, attributes list, and metrics list.

The screenshot shows the 'Views' section of the View Manager. At the top, there is a table listing views: 'Base', 'Employees', 'Products', and 'Transactions'. The 'Products' view is selected and highlighted. Below this, the 'Products' view details are shown. The 'Default view display name' is 'Products'. The 'Record Identifier(s)' is 'Product Name , Year-Month'. The 'Default view description' is 'Product Sales Information rolled up by Month'. Below this, the 'Attributes' section shows a table of attributes for the 'Products' view.

Display Name	Attribute Key	Data Type	Standard Format	Refineable	Dimens...	Available Aggregations	Default Aggr...	Description
AvgListPrice	AvgListPrice	Number(double)	Number			sum, average, median, minimu...	sum	
AvgQuantity	AvgQuantity	Number(double)	Number			sum, average, median, minimu...	sum	
AvgSales	AvgSales	Number(double)	Number			sum, average, median, minimu...	sum	
AvgStandardC...	AvgStandardC...	Number(double)	Number			sum, average, median, minimu...	sum	
AvgUnitPrice	AvgUnitPrice	Number(double)	Number			sum, average, median, minimu...	sum	

Creating views

From the **View Manager**, you can either create a new empty view, or make a copy of an existing view.

[Creating a new empty view](#)

[Copying an existing view](#)

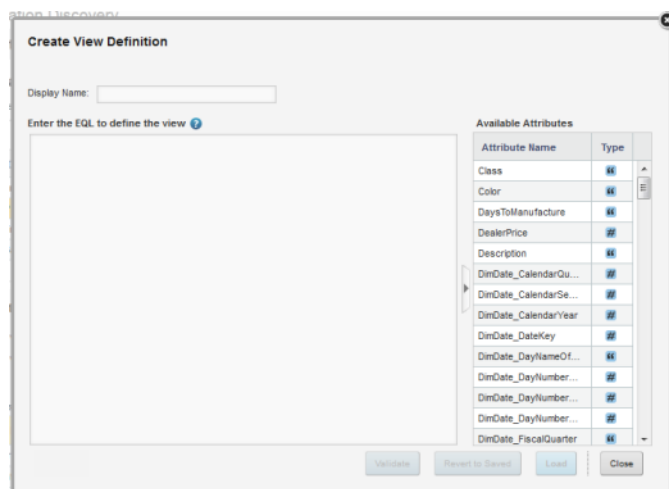
Creating a new empty view

One option for creating a new view is to create a new empty view.

On the **View Manager**, to add a new view to the selected data source:

1. On the views list, click **New View**.

The **Create View Definition** dialog is displayed.



2. In the **Display Name** field, type a name for the view.
3. In the EQL text area, enter the view definition.

For details on defining a view definition, see [Rules for using EQL to define a view on page 55](#).

To the right of the text area is the **Available Attributes** list, which contains the list of base attributes. You can use this list as a reference as you compose the view definition. You can show or hide this list.

4. To validate the definition, click **Validate**.

If the definition is not valid, then Studio displays error messages to help you troubleshoot the definition.

5. To save the new view, click **Load**.

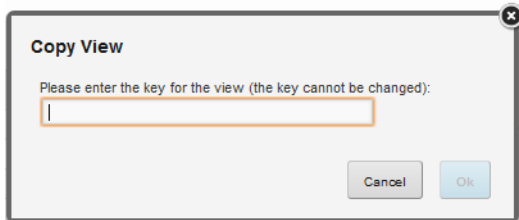
Copying an existing view

You can create a view by copying another view. The new view has the same definition, attributes, and metrics as the original view. The display name is set to "Copy of" followed by the original view display name.

To create a view by copying an existing view.

1. In the view list, click the copy icon for the view you want to copy.

2. On the **Copy View** dialog, in the key name field, type the key to use for the copied view.



The view key must be NC-Name compliant. The key replaces the key in the last statement of the view definition from the copied view.

3. After entering the view key, click **Ok**.

The new view is added to the list. The display name is "Copy of" followed by the name of the copied view.

Configuring a view

From the **View Manager**, 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](#)

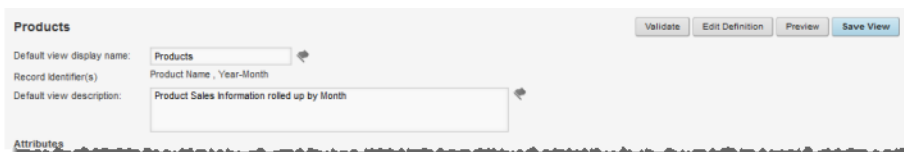
[Rules for using EQL to define a view](#)

[Configuring the view attributes](#)

[Defining predefined metrics for a view](#)

Editing and localizing the view display name and description

On the **View Manager**, when you select a view from the view list, the view details include the **Default view display name** and **Default view description** fields.



The display name and description are used when showing the list of available views to assign to a component.

For views other than the Base view, you can create localized versions of the name and description.

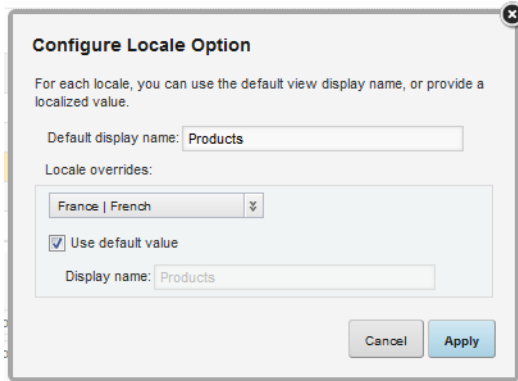
Note that if a view does not have a valid EQL definition, then you cannot edit or localize the view display name and description.

To edit and localize the display name and description:

1. To edit the default display name and description:
 - (a) In the **Default view 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, click the localize icon next to the field.

On the **Configure Locale Option** dialog, the **Default display name** field contains the default name. If you edit the name here, it will be reflected on the main **View Manager** page.



To provide localized versions of the display name:

- (a) Under **Locale overrides**, from the drop-down list, select a locale for which to provide a version of the display name.
- (b) To use the default display name for the selected locale, leave the **Use default name** checkbox checked.
- (c) To provide a localized display name, uncheck the checkbox. In the field, type the localized name.

After providing all of the localized descriptions, click **Apply**.

3. To localize the view description, click the localize icon next to the field.

On the **Configure Locale Option** dialog, the **Default description** text area contains the default description. If you edit the description here, it is reflected on the main **View Manager** page.

To provide localized versions of the description:

- (a) Under **Locale overrides**, from the drop-down list, select a locale for which to provide a version of the description.
- (b) To use the default description for the selected locale, leave the **Use default name** checkbox checked.
- (c) To provide a localized description, uncheck the checkbox. In the text area, type the localized description.

After providing all of the localized descriptions, click **Apply**.

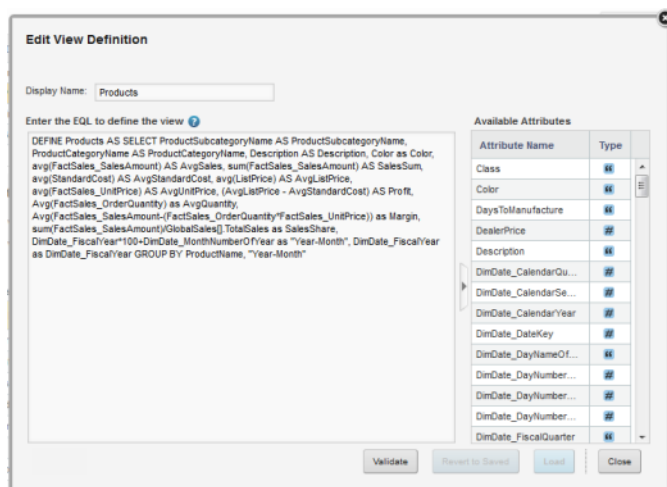
4. To save the changes to the view, click **Save View**.

Editing the view definition

From the **View Manager**, after you create a 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 [Rules for using EQL to define a view on page 55](#).

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 **Load**.

The attribute and metrics lists are updated to reflect the new definition.

Rules 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 restrictions in mind.

While the definition may contain multiple **DEFINE** and **SELECT** statements, the last statement must be a **DEFINE** statement that lists all of the view attributes.

The statement should include at least one grouping attribute.

Also, when defining a view:

- Avoid aliasing attributes from the physical data.

For example, if the data source includes a "Region" attribute, then when you add the attribute to a view, define it as "Region".

```
DEFINE Region AS Region
```

Don't define the attribute under a different name, such as:

```
DEFINE 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 to refine the data.

- Do not give a derived attribute the same name as an attribute from the physical data.

For example, if you are adding an attribute that averages the values of an existing "Sales" attribute, do not define the new attribute as:

```
DEFINE avg(Sales) as Sales
```

Instead, use something like:

```
DEFINE 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.

- Avoid having a defining statement without a **GROUP BY** clause.

Studio uses the **GROUP BY** attributes as the identifying attributes for each record in the view.

If there are no **GROUP BY** attributes, then Studio cannot identify the identifying attributes, and the view cannot be used in a **Record Details** or **Compare** component.

Also note that because EQL does not support multi-assign, any multi-assign attribute that you add to a view will not be multi-assign in the context of the view. For additional information on using EQL, including the limitations on multi-assign, see the *Oracle Endeca Server EQL Guide*.

Here is an example of an EQL query for generating a list of products, including price and sales numbers, from a data source consisting of individual transactions.

```
DEFINE Products AS SELECT
ProductName AS ProductName,
ProductSubcategoryName AS ProductSubcategoryName,
ProductCategoryName AS ProductCategoryName,
Description AS Description,
avg("FactSales_SalesAmount") AS AvgSales,
sum("FactSales_SalesAmount") AS SalesSum,
avg(StandardCost) AS AvgStandardCost,
avg(ListPrice) AS AvgListPrice,
(AvgListPrice - AvgStandardCost) AS Profit
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 **View Manager**, the attributes list for a view consists of the attributes from the view definition. This includes both the defined attributes and the grouping attributes.

Attributes						
Display Name ▲	Attribute Key	Data Type	Standard Format	Refineable	Dimension	Available Aggregations
AvgLastPrice	AvgLastPrice	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
AvgQuantity	AvgQuantity	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
AvgSales	AvgSales	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
AvgStandardC...	AvgStandardC...	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
AvgUnitPrice	AvgUnitPrice	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
Color	Color	String	(none)	✓	☒	count,count distinct
Description	Description	String	(none)	✓	☐	count,count distinct
Fiscal Year	DimDate_Fiscal...	Number(long)	Number (custom)	✓	☒	sum,average,median,minimu...
Margin	Margin	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
Product Categ...	ProductCatego...	String	(none)	✓	☒	count,count distinct
Product Name	ProductName	String	(none)	✓	☐	count,count distinct
Product Subc...	ProductSubcat...	String	(none)	✓	☒	count,count distinct
Profit	Profit	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
SalesShare	SalesShare	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
SalesSum	SalesSum	Number(double)	Number (custom)	---	☐	sum,average,median,minimu...
Year-Month	Year-Month	Number(long)	Number (custom)	---	☒	sum,average,median,minimu...

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 59.
Attribute Key	The attribute identifier. Read-only. You cannot change the attribute key unless you update the view definition.
Data Type	The data type for the attribute. Read-only. You cannot change the data type.
Standard Format	The default display format for the attribute values. For most data types, you can customize the default display format. Strings do not allow for any customization. See Configuring the default display format for an attribute on page 60.

Attribute List Column	Description
Refineable	Whether the attribute can be used for refinement. Only attributes from the physical data can be used for refinement. Read-only.
Dimension	Whether the attribute can be used as a dimension for aggregating metric values. To allow the attribute to be used as dimension, check the checkbox.
Available Aggregations	The available aggregation methods for aggregating the values for this attribute into a metric. You can enable or disable available aggregation methods. See Selecting the available and default aggregation methods for an attribute on page 63.
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 63.
Refinement Behavior	Displayed and editable for the Base view only. The type of refinement allowed for the attribute. Indicates whether users can select more than one value to refine by. See Configuring the Guided Navigation behavior for Base view attributes on page 66.
Guided Nav Ordering	Displayed and editable for the Base view only. How to determine the display order of the available attribute values. See Configuring the Guided Navigation behavior for Base view attributes on page 66.
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 59.

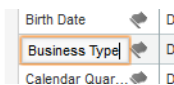
Editing and localizing an attribute display name and description

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 **View Manager**, 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.

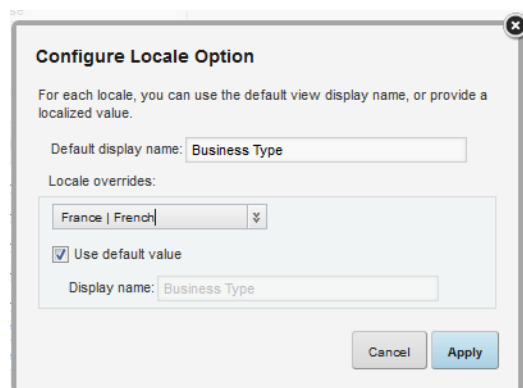


- (b) In the field, type the new name.
2. To localize the display name, in the **Display name** column, click the localize icon.

On the **Configure Locale Option** 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 **Configure Locale Option** 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**.
5. To save the changes to the attribute display name and description, click **Save View**.

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.

From the attributes list on the **View Manager**, to change the default display format for an attribute:

1. Click the edit icon in the **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:

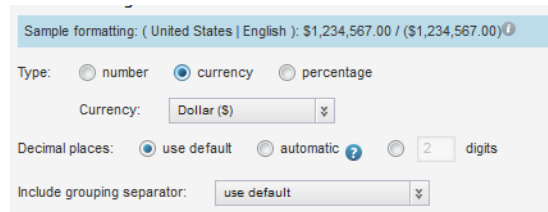


- (a) Click the radio button to indicate the type of number.

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.



- (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

- (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.

Include grouping separator: use default

▼ **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

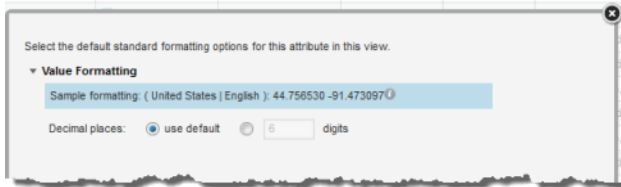
Decimal separator: varies based on locale

Grouping separator: varies based on locale

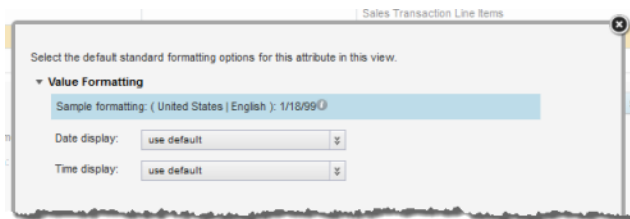
For each of the advanced items, you can choose to have the display determined automatically based on the user's locale, or select a specific option.

- (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).

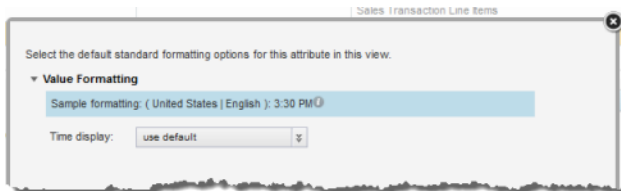
4. For a geocode, to set a specific number of decimal places to display for the latitude and longitude values:



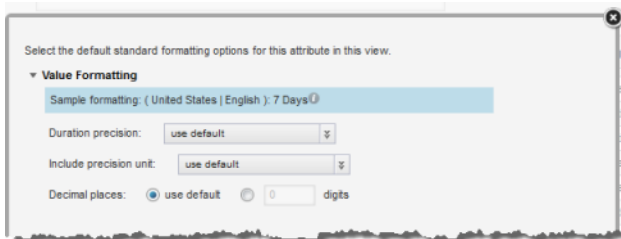
- (a) Click the custom radio button.
 - (b) In the field, type the number of decimal places.
5. For a date/time attribute:



- (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 checkbox, then enter the number in the field.
- 8. To confirm the format configuration, click **Apply**.
- 9. To save the changes to the view settings, click **Save View**.

Selecting the available and default aggregation methods for an attribute

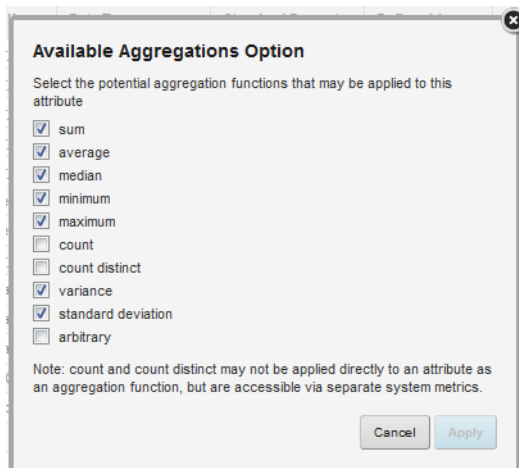
Aggregation methods are used to aggregate attribute values into metrics displayed on components such as **Chart**, **Pivot Table**, and **Results Table**.

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.

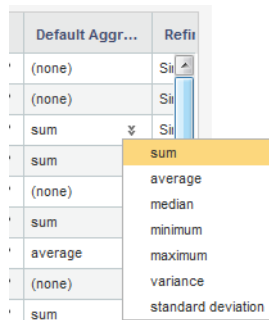
From the attributes list on the **View Manager**, to configure the available and default aggregation methods for an attribute:

1. To configure the available aggregation methods for an attribute:
 - (a) In the **Available Aggregations** column, click the edit icon.
 - (b) On the **Available Aggregations Option** 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**.

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).

The available aggregation methods are:

Aggregation Method	Description
sum	Calculates the total value for the metric. You can use this aggregation method for numbers and durations.
average	Calculates the average value for the metric. You can use this aggregation method for numbers, dates, times, and durations.
median	Calculates the median value for the metric. You can use this aggregation method for numbers, dates, times, and durations.
minimum	Selects the minimum value for the metric. You can use this aggregation method for numbers, dates, times, and durations.
maximum	Selects the maximum value for the metric. You can use this aggregation method for numbers, dates, times, and durations.

Aggregation Method	Description
count	Calculates the number of records with a value for the metric. You can use this aggregation method for numbers, dates, times, durations, strings, and Booleans. Note that when you are adding metrics to a component, you apply the count aggregation using a separate Number of records with values system metric. You first select the system metric, then select the attribute.
count distinct	Calculates the number of unique values for the metric. You can use this aggregation method for numbers, dates, times, strings, and durations. Note that when you are adding metrics to a component, you apply the count distinct aggregation using a separate Number of unique values system metric. You first select the system metric, then select the attribute.
variance	Calculates the variance (square of the standard deviation) for the metric values. You can use this aggregation method for numbers, dates, times, and durations.
standard deviation	Calculates the standard deviation for the metric values. You can use this aggregation method for numbers, dates, times, and durations.
arb	Instead of performing a calculation, arbitrarily selects one of the values. You can use this aggregation method for any attribute. The arb aggregation method is typically not provided as an option for aggregation metric values on components.

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:

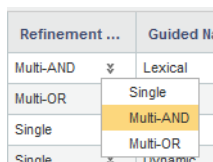
Aggregation Method	Amount of Sale (US)	Shipping Company (US)
sum	225.00	Cannot be aggregated
avg	108.33	Cannot be aggregated
median	125.00	Cannot be aggregated
min	50.00	Cannot be aggregated
max	150.00	Cannot be aggregated
count	3	3
count distinct	3	2
variance	2708.33	Cannot be aggregated
standard deviation	52.04	Cannot be aggregated
arb	Could be either 125.00, 50.00, or 150.00	Could be either UPS or FedEx

Configuring the Guided Navigation behavior for Base view attributes

For each attribute in the Base view, the **View Manager** attributes list allows you to configure settings for how to handle selection and sorting of attribute values on the **Guided Navigation** component.

In the attributes list for the Base view, to configure the value selection and sorting for each attribute:

1. 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.

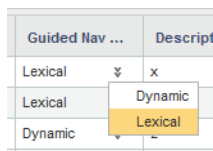


The available options are:

Option	Description
Single	Indicates that end users can only refine by one value at a time.

Option	Description
Multi-Or	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. 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).
Multi-And	Indicates that end users can refine by more than one value at a time. For multi-and, a record matches only if it has all of the selected attribute values. Multi-and should only be used with multi-assign attributes. 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).

- From the **Guided Nav Ordering** drop-down list, select how to determine the display order of the list of available attribute values on the **Guided Navigation** component.



The available options are:

Option	Description
Lexical	Indicates to display the values in alphabetical or numeric order. 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: • Blue (5 records) • Green (25 records) • Red (15 records)

Option	Description
Dynamic	Indicates to display the values in descending order by the number of matching records. For example, for the values Red (15 records), Green (25 records), and Blue (5 records), if the sorting is by record count, the values are displayed as: • Green (25 records) • Red (15 records) • Blue (5 records)

Defining predefined metrics for a view

Views can also have predefined metrics, which are values calculated from the view attributes.

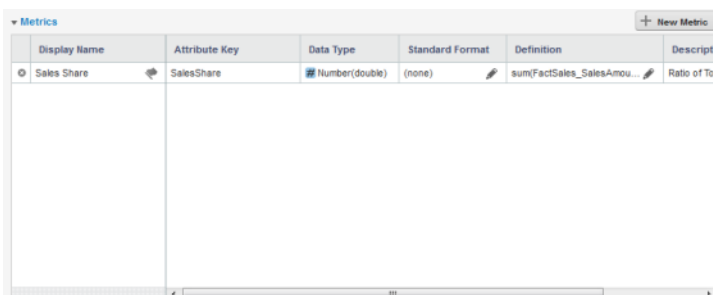
About predefined metrics

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 **View Manager**, the list of predefined metrics is displayed below the view's attribute list. By default, the section is collapsed. To expand the section, click the section heading.



Metrics					
Display Name	Attribute Key	Data Type	Standard Format	Definition	Description
Sales Share	SalesShare	Number(double)	(none)	sum(FactSales_SalesAmou...)	Ratio of Tot

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 **View Manager**, to add a predefined metric to a view:

1. From the **Metrics** list, click **New Metric**.

The **Create Metric Definition** dialog is displayed.

Attribute Name	Type
DimDate_FiscalQuarter	II
DimDate_FiscalSemester	II
DimDate_FiscalYear	II
DimEmployee_FullName	II
DimReseller_ProductLine	II
DimReseller_ResellerName	II
DimSalesTerritory_SalesTerritoryID	II
DimSalesTerritory_SalesTerritoryName	II
FactSales_SalesAmount	II
ProductCategoryName	II
ProductSubcategoryName	II
Year-Month	II

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.

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 **Load**.

7. To close the dialog, click **Close**.

Configuring a predefined metric for a view

From the predefined metrics list on the **View Manager**, 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	Data Type	Standard Format	Definition	Description
Sales Share	SalesShare	Number(double)	(none)	sum(FactSales_SalesAmou...	Ratio of Tot

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 Option** dialog, the **Default 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 60](#).
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 Option** 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 **View Manager**, 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 **View Manager**, 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.

Preview (17 of 17 records)

Age	Department...	Full Name	FullName	Gender
43	Sales	Rachel B Valdez	Rachel B Valdez	F
74	Sales	Shu K Ito	Shu K Ito	M
50	Sales	Jae B Pak	Jae B Pak	F
38	Sales	Linda C Mitchell	Linda C Mitchell	F
43	Sales	Garrett R Vargas	Garrett R Vargas	M
44	Sales	David R Camp...	David R Camp...	M
40	Sales	Tete A Mensa-...	Tete A Mensa-...	M
66	Sales	Stephen Y Jiang	Stephen Y Jiang	M
42	Sales	Ranjit R Varke...	Ranjit R Varke...	M
43	Sales	Pamela O Ans...	Pamela O Ans...	F
60	Sales	Amy E Alberts	Amy E Alberts	F
49	Sales	Michael G Blythe	Michael G Blythe	M
43	Sales	Syed E Abbas	Syed E Abbas	M
47	Sales	Lynn N Tsofilas	Lynn N Tsofilas	F

Close

3. To close the **Preview** dialog, click **Close**.

Deleting a view

From the **View Manager**, you can delete a view. 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, click the delete icon for that view.



Chapter 10

Managing Attribute Groups for an Application Data Source

From the **Attribute Group Manager**, you can create, edit, and delete attribute groups for each view in an application data source.

About attribute groups and the Attribute Group Manager

Displaying the groups for a selected view

Displaying attribute information for a group

Creating an attribute group

Deleting an attribute group

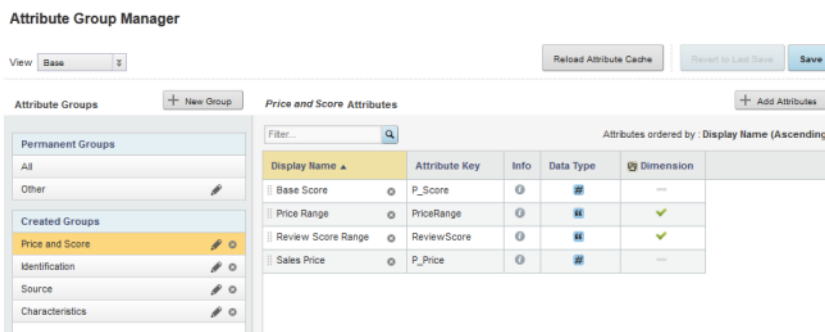
Configuring an attribute group

Saving the attribute group configuration and reloading the attribute group cache

About attribute groups and the Attribute Group Manager

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.



From the **Attribute Group Manager**, you create and edit the attribute groups for the current application data. To display the **Attribute Group Manager**:

1. From the Studio menu, select **Application Settings**.
2. On the **Application Settings** panel, click **Attribute Group Manager**.

Displaying the groups for a selected view

When the **Attribute Group Manager** is first displayed, the groups for the Base view of the application data source is selected by default. You can then change the selected view.

On the **Attribute Group Manager**, to select the view for which to display the attribute groups:

1. If the application is associated with a family of data sources, then you can select the data source to work with. From the **Data Source** drop-down list, select the data source.

If there are no related data sources, then the **Data Source** drop-down list is not displayed.

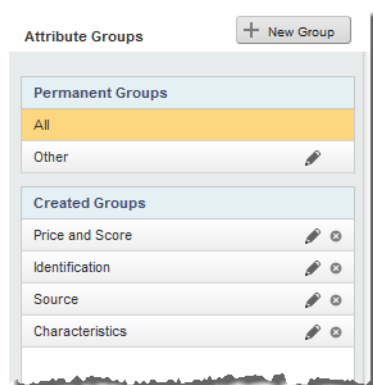
2. From the **View** drop-down list, select the view.

Attribute Group Manager

View Base 

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 Group Manager**, 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 Group Manager**, 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.

Identification Attributes + Add Attributes

Filter... Q Attributes ordered by : Display Name (Ascending)

Display Name	Attribute Key	Info	Data Type	Dimension
Description	P_Description		String	✓
Name	P_Name		String	✓
Wine ID	P_WineID		String	✓

Displaying the full list of metadata values for an attribute

From the **Attribute Group Manager**, 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.

Wine ID
P_WineID

Attribute settings:

Data Type	String
Dimension	Yes
Refinement Behavior	Single
Guided Navigation Ordering	Record Count
Refineable	✓
Group Membership	Identification

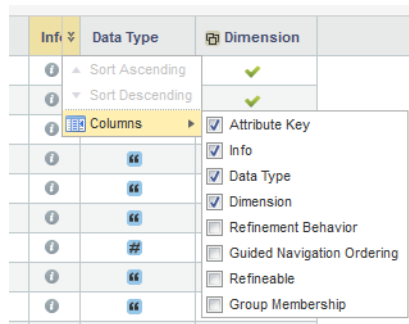
Selecting the metadata columns to display for each attribute

By default, the attribute list on the **Attribute Group Manager** 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.



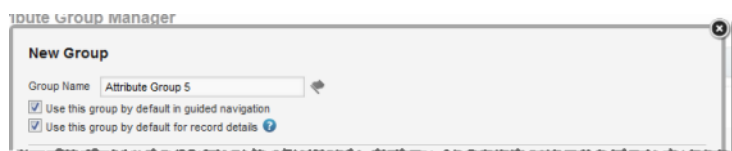
- To add a column, check the checkbox.
- To remove a displayed column, uncheck the checkbox.

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 Group Manager**, 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 the Base view, to have this group enabled by default in a **Guided Navigation** component, check the **Use this group by default in guided navigation** checkbox.

Note that because the **Guided Navigation** component can only use the 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 77](#).
- After completing the configuration, click **Apply**.

Deleting an attribute group

From the **Attribute Group Manager**, 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 Group Manager**, 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](#)

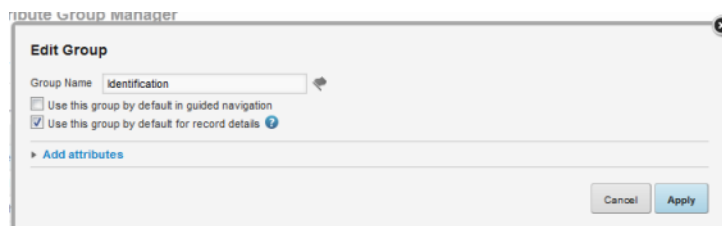
[Configuring the sort order for a group](#)

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 guided navigation 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.

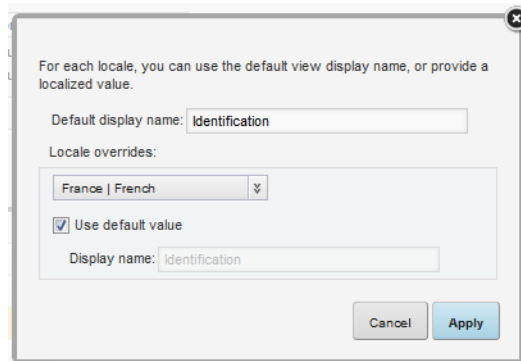


3. To localize the display name, click the localize icon next to the **Display Name** field.

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:

- (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**.
4. For a group in the Base view, to have this group enabled by default in a **Guided Navigation** component, check the **Use this group by default in guided navigation** checkbox.
 Note that because the **Guided Navigation** component can only use the Base view, this checkbox is not displayed for groups in other views.
 5. 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.
 6. 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 **Guided Navigation**, **Compare**, and **Record Details** components, but will affect existing **Results Table** components that use the default configuration.

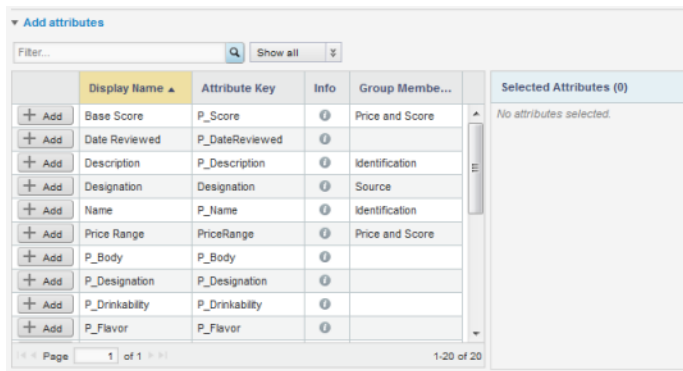
Configuring the group membership

For each group, you select the specific attributes that belong to the group.

From the **Attribute Group Manager**, to add and remove attributes for a group:

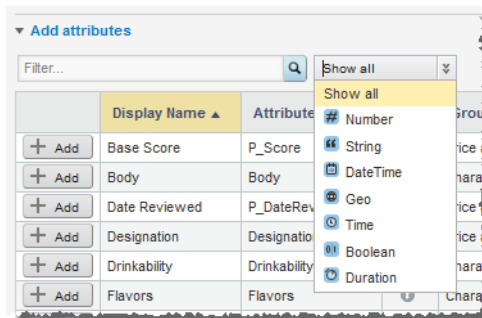
1. To add attributes:
 - (a) Display the **Add Group** or **Edit Group** dialog.
 The **Add Group** dialog is displayed when you create a new group.
 To display the **Edit Group** dialog for an existing group, either:
 - From the groups list, click the edit icon.
 - From the attributes list for the group, click the **Add Attributes** button.

The **Add attributes** section contains the list of attributes in the view that do not belong to the group.



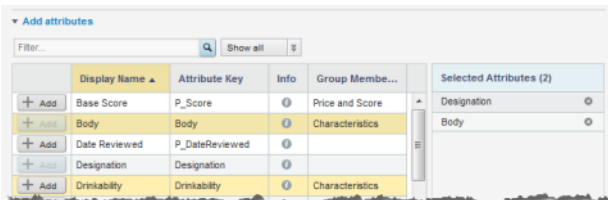
(b) To filter the list, either:

- 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.

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**.

- To remove an attribute from a group, in the attribute list, click the delete icon for that attribute.

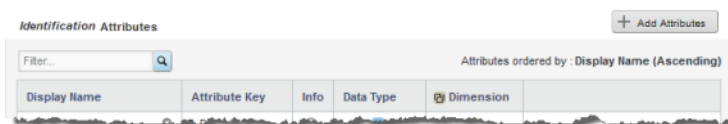
Configuring the sort order for a group

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 Group Manager** determines the display order of attributes on Studio components.

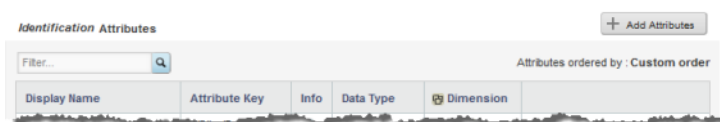
By default, the group is sorted by attribute display name in alphabetical order. For attributes that do not have a display name, the attribute key is used.

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.



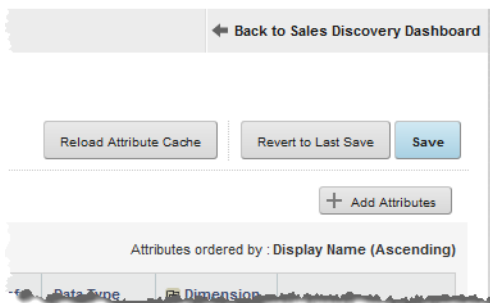
You also can move an attribute to a specific location in the list. When you do that, the sort order is updated to be **Custom order**.



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 IV

Building and Managing Studio Applications



Chapter 11

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.

Wine ID	Sales Price	Price Range	Date Reviewed	Base Score
34699	\$18.00	\$10 to \$20	8/31/1995	
34700	\$16.00	\$10 to \$20	8/31/1995	
34701	\$18.00	\$10 to \$20	6/15/1993	
34702	\$20.00	\$20 to \$30	2/28/1995	
34703	\$11.00	\$10 to \$20	4/15/1994	
34704	\$8.00	Under \$10	9/15/1996	
34705	\$7.00	Under \$10	3/31/1996	
34706	\$4.00	Under \$10	4/15/1994	
34707	\$12.00	\$10 to \$20	3/31/1996	
34708	\$7.00	Under \$10	3/31/1996	

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 **Metrics Bar** and **Alerts** components are 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.

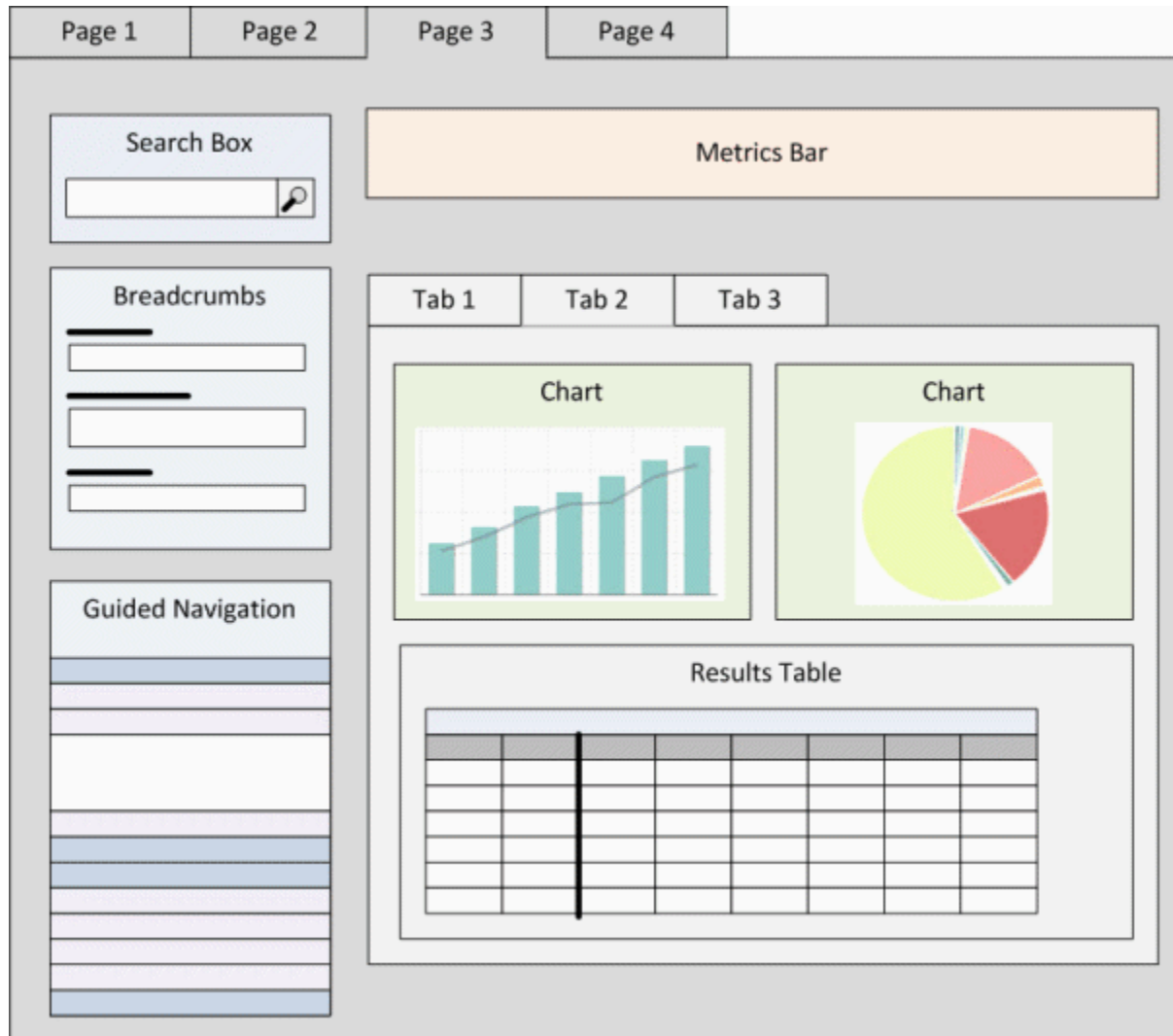


Each **Chart** component highlights a specific set of data, to compare values or show trends.

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 **Guided Navigation** 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.

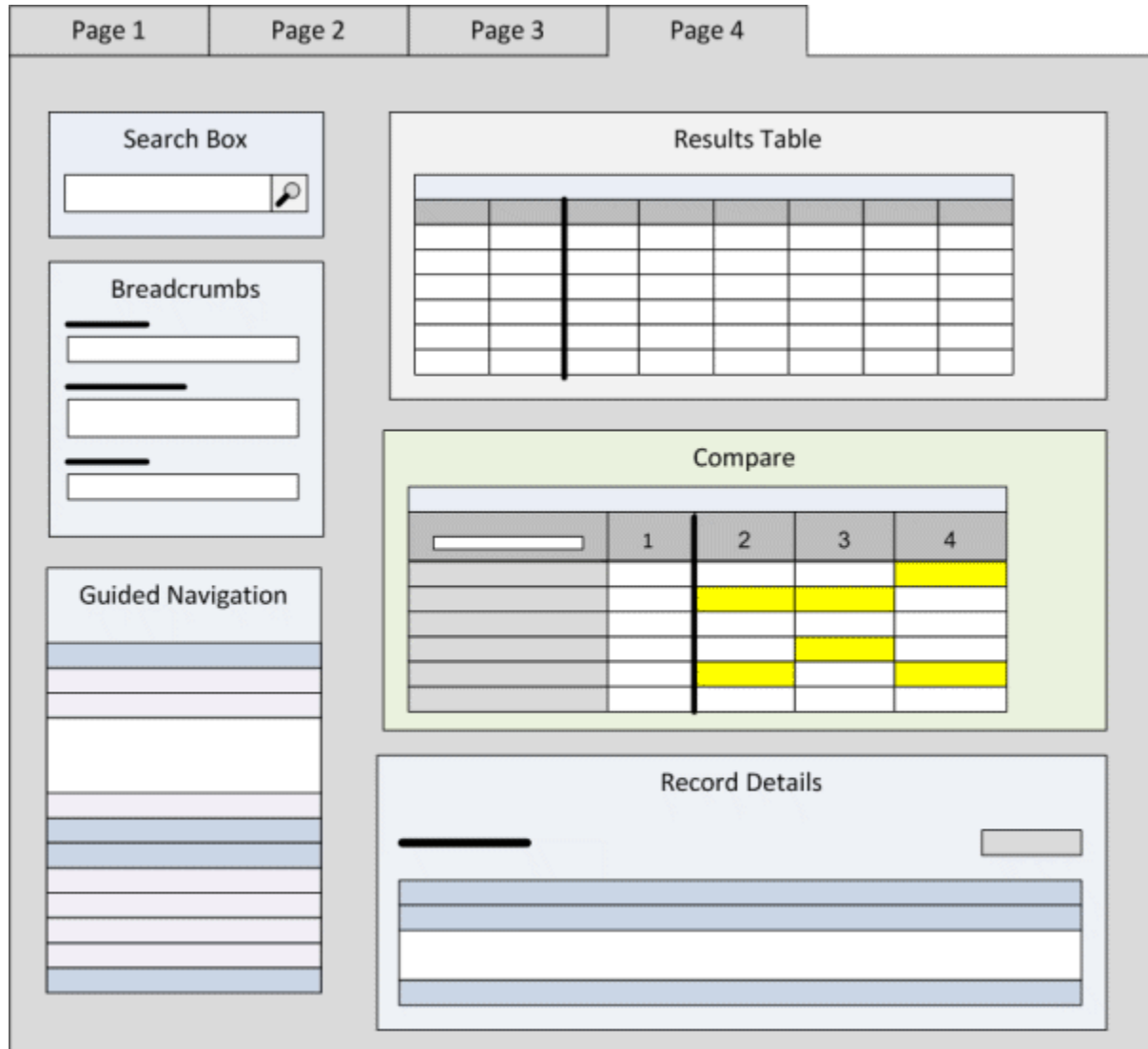
The **Breadcrumbs** component displays the current refinements, and is used to remove refinements.

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 **Guided Navigation** 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 **Breadcrumbs** 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:

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



Chapter 12

Creating a Studio Application

To create a Studio application, you can either connect to an existing data source or upload a spreadsheet containing your own data.

[About creating a Studio application](#)

[Creating an application by connecting to an existing data source](#)

[Creating an application from an uploaded spreadsheet](#)

About creating a Studio application

The **Discovery Applications** page includes an option to create a new Studio application.

You can create a new application either by uploading data from a spreadsheet, or by connecting to an existing data source that has been made available for you to use.

A brand new application consists of a single page with a standard set of starting components.

Creating an application by connecting to an existing data source

You can create a new application by connecting to an existing data source.

To create an application for an existing data source:

1. On the **Discovery Applications** page, click **New Application**.

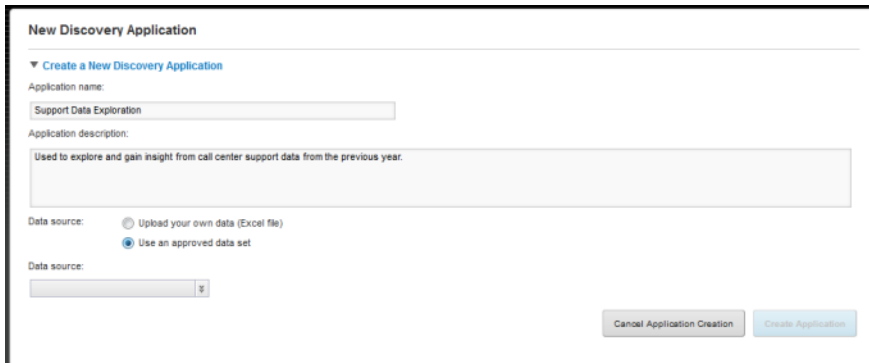
The application creation page is displayed.

The screenshot shows a web form titled "New Discovery Application". At the top, there is a link "Create a New Discovery Application". Below this, there are two input fields: "Application name:" and "Application description:". Under the "Application description:" field is a larger text area. Below these fields, there are two radio buttons for "Data source:". The first radio button is selected and labeled "Upload your own data (Excel file)". The second radio button is labeled "Use an approved data set". Below the radio buttons, there is a label "Select an Excel file:" followed by a text input field, a "Browse..." button, and a "Next" button. At the bottom right of the form is a "Cancel Application Creation" button.

2. In the **Application name** field, enter the name of the new application.
3. In the **Application description** field, enter a description of the application. The description displays as part of the application information on the **Discovery Applications** page.

4. Click the **Use an approved data set** radio button.

The **Data source** drop-down list is displayed.



New Discovery Application

▼ Create a New Discovery Application

Application name:
Support Data Exploration

Application description:
Used to explore and gain insight from call center support data from the previous year.

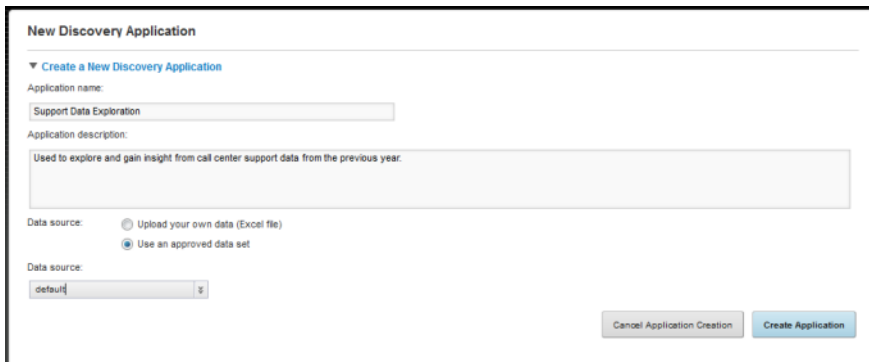
Data source:
☐ Upload your own data (Excel file)
☒ Use an approved data set

Data source:
default

Cancel Application Creation Create Application

5. From the drop-down list, select the data source to use.

The **Create Application** button is enabled.



New Discovery Application

▼ Create a New Discovery Application

Application name:
Support Data Exploration

Application description:
Used to explore and gain insight from call center support data from the previous year.

Data source:
☐ Upload your own data (Excel file)
☒ Use an approved data set

Data source:
default

Cancel Application Creation Create Application

6. Click **Create Application**.

Studio generates the new application. When finished, the application complete page is displayed.



New Discovery Application

Your application is ready to use.
Start discovering!

Go to Home Page Go to Application

From there, you can return to the **Discovery Applications** page or navigate directly to the application.

Creating an application from an uploaded spreadsheet

You can create an application by uploading data from a spreadsheet.

[About the file upload process](#)

[Selecting the file to upload](#)

[Canceling and resuming the application creation](#)

[Reviewing and revising the attributes derived from the spreadsheet](#)

Completing the application creation from the file upload

About the file upload process

The data upload process uses an Excel spreadsheet to create a new data source for the new application. Each column in the spreadsheet can become an attribute in the data source.

The option to upload a file is only available if:

- The Provisioning Service has been installed.
- The connection to the Provisioning Service has been configured. See [Configuring the Connection to the Provisioning Service on page 44](#).
- On the Endeca Server, the number of data domains created by a file upload is less than the maximum allowed.

The maximum is configured using the `df.provisioningServiceLimit` Framework Setting.

For information on configuring Framework Settings in Studio, see the *Studio Administration and Customization Guide*.

The process uploads all data in US English, no matter what locale is currently being used for Studio or what language the spreadsheet was created in.

During the upload process, you can:

- Determine which attributes to include
- Customize the attribute names
- Select the attribute data type
- Indicate how to handle missing and mismatched values
- Cancel and resume the process

The data source created from the spreadsheet includes an automatically generated attribute called `eid-reserved-spec`, which acts as the unique identifier for each record.

Only Studio administrators can create other applications that are connected to data sources created by file upload. When users other than Studio administrators create an application connected to an existing data source, the uploaded data source is not in the drop-down list.

Also, when you delete an application created from a file upload, as long as no other applications are connected to the data source, the associated data source is also deleted.

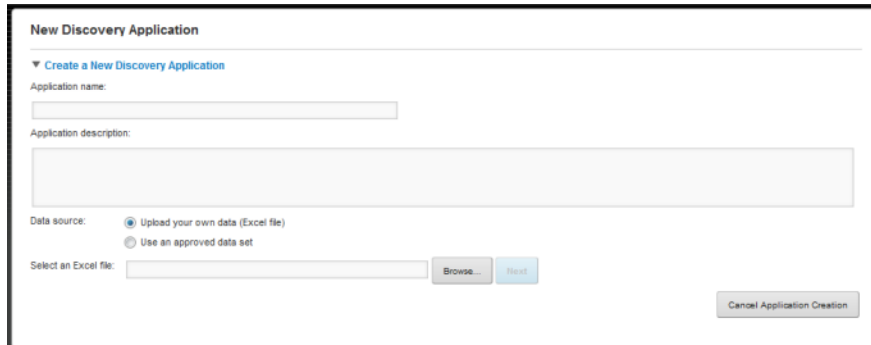
Selecting the file to upload

When creating a new application using a file upload, the first step is to provide the application name and description, then select the file and worksheet to use.

To start the file upload process:

1. On the **Discovery Applications** page, click **New Application**.

The application creation page is displayed.



New Discovery Application

▼ Create a New Discovery Application

Application name:

Application description:

Data source:

☒ Upload your own data (Excel file)

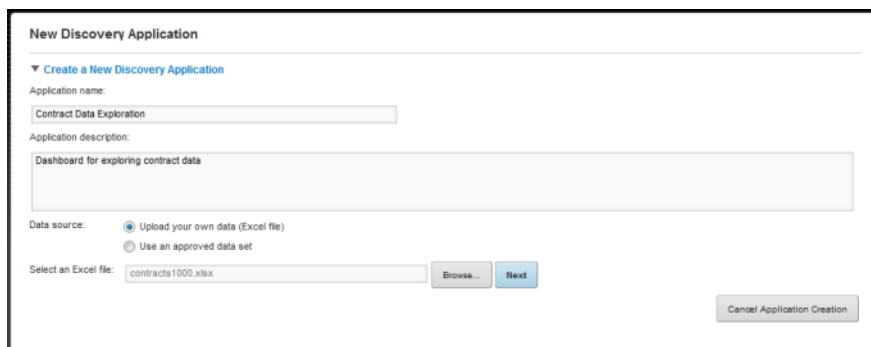
☐ Use an approved data set

Select an Excel file:

Browse... Next

Cancel Application Creation

2. In the **Application name** field, enter the name of the new application.
3. In the **Application description** field, enter a description of the application. The description displays as part of the application information on the **Discovery Applications** page.
4. The **Upload your own data (Excel file)** radio button is selected by default. To search for and select the file, click **Browse**.



New Discovery Application

▼ Create a New Discovery Application

Application name:

Contract Data Exploration

Application description:

Dashboard for exploring contract data

Data source:

☒ Upload your own data (Excel file)

☐ Use an approved data set

Select an Excel file:

contracts1000.xlsx

Browse... Next

Cancel Application Creation

The selected file must be an Excel spreadsheet created using Excel 2000 or later.

5. After selecting the file, click **Next**.

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

6. If there are multiple worksheets, then from the drop-down list, select the worksheet to use for the upload.
7. If the selected worksheet has a header row, check the **My data includes header rows** checkbox.
8. Click **Next**.

Studio parses the data, then updates the **Data and Settings** section to display an initial list of attributes and their associated metadata.

You can review and revise the attribute list before the application is created.

Canceling and resuming the application creation

Once you have selected the file to upload, and have at least displayed the file content, then you can stop the application creation process and save the incomplete application. You can then complete the application creation later.

To stop and resume the file upload process:

1. On the application creation page, click **Cancel Application Creation**.

You are prompted to select whether to discard or save the incomplete application.

2. To save the incomplete application, click **Save Application**.

You are returned to the **Discovery Applications** page. In the applications list, the application is flagged as incomplete.

3. To resume the application creation process for an incomplete application, click **Continue creating**.

Reviewing and revising the attributes derived from the spreadsheet

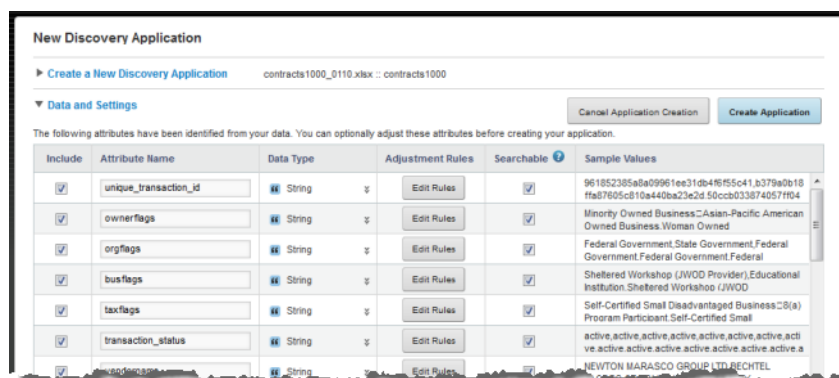
During the file upload process, you can adjust the attributes that are derived from the uploaded spreadsheet file.

About the attribute list

The **Data and Settings** section of the application creation page contains a list of attributes and metadata derived from the uploaded spreadsheet file.

The list includes the attribute name, data type, whether the attribute is searchable, and sample attribute values from the data.

Note that if your original spreadsheet includes a heading row, and there are multiple columns with the same heading, those columns are combined into a single multi-assign attribute. For example, if there are three columns with the heading "Color", they are combined into a single Color attribute. Any values in the original Color columns are combined into a list of assignments for the Color attribute.



You can:

- Determine whether to include the attribute in the new data source.
- Change the attribute name.
- Change the attribute data type.
- Determine how to handle missing or mismatched values.
- Determine whether the attribute is searchable.

Excluding attributes from the upload

By default, when you create a Studio application from an uploaded spreadsheet, the application includes all of the attributes found in the spreadsheet.

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

Editing the attribute names from an uploaded file

On the **Data and Settings** section of the file upload, the **Attribute Name** column contains an editable text field with the name of the attribute.

If the spreadsheet file had a heading row, then the attribute names are taken from that row.

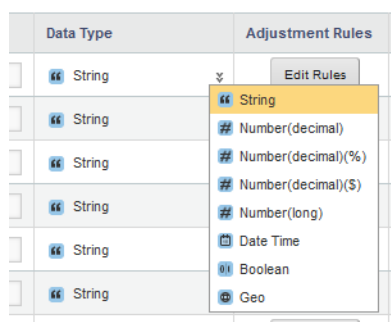
Note that if the spreadsheet has a heading row, and multiple columns have the same name, then those columns are combined into a single multi-assign attribute. For example, if there are three columns with the heading "Color", then a single Color attribute is created. For each record, the Color attribute is assigned all of the values from the original three columns.

If your spreadsheet does not have a heading row, the attributes are named using the Excel letter column headings (A, B, C, etc.). When you review the attribute list, you can change the name assigned to each attribute.

Changing an attribute's data type

In the **Data and Settings** section of the file upload, the **Data Type** column lists the data type for the attribute. The data type controls the available format and aggregation options for the attribute value. Studio uses the data type from the spreadsheet to determine the data type for the attribute.

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



Handling empty or mismatched values

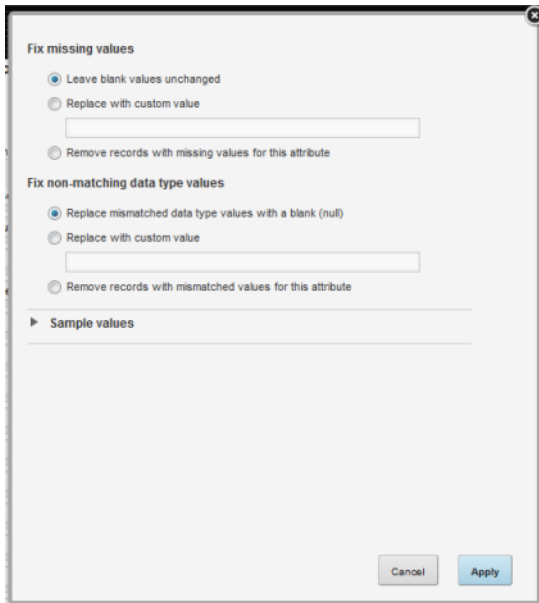
For each attribute, you can indicate how to handle empty values or mismatched values. Mismatched values can only occur to attributes with a type other than String, and are values whose format that does not match the attribute data type. For example, for a numerical attribute, some records might have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

In the **Data and Settings** section of the application creation page, when you click the **Sample Values** column, the **Sample Values** dialog includes a list of the mismatched values.

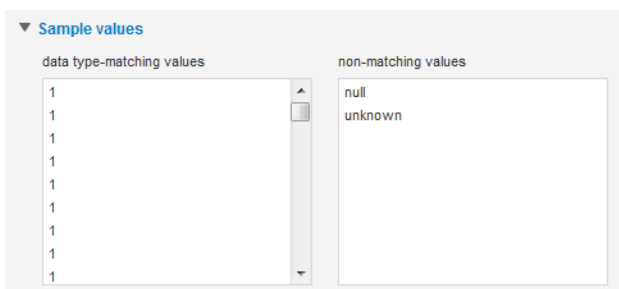
To configure how to handle the empty and mismatched values for an attribute:

1. In the **Adjustment Rules** column, click the **Edit** button.
2. Under **Fix missing values**, click a radio button to indicate how to handle empty values. You can choose to either:
 - Leave the blank values as is
 - Provide a custom value to use wherever a value is missing

- Remove records that have empty values



3. Under **Fix non-matching data type values**, click a radio button to indicate how to handle mismatched values. You can choose to either:
 - Replace the mismatched values with a blank value
 - Replace the mismatched values with a custom value
 - Remove records that have mismatched values
4. To display the list of non-matching values, expand the **Sample Values** section at the bottom of the dialog.



5. To save the configuration, click **Apply**.

Indicating whether an attribute is searchable

In the **Data and Settings** section of the file upload, the **Searchable** checkbox indicates whether to support text search for string attribute values.

When using the **Search Box** component to search for values, all attributes support value search, represented by the type-ahead function. As users type, matching attribute values are displayed.

When you choose to just search for a search term, then Studio only searches within the searchable attribute values. This type of search is most valuable for attribute values containing large amounts of text.

The **Searchable** checkbox is only displayed for string attributes. It is checked by default.

Search configuration for the data domain generated by the file upload

When you create an application by uploading a spreadsheet file, a new Endeca Server data domain is created. The process also generates a single search interface for that data domain.

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

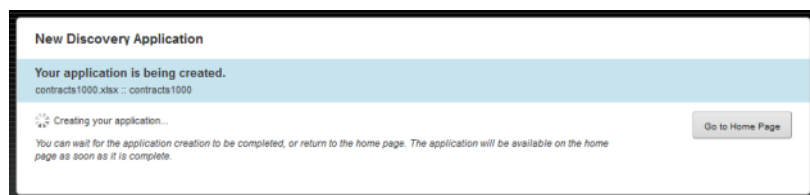
- All of the attributes marked as searchable in the attribute list are added as members. The members do not have an assigned relevance ranking.
- The search interface does not support partial matching or snippeting.
- The search interface uses an ALL_Strategy relevance ranking strategy, which includes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

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

Completing the application creation from the file upload

When you have finished configuring the attributes in the uploaded file, to complete the application creation, click **Create Application**.

As the application is being created, Studio displays a progress page with a button to return to the **Discovery Applications** page.



If you return to the **Discovery Applications** page before the application is completed, it will become available as soon as it is complete.

When the application creation is complete, the application creation page is updated to display buttons to navigate to either the **Discovery Applications** page or the application.





Chapter 13

Managing Studio Application Access and Membership

Applications can have different levels of access for different users.

[Controlling access to Studio applications](#)

[Controlling access to pages within an application](#)

[Managing membership in an application](#)

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

Controlling access to Studio applications

The application type is one facet of controlling who can see the application content.

[About the application type](#)

[Configuring the application type](#)

About the application type

Access to an application and application pages is partially determined by 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	The application is visible to all logged-in users, and all logged-in users can select the application in order to view public pages. Application members can also see private pages. Membership must be granted by an application administrator. Applications created from the Applications page on the Control Panel are by default public applications.

Application Type	Description
Private	The application is visible only to application members. Membership must be granted by an application administrator. Applications created from the Discovery Applications page are by default private applications.

Configuring the application type

Applications created from the **Control Panel** are Public by default. Applications created from the **Discovery Applications** page are Private by default. You can change the application type from either the **Application Settings** page or the **Control Panel**.

If you change the application type, then the page visibility type for all of the application pages changes to match the application type.

To change the application type for an application:

1. To change the type from the **Application Settings** page: .
 - (a) From the Studio menu, select **Application Settings**.

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

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

Application Configuration

Name: Sales Discovery Dashboard

Friendly URL: /sales-discovery-dashboard

Description: Dashboard for exploring recent sales data.

Data Source: free for all

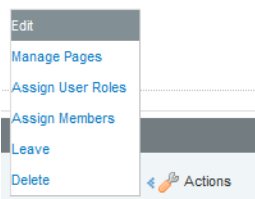
☐ Maintain existing component preferences

Application Access: Private (selected), Public, Private (Membership Access)

Users	User Groups
Admin Admin	No User Groups available

- (c) To save the change, click **Save**.
2. To change the type from the **Control Panel**:
 - (a) From the Studio menu, select **Control Panel**.
 - (b) In the **Control Panel** menu, click **Applications**.

- (c) On the **Applications** page, click the **Actions** link for the application, then select **Edit**.



- (d) On the **Applications** page, from the **Type** drop-down list, select the application type.

- (e) To save the change, click **Save**.

Controlling access to pages within an application

You can also configure access to individual pages within an application.

[About the page visibility type](#)

[Configuring the page visibility type for a page](#)

About the page visibility type

Whether users can have access to pages within an application, particularly pages for applications they're not a member of, is based on the page visibility type.

The page visibility type works similarly to the application type. It determines whether users can view the page without logging in or being an application member.

The page visibility types are:

Page Type	Description
Public	A public page is visible to all logged-in users, including users who are not members of the application. When non-logged-in users navigate to the URL, they are prompted to log in before they can view the page.

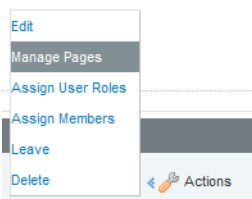
Page Type	Description
Private	A private page is only visible to logged-in users who are members of the application. When non-logged-in users navigate to the page URL, they are prompted to log in. When they log in, if they are not a member of the application, then they cannot view the page.

Configuring the page visibility type for a page

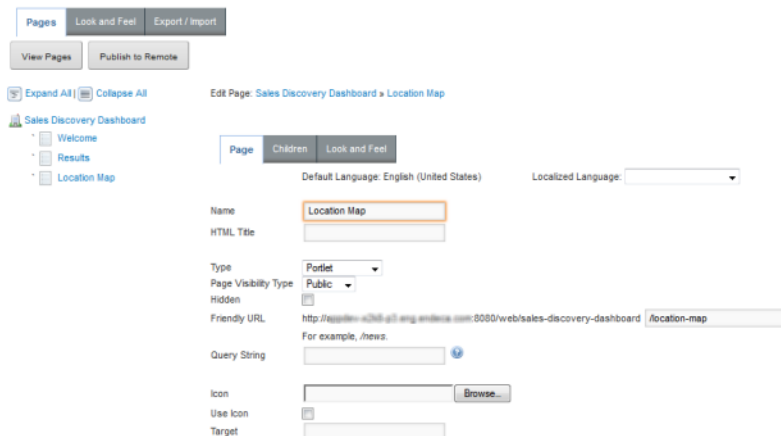
When you create a new page, the default page visibility type is the same as the application type. Studio administrators can use change the page type for each page.

To select a different page visibility type for an application page:

1. From the Studio menu, select **Control Panel**.
2. In the **Control Panel** menu, click **Applications**.
3. For the application containing the page you want to configure, click the **Actions** link, then click **Manage Pages**.



4. In the page list at the left, click the page name.
5. Click the **Page** tab for the selected page.



6. From the **Page Visibility Type** drop-down list, select the page type.
7. 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 from the Application Configuration page](#)

[Control Panel options for managing application membership](#)

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	Application members have view access to all of the content in an application, but cannot edit or configure the application or its membership. This is the default application role for a new application member.
Application administrator	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. The user who creates the application is automatically an application administrator. An application administrator can also assign other users as application administrators.

Adding and removing application members from the Application Configuration page

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 Studio 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.

Application Configuration

Name: Sales Discovery Dashboard

Friendly URL: /sales-discovery-dashboard

Description: Dashboard for exploring recent sales data.

Data Source: free for all

☐ Maintain existing component preferences

Application Access: Private

Application Membership Access

Users	User Groups
Admin Admin	No User Groups available.

+ Add Member

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

The **Manage Application Membership** dialog is displayed.

Manage Application Membership

To add or remove members, drag and drop items in the table.

Users | User Groups

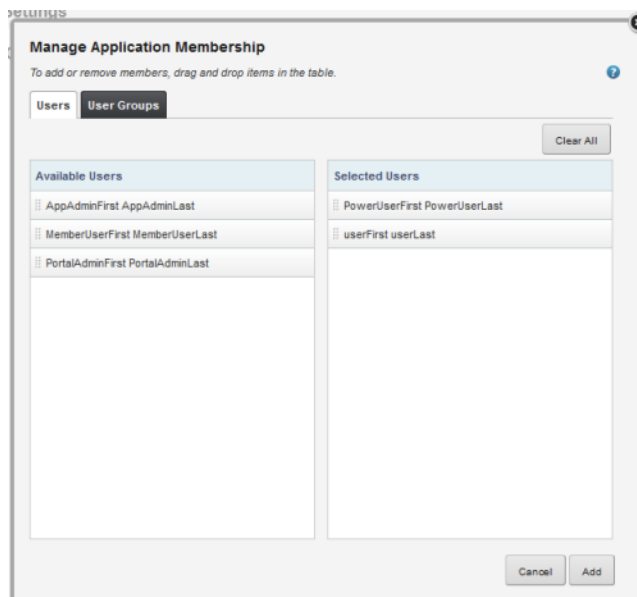
Clear All

Available Users	Selected Users
AppAdminFirst AppAdminLast	
MemberUserFirst MemberUserLast	
PortalAdminFirst PortalAdminLast	
PowerUserFirst PowerUserLast	
userFirst userLast	

Cancel Add

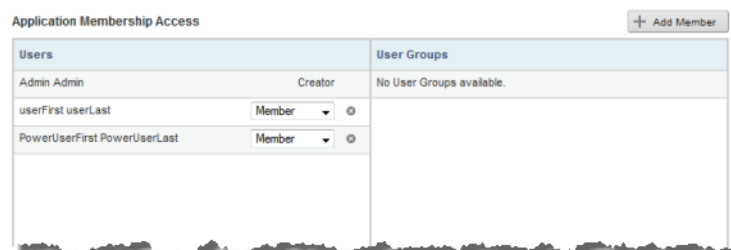
On the **Users** and **User Groups** tab, the **Available** list shows the available users or groups.

- (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.



3. 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.
4. 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.
5. To save the changes to the application membership, click **Save**.

Control Panel options for managing application membership

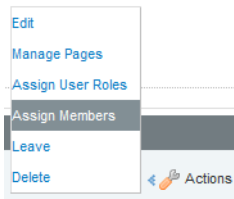
From the **Applications** page on the **Control Panel**, Studio administrators can manage the membership of any application.

Adding and removing application members from the Control Panel

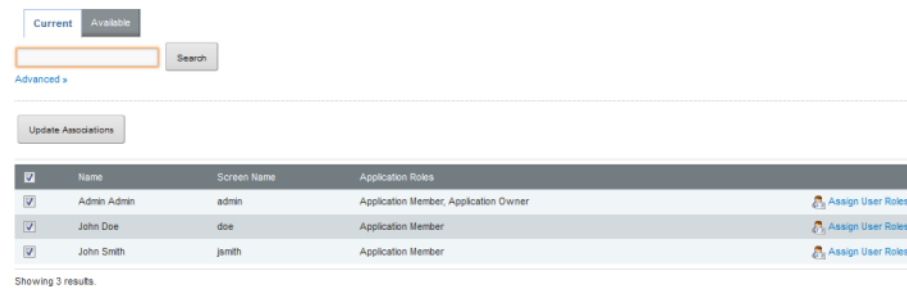
From the **Control Panel Applications** page, Studio administrators can add and remove members from any Studio application.

To manage the membership for an application:

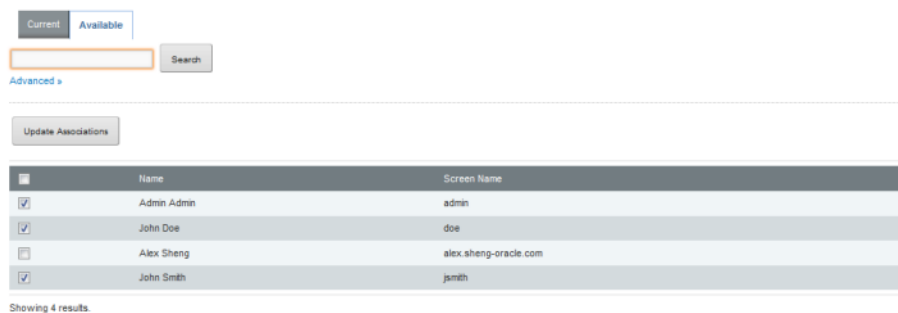
1. From the Studio menu, select **Control Panel**.
2. In the **Control Panel** menu, click **Applications**.
3. For the application you want to manage membership for, click the **Actions** button, then click **Assign Members**.



On the membership page, the **Current** tab lists the current application members.



The **Available** tab lists all of the users. For current members, the checkbox is checked.



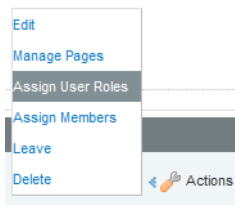
4. To add a user as a new member, on the **Available** tab, check the user's checkbox.
5. To remove a member, on either the **Current** or **Available** tab, uncheck the user's checkbox.
6. To save the membership changes, click **Update Associations**.

Assigning application roles to application members from the Control Panel

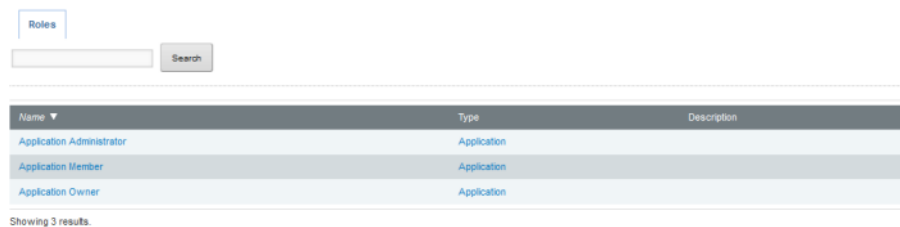
From the **Control Panel Applications** page, Studio administrators can change any application's membership to determine whether members are an application members or administrators.

To assign application roles to application members:

1. From the Studio menu, select **Control Panel**.
2. In the **Control Panel** menu, click **Applications**.
3. For the application you want to update the member roles for, click the **Actions** button, then click **Assign User Roles**.



4. On the **Roles** page, click the role you want to assign.



On the users page, the **Current** tab lists the users who currently have the selected role.

The **Available** tab lists all of the application members. Members who already have that role have the checkbox checked.



5. On the **Available** tab, to assign the selected role to a user, check the checkbox.
6. On the **Current** or **Available** tab, to remove the role from the user, uncheck the checkbox.
7. To save the membership changes, click **Update Associations**.

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 14

Configuring and Removing Studio Applications

Application administrators can configure and remove the application. Studio administrators can configure and remove any application, and can mark applications as certified.

[Options for configuring an application](#)

[Certifying an application](#)

[Making an application active or inactive](#)

[Removing an application](#)

Options for configuring an application

Application administrators can use the **Application Configuration** page on the **Application Settings** page to configure the application.

From the **Application Configuration** page, application administrators can:

- Rename the application
- Provide a description for the application
- Change the application type. See [Configuring the application type on page 97](#).
- Select a different application data source. See [Selecting a different data source for an application on page 46](#).

The page also contains a function to manage the application membership. See [Adding and removing application members from the Application Configuration page on page 100](#).

Studio Administrators also have access to the **Applications** page on the **Control Panel**. The **Applications** page provides access for administrators to manage all of the applications.

The **Applications** page includes an **Edit** option to display an application configuration page as well as separate administrator functions for managing each application's membership. See [Control Panel options for managing application membership on page 103](#).

From the **Control Panel** version of the application configuration page, Studio administrators can also:

- Make the application active or inactive. See [Making an application active or inactive on page 107](#).
- Certify or decertify the application. See [Certifying an application on page 107](#).

Certifying an application

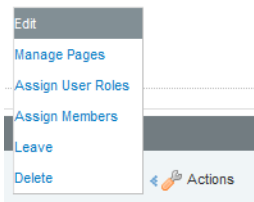
Studio administrators can certify an application. On the **Discovery Applications** page, certified applications are displayed in the **Certified Applications** list. Applications that are not certified are displayed in the **Community Applications** list.

Certifying an application can be used to indicate that the application content and functionality has been reviewed and the application is approved for use by all users who have access to it.

Note that only Studio administrators can certify an application. Application administrators cannot change the certification status.

To certify an application:

1. From the Studio menu, select **Control Panel**.
2. In the **Control Panel** menu, click **Applications**.
3. Click the **Actions** link for the action, then click **Edit**.



4. On the application configuration page, to certify the application, check the **Certified** checkbox.

 A screenshot of the 'Applications' configuration page. The page has a header with 'View All' and 'Add' buttons. Below the header, there are fields for 'Group ID' (10398), 'Name' (Sales Discovery Dashboard), and 'Description' (Dashboard for exploring recent sales data). There are also dropdown menus for 'Type' (Public) and 'Data Source' (free for all). Below these are checkboxes for 'Maintain existing component preferences' (unchecked), 'Active' (checked), and 'Certified' (unchecked). At the bottom, there are 'Tags' input fields, 'Add Tags' and 'Select Tags' buttons, and 'Save' and 'Cancel' buttons.

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

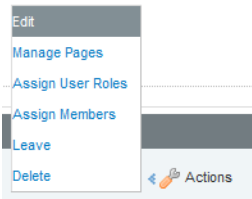
Making an application active or inactive

By default, a new application is marked as active. From the **Control Panel**, Studio administrators can control whether an application is active or inactive. Inactive applications are not displayed on the **Discovery Applications** page.

Note that this option only available to Studio administrators. Application administrators cannot change the application status.

To change the application status:

1. From the Studio menu, select **Control Panel**.
2. In the **Control Panel** menu, click **Applications**.
3. Click the **Actions** link for the action, then click **Edit**.



4. On the application configuration page, to make the application inactive, uncheck the **Active** checkbox.

If the application is inactive, then to make the application active, check the **Active** checkbox.

5. To save the change to the application status, click **Save**.

Removing an application

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

For Studio administrators, the **Applications** page on the **Control Panel** also includes options to delete each application.

When you remove an application, if:

- It is connected to a data source that was created from a spreadsheet upload, and
- No other applications are created to the data source

then the associated data source is also removed.

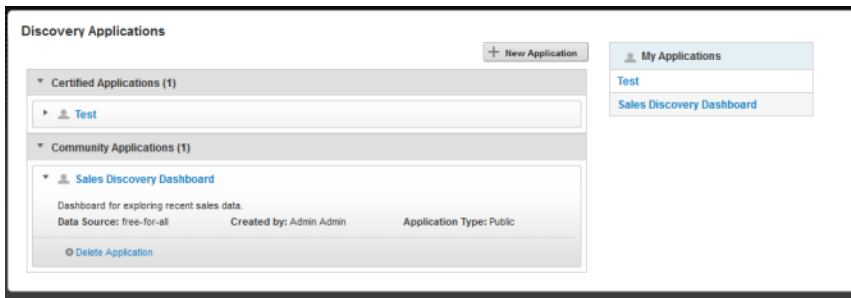


Important: Do not use the option on the **Control Panel Applications** page to remove an application connected to a data source created from a spreadsheet upload. If you do this, Studio cannot properly clean up the data from the Provisioning Service. Always delete these applications from the **Discovery Applications** page.

For applications created by linking to an existing data source, the data source is not removed.

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

1. Expand the information for the application.



2. Click the **Delete Application** link.



Chapter 15

Managing Studio Application Pages

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

[Adding a page](#)

[Renaming a page](#)

[Applying a layout template to a page](#)

[Deleting a page](#)

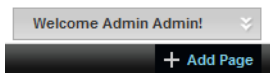
Adding a page

When you create a new Studio application, it consists of a single page containing **Search Box**, **Breadcrumbs**, **Guided Navigation**, 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.

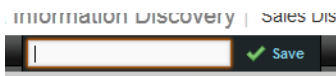
To add a page to your Studio application:

1. Click **Add Page**.



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.

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.
3. In the field, type the new name.



4. Click **Save**.

Studio administrators can also rename a page using the **Manage Pages** option available from the **Applications** page on the **Control Panel**.

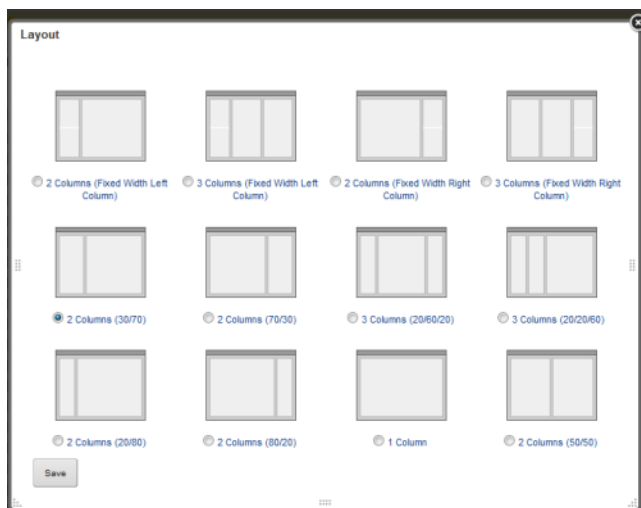
Applying a layout template to a page

Studio provides several layout templates that allow you to configure the layout of each page in your application.

Layout templates determine how components are organized on each page. Pages 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 Studio menu, select **Layout Template**.
3. On the **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

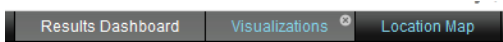
You can delete pages from the application. When you delete a page, any components on the page also are deleted.

You cannot delete the currently selected page. In other words, 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. Place the cursor on the page tab of the page to be deleted.

A delete icon is displayed in the right upper corner of the tab.



3. Click the delete icon.
A delete confirm prompt is displayed.
4. To delete the page, click **OK**.

Studio administrators can also delete a page using the **Manage Pages** option on the **Applications** page of the **Control Panel**.



Chapter 16

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](#)

[Configuring the format of values displayed on a component](#)

[Displaying component refinements or record details on a different page](#)

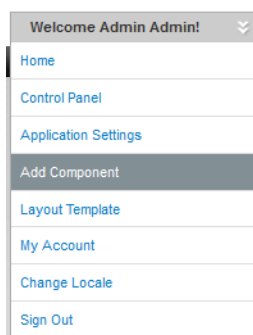
[Configuring hyperlinks from Studio components](#)

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.

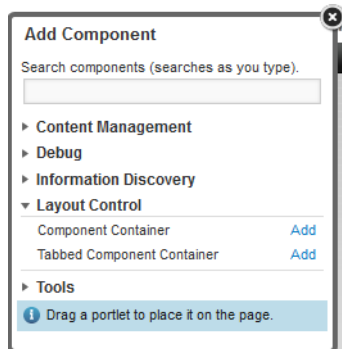
To add and remove components on a Studio application page:

1. To add a component:
 - (a) From the Studio menu, select **Add Component**.

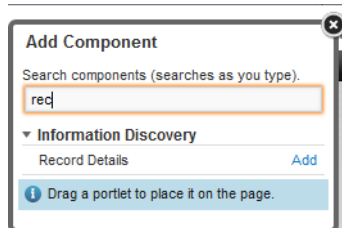


The **Add Component** dialog is displayed.

- (b) In the **Add Component** dialog, to display a list of components, expand the component categories.



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



- (c) To add a component to the page, either:
- Click the **Add** link for the component.
 - Drag the component from the **Add Component** dialog to the page.
2. To remove a component from a page, click its delete icon.



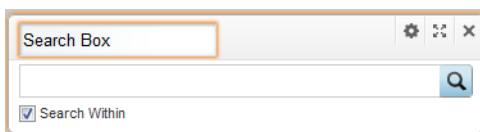
Renaming components

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.

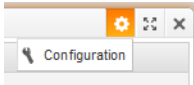
Configuring components

You can customize Studio components to determine details for the displayed data and formatting. Many components, such as **Guided Navigation** and **Breadcrumbs**, have a workable default configuration, while others, such as **Chart** and **Pivot Table**, 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.

To edit a Studio component:

1. In the component's title bar, click the menu icon. In the drop-down menu, click **Configuration**.



The edit view for the component is displayed.

The edit view covers the entire workspace. You cannot see or edit any other components.

2. If the application has multiple related data sources available, then you can select the specific data source to use for the component.
3. Select the specific view from the data source to use for the component.



Note: Not all components have a view selection. Components that do not allow you to select a view are automatically bound to the Base view.

4. Edit the other settings for the component.
5. To save your changes, click **Save Preferences**.
6. To exit the edit view, click the **Exit** link at the top right corner of the edit view.



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 **View Manager**. 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	Default display format for the original attribute.
Variance Standard Deviation	Default format (adjusted for locale) for a decimal number.
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 in the **View Manager**.

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.

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.

Sample formatting: (United States | English): 98.00% / -98.00%

Type: ☐ number ☐ currency ☒ percentage

Include percentage sign: default

- (d) Under **Decimal places**, to use the decimal place configuration from the **View Manager**, 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:

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.

Value Formatting

Sample formatting: (United States | English): 3:30 PM

Time display: use default

7. For a duration attribute:

Value Formatting

Sample formatting: (United States | English): 7 Days

Duration precision: use default

Include precision unit: use default

Decimal places: ☒ use default ☐ 0 digits

- (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 checkbox, then enter the number in the field.

Displaying component refinements or record details on a different page

When configuring component actions to refine data, display record details, or compare records, you can target the actions to a different page in the application.

[About page transitions](#)

Page transition syntax

Creating page transitions using component IDs

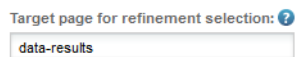
About page transitions

Page transitions allow a component on one page in a Studio application to pass refinement or record details data to a different page in the same application.

For example, a **Results Table** component on one page could be configured to target a **Record Details** component on a different page.

The edit view of the source component includes a **Target page** field to indicate where to target the refinement or record details action. If you leave the field empty, then the current page is used. If you provide a page name, then that page is used.

For example, when users select an attribute on this **Guided Navigation** component, the refinement is applied to the **data-results** page.



Page transition syntax

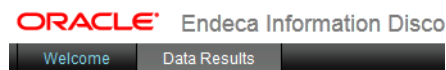
You target the page using the internal page name. For pages with a **Tabbed Component Container**, you can specify the tab to display.

About using the internal page name

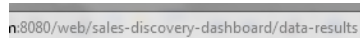
When specifying the page name for a page transition, you must use the internal page name used in the URL, not the display name used on the page tab.

Studio creates the internal name automatically when you create the page. The internal name removes spaces and special characters.

For example, while the label on the page tab is **Data Results**:



The page name in the URL is **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.
- *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.

Creating page transitions using component IDs

In order to implement certain kinds of page transitions, you may need to use component IDs, rather than names.

Because the double colon (::) is part of the page transition 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 page transition target, 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_7r3l8p_p_lifecycle=18&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 hyperlinks from Studio components

Components can include hyperlinks to external URLs, which can present security risks.

[About Studio component hyperlinks](#)

[Indicating whether to encode inserted attribute values](#)

[About using non-HTTP protocol links](#)

[Recommendations for attribute values that are complete URLs](#)

About Studio component hyperlinks

The **Results Table** and **Results List** components can include hyperlinks from the displayed records to external URLs.

Some URLs are static, with the exact same page 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".

When inserting attribute values into a URL, for components other than **Results Table**, to have Studio encode the inserted value, use the following format:

`${attribute}`

For example:

`http://www.acme.com/index.htm?p1=${Attribute_1}&p2=${Attribute_2}`

To not encode the value, use a double set of braces:

`${{attribute}}`

For example:

`http://www.acme.com/index.htm?p1=${{Attribute_1}}&p2=${{Attribute_2}}`

Results Table uses a slightly different system for inserting parameters. You first select a list of attributes, each of which is assigned a number. You then use the number to insert the parameter. The format uses the

single and double braces to indicate encoding versus not encoding, but does not use the \$. For **Results Table**, to have Studio encode the inserted value, use the following format:

`{parameterNumber}`

For example:

`http://www.acme.com/index.htm?p1={0}&p2={1}`

To have Studio not encode a **Results Table** 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=${File_Attr}` or for **Results Table**,

For **Results Table**, the URL would be something like

`http://server.mycompany.com/path/to?file={0}`, where 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:

`${URL_Root}/path/to/${File_Path_Attr}?file=${File_Attr}`

For **Results Table**, the URL would be something like `{0}/path/to/{1}?file={2}`, where 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:

`${URL_Attr}`

For **Results Table**, the URL would be something like `{0}`, where 0 is a number from the list of selected parameters.



Chapter 17

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

Avoid overly complex EQL queries

Keep the EQL threshold small

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 navigation, and another with charts for data analysis.

Avoid overly complex EQL queries

Another way to improve performance is to keep your EQL queries as simple as possible.

Evaluating an EQL query can take up a lot of resources, so the more complex the EQL queries on a page, the slower the page will be.

Also, the EQL queries are evaluated in parallel as much as possible, so the more EQL queries that are issued, the fewer resources each query has to execute.

Keep the EQL threshold small

Some components that use EQL, such as **Results Table** and **Chart**, include an EQL threshold setting that controls the maximum number of records to process. For better performance, you should make this value relatively small.

The components do not evaluate the EQL results 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.

When the data has been refined to a smaller number of records, the EQL is processed and the component data is displayed.

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 **Guided Navigation** 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 18

Creating Links to Studio Applications from External Sites

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

[About deep linking](#)

[Syntax for the deep linking URL](#)

[Examples of deep linking URLs](#)

About deep linking

Deep linking URLs are essentially external bookmarks to Studio. They also can specify the filter state for the application 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.

Syntax for the deep linking URL

The basic deep linking URL contains the path to the specific Studio page. The URL can also contain parameters to set the state of the application data, and display a specific tab on a **Tabbed Component Container**.

Basic deep linking URL format

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 *web/<application friendly URL>/<internalPageName>*.

The application friendly URL is by default the initial 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 **Application Configuration** page.

For example:

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

Specifying the locale to use

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

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

Adding the deeplink parameter to set the data source state

If you want to set the initial state of the data as part of the deep linking URL, then you add the `deeplink` parameter:

```
http://<portalhost>:<port>/<pathtopage>?deeplink=[<dataSourceStates>]
```

Where `<dataSourceStates>` is the data source with the corresponding filters to apply:

```
deeplink=[
  { "<dataSourceId1>":
    {
      "queryFunctions": [<queryFunctionDefinitions>],
      "navByValue": {
        "<attribute1>": "<attributevalue1>",
        "<attribute2>": ["<attributevalue2>", "<attributevalue2>", "<attributevalue3>"]
      }
    }
  }
]
```

Deep linking URLs support the query functions that are supported by the data source JSON, such as `DataSourceFilter` and `RefinementFilter`. For details on the filter syntax, see [Adding filters to a data source on page 25](#).

For example:

```
"queryFunctions": [
  {
    "class": "DataSourceFilter",
    "filterString": "Region='Sonoma'"
  },
  {
    "class": "RangeFilter",
    "property": "P_Price",
    "rangeOperator": "BTWN",
    "rangeType": "INTEGER",
    "value1": "50",
    "value2": "100"
  },
  {
    "class": "RefinementFilter",
    "attributeValue": "1997",
    "attributeKey": "Vintage"
  }
]
```

You can also use `SelectionFilter`. `SelectionFilter` uses the same syntax as `DataSourceFilter`. Also like `DataSourceFilter`, `SelectionFilter` is a permanent filter, and is not added to the **Breadcrumbs** component. For example:

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

Deep linking URLs also support `navByValue` filters, which are similar to `RefinementFilter` in that they refine the data based on attribute values. However, `navByValue` uses the attribute display name instead of the attribute key.

For example:

```
"navByValue":{
  "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.

The one case where you might need to use `navByValue` is for a managed attribute value for which you do not know the attribute key. For example, if your data source includes a State managed attribute, and you have added values (Northeast, South, Midwest, West Coast) to create a hierarchy for grouping the State attribute values, then to filter by the value "Northeast", you might need to use `navByValue`.

Restoring a data source to its default state

To make sure that the data source is in its default state when the link is used, with no refinements or searches applied, you pass it an empty filter.

```
http://<portalhost>:<port>/<pathtopage>?deeplink=[{"<datasourcename>":{}}]
```

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 linking URL that specifies a **Tabbed Component Container** tab is:

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

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]
```

Notes on the length of deep linking URLs

When creating a deep linking 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 linking URLs

Here are some examples of deep linking URLs.

DataSourceFilter with locale selection

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

The products data source is refined using a DataSourceFilter to only show records 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=[{"products":{"queryFunctions":[{"class":"DataSourceFilter","filterString":"Designation='Best Buy'"}]}}]
```

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 products data source 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=[{"products":{"queryFunctions":[{"class":"RefinementFilter","attributeValue":"1999","attributeKey":"Vintage:1999"}]}}]
```

Filters for multiple data sources

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

The products data source is refined:

- Using a RefinementFilter to only show records where Designation is "Best Buy".
- Using a RangeFilter to only show records where P_Price is between 50 and 100.
- Using a navByValue filter to only show records where Region is "Other France".

The accounts data source is refined using a RefinementFilter to only show records where Booking_Year is 2010.

```
http://localhost:8080/web/sales-discovery-dashboard/data-results?deeplink=[{"products": {"queryFunctions": [{"class": "RefinementFilter", "attributeValue": "Best Buy", "attributeKey": "Designation"}, {"class": "RangeFilter", "property": "P_Price", "rangeOperator": "BTWN", "rangeType": "INTEGER", "value1": "50", "value2": "100"}], "navByValue": {"Region": "Other France", "}}, {"accounts": {"queryFunctions": [{"class": "RefinementFilter", "attributeValue": "2010", "attributeKey": "Booking_Year"}]}}
```

Clearing the data source state for a data source

The following link displays the **data-results** page of the **sales-discovery-dashboard** application, with the products data source set to its original state:

```
http://localhost:8080/web/sales-discovery-dashboard/data-results?deeplink=[{"products": {}}]
```



Chapter 19

Exporting and Importing Studio Application Pages

To back up your application, or to migrate applications between environments, you can export and import Studio application pages.

[About exporting and importing application pages](#)

[Exporting pages from Studio](#)

[Importing pages into Studio](#)

About exporting and importing application pages

The export and import process is mostly used to migrate application pages between environments.

Your company may use multiple environments for its development process. These environments might include:

- Development, for creating new content
- Testing, to test content that is ready to go to production
- Staging, to stage new content. In some cases, the testing and staging systems are combined into a single environment.
- Production, the site available to end users

When developing new content, instead of having to recreate the content on each environment, you can export the pages from one environment, and then import them into another environment.

You also can use the export function to back up a set of pages.

The pages are exported to a LAR file.

Note that you can only export and import pages on the same version of Studio.

Exporting pages from Studio

From Studio, you export selected pages into a LAR file.

[What is included in the export?](#)

[Completing the export](#)

What is included in the export?

When you export pages, the exported material only includes the pages and the components. The export does not contain any data sources.

Completing the export

Studio administrators export application pages using the **Manage Pages** option on the **Applications** page of the **Control Panel**.

To export pages from Studio:

1. From the Studio menu, select **Control Panel**.
2. On the **Control Panel** menu, click **Applications**.
3. On the **Applications** page, for the application you want to export pages from, click the **Actions** button, then click **Manage Pages**.
4. On the **Applications** page for the selected application, click the **Export/Import** tab.
5. Click the **Export** tab. The **Export** tab contains the options for exporting the pages.



Export the selected data to the given LAR file name.

Guest-201210100926.lar

What would you like to export?

☒ Pages

☒ Portlets

☒ Setup

☒ Archived Setups

☒ User Preferences

☒ Data

Range:

☒ All

☐ Date Range

☐ Last 12 Hours

☐ Permissions

☐ Categories

6. In the field, set the name of the LAR file to export the pages to.
7. In addition to the default settings, make sure to check the **User Preferences** checkbox, so that the exported pages include the complete component configuration.

Note that if you also choose to export permissions, remember that you must have the same users and user groups on the destination environment as on the source environment.

8. Click **Export**.

You are prompted to save the resulting LAR file.

Importing pages into Studio

From Studio, you use LAR files to import pages that were exported from another Studio instance.

Ensuring that imported pages will work properly

Completing the import

Ensuring that imported pages will work properly

When importing pages into Studio, make sure that both environments are based on the same version of Studio.

In addition, to ensure that your imported pages will work correctly on the new environment, make sure that:

- You import the pages into the same application as you exported them from.
If you import a page into a different application, then any links between pages or deep links from external sites may not work.
- The data sources used by the page components are also configured on the destination environment.
For those data sources, the attribute group configuration also needs to be the same.
If you import pages into an application that is not bound to a data source from the same family, then all of the components are updated to use the application data source.
- If you are importing permissions, the same users are configured on the destination environment.

Completing the import

Studio administrators import applications using the **Manage Pages** option on the **Applications** page of the **Control Panel**.

To import pages from a LAR file into Studio:

1. From the Studio menu, select **Control Panel**.
2. On the **Control Panel**, click **Applications**.
3. On the **Applications** page, for the application you want to import pages into, click the **Actions** button, then click **Manage Pages**.
4. On the **Applications** page for the selected application, click the **Export/Import** tab.

5. Click the **Import** tab.

The **Import** tab contains the options for importing pages from a LAR file.

The screenshot shows the 'Import' tab selected in the 'Export / Import' section. Below the tabs, there is a text input field and a 'Browse...' button. The text below the field reads: 'Import a LAR file to overwrite the selected data.' Below this, the question 'What would you like to import?' is followed by a list of checkboxes:

- ☒ Pages
- ☐ Delete Missing Pages ⓘ
- ☒ Portlets
- ☒ Setup
- ☒ Archived Setups
- ☐ User Preferences
- ☒ Data
- ☐ Permissions ⓘ
- ☐ Categories ⓘ

 At the bottom of the list is a link: 'More Options »'.

6. To search for and select the file to import, click the **Browse** button.
7. By default, if a page in the selected LAR file has the same friendly URL as an existing page in the destination environment, then it replaces that page. To instead add the page as a new page:
 - (a) On the **Import** tab, click the **More Options** link.

Under the **Pages** checkbox, the **Page Merge Strategy** setting is displayed.

This screenshot shows the 'Page Merge Strategy' section, which is expanded under the 'Pages' checkbox. It contains three radio buttons:

- ☐ Add As New ⓘ
- ☒ Replace pages with same Friendly URL ⓘ
- ☐ Delete Missing Pages ⓘ

By default, the **Replace pages with same Friendly URL** radio button is selected.

(b) To add new pages instead of replacing existing pages, click the **Add As New** radio button.

When Studio adds the new page, if an existing page has the same friendly URL, then Studio adds an index number to the end of the new page's friendly URL to make it unique.

8. To delete any pages on the destination environment that do not exist in the LAR file, check the **Delete Missing Pages** checkbox.

For example, a LAR file contains the pages Welcome, Dashboard, and Search. The destination environment contains a page called Charts.

If the **Delete Missing Pages** checkbox is checked, then when the LAR file is imported, the Charts page would be removed from the destination environment. The destination environment would only contain Welcome, Dashboard, and Search.

If the checkbox is not checked, then when the LAR file is imported, the destination environment would contain Welcome, Dashboard, Search, and Charts.

Note that if you are importing the pages into the same application that was displayed when you navigated to the **Control Panel**, then Studio disables this option.

9. To ensure that the import includes all of the component configuration, check the **User Preferences** checkbox.
10. After selecting the import options, to complete the import, click the **Import** button.

Part V

Studio Components



Chapter 20

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](#)

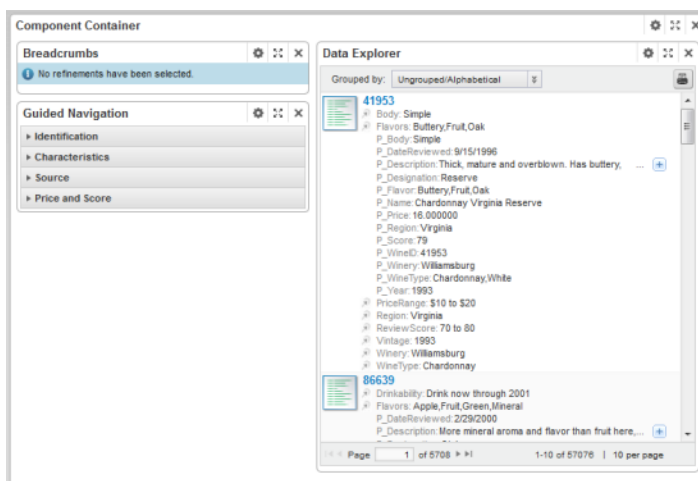
[Oracle Endeca Server features used by Studio components](#)

Layout components

Layout components, available from the **Layout Control** section of the **Add Component** dialog, allow users to group other components on the page.

Component Container

Used to group components on the 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:

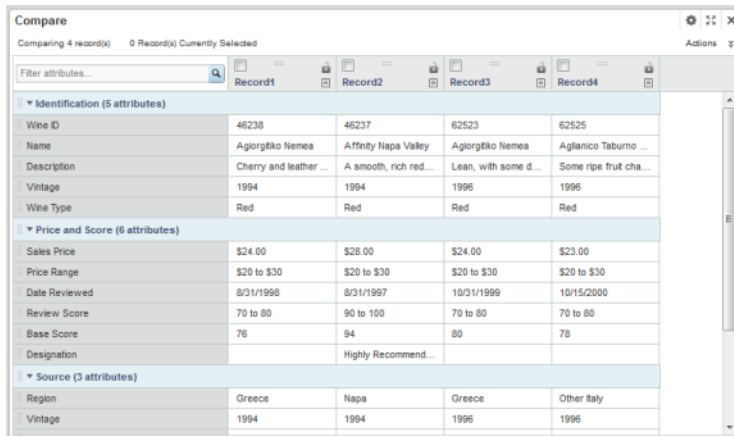
- The number of tabs to display
- The tab display order
- The label on each tab
- The layout of each tab
- Whether to display the component border around the container

Results components

Results components, available from the **Information Discovery** section of the **Add Component** dialog, allow users to view lists of records from a data source.

Compare

Allows users to do a side-by-side comparison of attribute values for records selected from a **Results Table** component.



The screenshot shows the 'Compare' component window. At the top, it says 'Comparing 4 record(s)' and '0 Record(s) Currently Selected'. Below this is a 'Filter attributes...' search bar. The main area displays a table with four columns labeled 'Record1', 'Record2', 'Record3', and 'Record4'. The table is organized into three expandable sections: 'Identification (5 attributes)', 'Price and Score (6 attributes)', and 'Source (3 attributes)'. The 'Identification' section includes attributes like Wine ID, Name, Description, Vintage, and Wine Type. The 'Price and Score' section includes Sales Price, Price Range, Date Reviewed, Review Score, Base Score, and Designation. The 'Source' section includes Region and Vintage.

	Record1	Record2	Record3	Record4
Identification (5 attributes)				
Wine ID	46238	46237	62523	62525
Name	Agiorgitiko Nemes	Affinity Napa Valley	Agiorgitiko Nemes	Aglianico Taburno ...
Description	Cherry and leather ...	A smooth, rich red...	Lean, with some d...	Some ripe fruit cha...
Vintage	1994	1994	1996	1996
Wine Type	Red	Red	Red	Red
Price and Score (6 attributes)				
Sales Price	\$24.00	\$28.00	\$24.00	\$23.00
Price Range	\$20 to \$30	\$20 to \$30	\$20 to \$30	\$20 to \$30
Date Reviewed	8/31/1998	8/31/1997	10/31/1999	10/15/2000
Review Score	70 to 80	90 to 100	70 to 80	70 to 80
Base Score	76	94	80	78
Designation		Highly Recommend...		
Source (3 attributes)				
Region	Greece	Napa	Greece	Other Italy
Vintage	1994	1994	1996	1996

The **Compare** component configuration includes:

- The attributes to include in the comparison
- Whether to allow highlighting to emphasize different values

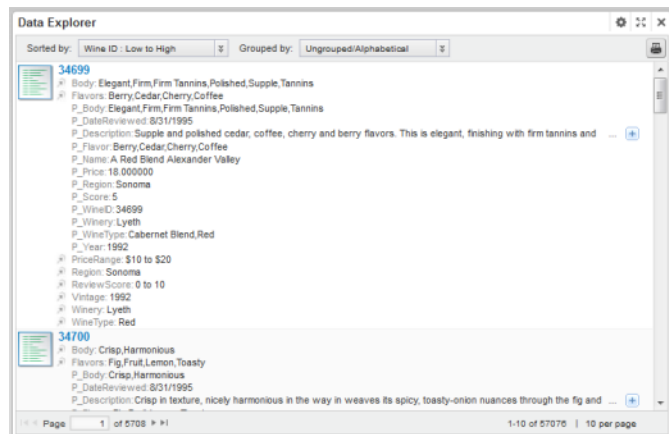
Data Explorer

Displays each record in the current refinement as a complete set of attribute-value pairs. The attributes can be displayed:

- In alphabetical order
- By data type
- Within their attribute groups

The **Data Explorer** component is usually used to verify newly loaded data.

Users can print the list.

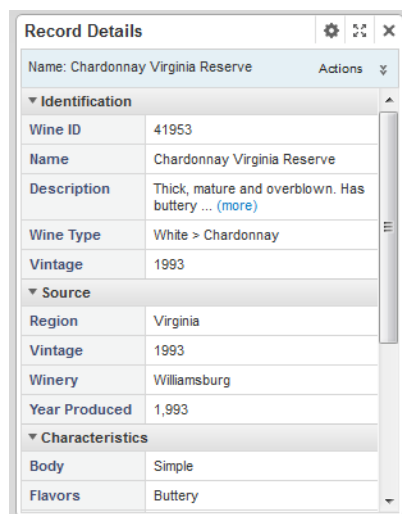


The **Data Explorer** component configuration includes:

- The default grouping for the attributes
- The pagination and sorting options for the list

Record Details

Displays a set of attribute values for a selected record from another component.



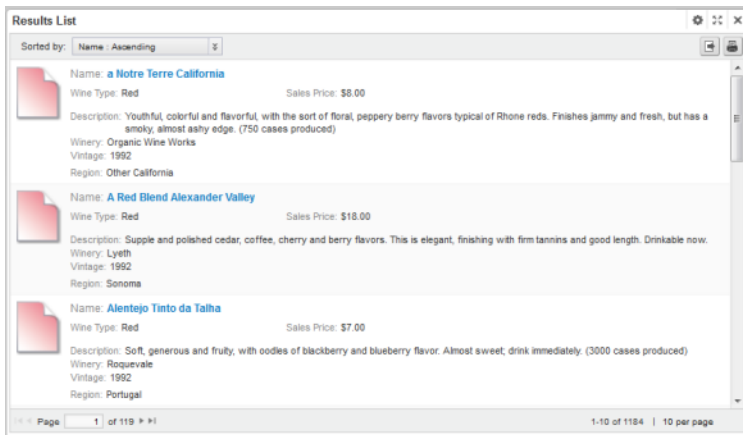
The **Record Details** component configuration includes:

- The available actions
- The attribute groups to include

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. They also may be able to use the attributes to refine the data set or display related content.



The **Results List** component configuration includes:

- The pagination and sorting options for the list
- The attributes to include for each record, including whether to use the attributes for refinement or to display related content
- The images to display next to each record

Results Table

Displays a table containing either:

- A list of records for the current refinement



- A set of metrics aggregated by one or more dimensions

Results Table					
0 records selected					
	Wineries	Booking Year	Cases Produced (sum)	Number of Cases Sold (sum)	Product Rating (average)
☐	A. Rafanelli	1997	2,800.00	10	90
☐	A. Rafanelli	1999	12,650.00	59	89
☐	A. Rafanelli	2001	6,150.00	5	90
	A. Rafanelli Summary		21,600.00	74	90
☐	Abbey Vale	1998	1,000.00	21	85
☐	Abbey Vale	2000	400.00	4	87
☐	Abbey Vale	2001	1,000.00	22	85
	Abbey Vale Summary		2,400.00	47	86
☐	Abundance	1999	780.00	10	80
☐	Abundance	2001	780.00	10	80
	Grand Summary (3646 results)		77,870,930.00	170,822	86

Page 1 of 183 | 1:20 of 3546 | 20 per page

Users can export and print the list. They also may be able to use a **Compare** component to compare selected rows.

The table can include links to display a **Record Details** component, 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

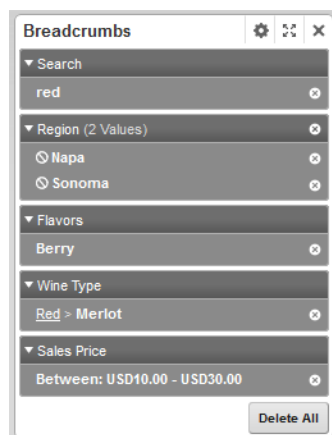
Filtering components

Filtering components, available from the **Information Discovery** section of the **Add Component** dialog, allow users to search, navigate, and filter the data displayed in other components.

Breadcrumbs

Tracks the attribute values and search terms that a user has used for filtering.

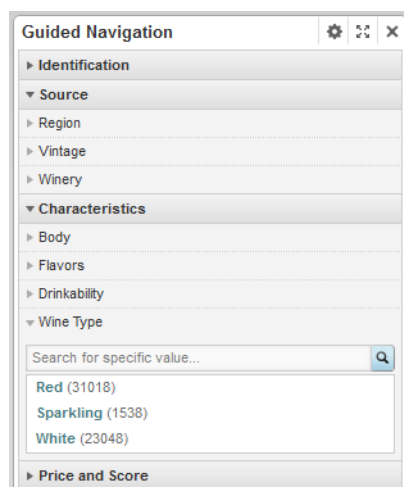
Users can then remove items from the list of current filters.



The **Breadcrumbs** component configuration includes whether to collapse by default lists of multiple values selected from the same attribute.

Guided Navigation

Allows users to filter data to only include specific attribute values or ranges of values. The selected values or ranges are added to the **Breadcrumbs** component.



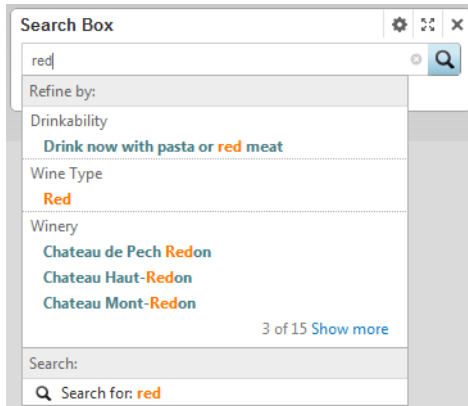
The **Guided Navigation** component configuration includes:

- 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 **Breadcrumbs** component.

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:

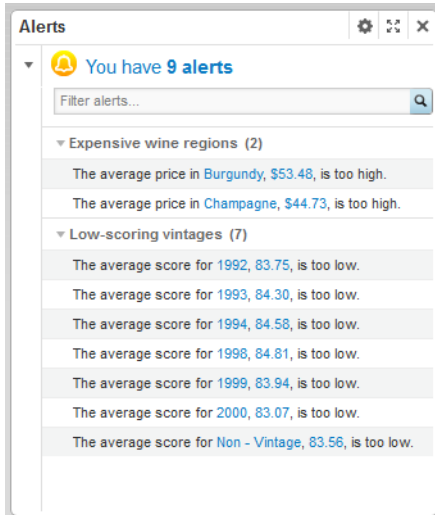
- The available search configurations
- Whether to provide type-ahead suggestions
- The rule for determining a match

Data Visualization components

Data Visualization components, available from the **Information Discovery** section of the **Add Component** dialog, provide more detailed or alternate views of the data.

Alerts

Displays messages to users to highlight values for those records. For example, alerts can be used to flag attribute values that fall outside of a specific range.



The **Alerts** component configuration includes:

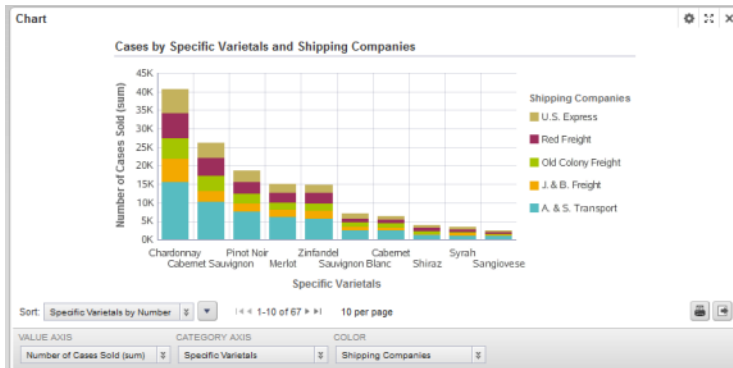
- Whether users can use an alert to refine the data
- The EQL query for each alert
- The text of the alert messages

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.



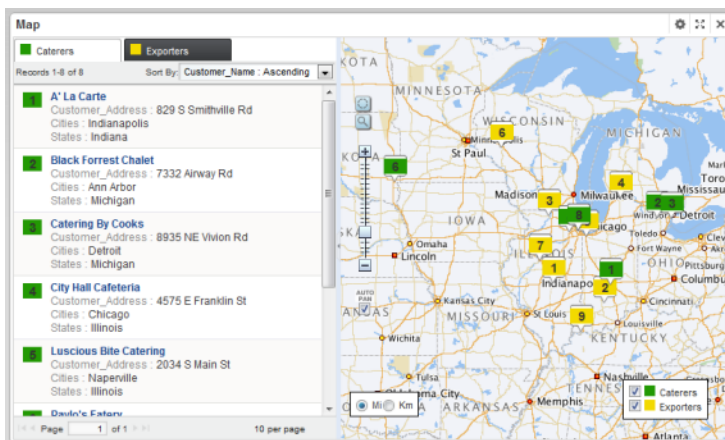
The **Chart** component configuration includes:

- 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 sets of geographic locations.

Users can search for locations, and display details for a specific location.

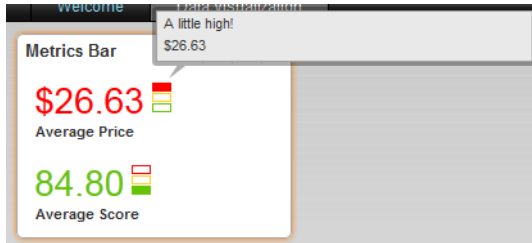


The **Map** component configuration includes:

- The available search options
- The lists of locations, including:
 - EQL queries to generate the lists
 - Sorting and pagination options
 - The attributes to include in the location details

Metrics Bar

Provides a quick view of metrics that summarize various aspects of the data. Users can display additional messages related to the metric value.



The **Metrics Bar** component configuration includes:

- The EQL queries to generate the metrics
- The format for each metric value
- Rules for displaying the metric value based on the current value

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.

The screenshot shows a 'Pivot Table' component with a table of wine data. The table has columns for 'Vintage' (1992, 1993, 1994, 1995) and rows for 'Designation' (Red, Sparkling, White, Best Buy, Cellar Se...). Each cell contains a 'Base Score' and a 'Sales Price'.

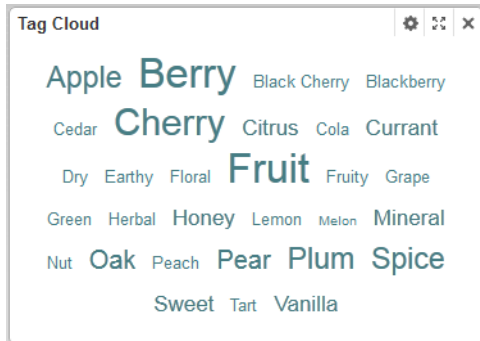
Vintage	1992	1993	1994	1995
Designation	Base Score	Sales Price	Base Score	Sales Price
Red	85	\$8.06	86	\$8.40
Sparkling	86	\$10.00	86	\$7.00
White	85	\$7.56	86	\$7.79
Best Buy	85	\$7.79	86	\$8.05
Cellar Se...	92	\$48.16	92	\$111.71
White	93	\$63.33	91	\$47.14
Cellar Se...	93	\$50.55	92	\$100.68
Red	88	\$13.75	83	\$19.98
Sparkling				

The **Pivot Table** component configuration includes:

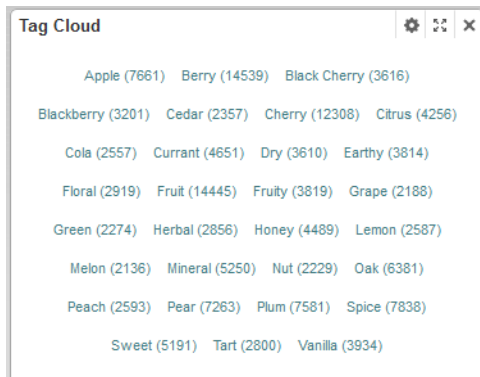
- The metrics and dimensions to display
- Highlighting for specific metric values
- Available actions
- Other display options such as the table height and the column width

Tag Cloud

Displays the distribution of text values for an attribute in the current data. Values that occur more frequently or are more relevant are in larger and bolder type.



When the values are displayed by frequency, the component may instead show the number of matches for each value.



Users may be able to use the values to refine the data.

The **Tag Cloud** component configuration includes:

- The attribute to use
- The number of values to display
- Whether to display values based on frequency or relevancy
- When displaying by frequency, whether to display the number of matches
- Whether users can use the values to refine the data

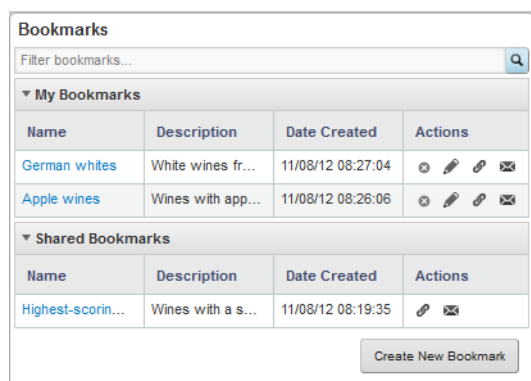
Personalization components

Personalization components, available from the **Information Discovery** section of the **Add Component** dialog, allow users to customize the display of a Studio application.

Bookmarks

Allows users to save the current state of the Studio application in order to return to it at a later time. Administrators can also create shared bookmarks that are available to all 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:

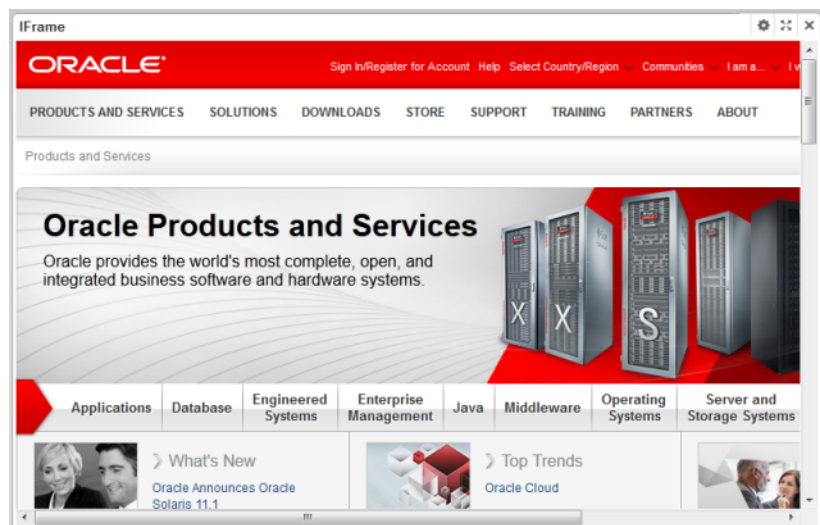
- Whether users can:
 - Create bookmarks
 - View and manage the current list of bookmarks
 - See shared bookmarks
- Whether to only display bookmarks for the current page
- Whether to customize the bookmark URLs

Web-based content components

Web-based content components, available from the **Content Management** section of the **Add Component** dialog, 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.

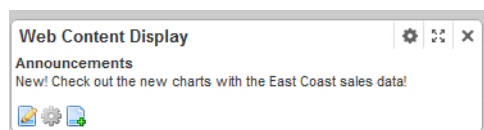
IFrame

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.



Oracle Endeca Server features used by Studio components

Each Studio component uses one or more features of the Oracle Endeca Server.

Studio component	Oracle Endeca Server features
Alerts	EQL Working with refinements

Studio component	Oracle Endeca Server features
Breadcrumbs	Working with refinements Record search DYM (Did You Mean) Auto-correction
Chart	EQL Working with refinements
Compare	Working with records Working with refinements
Data Explorer	Working with records Snippeting
Guided Navigation	Working with refinements Value search Working with attribute groups
Map	EQL Working with records
Metrics Bar	EQL
Pivot Table	EQL Working with refinements
Record Details	Working with records Working with attribute groups
Results List	Working with records Working with refinements Snippeting
Results Table	Working with records Working with refinements Snippeting

Studio component	Oracle Endeca Server features
Search Box	All record search configuration features, including: • Search interfaces • Making records or attributes searchable • Wildcard search • Match modes • Boolean search • Record search • Value search
Tag Cloud	Working with refinements



Chapter 21

Layout Components

Layout components allow you to group components together on a page.

[Component Container](#)

[Tabbed Component Container](#)

Component Container

The **Component Container** groups components into a single component.

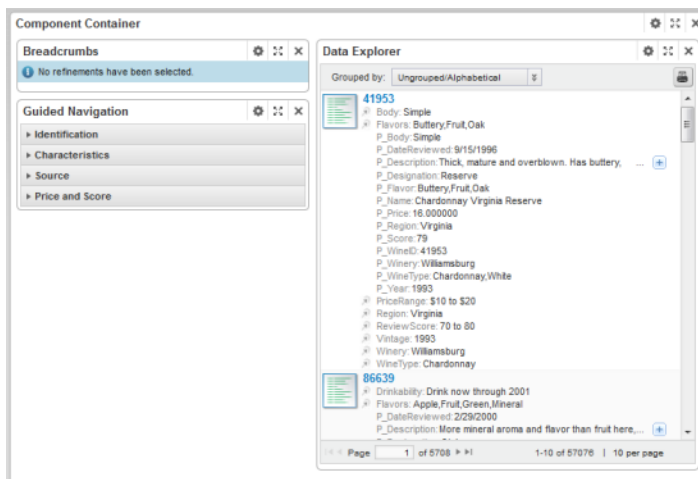
[About the Component Container](#)

[Configuring a Component Container](#)

About the Component Container

The **Component Container**, available from the **Layout Control** section of the **Add Component** menu, allows you to organize components by grouping them together in a single container.

The components can then be viewed and moved as a set.



Note: Do not add a **Component Container** component to a **Tabbed Component Container** component or to another **Component Container** component.

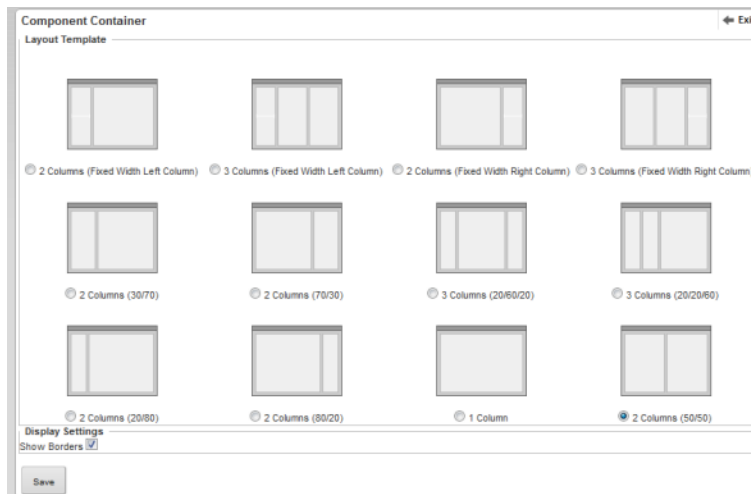
Configuring a Component Container

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**:

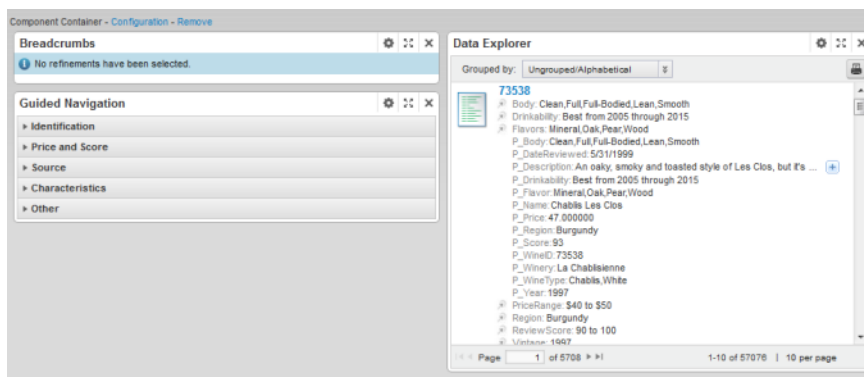
1. On the component edit view, under **Layout Template**, click the radio button next to the layout template you want to use for the container.

You can select from the same layout templates 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.

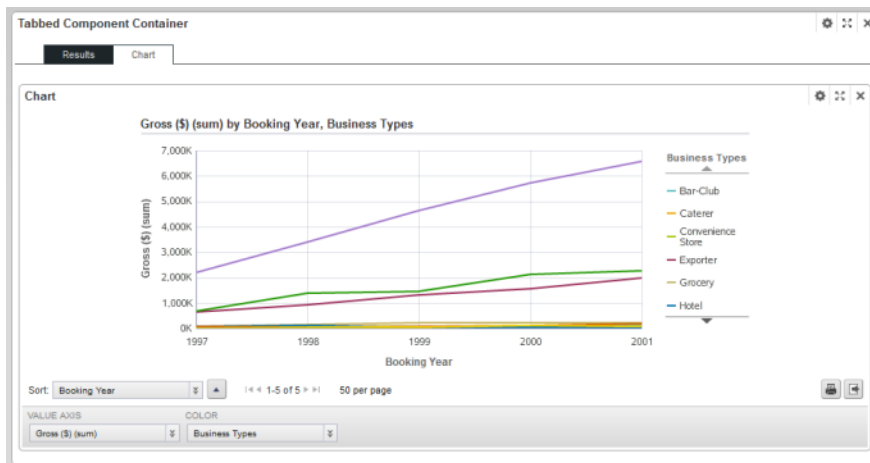
[About the Tabbed Component Container](#)

[Configuring a Tabbed Component Container](#)

About the Tabbed Component Container

The **Tabbed Component Container**, available from the **Layout Control** section of the **Add Component** menu, creates a tabbed interface.

Each tab can contain a different set of components.



When working with a **Tabbed Component Container**:

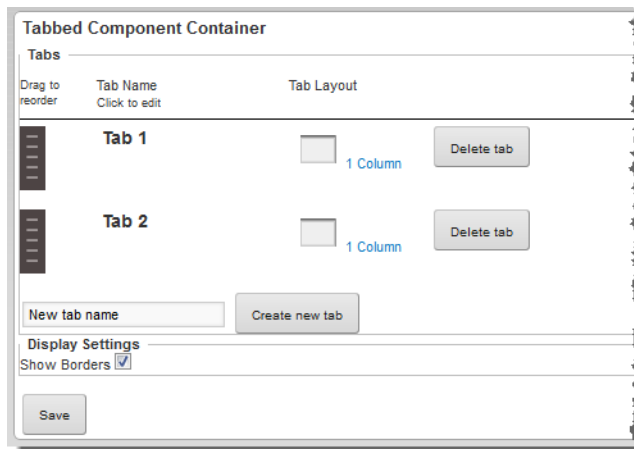
- Do not add a **Component Container** component to a **Tabbed Component Container**.
You also cannot add a **Tabbed Component Container** to another **Tabbed Component Container**.
- After placing the **Tabbed Component Container** on the page, make sure to refresh the page before you add other components 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.

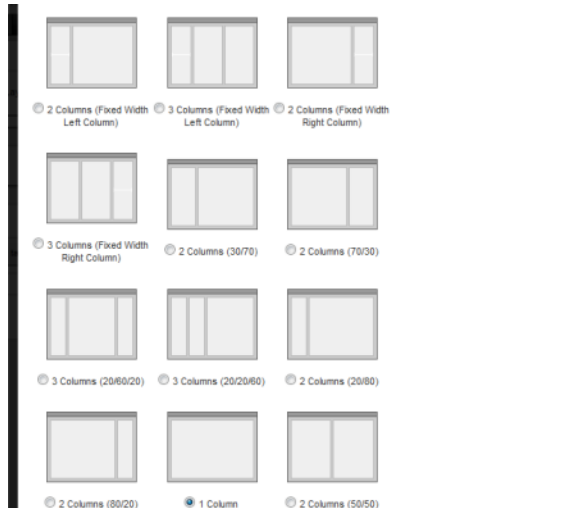
The tab name becomes an editable field.



- (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.

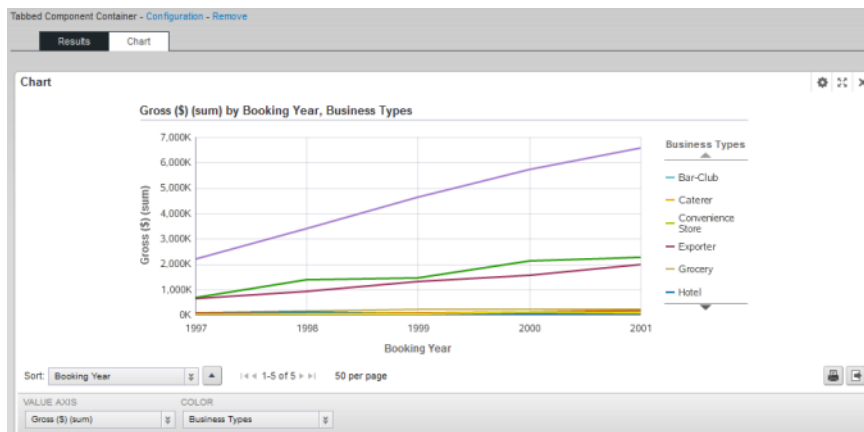


- (b) Click the radio button for the layout you want to use.

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 22

Results Components

These components provide a detailed view of records for the current refinement.

[Compare](#)

[Data Explorer](#)

[Record Details](#)

[Results List](#)

[Results Table](#)

Compare

The **Compare** component allows end users to view two or more records from a **Results Table** component side-by-side.

[About the Compare component](#)

[Using Compare](#)

[Configuring a Compare component](#)

About the Compare component

The **Compare** component allows end users to focus on the differences and similarities among selected records.

The screenshot shows the 'Compare' component interface. At the top, it says 'Comparing 4 record(s)' and '0 Record(s) Currently Selected'. Below this is a 'Filter attributes...' search bar. The main table has 4 columns labeled 'Record1', 'Record2', 'Record3', and 'Record4'. The table is organized into three sections: 'Identification (5 attributes)', 'Price and Score (6 attributes)', and 'Source (3 attributes)'. The data is as follows:

	Record1	Record2	Record3	Record4
Identification (5 attributes)				
Wine ID	46238	46237	62523	62525
Name	Agiorghiko Nemes	Affinity Napa Valley	Agiorghiko Nemes	Aglianico Taburno ...
Description	Cherry and leather ...	A smooth, rich red...	Lean, with some d...	Some ripe fruit cha...
Vintage	1994	1994	1996	1996
Wine Type	Red	Red	Red	Red
Price and Score (6 attributes)				
Sales Price	\$24.00	\$26.00	\$24.00	\$23.00
Price Range	\$20 to \$30	\$20 to \$30	\$20 to \$30	\$20 to \$30
Date Reviewed	8/31/1996	8/31/1997	10/31/1999	10/15/2000
Review Score	70 to 80	90 to 100	70 to 80	70 to 80
Base Score	76	94	80	78
Designation		Highly Recommend...		
Source (3 attributes)				
Region	Greece	Napa	Greece	Other Italy
Vintage	1994	1994	1996	1996

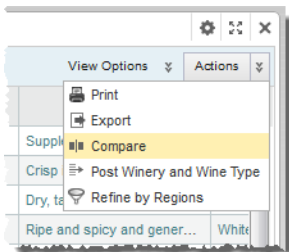
Using Compare

You use the **Compare** component to compare the attribute values for selected **Results Table** records. You can highlight differences among the records, and display record details for each record.

Selecting the records to compare

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

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

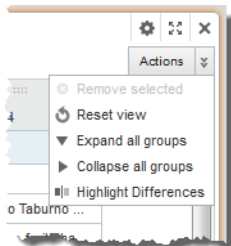


The selected records are displayed on the **Compare** component.

Compare				
Comparing 4 record(s) 0 Record(s) Currently Selected				
Filter attributes...	Record1	Record2	Record3	Record4
▼ Identification (5 attributes)				
Wine ID	46238	46237	62523	62525
Name	Agiorgitiko Nemea	Affinity Napa Valley	Agiorgitiko Nemea	Aglianico Taburno ...
Description	Cherry and leather ...	A smooth, rich red...	Lean, with some d...	Some ripe fruit cha...
Vintage	1994	1994	1996	1996
Wine Type	Red	Red	Red	Red
▼ Price and Score (6 attributes)				
Sales Price	\$24.00	\$28.00	\$24.00	\$23.00
Price Range	\$20 to \$30	\$20 to \$30	\$20 to \$30	\$20 to \$30
Date Reviewed	8/31/1998	8/31/1997	10/31/1999	10/15/2000
Review Score	70 to 80	90 to 100	70 to 80	70 to 80
Base Score	76	94	80	78
Designation		Highly Recommend...		
▼ Source (3 attributes)				
Region	Greece	Napa	Greece	Other Italy
Vintage	1994	1994	1996	1996

Depending on how the component was configured, the differences among the records may be highlighted.

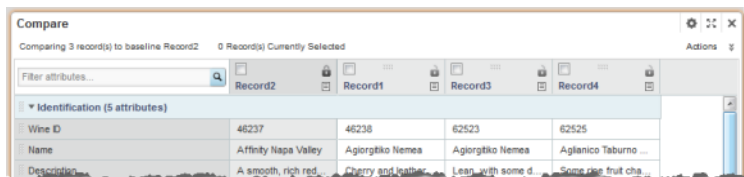
To restore the default display for the component, from the **Actions** menu, select **Reset view**.



Determining the display order of the records

To select a record to be the baseline record, in the record heading, click the lock icon.

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



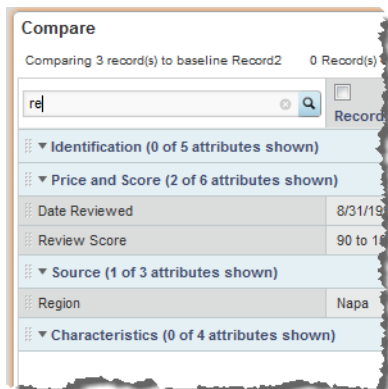
To remove the designation as a baseline record, click the lock icon again. The record column remains at the left of the table, but can now be moved.

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 search for a specific attribute, begin typing the attribute name in the **Filter attributes** field. As you type, the matching attributes are displayed.



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**.

Highlighting differences between the records

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

If you haven't selected a baseline record, then the component highlights attribute values that are not the same across all of the selected records.

▼ Identification (5 attributes)				
Wine ID	46238	46237	62523	62525
Name	Agiorgitiko Nemea	Affinity Napa Valley	Agiorgitiko Nemea	Aglianico Taburno ...
Description	Cherry and leather ...	A smooth, rich red...	Lean, with some d...	Some ripe fruit cha...
Vintage	1994	1994	1996	1996
Wine Type	Red	Red	Red	Red
▼ Price and Score (6 attributes)				
Sales Price	\$24.00	\$28.00	\$24.00	\$23.00
Price Range	\$20 to \$30	\$20 to \$30	\$20 to \$30	\$20 to \$30
Date Reviewed	8/31/1998	8/31/1997	10/31/1999	10/15/2000
Review Score	70 to 80	90 to 100	70 to 80	70 to 80
Base Score	76	94	80	78
Designation		Highly Recommend...		
▼ Source (3 attributes)				
Region	Greece	Napa	Greece	Other Italy
Vintage	1994	1994	1996	1996

If there is a baseline record, then in the non-baseline records, the component highlights attribute values that are different from the baseline record:

▼ Identification (5 attributes)				
Wine ID	46237	46238	62523	62525
Name	Affinity Napa Valley	Agiorgitiko Nemea	Agiorgitiko Nemea	Aglianico Taburno ...
Description	A smooth, rich red...	Cherry and leather ...	Lean, with some d...	Some ripe fruit cha...
Vintage	1994	1994	1996	1996
Wine Type	Red	Red	Red	Red
▼ Price and Score (6 attributes)				
Sales Price	\$28.00	\$24.00	\$24.00	\$23.00
Price Range	\$20 to \$30	\$20 to \$30	\$20 to \$30	\$20 to \$30
Date Reviewed	8/31/1997	8/31/1998	10/31/1999	10/15/2000
Review Score	90 to 100	70 to 80	70 to 80	70 to 80
Base Score	94	76	80	78
Designation	Highly Reconnen...			
▼ Source (3 attributes)				
Region	Napa	Greece	Greece	Other Italy
Vintage	1994	1994	1996	1996

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

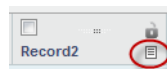
Removing records from the display

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

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

Displaying the record details for a record

The **Compare** component may allow you to display the details for a record. If the record details option is enabled, then a record details icon is displayed in the column headings. To display the record details for a specific record, click its record details icon.



The **Record Details** component is populated with the details for that record.

Configuring a Compare component

For a **Compare** component, you select the view and the attribute values to display. You also set the display options for the table.

Selecting the attributes to display on a Compare component

For a **Compare** component, you select the attribute groups to display, and the sort order to use when the component is first displayed. By default, the attribute displays the groups configured in the **Attribute Group Manager** to be used for record details.

From the edit view of a **Compare** component, to configure the attribute groups to display:

1. Under **Configure Attribute List**, to remove an attribute group from the display, uncheck its checkbox.



To restore a hidden attribute group, check its checkbox.

To find a specific attribute, so that you can see which group it is in, type the attribute name in the **Filter Attributes** field. As you type, the list is filtered to only display the matching attributes.

2. To change the default display order of the attribute groups on the **Compare** component, drag each group to its new location in the list.

You can collapse and expand the attribute groups to make them easier to work with.

3. To save your changes, click **Save Preferences**.
4. To exit the edit view, click **Exit**.

Formatting the attribute values displayed on a Compare component

For the attributes displayed on a **Compare** component, you can customize the format of the displayed attribute values.

From the edit view of the **Compare** component, to format the displayed attribute values:

1. Under **Configure Attribute List**, click the edit icon for the attribute.

If there are no formatting options for an attribute, then the edit icon is not displayed. For example, string attributes have no formatting options.

The **Edit Attribute Display** dialog is displayed.

2. Use the **Value Formatting** fields to format the displayed value for the attribute.

For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 115](#).

3. To save the changes, click **OK**.

Configuring the display options for a Compare table

For a **Compare** component, you can configure how the table is displayed, and whether end users can search for attributes or control the highlighting.

From the edit view of a **Compare** component, to configure the table display and options:

1. Under **Grid Controls**:

Field	Description
Column width in pixels	In the field, type the width in pixels of the record columns. Each column uses the same width.
Enable attribute filter box	If this checkbox is checked, then on the Compare component, the attribute search filter is displayed, to allow end users to search for specific attribute values. If the box is not checked, then the attribute search filter is not displayed, and end users cannot search for attribute values. By default, the box is checked.
Enable highlighting by default	If this checkbox is checked, then when the Compare component is first populated, it automatically highlights the differences among all of the selected records. If the box is not checked, then the differences are not highlighted automatically. By default, the box is not checked.
Enable difference highlighting controls	If this checkbox is checked, then on the Compare component, the Highlight Differences/Hide Highlights button is displayed, to allow end users to show or hide the highlighting. If this box is not checked, then the button is not displayed, and end users cannot show or hide the highlighting. By default, the box is checked.

Field	Description
Highlight color	From the drop-down list, select the color to use for the highlighting.

2. In the **Component Controls** panel:

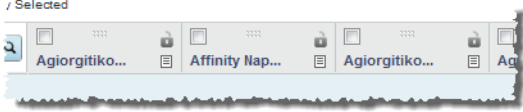
Component Controls

Display name attribute:
(Displays the attribute value instead of "Record 12345" in the column heading)

Enable record details option: ☒

Target page for record details:

Disable back button: ☒

Field	Description
Display name attribute	In the field, type the name of the attribute to use to identify the record in the column heading.  The attribute should be one that has a unique value for each record, such as a name or ID. If you do not specify an attribute, or if none of the records have a value for the selected attribute, then the records are labeled as Record1, Record2, etc.
Enable record details option	If this checkbox is checked (the default), then the column heading includes an icon to populate the Record Details component with the details for that record. If the box is not checked, then the record details option is not displayed.
Target page for record details	If the record details option is enabled, then in the field, type the page where the Record Details component is located. If you do not specify a page, then the current page is used.

Field	Description
Disable back button	If this checkbox is checked, then when the Compare component is on a different page from the Results Table component, there is no Back button to allow end users to navigate back to the page containing the Results Table. If the checkbox is not checked, then the Back button is displayed. Note that if the Compare and Results Table components are on the same page, the Back button is not displayed. By default, this box is checked.

- To save your changes, click **Save Preferences**.
- To exit the edit view, click **Exit**.

Data Explorer

The **Data Explorer** component displays the list of records for the current refinement, with a complete set of attribute-value pairs for each record.

[About the Data Explorer component](#)

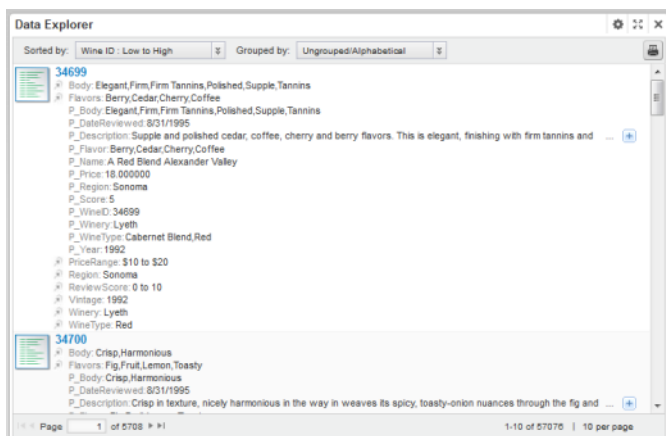
[Using the Data Explorer component](#)

[Configuring a 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

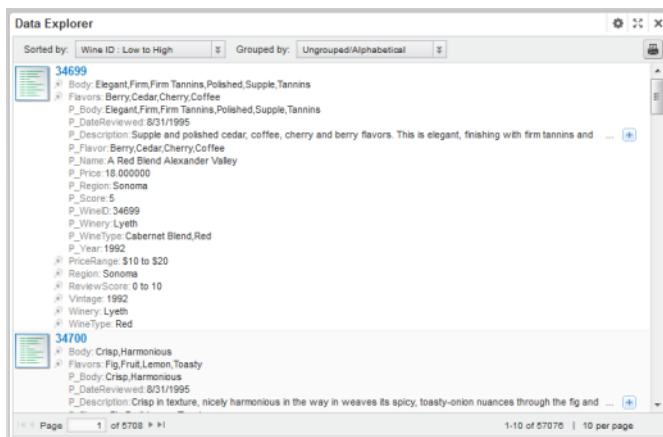
You use the **Data Explorer** component to view the attribute values for each record.

About the Data Explorer display

On the **Data Explorer** component, each record is displayed as the record ID followed by a complete list of attribute/value pairs.

The attributes may be displayed:

- In alphabetical order
- By data type
- Within their attribute groups



In the list, the managed attributes are indicated by an icon in front of the attribute name.

The **Data Explorer** component shows the attribute key and value. To see the display name and data type for an attribute, hover the mouse over the attribute key.

2_Description: Supple and polished cedar, coffee, cherry and berry fl
 2_Flavor: Berry Cedar, Cherry Coffee
 2_Name: **Display Name: Sales Price Attribute Type: DOUB**
 2_Price: 18.000000
 2_Region: Sonoma

Records included in the Data Explorer component

The **Data Explorer** component reflects the current refinement state of the data.

So for example, if you have used a **Guided Navigation** component or a search to refine the data, the **Data Explorer** component only displays the matching records.

When users perform a keyword search, if snippeting is enabled for an attribute, then if the attribute value includes the search term, the search snippet for that attribute is displayed. The snippet displays the portion of the attribute value that contains the search term.



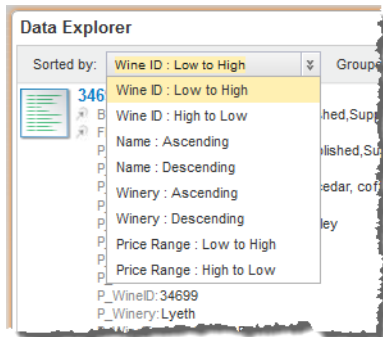
For details on configuring snippeting for searches, see the *Oracle Endeca Server Developer's Guide*.

Sorting the records in the Data Explorer

The **Data Explorer** can be configured to allow you to sort the list.

If you can sort the list, then at the top of the component is a **Sorted by** drop-down list.

The drop-down list contains the options for sorting the list. Each option contains the attribute to use to sort the list, and the direction in which to sort. The current sort order is highlighted.



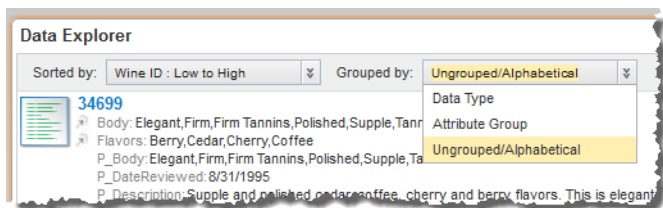
To sort the list, select a sort option.

When you use a search to refine the data, then if the associated search interface 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.

Selecting the grouping for the attributes

The **Data Explorer** component is configured with a default grouping for the attributes. You can then select a different grouping.

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.

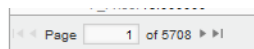
Grouping Option	Description
Attribute Group	In this mode, the attributes are displayed within their attribute groups.
Ungrouped/Alphabetical	In this mode, the attributes are displayed in alphabetical order by attribute name. They are not grouped.

Navigating through the list

The **Data Explorer** component can be configured to allow you to navigate through the list of results.

The component is configured with a default number of records to display on a page.

If pagination is allowed, then pagination tools are displayed at the bottom of the component.



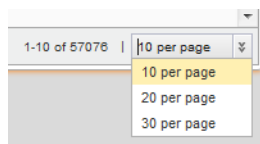
Users can use these tools to:

- Navigate to the next or previous page
- Navigate to the first or last page
- Jump to a specific page. To go to a specific page, type the page number in the field, then press **Enter**.

Setting the number of records to display per page

The bottom right of the **Data Explorer** component shows the number of records per page.

If the component is configured to allow you to select the number of records per page, then when you click the current value, the list of available options is displayed. The currently selected option is highlighted.



In the drop-down list, select the option you want to use.

Displaying the details for a Data Explorer record

Each record in the **Data Explorer** component includes a hyperlink that can be used to display the details for that record.

The hyperlink is the record ID at the top of the record.

When you click the link, a **Record Details** component is populated with the details for that record.

Printing the Data Explorer list

You can print the current content of a **Data Explorer** component.

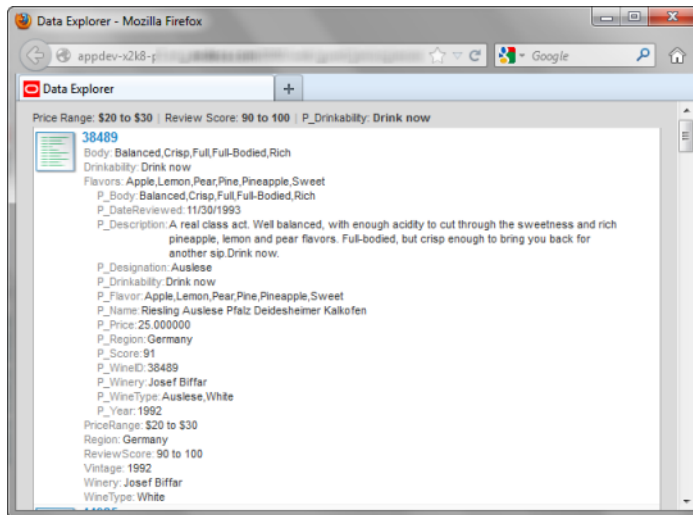
The print option only prints the records for the current refinement.

To print the **Data Explorer** list:

1. Click the print icon, located at the top right of the component.



The **Data Explorer** list is displayed in a separate browser window. Above the list are the current refinement selections.



The print dialog box also is displayed.

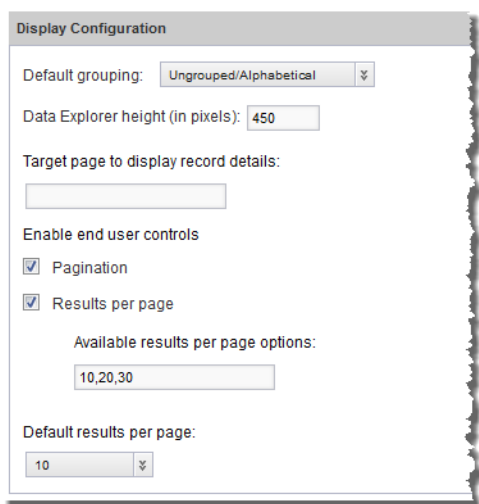
2. Select the printing options, and then complete the printing process.

Configuring a Data Explorer component

For a **Data Explorer** component, you determine whether end users can navigate through and change the sort order of the records in the list.

Configuring the Data Explorer display and pagination options

From the edit view of a **Data Explorer** component, you can select the default grouping for the attributes. You also can configure whether to enable pagination, and if pagination is enabled, whether to allow end users to select the number of results per page.



The screenshot shows a 'Display Configuration' dialog box with the following settings:

- Default grouping:** A dropdown menu set to 'Ungrouped/Alphabetical'.
- Data Explorer height (in pixels):** A text input field containing the value '450'.
- Target page to display record details:** An empty text input field.
- Enable end user controls:** Two checkboxes, 'Pagination' and 'Results per page', both of which are checked.
- Available results per page options:** A text input field containing the values '10,20,30'.
- Default results per page:** A dropdown menu set to '10'.

Under **Display Configuration**, to configure the default grouping, pagination, and navigation options for a **Data Explorer** component:

1. 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
2. To specify a height for the component, in the **Data Explorer height (in pixels)** field, type the height value in pixels.
3. In the **Target page to display record details** field, type the name of the page to display when end users click the record hyperlink.

The selected page must contain a **Record Details** component.

If you do not provide a page name, then the current page is used.

For information on configuring page transitions, see [Page transition syntax on page 119](#).

4. 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.

5. If the **Pagination** checkbox is checked, then to allow end users to select the number of records to display per page, check the **Results per page** checkbox.

The available values for end users to select from are configured in the **Available results per page options** field.

6. If the **Results per page** checkbox is checked:
 - (a) In the **Available results per page options** field, type a comma-separated list of available values for the number of results to display per page.

These values are used both to populate the **Default results per page** drop-down list below the field, and the **Records per page** options for end users.

By default, the available options are 10, 20, and 30 records per page.

- (b) From the **Default results per page** drop-down list, select the default number of records to display per page.

The available options are configured in the **Available results per page options** field.

7. If the **Results per page** checkbox is not checked, then in the **Default results per page** field, type the number of records to display per page.

Configuring the sorting options for a Data Explorer component

From the edit view of a **Data Explorer** component, you can configure whether end users can change the sort order for the list.

To configure the sorting options for the component:

1. Under **Sort Options**:

- To allow end users to set the sort order, check the **Enable end user sorting controls** checkbox. The box is checked by default.
- To not allow end users to control the sort order, uncheck the checkbox.

The **Sort Options** section is updated to reflect your selection.

2. If the **Sorting** checkbox is not checked, then end users cannot change the list sort order. The **Sort Options** section contains a single field.

Sort Options

☐ Enable end user sorting controls

Drag and reorder available attributes to set the default sort order:

To determine how the results list is sorted, drag an attribute from the **Available Attributes** list to the **Sort Options** field.

In the **Available Attributes** list, you can use the filter field to find the attribute you want to use.

After you drop the attribute, to determine the sort order:

- To sort by the selected attribute in ascending order, click the up arrow. This is the default.
- To sort by the selected attribute in descending order, click the down arrow.

Sort Options

☒ Enable end user sorting controls

Drag and reorder available attributes to set the default sort order:

Name ↑

To remove the attribute, click the delete icon.

To replace the attribute with a different attribute, drag a different attribute from the **Available Attributes**, and then drop it on top of the currently selected attribute.

3. If the **Sorting** checkbox is checked, then the **Sort Options** section allows you to provide a list of attributes that end users can use to sort the list.

Sort Options

☒ Enable end user sorting controls

Drag and reorder available attributes to enable end user sort options: ⓘ

Attribute	Default	Sort Description
Drag and drop attributes here		

To add an attribute, drag the attribute from the **Available Attributes** to the **Sort Options** table.

In the **Available Attributes** list, you can use the filter field to find the attribute you want to use.

4. To determine the order of the attributes in the **Sorted by** drop-down list, drag each row up or down in the list.

Sort Options

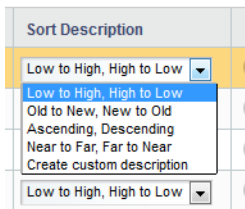
☒ Enable end user sorting controls

Drag and reorder available attributes to enable end user sort options: ⓘ

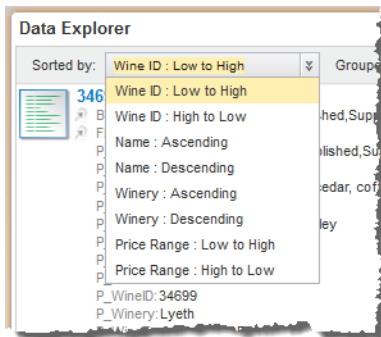
Attribute	Default	Sort Description
Wine ID	Low to High, High to Low	Low to High, High to Low
Name	Ascending, Descending	Ascending, Descending
Winery	Ascending, Descending	Ascending, Descending
Price Range	Low to High, High to Low	Low to High, High to Low

Drag and drop attributes here

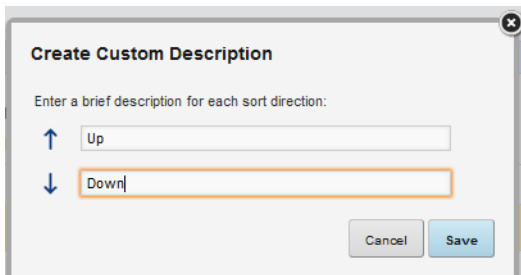
5. For the attribute you want to use for the default sort order:
 - (a) Click the **Default** radio button next to the attribute.
 - (b) To sort by that attribute in ascending order, click the up arrow.
 - (c) To sort by that attribute in descending order, click the down arrow.
6. From the **Sort Description** drop-down list, select the text that displays next to the attribute in the **Sorted by** drop-down list.



The **Sorted by** list includes one entry for sorting in ascending order, and one for sorting in descending order.



To create your own descriptions for ascending and descending order, from the **Sort Description** drop-down list, select **create custom description**. On the **Create Custom Description** dialog box:



- (a) In the first field, marked with the up arrow, type the text to use to indicate ascending order.
 - (b) In the second field, marked with the down arrow, type the text to use to indicate descending order.
 - (c) Click the **Save** button.
7. To remove an attribute from the list, click the delete icon for that attribute.

Record Details

The **Record Details** component displays a list of attribute values for a record selected from another component.

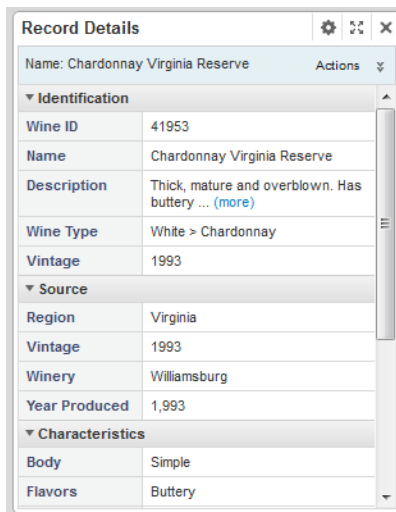
[About the Record Details component](#)

[Using a Record Details component](#)

[Configuring a Record Details component](#)

About the Record Details component

The **Record Details** component allows end users to focus on a specific record from another component such as the **Results Table** or **Results List**.



Record Details	
Name: Chardonnay Virginia Reserve	
Actions	
▼ Identification	
Wine ID	41953
Name	Chardonnay Virginia Reserve
Description	Thick, mature and overblown. Has buttery ... (more)
Wine Type	White > Chardonnay
Vintage	1993
▼ Source	
Region	Virginia
Vintage	1993
Winery	Williamsburg
Year Produced	1,993
▼ Characteristics	
Body	Simple
Flavors	Buttery

The **Record Details** component can only be used if there is another component that allows users to display record details and that is bound to the same view.

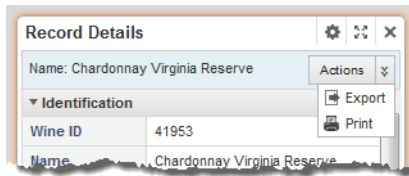
Using a Record Details component

The **Record Details** component displays a list of attribute values for a record selected from another component. The attributes are displayed within their attribute groups.

The component can also include an **Actions** menu with options to:

- Export the record details to a spreadsheet. The details are exported as a single row. The export uses UTF-16LE encoding.

- Print the record details



Configuring a Record Details component

For a **Record Details** component, you can configure the data source, the available actions, and the list of attribute groups.

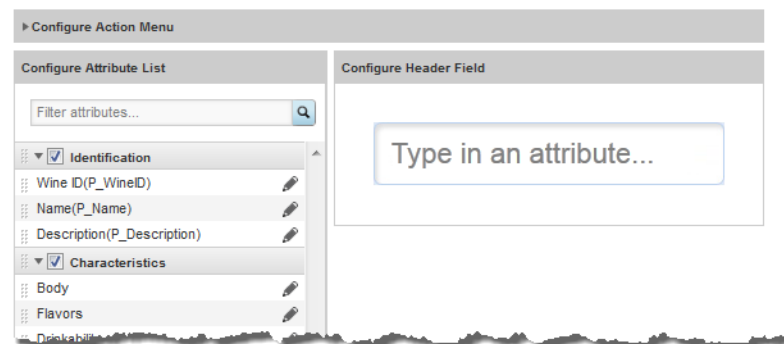
Configuring the available actions for a Record Details component

The **Record Details** component can include an **Actions** menu to allow end users to perform an action on the selected record details. You configure whether the menu is available, and the options to include.

The available actions are:

Action	Description
Export	Exports the record details to a spreadsheet.
Print	Printd the record details.

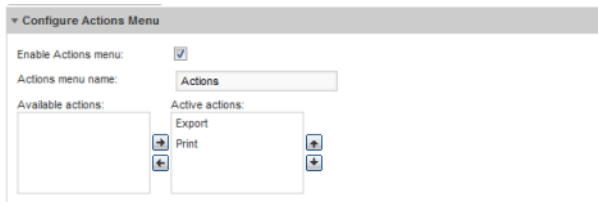
On the edit view of the **Record Details** component, you use the **Configure Action Menu** section to configure the **Actions** menu. By default, the section is collapsed, with only the heading displayed.



To configure the **Actions** menu:

1. To open the **Configure Action Menu** control, click the arrow in front of the section label.

The fields for the **Configuration Action Menu** section are displayed.



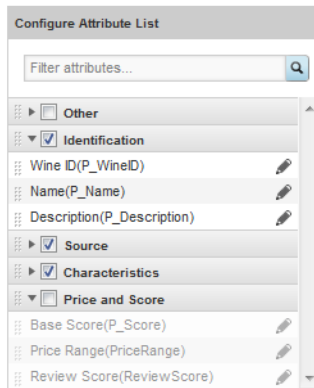
2. To make the **Actions** menu available on the end user view, check the **Enable Actions menu** checkbox.
If you uncheck the box, the remaining fields are disabled.
3. In the **Actions menu name** field, type the name to display for the menu.
The default name is **Actions**.
4. To enable an action, click the action in the **Available actions** list, then click the right arrow button.
The action is moved to the **Active actions** list.
5. To change the display order of an action in the **Actions** menu, click the action in the **Active actions** list, then click the up or down arrow button.
The action is moved up or down in the list.
6. To disable an action, click the action in the **Active actions** list, then click the left arrow button.
The action is moved to the **Available actions** list.
7. To save your changes, click **Save Preferences**.
8. To exit the edit view, click **Exit**.

Selecting the attribute groups to display on a Record Details component

For a **Record Details** component, you select the attribute groups to display. By default, the component displays the groups configured in the **Attribute Group Manager** to be used for record details.

From the edit view of a **Record Details** component, to select the attribute groups and determine the group display order:

1. Under **Configure Attribute List**, to remove an attribute group from the display, uncheck its checkbox.



To restore a hidden group, check its checkbox.

To find a specific attribute, so that you can see which group it is in, type the attribute name in the **Filter Attributes** field. As you type, the list is filtered to only display the matching attributes.

2. To change the display order of the attribute groups, drag the group to the new location in the list.
You can collapse the attribute groups to make them easier to work with. To expand or collapse a group, click the group name.
3. To save your changes, click **Save Preferences**.
4. To exit the edit view, click **Exit**.

Formatting the attribute values displayed on a Record Details component

For each attribute displayed on a **Record Details** component, you can format the displayed value.

From the edit view of a **Record Details** component, to format the displayed attribute values:

1. Under **Configure Attribute List**, click the edit icon for the attribute.

The **Edit Attribute Display** dialog is displayed.

2. Use the **Value Formatting** fields to format the value.

For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 115](#).

For string values, you can also configure the following options:

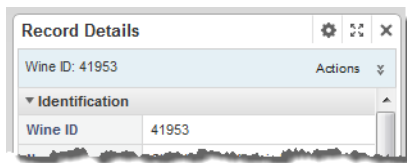
Field	Description
Truncate after <i>n</i> characters	The maximum number of characters to retrieve for the value. A More link displays automatically after 250 characters. If the truncate value is less than 250 characters, then the More link is never displayed. If the truncate value is greater than 250 characters, then when users click More, additional characters up to the truncate value are displayed. Truncating longer values can improve performance.
Preserve attribute formatting	If this box is checked, then Studio preserves any white space and line breaks in the original attribute value. If the box is not checked, then the white space and line breaks are removed.

Field	Description
Show full attribute text as tooltip	If this box is checked, then when users hover the mouse over the value, a tooltip displays with the full value.

- To save the changes, click **OK**.

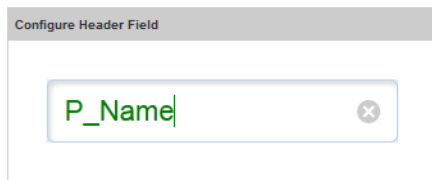
Selecting the attribute value to display in the Record Details heading

The heading of the **Record Details** component contains an attribute value. By default, the record ID is displayed.



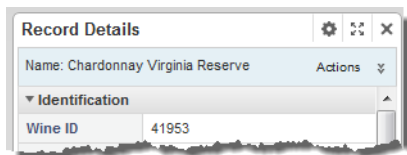
From the edit view of the **Record Details** component, to select the attribute value to display in the header:

- To select the attribute to use, either:
 - In the **Header Field** text box, type the name of the attribute. As you type, the component verifies that the text entered is a valid attribute name.
 - From the **Attribute List**, drag the attribute into the **Header Field** text box.



- To save your changes, click **Save Preferences**.
- To exit the edit view, click **Exit**.

The header field of the **Record Details** table is updated to display the selected attribute value.



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](#)

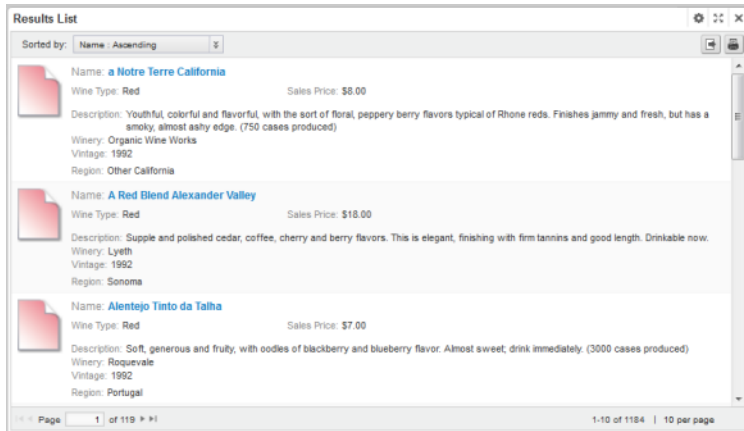
[Using the Results List component](#)

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.

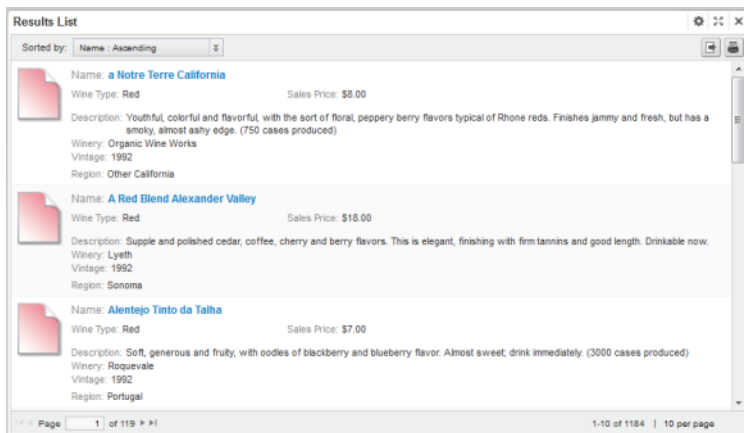


Using the Results List component

The **Results List** component is used to view record information.

About the Results List display

On the **Results List** component, the list looks very much like the search results from a standard web search.

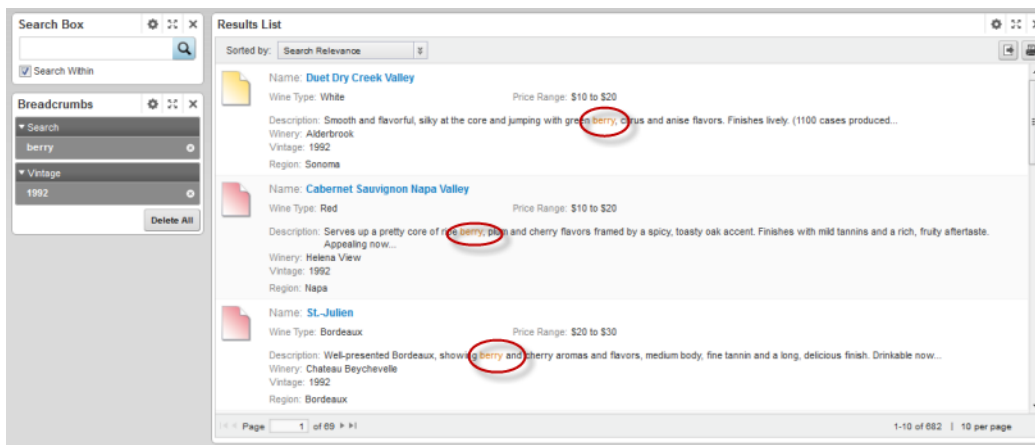


Records included in the Results List component

The **Results List** component reflects the current refinement state of the data.

So for example if an end user has used a **Guided Navigation** component or a search to refine the data, the **Results List** component only displays the matching records.

When you use a search to refine the data, the component can be configured to highlight the search text in the attribute values.



If an attribute is configured to enable snippeting, then the search snippet is displayed instead of the full attribute value. The snippet displays the portion of the attribute value that contains the search term.



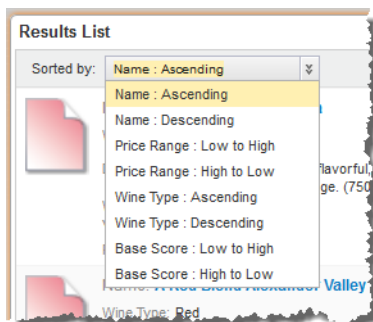
For details on configuring snippeting for searches, see the *Oracle Endeca Server Developer's Guide*.

Sorting the records in the Results List

The **Results List** can be configured to allow you to sort the list.

If you can sort the results list, then at the top of the component is a **Sorted by** drop-down list.

The drop-down list contains the options for sorting the list. Each option contains the attribute to use to sort the list, and the direction in which to sort. The current sort order is highlighted.



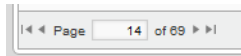
To sort the list, select a sort option.

When you use a search to refine the data, if the associated search interface uses relevance ranking, then the list automatically is sorted by search relevance, and a **Search Relevance** option is added to the **Sorted by** drop-down list.

Navigating through the list

The **Results List** component can allow users to navigate through the list of results, and is configured with a default number of records to display on a page.

If the component allows pagination, then pagination tools are displayed at the bottom of the component.



You can use these tools to:

- Navigate to the next or previous page
- Navigate to the first or last page
- Jump to a specific page. To go to a specific page, type the page number in the field, then press **Enter**.

Setting the number of records to display per page

At the bottom right of the **Results List** component is the number of records displayed per page.

If the component is configured to allow you to select the number, then when you click the value, the list of available options is displayed. The currently selected option is highlighted.

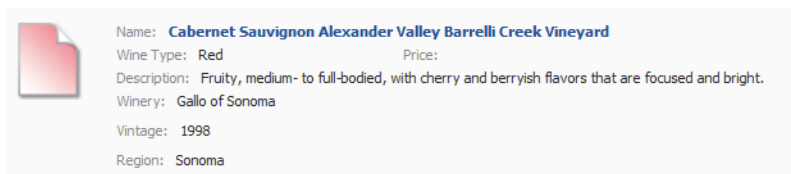


To change the number of records per page, select the number.

Displaying the details for a Results List record

Each record in the **Results List** component can include a hyperlink that can be used to display the details for that record.

The hyperlink, if included, is from the attribute at the top of the list item.



When you click the link, a **Record Details** component is populated with the details for that record.

Using attribute values to refine the Results List data

In the **Results List** component, the attribute values can be configured to allow refinement by that value.

If the attribute value is configured to be enabled for refinement, then when you click the attribute value, the data on the page is refined by that value.

The selected value is added to the **Breadcrumbs** component.

Using attribute values to navigate from the Results List

In the **Results List** component, the attribute values can be configured to allow you to navigate to a different Web page or open a file.

If that attribute value is configured to allow navigation, then when you click the attribute value, the specified URL or file is displayed.

Exporting the results list

You can export the current content of a **Results List** component to a spreadsheet file. The export uses UTF-16LE encoding.

The export only includes:

- The records for the current refinement
- The attributes displayed in the list

To export the list from the **Results List** component:

1. Click the export icon, located at the top right of the component.



2. When the export is complete, you are prompted to save or open the spreadsheet file.

Printing the results list

You can print the current content of a **Results List** component.

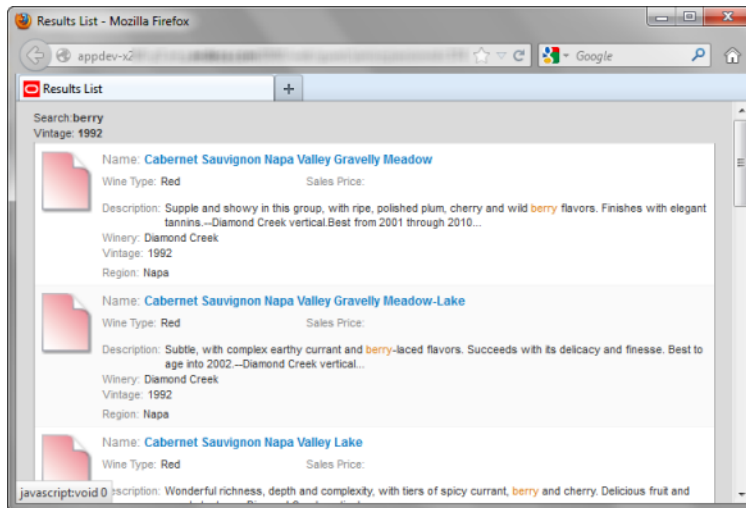
The print option only prints the records for the current refinement.

To print the **Results List**:

1. Click the print icon, located at the top right of the component.



The results list is displayed in a separate browser window. Above the list are the current refinement selections.



The print dialog box also is displayed.

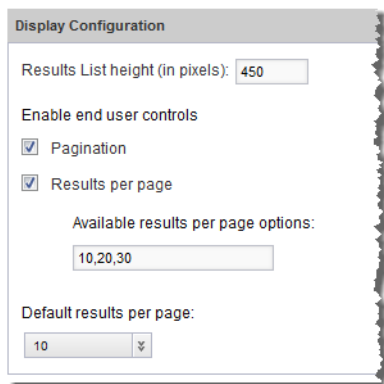
2. Select the printing options, then complete the printing process.

Configuring a Results List component

When the **Results List** component is first added, it does not display any records. You determine how the component is displayed and how end users can interact with each displayed attribute.

Configuring pagination options for a Results List component

From the edit view of a **Results List** component, you can configure whether to enable pagination, and if pagination is enabled, whether to allow end users to select the number of results per page.



The screenshot shows a 'Display Configuration' dialog box with the following fields and options:

- Results List height (in pixels):** A text input field containing the value '450'.
- Enable end user controls:** A section containing two checked checkboxes:
 - ☒ **Pagination**
 - ☒ **Results per page**
- Available results per page options:** A text input field containing the comma-separated values '10,20,30'.
- Default results per page:** A dropdown menu currently showing the value '10'.

Under **Display Configuration**, to configure the pagination and navigation options for a **Results List** component:

1. In the **Results List height(in pixels)** field, type the height in pixels for the component.
2. To display the pagination bar in order 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 end user must further refine the data.
3. If the **Pagination** checkbox is checked, then to allow end users to select the number of records to display per page, check the **Results per page** checkbox.

The available values for the end user to select from are configured in the **Available results per page options** field.
4. In the **Available results per page options** field, type a comma-separated list of available values for the number of results to display per page.

These values are used both to populate the **Default results per page** drop-down list below the field, and the **Records per page** options for end users.

By default, the available options are 10, 20, and 30 records per page.
5. If the **Results per page** checkbox is checked, then from the **Default results per page** drop-down list, select the default number of records to display per page.

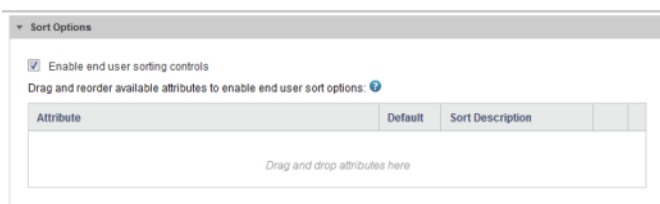
The available options are configured in the **Available results per page options** field.
6. If the **Results per page** checkbox is not checked, then in the **Default results per page** field, type the number of records to display per page.

Configuring the sorting options for a Results List component

From the edit view of a **Results List** component, you can configure whether end users can change the sort order for the list.

To configure the sorting options for the component:

1. On the edit view, under **Sort Options**:



The screenshot shows the 'Sort Options' section in the edit view. The checkbox 'Enable end user sorting controls' is checked. Below it, the text reads 'Drag and reorder available attributes to enable end user sort options:'. There is a table with two columns: 'Attribute' and 'Sort Description'. The table is currently empty, and a message 'Drag and drop attributes here' is displayed below it.

- To allow end users to set the sort order, check the **Enable end user sorting controls** checkbox. The box is checked by default.
- To not allow end users to control the sort order, uncheck the checkbox.

The **Sort Options** section is updated to reflect your selection.

2. If the **Sorting** checkbox is not checked, then end users cannot change the list sort order. The **Sort Options** section contains a single field.



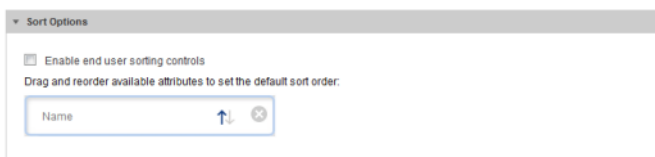
The screenshot shows the 'Sort Options' section in the edit view. The checkbox 'Enable end user sorting controls' is unchecked. Below it, the text reads 'Drag and reorder available attributes to set the default sort order:'. There is a single text input field for setting the default sort order.

To determine how the results list is sorted, drag an attribute from the **Available Attributes** list to the **Sort Options** field.

In the **Available Attributes** list, you can use the filter field to find the attribute you want to use.

After you drop the attribute, to determine the sort order:

- To sort by the selected attribute in ascending order, click the up arrow. This is the default.
- To sort by the selected attribute in descending order, click the down arrow.



The screenshot shows the 'Sort Options' section in the edit view. The checkbox 'Enable end user sorting controls' is unchecked. Below it, the text reads 'Drag and reorder available attributes to set the default sort order:'. The text input field contains the attribute 'Name'. To the right of the input field are two arrows (up and down) and a delete icon (X) to select the sort order.

To remove the attribute, click the delete icon.

To replace the attribute with a different attribute, drag a different attribute from the **Available Attributes**, and then drop it on top of the currently selected attribute.

3. If the **Sorting** checkbox is checked, then the **Sort Options** section is updated to allow you to provide a list of attributes end users can use to sort the list.

Sort Options

☒ Enable end user sorting controls

Drag and reorder available attributes to enable end user sort options: ?

Attribute	Default	Sort Description
Drag and drop attributes here		

To add an attribute, drag the attribute from the **Attributes List** to the **Sort Options** table.

In the **Available Attributes** list, you can use the filter field to find the attribute you want to use.

4. To determine the order of the attributes in the **Sorted by** drop-down list, drag each row up and down in the list.

Sort Options

☒ Enable end user sorting controls

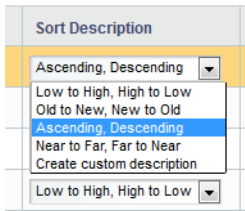
Drag and reorder available attributes to enable end user sort options:

Attribute	Default	Sort Description
Name	☒ ↑	Ascending, Descending
Price Range	☐ ↕	Low to High, High to Low
Wine Type	☐ ↕	Ascending, Descending
Base Score	☐ ↕	Low to High, High to Low

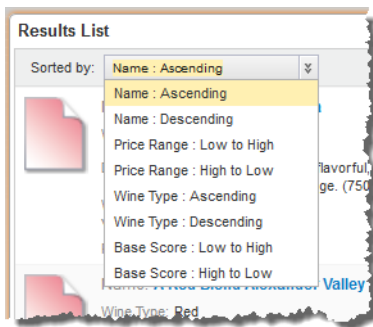
Drag and drop attributes here

5. For the attribute you want to use for the default sort order:
 - (a) Click the **Default** radio button next to the attribute.
 - (b) To sort by that attribute in ascending order, click the up arrow.
 - (c) To sort by that attribute in descending order, click the down arrow.

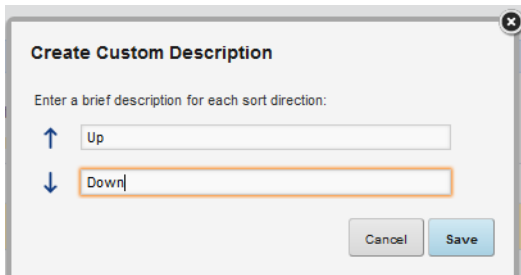
6. From the **Sort Description** drop-down list, select the text that displays next to the attribute in the **Sorted by** list.



For each attribute, the **Sorted by** drop-down list includes one entry for sorting in ascending order, and one for sorting in descending order.



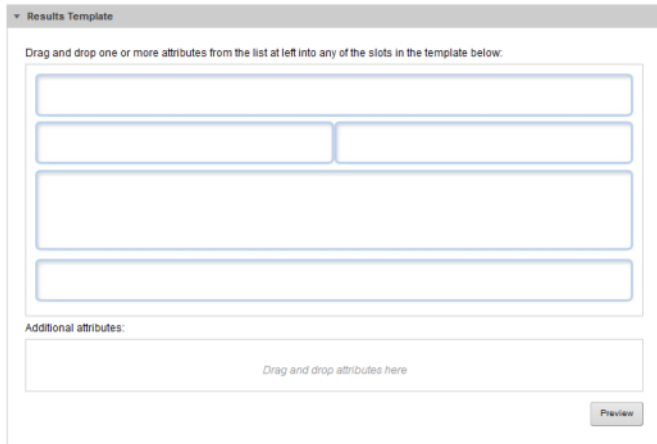
To create your own descriptions for ascending and descending order, from the **Sort Description** drop-down list, select **create custom description**. On the **Create Custom Description** dialog box:



- (a) In the first field, marked with the up arrow, type the text to use to indicate ascending order.
 - (b) In the second field, marked with the down arrow, type the text to use to indicate descending order.
 - (c) Click **Save**.
7. To remove an attribute from the list, click the delete icon for that attribute.

About the Results Template for the Results List

For the **Results List** component, you use the **Results Template** section of the edit view to configure the attributes to include for each record.



The screenshot shows a configuration window titled "Results Template". Inside, there is a header instruction: "Drag and drop one or more attributes from the list at left into any of the slots in the template below:". Below this instruction are five rectangular slots for attributes. The first slot is a single wide rectangle. The second slot is divided into two side-by-side rectangles. The third slot is a single wide rectangle. The fourth slot is a single wide rectangle. The fifth slot is a single wide rectangle. Below these slots is a section labeled "Additional attributes:" with a larger rectangular area containing the text "Drag and drop attributes here". At the bottom right of the configuration area is a button labeled "Preview".

Each block on the top area of the template represents a single attribute. You can also drag any number of attributes into the additional attributes area at the bottom of the template.

Each attribute can have an associated action, either to

- Link to the record detail
- Refine the data set
- Link to a resource such as a Web page or file. These resources may be specific to the value of a selected attribute.

Selecting the attributes to display for each Results List record

For each block on the **Results Template** section of the **Results List** component edit view, you select an attribute for which to display the value.

To select the attributes to display:

1. To add an attribute to the template, drag the attribute from the **Available Attributes**.

While the top area of the template is fixed, for the lower set of additional attributes, you can add any number of attributes. Each new attribute is added to the bottom of the list. You can then drag the attributes to set the display order.

The screenshot shows the 'Results Template' editor. At the top, it says 'Drag and drop one or more attributes from the list at left into any of the slots in the template below:'. Below this is a template area with several slots, each containing an attribute name and edit/delete icons. The slots are: 'Name', 'Wine Type', 'Base Score', 'Description', and 'Winery'. Below the template area is a section labeled 'Additional attributes:' which contains a list of attributes: 'Vintage' and 'Region'. At the bottom of the 'Additional attributes' section is a placeholder text 'Drag and drop attributes here'. A 'Preview' button is located at the bottom right of the editor.

2. To replace an attribute in the top area of the template with a different attribute, drop the new attribute into the block.

For the additional attributes, you cannot replace an attribute directly. All new attributes are added to the end of the list.

3. To clear a top block entirely, or remove a block from the additional attributes, click the delete icon for that block.
4. To preview how the record will look on the end user view, click the **Preview** button.

The **Results List Preview** dialog is displayed.

The screenshot shows the 'Results List Preview' dialog. It displays a preview of a record for 'Il Caberlot'. The record details are: Name: Il Caberlot, Wine Type: Red, Base Score: 81, Description: Rather weedy and unripe for a Cabernet, it has some currant flavor and velvety texture but the vegetal character detracts from the overall quality, Winery: Carnasciale, Vintage: 1993, Region: Tuscany. A 'Return to Edit Mode' button is located at the bottom right of the dialog.

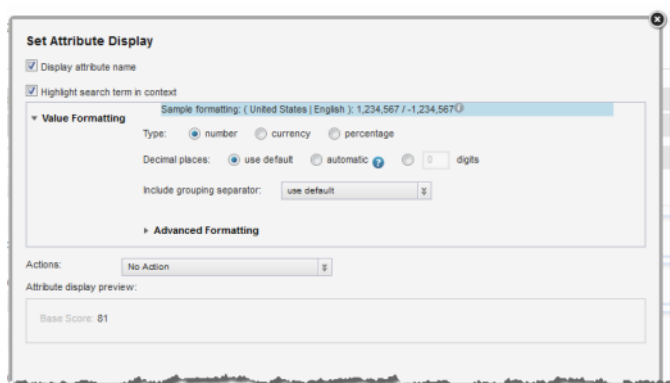
To close the preview, click **Return to Edit Mode**.

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. From the **Results Template** section of the edit view, to configure an attribute:

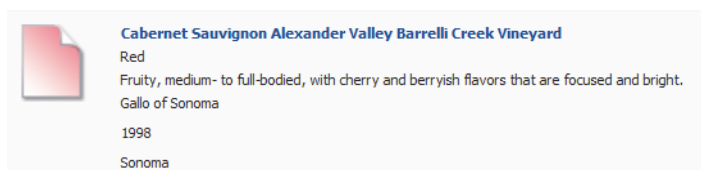
1. Click the edit icon for that block.

The **Set Attribute Display** dialog box displays.



2. To display the attribute name as well as the value, check the **Display attribute name** checkbox. The box is checked by default.

To only display the value, uncheck the box. Here is an example of a record where all of the attribute names are turned off.



3. When end users type search text into a **Search Box**, to highlight the search text in the attribute value, check the **Highlight search term in context** checkbox.

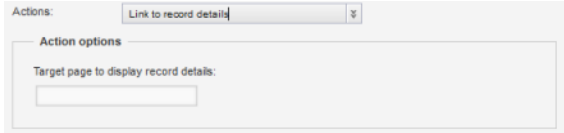
The box is checked by default.

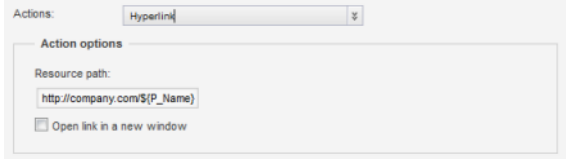
4. If the attribute has formatting options, then use the **Value Formatting** section to configure the format.

For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 115](#).

5. From the **Actions** drop-down list, select the option to indicate whether the attribute value is clickable, and if so, what happens when end users click the value. The options are:

Action	Description
No Action	If you select this option, then the attribute value is not a hyperlink.

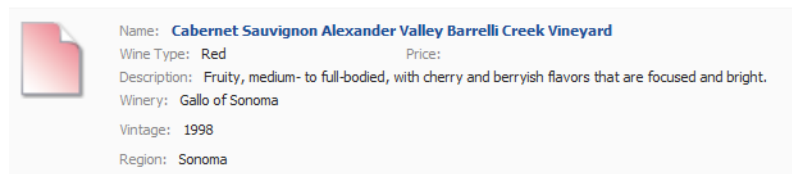
Action	Description
Link to record details	This option is only available for the top block of the template. If you select this option, then when end users click the attribute value, the Record Details component is populated with the details for that record. When you select the option, the Target page to display record details field is displayed.  In the field, type the name of the page to display when end users click the record hyperlink. The selected page must contain a Record Details component. If you do not provide a page name, then the end user stays on the current page. For more information on configuring a page transition, see Page transition syntax on page 119.
Enable drill down by refinement on this field	This option only displays if the attribute can be used for navigation. If you select this option, then when end users click the attribute value, the data set, including the results list, is refined to only show records with that value. The selected value is added to the Breadcrumbs component on that page.

Action	Description
Hyperlink	If you select this option, then the attribute value is a hyperlink to a URL. The hyperlink can include attribute values.  In the Resource path field, type the path to the page or file. To insert the value of an attribute in the URL: - To encode the inserted value, use <code>\${<attribute name>}</code> - To not encode the inserted value, use <code>\${{<attribute name>}}</code> In both cases, <code><attribute name></code> is the name of the attribute. For details on component hyperlinks and encoding inserted attribute values, see Configuring hyperlinks from Studio components on page 120. To have the hyperlink open in a new browser window, check the Open link in a new window checkbox.

6. To save the attribute configuration, click **Save**.

Configuring the images to display next to each Results List record

For a **Results List** component, you can display an image next to each record.



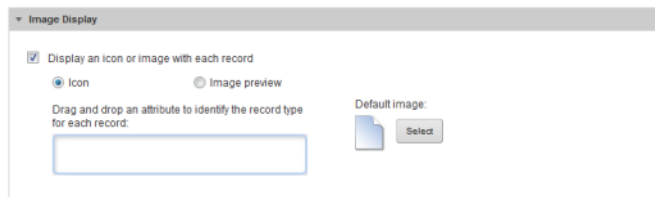
Studio supports two different types of images:

Image Type	Description
Icon selected from Studio's image gallery	Studio provides a basic set of "document" icon images. If you use this option, you can assign one of these images to each value of a selected attribute. This option is typically used when icons represent a category or other high-level classification of records (for example, a document type or the source system from which the record was indexed).

Image Type	Description
Images from a URL that you provide	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. 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).

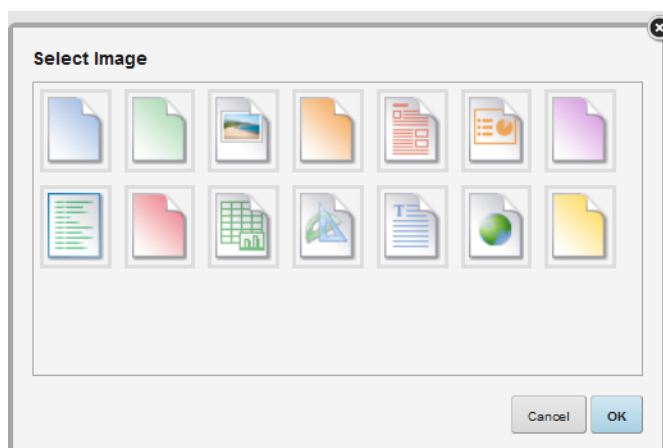
In the **Image Display** section of the edit view, to configure the images:

1. To display an image next to each record, check the **Display an icon or image with each record** checkbox. The box is checked by default.



To not display an image, uncheck the box. If you uncheck the box, the rest of the image settings are hidden.

2. If you are displaying an image next to each record, then the **Default image** setting determines the default image to display. The default image is from the Studio image gallery. To select a different default image:
 - (a) Click the **Select** button.
 - (b) On the **Select Image** dialog, click the image you want to use as the default image.



(c) Click **OK**.

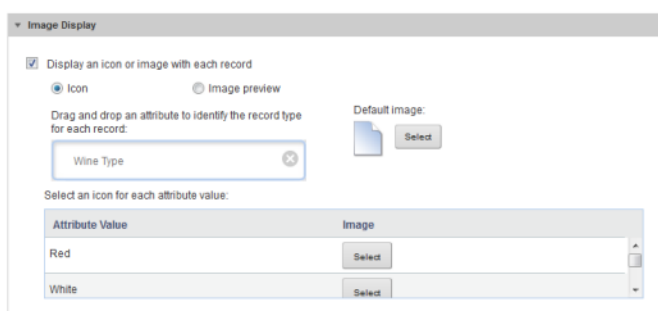
For images other than the default image, you can either display:

- An icon from the Studio image gallery. You can select a different icon for each value of a selected attribute. The selected attribute cannot have more than 15 values.
 - An image from a URL you provide. The URL can include tokens to represent values of a specific attribute.
3. To configure an icon from the Studio image gallery to display for each value of a selected managed attribute:
- (a) Click the **Icon** radio button.
 - (b) From the **Available Attributes** list, drag the attribute you want to use to select the icons.



Note: To make it easier to drag the attribute, you can collapse the **Sort Options** and **Results Template** sections.

When you drop the attribute, the list of available attribute values is displayed.

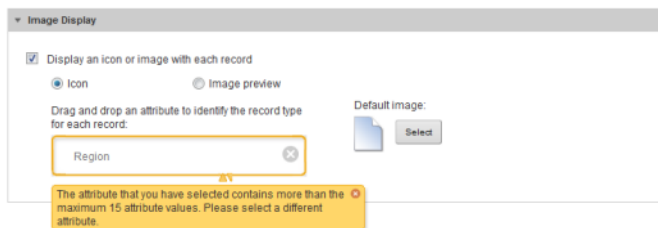


For a hierarchical attribute, only the top level of values is displayed. On the end user view, records use the image for the top level value.

For example, for a WineType attribute, the top level values might be Red, White, and Sparkling.

If a record has a WineType value of Merlot (Red --> Merlot), that record would use the image selected for the Red value.

If the attribute has more than 15 values, an error message is displayed.

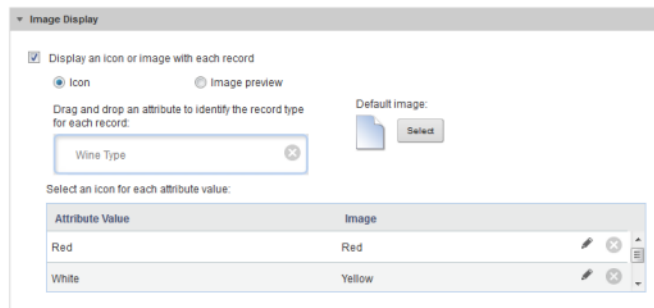


When you close the error, the attribute is removed.

(c) For each attribute value, to select the image to use, click the **Select** button.

- (d) On the **Select Image** dialog box, click the image you want to use, then click **OK**.

The list is updated with the name of the selected image.

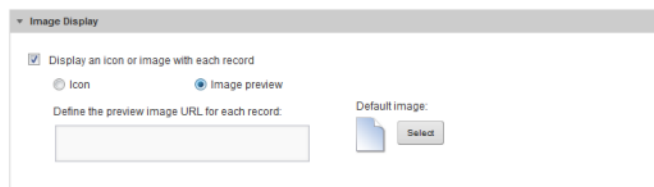


- (e) To clear a selected image, and display the default image for that attribute value, click the delete icon.

- (f) To select a different image for an attribute value, click the edit icon.

4. To display an image from a URL:

- (a) Click the **Image preview** radio button.



- (b) In the field, type the URL to the image file.

To insert an attribute value into the URL, use `${attributeName}`.

For example, if there are a set of image files representing the different values of the WineType attribute, then the image URL would be something like `http://my.company.com/images/${WineType}.jpg`.

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.

The screenshot shows a window titled "Results Table 3.0" with a search bar and "0 records selected". The table has columns: Wine ID, Body, Flavors, Drinkability, Wine Type, and P_F. The data is as follows:

Wine ID	Body	Flavors	Drinkability	Wine Type	P_F
34699	Elegant, Firm, Firm Tannin...	Berry, Cedar, Cherry, Cof...		Red	B
34700	Crisp, Harmonious	Fig, Fruit, Lemon, Toasty		White	F
34701	Crisp	Apple, Dry, Fruit, Grape, ...	Drink now	White	A
34702	Ripe	Citrus, Fig, Honey, Wood	Drink now	White	C
34703	Fresh, Soft	Earthy, Melon		White	E
34704	Balanced, Luscious, Rich	Black Cherry, Cherry, Cin...	Drink now	Red	B
34705	Bright, Fresh, Tannins	Cherry, Pepper		Red	C
34706	Fresh	Jam, Pepper		Red	Ji
34707		Cherry, Plum		Red	C
34708	Supple	Raisin, Spice, Tobacco		Red	R

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- 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.

The screenshot shows a window titled "Results Table" with a search bar and "0 records selected". The table has columns: Wineries, Booking Year, Cases Produced (sum), Number of Cases Sold (sum), and Product Rating (average). The data is as follows:

Wineries	Booking Year	Cases Produced (sum)	Number of Cases Sold (sum)	Product Rating (average)
A. Rafanelli	1997	2,800.00	10	90
A. Rafanelli	1999	12,650.00	59	89
A. Rafanelli	2001	6,150.00	5	90
A. Rafanelli Summary		21,600.00	74	90
Abbey Vale	1998	1,000.00	21	85
Abbey Vale	2000	400.00	4	87
Abbey Vale	2001	1,000.00	22	85
Abbey Vale Summary		2,400.00	47	86
Abundance	1999	780.00	10	80
Abundance	2001	780.00	10	80
Grand Summary (3646 results)		77,870,930.00	170,822	86

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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.

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.

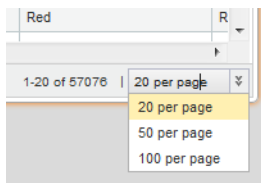
Wineries		Booking Year	Cases Produced (sum)	Number of Cases Sold (sum)	Product Rating (average)
☐	A. Rafanelli	1997	2,800.00	10	90
☐	A. Rafanelli	1999	12,650.00	59	89
☐	A. Rafanelli	2001	6,150.00	5	90
A. Rafanelli Summary			21,600.00	74	90
☐	Abbey Vale	1998	1,000.00	21	85
☐	Abbey Vale	2000	400.00	4	87
☐	Abbey Vale	2001	1,000.00	22	85
Abbey Vale Summary			2,400.00	47	86
☐	Abundance	1999	780.00	10	80
☐	Abundance	2001	780.00	10	80
Grand Summary (3646 results)			77,870,930.00	170,822	86

Navigating through a Results Table

If the **Results Table** is not wide enough to display all of the columns at once, you can scroll horizontally. If a persistent column is locked, then it remains visible at the left of the table as you scroll to the right. If a persistent column is not locked, then it scrolls with the column set columns.

The **Results Table** can include pagination tools to allow you to page through the list.

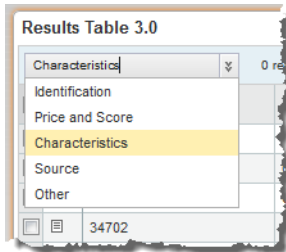
You also may be able to select the number of rows to display on each page.



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

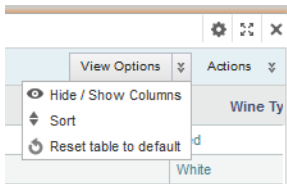
You may be able to change the **Results Table** layout, including the columns that are displayed, the display order, and whether to display summary rows for an aggregated table.

Showing and hiding columns

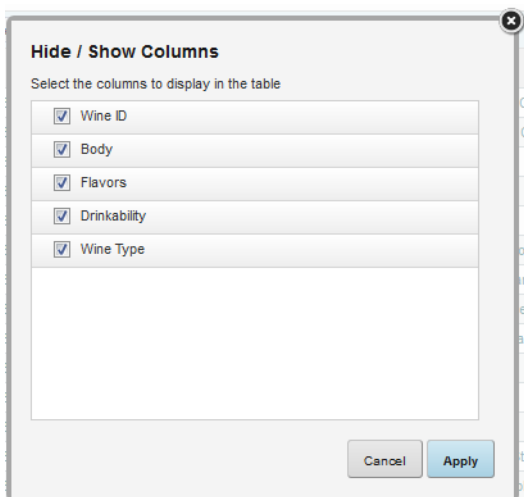
You may be able to show and hide columns in the **Results Table**. For aggregated tables, when you show a hidden dimension, it is always added to the dimension columns area.

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.

Flavors	Drinkability
Berry, Cedar, Cherry, Cof...	Ri
Fig, Fruit, L...	W
Apple, Dry, Fruit, Grape, ...	W

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**.

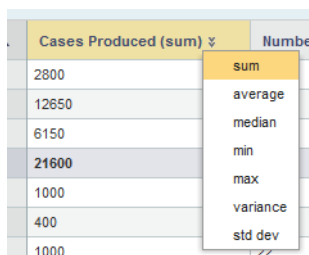
Changing the aggregation method used for a metric

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.



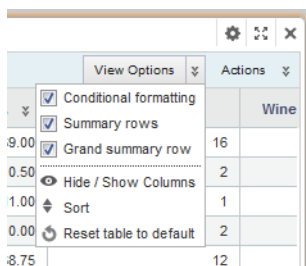
2. From the drop-down list, select the aggregation method.

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.



Note that when you display the summary rows, the table is re-sorted to properly group the dimension values.

3. To show or hide the summary row for the entire table, check or uncheck the **Grand summary row** checkbox.

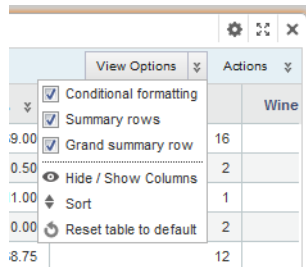
Showing and hiding conditional formatting

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

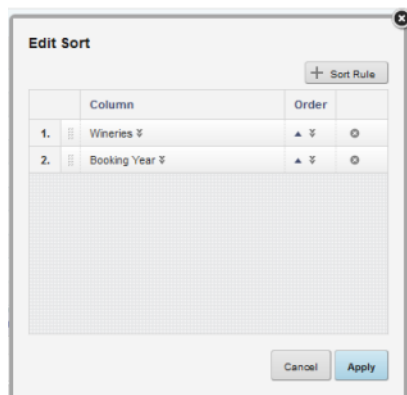
For a record list **Results Table**, or an aggregated table without summary rows, you can sort the table using any of the displayed columns. You can also create a compound sort, where the table is sorted by multiple columns in order.

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.

- (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 select the sort direction for a sort rule, click the drop-down arrow next to the sort direction.

From the drop-down list, to sort in ascending (A-Z or low-high) order, select **Sort Ascending**.

To sort in descending (Z-A or high-low) order, select **Sort Descending**.



- (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.

Option	Description
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	The Actions menu can also include options to refine by selected attribute values from the selected rows. To use this option, you must first check at least one row. You can select multiple rows across different pages. To uncheck all of the selected rows, click delete icon next to the number of selections.

When you use **Results Table** values to refine data, components linked to the same data source are affected.

Displaying record details from a Results Table

The first column in the a **Results Table** is usually a link to display the details for that row.

For a record list table, when you click the details link, the **Record Details** component displays attribute groups from that record. The displayed groups are configured for the view.

For an aggregated table:

- The dimensions are displayed within their attribute groups from the view definition.
- The displayed columns from all of the column sets are displayed in an **Other** group.

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.

Exporting rows from a Results Table component

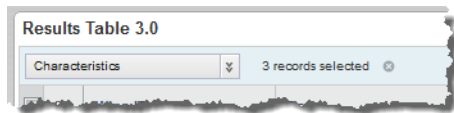
The **Results Table Actions** menu can include an option to export results from the table to a CSV file. The export uses UTF-16LE encoding.

The export includes all of the columns from the available column sets. For aggregated tables, the export only includes the displayed dimension columns. Hidden dimensions are not exported.

To export results from a **Results Table**:

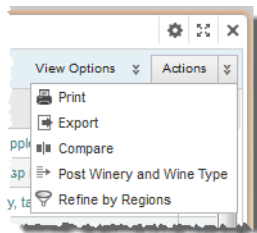
1. Check the checkbox next to each row you want to export.
To export all of the rows on the current page, check the checkbox in the column heading.
You can also check individual rows across multiple pages.

The number of selected rows is displayed at the top of the component. To uncheck all of the currently selected rows, click the delete icon for the selected rows.



If you do not check any rows, then the entire list is exported.

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



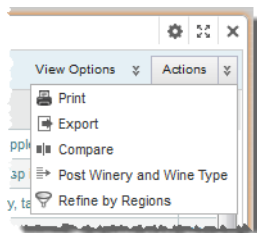
You are prompted to view or save the file.

Printing a Results Table

The **Results Table Actions** menu can include an option to print the current page of the results.

To print the **Results Table**:

- From the **Actions** menu, select **Print**.



The table is displayed in a separate browser window. Above the list are the current refinement selections.

The print dialog also is displayed.

- Select the printing options, and then complete the printing process.

Comparing records or aggregated rows in a Results Table

The **Results Table Actions** menu can include a **Compare** option to allow you to compare selected rows.

For details, see [Using the Compare component on page 159](#).

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.

Selecting the source for the Results Table data

The data in the **Results Table** comes from a view in the application data source.

If you change the view after configuring the table layout, you are prompted to confirm the change. If you do confirm the change, then you will lose the current layout configuration.

From the **Results Table** edit view, to select the source for the table data:

1. On the **Data Selection** tab, the view list contains the available views for the application data source.

Data Selection

Select the data view that the table will use.

View	View Description
☒ Base	Full list of records
☐ Full List	Full list of records
☐ Year and Region List	Available wines grouped by year and region.
☐ Full List with Custom For...	Full wine list with customized formatting.
☐ Full List by Wine ID	Full wine list grouped by Wine ID
☐ Wines Grouped by Char...	Wines grouped by body, flavors, and winery
☐ Wines Grouped by Locat...	Wines grouped by the Region and Winery.

If the application data source has related data sources, then there is also a data source drop-down list for you to select a data source.

2. To display the list of attributes in a view, click the information icon for the view.
3. To select the view to use, click its radio button.

Selecting the type of Results Table

A **Results Table** may be either a details table (a flat list of records) or an analytics table (an aggregated list of calculated values grouped by dimension values). By default a new table is a detail (record list) table.

On the **Table Type** tab of the **Results Table** edit view, click the radio button next to the type of table you want to create.

Table Type

Select the type of table you would like to create.

☒ Details table

Displays a simple list of detail records with no rollup aggregation.
Each row represents a record as defined for the view.
Details tables can use attribute groups to define column sets.

☐ Analytics table

Uses dimension values to aggregate the record and attribute information into metric values.
The dimensions that are added to the table define the level of aggregation of the rows.
Changing the dimensions that are displayed also changes the aggregated metric values.
Analytics tables can display summarization rows for each dimension or for the entire 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 the Base view) or 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 would be grouped by product ID, and so the grouping attribute would be the product ID.

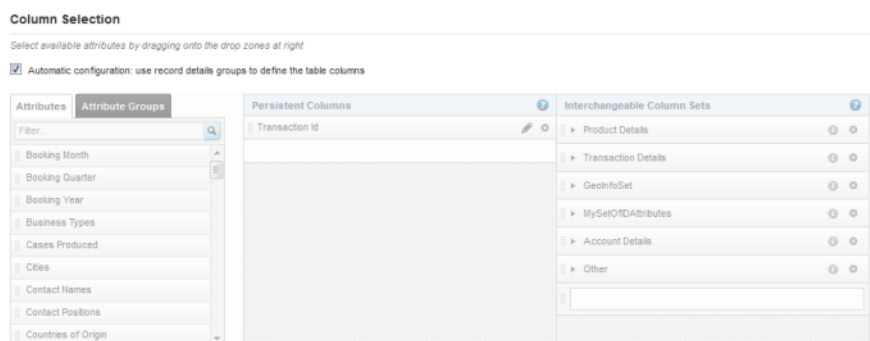
The Base view does not have group-by attributes, but has attributes that are flagged as identifying attributes for the record. For a data source created from a file upload, the identifying attribute is `eid-reserved-spec`.

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.

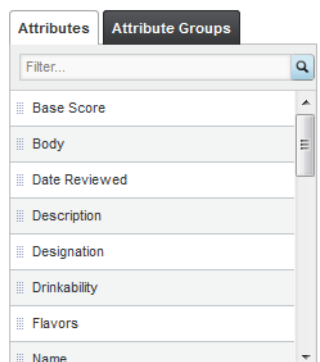
To use a custom column configuration, uncheck the checkbox. The default configuration remains, but the lists are enabled to allow you to change the configuration.

If you check the checkbox again, the default configuration is restored, and any customization is lost.

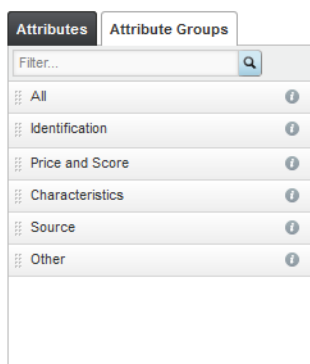
Available data for a record list table

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

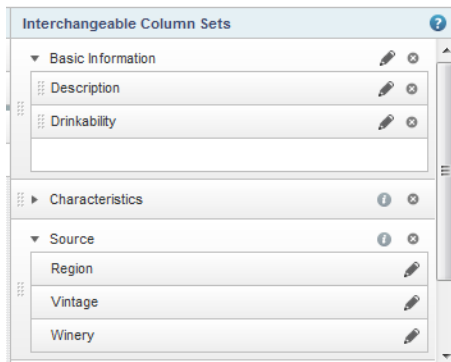
On the **Column Selection** tab of the **Results Table** edit view for a record list table, the **Persistent Columns** list contains the columns that are always displayed. In the default column configuration, the list contains the identifying or group-by attributes for the view.

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.

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.

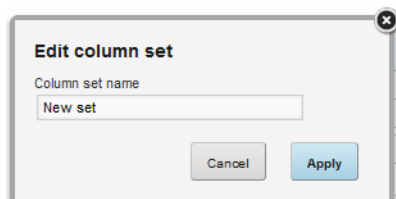
The column set uses the attributes and attribute display order configured for the attribute group. For column sets created from an attribute group, you cannot add or remove columns, and you cannot change the display order of the columns.

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.

- (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 216](#).

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.

Available data for aggregated tables

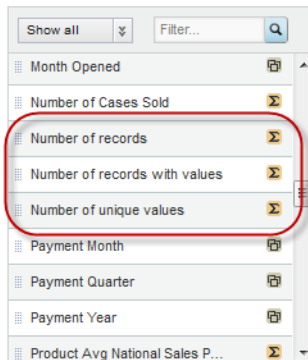
On the edit view for an aggregated **Results Table**, the attributes list at the left of the **Column Selection** tab contains all of the available metrics and dimensions for the selected view.

The list uses icons to indicate whether the item is a dimension or a metric.



The list also contains system metrics for displaying counts of records and values.

These metrics are:



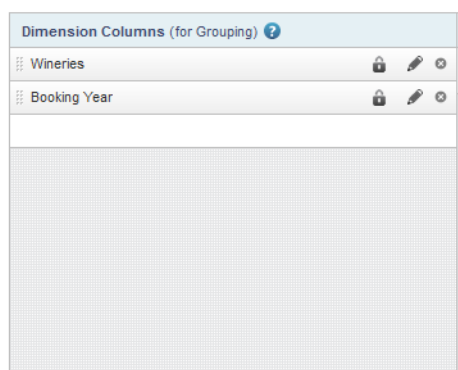
Metric Name	Description
Number of records	Displays the number of records in the underlying data set that have the combination of dimension values for the current row. For example, a table is aggregated using the dimensions Country and Product Line. The current row has United States for the country and Apparel for the product line. The number of matching records is the number of records that have the value United States for Country and Apparel for Product Line. In the table, the default column heading is Record Count.
Number of records with values	Displays the number of records that have a value (any value other than NULL) for a selected attribute for the combination of dimension values for the current row. When you add this metric, you are prompted to select the attribute to use. For example, a table is aggregated using Country and Product Line. The current row has United States for the country and Apparel for the Product line. 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. The number of records with values for the Color attribute is then 7. In the table, the default column heading is attributeName (Record Count).

Metric Name	Description
Number of unique values	Displays the number of unique values (other than NULL) for a selected attribute for the combination of dimension values for the current row. When you add this metric, you are prompted to select the attribute to use. For example, a table is aggregated using Country and Product Line. The current row has United States for the country and Apparel for the product line. 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. The number of unique values for Color is then 2. In the table, the default column heading is <i>attributeName (Value Count)</i>.

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:

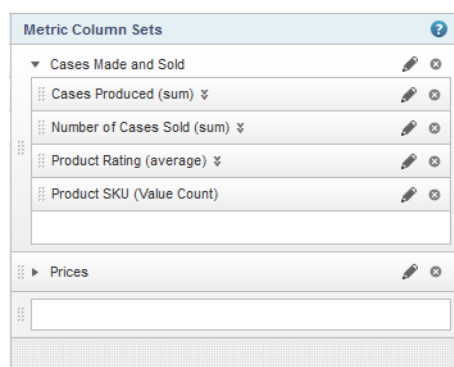
1. To add a dimension to the list, drag the dimension from the attributes list to the **Dimension Columns** list.
2. To determine the display order of the dimension columns, drag each dimension to the appropriate location in the list.
3. To remove a dimension column, click its delete icon.

For information on configuring columns, see [Configuring columns for a Results Table on page 216](#).

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.

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.

If the metric you added is a predefined metric, then the aggregation method is built in.

For other metrics, Studio assigns a default aggregation method, displayed in parentheses next to the attribute name.

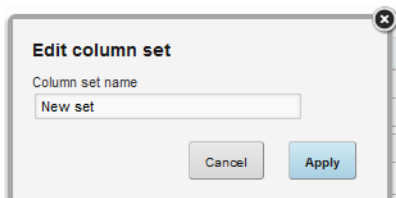
To select a different aggregation method, click the drop-down icon next to the metric name, then select the new aggregation method from the list.

For information on the aggregation methods and how they work, see [Aggregation methods and the data types that can use them on page 64](#).

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 216](#).

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.

Configuring the column formatting and display

For all **Results Table** columns, you can specify a column width and determine whether the column is visible when the table is first displayed. For persistent columns and dimensions, you can also lock the column.

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. 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.



- 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.

- 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.

- 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.
- 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 115](#).

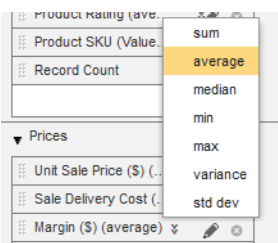
Configuring the aggregation method for metrics columns

For an aggregated **Results Table**, you can configure the aggregation method to use for each metric.

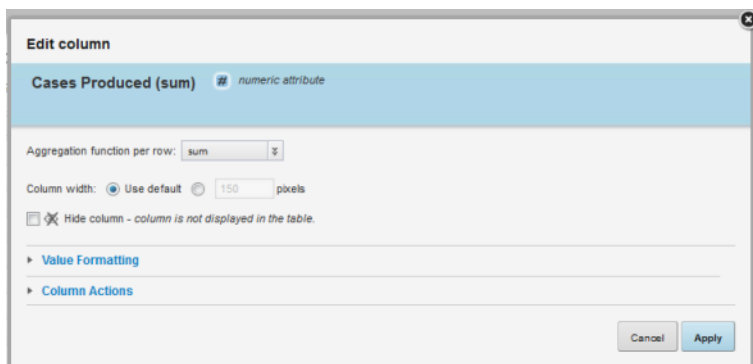
You can either select the aggregation method directly from the column set list or from the **Edit column** dialog.

From the **Column Selection** tab of the edit view, to configure the aggregation method for a metric:

- To select the aggregation method directly from the metric column set list:
 - Click the drop-down icon next to the metric name.
 - From the drop-down list, select the aggregation method.



2. To select the aggregation method from the **Edit column** dialog:
 - (a) To display the **Edit column** dialog, click the edit icon for the column.
 - (b) From the **Aggregation function per row** drop-down list, select the aggregation method to use.



Note that you cannot select an aggregation method for a predefined metric or for system metrics.

- (c) To save the change, click **Apply**.

Selecting and configuring the action for a column

On the **Edit column** dialog, the **Column actions** section is used to indicate whether users can click the column value.

From the **Column Selection** tab, to display the **Edit column** dialog, click the edit icon for the column.

When the dialog is first displayed, the section is collapsed. To expand or collapse the section, click the section heading.

From the **Column action** drop-down list, select the action to perform when the user clicks the value, then configure the details.

The available actions are:

Action Name	Description
No Action	Indicates that the value is not hyperlinked. For columns that contain an attribute that does not support refinement, this is the default option.
Show Details	When users click the value, the Record Details component is populated with the details for that row.
Refinement	When users click the value, the data is refined to only include records with that value. If the column contains an attribute that supports refinement, then this action is selected by default.
Hyperlink	When users click the value, they navigate to the specified URL. The hyperlink can include attribute values.

To configure a selected action:

1. If you select the **Show Details** or **Refinement** action, then in the **Target page** field, specify the name of the page that is affected by the action.

If you leave the field empty, then the current page is used.

For information on how to specify a different page in the application to be affected by the action, see [Displaying component refinements or record details on a different page on page 118](#),

2. If you select the **Hyperlink** action, then to display the URL in a new browser window, check the **Open link in a new window** checkbox. The box is checked by default.

In the **URL** field, type the URL. Make sure the URL is correctly formed, and that you have properly encoded special characters.

The URL can include attribute values. The values could be query parameters:

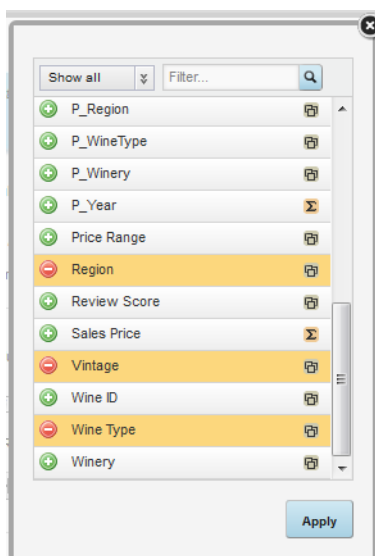
`http://www.acme.com/index.htm?p1="Red"&p2="1995"`

Or could be part of the URL path: `http://www.acme.com/wines/1995/`

To add attribute values to the URL:

- (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}`

ID	Display Name
0	Region
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 attribute values, see [Configuring hyperlinks from Studio components on page 120](#).

- (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.

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**.

Condition Rule	Color	Tooltip Description
1. less than 50	Orange	Very low
2. between 500 - 1000	Green	Great

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.

Configuring the Results Table Actions menu

The **Results Table Actions** menu contains options that apply either to the entire table or to selected rows from the table.

Available Actions menu actions

The **Results Table Actions** menu can include options for printing, exporting, and comparing results. Users can also refine data and pass parameters to external URLs.

The available actions for the **Results Table Actions** menu are:

Action	Description
Print	Allows users to print the table. The Actions menu can only contain one Print option, which is included in the menu by default.
Export	Allows users to export selected rows or the entire table to a spreadsheet. The Actions menu can only contain one Export option, which is included in the menu by default.

Action	Description
Compare	Populates the Compare component to allow users to do a more detailed comparison of selected records. The Actions menu can only contain one Compare option, which is disabled by default. If the view used for the Results Table does not have any identifying attributes, then the Compare checkbox is disabled and locked.
Pass Parameters	Allows users to create a hyperlink that generates an HTTP POST request containing attribute values from the selected records as POST parameters. The Actions menu can contain multiple Pass Parameters options, each with a different label, URL, and parameters. By default, there are no Pass Parameters options in the menu.
Refinement	Allows users to refine the data using selected attribute values from the selected records. The attributes must allow multi-assignment. 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. The actions menu can contain multiple Refinement options, each with a different label and attributes. By default, there are no Refinement options in the menu.

Selecting the actions to include in the Actions menu

On the **Actions** tab of the **Results Table** 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 include the **Compare** option in the **Actions** menu, check the **Compare** checkbox. To exclude the **Compare** option, uncheck the checkbox.

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.

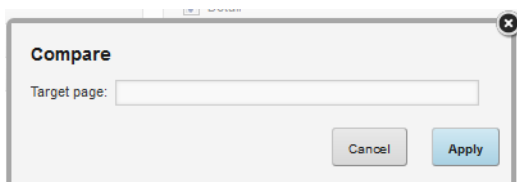
6. To change the display order of the **Actions menu** options, drag each option to the appropriate location in the list.

Configuring the Compare menu action

For the **Compare** option in the **Results Table Actions** menu, you can configure the target page where the **Compare** component is located.

To configure the **Compare** action:

1. Click its edit icon.
2. On the configuration dialog, in the **Target page** field, select the specify the page where the **Compare** component is located.



If you leave the field empty, then the current page is used.

For information on specifying a different page in the application, see [Displaying component refinements or record details on a different page on page 118](#).

3. Click **Apply**.

Configuring a Pass Parameters Actions menu action

For a **Pass Parameters** option in the **Results Table 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.

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.

Display Name	Parameter Name
Booking Year	Booking_Year
Cases Produced	Cases_Produced

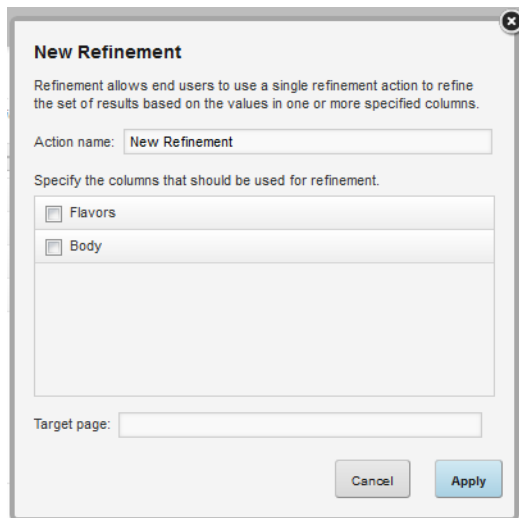
- (d) To remove a parameter, click its delete icon.
6. To save the action configuration, click **Apply**.

Configuring a Refinement Actions menu action

For a **Refinement** option in the **Results Table 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.

A screenshot of a 'New Refinement' configuration dialog box. The dialog has a title bar with a close button. Inside, the title 'New Refinement' is followed by a descriptive sentence: 'Refinement allows end users to use a single refinement action to refine the set of results based on the values in one or more specified columns.' Below this is a text field labeled 'Action name:' containing the text 'New Refinement'. Underneath is a section titled 'Specify the columns that should be used for refinement.' which contains a list of attributes: 'Flavors' and 'Body', each with a checkbox to its left. Below the list is a larger empty text area. At the bottom left is a text field labeled 'Target page:'. At the bottom right are two buttons: 'Cancel' and 'Apply'.

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. In the **View Manager**, these attributes have **Refinement Behavior** set to **Multi-Or** or **Multi-And**.
4. In the **Target page** field, specify the page on which to execute the refinement.
If you leave the field empty, then the current page is used.
For information on specifying a different page in the application, see [Displaying component refinements or record details on a different page on page 118](#).
5. To save the configuration, click **Apply**.

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.

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	Updates the Record Details component with data from the selected row. For record list tables, the component displays the attribute groups configured in the View Manager to be used to display record details. For aggregated tables, the component displays the columns from the current row. There can be only one Detail action column, which is disabled by default. If the view used for the table does not have any identifying attributes, then the Detail checkbox is disabled and locked.
Hyperlink	Allows users to navigate to a specified URL. The link can include attribute values from the current row. Users can create multiple Hyperlink action columns, each with unique settings. By default, there are no Hyperlink action columns.
Refinement	Refines the data based on one or more attribute values from the current row. Users can create multiple Refinement action columns, each with unique settings. By default, there are no Refinement action columns.

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**.



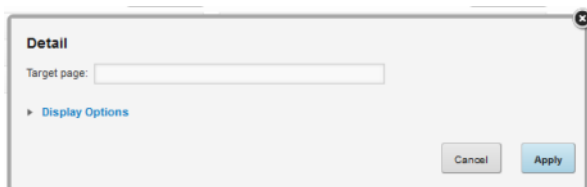
- (b) By default, the column is enabled when you add it. To exclude the action column, but not remove it, uncheck its checkbox.
 - (c) To remove a **Hyperlink** action column from the list, click its delete icon.
3. The table initially does not contain any **Refinement** action columns. You can add one 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 the Detail action column

For the **Detail** action column on a **Results Table**, you can configure the target page where the **Record Details** component is located.

To configure the **Detail** action column:

1. Click its edit icon.
2. On the configuration dialog, in the **Target page** field, specify the page where the **Record Details** component is located.



If you leave the field empty, then the current page is used.

For information on specifying a different page in the application, see [Displaying component refinements or record details on a different page on page 118](#).

The page must contain a **Record Details** component that uses the same view.

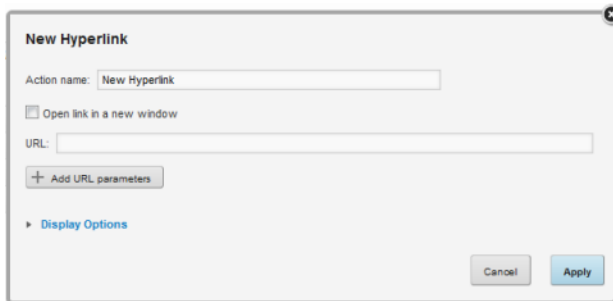
3. To save the configuration, click **Apply**.

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:

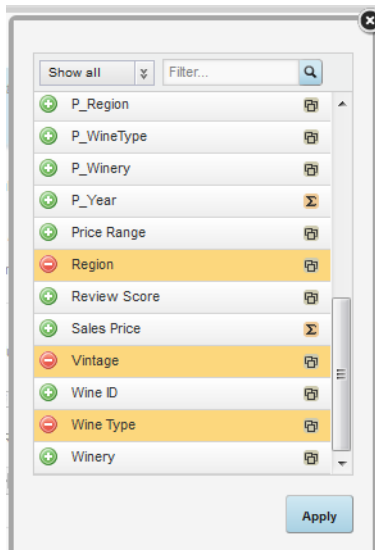
1. On the **Actions** tab of the **Results Table** edit view, click the edit icon for the **Hyperlink** action.
2. In the **Action name** field, type a name for the action.



3. To display the hyperlink in a separate browser window, check the **Open link in a new window** checkbox.
4. 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.
5. 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:
(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.

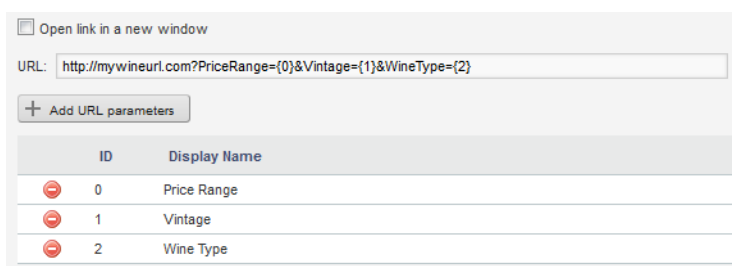


- (c) When you are finished selecting attributes, click **Apply**.

The selected attributes are 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}`



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 from Studio components on page 120](#).

- (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.

- In the **Target page** field, specify the page on which to execute the refinement.

If you leave the field empty, then the current page is used.

For information on specifying a different page in the application, see [Displaying component refinements or record details on a different page on page 118](#).

The page must contain components that use the same view.

Configuring how each action column is displayed

The configuration dialog for each **Results Table** action column 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 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 width in pixels.
- Under **Display column as**, to display an icon in the column, click the **Icons** radio button. This is the default.
To display the action name as a hyperlink, click the **Hyperlinks** radio button.
- To display the action icon or name in the column heading, check the **Display icon or action name in column header** checkbox.
If the box is checked, then either the icon or action name is displayed, based on what you select for the **Display column as** setting.
If the box is not checked, then the column heading is empty.

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.

Sorting:

Maximum number of sort rules:

Default Sort Order:

 Sort Rule

	Column	Order	
1.	Wineries ▼	▲ ▼	⊗
2.	Booking Year ▼	▲ ▼	⊗

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.

On the **Summaries & Sorting** tab, to configure the sorting:

- 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 change the sort direction for a sort rule, use the sort direction drop-down list.
 - (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 change the sort direction for a sort rule, use the sort direction drop-down list.
 - (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:

Summaries:

- ☐ Show summary rows by default
- ☒ Show a grand summary row 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.

Display Options

Configure the default table size, pagination, and column settings for the end user.

Table height

Maximum number of rows:

☒ Enable end user results per page controls

Available results per page options

Default results per page: ▼

Default column width: pixels

☒ Allow end user to show and hide columns

To configure these settings:

1. Under **Table height**, in the text field, type the number of rows to display at one time.
2. 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.
3. If you are allowing end users to select the number of results per page, then in the **Available results per page options** field, type a comma-separated list of the options.
4. From the **Default results per page** drop-down list, select the default number of results to display per page.
5. In the **Default column width** field, type the default width in pixels of a table column.
6. To allow end users to show and hide columns, check the **Allow end user to show and hide columns** checkbox.

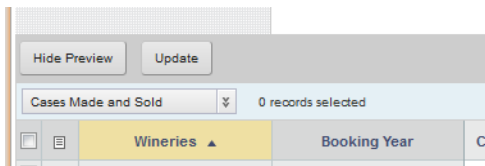
If the checkbox is checked, then the **View Options** drop-down menu includes the **Manage columns** option.

Previewing the Results Table

The **Results Table** edit view includes an option to display a preview of how the table will display to end users.

At the bottom of the edit view is a **Show Preview** button. To display the preview, click the button.

When the preview is displayed:



- To hide the preview, click **Hide Preview**.
- To update the preview to reflect your changes to the table configuration, click **Update**.



Chapter 23

Filtering Components

Filtering components allow you to search, navigate, and filter your data.

[Breadcrumbs](#)

[Guided Navigation](#)

[Search Box](#)

Breadcrumbs

The **Breadcrumbs** component displays all the values the user has selected to filter the data.

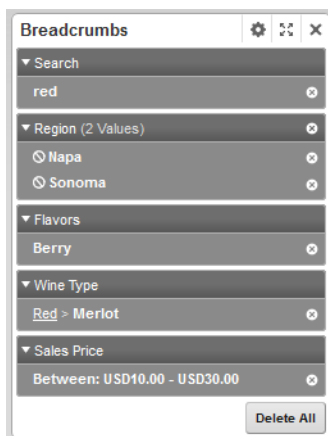
[About the Breadcrumbs component](#)

[Using Breadcrumbs](#)

[Configuring a Breadcrumbs component](#)

About the Breadcrumbs component

The **Breadcrumbs** component allows users to view and quickly make adjustments to the current refinement state.



The component includes entries for:

- Guided Navigation selections
- Keyword searches

It also includes:

- Attribute refinements selected when end users click attribute values displayed on other components
- Temporary filters such as refinement and range filters that are applied to the data source

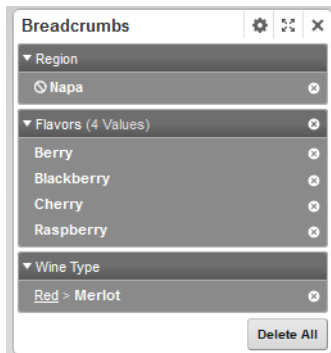
Using Breadcrumbs

You use the **Breadcrumbs** component to view and edit your refinement selections.

How the refinements are displayed

Each breadcrumb displays as a collapsible section on the component.

For attribute value selections, the breadcrumb displays the attribute name as a heading.

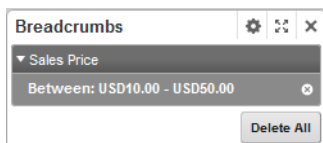


For negative refinements (refining data to show records that do NOT have the selected value), the negative refinement icon is displayed in front of the attribute value.

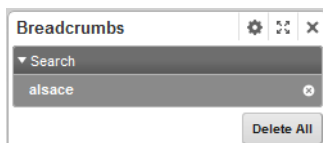
If multiple values for an attribute are selected, they are displayed in sequential order. Depending on the number of records selected, the list may be collapsed by default.

For a hierarchical attribute value, the breadcrumb may include all of the ancestor values.

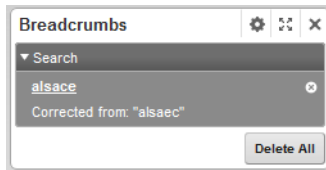
For range filters, the breadcrumb contains the selected range of values.



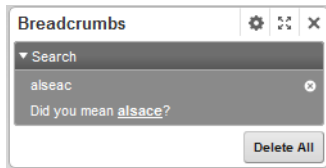
For search term values, the heading indicates that the value is a search term.



If the search function made an automatic spelling correction, it is included in the breadcrumb:



The breadcrumb may also include a "did you mean" option to suggest a search term that closely matches the specified term:



Removing refinements

From the **Breadcrumbs** 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.

For hierarchical attributes, to filter by an ancestor value, click the ancestor value.

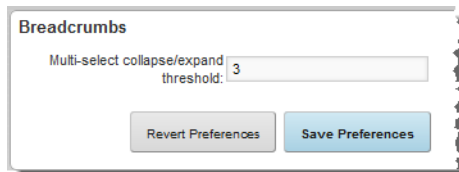
To remove all of the refinements, click the **Delete All** button.

Configuring a Breadcrumbs component

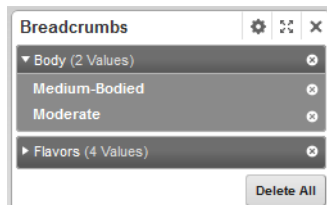
For a **Breadcrumbs** component, you can configure the data source and whether to expand a list of multi-select attribute values.

To configure a **Breadcrumbs** component:

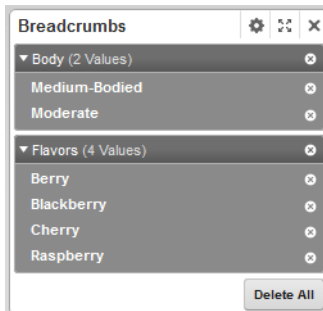
1. On the **Breadcrumbs** component edit view, in the **Multi-select collapse/expand threshold** field, set the number of attribute values after which the list can be collapsed.



When end users select multiple values for an attribute, if they select more than this number, then on the **Breadcrumbs** 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.



2. To save your changes, click **Save Preferences**.
3. To exit the edit view, click **Exit**.

Guided Navigation

The **Guided Navigation** component allows users to filter data based on attribute values.

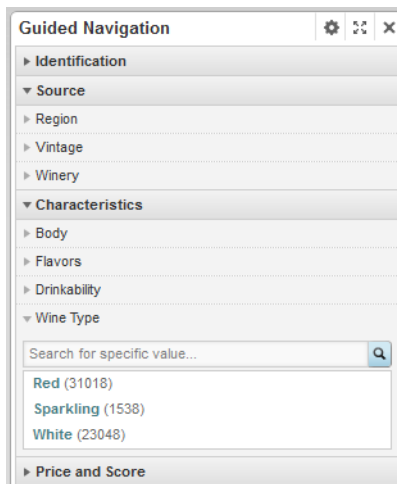
[About the Guided Navigation component](#)

[Using Guided Navigation](#)

[Configuring a Guided Navigation component](#)

About the Guided Navigation component

The **Guided Navigation** 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 **Breadcrumbs** component. If there is no **Breadcrumbs** component, then users cannot remove the refinements.

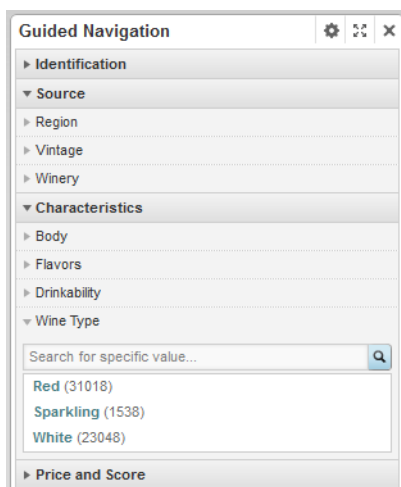
Using Guided Navigation

From the **Guided Navigation** component, you select values to refine the displayed data.

Displaying the available attributes and values

On the **Guided Navigation** component, the attributes are displayed within attribute groups.

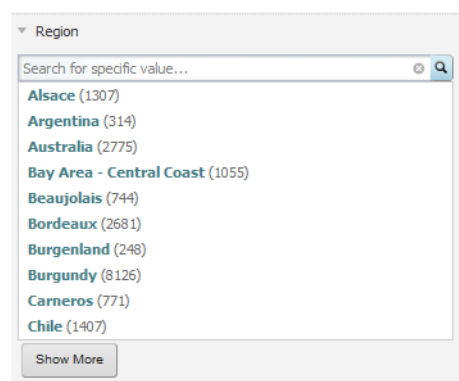
When the component is first displayed, each group may be configured to display the list of attributes in that group. To expand or collapse the list of attributes, click the group heading.



Each attribute 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.

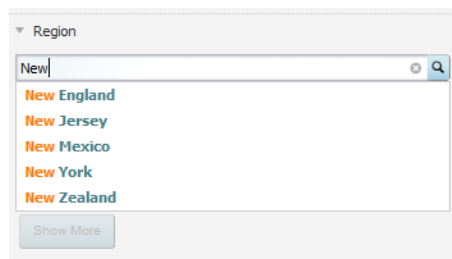
To show or hide the value list or range filter, click the attribute name, or use the + and - buttons for the attribute.

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.



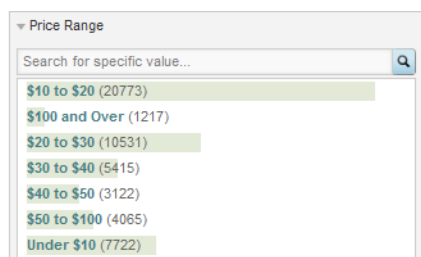
Using a value list to select refinements

For a value list on the **Guided Navigation** 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 **Breadcrumbs** component.
- The attribute is removed from the **Guided Navigation** component.

Selecting hierarchical attribute values

For a hierarchical attribute, only **Guided Navigation** 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 **Breadcrumbs** component.

- On the **Guided Navigation** 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 breadcrumb for that attribute.

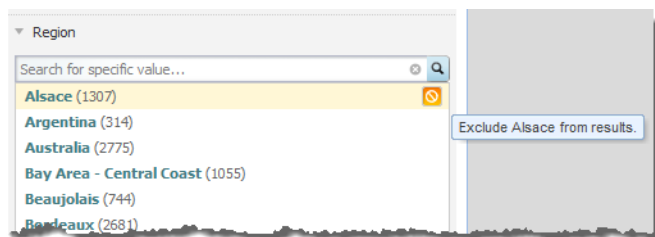
If there is another level of child values, those values are displayed on the **Guided Navigation** component.

When you click a value that does not have any children, the attribute is removed from the **Guided Navigation** 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.



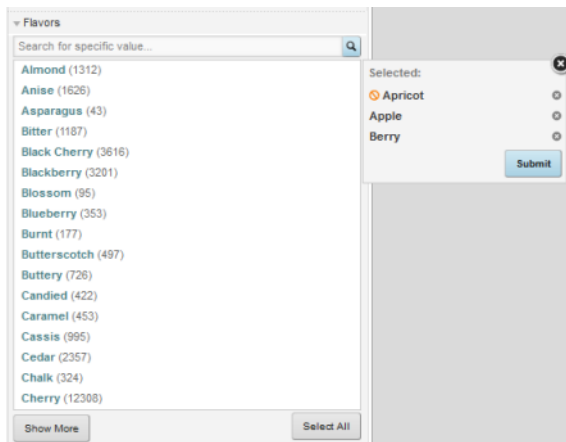
To refine the data to only include records that have that value, click the value.

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 breadcrumb.

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 **Breadcrumbs** component.
- The selected values are removed from the **Guided Navigation** component.

You can still select the other remaining values. If you select all of the values, then the attribute is removed from the **Guided Navigation** component.

Using a range filter to select refinements

In the **Guided Navigation** component, range filters allow users to refine by a range of values instead of by specific values.

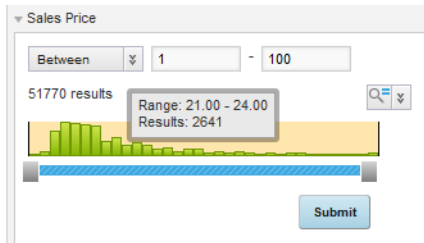
About range filters

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.

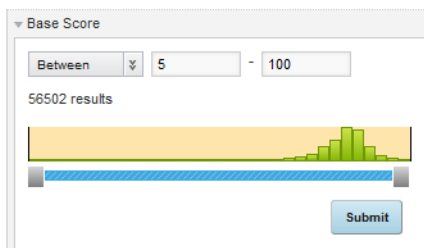


Selecting a value range

To select value ranges, you select the type of range, then select the range value or values.

Selecting a numeric range

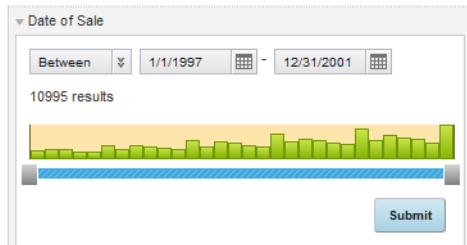
To use a numeric range to refine the data:



1. From the drop-down list, select whether to define a range:
 - Between two values (the default)
 - Greater than a value
 - Less than a value
2. To specify the value or values to use, either:
 - Enter the values in the fields
 - Use the histogram slider bar to set the values.
3. Click **Submit**.

Selecting a date range

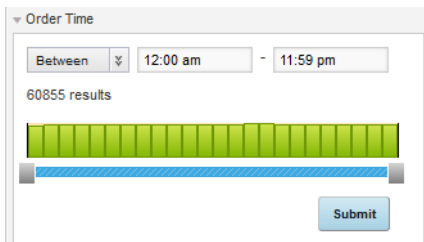
To use a date range to refine the data:



1. From the drop-down list, select whether to define a range:
 - Between two dates (the default)
 - Before a specified date
 - After a specified date
2. To specify the values to use, either:
 - Enter the values in the fields
 - Use the date picker to set the dates
 - Use the histogram slider bar to set the values.
3. Click **Submit**.

Selecting a time range

To use a time range to refine the data:



1. From the drop-down list, select whether to define a range:
 - Between two times (the default)
 - Before a specified time
 - After a specified time
2. To specify the values to use, either:
 - Enter the time values in the fields, using 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**.

Selecting a duration range

To use a duration range to refine the data:

1. From the drop-down list, select whether to define a range:
 - Between two duration values (the default)
 - Shorter than a specified duration
 - Longer than a specified duration
2. To specify the duration values to use, either:
 - Enter the duration values in the fields.
 - Use the histogram slider bar to set the values.
3. Click **Submit**.

Effect of selecting a range

When you submit a range filter, a breadcrumb for the attribute is added to the **Breadcrumbs** component.

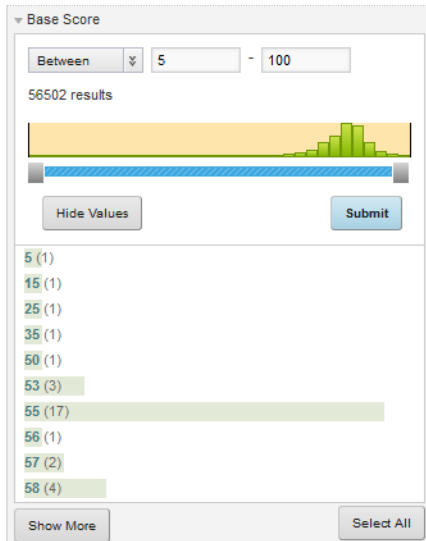
However, the attribute remains available for you to select a different range. If you submit a different range value, the existing breadcrumb is replaced by a breadcrumb for the new range.

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**.



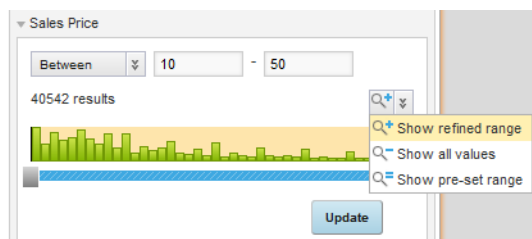
To hide the values, click **Hide Values**.

The value list behaves the same way as any other value list. See [Using a value list to select refinements on page 239](#).

Changing the displayed histogram range

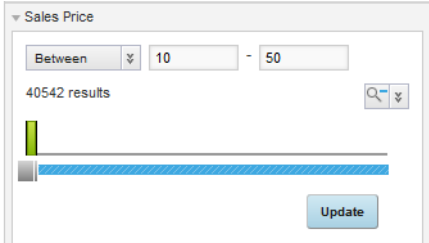
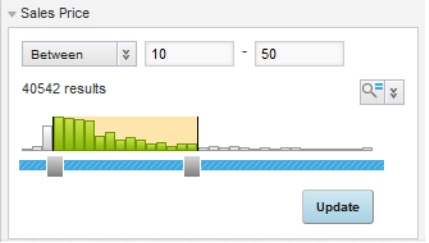
When the filter is first displayed, the histogram shows the distribution of values between the maximum and minimum values. These may be the actual minimum and maximum values in the data, or minimum and maximum values configured for the component. The displayed histogram range is affected when you select 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
Show refined range	The refined range is the current range of available values based on all of the current refinements, including refinement by the current attribute. The refined range reflects the configured minimum and maximum, unless you have specifically asked for a value outside of that range.

Option	Description
Show all values	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. When you display all of the values, the portion of the histogram showing the refined range is highlighted. 
Show pre-set range	The pre-set range is the configured minimum and maximum value for the attribute. If there are no configured minimum or maximum values for the attribute, then this option is not available. When you display the pre-set range, the portion of the histogram containing the refined range is highlighted. 

Configuring a Guided Navigation component

For the **Guided Navigation** component, you determine the available attributes and how they can be used to select refinements.

Selecting the groups and attributes to display

On the **Attribute Selection** tab of the **Guided Navigation** edit view, you select the attribute groups to display to end users. Within each displayed group, you can show or hide individual attributes.

By default, the component displays the groups configured in the **Attribute Group Manager** to be included in the **Guided Navigation** component.

To configure the displayed groups and attributes:

1. To include or exclude an attribute group on the **Guided Navigation** end user view, check or uncheck its checkbox.

By default, for a displayed group, all of the attributes in the group are displayed.

2. Within a group, to not display an attribute on the end user view, uncheck its checkbox.



3. 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 **Guided Navigation** 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.



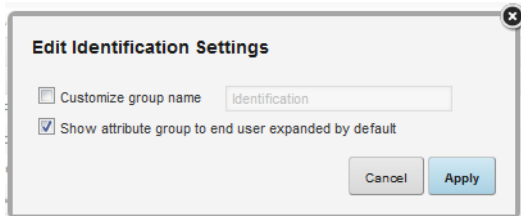
Configuring an attribute group

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 **Guided Navigation** 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

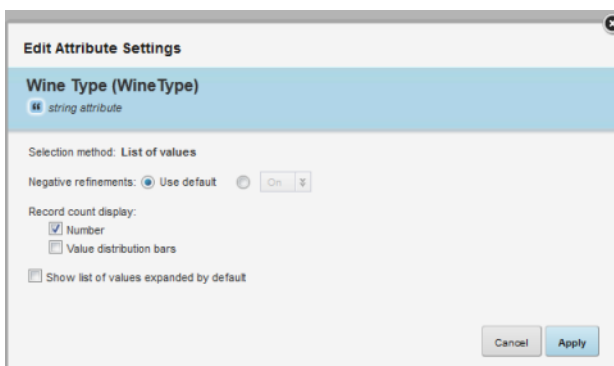
For each **Guided Navigation** attribute, you can configure how to display either the list of values or the range filter. To display the edit dialog for the attribute, click its edit icon.

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.



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 will remain 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.

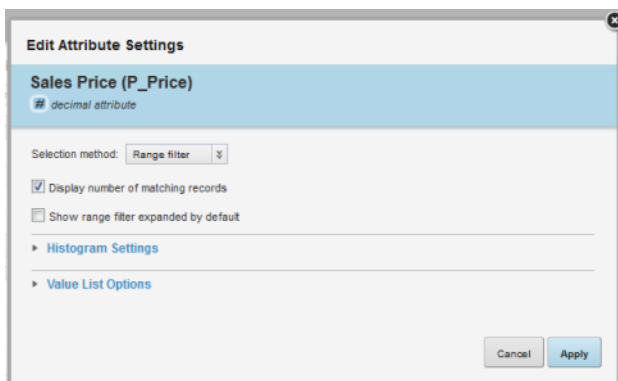
You can check both checkboxes to display both the number and the bars.

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**.

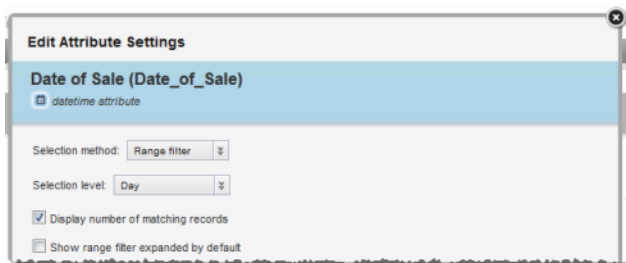
Configuring a range filter selection attribute

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.



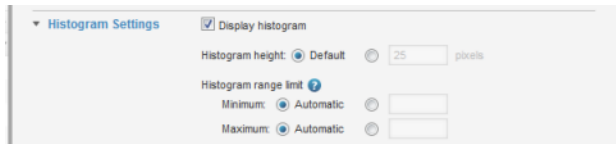
On the edit attribute dialog, to configure a range filter selection attribute:

1. For a date or duration attribute, from the **Selection level** drop-down list, select the time unit (year, month, or day) to use for the filter.

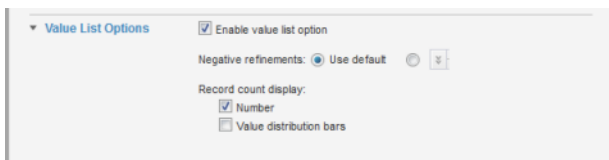


2. To display the number of matching records on the range filter, check the **Display number of matching records** checkbox.
3. To display the range filter expanded by default when the attribute group is expanded, check the **Show range filter expanded by default** checkbox.

4. 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.
5. 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.



- (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.
6. After completing the configuration, click **Apply**.

Configuring Guided Navigation display options

The **Configuration Options** tab of the **Guided Navigation** edit view provides default options for displaying either value lists or range filters. It also controls the target page for all of the refinements from the component.

Configuration Options

List of Values Settings

☒ Negative refinement available by default

☒ Enable type-ahead

Maximum type-ahead suggestions:

Maximum values to show in a single attribute:

Number of values to display before "Show More" button:

Range Filter Settings

Width of individual histogram bars: pixels

Default histogram height: pixels

Target page for refinement selection:

To configure these options:

1. Under **List of Values Settings**:
 - (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**:
 - (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 on which to reflect the selected refinements. Only components that use the same data source and view are affected.
If you leave the field empty, then the current page is used.
For details on the syntax for page transitions, see [Page transition syntax on page 119](#).

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.

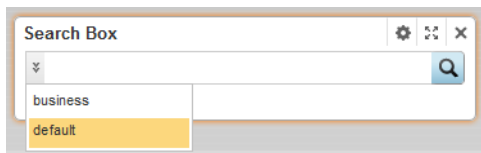


Using Search Box

You use the **Search Box** component to find records that contain a specified search term.

Selecting the search configuration to use

If multiple search configurations are available, you can first select the search configuration that they want to use. The search configuration determines the data source, how to determine a matching record, and whether to support type-ahead.



Completing a basic search

After selecting the search configuration, to do a basic search:

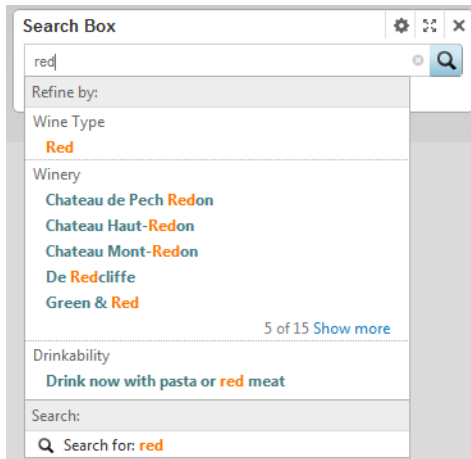
1. In the field, type the search term.
2. To only search within the currently displayed data, make sure the **Search Within** checkbox is checked.



3. Click the search icon.

Using type-ahead to find matching attribute values

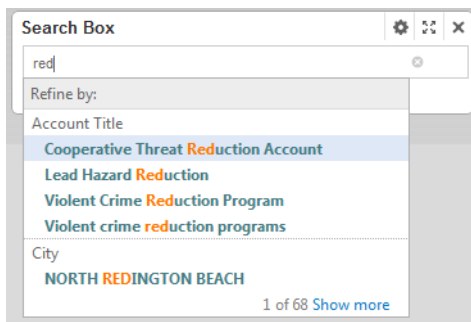
If type-ahead is supported, then as you type the search term, a list of attribute values containing the search terms is displayed. To filter using an attribute value, click the value. Below the matching attributes is an option to just do a search. This option performs the same function as the search icon.



If the data source for the selected search configuration does not have a search interface, then only type-ahead is supported. The search icon does not display.



For type-ahead only searches, as you type, the list of matching attribute values is displayed. There is no option to do a regular search.



The first value is selected automatically. To search by this value, you can press **Enter**.

Effect of a search

When you complete the search, the data is refined to only include records with the matching terms.

Effect of relevance ranking on the display order of results

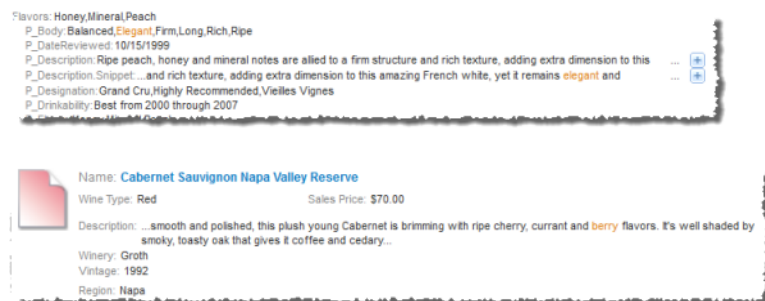
If the search interface for a regular text search uses relevance ranking, then those settings can affect the display order of results on the following components:

Component	Effect of Relevance Ranking
Data Explorer	When the search is submitted, the results are automatically sorted based on search relevance. If you are allowed to change the sort order, then 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.
Results List	When the search is submitted, the results are automatically sorted based on search relevance. If you are allowed to change the sort order, then 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.
Results Table	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. If a specific sort order has been applied to the table, then the relevance ranking settings are not applied.
Map	If there is no default sort order for the Map, then when a search is submitted, the list of map locations is sorted based on search relevance. If there is a default sort order, then the relevance ranking settings are not applied.

For details on relevance ranking and how it works, see the *Oracle Endeca Server Developer's Guide*. For information on using Integrator to use load the relevance ranking configuration files, see the *Integrator User's Guide*.

Displaying search snippets

For regular text 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*.

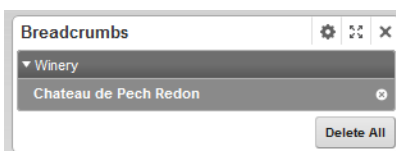
Breadcrumbs displayed for a search

The **Breadcrumbs** component also is updated to add the search filter. If the **Search Within** checkbox was checked, then the breadcrumb is added to the list of breadcrumbs. If the box was not checked, the breadcrumb replaces the current list.

- If you performed a regular search, then the breadcrumb is a search breadcrumb. Search breadcrumbs may also include spelling correction and "did you mean" suggestions.



- If you selected an attribute value, then the breadcrumb is an attribute value breadcrumb.



The selected value also is removed from the available values on the **Guided Navigation** component.

For more information on how breadcrumbs are displayed, see [Using Breadcrumbs on page 235](#).

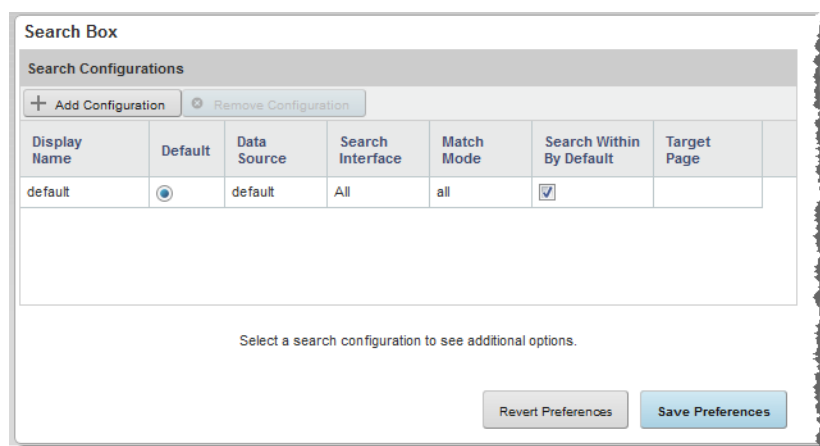
Configuring the Search Box component

For the **Search Box** component, you create a list of available search configurations.

Managing the list of search configurations

At the top of the **Search Box** edit view is the list of search configurations.

For a new **Search Box** component, there is a single default configuration that uses the application data source:



The screenshot shows the 'Search Box' configuration window. At the top, there's a 'Search Configurations' section with two buttons: '+ Add Configuration' and 'Remove Configuration'. Below this is a table with the following columns: Display Name, Default, Data Source, Search Interface, Match Mode, Search Within By Default, and Target Page. The table contains one row with the following values: 'default', a selected radio button, 'default', 'All', 'all', a checked checkbox, and an empty field. Below the table, there's a text prompt: 'Select a search configuration to see additional options.' At the bottom right, there are two buttons: 'Revert Preferences' and 'Save Preferences'.

Display Name	Default	Data Source	Search Interface	Match Mode	Search Within By Default	Target Page
default	☒	default	All	all	☒	

To manage the list of search configurations:

1. To add a configuration to the list, click **Add Configuration**.

A new row is added to the list.

You can then click each column to display the field or drop-down list to set the configuration value.

2. To edit an existing configuration, click the configuration row in the list.

You can then click each column to display the field or drop-down list to set the configuration value.

3. For each configuration:

- (a) In the **Display Name** field, type the name of the search configuration.

Each configuration must have a unique display name.

The display name displays in the drop-down list on the **Search Box** component.

- (b) From the **Data Source** drop-down list, select the data source to use for the configuration.

The drop-down list only contains data sources that are related to the application data source.

The **Search Interface** drop-down list only includes search interfaces for the selected data source.

If the selected data source does not have any search interfaces defined, then the **Search Interface** and **Match Mode** columns are disabled. End users can only find attribute values. They cannot do a regular search.

- (c) From the **Search Interface** drop-down list, select the search interface to use for the search configuration.

The search interface limits the end user's search, and allows you to control record search behavior for groupings of some number of attributes and ranking strategies.

- (d) From the **Match Mode** drop-down list, select a match mode for the search configuration. The match mode options are:

Match Mode	Description
all	For this mode, a record only is returned if it contains all of the search terms. For example, if the end user types California red, then only records containing both "California" and "red" are included. This is the default mode. Note that if the CROSS_FIELD_BOUNDARY setting for the search interface is set to NEVER, then a record is only included if all of the terms occur in a single field. 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. For other values of CROSS_FIELD_BOUNDARY, the terms can be in different fields.
any	For this mode, a record is returned if it contains any of the search terms. 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.

Match Mode	Description
partial	For this mode, a record is returned based on the partial search rules for the selected search interface. Each search interface can be configured with either: • 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 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. For example, if the end user types <i>California red berry sweet</i>, and the search interface "Match at Least" rule is 2, then only records with at least two of those terms are included. 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. For example, if the end user types <i>California red berry sweet</i>, and the search interface "Omit at most" rule is 1, then only records with at least three of those terms are included. 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.
partialmax	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. So it first looks for records that match all of the search terms. If it finds any, it stops looking, and returns those records. 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. 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.
allany	For this mode, the search first looks for records that have all of the terms. If it finds any, it stops looking and returns those records. If none of the records have all of the search terms, then the search looks for records that have any of the search terms.

Match Mode	Description
allpartial	For this mode, the search first looks for records that have all of the terms. If it finds any, it stops looking and returns those records. If none of the records have all of the search terms, then the search changes to partial mode.
boolean	This mode allows end users to do a Boolean search. The Boolean search supports the following operators: • AND • OR • NOT • NEAR • ONEAR

(e) Use the **Search Within By Default** checkbox to determine whether to check the **Search Within** checkbox by default on the end user view.

(f) In the **Target Page** field, type the name of the page on which to apply the search.

For example, you could place the **Search Box** on one page, and a **Results Table** on a different page.

If you do not provide a page name, then the current page is used.

For information on configuring a page transition, see [Page transition syntax on page 119](#).

4. To remove a configuration, click the configuration row, then click **Remove Configuration**.
5. To select the default configuration for the component, click the **Default** radio button for that configuration.
6. To change the sort order of the list, click the heading of the column you want to sort by.
The sort order on the edit view also determines the order of the search configurations in the drop-down list on the **Search Box** component.
7. To save the changes to the list, click **Save Preferences**.
8. To exit the edit view, click **Exit**.

Configuring Search Box type-ahead suggestions

Each search configuration for a **Search Box** component can be configured to allow type-ahead suggestions. When type-ahead is enabled, the component displays attribute values that match the entered text while the end user types.

In order to use type-ahead suggestions, attribute search wildcarding must be enabled in the Endeca Server.

On the edit view for the **Search Box** component, to configure type-ahead suggestions for a search configuration:

1. In the list of search configurations, click the configuration you want to edit.

The type-ahead suggestions section for that configuration is displayed below the list.

Currently editing: default

☒ **Enable type-ahead suggestions**

Minimum characters to trigger suggestions:

Maximum suggestions per attribute:

Maximum total suggestions:

Show intermediate values: ☒

Type-ahead Attributes

Attribute Display Name ▲	☒
Price Range(PriceRange)	☒
P_Flavor	☒
Region	☒
Review Score(ReviewScore)	☒
Vintage	☒
Wine Type(WineType)	☒
Winery	☒

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2. To enable the type-ahead suggestions feature, check the **Enable type-ahead suggestions** checkbox.

For a new configuration, the box is checked by default. If you uncheck the box, then the remaining fields are hidden.

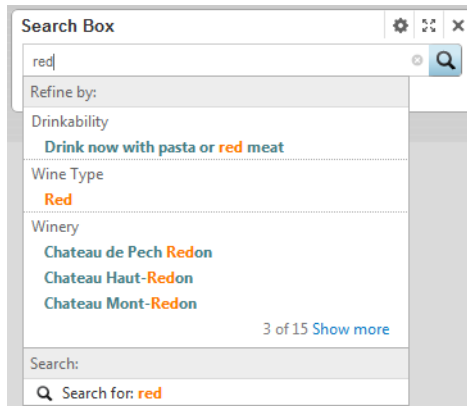
If the data source for the configuration does not have any search interfaces defined, then the checkbox is checked and locked.

3. 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.
4. In the **Maximum suggestions per attribute** field, set the maximum number of type-ahead suggestions to initially display for each attribute.

If more values are available for an attribute than are displayed, then a link displays to allow end users to see the other values.

5. In the **Maximum total suggestions** field, set the maximum total number of type-ahead suggestions for the search.

So for example if the maximum total suggestions is 5, then only the first 5 suggestions across all of the attributes 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.

6. To display the full path for hierarchical attributes, check **Show intermediate values**.
For example, if an end user types merlot into the file, 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**.
7. 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.
8. To save your changes, click **Save Preferences**.
9. To exit the edit view, click **Exit**.



Chapter 24

Data Visualization Components

These components provide a more detailed view of your data.

[Alerts](#)

[Chart](#)

[Map](#)

[Metrics Bar](#)

[Pivot Table](#)

[Tag Cloud](#)

Alerts

The **Alerts** component displays alert messages to notify users about specific values.

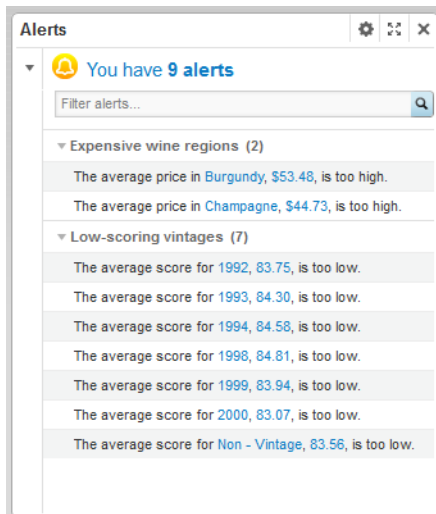
[About the Alerts component](#)

[Using the Alerts component](#)

[Configuring an Alerts component](#)

About the Alerts component

On the **Alerts** component, the alert messages are displayed based on values returned by EQL queries. The messages are intended to provide a quick view of unusual values in the data at a particular point in time.

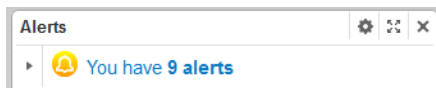


For example, alerts can be used to flag values that fall outside of a specific range.

Using the Alerts component

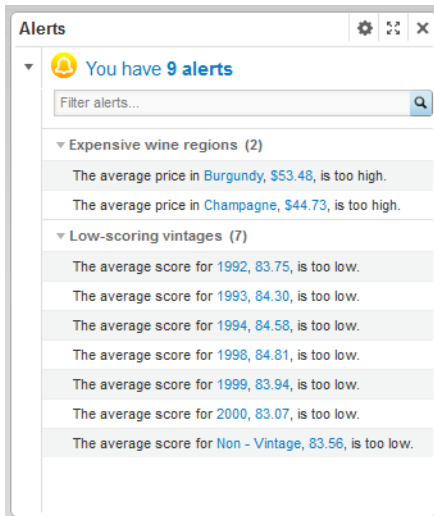
You can view and filter alerts, and may be able to use alerts to refine the application data.

When you first display the page, if there are alerts available, the **Alerts** component displays with a message indicating the number of alerts.

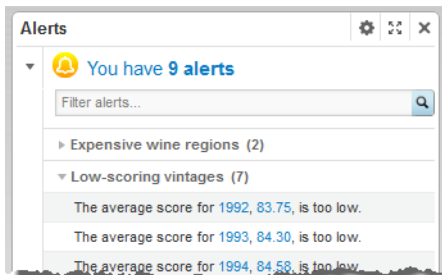


To display the list of the alerts, click the message.

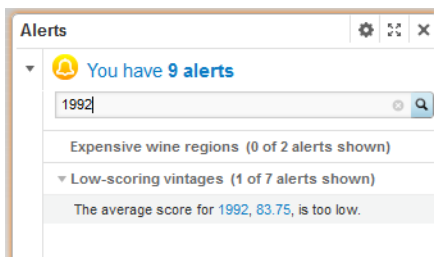
The alerts are divided into groups.



Each group may be configured to be expanded or collapsed by default. To expand or collapse the group, click the alert group name.



The **Alerts** component also can be configured to include a search box at the top of the component. If the search box is available, then as you type text into the box, the alerts list is filtered to only include alert messages that include the typed text.



If the alert is hyperlinked, then when you click the alert, the data is refined using the attribute values associated with the message. The attribute value is added to the **Breadcrumbs** component.

For example, if an alert is displayed because the average price of wines in the Champagne region is over \$50, then when you click the alert, the data is refined to only Champagne wines. Because the average price is a calculated value, and not an attribute value, you cannot use it to refine the data.

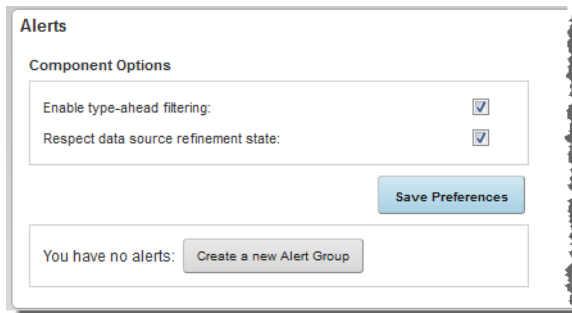
Configuring an Alerts component

The configuration for the **Alerts** component includes both general component options and the alert groups.

Setting the component options

On the edit view for the **Alerts** component, you can configure settings for filtering and data refinement.

For a new component, the edit view looks like:



To configure the component options:

1. Configure the checkboxes as follows:

Field	Description
Enable type-ahead filtering	If this checkbox is checked, then when end users display the list of alerts, there is a search box at the top to allow them to filter the list. If the box is not checked, then the search box is not displayed. This box is checked by default.
Respect data source refinement state	If this checkbox is checked, then the EQL query for the alert is only performed on the data for the current refinement. If the box is not checked, then the EQL query is performed on the entire data set. This box is checked by default.

2. To save the changes, click the **Save Preferences** button.

Note that the **Save Preferences** button does not affect the alert group configuration.

Creating an alert group

For an **Alerts** component, you must create at least one alert group.

About alert groups

Alerts are displayed within alert groups.

Each alert group requires an EQL query to retrieve a set of matching records. The records are grouped by one or more attributes.

If the query does not return any records, then there are no alerts for that alert group, and the group does not display to end users.

If there are matching records, then there is a separate alert for each attribute value for the group-by attribute. For example, if an alert is being displayed when the average price of wine within a single region is greater than \$50, then there is a separate alert for each region.

Adding an alert group

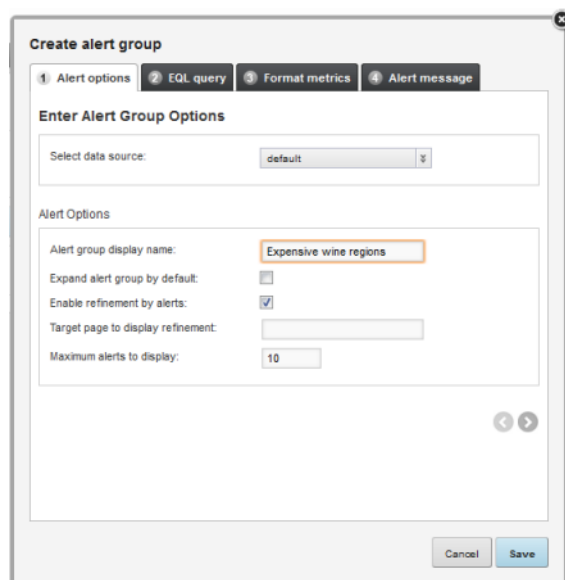
When you first add an **Alerts** component, it has no alert groups.

To add a new alert group, click the **Create a new Alert Group** button.

The **Create Alert Group** dialog is displayed.

Configuring the alert options for an alert group

The **Alert options** tab for an alert group contains general configuration options for the alert group.



The screenshot shows the 'Create alert group' dialog box with the 'Alert options' tab selected. The dialog has four tabs: 'Alert options', 'EQL query', 'Format metrics', and 'Alert message'. The 'Alert options' tab contains the following fields and controls:

- Select data source:** A drop-down menu with 'default' selected.
- Alert group display name:** A text input field containing 'Expensive wine regions'.
- Expand alert group by default:** An unchecked checkbox.
- Enable refinement by alerts:** A checked checkbox.
- Target page to display refinement:** An empty text input field.
- Maximum alerts to display:** A text input field containing '10'.

At the bottom of the dialog are 'Cancel' and 'Save' buttons. Navigation arrows are visible at the bottom right of the main content area.

To configure the alert options:

1. From the **Select data source** drop-down list, select the data source to use for the EQL query.
The drop-down list only contains data sources belonging to the application's data source family.

2. In the **Alert Options** section:

Field	Description
Alert group display name	Required. In the field, type the name of the alert group. This is the name that displays to end users.
Expand alert group by default	If this checkbox is checked, then when end users display the alerts list, the alert group is automatically expanded to show the individual alerts. If the box is not checked, then the alert group is closed. By default, this box is not checked.
Enable refinement by alerts	If this checkbox is checked, then the alert messages are hyperlinked. When end users click the alert message, the data is refined to only show the records that the alert applies to. By default, this checkbox is checked. Note that end users can only refine the data using attributes that are present in the physical data. If your EQL query for the alert only contains derived or aliased attributes, then end users cannot use the alert to refine the data, and the alert messages are not hyperlinked. If you uncheck the box, then the Target page to display refinement field is disabled.
Target page to display refinement	If you are allowing end users to use the alert message to refine the data, then in this field, type the name of the page to display when users click the alert message. If you do not provide a page name, then the end user stays on the same page. For information on configuring a page transition, see Page transition syntax on page 119.
Maximum alerts to display	Type the maximum number of alerts to display in the alert group. If the number of alerts is greater than this number, then end users cannot see the remaining alerts. The default value is 10.

Configuring the EQL query for an alert group

On the **EQL query** tab, you configure the EQL query for the alert group. If any records match the query, then alerts are displayed.

To configure the EQL query:

1. In the text area, enter the EQL query.

When entering the query, remember the following:

- All attribute names, including names of derived attributes, must be NCName-compliant. They cannot contain spaces or special characters.
- All statement and derived attribute names must be unique across all of the alert groups.
- Do not alias attributes from the physical data.

For example, if the data source includes a "Region" attribute, then don't define the attribute under a different name, for example:

```
SELECT Region AS RegionList
```

End users can only refine data using attributes that are present in the physical data. If you alias an attribute, then end users cannot use it to refine the data.

- Do not use the name of an attribute from the physical data source as the name of a derived attribute.

For example, if you are creating a derived attribute that averages the values of an existing "Sales" attribute, do not define the new attribute as:

```
SELECT avg(Sales) as Sales
```

Instead, use a different name, for example:

```
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.

- After you enter the query, to validate the query, click **Test EQL**.

If the query is not valid, then an error message is displayed.

If the query is valid, then a "success" message is displayed, and the **Load** button is enabled.

Enter an EQL query:

return highPrice as select avg(P_Price) as avgPrice group by Region having avgPrice > 40

!

Success! Your query is valid.
 Click the Load button to view the available data.

Statement 'highPrice' (2 total records)

Region	avgPrice
Burgundy	53.483120885278

- Click the **Load** button.

The dialog is updated to display:

- The metrics item(s) for the query. These are the values you are using for the comparison to determine whether to display an alert.
- The group-by items for the query. This determines the number of alerts that display for the group. Below the full list of group-by items is the list of items that can be used for refinement.

Enter an EQL query:

return highPrice as select avg(P_Price) as avgPrice group by Region having avgPrice > 40

Your EQL query loaded successfully.

Metrics

avgPrice

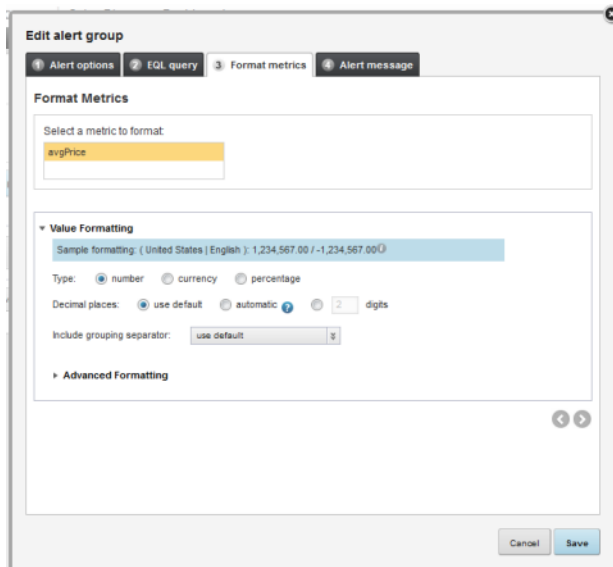
Group Bys

Region

Group-by drill down:
Region

Configuring the display of metrics values for an alert group

The alert message can include the metrics values as dynamic values. You use the **Format metrics** tab to configure how to display those values in the alert message.



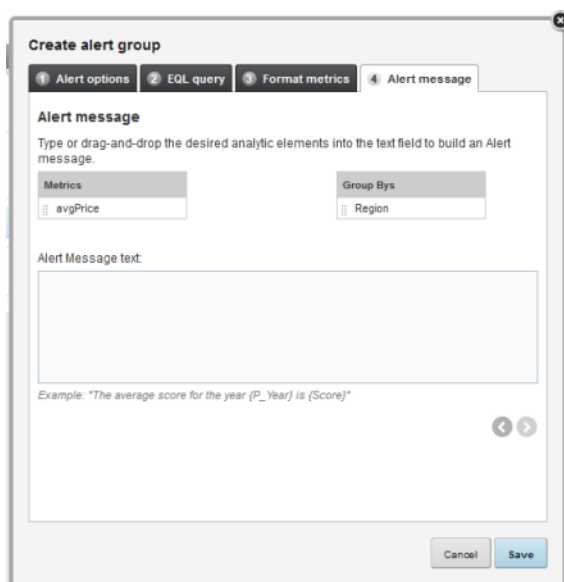
At the top of the tab is the list of metrics values. To configure the display for a specific value:

1. Click the metrics value you want to format.
2. Use the **Value Formatting** section to format the selected value.

For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 115](#).

Configuring the alert message for an alert group

You use the **Alert message** tab to configure the text of the alert message for the alert group.



To configure the alert message for an alert group:

1. In the text field, type the text of the message.
2. To add a metric or group-by value, you can either:
 - Drag the value from the metrics or group-bys list
 - Type the value manually. When typing the value manually, remember to enclose the value in braces. For example, {avgPrice}.

Create alert group

1 Alert options 2 EQL query 3 Format metrics 4 Alert message

Alert message

Type or drag-and-drop the desired analytic elements into the text field to build an Alert message.

Metrics

- avgPrice

Group Bys

- Region

Alert Message text:

The average price in {Region}, {avgPrice}, is too high.

Example: *The average score for the year {P_Year} is {Score}*

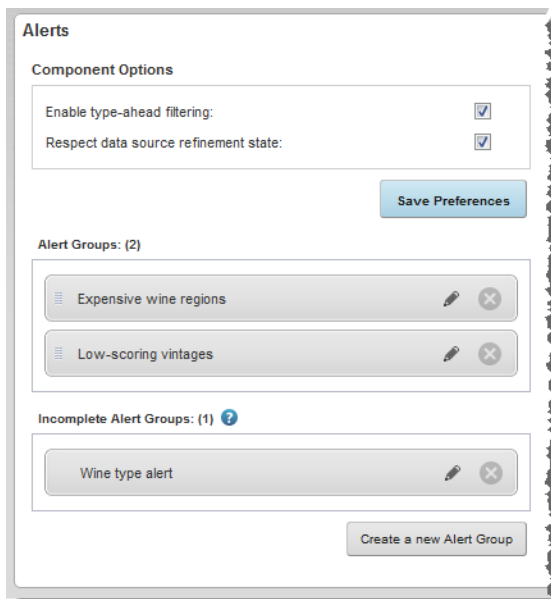
Cancel Save

Saving changes to an alert group

To save an alert group, on the alert group dialog, click **Save**.

If the alert group is complete, then it is displayed on the edit view under the **Alert Groups** heading. Complete alert groups can be displayed to end users on the **Alerts** component.

If the alert group is not complete (for example, if it doesn't have a valid EQL query or an alert message), it is displayed under the **Incomplete Alert Groups** heading, and is not displayed to end users.



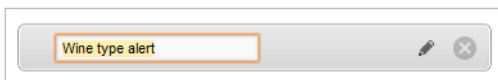
Editing an alert group

After creating an alert group, you can make changes to the alert group configuration.

To simply edit the display name of the alert group, then:

1. On the **Alerts** component edit view, double-click the group name.

The group name becomes editable.



2. Type the new name, then press **Enter**.

To change the order in which the alert groups are displayed, drag each alert group to the correct location in the list.

To make more significant changes to an alert group:

1. On the **Alerts** component edit view, click the edit icon for the alert group.

The **Edit alert group** dialog is displayed.

2. Make the required changes.

If you change the selected data source, then you must retest and reload the EQL query.

Studio preserves as much of the alert group configuration as possible. For example, if the updated query uses the same metrics value, then the metrics formatting is preserved.

3. To save the changes, click **Save**.

Deleting an alert group

You can also delete alert groups from an **Alerts** component.

To delete an alert group from an **Alerts** component:

1. On the **Alerts** component edit view, click the delete icon for the alert.
A message displays to confirm whether you want to delete the group.
2. On the confirmation prompt:
 - To delete the alert group, click **Delete Group**. You cannot undo this change.
 - To not delete the group, click **Cancel**.

Chart

The **Chart** component displays a graphical chart based on the application data.

[About the Chart component](#)

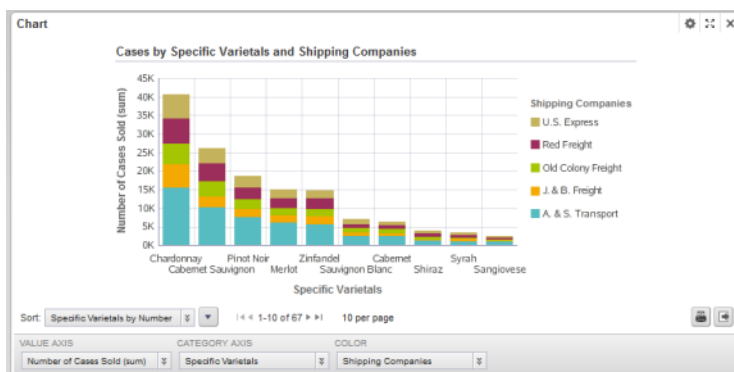
[Using the Chart component](#)

[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:

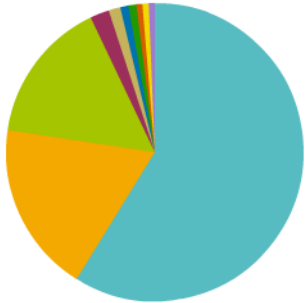
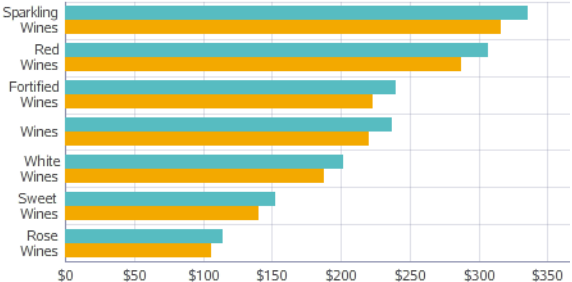
Chart Type	Description
Pie chart	A pie chart shows a single series metric aggregated across a group dimension.  For example, a pie chart could show the number of transactions for each region. Pie charts are good for doing a quick assessment of how each value contributes to the whole. The values are displayed as a pie wedge for each group dimension value. The size of the wedge reflects the relative size of the metric value.
Bar chart (basic)	Basic bar charts show one or more series metric values aggregated across a single group dimension.  For example, a bar chart could show both the total sales and projected sales for each region. Bar charts are good for more precise comparisons of one or more values. On a basic bar chart, for each group dimension value, the series metric values are displayed as a cluster of bars. 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. 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.

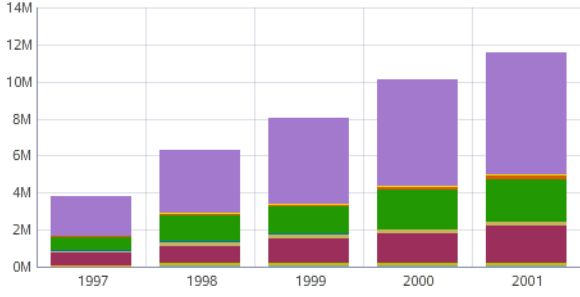
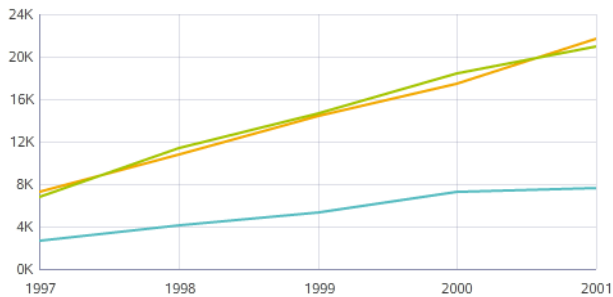
Chart Type	Description
Bar chart (stacked)	Like basic bar charts, stacked bar charts also show one or more series metric values aggregated across a single group dimension. However, instead of displaying a cluster of bars for each metric, the chart creates sections within a single bar.  The stacked bar chart is useful if it is important to see the total value for the series metric.
Line chart	Line charts show one or more series metric values aggregated across a single group dimension.  For example, a line chart could show the change in total sales and the change in sales margins over several years. Line charts are usually designed to show changes or trends. For each group dimension value, the series metric value is a data point on the line. Each metric is plotted on a separate line. 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. Each combination of series metric and series dimension displays as a separate line on the chart.

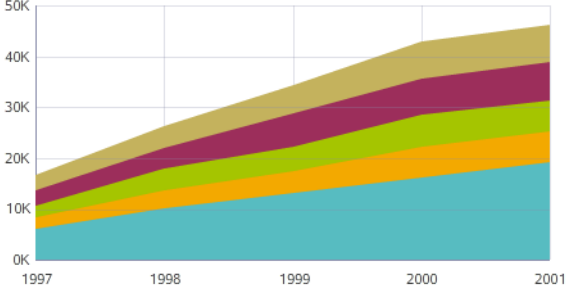
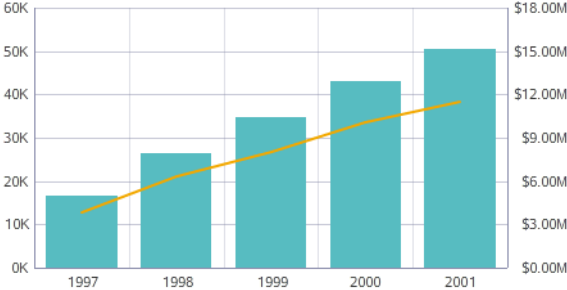
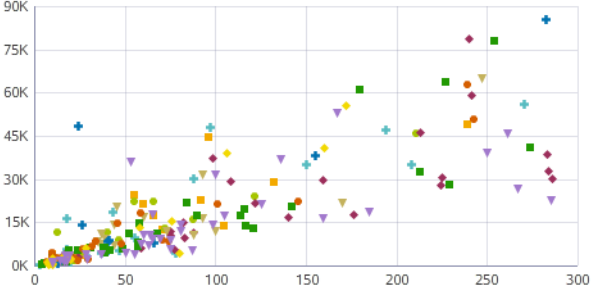
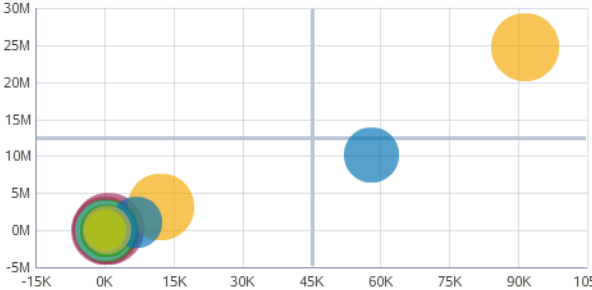
Chart Type	Description
Area chart	Area charts are similar to line charts, but display a shaded area instead of a single line.  For each group dimension value, the series metric value is a data point along the top of the shaded area. Multiple metrics are represented by multiple stacked shaded areas. Each series metric value may be subdivided further using a series dimension.
Bar-Line chart	Bar-Line charts show two or more series metric values aggregated across a single group dimension.  The values for some metrics are displayed as bars, and the values for others as lines. In the single-axis version of the chart, both the bars and lines are plotted against the left vertical axis. 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.

Chart Type	Description
Scatter chart	Scatter charts display data points, with each point representing a dimension value. 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. The location of each data point corresponds to the values of the X-axis and Y-axis metrics.  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.
Bubble chart	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. 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.  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.

Using the Chart component

You may be able to change the data displayed on the chart, and can export and print the chart.

Selecting and sorting the values to display on the chart

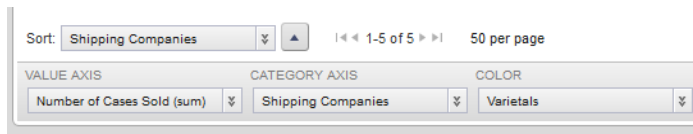
Each chart may be configured with multiple options for the specific metrics and dimensions to display on the chart. The chart may also allow you to change the chart sort order, and to page through the chart data.

To select the data to display on the current view:

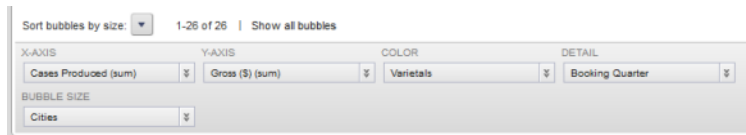
1. To change the dimensions and metrics displayed on the chart, from the drop-down lists at the bottom of the chart, select the specific items to display.

The number of drop-down lists varies based on the type of chart and whether an item has more than one option.

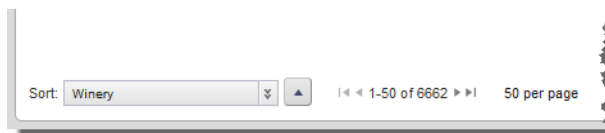
For example, for a Bar chart, you could see up to three drop-down lists:



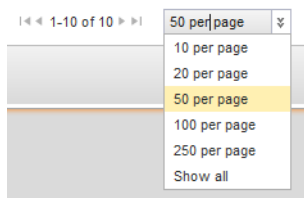
For a Bubble chart, you could see up to five drop-down lists:



2. 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.
3. If the number of results is too large to display, then if the chart supports pagination, you can page through the chart results.



You may also be able to select the number of results per page. If this option is available, then when you click the results per page, a drop-down list of available options is displayed.



Highlighting 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 group and series dimensions are configured to allow refinement, then:

- When you click a data point on the chart, the data is refined by both the group and series dimension values.
- When you click a label on the category axis, the data is refined by the group dimension value only.
- When you click a legend entry, the data is refined by the series dimension 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 **Breadcrumbs** component.

If a chart dimension is configured to allow cascading, then when you refine the data using that dimension value, the chart may be updated to use a different dimension. For example, if the chart displays values grouped by country, when you refine the data by a specific country, the chart may be updated to group the values by state for the selected country.

Printing the chart

You can print the currently displayed chart.

To print the chart:

1. Click the print icon at the bottom right of the chart.



A printable version of the chart is displayed in a separate browser window, as well as the browser's print dialog.

2. Select the printing options.

Exporting the chart

You can export the currently displayed chart to a spreadsheet. The spreadsheet contains columns for the current group dimension, series dimension, and metric.

To export the chart:

1. Click the export icon at the bottom right of the chart.



2. On the export dialog, select whether to view or download the exported file.

Configuring the Chart component

For the **Chart** component, you can configure the data source, chart data, and chart display options.

Selecting the view for the chart

On the **Data Selection** tab, you select the view to use as the source of the chart data. You also determine the maximum number of records to display on the chart.

The screenshot shows the 'Data Selection' tab of a configuration window. At the top, there are four tabs: 'Data Selection' (active), 'Chart Type', 'Chart Configuration', and 'Style Options'. Below the tabs, a header bar indicates 'Your data selection: Data source: adventure works View: Base'. The main area contains a table with two columns: 'View' and 'View Description'. The 'View' column has radio buttons next to each entry. The 'View Description' column has information icons. Below the table, there are two text input fields: 'Maximum number of records to display' (with a value of 1000) and 'Maximum number of records exceeded message'. A message box below these fields states: 'The number of records ({records}) exceeds the maximum threshold ({limit}) configured for this component. To be able to view the data, you need to filter your current results.'

View	View Description
☒ Base	
☐ Employees	Employee Information
☐ Products	Product Sales Information rolled up by Month
☐ Transactions	Sales Transaction Line Items

Maximum number of records to display: 1000

Maximum number of records exceeded message: The number of records ({records}) exceeds the maximum threshold ({limit}) configured for this component. To be able to view the data, you need to filter your current results.

To select the view:

1. In the list of views, to display the available metrics and dimensions for a view, click the information icon next to the view name.
2. To select the view to use, click the radio button next to the view.
If you had already configured the chart, then when you select a different view, you are prompted to select whether to try to maintain the existing configuration with the new view.
3. 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.
4. 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.

For some chart types, you also select the specific chart subtype within the selected type.

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:

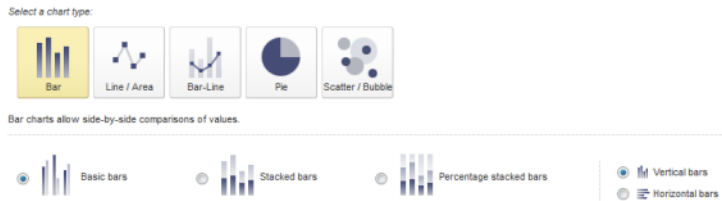


Chart Subtype	Description
Basic bars	Displays each combination of series metric and series dimension values as a separate bar. The bars are clustered for each group dimension value.
Stacked bars	Displays a single bar for each group dimension value. Each bar contains a section for each combination of series metric and series dimension values.
Percentage stacked bars	Displays a single bar for each group dimension value. The bars are all the same height. Each bar contains a section for each combination of series metric and series dimension values. The size of each bar section reflects the percentage of the total series metric value for that combination of series metric and series dimension. You would use this if you are more interested in the relative values than the exact values.

(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:

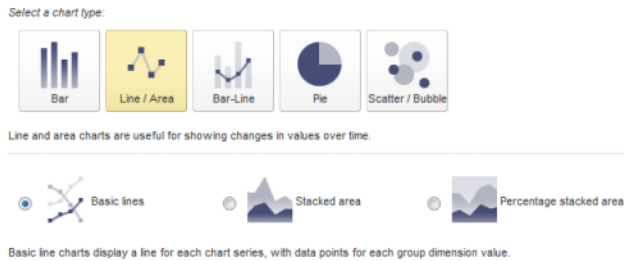
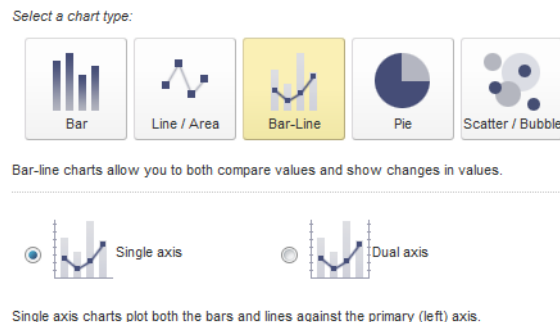


Chart Subtype	Description
Basic lines	Displays a separate line for each combination of series metric and series dimension values. Each line has a data point for each group dimension value. If there are missing data points, then the line may have breaks or may be missing.
Stacked area	Displays a shaded area showing the total of the series metric values for each group dimension value. The shaded area is divided into sections for each combination of series metric and series dimension values.
Percentage stacked area	Displays a shaded area. The height of the shaded area is uniform. 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.

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.

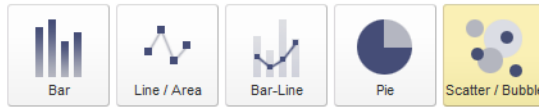


For a dual axis chart, the bars are plotted against the primary (left) value axis, and the lines are plotted against the secondary (right) value axis. Dual-axis charts are used to compare trends between metrics that have a different scale. For example, the gross sales may be in the millions of dollars, 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:

Select a chart type:



Scatter and Bubble charts allow you to compare multiple metrics.



Scatter charts plot data points against horizontal (x) and vertical (y) value axes.

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.

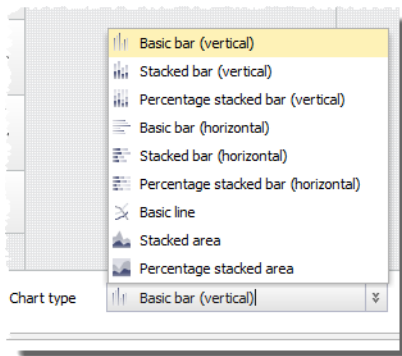
The **Chart Configuration** tab contains a **Chart type** drop-down list containing only the fully compatible chart types.

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.

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	Bar and Line/Area charts can display multiple metrics at the same time. Each option in the end user Metric drop-down list contains one or more metrics. Bar and Line/Area charts support both group and series dimensions.

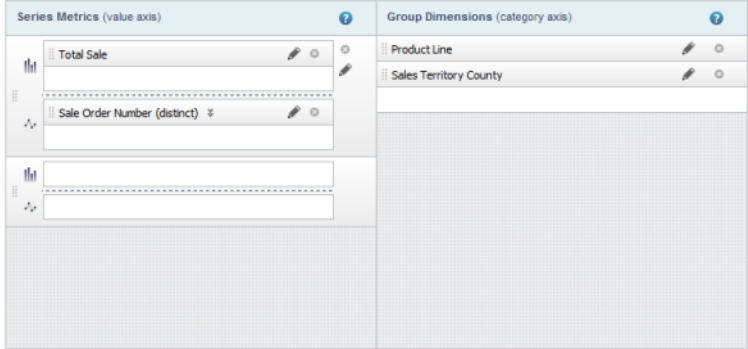
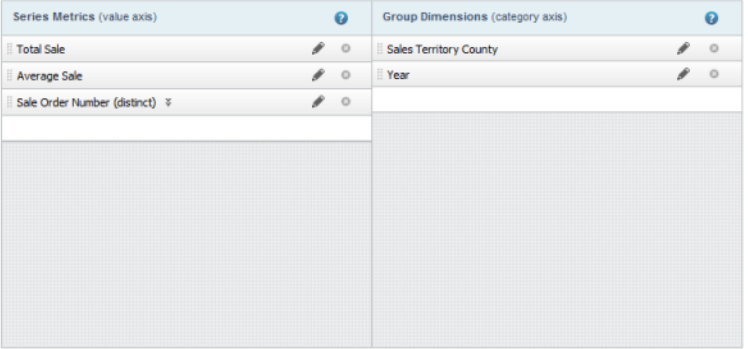
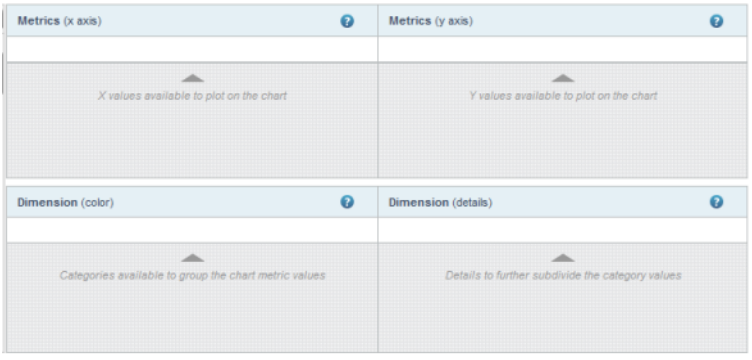
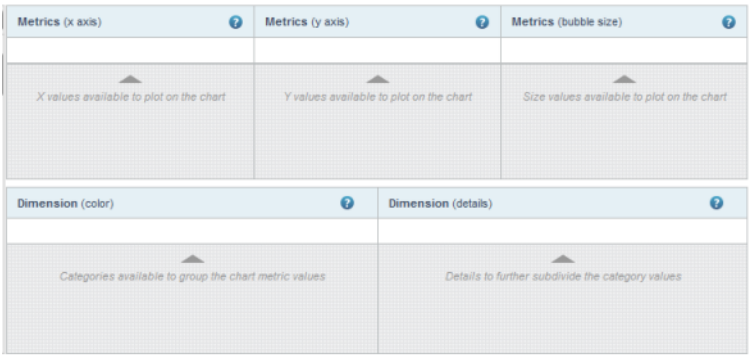
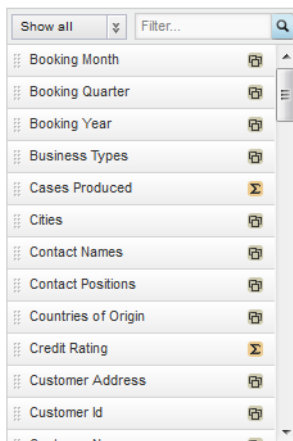
Chart Type	Available Options
Bar-Line	Bar-Line charts can display multiple bar and line metrics at the same time. Each option in the end user Metric drop-down list contains one or more bar metrics and one or more line metrics. Bar-Line charts do not support series dimensions. 
Pie	Pie charts can display one metric at a time. Pie charts do not support series dimensions. 

Chart Type	Available Options
Scatter/ Bubble	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. Bubble and scatter charts support color and detail dimensions.  Bubble charts also support a third metric, the bubble size metric. Only one size metric can be used at a time. 

The available metrics and dimensions are displayed in the list at the left of the **Chart Configuration** tab. The items in the list are marked with an icon to indicate whether they are a metric or a dimension.



The list also contains system metrics for displaying counts of records or values.

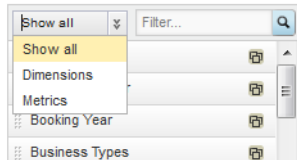


Metric	Description
Number of records	The number of records in the underlying data set that have the current dimension values. For example, the Chart values are grouped by the Product Line dimension. A user adds a system metric to show the number of records for each dimension value. There are 15 records with Apparel as the product line. So for the Apparel Product line, the number of records is 15.
Number of records with values	The number of records that have a value (other than NULL) for a selected attribute for the current dimension values. When you select this option, you are prompted to select the attribute to use. For example, the Chart values are grouped by the Product Line dimension. A user adds a system metric show to the number of records with values for Color. Of the 15 records with 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. So for the Apparel product line, the number of records with values for the Color attribute is 7.
Number of unique values	The number of unique values (other than NULL) for a selected attribute for the current dimension values. When you select this option, you are prompted to select the attribute to use. For example, the Chart values are grouped by the Product Line dimension. A user adds a system metric to show the number of unique values for Color for each dimension value. Of the 15 records with 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. So for the Apparel product line, the number of unique values for Color is 2.

Some metrics may be predefined, meaning that they have a built-in aggregation method that you cannot change.

If the metric is not predefined, then when you add it to the chart, a default aggregation method is assigned. The display name for the metric is the name of the attribute followed in parentheses by the aggregation method. For example, **Sales (sum)**. You can then select a different aggregation method.

You can use the filter field or data type drop-down list to find a specific item.



To populate the available metrics and dimensions:

1. 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.
2. 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.
3. 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.
4. To remove an item from a list, click its delete icon.

Selecting the metric aggregation method for a metric

For metrics, you can select the aggregation method.

The aggregation method is the function used to consolidate the metric values into a single value for each group dimension value, or for each combination of group and series dimension values.

For example, a view contains a list of sales transactions, including the sales amount and the country. If the chart is grouped by country, then to get a single sales amount value for each country, you might add together all of the values for each country, calculate the average of the values for each country, or select the largest value for each country.

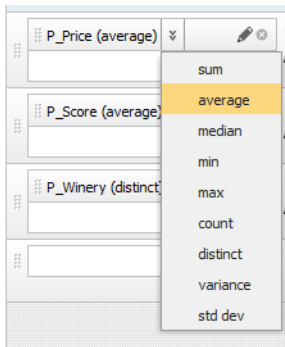
For details on the available aggregation methods, see [Aggregation methods and the data types that can use them on page 64](#).

You can select the aggregation method directly from the metrics list, or from the edit dialog.

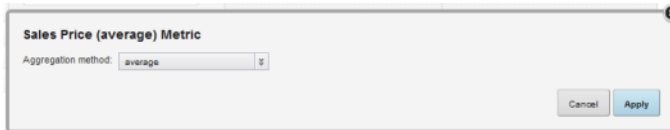
To configure a metric:

1. From the **Chart Configuration** tab, to select a different aggregation method for a non-predefined metric:
 - (a) Click the drop-down arrow next to the metric name.

- (b) From the drop-down list, select the aggregation method.



2. To use the edit dialog to select the aggregation method:
 - (a) Click the edit icon for the metric.
 - (b) From the **Aggregation method** drop-down list, select the aggregation method.



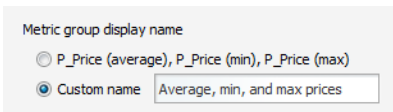
- (c) Click **Apply**.

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:

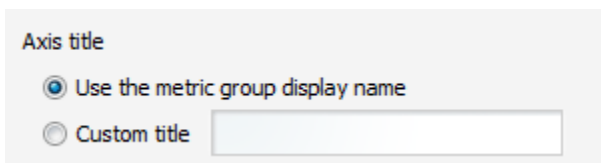
1. In the **Series Metrics** list, click the edit icon for the metric group.
2. On the **Metric Group** dialog, under **Metric group display name**, the default setting uses a comma-separated list of the series metric display names. To provide a custom display name for the group:
 - (a) Click the **Custom 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.



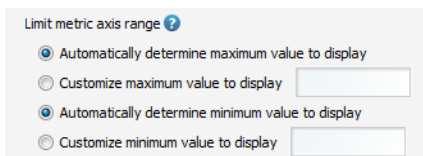
4. Under **Axis title**, the default setting uses the metric group display name as the axis title. To provide a custom axis title:



- (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.

Axis and Tooltip Formats

Value Formatting

Sample formatting (United States | English): \$1.2345M / (\$1.2345M)

Type: ☒ number ☐ currency ☐ percentage

Decimal places: ☒ use default ☐ automatic ☐ 0 ☐ digits

Automatic number scaling: ☒ on ☐ off

Include grouping separator:

Advanced Formatting

For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 115](#).

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.

If a dimension is hierarchical, then when the dimension value is used for refinement, the **Chart** component is displayed using the values from the next level in the hierarchy. For example, for the Wine Type dimension, if a user clicks the Red dimension value on the chart, the next level of values under Red - Bordeaux, Merlot, Pinot Noir, etc. - are displayed.

If the dimension allows cascading, then when the data is refined so that only one dimension value is displayed, the chart can be updated to use a different dimension.

When there are no more dimensions to cascade to, the chart remains on the last dimension in the cascade.

For example, a chart by default displays sales totals grouped by country. The Country group 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 chart displays sales totals grouped by state (within the United States).
2. If users then refine the data to only show records for California, the chart displays sales totals grouped by supplier (within California).
3. If users then refine the data by a specific supplier, the chart displays a single value 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 **Guided Navigation** component, then in the **Chart** 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, then 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 Oracle 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.

To configure a dimension:

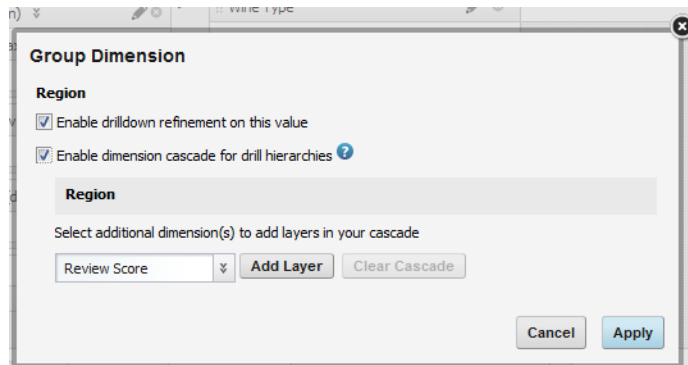
1. On the **Chart Configuration** tab, click the edit icon for the selected dimension.
2. To allow users to refine the data using the dimension values, check the **Enable drilldown refinement on this value** checkbox.

If the checkbox is checked, then when end users click a data point (such as a bar or pie wedge), a category axis label, or a legend entry on the chart, the selected data source is refined to only include records with that dimension value.

Note that end users can only use the dimension for refinement if it corresponds to a field in the physical data. If the dimension is derived from or aliased from a physical field, then end users cannot use it for refinement.

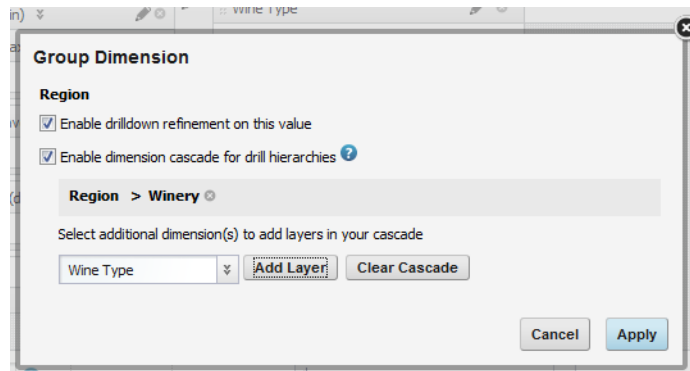
3. To allow the dimension to cascade, check the **Enable dimension cascade for drill hierarchies** checkbox.

The cascade configuration is displayed. The 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.



4. If you are allowing the dimension to cascade:
 - (a) 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.



- (b) To remove a layer from the cascade, click the delete icon next to that layer.
 - (c) To clear the entire cascade, click **Clear Cascade**.
5. To save the dimension configuration, click **Apply**.

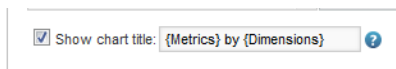
Configuring the display of the chart title

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.
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**.

- 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.

Sorting / Pagination configuration

Default category axis sort:
category axis names - ascending

☒ Enable end user sorting

☒ Limit number of groups displayed

☐ Fixed number of groups: 50

☒ Enable end user to change number of groups

Number of groups options (use commas to separate options):
10,20,50,100,250

Default number of groups: 50

☒ Enable pagination

Cancel Apply

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.

Sorting / Pagination configuration

Default bubbles sort:
size metric values - descending

☒ Enable end user sorting

☒ Limit number of bubbles displayed

☐ Fixed number of bubbles: 50

☒ Enable end user to change number of bubbles

Number of bubbles options (use commas to separate options):
10,20,50,100,250

Default number of bubbles: Show all

Cancel Apply

- To allow end users to change the sort order, check the **Enable end user sorting** checkbox.
- 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.

- If you are limiting the number of results displayed at a time, then to not allow users to change the displayed number of items:
 - 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**.

Configuring other chart display and style options

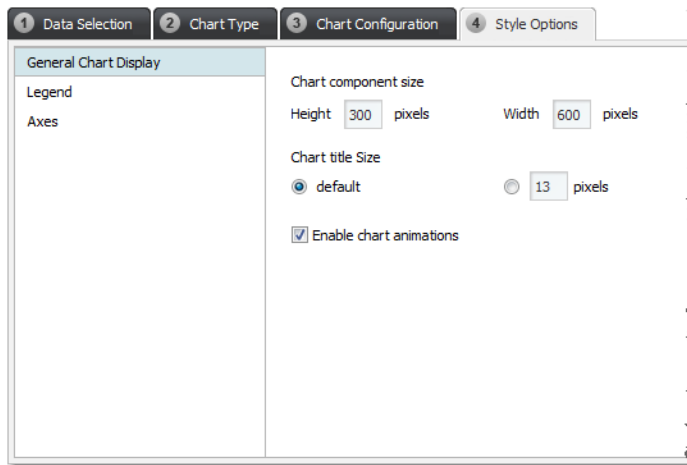
From the **Style Options** tab, you can configure the chart size, legend, and axis settings.

Configuring general chart display

The chart edit view includes settings to configure the size of the **Chart** component, the chart title font size, 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.



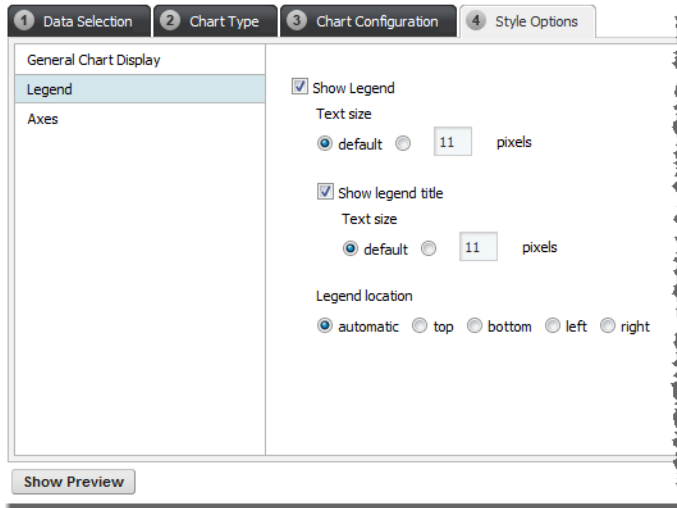
2. Under **Chart component size**:
 - (a) In the **Height** field, type the height in pixels for the component.
 - (b) In the **Width** field, type the width in pixels for the component.
3. Under **Chart title**, to set the size of the chart title text:
 - To use the default size, click the **default** radio button.
 - To set a custom size, click the other radio button, then in the field, type the size in pixels.
4. 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**).

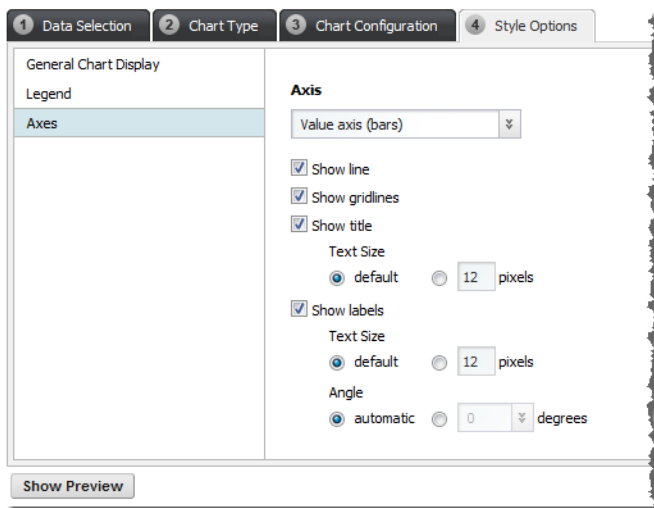
If the legend is at the left or right, then it becomes scrollable if there are too many items to display at once. Legends above or below the chart do not scroll.

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.



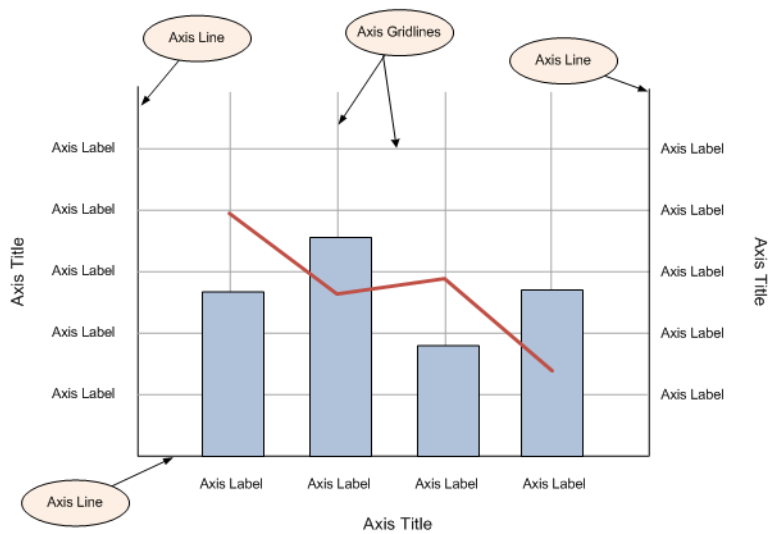
2. From the **Axis** drop-down list, select the axis you want to configure.

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
Show labels	If this checkbox is checked for an axis, then labels are displayed on the axis. 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. If you are displaying the axis labels, then: - 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. If you do not have Studio automatically determine the angle, then the available values are 0, 90, and 270. The angles work as follows: Vertical Axis Horizontal Axis

Previewing the chart display

Once you have completed the basic configuration, you can use the buttons at the bottom of the edit view to display a preview of the chart.

On the edit view, to display the preview, click **Show Preview**. If the current configuration is incomplete, for example if you haven't selected any group dimensions or series metrics, then the button is disabled.

Note that because the preview is a live preview of the actual data, if the query takes a long time to run, it may take a while for the preview to display.



To update the preview to reflect updates to the chart configuration, click **Update**.

To hide the preview, click **Hide Preview**.

Saving the chart configuration

To save the chart configuration, click **Save**.

To revert any changes since the last save, click **Revert to Last Save**.

To exit the edit view, click **Exit**.

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*.

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 source 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)	Suggested Price (avg) Actual Price (avg)
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:

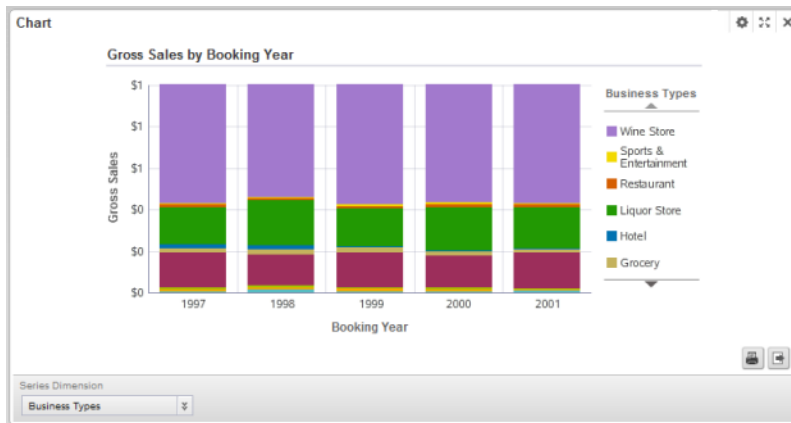
Chart Setting	Value
Chart type (Subtype)	Bar (Stacked Vertical)
Series metric (aggregation)	Gross Sales (sum)
Group dimension	Booking Year
Series dimension	Business Types
Sorting	Group dimension A to Z

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 Sales (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.



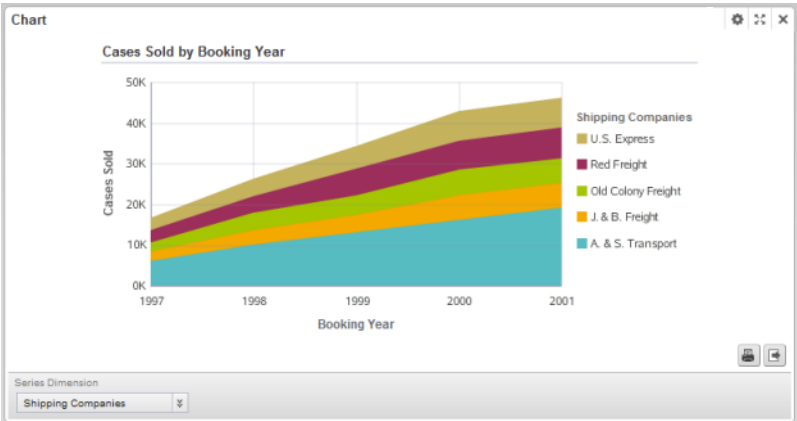
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Line
Series metric (aggregation)	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:

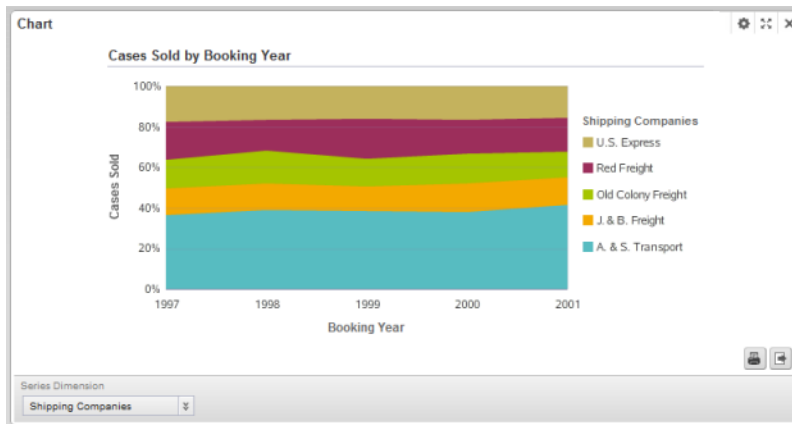
Chart Setting	Value
Chart type (Subtype)	Area (Stacked)
Series metric (aggregation)	Cases Sold (sum)
Group dimension	Booking Year
Series dimension	Shipping Companies
Sorting	Group dimension A to Z

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.



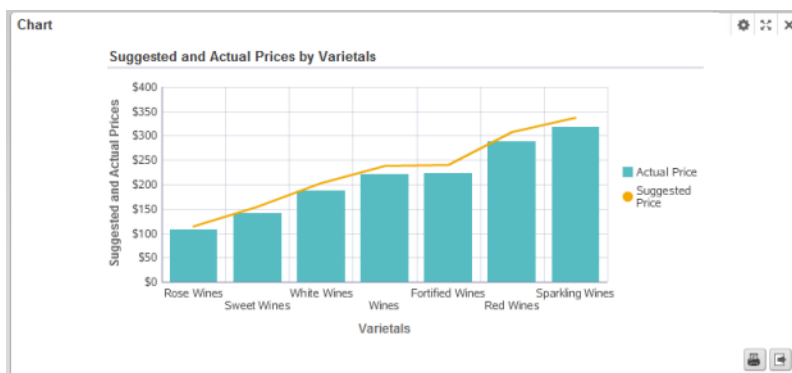
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Area (Percentage Stacked)
Series metric (aggregation)	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)	MSRP (avg)
Line series metric (aggregation)	Actual Price (avg)
Group dimension	Varietals
Sorting	First 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.



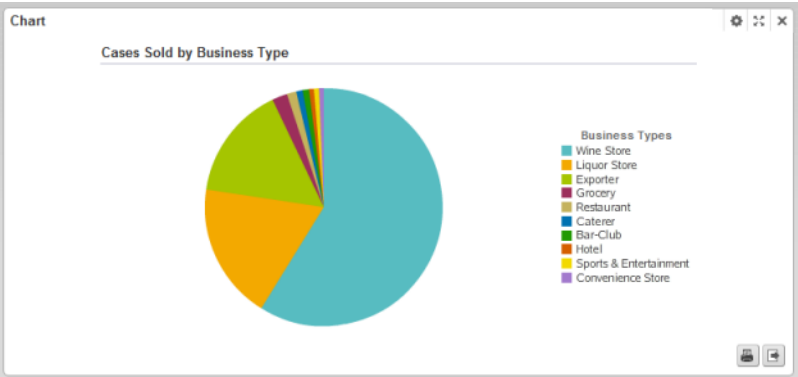
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Bar-Line (Dual axis)
Bar series metric (aggregation)	Cases Sold (sum)
Line series metric (aggregation)	Gross Sales (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.



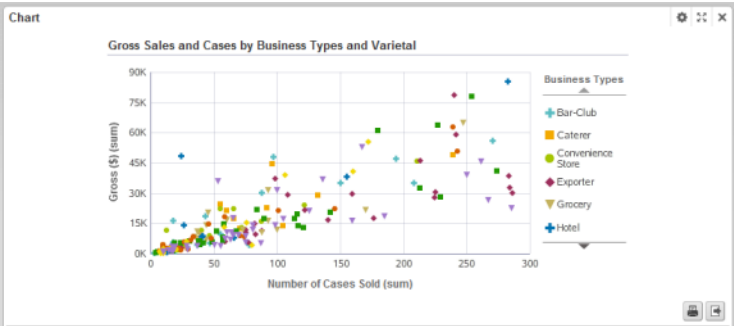
The configuration for this chart is:

Chart Setting	Value
Chart type (Subtype)	Pie
Series metric (aggregation)	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.



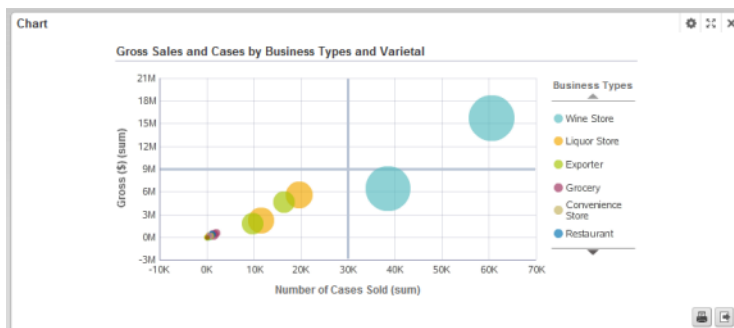
The configuration for this chart is:

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)	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

Chart Setting	Value
Sorting	Size metric descending

Map

The **Map** component displays one or more sets of geographic locations.

[About the Map component](#)

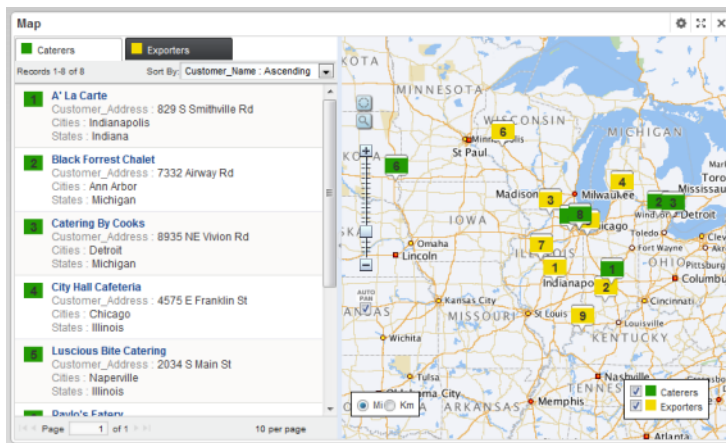
[Using the Map component](#)

[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.

The component contains a list of locations on the left, and a map on the right. On the map itself, colored pins mark the locations displayed in the list.



The locations may represent the full data set, or a set of locations generated from an EQL query. For example, the component could display the locations of supplier warehouses in relation to the locations of outlet stores.

Using the Map component

You use the **Map** component to view geographic locations.

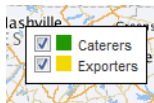
Selecting the sets of locations to display

Each map may be associated with multiple sets of locations. You can update the map to show or hide each set.

In the navigation area on the left, each set of locations is displayed on a separate tab.

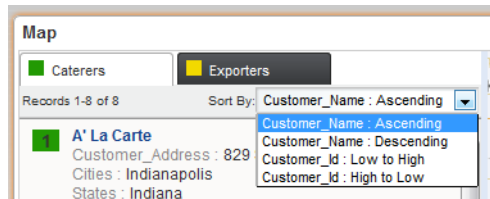
On the map, the pins are color coded to reflect the location set that they belong to. For example, the map pins for supplier warehouses may be blue, and the pins for retail stores red.

On the map is the list of location sets. To display a set of locations, check the checkbox. To hide a set of locations, uncheck the checkbox.



Sorting a set of locations

If you can sort a set of locations, then at the top of the list is a drop-down list containing the sorting options.



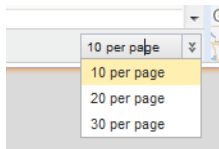
To change the display order of the location set, select the sort option from the drop-down list.

If you are not able to sort the location list, and a default sort order has not been configured, then the sort order may be affected by a search. If the associated search interface uses relevance ranking, then when you submit the search, the locations are displayed in order by search relevance.

Navigating through a set of locations

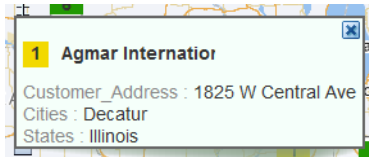
The map displays the pins for the locations displayed on the current page of the list. You use the pagination tools to display the next or previous page of locations.

You also may be able to select the number of locations to display on each page. From the **Records Per page** list, select the number of records to display.



Displaying details for a location

On the map, to display additional details about a location, click the map pin for that location, or click the location list item.



The attribute values may be hyperlinked to allow you to refine the data using the value. The selected value is then added to the **Breadcrumbs** component.

The top value may be configured to allow you to populate a **Record Details** component with the details for that location.

Using text and range searches to find specific locations

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.



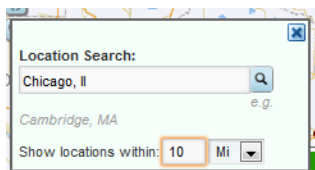
Note: The version of MapViewer used by the component may be limited to selected geographic areas. If you try to do a text search based on a location outside those geographic areas, then an error is displayed.

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 **Breadcrumbs** 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 **Breadcrumbs** component.

If the **Auto Pan** checkbox is checked, the map shifts automatically to display all of the pins for the first page of results.

Configuring the Map component

The **Map** component configuration includes options for pagination, search options, and setting up the lists of locations. There are also Framework Settings for setting up the connection to an Oracle Map Viewer instance.

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 Studio instance 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 instance does not have Internet access, then you will need to change these settings.

Framework Setting	Description
df.mapLocation	The URL for the MapViewer eLocation service. The eLocation service is used for the text location search, to convert the location name entered by the user to latitude and longitude. By default, this is the URL of the global eLocation service. 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. If this setting is not "None", and Studio is unable to connect to the specified URL, then Studio disables the text location search. Studio then continues to check the connection each time the page is refreshed. When the service becomes available, Studio enables the text location search.
df.mapViewer	The URL of the MapViewer instance. By default, this is the URL of the public instance of MapViewer. If you are using your own internal instance of MapViewer, then you must update this setting to connect to your MapViewer instance.
df.mapTileLayer	The name of the MapViewer Tile Layer. By default, this is the name of the public instance. If you are using your own internal instance, then you must update this setting to use the name you assigned to the Tile Layer.

Configuring the filter and search options for the map

On the **Map** component edit view, the **Geospatial Settings** section contains settings to determine whether end users can search or filter the locations.

Geospatial Settings

Geospatial Settings

☒ Enable geospatial text search

☒ Enable geospatial range filtering

Default Units: Mi

Geospatial filtering attribute: LatLong

To configure the search and filter settings:

1. To allow end users to perform text searches on the **Map** component, check the **Enable geospatial text search** checkbox.
If this box is checked, then the **Map** component includes the find icon.
2. To allow end users to perform range searches on the **Map** component, check the **Enable geospatial range filtering** check box.
If this box is checked, then the **Map** component includes the range search (lasso) icon.
3. From the **Geospatial filtering attribute** drop-down list, select the attribute to use when searching or filtering the locations.
The attribute must be a geocode attribute.

Configuring the height of the component

Under **Display configuration**, in the **Map height** field, enter the height in pixels for the **Map** component.

Display configuration

Map height	450	px
------------	----------------------------------	----

Configuring the sets of locations to display

From the **Record Sets** section of the **Map** component edit view, you configure the sets of locations that can be displayed on the map.

Note that you can only have one location set that uses the full data set. Any additional location sets must be generated from an EQL query.

Adding and removing a set of locations

To add a new set of locations to the **Map** component, click the **Add** button.

To remove a set of locations, click the delete icon on the tab.

Enabling a set of locations

A set of locations is only displayed on the **Map** component if it has been enabled.

You can only enable a location set if you have provided the minimum required information for that set.

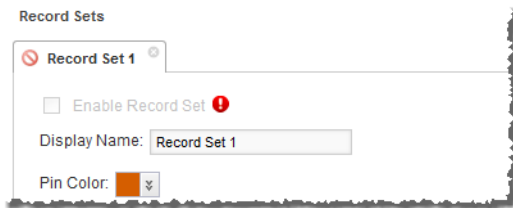
- A geospatial attribute must be selected.
- If the location set is EQL-based, the query must be entered, validated, and loaded.
- The display template must contain at least one attribute.

Until the minimum information is provided, the **Enable Record Set** checkbox is unchecked and disabled.

Once you provide the minimum required information, the **Enable Record Set** checkbox is checked and enabled.

Configuring the name and pin color for the set of locations

The location set display name is used to identify the location set on the **Map** component tab and in the list of location sets to show or hide. To distinguish locations from different location sets, you can assign different pin colors.

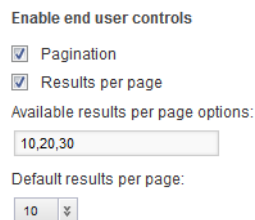


On the location set tab, to configure the display name and pin color for the location set:

1. In the **Display Name** field, type the name to use for the location set.
2. From the **Pin Color** drop-down list, select the pin color to use for the locations in the location set.

Configuring the pagination options for the location set

For each location set on a **Map** component, you can configure whether users can page through the list, and define the number of locations to display on each page.



Under **Enable end user controls**:

1. To allow end users to page through the list of locations, check the **Pagination** checkbox.
2. To allow end users to select the number of locations to display per page:
 - (a) Check the **Results per page** checkbox.
 - (b) In the **Available results per page options** field, type a comma-separated list of the options.
 - (c) From the **Default results per page** drop-down list, select the default number of locations to display per page.
3. If you are not allowing end users to select the number of results to display, then in the **Default results per page** field, type the number to display per page.

Using an EQL query to generate the set of locations

You can use an EQL query to generate a set of locations for a **Map** component. If you have more than one location set, then all but one must use an EQL query to generate the location list. The EQL query must include a geospatial attribute, as well as any attributes you want to be able to display and sort by for each location.

For example, for a list of transactions, the data may include the geographic location of each customer. You could then use an EQL query to generate a unique list of customer addresses to display on the map.

```
RETURN Customers AS
```

```
SELECT LatLong as LatLong, Customer_Name as Customer_Name, Customer_Address as Customer_Address,
Cities as Cities, States as States
GROUP BY Customer_Id
```

Or, if your transaction data includes geographic locations for both stores and suppliers, you could use an EQL query to get just the stores or just the suppliers.

```
RETURN Exporters AS
SELECT LatLong as LatLong, Customer_Name as Customer_Name, Customer_Address as Customer_Address,
Cities as Cities, States as States
WHERE Business_Types = 'Exporter'
GROUP BY Customer_Id
```

To provide the EQL query to generate the location set:

1. Check the **Use EQL query** checkbox.

Use EQL query ☒

Enter an EQL query:

Load Test EQL Query

Note that if you already have a location set that doesn't use an EQL query, then all of the other location sets must use EQL. The checkbox is checked and disabled.

2. In the text area, enter the EQL query.

The query results must include a geospatial attribute, as well as any attributes you want to include for each location.

3. After entering the query, click **Test EQL Query**.

If the EQL query is valid, then the **Load** button is enabled.

Enter an EQL query:

```
return caterers as select LatLong as LatLong, Customer_Name as Customer_Name, Customer_Address as Customer_Address, Cities as Cities,
States as States where Business_Types = 'Caterer' group by Customer_Id
```

Load Test EQL Query

Query processed successfully.

Statement 'caterers' (8 total records)

Cities	Customer_Name	LatLong	Customer_Id	Customer_Address	States
Chicago	Pearl River Kitchen	41.811929 -87.68732	7129132348	2210 Needmore Rd	Illinois

4. To load the EQL query, click **Load**.

The **Attribute Groups** list is updated to display the attributes from the EQL query.

Selecting the geospatial attribute to use for the locations

Each set of locations on the **Map** component can be based on a different geospatial attribute.

From the **Geospatial pin attribute** drop-down list, select the geospatial attribute to use to display the pins for the location set.

For a location set that uses the full data set, the attribute is usually the same as the global geospatial attribute. For a location set generated from an EQL query, you must select an attribute from the EQL.

Configuring the sort options for the set of locations

You can configure the **Map** component to allow end users to change the sort order for a set of locations. If you do not allow end users to select the sort order, then you can select an attribute to sort by.

To configure the sorting options for the set of locations:

1. Under **Sort Options**, to allow end users to set the sort order, check the **Enable end user sorting controls** check box. The box is checked by default.

To not allow end users to control the sort order, uncheck the checkbox.

2. If the checkbox is not checked, then end users cannot change the sort order.

The **Sort Options** section contains a single field.

To determine how the list of locations is sorted, drag an attribute from the **Attribute Groups** list to the **Sort Options** field.

After you drop the attribute, to determine the sort order:

- To sort by the selected attribute in ascending order, click the up arrow. This is the default.
- To sort by the selected attribute in descending order, click the down arrow.

To remove the attribute, click the delete icon.

To replace the attribute with a different attribute, drag a different attribute from the **Attributes Groups**, then drop it on top of the currently selected attribute.

3. If the sorting checkbox is checked, then the **Sort Options** section is updated to allow you to provide a list of attributes end users can use to sort the list.

To add an attribute, drag the attribute from the **Attribute Groups** list to the **Sort Options** table.

4. After selecting the list of attributes, to configure the sorting:

Attribute	Default	Sort Description
Customer_Name	☒ Up Arrow	Ascending, Descending
Customer_Id	☐ Down Arrow	Low to High, High to Low

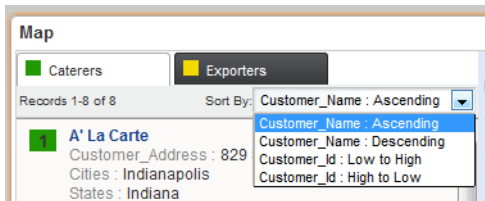
To determine the order of the attributes in the **Sort by** drop-down list, drag each row up and down in the list.

For the attribute you want to use for the default sort order, click the **Default** radio button next to the attribute.

- To sort by that attribute in ascending order, click the up arrow.

- To sort in descending order, click the down arrow.

You use the **Sort Description** drop-down list to configure the text that displays next to the attribute in the **Sort by** list. The list includes one entry for sorting in ascending order, and one for descending order.



From the **Sort Description** drop-down list, select the set of values you want to use for that attribute.

To create your description for ascending and descending order, select **create custom description**.

On the **Create Custom Description** dialog:

- In the first field, marked with the up arrow, type the text to use to indicate ascending order.
- In the second field, marked with the down arrow, type the text to use to indicate descending order.
- Click **Save**.

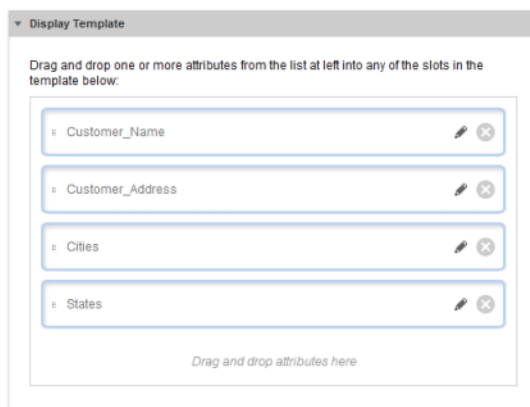
- To remove an attribute from the list, click the delete icon for that attribute.

Configuring the list of attributes to display for each location

When end users click a location pin or list entry on the **Map** component, the details for that location are displayed. For each location set, you select the list of attributes to display.

To configure the display of the location details:

- To add an attribute to the details, drag it from the **Attribute Groups** list to the **Display Template**.
- To determine the display order of the selected attributes, drag each attribute up or down in the list.



- To edit the format of the displayed attribute value, click the edit icon for the attribute.

- For values other than strings, use the **Value Formatting** section to configure the format of the displayed value.

Edit totalSales

▼ **Value Formatting**

Sample formatting: (United States | English): \$1,234,567.00 / (\$1,234,567.00) ⓘ

Type: ☐ number ☒ currency ☐ percentage

Currency:

Decimal places: ☒ use default ☐ automatic ⓘ digits

Include grouping separator:

► **Advanced Formatting**

Actions:

Cancel OK

String values do not support additional formatting.

For information on configuring the format of displayed values, see [Configuring the format of values displayed on a component on page 115](#).

- From the **Actions** drop-down list, select the action to perform when users click the attribute value.

The available options are:

Option	Description
No Action	Indicates that the attribute value is not a hyperlink and cannot be used to display details or refine the data. This is the default value.
Enable drill down by refinement on this field	This option only displays if the attribute can be used for navigation. If you select this option, then when end users click the attribute value, the data set is refined to only show records with that value. The selected value is added to the Breadcrumbs component on that page.

Option	Description
Link to record details	This option is only available for the top attribute. If you select this option, then when end users click the attribute value, the Record Details component is populated with the details for that record. When you select the option, the Target page to display record details field is displayed. In the field, type the name of the page to display when end users click the value. The selected page must contain a Record Details component. If you do not provide a page name, then the current page is used. For more information on configuring a page transition, see Page transition syntax on page 119.

6. After configuring the attribute, click **OK**.
7. To save the **Map** component configuration, click **Save Preferences**.
8. To exit the edit view, click **Exit**.

Metrics Bar

The **Metrics Bar** component displays one or more metric values calculated from the data.

[About the Metrics Bar component](#)

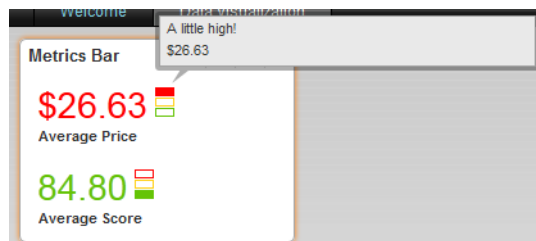
[Using Metrics Bar](#)

[Configuring a Metrics Bar component](#)

About the Metrics Bar component

The **Metrics Bar** component allows users to quickly view metrics that summarize various aspects of the underlying data.

The values can include special formatting to indicate when a metric has reached a certain value or range of values.

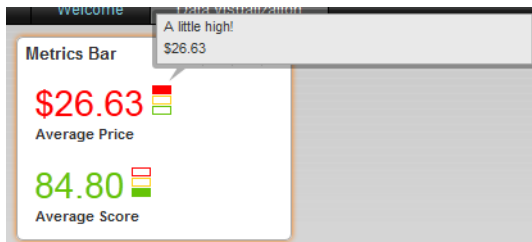


Using Metrics Bar

You can view the **Metrics Bar** component and display additional information.

On each metric box, you can view the metric values.

You also can mouse over the stoplight icon to view any alerts or threshold violation indicators.



Configuring a Metrics Bar component

For a **Metrics Bar** component, you configure the metrics to display, the format for each metric, and the alert messages to associate with the metric values.

Providing the EQL query for the Metrics Bar

The **Metrics Bar** component requires an EQL query in order to generate the metrics it uses.

To provide the EQL query for the **Metrics Bar** component:

1. In the **EQL query** field, enter your EQL query.

The screenshot shows the 'Metrics Bar' configuration window. It has a title bar with 'Metrics Bar' and an 'Exit' button. Inside, there's an 'EQL query:' label above a text area containing the query:


```
return AveragePrice as select avg(P_Price) as avgPrice group;
return AverageScore as select avg(P_Score) as avgScore group;
return HighestPrice as select max(P_Price) as maxPrice group;
```

 Below the text area is a checkbox labeled 'Respect data source query state' which is checked. At the bottom right are 'Load Metrics' and 'Test EQL...' buttons. A footer note says: 'Please enter and test a valid EQL query, then click the Load Metrics button to see your metrics.'



Note: When entering your EQL query, remember that all attribute names, including names of derived attributes, must be NCName-compliant. They cannot contain spaces or special characters.

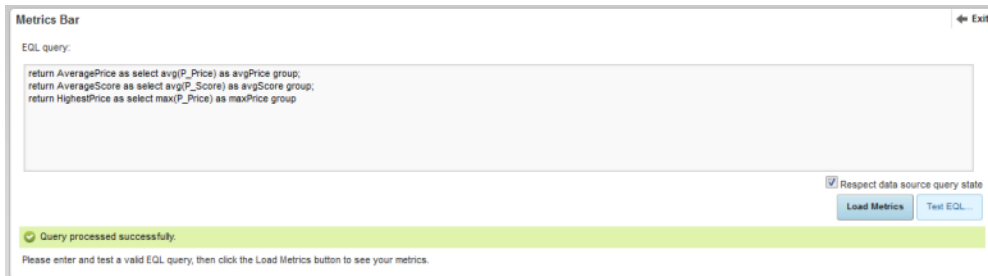
2. The **Respect data source query state** box determines whether the **Metrics Bar** values are for the currently displayed data only.

If this box is checked, then when the data source query state changes, the metric values are updated. For example, if an end user uses the **Guided Navigation** component to refine the data, then the **Metrics Bar** values are updated to reflect the currently displayed data only.

If the box is unchecked, the **Metrics Bar** component is independent of the data source query state. The metric values remain constant regardless of the data source query state.

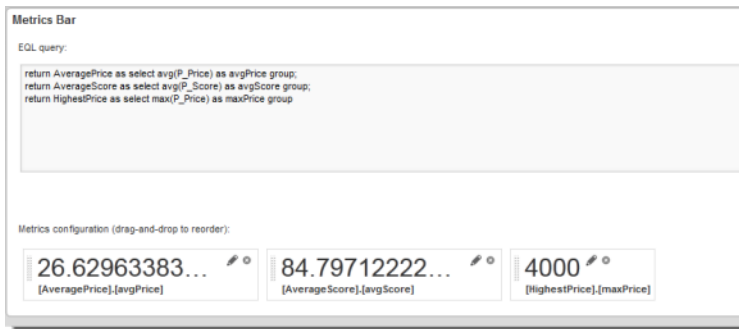
3. To validate the EQL query, click the **Test EQL query** button.

If the EQL query is valid, the **Load Metrics** button is enabled.



4. Click **Load Metrics**.

For each metric in the EQL query, a metric box is added to the edit view.



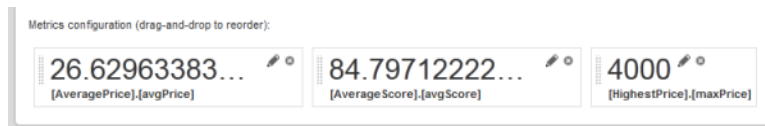
After you select your metrics, you can:

- Hide metrics that you do not want to display
- Configure the format for each displayed metric value
- Configure alert messages based on the metric values

Hiding and showing metrics on the Metrics Bar

You can hide metrics that you do not want to display on the **Metrics Bar**, and also restore them if needed.

When you first load the EQL query for the **Metrics Bar** component, a metric box is created for each metric from the query.



However, you may not want to display all of these metrics. For example, some of the metrics may simply be used to generate the metric you actually want to display.

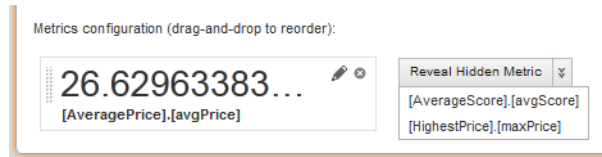
To hide and restore metrics on the **Metrics Bar**:

1. To hide a metric, click the x icon in top right corner of the metric box.

The metric box for that metric is removed.

If this is the first metric you are hiding, a box is added for the hidden values.

The metric is added to the **Reveal Hidden Metric** drop-down list on the hidden metric values box.



2. To restore a hidden metric, from the **Reveal Hidden Metric** drop-down list, select the metric to restore.

The metric is removed from the **Reveal Hidden Metric** drop-down list, and the metric box is added for that metric.

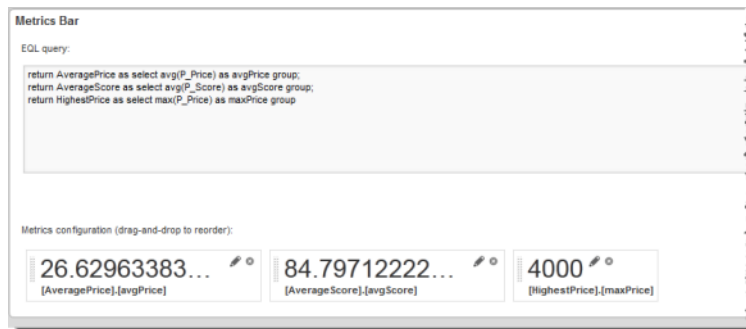
If there are no other hidden metrics, then the **Reveal Hidden Metric** drop-down list is removed.

Configuring the metric boxes for a Metrics Bar

After you select the metrics to display for the **Metrics Bar**, you then configure how to display each metric.

On the edit view of the **Metrics Bar** component, each metric to display is represented by a metric box. When you first add the metrics:

- The metric boxes are grey.
- Each box label is based on the EQL query.
- There are no alerts associated with the metrics.



To configure the order in which to display the metrics, drag and drop the metric boxes.

For each metric, to configure how the value and box are displayed:

1. On the metric box, click the edit icon.

The **Edit Metric** dialog is displayed.

2. In the **Display Name** field, type the display name for the metric.
This is the label that displays at the top of the metric box.
By default, the display name is based on the EQL query.
3. Use the **Value Formatting** fields to configure the format of the displayed metric values.
For details on formatting values, see [Configuring the format of values displayed on a component on page 115](#).
4. For numeric values (integer, currency, and decimal values), you can configure specific formatting and messages based on the current value of the metric. String values do not support this formatting.

In the **Stoplighting** section, to configure the stoplighting rules:

- (a) To add a stoplighting rule, click **Add**.

The next row of fields is enabled.

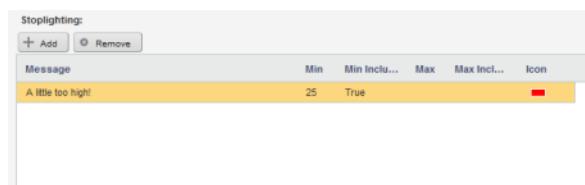
- (b) To configure the value and formatting:

Field	Description
Message	In the Message field, type the text of the message associated with the rule.

Field	Description
Min	In the Min field, type the minimum metric value for which to apply the formatting and display the message. For example, to only apply the formatting if the value is greater than 85, type 85 in the field.
Min Inclusive	If you have provided a minimum value, then from the Min Inclusive drop-down list, select whether the provided value is inclusive. If you select True , then the formatting is applied if the value is greater than or equal to the provided value. If you select False , then the alert formatting is applied only if the value is greater than the provided value.
Max	In the Max field, type the maximum metric value for which to use this formatting. For example, to only use the formatting if the value is less than 100, type 100 in the field.
Max Inclusive	If you have provided a maximum value, then from the Max Inclusive drop-down list, select whether the provided value is inclusive. If you select True , then the alert formatting is applied if the value is less than or equal to the provided value. If you select False , then the alert message displays only if the value is less than the provided value.
Icon	From the Icon drop-down list, select the stoplight color to highlight on the metric box when the metric value meets the minimum/maximum value criteria. The color also is used on for the metric value text.

- (c) After filling out the fields, to save the stoplighting rule, click **Update**.

The stoplighting rule is added to the list.



- (d) To edit an existing rule, double-click the message row. The fields are enabled to allow you to edit the rule.

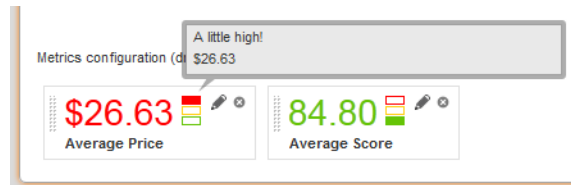
After making the edits, to save the changes, click **Update**.

(e) To remove a rule, click the rule, then click **Remove**.

- To save the metric configuration, click **OK**.

On the edit view, the metric box is updated to reflect the new display name and format, and the text is displayed in the appropriate color based on the metric value.

To test the alert message, hover the mouse over the stoplight icon.



- To exit the edit view, and return to the end user view, click **Exit**.

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.

Pivot Table										
Configure		View Options ⚙ Actions ⚙								
Vintage ▲		1992		1993		1994		1995		
Designa...	Wine Ty...	Base Sco...	Sales Pri...	Base Sco...	Sales Pri...	Base Sco...	Sales Pri...	Base Sco...	Sales Pri...	
Best Buy	Red	85	\$8.06	86	\$8.40	86	\$8.63	86	\$8.86	
	Sparkling	86	\$10.00	86	\$7.00					
	White	85	\$7.56	86	\$7.79	86	\$7.98	87	\$8.42	
	Best Buy ...	85	\$7.79	86	\$8.05	86	\$8.29	86	\$8.66	
Cellar Se...	Red	92	\$48.16	92	\$111.71	93	\$89.55	94	\$110.57	
	White	93	\$63.33	91	\$47.14	92	\$75.00	92	\$58.08	
	Cellar Se...	93	\$50.55	92	\$100.68	93	\$87.13	93	\$98.91	
Chateau	Red	85	\$13.75	85	\$19.98	84	\$19.54	84	\$22.88	
	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. You also can print the **Pivot Table** and export the table to a spreadsheet.

Showing and hiding highlighting and summaries in the Pivot Table

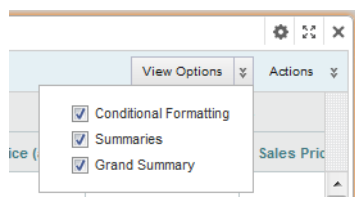
The **Pivot Table** component can include summaries of individual row or column dimensions as well as summary rows and columns for the entire table. Individual values may also be highlighted. The **Pivot Table** may be configured to allow you to show or hide the summaries, and to show or hide the highlighting

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.

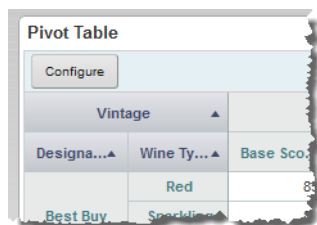


2. To show the value highlighting, check the **Conditional Formatting** checkbox.
To hide the highlighting, uncheck the **Conditional Formatting** checkbox.
3. To show the summaries for each dimension, check the **Summaries** checkbox.
To hide the dimension summaries, uncheck the **Summaries** checkbox.
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.

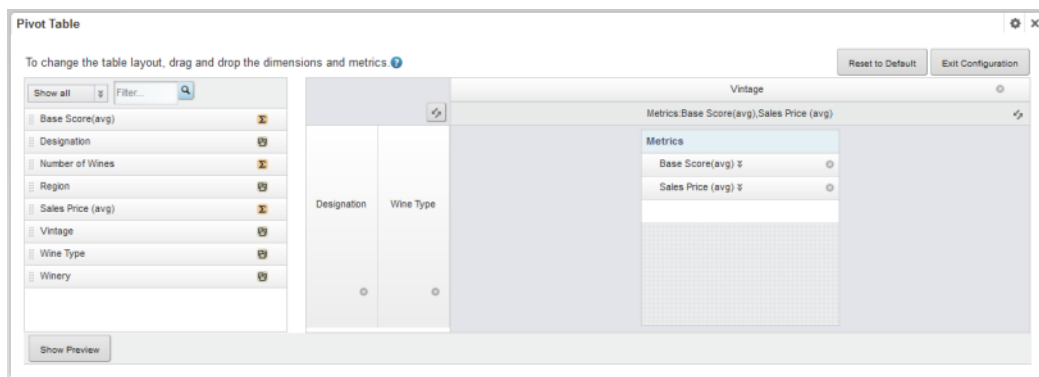
If the **Pivot Table** is configured to allow you to change the table layout, then a **Configure** button is displayed at the top of the component.

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.

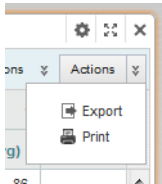
So for example, if a cell displays an average price of \$25.55 for Red wines in the Bordeaux region for the year 1992, then when you click the value \$25.55, the data is refined by the values:

- Red for the Wine Type attribute
- Bordeaux for the Region attribute
- 1992 for the Vintage attribute

Printing the Pivot Table

You can print the **Pivot Table**. The printout only shows the currently displayed portion of the table.

To print the **Pivot table**, from the **Actions** menu, select **Print**.



A pop-up window displays the printable **Pivot Table**.

Exporting the Pivot Table

You can export the contents of the **Pivot Table** component to a spreadsheet.

To export the data, from the **Actions** menu, select **Export**. The export uses UTF-16LE encoding.

The exported file consists of the data used to create the current **Pivot Table** display.

A	B	C	D	E
Designation	Wine Type	Vintage	Base Score(avg)	Sales Price (avg)
Best Buy	Red	1992	85.27083333	8.0625
Best Buy	Sparkling	1992	86	10
Best Buy	White	1992	85	7.557377049
Best Buy	Red	1993	85.85333333	8.4
Best Buy	Sparkling	1993	86	7
Best Buy	White	1993	85.71875	7.791666667
Best Buy	Red	1994	85.83928571	8.625
Best Buy	White	1994	86.18032787	7.983606557
Best Buy	Red	1995	85.859375	8.859375
Best Buy	White	1995	86.54716981	8.41509434
Best Buy	Red	1996	85.89705882	8.882352941
Best Buy	Sparkling	1996	85	8
Best Buy	White	1996	86.38356164	8.493150685
Best Buy	Red	1997	86.13333333	9.283333333

Configuring a Pivot Table component

For a **Pivot Table** component, you select the data view to use and configure how the table is displayed.

Selecting the source of the Pivot Table data

Each **Pivot Table** is linked to a specific view within an application data source.

On the **Data Selection** tab of the **Pivot Table** edit view, the views list contains the available views.

The tab also contains a setting to limit the number of cells to display on the **Pivot Table**.

Data Selection

Select the view to use for the Pivot Table data.

View	View Description
☒ Base	
☐ Employees	Employee Information
☐ Products	Product Sales Information rolled up by Month
☐ Transactions	Sales Transaction Line Items

Maximum number of cells to display:

Maximum number of cells exceeded 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.

To select the view and configure the maximum cells to display:

1. To display the list of attributes in a view, click its information icon.
2. To select the view to use, click the radio button next to the view.
3. In the **Maximum number of cells to display** field, type the maximum number of cells that can be displayed.

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.

4. 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

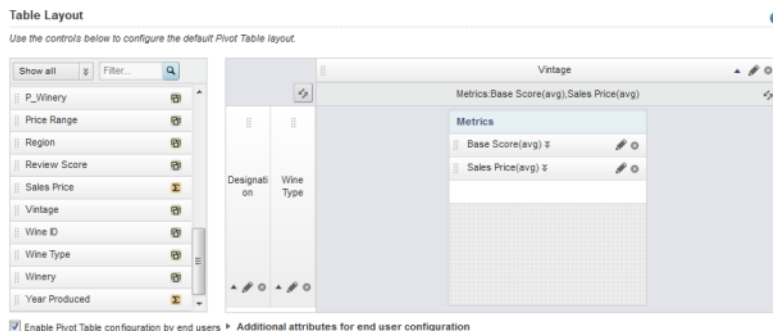
Once you select the view to use, you can configure the layout of the dimensions and metrics on the **Pivot Table** table.

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

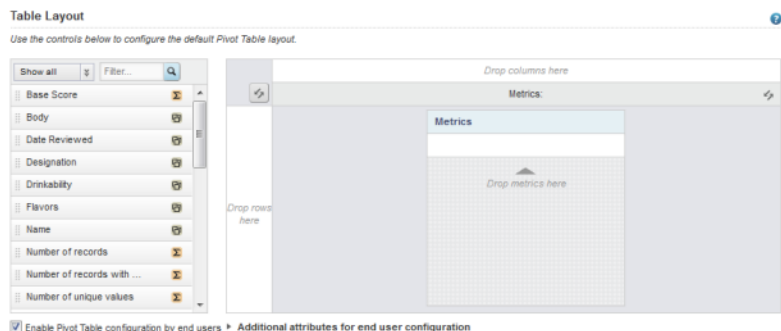
Each **Pivot Table** consists of dimension rows and columns to determine the aggregation, and metrics to determine the displayed values.

The list at the left of the **Table Layout** tab of the **Pivot Table** edit view contains the available attributes from the selected view. The icons indicate whether an attribute is a dimension.

The list also contains system metrics for displaying counts of records and values. These metrics are:

Metric	Description
Number of records	Displays the number of records in the underlying data set that have the current row and column dimension values. For example, a Pivot Table is aggregated using Country and Product Line. In the current cell, the dimension values are United States for the country and Apparel for the product line. The number of records is the number of records that have the value United States for Country and Apparel for Product Line.
Number of records with values	Displays the number of records that have a value (other than NULL) for a selected attribute for the combination of row and column dimension values for the current cell. When you select this option, you are prompted to select the attribute to use. For example, a Pivot Table is aggregated using Country and Product Line. 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. The number of records with values for the Color attribute is 7.
Number of unique values	Displays the number of unique values (other than NULL) for a selected attribute for the combination of row and column dimension values for the current cell. When you select this option, you are prompted to select the attribute to use. For example, a Pivot Table is aggregated using Country and Product Line. 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. The number of unique values for Color is 2.

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.

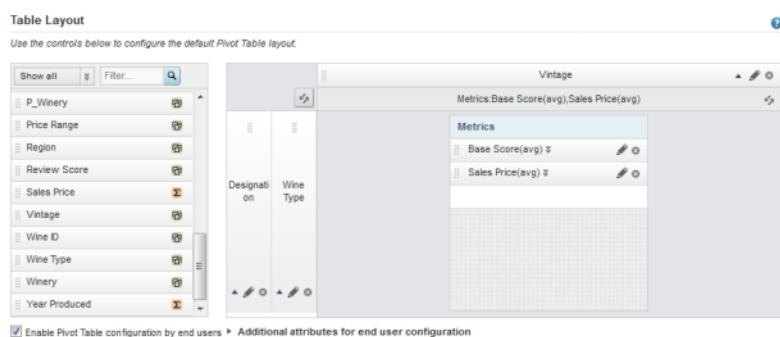
You can also drag and drop the dimensions within the mockup to change the order of the row and column groups.

2. To add a metric to the **Pivot Table**, drag the metric from the list to the metric drop zone.

All metrics require an aggregation method (sum, avg, etc.) to determine how to calculate the metric value. If a metric is a predefined metric, then the aggregation method is built in and cannot be changed. Otherwise, when you add a metric, a default aggregation method is assigned. You can then change the method used.

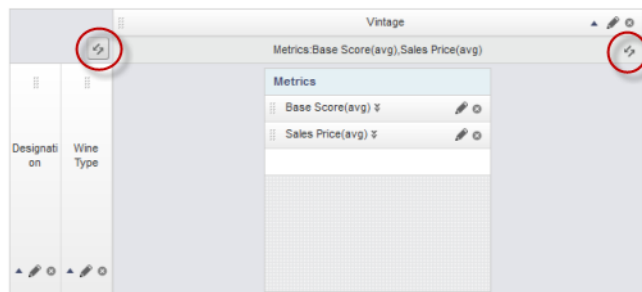
For the **Number of records with values** and **Number of unique values** system metrics, when you add the metric to the **Pivot Table**, you are prompted to select the attribute to use for the count.

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	Record Count
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.

If the dimension allows cascading, then when the data is refined so that only one dimension value is displayed, the **Pivot Table** can be updated to use a different dimension.

When there are no more dimensions to cascade to, the **Pivot Table** remains on the last dimension in the cascade.

For example, a **Pivot Table** 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 **Pivot Table** uses the State dimension (for states within the United States).
2. If users then refine the data to only show records for California, the **Pivot Table** uses the Supplier dimension (for suppliers within California).
3. If users then refine the data by a specific supplier, the **Pivot Table** displays a single row or column for the selected supplier, and the cascade stops.



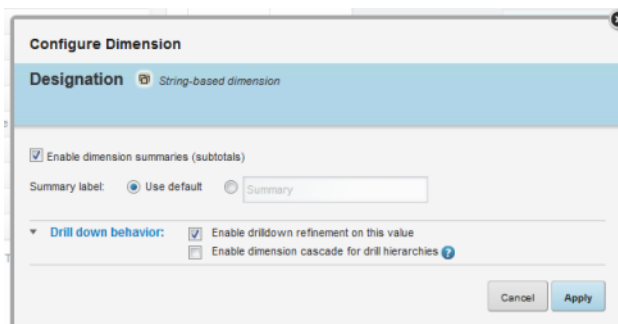
Important: Some behaviors to be aware of when dealing with refinement and cascades:

- As a general rule, if the dimension is not available in the **Guided Navigation** component, then on the **Pivot Table**, 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.

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. On the edit dimension dialog, to display a summary row or column for the dimension, check the **Enable dimension summaries (subtotals)** checkbox.
3. 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.

4. 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.
5. To allow the dimension values to be used for refinement, check the **Enable drill down by refinement on this value** checkbox.

6. To enable and configure cascading for the dimension:

- (a) Check the **Enable dimension cascade for drill hierarchies** 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.

- (b) 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.

- (c) To remove a layer from the cascade, click the delete icon next to that layer.

- (d) To clear the entire cascade, click **Clear Cascade**.

7. 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.

Note that for predefined metrics, you cannot select the aggregation method.

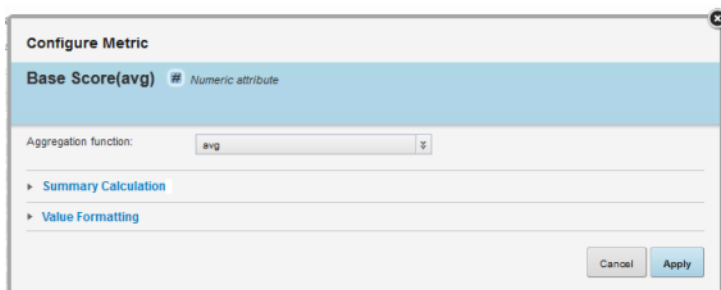
For more information on the aggregation methods and how they work, see [Aggregation methods and the data types that can use them on page 64](#).

On the **Table Layout** tab of the **Pivot Table** edit view, each metric includes a drop-down list for you to select the aggregation method.

To configure all of the options for a metric:

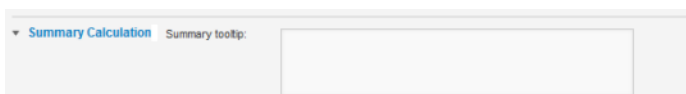
1. On the **Table Layout** tab, click the edit icon for the metric you want to edit.

The **Configure Metric** dialog is displayed.



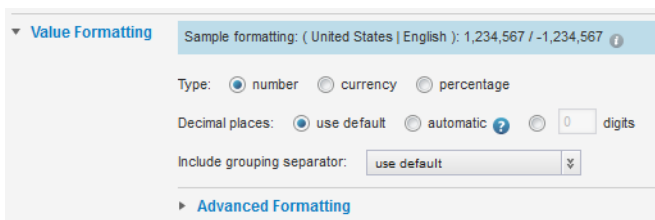
2. From the **Aggregation function** drop-down list, select the aggregation method used to calculate the metric values.
3. The **Summary Calculation** section contains the **Summary tooltip** field, used to add a description to the tooltip displayed when users hover the mouse over a metric value in a summary row or column.

When the dialog is first displayed, the section is collapsed. To expand or collapse the section, click the section heading.



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.

To expand or collapse the section, click the section heading.



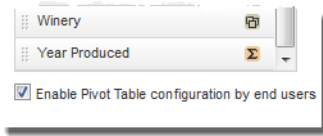
For details on formatting displayed values, see [Configuring the format of values displayed on a component on page 115](#).

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.



Configuring the available options for the Pivot Table Actions menu

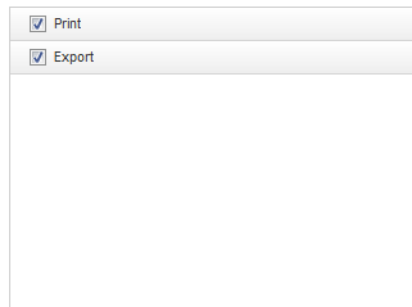
From the **Actions Menu** tab of the **Pivot Table** edit view, you configure the options to include in the **Actions** menu.

The available actions are **Print** and **Export**.

Actions Menu

Select the functions to include in the Actions menu on the end user view.

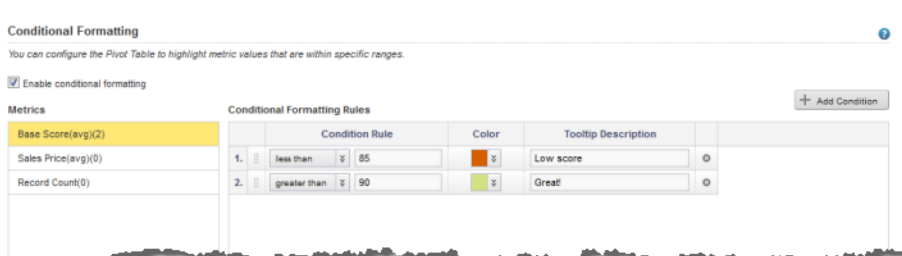
Actions menu



By default, both options are displayed in the menu. To exclude an option, uncheck its checkbox. If you exclude both options, then the **Actions** menu is not displayed.

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.

Display Options

Use these controls to configure the table size and other display settings.

Table height:

Show rows at a time

Column width:

Column width: px

Grid display:

☒ Hide empty rows/columns

Summaries:

☐ Show summary rows by default

☐ Show a grand summary row by default

To configure the **Pivot Table** display options:

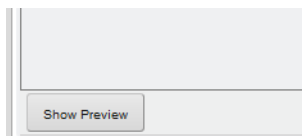
1. Under **Table height**, in the field, type the number of rows that are visible at a time.
2. In the **Column width** field, type the width in pixels to use for each column.

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.

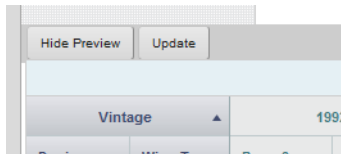
Displaying a preview of the Pivot Table

The **Pivot Table** edit view includes an option to display a preview to see how the current configuration would display to end users.

To display the preview, click the **Show Preview** button. The **Show Preview** button is not displayed until you have added at least one dimension and one metric.



The preview is displayed at the bottom of the edit view. The **Show Preview** button changes to a **Hide Preview** button, and an **Update** button is added.



When the preview is displayed:

- To hide the preview, click the **Hide Preview** button.
- To update the preview to reflect changes to the **Pivot Table** configuration, click the **Update** button.

Tag Cloud

The **Tag Cloud** component displays a collection of attribute values for a selected attribute, highlighted to show which values appear more frequently.

[About the Tag Cloud component](#)

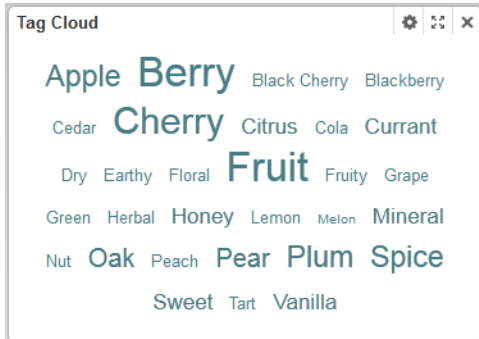
[Using Tag Cloud](#)

[Configuring a Tag Cloud component](#)

About the Tag Cloud component

The **Tag Cloud** component allows users to quickly see which values appear more frequently or have greater relevance within the current refinement.

On the component, the font size indicates the relative significance of each value.



When displaying values based on frequency, the component can instead display the number of matches for each value.



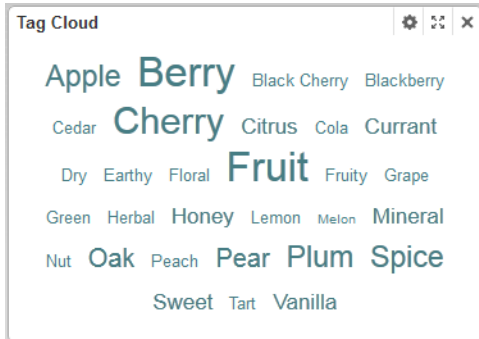
For multi-select attributes, users also may be able to refine the data by a selected value.

To provide a meaningful summary, the **Tag Cloud** component must be associated with an attribute that consists of numerous textual attribute values.

Using Tag Cloud

On the **Tag Cloud** component, you can see the distribution of values for a selected attribute within the current data set.

In most cases, terms in a larger font occur more frequently or are more relevant.



When displaying terms based on frequency, the **Tag Cloud** may also be configured to show the number of matches per value instead of displaying the values in different sized fonts.



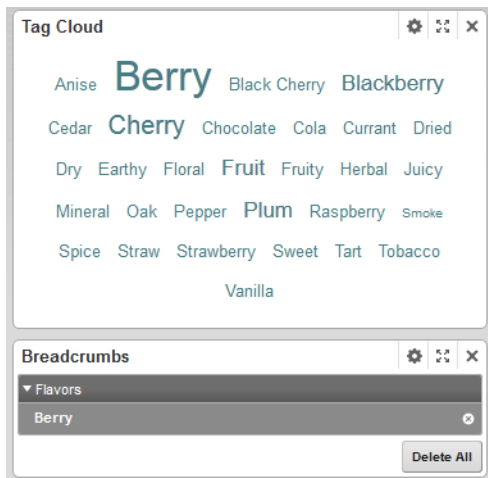
Note: For hierarchical attributes, the tag cloud only shows the frequency of the actual displayed value, not of any child values in the hierarchy.

For example, for a Wine Type attribute, the value Red may have the children Bordeaux and Merlot. On the Tag Cloud, if the value Red is displayed, it only reflects records that have the value of Red. It does not include records tagged with Bordeaux or Merlot.

If the values are for a multi-select attribute, then you may be able to use the values to refine the data. If the component supports refinement, then when you click an attribute value:

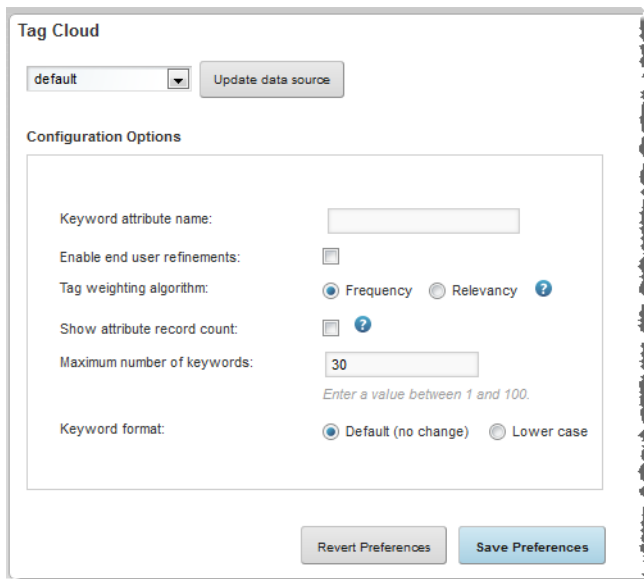
- The data is refined to only include records with that attribute value.
- The selected attribute value is added to the **Breadcrumbs** component.

- The tag cloud is updated to reflect the distribution of the attribute values in the matching records.



Configuring a Tag Cloud component

For a **Tag Cloud** component, you select the attribute to use. For multi-select attributes, you can also enable the refinement option.



To configure a **Tag Cloud** component:

1. In the **Keyword attribute name** field, enter the name of the attribute to use.
As you type, the matching attribute names are displayed.

In order to support refinement, the attribute must be enabled for multi-select. If you enter a multi-select attribute, then in the type-ahead area, Studio shows a double-check mark icon next to the attribute name.

Keyword attribute name:

Enable end user refinements: ☒ Flavors

If you enter an attribute that is not enabled for multi-select, then when you try to save the configuration, a warning message is displayed.

Configuration Options

Keyword attribute name:

Enable end user refinements: ☐

! This attribute is not enabled for multi-select and will not support user refinements.

For non-multi-select attributes, the tag cloud still shows the distribution of text values, but end users cannot use those values to refine the data.

2. If the attribute allows multi-select, then the **Enable end user refinements** box is checked, indicating that end users can use the attribute values to refine the data.

To not allow the values to be used for refinement, uncheck the box.

If the attribute is not enabled for multi-select, then you cannot check the checkbox.

3. Under **Tag weighting algorithm**, click the radio button next to the option to use to determine the significance of a tag.

The options are:

Option	Description
Frequency	If this option is selected, then the tags are sized to represent the number of records associated with the related attribute value. The terms associated with the largest number of records are displayed in the largest font size. For the frequency option, you can choose to display the number of matches per value instead of displaying the values in different font sizes.
Relevancy	If this option is selected, then the tags are sized to represent the number of records associated with the tag. They then are weighted relative to their uniqueness in the matching record set. Terms that appear throughout the index are less relevant, and appear smaller, than those that appear only in the matching records. This strategy is recommended if certain terms appear on most records in the index, to ensure that these common terms are displayed less prominently in the tag cloud.

4. If you use the **Frequency** tag weighting algorithm, then to display the number of matches for each value instead of displaying the values in different sizes, check the **Show attribute record count** checkbox.

You cannot use this option for the **Relevancy** algorithm.

5. In the **Maximum number of keywords** field, specify the maximum number of attribute values to display.

The default is 30.

6. Under **Keyword format**, click the radio button to select the option for formatting the displayed values.

To display the values without changing the capitalization, click **Default (no change)**. This is the default option.

To display the values in all lowercase, click **Lower case**.

7. If the selected attribute is a type other than string, then use the **Value Formatting** section to customize the format of the displayed values.

For more information on customizing the format of displayed values, see [Configuring the format of values displayed on a component on page 115](#).

8. To save your changes, click **Save Preferences**.
9. To exit the edit view, click **Exit**.



Chapter 25

Personalization Components

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 **Bookmarks** component displays bookmarks created within the application by the current user, as well as shared bookmarks created by administrators. Other than these shared bookmarks, users cannot see bookmarks created by other users.

Depending on the component configuration, users may only be able to see bookmarks that were created on the current page of the application.

The bookmarks are listed in the order they were created. The list can include an accompanying description and date, as well as available bookmark actions.

Bookmarks			
Filter bookmarks...			
▼ My Bookmarks			
Name	Description	Date Created	Actions
German whites	White wines fr...	11/08/12 08:27:04	
Apple wines	Wines with app...	11/08/12 08:26:06	
▼ Shared Bookmarks			
Name	Description	Date Created	Actions
Highest-scorin...	Wines with a s...	11/08/12 08:19:35	
Create New 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.

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 Studio 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	acme.com.s7a1.pstmp.com
Outgoing Port	25
Use a Secure Network Connection	☐
User Name	user_user@acme.com
Password	

5. Click **Save**.

Using Bookmarks

The **Bookmarks** component can allow you to create bookmarks in order to be able to return to a specific state for the current page. You can also generate a URL to the bookmark, and email a link to the bookmark.

The **Bookmarks** component contains two lists of bookmarks. The **My Bookmarks** list contains bookmarks created by the current user. The **Shared Bookmarks** list contains bookmarks created by administrators and configured to be available to all users.

Bookmarks

Filter bookmarks...

▼ My Bookmarks

Name	Description	Date Created	Actions
German whites	White wines fr...	11/08/12 08:27:04	   
Apple wines	Wines with app...	11/08/12 08:26:06	   

▼ Shared Bookmarks

Name	Description	Date Created	Actions
Highest-scorin...	Wines with a s...	11/08/12 08:19:35	 

Create New Bookmark

If there are no shared bookmarks available, then the **Shared Bookmarks** list is not displayed.

Note that if you are an administrative user, then all bookmarks you create, including shared bookmarks, display in the **My Bookmarks** list.

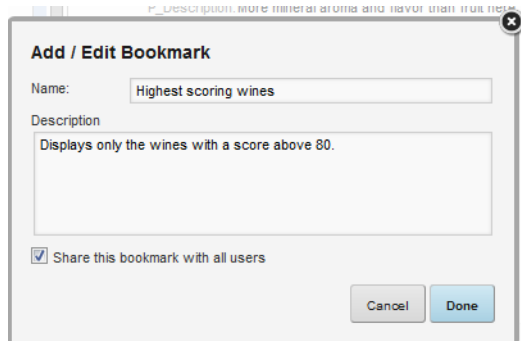
The lists always includes the bookmark name with the link to the bookmark, and can optionally include a description, the creation date, and available actions.

From the **Bookmarks** component:

1. To create a new bookmark:

- (a) Click **Create new bookmark**.

The **Add / Edit Bookmark** dialog is displayed.



The **Add / Edit Bookmark** dialog box is shown. It has a title bar with a close button. Inside, there is a 'Name' field with the text 'Highest scoring wines'. Below it is a 'Description' text area containing 'Displays only the wines with a score above 80.'. At the bottom left, there is a checked checkbox labeled 'Share this bookmark with all users'. At the bottom right, there are 'Cancel' and 'Done' buttons.

- (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) If you are an administrative user, then to make the bookmark a shared bookmark available to all users, check the **Share this bookmark with all users** checkbox.

If you are not an administrative user, then this checkbox is not displayed.

- (e) Click **Done**.

2. To navigate to a bookmark, click the bookmark name.

3. To remove a bookmark from the list, click its delete icon.

4. To edit an existing bookmark:

- (a) Click the edit icon for the bookmark.

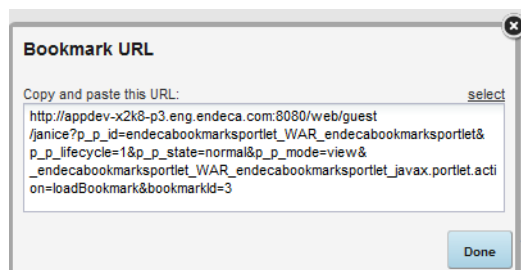
- (b) On the **Add / Edit Bookmark** dialog, make the necessary edits to the bookmark.

You can change the name, description, and whether the bookmark is shared.

- (c) Click **Done**.

5. To retrieve the URL for a bookmark, click the link icon for the bookmark.

The **Bookmark URL** dialog is displayed.



The **Bookmark URL** dialog box is shown. It has a title bar with a close button. Inside, there is a text area containing a long URL. To the right of the text area is a 'select' button. At the bottom right, there is a 'Done' button.

To select the URL so that you can copy and paste it, click **select**.

6. 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, the **Bookmarks** component saves the following information about the component state.

There is no bookmark data for **Control Panel** components or for the **Bookmarks** component itself.

Component	Persisted States	Comments
Alerts	Expanded/collapsed view of alert groups	For the Alerts component, the bookmark saves whether the list of alert groups is displayed. If the alert groups are displayed, then for each alert group, the bookmark also saves whether the list of alerts is expanded.

Component	Persisted States	Comments
Breadcrumbs	Expanded multi-select managed attributes	When users select multiple values for an attribute, the Breadcrumbs component may group those values in a collapse/expand control. A bookmark stores whether each collapse/expand control is expanded or collapsed.
Chart	Group dimension, series metric, and series dimension drop-down lists	When a bookmark is loaded, the chart uses the options from the Group dimension , Metric , and Series dimension drop-down lists that were selected when the bookmark was saved.
Compare	Attributes: persists the order of attributes and the expand and collapse state of attribute groups Records: persists the order of records and their highlighted state	
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.
Guided Navigation	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.
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.
Metrics Bar	None	
Pivot Table	None	
Record Details	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.
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.

Component	Persisted States	Comments
Search Box	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	None	

Configuring a Bookmarks component

The **Bookmarks** component is configured to indicate whether users can view and create bookmarks. If end users can view bookmarks, then the configuration also includes whether they can only view bookmarks they created on the current page.

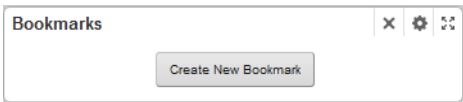
To configure a **Bookmarks** component:

1. On the component edit view, from the **View** drop-down list, select the display mode.

The screenshot shows the 'Bookmarks' configuration window. It includes a 'View' dropdown set to 'Display bookmark controls and lists', checkboxes for 'Show only bookmarks for this page' (unchecked) and 'Display shared bookmarks' (checked). A 'Display columns' table lists 'Name', 'Description', 'Date Created', and 'Actions', all with 'Display' checkboxes checked. The 'Bookmarks URL' section has 'Use default' selected, with fields for 'Protocol' (http), 'Host name' (appdev-x2k8-p3.eng.endeca.com), and 'Port' (8080). The 'Context path' section has 'Use default' selected, with a field for 'Custom context path' containing '/web/sales-discovery-dashboard/results'. An 'Additional parameters' field is empty. At the bottom are 'Revert Preferences' and 'Save Preferences' buttons.

Column Name	Display
Name	☒
Description	☒
Date Created	☒
Actions	☒

The options are:

Option	Description
Display bookmark controls only	End users can create new bookmarks, but cannot see the list of saved bookmarks.  If you select this option, then the rest of the settings on the edit view are disabled.
Display bookmark lists only	End users can see the list of existing bookmarks, but cannot create a new bookmark.
Display bookmark controls and lists	End users can both create new bookmarks and see the list of existing bookmarks. This is the default.

2. If end users can see the list of bookmarks, then:

- (a) Use the **Show only bookmarks for this page** checkbox to determine the bookmarks the end user can see.

If the box is checked, then the component only displays bookmarks created while viewing the current page.

If the box is not checked, then the component also displays bookmarks created from other pages within the application.

- (b) Use the **Display shared bookmarks** checkbox to determine whether to display shared bookmarks on the component.

If the box is checked, then the component includes a **Shared Bookmarks** list.

If the box is not checked, then the **Shared Bookmarks** list is not displayed.

- (c) Under **Display columns**, uncheck the checkbox next to each column to exclude from the bookmark lists.

You cannot hide the bookmark name.

Also note that if you hide the **Actions** column, end users cannot generate links to or email the bookmark.

- (d) Under **Bookmarks URL**, you can determine whether to customize the URL used for bookmarks.

In most cases, you 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.

- (e) Under **Context Path**, you can determine whether to customize the context path for a bookmark.

As with the URL, 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.

- (f) 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.

3. To save your changes, click **Save Preferences**.
4. To exit the edit view, click **Exit**.



Chapter 26

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](#)

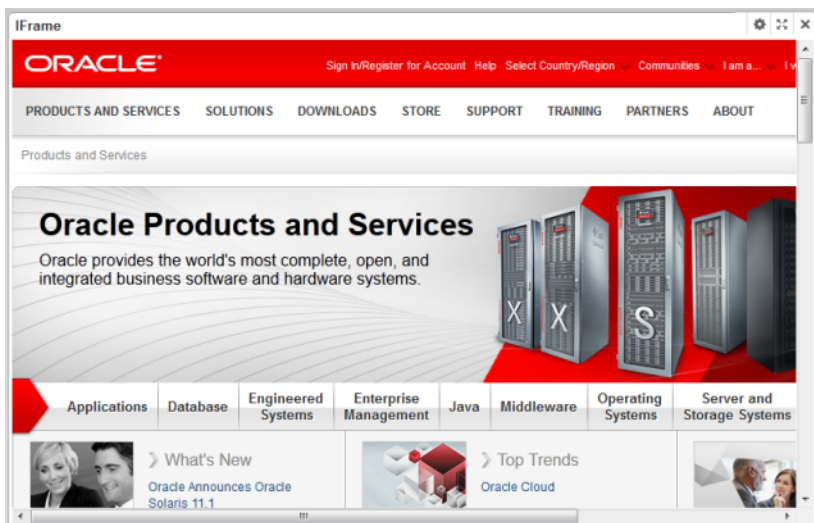
[Using the IFrame component](#)

[Configuring an IFrame component](#)

About the IFrame component

The **IFrame** component allows users to view content from an external URL from the 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.

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

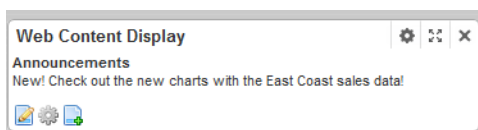
The **Web Content Display** component allows you to create and display HTML content in your application.

[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 a **Web Content Display** component, you create and edit the content to display.

Adding content to a Web Content Display component

You create content to display on **Web Content Display** components. When you save the content, it is automatically selected to display on the end user view.

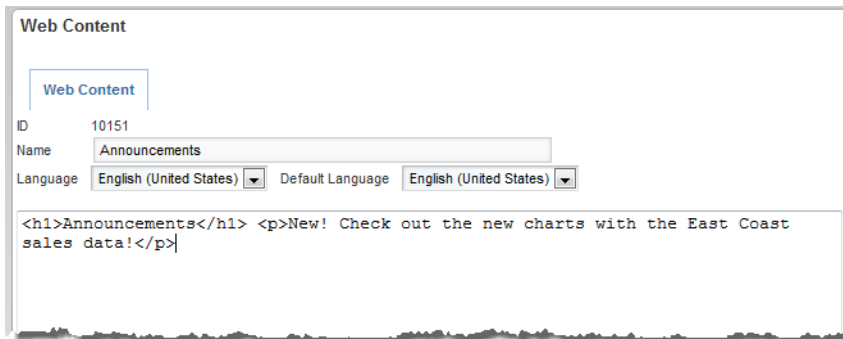
To add content to a **Web Content Display** component:

1. On the **Web Content Display** component, click the add icon.



2. On the edit view, in the **Name** field, type the name for the content.
3. Use the editing area to create the content.

The editor is a text area that accepts HTML input.

A screenshot of the 'Web Content' editor interface. It shows a form with fields for 'ID' (10151), 'Name' (Announcements), and 'Language' (English (United States)). Below these fields is a large text area containing HTML code: `<h1>Announcements</h1> <p>New! Check out the new charts with the East Coast sales data!</p>`.

4. To save the content, and return to the end user view, click **Save and Approve**.

The content is displayed on the **Web Content Display** component.



Important: You must click **Save and Approve** in order for the content to display on the component. If you click **Save** or **Save and Continue**, then the content is not considered "approved", and is not displayed on the component.

Editing the displayed content on a Web Content Display component

From the **Web Content Display** component, you can edit the currently displayed content.

To edit the content:

1. Click the edit icon.



2. On the edit view, update the HTML content.
3. To save the changes, and return to the end user view, click **Save**.

To save the changes, but stay on the current page, click **Save and Continue**.

Localizing content on a Web Content Display component

You can create localized versions of the **Web Content Display** content. When users select a different locale, if the displayed content is available in that locale, then that version is displayed automatically.

When editing content, to create localized versions:

1. From the **Language** drop-down list, select the locale for which to create a version of the content.
The content from the default language is displayed.
2. Edit the content as needed for that locale.

3. To save the changes for that locale, and return to the end user view, click **Save**.
To save the changes, but stay on the current page, click **Save and Continue**.

Using the Web Content page to manage content

When you add content to the **Web Content Display** component, it is actually added to a centralized list of content items. The **Web Content** option on the **Control Panel** provides access to the complete list of content items.

The list includes:

- Content that is not "approved" (new content for which you clicked **Save** instead of **Save and Approve**)
- Content from deleted **Web Content Display** components

For each item, the **Actions** menu includes options to edit and delete the item.

If you accidentally saved new content without approving it:

1. On the **Web Content** page, click the **Actions** menu for the content.
2. From the **Actions** menu, select **Edit**.
3. On the edit view, click **Save and Approve**.
4. On the **Web Content Display** component, click the select icon.
5. On the select view, click the content you want to display.
6. Click **Exit**.

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