

Oracle[®] Retail Analytics and Planning Administration Guide



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Oracle Retail Analytics and Planning Administration Guide

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Preface

This Administration Guide provides critical information about the processing and operating details of the Retail Analytics and Planning, including the following

- System configuration settings
- Technical architecture
- Functional integration dataflow across the enterprise
- Batch processing

Audience

This guide is for:

- Systems administration and operations personnel
- Systems analysts
- Integrators and implementers
- Business analysts who need information about the Retail Analytics and Planning processes and interfaces

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- Exact error message received
- Screen shots of each step you take

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Oracle Retail Cloud Services and Business Agility

The Oracle Retail Analytics and Planning Cloud Services are hosted in the Oracle Cloud with the security features inherent to Oracle technology and a robust data center classification, providing significant uptime. The Oracle Cloud team is responsible for installing, monitoring, patching, and upgrading retail software.

Included in the service is continuous technical support, access to software feature enhancements, hardware upgrades, and disaster recovery. The Cloud Service model helps to free customer IT resources from the need to perform these tasks, giving retailers greater business agility to respond to changing technologies and to perform more value-added tasks focused on business processes and innovation.

Oracle Retail Software Cloud Service is acquired exclusively through a subscription service (SaaS) model. This shifts funding from a capital investment in software to an operational expense. Subscription-based pricing for retail applications offers flexibility and cost effectiveness.

1

Administration Tasks Overview

The intent of this document is to guide a Retail Analytics and Planning (RAP) Administrator to perform the recurring administrative activities for all applications you have licensed within the platform. In some cases, the details will be explained in this document, and in other cases, only the general process will be covered and details will be explained in individual applications' Administration Guides.

Administration activities for RAP applications fall into two general categories:

- **Maintenance Activities** – Tasks where you will be expected to change a configuration, run a process, or update the application in some manner
- **Monitoring Activities** – Tasks where you will need to gather information or assess the status of an application or process, but not necessarily take any action

Each of the sections in this document will highlight the most common administrative tasks within the context of performing one or both of these activity types. If the administrative task is specific to a single application (rather than multiple applications or the entire platform) then you may follow the provided links and references to access additional information on that topic. The table below summarizes the topics covered in this document.

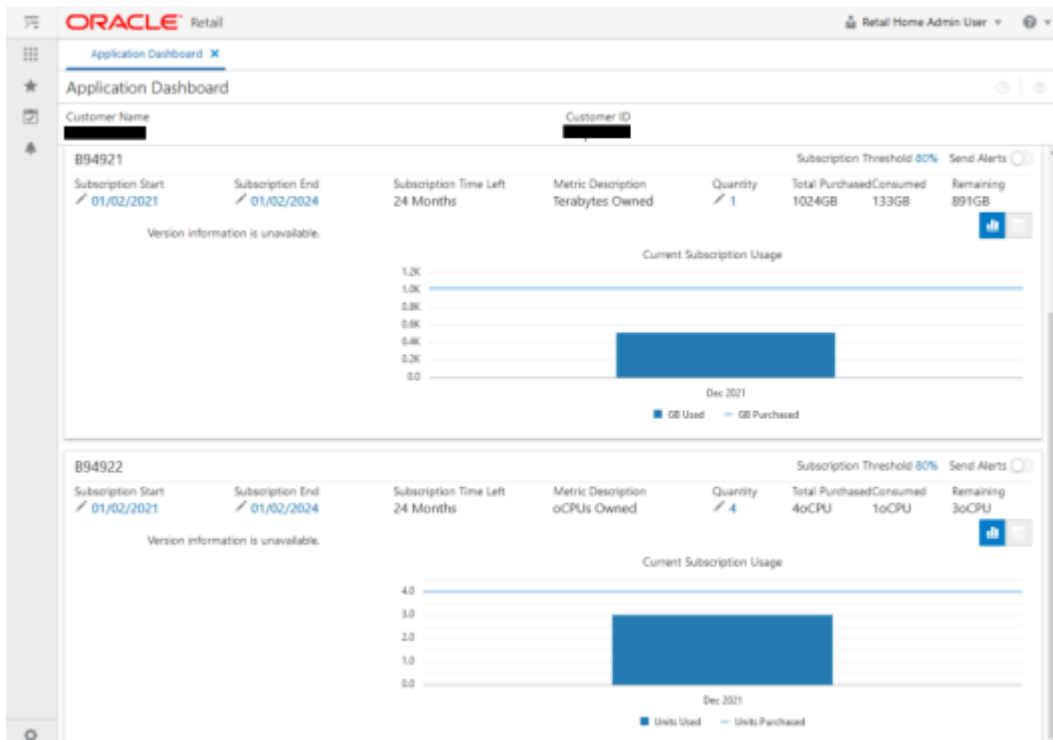
Table 1-1 Administration Tasks Overview

Topic	Summary
Storage and CPU Usage	As part of your subscription, cloud storage and CPU usage is tracked. Administrators should monitor these values as they can directly impact future subscription costs.
Managing User Security	Common tasks performed in OCI IAM for user maintenance; for example, user groups and configurations for RAP applications.
Managing Batches	Where to monitor and maintain batch activity by application, how to resolve common batch issues.
Managing Label Customization	How to change the display labels in the application interfaces to use custom or business-specific values.
Managing File Transfers	How to use File Transfer Services (FTS) to upload files to the Oracle Cloud.
Managing Data Visualization	How to manage your Data Visualization (DV) datasets and reports, common tasks to perform regarding security, and data maintenance.
Managing RPAS Applications	Administrative activities performed for RAP modules such as Merchandise Financial Planning, which have specific task flows and interfaces for their administrative duties.
Managing APEX and Extensions	Administering other tools and platform components such as APEX, which are used to extend the platform and provide additional capabilities not listed above.
Managing Inventory Planning Optimization-Inventory Planning Cloud Services	Supplemental details for a managing Inventory Planning Optimization-Inventory Planning Cloud Services.

2

Storage and CPU Usage

For each Retail Analytics and Planning instance, the database disk storage and CPU usage is tracked. Your current usage levels can be seen by logging in to Oracle Retail Home and viewing the Application Dashboard. On the list are two entries: one for CPU Usage, and one for Disk Usage. The entries show current usage and also display the currently subscribed amounts for CPU and storage, so a customer can see whether they are nearing their subscription limits. The usage is tracked on a weekly basis, so updates to these charts happen about four times per month. This UI can only be viewed by Retail Home administrator users. Refer to the Retail Home product documentation for more information.



3

Managing User Security

All Retail Analytics and Planning applications leverage Oracle Cloud Infrastructure Identity and Access Management (OCI IAM), which is Oracle's cloud-native security and identity platform. This provides a powerful set of hybrid identity features to maintain a single identity for each user across cloud, mobile, and on-premise applications. OCI IAM enables single sign-on (SSO) across all applications in a customer's Oracle Cloud tenancy. Customers can also integrate OCI IAM with other on-premise applications to extend the scope of this SSO.

For complete information on Oracle Retail's authentication policies, pre-defined user roles, and environment setup information, refer to the [Oracle Retail Identity Management for OCI IAM Startup Guide](#). The Startup Guide is the primary source for the latest information about Oracle Retail user and group management practices across all our applications. The chapter in this document only provides supplemental details.

Application Security Policies

Each application in the platform includes user groups, security policies, application permissions that are specific to their business processes, and user interfaces. The section below provides a high-level summary of these areas with references for accessing additional details.

Retail Insights and Oracle Analytics

Retail Insights Cloud Services are built with role-based access to features and functionality. One set of OCI IAM groups is used to control data access to functional areas such as Sales or Inventory. Another set of groups controls the access level for Oracle Analytics components, such as the ability to create new reports or edit reports in the catalog.

Unlike previous-generation architecture, the RI, OAS, and DV group names are prefixed with a unique tenant ID that is specific to your cloud service. This is necessary because the same Oracle Analytics platform can be shared across multiple Oracle Retail solutions now, and you may also have multiple OAS instances on one IAM (such as Dev, Stage, and Prod environments). The tenant ID is a long string of characters like this:

```
bd835fj48ffj31wisda4h
```

The role names may look like this:

```
bd835fj48ffj31wisda4h-BIConsumer_JOB
```

Refer to the [Oracle Retail Identity Management for OCI IAM Startup Guide](#) for example users and their role assignments. Refer to the [Retail Insights Administration Guide](#) for an in-depth list of the functional roles that are linked to metadata access in RI.

AI Foundation Cloud Services

Each AI Foundation application on the platform has its own set of groups that determine a user's access level to that application's user interface. Groups are divided based on typical

business tasks and duties that the user is expected to perform, such as one group for managing markdown optimization configurations and another which only creates and runs scenarios. The groups shown are for production systems; a similar set of groups are appended with `_PREPROD` for use on non-production systems (except for OAS/DV roles).

Refer to the [Oracle Retail Identity Management for OCI IAM Startup Guide](#) for example users and their role assignments. For a complete list of available groups, refer to the *Retail AI Foundation Cloud Services Administration Guide*.

Planning and Optimization Cloud Services

Merchandise Financial Planning, Assortment Planning, and Inventory Planning Optimization-Demand Forecasting all provide default OCI IAM groups to manage access levels in the application. In each application, user access to various templates can be controlled at the user-group level, and those groups are aligned with OCI IAM. Aside from the default OCI IAM groups, administrators can also create new user groups directly within each application and synchronize those groups using Online Administration Tasks.

For a complete list of available groups and more details, refer to the [Oracle Retail Identity Management for OCI IAM Startup Guide](#) section on “Planning and Optimization Cloud Services”.

4

Managing Batches

The Process Orchestration and Monitoring (POM) application is a user interface for scheduling, tracking, and managing batch jobs. As an application administrator, you will be expected to monitor the various batches running in POM and potentially take corrective actions if a batch is in a failed or long-running state. This chapter summarizes the most common activities associated with POM and batch execution and provides references to additional details where available.

Batch Administration Duties

Throughout the project and after you are in a Production environment, the responsibility of monitoring and maintaining batch schedules and processes is divided across multiple groups. Review the information below for a typical breakdown of batch responsibilities.

Initial Configuration: Oracle Cloud Operations deploys batch schedules according to your subscriptions, which come pre-installed with certain basic configurations and enabled or disabled batch programs.

Final Configuration: Customer/Solution Implementation Partner (SI) is responsible for modifying the batch schedules during the project and after go-live in Production, based on their current implementation needs.

Scheduling: Customer/Solution Implementation Partner (SI) uses the POM scheduler to schedule nightly, cyclical, and ad hoc jobs. Oracle is not typically responsible for changing schedule start times after go-live, as it can be done in POM.

Notifications: Customer/Solution Implementation Partner (SI) is responsible for setting up batch notifications using Retail Home and POM. Oracle will not typically alter batch notifications on customer environments (unless needed to change internal notifications of batch status).

Error Resolution: Customer/Solution Implementation Partner (SI) is responsible for resolving issues in non-production environments and restarting batch processes from POM after the errors are resolved. In Production environments, the Customer is responsible for monitoring the batch and resolving errors, if possible (for example, if files are not uploaded on time or uploaded with bad data). In both cases, Service Requests can be raised with Oracle for support.

File Retention: Customer is responsible for retaining backups and archives of any file-based data sent as input to Oracle systems according to their business's data retention policies. Oracle's file retention policy for RAP solutions is between 7 and 30 days depending on the OCI region, after which time any incoming or outgoing files may be purged without notice.

Review the table below for a summary of duties broken down by environment type:

Environments	Activities	Responsibility	Support Mechanism
Non-Prod (Dev, Breakfix, Stage)	Batch Monitoring Troubleshooting Data Correction Data File Retention	Customer/SI partner	Service Request
Production	Batch Monitoring Troubleshooting Data Correction	Customer/Oracle	Service Request/ Email groups
Production	Data File Retention	Customer	Service Request

Batch Email Notifications

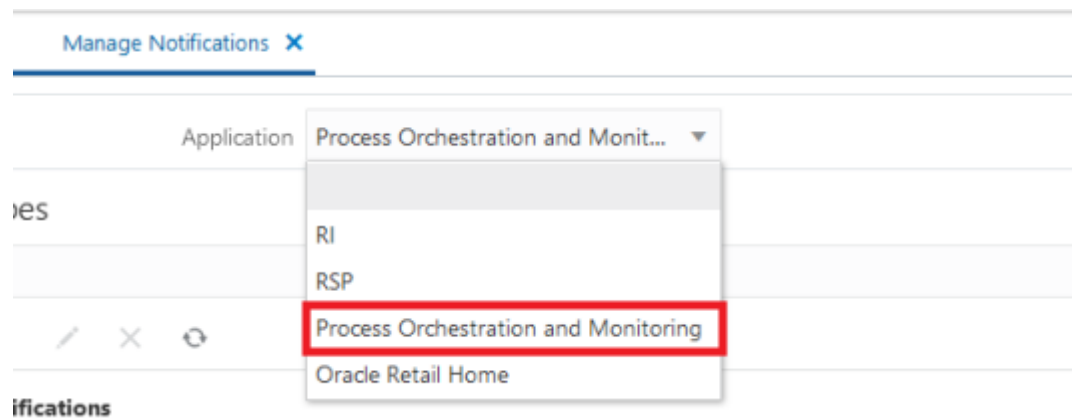
The primary source of information about the batch status on a daily basis will be the email notifications sent from POM for every batch execution. These emails will contain a summary of the batch status, the longest-running jobs, the total batch duration, and other useful details to help you assess the state of the current batch cycle. To keep the business up-to-date on batch execution status and take action in the case of batch failures, the designated administrators for the Retail Analytics and Planning applications will be expected to receive and review these emails regularly after going live in a production environment.

Figure 4-1 POM Sample Batch Notification

POM EOD Summary		Job Results	
Total Execution Time	160.6 min	Successes	169
Average Execution Time	107.47 min	Errors	0
Total Job Execution Time	35.07 min	Skipped	0
Total POM Wait Time	125.53 min	Skipped on Error	0
Cycle Start Time	23-AUG-21 / 14:29:10		
Cycle End Time	23-AUG-21 / 17:09:46		

Each batch schedule in POM issues its email notifications. Additionally, POM supports numerous notification types for specific use cases, such as individual job failures and long-running processes. Customers are expected to set up local mailing lists which can receive automated messages from Oracle Cloud applications. To change the recipients on an email notification, access the Notifications interface in Retail Home. Follow these steps to add or update a notification:

1. Log in to Retail Home with a user having Retail Home Administrator privileges (see the section on [Application Security Policies](#) for role details if needed).
2. Open the Settings panel and access the Manage Notifications screen.
3. Select **Process Orchestration and Monitoring** from the dropdown.



4. A pre-populated list of supported notifications appears in the table below the dropdown. POM supports many different notification types. For example, the code for batch summary emails is `NightlySummaryReportExternal`. You can type codes into the **Filter** box to find specific entries.

Notification Types

NightlyS

Actions ▾ | + ✎ ✕ ↺

NightlyStart
 Type Code: NightlyStart
 Nightly cycle start
 Retention: 30 Days

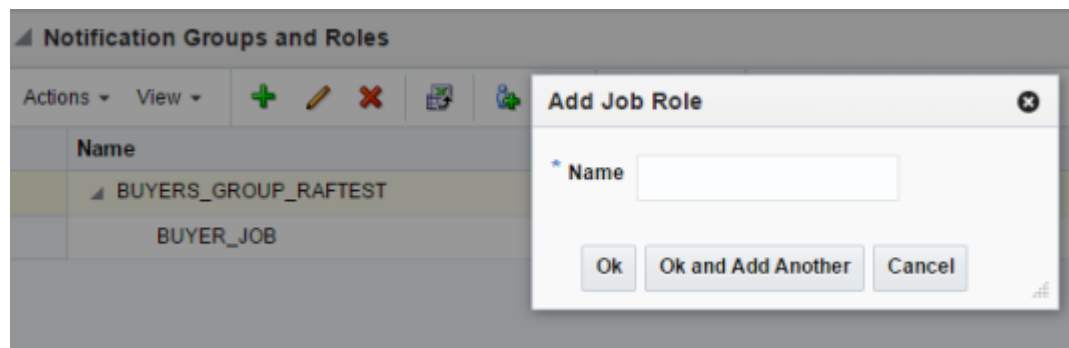
NightlySummaryReport
 Type Code: NightlySummaryReport
 Mail summary report for Nightly Cycle
 Retention: 30 Days

NightlySummaryReportExternal
 Type Code: NightlySummaryReportExternal
 Mail summary report for Nightly Cycle
 Retention: 30 Days

5. To add email addresses to a notification type, select a row and click the Edit icon. Enter one or more email addresses in the popup menu, separated by spaces. Do not edit the notification type code or name.

6. Once a Notification Type has been selected in the previous step, the Notification Groups table refreshes on the right side of the screen. You can add groups to the notification, and all users in these groups will see notifications in their Task panel from POM. Click **Create** in the Notification Groups table. Enter a name and description for the group of users or roles that you plan to send this notification to.

7. Click **Add Job Role** in the Notification Groups table to add valid roles to the new notification group. Notifications of this type will show up for users with these roles within the Notification Panels throughout Oracle Retail applications.
8. Enter a valid role name (for example, BUYER_JOB) to issue the notifications to all users having that role.



Repeat these steps for as many POM notification types as you wish to receive.

 **Note:**

It is not recommended to set up these emails until the implementation is nearing completion, as it could result in spamming email inboxes with many unwanted messages from non-production environments

The POM notification email subject line should also be modified before completing this activity. Batch-related emails will include the customer name and environment name in the subject line and need to be updated separately in each POM environment.

1. In POM, select **Tasks > System Configuration**.
2. In System Configuration, select **System**.
3. In System, select the **Edit** icon.
4. In System Settings, set the **Environment** name as you want it to appear in email subject lines, such as **Stage** or **Production**. Set the **Customer Name** to a more descriptive customer name value (the default value is an internal customer code).
5. Click **OK** to save the changes.

POM email notifications will now show the new values specified here for any email relating to POM processes, batch cycle executions, and job failures/warnings.

Batch Monitoring in POM

The POM application provides a Batch Monitoring screen for viewing detailed information about batch schedules, including the current run status of each job in a schedule, and the runtime of completed jobs. Accessing the Batch Monitoring screen requires you to have at least the OCI IAM user group `BATCH_VIEWER_JOB`. Once you have the necessary user permissions, follow these general steps to monitor the batch:

1. Navigate to POM using the application link provided in Retail Home, or navigate directly to the POM URL, if known.
2. Click the **Batch Monitoring** link from the navigator menu.
3. Change the business date if you are looking to see batch information for prior runs; otherwise, select an application tile to open the batch details.
4. Select the batch cycle type (nightly / recurring / standalone).
5. Review the information shown on-screen or click **Download Cycle Summary** to save the information to review offline.

For additional information about this screen, refer to the *POM User Guide* section on “Batch Monitoring”.

Change Batch Start Time

Another maintenance task that the application administrator may be required to do periodically is to change the start time for a batch cycle. This activity requires you to have the `BATCH_SCHEDULE_ADMINISTRATOR_JOB` in OCI IAM. The POM application provides a way to configure each batch with a start time following the general steps below:

1. Navigate to POM using the application link provided in Retail Home, or navigate directly to the POM URL, if known.
2. Click the **Scheduler Administration** link from the navigator menu.
3. Select a schedule tile and frequency that you wish to edit.
4. Select the row displayed in the table and click the **Edit** action to modify the start time of the batch cycle.
5. The batch schedule change will only take effect from the next scheduler day onwards. If it needs to take effect immediately, click **Restart Schedule** on the Batch Monitoring screen.

For additional information about this screen, refer to the *POM User Guide* section on “Scheduler Administration”.

Batch Error Details

When a batch process fails in POM, an email notification should be issued, stating the exact point of failure (assuming notifications are configured). You can also access the Batch Monitoring screen in the POM user interface to view the failed job and download the log information. The steps to download job logs are below:

1. Navigate to POM using the application link provided in Retail Home, or navigate directly to the POM URL, if known.
2. Click the **Batch Monitoring** link from the navigator menu.
3. Select your schedule and cycle from the available batches.
4. Click the name of a job with an incomplete status. Under the Batch Details screen, locate the table for Executions and click the download link in the Log column.

Review the error log details for the cause of failure. If the error message does not indicate a problem that can be fixed internally (for example, invalid data files, duplicate data rows, or data that violates a key constraint on the interface) then raise an Oracle Service Request for assistance. After batch issues have been resolved, you may restart the batch processing from the point of failure using the POM user interface.

Reprocessing Bad Data Files

It is the customer’s responsibility to resolve issues with data files and re-upload files that need to be corrected to complete the nightly batch. For example, it is possible for a data file to have formatting issues that prevent it from loading into the Oracle database in RAP, and the file must be corrected from the source system before the RAP nightly batches can proceed. Follow the steps below to reprocess invalid files that are blocking a batch process:

1. Correct the files that have issues (coordinating with Oracle Support if POM does not help you determine which files need to be re-sent) and bundle them into a ZIP file named

RI_REPROCESS_DATA.zip. The zip file name is case sensitive and must be exactly this name, or it will not be detected.

2. Using Postman or other tools, run the ad hoc process REPROCESS_ZIP_FILE_PROCESS_ADHOC to import the ZIP file and unpack it. This process will overwrite any existing files with the new files you bring in, while keeping the other batch files unchanged.
3. If your file failed to stage into the database at all, such as when it has an improper format or line-ending character, then you may rerun the failed job from POM at this time. If the batch failed further along in the process, after files are staged, then continue with the next steps.
4. Run the C_LOAD_DATES_CLEANUP_ADHOC process to clear failed run statuses from the backend before loading new data.
5. Use the ADHOC processes associated with your failed data files to get them loaded up to the point of batch failure. For example, if the file PRODUCT.csv loaded into the database but then failed on the W_PRODUCT_DS load step, use LOAD_DIM_INITIAL_CSV_ADHOC jobs to stage the file again, then resume the batch. If it failed during the DIM_PROD_VALIDATOR_JOB step, also use the LOAD_EXT_DIM_INITIAL_SI_ADHOC jobs to load it into the target tables, and then restart the failed batch job.

Recovering from Job Timeouts

It is possible for a job to take more than 4 hours to complete due to extremely high data volumes or very intensive calculations planned for a given date. The job in POM may time out after 4 hours of inactivity (meaning a lack of response from the database or backend process). The backend process may still be running in the database and should be allowed to complete, even though the POM job has failed. If you encounter any situation where a POM job in your batch has failed after exactly 4 hours, you may raise a Service Request asking for assistance checking for any jobs in the database that could still be running relating to the failed process.

Restarting the Job

Support may ask you to restart the failed job after they check the backend status. You may also be asked by Oracle Support to clear entries from a table named C_LOAD_DATES, which tracks the status of many batch jobs connected to RI and RAP foundation processes. Records in this table must be deleted to allow a failed job to be restarted if it needs to run from the beginning. Follow the steps below to complete this activity:

1. Access the Manage System Configurations screen inside the Control & Tactical Center in AI Foundation.
2. Select the C_LOAD_DATES table from the dropdown menu.
3. Locate the rows relating to your failed job (Oracle Support should provide some indication of which rows they are, such as any rows where TARGET_TABLE_NAME=W_RTL_ITEM_GRP1_DS).
4. Select each row and click the **Delete** icon to remove the record from the database.
5. Now navigate to the POM UI Batch Monitoring screen, locate/select the failed batch job, and click **Rerun**.

With the entry removed from C_LOAD_DATES, the job will start from the beginning and attempt to repeat all steps in the process. Once the job completes successfully, the rest of the batch cycle will resume automatically.

Skipping the Job

Oracle Support may determine that the failed job has completed successfully in the database and you are safe to resume the batch from after the failed job. Follow the steps below to complete this activity.

1. Open the POM UI and go to the Batch Monitoring screen.
2. Locate the failed job and click the **Skip** button. Enter a reason for the action such as “confirmed with Oracle Support to skip the job”.
3. The job should change from Failed to Skipped status and the next job in the batch cycle will have started automatically.

Planning Batches in OAT

If you are using any Planning solution, then POM will not be the only source of batch information that you will be required to access. Planning applications like Merchandise Financial Planning schedule jobs through POM and run ad hoc tasks within the application through [Online Administration Tools \(OAT\)](#). Please refer to the *RPASCE Administration Guide* and the Administration Guide(s) for your Planning-specific application for more details on managing tasks using OAT.

5

Managing Label Customization

Many Oracle Retail applications come packaged with resource bundles, which are files that contain translatable text resources. These resources appear throughout the Oracle Retail application as instructions, messages, labels, errors, and so on. Virtually any text that appears in the application comes from a resource bundle.

These Oracle Retail applications allow retailers to customize the text that appears in the application to better match the retailer's business language. The ability to change the text for a resource is provided through the Resource Bundles area of Retail Home. Retailers can customize text resources for any Oracle Retail supported language.

Currently, the following Retail Analytics and Planning applications support this feature:

- Retail Insights
- Inventory Planning Optimization-Optimization
- Lifecycle Pricing Optimization
- Size Profile Optimization

Resources and Customizations Explained

All text resources in the Retail Analytics and Planning have the following values:

- **Base Application Code** - This value identifies the Oracle Retail application that owns this text resource.
- **Language** - This value identifies the language of the text resource.
- **Bundle** - This value identifies the bundle file where this text resource resides.
- **Resource** - This value is the unique name that can be used to receive the text for this resource.
- **Base Text** - This value is the text provided by the Oracle Retail application. This is the text that will appear in the application by default.

Every text resource in Oracle Retail applications is uniquely identified by the combination of Application Code, Language, Bundle, and Resource.

A resource customization is a change made to the text of a resource by a retailer. In addition to the values above, customizations also have the following values:

- **Current Text** - This is the text that will appear in the application. If a retailer has provided custom text for the resource, then this value will display the retailer's custom text. Otherwise, it will display the base text provided by the application.

Retail Home Task Flows

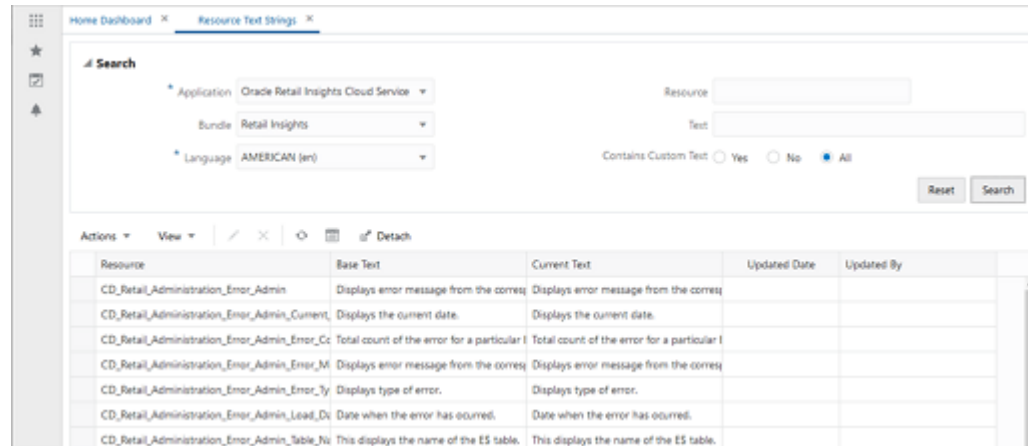
The Resource Bundles area of Retail Home consists of the following task flows:

- Resource Text Strings
- Import Management

Resource Text Strings

From the Retail Home lower-left hand Settings menu, the user can access the **Resource Bundles** link. The Resource Text Strings screen provides the capability to customize the resources present in the resource bundles in an application. The user can search the resources in the application using the Bundle, Language, Resource, Contains Custom Text, or Text fields.

Figure 5-1 Resource Text Strings Screen



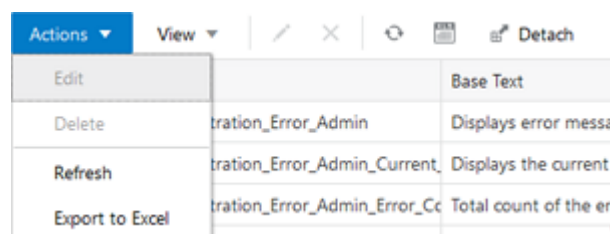
The user can view, add, edit, or remove custom text for a resource using this screen.

The user can also export the results table to an Excel CSV file using this screen. The export action allows the user to modify custom text for many resources at one time, and upload all the custom values in a single action in Import Management.

The results table in the Resource Text Strings screen displays the Resource, Base Text, Current Text, Contains Custom Text, Updated Date, and Updated By columns for the resources matching the entered search criteria.

- If there is a custom value present for a resource, it appears in the Text column, along with the date and the user who customized that entry.
The Contains Custom Text column will display **Yes** if a custom value is present for a resource.
- If no custom value is present for a resource, the Text column displays the base text. The Updated Date and Updated By fields will be empty.
The Contains Custom Text column will display **No** in this scenario.

Figure 5-2 Edit or Remove Custom Text



Edit Customization

The user can add or edit the custom text for a resource using the Edit menu item or the pencil icon. If no custom text is present for a resource, a new custom text is added. If a custom text is already present for a resource, it will be modified. The Updated Date and Updated By columns are changed to reflect the addition or modification. The Edit option opens up a popup showing the resource, its base text, and editable custom text. Only one record can be edited at a time in a popup. If more than one record or no record is selected, a warning is displayed to the user. The Edit popup can also be opened by double-clicking a record on the results table.

Figure 5-3 Edit Resource Text Screen



Remove Customization

The user can remove the custom text for one, many, or all selected resources using the **Remove Customization** menu item or the cross icon. The user can select one or multiple records and remove custom values for the records. The Remove Customization option will give a confirmation warning message before the custom text is removed for the selected records. The base text is not impacted by the Remove Customization operation.

Figure 5-4 Delete Custom Text Confirmation Pop-up



Export to Excel

The user can export the details of the resources from the results table to an Excel CSV file. When the user selects the **Export to Excel** action, the browser performs the download. Depending on the user's browser preferences, the browser may prompt the user, asking whether the exported file should be opened or saved, what program should be used to open the file, or where on the user's computer the file should be saved. Exporting a large number of strings may take time to complete; during this time the browser may remain in an active/processing state.

Importing Customizations from a CSV File

The user can change the values in the Text column of an exported CSV, and then import the CSV file from the Imports Management screen. When the user does this, the values of the Text column are imported into the custom text of each newly customized resource. The user can customize multiple rows with a single action by importing a file that contains multiple

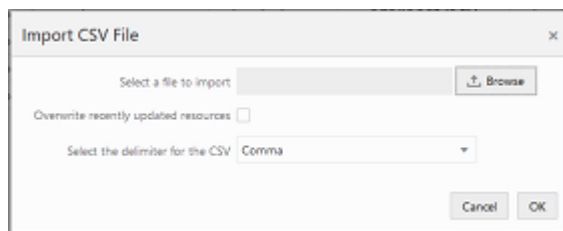
customized rows. Importing a file that has not been modified will do nothing because the text for each resource is already the same in Retail Home.

The imported file must meet the following assumptions for the import to succeed:

- The imported file must be a well-formed CSV file. The user can use any compatible program to edit the exported CSV file, as long as the program can read the CSV file and save it again in CSV format.
- The user should only edit values in the Text column. If the user edits any of the values in the Base Application Code, Language, Bundle, or Resource columns, the import may fail, or invalid customizations may be created.
- The user can only add or edit customizations in the import. The user cannot remove customizations using import. Deleting the contents of the Text field or copying the Source Text into the Text field will cause the row to be ignored.
- The size of the imported file is limited to 2000 KB. Users will not be allowed to upload a file larger than this.

From the Import Management screen, select the relevant application code and click **Create**. A popup opens prompting the user to select a file to import.

Figure 5-5 Import CSV File Pop-up



It is possible that, after a user exports resources to a CSV file, but before the user imports the file into Retail Home, another user may go to Retail Home and customize one or more of the exported resources. In this case, the values of resources in Retail Home would be newer than the values in the exported file. To ensure that an import does not inadvertently overwrite these values, the import action will skip resources that have been recently updated in Retail Home, and notify the user. The user can tell the import to instead use the values from the imported file by selecting the **Overwrite recently updated resources** checkbox on the import pop-up.

6

Managing File Transfers

 **Note:**

File Transfer Services do not replace SFTP in existing customer environments. If your environment is already provisioned then you will continue to use SFTP as described in the product documentation for Retail Insights and AI Foundation, and the section below does not apply to you.

File Transfer Services (FTS) for the Retail Analytics and Planning cloud services replaces SFTP for new environments. This allows you to manage the uploading and downloading of files to and from Oracle Cloud Infrastructure Object Storage, which is an internet-scale, high-performance storage platform offering reliable and cost-efficient data durability.

Access to files is through a pre-authenticated request (PAR), which is a URL that requires no further authentication to upload or download files to the cloud. To retrieve a PAR, you must use the appropriate file transfer REST service. These new services will enable you to import files to and export files from Object Storage used by the solutions. The primary role of these services is to ensure that only valid external users can call the service by enforcing authorization policies. Where supported, the files can be zipped and compressed before upload.

 **Note:**

It is important to note that this Object Storage instance is not intended for long-term storage needs. Oracle's file retention policy for RAP solutions is between 7 and 30 days depending on the OCI region, after which time any incoming or outgoing files may be purged without notice. It is the customer's responsibility to maintain backups of all input and output files as needed.

The following describes how an external integrating system uses FTS to upload .zip files to Oracle Cloud Services:

1. The 3rd party solution sends a request to the pre-authentication service for uploading files to Object Storage, including the incoming prefix and file name. On receiving the PAR, the file is uploaded using the metadata from the response.
2. Cloud service batch processing sends a request to the pre-authentication service for downloading files from Object Storage, including the incoming prefix. On receiving the PAR, the files are downloaded using the metadata from the response.
3. Batch processing uses the Delete Files Service to delete the file from Object Storage and the incoming prefix to ensure it is not re-processed in the next batch run. The batch process unzips the file and processes the data.

To interact with FTS, use the REST APIs. The table below lists the API end points for different file operations.

Operation	Method	FTS API Endpoint
Ping	GET	{baseUrl}/services/private/FTSWrapper/ping
List Prefixes	GET	{baseUrl}/services/private/FTSWrapper/{bucketName}/listprefixes
List Files	GET	{baseUrl}/services/private/FTSWrapper/{bucketName}/listfiles
Move Files	POST	{baseUrl}/services/private/FTSWrapper/{bucketName}/movefiles
Delete Files	DELETE	{baseUrl}/services/private/FTSWrapper/{bucketName}/delete
Request Upload PAR	POST	{baseUrl}/services/private/FTSWrapper/{bucketName}/upload
Request Download PAR	POST	{baseUrl}/services/private/FTSWrapper/{bucketName}/download

Interaction with the File Transfer Services should be developed and automated during implementation, and ongoing maintenance of the process is minimal. As an administrator, your primary task is to upload files to FTS that produced errors during the nightly batch process. Automate this file upload process simplify ongoing maintenance, such as the development of scripts and server commands that are easy to execute after go-live. For reference, the general file upload process is outlined below, but it is not expected that a customer administrator would run these commands as-is in Production environments.

The upload of files is a multi-step process where you first request access to a location to upload the file, and then you push the file to the URL provided in the response. FTS uses OAuth 2.0 and requires authentication tokens to use the services.

Further information on interacting with File Transfer Services can be found in the *Retail Analytics and Planning Implementation Guide*.

7

Managing Data Visualization

All implementations of Retail Analytics and Planning applications include Oracle Data Visualization (DV) as a tool for custom analytics and reporting. Administrators should be aware of how DV is maintained as part of your Oracle Cloud environments so that they can manage user-created content and access permissions in the tool.

Accessing the Application

A sample URL to access the DV application is below. The hostname will be the same URL root as your Retail Insights (/analytics/) and AI Foundation (/rse/faces/Home/) environments, appending the /dv/ application path shown below.

```
https://ocacs.ocs.oraclecloud.com/{solution-customer-env}/dv/?pageid=home
```

Permission to access DV can be granted through OCI IAM using the group `DVContentAuthor`. DV access is also granted automatically if you have certain Retail Insights groups assigned, such as `BIAuthors_JOB` or `RIApplicationAdministrator_JOB`.

Managing User Content

User-created content comes in several forms and each type of content is managed separately, as defined below.

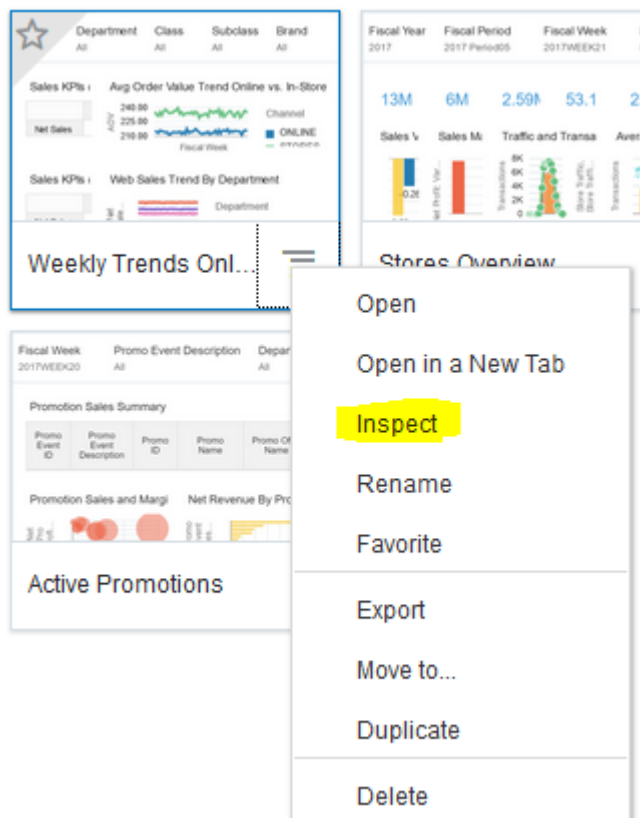
Table 7-1 DV Content Types

Content Type	Explanation
Projects	DV reports and analyses are saved as Project files in the Oracle Analytics Catalog. In Oracle Retail cloud solutions, you may only use two assigned folders in the catalog: /My Folders/ and /Shared Folders/Custom/. You must not save or modify projects in any other location, as these two folders are the only ones designated for backup between upgrades and patches. By default, projects have their own permissions assigned and are not granted to anyone but the owner. The owner must grant the object to administrators if they want projects to be centrally managed.
Datasets	Users can create datasets by uploading Excel spreadsheets or by querying pre-defined database connections. Datasets have their own permissions assigned and are not granted to anyone but the owner by default. The owner must grant the object to administrators if you want datasets to be centrally managed.
Connections	Database connections are managed by Oracle at this time, end users are not expected to create or modify these objects.
Data Flows	Data flows are used to combine multiple datasets or perform complex transformations and data mining algorithms. Data flows cannot be seen or administered by anyone but the object owner.

Project Permissions

By default, projects are only granted to the original owner. If a project is saved to a shared folder, then it will additionally be granted to the user groups/roles that have access to that folder. You may change the permissions on a project at any time as long as you are the owner or an application administrator. Follow the steps below to access and modify permissions on a DV project:

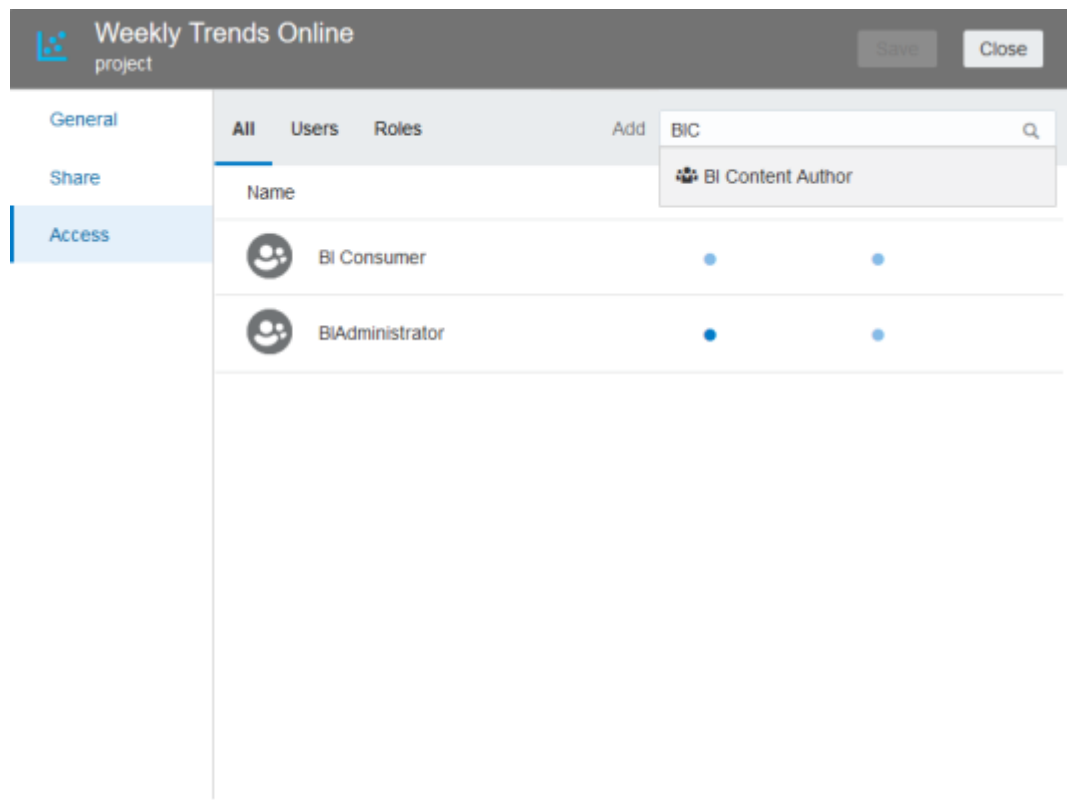
1. From the DV Home page, expand the navigation panel on the left and click **Catalog**.
2. Locate a project file within the /Shared Folders/Custom/ directory that you wish to view or modify the permissions for.
3. Hover over the object tile and click the menu icon that appears.
4. Select the **Inspect** option in the menu.



5. Click the **Access** menu to view or change permissions.

Users and roles that are not listed do not have any access to the project. Users and roles that are listed in the table may have either read-only or read-write access levels assigned.

6. To add new users or roles, click the associated tab and begin typing in the search box. A menu appears when you have entered enough characters to locate a valid user or role name. Click an item in the menu to add it to the project.



7. Hover over the list of users and roles and click the blue dots to change the assigned permission. Click the **X** icon to the right of the user/role to delete it.
8. When you are finished, click **Save** to save the changes, then click **Close**.

 **Note:**

The same steps can be followed to assign permission to folders so you do not need to manage permissions on a project-by-project basis.

For more information on permission management, go to the [Data Visualization User Guide "Permissions" section](#).

Dataset Permissions

By default, datasets are only granted to the original owner. For this reason, you may prefer to have a single administrative user create all the datasets in the system and then centrally manage and grant access to them. Datasets are not shared unless they are explicitly shared with other users or roles. Follow the steps below to access and modify permissions on a DV dataset:

1. From the DV Home page, expand the navigation panel on the left and click **Data**.
2. Click the **Datasets** tab. Hover over the object tile and click the menu icon that appears.
3. Select **Inspect**.
4. Click the **Access** menu to view or change permissions.

5. Users and roles that are not listed do not have access to the project. Users and roles that are listed in the table may have full control, read-only, or read-write access levels assigned. Full control allows the user or group to manage access levels and delete the dataset.
6. To add new users or roles, click the associated tab and begin typing in the search box. A menu will appear when you have entered enough characters to locate a valid user or role name. Click an item in the menu to add it to the project.
7. Hover over the list of users and roles and click the blue dots to change the assigned permission. Click the **X** icon to the right of the user/role to delete it.
8. When you are finished, click **Save** to save the changes, then click **Close**.

For more information on dataset management, go to the [Data Visualization User Guide “Manage Datasets” section](#).

Backup and Restore

Data Visualization content can be imported and exported by administrative users to maintain local copies of user content. This can be useful for migrating content between environments and maintaining backup copies in the case of user error or system failure.

For more information on Catalog management, go to the [Data Visualization User Guide section “Import, Export, and Share”](#).

Backup

To export user content:

1. On the Home page, click **Navigator** then click **Catalog**.
2. In the Catalog page, highlight the project or folder that you want to share and click the **Actions** menu, then select **Export** to open the Export dialog.
3. For **Name**, keep the default name or enter a new name for the export file (.DVA file).
4. Enable the **Include Data** option to include the data when sharing a project or folder. This applies to Excel spreadsheets and similar datasets generated from a file.
5. Do **not** enable the **Include Connection Credentials** option: you do not have the credentials needed to copy database connections. This option is only used by Oracle at this time.
6. Enable **Include Permissions** to include access permission details, so that shared connections work when users import the project.
7. Click **Save**.

This will create a DVA file for you to download and save locally. The DVA file is an archive and may contain multiple projects or folders, but it is recommended to archive individual projects and folders where feasible, to make it easy to restore portions of a catalog.

Restore

To import a DVA file:

1. Go to the Catalog main screen and click the application menu in the upper right corner.
 2. Select **Import Project/Flow** and locate your DVA files, then click **Import** to load them.
- The data will be loaded into the folder you are currently on in the Catalog screen.

Planning and Data Visualization

The Planning applications also allow the use of Data Visualization to review data stored in the planning domains, but the administrator needs to create the Planning Views for the fact data that they want to expose to the Data Visualization solution. There is an Online Administration Task available within Planning Solution to expose the metrics as views so that Data Visualization can be used against those metrics. Please refer to *RPASCE Administration Guide* for more details about exposing metrics to Data Visualization, and refer to the *Configuration Guide* to configure the same for customized Planning solutions.

8

Managing RPAS Applications

Once a Planning application is implemented, an application administrator has a few options available to them in those solutions. The following are the primary activities of a Planning administrator:

- User Administration
- System Administration
- Application Administration

RPAS provides [Online Administration Tools \(OAT\)](#) tasks, which allows an administrator to perform various activities. A Planning administrator will have the ability to schedule and execute all tasks. They can deploy the application, execute batch tasks, and perform various maintenance activities. Because multiple Planning applications can be deployed on the same RPASCE platform, common Administration Activities for all applications can be found in detail in the *RPASCE Administration Guide*. Application-specific administration activities are found in the respective application's Administration Guide, such as the *MFP Administration Guide*.

Online Administration Tools (OAT)

The RPASCE Online Administration Tools (OAT) allows the application administrator to manage back-end operations on an application from the RPASCE Client. OAT consists of two parts. The first part is a set of activities in the task flow (which is a part of the UI) that allows authorized users to launch tasks and manage back-end processes from the client. The second part is a task status dashboard for an administrator to monitor the status of all the administrative tasks after they have been submitted.

Submit a New Admin Task

Select Task Group

- Configured Batch Tasks
- PDS Admin Tasks
- System Admin Tasks
- SR Admin Tasks
- Bootstrap Tasks
- Patch Application Task

Description	Status	Task Type	Submitted by	Started/Scheduled	Completed	Record Status
Health-Check: Pendo Task	Scheduled	hc-pendo-task		9/7/21 8:00:00 PM		---
Health-Check: Pendo Task	Success	hc-pendo-task		9/6/21 8:00:18 PM	9/6/21 8:00:49 PM	---
Health-Check: Remove Orphaned Workbooks	Scheduled	hc-orphaned-wbks		9/9/21 5:00:00 PM		---

Below are the broad classifications of OAT tasks:

- 1. Bootstrap Tasks:** These are the basic tasks available once the application is provisioned. These tasks are needed to build the Application as a template application or configurable application. By default, the Application is deployed as a template application, though it also has a task to change the template status.
- 2. System Admin Tasks, PDS Admin Tasks, SR Admin Tasks:** These are all administration activities, like Managing Hierarchy, Dimensions, Users, Workspaces, and System Properties; and Dashboard scheduling. Details about all tasks can be found in the *RPACE Administration Guide*.
- 3. Configured Batch Tasks:** All planning application batch tasks are controlled by customizable batch control files. The administrators manage the batch control files and schedules tasks through Configured Batch Tasks. Pre-configured batch tasks for template applications are documented in the application-specific Administration Guides.

In addition to the above activities, an administrator can also perform various maintenance activities as specified below, which are covered in detail in the *RPASCE Administration Guide*.

1. Hierarchy Maintenance
2. Security Administration
3. Translation Administration
4. Position Translation Administration
5. Performance Diagnostic Tool

Your implemented Planning application can also have some administrative activities specific to the application. Those activities are mostly application-level administration duties that are defined within the application templates. Details can be found in application-specific User Guides.

9

Managing APEX and Extensions

Innovation Workbench (IW) is a workspace that provides read-only access to application data objects and a clean database schema by using Oracle APEX. This tool is a workspace for advanced analytics users to add new code by using Oracle Advanced Analytics (Oracle R/ODM) algorithms as well as SQL/PLSQL functions. IW is included with a subscription to the Retail Insights and AI Foundation Suite of cloud services. As an application administrator, you may be expected to handle certain tasks within Oracle APEX, such as user account management and workspace configuration.

Prerequisites

Before you can log in to Oracle APEX for the first time, you must set up the login details for the APEX workspace administrator. A Retail Workspace Administrator (rtlwsp_admin) account has been created during AI Foundation provisioning. This has the necessary privileges within the APEX workspace. However, since this APEX instance uses header authentication, an IAM entry will need to be created for this username as a one-time activity. Login to IAM as an administrator, create a new user, and set the information as shown below.

User Name: rtlwsp_admin

First/Last Name: APEX

Password: <use any password meeting your security requirements>

Figure 9-1 APEX User Setup in IAM

The screenshot shows a form titled "Account Information" with the following fields and values:

Field	Value
User Name	rtlwsp_admin
Prefix	
First Name	APEX
Middle Name	
Last Name	APEX
Suffix	

After the user is created, also update the IAM group assignments for it. It must have the IAM group for DATA_SCIENCE_ADMINISTRATOR_JOB (or DATA_SCIENCE_ADMINISTRATOR_JOB_PREPROD

in non-production environments). These roles grant access to the Innovation Workbench URLs when using the AI Foundation user interface to log in. Users that don't need administrator access can just be given `DATA_SCIENCE_ANALYST_JOB` and `DATA_SCIENCE_ANALYST_JOB_PREPROD`, which grants access to non-administrator links only.

Once you have set up the administrator account, you may access the application using the Retail AI Foundation Cloud Services application menu under Innovation Workbench. You can also navigate directly to APEX using the URL format:

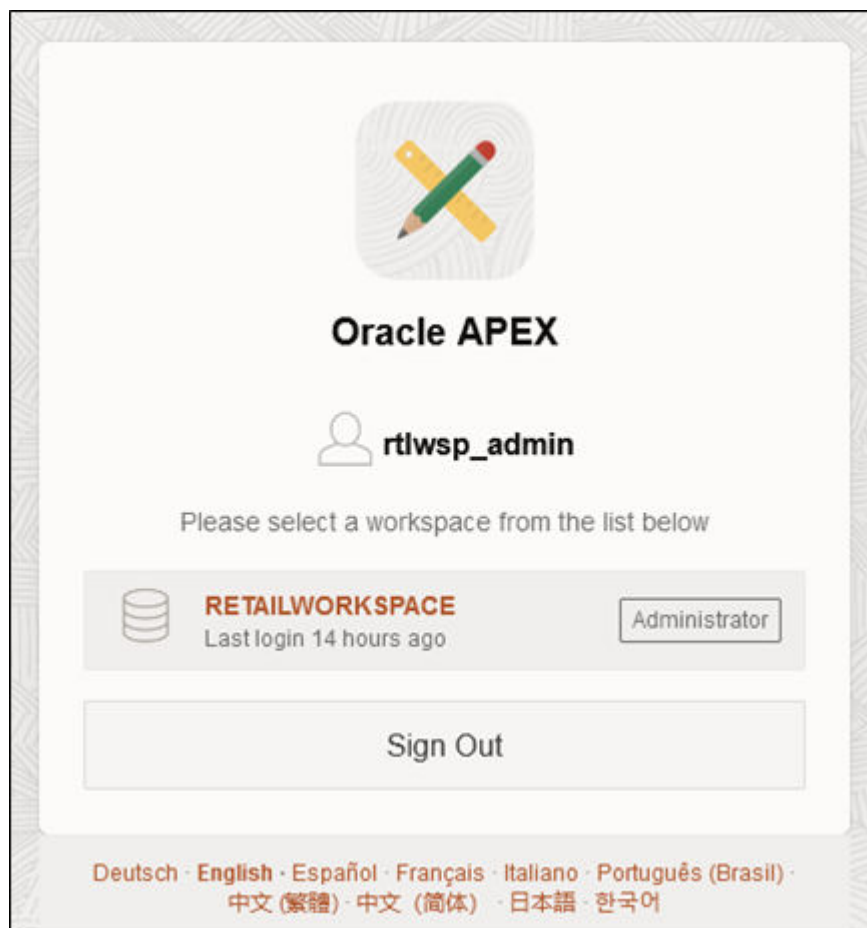
```
https://<base URL>/<environment ID>/ords/
```

For example:

```
https://ocacs.ocs.oc-test.com/nryfhvv15k3imnq6/ords/
```

You will then be presented with the welcome screen, where you must select an available workspace for the user to continue.

Figure 9-2 APEX Workspace Pre-Authenticated Login



Review the product documentation before starting any work in APEX:

<https://apex.oracle.com/en/learn/documentation/>

User Management

For the purposes of this documentation, there are three types of APEX users: end users, development users, and workspace administrator users. End users are users with access to the applications built with APEX. They will log into and use those applications, but not be involved in their development or management. Development users, on the other hand, can create and manage the APEX applications the end users use. Within this set of users, there are Developer and Workspace Administrator roles. Users with Developer role can create and edit APEX applications, while Workspace Administrators can do that as well as manage the application lifecycle and workspace settings.

This document will focus on managing Development and Workspace Administrator users. End-user authentication is managed by the Workspace Administrator, who can choose any supported form of authentication for the APEX applications developed. Development/Workspace Administrator user authentication is provided through integration with IDCS. The APEX Workspaces provisioned is configured to use HTTP Header Variable authentication.

Once provisioned, the workspace comes with a single user. This user is the Workspace Administrator for that workspace. For initial access, each Workspace Administrator account must have a matching username in IDCS. The Workspace Administrator account passwords and their lifecycle will then be managed in IDCS going forward. There is no need to synchronize this user with APEX. The only requirement is the usernames match.

This is the set of Workspace and Workspace Administrators provided with this release:

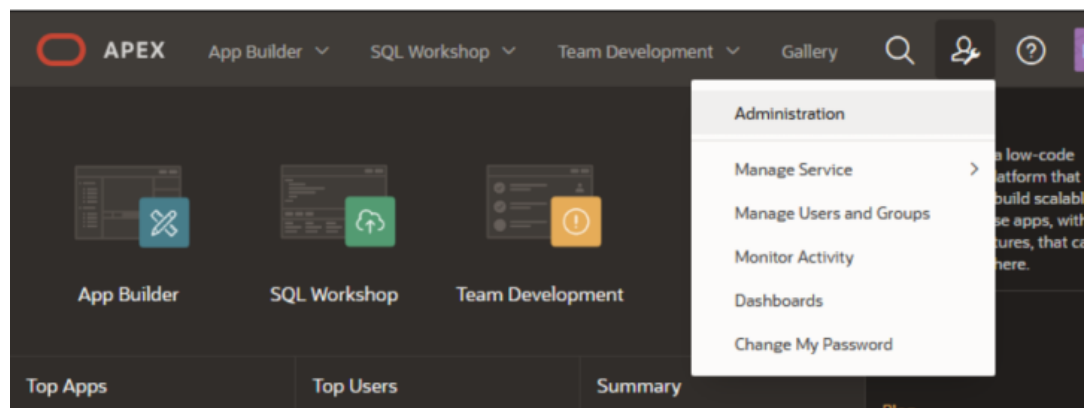
- **Workspace:** RETAILWORKSPACE
- **Workspace Administrator:** RTLWSP_ADMIN

In most cases, teams will need to create additional development/workspace administrator users in this workspace to facilitate the development of APEX applications and REST endpoints. The Workspace Administrator account has the permissions to create additional Developer and Workspace Administrator users through the APEX UI. Any additional users created will need to follow the same pattern as the default user accounts. Create the users in APEX and create matching usernames in IDCS. Like the default Workspace Administrator accounts, these new accounts will have their passwords live in IDCS. For the APEX user creation, use the workspace's **Administration** menu in the top right corner to access **Manage Users and Groups**.

Using the default workspace administrator, RTLWSP_ADMIN, manually add user accounts to the workspace based on their needed level of access. If the user created is an administrator or developer, a database schema will also be created for that username.

To add users in APEX, do the following:

1. From the APEX start page, access the Administration menu in the upper right corner and select the **Manage Users and Groups** option.



2. Click the **Create User** button within the User Management screen.
3. On the create user form, enter the **Username** and **Email**, which are identical to the OCI IAM user account you wish to add.
4. Under Account Privileges, select whether the **User is a workspace administrator** or the **User is a developer**.

If neither option is selected, then the user will not have the ability to create anything in APEX but may be able to access applications that are already created.

Account Privileges

Default Schema	RTLWSP01	?
Accessible Schemas (null for all)		?
User is a workspace administrator:	<input type="radio"/> Yes <input checked="" type="radio"/> No	?
User is a developer:	<input checked="" type="radio"/> Yes <input type="radio"/> No	?
App Builder Access	Yes	?
SQL Workshop Access	Yes	?
Team Development Access	No	?
Set Account Availability	Unlocked	?

5. For the **Password**, you may enter any value you wish. The APEX password is not used when authentication is managed by OCI IAM.
6. Ensure the option **Require Change of Password on First Use** is set to **No**, as we do not want APEX to manage the authentication.
7. Under Group Assignments, add one or more privileges to the user if they are a Developer or Administrator. When you are finished, click **Create User** at the top of the screen to add them to APEX.

For details on other user management activities in APEX, refer to the *APEX Administration Guide* chapter “Understanding Workspace Administration”.

<https://docs.oracle.com/en/database/oracle/application-express/index.html>

Application Management

If you are creating custom applications within APEX, an application administrator may be expected to import and export data and configurations between environments. These tools are located under the main menu for **App Builder > Import or Export**.

To import or export a workspace, refer to the *APEX Administration Guide* section [Exporting and Importing a Workspace](#).

To import or export an application, refer to the *APEX App Builder's User Guide* section on [Deploying an Application](#).

For managing high volumes of data between environments (such as moving from a Stage to a Production environment), you should, if possible, regenerate the data tables in the target environment to ensure they are aligned with that database's data. You may also log a Service Request with Oracle to request that a lift-and-shift operation be done on the APEX workspace schema.

AI Foundation Application Usage

Included with the AI Foundation subscription is access to both the Application Express tool and a variety of other functionality, collectively referred to as the Innovation Workbench. This includes Python notebooks and Oracle Data Mining processes for advanced analytics users. Access this advanced functionality using the AI Foundation application user interface links for Notebooks. You must also have the OCI IAM roles for `DATA_SCIENCE_OLDS_ADMIN_JOB` or `DATA_SCIENCE_OLDS_ANALYST_JOB` (or their associated `PREPROD` groups).

For more details on Notebook usage, see the *AI Foundation Cloud Services Implementation Guide* chapter “Innovation Workbench”.

10

Managing Inventory Planning Optimization- Inventory Planning Cloud Services

User Security and Application Security Policies

Like other Retail Analytics and Planning applications, Inventory Planning Optimization-Inventory Planning leverages Oracle Cloud Infrastructure Identity and Access Management (OCI IAM). For more information on this refer to [Managing User Security](#).

For complete information on Oracle Retail's authentication policies, pre-defined user roles, and environment setup information, refer to the [Oracle Retail Identity Management for OCI IAM Startup Guide](#). The Startup Guide is the primary source for the latest information about Oracle Retail user and group management practices across all our applications. The chapter in this document only provides supplemental details.

Inventory Planning Optimization-Inventory Planning Cloud Services are built with role-based access to features and functionality. One set of OCI IAM groups is used to control access to viewing the Inventory Plan View. Another set of groups controls access to editing the plan view, including managing and publishing overrides to Inventory Policies as well as previewing the effects of changing overrides prior to publishing them. Another set of OCI IAM groups is used for system administration functionality such as setting application properties.

For a complete list of available groups and more details, refer to the [Oracle Retail Identity Management for OCI IAM Startup Guide](#) section on "Inventory Planning Optimization Cloud Service".

Inventory Planning Optimization-Inventory Planning Batch Jobs

Unlike other Retail Analytics and Planning applications, IPO-IP batches are not managed through the Process Orchestration and Monitoring (POM) application.

IPO-IP Batch Jobs:

- **Rebuild Plan View Fact Tables** - Rebuilds fact tables used by the Plan View; refreshes the Plan View with processed optimizations.
- **Generate Alerts** - Generates Inventory Planning Optimization-Inventory Planning alerts based on the currently configured IPO-IO Strategy Rules.

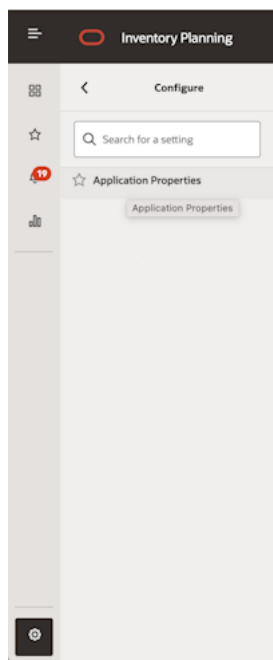
IPO-IP batches are executed after IPO-IO batches successfully complete because they further process the output of IPO-IO batch jobs. A scheduled job in the database runs every 10 minutes, checking whether a new IPO-IO batch run has completed successfully. If so, the IPO-IP batch is triggered. A new IPO-IP batch job is also triggered as a retry if the previous IPO-IP batch run failed.

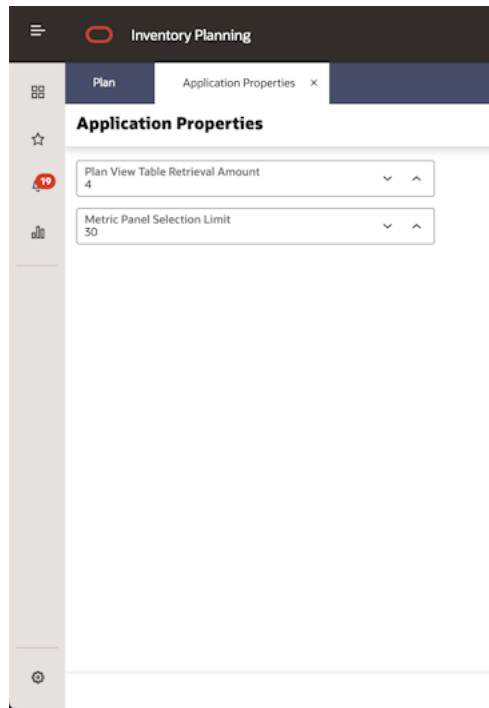
Application Properties

The following application properties can be set by an IPO-IP Administrator (any user assigned the `IP_ADMINISTRATOR` role IAM Group).

Property	Default Value	Description
Plan View Table Retrieval Amount	4	Controls how many Individual tables are loaded at a time on the Plan View.
Plan View Metric Panel Selection Limit	30	Controls the maximum number of metrics that can be selected in the Metrics Panel. Must be greater than or equal to 1.

Properties are accessible from the **Application Properties** tab, which is open through **Settings > Configure > Application Properties** in the Navigator panel.

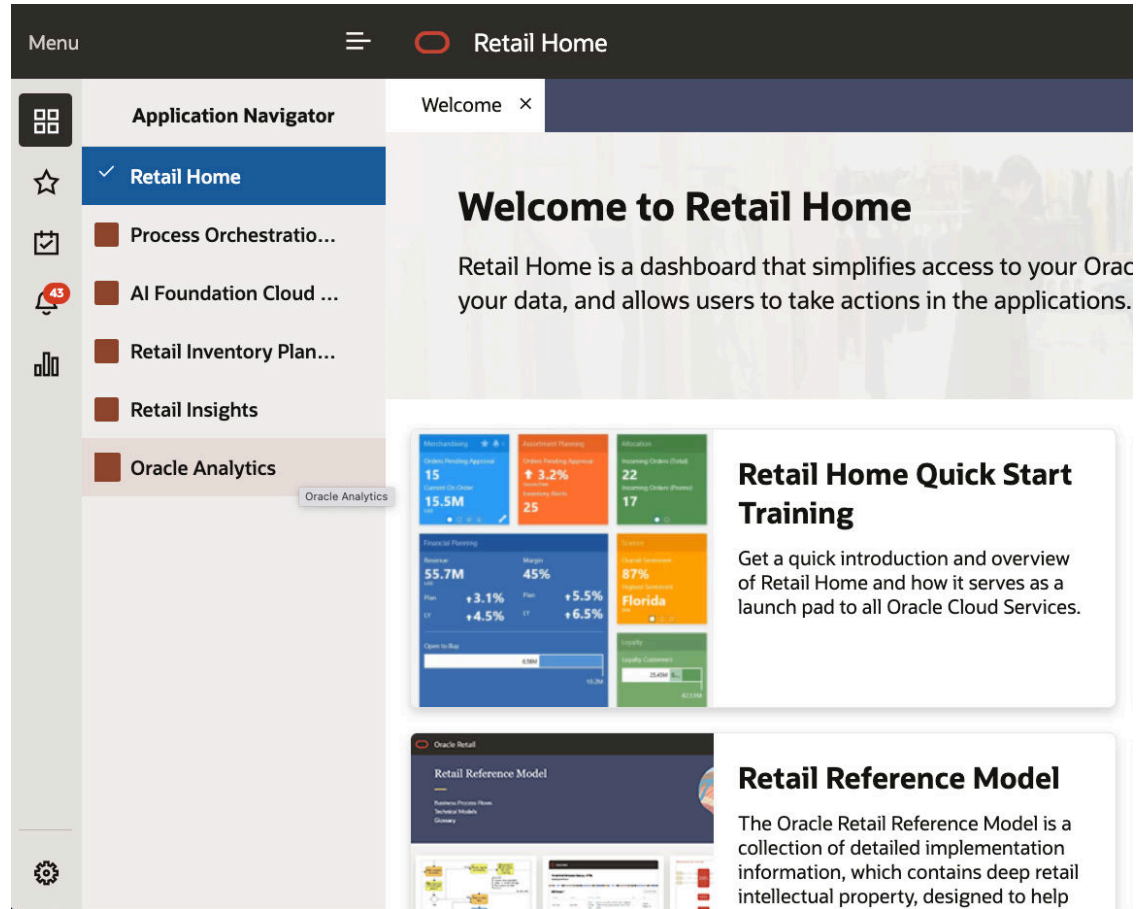




Launching Data Visualization from Retail Home

When an Inventory Planning Optimization-Inventory Planning Cloud Service is provisioned, the Oracle Analytics link is added to Retail Home's Navigator panel. This link launches the Data Visualization (DV) application in a separate tab. Users must have required permissions to gain access to DV. For more information on this, refer to the section [Accessing the Application](#).

Figure 10-1 Retail Home: Oracle Analytics Link to Data Visualization Application



Managing Access Control for the Oracle Analytics Link

Access to the Oracle Analytics link can be restricted to users with the `IP_DV_VIEWER` role by importing the requisite role mapping. To do this, follow steps in the **Managing Roles** section in *Retail Home Administration Guide*. To create the role mapping CSV file, save the following as a `.csv` file:

Example 10-1 `oa-link-role-mapping.csv`

```
"App Name","Role Name"  
"Oracle Analytics","IP_DV_VIEWER"
```

A

General Privacy and Security Information

This appendix described data privacy and security.

Privacy by Design

To support data privacy enhancements, retail applications have a data privacy web service interface and command line tool to provide retailers with services for requesting access to personal information for review and forget/update the personal information, if requested.

Following are examples of personal information:

- Full Name
- Home address
- Email address
- Date of birth

The following features are provided by RI for using the data privacy command line tool:

- **Right to Access (RTA)**

Retailers can accept and respond to end-user requests for data access, correction, and deletion of individual end-user data records they store in the Oracle service.

- **Right to be Forgotten (RTF)**

To support an end-user's right to request to forget/update personal information, retailers can delete/update (mask) an end-user's personal data during the services period. Certain data that is critical for the business or that is part of the legal requirement may not be deleted.

Data Minimization

RI uses the database role, enterprise role, and application role to control who has access to data. Through the front-end, RI provides default enterprise roles based on the corresponding application roles provided by RI. Users assigned to a specific enterprise role can only access a specific function area. See [Administrative Tasks](#) for details. At the database level, different database roles are assigned to different types of users. The front-end user role only has read permission for RI data. The batch user role has read, insert, update, and delete permissions for RI data.

In a future release, RI will provide customers with controls and tools to configure data purging based on certain criteria order to minimize the amount of data used and the length of storage.

Data Deletion

RI is a Business Intelligence system that stores the customer-centric/ merchandising data for a specified time limit only, as this is required for making business decisions. When data reaches the threshold, it is deleted from the system.

Customers will have access to controls to configure data purging in a future release of RI.

Right to Access / Right to Forget

RI provides a web service interface (file `RetailAppsDataPrivServices-7.0.1-RetailAppsDataPrivServices.ear`) for right to access and right to forget. The service provides a REST call to return end-user information based on a provided key and provides a REST call to forget the end-user based on a provided key. The feature is also available on the command line by using the jar file `RetailAppsDataPrivServices-7.0.1-RetailAppsDataPrivTool.jar`.

RI provides three groups (`type_id`) for right to access and right to forget.

- **CustomerRecord**
By providing the customer number as a key, the end user can access or forget the PII data for the customer, customer address, and history sales information related to this customer.
- **Employee**
By providing the employee number as a key, the end user can access or forget the PII data for the employee.
- **Supplier**
By providing the primary contact name as a key, the end user can access or forget the supplier contact name and supplier contact phone number information.

Data Portability

RI provides the capability for the end users to export the downloaded report to transmit data to another controller.

Encryption

RI uses Oracle Transparent Data Encryption TDE tablespace encryption to encrypt entire RI tablespaces.

Data Masking

Oracle data redaction is used for RI data masking. A data redaction policy has been created in RI on columns `W_PARTY_PER_D. ETHNICITY_NAME` and `W_PARTY_PER_D. ETHNICITY_CODE`. Only users who are granted `EXEMPT REDACTION POLICY` can view the data. Out of the box, only the RI batch user is granted `EXEMPT REDACTION POLICY`.