

# Oracle® Analytics

## Developer's Guide for Oracle Analytics Server



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Copyright © 2025, Oracle and/or its affiliates.

Primary Author: Adam Donald

Contributing Authors: Stefanie Rhone, Hemala Vivek

Contributors: Oracle Analytics Server development, product management, and quality assurance teams

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# Preface

Learn how to develop and extend your Oracle Analytics instance with embedded content, and SDKs.

**Topics:**

- [Audience](#)
- [Documentation Accessibility](#)
- [Diversity and Inclusion](#)
- [Related Documents](#)
- [Conventions](#)

## Audience

This guide is intended for application developers and integrators who want to programmatically access and use the Oracle Analytics components to create applications or integrations with other components. You need to have knowledge of the following:

- Oracle Analytics Desktop
- Oracle Analytics Server

## Documentation Accessibility

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

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## Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

## Related Documents

For a full list of guides, refer to the Books tab on Oracle Analytics Server Help Center.

<https://docs.oracle.com/en/middleware/bi/analytics-server/books.html>

## Conventions

The following text conventions are used in this document:

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

# Part I

## Overview of Oracle Analytics Developer Resources

This part introduces you to the Oracle Analytics developer resources.

**Topics:**

- [Introduction to Oracle Analytics Developer Resources](#)

# 1

## Introduction to Oracle Analytics Developer Resources

Oracle allows you to develop and extend your Oracle Analytics products with REST APIs, custom extension plug-ins, and embedded content.

### Developer Resources

Developer Resource	See
REST APIs	<a href="#">Oracle Analytics Server REST APIs</a> <a href="#">REST APIs for Oracle Analytics Publisher in Oracle Analytics Server</a>
SOAP APIs	<a href="#">SOAP APIs</a>
Custom Extensions	<a href="#">Create and Manage Custom Extensions</a>
Embedding content methods	<a href="#">Embed Content</a>

# Part II

## Create and Manage Custom Extensions

This part explains how to create and manage custom data action, visualization, and workbook extensions.

### Topics:

- [Create Custom Data Action Extensions](#)
- [Create Oracle Analytics Visualization and Workbook Extensions](#)
- [Manage Oracle Analytics Extensions](#)



# 2

## Create Custom Data Action Extensions

You can create custom data action extensions to use in Oracle Analytics.

Data action extensions extend Oracle Analytics and enable users to select data-points in visualizations and to invoke specific actions. Oracle Analytics provides a core set of data actions that cover many common use cases, but by writing your own data action extension, you can extend this functionality even further.

You must have a basic understanding of the following to create custom data action extensions:

- [JavaScript](#)
- [RequireJS](#)
- [jQuery](#)
- [KnockoutJS](#)

### Topics:

- [About Data Action Extensions and the Data Actions Framework](#)
- [Choose the Best Data Action Class to Extend](#)
- [Generate Data Action Extensions from a Template](#)
- [Generated Folders and Files](#)
- [Extend a Data Action Base Class](#)
- [Choose Which Data Action Inherited Methods to Override](#)
- [Test, Package, and Install Your Data Action](#)
- [Use an Upgrade Handler for Knockout Model Changes](#)
- [Upgrade Data Action Extensions](#)
- [Data Action Extension File Reference](#)

## About Data Action Extensions and the Data Actions Framework

Data action extensions leverage the data actions framework to provide custom, data-driven actions that are tightly integrated into the Oracle Analytics user interface.

When a user invokes a data action, the Data Action Manager passes the request context (for example, qualified data reference, measure values, filters and metadata) to the data action extension which is responsible for handling the request. Oracle provides four types of data action extensions: `CanvasDataAction`, `URLNavigationDataAction`, `HTTPAPIDataAction` and `EventDataAction`. You can extend these data action extension types along with their abstract base classes to provide your own data actions.

### Topics:

- [Data Action Categories](#)
- [Data Action Context](#)

- [Data Action Code Design](#)
- [Data Action Model Classes](#)
- [Data Action Service Classes](#)
- [Data Action Code Interactions](#)
- [Example Data Action plugin.xml File](#)
- [Data Action Extension Files and Folders](#)

## Data Action Categories

The data action categories include **Navigate to URL**, **HTTP API**, **Navigate to Canvas**, and **Event actions**:

- **Navigate to URL**: Opens the specified URL in a new browser tab.
- **HTTP API**: Uses the `GET/POST/PUT/DELETE/TRACE` commands to target an HTTP API and doesn't result in a new tab. Instead the HTTP status code is examined and a transient success or failure message is displayed.
- **Navigate to Canvas**: Enables the user to navigate from a source canvas to a target canvas in either the same or a different visualization. Any filters that are in effect in the source canvas are passed to the target canvas as external filters. When the target canvas opens, it attempts to apply the external filters to the visualization. The mechanism by which external filters are applied isn't described here.
- **Event Actions**: Publishes an event using the Oracle Analytics event router. Any JavaScript code (for example, a third-party extension) can subscribe to these events and handle their custom response accordingly. This provides the maximum flexibility because the extension developer can choose how the data action responds. For example, they can choose to display a user interface or pass data to multiple services at once.

Both the **Navigate to URL** and **HTTP API** data action category types can use a token syntax to inject data or metadata from the visualization into the `URL` and `POST` parameters.

### URL Token Replacement

HTTP data actions can replace tokens in URLs with values from the context passed to the data action. For example, qualified data reference values, filter values, username, workbook path, and canvas name.

Token	Notes	Replace With	Example	Result
<code>\$</code> <code>{valuesForColumn:COLUMN}</code>	NA	Column display values from the qualified data reference.	<code>\${valuesForColumn: "Sales"."Products"."Brand"}</code>	BizTech, FunPod
<code>\$</code> <code>{valuesForColumn:COLUMN, separator:"/"}</code>	Any token that can potentially be replaced with multiple values supports the optional separator option. The separator defaults to a comma (,) but you can set it to any string. You can escape double quotes inside this string by using a backslash (\).	Column display values from the qualified data reference.	<code>\${valuesForColumn: "Sales"."Products"."Brand"}</code>	BizTech, FunPod

Token	Notes	Replace With	Example	Result
\$ {valuesForColumn: COLUMN, separationStyle: individual}	Any separationStyle defaults to delimited but you can set it to individual if the user needs to generate separate URL parameters for each value.	Column display values from the qualified data reference.	&myParam=\$ {valuesForColumn: "Sales"."Products"."Brand"}	&myParam=BizTech&myParam=FunPod
\$ {keyValuesForColumn: COLUMN}	NA	Column key values from the qualified data reference.	\$ {keyValuesForColumn: COLUMN}	10001,10002
\${env:ENV_VAR}	Supported environment variables are: sProjectPath, sProjectName, sCanvasName, sUserID, and sUserName.	An environment variable.	\${env:'sUserID'}	myUserName

## Data Action Context

You can define a context that is passed when the user invokes a data action.

You define how much of the context is passed to the data action when you create the data action.

### Qualified Data Reference

When the data action is invoked a qualified data reference is generated for each marked data point using an array of `LogicalFilterTree` objects. A `LogicalFilterTree` consists of multiple `LogicalFilterNode` objects arranged in a tree structure. This object includes:

- The attributes on the row or column edges of the data layout.
- The specific measure on the measure edge that addresses each marked cell.
- The specific measure value for each marked cell.
- Key values and display values.

### Environment Variables

In addition to the data and metadata describing each marked data point, certain data actions may need further context describing the environment from where the data action is invoked. Such environment variables include:

- Project Path
- Project Name
- Canvas Name
- User ID
- User Name

## Data Action Code Design

You create data actions using API classes.

- There are four concrete classes of data action that inherit from the `AbstractDataAction` class:
  - `CanvasDataAction`
  - `URLNavigationDataAction`
  - `HTTPAPIDataAction`
  - `EventDataAction`
- You can create new types of data actions using the data action extension API.
- The registry of data action types is managed by the `DataActionPluginHandler`.
- Code that creates, reads, edits, deletes, or invokes instances of data actions does so by publishing events.
- Events are handled by the `DataActionManager`.

## Data Action Model Classes

There are several different types of data action model classes.

### **AbstractDataAction**

This class is responsible for:

- Storing the Knockout Model (subclasses are free to extend this with their own properties).
- Defining the abstract methods that subclasses must implement:
  - `+ invoke(oActionContext: ActionContext, oDataActionContext:DataActionContext) <<abstract>>`  
Invokes the data action with the passed context - should only be called by the `DataActionManager`.
  - `+ getGadgetInfos(oReport): AbstractGadgetInfo[] <<abstract>>`  
Constructs and returns the `GadgetInfos` responsible for rendering the user interface fields for editing this type of data action.
  - `+ validate() : DataActionError`  
Validates the data action and returns null if valid or a `DataActionError` if it's invalid.
- Providing the default implementation for the following methods used to render generic parts of the data action user interface fields:
  - `+ getSettings():JSON`  
Serializes the data action's Knockout Model to JSON ready to be included in the report (uses `komapping.toJS(_koModel)`).
  - `+ createNameGadgetInfo(oReport) : AbstractGadgetInfo`  
Constructs and returns the `GadgetInfo` that can render the data action's **Name** field.
  - `+ createAnchorToGadgetInfo(oReport) : AbstractGadgetInfo`  
Constructs and returns the `GadgetInfo` that can render the data action's **Anchor To** field.
  - `+ createPassValuesGadgetInfo(oReport) : AbstractGadgetInfo`

Constructs and returns the `GadgetInfo` that can render the data action's **Pass Values** field.

Subclasses may not need all of the `GadgetInfos` that the base class provides so they may not need to call all of these methods. By separating out the rendering of each field in this way, subclasses are free to pick and choose the gadgets they need. Some subclasses may even choose to provide a different implementation of these common data action gadgets.

### **CanvasDataAction, URLNavigationDataAction, HTTPAPIDataAction, EventDataAction**

These are the concrete classes for the basic types of data actions. These classes work by themselves to provide the generic user interface for these types of data action. They can also act as convenient base classes for custom data action plug-ins to extend.

- **CanvasDataAction:** Used to navigate to a canvas.
- **URLNavigationDataAction:** Used to open a web page in a new browser window.
- **HTTPAPIDataAction:** Used to make a GET/POST/PUT/DELETE/TRACE request to an HTTP API and handle the HTTP Response programmatically.
- **EventDataAction:** Used to publish JavaScript events through the Event Router.

Each class is responsible for:

- Implementing the abstract methods from the base class.
  - `invoke(oActionContext: ActionContext, oDataActionContext: DataActionContext)`  
This method should invoke the data action by combining the properties defined in the `KOModel` with the specified `DataActionContext` object.
  - `getGadgetInfos(oReport): AbstractGadgetInfo[]`  
This method should:
    - \* Create an array containing `AbstractGadgetInfos`.
    - \* Call individual `createXXXGadgetInfo()` methods pushing each `AbstractGadgetInfo` into the array.
    - \* Return the array.
- Providing the additional methods for creating the individual gadgets that are specific to the particular subclass of data action.

Subclasses of these concrete classes may not need to use all of the gadgets provided by their superclasses in their custom user interfaces. By separating out the construction of each gadget in this way, subclasses are free to pick and choose the gadgets they need.

### **DataActionKOModel, ValuePassingMode**

The `DataActionKOModel` class provides the base `KOModel` shared by the different subclasses of `AbstractDataAction`. See [DataActionKOModel Class](#).

## Data Action Service Classes

There are several different data action service classes.

### DataActionManager



All communication with `DataActionManager` uses `ClientEvents.DataActionManager` which implements event handlers for:

- Managing the set of data actions defined in the current workbook.
- Invoking a data action.
- Retrieving all the data actions defined in the current workbook.
- Retrieving all the data actions that are applicable to the current marked data points.

### DataActionContext, EnvironmentContext

When a data action is invoked, the `DataActionContext` class contains the context that's passed to the target.

- `getColumnValueMap()`  
Returns a map of attribute column values keyed by attribute column names. These define the qualified data reference for the data points that the data action is invoked from.
- `getLogicalFilterTrees()`  
Returns a `LogicalFilterTrees` object describing the qualified data references for the specific data points that the data action is invoked from (see the `InteractionService` for details).
- `getEnvironmentContext()`  
An instance of the `EnvironmentContext` class describing the source environment such as:
  - `getProjectPath()`
  - `getCanvasName()`
  - `getUserID()`
  - `getUserName()`
- `getReport()`  
Returns the report that the data action is invoked from.

### DataActionHandler

The `DataActionHandler` class registers the various data action extensions. Its API is broadly consistent with the other extension handlers (for example, `VisualizationHandler`).

The `DataActionHandler` class provides the following public methods:

- `getClassName(sPluginType:String) : String`  
Returns the fully qualified class name for the specified data action type.
- `getDisplayName(sPluginType:String) : String`  
Returns the translated display name for the specified data action type.
- `getOrder(sPluginType:String) : Number`  
Returns a number used to sort lists of the types of data action into the preferred order.

The `DataActionHandler` class provides the following static methods:

- `getDependencies(oPluginRegistry:Object) : Object.<String, Array>`  
Returns a dependency map covering all the registered data action types.
- `getHandler(oPluginRegistry:Object, sExtensionPointName:String, oConfig:Object) : DataActionPluginHandler`  
Constructs and returns a new instance of the `DataActionHandler` class.

### **DataActionUpgradeHandler**

The `DataActionUpgradeHandler` class is called by the `UpgradeService` when a report is opened.

The `DataActionHandler` class provides two main methods:

- `deferredNeedsUpgrade(sCurrentVersion, sUpgradeTopic, oDataActionJS, oActionContext) : Promise`  
Returns a `Promise` that resolves to a `Boolean` indicating whether the specified data action must be upgraded (`true`) or not (`false`). The method decides whether the data action must be upgraded by comparing the data action instance with the data action's constructor.
- `performUpgrade(sCurrentVersion, sUpgradeTopic, oDataActionJS, oActionContext, oUpgradeContext) : Promise`  
Carries out the upgrade on the specified data action and resolves the `Promise`. The upgrade itself is carried out by calling the `upgrade()` method on the data action (only the specific subclass of data action being upgraded is qualified to upgrade itself).
- `getOrder(sPluginType:String) : Number`  
Returns a number used to sort lists of the types of data action into the preferred order.

## **Data Action Code Interactions**

A data action interacts with Oracle Analytics code when it creates a user interface field, and when a user invokes a data action.

### **Create the Field for a New Data Action Instance**

This interaction starts when Oracle Analytics wants to render a data action user interface field. To do so, it:

1. Creates a `PanelGadgetInfo` that acts as the parent `GadgetInfo` for the `GadgetInfos` that the data action returns.
2. Calls `getGadgetInfos()` on the data action.
3. Adds the data action's `GadgetInfos` as children of the `PanelGadgetInfo` created in the first step.
4. Creates the `PanelGadgetView` that renders the `PanelGadgetInfo`.
5. Sets the `HTMLElement` that's the container of the `PanelGadgetView`.

6. Registers the `PanelGadgetView` as a child `HostedComponent` of a `HostedComponent` that's already attached to the `HostedComponent` tree.  
This renders the data action's gadgets inside the `Panel` gadget in the order they appear in the array returned by `getGadgetInfos()`.

### Invoke a Data Action

This interaction starts when the user invokes a data action through the Oracle Analytics user interface (for example, from the context menu on a data point in a visualization).

In response to the user interaction, the code:

1. Publishes an `INVOKE_DATA_ACTION` event containing the data action's ID, the `DataVisualization` that the data action is invoked from, and a `TransientVizContext` object.
2. The `DataActionManager` handles this event by:
  - a. Obtaining the data action instance from its ID.
  - b. Obtaining the `LogicalFilterTrees` for the marked data points in the specified `DataVisualization`.
  - c. Constructing a `DataActionContext` that contains all the information to pass to the data action's target.
  - d. Calling `invoke(oDataActionContext)` on the data action.

## Example Data Action plugin.xml File

This topic shows an example `plugin.xml` file for a `CanvasDataAction` data action.

### Example plugin.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:obiplugin xmlns:tns="http://plugin.frameworks.tech.bi.oracle"
  xmlns:viz="http://plugin.frameworks.tech.bi.oracle/extension-
points/visualization"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  id="obitech-currencyconversion"
  name="Oracle BI Currency Conversion"
  version="0.1.0.@qualifier@"
  optimizable="true"
  optimized="false">

  <tns:resources>
    <tns:resource id="currencyconversion" path="scripts/
currencyconversion.js" type="script" optimizedGroup="base"/>
    <tns:resource-folder id="nls" path="resources/nls" optimizable="true">
      <tns:extensions>
        <tns:extension name="js" resource-type="script"/>
      </tns:extensions>
    </tns:resource-folder>
  </tns:resources>

  <tns:extensions>
```



```

        <tns:extension id="oracle.bi.tech.currencyconversiondataaction" point-
id="oracle.bi.tech.plugin.dataaction" version="1.0.0">
            <tns:configuration>
                {
                    "resourceBundle": "obitech-currencyconversion/nls/messages",
                    "properties":
                    {
                        "className": "obitech-currencyconversion/
currencyconversion.CurrencyConversionDataAction",
                        "displayName": { "key" : "CURRENCY_CONVERSION", "default" :
"Currency Conversion" },
                        "order": 100
                    }
                }
            </tns:configuration>
        </tns:extension>
    </tns:extensions>

</tns:obiplugin>

```

## Data Action Extension Files and Folders

The following files and folders are used to implement data action extensions.

bitech/client/plugins/src/

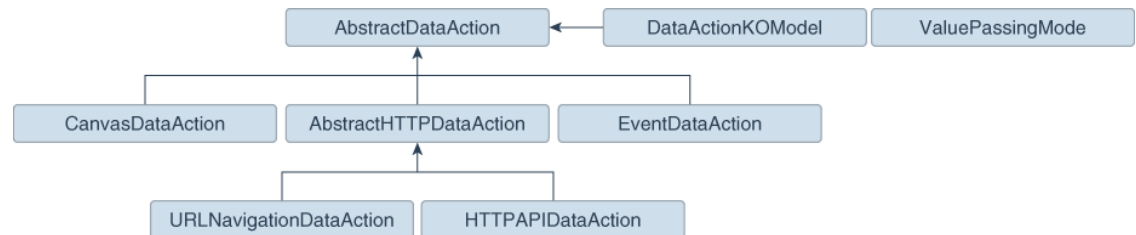
- report
  - obitech-report
    - \* scripts
      - \* dataaction
        - \* dataaction.js
        - \* dataactiongadgets.js
        - \* dataactionpanel.js
        - \* dataactionupgradehandler.js
- obitech-reportservice
  - scripts
    - \* dataaction
      - \* dataactionmanager.js
      - \* dataactionhandler.js

## Choose the Best Data Action Class to Extend

Before you start writing your custom data action extension, decide which of the existing data action classes you want to extend. Choose the data action class that provides functionality that most closely matches what you want your data action to do.

Each data action inherits from the `AbstractDataAction` class as shown in the class diagram. The class diagram shows the two abstract data action classes (`AbstractDataAction` and

`AbstractHTTPDataAction`) and the four concrete data action classes (`CanvasDataAction`, `URLNavigationDataAction`, `HTTPAPIDataAction`, and `EventDataAction`) that you can extend. Each data action that you provide must extend one of these classes. Which class you extend depends on the behavior you want to implement when you invoke your data action. Most third-party data actions are likely to extend either `URLNavigationDataAction`, `HTTPAPIDataAction` or `EventDataAction`.



Regardless of which class you extend, when your data action is invoked, you're provided with metadata describing the full context of the data-point from which the data action is invoked. See [Data Action Context](#).

## AbstractDataAction Class

`AbstractDataAction` is the abstract base class from which all types of data action inherit. It's responsible for providing common functionality and default behavior that the subclasses can use.

### AbstractDataAction

All types of data action are subclasses of the `AbstractDataAction` base class. It provides the core set of functionality common to all data actions. Unless you're creating a complex data action that carries out multiple types of action when invoked, or you need to do something not supported by the concrete classes, you shouldn't extend this class directly. If you need to create a complex data action then consider extending the concrete class that most closely provides the functionality you require.

## AbstractDataAction Syntax

```
+ AbstractDataAction(oKOModel)

+ getKOViewModel():DataActionKOModel

+ createFromJS(fDataActionConstructor, sClassName, oDataActionKOModelUS) :
AbstractDataAction

+ invoke(oActionContext, oDataActionContext)
+ getGadgetInfos(oReport) : AbstractGadgetInfo[]
+ validate() : DataActionError

+ getSettings() : Object
+ requiresActionContextToInvoke() : Boolean
+ isAllowedHere() : Boolean

# createNameGadgetInfo(oReport) : AbstractGadgetInfo
# createAnchorToGadgetInfo(oReport) : AbstractGadgetInfo
# createPassValuesGadgetInfo(oReport) : AbstractGadgetInfo
```

## DataActionKOModel Class

Each subclass of `AbstractDataAction` is likely to create its own subclass of `DataActionKOModel`. The `DataActionKOModel` base class provides the following properties:

### DataActionKOModel, ValuePassingMode

- `sID:String`  
The unique ID given to the data action instance.
- `sClass:String`  
The class name of this specific type of data action.
- `sName:String`  
The display name given to the data action instance.
- `sVersion`
- `sScopeID`
- `eValuePassingMode:ValuePassingMode`  
The mode used when passing context values. The mode can be one of the `ValuePassingMode` values (`ALL`, `ANCHOR_DATA`, `NONE`, `CUSTOM`).
- `aAnchorToColumns: ColumnKOViewModel[]`  
The columns that this data action is anchored to. This is optional. If not supplied, then the data action is available on all columns.
- `aContextColumns : ColumnKOViewModel[]`

The columns that this data action includes in the context passed to the data action target when the data action is invoked. If not supplied, all marked columns are included in the context.

## CanvasDataAction Class

`CanvasDataAction` is a subclass of the `AbstractDataAction` base class. You can extend this concrete class to provide the functionality you require.

### CanvasDataAction

Use the `CanvasDataAction` class to navigate from a data point in a visualization to a different canvas. The canvas you're navigating to can be in the same workbook or a different one. All the active filters for the source visualization are passed to the target canvas along with new filters that describe the Qualified Data Reference of the data point itself. If your data action needs to navigate to a different canvas then this is the class your data action should extend.

```
+ CanvasDataAction(oKOModel)

+ create(s)ID_sName) : CanvasDataAction
+ upgrade(oOldDataActionJS) : Object

+ invoke(oActionContext: ActionContext, oDataActionContext:DataActionContext)
+ getGadgetInfos(oReport) : AbstractGadgetInfo[]
+ validate() : DataActionError

# createProjectGadgetInfo(oReport) : AbstractGadgetInfo
# createCanvasGadgetInfo(oReport) : AbstractGadgetInfo
```

## EventDataAction Class

`EventDataAction` is a subclass of the `AbstractDataAction` base class. You can extend this concrete class to provide the functionality you require.

### EventDataAction

Use the `EventDataAction` class to publish a client-side event. You can then register one or more subscribers that listen for that event and perform their own actions. Use this type of data action in more complex use cases where you've a large amount of code and can benefit from

keeping your data action code loosely coupled to the code that performs the necessary actions when the data action is invoked.

```
+ EventDataAction(oKOModel)

+ create(sID_sName) : EventDataAction
+ upgrade(oOldDataActionJS) : Object

+ invoke(oActionContext: ActionContext, oDataActionContext:DataActionContext)
+ getGadgetInfos(oReport) : AbstractGadgetInfo[]
+ validate() : DataActionError

# createEventGadgetInfo(oReport) : AbstractGadgetInfo
```

## AbstractHTTPDataAction Class

**AbstractHTTPDataAction** is the abstract base class that the **URLNavigationDataAction** and **HTTPAPIDataAction** subclasses inherit common functionality and default behavior from.

### AbstractHTTPDataAction

The **AbstractHTTPDataAction** abstract base class is shared by both the **URLNavigationDataAction** and **HTTPAPIDataAction** classes. If your data action needs to open a web page in a new browser tab you must extend **URLNavigationDataAction**. If your data action needs to invoke an HTTP API then you should extend **HTTPAPIDataAction**. You may decide it's better to extend **AbstractHTTPDataAction** directly.

```
+ HTTPDataAction(oKOModel)

+ validate() : DataActionError

# createURLGadgetInfo(oReport) : AbstractGadgetInfo
```

## URLNavigationDataAction Class

**URLNavigationDataAction** is a subclass of the **AbstractHTTPDataAction** base class.

### URLNavigationDataAction

Use the **URLNavigationDataAction** class to open a specific URL in a new browser tab. You compose the URL using tokens that are replaced with values derived from data points that the user selects when they invoke the data action. The data point values are passed as part of the data action context to the external web page. For example, create a data action invoked using

a `CustomerID` column that opens a customer's web page in your Customer Relations Management application such as Oracle Sales Cloud.

```
+ URLNavigationDataAction(oKOModel)

+ create(sID_sName) : URLNavigationDataAction
+ upgrade(oOldDataActionJS) : Object

+ invoke(oActionContext: ActionContext, oDataActionContext:DataActionContext)
+ getGadgetInfos(oReport) : AbstractGadgetInfo[]
```

## HTTPAPIDataAction Class

`HTTPAPIDataAction` is a subclass of the `AbstractHTTPDataAction` base class. You can extend this concrete class to provide the functionality you require.

### HTTPAPIDataAction

Use the `HTTPAPIDataAction` class to invoke HTTP APIs by creating an asynchronous `XMLHttpRequest` (XHR) and submitting it to the specified URL. The HTTP response code enables a message to be displayed briefly on the canvas. For example, you can customize the request to send JSON or XML payloads to a REST or SOAP server and you can customize the response handler to show a custom user interface.

For the `HTTPAPIDataAction` data action to work, you must add the URL of the HTTP API you want to access to your list of Safe Domains and grant it **Connect** access. See Register Safe Domains.

```
+ HTTPAPIDataAction(oKOModel)

+ create(sID_sName) : HTTPAPIDataAction
+ upgrade(oOldDataActionJS) : Object

+ invoke(oActionContext: ActionContext, oDataActionContext:DataActionContext)
+ getGadgetInfos(oReport) : AbstractGadgetInfo[]

# createHTTPMethodGadgetInfo(oReport) : AbstractGadgetInfo
# createPostParamGadgetInfo(oReport) : AbstractGadgetInfo
```

## Generate Data Action Extensions from a Template

You use a series of commands to generate a development environment and populate it with a HTTP API Data Action along with the necessary folders and files that you need to create a custom data action extension.

All extensions files follow the same basic structure. You can manually create the files and folders or you can generate them from a template. The tools to do this are part of the Oracle Analytics Desktop software development kit (SDK) which is included with Oracle Analytics Desktop.

Use these commands to generate your development environment and populate it with a HTTP API data action.

1. At a command prompt, specify the root folder of your Oracle Analytics Desktop installation:  

```
set DVDESKTOP_SDK_HOME=C:\Program Files\Oracle Analytics Desktop
```
2. Specify the location to store your custom extensions:  

```
set PLUGIN_DEV_DIR=C:\temp\dv-custom-plugins
```
3. Add the SDK command line tools to your path using:  

```
set PATH=%DVDESKTOP_SDK_HOME%\tools\bin;%PATH%
```
4. Create a folder for the directory used to store the custom extensions using:  

```
mkdir %PLUGIN_DEV_DIR%
```
5. Change the directory to the folder for storing custom extensions:  

```
cd %PLUGIN_DEV_DIR%
```
6. Create the environment variables:  

```
bicreateenv
```
7. Create the template files needed to start developing a custom HTTP API data action, for example:  

```
bicreateplugin -pluginxml dataaction -id company.mydataaction -subType httpapi
```

Use the `-subType` option to specify the data action type that you want to create from: `httpapi`, `urlNavigation`, `canvasNavigation`, `event`, or `advanced`. The `advanced` option extends from the `AbstractDataAction` base class.

## Generated Folders and Files

Your newly generated data action development environment contains these folders and files:

```
1  %PLUGIN_DEV_DIR%\src\customdataaction
2      company-mydataaction\
3          extensions\
4              oracle.bi.tech.plugin.dataaction\
5                  company.mydataaction.json
6      nls\
7          root\
8              messages.js
9              messages.js
10             mydataaction.js
11             mydataactionstyles.css
12             plugin.xml
```

- **Line 2:** The `company-mydataaction` folder is the ID that you specify.
- **Line 6:** The `nls` folder contains the files for externalizing strings that enable your extension to provide Native Language Support.
- **Line 7:** The strings in the files under the `nls\root` folder are the default strings used when translations for a requested language aren't available.

- **Line 8:** The `messages.js` file contains externalized strings for your extension that you can add.
- **Line 9:** The `messages.js` file must contain an entry that you add for each additional language that you want to provide localized strings for. You must add a corresponding folder under the `nls` folder for each locale that you want to add translations for. Each folder must contain the same set of files, with the same file names as those added under the `nls\root` folder.
- **Line 10:** The `mydataaction.js` file is the newly generated JavaScript module template that provides a starting point to develop your custom data action.
- **Line 11:** The `mydataactionstyles.css` file can contain any CSS styles that you want to add, and which your data action's user interface can use.
- **Line 12:** The `plugin.xml` file registers your extension and its files with Oracle Analytics.

## Extend a Data Action Base Class

Once you've chosen the subclass of data action that you want to extend and have generated the necessary folders and files, you're ready to start writing the code specific to your new data action.

You can find your newly generated data action code under `%PLUGIN_DEV_DIR%\src\dataaction`. See [Generated Folders and Files](#) for an explanation of the files and folder structure. The main file you must edit is the JavaScript file. For example, if your custom data action ID is `company.MyDataaction`, then the file you're looking for is `%PLUGIN_DEV_DIR%\src\dataaction\company-mydataaction\mydataaction.js`.

### Extending Your Data Action's Knockout Model

If your data action has additional properties that need to be stored, then you must add them as observable properties to the Knockout Model. If your data action is given the ID `company.MyDataaction`, then the Knockout Model is called `mydataaction.MyDataActionKOModel` which is located near the top of `mydataaction.js`. By default, this Knockout Model is configured to extend the Knockout Model used by your data action's superclass so you only need to add additional properties to the model.

For a data action that's extending the `HTTPAPIDataAction` base class, use code similar to the following:

```
1 - mydataaction.MydataactionKOModel = function (sClass, sID, sName,
sVersion, sScopeID, aAnchorToColumns, eValuePassingMode, sURL,
    eHTTPMethod, sPOSTParams)
2 - {
3 - mydataaction.MydataactionKOModel.baseConstructor.call(this, sClass, sID,
sName, sVersion, sScopeID, aAnchorToColumns, eValuePassingMode, sURL,
eHTTPMethod, sPOSTParams);
4 - };
5 - jsx.extend(mydataaction.MydataactionKOModel,
dataaction.HTTPAPIDataActionKOModel);
```

- **Line 1:** This is the constructor for your Knockout Model. It accepts the properties that the model needs to store.
- **Line 3:** This is the superclass's constructor, otherwise known as the `baseConstructor` to which you pass the values for all of the properties that are handled by one of the Knockout Model's superclasses.



- **Line 5:** This sets the superclass for this Knockout Model class.

Use code similar to the following to add a string and an array to set properties that are persisted by the data action.

```

1  mydataaction.MydataactionKOModel = function (sClass, sID, sName,
sVersion, sScopeID, aAnchorToColumns, eValuePassingMode, sURL, eHTTPMethod,
sPOSTParams)
2  {
3  mydataaction.MydataactionKOModel.baseConstructor.call(this, sClass, sID,
sName, sVersion, sScopeID, aAnchorToColumns, eValuePassingMode, sURL,
eHTTPMethod, sPOSTParams);
4
5
6  // Set Defaults
7  sMyString = sMyString || "My default string value";
8  aMyArray = aMyArray || [];
9
10
11 // Asserts
12 jsx.assertString(sMyString, "sMyString");
13 jsx.assertArray(aMyArray, "aMyArray");
14
15
16 // Add observable properties
17 this.sMyString = ko.observable(sMyString);
18 this.aMyArray = ko.observableArray(aMyArray);
19 };
20 jsx.extend(mydataaction.MydataactionKOModel,
dataaction.HTTPAPIDataActionKOModel);

```

## Choose Which Data Action Inherited Methods to Override

Each data action must implement various methods in order to function properly, so you only need to override those methods that implement behavior that you want to change.

If you're extending one of the concrete data actions classes, for example `HTTPAPIDataAction`, then most of the required methods are already implemented and you only need to override the methods that implement the behavior you want to change.

### Generic Methods

This section describes the various methods and what's expected of them.

All types of data action must implement the methods that are described here.

#### **create(sID, sName)**

The `create()` static method is called when you're creating a new data action and select a **Data Action Type** from the drop-down menu. This method is responsible for:

- Constructing the Knockout Model class that your data action uses.  
The Knockout Model class must have the ID and name that's passed to the `create()` method along with sensible defaults for all other properties. For example, for a currency conversion data action you might want to set the default currency to convert into Dollars. The Knockout Model is the correct place to provide your default values.

- Constructing an instance of your data action from the Knockout Model.
- Returning the instance of your data action.

**invoke(oActionContext, oDataActionContext)**

The `invoke()` method is called when the user invokes your data action from the context menu for a data point in a visualization. The method passes the `DataActionContext` argument which contains metadata describing the selected data points, visualization, filters, workbook, and session. See [Data Action Service Classes](#).

**validate()**

The `validate()` method is called on each data action when the user clicks **OK** in the Data Actions dialog. The `validate()` method returns a `null` to indicate that everything is valid or a `DataActionError` if something is invalid. If there's an error in one of the data actions in the dialog, the error prevents the dialog from closing and an error message is displayed to the user. This method validates the name of the data action using the `this.validateName()` method.

**getGadgetInfos(oReport)**

The `getGadgetInfos()` method is called to enable the user interface to display data action property fields. The method returns an array of `GadgetInfos` in the order you want them to appear in the user interface. Gadgets are provided for all of the most common types of fields (for example, text, drop-down, password, multi-select, radio button, check box) but you can create custom gadgets if you want more complicated fields (for example, where multiple gadgets are grouped together, or where different gadget fields display depending on which option you select). It's a best practice to create a method that constructs each `GadgetInfo` you want in your array, as it makes it easier for potential subclasses to pick and choose from the `GadgetInfos` you've provided. If you follow this best practice there are already various methods implemented by the different data action base classes that can return a `GadgetInfo` for each of the fields that they use in their user interfaces. If you also need one of these `GadgetInfos` then you call the corresponding `create****GadgetInfo()` method and push its return value into your array of gadgets.

**isAllowedHere(oReport)**

The `isAllowedHere()` method is called when the user right-clicks on a data-point in a visualization and the user interface starts to generate the context menu. If a data action exists that's relevant to the selected data-points, then the method returns `true` and the data action appears in the context menu. If the method returns `false`, then the data action doesn't appear in the context menu. Consider accepting the default behavior inherited from the superclass.

**upgrade(oOldDataActionJS)**

If you're creating your first data action then don't use the `upgrade(oOldDataActionJS)` method. Only use this method after you've created your first Knockout Model and are making significant changes to properties for a second version of your Knockout Model. For example, if the first version of your data action stores a URL in its Knockout Model, but you decide that the next version will store URL component parts in separate properties (for example, `protocol`, `hostname`, `port`, `path`, `queryString` and `bookmark`).

The second version of your Knockout Model code would request to open a data action that had been saved with the first version of your Knockout Model code which can cause problems. To resolve this issue, the system identifies that your current data action code version is newer than that of the data action being opened and it calls the `upgrade()` method on your new data action class and passes in the old data action Knockout Model (serialized to a JSON object). You can then use the old JSON object to populate your new Knockout Model and return an

upgraded version of the JSON object. This ensures that old data action metadata continues to work as you improve your data action code.

### HTTPAPIDataAction Methods

If you're extending the `HTTPAPIDataAction` class, then it provides the following additional method that you may choose to override:

#### `getAJAXOptions(oDataContext)`

The `getAJAXOptions()` method is called by the data action's `invoke()` method. The `getAJAXOptions()` method creates the `AJAX Options` object that describes the HTTP request that you want your data action to make. The `getAJAXOptions()` method is passed the `oDataContext` object that contains the metadata describing the selected data-points, visualization, filters, workbook, and session. Set the `AJAX Options` as required by the HTTP API you're trying to integrate with and specify the functions you want to be called when the `HTTPRequest` is successful or results in an error. See the `jQuery` website for an explanation of the `jQuery.ajax` object and its properties.

The following implementation is inherited from the `HTTPAPIDataAction` class. You need to rewrite the inherited method to specify requirements. For example, forming the HTTP request, and the code that handles the HTTP response. This implementation is useful as it shows the parameters passed to the `getAJAXOptions()` function, the object that it's expected to return, and gives a clear example of how to structure the code inside the method.

```

1 /**
2  * This method returns an object containing the AJAX settings used when the
3  * data action is invoked.
4  * Subclasses may wish to override this method to provide their own
5  * behavior.
6  * @param {module:obitech-reportservices/
7  * dataactionmanager.DataActionContext} oDataContext The context metadata
8  * describing where the data action was invoked from.
9  * @returns {?object} A JQuery AJAX settings object (see http://
10 * api.jquery.com/jquery.ajax/ for details) - returns null if there is a
11 * problem.
12 */
13 dataaction.HTTPAPIDataAction.prototype.getAJAXOptions = function
14 (oDataContext)
15 {
16     jsx.assertInstanceOfModule(oDataContext, "oDataContext",
17     "obitech-reportservices/dataactionmanager", "DataActionContext");
18
19     var oAJAXOptions = null;
20     var oKOViewModel = this.getKOViewModel();
21     var sURL = oKOViewModel.sURL();
22     if (sURL)
23     {
24         // Parse the URL
25         var sResultURL = this._parseURL(sURL, oDataContext);
26         if (sResultURL)
27         {
28             // Parse the POST parameters (if required)
29             var eHTTPMethod = oKOViewModel.eHTTPMethod()[0];
30             var sData = null;
31             if (eHTTPMethod ===
32 dataaction.HTTPDataActionKOModel.HTTPMethod.POST)

```

```

24      {
25          var sPOSTParams = oKOVViewModel.sPOSTParams();
26          sData =
sPOSTParams.replace(dataaction.AbstractHTTPDataAction.RegularExpressions.LINE_
END, "&");
27          sData = this._parseURL(sData, oDataActionContext, false);
28      }
29      oAJAXOptions = {
30          type: eHTTPMethod,
31          url: sResultURL,
32          async: true,
33          cache: false,
34          success: function (/*oData, sTextStatus, oJQXHR*/)
35          {
36
oDataActionContext.getReport().displaySuccessMessage(messages.HTTP_API_DATA_AC
TION_INVOCATION_SUCCESSFUL.format(oKOVViewModel.sName()));
37          },
38          error: function (oJQXHR/*, sTextStatus, sError*/)
39          {
40
oDataActionContext.getReport().displayErrorMessage(messages.HTTP_API_DATA_ACTI
ON_INVOCATION_FAILED.format(oKOVViewModel.sName(), oJQXHR.statusText,
oJQXHR.status));
41          }
42      };
43      if (sData)
44      {
45          oAJAXOptions.data = sData;
46      }
47  }
48  }
49  return oAJAXOptions;
50 };

```

## Test, Package, and Install Your Data Action

You use Oracle Analytics Desktop to test your data action from its source location before you install it.

1. If Oracle Analytics Desktop is currently running, close it.
2. If you're working behind a proxy, set the proxy settings in `%PLUGIN_DEV_DIR%\gradle.properties`. For information about accessing the web through HTTP proxy, see Gradle User Manual.
3. Run Oracle Analytics Desktop in SDK mode by using the command prompt you started in [Choose Which Data Action Inherited Methods to Override](#) and enter the following commands:

```

cd %PLUGIN_DEV_DIR%
.\gradlew run

```

Oracle Analytics Desktop starts in SDK mode. Your data action extension appears in the Console | Extensions page.

Create a workbook and test your data action. If you find any issues, you can debug your code using your browser's built-in developer tools.

4. If you created an HTTP API data action:
  - a. Go to the Console and display the Safe Domains page.
  - b. Add each domain that you want to access.  
  
For example, if you need access to the `apilayer.com` APIs, add `apilayer.net` to the list of safe domains.
  - c. Click the **Connect** column checkbox for the selected domain.
  - d. Reload the Safe Domains page in your browser for the changes to take effect.
5. If you want to prepare your data action extension to distribute to other people or to install in Oracle Analytics:
  - Package all of the files into a single ZIP file containing the `%PLUGIN_DEV_DIR%\src\customdataaction` folder and its contents.
  - Name the zip using the same ID you gave to your data action extension when you created it.
6. Install your data action extension. See [Manage Oracle Analytics Extensions](#).

## Use an Upgrade Handler for Knockout Model Changes

For some Knockout Model changes you need to upgrade your data action extension using an upgrade handler.

When you're making improvements to your data action extension without making changes to the Knockout Model you normally edit your JavaScript or CSS files, create a new ZIP file, and replace the existing data action extension with the new ZIP file. However, if you've made changes to your data action's Knockout Model then you might need to change the data action `VERSION` property and provide an upgrade handler.

Decide whether you need to use an upgrade handler:

### Upgrade Handler Required

- If you rename a property in your Knockout Model.
- If you combine multiple properties into a single property in your Knockout Model.
- If you split a single property into multiple properties in your Knockout Model.
- If you add a new property to the Knockout Model and the correct default value for it depends on other values in the Knockout Model.

### Upgrade Handler Not Required

- If you add a new property to the Knockout Model and can provide a default value that's correct for all existing usages of your data action.
- If you remove a property from the Knockout Model because it's no longer used by your data action code.

## Upgrade Data Action Extensions

Upgrade your data action extensions to improve the data action code or upgrade the metadata to enable existing data actions to work with new data action code.

Use an upgrade handler to upgrade a data action extension.

1. Increase the version number of your data action.

For example, if your data action is called `company.MyDataAction`, then search `mydataaction.js` for the `mydataaction.MyDataAction.VERSION` property. If it's currently set to `1.0.0` then change it to `1.0.1`.

2. Add a static `upgrade(oOldDataActionJS)` method to your data action's class.

If the `VERSION` property differs from the `sVersion` value stored in the data action metadata then the Data Action Manager calls the static `upgrade()` method on your data action's class.

3. Implement your `upgrade()` method by calling the `upgrade()` method on the superclass and capture its response.
4. Continue to implement your `upgrade()` method by making further edits to the partially upgraded data action JSON returned by the superclass, until the object matches the correct set of properties required by your latest Knockout Model.
5. To finish call `var oUpgradedDataAction = dataaction.AbstractDataAction.createFromJS(fDataActionClass, sFullyQualifiedDataActionClassName, oUpgradedDataActionJS)`.

This command constructs a new instance of your data action from the upgraded data action JSON and returns `oUpgradedDataAction.getSettings()`.

## Data Action Extension File Reference

Each data action extension requires a `plugin.xml` file and each `plugin.xml` file can contain any number of data actions.

### Topics:

- [Data Action plugin.xml File Example](#)
- [Data Action plugin.xml File Properties Section - `tns:obiplugin`](#)
- [Data Action plugin.xml File Resources Section - `tns:resources`](#)
- [Data Action plugin.xml File Extensions Section - `tns:extension`](#)

## Data Action plugin.xml File Example

The `plugin.xml` file has three main sections, `tns:obiplugin`, `tns:resources`, and `tns:extension`.

### Example plugin.xml

This example shows a typical `plugin.xml` file for one data action.

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <tns:obiplugin xmlns:tns="http://plugin.frameworks.tech.bi.oracle"
```

```

3         id="obitech-currencyconversion"
4         name="Oracle BI Currency Conversion"
5         version="0.1.0.@qualifier@"
6         optimizable="true"
7         optimized="false">
8
9
10    <tns:resources>
11        <tns:resource id="currencyconversion" path="scripts/
currencyconversion.js" type="script" optimizedGroup="base"/>
12        <tns:resource-folder id="nls" path="resources/nls" optimizable="true">
13            <tns:extensions>
14                <tns:extension name="js" resource-type="script"/>
15            </tns:extensions>
16        </tns:resource-folder>
17    </tns:resources>
18
19
20    <tns:extensions>
21        <tns:extension id="oracle.bi.tech.currencyconversiondataaction" point-
id="oracle.bi.tech.plugin.dataaction" version="1.0.0">
22            <tns:configuration>
23                {
24                    "host": { "module": "obitech-currencyconversion/
currencyconversion" },
25                    "resourceBundle": "obitech-currencyconversion/nls/messages",
26                    "properties":
27                    {
28                        "className": "obitech-currencyconversion/
currencyconversion.CurrencyConversionDataAction",
29                        "displayName": { "key" : "CURRENCY_CONVERSION", "default" :
"Currency Conversion" },
30                        "order": 100
31                    }
32                }
33            </tns:configuration>
34        </tns:extension>
35    </tns:extensions>
36
37 </tns:obiplugin>

```

## Data Action plugin.xml File Properties Section - tns:obiplugin

The `tns:obiplugin` section defines properties common to all types of extensions.

### Extension Properties

The `tns:obiplugin` section defines properties common to all types of extensions.

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <tns:obiplugin xmlns:tns="http://plugin.frameworks.tech.bi.oracle"
3     id="obitech-currencyconversion"
4     name="Oracle BI Currency Conversion"
5     version="0.1.0.@qualifier@"

```

```
6         optimizable="true"
7         optimized="false">
```

- **Line 1:** The XML declaration.
- **Line 2:** The opening tag for the extension's root XMLElement and the declaration for the `tns` namespace that's used throughout `plugin.xml` files.
- **Line 3:** The extension's unique ID.
- **Line 4:** The extension's default display name (used when a localized version isn't available).
- **Line 5:** The extension's version number.
- **Line 6:** A boolean indicating whether or not the JS/CSS can be optimized (compressed).
- **Line 7:** A boolean indicating whether or not the JS/CSS has been optimized (compressed).

## Data Action plugin.xml File Resources Section - `tns:resources`

The `tns:resources` section registers all of the files that contribute to your extension.

### Resources

```
1 <tns:resources>
2   <tns:resource id="currencyconversion" path="scripts/
currencyconversion.js" type="script" optimizedGroup="base"/>
3   <tns:resource-folder id="nls" path="resources/nls" optimizable="true">
4     <tns:extensions>
5       <tns:extension name="js" resource-type="script"/>
6     </tns:extensions>
7   </tns:resource-folder>
8 </tns:resources>
```

You need to register each JavaScript, CSS, Image, and Translation Resource File here. The section is contained within the `<tns:resources>` element and contains any number of the following elements:

- `<tns:resource>`  
These elements are used to register a single file (for example, a JavaScript or CSS file).
- `<tns:resource-folder>`  
These elements are used to register all the files under a specified folder at the same time. For example, an image folder or the folder containing the resource files for Native Language Support.

More information on how to register each type of file is provided in the following sections.

### JavaScript Files

Each JavaScript file in your extension must be registered with a line similar to the one shown below.

```
<tns:resource id="currencyconversion" path="scripts/currencyconversion.js"
type="script" optimizedGroup="base"/>
```



Where:

- **id** is the ID given to the file.  
Set the ID to match the JavaScript filename without the .js extension.
- **path** is the relative path to the JavaScript file from the plugin.xml file. JavaScript files should be stored under your extension's `scripts` directory.  
Use all lowercase for your JavaScript files with no special characters (for example, underscore, hyphen).
- **type** is the type of file being registered. It must be set to `script` for JavaScript files.
- **optimizedGroup** groups multiple JavaScript files into a single compressed file. Third-party extensions must leave this set to `base`.

### CSS Files

Each CSS file in your extension must be registered with a line similar to the one shown below.

```
<tns:resource id="currencyconversionstyles" path="resources/  
currencyconversion.css" type="css"/>
```

Where:

- **id** is the ID given to the file.  
Set the ID to match the CSS filename without the .css extension.
- **path** is the relative path to the CSS file from the plugin.xml file. CSS files should be stored under your extension's `resources` directory.  
Use all lowercase for your CSS files with no special characters (for example, underscore, hyphen).
- **type** is the type of file being registered. It should always be set to `css` for CSS files.

### Image Folders

If your extension has images that you need to refer to from within your JavaScript code, then put them in a `resources/images` directory within your extension's directory structure and add a `<tns:resource-folder>` element to your `plugin.xml` as follows:

```
<tns:resource-folder id="images" path="resources/images" optimizable="false"/>
```

If your images are only referenced by your CSS files, then you don't need to add this `<tns:resource-folder>` element to your `plugin.xml` file. In this case, you must still add them to the `resources/images` directory so that you can then refer to them using a relative path from your CSS file.

### Native Language Support Resource Folders

Oracle Analytics implements Native Language Support. This requires developers to externalize the strings they display in their user interface into separate JSON resource files. You can then provide different localized versions of those files in a prescribed directory structure and Oracle Analytics automatically uses the correct file for the user's chosen language. You can provide as many translated versions of the resource files as needed. A Native Language Support resource folder points Oracle Analytics to the root of the prescribed Native Language Support directory structure used by your extension. All extensions that use Native Language Support

resource files must have a `<tns:resource-folder>` entry that looks exactly like the example below.

```
1 <tns:resource-folder id="nls" path="resources/nls" optimizable="true">
2   <tns:extensions>
3     <tns:extension name="js" resource-type="script"/>
4   </tns:extensions>
5 </tns:resource-folder>
```

See [Generated Folders and Files](#) for details about the contents of the files and the prescribed directory structure that you should follow.

## Data Action plugin.xml File Extensions Section - `tns:extension`

For each data action you want your extension to provide, you must register a data action extension using a `<tns:extension>` element similar to this:

```
<tns:extension id="oracle.bi.tech.currencyconversiondataaction" point-
id="oracle.bi.tech.plugin.dataaction" version="1.0.0">
  <tns:configuration>
    {
      "host": { "module": "obitech-currencyconversion/currencyconversion" },
      "resourceBundle": "obitech-currencyconversion/nls/messages",
      "properties":
      {
        "className": "obitech-currencyconversion/
currencyconversion.CurrencyConversionDataAction",
        "displayName": { "key" : "CURRENCY_CONVERSION", "default" :
"Currency Conversion" },
        "order": 100
      }
    }
  </tns:configuration>
</tns:extension>
```

Where:

- **id** is the unique ID you give to your data action.
- **point-id** is the type of extension you want to register. For data action extensions, this must be set to `oracle.bi.tech.plugin.dataaction`.
- **version** is the extension API version that your extension definition uses (leave this set to **1.0.0**).

The `<tns:configuration>` element contains a JSON string that defines:

- **host.module** - This is the fully qualified name of the module containing your data action. This fully qualified module name is formulated as `%PluginID%/%ModuleName%`, where:
  - `%PluginID%` must be replaced with the extension ID you specified in the `id` attribute of the `<tns:obiplugin>` element.
  - `%ModuleName%` must be replaced with the resource ID you specified in the `id` attribute of the `<tns:resource>` element for the JavaScript file containing your data action.

- **resourceBundle** - This is the Native Language Support path to the resource file that contains this data action's localized resources. If your resource files are named `messages.js` and stored correctly in the prescribed `nls` directory structure, then set this property to `%PluginID%/nls/messages` (where `%PluginID%` must be replaced with the extension ID you specified in the `id` attribute of the `<tns:obiplugin>` element at the top of the `plugin.xml` file).
- **properties.className** - This is the fully qualified class name given to the data action you're registering. This fully qualified class name is formulated as `%PluginID%/%ModuleName%.%ClassName%`, where:
  - `%PluginID%` must be replaced with the extension ID you specified in the `id` attribute of the `<tns:obiplugin>` element.
  - `%ModuleName%` must be replaced with the resource ID you specified in the `id` attribute of the `<tns:resource>` element for the JavaScript file containing your data action.
  - `%ClassName%` must be replaced with the name you gave to the data action class in your JavaScript file.
- **properties.displayName** - This property contains an object and two further properties:
  - **key** is the Native Language Support message key that can be used to lookup the data action's localized display name from within the specified `resourceBundle`.
  - **default** is the default display name to use if for some reason the localized version of the display name can't be found.
- **properties.order** - This property enables you to provide a hint that's used to determine the position that this data action should appear when shown in a list of data actions. Data actions with lower numbers in their `order` property appear before data actions with higher numbers. When there's a tie, the data actions are displayed in the order they're loaded by the system.

# 3

## Create Oracle Analytics Visualization and Workbook Extensions

This chapter describes how to set up your development environment to create and test custom visualization and workbook extensions.

### Topics:

- [About the Oracle Analytics Extension Development Environment](#)
- [Set Up the Oracle Analytics Extension Development Environment on Mac](#)
- [Set Up the Oracle Analytics Extension Development Environment on Windows](#)
- [Work with Extensions](#)

## About the Oracle Analytics Extension Development Environment

After you set up your extension development environment, you use the scripts and SDK provided with Oracle Analytics Desktop to create, develop, and test custom visualization and workbook extensions.

### Topics:

- [Workflow to Set Up the Oracle Analytics Extension Development Environment](#)
- [Oracle Analytics Extensions Development Scripts](#)
- [Types of Oracle Analytics Extensions](#)
- [Oracle Analytics Extension Development Resources](#)
- [Oracle Analytics Extensions Limitations](#)

## Workflow to Set Up the Oracle Analytics Extension Development Environment

Here are the tasks you need to complete to set up your extension development environment. You can begin creating your extensions after you've successfully set up your environment.

Task	Description	More Information
Install Oracle Analytics Desktop	Provides the scripts you need to create your environment and create an extension skeleton. Oracle Analytics Desktop also functions as a local environment where you run and test your extensions.	<a href="#">Install Oracle Analytics Desktop on Mac</a> <a href="#">Install Oracle Analytics Desktop on Windows</a>
Install Java JDK	Provides the Java tools and libraries required to build your extensions.	<a href="#">Install Java JDK on Mac</a> <a href="#">Install Java JDK on Windows</a>

Task	Description	More Information
Set variables on your computer	Ensures that the Oracle Analytics Desktop scripts work properly. For Mac you configure bash profile, and for Windows you set user variables.	<a href="#">Update Bash Profile or ZSHRC File and Create the Development Directory on Mac</a> <a href="#">Set User Variables and Create a Development Directory on Windows</a>
Add a directory to contain your development environment	Provides a location where you create your development environment.	<a href="#">Update Bash Profile or ZSHRC File and Create the Development Directory on Mac</a> <a href="#">Set User Variables and Create a Development Directory on Windows</a>
Create your extension development environment	Provides the framework and resources you use to create and develop extensions.	<a href="#">Create the Extension Development Environment on Mac</a> <a href="#">Create the Extension Development Environment on Windows</a>

## Oracle Analytics Extensions Development Scripts

Your installation of Oracle Analytics Desktop includes the scripts you use to create your development environment and create and work with extensions.

- **bicreateenv** - Run this script to create the environment where you develop your extensions.
- **bicreateplugin** - Run this script to create a skeleton extension. For information about the types of extensions that you can create with this script, see [Types of Oracle Analytics Extensions](#).
- **bideleteplugin** - Run this script to delete an extension from your development environment.
- **bvalidate** - Run the `gradlew validate` command to call this script. The `bvalidate` script validates that the JSON configuration files are properly formatted and contain the appropriate extension configuration.

## Types of Oracle Analytics Extensions

This topic lists the types of extensions you can create when you run the `bicreateplugin` script.

### Visualization Extensions

Running the `bicreateplugin` command creates a folder containing the files that you use to develop your visualization extension. The entry point of the visualizations is the `render()` method on the file `<vizName>.js`. The `render()` method is invoked during the creation of the visualization and during events like `resize`, `data update`, and so on.

You can create the following types of visualization extensions.

- **basic** - Creates a visualization that doesn't use any data from Oracle Analytics or any data model mapping. This is like the Image and Text visualization types delivered with Oracle Analytics.

For example, you can use this visualization type to show an image or some text that's coded into the extension or from a configuration. You can use this type of visualization to improve formatting.

- **dataviz** - Creates a visualization that renders data from data sources registered with Oracle Analytics into a chart or table or some other representation.
- **embeddableDataviz** - Creates a visualization that renders data from data sources registered with Oracle Analytics into the cells of a trellis visualization.

### Workbook Extension

You can create a workbook extension.

- **workbook** - Creates the base structure that you use to develop a workbook-scoped extension. The extension's entry point is the `performMainAction` method. This code exists in the .js file created by the extension command, for example `workbook.js`.

## Oracle Analytics Extension Development Resources

Oracle Analytics provides information to help you develop your extensions.

- **circlePack sample** - The circlePack sample is included in your development environment to help you learn how to develop a visualization extension. You can deploy and use this sample immediately. You can also copy the sample and use it as a template for the visualization extensions that you want to create.

The circlePack sample is located in your development environment, for example `<your_development_directory>\src\sampleviz\sample-circlepack`

- **Extensions library** - Extensions are available for you to download from the [Oracle Analytics Extensions library](#).
- **JS API documentation** - The API documentation contains JavaScript reference information that you need to develop an extension.
- **Oracle Analytics product documentation** - These resources contain information about how to create workbooks and visualizations:

[Begin to Build a Workbook and Create Visualizations](#)

[Get Started with Visualizations video](#)

## Oracle Analytics Extensions Limitations

The extensions that you create are custom code and may not work properly in all browsers or on all devices.

When creating an extension, you as the developer must test all of the browsers and devices that you want the extension to render on.

Also, in some cases extensions may not work in the Oracle Analytics mobile application due to application restrictions that don't apply to browsers.

# Set Up the Oracle Analytics Extension Development Environment on Mac

This topic describes the tasks you need to perform to set up and use your Oracle Analytics extension development environment.

## Topics:

- [Install Oracle Analytics Desktop on Mac](#)
- [Install Java JDK on Mac](#)
- [Update Bash Profile or ZSHRC File and Create the Development Directory on Mac](#)
- [Create the Extension Development Environment on Mac](#)
- [Create a Skeleton Extension on Mac](#)
- [Test Your Visualization and Workbook Extensions on Mac](#)

## Install Oracle Analytics Desktop on Mac

Oracle Analytics Desktop provides the scripts needed to create your development environment and extension skeletons, and a local test environment.

Install or upgrade to the latest version of Oracle Analytics Desktop.

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#) .

1. Go to [Oracle Analytics Desktop Installation Download](#), click **Download** and log into your Oracle Cloud account.
2. In the Oracle Software Delivery Cloud page, click **Platforms** and select **Apple Mac OS X**.
3. Review and accept the license agreement. Click the Oracle Analytics Desktop ZIP file to download it.
4. Go to the download location on your computer, click the ZIP file, and click `Oracle_Analytics_Desktop_<version>_Mac.pkg` and perform the installation.
5. Navigate to the Applications folder and confirm the installation created these applications:
  - Oracle Data Visualization for Desktop
  - Oracle Data Visualization for Desktop Configure Python

## Install Java JDK on Mac

Use a Java JDK version that's compatible with your macOS and processor. All examples in this chapter were developed with Java JDK 8u201.

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#) .

1. Open Terminal and enter this command to check if you have Java JDK installed.

```
java -version
```

2. If one or more Java JDK is installed, confirm that one is compatible with your macOS and processor.
3. If you need to install Java JDK, go to [Java SE 8 Archive Downloads](#).

4. In the table, click the macOS tab. Locate and download the install file compatible with your macOS and processor.
5. Locate and run the downloaded installation file.
6. After the installation completes, in Terminal enter this command to check that the Java JDK version you picked installed successfully:

```
java -version
```

## Update Bash Profile or ZSHRC File and Create the Development Directory on Mac

Modify your bash profile or ZSHRC file to include the variables required by the Oracle Analytics Desktop scripts. Then create the development directory to contain your development environment.

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#) .

1. To modify your Bash Profile, go to the home directory and check if `bash_profile` is visible. If not, press **Command + Shift + .** to make `bash_profile` visible.

To modify your ZSHRC file, open Terminal and run this command: .

```
open ~/.zshrc
```

2. Add these lines to `bash_profile` or `ZSHRC`.

In `PLUGIN_DEV_DIR` specify the location of the development directory, for example `/Users/<username>/Documents/dv-custom-plugins`.

```
export DVDESKTOP_SDK_HOME=/Applications/dvdesktop.app/Contents/Resources/app.nw
```

```
export PLUGIN_DEV_DIR=/Users/<username>/Documents/dv-custom-plugins
```

```
export PATH=${DVDESKTOP_SDK_HOME}/tools/bin:$PATH
```

```
export JAVA_HOME=/Library/Java/JavaVirtualMachines/jdk-1.8.jdk/Contents/Home/
```

3. For `bash_profile`, open Terminal and run this command to apply the changes:

```
source ~/.bash_profile
```

For the `ZSHRC` file, open Terminal and run this command to apply the changes:

```
source ~/.zshrc
```

4. To create the extension development directory, open Terminal and run this command:

```
mkdir $PLUGIN_DEV_DIR
```



## Create the Extension Development Environment on Mac

After you configure bash profile, you run the `bicreateenv` script to create the development environment that contains the resources you need to create extensions.

For information about the options available for running this script, see the script's command-line help, for example:

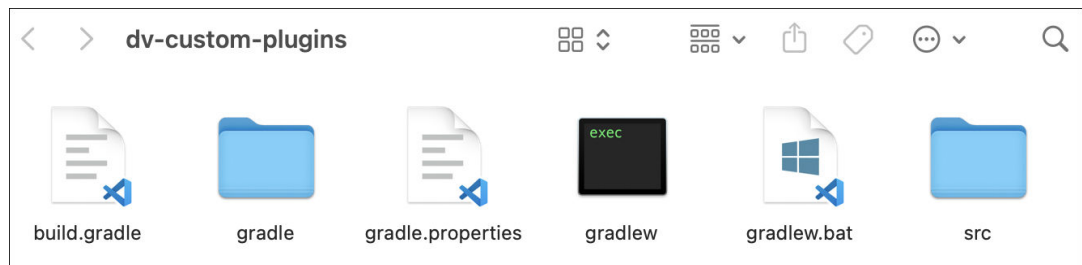
```
cd $PLUGIN_DEV_DIR
bicreateenv -help
```

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#).

1. In Finder, navigate to the extension directory and run the `bicreateenv` script to create the environment:

```
cd $PLUGIN_DEV_DIR
bicreateenv
```

2. Navigate to the directory that you created and confirm that its contents look like this:



3. Open `build.gradle` and search for `-pluginDevDir`. If the `-pluginDevDir` argument contains capital letters, change them to lowercase letters. The modified argument should look like this:

```
args '-sdk', "-plugindevdir=${projectDir}${File.separator}src"
```

4. Optional: If you're working behind a web proxy, open `gradle.properties` and add system properties that point to your proxy.

Use the following example to set your system properties:

```
systemProp.https.proxyHost=www-proxy.somecompany.com
systemProp.https.proxyPort=80
systemProp.https.nonProxyHosts=*.somecompany.com|*.companyaltname.com
```

## Create a Skeleton Extension on Mac

Use the `bicreateplugin` script to create an Oracle Analytics extension skeleton.

For information about the extensions you can create when you run the `bicreateplugin` script, see [Types of Oracle Analytics Extensions](#).

Running the script creates a folder in your `PLUGIN_DEV_DIRECTORY` environment. This folder contains the files that you use to develop the extension. The `<extension_name>.js` render method is the entry point where you can start writing code.

The `bicreateplugin` script uses the following syntax:

```
bicreateplugin viz -subType <subtypename> -id <com.company.yourVizName>
```

Where:

`subType` is the type of visualization extension you want to create. Valid values are `basic`, `dataviz`, and `embeddableDataviz`. Don't include `subType` when you create a workbook extension.

`id` is the name of the extension. The name you specify must be in this format: `<com.company.yourVizName>`.

1. In Terminal, navigate to your extension development directory, run the `bicreateplugin` script.

This example shows how to create a `dataviz` skeleton extension:

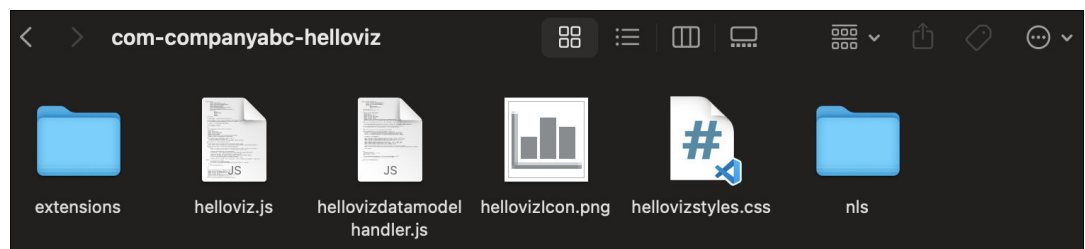
```
bicreateplugin viz -subType dataviz -id com.companyabc.helloviz
```

This example shows how to create a workbook skeleton extension:

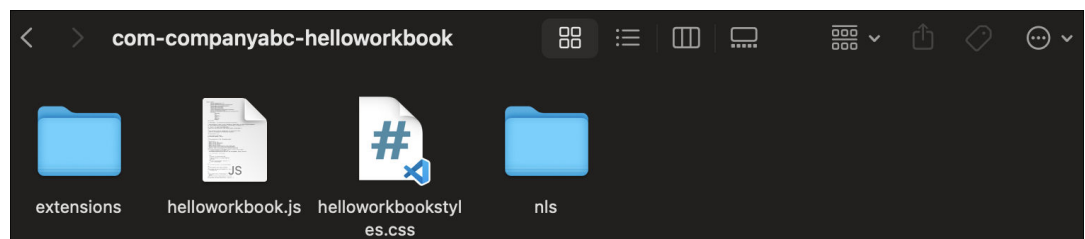
```
bicreateplugin workbook -id com.companyabc.helloworldbook
```

2. In Finder, navigate to the `src/customviz` folder and confirm that a new folder was created and that its name matches the extension name you specified when you ran the script.

This example shows a `dataviz` extension's directory:



This example shows a workbook extension's directory:



## Test Your Visualization and Workbook Extensions on Mac

Use Terminal to run Oracle Analytics Desktop in SDK mode to test your Oracle Analytics visualization and workbook extensions. Running Oracle Analytics Desktop in SDK mode opens Oracle Analytics Desktop in the browser.

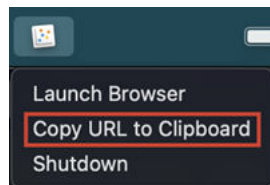
For information about creating workbooks and adding visualizations to workbooks, see the *Oracle Analytics product documentation* section in [Oracle Analytics Extension Development Resources](#).

You must build and package a workbook extension before you can upload it to Oracle Analytics Desktop to test it. See [Build and Package an Extension](#).

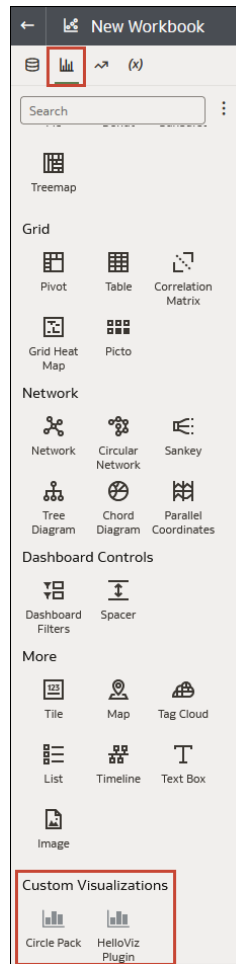
1. In Terminal run this command to invoke Oracle Analytics Desktop in the browser:

```
./gradlew run
```

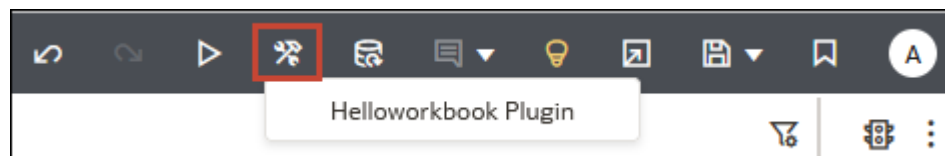
2. If after you run the command Oracle Analytics Desktop opens and then closes, you can use the Mac menu bar to manually open Oracle Analytics Desktop in a browser.
  - a. Go to the Mac menu bar and locate and click the Oracle Analytics Desktop icon.
  - b. Select **Copy URL to Clipboard**.



- c. In a browser, paste the copied URL and press Enter.
3. To test a visualization extension:
    - a. In Oracle Analytics Desktop, open or create a workbook.
    - b. In the workbook's Data Panel, click **Visualizations** and scroll to the bottom of the Visualizations list to locate the Custom Visualizations section containing the custom visualizations you created.



4. To test a workbook extension:
  - a. In Oracle Analytics Desktop, click **Navigators** and then click **Console**. Go to the **Extensions and Enrichments** section and click **Extensions**.
  - b. Click **Upload Extensions** and browse for and select the workbook extension ZIP file. Click **Open**.
  - c. In Oracle Analytics Desktop, open or create a workbook.
  - d. In the Toolbar click **Custom Workbook Extension** to view a list of the workbook extensions that you uploaded to your instance.



# Set Up the Oracle Analytics Extension Development Environment on Windows

This topic describes the tasks you need to perform to set up and use your Oracle Analytics extension development environment.

## Topics:

- [Install Oracle Analytics Desktop on Windows](#)
- [Install Java JDK on Windows](#)
- [Set User Variables and Create a Development Directory on Windows](#)
- [Create the Extension Development Environment on Windows](#)
- [Create a Skeleton Extension on Windows](#)
- [Test Your Visualization and Workbook Extensions on Windows](#)

## Install Oracle Analytics Desktop on Windows

Oracle Analytics Desktop provides the scripts needed to create your development environment and extension skeletons, and a local test environment.

Install or upgrade to the latest version of Oracle Analytics Desktop.

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#) .

1. Go to [Oracle Analytics Desktop Installation Download](#), click **Download** and log into your Oracle Cloud account.
2. In the Oracle Software Delivery Cloud page, click **Platforms** and select **Microsoft Windows x64**.
3. Review and accept the license agreement. Click the Oracle Analytics Desktop ZIP file to download it.
4. Go to the download location on your computer, double-click the ZIP file, and double-click Oracle\_Analytics\_Desktop\_<version>\_Win.exe and perform the installation.
5. Navigate to C:\Program Files\Oracle Analytics Desktop to confirm the installation.

## Install Java JDK on Windows

Use a Java JDK version that is compatible with your Windows and processor. All examples in this chapter were developed with Java JDK 8u201.

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#) .

1. Open Command Prompt and enter this command to check if you have Java JDK installed:

```
java -version
```

2. If one or more Java JDK is installed, confirm one is compatible with your macOS and processor.
3. If you need to install Java JDK, go to [Java SE 8 Archive Downloads](#).

4. Locate and download the JDK install file compatible with your Windows and processor.
5. After the installation completes, open Command Prompt and enter this command to check that the Java JDK version you picked installed successfully:

```
java -version
```

## Set User Variables and Create a Development Directory on Windows

Create or modify the user variables required by the Oracle Analytics Desktop scripts. Then create the development directory to contain your development environment,

In this procedure, you create or update these required user variables:

- **PLUGIN\_DEV\_DIR** - The location of your development directory, for example C:\PLUGIN\_DEV\_DIR.
- **DVDESKTOP\_SDK\_HOME** - The location of your Oracle Analytics Desktop installation, for example C:\Program Files\Oracle Analytics Desktop\dvdesktop.
- **JAVA\_HOME** - The location of your JDK 1.8 installation, for example C:\Program Files\Java\jdk-1.8.
- **Path** - The location of your Oracle Analytics Desktop bin directory, for example C:\Program Files\Oracle Analytics Desktop\tools\bin. This variable already exists in Windows. When you update it, make sure that you don't delete or modify any of the variable's existing paths.

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#) .

1. Open File Explorer, right-click **This PC**, and then click **Properties**. Click **Advanced System Settings**, and in the Advanced tab click **Environment Variables**.
2. In Environment Variables, click **New** under **User variables for <computer name>**. In the New User Variable dialog, go to **Variable name** and enter the name of the variable, and then browse for or enter the directory location. See the list at the top of this task for variable name and value requirements. Click **OK**.
3. In Environment Variables, under **User variables for <computer name>** click the Path variable, and then click **Edit**. Browse for or enter the location of your Oracle Analytics Desktop bin directory. Click **OK**.
4. In the Environment Variables dialog, click **OK**.
5. To create the development directory, open the Command Prompt and run this command:

```
cd C:\
mkdir $PLUGIN_DEV_DIR
```

## Create the Extension Development Environment on Windows

After you configure user variables, you run the `bicreateenv` script to create the development environment that contains the resources you need to create extensions.

For information about the options available for running the script, see the script's command-line help, for example:

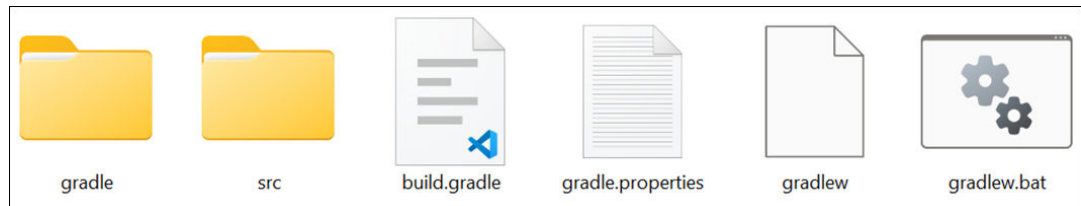
```
cd $PLUGIN_DEV_DIR
bicreateenv -help
```

See [Workflow to Set Up the Oracle Analytics Extension Development Environment](#) .

1. Open Command Prompt, and run the `bicreateenv` script to create the environment, for example:

```
cd $PLUGIN_DEV_DIR
bicreateenv
```

2. In File Explorer, navigate to the directory that you created and confirm that its contents look like this:



3. Optional: If you're working behind a web proxy, open `gradle.properties` and add system properties that point to your proxy.

Use the following example to set your `gradle.properties`:

```
systemProp.https.proxyHost=www-proxy.somecompany.com
systemProp.https.proxyPort=80
systemProp.https.nonProxyHosts=*.somecompany.com|*.companyaltname.com
```

## Create a Skeleton Extension on Windows

Use the `bicreateplugin` script to create an Oracle Analytics extension skeleton.

The `bicreateplugin` script uses the following syntax:

```
bicreateplugin viz -subType <subtypename> -id <com.company.yourVizName>
```

Where:

`subType` is the type of visualization extension you want to create. Valid values are `basic`, `dataviz`, and `embeddableDataviz`. Don't include `subType` when you create a workbook extension.

`id` is the name of the extension. The name you specify must be in this format:  
`<com.company.yourVizName>`.

For information about the extensions you can create when you run the `bicreateplugin` script, see [Types of Oracle Analytics Extensions](#). The examples used in this topic show you how to create the `dataviz` and `workbook` skeleton extensions.

Running the script creates a folder in your `PLUGIN_DEV_DIRECTORY` environment. This folder contains the files that you use to develop the extension. The `<extension_name>.js` render method is the entry point where you can start writing code.

1. In Command Prompt, run the `bicreateplugin` script in your development directory.

```
cd $PLUGIN_DEV_DIR
bicreateplugin viz -subType <subtypename> -id <com.company.yourVizName>
```

This example shows how to create a dataviz skeleton extension:

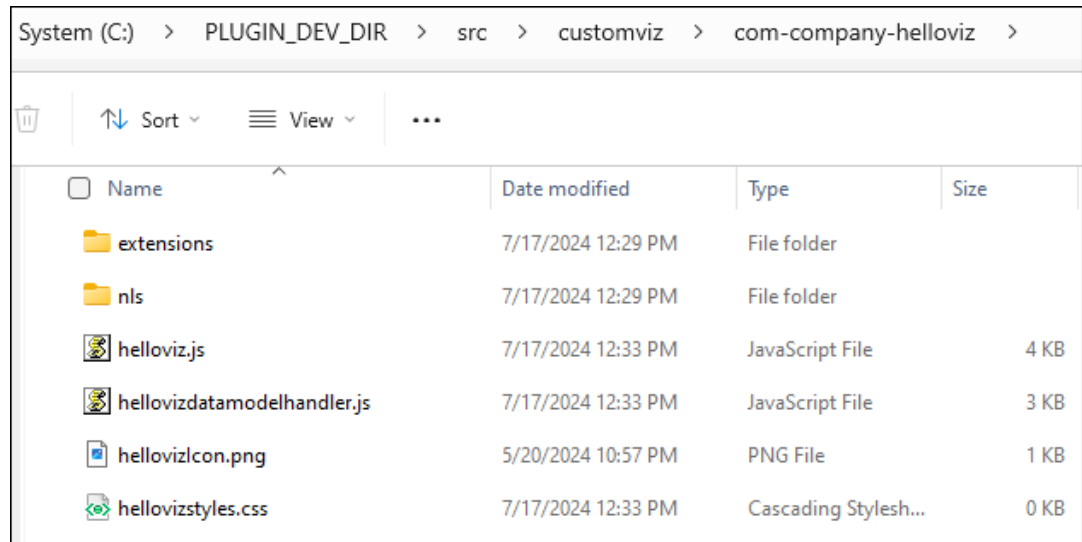
```
bicreateplugin viz -subType dataviz -id com.companyabc.helloviz
```

This example shows how to create a workbook skeleton extension:

```
bicreateplugin workbook -id com.companyabc.helloworldbook
```

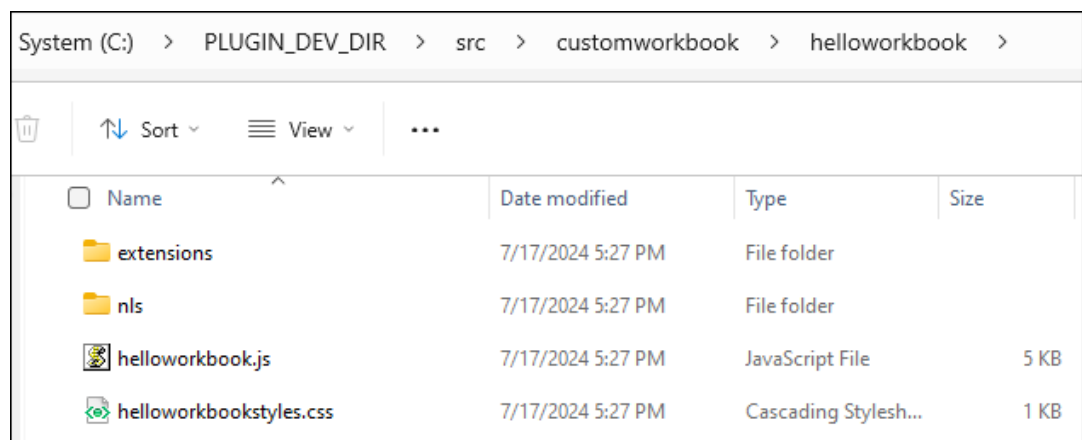
2. In File Explorer, navigate to your development environment and extension directory, for example `C:\PLUGIN_DEV_DIR\src\customviz`, and confirm that a new folder was created and that its name matches the extension name you specified.

This example shows a dataviz extension's directory:



Name	Date modified	Type	Size
extensions	7/17/2024 12:29 PM	File folder	
nls	7/17/2024 12:29 PM	File folder	
helloviz.js	7/17/2024 12:33 PM	JavaScript File	4 KB
hellovizdatamodelhandler.js	7/17/2024 12:33 PM	JavaScript File	3 KB
hellovizicon.png	5/20/2024 10:57 PM	PNG File	1 KB
hellovizstyles.css	7/17/2024 12:33 PM	Cascading Stylesh...	0 KB

This example shows a workbook extension's directory:



Name	Date modified	Type	Size
extensions	7/17/2024 5:27 PM	File folder	
nls	7/17/2024 5:27 PM	File folder	
helloworldbook.js	7/17/2024 5:27 PM	JavaScript File	5 KB
helloworldbookstyles.css	7/17/2024 5:27 PM	Cascading Stylesh...	1 KB



## Test Your Visualization and Workbook Extensions on Windows

Use Command Prompt to run Oracle Analytics Desktop in SDK mode to test your Oracle Analytics visualization and workbook extensions. Running Oracle Analytics Desktop in SDK mode opens Oracle Analytics Desktop in a browser.

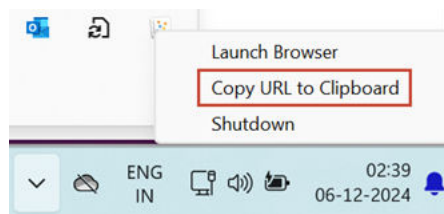
For information about creating workbooks and adding visualizations to workbooks, see the *Oracle Analytics product documentation* section in [Oracle Analytics Extension Development Resources](#).

You must build and package a workbook extension before you can upload it to Oracle Analytics Desktop to test it. See [Build and Package an Extension](#).

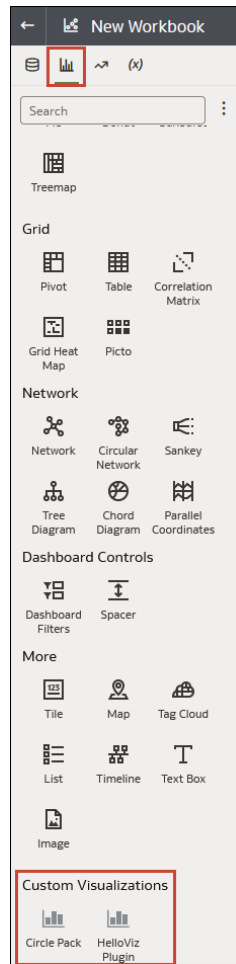
1. In Command Prompt, change to PLUG\_IN\_DEV\_DIR and run this command to invoke Oracle Analytics Desktop in a browser:

```
cd $PLUGIN_DEV_DIR
./gradlew run
```

2. If after you run the command Oracle Analytics Desktop opens and then closes, you can use the Windows task bar to manually open Oracle Analytics Desktop in a browser.
  - a. Go to the Windows task bar and click **Show hidden icons**. Locate and right-click the Oracle Analytics Desktop icon.
  - b. Select **Copy URL to Clipboard**.

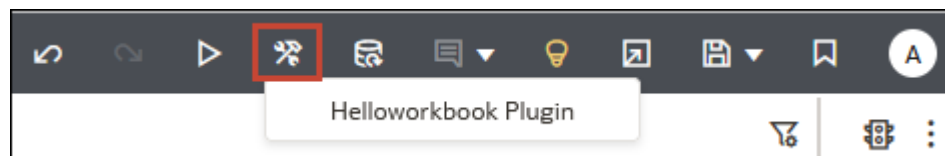


- c. In a browser, paste the copied URL and press Enter.
3. To test a visualization extension:
    - a. In Oracle Analytics Desktop, open or create a workbook.
    - b. In the workbook's Data Panel, click **Visualizations** and scroll to the bottom of the Visualizations list to locate the Custom Visualizations section containing the custom visualizations you created.



4. To test a workbook extension:

- a. In Oracle Analytics Desktop, click **Navigators**, and then click **Console**. Go to the **Extensions and Enrichments** section and click **Extensions**.
- b. Click **Upload Extensions** and browse for and select the workbook extension ZIP file. Click **Open**.
- c. In Oracle Analytics Desktop, open or create a workbook.
- d. In the Toolbar click **Custom Workbook Extension** to view a list of the workbook extensions and you uploaded to your instance.



## Work with Extensions

This topic describes some of the tasks you perform when you develop your Oracle Analytics extensions.

### Topics:

- [Build and Package an Extension](#)
- [Upload an Extension to Oracle Analytics](#)
- [Delete Extensions from the Oracle Analytics Development Environment](#)

## Build and Package an Extension

Run the `gradlew clean build` command to build and package an extension into a ZIP file. You upload this file to your Oracle Analytics production environment, or to your Oracle Analytics Desktop test environment.

After you run the command, Oracle Analytics Desktop adds a build directory to your development environment, for example `C:/PLUGIN_DEV_DIR/build/distributions`. This directory contains a ZIP file for each extension in your development directory.

- Navigate to your development directory and run the `gradlew clean build` command. For example,

```
cd $PLUGIN_DEV_DIR
./gradlew clean build
```

## Upload an Extension to Oracle Analytics

After you build and package your extension to a ZIP file in your Oracle Analytics Desktop development environment, you upload the ZIP file to your Oracle Analytics production environment.

See [Build and Package an Extension](#).

After you upload a visualization extension to Oracle Analytics and create or open a workbook, the Visualization tab displays the visualization extension in the Custom Visualizations section. From there you can drag and drop the custom visualization to your workbook. The extension displays as an option for every workbook on the instance where you uploaded the extension. All visualization extension types are available for you to add to workbooks. See [Types of Oracle Analytics Extensions](#).

After you upload a workbook extension to Oracle Analytics, and create or open a workbook, the **Custom Workbook Extension** icon is displayed in the workbook's toolbar. Click this icon to view a list of the uploaded workbook extensions. Click an extension from the list to invoke it. The workbook extensions display for every workbook on the instance where you uploaded the extension.

1. Open Oracle Analytics. On the Home page click **Navigator**. In Navigator click **Console**.
2. Under **Extensions and Enrichments**, click **Extensions**.
3. In Extensions, click **Upload Extensions**, and select the ZIP file containing the extension. Then click **Open**.

## Delete Extensions from the Oracle Analytics Development Environment

You can use the `bideleteplugin` script to delete any extension from your Oracle Analytics development environment.

The build and package process includes all of the visualizations contained in your development directory. To exclude any unwanted visualizations from the build, you can delete them before you perform the build and package process.

Use the information in this table to help you delete an extension:

Action	Command
Delete an extension	<pre>cd \$PLUGIN_DEV_DIR bideleteplugin viz -id &lt;id_of_extension&gt;</pre>
Delete an unclassified extension	<pre>cd \$PLUGIN_DEV_DIR bideleteplugin unclassified -id &lt;id_of_extension&gt;</pre>
Delete a skin extension	<pre>cd \$PLUGIN_DEV_DIR bideleteplugin skin -id &lt;id_of_extension&gt;</pre>

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## Manage Oracle Analytics Extensions

You can upload, download, search for, and delete extensions. Extensions are custom visualizations, workbooks, or data actions that you or a developer create externally and then import into Oracle Analytics.

 [LiveLabs Sprint](#)

For example, you can upload an extension that provides a custom visualization that you can add to workbooks.

1. On the Home page, click the **Navigator**, and then click **Console**.
2. Click **Extensions**.
3. To upload an extension, click **Upload Extension**, browse to the extension ZIP file, and click **Open** to upload the extension.
4. Perform any of the following tasks.
  - To search for an extension, enter your search criteria in the **Search** field and click **Return** to display search results.
  - To delete an extension, click **Options** on the extension and select **Delete**, and click **Yes** to delete the extension.  
If you delete a visualization type that's used in a workbook, then that workbook displays an error message in place of the visualization. Either click **Delete** to remove the visualization, or upload the same extension so that the visualization renders correctly.
  - To download an extension, click **Options** on the extension and select **Download**.

# Part III

## Embed Content

This part explains how to embed content into applications and web pages.

**Topics:**

- [About Embedding Oracle Analytics Content into Applications and Web Pages](#)
- [Embed Oracle Analytics Content With iFrames](#)
- [Embed Oracle Analytics Content With the JavaScript Embedding Framework](#)

# 5

## Get Started Embedding Content into Applications and Web Pages

This chapter contains information that you need to know before you embed content into applications and web pages.

### Topics:

- [About Embedding Oracle Analytics Content into Applications and Web Pages](#)
- [Register an Application as a Safe Domain](#)

## About Embedding Oracle Analytics Content into Applications and Web Pages

You can embed Oracle Analytics content into an application, custom application, or portal web page.

When you embed analytics, you put information where users need it to make business decisions. Embedded analytics delivers fast time-to-insight and increases user productivity.

There are two analytics content embedding methods:

- Use the analytics content item's URL. Typically this method uses an iFrame. See [Embed Oracle Analytics Content With iFrames](#).
- Use the JavaScript embedding framework when you need an integrated way to embed analytics content. This method provides greater flexibility than the iFrame embedding method. For example, use this method when you want to embed visualizations into a custom web application. See [Typical Workflow to Use the JavaScript Embedding Framework with Oracle Analytics Content](#).

## Register an Application as a Safe Domain

Before you can embed Oracle Analytics content into another application, your administrator must register the application's domain as safe.

For security reasons, you're not allowed to add analytics content to an applications unless your administrator considers it safe to do so.

See [Register Safe Domains](#).

Web browsers have become more restrictive about dealing with third party cookies. This restriction can impact embedding projects where the browser won't display your embedded analytics content.

To work around this issue make sure that the Oracle Analytics instance where you embed analytics content is on a subdomain of the host web page or web application.

Use this information if you're using JavaScript to embed analytics content:

- Due to CORS safeguarding, you can't open your HTML file containing embedded analytics content directly in a browser. To work around this issue you must register the web server (either localhost or another web server) as a safe domain.
- If you use a localhost web server for testing, then you may need to add references to `http://localhost:<port>` and `http://127.0.0.1:<port>`.

You must be an administrator to perform this task.

1. Go to Oracle Analytics, click **Navigator**, and click **Console**.
2. Click **Safe Domains**.
3. Click **Add Domain** and enter the domain.
4. Select **Embedding**.
5. If using compatibility mode with embedding, select **Allow Frames**.



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## Embed Oracle Analytics Content With iFrames

This chapter explains how to use iFrames to embed Oracle Analytics content into applications and web pages.

### Topics:

- [Considerations for Embedding Oracle Analytics Content With iFrame](#)
- [Use iFrame to Embed Analytics Content into an Application or Web Page](#)

## Considerations for Embedding Oracle Analytics Content With iFrame

This topic describes issues that you might encounter when you use iFrame to embed Oracle Analytics content into applications and web pages.

Users can open embedded Oracle Analytics content from an application if single sign-on is set up, or if there's already an active session for the embedded Oracle Analytics in the same browser.

If you're using the Safari browser and the embedded analytics content doesn't display as expected, try disabling Safari's **Prevent cross-site tracking** preference.

## Use iFrame to Embed Analytics Content into an Application or Web Page

You can embed your analytics content into an application or web page by adding the target analytics content's URL into an application or portal's iFrame. For example, you can use this method to embed analytics content into Microsoft Teams.



### Note:

If you need an integrated way to embed analytics content, then use the JavaScript embedding framework. This method provides greater flexibility than the iFrame embedding method. See [Typical Workflow to Use the JavaScript Embedding Framework with Oracle Analytics Content](#).

Before you perform this task, confirm that you've registered the domain that you want to embed your analytics content into as a safe domain. See [Register an Application as a Safe Domain](#).

If you need to manually build the URL, for example to create a URL that includes parameters, be sure to properly escape any characters. All special characters in the URL need to be URL-encoded. For example, use %2C to encode commas and %20 to encode spaces.

1. On the Home page, click **Navigator**, and then click **Catalog**.
2. Locate the item that you want to embed and click **Actions**. Click **Open**.

3. Go to the browser's address bar and copy the item's URL. These are examples of URLs:

- **Report** - `http://example.com/analytics/saw.dll?PortalGo&path=%2Fshared%2FRevenuehttp://example.com/analytics/saw.dll?PortalGo&Action=prompt&path=%2Fshared%2FSaled%2FSales%20by%20Brand`
- **Dashboard** - `http://example.com/analytics/saw.dll?Dashboard&PortalPath=%2Fshared%2FSales%2F_portal%2FQuickStart&page=Top%20Products`
- **Workbook** - `http://example.com/ui/dv/home.jsp?pageid=visualAnalyzer&reportmode=full&reportpath=%2Fshared%2FMySalesWorkbook`
- **Canvas** - `https://example.com:8080/ui/dv/?pageid=visualAnalyzer&reportmode=full&reportpath=%2F%40Catalog%2Fusers%2Fadmin%2FOAC%20Demo%20Samples%2FCost%20Management%20Analytics%20copy&canvasname=canvas!2.`

See Share a Workbook URL with a Specific Canvas Selected.

4. Alternatively, manually build and then copy the URL to insert into an iFrame.

This is an example of how to construct a URL containing parameters:

```
https://example.com/ui/dv/ui/project.jsp?
pageid=visualAnalyzer&reportmode=full&reportpath=%2F%40Catalog%2Fshared&p1n=pC
ustomerSegment&p1v=Corporate&p2n=pCity&p2v=Bristol%2CCardiff%2CAustin
```

5. Open the target application or portal, locate an iFrame, and paste the analytics content's URL into it.

# Embed Oracle Analytics Content With the JavaScript Embedding Framework

This chapter explain how to use the JavaScript embedding framework to embed Oracle Analytics content into applications and web pages.

## Topics:

- [Typical Workflow to Use the JavaScript Embedding Framework with Oracle Analytics Content](#)
- [Enable Oracle Analytics Developer Options](#)
- [Find the Javascript and HTML for Embedding Oracle Analytics Content](#)
- [Prepare the HTML Page for Embedded Oracle Analytics Content](#)
- [Pass Filters to the HTML Page for Embedded Oracle Analytics Content](#)
- [Pass Parameters to the HTML Page for Embedded Oracle Analytics Content](#)
- [Refresh Data in the HTML Page for Embedded Oracle Analytics Content](#)
- [Embed Oracle Analytics Content into a Custom Application That Doesn't Use Oracle JET](#)
- [Embed Oracle Analytics Content into a Custom Application that Uses Oracle JET](#)
- [Use Login Prompt Authentication With Embedded Oracle Analytics Content](#)

## Typical Workflow to Use the JavaScript Embedding Framework with Oracle Analytics Content

If you're using the JavaScript embedding framework to embed Oracle Analytics content into an application or web page, then follow these tasks as a guide.



### Note:

You can also embed Oracle Analytics content using the analytic content item's URL. Typically this method uses an iFrame. See [Embed Oracle Analytics Content With iFrames](#).

Task	Description	More Information
Add safe domains	Use the Console to register as safe the development, production, and test environments domains.	<a href="#">Register an Application as a Safe Domain</a>
Enable Developer options	Use the Developer's page to find the <script> tag, HTML, and column's expression that you need to embed analytics content.	<a href="#">Enable Oracle Analytics Developer Options</a>

Task	Description	More Information
Create the HTML page	Create the HTML page where you'll embed analytics content. Steps include: reference the embedding.js JavaScript source and the embedded workbook's URL, specify filters and parameters, and specify how to refresh data.	<a href="#">Prepare the HTML Page for Embedded Oracle Analytics Content</a> <a href="#">Pass Filters to the HTML Page for Embedded Oracle Analytics Content</a> <a href="#">Pass Parameters to the HTML Page for Embedded Oracle Analytics Content</a> <a href="#">Refresh Data in the HTML Page for Embedded Oracle Analytics Content</a>
Specify the embedding mode	Your application uses JET or another technology to embed analytics content.	<a href="#">Embed Oracle Analytics Content into a Custom Application that Uses Oracle JET</a> <a href="#">Embed Oracle Analytics Content into a Custom Application That Doesn't Use Oracle JET</a>
Understand how authentication works	Learn about login prompt authentication and how to customize the login message that users see.	<a href="#">Use Login Prompt Authentication With Embedded Oracle Analytics Content</a>

## Enable Oracle Analytics Developer Options

Enable the developer's options to access the Oracle Analytics Developer's page. Use the Developer's page to find the <script> tag, HTML, and column's expression that you need to embed Oracle Analytics content into an application or web page.

1. Go to the top toolbar and click your user name.
2. Click **Profile** and in the Profile window, click **Advanced**.
3. Click the **Enable Developer Options** icon and click **Save**.

## Find the Javascript and HTML for Embedding Oracle Analytics Content

Oracle Analytics generates the analytics content's <script> tag and HTML for you to copy and paste in to your custom application or portal web page's HTML page.

If the **Developer** option isn't displayed in the workbook's **Menu**, then you need to enable it. See [Enable Oracle Analytics Developer Options](#).

1. Go to Oracle Analytics and open the workbook containing the analytics content you want to embed.
2. Click the workbook's **Menu** and then click **Developer**.
3. In the Developer window, click the Embed tab.
4. Locate the **Embedding Script to Include** field and click **Copy** to copy the <script> tag to paste in to the HTML page.

5. Optional: If you want the embedded workbook to show the workbook's default view, then locate the **Default** field, click **Copy** to copy the HTML, and paste it in to the HTML page.
6. Optional: If you want the embedded workbook to show an item such as a specific canvas, then locate the item's field, click **Copy** to copy the HTML, and paste it in to the HTML page.

## Prepare the HTML Page for Embedded Oracle Analytics Content

To embed Oracle Analytics content, you must create or update the HTML page to include the required DOCTYPE declaration, dir global attribute, and reference the embedding.js JavaScript source and the embedded workbook's URL. You must also specify the embedding mode (JET or standalone), an authentication method, and add any attributes.

This topic contains the following information:

- [DOCTYPE Declaration](#)
- [Dir Global Attribute](#)
- [<script> Tag and JavaScript Source Reference](#)
- [Authentication](#)
- [<oracle-dv> Element](#)
- [Example](#)

### Doctype Declaration

Set the doctype declaration to `<!DOCTYPE html>`. Unpredictable behavior such as the page not rendering properly results if you use a doctype declaration other than `<!DOCTYPE html>`, or if you forget to include a doctype declaration.

### Dir Global Attribute

Set the `dir` global attribute as required by the web page's locale. The `dir` global attribute indicates the embedded analytics content's layout direction.



#### Note:

If you need to support multiple locales, then use JavaScript to set the attribute.

The attribute's value options are:

- `rtl` - Use for right to left layout direction.
- `ltr` - Use for left to right layout direction.
- `auto` - Don't use. This value isn't supported by Oracle Analytics.

## <script> Tag and JavaScript Source Reference



### Note:

Oracle Analytics generates the `<script>` tag and JavaScript source's URL that you need to include.

Add a `<script>` tag that references `embedding.js` to your HTML page.

The JavaScript source's URL structure is:

- `"https://<instance>/public/dv/v1/embedding/<embeddingMode>/embedding.js"`. The examples in this document use this URL.
- For older deployments, use: `"http://<instance>/ui/dv/v1/embedding/<embeddingMode>/embedding.js"`.

Where `<embeddingMode>` must be either `jet` or `standalone`:

- Use `jet` if you're embedding analytics content within an existing Oracle JET application. If you use `jet`, then the version of Oracle JET that the application uses must match the same major version of Oracle JET that Oracle Analytics uses. For example, if Oracle Analytics uses JET 11.0.0, then your custom application must use JET 11.0.0 or 11.1.0. Oracle Analytics uses Oracle JET version 11.1.10.

To find the version of JET that Oracle Analytics uses, log into Oracle Analytics, open the browser console, and run this command:

```
requirejs('ojs/ojcore').version
```

If the embedding application uses Oracle JET, Oracle Analytics extends the application with the components it needs. See [Embed Oracle Analytics Content into a Custom Application that Uses Oracle JET](#).

Oracle JET is a set of Javascript-based libraries used for the Oracle Analytics user interface.

- Use `standalone` when embedding visualization content in a generic application that doesn't use Oracle JET.

If the embedding application doesn't use Oracle JET, then Oracle Analytics brings its JET distribution to the page with additional components. See [Embed Oracle Analytics Content into a Custom Application That Doesn't Use Oracle JET](#).

## Authentication

You need an authenticated session to view the embedded analytics content. See [Use Login Prompt Authentication With Embedded Oracle Analytics Content](#).

## <oracle-dv> Element

To embed a workbook, you must add the following HTML snippet with attribute values inside an appropriately sized element. Oracle Analytics generates the HTML that you need to include.

```
<oracle-dv project-path="" active-page="" active-tab-id="" filters=""></oracle-dv>
```

**Supported attributes** — These attributes support static strings and properties defined within a Knockout model. Knockout is a technology used in Oracle JET.



**Note:**

See [Embed Oracle Analytics Content into a Custom Application That Doesn't Use Oracle JET](#) for an example of binding these attributes to a Knockout model.

- **project-path:** Specifies the path of the workbook that you want to render.
- **active-page:** (Optional) Specifies whether an insight other than the default is rendered. When you specify **active-page**, you also use **active-tab-id** to specify the exact Present canvas that you're showing. Valid value is **insight**.



**Note:**

The **active-page** value **canvas** is deprecated. Oracle recommends that you modify your embedding code that uses **canvas** to **insight**. Existing embedded analytics content that uses **canvas** will continue to work and a warning displays in the browser console.

- **active-tab-id:** (Optional) Specifies the ID of the Present canvas that you're showing.
- **filters:** (Optional) Allows the programmatic passing of filter values to an embedded workbook.
- **project-options:** (Optional) In this attribute, *project* refers to *workbook*. Allows you to pass these options:
  - **bDisableMobileLayout:** Disables or enables the mobile layout. Mobile layout refers to the summary card layout available only on phone devices. Value should be **true** or **false**.
  - **bShowFilterBar:** Shows or hides the filter bar. Value should be **true** or **false**.
  - **showCanvasNavigation:** Shows or hides the canvases in the workbook according to the canvas navigation setting in the workbook's Present tab. Value should be **true** or **false**.

For example, `<oracle-dv project-path="{{projectPath}}" active-page="canvas" active-tab-id="1" filters="{{filters}}" project-options='{"bDisableMobileLayout":true, "bShowFilterBar":false}'></oracle-dv>`

- **brushing-type:** Controls how brushing works. The value you specify overrides all other settings, including system defaults and settings in the saved workbook. Value should be the string **on**, **off**, or **auto**.
  - **on:** Use to issue brushing queries with normal priority. Brushing queries and visualization queries are mixed and run at the same time.
  - **auto:** Default. Use to issue brushing queries with low priority. When a user interacts with a visualization, there may be a delay showing marks in other visualizations until the brushing queries complete.

- `compatibility-mode`: Use when different major versions of Oracle JET are present. This creates an iFrame at runtime to sandbox the embedded analytics content. Value should be the string `yes`, `no`, or `auto`.

#### Note:

When setting this attribute, note these two items:

If using compatibility mode, confirm that **Allow Frames** is selected for the application your administrator registered as a safe domain. See [Register an Application as a Safe Domain](#).

To find the version of JET that Oracle Analytics uses, log into Oracle Analytics, open the browser console, and run this command:

```
requirejs('ojs/ojcore').version
```

- `yes`: Use when you always want to sandbox the analytics embedded content. This is useful when embedding into Oracle APEX applications.
- `no`: Default. Use when you don't want to create an iFrame.
- `auto`: Use to automatically detect major differences in Oracle JET version between the host embedding application and Oracle Analytics. You can use this when embedding into Oracle APEX.

### Example

In this example, all instances of *project* refer to *workbook*.

You can get the exact URL of the `embedding.js` file from the Embed tab in the Developer window of the workbook.

```
<!DOCTYPE html>
<html dir="ltr">
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8">
    <title>Embedded Oracle Analytics Workbook Example</title>
    <script src="https://<instance>/public/dv/v1/embedding/<embedding
mode>/embedding.js" type="application/javascript">
    </script>

  </head>
  <body>
    <h1>Embedded Oracle Analytics Workbook</h1>
    <div style="border:1px solid black;position: absolute; width:
calc(100% - 40px); height: calc(100% - 120px)" >
      <!--
        The following <oracle-dv> tag is the tag that will embed the
        specified workbook.
      -->
      <oracle-dv
        project-path="<project path>"
        active-page="insight"
        active-tab-id="snapshot!canvas!1">
```



```

        </oracle-dv>
    </div>
    <!--
    Apply Knockout bindings after DV workbook is fully loaded. This
    should be executed in a body onload handler or in a <script> tag after the
    <oracle-dv> tag.
    -->
    <script>
        requirejs(['knockout', 'ojs/ojcore', 'ojs/ojknockout', 'ojs/
ojcomposite', 'jet-composites/oracle-dv/loader'], function(ko) {
            ko.applyBindings();
        });
    </script>
</body>
</html>

```

## Pass Filters to the HTML Page for Embedded Oracle Analytics Content

You can pass numeric and list filters to the HTML page where you're embedding Oracle Analytics content. You can filter any type of data with these filter types.

The filters payload is a Javascript array containing one filter Javascript object per array item.

In this example, all instances of *project* refer to *workbook*. Rendering a workbook while applying filters looks like this:

```

<oracle-dv project-path="{{projectPath}}" filters="{{filters}}">
</oracle-dv>

<script>
requirejs(['knockout', 'ojs/ojcore', 'ojs/ojknockout', 'ojs/ojcomposite',
'jet-composites/oracle-dv/loader'], function(ko) {
    function MyProject() {
        var self = this;
        self.projectPath = ko.observable("/users/weblogic/EmbeddingStory");
        self.filters = ko.observableArray([
            {
                "sColFormula": "\"A - Sample Sales\".\"Products\".\"P2 Product
Type\"",
                "sColName": "P2 Product Type",
                "sOperator": "in", /* One of in, notIn, between, less, lessOrEqual,
greater, greaterOrEqual */
                "isNumericCol": false,
                "bIsDoubleColumn": false,
                "aCodeValues": [],
                "aDisplayValues": ['Audio', 'Camera', 'LCD']
            }, {
                "sColFormula": "\"A - Sample Sales\".\"Base Facts\".\"1- Revenue\"",
                "sColName": "Rev",
                "sOperator": "between", /* One of in, notIn, between, less,
lessOrEqual, greater, greaterOrEqual */
                "isNumericCol": true,
                "bIsDoubleColumn": false,
                "aCodeValues": [],

```

```

        "aDisplayValues": [0, 2400000] /* Because the operator is "between",
this results in values between 0 and 2400000 *
/
    });
}
    ko.applyBindings(MyProject);
});
</script>

```

**Supported attributes** — Each filter object within the filters payload must contain the following attributes:

- **sColFormula:** Specifies the three-part formula of the column to filter. The column formula must include three parts.  
  
If you're unsure of the formula, create a workbook that uses that column, and then in the Visualize tab, click the workbook's **Menu** and then click **Developer**. In the Developer page, click the JSON tab to view the column's expression. For example, `sColFormula": "\"A - Sample Sales\".\"Base Facts\".\"1- Revenue\""` .  
  
If the **Developer** option isn't displayed in the workbook's **Menu**, then you need to enable it. See [Enable Oracle Analytics Developer Options](#).
- **sColName:** (Required) Specifies a unique name for this column.
- **sOperator:** Use `in`, `notIn`, `between`, `less`, `lessOrEqual`, `greater`, or `greaterOrEqual`.
  - `in` and `notIn` - Apply to list filters.
  - `between`, `less`, `lessOrEqual`, `greater`, and `greaterOrEqual` - Apply to numeric filters.
- **isNumericCol:** Specifies if the filter is numeric or list. Value should be `true` or `false`.
- **isDateCol:** (Required) Indicates whether the column is a date column. Value should be `true` or `false`. Use `true` if the column is a date, but not for year, month, quarter, and so on. If set to `true`, then specify date or dates in the `aDisplayValues` attribute.
- **bIsDoubleColumn:** Specifies if the column has double column values behind the display values. Value should be `true` or `false`.
- **aCodeValues:** When `bIsDoubleColumn` is `true`, this array is used.
- **bHonorEmptyFilter:** (Optional) Indicates whether an empty filter is honored (for example, empty `aCodeValues/aDisplayValues` based on the `bIsDoubleColumn` flag). This attribute applies to all column filters: list filters, number range filters, and date range filters. Value should be `true` or `false`.
  - If set to `true` and the user passes empty `aCodeValues/aDisplayValues`, then all values are part of the filter.
  - If set to `false` and user passes empty `aCodeValues/aDisplayValues`, then the attribute won't be applied and there is no change in filter values.
  - If this attribute isn't present, then the default value is `false`.
- **aDisplayValues:** When `bIsDoubleColumn` is `false`, then this array is used to filter and to display values within the user interface.

When `bIsDoubleColumn` is `true`, then the values in this array are used for display in the user interface while the values in `aCodeValues` are used for filtering. When `bIsDoubleColumn` is `true`, there must be the same number of entries in this array as there are in the `aCodeValues` array and the values must line up. For example, suppose

`aCodeValues` has two values 1 and 2, then `aDisplayValues` must have two values a and b, where 1 is the code value for a, and 2 is the code value for b.

If `isDateCol` attribute is set to `true`, then specify the `aDisplayValues` array with dates. If either no time zone in the time stamp or no time stamp is provided, then time is set with the local time zone. Use any of the following formats:

- mm/dd/yyyy (For example, 12/31/2011.)
- yyyy-mm-dd (For example, 2011-12-31.)
- yyyy/mm/dd (For example, 2011/12/31.)
- mm/dd/yyyy or yyyy/mm/dd, hh:mm:ss (For example, 12/31/2011 or 2011/12/31, 23:23:00.)  
**Note:** Use a 24 hour format. You can use a space as the separator.
- mm/dd/yyyy or yyyy/mm/dd, hh:mm:ss AM/PM (For example, 12/31/2011 or 2011/12/31, 11:23:00 PM.)  
**Note:** Use a 12 hour format. You can use a space as the separator.
- <3 letter month name> dd yyyy (For example, Mar 25 2015.)
- dd <3 letter month name> yyyy (For example, 25 Mar 2015.)
- Fri Sep 30 2011 05:30:00 GMT+0530 (India Standard Time)
- ISO Date Format - 2011-10-05T14:48:00.000Z

## Pass Parameters to the HTML Page for Embedded Oracle Analytics Content

You can pass parameter values to the HTML page where you're embedding Oracle Analytics content. The parameter values that you pass can be utilized within query expressions and various parts of the product.

The parameters payload is a Javascript Object containing paired attributes of parameter names and values.

In this example, all instances of *project* refer to *workbook*. Rendering a project while applying parameters look like this:

```
<oracle-dv project-path="{{projectPath}}" active-page="canvas" active-tab-id="3" parameters="{{parameters}}"
project-options='{ "bDisableMobileLayout":false, "bShowFilterBar":false}'>
</oracle-dv>
```

```
<script>
requirejs(['knockout', 'ojs/ojcore', 'ojs/ojknockout', 'ojs/ojcomposite',
'jet-composites/oracle-dv/loader'], function(ko) {

    function MyProject() {
        var self = this;
        self.projectPath = ko.observable("/users/weblogic/EmbeddingStory");
        self.parameters = ko.observable({
            "p1n": "Office",
            "p1v": "Bristol Office",
            "p2n": "Year",
            "p2v": [2023, 2022]
        });
    };
};
```

```

    }
    ko.applyBindings(MyProject);
  });
</script>

```

**Supported attributes** — Each parameter object within the parameters payload must contain the following attributes:

- `p <number> n:` (Required) Specifies the parameter's name as defined in the workbook. For example, "Office" or "Year".
- `p <number> v:` (Required) Specifies the parameter value that you want to pass. For example "Bluebell Office" or "10" or [2023, 2022].
- `p <number> d:` (Optional) Use with parameters with double columns. Specifies the parameter's display value corresponding to `p <number> v`. For example, "My Office".

## Refresh Data in the HTML Page for Embedded Oracle Analytics Content

In the HTML page where you're embedding Oracle Analytics content, you can specify how to refresh the embedded workbook's data.

To refresh data without reloading a workbook, the `refreshData` function is attached to all `<oracle-dv>` elements. Invoking it forces all visualizations under that element to refresh.

This is the code to refresh data for a single embedded workbook. In this code, all instances of *project* refer to *workbook*.

```

<oracle-dv id="project1" project-path="{{projectPath}}">
</oracle-dv>

<script>
  function refreshProject() {
    $('#project1')
      [0].refreshData();
  }
</script>

```

This is the code to refresh data for multiple embedded workbooks. In this code, all instances of *project* refer to *workbook*.

```

<script>
  function refreshProject()
  {
    $('oracle-dv').each(function() {
      this.refreshData();
    });
  }
</script>

```

## Embed Oracle Analytics Content into a Custom Application that Uses Oracle JET

If the custom application uses Oracle JET, then the embedded Oracle Analytics content extends the application with the component it needs.

Before you begin to embed analytics content, confirm that the custom application uses the same major version of JET that Oracle Analytics uses. For example, if Oracle Analytics uses JET 11.0.10, then your custom application must use JET 11.x.x.

To find the version of JET that Oracle Analytics uses, log into Oracle Analytics, open the browser console, and run this command:

```
requirejs('ojs/ojcore').version
```

Your JET application must also use the same style that Oracle Analytics uses, which is Alta.

For information about creating an Oracle JET quick start application where you'll embed analytics content, see Oracle JET Get Started.

This procedure uses an example embedding application named OAJETAPP.

1. Follow the instructions to install the Oracle JET quickstart application and name the embedding application OAJETAPP using `--template=navdrawer`.
2. Edit the `index.HTML` file of the embedding application (for example, `OAJETAPP/src/index.html`) and include `embedding.js`.

```
<script src="https://<instance>/public/dv/v1/embedding/jet/embedding.js"
type="text/javascript">
</script>
```

3. Include `<oracle-dv>` in the appropriate section (for example `OACJETAPP/src/js/views/dashboard.html`). Here `project-path` specifies the workbook's path.

```
<div class="oj-hybrid-padding" style="position: absolute; width: calc(100%
- 40px); height: calc(100% - 120px)">
  <h3Dashboard Content Area</h3>
  <oracle-dv id="oracle-dv" project-path="/Shared Folders/embed/test-
embed">
    </oracle-dv>
  </div>
```

4. Run the quick start application using these commands.

```
ojet build
ojet serve
```

# Embed Oracle Analytics Content into a Custom Application That Doesn't Use Oracle JET

If the custom application uses a technology other than Oracle JET, then the embedded Oracle Analytics content adds its Oracle JET distribution and all additional components into the page.

If the **Developer** option isn't displayed in the workbook's **Menu**, then you need to enable it. See [Enable Oracle Analytics Developer Options](#).

1. Include the standalone version of embedding.js.

```
<script src=https://<instance>/public/ui/dv/v1/embedding/standalone/
embedding.js type="text/javascript"> </script>
```

2. Find and include `<oracle-dv>` under an appropriately sized `<div>`. To find this tag:
  - a. Go to Oracle Analytics and open the workbook containing the analytics content you want to embed.
  - b. Click the workbook's **Menu** and then click **Developer**.
  - c. Click the Embed tab.
  - d. Locate the item you want to embed and click **Copy** to copy it.

## Example

Here `project-path` specifies the workbook's path.

```
<div style="position: absolute; width: calc(100% - 40px); height:
calc(100% - 120px)">
  <oracle-dv project-path="/@Catalog/users/admin/workbook_name">
    </oracle-dv>
  </div>
```

3. Apply Knockout bindings after the visualization is fully loaded. This should be placed inside of a `<script>` tag after the `<oracle-dv>` tag, or executed in an onload body handler.

```
requirejs(['knockout', 'ojs/ojcore', 'ojs/ojknockout', 'ojs/ojcomposite',
'jet-composites/oracle-dv/loader'], function(ko) {
  ko.applyBindings();
});
```

## Complete Example

```
<!DOCTYPE html>
<html dir="ltr">
  <head>
    <title>AJAX Standalone Demo</title>
    <script src="https://<instance>/public/dv/v1/embedding/standalone/
embedding.js"
type="text/javascript">
    </script>
  </head>
  <body>
    <h1>AJAX Standalone Demo</h1>

    <div style="position: absolute; width: calc(100% - 40px); height:
```

```

calc(100% -
120px)" >
    <oracle-dv project-path="/shared/embed/test-embed">
    </oracle-dv>
</div>

<script>
requirejs(['knockout', 'ojs/ojcore', 'ojs/ojknockout', 'ojs/ojcomposite',
'jet-composites/oracle-dv/loader'], function(ko) { ko.applyBindings();
});
</script>
</body>
</html>

```

## Add Authentication to an Application or Web Page Containing Embedded Oracle Analytics Content

Use the topics in this section to add an authentication method to your web application or portal web page that contains embedded Oracle Analytics content.

### Topics:

- [Use Login Prompt Authentication With Embedded Oracle Analytics Content](#)

## Use Login Prompt Authentication With Embedded Oracle Analytics Content

Login prompt authentication is the default authentication method for Oracle Analytics content embedded in a web application or portal web page.

When users access embedded analytics content, they're presented with a login screen where they enter login name and password before they can view data. If there is no common identity management between Oracle Analytics and the web application or portal web page, then users are presented with this login screen, even if they've already logged in to the web application or portal web page containing the embedded analytics content

### Customize the Login Prompt Authentication Message

Add attributes to the `<oracle-dv>` tag to customize the login prompt authentication messages. The following attributes are supported:

- `auth-message-prefix`: Specifies the prefix text for the login message. The default value is "Oracle Analytics".
- `auth-message-link`: Specifies the text for the login link. The default value is "Login".
- `auth-message-suffix`: Specifies the suffix text for the login message. The default value is "Required".
- `auth-needed-message`: Specifies the text for the authentication needed message. The default value is "Requires Authentication".
- `auth-message-prefix-small`: Specifies the prefix text for the login message. The default value is "Oracle Analytics". Applicable only if the embedded container size is smaller than 215 pixels.
- `auth-message-link-small`: Specifies the text for the login link. The default value is "Login". Applicable only if the embedded container size is smaller than 215 pixels.

- `auth-message-suffix-small` - Specifies the suffix text for the login message. The default value is the empty string. Applicable only if the embedded container size is smaller than 215 pixels.
- `auth-needed-message-small`: Specifies the text for the authentication needed message. The default value is "Requires Authentication". Applicable only if the embedded container size is smaller than 160 pixels.



# Part IV

## Use APIs

Oracle Analytics offers REST APIs and session-based web services (SOAP APIs) to integrate with your applications.

**Topics:**

- [REST APIs](#)
- [SOAP APIs](#)

# 8

## REST APIs

Use the REST APIs to automate processes and programmatically access features and functionality in Oracle Analytics.

### API Version

The base path of the endpoint includes the API version (for example, 20210901). Here's an example GET request to get analysis details:

```
GET  
https://myoas.com/api/20210901/catalog/analysis/<analysis_id>
```

### API Breaking Changes Policy

Oracle will provide 12 months advance notice prior to the date of removing or changing an existing API that you have deployed which would require you to update your code.

### REST API Reference

See [REST API for Oracle Analytics Server](#).

# 9

## SOAP APIs

Use the Oracle Analytics session-based web services (SOAP APIs) to enable external applications to communicate with Oracle Analytics.

### Topics:

- [Introduction to Oracle Analytics Web Services](#)
- [Description of Services and Methods in Oracle Analytics Web Services](#)
- [Description of Structures in Oracle Analytics Web Services](#)

## Introduction to Oracle Analytics Web Services

This topic describes the Oracle Analytics session-based web services (SOAP APIs).

### Topics:

- [About Oracle Analytics Web Services](#)
- [What are the Oracle Analytics Session-Based Web Services?](#)

## About Oracle Analytics Web Services

You can use Oracle Analytics session-based web service to call Oracle Analytics programmatically and to perform various analytics tasks.

The Oracle Analytics session-based web services require a valid Oracle Analytics session ID to be passed as a parameter. The calling application must first make a call to get the session ID before calling the web service.

If you have configured Oracle Analytics Server with an identity management system that supports OAuth2 tokens, you can obtain the session ID by using an access token in the authorization header of the `logon()` method of the `SAWSessionService` service.

This document includes descriptions of the web services supported by Oracle Analytics. Note that the WSDL document might include additional services not documented here.

## What are the Oracle Analytics Session-Based Web Services?

The Oracle Analytics session-based web services are an application programming interface (API) that implements SOAP (Simple Object Access Protocol). These web services are designed for programmatically invoking analysis and interactive reporting objects. These web services also provide functionality to perform a wide range of operations.

The Oracle Analytics session-based web services allow you to perform three types of functions:

- Extract results from analysis and interactive reporting objects and deliver them to external applications and web application environments.
- Perform management functions.

- Execute Intelligent Agents.

Oracle Analytics session-based web services allow external applications such as J2EE and .NET to use Oracle Analytics as an analytical calculation and data integration engine. It provides a set of services that allow external applications to communicate with Oracle Analytics.

Oracle Analytics session-based web services require a valid Oracle Analytics session ID to be passed as a parameter. This means that the calling application first needs to make a call to get the session ID before calling the web service. A final call is made to log out.

The formal definition of services and methods in Oracle Analytics web services can be retrieved in WSDL format. You can use a proxy generation tool to create proxy/stub code to access the services. Depending upon the client version you are using, you can access the WSDL document at the following Oracle Analytics web services URL:

`https://host:port/analytics-ws/saw.dll/wsd1/v12`

## Description of Services and Methods in Oracle Analytics Web Services

This topic describes the services and methods used by the Oracle Analytics session-based web services. This document uses JavaScript-like syntax to describe structures. The exact syntax and implementation depend on the SOAP code generation tool and the target language used by your application development environment.

### Topics:

- [AdministrationService Service](#)
- [AnalysisExportViewsService Service](#)
- [ConditionService Service](#)
- [HtmlViewService Service](#)
- [iBotService Service](#)
- [MetadataService Service](#)
- [ReportEditingService Service](#)
- [SAWSessionService Service](#)
- [SchedulerService Service](#)
- [SecurityService Service](#)
- [UserPersonalizationService Service](#)
- [WebCatalogService Service](#)
- [XMLViewService Service](#)

## AdministrationService Service

Use the AdministrationService service to manage the Oracle Analytics safe domains and configure log level.

Method Name	Description
deleteCSPWhitelist() Method	Deletes all safe domains entries. Use with caution.
getCSPDefaultAllowList() Method	This method is used internally by Oracle Analytics to return the default entries for the content security policy required by the product functionality.
getCSPWhitelist() Method	Retrieves the list of domains and options specified in the safe domains configuration.
reloadLogConfiguration() Method	Reloads the log configuration.
updateCSPWhitelist() Method	Updates the current set of domains and allowed options in the content security policy that's sent to the web browsers.

## deleteCSPWhitelist() Method

Use the deleteCSPWhitelist() method to delete all safe domains entries. Use with caution.

### Signature

```
deleteCSPWhitelistResult deleteCSPWhitelist(String sessionID);
```

Argument	Description
String sessionID	Specifies the session ID.

### Returns

Returns deleteCSPWhitelistResult.

## getCSPDefaultAllowList() Method

The getCSPDefaultAllowList() method is used internally by Oracle Analytics to return the default entries for the content security policy required by product functionality.

You can use REST APIs to create, update, and delete safe domains. See [Safe Domains REST Endpoints](#).

### Signature

```
getCSPDefaultAllowList(String sessionID);
```

Argument	Description
String sessionID	Specifies the session ID.

### Returns

Returns an output as defined in the getCSPWhitelist structure. See [CSPWhitelist Structure](#).

## getCSPWhitelist() Method

Use the getCSPWhitelist() method to obtain the current set of domains and allowed options in the content security policy that is sent to web browsers.

### Signature

```
getCSPWhitelist(String sessionID);
```

Argument	Description
String sessionId	Specifies the session ID.

### Returns

Returns an output as defined in the [getCSPWhitelist](#) structure. See [CSPWhitelist Structure](#).

## reloadLogConfiguration() Method

Use the `reloadLogConfiguration()` method to reload the log configuration.

### Signature

```
reloadLogConfigurationResult reloadLogConfiguration(LogReloadLevel logLevel,
LogReloadDomain domain, String id, String sessionId);
```

Argument	Description
LogReloadLevel logLevel	Specifies the logging level. Defined using one of these log levels in the LogReloadLevel enumeration: <ul style="list-style-type: none"> <li>• DEFAULT</li> <li>• INCIDENT</li> <li>• ERROR</li> <li>• WARNING</li> <li>• INFORMATION</li> <li>• TRACE</li> <li>• DISABLED</li> </ul>
LogReloadDomain domain	Specifies the domain to reload. Defined using one of these domains in the LogReloadDomain enumeration: <ul style="list-style-type: none"> <li>• SYSTEM</li> <li>• TENANT</li> <li>• SESSION</li> </ul>
String id	Specifies the system ID.
String sessionId	Specifies the session ID.

### Returns

Returns `reloadLogConfigurationResult`.

## updateCSPWhitelist() Method

Use the `updateCSPWhitelist()` method to update the current set of domains and allowed options in the content security policy that is sent to web browsers.

### Signature

```
updateCSPWhitelist(String cspWhitelistXml, String sessionId);
```

Argument	Description
String cspWhitelistXml	Specifies the content security policy in the CSPWhitelist structure. See <a href="#">CSPWhitelistXml Structure</a> .
String sessionId	Specifies the session ID.

## Returns

Returns confirmation of the updated CSP whitelist.

# AnalysisExportViewsService Service

Use the AnalysisExportViewsService service to initiate export of analysis reports and retrieve exported files in PDF, MHTML, Excel, and CSV formats.

Method Name	Description
<a href="#">completeAnalysisExport() Method</a>	Retrieves the exported files.
<a href="#">initiateAnalysisExport() Method</a>	Initiates and retrieves the exported files of analysis.

## completeAnalysisExport() Method

Use the completeAnalysisExport() method to retrieve exported files in PDF, MHTML, Excel, or CSV formats.

## Signature

```
completeAnalysisExport(String queryID, String sessionID);
```

Arguments	Description
String queryID	Specifies query ID returned by the initiateAnalysisExport() method. See <a href="#">initiateAnalysisExport() Method</a> .
String SessionID	Specifies the unique session ID.

## Returns

Returns an output as defined in the AnalysisExportResult structure.

For information on the AnalysisExportResult structure, see [AnalysisExportResult Structure](#).

## initiateAnalysisExport() Method

Use initiateAnalysisExport() method to initiate and retrieve exported files of analysis in the following formats - PDF, MHTML, Excel, CSV.

## Signature

```
initiateAnalysisExport(ReportRef reportRef, AnalysisExportOutputFormat outputFormat,
AnalysisExportExecutionOptions executionOptions, ReportParams reportParams, String
reportViewName, String sessionID);
```

Arguments	Description
ReportRef reportRef	Specifies the path to the analysis definition, supplied in the ReportRef common structure.

Arguments	Description
AnalysisExportOutputFormat outputFormat	Specifies one of the following output formats that you can select: <ul style="list-style-type: none"> <li>String PDF - Specifies the PDF format</li> <li>String MHTML - Specifies the MHTML format</li> <li>String Excel 2007 - Specifies the Excel 2007 format</li> <li>String CSV - Specifies the CSV format</li> </ul>
AnalysisExportExecutionOptions executionOptions	Specifies the execution options in the AnalysisExportExecutionOptions structure.
ReportParams reportParams	Specifies the filters or variables to apply to the analysis before execution, supplied in the ReportParams common structure.
String reportViewName	Specifies the view to export. If this parameter is null, the analysis default view is used. The view name should match the one used to identify the view in the analysis XML definition.
String sessionID	Specifies the session ID.

## Returns

Returns an output as defined in the AnalysisExportResult structure.

For information on the AnalysisExportResult structure, see [AnalysisExportResult Structure](#).

## ConditionService Service

Use the ConditionService service to evaluate Oracle Analytics conditions programatically. This service also allows users to obtain the customizable filters available in a condition.

Method Name	Description
<a href="#">evaluateCondition() Method</a>	Evaluates a condition saved to the catalog.
<a href="#">evaluateInlineCondition() Method</a>	Evaluate a condition supplied as a parameter.
<a href="#">getConditionCustomizableReportElements() Method</a>	Obtains the customizable filters of a condition saved to the catalog.

## evaluateCondition() Method

Use the evaluateCondition() method to evaluate a Condition that is stored in the catalog. This method returns an XML string containing the result of the condition (true or false).

## Signature

```
boolean evaluateCondition(String path, String[] reportCustomizationParameters, String sessionID);
```

Arguments	Description
String path	Specifies the full path and name of the Condition in the catalog. For example, /users/jchan/Conditions/IsRegionUnderBudget.
String [] reportCustomizationParameters	Specifies the customization parameters XML, which is only used if the Condition has customizable filters.  This XML is validated against the customization schema available in orahome/bifoundation/web/schemas/analysis_customization.xsd.



Arguments	Description
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## evaluateInlineCondition() Method

Use the `evaluateInlineCondition()` method to evaluate a condition defined outside of Oracle Analytics. The Condition XML is supplied in the `conditionXML` parameter. This method returns an XML string with the result of the condition evaluation, true or false.

### Signature

```
boolean evaluateInlineCondition(String conditionXML, String[] reportCustomizationParameters,
String sessionId);
```

Arguments	Description
String conditionXML	Specifies the Condition XML. This XML is validated against the condition schema available in <code>orahome/bifoundation/web/schemas/condition.xsd</code> .
String[] ListreportCustomizationParameters	Specifies the customization parameters XML, which is only used if the Condition has customizable filters. This XML is validated against the customization schema available in <code>orahome/bifoundation/web/schemas/analysis_customization.xsd</code> .
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getConditionCustomizableReportElements() Method

Use the `getConditionCustomizableReportElements()` method to determine the customizable filters available in a condition that is stored in the catalog.

This method returns an XML string containing the definition of the customizable filters available in the condition.

The XML is in the format defined in the customization schema available in `orahome/bifoundation/web/schemas/analysis_customization.xsd`.

### Signature

```
String[] getConditionCustomizableReportElements(String path, String sessionId);
```

Arguments	Description
String path	Specifies the full path and name of the condition in the catalog. For example, <code>/users/jchan/Conditions/IsRegionUnderBudget</code> .
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## HtmlViewService Service

Use the HtmlViewService service to embed Oracle Analytics HTML results in third-party dynamic web pages, such as Active Server Pages (ASP) or JavaServer Pages (JSP), and portal frameworks.

The embed process merges Oracle Analytics web services content with the content of third-party web pages.

Method Name	Description
<a href="#">addReportToPage() Method</a>	Adds results to an HTML page.
<a href="#">endPage() Method</a>	Destroys a server page object and all data associated with it.
<a href="#">getCommonBodyHTML() Method</a>	Retrieves HTML to include in the <BODY> section.
<a href="#">getHeadersHTML() Method</a>	Retrieves HTML to include in the <HEAD> section.
<a href="#">getHtmlforPageWithOneReport() Method</a>	Retrieves HTML for a page that contains only one analysis.
<a href="#">getHTMLForReport() Method</a>	Retrieves HTML to display a particular set of results.
<a href="#">setBridge() Method</a>	Specifies a bridge URL to receive communications. Can be useful when the Oracle Analytics web services server and the Presentation Services that the user is accessing reside on different machines or when you want to modify the results in your application development environment.
<a href="#">startPage() Method</a>	Creates a new page object and returns its ID.

The methods in HtmlViewService extract fragments of HTML code that can be inserted in third-party web pages.

HTML Code Fragment	Desired Page Location
Header	Should be inserted in the <HEAD> section of an HTML page. The code contains links to common JavaScript files and style sheets.
Report Objects	Can be inserted anywhere in the <BODY> section.
Common Body	Should be inserted in the <BODY> tag after all analysis links. The code contains hidden HTML elements that are used to implement drilldown links.

For each returned analysis object, the HTML code fragment contains a callback link that is followed automatically when the web page is loaded by the browser. The code fragment does not contain the full user interface definition of the analysis. While the analysis is being constructed by Oracle Analytics Presentation Services, the interface displays the Oracle Analytics web services "Searching..." image embedded on the third-party web page.

For smooth analysis transitioning, Oracle Analytics Presentation Services tracks the Oracle Analytics analyses that have been added to third-party web pages by maintaining information in an internal logical page object during the construction of the third-party web page. The HtmlViewService service methods explicitly refer to the internal logical page by its ID.

## About HtmlViewService Bridging and Callback URLs

To embed an analysis with active drilldown links, the HtmlViewService service allows the web browser to issue callback requests from embedded analyses to the Oracle Analytics Presentation Services server.

Although it is possible to route requests directly to the Oracle Analytics Presentation Services server, in many cases it is preferable to route requests through the Oracle Analytics instance that originally serviced the third-party page. Also, in situations where Oracle Analytics Presentation Services and the third-party web server don't belong to the same Domain Name Service (DNS) domain, users may get JavaScript errors related to browser security constraints for cross-domain scripting.

To avoid these issues, use the `setBridge()` method to modify callback URLs to point to the third-party web server. Be aware that a web component executed by the third-party web server to re-route requests to Oracle Analytics Presentation Services isn't provided. This function would need to be fulfilled by the third-party application. For more information about the `setBridge()` method, see [setBridge\(\) Method](#).

## addReportToPage() Method

Use the `addReportToPage()` method to add results to an HTML page.

### Signature

```
void addReportToPage(String pageID, String reportID, ReportRef report,
String reportViewName, ReportParams reportParams, ReportHTMLOptions options,
String sessionID);
```

Arguments	Description
String pageID	Specifies a character string page ID returned by the <code>startPage()</code> method. See <a href="#">startPage() Method</a> .
String reportID	Specifies a character string that identifies the analysis containing the results to add to the page. It should be used to reference this analysis in subsequent method invocations; for example, corresponding user interface elements generated by the Oracle Analytics Presentation Services server would reference the same ID.
ReportRef report	Specifies the analysis definition, supplied in the <code>ReportRef</code> structure.
String reportViewName	Specifies the view to display. If this parameter is null, the analysis' default view is used. The view name should match the one used to identify the view in the analysis XML definition.
ReportParams reportParams	Optional. Specifies the filters or variables to apply to the analysis before execution, supplied in the <code>ReportParams</code> common structure.
ReportHTMLOptions options	Optional. Specifies the display options to apply to the analysis after execution, supplied in the <code>ReportHTMLOptions</code> structure. See <a href="#">QueryResults Structure</a> .
String sessionID	Specifies the session ID, which is usually returned by the <code>logon</code> method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## endPage() Method

Use the `endPage()` method to destroy the Oracle Analytics Presentation Services server page object and all data associated with it.

### Signature

```
void endpage(String pageID, String sessionID);
```

Arguments	Description
String pageID	Specifies the ID of the page object, which is returned by the startPage() method. See <a href="#">startPage() Method</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getCommonBodyHTML() Method

Use the getCommonBodyHTML() method to retrieve HTML to include in the <BODY> section.

### Signature

String getCommonBodyHTML(String pageID, String sessionID);

Arguments	Description
String pageID	Specifies the ID of the page object, which is returned by the startPage() method. See <a href="#">startPage() Method</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns a string containing the HTML to include in the <BODY> section.

## getHeadersHTML() Method

Use the getHeadersHTML() method to retrieve HTML to include in the <HEAD> section.

### Signature

String getHeadersHTML(String pageID, String sessionID);

Arguments	Description
String pageID	Specifies the ID of the page object, which is returned by the startPage() method. See <a href="#">startPage() Method</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns a string containing the HTML to include in the <HEAD> section.

## getHtmlforPageWithOneReport() Method

Use the getHtmlforPageWithOneReport() method to retrieve the HTML for a page that contains only one analysis. A page that contains only one analysis doesn't have <BODY> and <HEAD> sections.

## Signature

String getHtmlForPageWithOneReport(String reportID, ReportRef report, String reportViewName, ReportParams reportParams, ReportHTMLOptions reportOptions, StartPageParams pageParams, String sessionID);

Arguments	Description
String pageReportID	Specifies the analysis ID returned by the getHtmlForPageWithOneReport() method. See <a href="#">addReportToPage() Method</a> .
ReportRef report	Specifies the analysis definition, supplied in the ReportRef structure.
String reportViewName	Specifies the view to display. If this parameter is null, the analysis' default view is used. The view name should match the one used to identify the view in the analysis XML definition.
ReportParams reportParams	Optional. Specifies the filters or variables to apply to the analysis before execution, supplied in the ReportParams common structure.
ReportHTMLOptions reportOptions	Optional. Specifies the display options to apply to the analysis after execution, supplied in the ReportHTMLOptions structure. See <a href="#">QueryResults Structure</a> .
StartPageParams pageParams	Specifies the options to use when starting the page, supplied in the StartPageParams structure. See <a href="#">StartPageParams Structure</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getHTMLForReport() Method

Use the getHTMLForReport() method to retrieve an HTML excerpt to display the results for a particular analysis. Before invoking this method, use the addReportToPage method to add the results to an HTML page.

## Signature

String getHTMLForReport(String pageID, String pageReportID, String sessionID);

Arguments	Description
String pageID	Specifies the ID of the page object, which is returned by the startPage() method. See <a href="#">startPage() Method</a> .
String pageReportID	Specifies the analysis ID returned by the addReportToPage() method. See <a href="#">addReportToPage() Method</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns a string containing the HTML excerpt that displays the specified analysis.

## setBridge() Method

Use the `setBridge()` method to specify a bridge URL to receive communications. Specifying a bridge URL can be useful when the Oracle Analytics web services server and the user's web server reside on different machines, or when you want to modify the results in your application development environment.

After the `setBridge()` method is called, all requests from the client browser to the Oracle Analytics Presentation Services server are sent to the bridge URL, which then forwards requests to the Oracle Analytics Presentation Services server.

### Signature

```
setBridge(String bridge, String sessionID);
```

Arguments	Description
String bridge	Specifies the bridge URL. For example,  <code>http://myserver/myapplication/sawbridge</code>
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Usage

You must make sure that the client browser provides a handler to the bridge URL in the form of a Java servlet, an Active Server Pages (ASP) page, a Common Gateway Interface (CGI), an Internet Server application programming interface (ISAPI), or an equivalent application.

You must also perform the following tasks:

- Decode the path of the requested Oracle Analytics web services resource in the RedirectURL argument of the request character string. See [How Callback URLs Are Replaced](#).
- Forward all other request arguments, together with all headers and the request body, to the bridge URL.
- Copy the response from the Oracle Analytics Presentation Services server to the response stream.

### How Callback URLs Are Replaced

The new callback URL is based on the bridge URL, with the addition of a RedirectURL argument. The value of the RedirectURL argument should be the original value of the URL, encoded using standard URL encoding rules.

Internally, Oracle Analytics web services usually uses relative URLs for callback links. For example, if the original callback link is `saw.dll?Go` and the bridge URL is

```
http://myserver/myapplication/sawbridge
```

then the new callback URL is

```
http://myserver/myapplication/sawbridge?RedirectURL=saw.dll%3fGo
```

## startPage() Method

Use the startPage() method to create a page object and returns its ID.

### Signature

String startPage(StartPageParams options, String sessionID);

Arguments	Description
StartPageParams options	Specifies the options to use when starting the page, supplied in the StartPageParams structure. See <a href="#">StartPageParams Structure</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns a string containing the Oracle Analytics Presentation Services page ID.

## iBotService Service

Use the iBotService service to save, edit, delete, subscribe, unsubscribe, customize, and execute Oracle Analytics agents. Note that as of the Oracle Business Intelligence 11g (11.1.1) release, "iBots" have been renamed to "agents."

Method Names	Description
<a href="#">deleteIBot() Method</a>	Deletes an agent from the catalog and deregisters it from the Oracle Analytics Scheduler.
<a href="#">enableIBot() Method</a>	Enables an Oracle Analytics agent.
<a href="#">executeIBotNow() Method</a>	Executes an agent saved in the catalog.
<a href="#">getAgentPaths() Method</a>	Gets the paths of the agents of a specified user.
<a href="#">getAgents() Method</a>	Gets the agents from a specified path.
<a href="#">moveIBot() Method</a>	Moves an agent from one catalog folder to another.
<a href="#">purgeAlerts() Method</a>	Specifies the alerts to be deleted.
<a href="#">getIBotStatus() Method</a>	Gets the status of the specified agent.
<a href="#">sendMessage() Method</a>	Sends a message to an Oracle Analytics user, group, or user and group.
<a href="#">subscribe() Method</a>	Subscribes to a published agent. Also customizes your subscription.
<a href="#">unsubscribe() Method</a>	Unsubscribes from an agent.
<a href="#">writeIBot() Method</a>	Writes a new agent into the catalog and registers it with Oracle Analytics Scheduler.

## deleteIBot() Method

Use the deleteIBot() method to delete a saved agent. Deleting an agent not only removes it (the object) from the catalog, but it also deregisters the agent from the Oracle Analytics

Scheduler. Note that this method is different from the `deleteitem()` method of `WebCatalogService` because the `deleteitem()` method doesn't deregister the agent from the Oracle Analytics Scheduler.

## Signature

```
void deleteIBot(String path, String sessionID);
```

Arguments	Description
String path	Specifies the full path and name of the agent in the catalog. For example, <code>/users/jchan/iBots/BrandDollars</code> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## enableIBot() Method

Use the `enableIBot()` method to enable an Oracle Analytics agent.

### Signature

```
enableIBotResult enableIBot(String path, boolean enable, String sessionID);
```

Argument	Description
String path	Specifies the full path and name of the agent in the catalog. For example, <code>/users/jchan/iBots/BrandDollars</code> .
boolean enable	Specifies whether to enable the specified agent.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns `enableIBotResult`.

## executeIBotNow() Method

Use the `executeIBotNow()` method to execute an agent that's stored in the catalog. Note that this method doesn't change the agent's original schedule.

## Signature

```
void executeIBotNow(String path, String sessionID);
```

Arguments	Description
String path	Specifies the full path and name of the agent in the catalog. For example, <code>/users/jchan/iBots/BrandDollars</code> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.



## getAgentPaths() Method

Use the getAgentPaths() method to get the paths of the Oracle Analytics agents of a specified user.

### Signature

```
getAgentPathsResult getAgentPaths(String userID, String sessionID);
```

Argument	Description
String userID	Specifies the user ID of the user to get the paths of the agents.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns getAgentPathsResult.

## getAgents() Method

Use the getAgents() method to get the Oracle Analytics agents in a specified path.

### Signature

```
getAgentsResult getAgents(String agentPath, String sessionID);
```

Argument	Description
String agentPath	Specifies the full path in the catalog.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns getAgentsResult.

## getIBotStatus() Method

Use the getIBotStatus() method to get the status of the specified Oracle Analytics agent.

### Signature

```
getIBotStatusResult getIBotStatus(String path, String sessionID);
```

Argument	Description
String path	Specifies the full path of the agent in the catalog.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns `getIBotStatusResult`.

## moveIBot() Method

Use the `moveIBot()` method to move an agent from one catalog folder to another. Note that this method is different from the `moveItem()` method of `WebCatalogService` Service because the `moveItem()` method moves the catalog object and informs the Oracle Analytics Scheduler that the object was moved.

## Signature

```
void moveIBot(String fromPath, String toPath, boolean resolveLinks, boolean allowOverwrite, String sessionID);
```

Arguments	Description
String fromPath	Specifies the full catalog path of the agent to be moved.
String toPath	Specifies the full catalog path where the agent is moved to.
boolean resolveLinks	Specifies if you want to move the child objects. If this argument is set to TRUE and the path specified in the "fromPath" argument is a link, then the child object pointed to by that link is moved.
boolean allowOverwrite	Specifies if you want to overwrite an existing object. If this argument is set to TRUE and another catalog object existed in the path specified by "toPath", it is overwritten.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## purgeAlerts() Method

Use the `purgeAlerts()` method to delete the alerts that are older than the specified time.

## Signature

```
purgeAlertsResult purgeAlerts(Unsigned Integer maxAgeSecs, String userGlob, String sessionID);
```

Argument	Description
Unsigned Integer maxAgeSecs	Specifies the age of the alert in seconds. Alerts older than this will be deleted. Use 0 to delete the alert irrespective of the age.
String userGlob	Specifies the user whose alerts has to be deleted. Specify the wildcard * to delete alerts for all users.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns the number of alerts purged, how many user's alerts were checked, alerts remaining, and if any errors occurred.

## sendMessage() Method

Use the sendMessage() method to send a message to an Oracle Analytics user, group, or user and group. The message is delivered according to the corresponding recipient's delivery profile, which was set up in the My Account dialog in Oracle Analytics Presentation Services.

### Signature

```
String sendMessage(String[] recipient, String[] group, String subject, String body, String priority, String sessionID);
```

Arguments	Description
String[] recipient	Specifies the GUID of the Oracle Analytics user to whom you want to send the message. You can include more than one user in this argument.
String[] group	Specifies the GUID of the Oracle Analytics group to whom you want to send the message. You can include more than one group in this argument.
String subject	Specifies the subject line of the message.
String body	Specifies the text to be included in the body of the message.
String priority	Specifies the message's priority. You can specify "High," "Normal," or "Low."
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## subscribe() Method

Use the subscribe() method to subscribe to a published agent. If the agent allows customization, then you can also specify the customization XML.

### Signature

```
void subscribe(String path, String customizationXml, String sessionID);
```

Arguments	Description
String path	Specifies the full path and name of the agent in the catalog. For example, /users/jchan/iBots/BrandDollars.
String customizationXml	Specifies the customization XML (only if the agent allows customizations). This XML is validated against the customization schema available in orahome/bifoundation/web/schemas/analysis_customization.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## unsubscribe() Method

Use the unsubscribe() method to unsubscribe from an agent. This method also deletes any user customizations.

## Signature

```
void unsubscribe(String path, String sessionID);
```

Arguments	Description
String path	Specifies the full path and name of the agent in the catalog. For example, /users/jchan/iBots/BrandDollars.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## writeIBot() Method

Use the writeIBot() method to write a new agent to the catalog and to register it with Oracle Analytics Scheduler. Note that this method is different from the writeObjects() method of WebCatalogService. The writeObjects() method only writes to the catalog.

## Signature

```
int writeIBot(CatalogObject obj, String path, boolean resolveLinks, boolean allowOverwrite, String sessionID);
```

Arguments	Description
CatalogObject obj	Specifies the object to be written to the catalog. The object's XML is validated against analysis_ibot.xsd, which is located in orahome/bifoundation/web/schemas directory.
String path	Specifies the full path and name of the agent in the catalog. For example, /users/jchan/iBots/BrandDollars.
boolean resolveLinks	If set to TRUE and the path in the catalog refers to a link, then the object is written to the location pointed to by the link.
boolean allowOverwrite	Specifies whether to overwrite an existing object. Set to TRUE to overwrite any object already present in the location specified by "path."
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## MetadataService Service

Use the MetadataService() service to retrieve descriptions of Oracle Analytics Presentation Services schema objects, such as columns, tables, and subject areas.

Method Names	Description
<a href="#">clearQueryCache() Method</a>	Clears the query cache.
<a href="#">describeColumn() Method</a>	Retrieves column information for a specified column in a specified subject area and table.
<a href="#">describeSubjectArea() Method</a>	Retrieves subject area information for a specified subject area.
<a href="#">describeSubjectAreaWithSort() Method</a>	Retrieves subject area information for a specified subject area in the specified sort order.

Method Names	Description
<a href="#">describeTable() Method</a>	Retrieves table information for a specified table in a specified subject area.
<a href="#">describeTableWithSort() Method</a>	Retrieves table information for a specified table in a specified subject area in the specified sort order (of their names).
<a href="#">getSubjectAreas() Method</a>	Retrieves the list of subject areas available.
<a href="#">getSubjectAreasWithSort() Method</a>	Retrieves the list of subject areas available in the specific sort order.
<a href="#">reloadLogConfiguration() Method</a>	Forces changes to logging configuration to take effect without manually restarting Oracle Analytics Presentation Services.
<a href="#">reloadMetadata() Method</a>	Reloads XML message files, refresh server metadata, and clear caches.

## clearQueryCache() Method

Use the `clearQueryCache()` method to clear the query cache.

### Signature

```
boolean clearQueryCache(String sessionID);
```

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## describeColumn() Method

Use the `describeColumn()` method to retrieve column information for a specified column in a specified subject area and table.

### Signature

```
SAColumn describeColumn(String subjectAreaName, String tableName, String columnName, String sessionID);
```

Arguments	Description
String subjectAreaName	Specifies the subject area to be queried.
String tableName	Specifies the table to be queried.
String columnName	Specifies the name of the column to be queried.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns an `SAColumn` Object. For information on the `SAColumn` structure.

See [SAColumn Structure](#).

## describeSubjectArea() Method

Use the describeSubjectArea() method to retrieve subject area information about the specified subject area.

### Signature

```
SASubjectArea describeSubjectArea(String subjectAreaName,  
SASubjectAreaDetails detailsLevel, String sessionID);
```

Arguments	Description
String subjectAreaName	Specifies the subject area to be queried.
SASubjectAreaDetails detailsLevel	Specifies the information to be retrieved about the subject area. For information on the SASubjectAreaDetails structure, see <a href="#">SASubjectAreaDetails Values</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### SASubjectAreaDetails Values

Use the SASubjectAreaDetails values to specify what information should be retrieved about the subject area.

Values	Description
IncludeTables	Include table list with minimum information about each table.
IncludeTablesAndColumns	Include full table and column information.
Minimum	Don't include table and column information.

### Returns

Returns an SASubjectArea Object.

See [SASubjectArea Structure](#).

### Usage

The detailsLevel parameter values for the describeSubjectArea() method.

Depending on the value of the detailsLevel parameter, the returned object contains the information specified in this table.

Value of detailsLevel	Description
IncludeTables	Specifies that the tables field is not null and contains the collection of tables for this subject area. Each table object has the columns field set to null.
IncludeTablesAndColumns	Specifies that the tables field is not null and contains the collection of tables for this subject area. For each table object the columns field contains the corresponding collection of columns.
Minimum	Specifies that the table list is not available. The tables field in the resulting subject area object is null.

## describeSubjectAreaWithSort() Method

Use the describeSubjectAreaWithSort() method to retrieve subject area information about the specified subject area in the specified sort order.

### Signature

```
SASubjectArea describeSubjectAreaWithSort(String subjectAreaName,
SASubjectAreaDetails detailsLevel, String sortOrder, String sortOrderCaseSensitive,
String sessionID);
```

Arguments	Description
String subjectAreaName	Specifies the subject area to be queried.
SASubjectAreaDetails detailsLevel	Specifies the information to be retrieved about the subject area. For information on the SASubjectAreaDetails structure, see <a href="#">SASubjectAreaDetails Values</a> .
String sortOrder	Specifies specifies which sort order you want the results returned in. Values can be 'asc' or 'desc'. 'asc' returns values in ascending order of the current language of the user (for example, in English, A to Z), and conversely 'desc' returns in the reverse order (for example, in English - from Z to A).
String sortOrderCaseSensitive	Specifies if the case of the values need to be taken into consideration during sort. Values can be 'caseSensitive' or 'caseInsensitive'.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns an SASubjectArea Object .

See [SASubjectArea Structure](#)) with tables returned in the specified sort order.

## describeTable() Method

Use the describeTable() method to retrieve table information for a specified table in a specified subject area.

### Signature

```
SATable describeTable(String subjectAreaName, String tableName,
SATableDetails detailsLevel, String sessionID);
```

Arguments	Description
String subjectAreaName	Specifies the subject area to be queried.
String tableName	Specifies the table to be queried.
SATableDetails detailsLevel	Specifies the information to retrieve about the table. For information on the SATableDetails structure, see <a href="#">SATablesDetails Values</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## SATablesDetails Values

The SATablesDetails values specify the information to retrieve about the subject area table.

Values	Description
IncludeColumns	Populate the columns field in the SATable Object.
Minimum	Do not include column information. The columns field in the SATable Object is set to null.

## Returns

Returns an SATable Object. For information on the SATable structure.

See [SATable Structure](#).

## describeTableWithSort() Method

Use the describeTableWithSort() method to retrieve table information for a specified table in the specified sort order (of their names).

## Signature

SATable describeTable(String subjectAreaName, String tableName, SATableDetails detailsLevel, String sortOrder, String sortOrderCaseSensitive, String sessionID);

Arguments	Description
String subjectAreaName	Specifies the subject area to be queried.
String tableName	Specifies the table to be queried.
SATableDetails detailsLevel	Specifies the information to retrieve about the table. For information on the SATableDetails structure, see <a href="#">SATablesDetails Values</a> .
String sortOrder	Specifies specifies which sort order you want the results returned in. Values can be 'asc' or 'desc'. 'asc' returns values in ascending order of the current language of the user (for example, in English, A to Z), and conversely 'desc' returns in the reverse order (for example, in English - from Z to A).
String sortOrderCaseSensitive	Specifies if the case of the values need to be taken into consideration during sort. Values can be 'caseSensitive' or 'caseInsensitive'.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns an SATable Object with columns in the specified sort order. For information on the SATable structure.

See [SATable Structure](#).

There is a fixed order for column types. This fixed sort order is:

- Nested folders



- Measures
- Attributes
- Hierarchies

## getSubjectAreas() Method

Use the `getSubjectAreas()` method to retrieve the list of subject areas that are available.

### Signature

```
List[] getSubjectAreas(String sessionId);
```

Arguments	Description
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns an array of `SASubjectArea` objects. For information on the `SASubjectArea` structure.

See [SASubjectArea Structure](#).

### Usage

`SASubjectArea` objects returned by this method do not have table information available.

The `tables` field is null. The approach to querying at all levels is to use `getSubjectAreas()` to retrieve the list of subject areas and then use `describeSubjectArea()` to retrieve the list of tables. Next, use `describeTable()` to retrieve the list of columns in a specified table, and finally, use `describeColumn()` to retrieve information on a specified column.

## getSubjectAreasWithSort() Method

Use the `getSubjectAreasWithSort()` method to retrieve the list of subject areas that are available in the specific sort order.

### Signature

```
List[] getSubjectAreasWithSort(String sortOrder, String sortOrderCaseSensitive, String sessionId);
```

Arguments	Description
String sortOrder	Specifies specifies which sort order you want the results returned in. Values can be 'asc' or 'desc'. 'asc' returns values in ascending order of the current language of the user (for example, in English, A to Z), and conversely 'desc' returns in the reverse order (for example, in English - from Z to A).
String sortOrderCaseSensitive	Specifies if the case of the values need to be taken into consideration during sort. Values can be 'caseSensitive' or 'caseInsensitive'.
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns an array of SASubjectArea objects returned in the specified sort order.  
For information on the SASubjectArea structure, see [SASubjectArea Structure](#).

## Usage

SASubjectArea objects returned by this method do not have table information available.

The tables field is null. The approach to querying at all levels is to use getSubjectAreasWithSort() to retrieve the list of subject areas and then use describeSubjectAreaWithSort() to retrieve the list of tables. Next, use describeTableWithSort() to retrieve the list of columns in a specified table, and finally, use describeColumn() to retrieve information on a specified column.

## reloadLogConfiguration() Method

Use the reloadLogConfiguration() method to force changes to logging configuration to take effect without manually restarting Oracle Analytics Presentation Services.

## Signature

```
boolean reloadLogConfiguration(String sessionID);
```

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## reloadMetadata() Method

Use the reloadMetadata() method to reload XML message files, refresh server metadata, and clear caches.

## Signature

```
boolean reloadMetadata(String sessionID);
```

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns a boolean to indicate if the operation is successful.

## ReportEditingService Service

Use the ReportEditingService service to merge arguments and Oracle Analytics Presentation Services data to create and return the results.

Method Names	Description
<a href="#">applyReportDefaults() Method</a>	Applies analysis default arguments to the analysis and returns the results.
<a href="#">applyReportParams() Method</a>	Applies report arguments to the analysis object and returns the results.
<a href="#">getPromptElements() Method</a>	Retrieves a list of criteria prompt column definitions in a given analysis and current runtime state.
<a href="#">generateReportSQL() Method</a>	Retrieves the SQL query for a given analysis.
<a href="#">getReportColumns() Method</a>	Retrieves a list of criteria columns in an analysis.
<a href="#">getReportElements() Method</a>	Retrieves a list of prompts, unprotected filters, and referenced presentation variables in the given report.

## applyReportDefaults() Method

Use the `applyReportDefaults()` method to apply analysis default arguments to the analysis and returns the results.

### Signature

```
String applyReportDefaults(ReportRef reportRefs, String sessionID);
```

Arguments	Description
ReportRef object	Specifies the path to the analysis definition, supplied in the ReportRef common structure.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns the result of applying the default analysis arguments to the specified analysis object.

## applyReportParams() Method

Use the `applyReportParams()` method to apply analysis arguments to the analysis and return the results.

### Signature

```
Object applyReportParams(ReportRef reportRef, ReportParams reportParams,  
boolean encodeInString, String sessionID);
```

Arguments	Description
ReportRef reportRef	Specifies the path to the analysis definition, supplied in the ReportRef common structure.
ReportParams reportParams	Optional. Specifies the filters or variables to apply to the analysis before execution, supplied in the ReportParams common structure.
boolean encodeInString	If set to TRUE, then the returned analysis object is encoded as a character string.

Arguments	Description
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns the result of applying analysis arguments to the specified analysis object. If you set `encodeInString` to true, then the result is encoded as a character string.

## getPromptElements() Method

Use the `getPromptElements()` method to retrieve a list of criteria prompt column definitions in a given analysis and current runtime state.

## Signature

```
getPromptElements(ReportRef promptRef, String viewState, String viewID, String portalPath,
String page, NameValuePair optionalParams, String sessionId);
```

Arguments	Description
ReportRef promptRef	Required. Specifies the catalog path to a saved report or a report xml document.
String viewState	Optional. Specifies the runtime viewState. Runtime prompt definition may be changed based on other prompts setting view viewState.
String viewID	Optional: Specifies the view ID
String portalPath	Optional: Specifies the dashboard catalog path where the report resides.
String page	Optional: Specifies the dashboard page name where the report resides.
NameValuePair optionalParams	Optional: Specifies the name of additional parameters which are usually used for debugging purposes.
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

A set of report prompt columns.

See [PromptsObjectModel Structure](#).

## generateReportSQL() Method

Use the `generateReportSQL()` method to retrieve the logical SQL query for a given analysis.

## Signature

```
String generateReportSQL(ReportRef reportRef, ReportParams reportParams,
String sessionId);
```

Arguments	Description
ReportRef reportRef	Specifies the path to the analysis definition supplied in the ReportRef common structure.
ReportParams reportParams	Optional. Specifies the path to the filters or variables to apply to the analysis before execution, supplied in the ReportParams common structure.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

A string containing the SQL query for the specified analysis.

## getReportColumns() Method

Use the `getReportColumns()` method to retrieve a list of criteria columns in a given analysis.

## Signature

`ReportColumn[] getReportElements(String reportPath, String sessionID);`

Arguments	Description
ReportRef reportRef	Specifies the path to the analysis definition supplied in the ReportRef common structure.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

`ReportColumn[]` - array of columns in the report.

See [ReportHierarchicalColumn Structure](#) and [ReportRegularColumn Structure](#).

## getReportElements() Method

Use the `getReportElements()` method to retrieve a list of all report prompts, unprotected filters, and referenced presentation variables in the given report.

## Signature

`String getReportElements(String reportPath, String sessionID);`

Arguments	Description
String reportPath	Required. Specifies the report catalog path for the report.
String sessionID	Optional. Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Report ADF parameters.

If present, report ADF parameters for the following objects, in the order listed:

- Prompts
- Unprotected filters
- Presentation variables referenced in the report
- Context variables referenced by the Oracle Analytics Presentation Services

See [ReportADFParameters Structure](#).

## SAWSessionService Service

Use the SAWSessionService service to provide authentication methods such as logon and logoff, and other session-related methods.

Method Name	Description
<a href="#">getCurUser() Method</a>	Retrieves the current user ID for the session.
<a href="#">getSessionEnvironment() Method</a>	Retrieves the environment object for the current session.
<a href="#">getSessionVariable() Method</a>	Retrieves a list of session variables.
<a href="#">impersonate() Method</a>	Logs on and then impersonates the user.
<a href="#">impersonateex() Method</a>	Logs on and then impersonates the user. Similar to the impersonate method, but impersonateex can specify optional session parameters.
<a href="#">keepAlive() Method</a>	Instructs Oracle Analytics Presentation Services not to end particular sessions due to inactivity.
<a href="#">logoff() Method</a>	Logs the user off Oracle Analytics Presentation Services.
<a href="#">logon() Method</a>	Authenticates the user.
<a href="#">logonex() Method</a>	Authenticates the user. Similar to the logon method, but logonex can specify optional session parameters.

## getCurUser() Method

Use the getCurUser() method to retrieve the current user name for the session.

## Signature

String getCurUser(String sessionID);

Argument	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns a string indicating the current user name for the session.

## GetSessionEnvironment() Method

Use the `GetSessionEnvironment()` method to retrieve the environment object for the current session.

### Signature

```
SessionEnvironment getSessionEnvironment(String sessionID);
```

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

This method returns a session environment object.

See [SessionEnvironment Structure](#).

## getSessionVariable() Method

Use the `getSessionVariable()` method to retrieve a list of session variables.

### Signature

```
List[] getSessionVariables(List[] names, String sessionID);
```

Arguments	Description
List[] names	Specifies the names of the session variables.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

This method returns values of the Oracle BI EE variables associated with the current session.

## impersonate() Method

Use the `impersonate()` method to log on and impersonate the user during the `SAWSessionService` service.

This method is useful when you need to create sessions for multiple users and have only the administrator's name and password. You do not need to use the (logon) method if you use the `impersonate()` method.

If user authentication or impersonation fails, an exception is thrown.

### Signature

```
String impersonate(String name, String password, String impersonateID);
```

Arguments	Description
String name	Specifies the user name to log on and authenticate.
String password	Specifies the password for the user. If there is no password for the user, leave this field empty (void).
String impersonateID	Specifies the user name to impersonate the authenticated user.

## Returns

This method returns the session ID and sets an HTTP session cookie.

The session ID is used in other methods to identify the Oracle Analytics web services session.

## impersonateex() Method

Use the `impersonateex()` method to log on and impersonate the user in the `SAWSessionService` service.

Similar to the `impersonate` method, but `impersonateex` can specify optional session parameters. This method is useful when you need to create sessions for multiple users and have only the administrator's name and password. You do not need to use the `(logon)` method if you use the `impersonateex()` method.

If user authentication or impersonation fails, then an exception is thrown.

## Signature

```
AuthResults impersonateex(String name, String password, String impersonateID,
SAWSessionParameters sessionparams);
```

Arguments	Description
String name	Specifies the user name to log on and authenticate.
String password	Specifies the password for the user. If there is no password for the user, leave this field empty (void).
String impersonateID	Specifies the user name to impersonate the authenticated user.
SAWSessionParameters sessionparams	Optional. Specifies the session parameters to use, supplied in the <code>SAWSessionParameters</code> structure. For information about the <code>SAWSessionParameters</code> structure, see <a href="#">SAWSessionParameters Structure</a> .

## Returns

This method returns the `AuthResult` structure containing the session ID, and also sets an HTTP session cookie.

The session ID is used in other methods to identify the Oracle Analytics Presentation Services session. For more information, see [AuthResult Structure](#).

## keepAlive() Method

Use the `keepAlive()` method to instruct Oracle Analytics Presentation Services not to end particular web user sessions due to inactivity.



The effect of this method on session lifetime is the same as if those users performed an activity in the browser such as clicking an analysis, or invoking a method.

## Signature

```
void keepAlive(String[] sessionID);
```

Argument	Description
String[] sessionID	Specifies the session IDs to remain logged on.

## logoff() Method

Use the logoff() method to log off the user from Oracle Analytics.

## Signature

```
void logoff(String sessionID);
```

Argument	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## logon() Method

Use the logon() method to authenticate the user. If authentication fails, an exception is thrown.

## Signature

```
String logon(String name, String password);
```

Arguments	Description
String name	Specifies the user name to authenticate.
String password	Specifies the password for the user. If there is no password, leave this field empty (void).

If you have configured Oracle Analytics Server with an identity management system that supports OAuth2 tokens, you can alternatively pass an access token in an Authorization header instead of the username and password in order to obtain a session ID.

## Returns

This method returns the session ID and sets an HTTP session cookie.

The session ID is used in other methods to identify the Oracle Analytics session.

## logonex() Method

Use the logonex() method to authenticate the user. The logonex() method is similar to the logon method, but logonex can specify optional session parameters.

If authentication fails, an exception is thrown.

## Signature

`AuthResult logonex(String name, String password, SAWSessionParameters sessionparams);`

Arguments	Description
String name	Specifies the user name to authenticate.
String password	Specifies the password for the user. If there is no password, leave this field empty (void).
SAWSessionParameters sessionparams	Optional. Specifies the sessionparams to use, supplied in the SAWSessionParameters structure. For information about the SAWSessionParameters structure, see <a href="#">SAWSessionParameters Structure</a> .

## Returns

This method returns the AuthResult structure containing the session ID, and also sets an HTTP session cookie.

The session ID is used in other methods to identify the Oracle Analytics Presentation Services session.

## SchedulerService Service

The following terms are associated with the SchedulerService service:

- Agents (or iBots) - These are Presentation Services catalog objects.
- Jobs - These are scheduler objects, and every agent has at least one job stored in the BI\_PLATFORM schema.
- JobInstances - These are scheduler objects representing active or completed jobs and are stored in the BI\_PLATFORM schema.

Use this service to list, and detail scheduler jobs and job instances, and to purge and remove job instances (removing a job automatically purges job instances). Deleting agents automatically removes jobs.

To use this service, you must obtain a user session ID to return a list of Job or Job Instance Reference ID's, which you use to get details or remove the object. You obtain a user session ID by using the logon() method of the SAW session service (for more information, see [logon\(\) Method](#)). You must then apply filters to specify particular Job Reference IDs and Job Instance IDs.

For examples of using the SchedulerService service methods, see [Examples of Using the SchedulerService API](#)

The client must be granted the privileges `Access SOAP`, and `Access SchedulerService Service` to call methods in the SchedulerService service API. These privileges are granted by default to the BIConsumer application role. You manage these privileges using the Manage Privileges Page in Presentation Services Administration.

The methods described in this section are synchronous unless stated otherwise.

[iBotService Service](#) shows the supported methods.

Method Names	Description
<a href="#">getJobReferences() Method</a>	Returns a list of Jobs that match the selection criteria in the specified filter argument.
<a href="#">getJobInstanceReferences() Method</a>	Returns a list of Job Instances that match the selection criteria in the specified filter argument.
<a href="#">getJob() Method</a>	Returns a Job definition for a specified Job reference.
<a href="#">getJobInstance() Method</a>	Returns Job Instance details for a specified Job Reference.
<a href="#">cancelJobInstance() Method</a>	Requests to cancel an executing Job Instance for a specified Job Reference.
<a href="#">removeJobs() Method</a>	Requests to remove a Job definition for a specified Job Reference.
<a href="#">purgeJobInstances() Method</a>	Requests to purge an existing Job Instance for a specified Job Reference.

## getJobReferences() Method

Use the `getJobReferences()` method to get a list of job references based on a filter.

Returned references are not live and are invalidated when jobs or instances are deleted.

### Signature

```
JobReference[] getJobReferences(List[] JobFilter, String SessionID);
```

Arguments	Description
List[] JobFilter	Selection criteria that returns matching job references. An empty JobFilter results in all job references being returned. Note that filters are applied in the context of the calling user, which means that a user is restricted to listing jobs within their tenancy but does not require any Presentation Services catalog permissions on the agent corresponding to the job.  For more information, see <a href="#">JobFilter Structure</a> , and <a href="#">JobReferenceAndInstanceReferences Structure</a> .
String SessionID	Specifies the session ID, which is usually returned by the login method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null. If no Session IDs are specified then all JobReferences are returned.

## getJobInstanceReferences() Method

Use the `getJobInstanceReferences()` method to get a list of job instances that correspond to running, cancelled or completed jobs.

The JobInstanceFilter must include one or more Job References (unknown Job References are ignored).

A structure is returned in the list for each Job which has associated Job Instances that satisfy the filter. For example, if the method is invoked with a JobInstanceFilter that specifies three Job references, and two of these Jobs are found to have associated Job Instances, then there will be two JobReferenceAndInstanceReferences structures returned in the list.

There is no limit to the number of structures and job instances that can be returned. Performance of this method is critical and must be optimized to allow efficient polling of job status.

References are not live and are invalidated if jobs or instances are deleted or cancelled.

The following properties can be applied when listing job instance references:

- List of JobReference [Mandatory]. For more information, see [JobReferenceAndInstanceReferences Structure](#)
- JobInstanceStatus [Optional] For more information, see [JobInstanceStatus Enumeration](#).
- JobFilter, JobInstanceFilter, and PurgeJobInstancesFilter properties are selection criteria that are used as follows:
  - A filter is always applied in the context of the current user.
  - Properties in the filter are selection criteria.
  - Filter and its properties must be populated according to the schema.
  - If the selection criteria are valid, but would return Jobs that are not visible to the current user these jobs is excluded without error.
  - All properties in a filter is used as selection criteria (union).
  - Filter criteria are applied by the server at the time the request is serviced.

For more information, see [JobFilter Structure](#), [JobInstanceFilter Structure](#), and [PurgeJobInstancesFilter Structure](#).

## Signature

JobReferenceAndInstanceReferences[] getJobInstanceReferences(Array JobInstanceFilter, String SessionID);

Arguments	Description
JobInstanceFilter filter	Specifies the selection criteria that determines which JobInstanceReferences to return. For more information, see <a href="#">JobInstanceFilter Structure</a> and <a href="#">JobReferenceAndInstanceReferences Structure</a> .
String SessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getJob() Method

Use the getJob() method to get the Job definition given a Job Reference.

If you try to get a job that doesn't exist, you get `Job not found` error.

## Signature

Job[] getJob(String JobReference, String SessionID);

Arguments	Description
String JobReference	Specifies a unique job identifier. For more information, see <a href="#">Job Structure</a> .

Arguments	Description
String SessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getJobInstance() Method

Use the `getJobInstance()` method to get the Job Instance details, when given a Job Instance Reference.

If you try to get a Job Instance that doesn't exist, you get `JobInstance not found` error.

### Signature

```
JobInstance[] getJobInstance(String JobReference, String JobInstanceReference, String SessionID);
```

Arguments	Description
String JobReference	Specifies a unique job identifier. For more information, see <a href="#">JobInstance Structure</a> .
String JobInstanceReference	Specifies a unique job instance identifier.
String SessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## cancelJobInstance() Method

Use the `cancelJobInstance()` method to request to cancel an executing Job Instance, when given a reference to an existing Job Instance.

Successful return indicates that the cancellation request has been accepted. Callers must use the `getJobInstanceReferences` operation (with an appropriate filter - such as Job Reference and State) or using the `getJobInstance` operation (and checking the `JobInstanceStatus` property), to determine if the cancellation has completed.

Cancelling a Job Instance that is not running has no effect. Cancelling a Job Instance that doesn't exist raises a `JobInstance not found` error.

### Signature

```
Boolean cancelJobInstance(String JobReference, String JobInstanceReference, String SessionID);
```

Arguments	Description
String JobReference	Specifies a unique job identifier.
String JobInstanceReference	Specifies a unique job instance identifier. For more information, see <a href="#">JobReferenceAndInstanceReferences Structure</a> .
String SessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## removeJobs() Method

Use the `removeJobs()` method to remove associated jobs, given a list of Job References.

If you try to remove a job that does not exist, it will be ignored and logged. The number of Jobs actually removed is returned.

### Signature

Unsigned Integer `removeJobs(List JobReference[], String SessionID);`

Arguments	Description
List JobReference[]	Specifies the job identifiers of the removed jobs. For more information, see <a href="#">JobReferenceAndInstanceReferences Structure</a> .
String SessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## purgeJobInstances() Method

Use the `purgeJobInstances()` method to purge Job Instances based on a filter.

The `purgeJobInstancesFilter` must contain either a populated list of Job References or UserIDs, and if this is not done correctly then it will result in an `Invalid Choice` SOAP fault being raised. Attempting to purge with a Job Reference or UserID that does not exist will be ignored and logged.

The following properties can be applied when purging job instances:

- Choice of only one of the following: [Mandatory]:
  - List of Job Reference [Optional].
  - List of User IDs [Optional].

### Signature

Void `purgeJobinstances(List[] PurgeJobInstancesFilter, String SessionID);`

Arguments	Description
List[] PurgeJobInstancesFilter	Specifies filter properties for the Job Instances to purge. For more information, see <a href="#">PurgeJobInstancesFilter Structure</a> .
String SessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Examples of Using the SchedulerService API

This section assumes that the reader is familiar with Java and SOAP based web services. The Java code that follows is intended to illustrate API usage.

- [Example - Creating a Session and Scheduler Service](#)
- [Example - Finding Job References for a User and Displaying the Job Names](#)

- [Example - Finding Job Instances for Two Given Job References](#)
- [Example - Cancelling All Job Instances Associated with a Job Reference](#)
- [Example - Finding and Displaying all Agents in the WebCatalogService](#)

## Example - Creating a Session and Scheduler Service

As with all services detailed here, to use the scheduler service you must first establish a `SAWSession`, then instantiate a handle to the service endpoint:

```
SAWSessionService sessionService = new SAWSessionService();

SAWSessionServiceSoap sessionServiceSoap =
    sessionService.getSAWSessionServiceSoap();

String sessionId = sessionServiceSoap.logon("<USER_NAME>", "<PASSWORD>");

SchedulerService schedulerService = new SchedulerService();

SchedulerServiceSoap schedulerServiceSoap =
    schedulerService.getSchedulerServiceSoap();
```

## Example - Finding Job References for a User and Displaying the Job Names

Example code for finding job references for a user and displaying the job names.

This example depends on the code from [Example - Creating a Session and Scheduler Service](#) to create the session and service.

```
JobFilter jobFilter = new JobFilter();

jobFilter.getUserID().add("<USER_ID>");

List<Long> jobRefs = schedulerServiceSoap.getJobReferences(jobFilter,
    sessionId);

for (long jobRef : jobRefs)
{
    Job job = schedulerServiceSoap.getJob(jobRef, sessionId);
    System.out.println("Name = " + job.getName());
}
```

## Example - Finding Job Instances for Two Given Job References

Example code for finding job instances for two given job references.

This example depends on the code from [Example - Creating a Session and Scheduler Service](#) to create the session and service.

```
// Create Job Instance Filter
JobInstanceFilter jobInstanceFilter = new JobInstanceFilter();
jobInstanceFilter.getJobReference().add(<JOB_REFERENCE_1>);
jobInstanceFilter.getJobReference().add(<JOB_REFERENCE_2>);
jobInstanceFilter.setJobInstanceStatus(null);
```

```
List<JobReferenceAndInstanceReferences> listJobRefAndInstanceRefs =
schedulerServiceSoap.getJobInstanceReferences(jobInstanceFilter, sessionId);

System.out.println("Number of Jobs with Instances found: " +
listJobRefAndInstanceRefs.size());
for (JobReferenceAndInstanceReferences jobRefAndInstanceRefs :
listJobRefAndInstanceRefs)
{
    System.out.println("Job Ref = " +
    jobRefAndInstanceRefs.getJobReference() + ", Job Instance Refs = " +
    jobRefAndInstanceRefs.getJobInstanceReference());
}
```

## Example - Cancelling All Job Instances Associated with a Job Reference

This example cancels all Job Instances for the Job with the given Job Reference.

This example also depends on the code from [Example - Creating a Session and Scheduler Service](#) to create the session and service.

```
// Create Job Instance Filter
JobInstanceFilter jobInstanceFilter = new JobInstanceFilter();
jobInstanceFilter.getJobReference().add(<JOB_REFERENCE>);

// Get JobInstance References
List<JobReferenceAndInstanceReferences> listJobRefAndInstanceRefs =
schedulerServiceSoap.getJobInstanceReferences(jobInstanceFilter, sessionId);

// Cancel all the obtained Job Instances
for (JobReferenceAndInstanceReferences jobRefAndInstanceRefs :
listJobRefAndInstanceRefs)
{
    for (BigInteger jobInstanceRef :
    jobRefAndInstanceRefs.getJobInstanceReference())
    {
        System.out.println("Cancelling Job = " +
        jobRefAndInstanceRefs.getJobReference() + ", Job Instance = " +
        jobInstanceRef);
        boolean result = schedulerServiceSoap.cancelJobInstance(jobRef,
        jobInstanceRef, sessionId);
        System.out.println("Result = " + result);
    }
}
```

## Example - Finding and Displaying all Agents in the WebCatalogService

This example shows how to iterate through the WebCatalogService and display the path of all the agents found.

This example also depends on the code from [Example - Creating a Session and Scheduler Service](#) to create the session and service.



You could extend this example, so that once an agent has been found, it can be used to call iBot web service methods (for example, Enable the Agent using the Agent path found).

#### iBotService Service

```
WebCatalogService webCatalogService = new WebCatalogService();
WebCatalogServiceSoap webCatalogServiceSoap =
webCatalogService.getWebCatalogServiceSoap();

void outputAgentsInFolder(String path) {    List<ItemInfo> items = null;    try
{        // Get folder items        items =
webCatalogServiceSoap.getSubItems(path, "*", false, null, sessionId);
for (ItemInfo itemInfo : items) {            // If item is Agent then display
Agent path            if (itemInfo.getSignature().equals("coibot1"))
{                System.out.println("Agent Path = " +
itemInfo.getPath());            }            // If item is a folder then recurse
if (itemInfo.getType() == ItemInfoType.FOLDER)
{                outputAgentsInFolder (itemInfo.getPath());            }        }} catch
(SOAPFaultException soapFault){            System.out.println("SOAP Fault for
path: " + path);} catch (Exception e) {            e.printStackTrace();    }}
```

## SecurityService Service

Use the SecurityService service to provide methods for identifying accounts and privileges.

Method Names	Description
<a href="#">forgetAccounts() Method</a>	Removes accounts from the catalog.
<a href="#">forgetAccountsEx() Method</a>	Removes accounts from the catalog.
<a href="#">getAccounts() Method</a>	Searches for Oracle Analytics user accounts.
<a href="#">getAccountTenantID() Method</a>	Gets the tenant ID of a specific account.
<a href="#">getGlobalPrivilegeACL() Method</a>	Gets the Access Control List for global privileges.
<a href="#">getGlobalPrivileges() Method</a>	Gets the list of all global privileges.
<a href="#">getPermissions() Method</a>	Get the list of permissions for the specified user.
<a href="#">getPermissionsEx() Method</a>	Get the list of permissions for the specified user.
<a href="#">getPrivilegesStatus() Method</a>	Lists all privileges and their statuses.
<a href="#">isMember() Method</a>	Confirms if a catalog group is a member of the user or group.
<a href="#">joinGroups() Method</a>	Adds a user to a catalog group as a member.
<a href="#">leaveGroups() Method</a>	Removes a member from a group.
<a href="#">renameAccountsEx() Method</a>	Changes the name of an user account.
<a href="#">updateGlobalPrivilegeACL() Method</a>	Updates the Access Control List for global privileges.

### forgetAccounts() Method

Use the forgetAccounts() method to remove accounts from the catalog.

#### Signature

```
forgetAccountsStatus forgetAccounts(Account account, int cleanuplevel, String sessionId);
```

Argument	Description
Account account	Specifies the account to forget. See <a href="#">Account Structure</a> .
int cleanuplevel	Specifies the level for account cleanup.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

#### Returns

Returns a list of account names with status of forgetAccounts operation in the ForgetAccountsStatus Structure.

## forgetAccountsEx() Method

Use the forgetAccountsEx() method to remove accounts from the catalog.

### Signature

forgetAccountsStatus forgetAccountsEx(ForgetAccount forgetAccountsList, String sessionID);

Argument	Description
ForgetAccount forgetAccountsList	Specifies the accounts to forget, supplied in the ForgetAccount structure. For information about the ForgetAccount structure, see <a href="#">ForgetAccount Structure</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns a list of account names with status of forgetAccounts operation in the ForgetAccountsStatus Structure.

See [ForgetAccountsStatus Structure](#).

## getAccounts() Method

Use the getAccounts() method to search for Oracle Analytics user accounts (for example, LDAP users, catalog groups, or application roles).

### Signature

List[] getAccounts(List[], String sessionID);

Argument	Description
List[]	Specifies user names, catalog group names, and application role names. A flag indicates if the name is a user, group, or application role.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getAccountTenantID() Method

Use the getAccountTenantID() method to retrieve the tenant ID of a specific account.

### Signature

```
List[] getAccountTenantID(List[], String sessionID);
```

Argument	Description
Account account	Specifies the account for which we want tenant ID.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns the tenant ID.

## getGlobalPrivilegeACL() Method

Use the getGlobalPrivilegeACL() method to retrieve the Access Control List for global privileges.

### Signature

```
ACL getGlobalPrivilegeACL(String privilegeName, String sessionID);
```

Argument	Description
String privilegeName	Specifies the name of the privilege to retrieve.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getGlobalPrivileges() Method

Use the getGlobalPrivileges() method to retrieve the list of global privileges.

### Signature

```
List[] getGlobalPrivileges(String sessionID);
```

Argument	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getPermissions() Method

Use the getPermissions() method to retrieve a list of permissions for the specified user, based on the specified access control list.

This method also returns any permissions that are inherited by a user's security group, even if the access control list doesn't specify the group's permissions.

## Signature

```
List[] getPermissions(List[], Account account, String sessionID);
```

Argument	Description
List[]	Specifies the access control list for the user specified by Account account.
Account account	Specifies the name of the user for whom to find permission for the ACLs. Can be the user's name or a GUID.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns permissions information in the permissionMask field in the AccessControlToken structure.

See [AccessControlToken Structure](#)).

## getPermissionsEx() Method

Use the getPermissionsEx() method to retrieve a list of permissions for the specified user, owner, or creator, based on the specified access control list.

## Signature

```
List[] getPermissionsEx(List[], Account account, Owner owner, Creator creator, String sessionID);
```

Argument	Description
List[]	Specifies the access control list for the user specified by Account account.
Account account	Specifies the name of the user for whom to find permission for the ACLs. Can be the user's name or a GUID.
Owner owner	Specifies the name of the owner for whom to find permission for the ACLs. Can be the owner's user name or a GUID.
Creator creator	Specifies the name of the creator for whom to find permission for the ACLs. Can be the creator's user name or a GUID.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns permissions information in the permissionMask field in the AccessControlToken structure.

See [AccessControlToken Structure](#)).

## getPrivilegesStatus() Method

Use the getPrivilegesStatus() method to list all privileges and their statuses.

### Signature

```
List[] getPrivilegesStatus(List[] privileges, String sessionID);
```

Argument	Description
List[] privileges	Specifies a list of privileges.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## isMember() Method

Use the isMember() method to confirm if a catalog group is a member of the user or group.

### Signature

```
boolean isMember(List[] group, List[] member, Boolean expandGroups, String sessionID);
```

Argument	Description
List[] group	Specifies the username, catalog group, or application role name.
List[] member	Specifies the name of the member to verify. Consider the example isMember(BIAdministrator, Administrator, false). This example asks if the user Administrator is a member of the BIAdministrator application role.
Boolean expandGroups	Specifies to expand the groups to which the members belong.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## joinGroups() Method

Use the joinGroups() method to join a catalog group as a member.

### Signature

```
void joinGroups(List[] group, List[] member, String sessionID);
```

Argument	Description
List[] group	Specifies the name of the group to join or become a member. Consider the following example: join(Marketing, UserA). This example illustrates that UserA will join the Marketing catalog group.
List[] member	Specifies the name of the underlying member. For more information, see the example included in the previous argument.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## leaveGroups() Method

Use the leaveGroups() method to remove a member from a group.

### Signature

```
void leaveGroups(List[] group, List[] member, String sessionID);
```

Argument	Description
List[] group	Specifies the group from which to remove a member.
List[] member	Specifies the member that you want to remove from the group.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## renameAccountsEx() Method

Use the renameAccountsEx() method to rename accounts.

### Signature

```
RenameAccountsStatus renameAccountsStatusEx(RenameAccount renameAccountsList, String sessionID);
```

Argument	Description
RenameAccount renameAccountsList	Specifies a list of old names and new names with their account types in the RenameAccount structure. For information about the RenameAccount structure, see <a href="#">RenameAccountsStatus Structure</a>
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### Returns

Returns a list of account names with status of renameAccounts operation in the RenameAccountsStatus Structure.

See [RenameAccountsStatus Structure](#).

## updateGlobalPrivilegeACL() Method

Use the updateGlobalPrivilegeACL() method to update the Access Control List for global privileges.

### Signature

```
void updateGlobalPrivilegeACL(String privilegeName, ACL acl, UpdateACLParams updateACLParams, String sessionID);
```

Arguments	Description
String privilegeName	Specifies the name of privilege to update.

Arguments	Description
ACL acl	Specifies the Access Control List to update, supplied in the ACL structure. For information about the ACL structure, see <a href="#">ACL Structure</a> .
UpdateACLParams updateACLParams	Specifies the Access Control List parameters to update, supplied in the UpdateACLParams structure. For information about the UpdateACLParams structure, see <a href="#">UpdateACLParams Structure</a> .
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## UserPersonalizationService Service

Use the UserPersonalizationService service to manage favorites and favorite categories.

Method Names	Description
<a href="#">addFavorite() Method</a>	Adds a catalog object as a favorite in favorite list.
<a href="#">addFavoriteCategory() Method</a>	Adds a category object in favorite manager.
<a href="#">deleteFavorite() Method</a>	Deletes an existing favorite item from favorite manager.
<a href="#">deleteFavoriteCategory() Method</a>	Deletes an existing favorite category from favorite manager.
<a href="#">getFavorites() Method</a>	Returns all existing favorite items and category.
<a href="#">updateFavorites() Method</a>	Removes all existing favorite items and category and regenerates all favorite manager items using the supplied list of favorite items.
<a href="#">getMostRecents() Method</a>	Returns all most recent used items.

### addFavorite() Method

Use the addFavorite() method to add a catalog object as favorite in the favorite list.

#### Signature

```
void addFavorite(String catalogObjectPath, String categoryPath, String sessionId);
```

Arguments	Description
String catalogObjectPath	Specifies the catalog object path to add as a favorite.
String categoryPath	Specifies the category location (in favorite manager) to create the favorite item. If blank, the favorite item is added as a root element in favorite manager.
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

### addFavoriteCategory() Method

Use the addFavoriteCategory() method to add a category object in favorite manager.

## Signature

```
void addFavoriteCategory(String categoryName, String categoryPath, String sessionID);
```

Arguments	Description
String categoryName	Specifies the catalog object path to add as a favorite.
String categoryPath	Specifies the category location (in favorite manager) to create new category. If empty, new category will be added on root of favorite manager.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## deleteFavorite() Method

Use the deleteFavorite() method to delete an existing favorite item from favorite manager.

## Signature

```
void deleteFavorite(String catalogObjectPath, String categoryPath, String sessionID);
```

Arguments	Description
String catalogObjectPath	Specifies the catalog object path for which to delete the favorite item.
String categoryPath	Specifies the category location (in favorite manager) from where favorite item needs to be deleted. If empty, catalog object will be removed from all categories, that is, it will be marked as non favorite object.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## deleteFavoriteCategory() Method

Use the deleteFavoriteCategory() method to delete an existing favorite category from favorite manager.

## Signature

```
void deleteFavoriteCategory(String categoryPath, String sessionID);
```

Arguments	Description
String categoryPath	Specifies the complete category path (in favorite manager) that needs to be deleted. This path starts from /root.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getFavorites() Method

Use the getFavorites() method to return all existing favorite items and category.



## Signature

```
List[] getFavorites(String categoryPath, boolean recursive, boolean categoryOnly, String sessionID);
```

Arguments	Description
String categoryPath	Specifies the category location (in favorite manager) to create favorite item. If blank, favorite item is added as root element in favorite manager.
Boolean recursive	Specifies whether the child-level categories were included in the result.
Boolean categoryOnly	Specifies if only categories were included in the result and excluding all favorite items.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

All existing favorite items and category.

## updateFavorites() Method

Use the updateFavorites() method to remove all existing favorite items and category, and regenerate all favorite manager items using supplied list of favorite items.

## Signature

```
void updateFavorites(List [] favoriteItems, String sessionID);
```

Arguments	Description
List [] favoriteItems	Specifies a list of FavoriteItem structure, for more information, see <a href="#">ForgetAccount Structure</a> . In this FavoriteItem structure, there is no need to fill ItemInfo structure (see <a href="#">ItemInfo Structure</a> ), only name, path and type parameters are mandatory. The catalogPath argument is required to add a catalog object in favorite manager. Additionally for optional subItems, you can include a nested FavoriteItem list.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getMostRecents() Method

Use the getMostRecents() method to return all most recent used items.

## Signature

```
List[] getMostRecents(UnsignedShort listType, String sessionID);
```

Arguments	Description
UnsignedShort listType	listType value is as following flags: 1 = Recently Updated 2 = Recently Viewed 3 = Frequently Viewed 4 = Recent 5 = Suggestions
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

A list of MRUItem.

See [MRUItem Structure](#).

## WebCatalogService Service

Use the WebCatalogService service to provide methods for navigating and managing the catalog, and to read and write catalog objects in XML format.

Enumeration and Method Names	Description
<a href="#">ErrorDetailsLevel Enumeration</a>	Specifies a list of valid values for methods.
<a href="#">ReadObjectsReturnOptions Enumeration</a>	Specifies a list of valid values for methods.
<a href="#">copyItem() Method</a>	Copies an object from one location to another in the catalog.
<a href="#">copyItem2() Method</a>	Generates an archive file from the catalog.
<a href="#">createFolder() Method</a>	Creates a new folder in the catalog.
<a href="#">createLink() Method</a>	Creates a link to the catalog.
<a href="#">deleteItem() Method</a>	Deletes an object from the catalog.
<a href="#">getItemInfo() Method</a>	Retrieves catalog information for an object.
<a href="#">getMaintenanceMode() Method</a>	Retrieves the maintenance mode status.
<a href="#">getObjectCategories() Method</a>	Retrieves all supported categories.
<a href="#">getObjectCreateList() Method</a>	Retrieves all creatable objects.
<a href="#">getObjectTypes() Method</a>	Retrieves all supported catalog object types.
<a href="#">getSubItems() Method</a>	Retrieves the collection of child subitems for an object in the catalog.
<a href="#">getUserHomeDirPath() Method</a>	Retrieves the home directory path of a user.
<a href="#">maintenanceMode() Method</a>	Locks the catalog during maintenance.
<a href="#">moveItem() Method</a>	Moves an object in the catalog to a different location in the catalog.
<a href="#">pasteItem2() Method</a>	Pastes the copied items.
<a href="#">readObjects() Method</a>	Reads an object from the catalog.
<a href="#">removeFolder() Method</a>	Deletes a folder from the catalog.

Enumeration and Method Names	Description
<a href="#">setItemAttributes() Method</a>	Sets attribute flags for the specified catalog item.
<a href="#">setItemProperty() Method</a>	Sets a property for an object in the catalog.
<a href="#">setOwnership() Method</a>	Take ownership of the specified item.
<a href="#">updateCatalogItemACL() Method</a>	Update the Access Control List for an item in the catalog.
<a href="#">writeObjects() Method</a>	Writes a list of objects to the catalog.

## ErrorDetailsLevel Enumeration

The ErrorDetailsLevel enumeration specifies a list of valid values for methods in WebCatalogService Service.

See [WebCatalogService Service](#).



### Note:

Only one of the values in ErrorDetailsLevel should be selected.

**Table 9-1 ErrorDetailsLevel Enumeration Values**

Values	Description
String ErrorCode	Specifies that the ErrorInfo.errorCode field is populated.
String ErrorCodeAndText	Specifies that the ErrorInfo.errorCode and ErrorInfo.message fields are populated.
String FullDetails	Specifies that all ErrorInfo fields are populated.

## ReadObjectsReturnOptions Enumeration

The ReadObjectsReturnOptions enumeration is a list of valid values for methods in the WebCatalogService Service.

This enumeration specifies a list of valid values for methods in the [WebCatalogService Service](#).

Values	Description
String NoObject	Specifies that the catalogObject and catalogObjectBytes fields are not populated.
String ObjectAsString	Specifies that the catalogObject field is populated and the catalogObjectBytes fields is not populated.
String ObjectAsBinary	Specifies that the catalogObject field is not populated and the catalogObjectBytes fields is populated.
String ObjectAsBinaryUseMtom	Specifies that the catalogObject field is not populated and the catalogObjectBytes fields is populated and using MTOM to encode the content returned by the SOAP message.

## copyItem() Method

Use the copyItem() method to copy an object from one location in the catalog to another location in the catalog.

### Signature

```
void copyItem(String pathSrc, String pathDest, int flagACL, String sessionID);
```

Arguments	Description
String pathSrc	Specifies the current path to the object in the catalog.
String pathDest	Specifies the location in the catalog where the object should be copied.
int flagACL	Specified whether the item is copied with security. 0 indicates that the item is copied without security. 1 indicates that the item is copied with security.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## copyItem2() Method

Use the copyItem2() method to generate an archive file from the catalog.

### Signature

```
DataHandler copyItem2(List[] path, boolean recursive, boolean permissions, boolean timestamps, boolean useMtom, String skipPath, CopyItem2Params options, String sessionID);
```

Arguments	Description
List[] path	Specifies the location in the catalog from which the archive was created.
boolean recursive	Specifies whether the child-level folders were included in the archive.
boolean permissions	Specified whether the items are copied with security.
boolean timestamps	Specifies whether to preserve the items' time stamps were preserved.
boolean useMtom	Specifies whether MTOM was used to encode the content returned by the SOAP message.
String skipPath	Specifies the location of the folder to skip while archiving.
CopyItem2Params options	Specifies the source application.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## createFolder() Method

Use the createFolder() method to create a folder in the catalog.

### Signature

```
void createFolder(String path, boolean createlfNotExists, boolean createIntermediateDirs, String sessionID);
```

Arguments	Description
String path	Specifies the location in the catalog where the folder should be created, including the name of the new folder.
boolean createIfNotExists	If set to TRUE, then the folder object is created in the catalog if it does not already exist. If set to FALSE, then the folder object is not recreated if it already exists.
boolean createIntermediateDirs	If set to TRUE, then an intermediate directory is created. If set to FALSE, then an intermediate directory is not created.
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## createLink() Method

Use the createLink() method to create a link to the catalog.

### Signature

```
void createLink(String path, String pathTarget, boolean overwriteIfExists, String sessionId);
```

Arguments	Description
String Path	Specifies the path to the parent object in the catalog.
String TargetPath	Specifies the location in the catalog to which the link being created should refer.
boolean overwriteIfExists	If set to TRUE, then the link is overwritten if it already exists in the catalog. If set to FALSE, then the link is not overwritten if it already exists in the catalog.
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## deleteItem() Method

Use the deleteItem() method to delete an object from the catalog.

To delete a folder, see [removeFolder\(\) Method](#).

### Signature

```
void deleteItem(String path, String sessionId);
```

Arguments	Description
String path	Specifies the path to the object in the catalog.
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## getItemInfo() Method

Use the getItemInfo() method to retrieve catalog information for an object.

## Signature

ItemInfo getItemInfo(String path, boolean resolveLinks, String sessionID);

Arguments	Description
String path	Specifies the path to the object in the catalog.
boolean resolveLinks	If set to TRUE and the path in the catalog refers to a link, then Oracle Analytics retrieves information for the object pointed to by the link.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns catalog information for an object in an ItemInfo structure.

See [ItemInfo Structure](#).

## getMaintenanceMode() Method

Use the getMaintenanceMode() method to retrieve the maintenance mode status.

## Signature

Boolean getMaintenanceMode(String sessionID);

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns true or false value indicating current maintenance mode status.

See [maintenanceMode\(\) Method](#).

## getObjectCategories() Method

Use the getObjectCategories() method to retrieve the supported categories.

## Signature

Boolean getObjectCategories(String sessionID);

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns a list of supported categories.

## getObjectCreateList() Method

Use the getObjectCreateList() method to retrieve a list of all creatable objects.

## Signature

Boolean getObjectCreateList(String sessionID);

---

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

---

## Returns

Returns a list of creatable objects.

## getObjectTypes() Method

Use the getObjectTypes() method to retrieve a list of all supported catalog object types.

## Signature

Boolean getObjectTypes(String sessionID);

---

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

---

## Returns

Returns a list of supported object types.

## getSubItems() Method

Use the getSubItems() method to retrieve the collection of child sub-items for an object in the catalog.

## Signature

List[] getSubItems(String path, String mask, boolean resolveLinks, GetSubItemsParams options, String sessionID);

---

Arguments	Description
String path	Specifies the path to the parent object in the catalog.

---

Arguments	Description
String mask	Specifies a mask that indicates the child subitems to retrieve. The mask character is an asterisk (*). To retrieve all child subitems, use a single asterisk.
boolean resolveLinks	If set to TRUE and the path in the catalog refers to a link, then information is retrieved for the child subitems of the object pointed to by the link.
GetSubItemsParams options	Optional. Specifies parameters to supply to the GetSubItemsParams structure. For information about the GetSubItemsParams structure, see <a href="#">GetSubItemsParams Structure</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns a collection of child subitems in an ItemInfo structure.

See [ItemInfo Structure](#).

## getUserHomeDirPath() Method

Use the getUserHomeDirPath() method to retrieve the home directory path of a user.

## Signature

String getUserHomeDirPath(String user name, String sessionID);

Arguments	Description
String user name	Specifies the name of the user
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns the path of the specified user's home directory.

## maintenanceMode() Method

Use the maintenanceMode() method to lock the catalog during maintenance.

## Signature

void maintenanceMode(boolean flag, String sessionID);

Arguments	Description
boolean flag	Set to TRUE if the catalog is locked.
String sessionID)	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.



## moveItem() Method

Use the moveItem() method to move an object in the catalog to a different location in the catalog.

### Signature

```
void moveItem(String pathSrc, String pathDest, int flagACL, String sessionID);
```

Arguments	Description
String pathSrc	Specifies the current path to the object in the catalog.
String pathDest	Specifies the location in the catalog where the object should be moved.
int flagACL	Specified whether the item is moved with security. 0 indicates that the item is moved without security. 1 indicates that the item is moved with security.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## pasteItem2() Method

Use the pasteItem2() method to paste the copied items.

### Signature

```
pasteItem2(Binary stream DataHandler archive, String replacePath, int flagACL, int flagOverwrite, String sessionID);
```

Arguments	Description
Binary stream DataHandler archive	Specifies the returned content of the item as string or bytes. What you specify in this field is determined by the readObjects method.
String replacePath	Specifies the location to paste the copied item.
int flagACL	Specified whether the item is pasted with security. 0 indicates that the item is pasted without security. 1 indicates that the item is pasted without security.
int flagOverwrite	Specifies whether the pasted item overwrites existing item. 0 indicates replace all, 1 indicates replace old, 2 indicates replace none, and 3 indicates force replace.
int flagReplaceReferences	Specifies whether to replace the path references in the xml objects.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## readObjects() Method

Use the readObjects() method to read an object from the catalog and return a CatalogObject structure.

## Signature

List[] readObjects(List[] paths, boolean resolveLinks, ErrorDetailsLevel errorMode, ReadObjectsReturnOptions returnOptions, String sessionID);

Arguments	Description
List[] paths	Specifies the location of the object in the catalog.
boolean resolveLinks	If set to TRUE and the path in the catalog refers to a link, then the object is written to the location pointed to by the link.
ErrorDetailsLevel errorMode	Specifies the amount of error information in the errorInfo field in the CatalogObject structure. For more information, see <a href="#">CatalogObject Structure</a> .
ReadObjectsReturnOptions returnOptions	Specifies a list of valid values. For more information, see <a href="#">"ReadObjectsReturnOptions Enumeration"</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Returns an array of CatalogObject Structure objects.

See [CatalogObject Structure](#).

If a read operation fails for a catalog object (for example, due to an invalid path or insufficient privileges), the errorInfo field for that object contains a description of the error.

## removeFolder() Method

Use the removeFolder() method to delete a folder and its contents from the catalog.

To delete an object other than a folder and its contents, see [deleteItem\(\) Method](#).

## Signature

void removeFolder(String path, boolean recursive, String sessionID);

Arguments	Description
String path	Specifies the path to the folder in the catalog.
boolean recursive	If set to TRUE, then remove the specified folder and its contents. If set to FALSE, then only remove the specified folder if it is empty, otherwise display an exception message.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## setItemAttributes() Method

Use the setItemAttributes() method to set attribute flags for a specified catalog item.

## Signature

```
void setItemAttributes (List[] path, int value, int valueOff, boolean recursive, String sessionID);
```

Arguments	Description
List[] path	Specifies the path to the folder in the catalog.
int value	Specifies which attributes is added. Specifies a combination of the following flags: 1 = read only 2 = archive 4 = hidden 8 = system
int valueOff	Specifies which attributes is removed. See the above int value cell for flags.
boolean recursive	Specifies whether to set the properties of items in sub-directories.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## setItemProperty() Method

Use the setItemProperty() method to set a property for an object in the catalog.

## Signature

```
void setItemProperty(List[] path, List[] name, List[] value, boolean recursive, String sessionID);
```

Arguments	Description
List[] path	Specifies the path to the object in the catalog.
List[] name	Specifies the name of the property to set.
List[] value	Specifies the new setting for the property.
boolean recursive	Specifies whether to set the properties of items in sub-directories.
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## setOwnership() Method

Use the setOwnership() method to take ownership of the specified item.

## Signature

```
void setOwnership(List[]path, Account owner, boolean recursive, String sessionID);
```

Arguments	Description
List[] path	Specifies the location in the catalog of the object to take ownership.
Account owner	Specifies the account to assign as owner.
boolean recursive	If set to TRUE, then apply this action to the specified folder and its contents. If set to FALSE, then only apply this action to the specified folder if it is empty, otherwise display an exception message.

Arguments	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## updateCatalogItemACL() Method

Use the updateCatalogItemACL() method to update the Access Control List for an item in the catalog.

### Signature

```
void updateCatalogItemACL(List[] path, ACL acl, UpdateCatalogItemACLParams options, String sessionID);
```

Fields	Description
List[] path	Specifies the path to the object in the catalog.
ACL acl	Specifies the Access Control List. For more information, see <a href="#">ACL Structure</a> .
UpdateCatalogItemACLParams options	Specifies additional parameters. For more information, see <a href="#">UpdateCatalogItemACLParams Structure</a> .
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## writeObjects() Method

Use the writeObjects() method to write an array of objects to the catalog.

### Signature

```
List[] writeObjects(List[] catalogObjects, boolean allowOverwrite, boolean createIntermediateDirs, ErrorDetailsLevel errorMode, String sessionID);
```

Argument	Description
List [] catalogObjects	Specifies the objects to write to the catalog, supplied in the CatalogObject structure. For information about the CatalogObject structure, see <a href="#">CatalogObject Structure</a> . All fields of object.itemInfo are ignored, except for the array of item properties, which are applied to the object. The signature of the resulting document is always COXmlDocument1.
boolean allowOverwrite	If set to TRUE, then if the object already exists in the catalog, it is overwritten. If set to FALSE, then if the object already exists in the catalog, it is not overwritten.
boolean createIntermediateDirs	If set to TRUE and the path in the catalog refers to a link, then the object is written to the location pointed to by the link.
ErrorDetailsLevel errorMode	Specifies the amount of error information in the errorInfo field in the <a href="#">CatalogObject Structure</a> .

Argument	Description
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## Returns

Array of [ErrorInfo Structure](#) objects.

See [ErrorInfo Structure](#).

## XMLViewService Service

Use the XMLViewService service to retrieve results from Oracle Analytics Presentation Services in XML format.

Enumeration and Method Name	Description
<a href="#">XMLQueryOutputFormat Enumeration</a>	Specifies a list of valid values.
<a href="#">cancelQuery() Method</a>	Cancels the current query.
<a href="#">executeSQLQuery() Method</a>	Runs a SQL query.
<a href="#">executeXMLQuery() Method</a>	Runs an XML query.
<a href="#">fetchNext() Method</a>	Returns the next page of data rows.
<a href="#">getPromptedFilters() Method</a>	Returns a filter XML structure containing only the analysis' columns with a prompted filter.

## XMLQueryOutputFormat Enumeration

The XMLQueryOutputFormat enumeration specifies a list of values for the [executeSQLQuery\(\) Method](#) and [executeXMLQuery\(\) Method](#).

This enumeration specifies a list of valid values for the [executeSQLQuery\(\) Method](#) and [executeXMLQuery\(\) Method](#). For example, you might want to return data rows and metadata, or data rows only.



### Note:

Only one of the values in XMLQueryOutputFormat can be selected.

Values	Description
String SAWRowsetData	Specifies that the query returns only data rows.
String SAWRowsetSchema	Specifies that the query returns only metadata.
String SAWRowsetSchemaAndData	Specifies that the query returns both metadata and data rows.

## cancelQuery() Method

Use the `cancelQuery()` method to cancel a query and clean up resources associated with the query.

This method should only be used if the query row set is not scrolled to the last row in the data set returned.



### Note:

If you use this method when the query row set is scrolled to the last row in the data set returned, query data is cleaned up during the last `fetchNext` method invocation.

## Signature

```
void cancelQuery(String queryID, String sessionID);
```

Argument	Description
String queryID	Specifies the unique ID of the query.
String sessionID	Specifies the unique ID of the session.

## executeSQLQuery() Method

Use the `executeSQLQuery()` method to execute a SQL query and return the results of the query.

If the results returned exceed one page, you need to use the [fetchNext\(\) Method](#) to return the next page of rows.

## Signature

```
QueryResults executeSQLQuery(String sql, XMLQueryOutputFormat outputFormat,
XMLQueryExecutionOptions executionOptions, String sessionID);
```

Argument	Description
String sql	Specifies the string of SQL code to execute.
XMLQueryOutputFormat outputFormat	Specifies the output format (for more information, see <a href="#">XMLQueryExecutionOptions Structure</a> ).
XMLQueryExecutionOptions executionOptions	Specifies the query execution options (for more information, see <a href="#">XMLQueryExecutionOptions Structure</a> ).
String sessionID	Specifies the unique ID of the session.

## Returns

Returns the results of the query as one or more rows of data in a `QueryResults` structure.

See [QueryResults Structure](#).

## executeXMLQuery() Method

Use the `executeXMLQuery()` method to execute an XML query and return the results of the query.

If the results returned exceed one page, you need to use the [fetchNext\(\) Method](#) to return the next page of rows.

### Signature

`QueryResults executeXMLQuery(ReportRef report, XMLQueryOutputFormat outputFormat, XMLQueryExecutionOptions executionOptions, ReportParams reportParams, String sessionId);`

Argument	Description
ReportRef reportRef	Specifies the analysis definition, supplied in the ReportRef common structure.
XMLQueryOutputFormat outputFormat	Specifies the output format (for more information, see <a href="#">XMLQueryExecutionOptions Structure</a> ).
XMLQueryExecutionOptions executionOptions	Specifies the query execution options (for more information, see <a href="#">XMLQueryExecutionOptions Structure</a> ).
ReportParams reportParams	Optional. Specifies the filters or variables to apply to the analysis before execution, supplied in the ReportParams common structure. For information about the ReportParams structure, see <a href="#">ReportParams Structure</a> .
String sessionId	Specifies the unique ID of the session.

### Returns

Returns the results of the query as one or more rows of data in a QueryResults structure.

See [QueryResults Structure](#).

## fetchNext() Method

Use the `fetchNext()` method to return the next page of rows retrieved by a query.

The page returned might contain zero rows. If the finished flag is not set, the remaining rows might not be available immediately.

### Signature

`QueryResults fetchNext(String queryID, String sessionId);`

Argument	Description
String queryID	Specifies the unique ID of the query, which is returned in the QueryResults object.
String sessionId	Specifies the unique ID of the session.

## Returns

Returns the next page of query results as one or more rows of data in a `QueryResults` structure.

See [QueryResults Structure](#).

## getPromptedFilters() Method

Use the `getPromptedFilters()` method to retrieve a saved analysis' prompted columns or the prompted columns from an analysis' XML definition.

Note that to create an analysis with a prompted column, you must assign the `isPrompted` operator to it.

## Signature

```
List[] getPromptedFilters(ReportRef report, String sessionId);
```

Argument	Description
ReportRef report	Specifies the analysis' reportPath or a reportXml (report definition).
String sessionId	Specifies the unique ID of the session.

# Description of Structures in Oracle Analytics Web Services

This topic describes structures used by the Oracle Analytics session-based web services. This document uses JavaScript-like syntax to describe structures. The exact syntax and implementation depend on the SOAP code generation tool and the target language used by your application development environment.

### Topics:

- [AccessControlToken Structure](#)
- [Account Structure](#)
- [ACL Structure](#)
- [Action Structure](#)
- [ActionLinks Structure](#)
- [AnalysisExportExecutionOptions Structure](#)
- [AnalysisExportResult Structure](#)
- [ArrayofGUIDS Structure](#)
- [AssessmentResult Structure](#)
- [AuthResult Structure](#)
- [CatalogItemsFilter Structure](#)
- [CatalogObject Structure](#)
- [CausalLinkage Structure](#)
- [CSPWhitelist Structure](#)



- DimensionContext Structure
- ErrorInfo Structure
- FavoriteItem Structure
- ForgetAccount Structure
- ForgetAccountResult Structure
- ForgetAccountsStatus Structure
- GetSubItemsParams Structure
- ItemInfo Structure
- Job Structure
- JobFilter Structure
- JobInstance Structure
- JobInstanceFilter Structure
- JobInstanceStatus Enumeration
- JobReferenceAndInstanceReferences Structure
- KPIColumnName Enumeration
- KPIDimensionPinning Structure
- KPIRequest Structure
- KPIResultColumn Structure
- MRUItem Structure
- NameValuePair Structure
- NodeInfo Structure
- PathMap Structure
- ParameterDocument Structure
- ParameterValue Structure
- Prompt Structures
- Privilege Structure
- PurgeJobInstancesFilter Structure
- QueryResults Structure
- RenameAccount Structure
- RenameAccountResults Structure
- RenameAccountsStatus Structure
- ReportADFPParameters Structure
- ReportHTMLOptions Structure
- ReportParams Structure
- ReportHierarchicalColumn Structure
- ReportRegularColumn Structure
- ReportRef Structure
- SAColumn Structure

- [SASubjectArea Structure](#)
- [SATable Structure](#)
- [SAWLocale Structure](#)
- [SAWSessionParameters Structure](#)
- [SegmentationOptions Structure](#)
- [SessionEnvironment Structure](#)
- [StartPageParams Structure](#)
- [TreeFlags Enumeration](#)
- [TreeNodePath Structure](#)
- [UpdateACLParams Structure](#)
- [UpdateCatalogItemACLParams Structure](#)
- [ValidActionLinks Structure](#)
- [Variable Structure](#)
- [XMLQueryExecutionOptions Structure](#)

## AccessControlToken Structure

Use the AccessControlToken structure to describe the permissions granted to a specific account in the access control list. The AccessControlToken structure is used in the [SecurityService Service](#).

### AccessControlToken Structure Fields

Fields	Description
Account account	Specifies a reference to the Account structure.
int permissionMask	Specifies a combination of the following flags: 1 = Permission to read item content 2 = Permission to traverse directory 4 = Permission to change item content 8 = Permission to delete an item 16 = Permission to assign permissions to other accounts 32 = Permission to take ownership of the item 2048 = Permission to run an Oracle Analytics Publisher report live 4096 = Permission to schedule an Oracle Analytics Publisher report 8192 = Permission to view output from an Oracle Analytics Publisher report 65535 = Permission to grant full control of the item.

## Account Structure

Use the Account structure to hold user names or group names. It has a flag to indicate whether the name is a user or a group.

The Account structure is used in the [SecurityService Service](#).

## Account Structure Fields

Fields	Description
String accountName	Specifies an account name or group name.
int accountType	<p>Specifies whether the account is a user or a group or both.</p> <p>Use accountType when it is:</p> <ul style="list-style-type: none"> <li>An input to a "non-query" SOAP function (for example, a parameter in calling updateCatalogItemACL() ).</li> </ul> <p>Or</p> <ul style="list-style-type: none"> <li>An output from any SOAP function (for example, as returned data from getAccounts() ).</li> </ul> <p>0 = user 1 = catalog group 2 = initblock user 3 = invalid or deleted account</p>
int accountFindType	<p>Specifies whether the account is a user or a group or both.</p> <p>Use accountFindType when it is being used as an input to a "query" SOAP function (for example, as a parameter in calling getAccounts() ):</p> <p>0 = find a user using name or GUID exact match 1 = find a catalog group using name or GUID exact match 2 = find a application role using name or GUID exact match 3 = find a user OR Catalog group OR application roles using name or GUID exact match</p> <p>Note the following information for advanced use of this field. If accountFindType is greater than or equal to 4, the system treats the Name or GUID as a pattern.</p> <p>4 = find all users using name or GUID pattern match 5 = find all catalog groups using name or GUID pattern match 6 = find all application roles using name or GUID pattern match 7 = find all users AND webcat groups AND application roles using name or GUID pattern match</p> <p>Using this field in this way can be slow, and result in the system returning many records. When receiving an Account, both Name and GUID are set.</p>
String GUID	Specifies the unique ID which identifies the account.

## ACL Structure

Use the ACL structure to hold the access control list (ACL).

The ACL structure is used in the [SecurityService Service](#).

### ACL Structure Fields

Fields	Description
AccessControlToken[] accessControlTokens	Specifies the full list of permissions. For more information, see <a href="#">AccessControlToken Structure</a> .
String dummy	For internal purposes.

## Action Structure

Use the Action structure to hold information about the action attached to the scorecard.

The Action structure is used in the [ActionLinks Structure](#).

### Action Structure Fields

Fields	Description
String Path	Specifies the catalog path to the BI content that is the target of the Action (only appears when ActionLink is not a "BI Content" type).
String ActionName	Specifies the catalog object name of the action.
String ClassName	Specifies the java class to be called by an EJB Action.
String ClassPath	Specifies the Java path containing the jar.
String AddnClassPath	Specifies additional class path if the jar is not in the specified path.
ParameterDocument[] ActionParameters	Specifies an array of ParameterDocument objects. A ParameterDocument is a JavaScript object defining a single action parameter. For more information, see <a href="#">ParameterDocument Structure</a> .
String ActionType	Specifies the type of action (not all action types are available, for example, depending on system setup, privileges):  <code>WebServiceActionType</code> <code>JavaActionType</code> <code>OldJavaActionType</code> <code>URLActionType</code> <code>InvokeURLActionType</code> <code>ScriptActionType</code> <code>ServerScriptActionType</code> <code>NavToBIActionType</code> <code>NavToEBSActionType</code> <code>NavToEPMActionType</code> <code>WorkflowActionType</code> <code>NavToCRMActionType</code> <code>ADFContextEventActionType</code>
String WebServerRegistry	Specifies the individual web service details that the action will invoke.
String WebService	Specifies the individual web service details that the action will invoke.
String WebOperation	Specifies the individual web service details that the action will invoke.

## ActionLinks Structure

Use the ActionLinks structure to reference valid action links.

The ActionLinks structure is used in the [ValidActionLinks Structure](#).

### ActionLinks Structure Fields

Fields	Description
String ActionPath	Specifies the catalog path to the BI content that is the target of the ActionLink (only appears when the ActionLink is a "BI Content" type of Action Link).

Fields	Description
String Text	Specifies the text that is shown to the user that they click on to invoke the Action.
Action[] Action	Specifies the Action details (only appears when the ActionLink is not a "BI Content" type). For more information, see <a href="#">Action Structure</a> .

## AnalysisExportExecutionOptions Structure

Use the AnalysisExportExecutionOptions structure to specify the execution options when exporting an analysis.

The AnalysisExportExecutionOptions structure is used in the [AnalysisExportViewsService Service](#).

### AnalysisExportExecutionOptions Structure Fields

Fields	Description
boolean async	If set to TRUE, then asynchronous analysis export is enabled. If set to FALSE, asynchronous analysis export is disabled.
boolean useMtom	If set to TRUE, then MTOM is used to encode the content returned by the SOAP message.
boolean refresh	If set to TRUE, then the server re-submits the query to refresh the data. If set to FALSE, then Oracle Analytics uses data in the cache.

## AnalysisExportResult Structure

Use the AnalysisExportResult structure to specify the execution options when exporting the result.

The AnalysisExportResult structure is used in the [AnalysisExportViewsService Service](#).

### AnalysisExportResult Structure Fields

Fields	Description
viewData	Specifies the returned content of the view data in the format specified in the AnalysisExportOutputFormat.
String mimeType	Specifies mime type of view data returned.
String queryID	Specifies query ID of the request. You use this as a parameter in completeAnalysisExport method.
completeAnalysisExport	Specifies the status of the download request. The values are: <ul style="list-style-type: none"><li>• String InProgress - Specifies that download is in progress</li><li>• String Error - Specifies that download request resulted in Error.</li><li>• String Done - Specifies that download is done.</li></ul>

## ArrayOfGUIDS Structure

Use the ArrayofGUIDS structure to specify a list of GUIDs representing a saved result set.

The ArrayofGUIDS structure is used in the [SecurityService Service](#).

### ArrayOfGUIDS Structure Fields

Fields	Description
String[] guid	Specifies a list of GUIDs representing the saved result set.

## AssessmentResult Structure

Use the AssessmentResult structure to contain a single assessment for a particular QDR for a node in a strategy tree.

The AssessmentResult structure is used in the [#unique\\_457](#).

### AssessmentResult Structure Fields

Fields	Description
String ScorecardPath	Specifies the Presentation Services catalog path to the folder containing the scorecard that was assessed.
Variable[] Variables	Specifies an array of Variable objects defining the QDR for which the assessment result is applicable. For more information, see <a href="#">Variable Structure</a> .
String GUID	Specifies the GUID identifying the node of the strategy tree for which this assessment result is for.
Enumeration Assessment	Specifies the status ID for the node or QDR.
Number Assessment	Specifies the normalized assessment result for the strategy node. A number between 0 and 100. The number is not only an integer and so can include decimal places.
String ObjectContext	Specifies the object context representing the instance of the strategy node.
String ObjectContext	Specifies the object context representing the instance of the strategy node.
Boolean IsAnnotated	Specifies the value of a flag indicating if the node is annotated (true) or not (false).
KPIResultColumn[] KPIResult Columns	Specifies an array of KPIResultColumn objects defining the KPI results, if the node is a KPI node. For more information, see <a href="#">KPIResultColumn Structure</a> .
Boolean IsOverridden	Specifies whether the node is overridden (true) or not (false).
ValidActionLink[] ValidActionLinks	Specifies an array of link elements defining the actions links for the current evaluated status. For more information, see <a href="#">ValidActionLinks Structure</a> .

## AuthResult Structure

Use the AuthResult structure to specify authorization details during an authentication.

The AuthResult structure is used in the [SecurityService Service](#) (in the [impersonateex\(\) Method](#) and [logonex\(\) Method](#)).

**AuthResult Structure Fields**

Fields	Description
String sessionID	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.
boolean authCompleted	If set to TRUE, then the authorization is complete. If set to FALSE, then the authorization process is in progress and the logonex or impersonatex process should be called again.

## CatalogItemsFilter Structure

Use the CatalogItemsFilter structure to filter catalog items and changes based on the path and timestamp.

**CatalogItemsFilter Structure Fields**

Fields	Description
String[] items	Specifies the list of folders and their descendants to include in the filter. If this value is null, then all nodes in the catalog are included.
Calendar from	Specifies the time period on which to filter. Only items and changes with timestamps within that period satisfy the filter. Either or both of those fields could be null, in which case corresponding bound is considered not set.
Calendar to	Specifies the time period on which to filter. Only items and changes with timestamps within that period satisfy the filter (from <= timestamp <= to). Either or both of those fields could be null, in which case the corresponding bound is considered not set.

## CatalogObject Structure

Use the CatalogObject structure to retrieve or specify all information for a particular catalog object in a single method.

The CatalogObject structure is used in the [WebCatalogService Service](#).

**CatalogObject Structure Fields**

Fields	Description
String catalogObject	Specifies an XML representation of the object.
catalogObjectBytes	Specifies the returned content of the catalog object as string or bytes. What you specify in this field is determined by the readObjects method.
ItemInfo itemInfo	Specifies catalog information about the object, supplied in the ItemInfo common structure. For information about the ItemInfo structure, see <a href="#">ItemInfo Structure</a> .
ErrorInfo errorInfo	Specifies the level of error information to be supplied as specified by the ErrorDetails argument in the readObjects method.

## CausalLinkage Structure

Use the CausalLinkage structure to describe a single causal linkage.

The CausalLinkage structure is used in the [#unique\\_458](#).

### CausalLinkage Structure Fields

Fields	Description
String ID	Specifies the GUID of this causal linkage.
String causeNodeID	Specifies the GUID of the strategy or initiative node at the cause end of the link.
String effectNodeID	Specifies the GUID of the strategy or initiative node at the "effect" end of the link.
String Strength	Specifies the strength of the relationship. Defined using one of the values in the <a href="#">Strength Enumeration</a> .
String Interaction	Specifies the proportionality of the relationship. Defined using one of the statics in the <a href="#">Interaction Enumeration</a> .
String Operation	Specifies what you want to do with the specified CausalLinkage. Can be one of the values ADD, UPDATE or DELETE.

## Strength Enumeration

The Strength enumeration describes values of the various supported link strengths.

The Strength enumeration is used in the [CausalLinkage Structure](#).

### Strength Enumeration Values

Values	Description
String STRONG	Used to identify strong relationships.
String MIDDLE	Used to identify normal relationships.
String WEAK	Used to identify weak relationships.

## Interaction Enumeration

The Interaction enumeration describes values of the various supported link strengths.

The Interaction enumeration is used in the [CausalLinkage Structure](#).

### Interaction Enumeration Values

Values	Description
String POSITIVE	Used to identify directly proportional relationships.
String NEGATIVE	Used to identify inversely proportional relationships.

## Operation Enumeration

The Operation enumeration describes values of the operation.



The Operation enumeration is used in the [CausalLinkage Structure](#).

#### Operation Enumeration Values

Values	Description
String ADD	Used to identify the operation to apply.
String UPDATE	Used to identify the operation to apply.
String DELETE	Used to identify the operation to apply.

## CSPWhitelist Structure

Use the CSPWhitelist structure to specify the content security policy for the Oracle Analytics instance.

The CSPWhitelist structure is used in the [getCSPDefaultAllowList\(\) Method](#) and [getCSPWhitelist\(\) Method](#).

#### CSPWhitelist Structure Fields

Fields	Description
String cspWhitelistXml	Specifies a character string that contains a representation of the content security policy.
String sessionId	Specifies the session ID, which is usually returned by the logon method. If the SOAP client engine can handle HTTP cookies, you can omit the session ID or set it to null.

## CSPWhitelistXml Structure

Use the CSPWhitelistXml structure to specify the content security policy for the Oracle Analytics instance.

The CSPWhitelistXml structure is used in the [updateCSPWhitelist\(\) Method](#).

#### CSPWhitelist Structure Fields

Fields	Description
String Directive type	Specifies the content security policy type. Values: <ul style="list-style-type: none"><li>• "all"</li><li>• "img-src"</li><li>• "frame-src"</li><li>• "script-src"</li><li>• "font-src"</li><li>• "style-src"</li><li>• "media-src"</li><li>• "connect-src"</li><li>• "frame-ancestors"</li><li>• "form-action"</li></ul>
String value	Specifies the domain to be added to the specified content security policy.

## DimensionContext Structure

Use the DimensionContext structure to retrieve dimensions.

The DimensionContext structure is used in the [ValidActionLinks Structure](#).

### DimensionContext Structure Fields

Fields	Description
String name	Specifies the name of a dimension.
String value	Specifies the value(s) that the dimension has been pinned to.

## ErrorInfo Structure

Use the ErrorInfo structure to retrieve error information during Presentation Catalog Service method invocations.

The ErrorInfo structure is used in the [WebCatalogService Service](#).

### ErrorInfo Structure Fields

Fields	Description
String code	Specifies the error code to display.
String context	Specifies the service and method in which the error occurred.
String details	Specifies detailed information about the error.
String message	Specifies a human-readable description of the error.

## Favoriteltem Structure

Use the Favoriteltem structure to retrieve favorite item information during Presentation Catalog Service method invocations.

The Favoriteltem structure is used in the [UserPersonalizationService Service](#).

### Favoriteltem Structure Fields

Fields	Description
String name	Specifies the favorite or category name.
String path	Specifies the path of catalog object in case of favorite item or category path in favorite manager in case category object.
UnsignedShort type	Specifies the type stored in Favoriteltem object: Favoriteltem = 0 Category Object = 1
ItemInfo itemInfo	Specifies catalog information about the object, supplied in the ItemInfo common structure. Valid and stores the actual catalog object if type is 0. Not valid if type is 1. For information about the ItemInfo structure, see <a href="#">ItemInfo Structure</a> .

Fields	Description
Favoriteltem favoriteltem	A list of sub items in case type is 1 otherwise not a valid value.

## ForgetAccount Structure

Use the ForgetAccount structure to hold the name and type of an account that will be removed from the catalog.

The ForgetAccount structure is used in the [SecurityService Service](#).

### ForgetAccount Structure Fields

Fields	Description
String accountName	Specifies account name.
int accountType	Specifies the account type.

## ForgetAccountResult Structure

Use the ForgetAccountResult structure to hold the status of the delete accounts operation for each account.

The ForgetAccountResult structure is used in the [SecurityService Service](#).

### ForgetAccountResult Structure Fields

Fields	Description
String accountName	Specifies the name of the account.
int accountType	Specifies the type of the account
int Status	Specifies the status of the overall delete accounts operation. The status values are: <ul style="list-style-type: none"><li>• 0- Success</li><li>• 1- Error</li></ul>

## ForgetAccountsStatus Structure

Use the ForgetAccountsStatus structure to hold the overall status of the delete accounts operation.

The ForgetAccountsStatus structure is used in the [SecurityService Service](#).

### ForgetAccountsStatus Structure Fields

Fields	Description
int Status	Specifies the status of the overall delete accounts operation. The status values are: <ul style="list-style-type: none"><li>• 0- Success</li><li>• 1- Error</li></ul>
ForgetAccountResult[] accountsResult	Specifies the account name and account type with Success or Fail message for each account.

## GetSubItemsParams Structure

Use the GetSubItemsParams structure to contain optional parameters used in a getSubItems method.

The GetSubItemsParams structure is used in the [WebCatalogService Service](#).

### GetSubItemsParams Structure Fields

Fields	Descriptions
GetSubItemsFilter filter	For internal use only.
boolean includeACL	If set to TRUE, then ACL information is included in the resulting ItemInfo structures.
int withPermission and int withPermissionMask	Specifies that you want to filter the resulting items collection by access level. The only items included in the result are those for which the following expression is true:  $(\text{itemPermission} \& \text{withPermissionMask}) = (\text{withPermission} \& \text{withPermissionMask})$  where itemPermission is a combination of permission flags for the current catalog item.
int withAttributes and int withAttributesMask	Specifies that you want to filter the resulting items collection by attribute flags. The only items included in the result are those for which the following expression is true:  $(\text{itemAttributes} \& \text{withAttributesMask}) = (\text{withAttributes} \& \text{withAttributesMask})$  Where itemAttributes is a combination of attribute flags for the current catalog item.

## ItemInfo Structure

Use the ItemInfo structure to contain catalog information about an object.

The ItemInfo structure is used in the [WebCatalogService Service](#) and [#unique\\_458](#).

### ItemInfo Structure Fields

Fields	Description
String path	Specifies the path to the object in the catalog. For example, /users/jchan/analyses/.
ItemInfoType type	Specifies a character string that indicates the type. Valid values are: <ul style="list-style-type: none"><li>• Folder</li><li>• Link</li><li>• Missing</li><li>• NoAccess</li><li>• Object</li></ul>
String caption	Specifies the localized name of the object in the catalog. For example, in French, 'My Folders' is displayed as 'Mes Dossiers'.
int attributes	Specifies a combination of the following flags: 1 = read only 2 = archive 4 = hidden 8 = system

Fields	Description
Calendar lastModified	Specifies the date and time that the object was last modified, in Calendar format.
Calendar created	Specifies the date and time that the object was created (saved) in the catalog, in Calendar format.
Calendar accessed	Specifies the data and time that the object was last accessed by a user, in Calendar format.
String signature	Specifies the signature of the catalog object.
NameValuePair[] itemProperties	Specifies an array of object properties.
ACL aclXX	Specifies the Access Control List for this catalog item.
Account owner	Specifies the owner of the object.
String targetPath	If the ItemInfoType field is set to "Link," this field specifies the target path for the object.

## Job Structure

Use the Job structure to contain information about jobs.

The Job structure is used in the [SchedulerService Service](#).

Some Job properties are optional, and may not be present if not relevant to the Job (for example, depending on the Job Trigger type).

### Job Structure Fields

Fields	Description
Job Reference	A unique reference for the job associated with an instance.
Name	A short descriptive name for the job.
Description	The text description of the job that describes its actions to end users.
User ID (author ID)	The user ID that created the job.
Script Type	The type of script used to run the job (VBScript, JScript, Java, or NQCmd).
Script ID (Path of Agent)	The path to the script that runs the job. Use to call the WebCatalogService API to return the agent definition. For more information, see <a href="#">Example - Finding and Displaying all Agents in the WebCatalogService</a> .
Max Run Time (in ms)	The maximum time in milliseconds that the job can run.
Running Instances Count	The total number of currently running instances of this job.
Max Concurrent Instances	The maximum number of concurrent running instances. For an unlimited number of concurrent instances, set this value to zero.
Time Zone	The time zone that is used to execute the job. If missing the timezone is assumed to be the scheduler local timezone.
Last Run Date Time	The last date and time the job started to execute.
Next Run Date Time	The next date and time the job will execute.
Begin Date	The date when the first recurrent interval runs.
Start Time	The time the job starts.

Fields	Description
End Date	The date when the first recurrent interval ends.
End Time	The time the job completes.
Interval Minutes	The number of minutes between subsequent executions of a job during the recurrent interval.
Disabled	Specifies that a job script does not execute when the trigger expires.
Delete Job When Done	Specifies whether to delete a job after it completes.
Execute When Missed	Specifies whether to execute a job if running it has failed to occur at the scheduled time.
Job Trigger (with details depending on type)	Specifies what triggers a job including details that depend on job type. A Job Trigger can be one of the following values: RunNever, RunOnce, RunDaily, RunWeekly, RunMonthlyByDate, RunMonthlyByDayOfWeek.

## JobFilter Structure

Use the JobFilter structure to filter job lists.

The JobFilter structure is used in the [SchedulerService Service](#).

### JobFilter Structure Fields

Fields	Description
List of User IDs (Authors)	(Optional) If no User IDs are specified then all JobReferences are returned.

## JobInstance Structure

Use the JobInstance structure to contain information about a job instance corresponding to a running, completed, or cancelled job.

The JobInstance structure is used in the [SchedulerService Service](#).

### JobInstance Structure Fields

Fields	Description
Job Reference	A unique reference for the job associated with the job instance.
Job Instance Reference	A unique reference for the job instance.
Job Instance Status	The current status of the job instance. Valid values are: <ul style="list-style-type: none"> <li>Completed</li> <li>Running</li> <li>Failed</li> <li>Cancelled</li> <li>TimedOut</li> <li>Warning</li> </ul>
Begin Date Time	The day and time that the scheduler initiated the job instance.
End Date Time	The day and time that the job scheduler completed the job instance.
Successful Deliveries	The number of successful deliveries for this job instance.

Fields	Description
Error Message	The error message, warning, or general message about the job instance execution.

## JobInstanceFilter Structure

Use the JobInstanceFilter structure to filter job instance lists.

The JobInstanceFilter structure is used in the [SchedulerService Service](#) .

### JobInstanceFilter Structure Fields

Fields	Description
List of JobReference (Authors)	(Mandatory) If no Job References are specified then all JobReferences are returned.
Job Instance Status	(Optional) The current status of the Job instance. Valid values are: <ul style="list-style-type: none"><li>• Completed</li><li>• Running</li><li>• Failed</li><li>• Cancelled</li><li>• TimedOut</li><li>• Warning</li></ul>

## JobInstanceStatus Enumeration

Use the JobInstanceStatus enumeration to define job instance state.

The JobInstanceStatus enumeration is used in the [SchedulerService Service](#) .

### JobInstanceStatus Enumeration Values

Values	Description
Job Instance State	Job instance state is represented using this enumeration. Valid states are: <ul style="list-style-type: none"><li>• Completed</li><li>• Running</li><li>• Failed</li><li>• Cancelled</li><li>• TimedOut</li><li>• Warning</li></ul>

## JobReferenceAndInstanceReferences Structure

Use the JobReferenceAndInstanceReferences structure to group a job and its associated instances.

The JobReferenceAndInstanceReferences structure is important when a list of job references are specified as the selection criteria for job instance listing. This structure is used in the [SchedulerService Service](#) .

**JobReferenceAndInstanceReferences Structure Fields**

Fields	Description
Job Reference	(Mandatory) A unique reference for the job associated with an instance.
List of Job Instance References	(Mandatory) A list of job instances.

## KPIColumnName Enumeration

The KPIColumnName enumeration specifies a list of valid values for the KPIColumnName field.

The KPIColumnName enumeration is used in the [#unique\\_462](#) and is used by the [KPIResultColumn Structure](#).

**KPIColumnName Enumeration Values**

Values	Description
String NAME	The column name.
String STATUS	The status column name.
String ACTUAL_VALUE	The actual values column name.
String TARGET_VALUE	The target value column name.
String VARIANCE	The variance column name.
String VARIANCE_PERCENT	The variance percent column name.
String CHANGE	The change column name.
String CHANGE_PERCENT	The change percent column name.
String TREND	The trend column name.
String OBJECT_CONTEXT	The object context column name.
String STATUS_INFO	The status info column name.
String OWNER	The owner column name.
String DIMENSION_CONTEXT	The dimension context column name.
String CUSTOM_COLUMN1	A custom column name.
String CUSTOM_COLUMN2	A custom column name.
String CUSTOM_COLUMN5	A custom column name.

## KPIDimensionPinning Structure

Use the KPIDimensionPinning structure to contain the metadata for an individual dimension pinning used when defining the QDR for a KPI when requesting assessments.

The KPIDimensionPinning structure is used in the [KPIRequest Structure](#).



### KPIDimensionPinning Structure Fields

Fields	Description
String DimensionID	Specifies the ID of the dimension that you want to pin to a specific value (or values).
String Value	Specifies the value that you want to pin the specified dimension to.
String VariableType	Specifies the type of variable containing the value you want to use to pin the specified dimension.
String VariableName	(Optional) Specifies the name of the variable containing the value you want to use to pin the specified dimension (may be left null if VariableType is NONE).
String LevelID	(Optional) Specifies the ID of the dimension level the specified value belongs to (may be left null if the dimension is not a Level or Value Hierarchy).

## KPIRequest Structure

Use the KPIRequest structure to contain the information required to request assessment values for the specified KPI.

The KPIRequest structure is used in the [#unique\\_462](#).

### KPIRequest Structure Fields

Fields	Description
String Path	Specifies the KPI's Presentation Services catalog path.
KPIDimensionPinning[] KPIDimensionPinnings	Specifies an array of dimension pinnings that define the filters to be applied to the query.

## KPIResultColumn Structure

Use the KPIResultColumn structure to contain a single assessment for a particular QDR for a node in a strategy tree.

The KPIResultColumn structure is used in the [#unique\\_457](#).

### KPIResultColumn Structure Fields

Fields	Description
String Name	Specifies the column name that the cell belongs to.
String Type	Specifies the cell's data type.
String Value	Specifies the cell's value.
String FormattedValue	Specifies the formatted value.
String ObjectContext	Specifies the QDR that was applied to the query that returned this cell.
Boolean IsAnnotated	Specifies whether the cell has been annotated (true) or not (false).

## MRUItem Structure

Use the MRUItem structure to retrieve most recently used (MRU) item information during Presentation Catalog Service method invocations.

The MRUItem structure is used in the [UserPersonalizationService Service](#).

### MRUItem Structure Fields

Fields	Description
String catalogPath	Specifies the catalog path for the recent catalog object.
Boolean isFavorite	Specifies if the MRU item is a favorite item as well.
ItemInfo itemInfo	Specifies catalog information about the object, supplied in the ItemInfo common structure.

## NameValuePair Structure

Use the NameValuePair structure to denote named properties, such as COLOR=RED.

The NameValuePair structure is used in the [WebCatalogService Service](#).

### NameValuePair Structure Fields

Fields	Description
String name	Specifies a character string that contains the name of the property, such as COLOR.
String value	Specifies a character string that contains the value, such as RED.

## NodeInfo Structure

Use the NodeInfo structure to contain the information that identifies a single node.

The NodeInfo structure is used in the [#unique\\_457](#).

### NodeInfo Structure Fields

Fields	Description
String NodeType	Specifies the type of node.
String NodeID	Specifies the node's GUID.

## NodeTypes Enumeration

This enumeration defines the values for the different types of nodes.

This enumeration is used in the [NodeInfo Structure](#).

### NodeTypes Enumeration Values

Values	Description
String STRATEGY_ NODE	Specifies the node belongs to a strategy tree.
String INITIATIVE_ NODE	Specifies the node belongs to an initiative tree.

## ReportHierarchicalColumn Structure

Use the ReportHierarchicalColumn structure to return column properties for a hierarchical column used in an analysis.

The ReportHierarchicalColumn structure is used in [ReportEditingService Service](#).



#### Note:

System wide default column properties that apply to any of the report columns are returned in the report column properties.

### ReportHierarchicalColumn Structure Fields

Fields	Description
String ID	Specifies the column identifier of the report column
String tableHeading	Specifies the table heading of the report column
String columnHeading	Specifies the column heading of the report column
Boolean hidden	If set to TRUE, the column is hidden. If set to FALSE, the column is displayed.
String subjectArea	Specifies the subject area of the report column
String tableName	Specifies the table name of the report column
String hierarchyID	Specifies the hierarchy of the report column
String dimensionID	Specifies the dimension of the report column

## PathMap Structure

Use the PathMap structure to specify the location to which you want to copy the data included in the export method.

### PathMap Structure Fields

Fields	Description
PathMapEntry pathMapEntries	Specifies the location to which you want to copy the data included in the export method.

## ParameterDocument Structure

Use the ParameterDocument structure to model a parameter, as used by the Action framework.

The ParameterDocument structure is used in the [Action Structure](#).

### ParameterDocument Structure Fields

Fields	Description
String Name	Specifies the name (title) of the parameter.
String Prompt	Specifies the prompt displayed to the user for this parameter.
String Description	Specifies the description of the parameter document (sometimes displayed as a tooltip).
String ParameterType	Specifies the datatype of the parameter which should be one of the following:  <code>string</code> <code>integer</code> <code>long</code> <code>float</code> <code>double</code> <code>short</code> <code>decimal</code> <code>boolean</code> <code>byte</code> <code>date</code> <code>dateTime</code> <code>time</code> <code>document</code>
Array[] ParameterValues	Specifies an array of parameter value objects. This could be an empty array, or an array with one or more parameter values (see MultiValuesAllowed).
String ValueFixed	Specifies whether the parameter values are fixed for this parameter (cannot be overridden). Values are 'true' or 'false'.
String Order	Specifies the particular order of parameters in which the owning documents want to keep them.
String MultiValuesAllowed	Specifies if the parameter supports multiple values. Values are 'true' or 'false'.
String Mandatory	Specifies whether user entry of a value is mandatory. Values are 'true' or 'false'.

## ParameterValue Structure

Use the ParameterValue structure to model a parameter value, as used by the ParameterDocument structure.

A ParameterDocument owns an array of zero or more of these. The ParameterValue structure is used in the [ParameterDocument Structure](#).

## ParameterValue Structure Fields

Fields	Description
String Value	Specifies the value. Defaults to an empty string.
String ValueMapping	Specifies the type of parameter value, which should be one of the following:  value session repository presentation colrequest request column catalog date time dateTime
String AltDisplayValue	Specifies an alternative display value, for when the actual value is a code.

## Prompt Structures

Use the Prompt structures to specify the prompts in the `getPromptElements` Methods of the `ReportEditingService` Service.

Prompt structures:

- [PromptsObjectModel Structure](#)
- [PromptCollectionRunTimeInfo Structure](#)
- [PromptStepObjectModel Structure](#)
- [PromptStepRunTimeInfo Structure](#)
- [IndividualPromptObjectModel Structure](#)
- [IndividualPromptRunTimeInfoLimitedByInfo Structure](#)
- [IndividualPromptRunTimeInfo Structure](#)
- [IndividualPromptRunTimeInfoDataTypeHierarchyLevelSQLInfo Structure](#)
- [IndividualPromptRunTimeInfoDataTypeHierarchyLevelInfo Structure](#)
- [IndividualPromptRunTimeInfoDataTypeHierarchyLevels Structure](#)
- [IndividualPromptRunTimeInfoDataTypeHierarchyFormulaLevels Structure](#)
- [IndividualPromptRunTimeInfoDataTypeHierarchyInfo Structure](#)
- [IndividualPromptRunTimeInfoDataTypeDoubleColumnInfo Structure](#)
- [IndividualPromptRunTimeInfoDataType Structure](#)
- [IndividualPromptRunTimeInfoSingleValueType Structure](#)
- [IndividualPromptRunTimeInfoValuesType Structure](#)
- [IndividualPromptRunTimeInfoCurrentValues Structure](#)
- [IndividualPromptRunTimeInfoAvailableOptions Structure](#)

- [IndividualPromptRunTimeInfoDataTypeHierarchyInfo Structure](#)
- [IndividualPromptRunTimeInfoLimitedByPromptReference Structure](#)
- [IndividualPromptRunTimeInfoLimitedByPromptRefGroups Structure](#)

## PromptsObjectModel Structure

Use the PromptsObjectModel structure to specify the object model of the prompt.

The PromptsObjectModel structure is used in the [getPromptElements\(\) Method](#).

### PromptsObjectModel Structure Fields

Fields	Description
String name	Specifies the name of the prompt.
String description	Specifies the description of the prompt.
String scope	Specifies the scope of the prompt.
String subjectArea	Specifies the subject area of the prompt.
String layout	Specifies the layout of the prompt.
PromptCollectionRunTimeInfo runTimeInfo	Specifies the run time information of the prompt collection.
PromptStepObjectModel promptStepObj	Specifies the object model of the prompt state.

## PromptCollectionRunTimeInfo Structure

Use the PromptCollectionRunTimeInfo structure to specify the run time information of the prompt collection.

The PromptCollectionRunTimeInfo structure is used in the [getPromptElements\(\) Method](#).

### PromptCollectionRunTimeInfo Structure Fields

Fields	Description
String collectionID	Specifies the collection ID of the prompt.
String viewStatePath	Specifies the view state path of the prompt.
Int currentStep	Specifies the current step of the prompt.
Boolean reloadInline	Specifies whether to reload the prompt inline (true) or not (false).
Boolean supportAutoComplete	Specifies whether the prompt auto completes (true) or not (false).
Boolean showReturnLink	Specifies whether the prompt displays a return link (true) or not (false).
String currentAction	Specifies the current action of the prompt.

## PromptStepObjectModel Structure

Use the PromptStepObjectModel structure to specify the step object model of the prompt.

The PromptStepObjectModel structure is used in the [getPromptElements\(\) Method](#).

### PromptStepObjectModel Structure Fields

Fields	Description
String title	Specifies the title of the prompt.
String instruction	Specifies the instruction of the prompt.
String buttonsPosition	Specifies the position of the button in the prompt.
String labelPosition	Specifies the position of the label in the prompt.
String wrapLabelText	Specifies the wrap label text in the prompt.
String customWidthUsage	Specifies custom width usage of the prompt.
String customWidthWidth	Specifies custom width of the prompt.
String setWidthToAllPrompts	Specifies whether width applies to all prompts.
Boolean autoApplyPrompt	Specifies whether the prompt is applied automatically (true) or not (false).
Boolean showResetButton	Specifies whether the prompt displays a Reset button (true) or not (false).
PromptStepRunTimeInfo runTimeInfo (nillable)	Specifies the run time information for the prompt step. This can be null.
IndividualPromptObjectModel[] promptObj	Species an array of prompt object models.

### PromptStepRunTimeInfo Structure

Use the PromptStepRunTimeInfo structure to specify the step run time information of the prompt.

The PromptStepRunTimeInfo structure is used in the [getPromptElements\(\) Method](#).

### PromptStepRunTimeInfo Structure Fields

Fields	Description
Boolean applyToAllSteps	Specifies whether the prompt applies to all steps (true) or not (false).
Boolean autoApplyPrompt	Specifies whether the prompt is applied automatically (true) or not (false).
Boolean showResetButton	Specifies whether the prompt displays the Reset button(true) or not (false).
Int remainingRequiredPromptsO nSubsequentSteps	Specifies the required prompts on subsequent steps.
Int firstPromptStartIndex	Specifies the index of the first prompt.

### IndividualPromptObjectModel Structure

Use the IndividualPromptObjectModel structure to specify the prompt object model of the prompt.

The IndividualPromptObjectModel structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptObjectModel Structure Fields

Fields	Description
String label	Specifies the label of the prompt.
String description	Specifies the description of the prompt.
String type	Specifies the type of prompt.
String subjectArea	Specifies the subject area of the prompt.
Boolean placedOnNewColumn	Specifies whether the prompt is applied on a new column (true) or not (false).
Boolean required	Specifies whether the prompt is required (true) or not (false).
String formulaExprString	Specifies the formula expression of the prompt.
String promptUIControlType	Specifies the user interface control type of the prompt.
String promptOperator	Specifies the prompt operator.
String customWidthUsage	Specifies the custom width usage of the prompt.
String customWidthWidth	Specifies the custom width of the prompt.
String setPromptVariableType	Specifies the prompt variable type of the prompt.
String setVariableName	Specifies the variable name of the prompt.
IndividualPromptRunTimeInfo LimitedByInfo limitedByInfo	Specifies the limited by information of a prompt.
IndividualPromptRunTimeInfo runTimeInfo	Specifies the run time information of a prompt.

### IndividualPromptRunTimeInfoLimitedByInfo Structure

Use the IndividualPromptRunTimeInfoLimitedByInfo structure to specify the run time limited information of the prompt.

The IndividualPromptRunTimeInfoLimitedByInfo structure is used in the [getPromptElements\(\) Method](#).

#### IndividualPromptRunTimeInfoLimitedByInfo Structure Fields

Fields	Description
String limitedByType	Specifies whether the prompt is limited by other prompt types, such as none, allPrompts, and specificPrompts.
Boolean isLimitedByNotApplied	Specifies whether constraint is applied to the prompt (true) or not (false).
IndividualPromptRunTimeInfo LimitedByPromptRefGroups specificPrompts	Specifies prompts that limit this prompt.

### IndividualPromptRunTimeInfo Structure

Use the IndividualPromptRunTimeInfo structure to specify the run time information of the prompt.

The IndividualPromptRunTimeInfo structure is used in the [getPromptElements\(\) Method](#).



**IndividualPromptRunTimeInfo Structure Fields**

Fields	Description
Int promptID	Specifies the prompt ID.
Boolean allowUserTypeValues	Specifies whether the user is allowed to type the values of the prompt (true) or not (false).
Boolean allowAutoComplete	Specifies whether the prompt auto completes (true) or not (false).
Boolean multiSelect	Specifies whether the prompt allows multiple selections (true) or not (false).
String showSearch	Specifies to show the search of the prompt.
IndividualPromptRunTimeInfo DataType dataType	Specifies the data type information of a prompt. For more information, see <a href="#">IndividualPromptRunTimeInfoDataType Structure</a> .
IndividualPromptRunTimeInfo CurrentValues currentValues	Specifies the current values of a prompt. For more information, see <a href="#">IndividualPromptRunTimeInfoCurrentValues Structure</a> .
IndividualPromptRunTimeInfo AvailableOptions availableOptions	Specifies the available options for a prompt. For more information, see <a href="#">IndividualPromptRunTimeInfoAvailableOptions Structure</a> .
IndividualPromptRunTimeInfo AdditionalAttributes attributes	Specifies the additional attributes of a prompt. For more information, see <a href="#">IndividualPromptRunTimeInfoDataTypeHierarchyInfo Structure</a> .

**IndividualPromptRunTimeInfoDataTypeHierarchyLevelSQLInfo Structure**

Use the IndividualPromptRunTimeInfoDataTypeHierarchyLevelSQLInfo structure to specify the SQL information of the hierarchy level of the display column of the prompt.

The IndividualPromptRunTimeInfoDataTypeHierarchyLevelSQLInfo structure is used in the [getPromptElements\(\) Method](#).

**IndividualPromptRunTimeInfoDataTypeHierarchyLevelSQLInfo Structure Fields**

Fields	Description
String displayFormula	Specifies the display formula of the prompt.
String sqlFormula	Specifies the SQL formula of the prompt.
String dataType	Specifies the data type of the prompt.
String category	Specifies the category of the prompt.
String primaryType	Specifies the primary type of the prompt.
Boolean nullable	Specifies whether the prompt displays a nullable value (true) or not (false).
Boolean isMeasure	If set to TRUE, the prompt displays a measure. If set to FALSE, the prompt displays an attribute.
String aggType	Specifies the aggregate type of the prompt.
String aggRule	Species the aggregate rule of the prompt.

**IndividualPromptRunTimeInfoDataTypeHierarchyLevelInfo Structure**

Use the IndividualPromptRunTimeInfoDataTypeHierarchyLevelInfo structure to specify the level information of a prompt based on a hierarchy column.

The `IndividualPromptRunTimeInfoDataTypeHierarchyLevelInfo` structure is used in the [getPromptElements\(\) Method](#).

#### IndividualPromptRunTimeInfoDataTypeHierarchyLevelInfo Structure Fields

Fields	Description
String levelID	Specifies the level ID of the prompt.
String displayName	Specifies the display name of the prompt.
String displayFormula	Specifies the display formula of the prompt.
String sqlFormula	Specifies the SQL formula of the prompt.
Boolean isDoubleColumn	Specifies whether the prompt displays a double column (true) or not (false).
IndividualPromptRunTimeInfoDataTypeHierarchyLevelSQLInfo keyColumnInfo	Specifies the SQL information of the hierarchy level of the key column of the prompt if the prompt column is a hierarchy level.
IndividualPromptRunTimeInfoDataTypeHierarchyLevelSQLInfo displayColumnInfo	Specifies the SQL information of the hierarchy level of the display column of the prompt if the prompt column is a hierarchy level.

### IndividualPromptRunTimeInfoDataTypeHierarchyLevels Structure

Use the `IndividualPromptRunTimeInfoDataTypeHierarchyLevels` structure to specify the levels of a prompt based on a hierarchy column.

The `IndividualPromptRunTimeInfoDataTypeHierarchyLevels` structure is used in the [getPromptElements\(\) Method](#).

#### IndividualPromptRunTimeInfoDataTypeHierarchyLevels Structure Fields

Fields	Description
IndividualPromptRunTimeInfoDataTypeHierarchyLevelInfo [] levelInfo	Specifies an array of level information of a prompt based on a hierarchy column.

### IndividualPromptRunTimeInfoDataTypeHierarchyFormulaLevels Structure

Use the `IndividualPromptRunTimeInfoDataTypeHierarchyFormulaLevels` structure to specify the metadata/formula information of a prompt based on a hierarchy column.

The `IndividualPromptRunTimeInfoDataTypeHierarchyFormulaLevels` structure is used in the [getPromptElements\(\) Method](#).

#### IndividualPromptRunTimeInfoDataTypeHierarchyFormulaLevels Structure Fields

Fields	Description
String subjectArea	Specifies the subject area of the prompt.
String dimensionID	Specifies the dimension of the prompt.
String tableName	Specifies the table name of the prompt.
String hierarchyID	Specifies the hierarchy ID of the prompt.
String displayName	Specifies the display name of the prompt.

Fields	Description
String tableDisplayName	Specifies the display name of a table in the prompt.
String hierarchyDisplayName	Specifies the hierarchy display name of the prompt.
String sqlFormulaIn2Parts	Specifies the two part SQL formula of the prompt.
String sqlFormulaDisplaySubjectAreaPart	Specifies the subject area part of the SQL formula.
IndividualPromptRunTimeInfo DataTypeHierarchyLevels levels	Specifies the levels of a prompt based on a hierarchy column.

## IndividualPromptRunTimeInfoDataTypeHierarchyInfo Structure

Use the IndividualPromptRunTimeInfoDataTypeHierarchyInfo structure to specify the hierarchy information of a prompt based on a hierarchy column.

The IndividualPromptRunTimeInfoDataTypeHierarchyInfo structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoDataTypeHierarchyInfo Structure Fields

Fields	Description
String hierarchyID	Specifies the hierarchy ID of the prompt.
String dimensionID	Specifies the dimension ID of the prompt.
String tableName	Specifies the table name of the prompt.
IndividualPromptRunTimeInfo DataTypeHierarchyFormulaLevels formulaLevels	Specifies the metadata/formula information for a prompt based on a hierarchy column.

## IndividualPromptRunTimeInfoDataTypeDoubleColumnInfo Structure

Use the IndividualPromptRunTimeInfoDataTypeDoubleColumnInfo structure to specify the information of a prompt based on a double column.

The IndividualPromptRunTimeInfoDataTypeDoubleColumnInfo structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoDataTypeDoubleColumnInfo Structure Fields

Fields	Description
String codeColumnFormula	Specifies the code column formula of the prompt.
String codeColumnCategory	Specifies the code column category of the prompt.
String codeColumnPrimaryType	Specifies the code of the column primary type of the prompt.
String codeColumnDBPrimaryType	Specifies the code of the database primary type of the prompt.
Boolean enableDoubleColumnInput	Specifies whether the prompt enables input in a double column (true) or not (false).

Fields	Description
String codeColumnLabel (nillable)	Specifies the label of the code column for the prompt.
Boolean selectedByCodeValue	Specifies whether the prompt input is in code value (true) or not (false).

## IndividualPromptRunTimeInfoDataType Structure

Use the IndividualPromptRunTimeInfoDataType structure to specify the data type information of a prompt.

The IndividualPromptRunTimeInfoDataType structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoDataType Structure Fields

Fields	Description
String subjectArea	Specifies the subject area for the prompt.
String displayColumnFormula	Specifies the column formula for the prompt.
String displayColumnCategory	Specifies the column category for the prompt.
String displayColumnPrimaryType	Specifies the column primary type for the prompt.
String displayColumnDBPrimaryType	Specifies the column data base primary type for the prompt.
Boolean isMeasureColumn	If set to TRUE, the report column is a measure. If set to FALSE, the report column is an attribute.
String displayTimeZone	Specifies the time zone for the prompt.
Int dataTimeZoneOffset	Specifies the data time zone offset for the prompt.
Int displayToDataOffset	Specifies the data offset for the prompt.
String promptSourceDataType	Specifies the source data type for the prompt display column.
Boolean isHierarchy	Specifies whether the prompt column is a hierarchy column (true) or not (false).
IndividualPromptRunTimeInfoDataTypeHierarchyInfo hierarchyInfo (nillable)	Specifies the hierarchy information of a prompt based on a hierarchy column. This argument can be null.
Boolean isDoubleColumnInput	Specifies whether the prompt input is in a double column (true) or not (false).
IndividualPromptRunTimeInfoDataTypeDoubleColumnInfo codeColumnInfo (nillable)	Specifies the code column information of a prompt based on a double column. This argument can be null.

## IndividualPromptRunTimeInfoSingleValueType Structure

Use the IndividualPromptRunTimeInfoSingleValueType structure to specify a single value for the prompt.

The IndividualPromptRunTimeInfoSingleValueType structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoSingleValueType Structure Fields

Fields	Description
String eType	Specifies the type of value in the structure. For example, SQL, customGroup, hierarchyLevels and so on.
String caption	Specifies the caption of the prompt.
String codeValue	Specifies the code value of the prompt.

## IndividualPromptRunTimeInfoValuesType Structure

Use the IndividualPromptRunTimeInfoValuesType structure to specify all values that are used by the prompt.

The IndividualPromptRunTimeInfoValuesType structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoValuesType Structure Fields

Fields	Description
IndividualPromptRunTimeInfoSingleValueType[] value	Specifies an array of single values for the prompt.

## IndividualPromptRunTimeInfoCurrentValues Structure

Use the IndividualPromptRunTimeInfoCurrentValues structure to specify the current values of a prompt.

The IndividualPromptRunTimeInfoCurrentValues structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoCurrentValues Structure Fields

Fields	Description
String currentOperator	Specifies the current operator of the prompt.
Boolean emptyAsAllChoices	Specifies whether an empty prompt defaults to all choices (true) or not (false).
IndividualPromptRunTimeInfoValuesType values	Specifies the values for the prompt.

## IndividualPromptRunTimeInfoAvailableOptions Structure

Use the IndividualPromptRunTimeInfoAvailableOptions structure to specify the available options of a prompt.

The IndividualPromptRunTimeInfoAvailableOptions structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoAvailableOptions Structure Fields

Fields	Description
Int numOptionsPerPage	Specifies the number of options per page.
Int currentPageInOptions	Specifies current page number.
Boolean moreOptions	Specifies whether the prompt consists of more options (true) or not (false).
Boolean includeAllChoices	Specifies whether the prompt include all choices (true) or not (false).
Boolean needToPopulateDropDown	Specifies whether the prompt requires you to populate the drop down (true) or not (false).
String valueTablePromptSourceType	Specifies the source type for the prompt.
String sql	Specifies the SQL for the prompt.
String runTimeCodeAndDisplayValueFormatStr	Specifies the format string for the values of the prompt.
String filterXmlString (nillable)	Specifies the xml filter of the prompt.
IndividualPromptRunTimeInfoValuesType groupPaths (nillable)	Specifies the values of the groups that are used by the prompt. This argument can be null.
IndividualPromptRunTimeInfoValuesType populatedOptions (nillable)	Specifies the populated values that are used by the prompt. This argument can be null.

### IndividualPromptRunTimeInfoDataTypeHierarchyInfo Structure

Use the IndividualPromptRunTimeInfoDataTypeHierarchyInfo structure to specify the additional attributes of a prompt.

The IndividualPromptRunTimeInfoDataTypeHierarchyInfo structure is used in the [getPromptElements\(\) Method](#).

### IndividualPromptRunTimeInfoDataTypeHierarchyInfo Structure Fields

Fields	Description
Int opMinNumValues	Specifies the minimum number of values in the prompt.
Int opMaxNumValues	Specifies the maximum number of values in the prompt.

### IndividualPromptRunTimeInfoLimitedByPromptReference Structure

Use the IndividualPromptRunTimeInfoLimitedByPromptReference structure to specify prompts that limit this prompt.

The IndividualPromptRunTimeInfoLimitedByPromptReference structure is used in the [getPromptElements\(\) Method](#).

**IndividualPromptRunTimeInfoLimitedByPromptReference Structure Fields**

Fields	Description
Int promptID	Specifies the identifier of the prompt.
String formulaExprString	Specifies the formula expression of the prompt.

## IndividualPromptRunTimeInfoLimitedByPromptRefGroups Structure

Use the IndividualPromptRunTimeInfoLimitedByPromptRefGroups structure to specify prompts that limit the groups of this prompt.

The IndividualPromptRunTimeInfoLimitedByPromptRefGroups structure is used in the [getPromptElements\(\) Method](#).

**IndividualPromptRunTimeInfoLimitedByPromptRefGroups Structure Fields**

Fields	Description
IndividualPromptRunTimeInfoLimitedByPromptReference[] limitByPrompt	Specifies an array of prompts that limit this prompt.

## Privilege Structure

Use the Privilege structure to represent global privileges.

You configure these privileges using the Manage Privileges screen. The Privilege structure is used in the [SecurityService Service](#).

**Privilege Structure Fields**

Fields	Description
String name	Specifies the name of a privilege.
String description	Specifies the description of a privilege.

## PurgeJobInstancesFilter Structure

Use the PurgeJobInstancesFilter structure when purging job instances.

The PurgeJobInstancesFilter structure is used in the [SchedulerService Service](#).

**PurgeJobInstancesFilter Structure Fields**

You must choose only one of the two properties.

Fields	Description
List of JobReference	(Optional) If no Job References are specified then all JobReferences are returned.

Fields	Description
JobInstanceStatus	(Optional) The current status of the Job instance. Valid values are: <ul style="list-style-type: none"><li>• Completed</li><li>• Running</li><li>• Failed</li><li>• Cancelled</li><li>• TimedOut</li><li>• Warning</li></ul>

## QueryResults Structure

Use the QueryResults structure to specify query details during query execution.

The QueryResults structure is used in the [XMLViewService Service](#) (in the executeXMLQuery method).

### QueryResults Structure Fields

Fields	Description
String rowset	Specifies the rowset XML encoded in the string.
String queryID	Specifies the unique ID of the query, which can be used in fetchNext calls.
boolean finished	If set to TRUE, then there are no more rows to return. If set to FALSE, then another fetchNext call is needed to return more rows.

## RenameAccount Structure

Use the RenameAccount structure to hold the old name, new name and type of an account which will be renamed.

The RenameAccount structure is used in the [SecurityService Service](#).

### RenameAccount Structure Fields

Fields	Description
String oldAccountName	Specifies the old name of the account.
String newAccountName	Specifies the new name of the account.
int accountType	Specifies the account type.

## RenameAccountResults Structure

Use the RenameAccountResults structure to hold the status of the rename accounts operation for each account.

The RenameAccountResults structure is used in the [SecurityService Service](#).



### RenameAccountResults Structure Fields

Fields	Description
String oldAccountName	Specifies the old name of the account.
String newAccountName	Specifies the new name of the account.
int accountType	Specifies the type of account.
int status	Specifies the status of the overall rename accounts operation. The values are: <ul style="list-style-type: none"> <li>• 0-Success</li> <li>• 1-Error</li> </ul>

## RenameAccountsStatus Structure

Use the RenameAccountsStatus structure to hold the overall status of the rename accounts operation.

The RenameAccountsStatus structure is used in the [SecurityService Service](#).

### RenameAccountsStatus Structure Fields

Fields	Description
int status	Specifies the status of the overall rename accounts operation. The values are: <ul style="list-style-type: none"> <li>• 0- Success</li> <li>• 1- Error</li> </ul>
RenameAccountResult[] accountsResult	Specifies the old name, new name and account type with Success or Fail message for each account.

## ReportADFPParameters Structure

Use the ReportADFPParameters structure to define report parameters (prompt, filter, or variable).

The ReportADFPParameters structure is used in the [ReportEditingService Service](#).

### ReportADFPParameters Structure Fields

**Table 9-2 ReportADFPParameters Structure Fields**

Field	Description
String name	Specifies the formula of the prompt, filter, or variable
String operator	Specifies the prompt operator
String type	Specifies the type of parameter (filter, prompt, or variable).
String datatype	Specifies the SQL datatype of the parameter
String value	Specifies the field used for an operator needing two operands. Other operators have values specified in the ADFParameterValues field.
ADFPParameterValues values	Specifies the values for this parameter
ADFPParameterValues String []	Specifies an array of string values

## ReportHTMLOptions Structure

Use the ReportHTMLOptions structure to define options for displaying results on an HTML page.

The ReportHTMLOptions structure is used in the [HtmlViewService Service](#).

### ReportHTMLOptions Structure Field

Field	Description
boolean enableDelayLoading	Internal use only. This field is always set to 1, which means that Oracle Analytics web services is never required to provide results immediately, and displays a message indicating that it is waiting for results.
String linkMode	Specifies whether to display drills or links in the current browser window or a new browser window.

## ReportHTMLLinksMode Enumeration

The ReportHTMLLinksMode enumeration specifies a list of valid values for the ReportHTMLLinksMode field.

The ReportHTMLLinksMode enumeration is used in the [ReportHTMLOptions Structure](#).

### ReportHTMLLinksMode Enumeration Values

Values	Description
String InPlace	Specifies that drills or links should replace only the content of the current analysis without changing the rest of the page.
String NewPage	Specifies that drills or links should be displayed in a new browser window.
String SamePage	Specifies that drills or links should replace the current browser window.

## ReportParams Structure

Use the ReportParams structure to replace existing filters and variables in an analysis.

The ReportParams structure is common to all web services.

### ReportParams Structure Fields

Fields	Description
String[] filterExpressions	Specifies an array of Oracle Analytics web services filter expressions in the form Object[] filter_expression, filter_expression ...
Variable[] variables	Specifies an array of variable values to be set before method execution. This structure is used in executeXMLQuery() method and generateReportSQL() method.
NameValuePair[] nameValues	Should be set to NULL. This field is for internal use only.
TemplateInfo[] templateInfos	Should be set to NULL. This field is for internal use only.
String viewName	Specifies which view to use when generating XML data for the analysis.

### How Filter Expressions Are Applied to an Analysis in Web Services

Step	Internal Processing
1	Obtains XML representations of the analysis and each filter expression.
2	For each expression element, locates the child node of the type <code>sqlExpression</code> (the type is determined by the value of the <code>xsi:type</code> attribute), and references its inner text.
3	In the analysis XML, locates all nodes that also have a child node of type <code>sqlExpression</code> where the inner text matches that located in the preceding step.
4	Replaces all nodes found in Step 3 with the expression from Step 2.

### How Variables Are Applied to an Analysis in Web Services

Step	Internal Processing
1	Obtains XML representations of the analysis.
2	For each variable, locates all nodes in the analysis XML that have a type of variable, attribute scope equal to analysis, and inner text that matches the variable name.
3	Replaces each node located in Step 2 with the new variable value.

## ReportRegularColumn Structure

Use the `ReportRegularColumn` structure to return column properties for a regular column used in an analysis.

The `ReportRegularColumn` structure is used in [ReportEditingService Service](#).



#### Note:

System wide default column properties that apply to any of the report columns are returned in the report column properties.

### ReportRegularColumn Structure Fields

Fields	Description
String ID	Specifies the column identifier of the report column
String tableHeading	Specifies the table heading of the report column
String columnHeading	Specifies the column heading of the report column
Boolean hidden	If set to TRUE, the column is hidden. If set to FALSE, the column is displayed.
String sqlFormula	Specifies the column formula of the report column
Boolean measure	If set to TRUE, the report column is a measure. If set to FALSE, the report column is an attribute column.
aggrRule ReportColumnAggrRule	If the column contains aggregated data, this value specifies the type of aggregation used in the column.

## ColumnAggregationRule Values

This structure specifies the default aggregation rule for the column.

The following list shows the aggregation functions available:

- Default
- Server
- Sum
- Average
- Count
- CountDistinct
- Max
- Min
- None
- ServerAggregate
- Unknown

## ReportRef Structure

Use the ReportRef structure to reference an analysis.

Use the ReportRef structure in one of the following ways to reference an analysis:

- The location of the analysis in the catalog.
- The ReportDef object that defines the analysis. This field should always be null.
- The XML that defines the analysis.



### Note:

Only one of the fields in ReportRef should be populated.  
The ReportRef structure is common to all web services.

### ReportRef Structure Fields

Fields	Description
String reportPath	Specifies a string value that provides the path to the analysis in the catalog. For example, /users/jchan/analyses/.
String reportXML	Specifies a string value that contains the XML that defines the analysis.

## SAColumn Structure

Use the SAColumn structure to represent the logical column in the Subject Area.

The SAColumn structure is used in the [MetadataService Service](#).

### SAColumn Structure Fields

Fields	Description
String name	Specifies a column name used in SQL statements.
String displayName	Specifies a localized name, used in an Oracle Analytics analysis.
String description	Specifies a string to contain the description of the column name.
boolean nullable	If set to TRUE, then the column can be null.
String dataType	Specifies the type of data that a column contains.
boolean aggregateable	If set to TRUE, then the column can be aggregated.
String aggRule	If the column contains aggregated data, this value specifies the type of aggregation used.

### SADataType Values

The SADataType indicates the type of data that a column contains.

The following list shows the data types available:

- BigInt
- Binary
- Bit
- Char
- Coordinate
- Date
- Decimal
- Double
- Float
- Integer
- Invalid
- LongVarBinary
- LongVarChar
- Numeric
- Real
- SmallInt
- Time
- TimeStamp
- TinyInt
- Unknown
- VarBinary
- VarChar

## AggregationRule Values

The AggregationRule specifies the default aggregation rule for the column.

The following list shows the aggregation functions available:

- Avg
- BottomN
- Complex
- Count
- CountDistinct
- CountStar
- DimensionAggr
- First
- Last
- Max
- Min
- None
- Percentile
- Rank
- ServerDefault
- SubTotal
- Sum
- TopN

## SASubjectArea Structure

Use the SASubjectArea structure to represent Subject Area attributes.

The SASubjectArea structure is used in the [MetadataService Service](#).

### SASubjectArea Structure Fields

Fields	Description
String name	Specifies the table name that is used in SQL statements.
String displayName	Specifies the localized name, used in Oracle Analytics Classic.
String description	Specifies the description of the subject area.
SATable[] tables	Specifies a collection of tables for this subject area.

## SATable Structure

Use the SATable structure to represent the logical table in the Subject Area.

The SATable structure is used in the [MetadataService Service](#).

**SATable Structure Fields**

Fields	Description
String name	Specifies the table name that is used in SQL statements.
String displayName	Specifies the localized name, used in Oracle Analytics Classic.
String description	Specifies the description of the table name.
SAColumn[] columns	Specifies an array of the table's columns.

## SAWLocale Structure

Use the SAWLocale structure to define the locale for the current session.

The SAWLocale structure is used in the [SAWSessionService Service](#).

**SAWLocale Structure Fields**

Fields	Description
String language	Specifies the language code. Values for language should conform to the ones used in Java, in the java.util.Locale class (ISO-639, ISO-3166).
String country	Specifies the country code. Values for country should conform to the ones used in Java, in the java.util.Locale class (ISO-639, ISO-3166).

## SAWSessionParameters Structure

Use the SAWSessionParameters structure to define optional parameters for the current session.

The SAWSessionParameters structure is used in the [SAWSessionService Service](#).

**SAWSessionParameters Structure Fields**

Fields	Description
SAWLocale locale	Specifies the locale to be used, supplied in the SAWLocale structure.
String userAgent	Specifies whether the HTMLView service is used with current session. It specifies the userAgent string of the browser, where Oracle Analytics Presentation Services HTML content is displayed. Oracle Analytics Presentation Services uses this information to produce browser-specific HTML.
String syndicate	Internal use only.
LogonParameter logonParams	Specifies the parameters used for authentication.
boolean asyncLogon	If set to TRUE, then asynchronous login is enabled. If set to FALSE (default), then asynchronous login is not enabled.
String sessionID	Specifies the unique ID of the session. This field is used in logonex() method and impersonateex() method.

## SegmentationOptions Structure

Use the SegmentationOptions structure to define the segment or segment tree to override the defaults specified in the Oracle Marketing Analytics user interface.

The SegmentationOptions structure is used in the [MetadataService Service](#).

### SegmentationOptions Structure Fields

Fields	Description
OverrideType cacheOverride	<p>Specifies how you want to override the Oracle Marketing Analytics' "Cache the block for future update counts requests" user interface option.</p> <p>If set to Default, then the cache override is not specified in the structure or the structure is not specified. The Default value specifies to use what is defined in the user interface option for each criteria block.</p> <p>If set to None, the system overrides the user interface-defined values and sets all criteria blocks to disable the "Cache the block for future update counts requests" user interface option.</p> <p>If set to All, the system overrides the user interface-defined values and sets all criteria blocks to enable the "Cache the block for future update counts requests" user interface option.</p>
OverrideType countOverride	<p>Specifies if the system should use the getCounts method to generate the count numbers.</p> <p>If set to Default, then the count override is not specified in the structure or the structure is not specified.</p> <p>If set to All, the system executes the getCounts method. When set to All, the system calculates count numbers for all criteria blocks.</p>
NameValuePair govRules	Specifies a value to enforce the corresponding contract planning rules for the segment or segment tree.
NameValuePair prompts	<p>Specifies the prompt values to apply to the columns in the segment or segment tree. This process filters data when generating counts.</p> <p>If you do not provide a value in this field, then the system does not apply filter criteria to columns in segments.</p>
Boolean removeCacheHits	<p>Specifies that you want to clear cache entries that contain count information.</p> <p>If set to True, the system queries against the most current data. To do this, the system removes all existing cache entries that contain count information for the target segment or segment tree. The system then repopulates the cache with new count number entries calculated by the getCounts method.</p>
BigDecimal samplingFactor	<p>Specifies the size of the data set for calculating counts. The getCounts method calculates the count number of all criteria blocks against a subset of the data determined by this value.</p> <p>The default value is 100. The default value determines that the count number is calculated against the whole data set.</p>

## SessionEnvironment Structure

Use the SessionEnvironment structure to return environment information for the current session.

The SessionEnvironment structure is used in the [SAWSessionService Service](#).



### SessionEnvironment Structure Fields

Fields	Description
String userName	Specifies the name of the current user.
ItemInfo homeDirectory	Specifies the full path to the user's home directory in the catalog. For example, /users/<user login ID>.
ItemInfo[] SharedDirectories	Specifies the full paths to shared directories to which the current user has at least read access.

#### Note:

By default, only administrators are allowed to list direct descendents of the "/shared" directory. Retrieving the SessionEnvironment object is the only way to enable users to navigate its shared area.

## StartPageParams Structure

Use the StartPageParams structure to define options in startPage method invocations.

The StartPageParams structure is used in the [HtmlViewService Service](#).

### StartPageParams Structure Fields

Fields	Description
String idsPrefix	Specifies a prefix to be used with IDs and names of all HTML elements to avoid name conflicts on an HTML page.
boolean dontUseHttpCookies	If set to TRUE, then Oracle Analytics Presentation Services cannot rely on cookies for passing the sessionID. Instead, the sessionID is included as a parameter in callback URLs.

## TreeFlags Enumeration

The TreeFlags enumeration specifies the static definitions for the various TreeFlag values that can be returned as part of a nodes assessment.

The TreeFlags enumeration is used in the [#unique\\_462](#).

### TreeFlags Enumeration Values

Values	Description
Integer STRATEGY	Specifies that the value of the Strategy TreeFlag is 1.
Integer INITIATIVE	Specifies that the value of the Initiative TreeFlag is 2.
Integer ACCOUNTABILITY	Specifies that the value of the Accountability TreeFlag is 4.

**Note:**

You can add the values in TreeFlags Enumeration values if required. For example, if the you want the results to include nodes from both the Strategy and Initiative trees, you would pass 3 as the value (1+2).

## TreeNodePath Structure

Use the TreeNodePath structure to specify a segment tree path and branch ID number for a branch in the segment tree.

The TreeNodePath structure is used in the [#unique\\_488](#).

### TreeNodePath Structure Fields

Fields	Description
String treeNode	Specifies the segment tree's branch Id number that contains the members to include in the list.
String treePath	Specifies the path to the segment tree.

## UpdateACLParams Structure

Use the UpdateACLParams structure to set options in updateACL method invocations.

The UpdateACLParams structure is used in the [SecurityService Service](#).

### UpdateACLParams Structure Fields

Fields	Description
UpdateACLMode updateFlag	Specifies how to update the ACL mode.

## UpdateACLMode Enumeration

Use the UpdateACLMode enumeration to update the ACL mode.

The UpdateACLMode enumeration specifies a list of valid values for the update flag in the [UpdateACLParams Structure](#).

### UpdateACLMode Enumeration Values

Values	Description
String ReplaceACL	Specifies the ACL value to update.
String ReplaceForSpecifiedAccounts	Specifies a list of accounts to update in the ACL.
String DeleteAccountsFromACL	Specifies a list of accounts to remove from the ACL.
String AddPermission	Specifies a list permissions to update for a list of ACL entries
String DeletePermission	Specifies a list permissions to be removed from a list of ACL entries

## UpdateCatalogItemACLParams Structure

Use the UpdateCatalogItemACLParams structure to provide additional parameters in the updateCatalogItemACL() method.

The UpdateCatalogItemACLParams structure is used in the [WebCatalogService Service](#).

### UpdateCatalogItemACLParams Structure Fields

Fields	Description
UpdateACLMode updateFlag	Specifies how to update the ACL mode.
boolean recursive	If set to TRUE, then the method is applied to the catalog item and all descendents, which are identified by the path. If set to FALSE, then the method is only applied to the catalog item.

## ValidActionLinks Structure

Use the ValidActionLinks structure to reference valid action links.

The ValidActionLinks structure is used in the [AssessmentResult Structure](#).

### ValidActionLinks Structure Fields

Fields	Description
DimensionContext[] ActionLinkContext	Specifies an array of DimensionContext structures.
ActionLinks[] ActionLink	Specifies an array of ActionLink structures.

## Variable Structure

Use the Variable structure to reference a variable in the analysis and replace it with another variable.

The Variable structure is common to all web services.

### Variable Structure Fields

Fields	Description
String name	Specifies a character string that contains the name of the variable to replace.
Object value	Specifies the value of the variable.

## XMLQueryExecutionOptions Structure

Use the XMLQueryExecutionOptions structure to specify optional parameters during a query.

The XMLQueryExecutionOptions structure is used in the [XMLViewService Service](#) (in the executeXMLQuery method).

## XMLQueryExecutionOptions Structure Fields

Fields	Description
boolean async	If set to TRUE, then asynchronous query execution is enabled. If set to FALSE, then asynchronous query execution is disabled.
int maxRowsPerPage	Specifies the maximum number of rows to be returned by a executeXMLQuery or fetchNext method.
boolean refresh	If set to TRUE, then the server re-submits the query to refresh the data. If set to FALSE, then the server uses data in the cache.
boolean presentationInfo	<p>If set to TRUE, then store localized presentation information in the metadata section of the record set XML.</p> <p>Presentation information consists of the following:</p> <ul style="list-style-type: none"> <li>• Column heading information (stored in the columnHeading field).</li> <li>• Table heading information (stored in the tableHeading field).</li> </ul>
String type	Specifies the query ID, which can be used in logs to diagnose errors.