Oracle® Cloud

Configuring Oracle Analytics Cloud

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Preface

Learn how to manage users, back up and restore, and configure your service.

Topics:

Audience

Configuring Oracle Analytics Cloud is intended for administrators who use Oracle Analytics Cloud:

- **Administrators** manage access to Oracle Analytics Cloud and perform other administrative duties such as backing up and restoring information for others.

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Related Documents

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

- http://docs.oracle.com/en/cloud/paas/analytics-cloud/books.html

Conventions

This document uses the standard Oracle text and image conventions.

Text Conventions

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

Videos and Images

Skins and styles customize the look and feel of Oracle Analytics Cloud, dashboards, reports, and other objects. Videos and images used in this guide may not have the same skin or style that you're using, but the behavior and techniques shown are the same.

Part I
Get Started with Configuration

This part introduces you to configuration and administration tasks for Oracle Analytics Cloud.

Chapters:

1

About Configuring Oracle Analytics Cloud

This topic describes how to get started with configuring Oracle Analytics Cloud.

Topics:

Typical Workflow for Administrators

If you're configuring Oracle Analytics Cloud for the first time, follow these tasks as a guide.

Task	User	More Information
Sign-in as the administrator	Sign-in to Oracle Analytics Cloud as the administrator and navigate to the Console.	Access the Console in Oracle Analytics Cloud
Manage what users see and do	Configure what users see and do in Oracle Analytics Cloud using the Application Role page in the Console.	Manage What Users Can See and Do
Back up and restore content	Back up and restore your environment (semantic model, catalog content, application roles, and so on) using a file called a snapshot. You must take a snapshot of your environment before people start using the system and again at suitable intervals so you can restore the environment if something goes wrong or you need to migrate to different environment.	Take Snapshots and Restore
Schedule regular snapshots (backups) of your content	Take snapshots regularly, as part of your business continuity plan to minimize data loss.	Schedule Regular Snapshots (Backups)
Set up virus scanning	Connect to your virus scanning server.	Configure a Virus Scanner
Set up social channels for content sharing	Enable users to share content on Twitter, Slack, Oracle Cloud Storage, and Oracle Content Management.	Set Up Social Channels For Sharing Visualizations Set Up a Public Container to Share Visualizations
Set up email deliveries	Connect to your email server.	Set Up an Email Server to Deliver Reports Track the Reports You Distribute By Email or Through Agents

Task	User	More Information
Enable agents to deliver content	Allow users to use agents to deliver their content.	Enable and Customize Content Delivery Through Agents Suspend and Resume Deliveries Restore and Enable Delivery Schedules
Manage the types of devices that deliver content	Configure devices for your organization.	Manage the Types of Devices that Deliver Content
Free up storage space	Delete data sources on behalf of other users to free up storage space.	Delete Unused Datasets
Manage how content is indexed and searched	Set up how content is indexed and crawled so users always find the latest information when they search.	Manage How Content Is Indexed and Searched
Manage maps	Manage map layers and background maps.	Manage Map Information For Analyses
Register safe domains	Authorize access to safe domains.	Register Safe Domains
Manage session information	Monitor who is signed in and troubleshoot issues with analyses by analyzing the SQL queries and logs.	Monitor Users and Activity Logs
Change the default reporting page and dashboard styles	Change the default logo, page style, and dashboard style.	Apply Custom Logos and Dashboard Styles
Migrate from Oracle Business Intelligence Enterprise Edition 12*c*	Migrate reporting dashboards and analyses, semantic models, and application roles.	Migrate Content from Oracle BI Enterprise Edition 12c
Upload semantic models from Oracle Analytics Server	Upload and edit semantic models from Oracle Analytics Server	Upload Semantic Models from Oracle Analytics Server Edit a Semantic Model in the Cloud
Localize reporting dashboards and analyses	Localize the names of catalog objects (known as captions) into different languages.	Localize Catalog Captions
Replicate data you want to visualize	Import data from Oracle Fusion Cloud Applications into high-performant data stores, such as Oracle Autonomous Data Warehouse, and Oracle Big Data Cloud, for visualization and analysis in Oracle Analytics Cloud.	Replicate Data
Track usage	Track the user-level queries to the content in Oracle Analytics Cloud.	Track Usage
Set up write-back	Enable users to update data from analyses and dashboards.	Deploy Write-back
Set up custom JavaScript for actions	Enable users to invoke browser scripts from analyses and dashboards.	Enable Custom Java Script for Actions

Understanding Administration Pages

You use the Console and Classic Administration pages to configure and manage your cloud service.

You must have the **BI Service Administrator** role to access these pages and perform administration tasks.

Product	Administration Page	Role Required	Description and How to Access
Oracle Analytics Cloud	Console	BI Service Administrator	Use the Console to manage user permissions, back up everyone's content, register safe domains, configure your virus scanner, email server, deliveries, and more. You can also see who is currently signed in and diagnose issues with SQL queries from the Console. • Manage What Users Can See and Do • Take Snapshots and Restore • Register Safe Domains • Monitor Users and Activity Logs • Run Test SQL Queries
Oracle Analytics Cloud	Classic Administration	BI Service Administrator	Most options on the Classic Administration page are exposed through the Console. Only use the Classic Administration page if you're familiar with on-premise products that use a similar page. See About the Classic Administration Page.

Tools for Other Administration Tasks

You use a different tool (Oracle Cloud Infrastructure Console) to perform service-level lifecycle tasks and identity management tasks. Additional roles are required to access and perform administrative tasks in Oracle Cloud Infrastructure Console and instructions for these tasks are available in other guides.

Tasks	Administration Tool	Role Required	More Information
Lifecycle Service-level tasks such as create Oracle Analytics Cloud instance, pause, resume, monitor, delete, scale, and so on.	Oracle Cloud Infrastructure Console	Cloud Account Administrator	The way you perform lifecycle tasks depends whether you deployed Oracle Analytics Cloud on Oracle Cloud Infrastructure - Gen 2, Oracle Cloud Infrastructure - Gen 1, or Oracle Cloud Infrastructure - Classic. See Administer Services.

Tasks	Administration Tool	Role Required	More Information
Identity Management User and group management for Oracle Analytics Cloud.	Oracle Cloud Infrastructure Console	Identity Domain Administrator	The way you add and manage users depends whether your Oracle Cloud account includes IAM identity domains or Oracle Identity Cloud Service. See About Setting Up Users and Groups.

About the Console

You use the Console to configure and manage your service. You must have the **BI Service Administrator** role to access the Console and perform administration tasks.

Task	More Information
Maps	Define how users display their data on maps. See Manage Map Information For Analyses.
Extensions	Upload custom visualization types or custom data actions. See Manage Custom Plug-ins.
Social	Enable users to share content on various social channels. See Set Up Social Channels For Sharing Visualizations.
Search Index	Set up how content is indexed and crawled so users always find the latest information when they search. See Schedule Regular Content Crawls and Monitor Search Crawl Jobs.
Safe Domains	Authorize access to safe domains. See Register Safe Domains.
Users and Roles	Configure what users see and do through application roles. See Manage What Users Can See and Do .
Snapshots	Back up and restore the semantic model, catalog content, and application roles using a file called a snapshot. See Take Snapshots and Restore .
Connections	Create database connections for semantic models. See Manage Database Connections for Model Administration Tool.
Virus Scanner	Connect to your virus scanning server. See Configure a Virus Scanner.
Session and Query Cache	See which users are signed in and troubleshoot report queries. See Monitor Users and Activity Logs.
Issue SQL	Test and debug SQL queries. See Run Test SQL Queries.
Mail Server	Connect to your email server. See Set Up an Email Server to Deliver Reports.
Monitor Deliveries	Track deliveries sent by the email server. See Track the Reports You Distribute By Email or Through Agents.
System Settings	Set advanced options for Oracle Analytics Cloud. See Configure Advanced Options.
Remote Data Connectivity	Register one or more Data Gateway agents for remote connectivity to visualization workbooks. See Configure and Register Data Gateway for Data Visualization .

About the Classic Administration Page

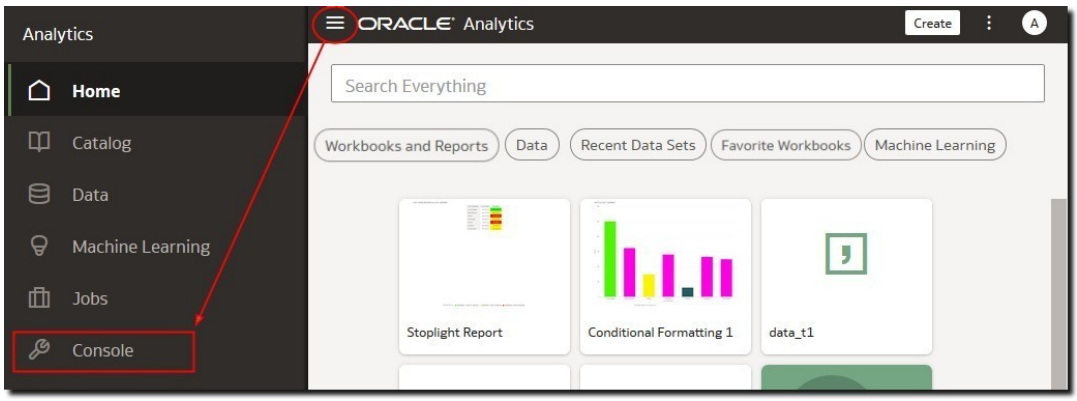
Only use the Classic Administration page if you're familiar with on-premise products that use a similar page. Most options on the Classic Administration page are exposed through the Console and where available, we recommend that you use the Console for configuration.

Task	More Information
Manage Privileges	Oracle recommends that you keep the default privileges because they're optimized for Oracle Analytics. Editing privileges might result in unexpected behavior or access to features.
Manage Sessions	See which users are signed in and troubleshoot report queries. See Monitor Users and Activity Logs.
Manage Agent Sessions	Currently not available in Oracle Analytics Cloud.
Manage Device Types	Add devices that can deliver content for your organization. See Manage the Types of Devices that Deliver Content
Toggle Maintenance Mode	Indicates whether **Maintenance Mode** is on or off. In Maintenance Mode, you make the catalog read-only so that other users can't modify its content. Users can still view objects in the catalog, but they can't update them. Some features, such as the "most recently used" list aren't available.
Reload Files and Metadata	Use this link to reload XML message files, refresh metadata, and clear caches. You might want to do this after uploading new data, for example if you add or update a semantic model.
Reload Log Configuration	Oracle recommends that you keep the default log level. Oracle Support might suggest you change the log level to help troubleshoot an issue.
Export Fallback Font	Oracle recommends that you use the default Go Noto font as the fallback font in Classic reports and dashboards. Used when the default PDF fonts (such as Helvetica, Times-Roman, and Courier) can't display non-Western characters included in the data when generating PDF output. See Open-Source Fonts Replace Licensed Monotype Fonts.
Issue SQL	Test and debug SQL queries. See Run Test SQL Queries.
Scan and Update Catalog Objects That Require Updates	Use this link to scan the catalog and update any objects that were saved with earlier updates of Oracle Analytics.
Manage Themes	Change the default logo, colors, and heading styles for reporting pages, dashboards, and analyses. See Manage Themes.
Manage Captions	Localize the names (captions) of reporting objects that users create. See Localize Your Captions.
Manage Map Data	Define how users display their data on maps. See Manage Map Information For Analyses.
Manage Publisher	Set up data sources for pixel-perfect reports and delivery destinations. Configure the scheduler, font mappings, and many other runtime options. See Introduction to Publisher Administration .
Configure Crawl	This option is available through the Console. See Schedule Regular Content Crawls.
Monitor Crawl	This option is available through the Console. See Monitor Search Crawl Jobs.

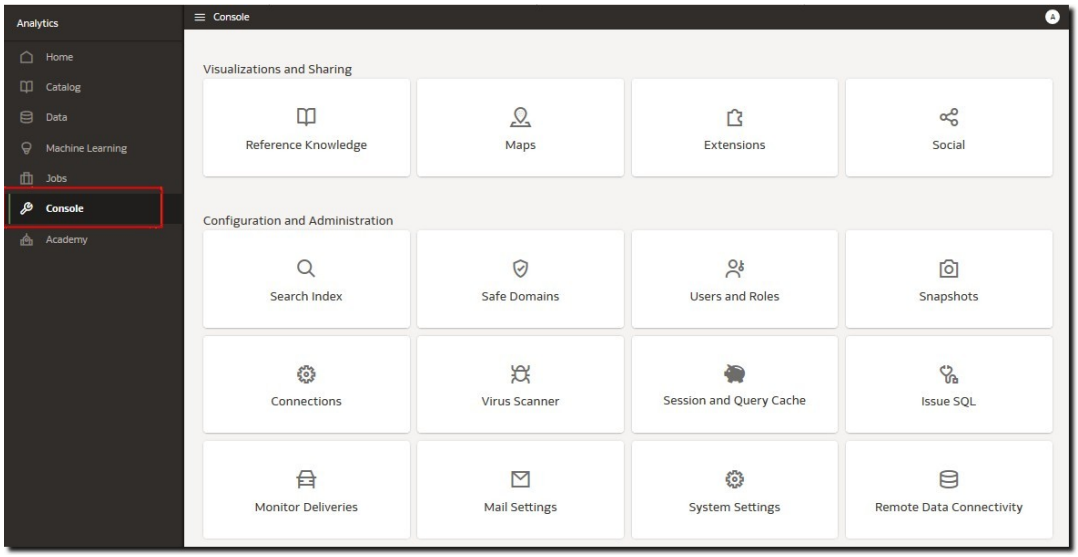
Access the Console in Oracle Analytics Cloud

Use the Console to manage user permissions, back up everyone's content to a snapshot, perform various configuration and administration tasks, and update system settings.

1. In the Home page, click the **Navigator** bar and click **Console**.



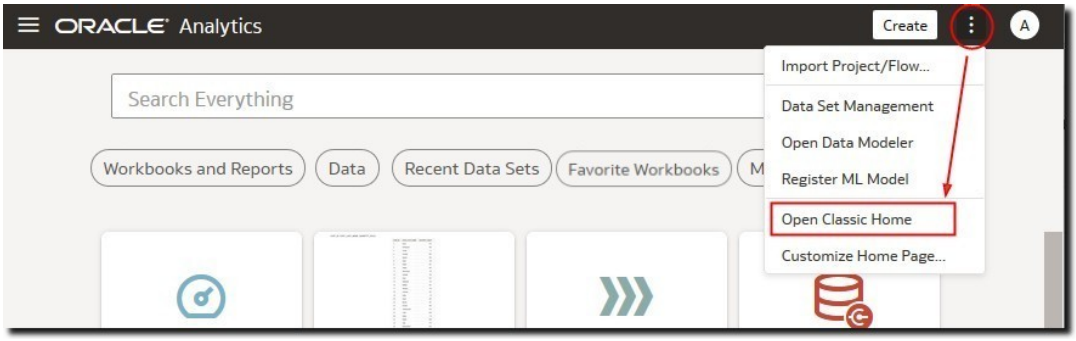
2. Under **Configuration and Administration**, click the option you want to configure. You must have the **BI Service Administrator** role to configure Oracle Analytics.



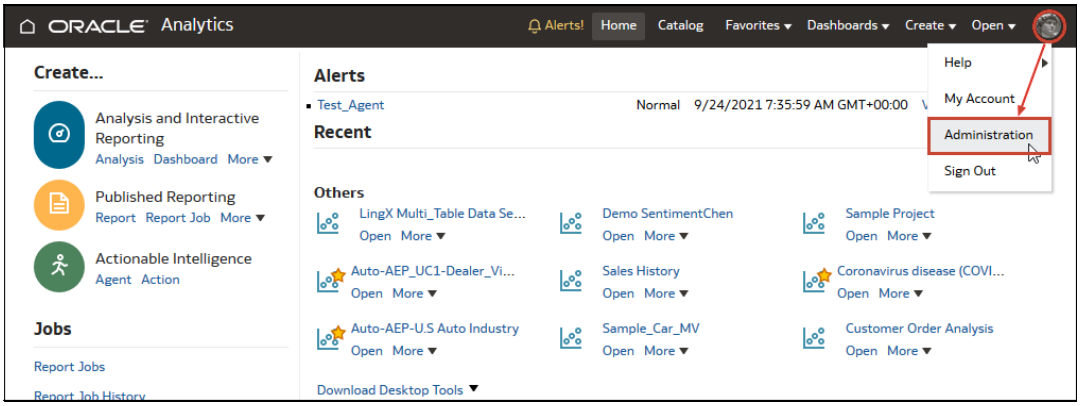
Access the Classic Administration Page

Use the Classic Administration page if you're familiar with on-premises products that use a similar page.

1. In the Home page, click the **Page Menu** and select **Open Classic Home**.



2. Click **My Profile**, and select **Administration**.
You must have the **BI Service Administrator** role to see the Administration menu.



3. Click the link for the feature you want to configure.

Top Tasks for Administrators

Here are the top tasks for configuring and managing Oracle Analytics Cloud.

Tasks:

- Top Tasks for Administrators

Top Tasks for Administrators

The top tasks for configuring and managing your cloud service are identified in this topic.

- Assign Application Roles to Users
- Add Your Own Application Roles
- Take Snapshots
- Restore from a Snapshot
- Free Up Storage Space
- Register Safe Domains
- Manage How Content Is Indexed and Searched

Part II
Configure Your Service

This part explains how to configure and manage an Analytics Cloud instance offering data visualization and business intelligence enterprise modeling services. The information is aimed at administrators whose primary job is to manage users and keep them productive. Administrators perform a long list of critical duties; they control user permissions and amend accounts, keep regular backups so users don't risk losing their work, authorize access to external content by registering safe domains, configure email servers and virus scanners, manage data storage to avoid exceeding storage limits, troubleshoot user queries, and so much more.

Chapters:

2

Manage What Users Can See and Do

Administrators can manage what other users are allowed to see and do when working with data.

Video

Topics:

Typical Workflow to Manage What Users See and Do

Here are the common tasks to start managing what users can see and do when working with Oracle Analytics Cloud.

Task	Description	More Information
Add users and groups	Add user accounts for everyone who needs access to Oracle Analytics Cloud and set up user groups.	Add a User or a Group
Understand application roles	Learn about the predefined application roles and what they allow users to do in Oracle Analytics Cloud.	About Application Roles
Understand permissions	Learn about the permissions that enable specific actions in Oracle Analytics Cloud.	About Permissions
Add your own application roles	Oracle Analytics Cloud provides application roles that map directly to all the main features but you can create your own application roles that make sense to your business too.	Add Your Own Application Roles
Grant permissions to application roles	You can't modify the permissions of predefined application roles but you can grant individual permissions to any application roles that you create.	Grant and Revoke Permissions for Application Roles
Assign application roles to users	Give your users access to different features by granting them application roles.	Assign Application Roles to Users
Assign application roles to groups	Grant access to users more quickly through groups. Give a group of users access rather than to individual users.	Assign Application Roles to Groups

Task	Description	More Information
Add members and actions to application roles	Grant access to Oracle Analytics Cloud features in a different way. Go to the application role and assign users and groups from there.	Add Members to Application Roles

About Users and Groups

Identity domain administrators use *Oracle Cloud Infrastructure Console* to manage users and set up user groups for Oracle Analytics Cloud.

After the user accounts are set up in Oracle Cloud Infrastructure Console, Oracle Analytics Cloud administrators can use the **Users and Roles** page in Oracle Analytics Cloud to give individual users or groups permissions through application roles. See About Application Roles and Add Members to Application Roles.

Add a User or a Group

Use Oracle Cloud Infrastructure Console to add users and assign them to suitable user groups.

The way that your identity domain administrator manages users for Oracle Analytics Cloud depends whether identity domains are available in your Oracle Cloud account. See About Setting Up Users and Groups.

Oracle Cloud Infrastructure Console - Option to Assign Basic Application Roles

Your identity domain administrator's main job is to set up users and groups. However, they can also use Oracle Cloud Infrastructure Console to grant users basic permissions in Oracle Analytics Cloud by assigning these three application roles: ServiceAdministrator, ServiceUser, ServiceViewer.

Application Roles Available in Oracle Cloud Infrastructure Console	Permissions in Oracle Analytics Cloud
ServiceAdministrator	Member of **BI Service Administrator**, **BI Data Model Author**, and **BI Data Load Author**. Allows users to administer Oracle Analytics Cloud and delegate privileges to others. The user who creates the service is automatically assigned this application role.
ServiceUser	Member of **BI Content Author** and **DV Content Author**. Allows users to create and share content.
ServiceViewer	Member of **BI Consumer** and **DV Consumer**. Allows users to view and explore content.
ServiceDeployer	Not used in Oracle Analytics Cloud.
ServiceDeveloper	Not used in Oracle Analytics Cloud.

About Application Roles

An application role comprises a set of permissions that determine what users can see and do after signing in to Oracle Analytics Cloud. It's your job as an administrator to assign users and groups to one or more application roles.

There are two types of application role:

Type of Application Role	Description
Predefined	Include a fixed set of permissions.
User-defined	Created by administrators. See Add Your Own Application Roles.

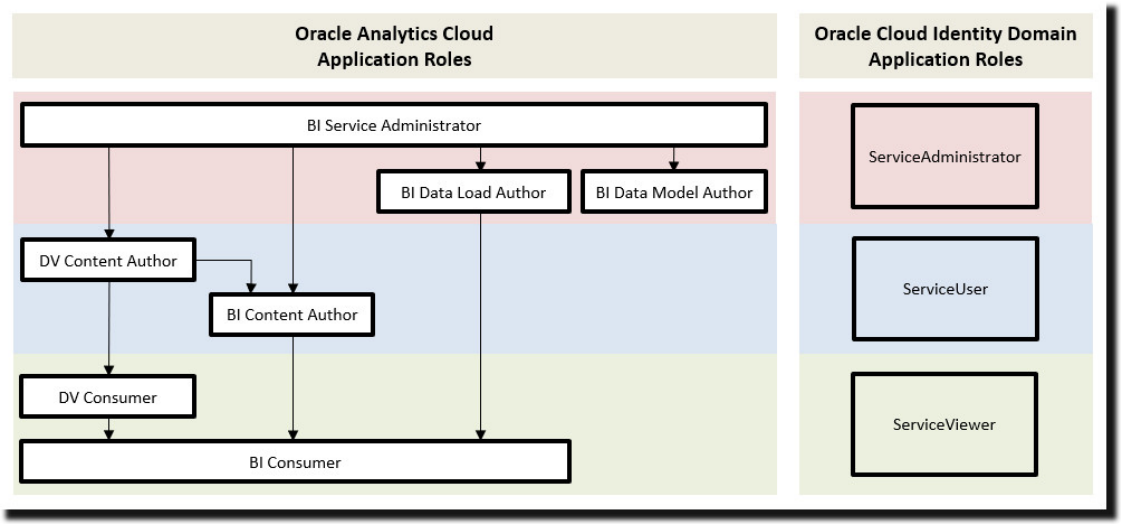
Predefined Application Roles

Oracle Analytics Cloud provides several predefined application roles to get you started. In many cases, these predefined application roles are all that you need.

This diagram illustrates the predefined application role hierarchy and how they map to the default application roles in your identity domain (ServiceAdministrator, ServiceUser, ServiceViewer). When a user is a member of an application role (such as **DV Content Author**) that's also a member of another application role in the hierarchy (such as **DV Consumer**), the user becomes an *indirect member* of the second application role.

For example:

- **BI Service Administrator** - The diagram shows that a member of the **BI Service Administrator** application role is an indirect member of all the other predefined application roles (**BI Data Model Author**, **BI Data Load Author**, **BI Consumer**, and so on). This means that users with the **BI Service Administrator** application role, can automatically do everything that these individual application roles allow. For example, if you add a new administrative user (John), you don't need to give John every application role. Instead, you simply give John the **BI Service Administrator** application role and this grants him all the available permissions.
- **DV Content Author** - The diagram shows that a member of the **DV Content Author** application role becomes and indirect member of the **BI Content Author**, **DV Consumer**, and **BI Consumer** application roles. So, if you give a user the **DV Content Author** application role, that user can create, share, explore, and view data visualizations, and they can also create, share, run, and view analyses and dashboards.



Predefined Application Roles in Oracle Analytics Cloud	Description
BI Service Administrator	Allows users to administer Oracle Analytics Cloud and delegate privileges to others using the Console. This application role is assigned all the available permissions.
BI Data Model Author	Allows users to create and manage semantic models in Oracle Analytics Cloud using Semantic Modeler.
BI Dataload Author	Not used.
DV Content Author	Allows users to create workbooks, connect to data and load data for data visualizations, and explore data visualizations.
BI Content Author	Allows users to create analyses, dashboards, and pixel-perfect reports, and share them with others.
DV Consumer	Allows users to explore data visualizations.
BI Consumer	Allows users to view and run reports in Oracle Analytics Cloud (workbooks, analyses, dashboards, pixel-perfect reports). Use this application role to control who has access to the service.

You can’t delete predefined application roles or remove default memberships.

Application roles can have users, groups, or other application roles as members. This means that a user who is a member of one application role might indirectly be a member of other application roles.

About Permissions

Permissions allow you to perform specific actions in Oracle Analytics Cloud. Administrators can grant specific permissions to application roles.

Permissions in Oracle Analytics Cloud

This table lists Oracle Analytics Cloud permissions.

Category	Resource Type	Permission	Description	Predefined Application Role
Catalog	**Connections**	**Create and Edit Connections**	Create and edit connections.	DV Content Author
		Create and Edit Connections to OCI Data Science with Resource Principal	Create and edit connections to Oracle Cloud Infrastructure Data Science using a resource principal. Not used in Oracle Analytics Server.	BI Service Administrator
		Create and Edit Connections to OCI Document Understanding with Resource Principal	Create and edit connections to Oracle Cloud Infrastructure Document Understanding using resource principal. Not used in Oracle Analytics Server.	BI Service Administrator
		Create and Edit Connections to OCI Functions with Resource Principal	Create and edit connections to Oracle Cloud Infrastructure Functions using a resource principal. Not used in Oracle Analytics Server.	BI Service Administrator
		Create and Edit Connections to OCI Language with Resource Principal	Create and edit connections to Oracle Cloud Infrastructure Language using a resource principal. Not used in Oracle Analytics Server.	BI Service Administrator
		Create and Edit Connections to OCI Vision with Resource Principal	Create and edit connections to Oracle Cloud Infrastructure Vision using a resource principal. Not used in Oracle Analytics Server.	BI Service Administrator
	Data Flows	**Create and Edit Data Flows**	Create and edit data flows.	DV Content Author
		Create and Edit Sequences	Create and edit sequences.	DV Content Author
	Datasets	**Create and Edit Datasets**	Create and edit datasets.	DV Content Author
	Workbooks	**Create and Edit Watchlists**	Create and edit watchlists.	DV Content Author
		Create and Edit Workbooks	Create and edit workbooks.	DV Content Author
		Export Workbooks to Documents	Export workbooks to documents, such as PDF.	BI Consumer
		Schedule Workbooks	Set up and edit schedules for workbooks. Not used in Oracle Analytics Server.	BI Service Administrator
		Schedule Workbooks with Bursting	Set up and edit schedules for workbooks with bursting. Not used in Oracle Analytics Server.	BI Service Administrator

Category	Resource Type	Permission	Description	Predefined Application Role
		Schedule Workbooks with RunAs User	Set up and edit schedules for workbooks with RunAs user. Not used in Oracle Analytics Server.	BI Service Administrator
		View Navigation Menu	View the curated list of dashboards and workbooks.	BI Consumer
Administration	**System**	**Mange Console Connections**	Create and manage connections.	BI Service Administrator
		Manage Content	View a list of everyone's content and change ownership.	BI Service Administrator
		Manage Extensions	Upload, download, and delete custom plug-ins (custom visualization types or custom data actions).	BI Service Administrator
		Manage Maps	Set up map information for dashboards and analyses, so users can visualize and interact with data through maps.	BI Service Administrator
		Manage Virus Scanner Configuration	Configure a virus scanner to scan any files uploaded to Oracle Analytics.	BI Service Administrator

Configure What Users Can See and Do

Administrators assign application roles to determine what other users can see and do in Oracle Analytics Cloud.

Topics:

Get Started with Application Roles

Administrators configure what users see and do in Oracle Analytics Cloud from the **Users and Roles** page in the Console. This page presents user information in four different views: User, Groups, Application Roles, Permissions.

Users and Roles Page	Description
Users tab	Lists users from the identity domain associated with your Oracle Analytics instance. From the Users tab, you can: • Discover the groups and application roles that each user directly belongs to. • Discover the permissions granted directly to a user. • Add or remove application roles assigned to a user. • Remove permissions granted directly to a user. • Generate a report that lists the groups or application roles assigned to a user, either directly or indirectly. You can’t add or remove user accounts through the Users tab. Use your identity management system to manage user accounts. It's best practice to assign permissions to application roles. You can't grant permissions to a user. However, if the user already has permission grants (for example, though migration from an on-premise environment), you can remove these permission grants from the user.
Groups tab	Lists user groups from the identity domain associated with your Oracle Analytics instance. From the Groups tab, you can: • Discover the members (users or groups) directly assigned to each group. • Discover the application roles or any other groups that a group is directly assigned to. • Add or remove application roles assigned to a group. You can’t add or remove user groups through the Groups tab. Use your identity management system to manage user groups.

Users and Roles Page	Description
Application Roles tab	Lists the predefined application roles for Oracle Analytics and any user-defined application roles that you add. From the Application Roles tab, you can: • Create your own application roles. • Discover the members (users, groups, application roles) directly assigned to each application role. • Discover the permissions directly granted to each application role. • • Add members or remove members from each application role. • Discover whether an application role is a member of any other application role. • Add or remove memberships for each application role. • Grant permissions to user-defined application roles. • Remove permissions from user-defined application roles. • Generate a report that lists the users assigned to an application role, either directly or indirectly. • Generate a report that lists the groups (or IDCS application roles) assigned to an application role, either directly or indirectly. • Generate a report that lists other application roles assigned to an application role, either directly or indirectly. • Generate a report that lists any other application roles an application role is assigned to, either directly or indirectly.
Permissions tab	Lists the permissions available in Oracle Analytics. From the Permissions tab, you can: • Search for permissions and filter the permissions list. • Discover the application roles a permission is directly assigned to. • Discover the users a permission is directly assigned to.

Add Members to Application Roles

Application roles determine what users are allowed to see and do in Oracle Analytics Cloud. It's the administrator's job to assign appropriate application roles to all users and to manage the privileges of each application role.

Remember:

- Members (users, groups, and other application roles) get the permissions granted to an application role.
- Application roles can get permissions granted to other application roles. For example, DV Content Author gets the permissions granted to BI Content Author, DV Consumer, and BI Consumer.

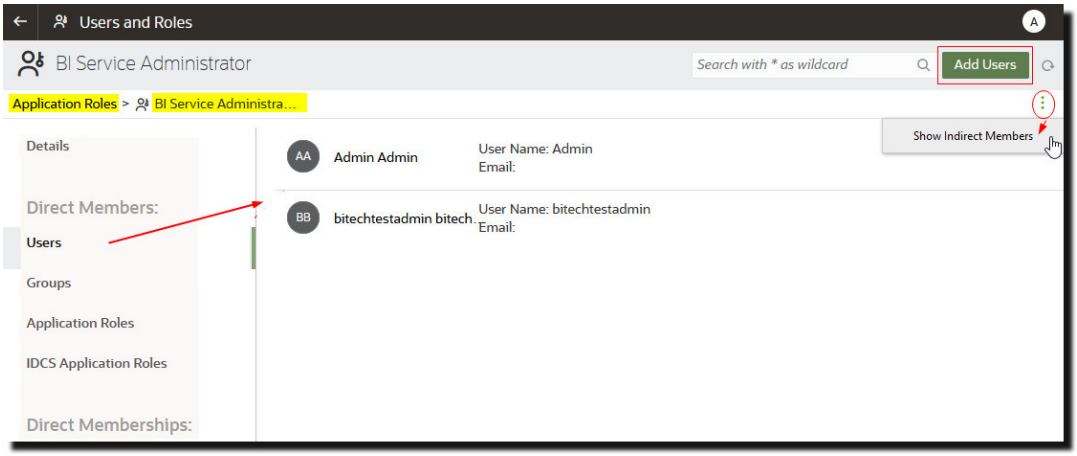
You use the **Users and Roles** page in the Console to assign members to an application role.

1. Click **Console**.
2. Click **Users and Roles**.
3. Click **Application Roles**.

   All the predefined application roles are displayed, together with any user-defined application roles that you've added.
4. Select the name of an application role for more detail, and to see its current members.

5. Under **Direct Members**, click **Users**, **Groups**, or **Application Roles** to view the current, direct members in each category.

   For example, if you click **Users** you see a list of users directly assigned to the application role.



6. To see a list of *all* the members in the selected category that are assigned to the application role (both directly and indirectly), click the menu icon and select **Show Indirect Members**.

7. To add a new member (user, group, application role, IDCS application role) to the application role, click **Add Users**, **Add Groups**, or **Add Application Roles**, select one or more members, and then click **Add**.

8. To remove a member from the application role, click the **Delete** icon  next to the member's name.

Why Is the Administrator Application Role Important?

You need the **BI Service Administrator** application role to access administrative options in the Console.

There must always be at least one person in your organization with the **BI Service Administrator** application role. This ensures there is always someone who can delegate permissions to others. If you remove yourself from the **BI Service Administrator** role you'll see a warning message.

If no-one has administrative access to Oracle Analytics Cloud, ask your identity domain administrator to add a user to the **ServiceAdministrator** IDCS application role. **ServiceAdministrator** is assigned through the identity management system and is always assigned to the **BI Service Administrator** application role in a regular Oracle Analytics Cloud service instance.

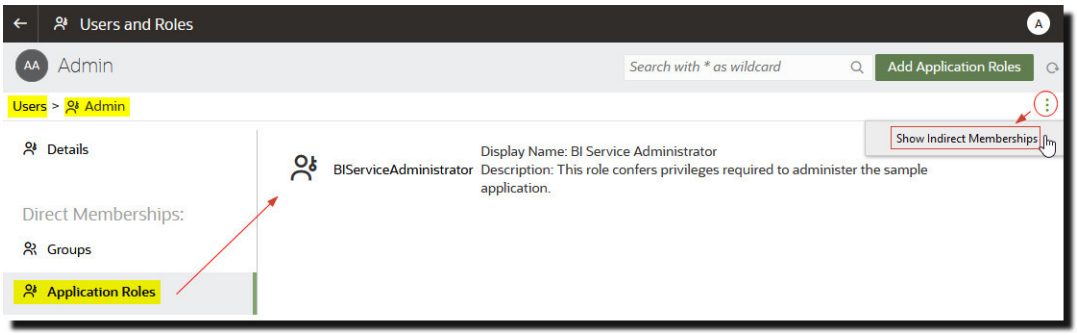
Assign Application Roles to Users

The Users page lists the users from the identity domain associated with your Oracle Analytics Cloud instance. As an administrator, you can assign these users to the appropriate application roles.

1. Click **Console**.

2. Click **Users and Roles**.
3. Click **Users**.
4. On the Users page, click the name of a user.

   To filter the list by name, enter all or part of a user name in the **Search** filter and press enter. If you enter part of the name use * as the wild card. The search is case-insensitive, and searches both name and display name. For example, enter `*admin*` to search for any user that includes the letters `admin`.
5. In the Details page for the user, click **Application Roles** to see a list of application roles directly assigned to this user.



6. Click the menu icon, and select **Show Indirect Memberships** to see a list of *all* the application roles assigned to the user, that is, assigned both directly and indirectly.
7. To assign the user to an additional application role, click **Add Application Roles**.
8. In **Add *user* to Application Roles**, select one or more application roles from the list, and then click **Add**.
9. To remove an application role from the user, click the **Delete** icon  next to the name of the application role you want to delete.

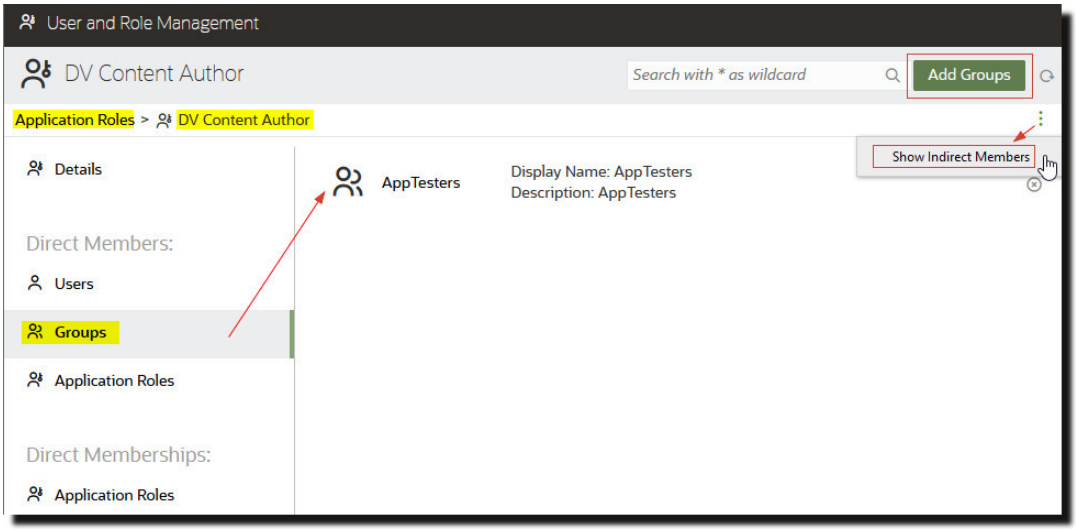
Assign Application Roles to Groups

The Groups page lists user groups from the identity domain associated with the Oracle Analytics Cloud instance. It's best practice to assign application roles to groups rather than to users.

1. Click **Console**.
2. Click **Users and Roles**.
3. Click **Application Roles**.

   All the predefined application roles are displayed, together with any application roles that you've added.
4. Select the name of the application role you want to assign to a group.
5. Under **Direct Members**, click **Groups** to view the groups currently assigned to this application role.

   For example, there is a group called AppTesters directly assigned to the DV Content Author application role.



6. To see a list of *all* the groups that are assigned to the application role (both directly and indirectly), click the menu icon and select **Show Indirect Members**.
7. To assign a new group of users to the application role, click **Add Groups**, select one or more groups, and then click **Add**.
8. To remove a group from the application role, click the **Delete** icon next to the group's name.

Add Your Own Application Roles

Oracle Analytics Cloud provides a set of predefined application roles. You can also create user-defined application roles to suit your own requirements. For example, you might create an application role that allows only a select group of people to view specific folders or workbooks. Or you might create an application role with specific permissions assigned to it.

You can create an application role in two ways:

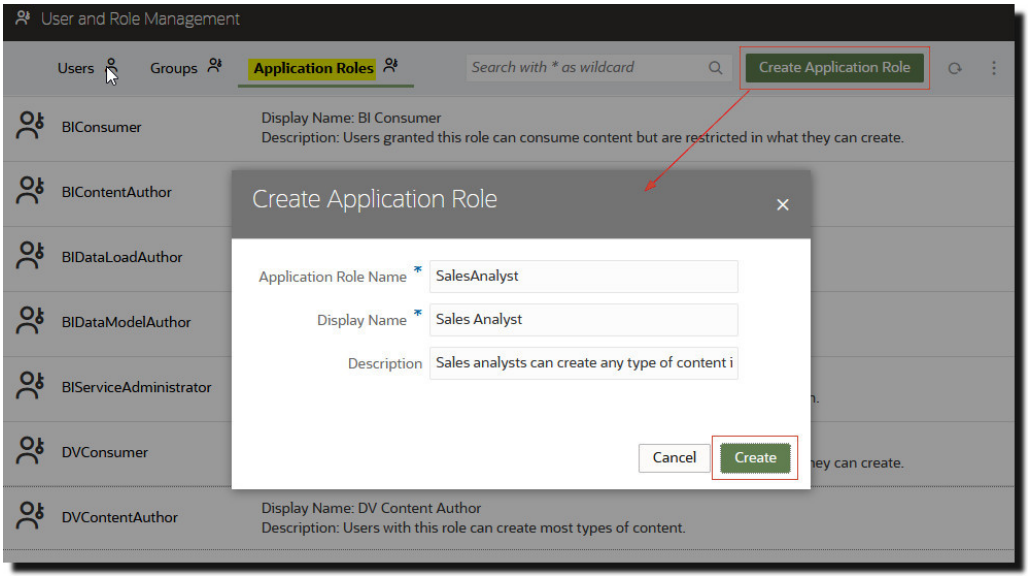
- Create an application role from scratch (no permissions).
- Create an application role with the same permissions as one of the predefined application roles.

After creating the application role, you can grant permissions and add members (users, groups, or other application roles).

1. Click **Console**.
2. Click **Users and Roles**.
3. Click **Application Roles**.
4. Do one of the following:

   Create an application role from scratch (no permissions):

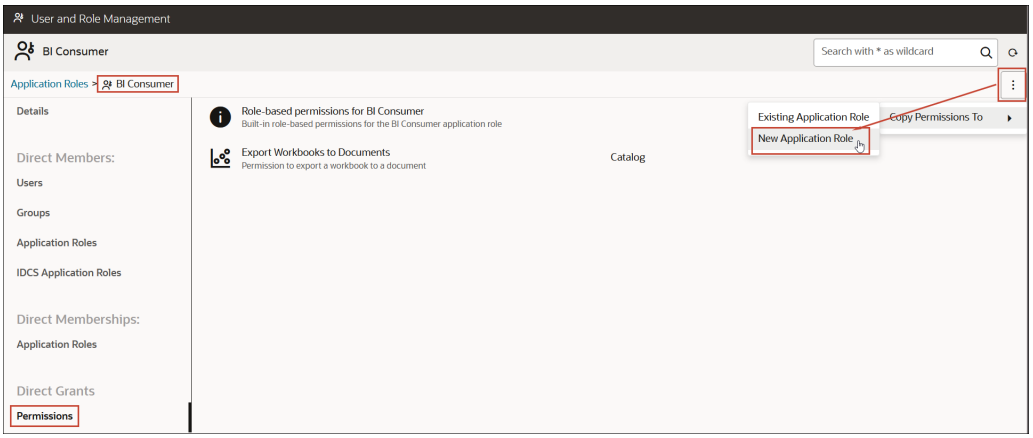
   - Click **Create Application Role**.



Copy the permissions from a predefined application role to a user defined application role:

> **Note:**
>
> In this step, you're copying the permission grants for the predefined application role that you choose. You aren't copying the application role's members or memberships.

- Click the name of the application role you want to copy. For example, BIConsumer.
- Click **Permissions**.
- Click the action menu, and select **Copy Permissions To** and then select **New Application Role**.



5. Enter suitable values for **Application Role Name**, **Display Name**, and **Description**.

   The **Application Role Name** can contain alphanumeric characters (ASCII or Unicode) and other printable characters (such as underscore or square brackets). The **Application Role Name** must not contain any white space.

6. Click **Create**.

   When you create an application role from scratch, it doesn't start with any members or permissions. When you copy the permissions from one of the predefined application roles, the application role starts with the same permissions as the role that you copied.

7. Grant permissions to the application role.

   a. Under **Direct Grants**, select **Permissions**.

   b. Click **Add Permissions**.

      This option is available only to user-defined application roles.

   c. Select one or more permissions, and then click **Add**.

8. Add members (users, groups, or application roles) to the new application role.

   a. Under **Direct Members**, select the type of member you want to add: **Users**, **Groups**, or **Application Roles**.

   b. Click **Add Users**, **Add Groups**, or **Add Application Roles**.

   c. Select one or more members, and then click **Add**.

9. Optional: Create hierarchical relationships between other application roles.

   a. Under **Direct Memberships**, click **Add to Application Roles**.

   b. Select all the application roles you want this application role to inherit privileges from, and then click **Add**.

Copy Permissions to an Existing User-Defined Application Role

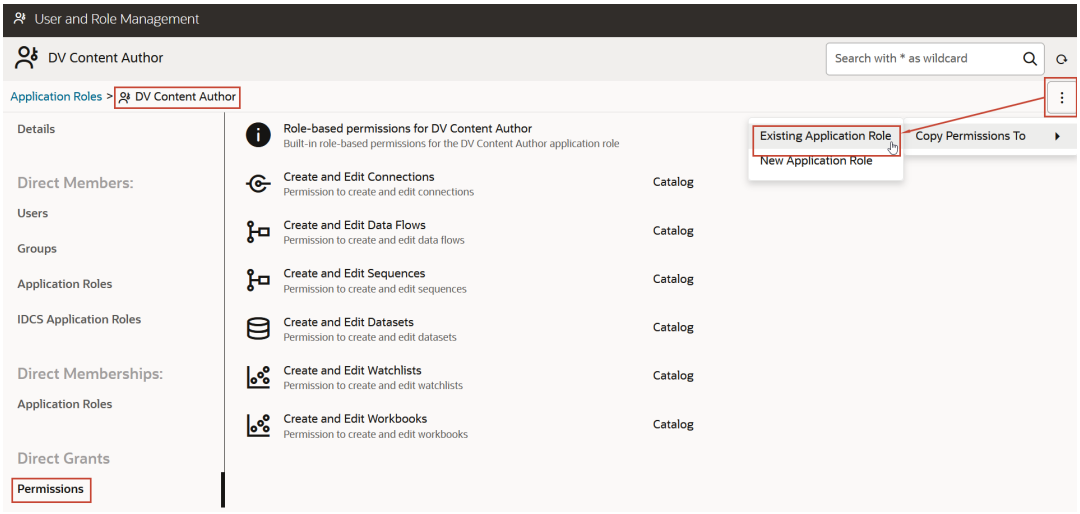
You can copy the permissions directly granted to a predefined application role to a user-defined application role.

After you copy permissions to an existing role, you can grant additional permissions or revoke any of the copied permissions. See Grant and Revoke Permissions for Application Roles.

1. Click **Console**.
2. Click **Users and Roles**.
3. Click **Application Roles**.
4. Click the name of a predefined application role.

   To filter the list by name, enter all or part of a name in the **Search** filter and press enter. If you enter part of the name use * as the wild card. The search is case-insensitive, and searches both name and display name. For example, enter `*admin*` to search for any user that includes the letters `admin`.

5. Click **Permissions** to see the permissions granted to the predefined application role.
6. Click the action menu, select **Copy Permissions To**, and then select **Existing Application Role**.



7. Select an existing application role and click **Copy**.

View Permissions Granted to Application Roles

You can see a list of permissions granted to each *user-defined* application role as well as permissions granted to the predefined application roles from the Application Roles page.

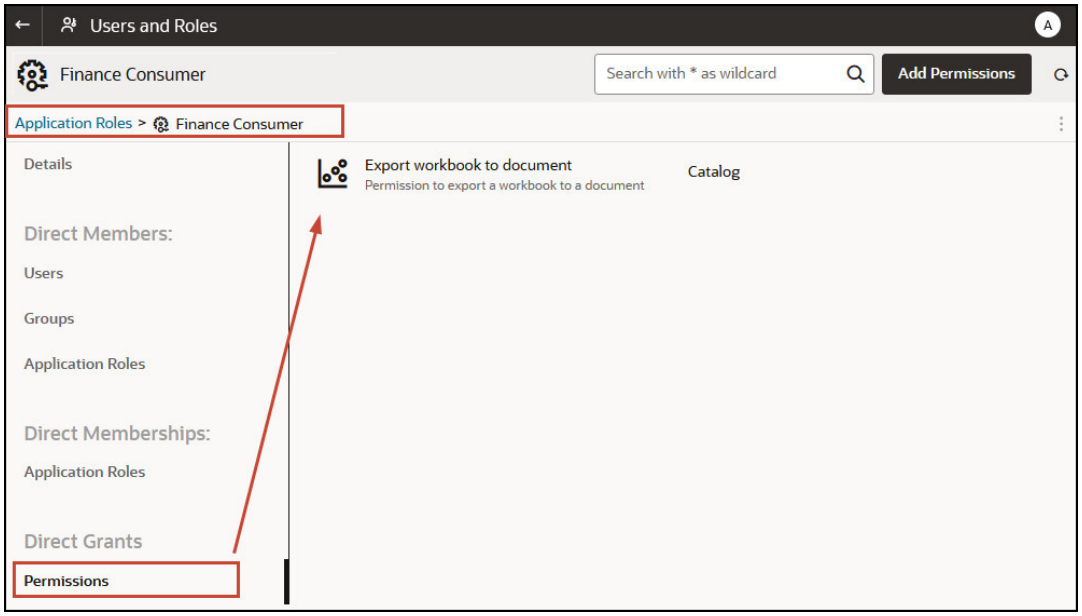
While you can view, add, and remove permissions for user-defined application roles, each predefined application role includes a fixed set of permissions that you can't change. Specifically, each predefined application role has a set of role-based permissions built into it which aren't listed individually, plus zero or more regular permissions which are listed individually but you can't remove them. For example, the predefined application role **BI Consumer** has built-in, role-based permissions plus the permission **Export Workbook to Document**.

1. Click **Console**.
2. Click **Users and Roles**.
3. Click **Application Roles**.
4. Click the name of an application role.

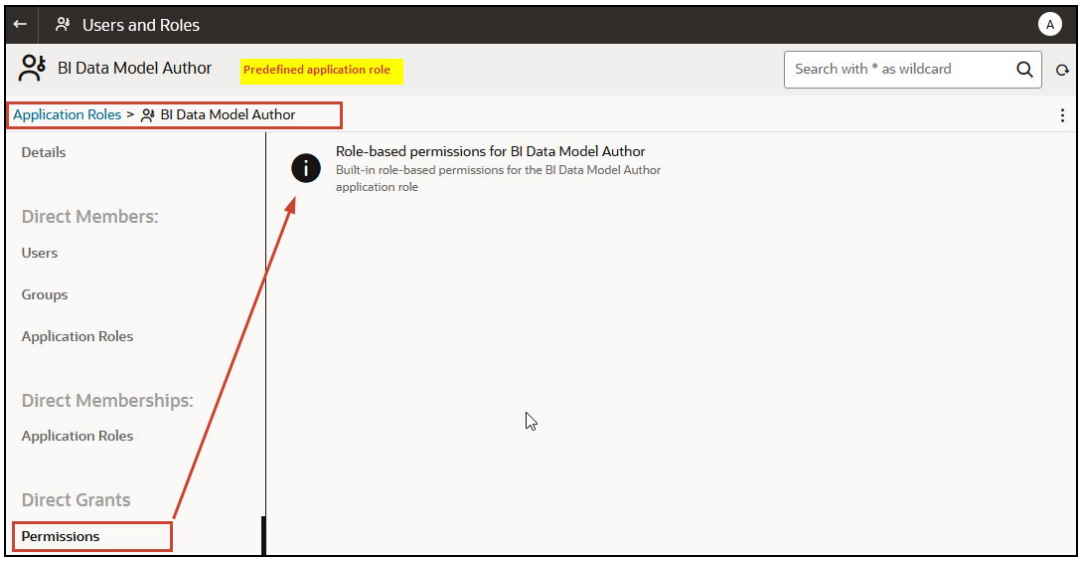
   To filter the list by name, enter all or part of a name in the **Search** filter and press enter. If you enter part of the name use * as the wild card. The search is case-insensitive, and searches both name and display name. For example, enter `*admin*` to search for any application role that includes the letters `admin`.
5. Click **Permissions** to see a list of permissions directly granted to the application role.

   When you select an application role that you created from scratch, you see a list of permissions granted to the role on the right. In this example, only one permission (**Export workbook to document**) is granted to an application role you created (**Finance Consumer**).

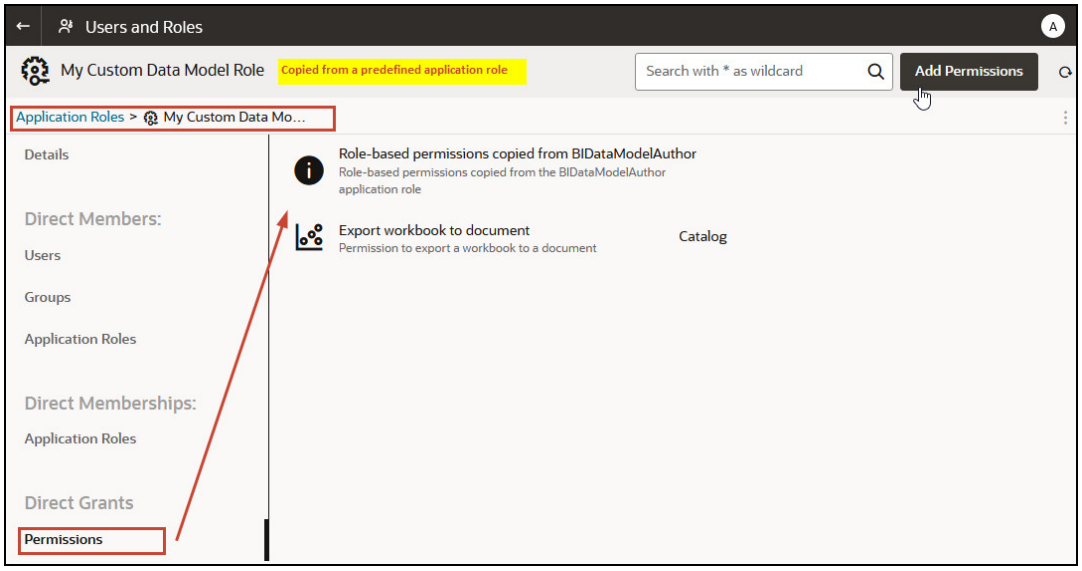
   You can add and delete permissions, as required.



When you select one of the predefined application roles, such as **BI Data Model Author**, you see a message indicating that the role contains a set of built-in, role-based permissions. You can't change the permissions granted to a predefined application role.



When you select a user-defined application role containing permissions copied from one of the predefined application roles, such as **BI Data Model Author**, you see a message indicating that the role contains a set of built-in, role-based permissions, plus any additional permissions assigned to the predefined application role, as well as any permissions that you granted the role.

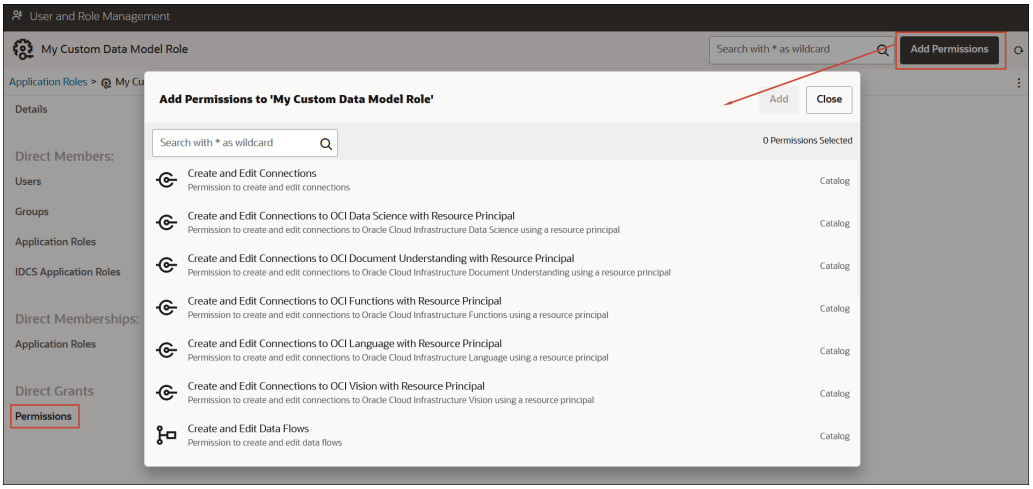


Grant and Revoke Permissions for Application Roles

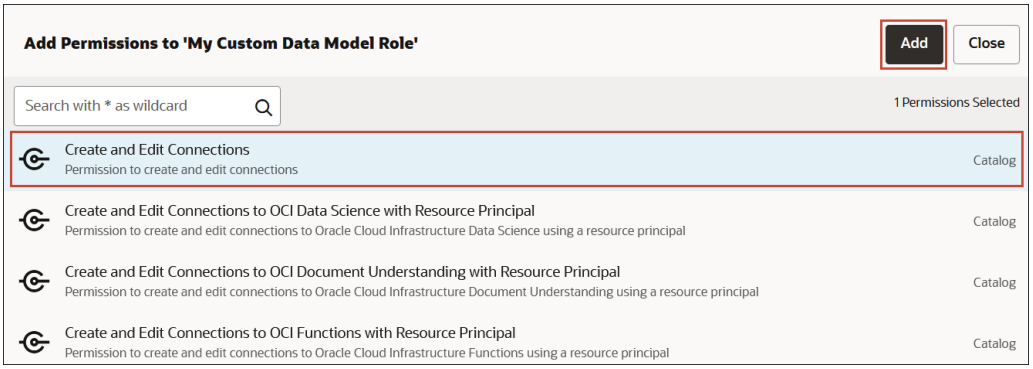
You can grant individual permissions to a *user-defined* application role or revoke permissions that are no longer required. For example, you might want to provide an application role that enables users to export their workbooks to a PDF by granting the permission *Export workbook to document*.

1. Click **Console**.
2. Click **Users and Roles**.
3. Click **Application Roles**.
4. Click the name of a user-defined application role.

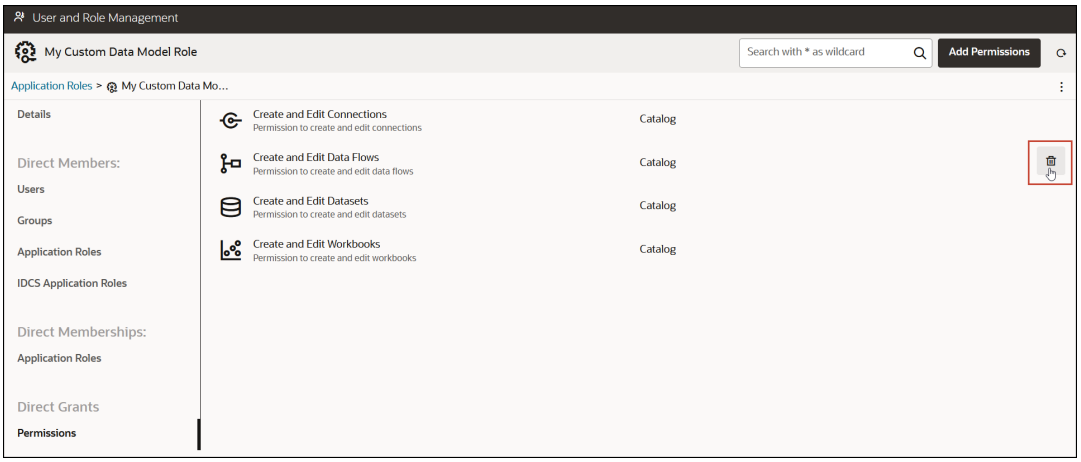
   To filter the list by name, enter all or part of a name in the **Search** filter and press enter. If you enter part of the name use * as the wild card. The search is case-insensitive, and searches both name and display name. For example, enter `*admin*` to search for any user that includes the letters `admin`.
5. Click **Permissions** to see the permissions granted to the user-defined application role.
6. To grant permissions to a user-defined application role.
   a. Click **Add Permissions**.



b. Select the permission you want, and click **Add**.



7. To revoke permissions from the application role.
   a. Navigate to the permission you want to revoke.
   b. Click the **Remove Permission** icon.
   c. To confirm, click **Remove**.



Delete Application Roles

You can delete user-defined application roles that you don't need anymore.

1. Click **Console**.
2. Click **Users and Roles**.
3. Click **Application Roles**.
4. Navigate to the user-defined application role you want to delete.
5. Click the **Delete** icon  next to the name of the application role you want to delete, and then click **Delete** to confirm.

Add One Predefined Application Role to Another (Advanced)

Oracle Analytics Cloud provides several predefined roles: BI Service Administrator, BI Data Model Author, BI Dataload Author, BI Content Author, DV Content Author, DV Consumer, BI Consumer. In a very few advanced use cases, you might want to *permanently* include one predefined application role in another.

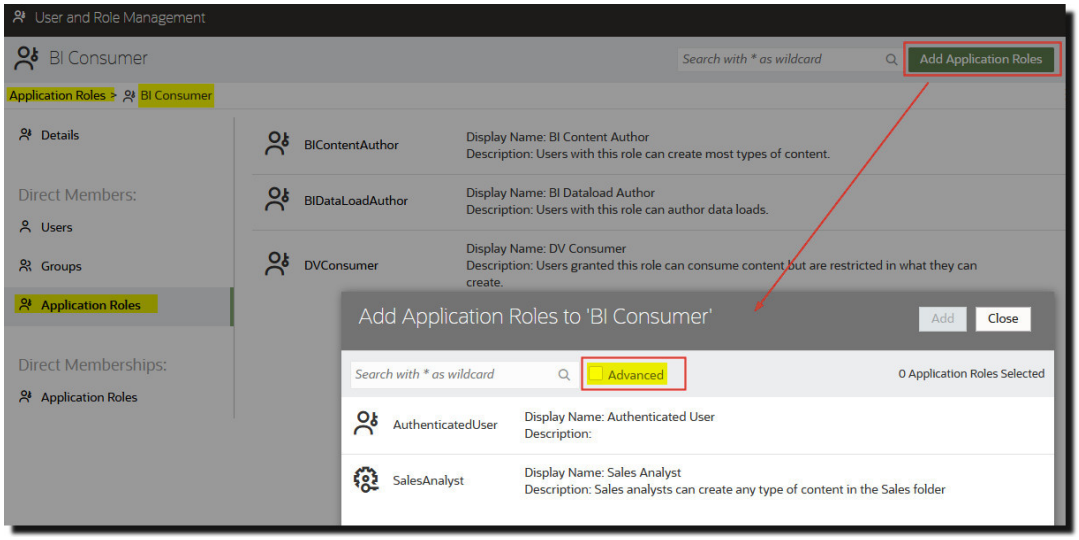
Any changes that you make to predefined application roles are permanent, so don’t perform this task unless you're sure you need to.

1. Take a snapshot of your system before making any predefined application role change.

   Oracle recommends that you always take a snapshot before you start, as the only way you can revert changes to predefined application roles is to restore your service from a snapshot that was taken *before* the change.

   a. Click **Console**.
   b. Click **Snapshots**.
   c. Click **Create Snapshot**.
2. In Console, click **Users and Roles**.
3. Click **Application Roles**.
4. Click the name of the predefined application role you want to change.
5. Under **Direct Members**, click **Application Roles** to see which application roles the selected application role is currently a member of.
6. Click **Add Application Roles**.

   By default, none of the predefined application roles are available.



7. To add a predefined application role, click **Advanced**.

> **WARNING:**
>
> A warning is displayed. Read the information carefully before you proceed. When you add one predefined application role to another, the change is permanent. The only way you can revert predefined application role changes is to restore a snapshot taken before the change.

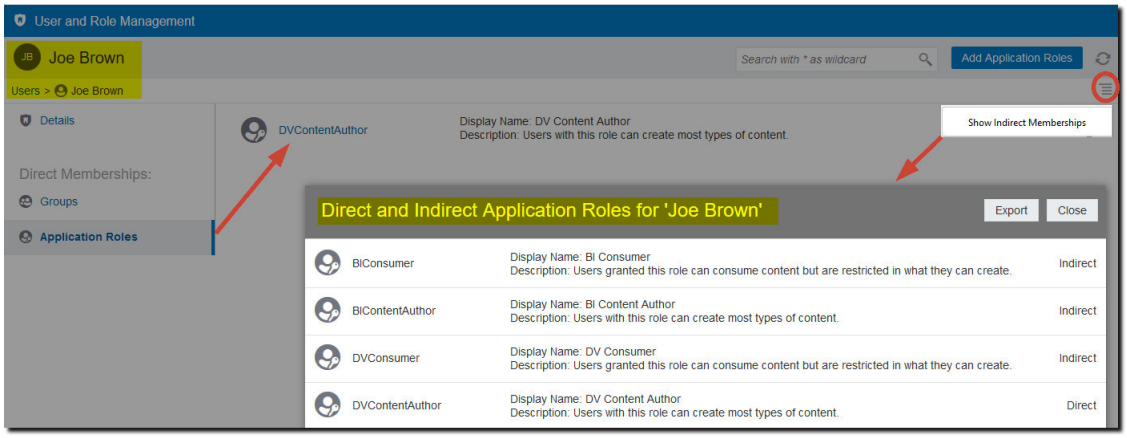
8. Click **OK** to confirm that you've taken a snapshot and you're sure you want to permanently modify the predefined application role you selected.
9. Select one or more predefined application roles from the list, and then click **Add**.
10. To reconfirm that you've taken a snapshot and want to permanently change the predefined application role, click **OK**.

View and Export Detailed Membership Data

Each application role in Oracle Analytics Cloud can have *direct* members, but they might also have one or more *indirect* members or memberships.

For example, Joe Brown is granted the DV Content Author application role. Joe is a direct member of the DV Content Author role and an indirect member of BI Consumer, BI Content Author, DV Consumer. You can view direct and indirect membership details from the **User and**

Role Management page and you can export this information to a CSV file.



1. Click **Console**.
2. Click **Users and Roles**.
3. To view direct and indirect membership data for a user:
   a. Click the **Users** tab.
   b. Select the name of the user whose membership details you want to see.
   c. Under **Direct Memberships**, click **Application Roles** to see a list of all the or application roles that the user you selected is *directly* assigned to.
   d. Click the menu icon, and select **Show Indirect Memberships** to see a list of *all* the or application roles that this user is both *directly* and *indirectly* assigned to.
4. To view direct and indirect membership data for an application role:
   a. Click the **Application Roles** tab.
   b. Select the name of the application role whose membership details you want to see.
   c. Under **Direct Members** (or **Direct Memberships**), click **Users**, **Groups**, or **Application Roles** to see a list of all the users, groups or application roles that the application role you selected is a *direct* member of (or *directly* assigned to).
   d. Click the menu icon, and select **Show Indirect Members** (or **Show Indirect Memberships**) to see a list of *all* the users, groups, or application roles that this group is both *directly* and *indirectly* a member of (or assigned to).
5. To export both direct and indirect membership data to a CSV file, click **Export**.

Download Membership Data

After displaying a list of the direct and indirect members for a user, group, or application role in Oracle Analytics Cloud, you can download the report to a Comma Separated Values file (.csv).

1. From the **Direct and Indirect *Users*** | ***Groups*** | ***Application Roles*** view, click **Export**.

   The direct and indirect members for the selected user, group, or application role are exported to a file named `RoleReport.csv`.
2. Do one of the following:
   - Click **Open** to open the CSV file in an application of your choice.
   - Click **Save** to save the CSV file to a location of your choice.

Sample Scenarios: User-defined Application Roles

Here are some common scenarios for creating your own application roles .

Topics:

Allow a User to Export Workbooks to PDF

You can give users permission to perform specific actions in Oracle Analytics. For example, you can enable users to export workbooks to PDF through an application role that includes the *Export Workbook to Document* permission.

> **Note:**
>
> The predefined application role **BI Consumer** includes the permission *Export Workbook to Document*. This means that any user who is a member of **BI Consumer** (either directly or indirectly) automatically has this permission.

1. Create a new application role called **Allow Document Export** (or use a similar name).

   See Add Your Own Application Roles.
2. Add the permission **Export Workbook to Document**.

   See Grant and Revoke Permissions for Application Roles.
3. Assign the new application role **Allow Document Export** to a user or a group.

   See Assign Application Roles to Users or Assign Application Roles to Groups.
4. Give users with the **Allow Document Export** application role access to one or more workbooks.

   These users can access workbooks and export the content to PDF.

   See Add or Update Workbook Permissions.

Prevent a User with the BI Consumer Role from Exporting Workbooks to PDF

You can prevent users from performing specific actions in Oracle Analytics. For example, you might want to provide an application role that prevents users with the **BI Consumer** role from exporting workbooks to a PDF by removing the permission *Export Workbook to Document*.

1. Copy the **BI Consumer** application role and name the copy **BI Consumer (prevent export)** (or use a similar name).
   a. Use the option **Copy Permissions to a New Application Role** to create an application role with the same permission set as **BI Consumer**.

b. Provide a suitable name and description for the new role. For example, **BI Consumer (prevent export)**.

See Add Your Own Application Roles.

2. Remove the **Export Workbook to Document** permission.

   See Grant and Revoke Permissions for Application Roles.

3. Assign the new application role **BI Consumer (prevent export)** to a user or a group.

   See Assign Application Roles to Users or Assign Application Roles to Groups.

4. Remove the predefined application role **BI Consumer** from the user or group.

5. Give users with the **BI Consumer (prevent export)** application role access to one or more workbooks and access to the folders where the workbooks are saved.

   When you give the **BI Consumer (prevent export)** application role access to the workbook, you must accept the option to cascade access to any datasets used by the workbook. That is, select the option **Share related artifacts to ensure the workbook is usable** in the **Share Related Artifacts** dialog that displays when you save changes to workbook permissions. See Add or Update Workbook Permissions.

   These users can access workbooks but they can't export the content to PDF.

   See Add or Update Workbook Permissions.

Allow a User to Create Datasets and Workbooks

You can give users permission to perform specific actions in Oracle Analytics. For example, you can enable users to create datasets and workbooks, and access and modify datasets and workbooks through an application role that includes the *Create and Edit Datasets* and *Create and Edit Workbooks* permissions.

> **Note:**
>
> The predefined application role **DV Content Author** includes the permissions *Create and Edit Datasets* and *Create and Edit Workbooks*. This means that any user who is a member of **DV Content Author** (either directly or indirectly) automatically has these permissions.

1. Create a new application role called **Allow Dataset and Workbook Creation** (or use a similar name).

   See Add Your Own Application Roles.

2. Add the permissions **Create and Edit Datasets** and **Create and Edit Workbooks**.

   See Grant and Revoke Permissions for Application Roles.

3. Assign the new application role **Allow Dataset and Workbook Creation** to a user or a group.

   See Assign Application Roles to Users or Assign Application Roles to Groups.

4. Give users with the **Allow Dataset and Workbook Creation** application role access to one or more datasets and one or more workbooks.

   These users can access and edit datasets and workbooks, and create datasets and workbooks.

   See Add or Update Workbook Permissions.

Prevent a User with the DV Content Author Role from Creating or Modifying Specific Object Types

You can prevent users from performing specific actions in Oracle Analytics. For example, you might want to provide an application role that prevents users with the **DV Content Author** role from creating and modifying connections, data flows, sequences, and watchlists.

1. Copy the **DV Content Author** application role and name the copy **DV Content Author (limited create and modify)** (or use a similar name).
   a. Use the option **Copy Permissions to a New Application Role** to create an application role with the same permission set as **DV Content Author**.
   b. Provide a suitable name and description for the new role. For example, **DV Content Author (limited create and modify)**.

   See Add Your Own Application Roles.
2. Remove the **Create and Edit Connections**, **Create and Edit Data Flows**, **Create and Edit Sequences**, and **Create and Edit Watchlists** permissions.

   See Grant and Revoke Permissions for Application Roles.
3. Assign the new application role **DV Content Author (limited create and modify)** to a user or a group.

   See Assign Application Roles to Users or Assign Application Roles to Groups.
4. Remove the predefined application role **DV Content Author** from the user or group.
5. Give users with the **DV Content Author (limited create and modify)** application role access to one or more workbook and datasets and access to the folders where the workbooks and datasets are saved.

   When you give the **DV Content Author (limit create and modify)** application role access to the workbook, you must accept the option to cascade access to any artifacts used by the workbook. That is, select the option **Share related artifacts to ensure the workbook is usable** in the **Share Related Artifacts** dialog that displays when you save changes to workbook permissions. See Add or Update Workbook Permissions.

   These users can access, create, and modify datasets and workbooks, but can't create and modify connections, data flows, sequences, and watchlists.

   See Add or Update Workbook Permissions.

3

Take Snapshots and Restore

This topic describes how to back up and restore application content using a file called a snapshot.

Video

Topics:

Typical Workflow to Take Snapshots and Restore

Here are the common tasks to back up and restore your content with snapshots using the Console.

> **Note:**
>
> You can also manage snapshots using the REST API. The Snapshots page in Oracle Analytics Cloud Console lists the snapshots that you take using the Console. Snapshots that you take and register using the REST API don't display in the Snapshots page. See Manage Snapshots Using REST APIs.

Task	Description	More Information
Take a snapshot	Capture content and settings in your environment at a point in time.	Take a Snapshot
Schedule regular snapshots (backups)	Take snapshots regularly, as part of your business continuity plan to minimize data loss.	Schedule Regular Snapshots (Backups)
Restore from a snapshot	Restore the system to a previously working state.	Restore from a Snapshot
Delete a snapshot	Delete unwanted snapshots.	Delete Snapshots
Download a snapshot	Save a snapshot to a local file system.	Export Snapshots
Upload a snapshot	Upload content from a snapshot that is stored on a local file system.	Import Snapshots
Migrate content using a snapshot	Migrate content to another environment.	Migrate Oracle Analytics Cloud Using Snapshots

About Snapshots

A snapshot captures the state of your environment at a point in time. Snapshots don’t include data that's hosted on external data sources.

Backup and Restore

Take a snapshot of your environment before people start using the system and again at suitable intervals so you can restore the environment if something goes wrong. You can export and store snapshots on your local file system or cloud storage and import them back to your system if they’re required to restore content. The snapshot file that you download is a compressed archive file (BAR file).

You can keep up to 40 snapshots online and export as many as you want to offline storage. See Export Snapshots.

Oracle Analytics Cloud automatically takes a snapshot when someone publishes changes to the semantic model and keeps the 5 most recent snapshots in case you unexpectedly need to revert to an earlier model version. The minimum interval between these automatically generated snapshots is one hour.

> **Note:**
>
> You can take and restore snapshots using the Console or REST API. The Snapshots page in the Console lists the snapshots that you take using the Console. See Take Snapshots and Restore Information. Snapshots that you take and register using the REST API don't display in the Snapshots page. See Manage Snapshots Using REST APIs.

Content Migration

Snapshots are also useful if you want to migrate your content to another environment. For example, you might want to :

- Migrate content you created in a development or test environment to a production environment.
- Migrate content you created in a different Oracle product and exported to a snapshot (BAR file).
  You can generate and migrate BAR files from several Oracle products.
  - Oracle Analytics Cloud
  - Oracle Analytics Server
  - Oracle BI Enterprise Edition

When you restore a snapshot taken from a different environment:

- The snapshot must be taken from an environment at the same version (or earlier version) as the target environment.
  For example, if you take a snapshot of an Oracle Analytics environment that includes the May 2022 update, you can restore it on other Oracle Analytics environments that include the May 2022 update or a later update (such as July 2022). You can't restore this snapshot on an Oracle Analytics environment that includes an earlier update, such as March 2022.
- Catalog objects that your target environment doesn’t support aren't migrated.

- In most cases, you must upload the data associated with your datasets on the target environment.

Exclusions

There are a few items that aren't included in a snapshot:

- Data files - XLSX, XLS, CSV, or TXT files that users upload to create datasets. You can include references to data files but not the actual files.
- Map layers and backgrounds - Custom map layers and map backgrounds that users upload to enhance their visualizations and reports.
- Snapshot list - The list of snapshots that you see on the Snapshot page.

Options When You Take a Snapshot

When you take a snapshot you choose the content you want to include in it. You can take a snapshot of your entire environment (everything) or specify only specific content that you want to back up or migrate (custom).

- **Everything** - Saves your entire environment in the snapshot. This option is useful if you want to:
  - Back up everything in case something goes wrong.
  - Migrate everything to a new environment.
  - Clone an existing environment.
- **Custom** - You select which content to save in the snapshot. Some content types are always included while others are optional.

Snapshot Option	Description	Optional?
Data	Data visualization content that users create (Data tab).	
– Datasets	Datasets that users create for data visualizations and data flows.	Always included
– File-based Data	File-based data that users upload to create datasets. For example, data uploaded from a spreadsheet. This option captures references to your data files. Actual data files aren't included in the snapshot.	Optional
– Connections	Data connections that users create so they can visualize their data.	Always included
– Data Flows	Data flows that users create for data visualization.	Always included
– Sequences	Sequences that users create for data visualization.	Always included
– Data Replications	Data replications that users create for data visualization.	Optional
– Semantic Models and Subject Areas	Semantic models that users develop (SMML) and semantic models that users deploy (RPDs).	Always included

Snapshot Option	Description	Optional?
Machine Learning	Machine learning models that users create from data flows.	Always included
Jobs	Jobs that users schedule for data flows, sequences, data replications, and pixel-perfect reports.	Optional
Plug-ins and Extensions	Extensions that users upload to implement custom visualizations and custom maps.	Optional
Configuration and Settings	Service configuration and settings configured through Console. For example, mail settings, database connections, safe domains, data connectivity configurations, and so on. **Note**: System settings aren't included in the snapshot.	Optional
Day by Day	Day by Day content such as the "For You" feed, bring backs, comments, and shared cards.	Optional
Application Roles	– User-defined application roles that administrators create through Console. – Membership details for each application role, that is, the users, groups, and other application roles assigned to each application role.	Always included
Credentials	– **Data connections:** Credentials and other connection parameters, such as host, port, user name, and password. If you exclude credentials, you must reconfigure the connection details after you restore the snapshot. – **Cloud storage:** Credentials required to access cloud storage where file-based data that users upload is stored. If you include file-based data in your snapshot, include the storage credentials if you plan to migrate the content to another environment. If you exclude credentials, you can use the Data Migration utility to download and then upload your data files separately.	Optional

Snapshot Option	Description	Optional?
Classic Content	Content that users create in Oracle Analytics Cloud, such as workbooks, analyses, dashboards, and pixel-perfect reports.	Always included
– Catalog Content	Catalog containing content that users create and save for future use, such as workbooks, analyses, dashboards, reports, deliveries, agents, and so on.	Always included
– Shared Folders (including Workbooks)	Content that is being shared, that is, content that everyone with access to can see. This includes any workbooks saved in the shared folders.	Always included
– User Folders and Personalizations (including Workbooks)	Content stored in user folders. Content that users create and store for their private use. This includes any workbooks that users save in their private folders and any personalizations that they make to these workbooks.	Optional

Options When You Restore a Snapshot

When you restore content from a snapshot you have several options. You can restore only the content that's inside the snapshot, restore everything in your environment, or restore a specific set of items in the snapshot (custom).

- **Replace Snapshot Content Only** - Everything in the snapshot that's supported in your environment is restored. Any content type excluded from the snapshot remains unchanged in your environment.
- **Replace Everything** - Replaces your entire environment using information in the snapshot.
  Any content type excluded from the snapshot is restored to its default state, that is, "no content". For example, if you chose not to include jobs in the snapshot, any jobs that exist on your system are deleted when you restore the snapshot and the jobs feature is restored with default settings. There are some exceptions; if the snapshot doesn't contain any file-based datasets, plug-ins, or extensions these items are left unchanged.

  This option is useful if you want to:

  – Replace everything after something went wrong.

  – Migrate from another service.

  – Clone an existing service.
- **Custom** - You select the content you want to restore. If you don't want to restore certain content types, exclude them before you restore.
  In most cases, the options on restore are the same as the options when you take a snapshot. Some content types are always restored, while others are optional.

> **Note:**
>
> When you restore *catalog content* from a snapshot, delivery schedules aren't automatically restored or activated. This is so you can restore and activate deliveries at a time that suits you. See Restore and Enable Delivery Schedules.

If your snapshot contains items that your environment doesn't support, you see the message "*Not supported in this environment*".

Restoring a Snapshot Taken from a Different Product

You can take snapshots in several Oracle products; Oracle BI Enterprise Edition 12c, Oracle Analytics Cloud, and Oracle Analytics Server.

- **Unsupported Content**

  If you take a snapshot in one product and try to restore it in a different Oracle product, you might find the snapshot contains some items that the target environment doesn't support. When Oracle Analytics detects unsupported content, warning icons display on the Custom page to highlight unsupported items in the snapshot that won't be restored.

  For example, you take a snapshot in Oracle Analytics Cloud and include data replications, file-based datasets, plug-ins and extensions in the snapshot. When you restore the snapshot in Oracle Analytics Server, you notice that these items are marked *not supported*. Oracle Analytics Server doesn't allow you to include data replications, file-based datasets, plug-ins and extensions in an Oracle Analytics Server snapshot or import them from snapshots you created in other products.

Take Snapshots and Restore Information

You can take a snapshot of your system at any time using the Console.

Topics:

> **Note:**
>
> You can also manage snapshots using the REST API. The Snapshots page in Oracle Analytics Cloud Console lists the snapshots that you take using the Console. Snapshots that you take and register using the REST API don't display in the Snapshots page. See Manage Snapshots Using REST APIs.

Take a Snapshot

Administrators can take a snapshot of the system at any time.

1. Click **Console**.
2. Click **Snapshots**.
3. Click **Create Snapshot**.
4. Enter a short description for the snapshot to help you remember later why you took it.

   For example, why you created the snapshot and what it contains.
5. Select the content you want to include, **Everything** or **Custom**.
   - **Everything** - Include everything about your environment in the snapshot .
   - **Custom** - Select only the content types you want to save in the snapshot. Deselect any items that you don't want.
6. Click **Create**.

The latest content is saved to a snapshot.

Restore from a Snapshot

If something goes wrong, you can easily restore your content to a previous working state from a snapshot. You also restore snapshots when you migrate content between environments.

Before you start, read these tips about restoring snapshots.

- As you start to restore the snapshot, users currently signed in have their session terminated.
- After you restore from a snapshot, allow time for the restored content to refresh (for example, approximately 15 to 30 minutes for a large snapshot).
- Delivery schedules aren’t automatically restored or activated when you restore *catalog content* from a snapshot. This is so you can restore and activate deliveries at a time that suits you. See Restore and Enable Delivery Schedules.
- You can restore snapshots taken at the same version (or earlier version) as the target environment.

  You might experience unexpected results if you try to restore from a snapshot that was taken from a more recent update of Oracle Analytics.
- When you restore a snapshot taken from a different environment, you must upload the data associated with your file-based datasets to the target environment.
- You can take and restore snapshots using the Console or REST API. The Snapshots page in the Console lists the snapshots that you take using the Console. Snapshots that you take and register using the REST API don't display in the Snapshots page. See Manage Snapshots using REST APIs.

To restore a snapshot:

1. Click **Console**.
2. Click **Snapshots**.
3. Select the snapshot that you want to use to restore your system.

4. Click **Snapshot Actions** .
5. Click **Restore** to return your system to the state when this snapshot was taken.
6. In the Restore Snapshot dialog, select only those elements you want to restore.

   For example, you may not want to include application roles if you're restoring a snapshot taken from a pre-production environment, to a production environment. Pre-production roles often have different members to the production environment. If so, select **Custom** and deselect **Application Roles** before you restore.

   a. Select the **Restore** option you want.

      - **Replace Snapshot Content Only** - Replace all the content types included in snapshot (listed in the description field) with the content inside the snapshot. The restore process replaces entire content types on the target. For example, if your target includes workbooks A and B and the snapshot contains workbook A, only workbook A will exist on the target after you restore the snapshot.

        Select this option if you don't want to replace or remove any other content types that exist on the target, that is, only replace the content types inside the snapshot.

      - **Replace Everything** - Overwrite all your existing content. Replace your existing content with the content included in this snapshot (listed in the description field).

        Any content types not included in the snapshot, excluding file-based datasets, plug-ins and extensions, are removed and restored with default settings.

      - **Custom** - Select only the content types you want to restore. You can restore with content saved inside the snapshot or restore content with default settings if that content is missing from the snapshot.

        – Content saved inside the snapshot is listed in the description field.

        – Content not included in the snapshot is marked with a warning icon  . Only restore content marked with a warning icon if you want to restore that content with default settings.

        If you don't want to restore everything, deselect all the items you want to keep.

   b. If you select **Custom**, select only those items you want to restore.

7. For auditing purposes, enter the reason why you're restoring.

   It's good practice to include a restore reason. Later on you might want to analyze the restore history, and this information can help you remember why you restored the snapshot.

8. Click **Restore**.

   A warning message is displayed because restoring a snapshot can be very disruptive.

9. Click **Yes** to restore the selected snapshot, or click **No** to abandon the restore.
10. Wait for the restore to complete, and then wait a few more minutes for the restored content to refresh through your system.

    The time it takes to restore your system depends on the size of your snapshot. For a large snapshot, allow approximately 15 to 30 minutes.

11. Sign out and then sign back in to see the restored content and inherit newly restored application roles, if any.

Track Who Restored What and When

You can check the restore history to learn exactly when and what content was restored, and to check for any errors during the restore process. This might be useful if you experience issues during or after you restore a snapshot.

1. Click **Console**.
2. Click **Snapshots**.
3. Click the Page menu and select **Show Restore History**.

Edit Snapshot Descriptions

You can add or update the description for any snapshot.

1. Click **Console**.
2. Click **Snapshots**.
3. Select the snapshot you want to edit.
4. Click **Snapshot Actions**.
5. Click **Edit Name**.
6. Update the description, and click **OK**.

Delete Snapshots

From time to time, delete snapshots that you don't need.

1. Click **Console**.
2. Click **Snapshots**.
3. Select the snapshot that you want to delete.
4. Click **Snapshot Actions**.
5. Click **Delete** to confirm that you want to delete the snapshot.

Schedule Regular Snapshots (Backups)

You must take snapshots regularly as part of your organization's business continuity plan to minimize data loss. If something goes wrong with your content or service, you can revert to the user content that you recently saved in a snapshot. For example, user content such as reports, dashboards, data visualization workbooks, pixel-perfect reports, datasets, data flows, semantic models, security roles, system settings, and so on.

Back Up Frequently

Oracle recommends that you take snapshots at significant checkpoints, for example, before you make a major change to your content or environment. In addition, Oracle recommends that you take regular weekly snapshots or at your own defined frequency based on the rate of change of your environment and rollback requirements. You can keep up to 40 snapshots

online and export as many as you want to offline storage (that is, to your local file system or to your own Oracle Cloud storage). See Take a Snapshot and Export Snapshots.

Store Backups on Oracle Cloud

Oracle recommends that you adopt a regular practice of exporting snapshots to offline storage. If you regularly export large snapshots (over 5GB or larger than the download limit of your browser), Oracle recommends that you set up a storage bucket on Oracle Cloud and save your snapshots to cloud storage. This way, you can avoid export errors due to size limitations and timeouts that can sometimes occur when you export snapshots to your local file system. See Set Up a Oracle Cloud Storage Bucket for Snapshots.

Automate Backups using REST APIs

Use REST APIs to programmatically create, restore, and manage your snapshots in Oracle Cloud storage. For example, might create a script that takes regular backups (snapshots). See Manage Snapshots Using REST APIs.

Disaster Recovery

If an unforeseen disaster happens, a well-architected business continuity plan will enable you to recover as quickly as possible and continue to provide services to your Oracle Analytics Cloud users. Taking regular snapshots is one of the ways you can help minimize disruption for users.

You can also deploy a passive backup Oracle Analytics Cloud environment in a different region to mitigate the risk of region-wide events. For more information and best practices, see Disaster Recovery Configuration for Oracle Analytics Cloud.

Export and Import Snapshots

You can save snapshots to your local file system or cloud storage and upload them back to the cloud. Exporting and importing snapshots enables you to back up and restore your content or migrate content between development, test, and production environments.

Topics:

- Export Snapshots
- Import Snapshots

Export Snapshots

Use the export option to save a snapshot to your local file system or to a storage bucket on Oracle Cloud Infrastructure. Exporting allows you to store and manage any snapshots you might take of your system.

The snapshot exports as an archive file (`.bar`). The time it takes to export your snapshot depends on the size of the `.bar` file.

> **Note:**
>
> If you regularly export large snapshots (over 5GB or larger than the download limit of your browser), you *must* set up a storage bucket on Oracle Cloud Infrastructure and save your snapshots to cloud storage. This way, you can avoid export errors due to size limitations and timeouts that can sometimes occur when you save large snapshots on your local file system. See Set Up a Oracle Cloud Storage Bucket for Snapshots.

If you haven't taken the snapshot yet, you'll need to do that first.

1. Click **Console**.
2. Click **Snapshots**.
3. Select the snapshot that you want to export.
4. Click **Snapshot Actions** .
5. Click **Export**.
6. Select where you want to export the snapshot to.
   - **Local File Storage**: Export the snapshot to your browser's download folder.
   - **Oracle Cloud Storage**: Export the snapshot to an existing storage bucket on Oracle Cloud Infrastructure. Click **Storage Details** to specify connection details for the storage bucket. If you need to create a storage bucket, see Set Up a Oracle Cloud Storage Bucket for Snapshots.
7. If you select **Oracle Cloud Storage**, provide the connection details, a name for snapshot, and the folder you want to use.
   a. In **Storage Container Details**, specify a storage bucket for the snapshot, together with the security keys and Oracle Cloud IDs (OCIDs) required to access the bucket on Oracle Cloud Infrastructure Object Storage, and then click **Next**.

      You need access to Oracle Cloud Infrastructure Console to generate or obtain this information. If you don't have access, contact your administrator.

      - **Bucket Name**: Name of the bucket. For example: `My_OAC_Snapshot_StorageBucket`
      - **OCI Region**: Region identifier for the region where the bucket is located. For example: `us-phoenix-1`
      - **OCI Tenancy ID**: OCID for the tenancy that's hosting the bucket. For example: `ocid1.tenancy.oc1..<unique_ID>`

        See Where to Get the Tenancy's OCID.
      - **OCI User ID**: OCID for a user who created and uploaded the signing key pair required to access the bucket. For example: `ocid1.user.oc1..<unique_ID>`

        See Where to Get a User's OCID. See also How to Upload the Public Key.
      - **Key Fingerprint**: Fingerprint of the private key required to access the bucket. The fingerprint looks something like this: `99:34:56:78:90:ab:cd:ef:12:34:56:78:90:ab:cd:ef`

        See How to Get the Key's Fingerprint.

- **Private Key**: Name and location of the user's private key file in PEM format. For example: `oci_private_key.pem`

  See How to Generate a Signing Key.

b. Optional: In Save Snapshot As, use the **File Name** field to change the name of snapshot .bar file or select a different folder for the snapshot.

   By default, snapshots are saved to the bucket's root folder and named `<timestamp>.bar`. For example: `20210824140137.bar`.

   - To use a different name, enter a new name for the snapshot in the **File Name** field. For example: `24August2021.bar`
   - To select a specific folder, either navigate to the required folder or type the folder name in the **File Name** field. For example: `MyDaily_Snapshots/August/24August2021.bar`

   Click the **Refresh Data** icon to switch back to the default file name and location.

> **Note:**
>
> You don't see *every* file and folder in the storage bucket through the **Save Snapshot As** dialog. You see only snapshots (BAR files) and folders that contain snapshots.

c. Click **OK** to confirm that you want to save the snapshot with this name and location.

8. In **Snapshot Password**, enter and confirm a password for the snapshot.

   The password must be between 14 and 50 characters long and contain at least one numeric character, one uppercase letter, and one lowercase letter.

   Don’t forget this password. You’ll be asked for this password when you try to import the file in the future. For example, if want to restore or migrate the content stored in the snapshot.

9. Click **Export**.

   The time it takes to export depends on the size of the file.

Import Snapshots

You can import a snapshot that you previously saved on your local file system or a storage bucket on Oracle Cloud Infrastructure. The time it takes to import the snapshot depends on the size of the snapshot `.bar` file.

When you import a snapshot, the file itself is uploaded to your system but the artifacts stored inside the snapshot aren’t immediately available in your environment. Snapshots you import display in the snapshot list. When you’re ready to do so, you can overwrite your current artifacts, such as your catalog, by restoring the snapshot.

1. Click **Console**.
2. Click **Snapshots**.
3. Click the **Page actions** menu and select **Import Snapshot**.
4. Select where you want to import the snapshot from.
   - **Local File Storage**: Import a snapshot from your local file system.

- **Oracle Cloud Storage**: Import a snapshot located in a storage bucket on Oracle Cloud Infrastructure. Click **Storage Details** to specify connection details for the storage bucket.

5. If you select **Local File Storage**, click **Select** to locate the snapshot that you want to upload.

   Select the snapshot file (`.bar`) that contains your snapshot. You can upload snapshots taken from Oracle Analytics Cloud, Oracle Analytics Server, and Oracle BI Enterprise Edition 12c.

6. If you select **Oracle Cloud Storage**, provide the connection details, and select the snapshot you want to import.

   a. In **Storage Container Details**, specify the storage bucket containing the snapshot, together with the security keys and Oracle Cloud IDs (OCIDs) required to access the bucket on Oracle Cloud Infrastructure Object Storage, and then click **Next**.

      You need access to Oracle Cloud Infrastructure Console to obtain this information. If you don't have access, contact your administrator.

      - **Bucket Name**: Name of the bucket. For example: `My_OAC_Snapshot_StorageBucket`
      - **OCI Region**: Region identifier for the region where the bucket is located. For example: `us-phoenix-1`
      - **OCI Tenancy ID**: OCID for the tenancy that's hosting the bucket. For example: `ocid1.tenancy.oc1..<unique_ID>`

        See Where to Get the Tenancy's OCID.
      - **OCI User ID**: OCID for a user who created and uploaded the signing key pair required to access the bucket. For example: `ocid1.user.oc1..<unique_ID>`

        See Where to Get a User's OCID. See also How to Upload the Public Key.
      - **Key Fingerprint**: Fingerprint of the private key required to access the bucket. The fingerprint looks something like this: `99:34:56:78:90:ab:cd:ef:12:34:56:78:90:ab:cd:ef`

        See How to Get the Key's Fingerprint.
      - **Private Key**: Name and location of the user's private key file in PEM format. For example: `oci_private_key.pem`

        See How to Generate a Signing Key.

   b. In Select Snapshot, navigate to the snapshot you want to import.

      Alternatively, type the folder path and the name of the snapshot in the **File Name** field. For example: `MyDaily_Snapshots/August/24August2021.bar`

      Click the **Refresh Data** icon to clear your selection and start again.

      > **Note:**
      >
      > You don't see *every* file and folder in the storage bucket through the **Select Snapshot** dialog. You see only snapshots (BAR files) and folders that contain snapshots.

   c. Click **OK** to confirm that you want to import the selected snapshot.

7. Enter the snapshot password.

   This is the password that you specify whenever you export a snapshot to your local file system or cloud storage.

8. Click **Import**.

Set Up a Oracle Cloud Storage Bucket for Snapshots

If you want to store your Oracle Analytics Cloud snapshots on Oracle Cloud, you (or your administrator) must complete several set up steps. You need to create the storage bucket that you plan to use and generate an API signing key that authorizes you (or another user) to access the bucket from Oracle Analytics Cloud.

1. In Oracle Cloud Infrastructure Console, create a user in IAM with authorization to create and connect to the bucket.

   You can skip this step if the user exists. See Adding Users.

2. Generate an API signing key pair for this user.

   See How to Generate an API Signing Key.

   When you use the Console to add the API signing key pair, a configuration file preview snippet is generated with the following information.

   - `user` - OCID of the user for whom the key pair is being added.
   - `fingerprint` - Fingerprint of the key that was just added.
   - `tenancy` - Your tenancy's OCID.
   - `region` - Currently selected region in the Console.
   - `key_file`- Path to the private key file you downloaded. You must update this value to the path on your file system where you saved the private key file.

3. Make a note of the information displayed in the snippet. When you export snapshots from Oracle Analytics Cloud to Oracle Cloud storage (or import a snapshot stored on Oracle Cloud) you'll be asked to provide the following:

   OCI User ID: `user`

   Key Fingerprint: `fingerprint`

   Private Key: `key_file`

   OCI Tenancy ID: `tenancy`

   OCI Region: `region`

4. Create a storage bucket for snapshots.

   You can skip this step if the bucket exists. See Create a Bucket.

   The user you created the signing key for must have read-write access to the storage bucket. Specifically, this user must have the following permissions on the storage bucket where the snapshots are stored:

   - `OBJECT_CREATE`
   - `OBJECT_OVERWRITE`

Migrate Oracle Analytics Cloud Using Snapshots

Download and upload features enable you to save snapshots to your local file system and upload them back to the cloud. Use these features to migrate content between two different services, migrate between development, test, and production environments, and migrate service deployed on Oracle Cloud Infrastructure Classic to Oracle Cloud Infrastructure.

Topics:

About Oracle Analytics Cloud Migration

It's easy to migrate content and settings from one Oracle Analytics Cloud environment to another using snapshots. You can migrate everything or you can migrate specific types of content.

Prerequisites for Migration

Before you migrate user content using snapshots, verify your source and target environment:

- The source and target environment must both use Oracle Analytics Cloud 5.1.x or later. Snapshots taken from earlier versions don't capture the entire environment.

  If you're not sure, ask your Oracle representative.
- If you haven't done so already, create the target service on Oracle Cloud Infrastructure.

  See Create a Service with Oracle Analytics Cloud in *Administering Oracle Analytics Cloud on Oracle Cloud Infrastructure (Gen 2)*.
- If you want to migrate file-based data, check the source and target environments are up and running, and configured with valid storage credentials.

  Storage access issues can prevent data file migration using snapshots. If this happens, you can use the Data Migration utility to download your data files and then upload them separately.

Items Not Migrated

Some Oracle Analytics Cloud artifacts aren't included in snapshots. Non-Oracle Analytics Cloud artifacts aren't included either.

Items Not Migrated	More Information
Virus scanner configuration	Record the virus scanner configuration used in your source environment and use the same information to configure your virus scanner on the target. See Configure a Virus Scanner.
Mail server configuration	Record the SMTP mail server configuration used in your source environment and use the information to configure your mail server on the target. See Set Up an Email Server to Deliver Reports.
Other saved snapshots in the source environment	If required, download individual snapshots that you want to migrate, and then upload them to the target. See Import Snapshots.

Items Not Migrated	More Information
Users (and groups)	**Migrate from Oracle Cloud Infrastructure Identity and Access Management (IAM) Identity Domain** Use export and import features in Oracle Cloud Infrastructure Console to migrate users and roles from one identity domain to another. See Transferring Data in Oracle Cloud Infrastructure documentation. **Migrate from Oracle Identity Cloud Service** Use export and import features in Oracle Identity Cloud Service Console to migrate users and roles from one identity domain to another. See Manage Oracle Identity Cloud Service Users and Manage Oracle Identity Cloud Service Groups. **Migrate from Embedded WebLogic LDAP Server** Use the script `wls_ldap_csv_exporter` to export users and groups to a CSV file that you can import on the target Oracle Identity Cloud Service. See Export Users and Groups from Embedded WebLogic LDAP Server.
Identity management configuration	Use Oracle Cloud Infrastructure Console in your target environment to reconfigure any user (or group) application role assignments that you configured on the source, reconfigure single sign-on (SSO), and so on.
Network configuration	Set up your network requirements in the target environment, as required.

Typical Workflow to Migrate Oracle Analytics Cloud

You use snapshots to migrate Oracle Analytics Cloud to another environment. Here's what you need to do.

Task	Description	More Information
Understand how to migrate using snapshots	Understand what you can and can't migrate in snapshots and any prerequisites.	About Oracle Analytics Cloud Migration
Create the target service	Use Oracle Cloud Infrastructure Console to deploy a new service on Oracle Cloud Infrastructure.	Create a Service with Oracle Analytics Cloud
Migrate users and groups	Use export and import features in Oracle Cloud Infrastructure Console to migrate users and roles from one identity domain to another. The way you migrate users for Oracle Analytics Cloud depends whether identity domains are available in your cloud account. If you're not sure, see About Setting Up Users and Groups. If your source system uses an embedded WebLogic LDAP server for identity management, use the `wls_ldap_csv_exporter` script to export your users and groups to a CSV file.	Transferring Data (IAM Users) Manage Oracle Identity Cloud Service Users Export Users and Groups from Embedded WebLogic LDAP Server
Take a snapshot on the source	Capture the content you want to migrate on the source system.	Take a Snapshot

Task	Description	More Information
Export the snapshot	Download the snapshot that you want to migrate to your local file system or to a storage bucket on Oracle Cloud Infrastructure.	Export Snapshots
Upload the snapshot to the target	Sign in to the target system and upload the snapshot.	Import Snapshots
Restore the snapshot content	Select the newly uploaded snapshot in the list of saved snapshots and restore the content in the snapshot.	Restore from a Snapshot
Migrate data files	Use the Data Migration utility to migrate data files from one environment to another. Only required when: • You migrate to a different region. • You migrate to Oracle Analytics Cloud on Gen 2 from Oracle Analytics Cloud on Gen 1 or Oracle Cloud Infrastructure Classic. • Restore process fails due to network connectivity or storage access issues.	Migrate File-based Data
Reconfigure your virus scanner	Record the virus scanner configuration in your source environment and use it to configure your virus scanner on the target.	Configure a Virus Scanner
Reconfigure your mail server	Record the SMTP mail server configuration in your source environment and use it to configure your mail server on the target.	Set Up an Email Server to Deliver Reports
(Optional) Migrate other snapshots	Download individual snapshots that you want to migrate and then upload them to your target environment, as required.	Export Snapshots Import Snapshots
Migrate identity management configuration	Use Oracle Cloud Infrastructure Console in your target environment to reconfigure any user (or group) application role assignments that you configured on the source, reconfigure single sign-on (SSO), and so on.	

Migrate File-based Data

Users upload data files, such as spreadsheets, to Oracle Analytics Cloud to create datasets. When you migrate to a new Oracle Analytics Cloud environment, you can take this file-based data with you. Sometimes, network connectivity or storage access issues might prevent you from migrating the data files in the snapshot. For such cases, Oracle Analytics Cloud offers a CLI utility (command-line interface) that enables you to move your data files to the new location. The snapshot CLI utility also moves any map-related plug-ins and extension files that users might upload for their data visualizations.

Run the data migration CLI utility if you see the message `Restore succeeded with errors - data restore failed` (or similar) when you try to restore a snapshot that contains data files. This message occurs when:

- You migrate content from a different region.
- You migrate content from Oracle Analytics Cloud on Gen 1 or Oracle Cloud Infrastructure Classic to Oracle Analytics Cloud on Gen 2.
- The restore process fails due to some other network connectivity or storage access issue.

The CLI utility allows you to move data files directly from one environment to another in a single step. Or if you prefer, you can download your file-based data to a ZIP file and then upload the data files to your chosen environment in two separate steps.

1. Check your environment details.
   - Verify that the source and target system both use Oracle Analytics Cloud 5.3 or later. The CLI utility isn't available in earlier versions.

     If you're not sure, ask your Oracle representative.
   - Check that the source and target system are both up and running, and Oracle Analytics Cloud is configured with valid storage credentials.
   - Check your local environment. You need Java 1.8 or later to run the CLI utility.
   - Make sure you can access the source environment and the target Oracle Analytics Cloud from the local environment where you plan to run the CLI utility.
   - Verify the name and location of the snapshot that you downloaded earlier containing your file-based data. For example, `/tmp/20190307095216.bar`.
2. Download the CLI utility.
   a. In your target Oracle Analytics Cloud, click **Console** and then click **Snapshots**.

   b. Click the Page menu , select **Migrate**, then **Download Data Migration Utility**.

      Follow the instructions to save the `migrate-oac-data.zip` file locally.
3. Unzip `migrate-oac-data.zip`.

   The ZIP file contains three files:
   - `migrate-oac-data.jar`
   - `config.properties`
   - `readme`
4. If you want to migrate data files stored in your source environment directly to the target in a single step, configure the section `[MigrateData]` in `config.properties`.

```
[MigrateData]
# Migrate data files from a source Oracle Analytics Cloud environment
(OAC) to a target Oracle Analytics Cloud environment.
    # Specify the source environment as Oracle Analytics Cloud.
      SOURCE_ENVIRONMENT=OAC
    # Source Oracle Analytics Cloud URL. For example: https://
sourcehost.com:443 or http://sourcehost.com:9704
      SOURCE_URL=http(s)://<Source Oracle Analytics Cloud Host>:<Source
Port>


    # Name of a user with Administrator permissions in the source
environment. For example: SourceAdmin
      SOURCE_USERNAME=<Source Administrator User Name>
    # Location of the source snapshot (.bar file). For example:  /tmp/
20190307095216.bar
      BAR_PATH=<Path to Source Snapshot>
    # Target Oracle Analytics Cloud URL. For example: https://
targethost.com:443 or http://targethost.com:9704
      TARGET_URL=http(s)://<Target Oracle Analytics Cloud Host>:<Target
```

```
Port>
    # Name of a user with Administrator permissions in the target
environment. For example: TargetAdmin
      TARGET_USERNAME=<Target Administrator User Name>
```

5. If you want to first download data files from your source Oracle Analytics Cloud to your local environment and subsequently upload the data files to the target Oracle Analytics Cloud environment, configure sections `[DownloadDataFiles]` and `[UploadDataFiles]` in `config.properties`.

```
[DownloadDataFiles]
#Download Data Files: Download data files from Oracle Analytics Cloud
storage to a local repository
    # Specify the source environment as Oracle Analytics Cloud.
      SOURCE_ENVIRONMENT=OAC
    # Source Oracle Analytics Cloud URL. For example: https://
sourcehost.com:443 or http://sourcehost.com:9704
      SOURCE_URL=http(s)://<Source Oracle Analytics Cloud Host>:<Source
Port>


    # Name of a user with Administrator permissions in the source
environment. For example: SourceAdmin
      SOURCE_USERNAME=<Source Administrator User Name>
    # Location of the source snapshot (.bar file). For example:  /tmp/
20190307095216.bar
      BAR_PATH=<Path to Source Snapshot>
    # Local data file directory. Make sure you have enough space to
download the data files to this directory. For example: /tmp/mydatafiledir
      DATA_FRAGMENTS_DIRECTORY=<Data Files Directory>
     # Data fragment size. Data files are downloaded in fragments. Default
fragment size is 500MB.
      MAX_DATA_FRAGMENT_SIZE_IN_MB=500


[UploadDataFiles]
#Upload data files: Upload data files to the target Oracle Analytics
Cloud.
    # Target Oracle Analytics Cloud URL. For example: https://
targethost.com:443 or http://targethost.com:9704
      TARGET_URL=http(s)://<Target Oracle Analytics Cloud Host>:<Target
Port>
    # Name of a user with Administrator permissions in the target
environment. For example: TargetAdmin
      TARGET_USERNAME=<Target Administrator User Name>
    # Local directory containing the data files you want to upload. For
example: /tmp/mydatafiledir
      DATA_FRAGMENTS_DIRECTORY=<Data Files Directory>
    # Location of the source snapshot (.bar file). For example:  /tmp/
20190307095216.bar
      BAR_PATH=<Path to Source Snapshot>
```

6. Run the `migrate-oac-data.jar` file in your local environment.

Syntax:

```
migrate-oac-data.jar [-config configfile] [-d] [-help] [-m]  [-u]
```

Where:

- `-config configfile` : Name of the `config.properties` file
- `-d` : Downloads data locally using information in `config.properties`
- `-help` : Displays help
- `-m` : Migrates data using source and target information in the `config.properties` file
- `-u` : Uploads data using information in the `config.properties` file

For example, to migrate data files in a single step:

```
java -jar migrate-oac-data.jar -m -config config.properties
```

For example, to download data files locally:

```
java -jar migrate-oac-data.jar -d -config config.properties
```

For example, to upload data files:

```
java -jar migrate-oac-data.jar -u -config config.properties
```

7. Sign in to your target Oracle Analytics Cloud.
8. To expose the data files in Oracle Analytics Cloud, you must restore the snapshot that you used to migrate the rest of your content for a second time. This time, you must select the **Custom** restore option.
   a. Open the Console, and click **Manage Snapshots**.
   b. Select the snapshot containing your data files.
   c. Select the **Custom** restore option, and then select the option **File-based data**.

      Deselect all other options.
   d. Click **Restore**.
9. Verify that your data files are available.

Manage Snapshots Using REST APIs

You can use Oracle Analytics Cloud REST APIs to programmatically create, restore, and manage your snapshots (BAR files) in Oracle Cloud Infrastructure (OCI) storage. For example, you might create a script that takes regular backups (snapshots).

> **Note:**
>
> The Snapshots page in Oracle Analytics Cloud Console lists the snapshots that you take using the Console. Snapshots that you take and register using the REST APIs don't display in the Snapshots page.

Here are some common tasks using REST APIs.

Task	Description	REST API Documentation
Understand prerequisites	Understand and complete several prerequisite tasks. You must have administrator permissions in Oracle Analytics Cloud to manage snapshots using REST APIs (BI Service Administrator). You also need access to Oracle Cloud Infrastructure (OCI) Object Storage, and permissions to create a bucket for storing the snapshots. Specifically, you need the following permissions on the storage bucket where the snapshots are stored: `OBJECT_CREATE` and `OBJECT_OVERWRITE`. Plus, an API signing key that allows you to make REST calls to OCI Object Storage.	Prerequisites
Understand OAuth 2.0 token authentication	Authentication and authorization in Oracle Analytics Cloud is managed by Oracle Identity Cloud Service. To access the Oracle Analytics Cloud REST APIs, you need an OAuth 2.0 access token to use for authorization.	OAuth 2.0 Token Authentication
Take a snapshot	Capture content and settings in your system at a point in time to a snapshot (BAR file), save the snapshot in cloud storage, and register the snapshot with your Oracle Analytics Cloud.	Create a snapshot (type=CREATE)
Register an existing snapshot	Register an existing snapshot that is stored in cloud storage with your Oracle Analytics Cloud.	Create a snapshot (type=REGISTER)
Restore from a snapshot	Restore your system to a previously working state using a snapshot in cloud storage.	Restore a snapshot
Delete a snapshot	Delete unwanted snapshots from cloud storage.	Delete snapshots
Get snapshot details	Get details for a single snapshot or all snapshots in cloud storage.	Get a snapshot Get all snapshots
Get the status of a snapshot work request	Monitor the status of REST work requests.	Get a work request item

4

Perform Common Configuration Tasks

This topic describes common configuration tasks performed by administrators managing Oracle Analytics Cloud.

Topics:

Typical Workflow to Perform Common Administration Tasks

Here are the common tasks for Oracle Analytics Cloud administrators managing data visualization and enterprise modeling services.

Task	Description	More Information
Manage what users see and do	Configure what users see and do in Oracle Analytics Cloud using the Application Role page in the Console.	Manage What Users Can See and Do
Back up and restore content	Back up and restore the semantic model, catalog content, and application roles using a file called a snapshot.	Take Snapshots and Restore
Set up virus scanning	Connect to your virus scanning server.	Configure a Virus Scanner
Register safe domains	Authorize access to safe domains.	Register Safe Domains
Set up social channels for content sharing	Enable users to share content on Twitter, Slack, Oracle Cloud Storage, and Oracle Content Management.	Set Up Social Channels For Sharing Visualizations Set Up a Public Container to Share Visualizations

Task	Description	More Information
Set up email deliveries	Connect to your email server.	Set Up an Email Server to Deliver Reports Track the Reports You Distribute By Email or Through Agents
Enable agents to deliver content	Allow users to use agents to deliver their content.	Enable and Customize Content Delivery Through Agents Suspend and Resume Deliveries Restore and Enable Delivery Schedules
Manage the types of devices that deliver content	Configure devices for your organization.	Manage the Types of Devices that Deliver Content
Manage maps	Manage map layers and background maps.	Manage Map Information For Analyses
Switch to a different language	Understand how Oracle Analytics Cloud supports different languages and how to switch between them.	Switch to a Different Language
Update the cloud storage password	Update the cloud storage password if the credentials required to access the cloud storage container changes or expires.	Update the Cloud Storage Password

Configure a Virus Scanner

To keep Oracle Analytics virus-free, Oracle highly recommends that you set up the virus scanning servers used by your organization, to scan any files that are uploaded to Oracle Analytics. Once set up, all files are checked. This includes data files that users might upload for analysis, and snapshots that you might upload to restore content or migrate content from another environment.

> **Note:**
>
> Oracle supports virus scanners that use the Internet Content Adaptation Protocol (ICAP) protocol to communicate.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Virus Scanner**.
3. Enter the host and port of the virus scanning server.

   For example, `my.virus.scanning.serverexample.com`.
4. Click **Save**.
5. To remove the current virus scanner configuration, click **Delete**.

Register Safe Domains

For security reasons, you're not allowed to add external content to reports, embed your reports in other applications, or connect to some data sources (such as Dropbox and Google Drive)

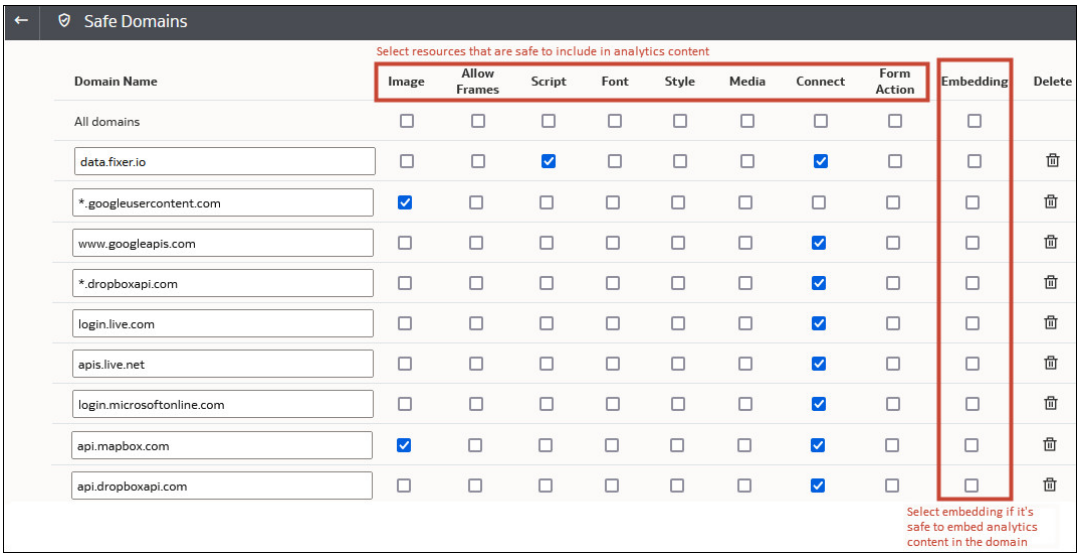
unless your administrator considers it safe to do so. Only administrators can register safe domains.

After you've registered a domain as *safe*, users need to sign out and sign back in to access content from that source.

Only authorized users may access the content. Users are prompted to sign in when they access content on these safe domains, unless your service is set up with Single Sign On (SSO).

> **Note:**
>
> There is a limit to the number of safe domains and individual settings that can be included in browser requests. To avoid reaching or exceeding this limit, add only the domains that you need and select only the options you know you require. Wherever possible, take advantage of wildcards to avoid multiple entries.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Safe Domains**.
3. Click **Add Domain** to register a safe domain.
4. Enter the name of the safe domain. Use formats such as:
   - www.example.com
   - *.example.com
   - https:
5. Specify the types of resources to allow for each domain.
   - Select the types of resources you want to allow, for example, images, scripts, and so on.
   - Deselect to block any resource types you don't consider safe.
6. If you want to allow users to embed their visualizations, reports, and dashboards in external content located on the domain, select **Embedding**.



7. To remove a domain, select it and click the **Delete** icon.

Manage Safe Domains Using REST APIs

You can use Oracle Analytics Cloud REST APIs to programmatically view and manage safe domains. For example, you might create a script that registers (or modifies) the same set of safe domains in both your test and production Oracle Analytics Cloud environments.

- Typical Workflow for Using Safe Domain REST APIs
- Examples for Safe Domain REST APIs

Typical Workflow for Using Safe Domain REST APIs

Here are the common tasks to start using Oracle Analytics Cloud REST APIs to programmatically view and manage safe domains. If you're using safe domain REST APIs for the first time, follow these tasks as a guide.

Task	Description	REST API Documentation
Understand prerequisites	Understand and complete several prerequisite tasks. You must have administrator permissions in Oracle Analytics Cloud to manage safe domains using REST APIs (**BI Service Administrator**).	Prerequisites
Understand OAuth 2.0 token authentication	Authentication and authorization in Oracle Analytics Cloud is managed by Oracle Identity Cloud Service. To access the Oracle Analytics Cloud REST APIs, you need an OAuth 2.0 access token to use for authorization.	OAuth 2.0 Token Authentication
Get all safe domains	Return a list of all the safe domains configured for Oracle Analytics Cloud.	Get all safe domains
Register or update a safe domain	Register a new safe domain or update an existing configuration.	Create or update a safe domain
Delete a safe domain	Remove a safe domain.	Create or update a safe domain

Examples for Safe Domain REST APIs

REST API for Oracle Analytics Cloud includes several examples that explain how to use the Safe Domain REST APIs.

- Get all safe domains - Example
- Create or update safe domain - Example
- Delete a safe domain - Example

Set Up Social Channels For Sharing Visualizations

Set up social channels, such as Slack, X, and LinkedIn to make it easy for content authors to share their data visualizations with others.

Topics:

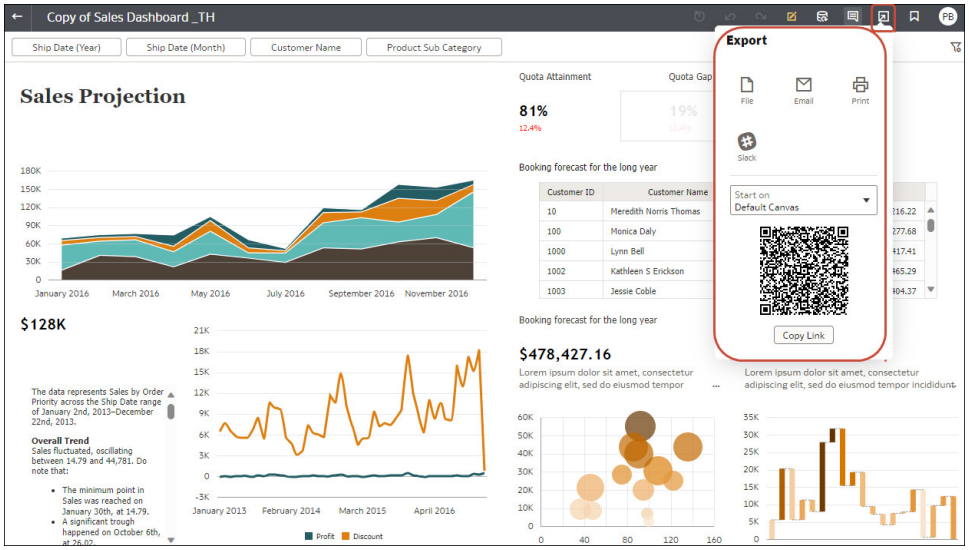
- About Sharing Content on Social Channels
- Enable Workbook Users to Share Visualizations in LinkedIn

- Enable Workbook Users to Share Visualizations on Slack
- Enable Workbook Users to Share Visualizations in Microsoft Teams
- Enable Workbook Users to Share Visualizations on X (formerly Twitter)

About Sharing Content on Social Channels

Administrators can set up various social channels so that content authors can share their data visualizations on social platforms such as LinkedIn, Slack, and X (formerly Twitter).

Once set up, social channels are listed on the **Export** dialog for visualizations. For example, if you configure and activate Slack, users see an option to export their visualization to Slack when they click the **Export** icon.



For some social channels, such as LinkedIn, you must also set up public web storage.

Social Channel	Requires Public Web Storage
LinkedIn	Yes
Public Web Store	Yes
Slack	No
Teams (Microsoft)	No
X (formerly Twitter) - App	No
X (formerly Twitter) - Web Intent	Yes

Some social channels are displayed in inactive mode by default, for example, Public Web Store, and Slack, and others are hidden by default. When you set up social channels, you can set the status to one of the following:

Status	Description
Active	Display the social media option on the Export dialog. For example, you might display Slack or LinkedIn.

Status	Description
Inactive	Display the social media option on the Export dialog, for example, Slack or LinkedIn, but don't enable users to share content using it. When users select an inactive option, they see a message that advises them to contact their administrator.
Hidden	Don't display the social media option on the Export dialog, whether it's configured or not. For example, you might configure it ready for rollout but keep it hidden until a future date.

Enable Workbook Users to Share Visualizations in LinkedIn

Administrators can set up a LinkedIn channel in Oracle Analytics, so that content authors can share their data visualizations in the organization's LinkedIn feed.

1. Obtain the client ID and client secret values for the LinkedIn app that you want to use to share data visualizations.
   a. Open LinkedIn Developer Portal, that is `linkedin.com/developers/apps`.
   b. Click the app that you want to use.
   c. On the Authentication page, obtain the **Client ID** and **Client Secret** values.
2. Configure the LinkedIn channel in Oracle Analytics.
   a. In the Oracle Analytics Home page, click the **Navigator**, click **Console**, and then click **Social**.
   b. For **Service**, select **LinkedIn**.
   c. Change **Status** to **Active**.
   d. For **Application Name**, enter the name of the app that you set up in LinkedIn Developer Portal.
   e. For **Client ID** and **Client Secret**, enter the values that you obtained in LinkedIn Developer Portal (Step 1).
   f. Click **Update**.
   g. Click **Copy to Clipboard** to copy the redirect URL for Oracle Analytics.
3. In LinkedIn Developer Portal, configure the redirect URL for Oracle Analytics.
   a. Select the app that you want to use.
   b. On the App Details tab, click **Edit** and paste the clipboard content in the **Authorized Redirect URLs** field.
   c. Click **Save**.
4. If you haven't done so already, configure a public web storage container on Oracle Cloud that Oracle Analytics can use to share visualizations on LinkedIn.

   See Set Up a Public Container to Share Visualizations.
5. Verify you can share a visualization on the LinkedIn channel.
   a. In Oracle Analytics, open a workbook.
   b. On the Visualize or Narrate canvas, click the **Export** icon.
   c. Click **LinkedIn**.

   If you set up and activate the channel correctly, **LinkedIn** displays as an option on the **Export** menu.

Enable Workbook Users to Share Visualizations on Slack

Administrators can set up a Slack channel in Oracle Analytics, so that content authors can share their data visualizations on their organization's Slack app.

1. Obtain the client ID and client secret values for the Slack app that you want to use to share data visualizations.
    a. Open the Your Apps page in Slack, that is, `https://api.slack.com/apps`.
    b. Select the app that you want to use or create a new one.
    c. On the **Basic Information** tab, navigate to the **App Credential** section and obtain the **Client ID** and **Client Secret** values.
2. Configure the Slack app in Oracle Analytics.
    a. In the Oracle Analytics Home page, click the **Navigator**, click **Console**, and then click **Social**.
    b. For **Service**, select **Slack**.
    c. Change **Status** to **Active**.
    d. For **Application Name**, enter the name of the app that you set up in Slack.
    e. For **Client ID** and **Client Secret**, enter the values that you obtained in Slack (Step 1).
    f. Click **Update**.
    g. Click **Copy to Clipboard** to copy the redirect URL for Oracle Analytics.
3. In Slack, configure the callback URL for Oracle Analytics.
    a. Open the Your Apps page in Slack.
    b. Select the app that you want to use.
    c. On the **Basic Information** tab, click **OAuth and Permissions**.
    d. Click **Add New Redirect URL**, paste the clipboard content in the **Redirect URL** field, and click **Add**.
    e. Click **Save URLs**.
4. Verify you can share a visualization on the Slack channel.
    a. In Oracle Analytics, open a workbook.
    b. On the Visualize or Narrate canvas, click the **Export** icon.
    c. Click **Slack**.

    If you set up and activate the channel correctly, **Slack** displays as an option on the **Export** menu.

Enable Workbook Users to Share Visualizations on X (formerly Twitter)

Administrators can set up an X (formerly Twitter) channel in Oracle Analytics, so that content authors can share their data visualizations as a tweet on their organization's X feed.

You can set up content sharing through X in two ways:

- **X App** - Share content through a predefined X app, as described in this topic. Oracle recommends this approach.

- **Web Intent** - Share content on X through a public web link. For this mode of integration, you must set up and configure public web storage. See Set Up a Public Container to Share Visualizations.

To enable Oracle Analytics to share data visualization workbooks through your organization's X app:

1. Obtain the client ID and client secret values for the X app that you want to use to share data visualizations.
   a. Open X Application Manager, for example `developer.twitter.com`.
   b. Click the app that you want to use for tweets.
   c. On the **Keys and Tokens** tab, obtain the **Consumer Key** and **Consumer Secret Key** values.
   d. On the **Permissions** tab, select **Read, write, and direct messages**.
2. Configure the X channel in Oracle Analytics.
   a. In the Oracle Analytics Home page, click the **Navigator**, click **Console**, and then click **Social**.
   b. For **Service**, select **Twitter**.
   c. Change **Status** to **Active**.
   d. For **Application Name**, enter the name of the app that you set up in X Application Manager.
   e. For **Client ID** and **Client Secret**, enter the Consumer Key and Consumer Secret values that you obtained in X Application Manager (Step 1).
   f. Click **Update**.
   g. Click **Copy to Clipboard** to copy the redirect URL for Oracle Analytics.
3. In X Application Manager, configure the callback URL for Oracle Analytics.
   a. In X Application Manager, click the app to use for tweets.
   b. On the App Details tab, click **Edit** and paste the clipboard content in the **Callback URL** field.
   c. Click **Save**.
4. Verify you can share a visualization on the X channel.
   a. In Oracle Analytics, open a workbook.
   b. On the Visualize or Narrate canvas, click the **Export** icon.
   c. Click **Twitter**.

   If you set up and activate the channel correctly, **Twitter** displays as an option on the **Export** menu.

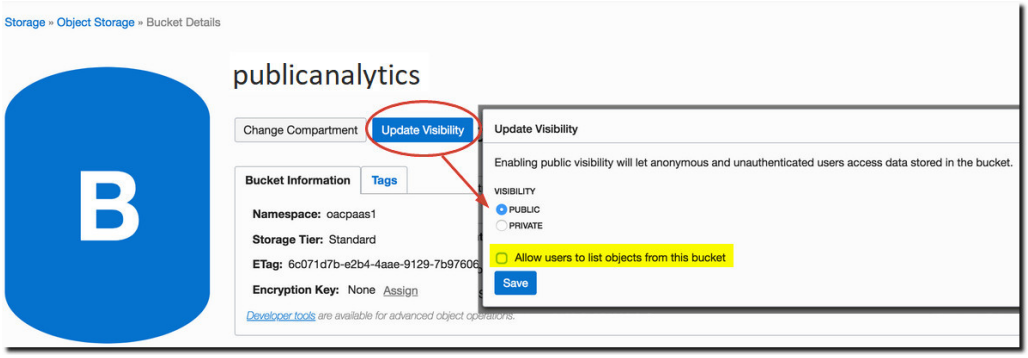
Set Up a Public Container to Share Visualizations

Administrators can set up a public web storage container in Oracle Cloud so that content authors can share their data visualizations with others.

1. Create the public container in Oracle Cloud.
   a. In Oracle Cloud Infrastructure Console, navigate to **Object Storage**.
   b. On the Object Storage tab, click **Create Bucket**, and create a container with a suitable name, such as `publicanalytics`.

c. Select the bucket, and click **Update Visibility**.

d. Select **Public**, and verify that **Allow users to list objects from this bucket** *isn't* selected.



e. Click **Save**.

2. Configure the public web store in Oracle Analytics.

a. In the Oracle Analytics Home page, click the **Navigator**, click **Console**, and then click **Social**.

b. For **Service**, select **Public Web Store**.

c. To specify a public container for the first time or change the existing container, click **Edit**.

d. Enter **Storage Container URL**.

Use the REST endpoint URL format:

`https://swiftobjectstorage.`*`region`*`.oraclecloud.com/v1/`*`object-storage-namespace/public-bucket-name`*

For example: `https://swiftobjectstorage.us-ashburn-1.oraclecloud.com/v1/oacpaas1/publicanalytics`

See Oracle Cloud Infrastructure documentation, Ways to Access Object Storage.

e. For **Storage User** and **Storage Password**, enter the user name and password of a user with read and write access to the public container.

f. Click **Save**.

If you decide to use a different public container in the future, links to content that people have already shared through the existing public container continue to work but they can't be updated. Newly shared content is stored in the new location.

g. Change **Status** to **Active**.

After you set up and activate the channel, **Public Web Storage** displays as an option on the Export menu.

Set Up an Email Server to Deliver Reports

Connect to your organization's mail server, so analysts can email their reports and data visualizations directly from Oracle Analytics. The SMTP mail server must be accessible from the public internet.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Mail Settings**.

3. Enter the name of the **SMTP Server** you want to use to deliver emails.

   For example, `mymail.example.com`.

   The SMTP server must be accessible from the public internet. If your email server has a public IP address, you can enter the public IP address here instead of the server name.

4. Enter the **Port** number.

   Common SMTP ports include:

   - `25` (**Connection Security** = None)
   - `465` (**Connection Security** = SSL/TLS)
   - `587` (**Connection Security** = STARTTLS)

5. Enter the name and email address that you want to see in the “From” field of emails delivering reports (**Display name of sender** and **E-mail address of sender**).

   For example, `Joe Brown` and `joseph.brown@example.com`.

6. Click **Test** to verify the connection.

   If you want to test the connection you must do so before you configure any security settings.

   > **Note:**
   >
   > You can click **Delete** at any time to clear all the mail server settings and start again.

7. Optional: If the mail server requires authentication:

   a. Select **Authenticated**.

   b. Enter the **Username** and **Password** for a user with access to the mail server.

8. Optional: To set up a secure mail server:

   a. Click **Connection Security**, and select the appropriate security protocol for your mail server.

      - **SSL/TLS**: Select if your mail server uses SSL or TLS. The port value defaults to 465.
      - **STARTTLS**: STARTTLS is a way to take an existing insecure connection and upgrade it to a secure connection using SSL or TLS. The port value defaults to 587.

      In **TLS Certificate**, the **Default Certificate** is selected for you. The default certificate allows encrypted mail server communication. In most cases, you don’t need to provide a compatible certificate as most mail servers can use the default certificate, including Office 365.

   b. Optional: Upload a custom TLS certificate. In **TLS Certificate**, select **Custom Certificate** , and then click **Select** to navigate to the certificate file (.pem).

      If you haven’t configured a virus scanner, you're prompted to configure one now or proceed without a virus scanner.

9. Click **Save**.

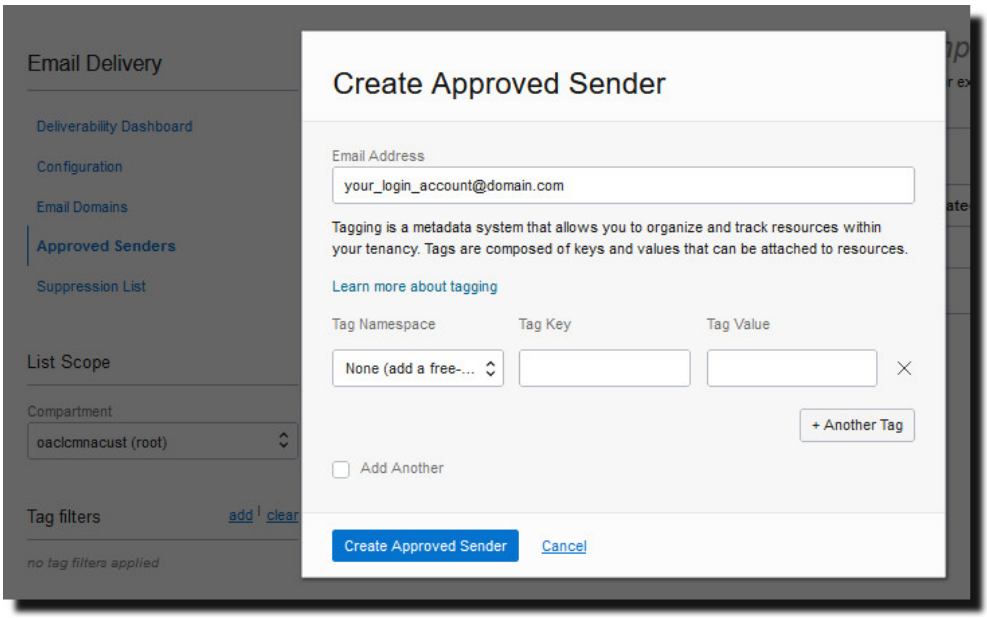
   Allow some time for your changes to refresh through your system and Email menu options to display.

Use the SMTP Mail Server in Oracle Cloud Infrastructure for Email Delivery

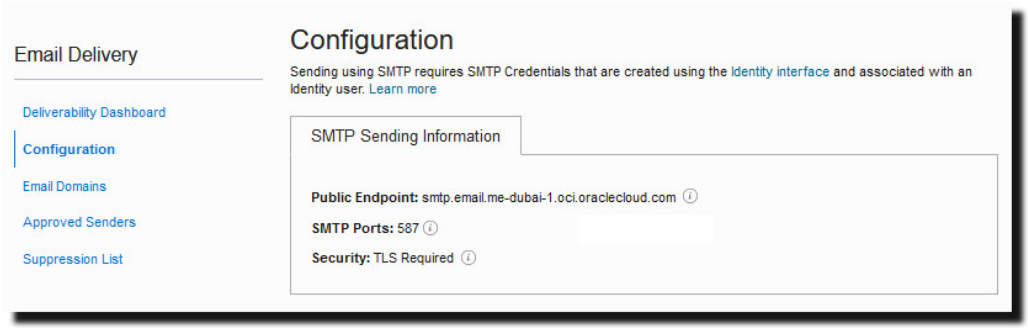
You can use the SMTP mail server available with Oracle Cloud Infrastructure to send emails from Oracle Analytics Cloud.

1. In Oracle Cloud Infrastructure Console, configure Email Delivery.
   a. Sign-in to your Oracle Cloud account with permissions to configure Email Delivery.
   b. In Oracle Cloud Infrastructure Console, click ☰ in the top left corner.
   c. Click **Developer Services**. Under **Application Integration**, click **Email Delivery**.
   d. Optional: Set up the email domain you plan to use.

      This is the domain you plan to use for the approved sender email address, and can't be a public mailbox provider domain such as gmail.com or hotmail.com.
   e. Click **Approved Senders**.
   f. On the **Create Approved Senders** page, set up an approved sender for the *From* email address that you want to use to send emails through the mail server.



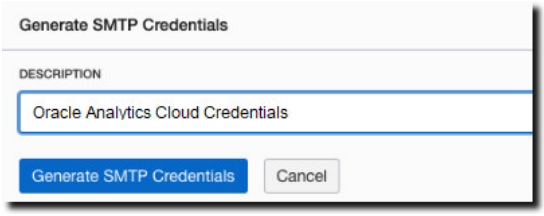
   Refer to Oracle Cloud Infrastructure documentation for details. See Managing Approved Senders.
   g. Click **Configuration**, then make a note of the **Public Endpoint**, **Port** (587), and that **Transport Layer Security** (TLS) is used on the connection.



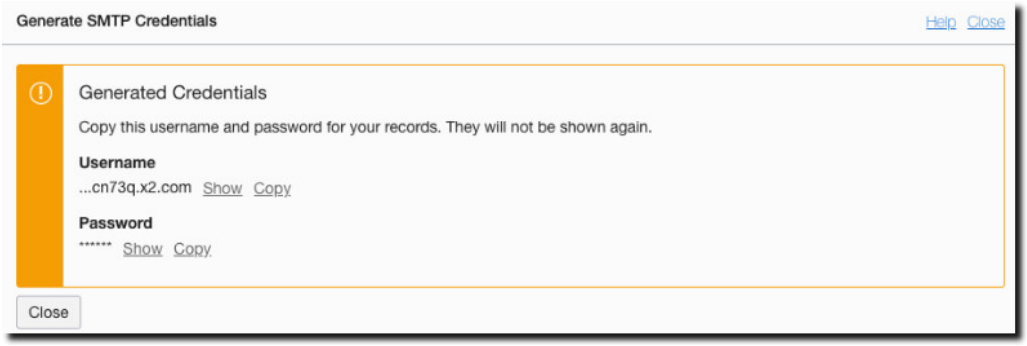
Refer to Oracle Cloud Infrastructure documentation for details. See Configure the SMTP connection.

h. If you've not already done so, click the **Identity Interface** link to navigate to your Identity pages and then click **Generate SMTP Credentials** to generate SMTP credentials for yourself or another user with permissions to manage email.

Enter a **Description**, such as *Oracle Analytics Cloud credentials*, and click **Generate SMTP Credentials**.



Copy the **Username** and **Password** for your records.



Refer to Oracle Cloud Infrastructure documentation for details. See Generate SMTP credentials for a user.

2. In Oracle Analytics Cloud, configure the SMTP settings for your mail server.
   a. Click **Console**.
   b. Click **Mail Server**, and configure SMTP settings for your mail server.
   c. In **SMTP Server**, specify the name of your email server. For example, `smtp.email.me-dubai-1.oci.oraclecloud.com`.
   d. In **Port**, specify `587`.
   e. In **Display name of sender**, specify the name you want to appear in the **From** field of your emails. For example, `Oracle Analytics`.
   f. In **Email address of sender**, specify the email address of the approved sender you configured for email delivery. For example, `your_login_account@yourdomain.com`.
   g. In **Authenticated**, select this option.
   h. In Username, specify the username you recorded after generating SMTP credentials for the mail server. For example, `ocid1.user.oc1.aaaaaaalgtwnjkell....`
   i. In **Password**, specify the password generated for this user.
   j. In **Connection Security**, specify `STARTTLS`.
   k. In **TLS Certificate**, specify `Default Certificate`.
   l. Click **Save**.

Allow some time for your changes to refresh through your system and Email menu options to display.

3. To test your mail server settings, try to send a report by email or create an agent to deliver the report.

   See Send Email Reports Once, Weekly, or Daily or Create Agents to Deliver Content.

If you receive test emails delivered using the email account, you successfully configured your mail server.

Enable and Customize Content Delivery Through Agents

You can use agents to deliver your content. This feature isn't enabled automatically. To display the **Create Agent** link on the Classic home page, grant the **View Delivers Full UX** privilege to the BI Content Author application role.

> **Note:**
>
> You also have to enable this feature if you import a snapshot taken from an early update of Oracle Analytics Cloud that didn’t support the **Delivers Full UX** privilege.

If you need to, you can sets some limits on emails sent by agents. For example, you can set limits for email size, email domains, and the number of recipients. By default, there aren't any limits. Can also customize whether to send emails using TO or BCC, and how to encode MIME email parameters.

1. Enable agents to deliver your content by email.
   a. On the Classic Home page, click the user profile icon and then click **Administration**.
   b. Click **Manage Privileges**.
   c. Navigate to the **Delivers** section, and grant **View Delivers Full UX** to **BI Content Author**.

   Now, users with the BI Content Author application role can see the **Create Agent** link on the Classic Home page.
2. Customize agent delivery.
   a. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
   b. Click **System Settings**.
   c. Click **Email Delivered by Agents**.
   d. Customize the way agents deliver email for your organization by setting a maximum email size, a maximum number of recipients, restricting email domains, whether to use BCC, how to encode MIME email parameters, and so on.

   See Email Delivered by Agents Options.

Send Email Reports and Track Deliveries

Send email reports to anyone inside or outside the organization or use agents to send reports to a range of other devices. Keep everyone up-to-date with regular daily or weekly reports.

Topics

Send Email Reports Once, Weekly, or Daily

Send Email reports to one or more recipients directly from the catalog. It's easy to distribute reports this way and quicker than downloading a report and mailing it from your email client. To keep everyone up-to-date, schedule daily or weekly emails.

For information about email limits and how to optimize email delivery, see What are the limits for email delivery?

1. On the Classic Home page, do one of the following:
   - Navigate to the item you want to email, click **Edit**, and in the **Results** tab, click **Email**.
   - Click **Catalog**, navigate to the item you want to email, click the **More** action menu, and select **Email**.
2. Enter the email address for one or more recipients.

   Separate multiple email addresses with a comma. For example: `jane.white@abc.com, steve.brown@abc.com`.
3. Customize the **Subject** line.
4. Send the email **Now** or click **Later** to set a date and time in the future.
5. To email report updates on a daily or weekly basis, click **Repeat** and then select **Daily** or **Weekly**.

You can check the status of email deliveries from the Console.

Email Security Alert

Content that you send by email isn't encrypted. It's your responsibility to safeguard any sensitive data that you send.

See Send Reports by Email and Track Deliveries.

Track the Reports You Distribute By Email or Through Agents

Track the reports you've chosen to send to people by email from the Console. Quickly see when reports were sent and which items are pending (scheduled to run in the future). Review, change, or delete your deliveries (scheduled or completed) from the same page.

Any agents that you set up to deliver content are displayed in the Console too. This way, all your delivery information is in one place.

You can filter the deliveries by their status to track deliveries most important to you. The various status messages are explained here.

Delivery Status	Description
Canceled	Someone canceled the delivery. Users can cancel any delivery that they own.
Completed	Delivery ran successfully.
Disabled	Users can temporarily disable any delivery or agent that they own through the catalog. For example, you might stop a job running on its defined schedule if you want to edit the report or change who sees the report.
Failed	Delivery ran as scheduled but it didn't complete successfully. Click **Show details...** after the error icon ( ) to find out what went wrong so you can fix it.
Not Scheduled	No one has set up a schedule for the delivery or the scheduled run date is for a date in the past (rather than a future date).
Running	Delivery is in progress.
Suspended	Administrators can temporarily suspend deliveries that other users set up. For example, before you migrate from a test environment to a production environment, your administrator might suspend deliveries in the test environment, and resume them in the production environment.
Timed Out	Delivery timed out because it took too long to complete.
Try Again	Something went wrong. Try to run the delivery again.
Warning	Delivery ran as scheduled but it wasn't 100% successful. For example, the delivery specifies 10 recipients but only 9 of them received it because 1 of the email addresses was incorrect. Click **Show details...** after the warning icon ( ) to find out more.

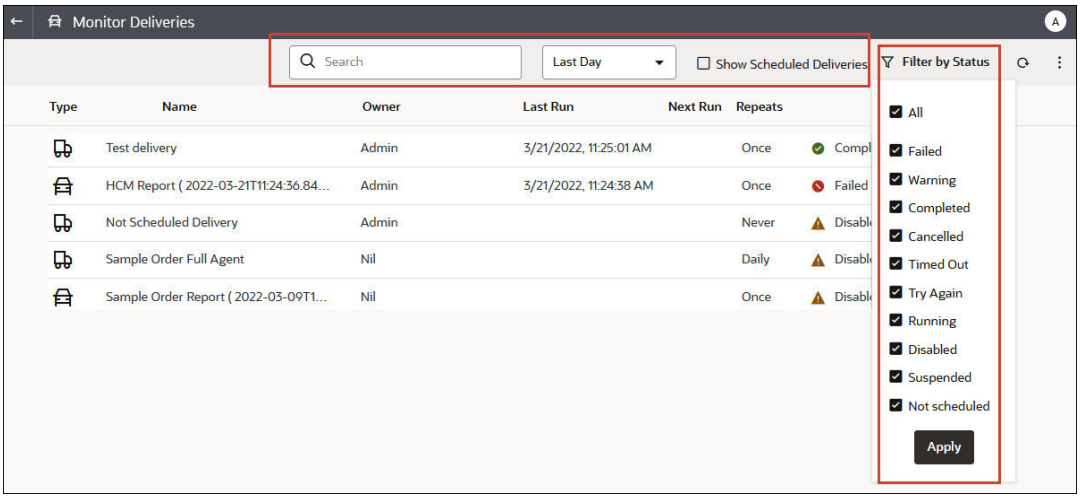
To track deliveries from the Console:

1. Go to the Home Page, click **Navigator**, and then click **Console**.
2. Click **Monitor Deliveries**.

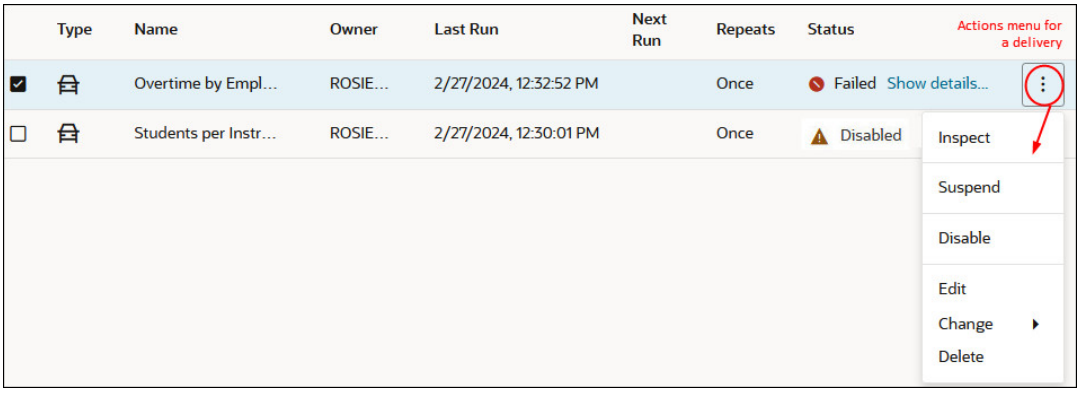
   Deliveries are listed by run date, with the most recent delivery displayed first. Initially, you see only the deliveries sent in the last 24 hours (**Last Day**). To see deliveries for the last week or all deliveries, select **Last 7 Days** or **All Times**.

   Click **Show Scheduled Deliveries** to show deliveries that are scheduled to run in the future. For example, you might schedule a delivery to run tomorrow at 9am. If you look at the Deliveries page the night before or at 8am, you'll see the delivery only when you select **Show Scheduled Deliveries** as the delivery hasn't run yet.
3. Filter the list of deliveries by name, time, or status.

- **Name**: To filter by name, start typing the name of the delivery you're looking for in the search box, and then press **Enter**.
- **Time**: To filter by time, click the time filter. Select from **Last Day**, **Last 7 Days**, **All Times**.
- **Status**: To filter by status, click **Filter by Status**. Select one or more from **Failed, Warning, Completed, Canceled, Timed Out, Try Again, Running, Disabled, Suspended, Not Scheduled**, and then click **Apply**.



4. Click **Actions** for a delivery to review or manage a single delivery.



5. To preview the content, click **Actions** for the delivery, and select **View Report**.

   This option isn't available if the delivery is generated by an agent.

6. To see details about a delivery, such as the date of last and next run, delivery frequency, history, and so on, click **Actions** for the delivery and select **Inspect**.

   Click **History** to view and search for historical job runs. Use the name, time, and status filters to help you find the delivery you want.

7. To edit a delivery, click **Actions** for the delivery, and select **Edit**.
   - Email deliveries — Update the email options.
   - Agent deliveries — Edit the agent associated with the delivery.

8. To troubleshoot a delivery that fails or completes with a warning, click **Show details...**.

   Failed - Click **Show details...** to find out what went wrong so you can fix it.

   Warning - Click **Show details...** to find out more.

9. To disable a delivery, click **Actions** for the delivery, and select **Disable**.

   If you want to enable the delivery later on, click **Actions** for the delivery, and select **Enable**.

10. To delete a delivery and all future scheduled deliveries, select **Delete**, then **OK** to confirm.
11. To delete, resume, or suspend multiple deliveries, Ctrl-click to select them and then right-click to select the action you want to perform (**Delete**, **Resume**, **Suspend**).

Suspend and Resume Deliveries

Administrators can temporarily suspend any delivery, at any time.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Monitor Deliveries**.
3. To access everyone's deliveries in addition to your own, click the Action menu for the page, and select **Admin View**.
4. To suspend a delivery, click the Action menu for the delivery and select **Suspend**.

   To suspend multiple deliveries at once, select **Shift** + click or **Ctrl** + click to select all the deliveries you want to suspend, then right-click and select **Suspend**.

5. To resume a delivery, click the Action menu for the delivery and select **Resume**.
6. To resume or suspend multiple deliveries, Ctrl-click to select them, and then right-click to select the action you want to perform (**Resume** or **Suspend**).

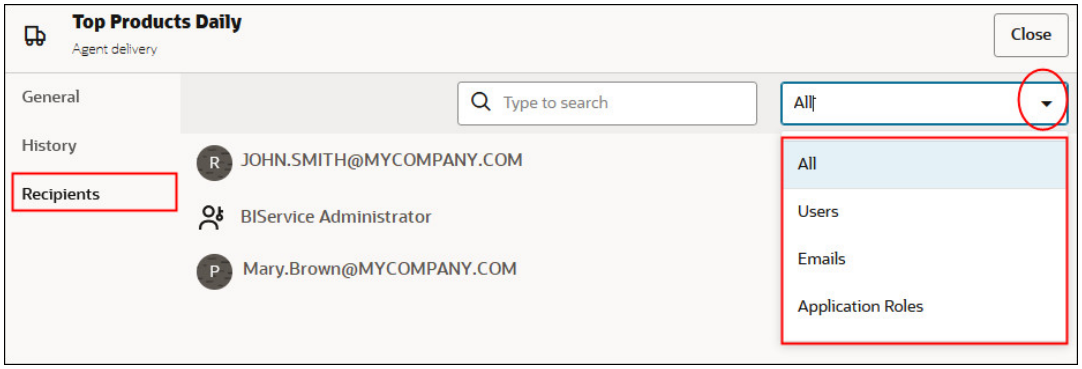
View and Edit Recipients for Deliveries

You can review and edit the recipients of all your deliveries and agents from the Monitor Deliveries page. If you need to make recipient changes across multiple deliveries, the Monitor Deliveries page offers a convenient way to do it.

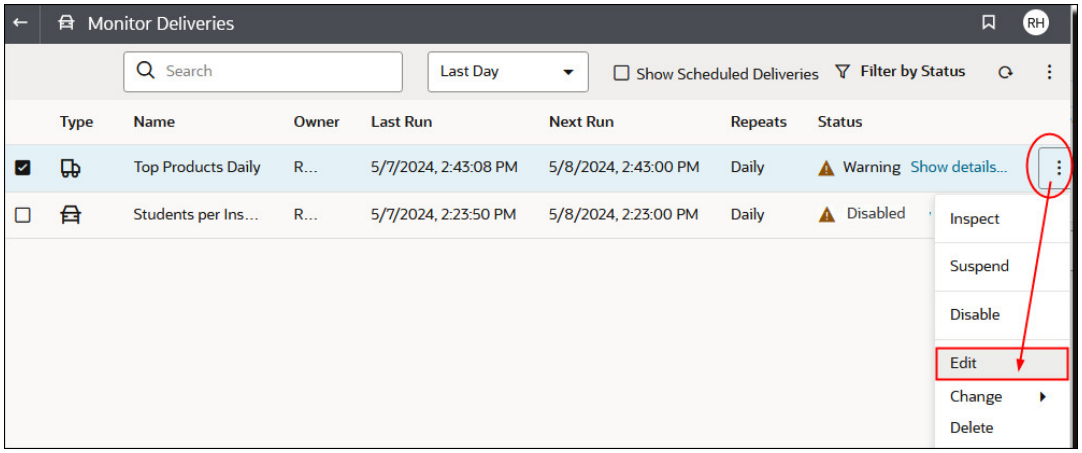
1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Monitor Deliveries**.
3. To view the current recipients for a delivery, click the Action menu for the delivery, and select **Inspect**.
4. Click **Recipients**.
5. Review the current recipient list.

   To filter the list, click the down arrow and select the type of recipient you want to view. Either **Users**, **Emails**, or **Application Roles**. The Application Role filter doesn't show you the users assigned to each application role. If needed, administrators can obtain this information from the **Users and Roles** page in the Console.

   To search for a particulate recipient, start typing the name of the user, email address, or application role in the search box.



6. To edit the recipients, click the Action menu for the delivery, and select **Edit**.



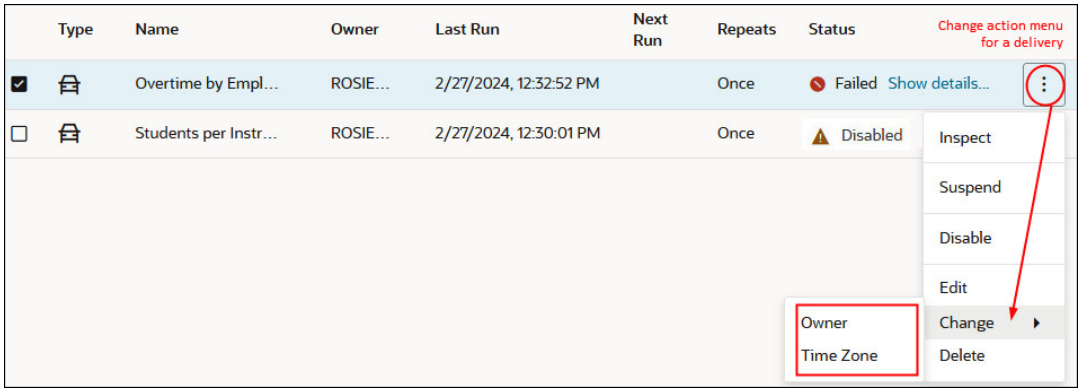
7. Modify the list of recipients for the agent or email delivery.
   - For agents, click **Recipients** and modify the recipient list.
   - For email deliveries, edit the email addresses in the **To** field.

Change the Owner or Time Zone for Deliveries

If you're an administrator, you can change the owner or time zone for one or more deliveries. You can make yourself the new owner or select a different user. This is useful when the original owner changes, leaves your organization, or after migration from a different environment. The change time zone option also comes in handy if you need to change the time zone for multiple deliveries, and this is especially useful when you migrate deliveries from a different environment with a different time zone.

For example, you might migrate deliveries from an on-premises Oracle Analytics Server environment where the time zone is correctly set to your local US time to an environment with a different time zone. If you migrate to Oracle Analytics Cloud where the time zone changes to UTC, your deliveries arrive too early. In this scenario, you need an easy way to update the time zone for all your deliveries.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Monitor Deliveries**.



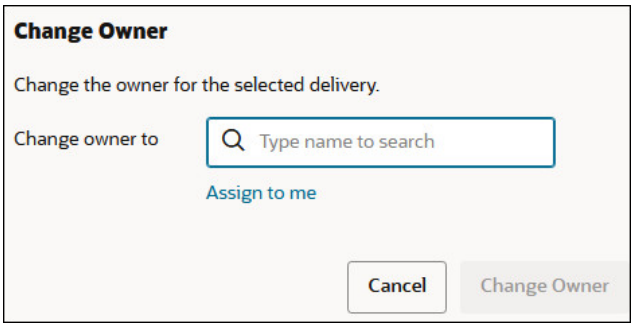
The **Change** menu is available only to administrators. If you don't have the required permissions, ask your administrator to make the changes for you.

3. To change the owner of a delivery, click the Action menu for the delivery, select **Change**, and then **Owner**.

   To change multiple deliveries at once, select **Shift** + click or **Ctrl** + click to select all the deliveries you want, then right-click and select **Change**, then **Owner**.

   a. Start typing the name of the new owner to find the user. Use * as a wildcard.

      Alternatively, click **Assign to Me** to make yourself the new owner.



   b. Click **Change Owner**.

   c. If the current owner and the RunAs user for a delivery are the same, the new owner becomes the new RunAs user. Click **OK** to acknowledge and allow changes to the RunAs user, where required.

      When the RunAs user changes, take care to review the new RunAs user's data and object security to ensure the required access levels are applied.

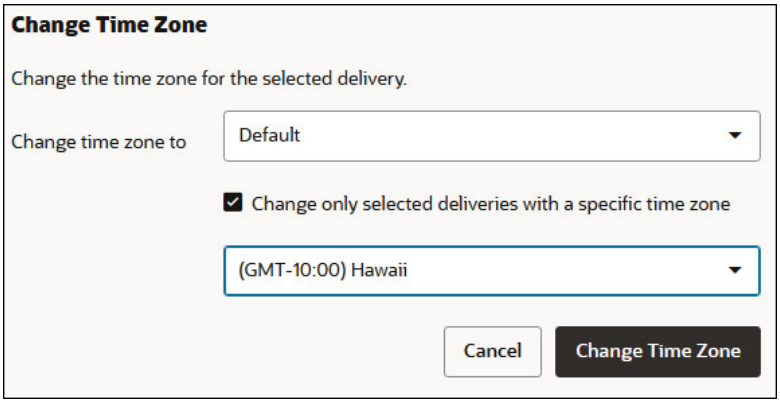
4. To change the time zone of a delivery, click the Action menu for the delivery, select **Change**, and then **Time Zone**.

   To change multiple deliveries at once, select **Shift** + click or **Ctrl** + click to select all the deliveries you want, then right-click and select **Change**, then **Time Zone**.

   a. Select the new time zone for the deliveries you selected.

   b. To only change a specific time zone, click **Change only selected deliveries with a specific time zone** and then select the time zone you want to change.

      Don't select the checkbox if you want all deliveries to use the new time zone.



c. Click **Change Time Zone**.

Restore and Enable Delivery Schedules

When you restore content from a snapshot or migrate content from a different environment, delivery schedules defined for agents, analyses, and dashboards in the snapshot aren't restored or activated right away. When you're ready to restore deliveries on your system, you can decide whether to enable or disable delivery schedules on your system. This is useful as you might not want to immediately start delivering content.

For example, if you're restoring a production environment, you probably want to restart deliveries as soon as possible. Whereas in a test environment, you might prefer to disable deliveries after restoration and activate them at a later date.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Monitor Deliveries**.
3. To restore deliveries, click the **Action** menu for the page and select **Restore Deliveries**.
4. Select whether to restore and activate deliveries or restore deliveries only. Select one of the following:
   - **Maintain Delivery Schedule Status**

     All delivery schedules maintain their status (enabled or disabled).

     – Existing delivery schedules remain unchanged.

     – New delivery schedules created during the restore process inherit the schedule status that's defined in the corresponding agent, analysis or dashboard.

     For example, this option is useful when you restore deliveries in a production environment where you want deliveries to be active immediately.
   - **Disable Delivery Schedules for New Deliveries**

     Delivery schedules that are created during the restore process for agents, analyses, and dashboards are disabled. Existing delivery schedules remain unchanged.

     For example, this option is useful when you restore deliveries in a test environment where you don't need to activate deliveries immediately.
   - **Disable All Delivery Schedules And Delete All History (Not recommended)**

     All delivery schedules are disabled during the restore process and any delivery history is deleted.

     – Existing delivery schedules are disabled.

- New delivery schedules created for agents, analyses, and dashboards during the restore process are disabled.
- Historical delivery details no longer available.

This option is not recommended. If you do select this option, you must manually enable delivery schedules for all agents, analyses, and dashboards.

5. Click **Restore**.
6. To activate a delivery, click the Action menu for the delivery, and select **Enable**.

   To activate multiple deliveries at once, select **Shift** + click or **Ctrl** + click to select all the deliveries you want to activate, then right-click and select **Enable**.

   If necessary, click **Edit** to redefine the delivery schedule.

Manage the Types of Devices that Deliver Content

Oracle Analytics Cloud can deliver content to a wide range of devices. You can add more devices for your organization, if users want to receive content on a device that's not on the list. You can't edit or delete default devices, such as AT&T Wireless.

1. On the Classic Home page, click the user profile icon and then click **Administration**.
2. Click **Manage Device Types**.
3. To define a new type of device:
   a. Click **Create New Device Type**.
   b. Enter information about the device, and click **OK**.
4. To edit a device that you added:
   a. Click **Edit**.
   b. Make your changes, and click **OK**.
5. To delete a device that you added:
   a. Click **Delete**.
   b. Click **OK** to confirm.

Manage Map Information For Analyses

This chapter describes how you set up map information for dashboards and analyses, so that users can visualize and interact with data through maps.

Topics:

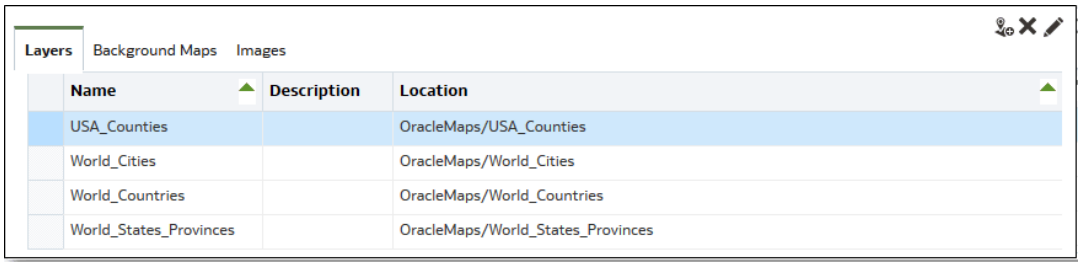
Set Up Maps For Dashboards and Analyses

As the administrator, you define how data columns that you've modeled are displayed on maps. You configure the map data, then users can analyze the data in map views.

Map views allow users to display data on maps in different formats and to interact with data. As the administrator, you must configure the metadata that defines the mapping between business intelligence data and spatial data.

Spatial features such as shape definitions are managed by database administrators for your instance. If a shape geometry definition doesn't exist for a particular column value, then the shape can't be shown on the map and might affect user interactions on the map.

1. On the Classic Home page, click the user profile icon, **Administration**, and then click **Manage Map Data**.
2. On the **Layers** tab, click **Import Layers** from the toolbar.



3. In the Import Layers dialog, select the layers you want to use and click **OK**.
4. Back on the Layers tab, select a layer and click the **Edit Layers** button.
5. In the Edit Layer dialog, associate layers with columns so that users can display data in the map view.
   a. In **Name**, specify the layer name to display to users who work with map views.
   b. In **Location**, specify which background map the layer originates from. Click **Location** to select a different layer.
   c. In **Description**, specify information to help users when they hover over the layer name in the Map Formats area.
   d. In **Layer Key**, specifiy the column of spatial data that you can associate with data. Each column value corresponds to a "shape" that originates from the background map. For example, a MY_CITIES layer might have a layer key called CITY. The default value is a "best guess". Select the appropriate column from the list.

      There are various reasons why a country such as Mexico might be drawn as a white area on a map:

      - The column has a null value for the country of Mexico, but a shape exists for Mexico in the spatial column.
      - The column has a value for the country of Mexico, but no shape exists for Mexico in the spatial column.
      - The column has a value for the country of Mexico and the shape exists for Mexico in the spatial column, but the names are mismatched. The data columns might have the value MEX and the spatial column might have MXC.

   e. In **BI Key Delimiter**, Review the single ASCII character (such as a comma or underscore) to function as a delimiter for combining the data columns that form a key. This value is available only when multiple columns are specified for one key.
   f. In **Geometry Type**, specify whether the layer is a polygon, point, or line geometry layer. The type that you select affects the formatting that users can apply to the layer.
   g. In **BI Key Columns Area**, secifies the columns of data that you want to associate with the layer. You can have multiple columns associated with a single layer. You can select multiple columns from one subject area or from multiple subject areas. The columns and delimiter that you select must exactly match the name of the **Layer Key** value.

Suppose the Layer Key value is STATE_CITY. You must select the STATE and CITY BI data columns and specify the underscore character in the **BI Key Delimiter** field.

Use the various options in this area:

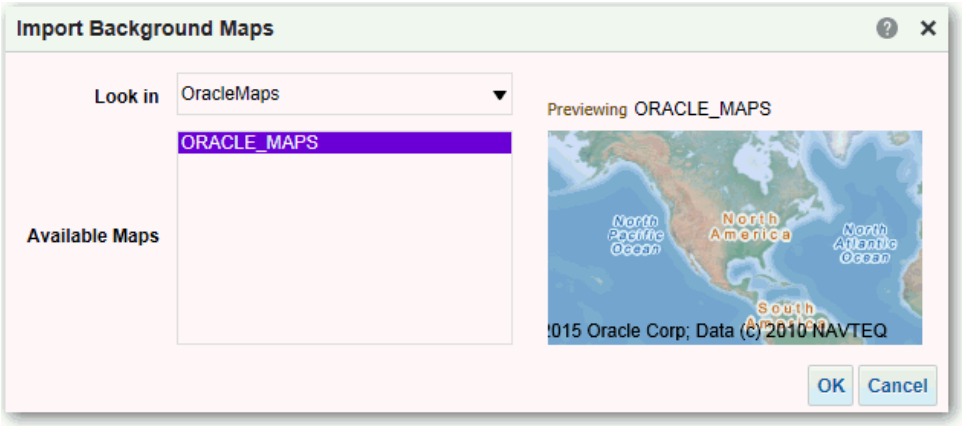
- **Add** — Displays the list of available subject areas. Select a subject area and select all the data columns that you want to associate with the layer.
- **Delete** — Deletes the selected key column.
- **Edit** — Lets you edit the data columns associated with a layer.

When a content designer creates a map view, a default main map is selected as the basis for that map view. If at least one data column from the analysis is associated with a layer that's associated with a main map, then that main map is selected by default.

h. In **Show Qualified Names**, specifies whether to display the fully qualified name of the column in the BI Key Columns Area or simply the column name.

6. Click **OK** to close the dialog.
7. Click the Background Maps tab, then click the **Import Background Maps** button.
8. In the Import Background Maps dialog, select the connection in the **Look in** field and the main maps to use, then click **OK**.

   The connection that you select for the main map can be different from the connection for the layers or images.



9. See Editing Background Maps for the steps required to prepare the background maps.

After you've added background maps and map layers, you can use the information to create a static image for a map. The static image is displayed to content designers and users who work with map views.

Edit Background Maps For Dashboards and Analyses

You edit background maps to ensure that users have a seamless experience with map views in dashboards and analyses.

A background map is a non-interactive map that serves as a base for the map view. It might display a satellite image or a map with roads. The background map specifies the order of layers on the map view.

The ordering of map layers is very important. You must pay close attention to ensure that users have a seamless experience while navigating on the map (that is, drilling and zooming). In the

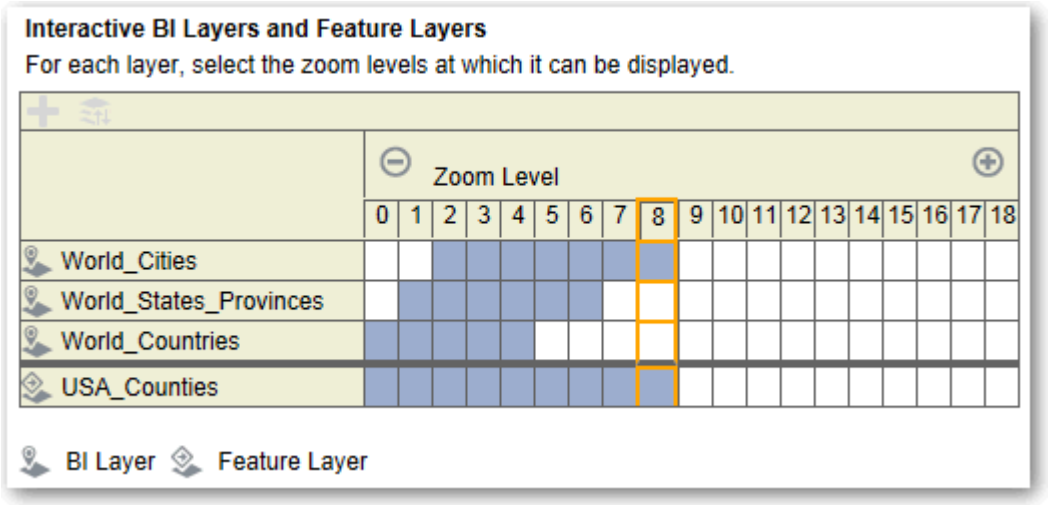
Edit Background Map dialog, you assign each layer a minimum and maximum zoom range. Given that the map zoom slider can slide only from bottom to top vertically, the layers with lower minimum zoom levels are placed at the bottom of the slider. Ensure that the layer grid on the Interactive BI Layers section of the dialog follows a similar pattern, so that you place layers with lower minimum zoom levels at the bottom of the list.

Layer ordering becomes irrelevant when the zoom ranges of layers don't intersect on the scale. Ordering becomes very important when layers have a common minimum and maximum zoom range. Use care to ensure that detailed layers aren't hidden by the aggregated layers during drilling or zooming operations.

1. On the Classic Home page, click the user profile icon, **Administration**, and then click **Manage Map Data**.
2. Click the **Background Maps** tab, select a map, then click the **Edit Background Map** button to display the Edit Background Map dialog.
3. Specify the name and description of the map, which is displayed as a tooltip for the map when selecting a map from the list, when editing the map view.
4. The Location field displays the location of the background map in the data source. Click the **Location** button to change to a different map. If you select a background map that includes a different number of zoom levels, then the zoom levels are automatically adjusted for the layers that are associated with the map by scaling their ranges.
5. Click the **Add Layers** button to display a list of the layers that have been imported on the Layers tab, then select the layers to add to the map. This button is unavailable when all layers from the Layers tab have been added to the background map.

   When you add a layer that's part of the map definition, the layer displays at its default zoom levels. If the layer isn't part of the map definition, then specify the zoom levels yourself.

   The layers are listed from bottom to top, in terms of how they're applied to the map. A sample order is Countries, States, Cities. The lower level layers generally have the lower zoom levels. For example, if you have a States layer and a Cities layer, then include lower zoom levels for State than City.



6. Click the **Sort Layers By Zoom Level** button to list the layers in ascending or descending order based on visibility on the map. This button is unavailable when layers are listed in the proper order.

The sort order that's specified here doesn't affect the order in which layers are applied on the map. Instead, the sorting order affects the zoom levels. For example, the States layer might have zoom levels 1 through 3 and the Cities layer has zoom levels 4 through 9. The lower layers have the lower zoom level numbers. The zoom levels that you specify correspond to the tick marks on the zoom slider on the map.

You can include both layers that have been associated with a column by using the Edit Layer dialog and layers that haven't been associated. Ensure that BI layers are ordered higher than non-BI layers. If a non-BI layer is ordered higher than any BI layers, then the non-BI layer is displayed on top of the lower BI layers on the map, which prevents the BI layers from being interactive.

7. Click the **Turn On Layer Visibility** or **Turn Off Layer Visibility** button to control the visibility of layers on the map. Use the buttons to indicate whether the layer is visible in the Preview map in this dialog only. The layer is still visible on a map view. You can modify the zoom levels for a layer with a visibility turned off.
8. Click a cell under a zoom level for a layer to affect the zoom level:
   - If you click a blue cell that's between other blue cells, then you see a popup menu with **Clear Before** and **Clear After** buttons, which allow you to change the zoom level in either direction. For example, if you click the cell for zoom level 4 and click the eraser on the right, then all cells to the right are cleared for that zoom level.
   - If you click a blue cell that at the end of a line of blue cells, then the cell turns white to indicate that it's no longer part of that zoom level.
   - If you click a white cell, then you increase the zoom level on either side of the existing blue cells. For example, suppose cells 4 through 6 are colored blue to reflect the zoom level. If you click in cell 2, then the zoom level becomes 2 through 6.

   If you don't set any zoom levels for a layer, then that layer doesn't display on the map.
9. Click the action icon beside the layer name to display a menu from which you can make various selections:
   - **Delete** — Removes the layer from this background map. The layer continues to be available on the Layers tab and can be added to this area again.
   - **Move Up** or **Move Down** — Moves the layer up or down so you can specify the order in which layers are applied to the map.
   - **Reset to Default Visibility** — Resets the current visibility range for this layer as defined in the underlying map definition. If this layer isn't natively associated with the map, then this option is disabled for that layer.
10. Use the yellow border that surrounds the column of boxes for a zoom level to determine which zoom level is currently displayed in the map area.
11. Use the panning and zooming controls to specify how the map is displayed to users. If you hover over the zoom slider, then you see tooltips that specify the names of the layers that are currently associated with that zoom level.
12. Click **OK**.

Switch to a Different Language

Oracle Analytics supports a range of languages.

- What languages does Oracle Analytics support?
- What's translated?
- What isn't translated?

- How do I select my language?
- How do I find documentation in my language?

What languages does Oracle Analytics support?

Oracle Analytics supports 28 languages:

Arabic, Chinese (Simplified), Chinese (Traditional), Croatian, Czech, Danish, Dutch, English, Finnish, French, French (Canada), German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian (Bokmål), Polish. Portuguese. Portuguese (Brazil), Romanian, Russian, Slovak, Slovenian, Spanish, Swedish, Thai, Turkish.

What's translated?

- **User Interface:** Oracle Analytics translates text in menus, buttons, messages, and other elements of the user interface.
- **Auto-generated text:** Some auto-generated text in content that you create is translated too. For example, automatically generated titles and filters displayed in visualizations, analyses, dashboards, pixel-perfect reports, and so on.
- **User guides:** Several user guides are translated.

What isn't translated?

A few features are available only in English.

- Analyses, dashboards, and pixel-perfect reports:
  - User-defined titles and text in your workbooks, unless you choose to translate them. See Localize Catalog Captions.
  - Column names coming from your data sources, unless you set up column name translation in your semantic model.
- Data visualization workbooks:
  - User-defined titles and text in your workbooks.
  - Column names coming from your data sources, such as "Revenue". Unless your workbook is based on a subject area and you set up column name translation in your semantic model.
  - Text generated for Language Narrative visualizations is only available in English or French. Oracle Analytics maps French locales (fr and fr-CA) to the French language, and maps all other locales to English.
  - Default names for your workbooks. If English is your selected language, the default name for workbooks is *Untitled*. If you use a different language such as Italian, the default name when you save a workbook is the equivalent of *Untitled* in Italian. However, after you save a workbook, the name is fixed in that language. Workbook names don't change if you sign-in with a different language.
- Datasets:
  - Column names in Microsoft Excel spreadsheets that you upload.
  - Column names from your data sources.

How do I select my language?

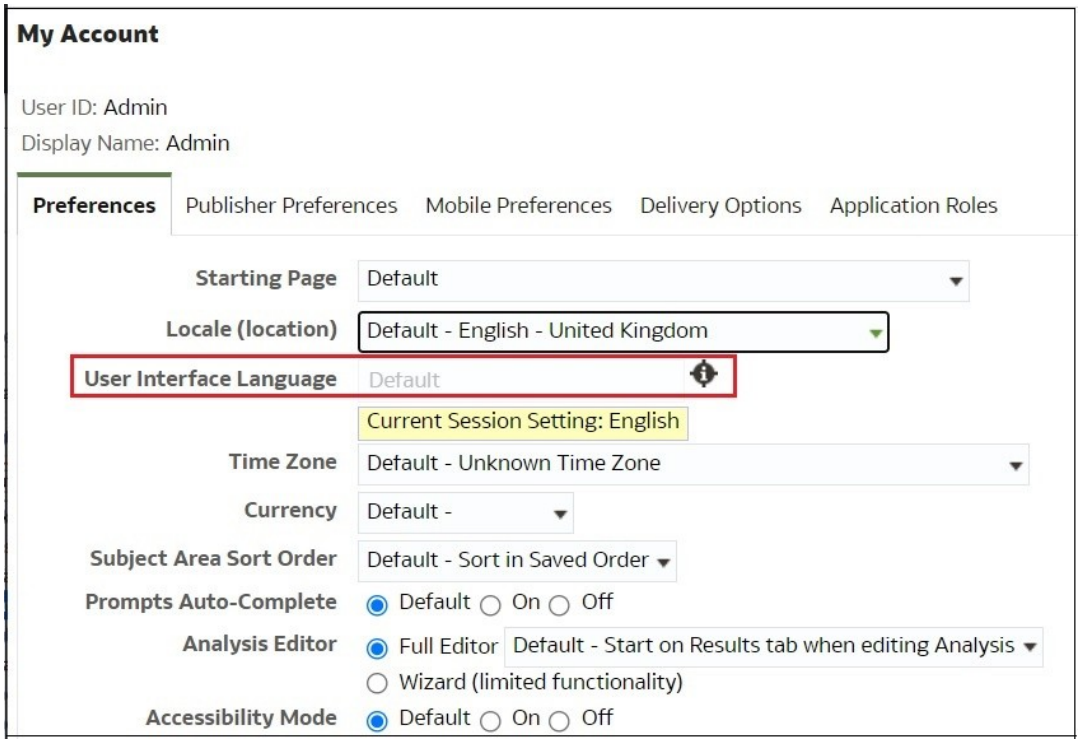
Several options are available:

- Select your language in your browser settings.

Refer to the documentation for your browser.

- (Classic pages only) Select your language in the My Account preferences tab, available from the Classic Home page.

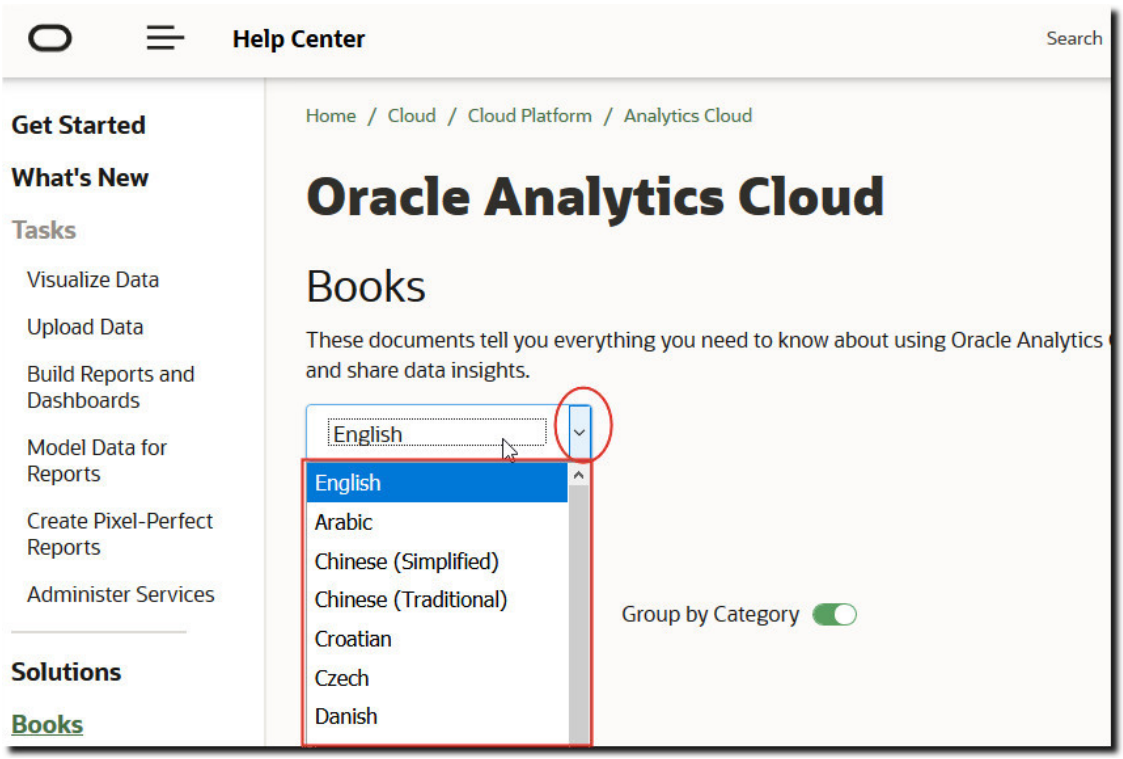
  See Set Your Preferences.



How do I find documentation in my language?

In most cases, when you click Help in Oracle Analytics, user assistance is displayed in the same language as the user interface. For example, if you're working in French, the Help is displayed in French.

Several Oracle Analytics user guides are translated into the same 28 languages as the user interface. To find books translated in your language, navigate to your Oracle Analytics product on Oracle Help Center, select the Books tab and then select your language.



Update the Cloud Storage Password

Oracle Analytics Cloud stores analytics datasets and backups in cloud storage. If the credentials required to access the cloud storage container change or expire, users might see the message "`Failed to connect to the storage service. Please check the user and password are correct`". If this happens, administrators can update the storage password. The way you do this depends whether your Oracle Analytics Cloud service is managed by Oracle or by you (customer managed).

Topics:

- Update the Cloud Storage Password for an Oracle-Managed Service
- Update the Cloud Storage Password for a Customer-Managed Service

Update the Cloud Storage Password for an Oracle-Managed Service

If your Oracle Analytics Cloud is managed by Oracle, you can update the cloud storage password from the Console.

1. Click **Console**.
2. Click **Connections**.
3. Click **Update Cloud Storage Password**.
4. Enter the **Storage Password**.
5. Click **Save**.

Update the Cloud Storage Password for a Customer-Managed Service

If your Oracle Analytics Cloud is a customer-managed service, you must sign in to Oracle Cloud Infrastructure Console to update cloud storage credentials and restart the service. Contact your service administrator if you don't have the required permissions.

See Manage Credentials in *Administering Oracle Analytics Cloud - Classic*.

Make Preview Features Available

Preview features allow your organization to explore and try new features before they're available as standard features. Preview features are either disabled by default (Systems Settings page) or clearly marked as preview. Administrators can go to the Console (System Settings) to switch on individual preview features for others to use.

To find out about features disabled by default on the Systems Settings page, see Preview Options.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **System Settings**.
3. Click **Preview**.
4. Enable preview options if you want to make these features available to your organization.
5. If required, click **Apply**.

Wait up to 10 minutes for the change to take effect. After you enable a preview feature, users must sign out and sign in to use it.

5

Manage Content and Monitor Usage

This topic describes tasks performed by administrators monitoring Oracle Analytics Cloud and managing content.

Topics:

Typical Workflow to Manage Content and Monitor Usage

Here are the common tasks for Oracle Analytics Cloud administrators managing content and usage.

Task	Description	More Information
Back up and restore content	Back up and restore the semantic model, catalog content, and application roles using a file called a snapshot.	Take Snapshots and Restore
Manage how content is indexed and searched	Set up how content is indexed and crawled so users always find the latest information when they search.	Manage How Content Is Indexed and Searched
Free up storage space	Delete data sources on behalf of other users to free up storage space.	Delete Unused Datasets
Migrate from Oracle Business Intelligence Enterprise Edition 12*c*	Migrate reporting dashboards and analyses, semantic models, and application roles.	Migrate Content from Oracle BI Enterprise Edition 12c
Upload semantic models from Oracle Analytics Server	Upload and edit semantic models from Oracle Analytics Server	Upload Semantic Models from Oracle Analytics Server Edit a Semantic Model in the Cloud
Manage user session information	Monitor who is signed in and troubleshoot issues with analyses by analyzing the SQL queries and logs.	Monitor Users and Activity Logs

Manage How Content Is Indexed and Searched

Administrators can set up how data sources and catalog content are indexed and crawled so that users find the latest content when they search or create visualizations from the search bar on the Home page.

Topics

Configure Search Indexing

The catalog and semantic models are crawled and indexed so users can quickly find content when they search or visualize data from the search bar on the Home page.

The **Data Model** pane on the Search Index page controls which subject areas are indexed. The indexing of an uploaded file-based dataset is controlled on its Inspect dialog. See Index File-Based Datasets.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Search Index**.
3. To ensure users find the most recent information when they search for subject area columns, in the **Data Model** pane, select **Enable Data Model Crawl** and use the **Select Data Models to Index** and **Crawl Status** columns to browse for and specify which subject areas and dimensions you want to index. Select only the items needed to create useful search results. Indexing all items yields too many similar search results.
   - Choose **Index Metadata Only** to index dimension and measure names only. This is the default setting.
   - Choose **Index** to index dimension names, measure names, and values. Indexing values provides additional functionality for users who visualize data values from the search bar on the Home page. Be aware that selecting this option can be costly because it indexes values for all of the columns in all subject areas of the semantic model.
4. To ensure that users find the most recent information when they use the Home page to search for catalog content (workbooks, analyses, dashboards, and reports), in the **Catalog** pane and specify what to index. In most cases you shouldn't have to modify the settings in this tab.
   - Confirm that the **Index User Folders** field is selected. Oracle recommends that you don't deselect this option. If deselected then no folders in the catalog are indexed and the Home page search returns very limited and possibly no results.
   - Use the **Catalog Object (Shared Folders)** list to browse for and specify which folders, subfolders, and items you want to index or not index. Select only the items needed to create useful search results. Indexing all items yields too many similar search results.
   - Oracle recommends that you don't set the **Crawl Status** field to **Don't Index** as a way of hiding an item from users. Users won't see the item in search results or on the Home page, but are still able to access the item. Instead, use permissions to apply the proper security to the item.

Schedule Regular Content Crawls

The administrator selects which folders to crawl and schedules when and how often to crawl the content.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Search Index**.
3. Select **Data Model** or **Catalog**.
4. Use the **Schedule** options to specify when and how often to run the crawl.

   The index updates automatically as users add or modify catalog content.

   By default, a semantic model crawl runs once each day and a catalog crawl runs once each week.

   Normally you don't need to change this default. However, in some cases you might want to schedule a crawl as needed (for example, after importing a BAR file or if automatic indexing didn't run).
5. For **Languages**, select all the languages you want to create indexes for.

   Crawl results are added to the index in the languages that you specify. For example, if your company's headquarters are in the United States, and you have offices in Italy, then you can choose English and italiano to create indexes in both English and Italian.
6. Click the **Save** icon to save your changes.

Monitor Search Crawl Jobs

Administrators can check the last time content was indexed and monitor the status of crawl jobs. You can stop any crawl job that is running, cancel the next scheduled crawl before it starts, or rerun a failed crawl.

If users report search issues, check the status of crawls to ensure that they're current. After a crawl is completed, users might have to wait a few minutes before they can locate the latest content.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Search Index**.
3. Click **Monitor Crawls**.

   The Crawl Job Status page shows information about the past, current, and the next scheduled crawl. In the Progress column, XSA indicates a dataset.
4. Look at the **Status** column to find out when the content was last crawled and when the next crawl is due.
5. Click **Cancel** to stop a crawl job that is Running or Scheduled.
6. To rerun a crawl with the status of Terminated or that displays progress totals of zero:
   a. Click the **Configure Crawls** link.
   b. In the Data Model tab, deselect and then reselect the **Enable Data Model Crawl** checkbox.
   c. Click **Save**.
   d. Click the **Monitor Crawls** link and locate the scheduled job. The revised crawl runs in a few minutes time.

Certify a Dataset to Enable Users to Search It from the Home Page

You certify a dataset uploaded by a user so that other users can search it from the home page using the search bar.

As an administrator, you use certification to control how much compute time is consumed by indexing datasets, which can affect system performance.

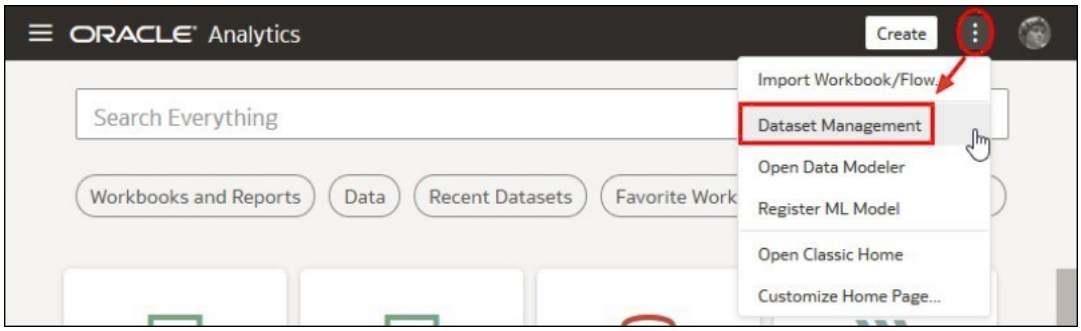
1. From the Home page, click **Navigator**, click **Data**, then click **Datasets**.
2. Hover over the dataset you'd like to certify, click **Options** ⋮, then click **Inspect**.

   If you can't see **Options**, expand the size of your browser or scroll to the right-hand side of your device screen.
3. On the General tab, click **Certify**.
4. On the Search tab, click **Index Dataset for Searching**, and select the level of indexing.
5. Use the other options on the Search tab to specify the language and indexing frequency.

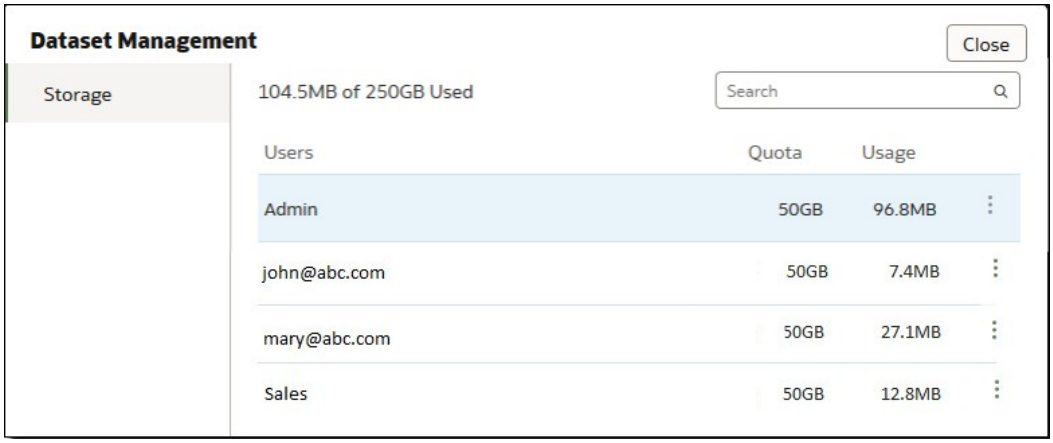
Delete Unused Datasets

Your service comes with a fixed storage quota for data files. From time to time, administrators might need to delete datasets on behalf of other users to free up storage space and enable the service to function properly. For example, a user uploads data files and then their account is disabled when they leave the company.

1. Click the **Page** menu on the Home page, and select **Dataset Management**.



2. To free up some space, click the **Options** menu for a user with files you want to delete.



3. Select one of the following options:
   - **Delete Private** to delete non-shared (private) data files.
   - **Delete All** to delete all data files.

Migrate Content from Oracle BI Enterprise Edition 12c

You migrate semantic models, dashboards, analyses, and application roles from Oracle BI Enterprise Edition 12c using a BAR file.

To understand the entire migration process, read the migration guide *Migrating Oracle Business Intelligence Enterprise Edition to Oracle Analytics Cloud*.

You can find instructions on how to use the WLST command `exportarchive` to capture the content you want to migrate in a BAR file in this guide. See Export Content from Oracle BI EE 12c.

Migrate Content to Other Catalogs

Administrators can copy catalog content from one environment to another using the catalog archive and unarchive options. Archiving saves your content to a `.catalog` file on your local file system. Unarchiving uploads content from catalog files to another catalog location.

Topics

Save Content to a Catalog Archive

Administrators can copy or move content you create in one environment to another environment using the catalog archive/unarchive feature. Archiving saves one or more objects or folders that contain multiple objects to a `.catalog` file on your local file system.

You can upload the `.catalog` file at a different location.

1. On the Classic Home page, click **Catalog**.
2. Navigate to the folder or object you want to copy or move to another catalog.

   If you select a folder, all the content in that folder is included in the catalog archive, including any subfolders.

   To select multiple items, press and hold the `Ctrl` key, and click the objects you want.
3. Select **More** and then select **Archive**.
4. Select **Keep Permissions** to save the permission settings, if any.

   If you don’t select this option, permissions are excluded. This can be useful if you're migrating content from a test environment and none of the permissions you assigned to test users are required in the production system. When you unarchive, the content inherits permissions from the parent folder on the target system.
5. Select **Keep Timestamps** to save information such as time created, last modified, and last accessed.

When you unarchive, timestamp information is retained and you can choose to only overwrite items that are older than those in the catalog archive.

If you don't select **Keep Timestamps**, the original age of content isn't saved or considered when you unarchive the content.

6. Click **OK**.
7. Select **Save File**.

   If you want to, change the name of the catalog file.
8. Select a folder and click **Save**.

Upload Content from a Catalog Archive

Administrators can upload content from Oracle Analytics and Oracle BI Enterprise Edition 11.1.1.9.0 or later. Select the custom catalog folder where you want the content to go, and , if you have BI Consumer permissions, you'll see an **Unarchive** option. Point to a catalog archive, any valid `.catalog` file, to copy its content to this folder.

1. On the Classic Home page, click **Catalog**.
2. Navigate to a custom folder where you want to unarchive the content of your file.
3. In **Unarchive**, click **Browse** to select the archive file.
4. In **Replace**, select an option:
   - **None:** Never overwrite existing content. This is the default setting.
   - **All:** Overwrite existing content, except for content marked Read-Only.
   - **Old:** Overwrite existing content if it's older than the content in the file.
   - **Force:** Overwrite all content, even newer content and content marked Read-Only.
5. In **ACL**, select an option.
6. Click **OK**.

For reports to work, all the required tables and data must be available to Oracle Analytics. Load the data or connect to the data if it's stored in an Oracle Cloud database.

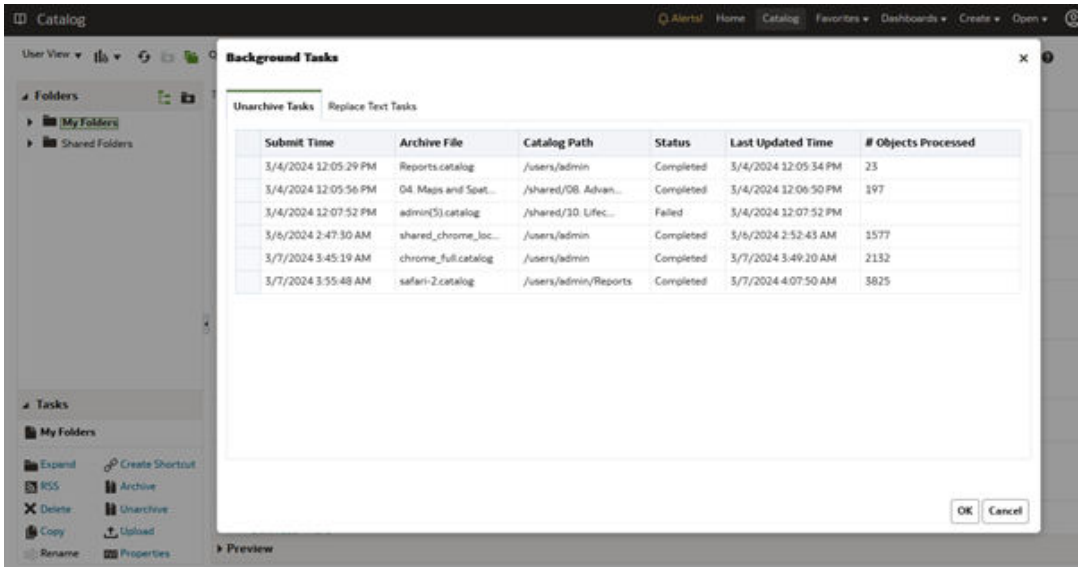
Track the Progress of Your Catalog Unarchive Tasks

Administrators can track the progress and current status of any catalog unarchive operations that you initiate from the **Unarchive Tasks** tab.

Large catalogs might take some time to process. Check the information on this tab to find out when your task starts or completes, and troubleshoot any errors that might occur.

1. Navigate to the Classic Home page.
2. Click **My Profile**, and select **Background Tasks**.
3. Click **Unarchive Tasks**.

   If the tab doesn't display, clear the browser cache.



4. Check the status to see whether your unarchive operation is complete, still in progress, not started yet (submitted), or failed for some reason.

Monitor Users and Activity Logs

You can see information about any users who are currently signed in and troubleshoot report queries from the Manage Session page.

Topics:

- Monitor Users Who Are Signed In
- Analyze SQL Queries and Logs

Monitor Users Who Are Signed In

You can see how many users are signed in to your service and view detailed information about each user from the Manage Session page.

- **User ID**: Name that the user entered when they signed in.
- **Browser Info**: Information about the browser used to sign in.
- **Logged On**: Time when the user signed in.
- **Last Access**: Time stamp for the last activity for this user. This can be any kind of activity, such as switching from one page to another.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Session and Query Cache**.
3. Locate the **Sessions** sections.

   The Sessions section at the top of the page shows how many users are currently signed in (Total Number of Sessions) and detailed information about these users.
4. To monitor a particular user, select **Filter Cursors by Session**.

   Information for this user displays in the Cursor Cache table.

   Click **Clear Filter** to show information for all users.

5. To change how messages are logged for a particular user, select a **Log Level** from the list.

   By default, logging is disabled.

Analyze SQL Queries and Logs

Administrators can examine the underlying SQL query requests that are run as people use the service.

1. In the Home page, click the **Navigator**, and then click **Console**.
2. Click **Sessions and Query Cache**.
3. Locate the **Cursor Cache** section, and review the query information recorded there. See Query Information Recorded in the Cursor Cache Table.
4. Optional: Click **Close All Cursors** to remove information in the Cursor Cache table.
5. Optional: Click **Cancel Running Requests** to cancel all requests that are running for analyses.

Query Information Recorded in the Cursor Cache Table

Administrators can examine the underlying SQL query requests that are run as people use the service.

These options apply only to analyses and dashboards. They don't apply to data visualizations.

Field	Description
ID	A unique internal identifier that is assigned to each entry.
User	The name of the user who ran the analysis and last placed it into the cache.
Refs	The number of references to this entry since it was placed into the cache.
Status	The status of the analysis that is using this cache entry: • **Starting** — The analysis is starting to run. • **Waiting on Parent** — A view in the analysis is waiting for data to be returned for the query. • **Running** — The analysis is currently running. • **Finished** — The analysis has finished. • **Queued** — The system is waiting for a thread to become available so the analysis can be processed. • **Canceling** — The application is in the process of canceling the analysis. • **Error** — An error occurred during the processing or running of the analysis. Look in the Statement column for information about the error.
Time	The time taken to process and run the analysis, displayed in one-second increments. A value of 0s (zero seconds) indicates that the analysis took under 1 second to complete.
Action	Links that you can click to affect the analysis: • **Cancel** — Terminates the analysis. Is displayed for in-progress analyses. The user running the analysis receives an informational message indicating that the analysis was canceled by an administrator. • **Close** — Clears the cache entry associated with this analysis. Is displayed for completed analyses. • **View Log** — Displays the log of a query run for this analysis. • **Diagnostic** — Displays an HTML page of diagnostic information that you can share with Oracle Customer Support.

Field	Description
Last Accessed	The time stamp of the last time the cache entry for this analysis was used to satisfy an analysis.
Statement	The logical SQL statement that was issued for the analysis; or if the analysis resulted in an error, information about the nature of the error.
Information	Usage tracking information (for example, what analysis contained the query).
Records	The number of records in the result set that have been seen (for example, 50+ to indicate that 50 records have been seen but there are additional records to be fetched or 75 to indicate that 75 records have been seen and there are no more records to be fetched).

Run Test SQL Queries

Administrators can enter a SQL statement directly to underlying data sources. This feature is useful for testing and debugging.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Issue SQL**.
3. Enter the SQL statement. For example:

```
SELECT
    XSA('weblogic'.'SalesTargets')."Columns"."E1 Sales Rep Name" s_1
FROM XSA('weblogic'.'SalesTargets')
```

4. Change the **Logging Level** if required.
5. Select **Use Oracle Analytics Presentation Services Cache**.
6. Click **Issue SQL**.

Manage Content

Administrators can manage Oracle Analytics content from the Console. For example, if an employee leaves an organization, you might assign ownership of their workbooks and machine learning models to a different employee.

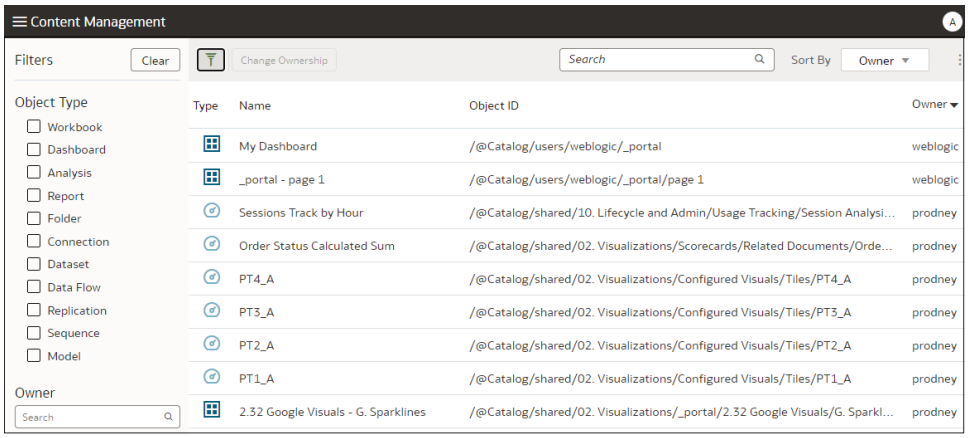
Topics

- Overview of Content Management
- Change Ownership of Content
- Change Ownership of Content in a User's Private Folder
- Frequently Asked Questions About Content Management

Overview of Content Management

Oracle Analytics enables you to view and manage Oracle Analytics content. For example, if an employee leaves an organization, you can reassign their workbooks and machine learning models to a different employee.

As an administrator, you can use the Content Management page to view, manage, and change ownership for all content types.



From the **Actions** menu for each item, you can also use the **Open in Classic Catalog** option to display the catalog folder where the item is stored so that you can make other configuration changes. For example, to change an item's properties or permissions, hover over over the item, click **Actions** ⋮ at the far right-hand side, and click **Open in Classic Catalog**. **Note**: You need to own the item to see the **Open in Classic Catalog** option.

About Content Ownership

As an administrator, you can change ownership to:

- Yourself, as administrator.
- A different user.
- Every user with a specific application role (some restrictions apply, see Frequently Asked Questions About Content Management).

If you own content, you have these privileges:

- If you own an object with an Object ID prefixed with /@Catalog/, you can review the properties of that object and change permissions even if you have no other permissions on it.
- If you own an object with an Object ID prefixed with /@default/, you always have full permissions on that object.

Change Ownership of Content

You can change the ownership of Oracle Analytics content from the Console. For example, if an employee leaves your organization, you can reassign their workbooks and machine learning models to different employees so that they can use them.

Changing ownership enables you to reuse analytics content if the original content author is no longer in your organization. You can also quickly provide analytics users with access to analytics content.

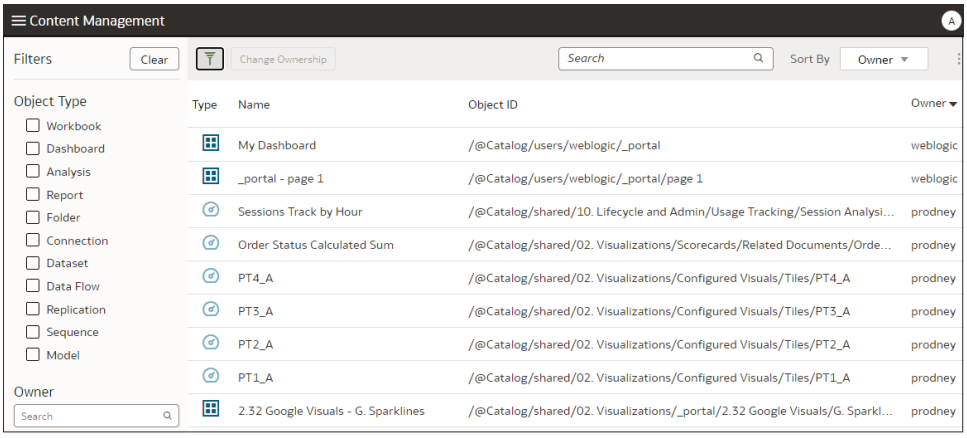
Depending on the object, you can assign ownership to yourself, another user, or a role:

- If you select an object with an object ID that starts with /@default/, you can assign it to another user.

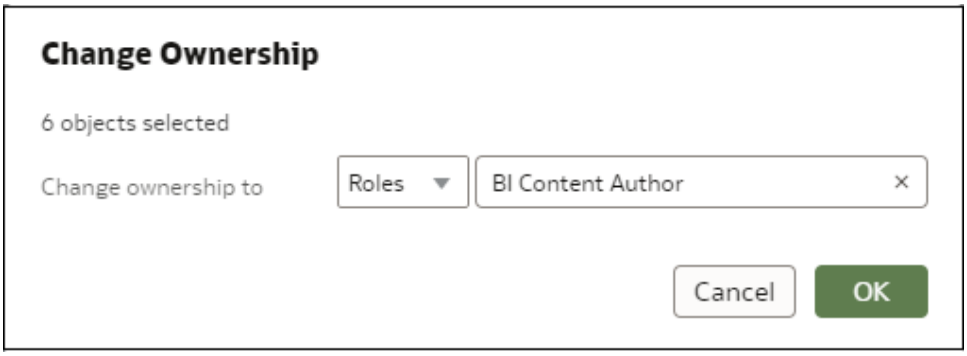
- If you select an object with an object ID that starts with /@Catalog/, you can assign it to another user or to an application role.
- If you want to assign multiple objects to an application role, make sure you select only objects with object IDs starting with /@Catalog/.

To change ownership of content in a user's private folder, see Change Ownership of Content in a User's Private Folder.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Content** to display the Content Management page.



3. Locate the items whose ownership you'd like to reassign:
   - To locate all objects belonging to a user, click **Filters**, then enter the user's username in the **Owner** field. You can further refine the selection using the **Object Type** options.
   - Use the **Object Type** options to restrict the list to specific types (click **Filters** to display).
   - Use the **Search** box to locate text in the **Name** field. For example, enter 'cluster' to display objects with cluster in the name.
4. Click to select an item or use Ctrl and click to select multiple items.
5. Click **Change Ownership**.

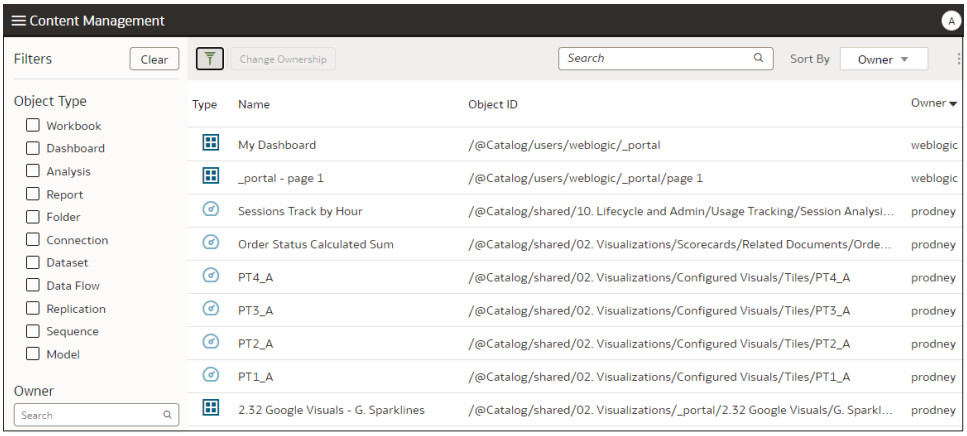


6. Use the **Change ownership to** options to specify a new owner (or owners) for the objects.
7. Click **OK**.

Change Ownership of Content in a User's Private Folder

You can transfer ownership of content that users save in private folders. For example, if an employee leaves your organization, you might move their private workbooks and machine learning models from the `\User Folders\<User>\` folder to a different folder so that other users can edit and deploy them.

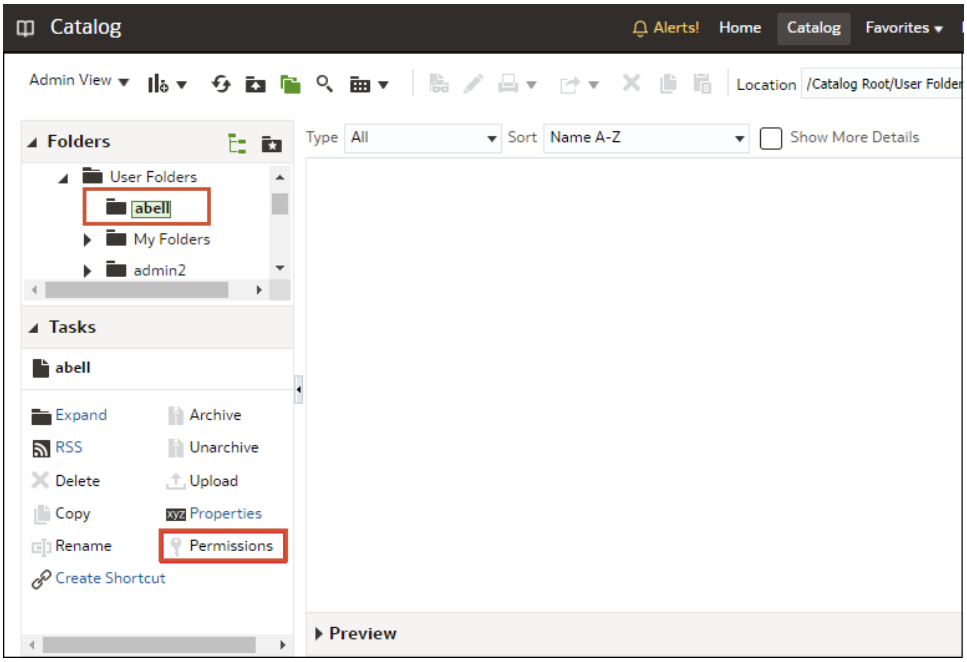
1. In Console, change the ownership of the private objects to the administrator:
   a. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
   b. Click **Content** to display the Content Management page.



   c. Click **Filters**, and then enter the name of the user in the **Owner** field.

      You see all content owned by that user. Private objects are prefixed with /@Catalog/users/<*username*>/ in the **Object ID**). For example, private content owned by someone with the username "john.smith" is prefixed with /@Catalog/users/john.smith/.

   d. Select one or more private objects owned by the user.
   e. Click **Change Ownership** to display the Change Ownership dialog.
   f. Under **Change ownership to**, click **Users**, and enter your username or Admin, then click **OK**.
2. In the Catalog, change the permissions for the private objects and move them to a new folder:
   a. Click **Navigator**, then click **Home**, and from the **Page Menu** select **Open Classic Home**.
   b. Click **Catalog**, then click **Admin View** in the top left-hand corner.
   c. Under **User Folders**, click **My Folders**, then select the user's private folder.
   d. In the **Tasks** panel, click **Permissions**, and assign control of the folder and its contents to the a different user.



e. Move the content from the user's private folder to a different folder that other users can access.

   In the source folder, select the objects you want to move, then click **Copy**. Then, in the target folder, click **Paste**.

   For example, you might move workbooks and machine learning models from the \User Folders\USER1\ to \User Folders\USER2\, or to a shared folder that multiple users can access.

Frequently Asked Questions About Content Management

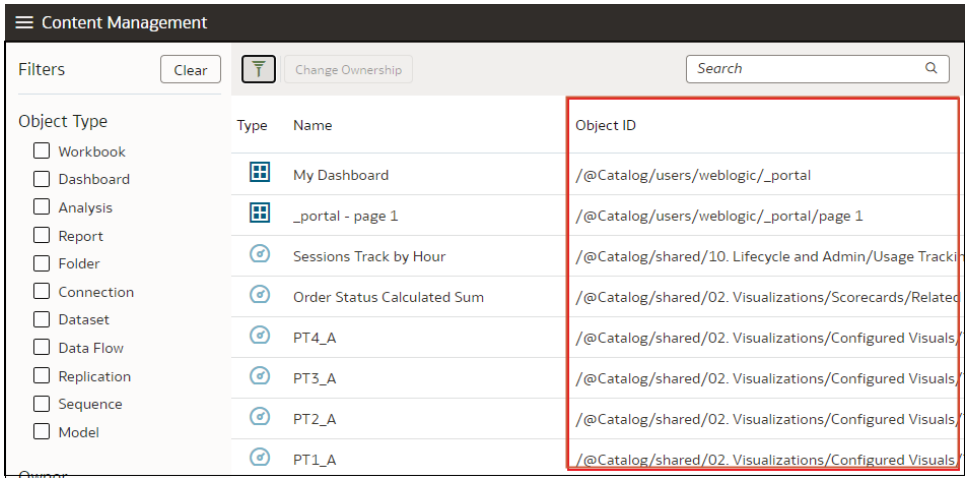
Find the answers to common questions about content management in Oracle Analytics.

What restrictions apply when reassigning ownership to roles?

- You can assign objects with an object ID prefixed with `/@Catalog/` to users or roles.
- You can assign objects with an object ID prefixed with `/@default/` to users only.

If you want to reassign multiple items to a role, then first deselect items with an object ID prefixed with `/@default/`).

To see how object IDs are prefixed, look at the **Object ID** column on the content management page.



What does `@default` prefix or `@Catalog` prefix mean in an object ID?

A `@Catalog` prefix indicates a workbook, connection, dataset, data flow, replication, sequence, or model. A `@default` prefix indicates an analysis, dashboard, report, or folder.

6

Manage Publishing Options

This topic describes tasks performed by administrators managing pixel-perfect publishing.

Topics:

About Administering Pixel-Perfect Reporting

Administrator configures the components required for pixel-perfect reporting.

Administrators with BI Service Administrator role can use the **Manage Publisher** option in the Classic Administration page to set up and configure several components before users start building pixel-perfect reports.

Roles Required to Perform Pixel-Perfect Reporting Tasks

Understand the application roles required for performing the pixel-perfect reporting tasks.

Application Role	Tasks
BI Service Administrator	Set up data source connections to retrieve data for reporting from: • JDBC Connection • JNDI Connection • OLAP Connection • Web Service Connection • HTTP Connection • Content Server You can also use the following data sources: • Oracle BI Analysis • Oracle BI Server subject area

Application Role	Tasks
BI Service Administrator	Configure the connections to delivery servers: • Printer • Fax • Email • HTTP • FTP • Content Server • CUPS (Common UNIX Printing System) Server • Oracle Content and Experience Server
BI Service Administrator	Configure the scheduler processors
BI Service Administrator	Configure system runtime properties that do the following: • Control the processing for different output types • Enable digital signature • Tune for scalability and performance • Define font mappings
BI Service Administrator	Configure server properties such as caching specifications, database failover properties, and database fetch size.
BI Content Author	Fetch and structure the data to use in reports.
BI Consumer	• View reports • Schedule report jobs • Manage report jobs
BI Content Author	• Create report definitions • Design layouts

Navigate to the Administration Pages for Pixel-Perfect Reporting

Administrators set the options for Publisher reports through the administration pages for pixel-perfect reporting.

1. Sign in to Oracle Analytics Cloud.
2. Click the **Page** menu on the Home page, and select **Open Classic Home**.
3. Click **Administration**.
4. Click **Manage Publisher** .
5. On the Publisher Administration page, select the required option.

Configure System Maintenance Properties

This topic describes how to configure the Publisher properties.

Topics:

- Purge Job Diagnostic Logs
- Purge Job History
- Upload and Manage Configuration-Specific Files

Set Server Caching Specifications

Administrator can configure caching at the server level so that when Publisher processes a report, the data and the report document are stored in cache.

Report designers can set a report property to configure report-specific caching of datasets.

1. In the Server Configuration page, set the following properties:
   - **Cache Expiration** — Enter the expiration period for the cache in minutes. The default is 30.
   - **Cache Size Limit** — Enter the maximum number of cached items to maintain regardless of the size of these items. The default is 1000.
   - **Maximum Cached Report Definitions** — Enter the maximum number of report definitions to maintain in cache. The default is 50.
2. To manually purge this cache, on the Manage Cache tab, click **Clear Object Cache** .

Set Retry Properties For Database Failover

Administrator can configure the number of retries to connect to a data source.

If Publisher fails to connect to a data source through the defined JDBC or JNDI connection, Publisher switches to the backup database.

The following properties control the number of retries that are attempted before switching to the backup connection for the database.

- Number of Retries

  Default value is 6. Enter the number of times to attempt to make a connection before switching to the backup database.
- Retry Interval (seconds)

  Default value is 10 seconds. Enter the number of seconds to wait before retrying the connection.

Understand the Scheduler

This topic describes the configuration and diagnostics of the scheduler.

Topics:

- About Scheduler Configuration
- Review Scheduler Diagnostics

About Scheduler Configuration

You can review the configuration of the scheduler in the System Maintenance page.

The compute size (OCPUs) you have selected for your service determines the report processing limits for generating pixel-perfect reports. You can't edit the settings in the Scheduler Configuration tab. See What Sizing Options Are Available to You?

Review Scheduler Diagnostics

The Scheduler diagnostics page provides the runtime status of the scheduler.

The Diagnostics page displays how many scheduled report requests have been received by the JMS queues, how many of them have failed and how many are still running. The JMS status can be viewed at the cluster-instance level enabling you to decide whether to add more instances to scale up by one or more of these JMS processors.

For example, if there're too many requests queued up for the e-mail processor in one instance, you can consider adding another instance and enabling it to handle e-mail processing. Similarly, if there're very large reports being processed and showing in the Report Process queue in running status, then you can add another instance to scale up the Report Process capability.

Also, the Scheduler Diagnostics page reflects the status of each component to show if any component is down. You can see the connection string or JNDI name to the database, which cluster instance associates to which managed server instance, Toplink connection pool configuration, and so on.

If an instance shows a failed status, then you can recover the instance and with the failover mechanism of the JMS set up in the cluster, no jobs submitted are lost. When the server instance is brought back, it is immediately available in the cluster for service. The instance removal and addition reflects dynamically on the diagnostic page.

When an instance is added to the cluster, the Scheduler Diagnostics page immediately recognizes the new instance and displays the status of the new instances and all the threads running on that instance. This provides a powerful monitoring capability to the administrator to trace and resolve issues in any instance or any component of the scheduler.

The Scheduler Diagnostics page provides information on the following components:

- JMS
- Cluster
- Database
- Scheduler Engine

The JMS section provides information on the following:

- JMS Cluster Config: This section provides configuration information for JMS setup:
  - Provider type (Weblogic / ActiveMQ)
  - WebLogic version
  - WebLogic JNDI Factory
  - JNDI URL for JMS
  - Queue names
  - Temporary directory
- JMS Runtime: This provides runtime status of all JMS queues and topics.

The Cluster section provides details on the cluster instance. Use this information to understand the load on each processor.

The Database section provides information on these components.

- Database Config — Connection type, JNDI Name, or connection string
- Toplink Config — Connection pooling, logging level
- Database Schema

The Quartz section provides information on these components, as shown in the figure below.

- Quartz Configuration
- Quartz Initialization

Set Report Viewer Properties

On the System Maintenance page, the administrator can set the report viewer properties on the Report Viewer Configuration tab.

If **Show Apply Button** is set to True, reports with parameter options display the **Apply** button in the report viewer. If you change the parameter values, click **Apply** to render the report with the new values.

If **Show Apply Button** is set to False, the report viewer doesn't display the **Apply** button. If you enter a new parameter value, Publisher automatically renders the report after the new value is selected or entered.

You set this property at the report level to override the system setting.

Clear Report Objects from the Server Cache

Use the Manage Cache page to clear the server cache.

The server cache stores report definitions, report data, and report output documents. If you need to manually purge this cache (for example, after patching) use the Manage Cache page.

To clear the report objects from the server cache:

1. From the Administration page, select **Manage Cache**.
2. On the Manage Cache page, click **Clear Object Cache**.

Clear the Subject Area Metadata Cache

You can clear the subject area metadata cache.

BI subject area metadata such as the dimension and measure names are cached at the server to quickly open the report in report designer. You can manually clear this cache if the BI subject area is updated through a binary semantic model (.rpd) file.

To clear the subject area metadata cache:

1. From the Administration page, select **Manage Cache**.
2. On the Manage Cache page, in the Clearing Subject Area Metadata Cache section, click **Clear Metadata Cache**.

Purge Job Diagnostic Logs

You can purge old diagnostic logs to increase the available space on your system.

The retention period of job diagnostic logs is set to 30 days, by default. If you frequently enable diagnostic logs, these diagnostic logs might consume space in the database, and you might need to periodically free the space consumed by the old diagnostic logs. You can manually purge the job diagnostic logs older than the retention period .

To purge the job diagnostic logs:

1. On the Administration page, under System Maintenance, select **Manage Job Diagnostics Log**.
2. Click **Purge log beyond retention period**.

Purge Job History

Use the Manage Job Diagnostics Log page to purge old job history.

The retention period of a job history is set to 180 days, by default. You can manually purge the history of jobs that are older than the retention period. When you purge old job history, the saved output, saved XML, job delivery info, and the job status details of the old jobs are deleted.

To purge old job history:

1. On the Administration page, under System Maintenance, select **Manage Job Diagnostics Log**.
2. Click **Purge scheduler metadata**.

Upload and Manage Configuration-Specific Files

Use Upload Center to upload and manage the configuration-specific files for font, digital signature, ICC profile, SSH private key, SSL certificate, and JDBC client certificate.

To upload and manage the configuration-specific files:

1. On the Administration page, under System Maintenance, select **Upload Center**.
2. Click **Browse** and select the file you want to upload.
3. Select the configuration file type.
4. If you want to overwrite an existing file with the new file, select **Overwrite**.
5. Click **Upload**.
6. To manage the uploaded files, use the **Filter By Type** field to filter the files in the table.

Enable Diagnostics

Administrators and BI Authors can enable the diagnostics logs.

You can enable and download diagnostics for scheduled jobs and online reports.

Enable Diagnostics For Scheduler Jobs

You can enable diagnostics for a scheduler job in the **Schedule Report Job** page, and download the diagnostic logs from **Report Job History**.

You must have BI Administrator or BI Data Model Developer privileges to access the **Diagnostics** tab in the **Schedule Report Job** page. Perform the following steps to enable diagnostics.
To enable and download diagnostics for a scheduler job:

1. From the **New** menu, select **Report Job**.
2. Select the report to schedule, and click the **Diagnostics** tab.
3. Select and enable the required diagnostics.
   - Select **Enable SQL Explain Plan** to generate a diagnostic log with Explain plan/SQL monitor report information.
   - Select **Enable Data Engine Diagnostic** to generate a data processor log.
   - Select **Enable Report Processor Diagnostic** to generate FO (Formatting Options) and server related log information.
   - Select **Enable Consolidated Job Diagnostic** to generate the entire log, which includes scheduler log, data processor log, FO and server log details.
4. Submit the report.
5. After the report job runs, in the Report Job History page, select your report to view the details.
6. Under Output & Delivery, click **Diagnostic Log** to download the job diagnostic log and view the details.

   Use the Manage Job Diagnostics Log page to purge the old job diagnostic logs.

Enable Diagnostics For Online Reports

In the Report Viewer, you can enable diagnostics for online reports.

Administrators and BI Authors can enable diagnostics before running the online report, and then download the diagnostic logs after the report finishes. Diagnostics are disabled by default.

If you enable diagnostics for an online report with interactive output, you can:

- Download the following diagnostic logs in a .zip file:
  - SQL logs
  - Data engine logs
  - Report Processor logs
- View the following details in the diagnostic logs:
  - Exceptions
  - Memory guard limits
  - SQL query

To enable diagnostics and download the diagnostic logs for an online report:

1. If the report is running, click **Cancel** to stop the reporting process.

2. Click **Actions** in the Report Viewer.
3. Select **Enable Diagnostics** from the **Online Diagnostics** option.
4. Submit the report.
5. To download the diagnostic logs after the report runs:
   a. Click **Actions** in the Report Viewer.
   b. Select **Download Diagnostics** from the **Online Diagnostics** option.

Set Up Delivery Destinations

This topic describes the setup required to deliver reports. It also describes how to set up the HTTP notification server.

> **Note:**
>
> The email, FTP, printer, fax, and content management hosts must be accessible from the public internet.

Topics:

Configure Delivery Options

You can define the SSL certicate file and set the general properties for e-mail deliveries and notifications.

1. From the Administration page, select **Delivery Configuration**.
2. If you want to use a self-signed certificate, select a file from **SSL Certificate File**.
3. Enter the From address to appear on e-mail report deliveries. The default value is bipublisher-report@oracle.com.
4. Enter the From address to appear on notifications deliveries. The default value is bipublisher-notification@oracle.com.
5. Enter the subject text for notification e-mails when the report status is Success, Warning, Failed, or Skipped.

6. In the **Allowed Email Recipient Domains** field, enter the domains you want to allow email delivery. Separate the email domains by a comma. By default, * allows all domains.

   Note that if you want to ignore email delivery restrictions for a report delivery, select the **Ignore Email domain Restrictions** property of that report.

7. Select **Email Output as URL**, if you want the jobs to email the URL to access the job output instead of attaching the job output to the email.

   The email recipient can view the job output only after logging in with the valid credentials required to access the Publisher report. The recipient must have access to Publisher. If the output of a private job is sent to a user without administrator access, the job succeeds and the recipient receives the email with the URL, but the recipient can't view the job output.

8. Select **Use System Proxy Settings** if the Delivery Manager must look up the proxy server settings from the Java runtime environment.

   - Printer, Fax, WebDAV, HTTP and CUPS servers use proxy settings for HTTP protocol when SSL is not used. When SSL is used, the HTTPS proxy setting is used.
   - FTP and SFTP use proxy settings for FTP.
   - Contents servers and email servers don't support connection over a proxy, regardless of this setting.

   You can override the proxy settings per delivery server, using proxy configuration fields on the individual server setup page. If a proxy server and ports are configured for a delivery server, the Delivery Manager uses the proxy server and port configured for the server instead of the one defined in the Java Runtime environment. In Cloud installations, **Use System Proxy Settings** is always selected, and cannot be turned off or overridden by individual server settings.

If Publisher encounters an issue connecting to the email server, it attempts to send the email again for three times, with a 30-second interval between each attempt.

Understand Printer and Fax Server Configuration

Understand your printer type before you set up the printer or fax server.

Regardless of the operating system, the printer destination can be any IPP server. The IPP server can be the printer itself, but if the printer doesn't natively support IPP, you can set up a print server that does support IPP (such as CUPS), and then connect to the print server to the printer.

To send a fax, you must set up Common Unix Printing Service (CUPS) and the fax4CUPS extension. For information on setting up CUPS or Windows IPP print servers and how to connect network printers to them, refer to the CUPS or Windows IPP software vendor documentation.

PDF is a popular output format for business reports. However, some reports require printing directly from the report server. For example, paychecks and invoices are usually printed as scheduled batch jobs. Some printers with PostScript Level 3 compliant Raster Image Processing can natively support PDF documents, but there're still many printers in business use that only support PostScript Level 2 that can't print PDF documents directly.

To print PDF documents directly, if your printer or print server doesn't support printing PDF:

- Select a filter - PDF to PostScript or PDF to PCL.
- Configure a custom, or third-party filter.

A filter enables you to call a conversion utility to convert the PDF to a file format supported by your specific printer type. You can use the PDF to PCL conversion only for font selection

requirements for check printing. For generic printing requirements, use the PDF to PostScript level 2 filter.

Selection of **PDF to PCL** filter automatically populates the **Filter Command** field. You can embed PCL commands into RTF templates to invoke the PCL commands at a specific position on the PCL page; for example, to use a font installed on the printer for routing and account numbers on a check.

You can also call a custom filter using operating system commands.

To specify a custom filter, pass the native OS command string with the two placeholders for the input and output filename, {infile} and {outfile}.

This is useful especially if you're trying to call IPP printers directly or IPP printers on Microsoft Internet Information Service (IIS). Unlike CUPS, those print servers don't translate the print file to a format the printer can understand. With the filter functionality, you can call any of the native OS commands to transform the document to the format that the target printer can understand.

For example, to transform a PDF document to a PostScript format, enter the following PDF to PS command in the **Filter Command** field:

pdftops {infile} {outfile}

To call an HP LaserJet printer setup on a Microsoft IIS from Linux, you can set Ghostscript as a filter to transform the PDF document into the format that the HP LaserJet can understand. To do this, enter the following Ghostscript command in the **Filter Command** field:

```
gs -q -dNOPAUSE -dBATCH -sDEVICE=laserjet -sOutputFile={outfile} {infile}
```

For fax servers, you can use the filter to transform the file to Tag Image File Format (TIFF).

Add a Printer

You can set up a printer to print reports.

The printer server must be accessible from the public internet.

1. From the Administration page, under **Delivery**, select **Printer**, and then click **Add Server**.
2. Enter the server name and URI of the printer.
3. Optional: If your printer or print server doesn't support printing PDF, enter a filter to call a conversion utility to convert the PDF to a file format supported by your specific printer type.
   - PDF to PostScript
   - PDF to PCL

   Use the PDF to PCL filter only if you have a requirement to select fonts for printing check using embedded PCL command. For generic printing requirements, use the PDF to PostScript filter.
4. Optional: Enter the user name, password, authentication type (None, Basic, Digest), and encryption Type (None, SSL).
5. Optional: Enter the host, port, user name, password, and authentication type (None, Basic, Digest) of the proxy server.
6. Optional: In the Access Control section, deselect **Public**.
7. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.

8. Click **Apply**.

Add a Fax Server

You must set up Common Unix Printing Service (CUPS) and the fax4CUPS extension, if you want to send fax.

The fax server must be accessible from the public internet.

1. From the Administration page, under **Delivery**, select **Fax**, and then click **Add Server**.
2. Enter the server name and the URI (Uniform Resource Identifier) of the fax server.
3. Optional: If your fax server doesn't support printing PDF, enter a filter to call a conversion utility to convert the PDF to a file format supported by your specific fax server.
4. Optional: Enter the user name, password, authentication type (None, Basic, Digest), and encryption Type (None, SSL) of the fax server.
5. Optional: Enter the host, port, user name, password, and authentication type (None, Basic, Digest) of the proxy server.
6. Optional: In the Access Control section, deselect **Public**.
7. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.
8. Click **Apply**.

Add an Email Server

You can add an email server to deliver reports by email.

The mail server must be accessible from the public internet.

1. From the Administration page, under **Delivery**, select **Email**, and then click **Add Server**.
2. Enter the **Server Name** and **Host** of the email server.
3. Optional: Select a **Secure Connection** method to use for connections with the email server.

   Use TLS when the server supports the protocol; SSL is accepted in the response.
4. Optional: Enter the port number, user name, and password.
5. In the Access Control section, deselect **Public**.
6. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.
7. Click **Test Connection**.
8. Click **Apply**.

Deliver Reports Using Email Delivery Service on Oracle Cloud Infrastructure

You can use the Email Delivery service on Oracle Cloud Infrastructure to deliver reports.

If you don't have access to Oracle Cloud Infrastructure Console, ask your Oracle Cloud Infrastructure administrator to provide you access.

1. In Oracle Cloud Infrastructure Console, configure Email delivery.
   a. Sign-in to your Oracle Cloud account with permissions to configure Email Delivery.

b. In Oracle Cloud Infrastructure Console, click ☰ in the top left corner.

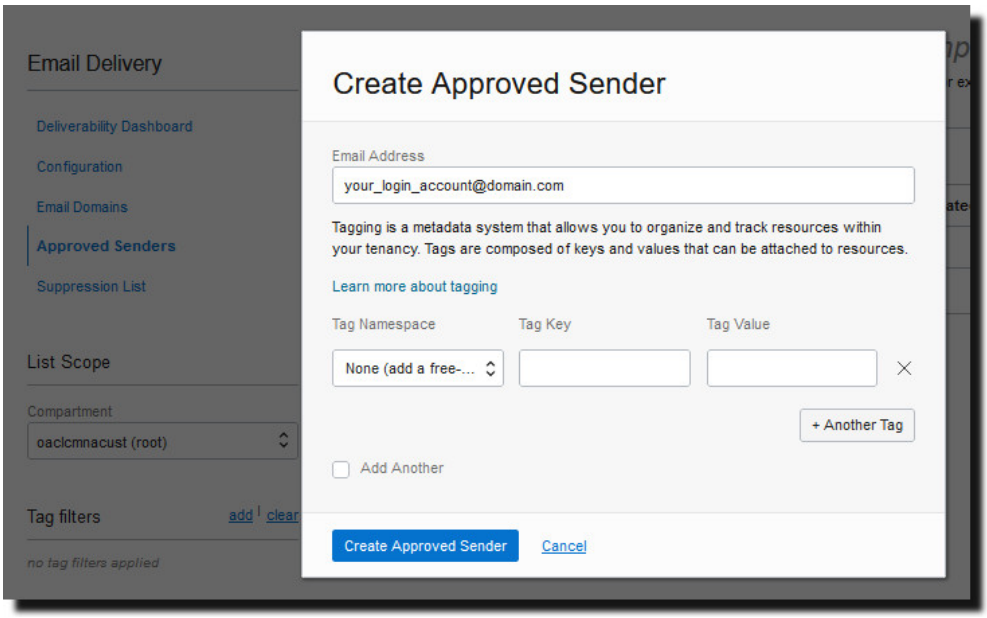
c. Click **Developer Services**. Under **Application Integration**, click **Email Delivery**.

d. Optional: Set up the email domain you plan to use.

   This is the domain you plan to use for the approved sender email address, and can't be a public mailbox provider domain such as gmail.com or hotmail.com.

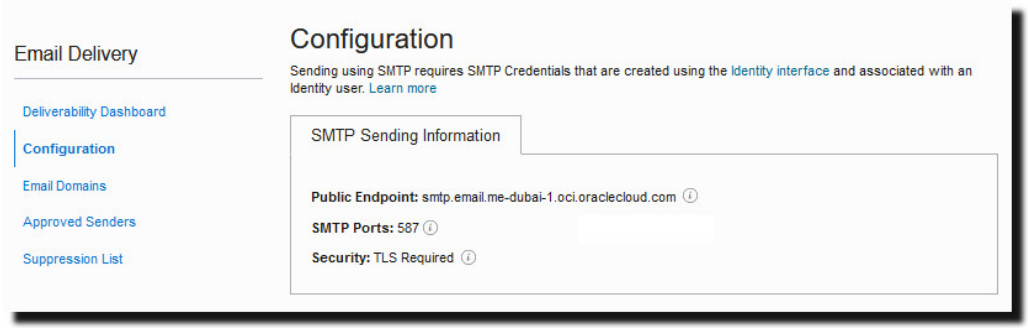
e. Click **Approved Senders**.

f. On the **Create Approved Senders** page, set up an approved sender for the *From* email address that you want to use to send emails through the mail server.



Refer to Oracle Cloud Infrastructure documentation for details. See Managing Approved Senders.

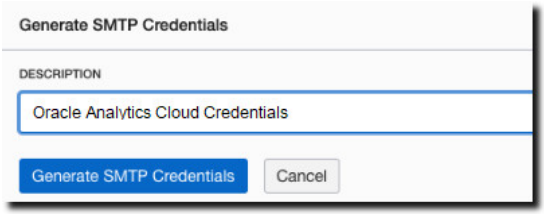
g. Click **Configuration**, then make a note of the **Public Endpoint**, **Port** (587), and that **Transport Layer Security** (TLS) is used on the connection.



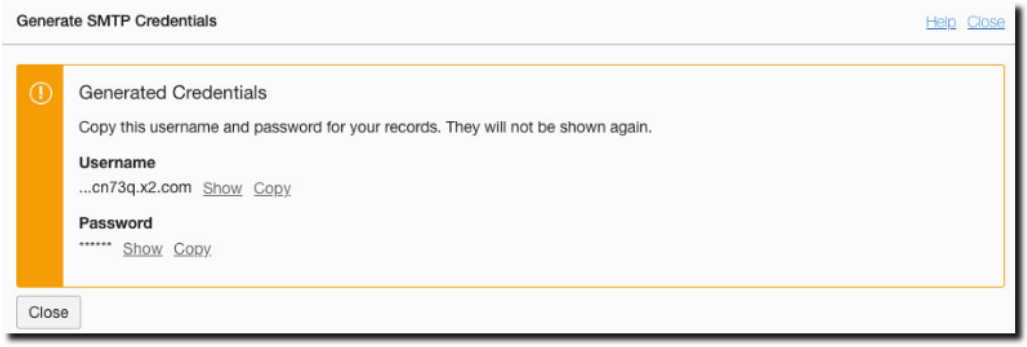
Refer to Oracle Cloud Infrastructure documentation for details. See Configure the SMTP connection.

h. If you've not already done so, click the **Identity Interface** link to navigate to your Identity pages and then click **Generate SMTP Credentials** to generate SMTP credentials for yourself or another user with permissions to manage email.

   Enter a **Description**, such as *Oracle Analytics Cloud credentials*, and click **Generate SMTP Credentials**.



Copy the **Username** and **Password** for your records.



Refer to Oracle Cloud Infrastructure documentation for details. See Generate SMTP credentials for a user.

2. In Oracle Analytics Cloud, add a connection to the email server.
   a. From the Administration page, under **Delivery**, select **Email**, and then click **Add Server**.
   b. Enter the name of the email server (Email Delivery service hostname).
   c. Enter the port number and SMTP credentials (user name and password).
   d. Select the secure connection method.
   e. In the Access Control section, deselect **Public**.
   f. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.
   g. Click **Test Connection**.
   h. Click **Apply**.
3. Set up delivery notification.
   a. From the Administration page, under **Delivery**, select **Delivery Configuration**.
   b. Enter values for **Email From Address** and **Delivery Notification Email From Address**.
   c. Optional: Enter values for **Success Notification Subject**, **Warning Notification Subject**, **Failure Notification Subject**, and **Skipped Notification Subject**.

      The completed jobs use the appropriate notification subject depending on the status of the job.
   d. Deselect **Use System Proxy Settings**.
4. Configure the bursting jobs to deliver reports using the email server.

   Update bursting queries to specify Email as the delivery channel in `DEL_CHANNEL` and provide the "From" address in `PARAMETER3`.
5. Test report delivery.

a. Schedule a job to email a report using the email server.

b. In the Job History Details page, check the status of the job.

Add an HTTP or HTTPS Server

The administrator can add an HTTP or HTTPS sever to send a notification request to after the report completes.

You can register an application URL or postprocess HTTP or HTTPS URL as an HTTP server.

The HTTP notification sent by Publisher posts a form data for Job ID, report URL and Job Status to the HTTP Server URL page.

1. From the Administration page, under **Delivery**, select **HTTP**, and then click **Add Server**.
2. Enter the server name and the URL of the server.
3. Optional: Enter the host, port, user name, password, authentication type (None, Basic, Digest), and and encryption type (None, SSL) of the server.
4. Optional: If the notification is to be sent through a proxy server, enter the user name, password,and the authentication type (None, Basic, Digest).
5. In the Access Control section, deselect **Public**.
6. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.
7. Click **Apply**.

Add an FTP or SFTP Server

You can add an FTP server or SFTP server as a delivery channel for Publisher.

If the destination file name supplied to the scheduler contains non-ascii characters, UTF-8 encoding is used to specify the file name to the destination FTP server. Your FTP server must support UTF-8 encoding or the job delivery will fail with "Delivery Failed" error message.

The FTP server or SFTP server must be accessible from the public internet.

Publisher doesn't support FTP over TLS / SSL (FTPS). You can't use FTP over TLS or SSL for delivery. Use SFTP for secure file transfer.

1. From the Administration page, under **Delivery**, select **FTP**, and then click **Add Server**.
2. Enter the server name, host name, and port number for the FTP or SFTP server.

   The default port for FTP is 21. The default port for Secure FTP (SFTP) is 22.
3. To enable Secure FTP (SFTP), select **Use Secure FTP**.
4. If the FTP server is behind a firewall, select **Use Passive Mode** .
5. Select **Create files with Part extension when copy is in process** to create a file on the FTP server with a .part extension while the file is transferring.

   When the file transfer is complete, the file is renamed without the .part extension. If the file transfer doesn't complete, the file with the .part extension remains on the server.
6. Optional: Enter the security information.

   a. If your server is password protected, enter the User name and Password.

   b. Select the **Authentication Type**: Private Key or Password

c. Depending on the authentication type selection, select the private key file or specify the private password.

   If you selected Private Key as the authentication type, make sure you upload the SSH Private Key file in the Upload Center.

7. Optional: Enter the host, port, user name, password, and authentication type (None, Basic, Digest) of the proxy server.
8. Optional: To deliver PGP encrypted documents to the FTP server:
   a. From the **PGP Key** list, select the PGP keys you uploaded in Security Center.

      This step updates the filter command in the **Filter Command** field.

   b. To sign the encrypted document, select **Sign Output**.

      This step adds a `-s` parameter to the existing filter command in the **Filter Command** field.

   c. If you want to deliver PGP encrypted document in ASCII armored format, select **ASCII Armored Output**.

      This step adds a `-a` parameter to the existing filter command in the **Filter Command** field.
9. In the Access Control section, deselect **Public**.
10. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.
11. Click **Test Connection**.

    If the connection test is successful, the **Host Key Fingerprint** field is populated. You can't save the server configuration if the**Host Key Fingerprint** field isn't populated.

    When Publisher delivers jobs to the SFTP server, the **Host Key Fingerprint** value saved with the server configuration is compared with the fingerprint of the host key returned by the SFTP server. If the SFTP server host key's fingerprint doesn't match the fingerprint saved in the server connection configuration, the connection will be rejected.
12. Click **Apply**.

SSH Options For SFTP

Secure File Transfer Protocol (SFTP) is based on the Secure Shell technology (SSH). Publisher supports the following SSH options for SFTP delivery.

Key Exchange Method (Diffie-Hellman)	Server Public Key	Encryption (Cipher Suites)	Message Authentication Code (MAC)
• diffie-hellman-group14-sha1 • diffie-hellman-group-exchange-sha256 • diffie-hellman-group-exchange-sha1 • diffie-hellman-group1-sha1 • diffie-hellman-group14-sha256 • diffie-hellman-group16-sha512 • diffie-hellman-group18-sha512	• ssh-rsa (up to 2048 bit) • ssh-dss (1024 bit) • rsa-sha2-256 • rsa-sha2-512	• aes128-ctr • aes192-ctr • aes256-ctr • aes128-cbc • 3des-cbc • blowfish-cbc	• hmac-sha1 • hmac-sha2-256 • hmac-sha2-512

The following algorithms are available only when Publisher is running on a JVM on which the Java Cryptography Extension (JCE) unlimited strength jurisdiction policy files are installed:

- diffie-hellman-group-exchange-sha256
- diffie-hellman-group14-sha256
- diffie-hellman-group16-sha512
- diffie-hellman-group18-sha512
- rsa-sha2-256
- rsa-sha2-512
- aes192-ctr
- aes256-ctr
- hmac-sha2-256
- hmac-sha2-512

Add a Content Server

You can deliver documents to Oracle WebCenter Content.

The content server must be accessible from the public internet.

When you use a content server as a delivery destination:

- At runtime, the report consumer can tag the report with Security Group and Account metadata (if applicable) to ensure that the appropriate access rights are applied to the document when delivered.
- For documents that require specific custom metadata fields (such as invoice number, customer name, order date), the report author can map the custom metadata fields defined in Content Profile Rule Sets to data fields in the data model.

Publisher communicates with Oracle WebCenter Content Server using the Remote Intradoc Client (RIDC). The connection protocols therefore follow the standards required by the RIDC. The protocols supported are:

- Intradoc: The Intradoc protocol communicates to the Content Server over the over the Intradoc socket port (typically 4444). This protocol requires a trusted connection between the client and Content Server and will not perform any password validation. Clients that use this protocol are expected to perform any required authentication themselves before making RIDC calls. The Intradoc communication can also be configured to run over SSL.
- HTTP and HTTPS: The HTTP protocol connection requires valid user name and password authentication credentials for each request. You supply the credentials to use for requests in the Publisher Administration page.
- JAX-WS: The JAX-WS protocol is supported only in Oracle WebCenter Content 11*g* with a properly configured Content Server instance and the RIDC client installed. JAX-WS is not supported outside this environment.

To set up a content server as a delivery destination:

1. From the Administration page, under **Delivery**, select **Content Server**, and then click **Add Server**.
2. Enter the **Server Name**, for example: contentserver01.
3. Enter the connection **URI** for your content server. The URI can take any of the following supported protocols:
   - HTTP/HTTPS — Specifies the URL to the Content Server CGI path.

     For example:

     – `http://localhost:16200/cs/idcplg`

     – `https://localhost:16200/cs/idcplg`
   - Intradoc — The Intradoc protocol communicates to the content server over the Intradoc socket port (typically 4444). The IDC protocol also supports communication over SSL. For example:

     – idc://host:4444

     – idcs://host:4443
   - JAX-WS — Uses the JAX-WS protocol to connect to the content server.

     For example:

     – `http://wlsserver:16200/idcnativews`
4. Optional: Enter the user name and password of the content server.
5. Optional: To enable the inclusion of custom metadata with your report documents delivered to the content server, select **Enable Custom Metadata**.
6. Optional: To deliver PGP encrypted documents to the content server:
   a. From the **PGP Key** list, select the PGP keys you uploaded in Security Center.

      This step updates the filter command in the **Filter Command** field.

   b. To sign the encrypted document, select **Sign Output**.

      This step adds a `-s` parameter to the existing filter command in the **Filter Command** field.

   c. If you want to deliver PGP encrypted document in ASCII armored format, select **ASCII Armored Output**.

      This step adds a `-a` parameter to the existing filter command in the **Filter Command** field.
7. In the Access Control section, deselect **Public**.

8. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.
9. Click **Test Connection**.
10. Click **Apply**.

Add an Object Storage

You can use one or more Object Storages to deliver and store reports.

You can configure an Object Storage as a delivery channel, and schedule jobs to deliver reports to the Object Storage.

Make sure you have the permissions to access a compartment in Oracle Cloud Infrastructure Object Storage where you can create a bucket to organize your reports.

Even if you have administrator access to the Object Storage, you should have the permissions to configure the connection and to deliver reports to Object storage. An administrator in your organization must set up the permissions in Oracle Cloud Infrastructure using IAM policies to enable you to deliver files from Publisher to Object Storages. See Getting Started with Policies and Policy Reference.

- Permissions required for tenancy:
  - `COMPARTMENT_INSPECT`
  - `OBJECTSTORAGE_NAMESPACE_READ`
- Permissions required for compartment mangement:
  - `BUCKET_READ`
  - `BUCKET_INSPECT`
  - `OBJECT_READ OBJECT_OVERWRITE`
  - `OBJECT_CREATE`
  - `OBJECT_DELETE`
  - `OBJECT_INSPECT`

1. Use the Oracle Cloud Infrastructure console to create a Bucket in the Object Storage, and then set up the API key for authentication.

   Make sure you gather the user details, tenancy details, and the Public Key Fingerprint value of the SSH key so that you can configure the Object Storage in Publisher. See the Oracle Cloud Infrastructure documentation for detailed steps.
2. In Publisher, upload the private key file for the Object Storage to the server, and add the Object Storage as a delivery channel.
   a. On the Administration page, under System Maintenance, select **Upload Center**, choose the private key file, select **SSH Private Key** as the File Type, and then click **Upload**.
   b. From the Administration page, under Delivery, select **Object Storage**, and then click **Add Server**.
      i. In the **Server Name** field, type a name for the server. For example, objectstorage1.
      ii. In the **URI** field, type the URL of the Object Storage. For example, `https://objectstorage.us-ashburn-1.oraclecloud.com`.

iii. In the **Tenancy OCID** and **User OCID** fields, provide the credentials for accessing the Object Storage.

iv. Copy the public key fingerprint value of the Object Storage from the Oracle Cloud Infrastructure console, and paste it in the **Public Key Fingerprint** field.

v. Specify the private key file and enter the private key password.

vi. Specify the compartment provisioned for your tenancy and the Bucket associated with your compartment where you want to deliver the reports.

vii. In the Access Control section, deselect **Public**.

viii. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.

ix. Click **Test Connection**.

x. Click **Apply**.

Example 6-1 Policy Configuration

Sample policy configuration to allow group *g* to inspect the compartments in tenancy:

```
Allow group <g> to inspect compartments in tenancy
```

Sample policy configuration to allow group *g* to manage the Object Storage in tenancy:

```
Allow group <g> to manage objectstorage-namespaces in tenancy
```

Sample policy configuration to allow group *g* to manage compartment *c* and perform the requested operations in the compartment:

```
Allow group <g> to manage object-family in compartment <c> where any {
request.operation='ListBuckets',
request.operation='ListObjects',
request.operation='PutObject',
request.operation='GetObject',
request.operation='CreateMultipartUpload',
request.operation='UploadPart',
request.operation='CommitMultipartUpload',
request.operation='AbortMultipartUpload',
request.operation='ListMultipartUploads',
request.operation='ListMultipartUploadParts',
request.operation='HeadObject',
request.operation='DeleteObject'}
```

Add a Common UNIX Printing System (CUPS) Server

You add CUPS servers from the Administration page.

You can configure Common Unix Printing Service (CUPS) for sending fax and to enable printing using a printer that doesn't natively support IPP.

To add a CUPS server:

1. From the Administration page, select **CUPS** to display the list of servers that have been added.
2. Select **Add Server**.
3. Enter the **Server Name** and **Host** and **Port** for the CUPS server.

Add an Oracle Content and Experience Server

You can deliver reports to an Oracle Content and Experience server to enable easy access and share reports on the cloud.

To add an Oracle Content and Experience server:

1. From the Administration page, under **Delivery**, select **Content and Experience**, and then click **Add Server**.
2. In the **Server Name** field, type the name of the server through which you want to deliver the reports to the cloud-based content hub.
3. In the **URI** field, type the URI of the Oracle Content and Experience server. For example, `https://host.oraclecloud.com`.
4. In the **Username** and **Password** fields, provide the credentials for accessing the Oracle Content and Experience server.
5. In the Access Control section, deselect **Public**.
6. From the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and click **Move** to add them to the **Allowed Roles** list.
7. Click **Test Connection**.
8. Click **Apply**.

Define Runtime Configurations

This topic describes processing properties for PDF document security, FO processing, PDF accessibility, and specific properties for each output type.

Topics:

- Excel Output Properties
- EText Output Properties
- All Outputs Properties
- Memory Guard Properties
- Data Model Properties
- Report Delivery Properties
- Define Font Mappings
- Define Currency Formats

Set Runtime Properties

The Runtime Configuration page enables you to set runtime properties at the server level.

These same properties can also be set at the report level, from the report editor's Properties dialog. If different values are set for a property at each level, then report level takes precedence.

PDF Output Properties

Generate the type of PDF files you want by setting the PDF output properties.

Property Name	Description	Default
Compress PDF output	Specify "true" or "false" to control compression of the output PDF file.	true
Hide PDF viewer's menu bars	Specify "true" to hide the viewer application's menu bar when the document is active. The menu bar option is only effective when using the Export button, which displays the output in a standalone Acrobat Reader application outside of the browser.	false
Hide PDF viewer's tool bars	Specify "true" to hide the viewer application's toolbar when the document is active.	false
Replace smart quotes	Specify "false" if you don't want curly quotes replaced with straight quotes in the PDF output.	true
Disable opacity and gradient shading for DVT chart	Specify "true" if you don't want opacity and gradient shading for the PDF output. This reduces the size of the PostScript file.	false
Enable PDF Security	Specify "true" if you want to encrypt the PDF output. You can then also specify the following properties: • Open document password • Modify permissions password • Encryption Level	false

Property Name	Description	Default
Open document password	This password is required for opening the document. It enables users to open the document only. This property is enabled only when "Enable PDF Security" is set to "true". When you set the Encryption level to Low, Medium, or High, the password must contain only Latin-1 characters and shouldn't be more than 32 bytes long. When you set the Encryption level to Highest, if your password exceeds 127 bytes, only the first 127 bytes of the password are used for authentication.	N/A
Modify permissions password	This password enables users to override the security setting. This property is effective only when "Enable PDF Security" is set to "true". When you set the Encryption level to Low, Medium, or High, the password must contain only Latin-1 characters and shouldn't be more than 32 bytes long. When you set the Encryption level to Highest, if your password exceeds 127 bytes, only the first 127 bytes of the password are used for authentication. If you set a password in the `pdf-open-password` property without setting a password in the `pdf-permissions-password` property, or if you set the same password in both the `pdf-open-password` and `pdf-permissions-password` properties, the user gets full access to the document and its features, and permission settings such as "Disable printing" are bypassed or ignored.	N/A
Encryption level	Specify the encryption level for the output PDF file. The possible values are: • 0: Low (40-bit RC4, Acrobat 3.0 or later) • 1: Medium (128-bit RC4, Acrobat 5.0 or later) • 2: High (128-bit AES, Acrobat 7.0 or later) • 3: Highest (256-bit AES, Acrobat X (10) or later) This property is effective only when "Enable PDF Security" is set to "true". When Encryption level is set to 0, you can also set the following properties: • Disable printing • Disable document modification • Disable context copying, extraction, and accessibility • Disable adding or changing comments and form fields When Encryption level is set to 1 or higher, the following properties are available: • Enable text access for screen readers • Enable copying of text, images, and other content • Allowed change level • Allowed printing level	2 - high

Property Name	Description	Default
Disable document modification	Permission available when "Encryption level" is set to 0. When set to "true", the PDF file cannot be edited.	false
Disable printing	Permission available when "Encryption level" is set to 0. When set to "true", printing is disabled for the PDF file.	false
Disable adding or changing comments and form fields	Permission available when "Encryption level" is set to 0. When set to "true", the ability to add or change comments and form fields is disabled.	false
Disable context copying, extraction, and accessibility	Permission available when "Encryption level" is set to 0. When set to "true", the context copying, extraction, and accessibility features are disabled.	false
Enable text access for screen readers	Permission available when "Encryption level" is set to 1 or higher. When set to "true", text access for screen reader devices is enabled.	true
Enable copying of text, images, and other content	Permission available when "Encryption level" is set to 1 or higher. When set to "true", copying of text, images, and other content is enabled.	false
Allowed change level	Permission available when "Encryption level" is set to 1 or higher. Valid Values are: • 0: none • 1: Allows inserting, deleting, and rotating pages • 2: Allows filling in form fields and signing • 3: Allows commenting, filling in form fields, and signing • 4: Allows all changes except extracting pages	0
Allowed printing level	Permission available when "Encryption level" is set to 1 or higher. Valid values are: • 0: None • 1: Low resolution (150 dpi) • 2: High resolution	0
Use only one shared resources object for all pages	The default mode of Publisher creates one shared resources object for all pages in a PDF file. This mode has the advantage of creating an overall smaller file size. However, the disadvantages are the following: • Viewing may take longer for a large file with many SVG objects • If you choose to break up the file by using Adobe Acrobat to extract or delete portions, then the edited PDF files are larger because the single shared resource object (that contains all of the SVG objects for the entire file) is included with each extracted portion. Setting this property to "false" creates a resource object for each page. The file size is larger, but the PDF viewing is faster and the PDF can be broken up into smaller files more easily.	true

Property Name	Description	Default
PDF Navigation Panel Initial View	Controls the navigation panel view presented when a user first opens a PDF report. The following options are supported: • Panels Collapsed - displays the PDF document with the navigation panel collapsed. • Bookmarks Open (default) - displays the bookmark links for easy navigation. • Pages Open - displays a clickable thumbnail view of each page of the PDF.	Bookmarks Open

PDF Digital Signature Properties

You set the properties to enable a digital signature for PDF reports and to define the placement of the signature in the output PDF report.

At the instance level or at the report level, you can set the properties to enable a digital signature for PDF reports. You must first register at least one digital signature, so you can select the one to you use in your instance or reports. To implement the digital signature for a report based on a PDF layout template or an RTF layout template, set the **Enable Digital Signature** property on the report to "true."

You also must set the appropriate properties to place the digital signature in the desired location on your output report. Your choices for placement of the digital signature depend on the template type. The choices are as follows:

- (PDF only) Place the digital signature in a specific field by setting the **Existing signature field name** property.
- (RTF and PDF) Place the digital signature in a general location of the page (top left, top center, or top right) by setting the **Signature field location** property.
- (RTF and PDF) Place the digital signature in a specific location designated by x and y coordinates by setting the **Signature field x coordinate** and **Signature field y coordinate** properties.

  If you choose this option, you can also set **Signature field width** and **Signature field height** to define the size of the field in your document.

Property Name	Description	Default
Enable Digital Signature	Set this to "true" to enable a digital signature for PDF reports.	false
Digital signature name	Select a registered digital signature file.	N/A
Existing signature field name	This property applies to PDF layout templates only. If the report is based on a PDF template, then you can enter a field from the PDF template in which to place the digital signature.	N/A

Property Name	Description	Default
Signature field location	This property can apply to RTF or PDF layout templates. This property provides a list that contains the following values: Top Left, Top Center, Top Right. Choose one of these general locations and Publisher inserts the digital signature to the output document, sized and positioned appropriately. If you choose to set this property, do not enter X and Y coordinates or width and height properties.	N/A
Signature field X coordinate	This property can apply to RTF or PDF layout templates. Using the left edge of the document as the zero point of the X axis, enter the position in points that you want the digital signature to be placed from the left. For example, if you want the digital signature to be placed horizontally in the middle of an 8.5 inch by 11 inch document (that is, 612 points in width and 792 points in height), enter 306.	0
Signature field Y coordinate	This property can apply to RTF or PDF layout templates. Using the bottom edge of the document as the zero point of the Y axis, enter the position in points that you want the digital signature to be placed from the bottom. For example, if you want the digital signature to be placed vertically in the middle of an 8.5 inch by 11 inch document (that is, 612 points in width and 792 points in height), enter 396.	0
Signature field width	Enter in points (72 points equal one inch) the desired width of the inserted digital signature field. This applies only if you're also setting the **Signature field x coordinate** and **Signature field Y coordinate** properties.	0
Signature field height	Enter in points (72 points equal one inch) the desired height of the inserted digital signature field. This applies only if you're also setting the **Signature field x coordinate** and **Signature field Y coordinate** properties.	0

PDF Accessibility Properties

Set the properties described in the table below to configure PDF accessibility.

Property Name	Description	Default
Make PDF output accessible	Set to “true” to make the PDF outputs accessible. Accessible PDF output contains the document title and PDF tags.	False
Use PDF/UA format for accessible PDF output	Set to “true” to use the PDF/UA format for the accessible PDF outputs.	False

PDF/A Output Properties

Set the properties described in the table below to configure PDF/A output.

Property Name	Description	Default
PDF/A version	Set the PDF/A version.	PDF/A-1B
PDF/A ICC Profile Data	The name of the ICC profile data file, for example: CoatedFOGRA27.icc The ICC (International Color Consortium) profile is a binary file describing the color characteristics of the environment where this PDF/A file is intended to be displayed. The ICC profile that you select must have a major version below 4. To use a specific profile data file other than the default settings in the JVM, obtain the file and place it under `<bi publisher repository>/Admin/Configuration`. When you set this property, you must also set a value for PDF/A ICC Profile Info (`pdfa-icc-profile-info`).	Default profile data provided by JVM
PDF/A ICC Profile Info	ICC profile information (required when pdfa-icc-profile-data is specified)	sRGB IEC61966-2.1
PDF/A file identifier	One or more valid file identifiers set in the xmpMM:Identifier field of the metadata dictionary. To specify more than one identifier, separate values with a comma (,).	Automatically generated file identifier
PDF/A document ID	Valid document ID. The value is set in the xmpMM:DocumentID field of the metadata dictionary.	None
PDF/A version ID	Valid version ID. The value is set in the xmpMM:VersionID field of the metadata dictionary.	None
PDF/A rendition class	Valid rendition class. The value is set in the xmpMM:RenditionClass field of the metadata dictionary.	None

PDF/X Output Properties

Configure PDF/X output by setting the properties described below. The values that you set for these properties will depend on the printing device.

Note the following restrictions on other PDF properties:

- `pdf-version` — Value above 1.4 is not allowed for PDF/X-1a output.
- `pdf-security` — Must be set to False.
- `pdf-encryption-level` — Must be set to 0.
- `pdf-font-embedding` — Must be set to true.

Property Name	Description	Default
PDF/X ICC Profile Data	(Required) The name of the ICC profile data file, for example: CoatedFOGRA27.icc. The ICC (International Color Consortium) profile is a binary file describing the color characteristics of the intended output device. For production environments, the color profile may be provided by your print vendor or by the printing company that prints the generated PDF/X file. The file must be placed under `<bi publisher repository>/Admin/Configuration`. Profile data is also available from Adobe support or colormanagement.org.	None
PDF/X output condition identifier	(Required) The name of one of the standard printing conditions registered with ICC (International Color Consortium). The value that you enter for this property is a valid "Reference name," for example: FOGRA43. Choose the appropriate value for the intended printing environment. This name is often used to guide automatic processing of the file by the consumer of the PDF/X document, or to inform the default settings in interactive applications.	None
PDF/X output condition	A string describing the intended printing condition in a form that will be meaningful to a human operator at the site receiving the exchanged file. The value is set in OutputCondition field of OutputIntents dictionary.	None
PDF/X registry name	A registry name. Set this property when the `pdfx-output-condition-identifier` is set to a characterization name registered in a registry other than the ICC registry.	http://www.color.org
PDF/X version	The PDF/X version set in GTS_PDFXVersion and GTS_PDFXConformance fields of Info dictionary. PDF/X-1a:2003 is the only value currently supported.	PDF/X-1a:2003

DOCX Output Properties

The table below describes the properties that control DOCX output files.

Property Name	Description	Default
Enable change tracking	Set to "true" to enable change tracking in the output document.	false
Protect document for tracked changes	Set to "true" to protect the document for tracked changes.	false

Property Name	Description	Default
Default font	Use this property to define the font style and size in the output when no other font has been defined. This is particularly useful to control the sizing of empty table cells in generated reports. Enter the font name and size in the following format <FontName>:<size> for example: Arial:12. Note that the font you choose must be available to the processing engine at runtime.	Arial:12
Open password	Use this property to specify the password that report users must provide to open any DOCX report.	NA

RTF Output Properties

Configure RTF output files by setting the properties described in the table below.

Property Name	Description	Default
Enable change tracking	Set to "true" to enable change tracking in the output RTF document.	false
Protect document for tracked changes	Set to "true" to protect the document for tracked changes.	false
Default font	Use this property to define the font style and size in RTF output when no other font has been defined. This is particularly useful to control the sizing of empty table cells in generated reports. Enter the font name and size in the following format <FontName>:<size> for example: Arial:12. Note that the font you choose must be available to the processing engine at runtime. See Define Font Mappings for information about installing fonts and for the list of predefined fonts.	Arial:12
Enable widow orphan	Set to "true" to ensure that the document includes no “hanging paragraphs”. Suppose the last para in a page contains an orphaned line and the remaining lines of the paragraph continue on the next page. With this setting enabled, the starting line of the paragraph moves to the next page to keep all the lines of the paragraph together for improved readability.	false

PPTX Output Properties

The table below describes the properties that control PPTX output files.

Property Name	Description	Default
Open password	Use this property to specify the password that report users must provide to open any PPTX report.	NA

HTML Output Properties

The table below describes the properties that control HTML output files.

Property Name	Description	Default
Show header	Set to "false" to suppress the template header in HTML output.	true
Show footer	Set to "false" to suppress the template footer in HTML output.	true
Replace smart quotes	Set to "false" if you don't want curly quotes replaced with straight quotes in the HTML output.	true
Character set	Specify the output HTML character set.	UTF-8
Make HTML output accessible	Set to "true" to make the HTML output accessible.	false
Use percentage width for table columns	Set to "true" to display table columns according to a percentage value of the total width of the table rather than as a value in points. This property is especially useful if the browser display tables with extremely wide columns. Setting this property to true improves the readability of the tables.	true
View Paginated	When you set this property to true, HTML output will render in the report viewer with pagination features. These features include: • Generated table of contents • Navigation links at the top and bottom of the page • Ability to skip to a specific page within the HTML document • Search for strings within the HTML document using the browser's search capability • Zoom in and out on the HTML document using the browser's zoom capability Note that these features are supported for online viewing through the report viewer only.	false
Reduce Padding in Table-cell	When you set this property to true, cells in HTML tables are displayed without padding, which maximizes the page space available for text.	false
Embed images and charts in HTML for offline viewing	When you set this property to false, charts and images are embedded in the HTML output, which is suitable for viewing offline.	true
Use SVG for charts	When you set this property to true, charts display as a SVG (Scalable Vector Graphic) to provide a higher resolution in the HTML output. When you set this property to false, charts display as a raster image.	true
Keep original table width	When you set this property to true, if a column in a table is deleted, the original width of the table is maintained.	true
Enable horizontal scrollbar automatically for html table	When you set this property to true, a horizontal scroll bar is added to a table that doesn't fit within the current size of the browser window.	false

Property Name	Description	Default
Enable html table column size auto adjust	When you set this property to true, the column widths in a table are automatically adjusted to the size of the browser window.	false
Set zero height for empty paragraph	When you set this property to true and the output is HTML, the height of an empty paragraph (that is, a paragraph without text) is set to zero points.	true

FO Processing Properties

The table below describes the properties that control FO processing.

Property Name	Description	Default
Use BI Publisher's XSLT processor	Controls the use of parser. If set to "false", uses the non packaged XDK parser. If set to "true", uses the 11g parser packaged in Publisher. If set to "12c", uses the 12c parser packaged in Publisher. You can set this property at the server level or at the report level. If the data size is more than 2GB, set to "12c". If you set this property to "12c" at report level, ensure that you set the **Set ACCESS_MODE to FORWARD_READ on XSLT processor property** to '"false" at the server level and '"true" at the report level.	true
Enable scalable feature of XSLT processor	Controls the scalable feature of the XDO parser. The property "Use BI Publisher's XSLT processor" must be set to "true" or "12c" for this property to be effective. The value of this property should be "true" at both server level and report level. If you set to "false", FO processor uses memory (heap) instead of disk, and might cause out-of-memory issues.	false
Enable XSLT runtime optimization	When set to "true", the overall performance of the FO processor is increased and the size of the temporary FO files generated in the temp directory is significantly decreased. Note that for small reports (for example 1-2 pages) the increase in performance isn't as marked. To further enhance performance when you set this property to true, set the **Extract attribute sets** property to "false".	true
Enable XPath Optimization	When set to "true", the XML data file is analyzed for element frequency. The information is then used to optimize XPath in XSL.	false
Pages cached during processing	This property is enabled only when you specify a Temporary Directory (under General properties). During table of contents generation, the FO Processor caches the pages until the number of pages exceeds the value specified for this property. It then writes the pages to a file in the Temporary Directory.	50

Property Name	Description	Default
Bidi language digit substitution type	Valid values are "None" and "National". When set to "None", Eastern European numbers are used. When set to "National", Hindi format (Arabic-Indic digits) is used. This setting is effective only when the locale is Arabic, otherwise it's ignored.	National
Disable variable header support	When set to true, prevents variable header support. Variable header support automatically extends the size of the header to accommodate the contents.	false
Disable external references	When set to true, disallows importing of secondary files such as subtemplates or other XML documents during XSL processing and XML parsing. This increases the security of the system. Set this to "false" if the report or template calls external files.	true
FO Parsing Buffer Size	Specifies the size of the buffer for the FO Processor. When the buffer is full, the elements from the buffer are rendered in the report. Reports with large tables or pivot tables that require complex formatting and calculations may require a larger buffer to properly render those objects in the report. Increase the size of the buffer at the report level for these reports. Note that increasing this value affects the memory consumption of the system.	1000000
FO extended linebreaking	When set to true, punctuation, hyphenation, and international text are handled properly when line breaking is necessary.	true
Enable XSLT runtime optimization for sub-template	Provides an option to perform XSL import in FOProcessor before passing only one XSL to XDK for further processing. This allows xslt-optimization to be applied to the entire main XSL template which already includes all its subtemplates. The default is true. If you call the FOProcessor directly, the default is false.	true
Report Timezone	Valid values: User or JVM. When set to User, Publisher uses the User-level Report Time Zone setting for reports. The User Report Time Zone is set in the user's Account Settings. When set to JVM, Publisher uses the server JVM timezone setting for all users' reports. All reports therefore display the same time regardless of individual user settings. This setting can be overridden at the report level.	User
Set ACCESS_MODE to FORWARD_READ on XSLT processor	If you set the **Use BI Publisher's XSLT processor** property to "12c" at report level, ensure that the **Set ACCESS_MODE to FORWARD_READ on XSLT processor** property is set to "false" at the server level and "true" at the report level.	false
PDF Bidi Unicode Version	Specifies the Unicode version (3.0 or 4.1) used to display the BIDI strings in the PDF output.	4.1

RTF Template Properties

Configure RTF templates by setting the properties described in the table below.

Property Name	Description	Default
Extract attribute sets	The RTF processor automatically extracts attribute sets within the generated XSL-FO. The extracted sets are placed in an extra FO block, which can be referenced. This improves processing performance and reduces file size. Valid values are: • Enable - extract attribute sets for all templates and subtemplates • Auto - extract attribute sets for templates, but not subtemplates • Disable - do not extract attribute sets	Auto
Enable XPath rewriting	When converting an RTF template to XSL-FO, the RTF processor automatically rewrites the XML tag names to represent the full XPath notations. Set this property to "false" to disable this feature.	true
Characters used for checkbox	The default PDF output font doesn't include a glyph to represent a checkbox. If the template contains a checkbox, use this property to specify a Unicode font for the representation of checkboxes in the PDF output. You must specify the Unicode font number for the "checked" state and the Unicode font number for the "unchecked" state using the following syntax: `fontname;<unicode font number for true value's glyph >;<unicode font number for false value's glyph>` The font that you specify must be available for generating the PDF output at runtime. Example: Go Noto Current Jp;9745;9744	Go Noto Current Jp;9745;9744
Barcode encoder	Select the barcode encoder for generating the barcodes in reports. Oracle recommends that you use the Libre encoder.	Libre

XPT Template Properties

Configure XPT templates by setting the properties described in the table below.

Property Name	Description	Default
XPT Scalable Mode for Offline Reports	When you set this property to true, the scheduled reports that use the XPT template and include a large amount of data run without memory issues. The first 100,000 rows of data in the report are stored in memory and the remaining rows are stored in the file system. When you set this property to false, the scheduled reports that use XPT template are processed in-memory. Set this property to false for reports that contain less data.	False

Property Name	Description	Default
XPT Scalable Mode for Online Static Output	When you set this property to true, the online reports that use the XPT template and include a large amount of data run without memory issues. The first 100,000 rows of data in the report are stored in memory and the remaining rows are stored in the file system. When you set this property to false, the online reports that use XPT template are processed in-memory. Set this property to false for reports that contain less data.	False
Enable Asynchronous Mode for Interactive Output	When you set this property to true, interactive reports that use the XPT template make asynchronous calls to Oracle WebLogic Server. When you set this property to false, interactive reports that use the XPT template make synchronous calls to Oracle WebLogic Server. Oracle WebLogic Server limits the number of synchronous calls. Any calls that are stuck expire in 600 seconds.	True

PDF Template Properties

Generate the types of PDF files you want by setting available PDF template properties.

Property Name	Description	Default
Remove PDF fields from output	Specify "true" to remove PDF fields from the output. When PDF fields are removed, data entered in the fields cannot be extracted.	false
Set all fields as read only in output	By default, all fields in the output PDF of a PDF template is read only. If you want to set all fields to be updatable, set this property to "false".	true
Maintain each field's read only setting	Set this property to "true" if you want to maintain the "Read Only" setting of each field as defined in the PDF template. This property overrides the settings of "Set all fields as read only in output."	false

Excel Template Properties

Configure Excel templates by setting the properties described in the table below.

Property Name	Description	Default
Enable Scalable Mode	When set to true, large reports that use Excel template run without out of memory issues. Data overflows automatically into multiple sheets if a group of data in a sheet exceeds 65000 rows. This overcomes the Microsoft Excel limitation of 65000 rows per sheet. When set to false, large reports that use Excel template can cause out of memory issues.	false

CSV Output Properties

The table below describes the properties that control comma-delimited value output.

Property Name	Description	Default
CSV delimiter	Specifies the character used to delimit the data in comma-separated value output. Other options are: Semicolon (;), Tab (\t) and Pipe (|).	Comma (,)
Remove leading and trailing white space	Specify "True" to remove leading and trailing white space between data elements and the delimiter.	false
Add UTF-8 BOM Signature	Specify "False" to remove the UTF-8 BOM signature from the output.	true

EText Output Properties

The table below describes the properties that control EText output files.

Property Name	Description	Default
Add UTF-8 BOM Signature	When set to true, the Etext output is in UTF-8 Unicode with BOM format.	false
Enable bigdecimal	When set to true, you enable high-precision numeric calculation of the Etext output.	false

Excel Output Properties

You can set specific properties to control Excel output.

Property Name	Description	Default
Show grid lines	Set to true to show the Excel table grid lines in the report output.	false
Page break as a new sheet	Set to "True" if you want a page break specified in the report template to generate a new sheet in the Excel workbook.	true
Minimum column width	Set the coulmn width in points. When the column width is less than the specified minimum and it contains no data, the column is merged with the preceding column. The valid range for this property is 0.5 to 20 points.	3 (in points, 0.04 inch)
Minimum row height	Set the row height in points. When the row height is less than the specified minimum and it contains no data, the row is removed. The valid range for this property is 0.001 to 5 points.	1 (in points, 0.01 inch)

Property Name	Description	Default
Keep values in same column	Set this property to True to minimize column merging. Column width is set based on column contents using the values supplied in the Table Auto Layout property. Output may not appear as neatly laid out as when using the original layout algorithm.	False
Table Auto Layout	Specify a conversion ratio in points and a maximum length in points, for example 6.5,150. See example. For this property to take effect, the property "Keep values in same column" must be set to True. This property expands the table column width to fit the contents. The column width is expanded based on the character count and conversion ratio up to the maximum specification. Example: Assume a report with two columns of Excel data -- Column 1 contains a text string that's 18 characters and Column 2 is 30 characters long. When the value of this property is set to 6.5,150, the following calculations are performed: Column 1 is 18 characters: Apply the calculation: 18 * 6.5pts = 117 pts The column in the Excel output will be 117 pts wide. Column 2 is 30 characters: Apply the calculation: 30 * 6.5 pts = 195 pts Because 195 pts is greater than the specified maximum of 150, Column 2 will be 150 pts wide in the Excel output.	N/A
Maximum allowable nested table row count	Specify the maximum allowable row count for a nested table. Allowed values are 15000 to 999,999. During report processing, nested inner table rows cannot be flushed to the XLSX writer, therefore they stay in-memory, increasing memory consumption. Set this limit to avoid out-of-memory exceptions. When this limit is reached for the size of the inner table, generation is terminated. The incomplete XLSX output file is returned.	20,000
Open password	Use this property to specify the password that report users must provide to open any XLSX output file. Configuration name: `xlsx-open-password`	NA
Enable row split	Set to "true" to avoid stretching a row to a large height, and allow the row to be split into multiple rows.	True

All Outputs Properties

The properties in the table below apply to all outputs.

Property Name	Description	Default
Use 11.1.1.5 compatibility mode	Reserved. Don't update unless instructed by Oracle.	False
Ignore case for catalog object path	Specifies whether to ignore the case of the catalog object path while locating a catalog object.	False
Allow fallback to seeded report	Specifies whether to fallback on or to skip execution of the corresponding seeded report (pre-defined report) when you don't have permission to run the custom report. When set to true and the user doesn't have permission to run the custom report, the corresponding seeded report executes. When set to false, you get an error when the custom report execution fails.	True
Webservice optimization	When set to true, Publisher caches the report definition and avoids multiple requests to the catalog when the same report runs multiple times within a short interval of time. Caching helps to improve the system performance.	True

Memory Guard Properties

The Runtime Configuration page lists the default values of the memory guard properties.

The values of the memory guard properties depend on the compute shape used for your instance. See What Sizing Options are Available to You?.

Property	Description	Default Value
Maximum report data size for online reports	Limits the data size for online reports.	300MB
Maximum report data size for offline (scheduled) reports	Limits the data size for scheduled reports.	500MB
Maximum report data size for bursting reports	Limits the data size for bursting reports.	Maximum report data size for offline (scheduled) reports
Free memory threshold	Ensures a minimum available free memory space.	500MB
Maximum report data size under the free memory threshold	Limits the data size of a report when the Free memory threshold property is set to a positive value.	free_memory_threshold/ 10
Minimum time span between garbage collection runs	Ensures a minimum time gap in seconds between any two subsequent garbage collection runs.	300 (seconds)

Property	Description	Default Value
Maximum wait time for free memory to come back above the threshold value	Limits the time in seconds for a run-report request to wait for the free JVM memory to exceed the threshold value. This property value takes effect only if you specify a positive value for the Free memory threshold property. If free memory is still below the threshold value after the specified wait time, the run-report request is rejected.	30 (seconds)
Timeout for online reports	Specifies the timeout value in seconds for processing an online report (includes the time for data extraction and report generation).	535 (seconds)
Maximum rows for CSV output	Limits the rows for reports in CSV format.	1000000

Data Model Properties

The Runtime Configuration page lists the values of the data model properties. The values of the data model properties depend on the compute shape used for your instance.

Property	Description	Default
Maximum data size limit for data generation	Limits the size of XML data that can be generated by executing a data model.	500MB
Maximum sample data size limit	Limits the size of a sample data file that can be uploaded from the data model editor.	1MB
Enable Data Model scalable mode	Prevents out of memory conditions. When set to true, the data engine takes advantage of the disk space while processing data.	True
Enable Auto DB fetch size mode	Avoids out of memory conditions, but can significantly increase the processing time. This setting is recommended only for frequently processing complex queries of hundreds of columns. When set to true, the database fetch size is set at runtime according to the total number of columns and the total number of query columns in the dataset. Ignores the **DB fetch size** setting. This property overrides the data model-level database fetch size properties.	True
DB fetch size	Limits the database fetch size for a data model. This property value takes effect only when **Enable Auto DB fetch size mode** is set to False.	20 (rows)
SQL Query Timeout	Specifies the timeout value for SQL queries for scheduled reports. This value is based on the compute size of the instance. The value for online reports is 500 seconds and is the same for all implementations. You can't modify the value for online reports.	600 seconds

Property	Description	Default
Enable Data Model diagnostic	Writes the dataset details, memory, and SQL processing time information to the log file when set to true. Oracle recommends setting this property to true only for debugging purposes. If you enable this property, the processing time is increased.	False
Enable SQL Session Trace	Writes a SQL session trace log to the database when set to true for every SQL query that's processed. A database administrator can examine the log.	False
Enable SQL Pruning	Reduces the processing time and the memory usage, if you enable this property. Applies only to the Oracle Database queries that use Standard SQL. If your query returns many columns but only a subset are used by your report template, SQL pruning returns only those columns required by the template. SQL pruning is not applicable for PDF, Excel, and E-text template types.	False
Enable Data Chunking	Enables XML data chunking for individual data models, reports, and report jobs, if you set this property to true. If you set this property to true, specify an appropriate value for the **Data Chunk Size** property to process large and long-running reports.	False
Data Chunk Size	Specifies the data size for each data chunk. Applies only when the **Enable Data Chunking** property is set to true.	300MB
DV Data Row Limit	Limits the number of rows that can be retrieved from a dataset.	2000000
Trim Leading and Trailing Spaces From Parameter Value	Trims the leading and trailing spaces from the parameter values of data models.	True
Exclude Line Feed And Carriage Return for LOB	Excludes carriage returns and line feeds in the data, if you set this property to true.	False
Enable SSL for webservice, HTTP Datasource	Supports SSL connection for webservice and HTTP data source, and automatically imports the self-signed SSL certificate from the server, if you set this property to true. If the certificate isn't self-signed, use Upload Center to upload the SSL certificate, and use the uploaded SSL certificate to configure the connection.	False

Report Delivery Properties

The properties in the table below apply to report delivery.

Property Name	Description	Default
Enable FTP/SFTP delivery retry	If a delivery through an FTP or SFTP delivery channel fails, Publisher makes another attempt to deliver, 10 seconds after the first attempt fails. This setting affects all FTP and SFTP delivery requests, and can't be configured for individual servers.	True

Define Font Mappings

Map base fonts in RTF or PDF templates to target fonts to be used in the published document.

You can specify font mapping at the site or report level. Font mapping is performed only for PDF output and PowerPoint output.

There're two types of font mappings:

- RTF Templates — for mapping fonts from RTF templates and XSL-FO templates to PDF and PowerPoint output fonts
- PDF Templates — for mapping fonts from PDF templates to different PDF output fonts.

Use Upload Center to upload custom fonts. See Upload and Manage Configuration-Specific Files.

Make Fonts Available For Publishing

A set of Type1 fonts and a set of TrueType fonts are available for publishing. You can select any of the fonts in these sets as a target font with no additional setup required.

The predefined fonts are located in `<oracle_home>/oracle_common/internal/fonts`. To map to another font, place the font in this directory to make it available for publishing at runtime. If the environment is clustered, then you must place the font on every server.

Set Font Mapping at the Site Level or Report Level

A font mapping can be defined at the site level or the report level.

- To set a mapping at the site level, select the **Font Mappings** link from the Administration page.
- To set a mapping at the report level, view the Properties for the report, then select the **Font Mappings** tab. These settings apply to the selected report only.

The report-level settings take precedence over the site-level settings.

Create a Font Map

Provide the base font and target font.

1. From the Administration page, under **Runtime Configuration**, select **Font Mappings**.
2. Under RTF Templates or PDF Templates, click **Add Font Mapping**.
3. Provide the details for the base font.
    - **Base Font**: Enter the font family to map to a new font. Example: Arial

- **Style**: Normal or Italic (Not applicable to PDF Template font mappings)
- **Weight**: Normal or Bold (Not applicable to PDF Template font mappings)

4. Provide the details of the target font.
   - **Target Font Type**: Type 1 or TrueType
   - **Target Font**: Select a target font.

     If you selected TrueType, you can enter a specific numbered font in the collection. Enter the **TrueType Collection (TTC) Number** of the desired font.

Predefined Fonts

The following Type1 fonts are built-in to Adobe Acrobat and by default the mappings for these fonts are available for publishing.

You can select any of these fonts as a target font with no additional setup required.

The Type1 fonts are listed in the table below.

Font Family	Style	Weight	Font Name
serif	normal	normal	Time-Roman
serif	normal	bold	Times-Bold
serif	italic	normal	Times-Italic
serif	italic	bold	Times-BoldItalic
sans-serif	normal	normal	Helvetica
sans-serif	normal	bold	Helvetica-Bold
sans-serif	italic	normal	Helvetica-Oblique
sans-serif	italic	bold	Helvetica-BoldOblique
monospace	normal	normal	Courier
monospace	normal	bold	Courier-Bold
monospace	italic	normal	Courier-Oblique
monospace	italic	bold	Courier-BoldOblique
Courier	normal	normal	Courier
Courier	normal	bold	Courier-Bold
Courier	italic	normal	Courier-Oblique
Courier	italic	bold	Courier-BoldOblique
Helvetica	normal	normal	Helvetica
Helvetica	normal	bold	Helvetica-Bold
Helvetica	italic	normal	Helvetica-Oblique
Helvetica	italic	bold	Helvetica-BoldOblique
Times	normal	normal	Times
Times	normal	bold	Times-Bold
Times	italic	normal	Times-Italic
Times	italic	bold	Times-BoldItalic
Symbol	normal	normal	Symbol
ZapfDingbats	normal	normal	ZapfDingbats

The TrueType fonts are listed in the table below. All TrueType fonts are subset and embedded into PDF.

Font Family Name	Style	Weight	Actual Font	Actual Font Type
Andale Duospace WT	normal	normal	ADUO.ttf	TrueType (Latin1 only, Fixed width)
Andale Duospace WT	bold	bold	ADUOB.ttf	TrueType (Latin1 only, Fixed width)
Andale Duospace WT J	normal	normal	ADUOJ.ttf	TrueType (Japanese flavor, Fixed width)
Andale Duospace WT J	bold	bold	ADUOJB.ttf	TrueType (Japanese flavor, Fixed width)
Andale Duospace WT K	normal	normal	ADUOK.ttf	TrueType (Korean flavor, Fixed width)
Andale Duospace WT K	bold	bold	ADUOKB.ttf	TrueType (Korean flavor, Fixed width)
Andale Duospace WT SC	normal	normal	ADUOSC.ttf	TrueType (Simplified Chinese flavor, Fixed width)
Andale Duospace WT SC	bold	bold	ADUOSCB.ttf	TrueType (Simplified Chinese flavor, Fixed width)
Andale Duospace WT TC	normal	normal	ADUOTC.ttf	TrueType (Traditional Chinese flavor, Fixed width)
Andale Duospace WT TC	bold	bold	ADUOTCB.ttf	TrueType (Traditional Chinese flavor, Fixed width)
Go Noto Current Jp	normal	normal	GoNotoCurrentJp.ttf	TrueType (Japanese flavor)
Go Noto Current Kr	normal	normal	GoNotoCurrentKr.ttf	TrueType (Korean flavor)
Go Noto Current Sc	normal	normal	GoNotoCurrentSc.ttf	TrueType (Simplified Chinese flavor)
Go Noto Current Tc	normal	normal	GoNotoCurrentTc.ttf	TrueType (Traditional Chinese flavor)

Open-Source Fonts Replace Licensed Monotype Fonts

In Oracle Analytics Cloud, Oracle has replaced Monotype fonts with open-source fonts in PDF reports in Oracle Analytics Publisher, analyses, and dashboards.

The Go Noto font is the default fallback font for PDF reports in Oracle Analytics Publisher, analyses, and dashboards. Test the open-source fonts in your reports and correct the formatting in the report templates.

What do I need to know about fonts in reports?

The following table lists the replacement for Monotype fonts in Oracle Analytics Cloud.

Monotype Fonts	Replacement Fonts
Monotype Albany fonts	Google Noto fonts
Monotype Barcode fonts	Libre Barcode fonts

Oracle Analytics Cloud reports use the Go Noto font as the fallback font for PDF reports to support non-English languages and some special characters of English and Western European languages. The system uses the fallback font when the default PDF fonts (such as Helvetica, Times Roman, and Courier) or user-provided fonts can't render the characters included in the data while generating the PDF output.

Use Libre Barcode fonts to generate barcodes.

What can I do now about fonts in my reports?

Oracle recommends that you review all your critical reports and edit the layout to format the reports as required. The impact of replacing the licensed Monotype fonts with the open-source fonts in analyses reports and dashboards is expected to be minimal because these reports don't include pixel-perfect layouts.

The Google Noto fonts and the Monotype Albany fonts are similar; however, there are a few minor differences in the height, width, and weight for characters in some non-English languages. In some cases, these differences might impact the pixel-perfect PDF output. You might have to edit the layout template of these reports to use the Google Noto fonts.

Go Noto font is the default fallback font for analyses, dashboards, and Publisher reports.

Monotype Barcode Fonts	Replacement Fonts
128R00.ttf	LibreBarcode128-Regular.ttf
B39R00.ttf	LibreBarcode39Extended-Regular.ttf
UPCR00.ttf	LibreBarcodeEAN13Text-Regular.ttf

Define Currency Formats

Currency formats defined in the Administration Runtime Configuration page are applied at the system level. Currency formats can also be applied at the report level.

The report-level settings take precedence over the system-level settings here.

Understand Currency Formats

The Currency Formats tab enables you to map a number format mask to a specific currency so that your reports can display multiple currencies with their own corresponding formatting. Currency formatting is only supported for RTF and XSL-FO templates.

To apply currency formats in the RTF template, use the format-currency function.

To add a currency format:

1. Click the **Add** icon.
2. Enter the ISO currency code, for example: USD, JPY, EUR, GBP, INR.

3. Enter the format mask to apply for this currency.

   The Format Mask must be in the Oracle number format. The Oracle number format uses the components "9", "0", "D", and "G" to compose the format, for example: 9G999D00

   where

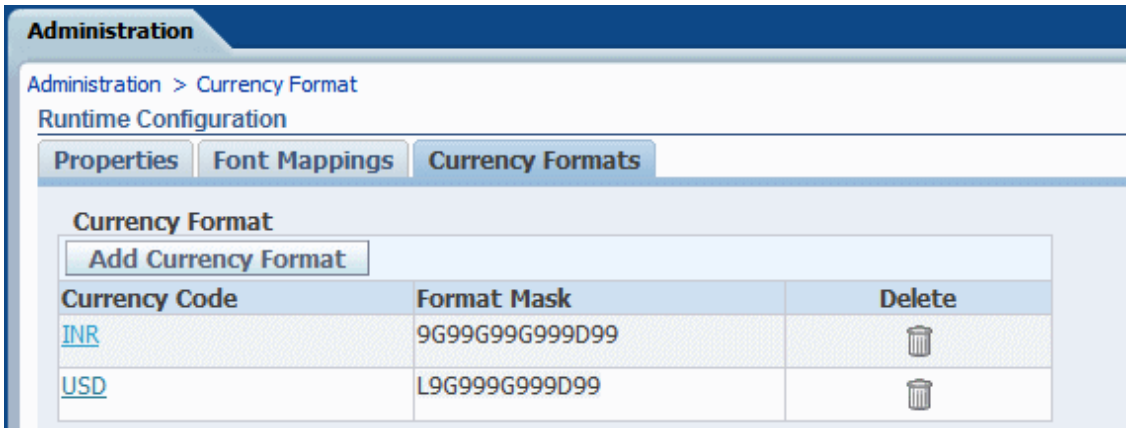
   9 represents a displayed number only if present in data

   G represents the group separator

   D represents the decimal separator

   0 represents an explicitly displayed number regardless of incoming data

The figure below shows sample currency formats.



Secure Reports

This topic describes how to secure pixel-perfect reporting.

Topics:

- Use Digital Signatures in PDF Reports
- Use PGP Keys for Encrypted Report Delivery
- Encrypt PDF Documents

Use Digital Signatures in PDF Reports

You can apply a digital signature to a PDF report.

Digital signatures enable you to verify the authenticity of the documents you send and receive. You can upload your digital signature file to a secure location, and at runtime sign the PDF report with the digital signature. The digital signature verifies the signer's identity and ensures that the document hasn't been altered after it was signed.

For additional information, refer to the Verisign and Adobe websites.

Prerequisites and Limitations of Digital Signatures

When you use digital signatures with PDF reports in Publisher, you must be aware of a few limitations.

A digital signature is obtained from a public certificate authority or from a private/internal certificate authority (if for internal use only).

Keep the following limitations in mind:

- Only the reports scheduled in Publisher can include the digital signature.
- You can register multiple digital signatures and enable a digital signature at the instance level. At the report level, you can choose the digital signature you want to apply for the report. Multiple templates assigned to the same report share the digital signature properties.

Obtain Digital Certificates

You can obtain a digital certificate either by purchasing one or by using the self-sign method.

- To obtain a digital certificate, perform one of the following:
  - Purchase a certificate from an authority, verify and trust the authenticity of the certificate, and then use Microsoft Internet Explorer to create a PFX file based on the certificate you purchased.
  - Create a self-signed certificate using a software program such as Adobe Acrobat, Adobe Reader, OpenSSL, or OSDT as part of a PFX file, and then use the PFX file to sign PDF documents by registering it with Publisher. Bear in mind that anyone can create a self-signed certificate, so use care when verifying and trusting such a certificate.

Create PFX Files

If you obtained a digital certificate from a certificate authority, you can create a PFX file using that certificate.

You don't need to create a PFX file if a self-signed certificate PFX file already exists.

To create a PFX file with Microsoft Internet Explorer:

1. Ensure that your digital certificate is saved on your computer.
2. Open Microsoft Internet Explorer.
3. From the Tools menu, click **Internet Options** and then click the Content tab.
4. Click Certificates.
5. In the Certificates dialog, click the tab that contains your digital certificate and then click the certificate.
6. Click **Export**.
7. Follow the steps in the Certificate Export Wizard. For assistance, refer to the documentation provided with Microsoft Internet Explorer.
8. When prompted, select **Use DER encoded binary X.509** as your export file format.
9. When prompted, save your certificate as part of a PFX file to an accessible location on your computer.

After you create your PFX file, you can use it to sign PDF documents.

Apply a Digital Signature

You can set up and sign your PDF reports with a digital signature.

You can upload and register multiple digital signatures, set one as the default signature for the instance, and choose a digital signature you want to apply for a report.

1. Upload the digital signature files in Upload Center.
2. Register the digital signature in the Publisher Administration page and specify the roles that are authorized to sign reports.
3. If you have registered multiple digital signatures, set one as the default signature for the instance.
    a. In the Administration page, navigate to **Security Center**, and click **Digital Signature**.
    b. In the Digital Signature tab, select the digital signature file you want to set as default, and click **Set as Default**.
    c. In the Runtime Configuration page, set the **Enable Digital Signature** property to true.
4. To configure a digital signature for a report, select the report and set the digital signature properties.
    a. In the Report Properties dialog, select the Formatting tab.
    b. Set the **Enable Digital Signature** property to true for the report.
    c. Select the digital signature for the report.
    d. Specify the display field name and location.
5. Log in as a user with an authorized role and submit the report through the Publisher scheduler, choosing the PDF report. When the report completes, it's signed with your digital signature in the specified location of the report.

Register Your Digital Signature and Assign Authorized Roles

Register a digital signature and assign roles that can have the authority to sign documents with this digital signature.

You must upload the digital signature file in Upload Center.

1. On the Administration tab, under **Security Center**, click **Digital Signature**.
2. Select the digital signature file you uploaded in Upload Center and enter the password for the digital signature.
3. Enable the Roles that must have the authority to sign documents with this digital signature. Use the shuttle buttons to move Available Roles to the Allowed Roles list.
4. Click **Apply**.

Specify the Signature Display Field or Location

You must specify the location for the digital signature to appear in the completed document. The methods available depend on whether the template type is PDF or RTF.

If the template is PDF, use one of the following options:

- Specify a template field in a PDF template for the digital signature.
- Specify the location for the digital signature in the report properties.

If the template is RTF, specify the location for the digital signature in the report properties.

Specify a Template Field in a PDF Template for the Digital Signature

Include a field in the PDF template for digital signatures.

Report authors can add a new field or configure an existing field in the PDF template for the digital signature. See Add or Designate a Field for a Digital Signature.

Specify the Location For the Digital Signature in the Report

You can specify the location for the digital signature in the report.

When you specify a location in the document to place the digital signature, you can either specify a general location (Top Left, Top Center, or Top Right) or you can specify x and y coordinates in the document.

You can also specify the height and width of the field for the digital signature by using runtime properties. You don't need to alter the template to include a digital signature.

1. In the catalog, navigate to the report.
2. Click the **Edit** link for the report to open the report for editing.
3. Click **Properties** and then click the Formatting tab.
4. Scroll to the **PDF Digital Signature** group of properties.
5. Set **Enable Digital Signature** to **True**.
6. Specify the location in the document where you want the digital signature to appear by setting the appropriate properties as follows (note that the signature is inserted on the first page of the document only):
   - **Existing signature field name** — Doesn't apply to this method.
   - **Signature field location** — Provides a list containing the following values:

     Top Left, Top Center, Top Right

     Select one of these general locations and Publisher places the digital signature in the output document sized and positioned appropriately.

     If you set this property, then don't enter X and Y coordinates or width and height properties.
   - **Signature field X coordinate** — Using the left edge of the document as the zero point of the X axis, enter the position in points to place the digital signature from the left.

     For example, to place the digital signature horizontally in the middle of an 8.5 inch by 11 inch document (that is, 612 points in width and 792 points in height), enter 306.
   - **Signature field Y coordinate** — Using the bottom edge of the document as the zero point of the Y axis, enter the position in points to place digital signature from the bottom.

     For example, to place the digital signature vertically in the middle of an 8.5 inch by 11 inch document (that is, 612 points in width and 792 points in height), enter 396.
   - **Signature field width** — Enter in points the desired width of the inserted digital signature field. This applies only if you're setting the X and Y coordinates.
   - **Signature field height** — Enter in points the desired height of the inserted digital signature field. This applies only if you're setting the X and Y coordinates.

Run and Sign Reports with a Digital Signature

If you've been assigned a role that's been granted the digital signature privilege, you can sign a generated report with a signature, if the report has been configured to include signatures. You can sign only scheduled reports with signatures.

To sign reports with a digital signature:

1. Log in as a user with a role granted digital signature privileges.
2. In the catalog, navigate to the report that has been enabled for digital signature, and click **Schedule**.
3. Complete the fields on the Schedule Report Job page, select **PDF output**, and then submit the job.

   The completed PDF displays the digital signature.

Use PGP Keys for Encrypted Report Delivery

You can deliver PGP encrypted reports through FTP server or Content server.

You can configure the FTP server and Content server delivery channels to use the PGP public keys to deliver PGP encrypted files in binary or ASCII format.

Use Security Center to upload and download the PGP keys. The "BI Publisher Public Key" file is verifying the signature on signed files. If you configure a delivery channel to send signed documents, download the "BI Publisher Public Key" file (either in binary or ASCII format), and import the keys in the destination PGP system used to verify signature and decrypt the files delivered by Publisher.

Manage PGP Keys

You can upload and delete your PGP keys.

1. From the Administration page, under **Security Center**, select **PGP Keys**.
2. To upload PGP keys to keystore, click **Choose File**, select the PGP key file, and then click **Upload**.
3. To delete the PGP keys you uploaded, in the PGP Keys table, click the delete icon corresponding to the PGP keys.
4. To download the PGP public keys for signature verification, click the download icon corresponding to the public key file.

Encrypt PDF Documents

You can encrypt PDF documents to prevent unauthorized access to the file content.

The security level you set in the **Encryption level** PDF output property specifies the encryption algorithm used for the PDF document encryption. Define encryption for PDF documents at the server level or at the report level. See PDF Output Properties.

Publisher supports AES-256 encryption for:

- PDF documents generated from RTF and XPT templates using the FOProcessor or PDFGenerator utilities.

- PDF documents generated from PDF templates (PDF forms) using the FormProcessor utility. Publisher doesn’t support encrypted form input.
- PDF documents without password protection that are printed using either PDF to PostScript or PDF to PCL print filter. You can’t send an encrypted PDF document to a CUPS printer or an IPP printer without a filter.

Publisher uses the AES implementation of JCE (Java Cryptography Extension) for encrypting and decrypting documents. If you want to use the AES 256-bit encryption for PDF documents, you need the JCE Unlimited Strength Jurisdiction Policy installed on the JVM that runs the container that has the Publisher installation, but this policy isn't required for the AES 128-bit encryption.

Publisher doesn't support encrypted input.

PDF Document Encryption Algorithms

Publisher uses an encryption algorithm based on the PDF document security setting.

Security Level	Encryption Scheme	PDF Version	Acrobat Version
Low	RC4 (40bit)	1.1	3.0
Medium	RC4 (128bit)	1.4	5.0
High	AES (128bit)	1.5	7.0
Highest	AES (256bit)	1.7 (extension level 5)	X

Audit Data of Publisher Catalog Objects

An administrator can enable or disable viewing of the audit data of Publisher catalog objects, configure a connection to the audit data, and create reports to view the audit data.

Topics:

About Audit Data of Publisher Catalog Objects

You can use the sample reports to view the audit data of Publisher catalog objects.

You can find out the time of access and who accessed the Publisher catalog objects such as reports, data models, sub-templates, style templates, and folders.

Audit data helps you track:

- Report start, process, end, and download
- Report job pause, resume, and cancellation
- Publisher resource creation, modification, copy, and deletion
- Publisher resource access

> **Note:**
>
> User session data (User Login and User Logout events) isn't included in the audit data. Only the reporting activities performed in the *host*:*port*/ui/xmlpserver Publisher interface pages are included in the audit data. The reporting activities performed in the *host*:*port*/ui/analytics interface pages aren't included in the audit data.

Enable or Disable Viewing of Publisher Audit Data

Administrators can enable or disable viewing the audit data of publishing activities.

1. Navigate to the Server Configuration page.
2. To enable viewing of audit data, select **Enable Monitor and Audit** and set **Audit Level** to **Medium**.
3. To disable viewing of audit data, deselect **Enable Monitor and Audit**.

Specify the Data Source Connection For Publisher Audit Data

Configure a data source connection for the audit data.

1. In the Administration page, click **JNDI Connection**.
2. Click **Add Data Source**.
3. In the **Data Source Name** field, enter AuditViewDB.
4. In the **JNDI Name** field, enter `jdbc/AuditViewDataSource`.
5. Click **Test Connection** to confirm the connection to the audit data source.
6. Define security for this data source connection. Move the required roles from the **Available Roles** list to the **Allowed Roles** list. Only users assigned the roles on the **Allowed Roles** list can create or view reports from this data source.
7. Click **Apply**.

View Publisher Audit Data

You can download and use the sample reports for viewing the audited information.

Make sure you select **Enable Monitor and Audit** in the Server Configuration page to log audit data, and then configure the JNDI connection to the AuditViewDB data source to view the audit data.

The sample reports use the JNDI connection to fetch data from the data source for auditing. The report layout and data model are pre-designed in the sample reports. You can customize the report layout, but don't change the data model in the sample reports. The sample reports are configured to run as a scheduled job because the size of auditing data can be large. If you want to view an audit report online, select the **Run Report Online** property and make sure you don't select the **Auto Run** property of the report.

1. Download the sample audit reports from the Oracle Analytics Publisher Downloads page.
2. Upload the sample audit reports to a shared folder in the catalog.
3. Schedule the sample audit reports you want to view.
    a. Navigate to the sample audit report in the catalog.

b. Click **Schedule**.

c. In the General tab, specify the dates for the **Date From** and **Date To** parameters.

d. In the Output tab, make sure the output format is PDF.

   You can add delivery destinations if required.

4. After the scheduled job completes, view the report in the Report Job History page.

Add Translations For the Catalog and Reports

This topic describes how to export and import translation files both for the catalog and for individual report layouts.

Topics:

About Translation in Publisher

Publisher supports two types of translation: Catalog Translation and Template (or layout) Translation.

Catalog translation enables the extraction of translatable strings from all objects contained in a selected catalog folder into a single translation file; this file can then be translated and uploaded back to Publisher and assigned the appropriate language code.

Catalog translation extracts not only translatable strings from the report layouts, but also the user interface strings that are displayed to users, such as catalog object descriptions, report parameter names, and data display names.

Users viewing the catalog see the item translations appropriate for the UI Language they selected in their My Account preferences. Users see report translations appropriate for the Report Locale that they selected in their My Account preferences.

Template translation enables the extraction of the translatable strings from a single RTF-based template (including sub templates and style templates) or a single Publisher layout template (.xpt file). Use this option when you only need the final report documents translated. For example, your enterprise requires translated invoices to send to German and Japanese customers.

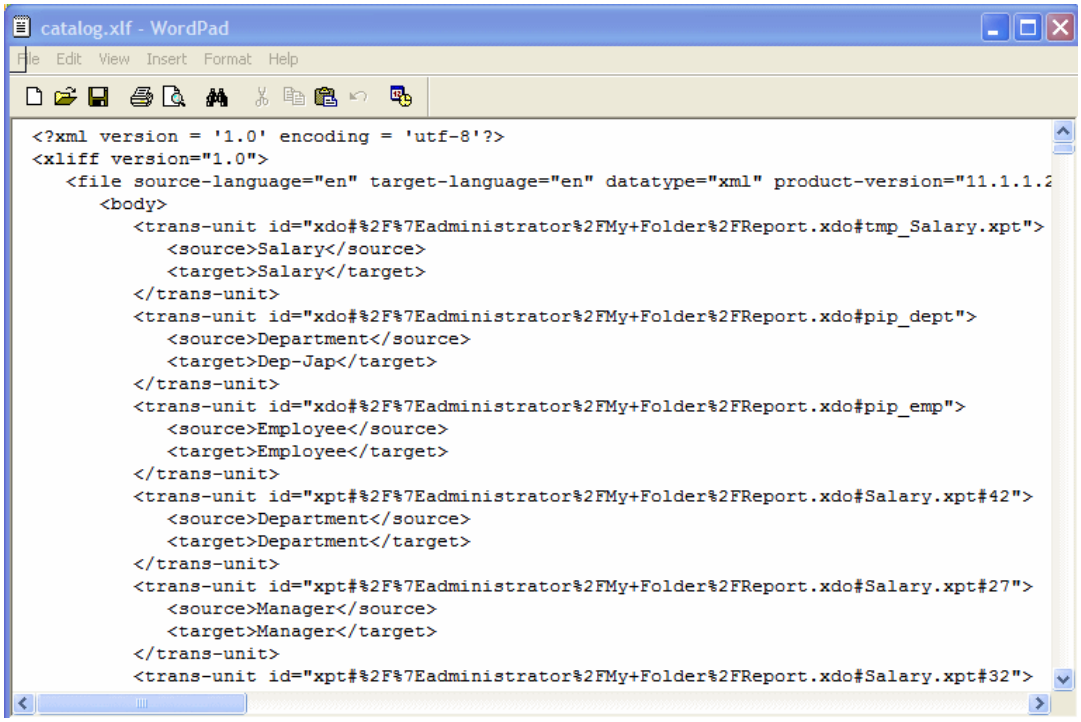
Limitations of Catalog Translation

If you have XLIFF file translations for specific reports and then you import a catalog translation file for the folder in which the existing translations reside, you overwrite the existing XLIFF files.

Export and Import a Catalog Translation File

Importing the translated file to the catalog and exporting the XLIFF files from the catalog can only be performed by an Administrator.

1. Select the folder in the catalog, click the **Translation** toolbar button, and then click **Export XLIFF**.
2. Save the XLIFF file to a local directory.
3. Open the Translation file (catalog.xlf) and apply translations to the Boilerplate text, as shown in the following figure.



4. After the file is translated, upload the XLIFF file to the Publisher server: Click the **Translation** toolbar button, then click **Import XLIFF**. Upload the translated XLIFF to the server.
5. To test the translation, select **My Account** from Signed In As in the global header.
6. On the General tab of the My Account dialog, change the Report Locale and the UI Language preferences to the appropriate language and click **OK**.
7. View the objects in the translated folder.

Translate Templates

You can translate the RTF and Publisher (.xpt) templates from the Properties page.

Template translation includes:

- RTF templates
- RTF sub templates
- Style templates
- Publisher templates (.xpt)

To access the Properties page, click the **Properties** link for the layout in the Report Editor, as shown below.

From the Properties page you can generate an XLIFF file for a single template. Click **Extract Translation** to generate the XLIFF file.

Generate the XLIFF File from the Layout Properties Page

Generate the XLIFF file for report layout templates, style templates, and sub templates.

1. To generate the XLIFF file for report layout templates, perform these steps.
   a. Navigate to the report in the catalog and click **Edit** to open it for editing.
   b. From the thumbnail view of the report layouts, click the **Properties** link of the layout (RTF or XPT) to open the Layout Properties page.
   c. In the **Translations** region, click **Extract Translation**.

      Publisher extracts the translatable strings from the template and exports them to an XLIFF (.xlf file).
   d. Save the XLIFF to a local directory.
2. To generate the XLIFF file for style templates and sub templates, perform these steps.
   a. Navigate to the style template or sub template in the catalog and click **Edit** to open the Template Manager.
   b. In the **Translations** region, click **Extract Translation**.

      Publisher extracts the translatable strings from the template and exports them to an XLIFF (.xlf file).
   c. Save the XLIFF to a local directory.

Translate the XLIFF File

When you download a XLIFF file, it can be sent to a translation provider, or using a text editor, you can enter the translation for each string.

A "translatable string" is any text in the template intended for display in the published report, such as table headers and field labels. Text supplied at runtime from the data is not translatable, nor is any text that you supply in the Microsoft Word form fields.

You can translate the template XLIFF file into as many languages as desired and then associate these translations to the original template.

Upload the Translated XLIFF File to Publisher

You can run the Template Manager to upload the translated XLIFF file to Publisher.

1. Navigate to the report, sub template, or style template in the catalog and click **Edit** to open it for editing.

   For reports only:

   From the thumbnail view of the report layouts, click the **Properties** link of the layout to open the Template Manager.
2. In the Translations region, click the **Upload** toolbar button.
3. In the Upload Translation File dialog, locate the file in the local directory and select the **Locale** for this translation.
4. Click **OK** to upload the file and view it in the Translations table.

Use a Localized Template

You can create localized templates for reports.

If you need to design a different layout for the reports that you present for different localizations, then you can create new RTF file designed and translated for the locale and upload this file to the Template Manager.

The localized template option is not supported for XPT templates.

Design the Localized Template File

Use the same tools that you used to create the base template file, translating the strings and customizing the layout as desired for the locale.

Upload the Localized Template to Publisher

Upload localized template files in rtf format to Publisher.

1. Navigate to the report, subtemplate, or style template in the catalog and click **Edit** to open it for editing.

   For reports only:

   From the thumbnail view of the report layouts, click the **Properties** link of the layout to open the Template Manager.
2. In the Templates region, click the **Upload** toolbar button.
3. In the Upload Template File dialog, locate the file in the local directory, select **rtf** as the Template Type and select the **Locale** for this template file.
4. Click **OK** to upload the file and view it in the Templates table.

Part III
Advanced Configuration

This part provides information about advanced configuration topics.

Chapters:

7

Customize and Configure Advanced Options

This topic describes advanced customization and configuration tasks performed by administrators managing Oracle Analytics Cloud.

Topics:

Typical Workflow For Advanced Customization and Configuration

Here are some more advanced customization and configuration tasks for Oracle Analytics Cloud administrators.

Task	Description	More Information
Change the default reporting page and dashboard styles	Change the default logo, page style, and dashboard style.	Apply Custom Logos and Dashboard Styles
Localize reporting dashboards and analyses	Localize the names of workbook and catalog objects (known as captions) into different languages.	Localize Custom Captions
Set up custom JavaScript for actions	Enable users to invoke browser scripts from analyses and dashboards.	Enable Custom Java Script for Actions
Set up write-back	Enable users to update data from analyses and dashboards.	Deploy Write-back
Add custom knowledge for data enrichment	Add custom knowledge reference files (in CSV format) to augment system knowledge.	Add Custom Knowledge for Data Enrichment
Track usage	Track the user-level queries to the content in Oracle Analytics Cloud.	Track Usage
Manage caching	Manage how queries are cached in Oracle Analytics Cloud.	Manage Query Caching
Configure advanced options	Set more advanced, service-level options for analyses and dashboards.	Configure Advanced Options

Apply Custom Logos and Dashboard Styles

Administrators use themes to apply custom logos and dashboard styles.

Topics:

About Custom Logo and Dashboard Styles

As an administrator you can customize your reporting environment by creating a theme that displays custom logo, branding text, page style and so on.

When working with themes, note the following:

- You can create multiple themes, but only one theme can be active at one time.
- If you deactivate a theme, you revert to the default Oracle theme, unless you select a different one.
- Themes are applied on pages with analyses and dashboards, but not to visualization workbooks.
- You create themes in the Manage Themes area of the Administration page.
- When you activate a theme, you apply it to the browser session of the currently signed-in administrator and to the browser sessions of end-users as they sign in.
- If Oracle Analytics is running on multiple instances, then duplicate and activate them for each instance.

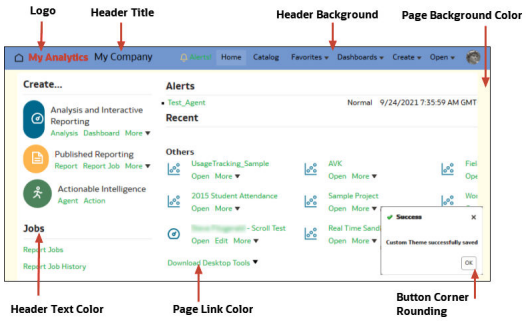
Change the Default Style for Analyses and Dashboards

Administrators create themes to change the default logo, colors, and heading styles for analyzes and dashboards.

1. In the Classic Home page, click the user profile icon and then click **Administration**.
2. Click **Manage Themes**.
3. To apply an existing dashboard style, select one from the **Theme** list, click **Active**, then click **Save**.
4. To create a new dashboard style, in the **Theme** list, click **New Theme** to display the New Theme dialog.
5. In **Theme Name**, the name that you specify here is displayed in the **Style** list on the Dashboard Properties dialog.
6. In **Logo**, specify the page logo that you want displayed in the top left hand corner. To replace the default Oracle logo, click **Select Logo** and navigate to and select a different logo in PNG, JPG, or JPEG format. Logos can't exceed 136 pixels in width by 28 pixels in height.

7. In **Header Title**, specify the branding information that you want displayed in the top left hand corner next to the logo.
8. In **Active**, click to apply the currently displayed theme when you click **Save**. If you click **Active**, then click **Back** without saving changes, the new theme isn't applied.

This diagram shows you what theme options affect different areas of the reporting environment.



Manage Themes

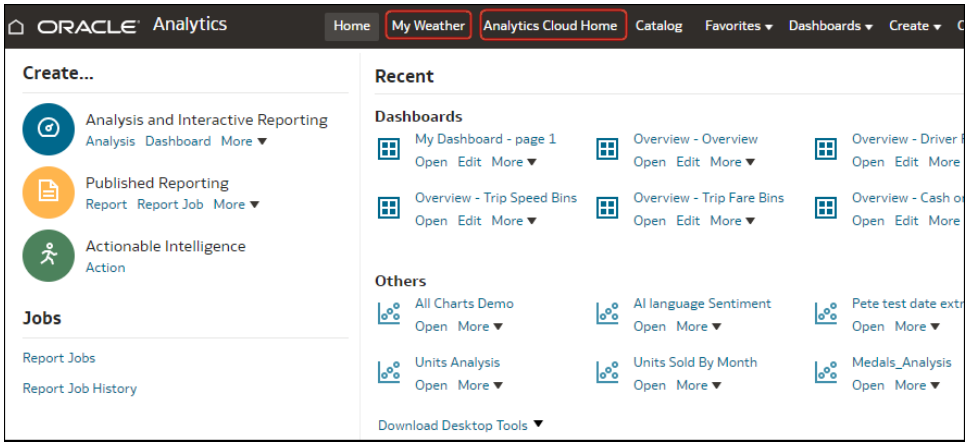
Administrators manage themes to change the default logo, colors, and heading styles for reporting pages, dashboards, and analyses.

1. In the Classic Home page, click the user profile icon and then click **Administration**.
2. Click **Manage Themes**.
3. Optional: To apply a previously created theme, select the theme you want from the Theme list, click **Active**, then click **Save**, then click **Back**.
4. Optional: To revert to the default Oracle theme, clear the **Active** option, click **Save**, then click **Back**.
5. Optional: To remove a theme completely, select the theme you want to remove, click **Delete**, then click **Back**.

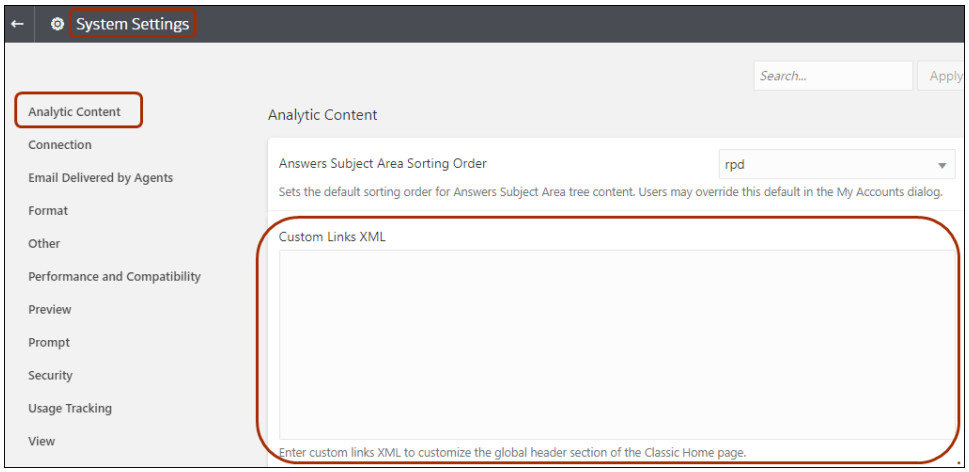
Customize Links on the Classic Home Page

You can configure the Classic home page to display custom links. For example, you might add a link to a website showing the local weather, or a link to the Oracle Analytics home page to enable business analysts to navigate from the Classic home page to workbooks and visualizations.

In this example, links are added for "My Weather" and "Analytics Cloud Home".



To add custom links, add XML code to the **Custom Links XML** system setting. To access the System Settings page, go to the Oracle Analytics home page, click **Navigator**, then **Console**, then **System Settings**, then **Analytic Content**).



You can use XML code to specify links and attributes, including the following:

- The text for the link (either a static string or a message name to use for localization).
- A target URL.
- Whether the target link opens in the current page or opens in a new tab or window.
- The relative ordering of links in the header.
- An optional icon to use with the link.

This example displays two custom links to the left of the **Catalog** link in the global header of the Classic home page.

```
<?xml version="1.0" encoding="utf-8"?>
<customLinks xmlns="com.siebel.analytics.web/customlinks/v1">
   <link id="1" name="My Weather" description="Local weather site"
src="https://www.example.com/weather" target="blank" >
       <locations>
           <location name="header" insertBefore="catalog"/>
       </locations>
   </link>
```

```
   <link id="1" name="Analytics Cloud Home" description="OAC Viz Home Page"
src="https://<OAC example URL>.analytics.ocp.oraclecloud.com/ui/dv/?
pageid=home" target="blank" >
       <locations>
           <location name="header" insertBefore="catalog"/>
       </locations>
   </link>
</customLinks>
```

> **Note:**
>
> To obtain the link for Oracle Analytics home page, log into Oracle Analytics, copy the URL, and paste it into the `src="<target link>"` element (as shown in the example XML code).

This table describes the elements and attributes that you can specify for custom links.

Element or Attribute	Optional?	Data Type	Description
`link: accessibility`	Optional	Boolean	Specifies that in accessibility mode, the link is available only when the accessibility attribute is set to **true**. Values are **true** and **false**, and **false** is the default. In previous updates, the `vpat` attribute served the same purpose as the accessibility attribute. The `vpat` attribute has been deprecated.
`link: description`	Optional	String	Specifies the description of the link (not translated).
`link: iconSmall`	Optional	String	Specifies the file name of an icon to display with the link in the global header. The display of icons is controlled by the fmap syntax.
`link: id`	Required	String	Use as a unique ID that specifies the position of the link. You can include IDs for custom links to position them relative to default links.
`link: name`	Required	String	Specifies the name of the link that isn't translated.
`link: privilege`	Optional	String	Specifies the name of privileges that a user must be granted to see the link. The privileges are indicated as an expression, as shown in the following example: `privileges.Access['Global Answers']&amp;&amp; privileges.Access['Global Delivers']`
`link: src`	Required	String	Specifies the URL for the link.
`link: target`	Optional	String	Specifies the browser window in which to open the link. The values are: **self:** Opens in same window in which Oracle Analytics is running. **blank:** Opens in a new window. *any-name*: Opens in a window with the specified name.

Element or Attribute	Optional?	Data Type	Description
`location: insertBefore`	Optional	String	Specifies the ID of an existing link to the left of which you want to add the custom link. For example, to add a custom link to the left of the **Catalog** link, specifiy `<location name="header" insertBefore="catalog"/>`. Valid IDs: • `admin` • `catalog` • `dashboard` • `favorites` • `help` • `home` • `logout` • `new` • `open` • `user` If you make a mistake and specify an invalid ID, the link is inserted in a default location.
`location: name`	Required	String	Use this attribute if you include the locations parent element. The values are: **header:** Specifies to include the link in the global header.
`locations`	Optional	Not Applicable	Use as the parent element for specifying the locations of the links to add. If you don't specify a location, then by default links are included before the Help link in the global header and at the end of the Get Started section.

Localize the User Interface for Data Visualization

You can localize the user interface display language and regional data formats for Data Visualization.

The order of precedence for language and locale settings apply applies as follows:

- Browser language preference (browser settings).
- User setting for language or locale overrides the browser language preference.
- URL query parameter for language or locale overrides the user setting.
- Embedding parameter for language or locale overrides the URL query parameter.

When you localize the user interface display language or local-based regional data formats for Data Visualization it doesn't include workbook custom captions. You localize workbook custom captions separately. See Localize Data Visualization Workbook Captions.

Topics:

Localize Data Visualization User Interface Display Language

You can change the language for displaying Data Visualization user interface strings.

1. From the Home page, click the user profile icon.
2. Click **Profile**, and click the **My Profile** tab.
3. Click **Language** and select the language to use for the user interface.

   The language that you select takes precedence over the browser language.
4. Sign out of Oracle Analytics Cloud and then sign back in again to display the language that you selected.

Localize Data Visualization Regional Data Formats

You can select a locale to display region-specific date and number formatting in Data Visualization workbooks.

1. From the Home page, click the user profile icon.
2. Click **Profile**, and click the **My Profile** tab.
3. Click **Locale** and select a locale.

   The locale that you select takes precedence over the browser locale.
4. Sign out of Oracle Analytics Cloud and then sign back in again to display the language that you selected.

Workbook Data Format Changes When You Select a Different Locale

When you select a different locale, data formatting changes can occur in various workbook areas.

- **General workbook areas affected:**
  - date or time formats (timestamp uses a combination of date or time formatting) For example, mm/dd/yy (USA) versus dd/mm/yy (EU regions).
  - number formats (variations in the decimal and thousands separator) For example, 15.000.00, or 15,000.00
- **Workbook presentation mode areas affected:**
  - visualizations (data display, tooltips, titles)
  - filter controls (data display and data entry)
  - parameter controls (data display and data entry)
- **Workbook edit mode areas affected:**
  - parameter dialog value display or entry
  - conditional format dialog
  - visualization properties
  - any other workbook edit surfaces that expose dates, time, number

Localize Custom Captions

You can localize custom captions for Classic catalog objects and for Data Visualization workbook captions.

Topics:

Localize Data Visualization Workbook Captions

You can localize the names of custom Data Visualization workbook captions. For example, you might localize a customized workbook name into Spanish and French.

See What languages does Oracle Analytics support?

To localize the names of Data Visualization workbook captions, you export captions for the Data Visualization workbook to a file, translate the captions, and then upload the translated captions back into the workbook. You must upload your translations to the same Oracle Analytics environment that you exported the captions from.

If you want to migrate caption localizations to a *different* Oracle Analytics environment, you can export your workbook captions to a snapshot and then import the snapshot on the target environment. Caption translations are included in the snapshot.

Topics:

Export Workbook Captions

You can export workbook captions so that they can be translated.

1. On the Home page, click the **Navigator**, and then click **Console**.
2. Click **Translations**.
3. Click the **Export** tab.
4. Expand Shared Folders, select the folder containing the Data Visualization workbook caption files to localize, for example, `\Shared Folders\OAC_DV_SampleWorkbook`.
5. Click **Export** to download and save the exported `captions.zip` file, containing the .JS files that you want to localize, to the browser's download folder.

Localize Workbook Captions

After you have exported your Data Visualization workbook captions, you deliver the captions.zip file containing language-specific JS caption files for each supported language, to the localization team. For example, if you're localizing the French captions file, the file that you

update might be named `@/Shared/DataVizWorkbookFolderNameExample/WorkbookNameExample/NLS/fr/captions.js`.

You and the localization team are responsible for resolving any errors in the translated text strings. Consider that the contents of the workbook are updated whenever objects are added, deleted, or modified.

1. Browse to the workbook captions ZIP file that you exported, and extract the language-specific JS file that you want to update.
2. Open the extracted language-specific JS file for editing.
3. Enter translated names into the appropriate caption elements to replace the existing text strings.

   For example, if you created a visualization title caption in `Canvas 2` named `Sales performance by product category`, you edit and replace the English text with the French translation which is `Performance des ventes par categorie de produits`.
   The French `captions.js` file before translation:

```
define({
  "cap1702987932895_1" : "Canvas 2",
  "cap1702987932895_2" : "New Name",
  "cap1702987932895_3" : "Filter Name",
  "cap1702987932895_4" : "Sales",

  "cap1702987932895_44" : "Sales performance by product category",
  "cap1702987932895_45" : "Select * Customer Segment"
});
```

   The French `captions.js` file after translation:

```
define({
  "cap1702987932895_1" : "Canvas 2",
  "cap1702987932895_2" : "New Name",
  "cap1702987932895_3" : "Filter Name",
  "cap1702987932895_4" : "Sales",

  "cap1702987932895_44" : "Preference des ventes par categorie de produits",
  "cap1702987932895_45" : "Select * Customer Segment"
});
```

4. Save the updated language-specific JS file and then add it to the exported translated captions ZIP file.
5. Optional: You can also use this method to import localized Classic catalog caption .XML files. You can add translated .XML files under the top level directory of the exported translated captions ZIP file. and zip them up together for import.

   For example:

   - `ar/_shared_Common_captions.xml`
   - `cs/_shared_Common_captions.xml`
   - ...
   - `zh-TW/_shared_Common_captions.xml`

Import Localized Workbook Captions

After you've localized your Data Visualization workbook captions in the required language, you deploy the language by uploading the translated ZIP file to the *same* Oracle Analytics environment that you exported the workbook captions from.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Translations** and click the **Import** tab.
3. Click **Select a file or drop it here**, and browse for, or drag and drop the ZIP file containing the translated JS file that you want to import.
4. Click **Import**.

Oracle Analytics displays translated language-specific text strings in a browser that's suitably configured to use the correct captions file for the required language.

Localize Catalog Captions

You can localize the names of classic reporting objects that users create in the catalog. Classic object names are also known as *captions*. Workbook custom captions aren't changed when you localize classic object names.

See What languages does Oracle Analytics support?.

To localize captions for classic content, you export the captions from the catalog to a file, translate the captions, and then upload the localized captions back into the catalog. You must upload your translations to the *same* Oracle Analytics environment that you exported the captions from.

For example, your company's browser setting use Argentinian Spanish rather than Spain Spanish, you can set the language to Argentinian Spanish to override the current language setting.

If you want to migrate caption localizations to a *different* Oracle Analytics environment, you can export your catalog to a snapshot and then import the snapshot on the target environment. Caption translations are included in the snapshot.

Export Captions from the Catalog

The following procedure describes how to export text strings in the catalog.

1. In the Classic Home page, click the user profile icon and then click **Administration**.
2. In the **Manage Catalog Captions** area, click **Export Captions**.
3. Click **Browse** to display the Catalog browser, select the folder that contains the files you want to localize, and then click **OK**.

   For example, you might select `\Shared Folders\Sample Report`.
4. In the **Export Captions** dialog, click **OK** to download and save the XML file in a local area.

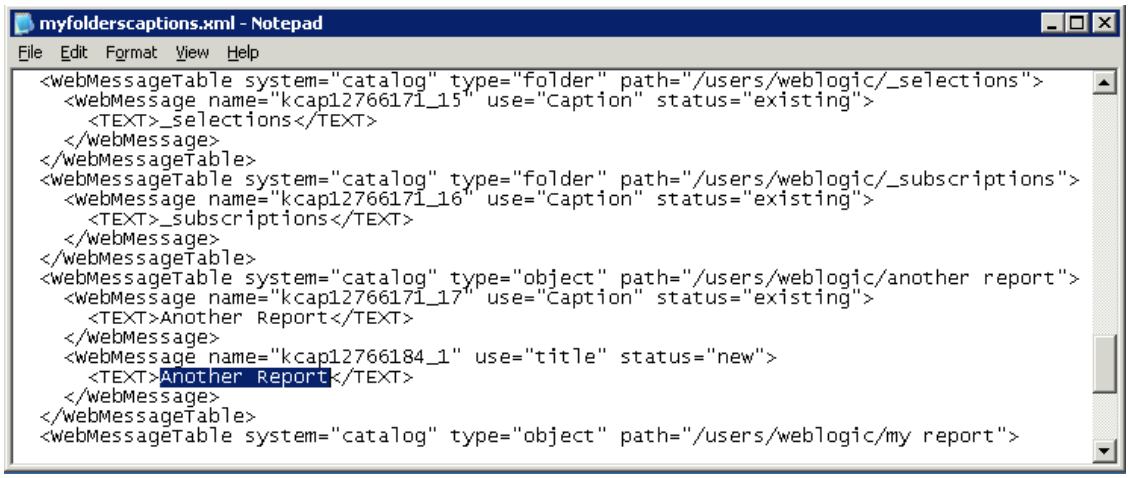
   For example, if you select the file `\Shared Folders\Sample Report`, you'll save a file locally named `_shared_Sample Report_captions.xml`.

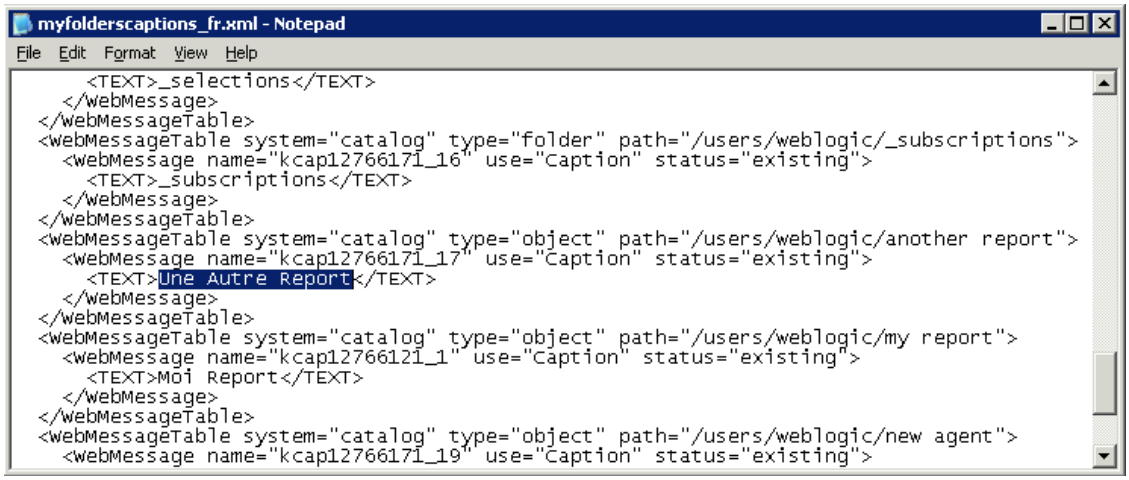
Localize Your Captions

After you have exported your captions in an XML file, deliver the XML file to the localization team. For example, if you selected the Custom folder to download, you'll deliver a file named `_shared_Custom_captions.xml`.

You and the localization team are responsible for resolving any errors in the translated text strings. Consider that the contents of the catalog are updated whenever objects are added, deleted, or modified.

The first illustration shows an extract from an exported caption XML file before translation. The file is named `myfoldercaptions.xml`. The second illustration shows an extract from the file after translation. The file is named `myfoldercaptions_fr.xml`.





Upload Localized Captions to the Catalog

After you've localized your captions in the required languages, you deploy the languages by uploading the translated XML files to the *same* Oracle Analytics environment that you exported the captions from. Use this procedure for each language.

1. In the Classic Home page, click the user profile icon and then click **Administration**.
2. In the **Manage Catalog Captions** area, click **Import Captions**.
3. Click **Browse**, then navigate to and select the localized XML file, and click **OK**.
4. Use the **Select language** option to select the language to which you've localized, then click **OK**.

   Imported XML files are copied to the `MsgDb` folder under the selected language.

Enable Custom Java Script for Actions

Users working with analyses and dashboards can add action links that invoke custom JavaScript accessible through a web server. To enable this feature, administrators specify the URL of the web server in System Settings and register the web server as a safe domain.

1. Develop your scripts in JavaScript, store them in a web server, and make a note of the URL pointing to the JavaScript (*.JS) file containing the custom scripts.

   For example, you might develop a currency conversion script named `mycurrencyconversion` that you store in `myscripts.js`, and the URL might be:`http://example.com:8080/mycustomscripts/myscripts.js`.
2. Specify the URL of your web server in System Settings:
   a. Click **Console**, then click **System Settings**.
   b. In **URL for Browser Script Actions**, enter the URL that you noted in Step 1.
   c. If prompted to, click **Apply**.
3. Register the web server as a safe domain:
   a. Click **Console**, then click **Safe Domains**.
   b. Add an entry for the domain in the URL you specified in Step 2.

      For example, you might add: `example.com:8080`.
   c. For options, select **Script** and **Connect**.
4. Test your configuration:
   a. In Classic Home, open or create an analysis.
   b. Display the Column Properties for a column, click **Interaction**, then **Add Action Link**.
   c. Click **Create New Action**, then **Invoke a Browser Script**.
   d. Under **Function Name** enter the name of a script in your JavaScript (*.JS) file.

      For example, `USERSCRIPT.mycurrencyconversion`.
   e. Save the details, and open the analysis.
   f. Click the column to which you added the action, then click the action.

Validate and Block Queries in Analyses Using Custom JavaScript

You can develop validation scripts in JavaScript to validate analysis criteria and column formulas, and block invalid queries.

- Block Queries in Analyses
- Develop JavaScript to Block Analyses Based on Criteria

Block Queries in Analyses

Users working with analyses can invoke custom JavaScript to validate analysis criteria and column formulas. The validation allows for queries to be blocked when editing an analysis. The custom JavaScript must be accessible through a web server. To enable this feature, administrators specify the URL of the web server in system settings and register the web server as a safe domain.

1. Develop your custom validation scripts in JavaScript, store them in a web server, and make a note of the URL pointing to the JavaScript (*.JS) file containing the custom scripts.

   For example, you might develop a blocking script that you store in `myblocking.js`, and the URL might be:`http://example.com:8080/mycustomscripts/myblocking.js`.

2. Specify the URL of your web server in system settings:
   a. Click **Console**, then click **System Settings**.
   b. In **URL for Blocking Queries in Analyses**, enter the URL that you noted in Step 1.
3. Register the web server as a safe domain:
   a. Click **Console**, then click **Safe Domains**.
   b. Add an entry for the domain in the URL you specified in Step 2.

      For example, you might add: `example.com:8080`.

   c. For options, select **Script** and **Connect**.
4. Test your validation scripts:
   a. Open an analysis.
   b. Run the analysis with both valid and invalid criteria.
   c. Verify that queries are blocked as expected.

Develop JavaScript to Block Analyses Based on Criteria

Whenever a user tries to run an analysis, Oracle Analytics invokes the function `validateAnalysisCriteria`. You can customize `validateAnalysisCriteria` to validate and block queries based on your own specific criteria. If the function returns `true`, the query runs. If the function returns `false` or displays a message, the query is blocked.

For example, the following is sample code for a JavaScript program called `myblocking.js`.

```
// This is a blocking function. It ensures that users select what
// the designer wants them to.
function validateAnalysisCriteria(analysisXml)
{
   // Create the helper object
   var tValidator = new CriteriaValidator(analysisXml);
   // Validation Logic
   if (tValidator.getSubjectArea() != "Sample Sales")
      return "Try Sample Sales?";
   if (!
tValidator.dependentColumnExists("Markets","Region","Markets","District"))
```

```
   {
      // If validation script notifies user, then return false
      alert("Region and District are well suited, do you think?");
      return false;
   }
   if (!tValidator.dependentColumnExists("Sales
Measures","","Periods","Year"))
   return "You selected a measure so pick Year!";
   if (!tValidator.filterExists("Sales Measures","Dollars"))
   return "Maybe filter on Dollars?";
   if (!tValidator.dependentFilterExists("Markets","Market","Markets"))
   return "Since you are showing specific Markets, filter the markets.";
   var n = tValidator.filterCount("Markets","Region");
   if ((n <= 0) || (n > 3))
      return "Select 3 or fewer specific Regions";
   return true;
}
```

If the function returns anything other than `false`, the criteria is considered to be valid and the analysis runs. The function is also use to validate criteria for preview and save operations.

Develop JavaScript to Block Analyses Based on Formula

Whenever a user tries to enter or modify a column formula, Oracle Analytics invokes the function `validateAnalysisFormula` to verify the operation. You can customize `validateAnalysisFormula` to validate and block formulas based on your own specific criteria. If the function returns `true`, the formula is accepted. If validation fails the function returns `false`, the formula is rejected and your custom message displays.

To display a message and allow users to continue, your function must return `true`. To block the query, your function must return `false` or display a message. You can use a JavaScript string and regular expression techniques in your function to investigate and validate the formula.

Helper functions are available so the query blocking function can check for filters, columns, and so on. See Validation Helper Functions.

For example, the following code shows how to block a query if a user enters an unacceptable formula.

```
// This is a formula blocking function. It makes sure the user doesn't enter
an unacceptable formula.
function validateAnalysisFormula(sFormula, sAggRule)
{
   // don't allow the use of concat || in our formulas
   var concatRe = /\|\|/gi;
   var nConcat = sFormula.search(concatRe);
   if (nConcat >= 0)
      return "You used concatenation (character position " + nConcat + ").
That isn't allowed.";
   // no case statements
   var caseRe = /CASE.+END/gi;
   if (sFormula.search(caseRe) >= 0)
      return "Don't use a case statement.";
   // Check for a function syntax: aggrule(formula) aggrule shouldn't contain
a '.'
   var castRe = /^\s*\w+\s*\(.+\)\s*$/gi;
```

```
   if (sFormula.search(castRe) >= 0)
      return "Don't use a function syntax such as RANK() or SUM().";
    return true;
}
```

Validation Helper Functions

Several validation helper functions are available in a JavaScript file for you to use.

Validation Helper Function	Description
`CriteriaValidator.getSubjectArea()`	Returns the name of the subject area referenced by the analysis. It generally is used in a switch statement within the function before doing other validation. If the analysis is a set-based criteria, then it returns `null`.
`CriteriaValidator.tableExists(sTable)`	Returns `true` if the specified folder (table) has been added to the analysis by the content designer, and `false` if the folder wasn't added.
`CriteriaValidator.columnExists(sTable, sColumn)`	Returns `true` if the specified column has been added to the analysis by the content designer, and `false` if the column wasn't added.
`CriteriaValidator.dependentColumnExists(sCheckTable, sCheckColumn, sDependentTable, sDependentColumn)`	Checks to ensure that the `dependentColumn` exists if the `checkColumn` is present. It returns `true` if either the checkColumn isn't present, or the `checkColumn` and the dependent column are present. If `checkColumn` and `dependentColumn` are `null`, then the folders are validated. If any column from `checkTable` is present, then a column from `dependentTable` must be present.
`CriteriaValidator.filterExists(sFilterTable, sFilterColumn)`	Returns `true` if a filter exists on the specified column, and `false` if no filter is present.
`CriteriaValidator.dependentFilterExists(sCheckTable, sCheckColumn, sFilterTable, sFilterColumn)`	Checks to ensure that the `dependentFilter` exists if the `checkColumn` is present in the projection list. It returns `true` if either the `checkColumn` isn't present, or the `checkColumn` and the dependent filter are present.
`CriteriaValidator.filterCount(sFilterTable, sFilterColumn)`	Returns the number of filter values that are specified for the given logical column. If the filter value is "`equals`," "`null`," "`notNull`", or "`in`", then it returns the number of values chosen. If the column isn't used in a filter, then it returns zero. If the column is prompted with no default, then it returns -1. For all other filter operators (such as "`greater than`," "`begins with`," and so on) it returns `999`, because the number of values can't be determined.

Deploy Write-back

Write-back enables users to update data from analyses.

Topics:

- About Write-back for Administrators
- Enable Write-back in Analyses and Dashboards
- Write-Back Limitations
- Create Write-Back Template Files

About Write-back for Administrators

Write-back enables users to update your data directly from dashboards and analyses.

Users with the **Write Back to Database** privilege see write-back fields as editable fields in analyses. The values they enter are saved to the database. Users without the **Write Back to Database** privilege, see write-back fields as read-only fields.

If a user types a value in an editable field and clicks the write-back button, then the application runs the `insert` or `update` SQL command defined in a *write-back template*. If the command succeeds, the analysis is updated with the new value. If there's an error either reading the template or running the SQL command, an error message is displayed.

The `insert` command runs when a record doesn't yet exist and the user enters new data into the table. In this case, the user typed in a table record where the original value was null. The `update` command runs when a user modifies existing data. To display a record that doesn't yet exist in the physical table, you can create another similar table. Use this similar table to display placeholder records that a user can modify.

> **Note:**
>
> When you create write-back templates, you must include both an `insert` command and an `update` command, even if they're not both used. For example, if you're only performing an `insert`, you must include an empty `update` statement `<update></update>`, as in this XML code:

Here's a sample write-back XML file that contains two `insert` commands and two empty `update` statements. To find out more about how to create and structure write-back XML files, see Create Write-Back Template Files.

```
<?xml version="1.0" encoding="utf-8" ?>
<WebMessageTables xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="oracle.bi.presentation/writebackschemas/v1">
<WebMessageTable lang="en-us" system="WriteBack" table="Messages">
   <WebMessage name="SetQuotaUseID">
      <XML>
         <writeBack connectionPool="Supplier">
            <insert>INSERT INTO regiontypequota
VALUES(@{c5f6e60e1d6eb1098},@{c5d7e483445037d9e},'@{c3a93e65731210ed1}','@{c6b
8735ea60ff3011}',@{c0432jkl53eb92cd8})</insert>
            <update></update>
         </writeBack>
      </XML>
   </WebMessage>
<WebMessage name="SetForecastUseID">
      <XML>
         <writeBack connectionPool="Supplier">
            <insert>INSERT INTO regiontypeforecast
VALUES(@{c83ebf607f3cb8320},@{cb7e2046a0fba2204},'@{c5a93e65d31f10e0}','@{c5a9
3e65d31f10e0}',@{c7322jkl93ev92cd8})</insert>
            <update></update>
         </writeBack>
```

```
      </XML>
   </WebMessage>
</WebMessageTable>
</WebMessageTables>
```

Enable Write-back in Analyses and Dashboards

Administrators can enable users to edit the data in analyses and dashboards.

1. Set up your semantic model.

   > **Note:**
   >
   > Follow these steps if you use Model Administration Tool to develop semantic models. If you use Semantic Modeler, see
   > Enable Write Back On Columns .

   a. In Model Administration Tool, open your semantic model (.rpd file).

   b. In the Physical layer, double-click the physical table that contains the column for which you want to enable write-back.

   c. On the **General** tab of the Physical Table dialog, ensure that **Cacheable** isn't selected. Deselecting this option ensures that Presentation Services users can see updates immediately.

   d. In the Business Model and Mapping layer, double-click the corresponding logical column.

   e. In the Logical Column dialog, select **Writeable**, then click **OK**.

   f. In the Presentation layer, double-click the column that corresponds to the logical column for which you enabled write-back.

   g. In the Presentation Column dialog, click **Permissions**.

   h. Select the **Read/Write** permission for the appropriate users and application roles.

   i. Save your changes.

2. Create an XML document with your write-back template (or templates). See Create Write-Back Template Files.

   Your XML document can contain multiple templates. This example shows an XML document that contains two templates (`SetQuotaUseID` and `SetForecastUseID`).

```
<?xml version="1.0" encoding="utf-8" ?>
<WebMessageTables xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="oracle.bi.presentation/writebackschemas/v1">
<WebMessageTable lang="en-us" system="WriteBack" table="Messages">
   <WebMessage name="SetQuotaUseID">
      <XML>
         <writeBack connectionPool="Supplier">
            <insert>INSERT INTO regiontypequota
VALUES(@{c5f6e60e1d6eb1098},@{c5d7e483445037d9e},'@{c3a93e65731210ed1}','@{
c6b8735ea60ff3011}',@{c0432jkl53eb92cd8})</insert>
            <update>UPDATE regiontypequota SET
Dollars=@{c0432jkl53eb92cd8} WHERE YR=@{c5f6e60e1d6eb1098} AND
```

```
Quarter=@{c5d7e483445037d9e} AND Region='@{c3a93e65731210ed1}' AND
ItemType='@{c6b8735ea60ff3011}'</update>
         </writeBack>
      </XML>
   </WebMessage>
<WebMessage name="SetForecastUseID">
      <XML>
         <writeBack connectionPool="Supplier">
            <insert>INSERT INTO regiontypeforecast
VALUES(@{c83ebf607f3cb8320},@{cb7e2046a0fba2204},'@{c5a93e65d31f10e01}','@{
c5a93e65d31f10e0}',@{c7322jkl93ev92cd8})</insert>
            <update>UPDATE regiontypeforecast SET
Dollars=@{c7322jkl93ev92cd8} WHERE YR=@{c83ebf607f3cb8320} AND
Quarter=@{cb7e2046a0fba2204} AND Region='@{c5a93e65d31f10e01}' AND
ItemType='@{c5a93e65d31f10e0}'</update>
         </writeBack>
      </XML>
   </WebMessage>
</WebMessageTable>
</WebMessageTables>
```

Note: You must include an `<insert>` element and an `<update>` element, even if both aren't used. For example, if you're only performing an `insert`, you must include the empty `update` statement `<update></update>`.

3. Copy the XML document containing your write-back templates to the clipboard.
4. Apply your write-back template in Oracle Analytics:
   a. Click **Console**, then click **System Settings**.
   b. In **Writeback Template XML**, paste the write-back template that you copied in Step 3.
5. Grant permissions to use the write-back code:
   a. Navigate to Classic home, then click **Administration**.
   b. Under **Security**, click **Manage Privileges**, and navigate to **Write Back**.
   c. Grant **Write Back to Database** to **Authenticated User**.
   d. Grant **Manage Write Back** to **BI Service Administrator**.
6. To enable write-back in columns:
   a. In the analysis editor, display the Column Properties of the column on which you want to enable write-back.
   b. In the Column Properties dialog, click the **Write Back** tab.

      If the column has been enabled for write-back in the semantic model, then the **Enable Write Back** box is available.
   c. Select the **Enable Write Back** option.
   d. Specify the value of other options if you want to change the default.
   e. Save your changes.

   The column is enabled for write-back in any analysis that includes this column.
7. To enable write-back in table views:
   a. In the analysis editor, open the table view for editing.

b. Click **View Properties**.

c. In the Table Properties dialog, click the **Write Back** tab.

d. Select the **Enable Write Back** option.

e. Select the **Template Name** box, specify the value of "WebMessage name=" in the write-back template that you specified in Step 2.

   For example, the **Template Name** for the example template in Step 2 is 'SetQuotaUseID'.

f. Save your changes.

Write-Back Limitations

Users can write back to any data source that allows the execution of SQL queries from Oracle Analytics .

As you configure for write back, keep the following limitations in mind:

- Numeric columns must contain numbers only. They mustn't contain any data formatting characters such as dollar signs ($), pound signs or hash signs (#), percent signs (%), and so on.
- Text columns must contain string data only.
- If a logged-on user is already viewing a dashboard that contains an analysis where data has been modified using write back, the data isn't automatically refreshed in the dashboard. To see the updated data, the user must manually refresh the dashboard.
- You can use the template mechanism only with table views and only for single-value data. The template mechanism isn't supported for pivot table views or any other type of view, for multiple-value data, or for drop down columns with single-value data.
- All values in write-back columns are editable. When displayed in non printer friendly context, editable fields are displayed as if the user has the **Write Back to Database** privilege. However, when a logical column is mapped to a physical column that can change, the logical column returns values for multiple level intersections. This scenario might cause problems.
- Any field in an analysis can be flagged as a write-back field, even if it's not derived from the write-back table that you created. However you can't successfully run the write-back operation if the table isn't write-back enabled. The responsibility for correctly tagging fields lies with the content designer.
- A template can contain SQL statements other than `insert` and `update`. The write-back function passes these statements to the database. However, Oracle doesn't support or recommend the use of any statements other than `insert` or `update`.
- Oracle Analytics performs only minimal validation of data input. If the field is numeric and the user enters text data, then Oracle Analytics detects that and prevents the invalid data from going to the database. However, it doesn't detect other forms of invalid data input (values out of range, mixed text and numeric, and so on). When the user clicks the write-back button and an insert or update is run, invalid data results in an error message from the database. The user can then correct the faulty input. Content designers can include text in the write-back analysis to aid the user, for example, "Entering mixed alphanumeric values into a numeric data field isn't allowed."
- The template mechanism isn't suitable for entering arbitrary new records. In other words, don't use it as a data input tool.

- When creating a table for write back, ensure that at least one column doesn't include write-back capability but does include values that are unique for each row and are non-null.
- Write-back analyses don't support drill-down. Because drilling down modifies the table structure, the write-back template doesn't work.

> **Caution:**
>
> The template mechanism takes user input and writes it directly to the database. The security of the physical database is your own responsibility. For optimum security, store write-back database tables in a unique database instance.

Create Write-Back Template Files

A write-back template file is an XML-formatted file that contains one or more write-back templates.

A write-back template consists of a `WebMessage` element that specifies the name of the template, the connection pool, and the SQL statements that are needed to insert and update records in the write-back tables and columns that you've created. When content designers enable a table view for write back, they must specify the name of the write-back template to use to insert and update the records in the table view.

Requirements for a Write-Back Template

A write-back template must meet the following requirements:

- `WebMessage`: You must specify a name for the write-back template using the `name` attribute in the WebMessage element.

  For write back to work correctly, when enabling a table view for write back, a content designer must specify the name of the write-back template to be used to insert and update the records in the view.

  This example shows a write-back template called `SetQuotaUseID`.

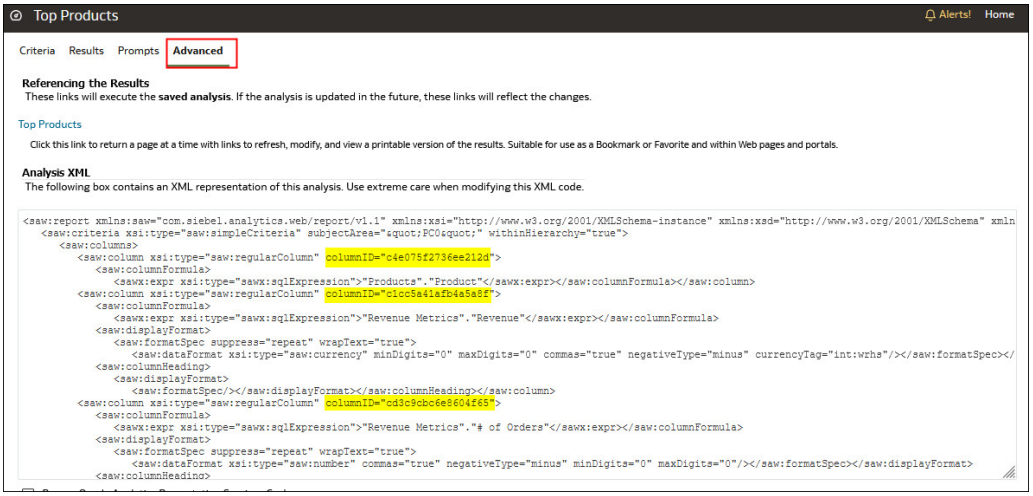
  ```
  <WebMessage name="SetQuotaUseID">
  ```

- `connectionPool`: To meet security requirements, you must specify the connection pool along with the SQL commands to insert and update records. These SQL commands reference the values that are passed in the write-back schema to generate the SQL statements to modify the database table.
- `VALUES`: Column values can be referenced either by *column ID* or *column position*. The use of column ID is preferred.

  Surround string and date values with single quotes. Single quotes aren't required on numerical values.

  - **Column ID** - Each column ID is alphanumeric and randomly generated. You can find column IDs in the XML definition of the analysis that's available in the **Advanced** tab of the analysis editor. For example, column ID values such as: `@{c5f6e60e1d6eb1098}`, `@{c3a93e65731210ed1}`, `'@{c6b8735ea60ff3011}'`

    When you use column IDs, write-back continues to work even when the order of columns change.



  - **Column position** - Column positions start numbering with 1. For example, column position values such as: `@1`, `@3`, `'@5'`

    If the order of columns changes, write back no longer works and this is the reason why column IDs are preferred.

- You must include both an `<insert>` and an `<update>` element in the template. If you don't want to include SQL commands within the elements, then you must insert a blank space between the opening and closing tags. For example, you must enter the element as:

  ```
  <insert>  </insert>
  ```

  Rather than:

  ```
  <insert></insert>
  ```

  If you omit the blank space, then you see a write-back error message such as "The system can't read the Write Back Template 'my_template'".

- If a parameter's data type isn't an integer or real number, then add single quotation marks around it. If the database doesn't do Commits automatically, then add the optional `postUpdate` node after the `insert` and `update` nodes to force the commit. The `postUpdate` node typically follows this example:

  ```
  <postUpdate>COMMIT</postUpdate>
  ```

Example Write-Back Template File Using Column ID Syntax

A write-back template file that references values by **column ID** might resemble this example:

```
<?xml version="1.0" encoding="utf-8" ?>
<WebMessageTables xmlns:sawm="com.siebel.analytics.web/message/v1">
<WebMessageTable lang="en-us" system="WriteBack" table="Messages">
   <WebMessage name="SetQuotaUseID">
      <XML>
         <writeBack connectionPool="Supplier">
            <insert>INSERT INTO regiontypequota
VALUES(@{c5f6e60e1d6eb1098},@{c5d7e483445037d9e},'@{c3a93e65731210ed1}','@{c6b
8735ea60ff3011}',@{c0432jkl53eb92cd8})</insert>
            <update>UPDATE regiontypequota SET Dollars=@{c0432jkl53eb92cd8}
```

```
WHERE YR=@{c5f6e60e1d6eb1098} AND Quarter=@{c5d7e483445037d9e} AND
Region='@{c3a93e65731210ed1}' AND ItemType='@{c6b8735ea60ff3011}'</update>
         </writeBack>
      </XML>
   </WebMessage>
</WebMessageTable>
</WebMessageTables>
```

Example Write-Back Template File Using Column Position Syntax

A write-back template file that references values by **column position** might resemble this example:

```
<?xml version="1.0" encoding="utf-8" ?>
<WebMessageTables xmlns:sawm="com.siebel.analytics.web/message/v1">
<WebMessageTable lang="en-us" system="WriteBack" table="Messages">
   <WebMessage name="SetQuota">
      <XML>
         <writeBack connectionPool="Supplier">
            <insert>INSERT INTO regiontypequota VALUES(@1,@2,'@3','@4',@5)</
insert>
            <update>UPDATE regiontypequota SET Dollars=@5 WHERE YR=@1 AND
Quarter=@2 AND Region='@3' AND ItemType='@4'</update>
         </writeBack>
      </XML>
   </WebMessage>
</WebMessageTable>
</WebMessageTables>
```

Add Custom Knowledge for Data Enrichment

Add custom knowledge to Oracle Analytics to augment the system knowledge. For example, you might add a custom knowledge reference that classifies prescription medication into USP drug categories Analgesics or Opioid.

Tutorial

Custom knowledge enables the Oracle Analytics semantic profiler to identify more business-specific semantic types and make more relevant and governed enrichment recommendations.

Before you start, download your custom knowledge reference files (in CSV format) and make them available locally for upload. You can also create your own custom knowledge reference files in CSV format. See Custom Knowledge Recommendations.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **Reference Knowledge**.
3. Under **Custom Knowledge**, click **Add Custom Knowledge**.
4. In the Open dialog, navigate to and select your custom knowledge CSV file, then click **Open**.
5. In the Create Custom Knowledge from dialog, specify a name, verify the upload options, then click **OK**.

The Custom Knowledge page lists the new file with the **Include** option selected. When content authors enrich datasets, Oracle Analytics presents enrichment recommendations based on this data.

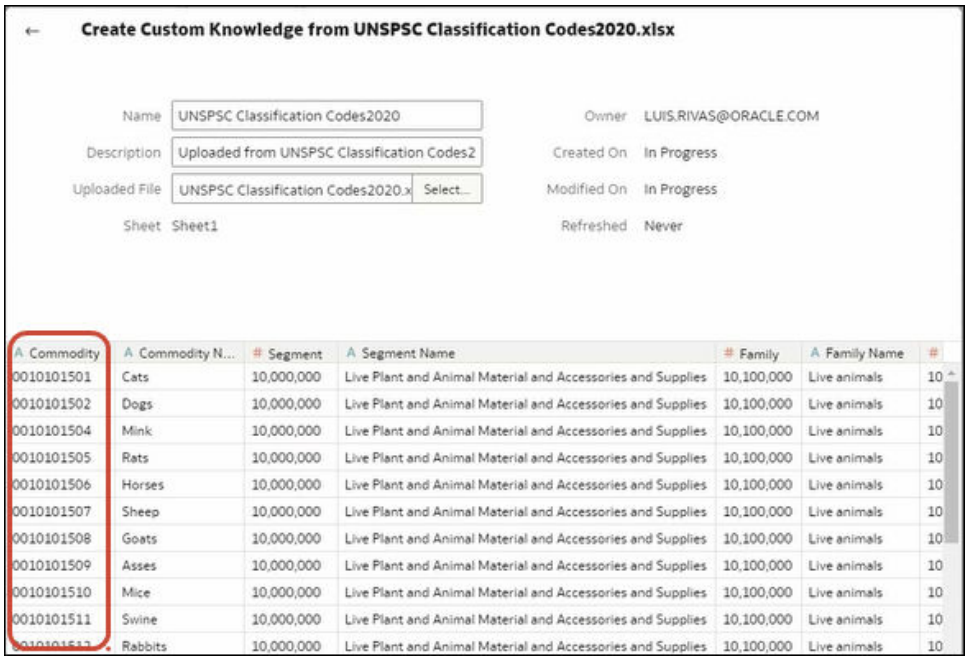
Working with Digit-only Keys

When you add Custom Knowledge to Oracle Analytics, sometimes you want to profile digit-only or numeric keys without removing leading zeros, which is how Oracle Analytics usually ingests numbers. For example, you might want Oracle Analytics to ingest the UNSPSC classification code '0010101501' as '0010101501' rather than '10101501'. By retaining the full key in Reference Knowledge, workbook designers can access recommendations to enrich their data, which in this example provides UNSPSC data such as name, family, and class.

Tips on Adding Digit-only Keys

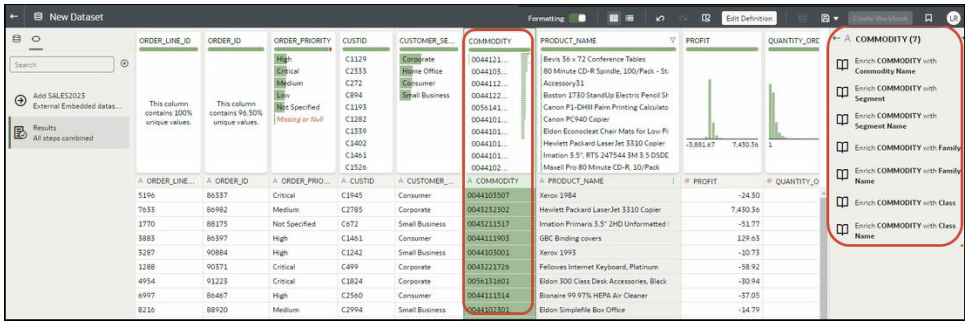
In the source file, define the key column as text and make it the first column. You don't have to change the format of the other columns in the file.

For example, in the UNSPSC classification codes dataset the Commodity column holds the key identifier for each row. The Commodity keys are numbers with leading zeros. Oracle Analytics treats the values in the Commodity column as an attribute.



Commodity	Commodity N...	Segment	Segment Name	Family	Family Name	
0010101501	Cats	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101502	Dogs	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101504	Mink	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101505	Rats	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101506	Horses	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101507	Sheep	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101508	Goats	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101509	Asses	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101510	Mice	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
0010101511	Swine	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10
[illegible]	Rabbits	10,000,000	Live Plant and Animal Material and Accessories and Supplies	10,100,000	Live animals	10

When workbook designers add data based on this custom knowledge, the enrichment recommendations are appropriate for the data. In this example, enrichment recommendations for UNSPSC classification codes in the Commodity column enable you to enrich your visualization with commodity data such as name, family, and class.



Track Usage

Usage tracking enables administrators to track user-level queries to content.

Tracking usage is helpful way to determine which user queries are creating performance bottlenecks, based on query frequency and response time. Administrators set up the criteria to track user queries and generate usage reports that can be used in a variety of ways such as database optimization, aggregation strategies, or billing users or departments based on the resources that they consume.

Topics:

About Tracking Usage

You can configure usage tracking in services that offer enterprise modeling features. Usage information is tracked at the detailed user query level so you can answer questions such as:

- How are users engaging with Oracle Analytics Cloud?
- Where are they spending or not spending their time?
- How long do users spend in each session, between sessions, and between queries?
- How are queries within sessions, across sessions, and across users related to each other?
- Are users drilling up and down in analyses?
- What queries are running when issues are reported?

The usage statistics that you gather can help you to monitor system usage and performance so you can better understand and predict user behavior. You can increase your efficiency and reduce errors if you know in advance how your system is likely to be used.

When you enable usage tracking, the system collects data records for every query that is run and writes them all to database tables. Both logical and physical queries are tracked and logged in separate tables, along with various performance measures such as the time taken to run the query and number of rows searched while processing a user query.

Prerequisites for Usage Tracking

If you want to track usage, verify you meet the following prerequisites:

- You currently use Semantic Modeler or Model Administration Tool to manage your semantic model.
  To configure usage tracking, you must add the usage tracking database details to your semantic model using either Semantic Modeler or Model Administration Tool.
- You have appropriate access permissions on the database where you want to store usage information.
  You must have the credentials for a user who has permissions to create the usage tracking tables on the database schema and write usage data to the tables.
- The database supports usage tracking: Oracle Database or Oracle Autonomous Data Warehouse
- You have created a data connection to your usage tracking database with the following settings. See Connect to Data.
  - **System Connection** - Select the **System Connection** check box.
    When you select the **System Connection** check box, the connection becomes available in Semantic Modeler. Similarly in Model Administration Tool, the **System Connection** option enables you to select **Use Data Connection** and enter the connection's **Object ID** instead of manually entering the connection details in the **Data Source Name** field. See Specify the Usage Tracking Database.
  - **User Name** and **Password** - The **User Name** must match the name of the schema in the database that you want to use for usage tracking. For example, if the schema you want to use is called UT_Schema the **User Name** must be UT_Schema.

> **Note:**
>
> If you use Model Administration Tool, you can also define database connections for semantic models and the usage tracking database using the Console. See Connect to Data in an Oracle Cloud Database. If you use the Console, you can select **Use Console Connection** and enter the connection's **Name** while specifying the usage tracking database in Model Administration Tool, instead of entering the connection details in the **Data Source Name** field.

If you want to use Oracle Autonomous Data Warehouse as the usage tracking database, complete these additional tasks before you specify the usage tracking database in your semantic model:

- Download the Oracle Autonomous Data Warehouse wallet. See Download Client Credentials (Wallets) in *Using Oracle Autonomous Database Serverless*.
- Upload the Oracle Autonomous Data Warehouse wallet to Oracle Analytics Cloud. See Secure Database Connections with SSL.
- Create a self-service connection to Oracle Autonomous Data Warehouse and ensure that you select the **System Connection** check box. See Connect to Oracle Autonomous Data Warehouse.

About the Usage Tracking Database

The system stores usage tracking details in a database that you specify. The database can be an Oracle Database or Oracle Autonomous Data Warehouse. You specify the database and connection pool details in your semantic model using Semantic Modeler or Model Administration Tool.

See Specify the Usage Tracking Database.

About Usage Tracking Parameters

After specifying the database where you want to store usage tracking information, you must set various usage tracking parameters through the Console (System Settings page).

Parameters required to configure usage tracking:

- Enable usage tracking
- Connection pool name
- Physical and logical query logging table names
- Maximum number of query rows in the usage tracking tables

After you set these parameters and apply the changes, Oracle Analytics:

- Creates the physical and logical query logging tables in the database specified in the semantic model. The table names are based on the names that you provide in the physical and logical query logging table name parameters.
- Starts to log usage tracking data in these tables.

See Set Usage Tracking Parameters.

About Analyzing Usage Data

You can use the system to create useful usage reports from the tracking data added to the physical and logical query logging tables.

You can connect to the database, create a dataset from the tables, and create reports and visualizations to help you understand your users' queries and take appropriate action to improve performance.

Understand the Usage Tracking Tables

The system stores usage tracking data in three database tables.

The usage tracking process creates these tables with table names that you specify through settings in the Systems Settings page.

- Usage Tracking Logical Query Logging Table
- Usage Tracking Physical Query Logging Table
- Usage Tracking Initialization Block Table

See Set Usage Tracking Parameters.

Usage Tracking Logical Query Logging Table

The following table describes each column in the database table that tracks logical queries. Where appropriate, the data type such as variable character field (varchar and varchar2) and length is specified. As you review the descriptions in this table, you might assume that certain time-related columns can be added or subtracted to equal exact values. For example, you might assume that `TOTAL_TIME_SEC` is equal to `END_TS` minus `START_TS`. The columns don't provide such exact values because:

- Various processes run in parallel and their speed depends on the load and on database performance. Server-based operations might be either light or intensive.
- If all connections are full, then the query enters a queue and waits to be processed. The timing depends on the load and the configuration.

User, Session, and ID-related Columns

Column	Description
`ID`	In the Logical Query table, this column indicates the unique row identifier. In the Physical Query table, this column is denoted by the name `LOGICAL_QUERY_ID`.
`NODE_ID`	Contains `<hostname>:obis1`. For example, `examplehost:obis1` (for a single instance).
`PRESENTATION_NAME`	Indicates the name of the Catalog. Default is Null and data type is Varchar(128).
`IMPERSONATOR_USER_NAME`	Specifies the user name of the impersonated user. If the request isn't run as an impersonated user, then the value is None. Default is None and the data type is Varchar(128).
`USER_NAME`	Specifies the name of the user who submitted the query.
`ECID`	Indicates the system-generated execution context ID. Data type is Varchar2(1024).
`TENANT_ID`	Specifies the name of the tenant of the user who ran the initialization block. Data type is Varchar2(128).
`SERVICE_NAME`	Specifies the name of the service. Data type is Varchar2(128).
`SESSION_ID`	Indicates the ID of the session. Data type is Number(10).
`HASH_ID`	Indicates the `HASH` value for the logical query. Data type is Varchar2(128).

Query Origin-related Columns

Column	Description
QUERY_SRC_CD	The source of the request. Note that the requestor can set QUERY_SRC_CD to any string value to identify itself. Possible values include: • Report - If the source is an analysis or any export operation. • Drill - If the source is a change in dimension caused by drilling up or down. • ValuePrompt - If the source is the Value drop-down list in a filter dialog or a dashboard prompt. • VisualAnalyzer - If the source is a workbook to visualize data. • DisplayValueMap or MemberBrowserDisplayValues or MemberBrowserPath - If the source is a value related to the display of an analysis. • SOAP - If the source is a call from web services such as DataSetSvc. • Seed - If the source is an agent that seeds the cache of the analytics server. • Null - If the source is the Admininistration Tool physical table or column row count, or view data.
SAW_DASHBOARD	Indicates the path name of the dashboard. If the query wasn't submitted through a dashboard, then the value is NULL.
SAW_DASHBOARD_PG	Indicates the page name in the dashboard. If the request isn't a dashboard request, then the value is NULL. Default is Null and the data type is Varchar(150).
SAW_SRC_PATH	Specifies the path name in the Catalog for the analysis.

Query Details-related Columns

Column	Description
ERROR_TEXT	Contains the error message from the back-end database. This column is applicable only if the SUCCESS_FLAG is set to a value other than 0 (zero). Multiple messages are concatenated and aren't parsed by the system. Default is Null and data type is Varchar(250).
QUERY_BLOB	Contains the entire logical SQL statement without any truncation. The QUERY_BLOB column is a character string of type Long.
QUERY_KEY	Contains an MD5 hash key generated by the system from the logical SQL statement. Default is Null and the data type is Varchar(128).

Column	Description
QUERY_TEXT	Indicates the SQL statement that was submitted for the query. The data type is Varchar(1024). You can change the length of this column (using the ALTER TABLE command), but note that the text written into this column is always truncated to the size that is defined in the physical layer. The semantic model administrator mustn't set the length of this column to a value greater than the maximum query length that's supported by the back-end physical database. For example, Oracle Databases enable a maximum Varchar of 4000, but Oracle Databases truncate to 4000 bytes, not 4000 characters. If you use a multibyte character set, the actual maximum string size has a varying number of characters, depending on the character set and characters used.
REPOSITORY_NAME	Specifies the name of the semantic model that the query accesses.
SUBJECT_AREA_NAME	Contains the name of the business model being accessed.
SUCCESS_FLG	Indicates the completion status of the query, as defined in the following list: • 0 - The query completed successfully with no errors. • 1 - The query timed out. • 2 - The query failed because row limits were exceeded. • 3 - The query failed due to some other reason.

Execution Timing-related Columns

Column	Description
COMPILE_TIME_SEC	Contains the time in seconds required to compile the query. The number for COMPILE_TIME_SEC is included in TOTAL_TIME_SEC.
END_DT	Indicates the date the logical query completed.
END_HOUR_MIN	Indicates the hour and minute the logical query completed.
END_TS	Indicates the date and time the logical query completed. The start and end timestamps also reflect any time that the query spent waiting for resources to become available. If the user submitting the query navigates away from the page before the query finishes, then the final fetch never happens and a timeout value of 3600 is recorded. However, if the user navigates back to the page before the timeout, then the fetch completes at that time, which is recorded as the end_ts time.
START_DT	Indicates the date that the logical query was submitted.
START_HOUR_MIN	Indicates the hour and minute that the logical query was submitted.

Column	Description
START_TS	Indicates the date and time that the logical query was submitted.
TOTAL_TIME_SEC	Indicates the time in seconds that the system spent working on the query while the client waited for responses to its analyses. TOTAL_TIME_SEC includes the time for COMPILE_TIME_SEC.
RESP_TIME_SEC	Indicates the time taken for query response. Data type is Number(10).

Execution Details-related Columns

Column	Description
CUM_DB_TIME_SEC	Contains the cumulative time of all queries sent to the database. Queries run in parallel, so the cumulative query time is equal to or greater than the total time connected to the database. For example, suppose a logical request spawns 4 physical SQL statements sent to the database, and the query time for 3 of the queries is 10 seconds, and for one query is 15 seconds, CUM_DB_TIME_SEC displays 45 seconds because the queries run in parallel.
CUM_NUM_DB_ROW	Contains the total number of rows returned by the back-end databases.
NUM_DB_QUERY	Indicates the number of queries that were submitted to the back-end databases to satisfy the logical query request. For successful queries (SuccessFlag = 0), this number is 1 or greater.
ROW_COUNT	Indicates the number of rows returned to the query client. When a large amount of data is returned from a query, this column isn't populated until the user displays all the data.
TOTAL_TEMP_KB	Specifies the total KB received for a query. Data type is Number(10).

Cache-related Columns

Column	Description
CACHE_IND_FLG	Holds Y to indicate a cache hit for the query; N to indicate a cache miss. Default is N.
NUM_CACHE_HITS	Indicates the number of times that the cache result returned for the query. NUM_CACHE_HITS is a 32-bit integer (or a 10-digit integer). Default is Null.
NUM_CACHE_INSERTED	Indicates the number of times that the query generated a cache entry. Default is Null. NUM_CACHE_INSERTED is a 32-bit integer (or a 10-digit integer).

Usage Tracking Physical Query Logging Table

The following table describes the database table that tracks physical queries. This database table records the physical SQL information for the logical queries stored in the logical query logging table. The physical query table has a foreign key relationship to the logical query table.

User, Session, and ID-related Columns

Column	Description
ID	Specifies the unique row identifier.
LOGICAL_QUERY_ID	Refers to the logical query in the logical query logging table. Data type is Varchar2(50).
HASH_ID	Indicates the HASH value for the logical query. Data type is Varchar2(128).
PHYSICAL_HASH_ID	Indicates the HASH value for the physical query. Data type is Varchar2(128).

Query Details-related Columns

Column	Description
QUERY_BLOB	Contains the entire physical SQL statement without any truncation. The QUERY_BLOB column is a character string of type long.
QUERY_TEXT	Contains the SQL statement submitted for the query. Data type is Varchar(1024).

Execution Timing-related Columns

Column	Description
END_DT	Indicates the date the physical query completed.
END_HOUR_MIN	Indicates the hour and minute the physical query completed.
END_TS	Indicates the date and time the physical query completed. The start and end timestamps also reflect any time that the query spent waiting for resources to become available.
TIME_SEC	Indicates the physical query execution time.
START_DT	Indicates the date the physical query was submitted.
START_HOUR_MIN	Indicates the hour and minute the physical query was submitted.
START_TS	Indicates the date and time the physical query was submitted.

Execution Details-related Columns

Column	Description
ROW_COUNT	Contains the number of rows returned to the query client.

Usage Tracking Initialization Block Table

The following table describes the database table that tracks information about the initialization blocks.

> **Note:**
>
> Currently the initialization block usage tracking tables include only session initialization blocks and don't include the semantic model initialization blocks.

User, Session, and ID-related Columns

Column	Description
USER_NAME	The name of the user who ran the initialization block. The data type is Varchar2(128).
TENANT_ID	The name of the tenant of the user who ran the initialization block. The data type is Varchar2(128).
SERVICE_NAME	The name of the service. The data type is Varchar2(128).
ECID	The system-generated execution context ID. The data type is Varchar2(1024).
SESSION_ID	The ID of the session. The data type is Number(10).

Query Details-related Columns

Column	Description
REPOSITORY_NAME	The name of the semantic model that the query accesses. The data type is Varchar2(128).
BLOCK_NAME	The name of the initialization block that was run. The data type is Varchar2(128).

Execution Timing-related Columns

Column	Description
START_TS	The date and time that the initialization block started.
END_TS	The date and time that the initialization block finished. The start and end timestamps also reflect the time that the query spent waiting for resources to become available.
DURATION	The length of time it took to run the initialization block. The data type is Number(13,3).

Execution Details-related Columns

Column	Description
NOTES	Notes about the initialization block and its running. The data type is Varchar2(1024).

Typical Workflow for Tracking Usage

Here are the tasks to track the user-level queries to Oracle Analytics Cloud.

Task	Description	More Information
Decide where to store your usage tracking data	Understand which database types you can use for usage tracking.	About the Usage Tracking Database
Set up a connection to the usage tracking database	Create a data connection (or a Console connection) to the database where you want to store usage tracking information.	Prerequisites for Usage Tracking
Specify the usage tracking database	Define the usage tracking database in your semantic model.	Specify the Usage Tracking Database
Specify usage tracking parameters	Enable usage tracking for your system, and then specify connection details and table names for the usage tracking database.	Set Usage Tracking Parameters
Analyze the usage tracking data	Create usage reports from usage tracking data.	Analyze Usage Tracking Data

Specify the Usage Tracking Database

Before you can track usage of reports, dashboards, and data visualization workbooks on your system, you must specify the database where you want to store the usage tracking data in your semantic model.

The database you specify must have at least one schema defined. The system creates usage tracking tables in the schema whose name matches the user name you specify in the database connection details. For example, if the name of a schema in the usage tracking database is “UT_Schema”, you must specify "UT_Schema" in the **User Name** field for the connection. The usage tracking-tables are created in the schema named “UT_Schema”.

You must configure the database and connection pool details in the physical layer of your semantic model. Use Semantic Modeler or the Model Administration Tool to configure the usage tracking database.

- Specify the Usage Tracking Database Using Semantic Modeler
- Specify the Usage Tracking Database Using Model Administration Tool

If you want to use Oracle Autonomous Data Warehouse as the usage tracking database, you must complete some additional Oracle Autonomous Data Warehouse-related tasks before you specify the usage tracking database. See Prerequisites for Usage Tracking.

Specify the Usage Tracking Database Using Semantic Modeler

Use Semantic Modeler to configure your usage tracking database if you currently use Semantic Modeler to develop semantic models.

1. If you haven't done so already, create a data connection to your usage tracking database with the **System Connection** option selected.

   The database type must be either Oracle Database or Oracle Autonomous Data Warehouse and the **User Name** used to connect to the database must match the name of

the schema where you want the user tracking tables to be stored. See Prerequisites for Usage Tracking.

2. On the Home page, click **Navigator** and then click **Semantic Models**. In the Semantic Models page, click a semantic model to open it.
3. Create a database object for the usage tracking database.
   a. Click **Physical Layer**.
   b. In the Physical Layer pane, click **Create** and then click **Create Database**.
   c. In **Name**, enter a name for the database of your semantic model (for example, UsageTracking) and click **OK**.
4. Add a connection pool to connect to the usage tracking database.
   a. In the database tab, click **Connection Pools**.
   b. Click **Add Source**.
   c. Double-click the **Name** field, and enter a name for the connection pool. For example, UTConnectionPool.
   d. Double-click the **Connection** field, and select the data connection you want to use from the list. For example MyUTDatabase.

      > **Note:**
      >
      > - **System connection** - Semantic models can only use data connections with the **System connection** option selected. See About Connections for Semantic Models.
      > - **User Name** and **Password** - The **User Name** specified in the data connection must match the name of a schema in the database that you want to use for usage tracking. For example, if the schema you want to use is called UT_Schema, the **User Name** must be UT_Schema. See Prerequisites for Usage Tracking.

   e. Click **Open Detail**. In the Connection Pool pane, verify that the **Require fully qualified table names** check box isn't selected.
5. Validate your changes. See Run the Advanced Consistency Check Before Deploying a Semantic Model.
6. Save your changes.

Specify the Usage Tracking Database Using Model Administration Tool

Use Model Administration Tool to configure your usage tracking database if you currently use Model Administration Tool to develop semantic models.

You don't need to make any updates to your semantic model if you want to track usage in an existing database or connection pool. You can skip these steps. You can use the existing database, connection pool, and tables as part of the usage tracking system configuration. Usage tracking won't delete the existing tables and create new tables with the same name if the table schema matches between the old and new tables.

1. In Model Administration Tool, open the semantic model in the cloud.

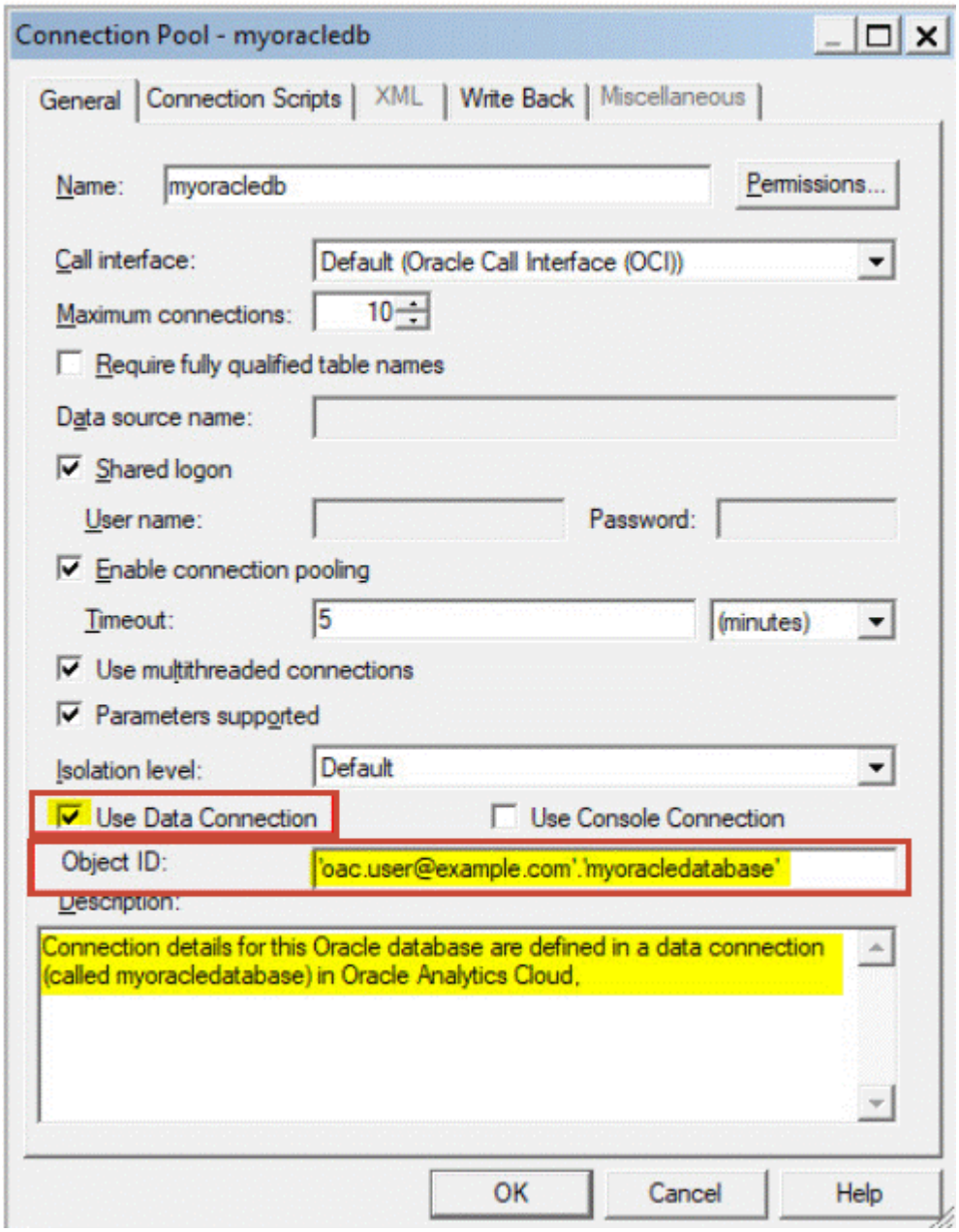
   From the **File** menu, select **Open**, **In the Cloud**, and the enter connection information for your instance.

2. Specify the usage tracking database:
   a. In the Physical layer of the semantic model, right-click and select **New Database**.
   b. In the Database dialog, provide a name for the database of your semantic model; for example `SQLDB_UsageTracking`, specify the database type, for example `Oracle 12c`, and click **OK**.
   c. Right-click the newly created database, select **New Object**, and then select **Connection Pool**.
   d. In the Connection Pool dialog, enter connection pool details and specify values for:
      - **Call interface**: Select Default (Oracle Call Interface (OCI)).
      - **Require fully qualified table names**: Ensure that this check box isn't selected.
      - **Data Source Name****: Specify the data source to which you want this connection pool to connect and send physical queries. For example: `(DESCRIPTION =(ADDRESS = (PROTOCOL = TCP)(HOST = <DB Host>)(PORT = <DB port>))(CONNECT_DATA =(SERVER = DEDICATED)(SERVICE_NAME = <Servicename>)))`
      - **User name and Password**: Enter a user name that *matches the name of a schema* available in the usage tracking database.

      As an alternative to providing the **Data Source Name, you can refer to an existing database connection “by name” in the Connection Pool dialog.

      - Data connections - To use the connection details for a database defined through the Data tab as your usage tracking database, select **Use Data Connection** and enter the connection's **Object ID** instead of manually entering the connection details in the **Data Source Name** field. Ensure that the data connection you want to use was created with the **System Connection** option selected. See Connect to a Data Source Using a Data Connection.
      - Console connections - If you use Model Administration Tool, you might define database connections for semantic models using the Console. To use the connection details for a database that you defined through the Console as your usage tracking database, select the **Use Console Connection** check box and enter the name of the database connection in the **Connection Name** field. See Connect to a Data Source Using a Console Connection.

      For example:



3. Validate your changes by clicking **Tools**, **Show Consistency Checker**, and then **Check All Objects**.
4. Optional: Save changes locally by clicking **File**, and then **Save**.
5. Upload the semantic model .rpd file that you edited, by clicking **File**, **Cloud**, and then **Publish**.

Set Usage Tracking Parameters

To start recording usage information, you must specify connection details for the database you want to use and names for the database tables used to track usage. You set these parameters through the Console (System Settings page).

1. Sign in to your service.

2. Click **Console**.
3. Click **System Settings**.
4. Click **Usage Tracking**.
5. Enable usage tracking for your system. Ensure **Enable Usage Tracking** is switched on.
6. Set the following properties:
   - **Usage Tracking Connection Pool**
     Name of the connection pool that you created for your usage tracking database in the format, `<database name>.<connection pool name>`. For example, `UsageTracking.UTConnectionPool`.
   - **Usage Tracking Initialization Block Table**
     Name of the database table you want to use to store information about initialization blocks in the format, `<database name>.<catalog name>.<schema name>.<table name>` or `<database name>.<schema name>.<table name>`. For example, `UsageTracking.UT_Schema.InitBlockInfo`.
   - **Usage Tracking Physical Query Logging Table**
     Name of the database table you want to use to store physical query details in the format, `<database name>.<catalog name>.<schema name>.<table name>` or `<database name>.<schema name>.<table name>`. For example, `UsageTracking.UT_Schema.PhysicalQueries`.
   - **Usage Tracking Logical Query Logging Table**
     Name of the database table you want to use to store logical query details in the format, `<database name>.<catalog name>.<schema name>.<table name>` or `<database name>.<schema name>.<table name>`. For example, `UsageTracking.UT_Schema.LogicalQueries`.
   - **Usage Tracking Max Rows**
     Maximum number of rows that you want in the usage tracking tables. Minimum value is 1, maximum is 100,000, and 0 means unlimited. If the row count exceeds the maximum number of rows, then the usage tracking process deletes the excess rows based on the oldest timestamp.
7. Click **Apply**.

Oracle Analytics creates the usage tracking tables and starts to log user queries.

Analyze Usage Tracking Data

Create usage reports to understand the user queries and take appropriate action.

Follow these examples:

- Analyze Usage Tracking Data by Creating a Dataset
- Analyze Usage Tracking Data Using a Subject Area in the Semantic Model

Analyze Usage Tracking Data by Creating a Dataset

Create usage reports by creating datasets with data from the physical and logical query logging tables to understand the user queries.

1. On the Home page, click the **Page Menu** and select **Open Classic Home**. Create and run an analysis.

The system populates the query in the usage tracking tables in the usage tracking database.

2. On the Home page, click **Create**, and click **Dataset**.
3. In Create Dataset, click the connection to the usage tracking database, and select the schema specified in the Physical Query and Logical Query Logging table names in System Settings. For example, the schema name provided in `<database name>.<schema name>.<table name>` for the Physical Query and Logical Query Logging table names.

   This is the database connection you created to set up usage tracking. See Prerequisites for Usage Tracking.
4. In Add Dataset, search for the usage tracking physical query logging table, add all the columns, name the dataset (for example, Physical Queries), and then click **Add**. Similarly, search for the usage tracking logical query logging table, add all the columns, name the dataset (for example, Logical Queries), and then click **Add**.
5. On the dataset Results page, click **Create Workbook**. Add both the datasets to the workbook: for example, the Physical Queries and Logical Queries datasets. Name the workbook (for example, Usage Tracking).
6. In the Prepare tab of the workbook, click **Data Diagram**, and create joins between the datasets using a column such as the ID column.
7. In Visualize, drag data to create visualizations based on your requirement.

   Refer to the usage tracking table descriptions in "Understand Usage Tracking Tables" to select applicable columns. For example, you can create a visualization to show how many queries took how much time.

Analyze Usage Tracking Data Using a Subject Area in the Semantic Model

Create usage reports using a subject area in the semantic model to understand the user queries.

You must import metadata to ensure that physical and metadata are synchronized. Don't customize by adding new columns in the usage tracking tables to avoid schema mismatch issues.

1. On the Home page, click the **Page Menu** and select **Open Classic Home**. Create and run an analysis.

   The system populates the query in the usage tracking tables in the usage tracking database.
2. Import the semantic model that has the Usage Tracking tables updated with the query results. See Import the Deployed Model to Create a Semantic Model.
3. On the Home page, click **Data**, and then under **Datasets**, select the subject area that corresponds to the usage tracking tables to create a workbook.
4. On the New Workbook page, in Visualize, drag data to create visualizations based on your requirement.

   Refer to the usage tracking table descriptions in "Understand Usage Tracking Tables" to select applicable columns. For example, you can create a visualization to show how many queries took how much time.

Manage Query Caching

Oracle Analytics Cloud maintains a local cache of query results sets in the query cache.

Topics:

About the Query Cache

The query cache enables Oracle Analytics Cloud to satisfy many subsequent query requests without accessing back-end data sources and this increases query performance. However, the query cache entries might get stale as updates occur on the back-end data sources.

Advantages of Caching

The fastest way to process a query is to skip the bulk of the processing and use a precomputed answer.

With query caching, Oracle Analytics Cloud stores the precomputed results of queries in a local cache. If another query can use those results, then all database processing for that query is eliminated. This can result in dramatic improvements in the average query response time.

In addition to improving performance, being able to answer a query from a local cache conserves network resources and processing time on the database server. Network resources are conserved because intermediate results aren't returned to Oracle Analytics Cloud. Not running the query on the database frees the database server to do other work. If the database uses a charge back system, then running less queries might also cut costs in the budget.

Another benefit of using the cache to answer a query is savings in processing time on Oracle Analytics Cloud, especially if the query results are retrieved from multiple databases. Depending on the query, there might be considerable join and sort processing in the server. If the query is already calculated, then this processing is avoided, freeing server resources for other tasks.

To summarize, query caching can dramatically improve query performance and reduce network traffic, database processing, and processing overhead.

Costs of Caching

Query caching has many obvious benefits, but also certain costs.

- Potential for cached results being stale
- Administrative costs of managing the cache

With cache management, the benefits typically far outweigh the costs.

Administrative Tasks Associated with Caching

Some administrative tasks are associated with caching. You must set the cache persistence time for each physical table appropriately, knowing how often data in that table is updated.

When the frequency of the update varies, you must keep track of when changes occur and purge the cache manually when necessary.

Keep the Cache Up To Date

If the cache entries aren't purged when the data in the underlying databases changes, then queries can potentially return results that are out of date.

You must evaluate whether this is acceptable. It might be acceptable to allow the cache to contain some stale data. You must decide what level of stale data is acceptable and then configure (and follow) a set of rules to reflect those levels.

For example, suppose an application analyzes corporate data from a large conglomerate, and you're performing yearly summaries of the different divisions in the company. New data doesn't materially affect the queries because the new data affects only next year's summaries. In this case, the trade-offs for deciding whether to purge the cache might favor leaving the entries in the cache.

Suppose, however, that the databases are updated three times a day and you're performing queries on the current day's activities. In this case, you must purge the cache much more often, or perhaps consider not using the cache at all.

Another scenario is that you rebuild the dataset from the beginning at periodic intervals (for example, once per week). In this example, you can purge the entire cache as part of the process of rebuilding the dataset, ensuring that you never have stale data in the cache.

Whatever your situation, you must evaluate what is acceptable for noncurrent information returned to the users.

Cache Sharing Across Users

If shared logon is enabled for a particular connection pool, then the cache can be shared across users and doesn't need to be seeded for each user.

If shared logon isn't enabled and a user-specific database login is used, then each user generates their own cache entry.

Enable or Disable Query Caching

In Oracle Analytics Cloud, the query cache is enabled by default. You can enable or disable query caching on the System Settings page.

1. Click **Console**.
2. Click **System Settings**.
3. Click **Performance and Compatibility** .
4. Set **Cache Enable** on or off.
   - On — Data query caching is enabled.
   - Off — Caching is disabled.
5. Click **Apply**.

   Wait a few moments for the changes to refresh through the system.

Monitor and Manage the Cache

To manage the changes in the underlying databases and to monitor cache entries, you must develop a cache management strategy.

You need a process to invalidate cache entries when the data in the underlying tables that compose the cache entry changes, and a process to monitor, identify, and remove any undesirable cache entries.

This section contains the following topics:

- Choose a Cache Management Strategy
- How Semantic Model Changes Affect the Query Cache

Choose a Cache Management Strategy

The choice of a cache management strategy depends on the volatility of the data in the underlying databases and the predictability of the changes that cause this volatility.

It also depends on the number and types of queries that comprise your cache and the usage those queries receive. This section provides an overview of the various approaches to cache management.

Disable Caching For the System

You can disable caching for the entire system to stop all new cache entries and stop any new queries from using the existing cache. Disabling caching lets you enable it at a later time without losing any entries that are stored in the cache.

Temporarily disabling caching is a useful strategy in situations where you might suspect having stale cache entries, but want to verify if they're actually stale before purging those entries or the entire cache. If you find that the data stored in the cache is still relevant, or after you have safely purged problem entries, then you can safely enable the cache. If necessary, purge the entire cache or the cache that's associated with a particular business model before enabling the cache again.

Cache and Cache Persistence Timing For Specified Physical Tables

You can set a cacheable attribute for each physical table, enabling you to specify whether queries for that table are added to the cache to answer future queries.

If you enable caching for a table, then any query involving the table is added to the cache. All tables are cacheable by default, but some tables mightn't be good candidates to include in the cache unless you set up suitable cache persistence settings. For example, suppose that you've a table that stores stock ticker data that's updated every minute. You can specify that you want to purge the entries for that table every 59 seconds.

You can also use cache persistence settings to specify how long the entries for this table are stored in the query cache. This is useful for data sources that are updated frequently.

1. In Model Administration Tool, in the Physical layer, double-click the physical table.

   If you use Semantic Modeler, see What Are a Physical Table's General Properties?.

2. In the Physical Table properties dialog, in the General tab, make one of the following selections:

   - To enable caching, select **Cacheable**.

- To prevent a table from being cached, deselect **Cacheable**.

3. To set a cache expiration time, specify a **Cache persistence time** and specify a unit of measure (days, hours, minutes, or seconds). If you don't want cache entries to automatically expire, select **Cache never expires**.
4. Click **OK**.

How Semantic Model Changes Affect the Query Cache

When you modify semantic models using Semantic Modeler or Model Administration Tool, the changes can have implications for entries that are stored in the cache. For example, if you change the definition of a physical object or a dynamic semantic model variable, cache entries that reference that object or variable might no longer be valid. These changes might result in the need to purge the cache. There are two scenarios to be aware of: when you modify your existing semantic model, and when you create (or upload) a new semantic model.

Changes to the Semantic Model

When you modify a semantic model or upload a different .rpd file, any changes that you make that affect cache entries automatically result in a purge of all cache entries that reference the changed objects. The purge occurs when you upload the changes. For example, if you delete a physical table from a semantic model, then all cache entries that reference that table are purged upon check in. Any changes made to a semantic model in the Logical layer purge all cache entries for that semantic model.

Changes to Global Semantic Model Variables

The values of global semantic model variables are refreshed by data that's returned from queries. When you define a global semantic model variable, you create an initialization block or use a preexisting one that contains a SQL query. You also configure a schedule to run the query and periodically refresh the value of the variable.

If the value of a global semantic model variable changes, then any cache entry which uses this variable in a column becomes stale, and a new cache entry is generated when data in that entry is needed again. The old cache entry isn't removed immediately, but remains until it is cleaned through the usual caching mechanism.

Strategies For Using the Cache

One of the main advantages of query caching is to improve apparent query performance.

Query caching might be valuable to seed the cache during off hours by running queries and caching their results. A good seeding strategy requires that you know when cache hits occur.

If you want to seed the cache for all users, you might seed the cache with the following query:

```
SELECT User, SRs
```

After seeding the cache using `SELECT User, SRs`, the following queries are cache hits:

```
SELECT User, SRs WHERE user = valueof(nq_SESSION.USER) (and the user was USER1)
SELECT User, SRs WHERE user = valueof(nq_SESSION.USER) (and the user was USER2)
SELECT User, SRs WHERE user = valueof(nq_SESSION.USER) (and the user was USER3)
```

This section contains the following topics:

- Use Agents to Seed the Query Cache
- Use Model Administration Tool to Automatically Purge the Cache for Specific Tables

About Cache Hits

When caching is enabled, each query is evaluated to determine whether it qualifies for a cache hit.

A cache hit means that Oracle Analytics Cloud was able to use cache to answer the query and didn't go to the database at all. Oracle Analytics Cloud can use the query cache to answer queries at the same or higher level of aggregation.

Many factors determine whether cache is hit. The table below describes these factors.

Factor or Rule	Description
A subset of columns in the `SELECT` list must match	All of the columns in the `SELECT` list of a new query have to exist in the cached query to qualify for a cache hit, or they must be able to be calculated from the columns in the query. This rule describes the minimum requirement to hit the cache, but meeting this rule doesn't guarantee a cache hit. The other rules listed in this table also apply.

Columns in the `SELECT` list can be composed of expressions on the columns of the cached queries	Oracle Analytics Cloud can calculate expressions on cached results to answer the new query, but all the columns must be in the cached result. For example, the query:
	`SELECT product, month, averageprice FROM sales WHERE year = 2000`
	hits cache on the query:
	`SELECT product, month, dollars, unitsales FROM sales WHERE year = 2000`
	because `averageprice` can be computed from `dollars` and `unitsales` (`averageprice = dollars/unitsales`).

Factor or Rule	Description

WHERE clause must be semantically the same or a logical subset	For the query to qualify as a cache hit, the WHERE clause constraints must be either equivalent to the cached results, or a subset of the cached results.
	A WHERE clause that's a logical subset of a cached query qualifies for a cache hit if the subset meets one of the following criterion:
	• A subset of IN list values. Queries requesting fewer elements of an IN list cached query qualify for a cache hit. For example, the following query:
	`SELECT employeename, region`
	`FROM employee, geography`
	`WHERE region in ('EAST', 'WEST')`
	qualifies as a hit on the following cached query:
	`SELECT employeename, region`
	`FROM employee, geography`
	`WHERE region in ('NORTH', 'SOUTH', 'EAST', 'WEST')`
	• It contains fewer (but identical) OR constraints than the cached result.
	• It contains a logical subset of a literal comparison. For example, the following predicate:
	`WHERE revenue < 1000`
	qualifies as a cache hit on a comparable query with the predicate:
	`WHERE revenue < 5000`
	• There is no WHERE clause. If a query with no WHERE clause is cached, then queries that satisfy all other cache hit rules qualify as cache hits regardless of their WHERE clause.
	In addition columns that are used on the WHERE clause must be on the projection list. For example, the following query:
	`SELECT employeename`
	`FROM employee, geography`
	`WHERE region in ('EAST', 'WEST')`
	Doesn't result in a cache hit for the seeding query in the previous list because REGION isn't on the projection list.

Dimension-only queries must be an exact match	If a query is dimension only, meaning that no fact or measure is included in the query, then only an exact match of the projection columns of the cached query hits the cache. This behavior prevents false positives when there are multiple logical sources for a dimension table.

Factor or Rule	Description
Queries with special functions must be an exact match	Other queries that contain special functions such as time series functions (`AGO`, `TODATE`, and `PERIODROLLING`), limit and offset functions (`OFFSET` and `FETCH`), relationship functions (`ISANCESTOR`, `ISLEAF`, `ISROOT`, and `ISSIBLING`), external aggregation functions, and generally filter metrics must also be an exact match with the projection columns in the cached query. In these cases, the filter must also be an exact match. For filter metrics, if the filter metric can be rewritten as a `WHERE` clause, then the subset cache might be leveraged.
Set of logical tables must match	To qualify as a cache hit, all incoming queries must have the same set of logical tables as the cache entry. This rule avoids false cache hits. For example, `SELECT * FROM product` doesn't match `SELECT * FROM product, sales`.
Session variable values must match, including security session variables	If the logical SQL or physical SQL statement refers to any session variable, then the session variable values must match. Otherwise, the cache isn't hit. In addition, the value of session variables that are security sensitive must match the security session variable values that are defined in the semantic model, even though the logical SQL statement itself doesn't reference session variables. See Ensure Correct Cache Results When Using Row-Level Database Security.
Equivalent join conditions	The resultant joined logical table of a new query request has to be the same as (or a subset of) the cached results to qualify for a cache hit.
`DISTINCT` attribute must be the same	If a cached query eliminates duplicate records with `DISTINCT` processing (for example, `SELECT DISTINCT...`), then requests for the cached columns must also include the `DISTINCT` processing; a request for the same column without the `DISTINCT` processing is a cache miss.

Queries must contain compatible aggregation levels	Queries that request an aggregated level of information can use cached results at a lower level of aggregation. For example, the following query requests the quantity sold at the supplier and region and city level:
	`SELECT supplier, region, city, qtysold`
	`FROM suppliercity`
	The following query requests the quantity sold at the city level:
	`SELECT city, qtysold`
	`FROM suppliercity`
	The second query results in a cache hit on the first query.

Limited additional aggregation	For example, if a query with the column `qtysold` is cached, then a request for `RANK(qtysold)` results in a cache miss. Additionally, a query that requests `qtysold` at the country level can get a cache hit from a query that requests `qtysold` at the country, region level.
`ORDER BY` clause must be comprised of columns in the select list	Queries that order by columns that aren't contained in the select list result in cache misses.

Factor or Rule	Description
Diagnosing cache hit behavior	To better assess cache hit behavior, set the ENABLE_CACHE_DIAGNOSTICS session variable to 4, as shown in the following example: `ENABLE_CACHE_DIAGNOSTICS=4`

Ensure Correct Cache Results When Using Row-Level Database Security

When using a row-level database security strategy, such as a Virtual Private Database (VPD), the returned data results are contingent on the authorization credentials of the user.

Because of this, Oracle Analytics Cloud must know whether a data source is using row-level database security and which variables are relevant to security.

To ensure that cache hits only occur on cache entries that include and match all security-sensitive variables, you must correctly configure the database object and session variable objects in the Model Administration Tool, as follows:

- **Database object.** In the Physical layer, in the General tab of the Database dialog, select **Virtual Private Database** to specify that the data source is using row-level database security.

  If you're using row-level database security with shared caching, then you *must* select this option to prevent the sharing of cache entries whose security-sensitive variables don't match.
- **Session Variable object.** For security-related variables, in the Session Variable dialog, select **Security Sensitive** to identify them as sensitive to security when using a row-level database security strategy. This option ensures that cache entries are marked with the security-sensitive variables, enabling security-sensitive variable matching on all incoming queries.

Run a Suite of Queries to Populate the Cache

To maximize potential cache hits, one strategy is to run a suite of queries to populate the cache.

The following are some recommendations for the types of queries to use when creating a suite of queries with which to seed the cache.

- **Common prebuilt queries.** Queries that are commonly run, particularly ones that are expensive to process, are excellent cache seeding queries. Queries whose results are embedded in dashboards are good examples of common queries.
- **SELECT lists with no expressions.** Eliminating expressions on `SELECT` list columns expands the possibility for cache hits. A cached column with an expression can only answer a new query with the same expression; a cached column with no expressions can answer a request for that column with any expression. For example, a cached request such as:

  ```
  SELECT QUANTITY, REVENUE...
  ```

  can answer a new query such as:

  ```
  SELECT QUANTITY/REVENUE...
  ```

but not the reverse.

- **No WHERE clause.** If there is no `WHERE` clause in a cached result, then it can be used to answer queries that satisfy the cache hit rules for the select list with any `WHERE` clause that includes columns in the projection list.

In general, the best queries to seed cache with are queries that heavily consume database processing resources and that are likely to be reissued. Be careful not to seed the cache with simple queries that return many rows. These queries (for example, `SELECT * FROM PRODUCTS`, where `PRODUCTS` maps directly to a single database table) require very little database processing. Their expense is network and disk overhead, which are factors that caching doesn't alleviate.

When Oracle Analytics Cloud refreshes semantic model variables, it examines business models to determine if they reference those semantic model variables. If they do, Oracle Analytics Cloud purges all cache for those business models. See How Semantic Model Changes Affect the Query Cache.

Use Agents to Seed the Query Cache

You can configure agents to seed the Oracle Analytics Cloud query cache.

Seeding the cache can improve response times for users when they run analyses or view analyses that are embedded on their dashboards. You can accomplish this by scheduling agents to run requests that refresh this data.

1. In Oracle Analytics Cloud, open the Classic Home page, and select **Agent** (**Create** section).
2. On the General tab, select **Recipient** for the **Run As** option. Personalized cache seeding uses the data visibility of each recipient to customize agent delivery content for each recipient.
3. On the Schedule tab, specify when you want the cache to be seeded.
4. Optional: Select **Condition** and create or select a conditional request. For example, you might have a business model that determines when the ETL process is complete. You could use a report based on this business model to be the conditional trigger for the cache seed to begin.
5. On the Delivery Content tab, select an individual request or an entire dashboard page for which you want to seed the cache. Selecting a dashboard page can save time.
6. On the Recipients tab, select individual users or groups to be the recipients.
7. On the Destinations tab, clear all user destinations and select **Oracle Analytics Server Cache**.
8. Save the agent by selecting the **Save** button in the upper-right corner.

The only difference between cache seeding agents and other agents is that they clear the previous cache automatically and don't appear on the dashboard as alerts.

> **Note:**
>
> Cache seeding agents only purge exact match queries, so stale data might still exist. Ensure that the caching strategy always include cache purging, because agent queries don't address ad-hoc queries or drills.

Use Model Administration Tool to Automatically Purge the Cache for Specific Tables

Purging the cache deletes entries from the query cache and keeps your content fresh. You can automatically purge cache entries for specific tables, by setting the **Cache Persistence Time** field for each table in Model Administration Tool.

> **Note:**
>
> If you use Semantic Modeler, see What Are a Physical Table's General Properties?

This is useful for data sources that are updated frequently. For example, if you have a table that stores stock ticker data that is updated every minute you can use the **Cache Persistence Time** setting to purge the entries for that table every 59 seconds. See Cache and Cache Persistence Timing For Specified Physical Tables.

Configure Advanced Options

Administrators can set several advanced options using the System Settings page.

Topics:

- About System Settings
- Configure System Settings Using Console
- Make Preview Features Available
- Manage System Settings Using REST APIs

About System Settings

Administrators can set a range of advanced, service-level options through the System Settings page. For example, you might want to change the default currency and time zone for analyses and dashboards to values that better suit your organization.

- Analytic Content Options
- Connection Options
- Email Delivered by Agents Options
- Format Options
- Other Options
- Performance and Compatibility Options
- Preview Options
- Prompt Options
- Security Options
- Usage Tracking Options
- View Options

Analytic Content Options

You use these options to set defaults and customizations for dashboards, analyses, and reports. For example, you can configure the analysis editor to open by default to the Criteria tab or the Results tab.

> **Note:**
>
> If you change an analytic content setting, you must apply the change for the new value to take effect.

System Setting	More Information
Analytics Publisher Reporting Toolbar Mode	Configures an alternate toolbar for pixel-perfect reports that are included in a dashboard. • **1** — Doesn't display a toolbar for pixel-perfect reports. • **2** — Displays the URL to the report without the logo, toolbar, tabs, or navigation path. • **3** — Displays the URL to the report without the header or any parameter selections. Controls such as Template Selection, View, Export, and Send are still available. • **4** — Displays the URL to the report only. No other page information or options are displayed. • **6** — Displays parameter prompts for the report in a toolbar. **Valid Values: 1,2,3,4,6** **Default: 1** **API Key:** AnalyticsPublisherReportingToolbarMode **Edition:** Enterprise only
Answers Editor Start Tab	Specifies whether the analysis editor opens by default to the Criteria tab or the Results tab. This setting applies when users click an **Edit** link for an analysis from a dashboard, the Home page, or the Catalog page. Users can override this default setting by specifying the **Full Editor** option in the My Account dialog. • **answerResults** — Opens the analysis editor by default to the Results tab. • **answerCriteria** — Opens the analysis editor by default to the Criteria tab. **Valid Values: answerResults**, **answerCriteria** **Default: answerResults** **API Key:** AnswersEditorStartTab **Edition:** Enterprise only

System Setting	More Information
Answers Subject Area Sorting Order	Sets the default sort order for subject area content trees. Users can override this default setting in the My Account: Subject Area Sort Order dialog. • **asc** — Sorts A to Z. • **desc** — Sorts Z to A. • **rpd** — Uses the subject area sort order specified in the original analyses. **Valid Values: asc**, **desc**, **rpd** **Default: rpd** **API Key:** AnalysisSubjectAreaSortingOrder **Edition:** Enterprise only
Custom Links XML	Specifies the XML code containing Classic Home page header customizations. You can use this XML code to customize the global header section of the Home page to better meet the needs of your users. For example, you can disable certain links or add custom ones. See Customize Links on the Classic Home Page. **API Key:** CustomLinksXml **Edition:** Enterprise only
URL for Blocking Queries in Analyses	Specifies the URL for the JavaScript file to validate query criteria and block queries. See Validate and Block Queries in Analyses Using Custom JavaScript. **API Key:** QueryBlockingScriptURL **Edition:** Enterprise only
Writeback Template XML	Defines the XML configuration for performing writeback on data elements. For example, you can use an XML template to enable users of a dashboard page or an analysis with the ability to modify, or write back, the data that they see in a table view. **API Key:** WriteBackTemplateXML **Edition:** Enterprise only

Connection Options

You use these options to configure connection-related defaults.

> **Note:**
>
> If you change a connection setting, you must apply the change for the new value to take effect.

System Setting	More Information
Connection Externalization Enabled	Specifies whether to externalize any database connections that administrators configured for semantic models in Oracle Analytics Cloud, using Console. When you externalize the connection information, anyone who uses Model Administration Tool to edit semantic models can refer to the database connections “by name” rather than re-entering the connection details in full (connection pool settings). See Connect to a Data Source using a Connection Defined Through Console. • **On** — Externalizes the database connections that administrators define for semantic models through Console. • **Off** — Doesn't externalize database connections details. Anyone using Model Administration Tool to edit semantic models must enter the database connection information in the Connection Pool dialog. **Default: On** **API Key:** EnableConnectionExternalization **Edition:** Enterprise only

Email Delivered by Agents Options

You can use these options to customize the way agents deliver email.

System Setting	More Information
Maximum Email Size (KB)	Specifies the maximum size (KB) of a single email. If you set a maximum email size, you can avoid situations when SMTP servers reject emails that are too large, and in the event that an email exceeds the set limit, the email recipients receive an error message instead of the agent failing and just alerting the email author. **Valid Values: 0-20480** **Default: 0** (unlimited email size) **API Key:** EmailMaxEmailSizeKB **Edition:** Enterprise only
Maximum Number of Recipients per Email	Specifies the maximum number of recipients allowed in the To: or Bcc: line for a single email. You can set the maximum number of email recipients to avoid some SMTP servers from filtering out these emails as spam. If the recipient list exceeds the set limit, the list is split into smaller lists with the maximum number of allowed recipients in each list. **Valid Values: 0-1024** **Default: 0** (unlimited number of email recipients) **API Key:** EmailMaxRecipients **Edition:** Enterprise only
Safe Domains	If you want to restrict the email domain that Oracle Analytics can send emails to, enter the name of the domain. For example, `examplemaildomain.com`. Use a comma to separate multiple domain names. For example, `exampledomain1.com,exampledomain2.com`. By default, there are no restrictions. **API Key:** EmailSafeDomains **Edition:** Enterprise only

System Setting	More Information
Use BCC	Specifies whether to include the names of email recipients in the To: or Bcc: line. By default, email recipients are added to the Bcc: line. • **On** — Add email recipients to the Bcc: line. Names of email recipients are hidden. • **Off** — Add email recipients to the To: line. Everyone who receives the email sees the recipient list. **Default: On** **API Key:** EmailUseBcc **Edition:** Enterprise only
Use RFC 2231 Encoding	Specifies how to encode MIME email parameters. By default, RFC 2047 is used. • **On** — Use RFC 2231 to encode MIME email parameter values. RFC 2231 supports multi-byte languages. Select On if you deliver emails that contain multi-byte characters and use an email server that supports RFC 2231, such as Microsoft Outlook for Office 365 or Google Gmail. • **Off** — Use RFC 2047 to encode MIME email parameter values. **Default: Off** **API Key:** EmailUseRFC2231 **Edition:** Enterprise only

Format Options

You use these options to configure default currency and time zone settings for analyses and dashboards.

These options apply only to analyses and dashboards. They don't apply to data visualizations.

> **Note:**
>
> If you change a format setting, you must apply the change for the new value to take effect.

System Setting	More Information
Currencies XML	Defines the default currency that's displayed for currency data in analyses and dashboards. For example, you can change from American dollars ($) to Euros (E). **API Key:** AnalysisCurrenciesXml **Edition:** Enterprise only

System Setting	More Information
Default Data Offset Time Zone	Specifies a time zone offset of the original data that users see in analyses and dashboards. Enter an offset value that indicates the number of hours away from Greenwich Mean Time (GMT) time. For example, to display values in United States Eastern Standard Time (EST), which is Greenwich Mean Time (GMT) - 5 hours, enter the value `GMT-05:00` or the equivalent value in minutes `-300`. If you don't set this option, no time zone conversion occurs because the value is "unknown". **Specifying a different offset value for each user** If you want to specify a different offset value where session variables can be used (for example, expressions, calculations), don't use the **Default Data Offset Time Zone** setting. Instead, set the system session variable DATA_TZ in the semantic model. See About Session Variables. **API Key:** DefaultDataOffsetTimeZone **Edition:** Enterprise only
Default Time Zone for Date Calculations	Specifies the time zone used for evaluating date calculations such as getting the current date/time, truncating datetime values to a date, and extracting time fields from date/time expressions. If you leave this field blank, Oracle Analytics uses the Coordinated Universal Time (UTC) time zone when evaluating date calculations. **API Key:** DefaultTimeZoneforDateCalculations **Edition:** Professional and Enterprise
Default User Preferred Time Zone	Specifies a default preferred time zone that users see in analyses and dashboards before they select their own in the My Account Preferences dialog. If you don't set this option, Oracle Analytics uses the local time zone. **Specifying a different time zone for each user** If you want to specify a different offset value where session variables can be used (for example, expressions, calculations), don't use the **Default User Preferred Time Zone** setting. Instead, set the system session variable TIMEZONE in the semantic model. See About Session Variables. **API Key:** DefaultUserPreferredTimeZone **Edition:** Enterprise only
User Currency Preferences XML	Determines whether users see a **Currency** option in their My Account preferences dialog and the list of currencies available to them. If you provide the **Currency** option, users can select in which currency they prefer to view columns of currency data in analyses and dashboards. **API Key:** UserCurrencyPreferencesXml **Edition:** Enterprise only

Other Options

These system setting options in the Console enable you to set the behavior for a variety of actions such as database queries, default URLs, display defaults, and sorting.

> **Note:**
>
> If you change one of these settings, you must apply the change for the new value to take effect unless we note it otherwise.

System Setting	More Information
Disable Right Trim for VARCHAR Data	Specifies whether the automatic removal of trailing spaces from varchar columns is enabled (Off) or disabled (On). For example, when this property is enabled (Off), when a user starts entering values in a field, the filter dialog automatically trims any trailing spaces. • **On** — Preserves trailing whitespaces in varchar columns. If you primarily use Oracle Database sources, you might want to keep the default Oracle Database behavior of preserving trailing whitespaces rather than removing them. When you toggle this property on, you avoid the overhead of trimming spaces, and this can improve performance. If you disable this property (set it to **On**) and you construct a filter such as PRODUCT_DESCRIPTION = 'My Product '), you must make sure the amount of trailing whitespace used exactly matches the varchar column value. If you don't, the filter won't correctly match the data values. • **Off** — Trims trailing whitespaces in varchar columns when processing queries. This is the default for Oracle Analytics. For example, if a user enters the text 'My Product ', it trims it to 'My Product'. **Default: Off** **API Key:** DataQueryDisableRightTrimVARCHARData **Edition:** Professional and Enterprise
Enable Subrequest Shipping	Specifies if sub-requests to source databases are executed separately as standalone queries or executed together. By default, sub-requests are shipped separately which can improve performance if you execute complex reports with a large group of sub-requests, that is, you prefer to ship the sub-requests separately in multiple simplified queries rather than ship a large single complicated query all at once. In Oracle BI Enterprise Edition, the default is set to `NO`. If you used Oracle BI Enterprise Edition and want to retain the previous default behavior, set this property to `NO` to continue executing database sub-requests together. • **Default** — Database sub-requests are shipped separately. This is the same as the value **YES**. • **YES** — Database sub-requests are shipped separately. • **NO** — Database sub-requests are shipped together, all at once. **Default: Default** **API Key:** EnableSubrequestShipping **Edition:** Professional and Enterprise

System Setting	More Information
Enforce Safe Domains in Actons	Determines whether action links that users add to analyses and dashboards can invoke any URL or only URLs that administrators specify in the safe domains list. • **On** — Don't allow actions to invoke any URL that's not in the safe domain list. • **Off** — Allow actions to invoke any URL, even if the URL isn't listed as a safe domain. **Default: On** for a brand new service and **Off** for an existing service. **Apply Change Required:** No **API Key:** EnforceSafeDomainsActions **Edition:** Enterprise only
Hide EPM Cloud Members with No Access	Specifies if users can view all EPM dimension members in a hierarchy prompt list of values or when adding the hierarchy to a canvas, even if they don't have data access to some of the members. • **On** —Show only those members of an EPM dimension that users have data access to. If this setting is **On**, users who don't have access to the root member of the dimension hierarchy won't see *any* EPM members in hierarchies or hierarchy prompts. • **Off** — Users can view all the members in an EPM dimension even if they don't have access to view data for some members. **Default: Off** **API Key:** HideEPMCloudMembersWithNoAccess **Edition:** Professional and Enterprise
Hide Loading Messages	Specifies if a detailed message is displayed during data load processing. • **On** — Detailed loading messages are hidden and a simplified message **Loading...** is displayed instead. • **Off** — Detailed loading messages are displayed. **Default: Off** **API Key:** HideLoadingMessages **Edition:** Professional and Enterprise
Locale	Applies to content migrated from Oracle BI Enterprise Edition. After you migrate content from your Oracle BI Enterprise Edition environment to Oracle Analytics, you may see a different language in messages, dates, or currencies within analyses. For example, if you look at a migrated analysis in Polish, the currencies or dates might display based on the Oracle Analytics default locale, not the original Oracle BI Enterprise Edition locale. To preserve the Oracle BI Enterprise Edition currencies and dates in Oracle Analytics, change this setting to **Polish**. **API Key:** DataQueryLocale **Edition:** Professional and Enterprise

System Setting	More Information
Portal Path	Specifies the path of the dashboard page that's displayed by default when users sign in to Oracle Analytics. For example, `/shared/<folder>/_portal/<name>`. You can specify a single path for all users and multiple paths by user role, for example `{"application role 1":"catalog dashboard path 1","application role 2":"catalog dashboard path 2","default":"catalog dashboard path 3"}`. This setting applies to all users, but users can override it after they've signed in. You can enter a maximum of 5,000 characters in this field. **API Key:** PortalPath **Edition:** Enterprise only
Recursive Datetime Type Checking	Specifies whether to enforce strict recursive data type checking for comparisons between identical data types (for example, integer to integer) or non-compatible data types (for example, integer to short integer) on all data sources or with all datasets. • **On** — Enforces strict recursive checking for identical or non-compatible data types on all data sources or datasets. • **Off** — Relaxes strict recursive checking for date and time data types on all data sources or datasets. However, if there are too many data type inconsistencies, you may want to change the data types to be compatible or use constants of the correct data type when comparing a column to a value. For example, after you migrate content from Oracle BI Enterprise Edition to Oracle Analytics, you might start seeing this type of check error in your reports because eary versions of Oracle BI Enterprise Edition didn't enforce strict checks: `[nQSError: 22024] A comparison is being carried out between non-compatible types <type1> and <type2>.` **Default: On** **API Key:** RecursiveDatetimeTypeChecking **Edition:** Professional and Enterprise
Repeat Rows on Excel Exports for Tables and Pivots	Specifies whether cells that span rows and cells that span columns are repeated when exporting tables and pivot tables to Excel. • **On** — If switched on, cells that span rows and cells that span columns are repeated, regardless of the Value Suppression setting in the Analysis editor. • **Off** — If switched off, the Value Suppression setting in the Analysis editor is honored and cells that span rows and cells that span columns don't repeat when exporting tables and pivot tables to Excel. **Default: Off** **API Key:** AnalysisRepeatRowsExcelExportsTablesPivots **Edition:** Enterprise only

System Setting	More Information
Sort Null Values First	Specifies whether to sort NULL values before other values (On) or after (Off). Select the value that matches your database. If this setting doesn't match your database setting, then the database setting takes precedence. • **On** — Sorts NULL values before other values. • **Off** — Sorts NULL values after other values. **Default: Off** **API Key:** SortNullValuesFirst **Edition:** Professional and Enterprise
Sort Order Locale	Applies to content migrated from Oracle BI Enterprise Edition. After you migrate content from your Oracle BI Enterprise Edition environment to Oracle Analytics, you may experience different sorting behaviors in analyses. For example, if you look at a migrated analysis in Polish, the upper case and lower case letters might sort based on the Oracle Analytics default locale, not the original Oracle BI Enterprise Edition locale. To preserve the Oracle BI Enterprise Edition sort behavior in Oracle Analytics, change this setting to **Polish**. **API Key:** DataQuerySortOrderLocale **Edition:** Professional and Enterprise

Performance and Compatibility Options

You use these options to configure performance and compatibility settings between Oracle BI Enterprise Edition and Oracle Analytics. For example, you can set the maximum temporary file size.

LiveLabs Sprint

> **Note:**
>
> If you change a performance and compatibility setting, you must apply the change for the new value to take effect unless we note it otherwise.

System Setting	More Information
Brushing Enabled for Datasets	Specifies whether brushing is enabled by default for workbooks that use dataset data. • **On** — Brushing is on by default for workbooks that use dataset data. • **Off** — Brushing is off by default for workbooks that use dataset data. Users can override this setting in the workbook and canvas properties. **Default: On** **API Key:** EnableBrushingDatasets **Edition:** Professional and Enterprise

System Setting	More Information
Brushing Enabled for Subject Areas	Specifies whether brushing is enabled by default for workbooks that use data from subject areas. • **On** — Brushing is on by default for workbooks that use subject area data. • **Off** — Brushing is off by default for workbooks that use subject area data. Users can override this setting in the workbook and canvas properties. **Default: On** **API Key:** EnableBrushingSubjectAreas **Edition:** Enterprise only
Cache Dashboard Listing Dropdown Menu	Specifies how often the Dashboards menu list on the Oracle Analytics Classic Home page is populated during a user session. • **On** — Dashboards menu lists are only populated once per user session. This improves performance but may result in stale lists until the user logs out and back in which refreshes the lists. • **Off** — Dashboards menu lists are populated every time they're opened. **Default: Off** **API Key:** CacheDashboardListingDropdownMenu **Edition:** Enterprise only
Cache Enable	Specifies whether data query caching is enabled or disabled. • **On** — Data caching is enabled. • **Off** — Caching is disabled. **Default: On** **API Key:** EnableDataQueryCache **Edition:** Professional and Enterprise
Enable Auto Insights on Datasets	Specifies whether the Auto Insights feature is available when datasets are created or modified. • **On** — The Enable Insights option is available in the Dataset Inspect dialog and insights are automatically generated and available for workbooks that use datasets with the Enable Insights option selected. • **Off** — Auto Insights and its related features are disabled. **Default: On** **Apply Change Required:** No, but when you change this setting, it may take a few minutes to take effect. **API Key:** EnableAutoInsightsDatasets **Edition:** Professional and Enterprise
Enable Database Analytics Node in Data Flows	Specifies whether the Database Analytics node is displayed in data flows. • **On** — The Database Analytics node is available in data flows so that data flow designers can apply database analytics functions to the data. • **Off** — The Database Analytics node isn't available in data flows. This prevents data flow designers from generating a potentially high number of SQL statements and slowing database performance. **Default: On** **API Key:** EnableDatabaseAnalyticsNodeDataFlows **Edition:** Professional and Enterprise

System Setting	More Information
Enable Immediate Dashboard Rendering	Specifies whether to display available dashboard content immediately or wait until all the dashboard content is ready. • **On** — Display dashboard content immediately even if some content is unavailable. • **Off** — Wait for all the dashboard content to be ready before displaying content. **Default: Off** **API Key:** EnableImmediateDashboardRendering **Edition:** Enterprise only
Evaluate Support Level	Specifies who can issue database functions: `EVALUATE`, `EVALUATE_ANALYTIC`, `EVALUATE_AGGR`, and `EVALUATE_PREDICATE`. By default (`0`), the `EVALUATE` database functions are disabled. • **1** — Service administrators only. Users with the BI Service Administrator application role can invoke `EVALUATE` database functions. • **2** — Anyone. Any user who signs in to Oracle Analytics can invoke `EVALUATE` database functions. • **0** (or any other value) — No one. All `EVALUATE` database functions are disabled in Oracle Analytics. **Valid Values: 0**, **1**, **2** **Default: 0** **API Key:** EvaluateSupportLevel **Edition:** Professional and Enterprise
Load Semantic Models Using Multiple Threads	Specifies if semantic models load using multiple threads. If you find that your large datasets load slowly and impact system processing times, enabling this option may improve performance. • **On** — Semantic models load in parallel. • **Off** — Semantic models don't load in parallel. **Default: Off** **API Key:** LoadSemanticModelsWithMultipleThreads **Edition:** Enterprise only
Maximum Query Limit (seconds)	Specifies the maximum length of time a single query can run before it's canceled and users see a timeout message. The default is 660 seconds (11 minutes). **Valid Values: 60-660** **Default: 660** **API Key:** MaximumQueryLimit **Edition:** Professional and Enterprise

System Setting	More Information
Maximum Working File Percent Size	Specifies that the temporary file doesn't exceed a specified percentage of the global work directory size limit. The size limit defaults for temporary files is 5% (of 100 GB), equivalent to 5 GB. The file limit applies individually to each temporary file, while the size specified for the total global work directory applies collectively to all temporary files created. You can increase or decrease this value within the range of 5% to 50%. This enables temporary file sizes between 5GB and 50GB. Raising this setting above 50% limits concurrency for large operations. **Valid Values: 5-50** **Default: 5** **API Key:** MaximumWorkingFilePercentSize **Edition:** Enterprise only
Mobile Watch Service Enabled	Specifies if the Data Watch service is active. • **On** — The Data Watch service is active and all mobile users can specify the threshold value for bring backs. • **Off** — The Data Watch service is inactive. **Default: On** **API Key:** EnableMobileDataWatchService **Edition:** Professional and Enterprise
Mobile Watch Service Frequency	Specifies the frequency at which the Data Watch service must scan the server for changes based on the frequency of changes in your data sources. The default is 240 (4 hours). You can disable this service by changing this setting frequency to 0 or by toggling the **Mobile Watch Service Enabled** setting to off. **Valid Values: 0-10139** **Default: 240** **API Key:** MobileDataWatchServiceFrequency **Edition:** Professional and Enterprise
OBIEE Compatibility Release	Specifies the on-premise Oracle BI Enterprise Edition version number for feature compatibility. This only applies if you upgrade from Oracle BI Enterprise Edition to Oracle Analytics, and you want to use a feature from a specific on-premises release in Oracle Analytics. **Valid Values: 11.1.1.9, 11.1.1.10, 11.1.1.11, 12.2.1.0, 12.2.1.1, 12.2.1.3, 12.2.1.4, 12.2.2.0, 12.2.3.0, 12.2.4.0, 12.2.5.0** **API Key:** OBIEECompatibilityRelease **Edition:** Professional and Enterprise
Override Database Features	Specifies if users can use request variables to override database features. • **1** — Only administrators can override database features. • **2** — Any user can override database features. • **0** — No user can override database features. **Valid Values: 0, 1 , 2** **Default: 0** **API Key:** OverrideDatabaseFeatures **Edition:** Enterprise only

System Setting	More Information
Query Limit Extension	Determines whether the query limit can extend to 60 minutes to accommodate the occasional, longer running query. • **On** — The query limit can be extended to 60 minutes. • **Off** — The **Maximum Query Limit** setting on this page is used and never extends. **Default: Off** **API Key:** QueryLimitExtension **Edition:** Professional and Enterprise
Restrict Data Export and Delivery	Restricts the maximum number of rows users can export or deliver by email in formatted and unformatted content. Data export and delivery limits depend on the size of your Oracle Analytics service. See Data Export and Delivery Limits by Compute Size. **Valid Values: Maximum - no restriction, 90% of Maximum, 80% of Maximum, 70% of Maximum, 60% of Maximum, 50% of Maximum, 40% of Maximum, 30% of Maximum, 20% of Maximum, 10% of Maximum, Minimum - 1000 rows** **Default: Maximum - no restriction** **API Key:** RestrictDataExportAndDelivery **Edition:** Professional and Enterprise
Strong Datetime Type Checking	Specifies whether to enforce strict checking for date and time data types and whether to reject queries that contain incompatibilities in date and time data types. • **On** — Enforces strict checking for date and time data types. • **Off** — Relaxes strict checking for date and time data types. However, invalid queries or queries with severe date and time incompatibilities may still be still rejected. For example, date and time incompatibilities might be rejected if your relational database uses strict checking for those data types. **Default: On** **API Key:** StrongDatetimeTypeChecking **Edition:** Professional and Enterprise

Preview Options

Administrators can turn some preview features on and off. This way, your organization can evaluate and learn how to use new features before they roll out by default.

System Setting	More Information
Preview Workbook Email Scheduler	Enable this option so that administrators can set up a schedule to regularly share their workbooks with one or more email recipients in PDF or PNG format. See Share Visualizations Using Workbook Email Schedules (Preview). • **On** — Displays the **Schedule** option in the **Actions** menu of a workbook to users with the BI Service Administrator application role with Read-Write access and the Edit share permission on the workbook. • **Off** — Disables and hides the **Schedule** option in the **Actions** menu of a workbook. **Default: Off** **Apply Change Required:** No **API Key:** PreviewWorkbookEmailScheduler **Edition:** Enterprise only
Preview Workbook Email Scheduling with Bursting	Enable this option to allow administrators to set bursting options when emailing workbooks saved in Shared Folders. This option requires Preview Workbook Email Scheduler to be enabled. See Share Visualizations Using Workbook Email Schedules (Preview) and Create a Bursting Workbook Email Schedule (Preview). • **On** — Enables users with a BI Service Administrator application role with Read-Write access and the Edit share permission for the workbook to enable the **Bursting** option in the **Email** tab of a workbook schedule if the workbook is saved in Shared Folders. • **Off** — Disables the **Bursting** option in the **Email** tab of a workbook schedule. **Default: Off** **Apply Change Required:** No **API Key:** PreviewWorkbookEmailBursting **Edition:** Enterprise only

Prompt Options

You use these options to configure prompt behavior in analyses and dashboards. For example, you can enable search results to automatically display as highlighted when users enter search parameters, without the need to click **Search**.

These options apply only to analyses and dashboards. They don't apply to data visualizations.

> **Note:**
>
> If you change a prompt setting, you must apply the change for the new value to take effect.

System Setting	More Information
Auto Apply Dashboard Prompt Values	Enables the option to hide the **Apply** button so that prompt values can be applied without clicking any button. If this is property is **On**: • Displays the **Show Apply Button** and **Show Reset Button** fields in the Edit Page Settings dialog. • Displays the **Prompts Apply Buttons** and **Prompts Reset Buttons** fields in the Dashboard Properties dialog. • Displays the **Prompt Buttons on Current Page** option on the dashboard builder's Tools menu. **Default: On** **API Key:** AutoApplyDashboardPromptValues **Edition:** Enterprise only
Auto Search on Prompt Value Search Dialog	Enables search results to automatically display and highlight when users enter search parameters, without the need to click **Search**. **Default: On** **API Key:** EnableAnalysisAutoSearchPromptDialog **Edition:** Enterprise only
Case Insensitive Auto Complete	Specifies whether, when a user enters a prompt value in analyses and dashboards, the auto-complete functionality is case-insensitive. • **On** — Case isn't considered when a user enters a prompt value such as "Oracle" or "oracle." • **Off** — Case is considered when a user enters a prompt value, so the user must enter "Oracle" and not "oracle" to find the Oracle record. **Default: On** **API Key:** AutoCompletePromptDropDownsCaseInsensitive **Edition:** Enterprise only
Show Null Value When Column Is Nullable	Specifies whether to show the term "NULL" at runtime in the column prompt above the column separator in the drop-down list when the database allows null values. • **always** — Always shows the term "NULL" above the column separator in the drop-down list. • **never** — Never shows the term "NULL" in the drop-down list. • **asDataValue** — Displays the data value in the drop-down list, not the term "NULL" above the separator in the drop-down list. **Valid Values: always**, **never**, **asDataValue** **Default: always** **API Key:** AnalysisPromptsShowNullValueWhenColumnIsNullable **Edition:** Enterprise only
Support Auto Complete	Enables or disables the auto-complete functionality available in prompts. • **On** — Enables auto-complete, which means that the **Prompts Auto-Complete** field is displayed and set to **On** in the My Account dialog and in the Dashboard Properties dialog. • **Off** — Disables auto-complete, which means that the auto-complete fields in the My Account and Dashboard Properties dialogs aren't available. **Default: Off** **API Key:** EnableAnalysisAutoCompletePrompt **Edition:** Enterprise only

Security Options

Use Security options to control how users can perform specific actions in analyses and dashboards.

These options apply only to analyses and dashboards. They don't apply to data visualizations.

> **Note:**
>
> If you change a security setting, you must apply the change for the new value to take effect.

System Setting	More Information
Allow HTML/JavaScript/CSS Content	Determines whether users can apply and save HTML, JavaScript, and CSS markup in various text fields for analyses and dashboards, and how any previously saved markup is used. • **Always** — Enables users to apply markup. Displays the **Contains HTML/JavaScript/CSS Markup** option in dialogs where additional formatting might be useful. For example: – For analyses: Various dialogs in the analysis editor, Analysis Properties dialog, Column Properties (Column Format) dialog, Edit Column Formula dialog, Narrative dialog, Ticker dialog, Static Text dialog, and New Calculated Measure dialog. – For dashboards: Various dialogs in the dashboard editor, Text Properties dialog, and Edit Header and Edit Footer dialogs (under Print and Export Options). • **Never** — Prevents users from applying markup. Hides the **Contains HTML/JavaScript/CSS Markup** option. Users can only enter plain text. Oracle Analytics ignores any markup that users previously entered and saved for their analyses and dashboards. • **HTML Only** — Enables users to apply HTML markup. Displays the **Contains HTML/JavaScript/CSS Markup** option in dialogs where additional formatting might be useful but only safe HTML is allowed (no JavaScript or CSS). When an analysis or dashboard opens, Oracle Analytics sanitizes any markup that users have entered and applies only the HTML markup. • **On Open** — Prevents users from applying additional markup (existing markup is retained). Hides the **Contains HTML/JavaScript/CSS Markup** option so users can enter only plain text. Any previously saved markup for analyses and dashboards continues to be applied. **Note:** The **On Open** option was previously named "Off". **API Key:** AllowHTMLJavaScriptCSSContent **Edition:** Enterprise only
Enable Push Notifications	Specifies if mobile application push notifications are enabled (on) or disabled (off). • **On** — Enables mobile application push notifications to receive alerts and messages. • **Off** — Disables mobile application push notifications to stop receiving alerts and messages. **Default: On** **API Key:** EnableMobilePushNotifications **Edition:** Professional and Enterprise

System Setting	More Information
Export Data to CSV and Tab-Delimited Files as Text	Specifies if leading apostrophes are added when data is exported to CSV or tab-delimited files, so all fields are treated as text. • **On** — Leading apostrophes are automatically added to CSV and tab-delimited files during exports. • **Off** — Data is exported to CSV files as-is. **Caution:** When **Off**, opening exported CSV files may invoke unwanted formulas. See Export the Results of Analyses. **Note:** This setting applies only to visualizations and analyses. It doesn't apply to pixel-perfect reports. **Default: Off** **API Key:** ExportDataToCSVFilesAsText **Edition:** Professional and Enterprise
Post Logout Redirect URL	Specifies the URL users are redirected to when they sign out of Oracle Analytics. For example, you might want to redirect users to a company web page, or display sign in details that open the Classic Home page. **Note:** This setting works for Oracle Analytics Cloud instances created after January 23rd 2023. If you want to configure a post logout URL for an Oracle Analytics Cloud instance that was created before January 23rd 2023, raise a service request with Oracle Support. **API Key:** PostLogoutRedirectURL **Edition:** Enterprise only

System Setting	More Information
Save Workbook Thumbnails	To help people identify workbook content, Oracle Analytics can display thumbnail images for workbooks on the Home page. The information that's shown in these thumbnails is blurred to protect sensitive data from being exposed to users that don't have the same access as data authors. This setting overrides any **Save thumbnails** value set in the Workbook Properties dialog at the individual workbook level. **Note:** This setting doesn't apply to watchlists because they don't use thumbnails. Instead, watchlists display miniaturized visualizations that reload whenever you refresh the Home page. • **On** — Display blurred workbook thumbnails on the Home page. If this setting enabled (on), workbook owners can hide the thumbnail for individual workbooks if they need to. See Set Workbook Thumbnails. • **Off** — Don't display any workbook thumbnails on the Home page. Instead, show the standard icon for all workbooks. **Default: On** **API Key:** SaveWorkbookThumbnail **Edition:** Professional and Enterprise
Sign Out Inactive Users Automatically	Specifies whether to automatically sign out users after the inactivity timeout is reached. • **On** — Users are automatically signed out when the inactivity timeout is reached. • **Off** — Users remain signed in even if the inactivity timeout is reached. **Default: Off** **API Key:** SignOutInactiveUsersAutomatically **Edition:** Professional and Enterprise
URL for Browser Script Actions	Specifies the URL for the JavaScript file containing custom Browser Script Actions. **API Key:** URLBrowserScriptActions **Edition:** Enterprise only
User Inactivity Timeout (minutes)	Specifies the number of minutes users are inactive before their browser or mobile connection must be re-authenticated. **Valid Values: 5 - 480** **Default: 60** **API Key:** UserInactivityTimeout **Edition:** Professional and Enterprise

Usage Tracking Options

You use these options to specify how you want to monitor system usage. For example, you can set the number of rows that you want stored in the usage tracking tables.

> **Note:**
>
> If you change an usage tracking setting, you must apply the change for the new value to take effect.

System Setting	More Information
Enable Usage Tracking	Specifies whether usage tracking is enabled. You must enable this setting to activate all other settings in the Usage Tracking section of this page. • **On** — Any enabled settings in the Usage Tracking section of this page are activated. • **Off** — No settings in the Usage Tracking section of this page are activated, even if they are enabled. **Default: On** **API Key:** EnableUsageTracking **Edition:** Enterprise only
Usage Tracking Connection Pool	Specifies the name of the connection pool you created for your usage tracking statistics database. For example, `<database name>.<connection pool name>`. **API Key:** UsageTrackingConnectionPool **Edition:** Enterprise only
Usage Tracking Init Block Table	Specifies the name of the fully-qualified database table you use for inserting records that correspond to the initialization block statistics, as it appears in the physical layer of your semantic model. For example, `<database name>.<catalog name >.<schema name >.<table name> or <database name>.<schema name >.<table name>`. **API Key:** UsageTrackingInitBlockTable **Edition:** Enterprise only
Usage Tracking Logical Query Logging Table	Specifies the name of the database table you want to use to store logical query details. For example, `<database name>.<catalog name >.<schema name >.<table name> or <database name>.<schema name >.<table name>`. **API Key:** UsageTrackingLogicalQueryLoggingTable **Edition:** Enterprise only
Usage Tracking Maximum Rows	Indicates the number of rows allowed in usage tracking tables, with a value of **0** indicating an unlimited number of rows. **Valid Values:** Any positive number (up to 64-bit integer) **Default: 0** **API Key:** UsageTrackingMaximumRows **Edition:** Enterprise only

System Setting	More Information
Usage Tracking Physical Query Logging Table	Specifies the name of the database table you want to use to store physical query details. For example, `<database name>.<catalog name >.<schema name >.<table name> or <database name>.<schema name >.<table name>.` **API Key:** UsageTrackingPhysicalQueryLoggingTable **Edition:** Enterprise only
User Names as the User Identifier in Service Logs	Specifies whether to identify users by their user name in service logs. When this setting is disabled (off), users are identified by their user GUID in service logs. User names are logged if this setting is enabled (on), and this might make user identification easier for administrators who are monitoring logs. • **On** — Record the names of users performing actions in service logs. • **Off** — Record the GUIDs of users performing actions in service logs. **Default: Off** **API Key:** UserNamesInServiceLogs **Edition:** Professional and Enterprise

View Options

You use these options to configure default search and viewing settings for users working with analyses and dashboards.

These options apply only to analyses and dashboards. They don't apply to data visualizations.

> **Note:**
>
> If you change a view setting, you must apply the change for the new value to take effect.

System Setting	More Information
Default Scrolling Enabled	Specifies how data scrolls in tables, pivots, heat matrix, and simple and advanced trellis visualizations. • **On** — Data displays with a fixed header and content scrolling controls for users to browse the data. • **Off** — Data displays with content paging controls for users to browse the data. **Default:** On **API Key:** `AnalysisDefaultScrollingEnabled` **Edition:** Enterprise only

System Setting	More Information
Enable Enrichments in Workbooks	Specifies whether workbook editors can add dataset enrichments to a visualization directly from the Data Panel. This setting enables enrichments in workbooks for all users. Workbook editors who own a dataset or have editing privileges for it can enable or disable knowledge enrichments for that dataset using the **Enable Knowledge Enrichments** option. See Enable Knowledge Enrichments in the Workbook Editor. • **On** — Workbook editors can drag and drop enrichment based data elements to visualization canvases. • **Off** — Knowledge enrichments are not available for datasets. **Default:** On **API Key:** `EnableEnrichmentsInWorkbook` **Edition:** Professional and Enterprise
Prompt Auto Complete Matching Level	Specifies whether the auto-complete functionality uses matching to find the prompt value that the user enters into the prompt field. This setting doesn't apply if the user accesses the Search dialog to locate and specify a prompt value. • **StartsWith** — Searches for a match that begins with the text that the user types. For example, the user types `M` and the following stored values are displayed: MicroPod and MP3 Speakers System. • **WordStartsWith** — Searches for a match at the beginning of a word or group of words. For example, the user types `C` and the following values are displayed: ComCell, MPEG Camcorder, and 7 Megapixel Digital Camera. • **MatchAll** — Searches for any match within the word or words. **Valid Values:** StartsWith, WordStartsWith, MatchAll **Default:** MatchAll **API Key:** `AnalysisPromptAutoCompleteMatchingLevel` **Edition:** Enterprise only
Table/Pivot View: Maximum Visible Rows	Specifies the maximum number of rows you want displayed for content paging in table and pivot table views in analyses and dashboards. The minimum number of rows you can specify to display is 100. **Valid Values:** 100-5000 **Default:** 5000 **API Key:** `TablePivotViewMaximumVisibleRows` **Edition:** Enterprise only
View Interactions: Add/ Remove Values	Specifies whether the **Add/Remove Values** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Add/Remove Values** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Add/Remove Values** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** Off **API Key:** `AnalysisViewInteractionsAddRemoveValues` **Edition:** Enterprise only

System Setting	More Information
View Interactions: Create/Edit/ Remove Calculated Items	Specifies whether the **Create/Edit/Remove Calculated Items** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Create/Edit/Remove Calculated Items** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Create/Edit/Remove Calculated Items** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** Off **API Key:** `AnalysisViewInteractionsCreateEditRemoveCalculatedItems` **Edition:** Enterprise only
View Interactions: Create/Edit/ Remove Groups	Specifies whether the **Create/Edit/Remove Groups** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Create/Edit/Remove Groups** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Create/Edit/Remove Groups** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** Off **API Key:** `AnalysisViewInteractionsCreateEditRemoveGroups` **Edition:** Enterprise only
View Interactions: Display/ Hide Running Sum	Specifies whether the **Display/Hide Running Sum** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Display/Hide Running Sum** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Display/Hide Running Sum** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** Off **API Key:** `AnalysisViewInteractionsDisplayHideRunningSum` **Edition:** Enterprise only
View Interactions: Display/ Hide Sub-totals	Specifies whether the **Display/Hide Sub-totals** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Display/Hide Sub-totals** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Display/Hide Sub-totals** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** Off **API Key:** `AnalysisViewInteractionsDisplayHideSubtotals` **Edition:** Enterprise only
View Interactions: Drill	Specifies whether the **Drill** (when not a primary interaction) option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Drill** (when not a primary interaction) option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Drill** (when not a primary interaction) option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** Off **API Key:** `AnalysisViewInteractionsDrill` **Edition:** Enterprise only

System Setting	More Information
View Interactions: Include/ Exclude Columns	Specifies whether the **Include/Exclude Columns** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Include/Exclude Columns** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Include/Exclude Columns** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** On **API Key:** `AnalysisViewInteractionsIncludeExcludeColumns` **Edition:** Enterprise only
View Interactions: Move Columns	Specifies whether the **Move Columns** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Move Columns** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Move Columns** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** On **API Key:** `AnalysisViewInteractionsMoveColumns` **Edition:** Enterprise only
View Interactions: Sort Columns	Specifies whether the **Sort Columns** option is selected by default in the Analysis Properties dialog: Interactions tab. • **On** — The **Sort Columns** option is selected by default in the Analysis Properties dialog: Interactions tab. • **Off** — The **Sort Columns** option isn't selected by default in the Analysis Properties dialog: Interactions tab. **Default:** On **API Key:** `AnalysisViewInteractionsSortColumns` **Edition:** Enterprise only
Enable Personalization in Workbooks	Specifies whether users can personalize workbooks. • **On** — Content designers can enable or disable personalization options (**Filter** and **Parameter**) in their workbooks. • **Off** — Personalization options aren't available for workbooks. **Default:** On **API Key:** `EnableUserPersonalizationInWorkbooks` **Edition:** Professional and Enterprise

Configure System Settings Using Console

Use Console to configure and customize system settings to suit your Analytics Cloud environment.

1. In the Oracle Analytics Home page, click the **Navigator**, and then click **Console**.
2. Click **System Settings**.
3. Update the property value.
4. Click **Apply** to save you changes and then click **OK** to confirm.

   Wait a few moments for the changes to refresh through the system.

Manage System Settings Using REST APIs

You can use Oracle Analytics Cloud REST APIs to programmatically view and manage system settings. For example, you might create a script to update usage tracking options.

- Typical Workflow for Using System Setting REST APIs
- REST API Key Values for System Settings
- Examples for System Setting REST APIs

Typical Workflow for Using System Setting REST APIs

Here are the common tasks to start using Oracle Analytics Cloud REST APIs to programmatically view and manage system settings. If you're using system setting REST APIs for the first time, follow these tasks as a guide.

Task	Description	REST API Documentation
Understand prerequisites	Understand and complete several prerequisite tasks. You must have administrator permissions in Oracle Analytics Cloud to manage system settings using REST APIs (**BI Service Administrator**).	Prerequisites
Understand OAuth 2.0 token authentication	Authentication and authorization in Oracle Analytics Cloud is managed by Oracle Identity Cloud Service. To access the Oracle Analytics Cloud REST APIs, you need an OAuth 2.0 access token to use for authorization.	OAuth 2.0 Token Authentication
Understand API keys for system settings	Each system setting has a public API key name that you can use in REST API operations.	REST API Key Values for System Settings
Get system setting details	Get details about specific system settings, all system settings, or system settings that haven't been applied yet.	Get system settings
Update system settings	Update one or more system setting.	Update system settings

REST API Key Values for System Settings

Each system setting has its own REST API key name. For example, the REST API key for the system setting **Cache Enable** is **EnableDataQueryCache**. You use this REST API key to identify the system setting in a REST API operation.

For example, if you want to disable the **Cache Enable** setting, you specify the name of the key (`EnableDataQueryCache`) with the value `false`.

```
{
     "items":[
       {
         "key": "EnableDataQueryCache",
         "value": "false"
       }
      ]
 }
```

System Setting Display Name	REST API Key Value
Allow HTML/JavaScript/CSS Content	AllowHTMLJavaScriptCSSContent

System Setting Display Name	REST API Key Value
Analytics Publisher Reporting Toolbar Mode	AnalyticsPublisherReportingToolbarMode
Answers Editor Start Tab	AnswersEditorStartTab
Answers Subject Area Sorting Order	AnalysisSubjectAreaSortingOrder
Auto Apply Dashboard Prompt Values	AutoApplyDashboardPromptValues
Auto Search on Prompt Value Search Dialog	EnableAnalysisAutoSearchPromptDialog
Brushing Enabled for Data Sets	EnableBrushingDatasets
Brushing Enabled for Subject Areas	EnableBrushingSubjectAreas
Cache Dashboard Listing Dropdown Menu	CacheDashboardListingDropdownMenu
Cache Enable	EnableDataQueryCache
Case Insensitive Auto Complete	AutoCompletePromptDropDownsCaseInsensitive
Connection Externalization Enabled	EnableConnectionExternalization
Currencies XML	AnalysisCurrenciesXml
Custom Links XML	CustomLinksXml
Default Data Offset Time Zone	DefaultDataOffsetTimeZone
Default Scrolling Enabled	AnalysisDefaultScrollingEnabled
Default Time Zone for Date Calculations	DefaultTimeZoneforDateCalculations
Default User Preferred Time Zone	DefaultUserPreferredTimeZone
Disable Right Trim for VARCHAR Data	DataQueryDisableRightTrimVARCHARData
Enable Auto Insights on Datasets	EnableAutoInsightsDatasets
Enable Database Analytics Node in Data Flows	EnableDatabaseAnalyticsNodeDataFlows
Enable Enrichments in Workbooks	EnableEnrichmentsInWorkbook
Enable Immediate Dashboard Rendering	EnableImmediateDashboardRendering
Enable Personalization in Workbooks	EnablePersonalizationInWorkbooks
Enable Push Notifications	EnableMobilePushNotifications
Enable Subrequest Shipping	EnableSubrequestShipping
Enable Usage Tracking	EnableUsageTracking
Enforce Safe Domains in Actions	EnforceSafeDomainsActions
Evaluate Support Level	EvaluateSupportLevel
Export Data to CSV and Tab-Delimited Files as Text	ExportDataToCSVFilesAsText
Hide EPM Cloud Members with No Access	HideEPMCloudMembersWithNoAccess
Hide loading messages	HideLoadingMessages
Load Semantic Models Using Multiple Threads	LoadSemanticModelsWithMultipleThreads
Locale	DataQueryLocale
Maximum Email Size (KB)	EmailMaxEmailSizeKB
Maximum Number of Recipients per Email	EmailMaxRecipients
Maximum Query Limit (seconds)	MaximumQueryLimit
Maximum Working File Percent Size	MaximumWorkingFilePercentSize
Mobile Data Watch Service Enabled	EnableMobileDataWatchService
Mobile Data Watch Service Frequency	MobileDataWatchServiceFrequency
OBIEE Compatibility Release	OBIEECompatibilityRelease
Override Database Features	OverrideDatabaseFeatures
Portal Path	PortalPath
Post Logout Redirect URL	PostLogoutRedirectURL
Preview Workbook Email Scheduler	PreviewWorkbookEmailScheduler

System Setting Display Name	REST API Key Value
Preview Workbook Email Scheduling with Bursting	PreviewWorkbookEmailBursting
Prompt Auto Complete Matching Level	AnalysisPromptAutoCompleteMatchingLevel
Query Limit Extension	QueryLimitExtension
Recursive Datetime Type Checking	RecursiveDatetimeTypeChecking
Repeat Rows on Excel Exports for Tables and Pivots	AnalysisRepeatRowsExcelExportsTablesPivots
Restrict Data Export and Delivery	RestrictDataExportAndDelivery
Safe Domains	EmailSafeDomains
Save Workbook Thumbnail	SaveWorkbookThumbnail
Show Null Value when Column is Nullable	AnalysisPromptsShowNullValueWhenColumnIsNullable
Sign Out Inactive Users Automatically	SignOutInactiveUsersAutomatically
Sort Null Values First	SortNullValuesFirst
Sort Order Locale	DataQuerySortOrderLocale
Strong Datetime Type Checking	StrongDatetimeTypeChecking
Support Auto Complete	EnableAnalysisAutoCompletePrompt
Table/Pivot View: Maximum Visible Rows	TablePivotViewMaximumVisibleRows
URL for Blocking Queries in Analyses	QueryBlockingScriptURL
URL for Browser Script Actions	URLBrowserScriptActions
Usage Tracking Connection Pool	UsageTrackingConnectionPool
Usage Tracking Init Block Table	UsageTrackingInitBlockTable
Usage Tracking Logical Query Logging Table	UsageTrackingLogicalQueryLoggingTable
Usage Tracking Maximum Rows	UsageTrackingMaximumRows
Usage Tracking Physical Query Logging Table	UsageTrackingPhysicalQueryLoggingTable
Use BCC	EmailUseBcc
Use RFC 2231 Encoding	EmailUseRFC2231
User Currency Preferences XML	UserCurrencyPreferencesXml
User Inactivity Timeout (minutes)	UserInactivityTimeout
User Names as the User Identifier in Service Logs	UserNamesInServiceLogs
View Interactions: Add/Remove Values	AnalysisViewInteractionsAddRemoveValues
View Interactions: Create/Edit/Remove Calculated Items	AnalysisViewInteractionsCreateEditRemoveCalculatedItems
View Interactions: Create/Edit/Remove Groups	AnalysisViewInteractionsCreateEditRemoveGroups
View Interactions: Display/Hide Running Sum	AnalysisViewInteractionsDisplayHideRunningSum
View Interactions: Display/Hide Sub-totals	AnalysisViewInteractionsDisplayHideSubtotals
View Interactions: Drill	AnalysisViewInteractionsDrill
View Interactions: Include/Exclude Columns	AnalysisViewInteractionsIncludeExcludeColumns
View Interactions: Move Columns	AnalysisViewInteractionsMoveColumns
View Interactions: Sort Columns	AnalysisViewInteractionsSortColumns
WriteBack Template XML	WriteBackTemplateXML

Examples for System Setting REST APIs

REST API for Oracle Analytics Cloud includes several examples that explain how to use the System Setting REST APIs.

Get system settings - Examples

- Example 1 - Get a list of all the system settings and their current values
- Example 2 - Get current values for a specific set of system settings
- Example 3 - Get a list of system settings that aren't applied yet

Update system settings - Examples

- Example 1 - Update system settings using a JSON file
- Example 2 - Update system settings directly

8

Replicate Data

Use data replication to import data from Oracle Fusion Cloud Applications Suite into high-performant data stores, such as Oracle Autonomous Data Warehouse and Oracle Database Classic Cloud Service, for visualization and analysis in Oracle Analytics Cloud.

With data replication, you can import and transform your data without using additional extract-transform-load (ETL) tools.

Topics

Typical Workflow to Replicate Data

Here are the tasks that Oracle Analytics Cloud administrators can perform to replicate data for visualizations.

Task	Description	More Information
Define the data you want to replicate	Set up connections to your data source and the replication target, and define the data you want to replicate.	Replicate Your Data
Set up a replication schedule	To keep your data fresh, schedule replication flows to run regularly.	Replicate Your Data Regularly
Monitor replication jobs	Monitor a replication flow to check progress and troubleshoot issues.	Monitor and Troubleshoot a Replication Flow
Move replicated data to a different database	If you change the target database for data replication, you can migrate the current data to the new database, and reconfigure your connections to replicate to your new database.	Move Replicated Data to a Different Target Database

Overview of Data Replication

Data replication in Oracle Analytics Cloud makes data more readily available for visualization and analysis without repeatedly executing expensive queries or data extracts on the original data source. You can also use data replication to build content packs for Oracle Fusion Cloud Applications.

Tips on implementing data replication

- Data replication is available in Oracle Analytics Cloud Enterprise Edition.
- For maximum performance, use data replication with extract data stores (that is, View Objects (VOs) with "ExtractPVO" in the VO name).
- See Top FAQs for Data Replication.

For detailed lists of extract data stores, see Oracle Fusion Cloud Application Suite. For example:

- Financials
- Procurement
- Sales
- Supply Chain and Manufacturing

Prerequisites For Data Replication

Before you start, make sure you have the correct components required for data replication. To find out the supported versions of Oracle Planning and Budgeting Cloud Service, see Supported Data Sources.

You need the following:

- Oracle Analytics Cloud Enterprise Edition.
- Data replication permissions (BI Service Administrator role) in Oracle Analytics Cloud.
- A supported data source, such as an application in Oracle Fusion Cloud Applications Suite or Oracle Fusion Cloud B2C Service (RightNow) from which to source your data.
- A supported data target, such as Oracle Database or Oracle Autonomous Data Warehouse in which to replicate your data.
- If you're replicating data from Oracle Fusion Cloud Applications Suite, you need:
  - **BI Cloud Connector**:
    - BI Cloud Connector deployed in the Oracle Fusion Cloud Applications Suite environment.
    - Access to BI Cloud Connector Console in the Oracle Fusion Cloud Applications Suite environment.
    - Connection details for the storage instance of Oracle Cloud Infrastructure specified on the Configure External Storage page of BI Cloud Connector Console.
  - **Oracle Cloud Infrastructure**:
    - Compute permissions in Oracle Cloud Infrastructure to be able to administer object storage.
    - Oracle Cloud Infrastructure storage. You can use either Oracle Cloud Infrastructure Object Storage or Oracle Cloud Infrastructure Object Storage Classic.
      If you already replicate your data from Object Storage Classic, it's easy to switch to Object Storage.
    - Details of an existing storage bucket in Oracle Cloud Infrastructure, including the storage bucket name, the namespace in which the bucket resides, and the Oracle Cloud Identifier (OCID) for the tenancy where the bucket resides.

* A user account Oracle Cloud Identifier (OCID) to access the storage bucket from both Oracle Analytics Cloud and the data source (for example, Oracle Fusion Cloud Applications).

Information You Need for Data Replication

Before you start, make sure you have the required details for data replication.

Oracle BI Cloud Connector

- The https://{*fa_url*}/biacm link for your Oracle BI Cloud Connector.

Oracle Fusion Cloud Applications

- The host name and connection details for your Oracle Fusion Cloud Applications instance.

Oracle Cloud Infrastructure Storage

- The host name, storage service name, and container name of your Oracle Cloud Infrastructure storage instance (Oracle Cloud Infrastructure Object Storage or Oracle Cloud Infrastructure Classic Storage). Use this information to configure Oracle BI Cloud Connector to point to your Oracle Storage Cloud storage instance.
- The REST Endpoint URL for your Oracle Cloud Infrastructure storage instance.

  The first part of the URL is the Storage host and the last part is the Storage Name/Service Name. For example:

  ```
  https://uscom-{location}.storage.oraclecloud.com/v1/Storage-mystoragecloudclassic
  ```

  To obtain the REST Endpoint URL, go to Oracle Cloud Infrastructure Classic Console, navigate to **Storage Classic**, click **Account** and copy the REST Endpoint URL.
- Details of your object storage bucket in Oracle Cloud Infrastructure, including the name of the storage bucket, the namespace in which the bucket resides, and the Oracle Cloud Identifier (OCID) for the tenancy where the bucket resides.
- The Oracle Cloud Identifier (OCID) for the user with access to the storage bucket.

What Data Can I Replicate?

You can replicate data from these sources.

- Oracle Eloqua
- Oracle Fusion Cloud Applications (with either Oracle Cloud Infrastructure Object Storage or Object Storage Classic)
- Oracle Fusion Cloud B2C Service (RightNow)
- Oracle Talent Acquisition Cloud (Taleo)

What Target Databases Can I Replicate Data Into?

You can replicate data into these types of database.

- Oracle Autonomous Data Warehouse
- Oracle Autonomous Transaction Processing
- Oracle Database

What Replication Tasks Can I Do?

You can perform numerous data replication tasks.

- Create data flows to replicate your data (known as replication data flows).
- Schedule replication data flows to perform regular incremental updates.
- Limit the data that you replicate using a filter.

What Privileges and Permissions Are Required?

Make sure you have the required privileges and permissions for data replication.

To replicate data, you must have the BI Service Administrator application role or some other role that includes BI Service Administrator.

For Oracle Database, to replicate into the user's own schema, the user needs the following privileges :

- CREATE SESSION
- CREATE TABLE

For Oracle Database, to replicate data into other schemas within the target database, the user needs all of the following privileges:

- CREATE ANY TABLE
- SELECT ANY TABLE
- ALTER ANY TABLE
- COMMENT ANY TABLE
- INSERT ANY TABLE
- UPDATE ANY TABLE
- DELETE ANY TABLE
- DROP ANY TABLE
- CREATE ANY INDEX
- ALTER ANY INDEX
- DROP ANY INDEX
- ANALYZE ANY

What Options Are Available when Replicating Data from an Oracle Fusion Cloud Applications Data Source

When you replicate data from an Oracle Fusion Cloud Applications data source, use these options.

Some View Objects record change history (similar to slowly changing dimensions). To replicate the change history, click **Include History** on the replication setup dialog.

Keep replicated data synchronized with the source data using the **Include Deletions** option on the replication setup dialog. If you select **Include Deletions** and a record is deleted from the source data, it's also deleted from the target database.

To synchronize data, you use the **Include Deletions** option in incremental data loads (where the Load Type option is **Incremental**). In full data loads, the target table rows are deleted before the replication starts.

With Custom View Objects, you can replicate data in any custom view using the **Add a custom view object** option on the replication setup dialog. Enter the full path and name of the view, for example, FscmTopModelAM.TaskDffBIAM.FLEX_BI_TaskDFF, then click **Add** to add the view to the **Replicate Objects** list so you can select fields.

Replicate Your Data

In data replication, use a replication flow to copy data from a data source to a data target for analysis in Oracle Analytics Cloud. For example, you might copy data from an Oracle Fusion Cloud Applications data source to Oracle Autonomous Data Warehouse.

1. Set up a connection for your data source:
    a. From the Home page, click **Create**, then **Replication Connection**, and then select the type of data source you want to copy.

       For example, to replicate data from an Oracle Fusion Cloud Applications data source, click **Oracle Fusion Application Storage**.

    b. At the Create Connection dialog, specify the connection details.

       For example, to replicate data from Oracle Fusion Cloud Applications, specify connection details for your Oracle Cloud Infrastructure Object Storage or Object Storage Classic instance. See Create a Replication Connection For Oracle Fusion Cloud Applications.
2. Set up a connection for your data target:
    a. From the Home page, click **Create**, **Replication Connection**, and then select the type of data source you want to copy the data into.

    b. In the Create Connection dialog, specify the connection details of your data target.

       For example, to replicate to Oracle Autonomous Data Warehouse, click **Oracle Autonomous Data Warehouse**.
3. From the Home page, click **Create**, then click **Data Replication**.
4. In the Create Data Replication-Select Source Connection dialog, select the source connection that you created in Step 1.
5. In the Create Data Replication-Select Target Connection dialog, select the target connection that you created in Step 2.
6. If the replication target has multiple schemas, use the **Schema** list to select the schema to use.
7. In the **Replicate Objects** area, select the object that you want to replicate:
    - Click the check box next to each object that you want to replicate.

      For Fusion Applications data sources, if the view that you want to replicate isn't displayed in the list, click the **Add a custom view object** option below the list. Enter the full path and name of the view, for example, `FscmTopModelAM.TaskDffBIAM.FLEX_BI_TaskDFF`, then click **Add**.
    - When you select a table, you include all attributes by default. Use the check boxes on the right-hand pane to select or deselect attributes.

- To change a primary key, click the key icon and select **Assign Primary Key** or **Reorder Primary Key**. The primary key is used for upsert operations to determine whether a record is inserted or updated.

  To improve indexing, it's best practice to order the columns so that the most selective columns are first and the least selective columns are last. Do this by clicking the **Reorder Primary Key** option from the context menu of any of the primary key columns.

- To use multiple columns as a primary key, select the key icon next to each column to include in the key.

- To replicate a subset of data based on a filter, click **Edit Filter** to display the filter editor and specify a filter expression (without the closing semicolon). The expression format you use depends on the filter language that your data source supports. Common filter languages include SQL, XML, and so on. Refer to the documentation for your data source for details.

Data Source Type	Example filter expressions
Oracle Fusion Cloud Applications	"__DATASTORE__.LookupType not in ('GROUPING_SEPARATOR','HZ_FORMAT_DELIMITERS','ICX_NUMERIC_CHARACTERS')"
Oracle Fusion Cloud B2C Service (RightNow)	lookupname like 'Admin%' id > 2
Oracle Eloqua	'{{Account.Field(M_Annual_Revenue1)}}' > '2000'

  Use the **Validate** option to verify the expression before you click **OK** to save the filter.

- To replicate a subset of data based on a timestamp, click the **Replicate From** calendar icon and specify a start date.

  The **Replicate From** option only applies to tables that have at least one incremental identifier column defined.

- Use the **Load Type** to specify whether to perform an incremental load or a full load.

  If you select **Incremental**, you replicate all data on the first run and on subsequent runs you replicate only new data. Incremental updates require tables with a primary key and at least one incremental identifier column.

  If you select **Full**, the target table is initialized and you replicate all data.

8. Save your replication workbook.
9. To start the data load, click **Run Replication Flow**.

Create a Replication Connection For Oracle Fusion Cloud Applications

To replicate data from Oracle Fusion Cloud Applications, you set up a data replication connection in Oracle Analytics Cloud.

1. In Oracle Analytics Cloud, click **Create**, then **Replication Connection**.
2. Click **Oracle Fusion Application Storage**.
3. Specify these connection details:
   - **Storage Type** - Select **OCI** for Oracle Cloud Infrastructure Object Storage or **Classic** for Oracle Cloud Infrastructure Object Storage Classic.

- **Storage Region** - Specify the region on Oracle Cloud Infrastructure where the storage bucket resides (for example, us-ashburn-1). In the Object Storage API endpoint, the region is specified immediately before `oraclecloud.com`. For example, https://objectstorage.**us-ashburn-1**.oraclecloud.com.
- **Storage Tenancy OCID** - Specify the Oracle Cloud Identifier (OCID) for the tenancy where the bucket resides.
- **Storage User OCID** - Specify the Oracle Cloud Identifier (OCID) for the user that will access the storage bucket.
- **Storage Bucket** - Specify the name of the storage bucket.
- **URL** - Specify the API endpoint for the Fusion Enterprise Scheduler Web Service. For example, `https://<fa-host>/bi/ess/esswebservice` or just the hostname `<fa-host>`.
- **Username** - Specify the username of the Oracle Fusion Cloud Applications user with permissions to access BI Cloud Connector.
- **Password** - Specify the password of the Oracle Fusion Cloud Applications user with permissions to access BI Cloud Connector.
- **Storage API Key** - Click **Generate**, then click **Copy** to create an API signing key. Oracle Analytics Cloud Data Replication uses this key to authenticate when it accesses the object storage bucket.
- **Storage Connection** - Specify the storage connection in BI Cloud Connector Console to use when writing the extracted data. The BI Cloud Connector storage connection must point to the same bucket as the Oracle Analytics Cloud connection.

4. In separate browser window or tab, navigate to Oracle Cloud Infrastructure Console and open the navigation menu. Under **Identity & Security**, click **Domains**, select the identity domain that Oracle Analytics Cloud uses, and then click **Users**. Locate and click the name of the user for your replication user account.
   If you don't see the **Domains** link, click **Users**.
5. Under the **API Keys** section, add these keys:
   - Add the public key for the Data Replication connection that you copied to the clipboard in Step 4.
   - Add the public key that was saved when you created the storage connection in BI Cloud Connector Console on the Configure External Storage page.
6. Return to the Oracle Analytics Cloud browser window or tab, and on the Oracle Fusion Application Storage dialog click **Save**. If you've entered the information correctly, the connection is saved.

Replicate Your Data Regularly

In data replication, you can schedule replication flows to run regularly. For example, if your source data changes weekly, you might replicate your data once per week to keep it up-to-date.

1. In the Home page, click **Navigator**, then click **Data**, then click **Data Replications**.

   A list of replication flows that you can schedule is displayed. If you haven't already created a replication flow, do that first.
2. Right-click the replication flow that you want to execute regularly and click **New Schedule**.

3. In the Schedule dialog, specify when to start the replication flow and how often you want it to run.
4. To monitor the progress of your scheduled jobs, in the Home page, click **Navigator**, then click **Jobs**.
5. To change the schedule, right-click the replication flow that you scheduled, click **Inspect**, then click **Schedule** and make your changes.

Modify a Replication Flow

In data replication, you can change how your data is replicated by modifying the replication flow that loads your data.

1. In the Home page, click **Navigator**, then **Data**, then **Data Replications**.
2. Right-click the replication flow that you want to modify, and click **Open**, and make your changes.

Monitor and Troubleshoot a Replication Flow

In data replication, you can monitor a replication flow to check progress and troubleshoot issues.

See Top FAQs for Data Replication.

If an error occurs during a replication flow and the replication is run again, then the replication starts from where the previous error was encountered and any duplicate rows are removed.

1. To monitor jobs associated with a replication flow:
   a. In the Home page, click **Navigator**, then **Jobs**.
   b. Review the current status of your job in the **Status** column.
   c. To view job history, right-click the job, click **Inspect**, then click **History**.
   d. To stop a job, right-click the job and click **Cancel**.
2. To investigate or troubleshoot the last data load for a replication flow:
   a. In the Home page, click **Navigator**, then **Data**, then **Data Replications**.
   b. Right-click the replication flow that you want to investigate, click **Inspect**, then click **Run Details**.

   The History dialog shows the execution time, status, and duration of each replication run. To view more details, click the replication run and select the **Status** tab to view the number of rows loaded for each table, the number of rows rejected, start time, duration, status, and warnings for each table.

Move Replicated Data to a Different Target Database

In data replication, if you change the target database, you can migrate the current data to the new database, and reconfigure your connections to replicate to your new database.

For example, you might need to do this if your organization migrates from Oracle Cloud Infrastructure - Classic to Oracle Cloud Infrastructure.

1. Make sure that your new target schema has the required privileges and permissions. See What Privileges and Permissions Are Required?.

2. Copy the replicated tables and the following replication system tables to the new target schema.
   - All replicated tables (along with corresponding indexes, constraints)
   - REPL$_ERR_SUMMARY
   - E$_*
   - SDS_*
3. Configure a replication connection for the new target database.
   - If your new target database is of the same type as your old target database, then simply edit your existing replication connection and update the connection details.
     In the Connections page, locate the replication connection, click **Inspect**, and use the General tab to update the details for the new target database.
   - If your new target database is of a different type, then create a new replication connection for that type and specify the connection details.
     Click **Create**, then **Replication Connection**, select the appropriate type, and specify the details.
4. Update each data replication entry that is configured to use the old target database connection details.
   a. Open the **Data Replications** page, and select the data replication you want to edit.
   b. In the **Replication Target** area:
      - If your new target database is of the same type as your old target database, make sure that **Schema** is set correctly for the new database.
      - If your new target database is of a different type, click **Select** and select the new target connection, then click **Schema** and set correctly for the new database.
5. From the Home page, navigate to **Data** and then **Connections**. Locate the replication connection for your target database, click **Inspect**, and use the Tables tab to verify the table information for the new target schema.

You can now resume data replication in incremental mode into the new database.

Part IV
Reference

This part provides reference information.

Appendices:

- Frequently Asked Questions
- Performance Tips
- Troubleshoot

A

Frequently Asked Questions

This reference provides answers to common questions asked by administrators responsible for configuring and managing Oracle Analytics Cloud.

Topics:

Top FAQs to Configure and Manage Oracle Analytics Cloud

The top FAQs for configuring and managing Oracle Analytics Cloud are identified in this topic.

Can I see how many users are currently signed in?

Yes. Display the Home page , click **Console**, and then click **Sessions and Query Cache**. See Monitoring Users Who Are Signed In.

Where can I find the public key for my service?

Display the Home page, click **Console**, **Connections**, click the menu icon, and then click **Get Public Key**.

Is there a storage limit for datasets?

Oracle Analytics Cloud has a fixed 250 GB storage quota for data files that's shared across all users. The limit for an individual user is 50 GB. When users leave the organization, administrators can delete their unused datasets to free up storage space.

Can I see the SQL generated by an analysis and analyze the log?

Yes. Display the Home page, click **Console**, and then click **Sessions and Query Cache**. See Analyzing SQL Queries and Logs.

What happens to my content if I terminate my subscription to Oracle Analytics Cloud?

Before you terminate your subscription, take a snapshot of your system, that is, the latest semantic model, catalog content, application roles, and so on. If you subscribe to Oracle Analytics Cloud in the future, you can import content from this archive file.

See Uploading Snapshots and Restoring from a Snapshot.

Can I change the default logo and dashboard style for the whole deployment?

Yes. When logged in as Administrator, navigate to the Classic Home page, click the user profile icon, click **Administration**, and then click **Manage Themes**. Create a new theme including dashboard properties such as logo, branding, page colors, and link colors, and click **Active**. This new style is applied for all new browser sessions.

Can I upload a semantic model RPD file from Oracle BI Enterprise Edition and Oracle Analytics Server?

Yes. If you've modeled your business data with Oracle BI Enterprise Edition or Oracle Analytics Server, then you don't need to start from scratch in Oracle Analytics Cloud.

- **Semantic Modeler** - You can upload your RPD file to Semantic Modeler. See Import a File to Create a Semantic Model.

- **Model Administration Tool** - You can upload your RPD file to Model Administration Tool. See Upload Semantic Models from Oracle BI Enterprise Edition and Oracle Analytics Server.

Can I configure a *private* mail server to deliver reports and visualizations from Oracle Analytics Cloud?

No, you can't connect Oracle Analytics Cloud to a *private* mail server. Oracle Analytics Cloud supports only SMTP mail servers that are accessible from the public internet. See Set Up an Email Server to Deliver Reports. For example, you can use the SMTP mail server that's available with Oracle Cloud Infrastructure. See Use the SMTP Mail Server in Oracle Cloud Infrastructure for Email Delivery.

If your publicly accessible SMTP mail server uses an allowlist to restrict access, find the Gateway IP Address of your OAC instance and add it to your mail server's allowlist. See Find the Gateway IP Address of your OAC Instance.

I want to connect Oracle Analytics Cloud to a private data source over a private access channel. How do I do this?

You use Oracle Cloud Infrastructure Console to set up a private access channel for Oracle Analytics Cloud and configure access to your private data sources. See Connect to Private Data Sources Through a Private Access Channel and Top FAQs for Private Data Sources in *Administering Oracle Analytics Cloud on Oracle Cloud Infrastructure (Gen 2)*.

Top FAQs to Back Up and Restore User Content (Snapshots)

The top FAQs for backing up and restoring user content are identified in this topic.

What do I need to back up?

Oracle recommends that you regularly back up all the content that users create to a file called a *snapshot*. User content includes catalog content such as reports, dashboards, data visualization workbooks, pixel perfect reports, datasets, data flows, semantic models, security roles, service settings, and so on.

If something goes wrong with your content or service, you can revert to the content you saved in a snapshot. Snapshots are also useful if you want to move or share content from one service to another.

To back up user content, see Take a Snapshot.

To restore user content, see Restore from a Snapshot.

How often should I take snapshots?

Oracle recommends that you take snapshots at significant checkpoints, for example, before you make a major change to your content or environment. In addition, Oracle recommends that you take regular weekly snapshots or at your own defined frequency based on the rate of change of your environment and rollback requirements.

You can keep up to 40 snapshots online and export as many as you want offline (that is, to your local file system or to your own Oracle Cloud storage).

When should I export snapshots?

Oracle recommends that you adopt a regular practice of exporting snapshots to offline storage. You can export snapshots to your own file system and store them locally. Or, you can export snapshots to your own Oracle Cloud storage. See Export Snapshots.

If you regularly export large snapshots (over 5GB or larger than the download limit of your browser), Oracle recommends that you set up a storage bucket on Oracle Cloud and save your snapshots to cloud storage. This way, you can avoid export errors due to size limitations and timeouts that can sometimes occur when you export snapshots on your local file system. See Set Up a Oracle Cloud Storage Bucket for Snapshots.

Can I use APIs to automate snapshot operations?

Yes. See Manage Snapshots Using REST APIs.

Can Oracle help to restore lost content?

No. Customer data backup, retention, and recovery or restoration is the sole responsibility of the customer using snapshots (BAR files), catalog archives (CATALOG files), and export archives (DVA files). Oracle-managed infrastructure backups are created to maintain the service in the event of an infrastructure incident. Oracle-maintained backups aren't provided for user-created data management. See Oracle PaaS and IaaS Public Cloud Services - Pillar document.

Oracle recommends that you use the Logging service in Oracle Cloud Infrastructure to track and troubleshoot content changes between snapshots. When you enable usage and diagnostic logs, you can monitor create, update, delete, and permission change operations on all catalog objects, such as classic analyses, dashboards, workbooks, pixel-perfect reports, folders, datasets, self-service connections, data flows, sequences, scripts, and so on. See Monitor Usage and Diagnostic Logs.

Top FAQs for Disaster Recovery

The top FAQs for disaster recovery are identified in this topic.

What capabilities in Oracle Analytics Cloud can I use to implement a disaster recovery plan?

Oracle Analytics Cloud offers several features that you can implement to minimize disruption for users:

- **Snapshots:** Oracle recommends that you back up user content regularly to a snapshot. If required, you can restore the content in your snapshot to a redundant Oracle Analytics Cloud environment. See Take Snapshots and Restore.
- **Pause and resume:** You can deploy a passive backup Oracle Analytics Cloud environment, and use the pause and resume feature to control metering and minimize costs. See Pause and Resume a Service.
- **Diverse regional availability**: Oracle Analytics Cloud is available in several global regions. You can deploy a redundant Oracle Analytics Cloud environment in a different region to mitigate the risk of region-wide events. See Data Regions for Platform and Infrastructure Services.

Where can I find information about disaster recovery?

See Technical Papers. For additional help or assistance, engage consulting resources (Oracle or a third party) or reach out to Oracle Analytics Community.

Top FAQs to Index Content and Data

The top FAQs for indexing semantic models and catalog content are identified in this topic.

What can I index?

Administrators can choose to index:

- Semantic models - Subject area, dimensions names and values, and measure names and values. You must be an administrator to modify the semantic model indexing preferences.
- Catalog content - Workbooks, analyses, dashboards, and reports. You must be an administrator to modify the catalog indexing preferences.
- File-based datasets - You can index a file-based dataset so that specified users can build visualizations with a dataset's data. Or you can certify a file-based dataset so that the specified users can search for its data from the home page. Any user can set a file-based dataset to index or certify the dataset.

See Configure Search Indexing.

What is a certified dataset?

Any user can upload a spreadsheet to create a dataset, and uploaded spreadsheets can be of varying quality. When a user certifies a shared dataset, it means that the user is confirming that the dataset contains good, reliable data that other users can search for from the home page. When you and users who've been granted access to datasets search from the home page, the data in a certified dataset is ranked high in the search results.

How often should I schedule a crawl?

The index updates automatically as users add or modify catalog content. By default, the catalog and semantic model crawl run once per day. In some cases you might want to change this default after importing a BAR file, if automatic indexing didn't run, or if your data updates occur less frequently (for example, monthly).

Can I index content in languages other than English?

Yes. You can index content in 28 languages.

- **Semantic models and catalog content** - You can generate indexes for multiple languages at the same time. Go to the **Search Index** page and **Ctl-click** to select one or more of the 28 available languages. For example, if your company's headquarters are in the United States and you have offices in Italy, you might select **English** and **italiano** to create indexes in both English and Italian. See Configure Search Indexing.
- **Datasets** - You can index a dataset for a single language at a time. Go to the **Inspect** dialog for the dataset and select one of the 28 available languages. See Index a Dataset.

> **Note:**
>
> If your data is in English and your index language is English, you can't search for the data in a different language such as French. For example, if your data includes English product names (such as *chair*, *desk*, *matches*), you can't search using French product names (such as *chaise*, *bureau*, *alumettes*).

Are there considerations when indexing subject areas with large tables?

You can index any size table, but big tables take longer to index. For large subject areas that have many tables or large tables, consider indexing only the columns your users need to search for.

Because index files are compact, it's rare to exceed the storage space that Oracle Analytics reserves for indexing.

How are search results ordered?

Search results are listed in this order:

1. Semantic model (semantic layer)
2. Certified datasets
3. Personal datasets
4. Catalog items (workbooks, analyses, dashboards, and reports)

Should I use Don't Index to secure my catalog items?

No. Oracle doesn't recommend setting the **Crawl Status** field to **Don't Index** as a way of hiding a catalog item from users. Users won't see the item in search results or on the home page, but are still able to access the item. Instead, use permissions to apply the proper security to the item.

How do I build an index most effectively?

For best results only index the subject areas, dimensions, catalog items, and certify datasets that users need to find. Indexing all items yields too many search results. Oracle recommends that you deselect all semantic model and catalog items and then select only the items that the user needs. You can then add items to the index as needed.

Why are there many select distinct queries on the database during indexing?

This is most likely because the semantic model's indexing option is set to **Index**. When you set this option to **Index**, the metadata and values are indexed, which means that during indexing the select distinct queries are run to fetch the data values for all of the columns in all of the subject areas that are configured for indexing.

If this system overhead isn't acceptable or if users don't need the additional functionality to visualize data values from the search bar on the Home page, then go to the **Console**, click **Search Index**, and set the indexing option to **Index Metadata Only**. Setting this option to **Index Metadata Only** indexes dimension and measure names, only, and doesn't run select distinct queries.

Top FAQs to Configure and Manage Publisher

The top FAQs for configuring and managing Publisher are identified in this topic.

How do I configure a delivery channel for Publisher?

Use the Publisher administration page to add a connection to a delivery channel and test the connection.

How do I restrict access to delivery channels?

You can configure role-based access for delivery channels. In the delivery channel configuration page, from the **Available Roles** list, select one or more roles you want to provide access to the delivery channel, and add them to the **Allowed Roles** list.

How do I configure FTP and SFTP delivery retry?

If you set the **Enable FTP/SFTP delivery retry** runtime property to true, Publisher makes another attempt to deliver reports to the FTP or SFTP delivery channel, if the first attempt fails.

How can I enable the viewing of audit data in Publisher?

Use the **Enable Monitor and Audit** property in the Publisher Server Configuration page to enable or disable viewing of the audit data of Publisher catalog objects.

How do I upload the configuration-specific files?

Use Upload Center in the Publisher system administration page to upload and manage configuration–specific files for font, digital signature, ICC profile, SSH private key, SSL certificate, and JDBC client certificate.

What is the size limit for emails?

15MB is the maximum size of an e-mail message that Oracle.com will accept from the Internet or deliver from Oracle.com. That means the sum of the sizes of message text, headers, attachments, and any embedded images must be less than 15MB.

Top FAQs for Data Replication

Use these FAQs to learn more about data replication tasks including extracting and replicating data from Oracle Fusion Cloud Applications, uploading data to or downloading data from object storage, and loading data to the target database.

What can I do if a data replication job runs for a long time?

If a job runs for a long time, try the following:

- If the replicated view object (VO) isn't an extract VO (that is, the VO name doesn't end with `ExtractPVO`), then use the Data Replication editor to exclude unnecessary `LastUpdateDate` columns from the new data identifier of the VO.
- If the long running view object has more than one `LastUpdateDate` column selected for the new data identifier or incremental filter:
  - Select the **LastUpdateDate** option for the primary entity of the VO.
  - Deselect the **LastUpdateDate** option for columns from supplementary entities (non-functional).

- If you can't deselect the option for the new data identifier, then follow these steps:
  1. Cancel the job.
  2. Drop the Staging table TMP$.
  3. Navigate to the main menu, then click **Data**, then click **Connections**.
  4. Click **Target Connection**, select **Inspect**, then click the **Tables** tab.
  5. Select the table, then select the **Reset Updated Time**, then select **Reload all data**.

What can I do to improve the performance of the data replication job?

To improve performance, try the following:

- Only replicate with extract data stores (that is, View Objects (VOs) with "ExtractPVO" in the VO name.
- If the replicated VO is not an extract VO (that is, the VO name doesn't end with "ExtractPVO"), then use the Data Replication editor to exclude any unnecessary `LastUpdateDate` columns from the new data identifier of the VO.
- Make sure that the Public View Object (PVO) load type isn't set to `FULL` mode unnecessarily. If the PVO has at least one column configured as a `Key` column and one `LastUpdateDate` column configured as new data identifier, then set the load type to `Incremental`.
- Remove unwanted columns that are selected or enabled for replication.
- If the replication completes with warnings, check the error table from the target schema and make appropriate changes to the PVO configuration.
- Make sure that the PVO in the Oracle Fusion Cloud Applications data source has data records deleted frequently. If not, then clear the **Include Deletions** option.
- If a job fails or is cancelled, drop the staging and error table before running the job again.

Why does the time to run the same data replication differ on certain days?

The time that it takes to run a data replication job can vary due to various factors such as these:

- Oracle Autonomous Data Warehouse performance might affect the timings on a particular day.
- An Oracle Analytics Cloud instance running the replication job might be temporarily unavailable due to scheduled maintenance.

Is there a limit to the number of tables that I can add to a data replication job?

No, there's no limit to the number of tables that you can add to a job. You can execute no more than three replication jobs concurrently, but you can schedule any number of jobs concurrently. For example, three jobs can execute concurrently while other jobs are in the queue.

Is there a limit to the amount of data or number of rows that one data replication job can process?

No, a data replication job can process any amount of data or number of rows.

What other tips should I follow for data replication?

Follow these tips for data replication:

- Create fewer replications with more PVOs in each. Use the recommended extract PVOs.

- In the replication definition, deselect unwanted columns from the PVO.
- Use the "low" database service in Oracle Autonomous Data Warehouse for maximum concurrency.
- Schedule replication jobs to run at times where there's less load on Oracle Autonomous Data Warehouse.
- Keep the load type of the POVs set to the default, which is incremental mode.

B

Performance Tips

This topic contains information to help you analyze and optimize performance in Oracle Analytics Cloud.

Topics:

Gather and Analyze Query Logs

Query logs contain powerful, diagnostic information that allows administrators to analyze and troubleshoot issues related to query performance, error scenarios and wrong results. When you enable query logs in Oracle Analytics, information about parsing, optimization, execution plans, physical query, summary statistics, and so on are written into the query log.

Accessing Query Logs

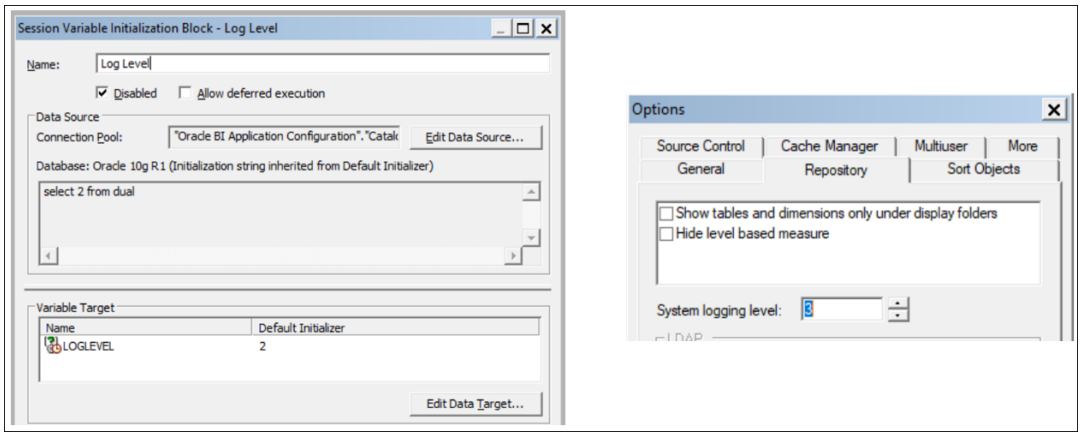
Query logs are written serially in the same order of execution of queries across the system. Each session and request is identified by a unique ID. Administrators can access these query logs from the **Session and Query Cache** page in the Console. To learn how to access this page, see Analyze SQL Queries and Logs.

> **Note:**
>
> Workbook authors can also access query information such as query time, server time, and streaming time for visualization components in their workbooks. See Accessing Query Logs for a Workbook, at the end of this topic.

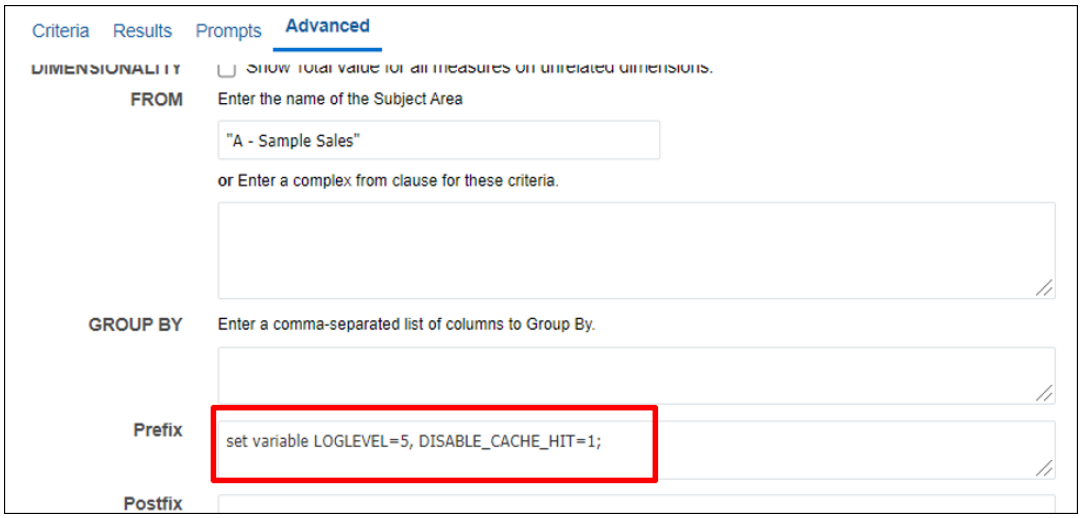
Query Log Levels

- Log level determines the detail and amount of log generated.

- You can set the log level at system, session, or report level.
- You can define the global log level for your semantic model (RPD) using the **System logging level** property (under Tools, Option, Repository) or use the session variable.

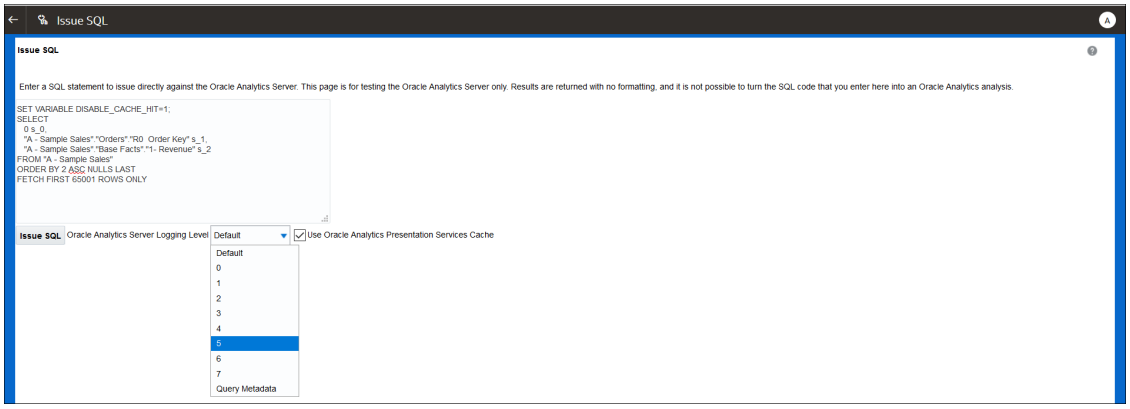


- You can override the log level for a report, by adding the `LOGLEVEL` variable to the **Prefix** property, available in the **Advanced** tab for the report.
- To ensure you get complete logs by avoiding cache hits, you can include the variable `DISABLE_CACHE_HIT=1` alongside the `LOGLEVEL`.



- Log level (`LOGLEVEL`) values range between 0-7.
  - `LOGLEVEL=0` means logging is disabled.
  - `LOGLEVEL=7` is the highest logging level used mainly by the Oracle development team.
  - `LOGLEVEL=2` is suitable for performance tuning and basic understanding.
  - `LOGLEVEL=3` is required to troubleshoot row-level data security filters.
- Depending on the log level, query logs contain information about the query including the logical request, navigation and execution plan, physical query generated, execution time, rows and bytes retrieved at different execution nodes, and cache-related information.

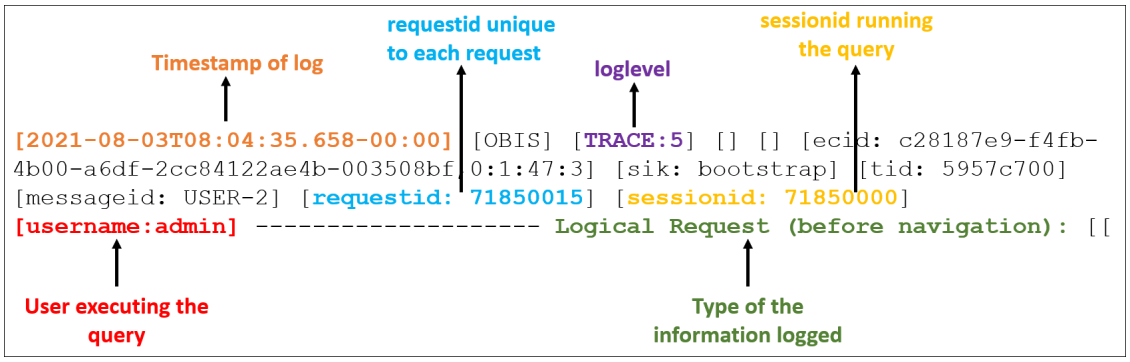
Administrators can extract query logs from the **Issue SQL** page in the Console by running the query with the appropriate `LOGLEVEL` and variables settings.



Reading a Query Log

The **Session and Query Cache** page lists all the queries and sessions that are currently active. Administrators can access this page from the Console.

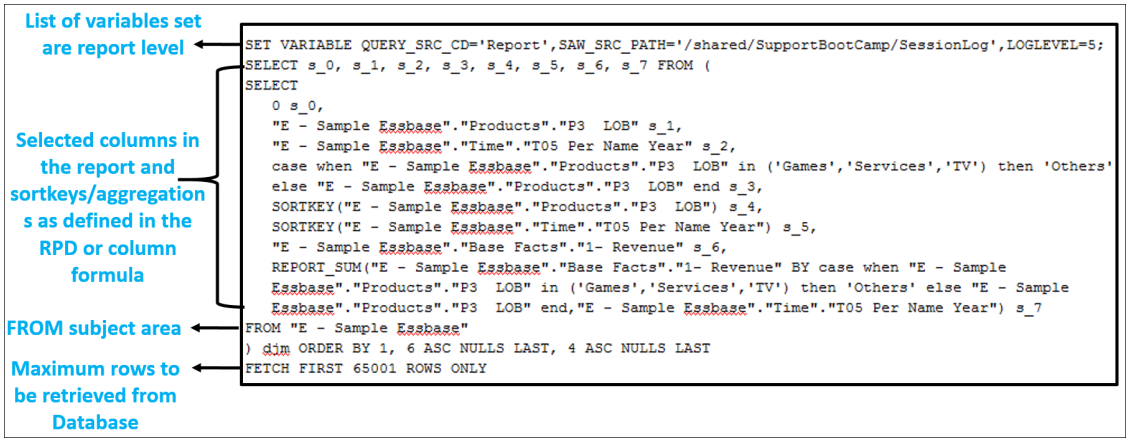
Each entry on the page provides access to the query log for a particular query, at the level set (that is, at the semantic model, session or report level).



Each request has a unique `requestid` in Oracle Analytics.

Logical SQL Query

Here is a sample logical SQL query in Oracle Analytics.



These are some common variables you might see in a logical SQL request:

- `QUERY_SRC_CD`: Origin of the query: Prompt, Report, DV, Issue SQL, and so on.
- `SAW_SRC_PATH`: If the query is saved, path to the query in the catalog.
- `SAW_DASHBOARD`: If the query is included in a dashboard, path to the dashboard in the catalog.
- `SAW_DASHBOARD_PG`: Name of the dashboard page.

Logical Request

The logical request is the translation of a query from the presentation layer to the business model and mapping layer after adding security filters, if any.

```
[2021-08-03T09:20:11.680-00:00] [OBIS] [TRACE:6] [] [] [ecid: c28187e9-f4fb-
4b00-a6df-2cc84122ae4b-00351cba,0:2:18:3] [sik: bootstrap] [tid: 59b82700]
[messageid: USER-2] [requestid: 6bda000a] [sessionid: 6bda0000] [username:
admin] -------------------- Logical Request (before navigation): [[

RqList [1,4]
    0 as c1 GB,
    D3 Offices.D2  Department as c2 GB,
    1- Revenue:[DAggr(F0 Sales Base Measures.1- Revenue by [ D3 Offices.D2
Department, D3 Offices.D2k  Dept Key] )] as c3 GB,
    2- Billed Quantity:[DAggr(F0 Sales Base Measures.2- Billed Quantity by [ D3
Offices.D2  Department, D3 Offices.D2k  Dept Key] )] as c4 GB,
    D3 Offices.D2k  Dept Key as c5 GB
OrderBy: c2 asc NULLS LAST
```

Based on the logical request, Oracle Analytics decides whether the query hits an existing cache or must be retrieved from the database.

```
[2021-05-30T18:45:24.131+05:30] [OBIS] [TRACE:5] [] [] [ecid: ] [sik: ssi] [tid:
406c] [messageid: USER-21] [requestid: 6e00020] [sessionid: 6e00000] [username: SE] -
------------------- Cache Hit on query:
Matching Query:
```

Execution Plan

The execution plan is the transformation of the actual logical request into an optimized plan for execution. This includes a shipping plan for each operation, and whether it's performed in the database or in Oracle Analytics. When an operation is processed in Oracle Analytics, the query log indicates `[for database 0:0,0]`.

```
sum(F10 Billed Rev.Units by [ D30 Offices.Dept_Key] ) as c1 GB [for database
3023:85:01 - Sample App Data (ORCL),78],
sum(F10 Billed Rev.Revenue by [ D30 Offices.Dept_Key] ) as c2 GB [for database
3023:85:01 - Sample App Data (ORCL),78]

 sum_SQL99(D1.c56 by [ D1.c1, D1.c2, D1.c3, D1.c4]  at_distinct [ D1.c1, D1.c2,
D1.c3, D1.c4, D1.c32] ) as c39 [for database 0:0,0],
sum_SQL99(D1.c59 by [ D1.c1, D1.c2, D1.c3, D1.c4]  at_distinct [ D1.c1, D1.c2, D1.c3
D1.c4, D1.c32] ) as c40 [for database 0:0,0]
```

Operation shipped to the database

Processed within OBI Server

During query execution, Oracle Analytics exactly traverses through this tree. In detailed logs, information about the rows processed is available at every node of the execution tree.

```
[2021-08-02T07:34:13.596+00:00] [OBIS] [TRACE:7] [USER-20] [] [ecid:
005m8uOVozg4ulj5x3T4iW0003SQ0006Kc,0:3:3:2] [sik: ssi] [tid: 145b0700]
[messageId: USER-20] [requestid: d596000c] [sessionid: d5960000] [username:
admin] -------------------- Execution Node for logical request hash 3ac332c2
: <<3385229>> Post-aggr Projection, Close Row Count = 123, Row Width = 1040
bytes, Temporary file size = 0 bytes
```

Physical or Database Requests

Based on the execution plan, Oracle Analytics generates physical SQL to be executed on the specified database. There could be one or more requests sent to one or more databases.

```
[2021-08-03T09:20:11.691-00:00] [OBIS] [TRACE:6] [] [] [ecid: c28187e9-f4fb-
4b00-a6df-2cc84122ae4b-00351cba,0:2:18:5] [sik: bootstrap] [tid: 59b82700]
[messageid: USER-18] [requestid: 6bda000a] [sessionid: 6bda0000] [username:
admin] -------------------- Sending query to database named 01 - Sample App
Data (ORCL) (id: <<1914627>>), connection pool named Sample Relational
Connection, logical request hash 800dcd6b, physical request hash 8f6d13dd:
[[
```

For every physical request sent to the database, there is a log of the number of rows and bytes retrieved.

```
[messageid: USER-26] [requestid: 6bda000a] [sessionid: 6bda0000] [username:
admin] -------------------- Rows 10, bytes 10640 retrieved from database query
id: <<1914627>>, physical request hash 8f6d13dd
```

When there are multiple queries, you can use the query ID (in this example, `1914627`) to match the exact query logged in the section `Sending query to the database`. This allows you to map the query with rows retrieved when there are multiple database requests.

One report could send multiple queries to one or more databases depending on the report structure and the semantic model definition. For example, in this query log 3 physical queries were sent to the database.

```
[messageid: USER-29] [requestid: 6bda000a] [sessionid: 6bda0000] [username:
admin] -------------------- Physical Query Summary Stats: Number of physical
queries 3, Cumulative time 8.178, DB-connect time 0.001 (seconds)
```

The log provides similar rows processed information for all the nodes in execution plan. Finally, the rows sent to the client is logged.

```
[messageid: USER-24] [requestid: 6bda000a] [sessionid: 6bda0000] [username:
admin] -------------------- Rows returned to Client 10
```

The log also includes a final summary of statistics that includes the complete execution time. You can correlate the time here to analyze and investigate performance issues.

```
Logical Query Summary Stats: Elapsed time 2.934, Total time in BI Server 2.932, Execution time 2.929,
Response time 2.930, Compilation time 0.694 (seconds)
```

Summary Statistics

Several timing statistics appear in the query log summary.

- **Elapsed time** - Total elapsed time from when the logical query is received until the client closes the cursor. If the client allows the user to scroll through the result, as Oracle Analytics does, then the cursor may stay open for a long time until the user either navigates to another page or logs out.
- **Compilation time** - Time that Oracle Analytics uses to generate the execution plan and physical queries from the logical SQL query.
- **Total time in BI Server** - Total amount of time that the client is waiting for a response. This includes physical query execution time, wait time during fetching, and time spent in Oracle Analytics for internal execution.
- **Execution time** - Time from when the logical query is received by Oracle Analytics until the logical query execution completes. This doesn't include any time spent after the logical query execution is complete when the client is fetching results.
- **Response time** - Time from when the logical query is received by Oracle Analytics until the first row is returned to the client.

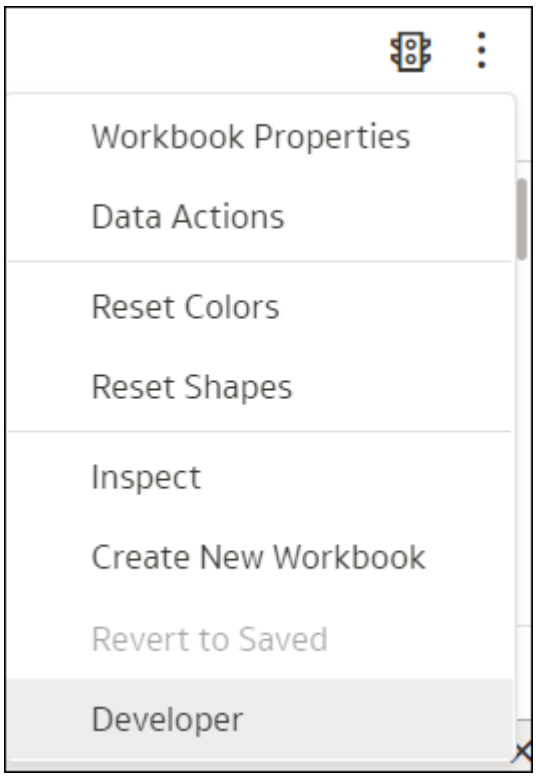
Query Log Considerations

- Single-threaded activity. Under adverse circumstances, you might experience performance bottle neck for log levels greater than 2.
- Times listed and computed are for when entries are written to the log and this is almost always when the event occurred (that is, the activity that initiated the log entry). Unless, there are other bottlenecks that impact logging.
- Query logging is diagnostic and not intended for collecting usage information. To learn about usage tracking, see Track Usage.

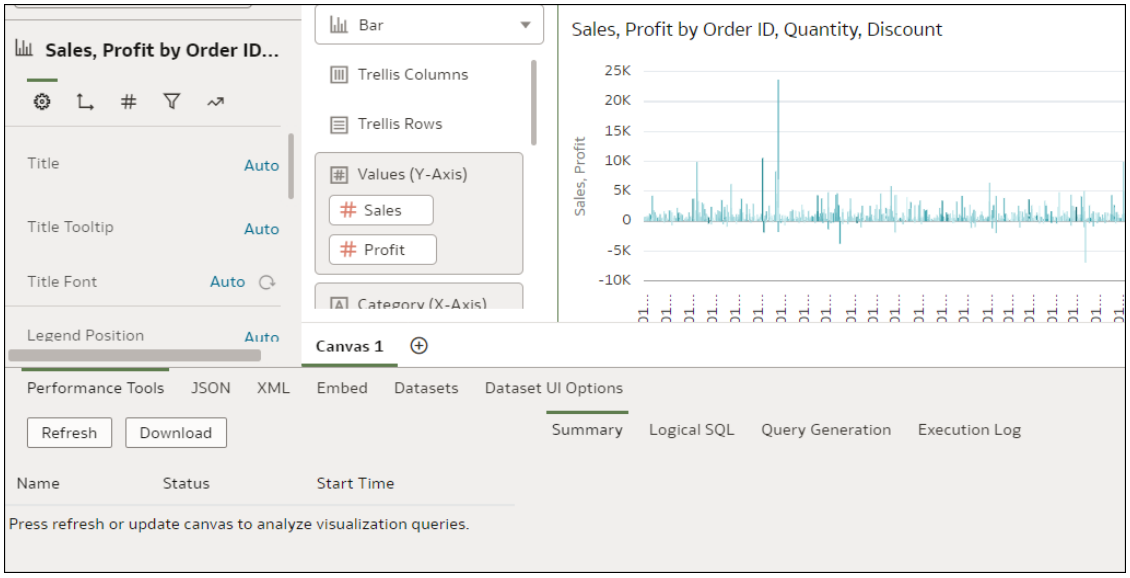
Accessing Query Logs for a Workbook

Only administrators can access logs through the **Session and Query Cache** page in the Console. However, content authors can access log information for visualization queries in their workbooks through the **Developer** menu and this is useful tool for authors who want to troubleshoot query performance. To access the performance tool for workbooks (**Developer** menu option), users must switch on **Enable Developer Options** which is in the **Advanced** menu under **My Profile**.

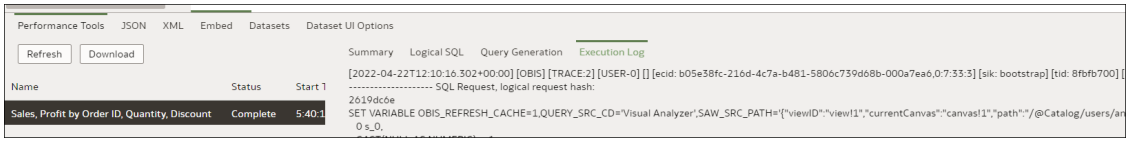
When enabled, the **Developer** menu option displays in the workbook menu.



The **Developer** option enables users can view and analyze various logs on the fly for any visualization on a canvas. A separate frame appears below the canvas that has different tabs for each type of information. By default, logs are not populated or refreshed when the visualization is run.



Select the visualization you want to analyze and click **Refresh** to generate the logs. Once refreshed, various information related to the visualization displays and you can analyze the log information for the specific visualization. To analyze multiple visualizations, you must refresh them individually and analyze them one after the other.



With the **Developer** option, content authors can analyze a range of information, such as performance logs, JSON, XML and also dataset-related information. This means they can analyze logs without the need for administrator access to the **Session and Query Cache** page.

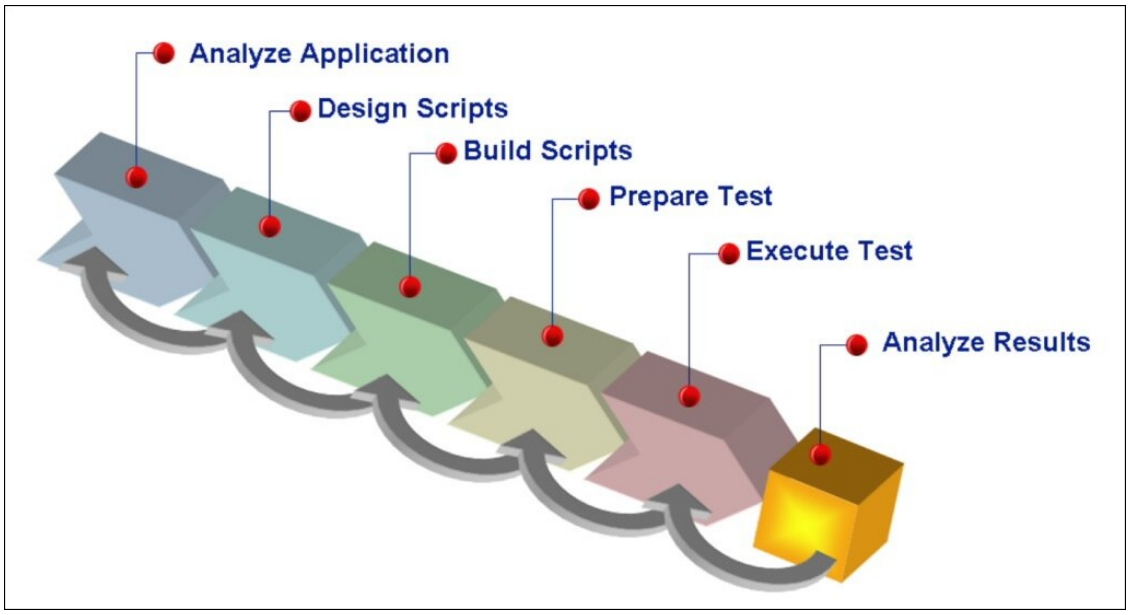
> **Note:**
>
> The **Developer** menu is available only to workbooks. For classic analyses and dashboards, you access query logs through the **Session and Query Cache** page.

Test Performance with Apache JMeter

Performance testing is an essential step to ensure that Oracle Analytics Cloud can handle the expected workload without compromising performance. You can use Apache JMeter, an open-

source tool for performance testing, to simulate real-world user experience and measure the performance of your Oracle Analytics Cloud reports.

This diagram illustrates the performance testing process for Oracle Analytics Cloud.



1. **Determine performance metrics based on realistic scenarios.**

   To determine performance metrics, you must understand the requirements of Oracle Analytics Cloud and the expectations of your users. For example, if you expect Oracle Analytics Cloud to handle a high volume of users, performance metrics should focus on response time and throughput. Similarly, if you expect Oracle Analytics Cloud to handle a large amount of data, performance metrics should focus on resource utilization. After you've defined the performance metrics are defined, you can set the performance goals.

2. **Design a test plan for your metrics.**

   Your test plan must be designed to simulate real-world scenarios and workload. This means you must identify the number of unique virtual users, the duration of the test, and the think-time between the requests. Set the number of unique virtual users to a realistic value that simulates your actual expected workload. Similarly, set the duration of the test to a realistic value that represents the period of time your users will run reports. Think-time is the time a user takes between two requests, so you must also set a realistic think-time value to simulate your real-world scenario.

   You must also include pacing in the script, to ensure that requests are sent at a realistic pace. To achieve accurate and practical results, Oracle recommend that you use different think times for different activities instead of using a fixed think time. For example, a short think time of 20 seconds is recommended for simple dashboard navigation, while a medium think time of 60 seconds for prompt selections. Similarly, when displaying reports, Oracle advise you use a large think time of 120-200 seconds with randomization. This approach ensures that the test accurately reflects real-world user behavior and produces reliable results.

3. **Correlate dynamic values.**

   Correlation involves capturing and replacing dynamic values in the script, such as access tokens, session state IDs, CSRF tokens, and other dynamic parameters. Failure to correlate these values can lead to errors and inaccurate results. Correlation is essential for cloud-based applications like Oracle Analytics Cloud because they use dynamic values to maintain the session and handle user requests. To make this process easier, you can

download a sample correlation rules library COR file for Oracle Analytics Cloud , which contains a pre-built set of correlation rules that you can use to create test script for Oracle Analytics Cloud.

4. **Record and replay test scripts.**

   JMeter provides a feature to record user actions and convert them into test scripts. You can use this feature to record user actions in Oracle Analytics Cloud and create test scripts that simulate real-world scenarios. You can replay the recorded scripts multiple times to validate the report's performance. You must design the test scripts to simulate real-world scenarios, such as searching for data, generating reports, and visualizing data.

5. **Test with a realistic workload.**

   To simulate a realistic workload, you must set the number of virtual users to a realistic value that simulates the expected workload. Then, you can gradually increase the workload to identify the maximum capacity of the application. Oracle recommends that you run the test for at least one hour to simulate real-world scenarios and design the workload to simulate peak usage periods, such as the end of the month or the end of the fiscal year.

6. **Analyze the results.**

   When the test is complete, you analyze the results to identify performance bottlenecks, such as slow response times, high error rates, or excessive query capacity utilization. You can do this using metrics available through the Oracle Cloud Infrastructure Monitoring service and JMeter's built-in analysis tools. Once you've identified performance bottlenecks, you can act on your findings to improve the performance of the reports. This can include optimizing queries, improving system settings configurations, or scaling up the number of OCPUs.

   If your reports fail to meet your performance goals, you can optimize them by identifying and addressing the bottlenecks. JMeter's listeners can help you identify the slowest requests and you can analyze logs to determine the root cause of performance issues. You might need to optimize your database queries, adjust your cache settings, or scale up your infrastructure to improve Oracle Analytics Cloud performance.

Follow these guidelines to ensure that Oracle Analytics Cloud meets your performance requirements and provides a fast, seamless experience for your organization. With regular performance testing, you can identify and address issues before they impact your users.

C

Troubleshoot

This topic describes common problems that you might encounter preparing data in Oracle Analytics Cloud and explains how to solve them.

Topics:

Troubleshoot General Issues

This topic describes common problems that you might encounter and explains how to solve them.

I can’t sign in to Oracle Analytics Cloud

You’re likely trying to sign in using the incorrect credentials. You must sign in to Oracle Analytics Cloud using the Oracle Cloud Identity Domain credentials that were mailed to you from Oracle or provided by your administrator. You can’t sign in to Oracle Analytics Cloud using your account credentials for Oracle.com.

I'm having trouble resetting my password

When you sign up to use Oracle Analytics Cloud, you get an e-mail with a temporary password. Be careful if you copy and paste this password. If you accidentally include a blank space at the start or end of it when copying, then the password won't be recognized when you paste it in. Make sure that you paste only the password without any blank spaces.

I can’t access certain options from the Home page

Check with your administrator to ensure that you have the correct permissions to access the options that you need.

I see a performance decrease when using Mozilla Firefox

If you use Mozilla Firefox and notice a decrease in the performance of the cloud service, then ensure that the **Remember History** option is enabled. When Firefox is set to not remember the history of visited pages, then web content caching is also disabled, which greatly affects the performance of the service. See Firefox documentation for details on setting this option.

I'm having trouble uploading data from a spreadsheet (XLSX) exported from Microsoft Access

Open your spreadsheet in Microsoft Excel and resave it as an Excel Workbook (*.xlsx).

When you export spreadsheets from other tools the file format can vary slightly. Saving your data again from Microsoft Excel can fix this.

Users can't see the **Auto Insights** option in the Visualize canvas in the workbook editor.

In Console, navigate to System Settings, then Performance and Compatibility, and enable the **Enable Auto Insights on Datasets** option. Then ask dataset developers to select the **Enable Insights** option on the Dataset Inspect dialog for datasets where they require insights. Workbook users can then use the **Auto Insights** option in the Visualize canvas in the workbook editor.

My analysis or workbook times out

You attempt to run an analysis or workbook and find that it times out. You see a message similar to this:

```
[nQSError: 60009] The user request exceeded the maximum query governing execution time.
```

This message is displayed when an Oracle Analytics query spends more than the allotted time communicating with the data source. For performance reasons, the limit for a single query to run is 11 minutes.

Try running the query again. To prevent this error, avoid long running queries or split the query into multiple queries.

> **Note:**
>
> For direct connections to Oracle Database, the query limit automatically extends to 60 minutes to accommodate occasional, longer running queries. To avoid excessive loads on the database, Oracle Analytics restricts the number of queries that are allowed to automatically extend at any one time. If your analysis or workbook connects to any other data source or connects to an Oracle Database indirectly through Data Gateway, the query limit is *always* 11 minutes; the limit doesn't extend beyond 11 minutes.

Search results on the Home page don't include the data I'm looking for

Datasets that users create from files must be indexed (and in some cases certified) to appear in search results on the Home page.

- A file-based dataset must be indexed before you can use it to build visualizations from the Home page.
- A file-based dataset must be indexed and certified before other users with permission to access the dataset can use it to build visualizations from the Home page.

See About Indexing a Dataset and Visualize Data from the Home Page.

I need to provide a HAR file for a Service Request

If you log a Service Request (SR) to report user performance issues, you might be asked to record a browser session and provide a report to Oracle Support in HTTP archive format (HAR). HAR files log the web browser's interaction with Oracle Analytics Cloud.

You can use any supported browser to record the browser session but Oracle recommends that you use Chrome's Developer Tools. To record a browser session using Chrome:

1. In Chrome, select **Customize and control Google Chrome**, then **More tools**, then **Developer tools**.
2. Navigate to the Network tab.
3. Select **Disable cache** and **Preserve log**, then refresh the page.
4. If the recording hasn't already started, click **Record**.
5. Perform the steps that cause the performance issue.
6. Click **Stop recording network log**.
7. Right-click the table or grid and select **Save all as HAR with content**.
8. Follow the onscreen instructions to save the HAR file locally.

I need to provide client script error details for a Service Request

If you log a Service Request for client-side issues, you might be asked to send client script error details to Oracle Support.

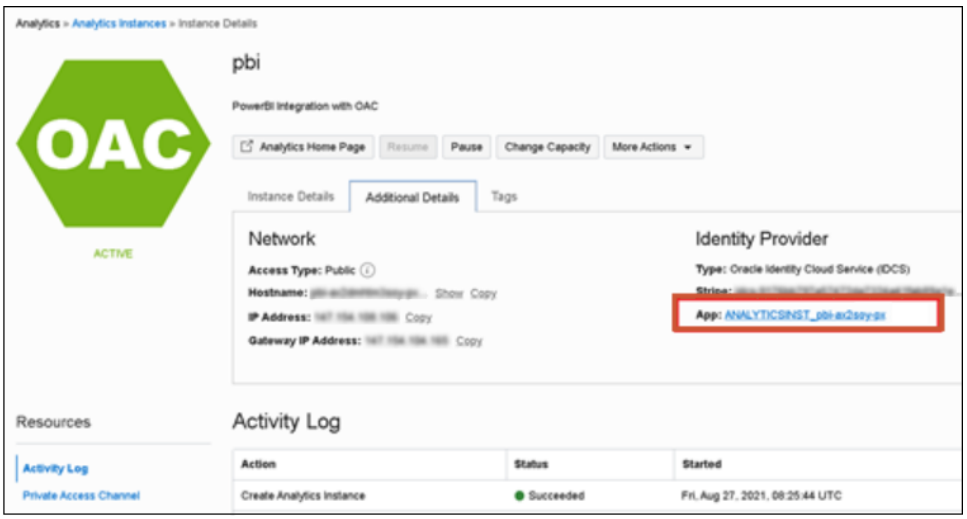
You can use any supported browser to collect client script errors but Oracle recommends that you use Chrome's Developer Tools. To collect client script errors using Chrome:

1. In Chrome, sign into Oracle Analytics Cloud and navigate to the page where the issue occurs.
2. Select **Customize and control Google Chrome**, then **More tools**, then **Developer tools**.

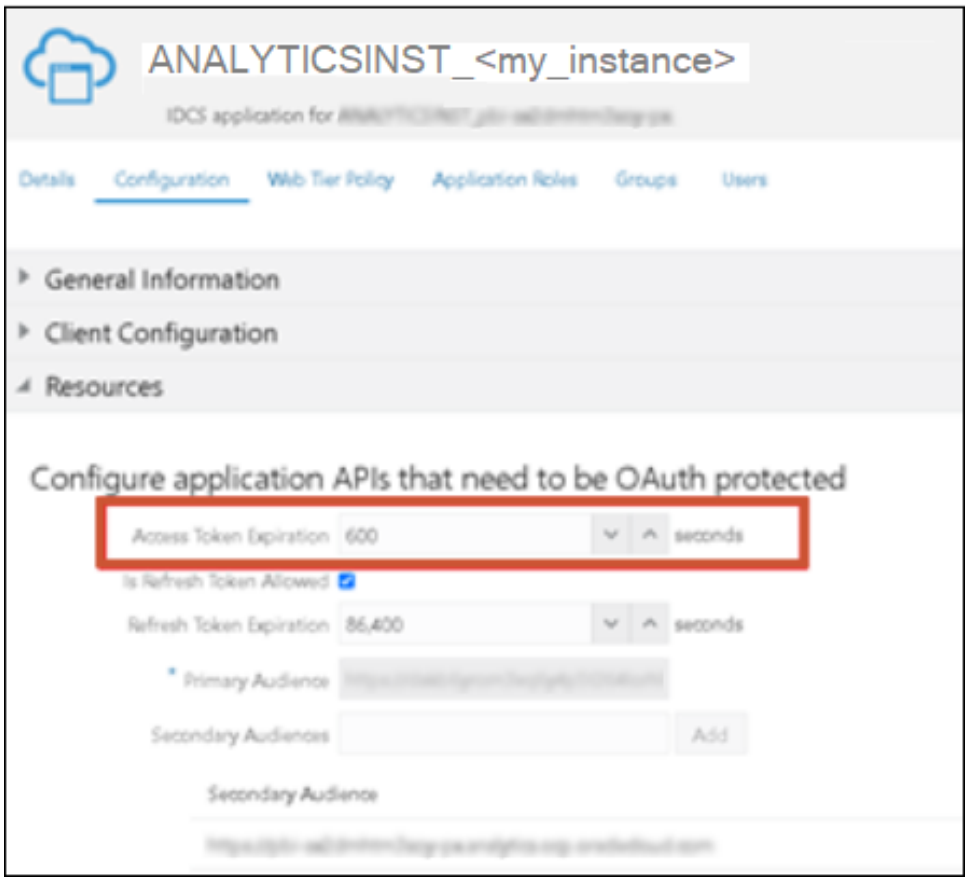
3. Click the **Console** tab.
4. Click **Clear console** to remove any existing messages from the console.
5. Click **Show console sidebar**, then click the **Errors** option to display only errors (that is, the red circle containing a cross).
6. Reproduce the issue and verify that errors have occurred and are recorded in the console.
7. Right-click the error messages, select **Save As...**, and save the file to your computer.
8. Upload the error file to your SR.

Users encounter an authentication error after approximately 100 seconds when using the MS Power BI Connector

Adjust the Expiry Time of the Access Token for Oracle Analytics Cloud. In Oracle Cloud Infrastructure Console, navigate to the Oracle Analytics Cloud instance you want Microsoft Power BI to connect to.



Click **Additional Details**, and then click the **App** link under **Identity Provider**. In the **Configuration** tab, expand **Resources**, and increase **Access Token Expiration Time** to 600 seconds (10 minutes).



Troubleshoot Configuration Issues

This topic describes common problems that you might encounter when configuring or managing Oracle Analytics Cloud and explains how to solve them.

I can’t access options in the Console

If you see an "unauthorized” message or don't see an option in the Console, you probably don’t have the BI Service Administrator application role. You must have the BI Service Administrator application role to access most Console options, for example **Users and Roles**, **Snapshots**, **Connections**, **Safe Domains**, **Session and Query Cache**, **Issue SQL**, **Virus Scanner**, **Mail Server**, and **Search Index**.

Ask an administrator to verify your permissions. See Assign Application Roles to Users.

I can’t upload my snapshot

You can only upload snapshots taken from Oracle Analytics Cloud, Oracle BI Enterprise Edition (12c), and Oracle Analytics Server. Check where the .bar file you’re trying to upload was originally downloaded from.

I can't use Model Administration Tool in SSL mode

If the default security certificates don't work, import the server security certificates. For example, on the machine where you've installed Model Administration Tool, you might use the Key and Certificate Management Tool (keytool) to execute these commands:

```
C:\Oracle\Middleware\oracle_common\jdk\jre\bin\keytool.exe -importcert -alias
oacserver -file
C:\Oracle\Middleware\oracle_common\jdk\jre\lib\security\server.crt -keystore
C:\Oracle\Middleware\oracle_common\jdk\jre\lib\security\cacerts -storepass
thepassword
```

Troubleshoot Indexing

This topic describes common problems that you might encounter when indexing semantic models and catalog content and explains how to solve them.

A home page search returns no results

If you search on the home page and no results are returned, then check that the **Index User Folders** option is selected. If this option isn't selected then nothing in the catalog is indexed.

This option is located on the Search Index page's Catalog tab.

A home page search returns too many or duplicate items

If your search results aren't meaningful, then reduce the number of items to index. For example, if a dimension called Sales is included in 20 subject areas and all subject areas are indexed, then when you search for Sales your results will contain 20 items called Sales.

Go to the Search Index page's Data Model and Catalog tabs and reduce the number of items to index. Oracle suggests that you deselect everything and then select only the items that you need.

Expected items are missing from search results

If some items are missing from your search results, then check that the crawl job completed successfully. Sometimes a crawl was terminated or its progress totals are zero. In such cases, rerun the crawl.

1. Click **Console**.
2. Click **Search Index**.
3. Click **Monitor Crawls**.
4. Click the **Configure Crawls** link.
5. In the Data Model tab, deselect and then reselect the **Enable Data Model Crawl** checkbox.
6. Click **Save**.
7. Click the **Monitor Crawls** link and locate the scheduled job. The revised crawl will run in a few minutes.