

Oracle® Retail Sales Audit
Operations Guide
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Preface

This *Oracle Retail Sales Audit Operations Guide* provides critical information about the processing and operating details of Oracle Sales Audit (ReSA), including the following:

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

Since ReSA is still closely integrated with the Oracle Retail Merchandising System (RMS) for data inputs, processes, and outputs, see the *Oracle Retail Merchandising System Operations Guide* for more information.

Sales Audit Systems administration and operations personnel

- Systems analysts
- Integrators and implementers
- Business analysts who need information about the Oracle Retail Sales Audit processes and interfaces

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- Detailed step-by-step instructions to re-create
- Exact error message received
- Screen shots of each step you take

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When you install the application for the first time, you install either a base release (for example, 16.0) or a later patch release (for example, 16.01). If you are installing the base release or additional patch releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch

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Conventions

Navigate: This is a navigate statement. It tells you how to get to the start of the procedure and ends with a screen shot of the starting point and the statement “the Window Name window opens.”

This is a code sample

It is used to display examples of code

Introduction

The purpose of the Oracle Retail Sales Audit (ReSA) is to accept transaction data from Point-Of-Sale (POS) and Order-Management-System (OMS) applications and move the data through a series of processes that culminates in *clean* data. Data that ReSA finds to be inaccurate is brought to the attention of the retailer's sales auditors who use the features of the sales audit system to correct the exceptions.

By using ReSA, retailers can quickly and accurately validate and audit transaction data before it is exported to other applications. ReSA uses several batch-processing modules to do the following:

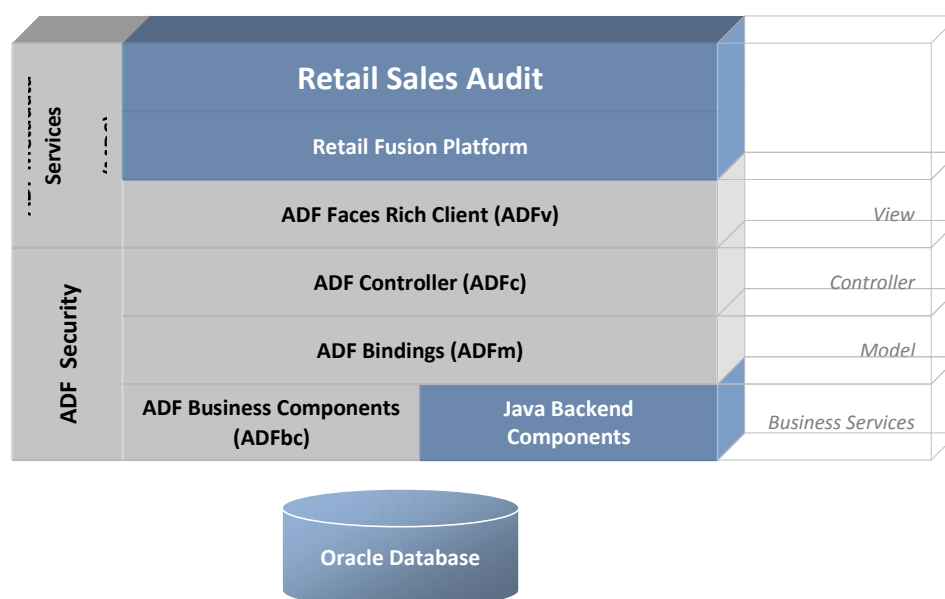
- Import POS/OMS transaction data sent from the store to the ReSA database.
- Produce totals from user-defined totaling calculation rules that a user can review during the interactive audit.
- Validate transaction and total data with user-defined audit rules that generate errors whenever data does not meet the criteria. You can review these errors during the interactive audit.
- Create and export files in formats suitable for transfer to other applications.
- Update the ReSA database with adjustments received from external systems on previously exported data.
- Integrate Out of the Box (OOTB) with Xstore.

Technical Architecture

This chapter describes the overall software architecture for Oracle Retail Sales Audit and provides a high-level discussion of the general structure of the system, including the various layers of Java code.

Overview

Retail Applications are based on the Oracle Application Development Framework (ADF). The following diagram shows the key components that make up the architecture of Retail Sales Audit.



Oracle Application Development Framework (ADF)

Oracle Application Development Framework (ADF) supports organizations in building cutting-edge rich enterprise business applications that can be customized and personalized in all dimensions. Customizations are global changes, visible to all users that are performed by an administrator. Personalizations are user-made changes that are only visible to the person making the change. ADF is based on the Java Enterprise Edition platform

Model-View-Controller (MVC) Architectural Pattern

Applications built using ADF follow a Model-View-Controller (MVC) architectural pattern. The goal of the MVC pattern is to clearly separate the application's functionality into a set of cooperating components.

ADF provide a set of components that realize the goals of each part of MVC pattern

- Model is realized by the ADF Bindings Layer
- Controller is realized by the ADF Controller Layer
- View is realized by the ADF Faces Layer

- ADF Business components and other backend components that sit below the Model layer are called Business Services

ADF Security

The ADF security layer provides the following:

- Standards based (Oracle Platform Security Services (OPSS)) security framework with default roles and permissions.
- Tools to generate file-based identity store (for both Oracle Internet Directory and AD) based on the framework.
- Tools to migrate file-based security store in to database for QA and production environments.
- Reference implementation for clients to manage the security based on their business needs.
- OPSS-based batch security framework (RAF).
- Tools/documentation to implement centralized logout in SSO (Oracle Access Management (OAM)) environments.

ADF View (ADFv)

The View layer provides the user interface to the application. The view layer uses HTML, rich Java components or XML and its variations to render the user interface. JSF based tag libraries are used for displaying the UI.

ADF Controller (ADFc)

The ADF Controller layer controls the application's flow. Web based applications are composed of multiple web pages with dynamic content. The controller layer manages the flow between these pages. Different models can be used when building this later. The most prominent architecture for Java-based web applications relies on a servlet that acts as the controller. The Apache Jakarta Struts controller, an open source framework controller, is the de facto standard for Java-based web systems. Oracle ADF uses the Struts controller to manage the flow of web applications.

ADF Business Components (ADFbc)

The business service layer manages the interaction with a data persistence layer. It provides services as data persistence, object/relational mapping, transaction management and business logic execution.

The idea behind Business Components is to abstract the data layer from the view layer. This is a key concept in the MVC pattern. Business Components will expose the interface to the view layer by using an application module that contains View Object. Those view objects contain a specific usage of the data layer.

ADF Business Components implements the business service through the following set of cooperating components:

- Entity object: An entity object represents a row in a database table and simplifies modifying its data by handling all data manipulation language (DML) operations for you. It can encapsulate business logic for the row to ensure that your business rules are consistently enforced. You associate an entity object with others to reflect relationships in the underlying database schema to create a layer of business domain objects to reuse in multiple applications.
- View object: A view object represents a SQL query. You use the full power of the familiar SQL language to join, filter, sort, and aggregate data into exactly the shape required by the end-user task. This includes the ability to link a view object with

others to create master-detail hierarchies of any complexity. When end users modify data in the user interface, view objects collaborate with entity objects to consistently validate and save the changes.

- **Application module:** An application module is the transactional component that UI clients use to work with application data. It defines an updatable data model and top-level procedures and functions (called service methods) related to a logical unit of work related to an end-user task.

ADF Model (ADFm)

This component acts as the connector between the view and business logic layers. The Model layer connects the Business Services to the objects that use them in the other layers. Oracle ADF provides a Model layer implementation that sits on top of Business Services, providing a single interface that can be used to access any type of Business Services.

Developers get the same development experience when binding any type of Business Service layer implementation to the view and Controller layers. The Model layer in Oracle ADF served as the basis for JSR 227, A Standard Data binding & Data Access Facility for J2EE.

Oracle Metadata Services (MDS)

The ability of an application to adapt to changes is a necessity that needs to be considered in the application design and should drive the selection of the development platform and architecture. Flexible business applications must be able to adapt to organizational changes, different end user preferences, and changes in the supported business are required.

MDS is the customization and personalization framework integral to Oracle Fusion Middleware and a key differentiator of the Oracle development platform. MDS provides a repository for storing metadata for applications, such as customizations and persisted personalization files and configurations.

Retail applications allow the following through MDS:

- Personalization of saved searches through MDS.
- Implicit personalization of few ADF UI attributes

Retail Fusion Platform

The Retail Fusion Platform (commonly referred to as Platform) is a collection of common, reusable software components that serve as foundation for building Oracle Retail's next generation ADF-based applications. The Platform imposes standards and patterns along with a consistent look and feel for Oracle Retail's ADF applications.

Data Access Patterns

Database interaction between the middle tier and database is done using the industry standard Java Database Connectivity Protocol (JDBC). JDBC facilitates the communication between a Java application and a relational database.

Database Access Using ADFbc

JDBC is engrained within Oracle ADF Business Components as the primary mechanism for its interaction between the middle tier and database. SQL is realized within ADF business components to facilitate create, read, update, and delete (CRUD) actions.

Connection Pooling

When the application *disconnects* a connection, the connection is saved into a pool instead of being actually disconnected. A standard connection pooling technique, this saved connection enables Retail Applications to reuse the existing connection from a pool. In other words, the application does not have to complete the connection process for each subsequent connection.

Data Storage

The Oracle Database realizes the database tier in a Retail Application's architecture. It is the application's storage platform, containing the physical data (user and system) used throughout the application. The database tier is only intended to handle the storage and retrieval of information and is not involved in the manipulation or delivery of the data. This tier responds to queries; it does not initiate them.

Accessing Merchandising System Data in Real Time

Retail Applications share the same schema as the merchandising system (RMS, for example), the application is able to interact with the merchandising system's data directly, in real time.

Backend System Administration and Configuration

This chapter describes the backend system administration and configuration.

Managing Application Navigator

Retail Applications provide an ability to switch between applications using the Application Navigator facility. These applications are configured using the Manage Application Navigator screens on Retail Application Administration Console (RAAC). For more details on Application Navigator in RAAC, Refer to the *Oracle Retail Merchandising Implementation Guide*.

Managing Functional Security

This chapter discusses the Functional Security for Retail Applications and the components used to implement it. Functional security is based on OPSS. For more details on OPSS, refer to the *Oracle Fusion Middleware Application Security Guide*.

Introduction to Retail Roles

Users are not assigned to permissions directly; rather access is assigned to roles. Roles group particular permissions required to accomplish a task; instead of assigning individual permissions, roles match users with the permissions required to complete their particular task.

There are two main types of roles, enterprise and application.

The Identity Store contains enterprise roles that are available across applications. These are created as groups in LDAP, making them available across applications.

Applicable Retail Applications security provides four types of roles: abstract, job, duty, and privilege.

Applicable Retail Applications will record job, abstract roles as enterprise roles and duty, privilege roles as application roles.

Security Policy Stripe

Application roles are stored in the application-specific policy store. These roles and role mappings are described in the `jazn-data.xml` file under the policy stripe. For ReSA, the policy strip is "Resa".

Abstract Roles

Abstract roles are associated with a user, irrespective of their job or job function. These roles are not associated with a job or duty. These roles are normally assigned by the system (based on user attributes), but can be provisioned to a user on request.

Naming Convention: All the Retail Abstract role names end with '_ABSTRACT'.

Example: `APPLICATION_ADMIN-ABSTRACT`

Job Roles

Job roles are associated with the job of a user. A user with this job can have many job functions or job duties.

Note: These roles are called Job roles as the role names closely map to the jobs commonly found in most organizations.

Naming Convention: All the Retail Job role names end with '_JOB'.

Example: SALES_AUDIT_ANALYST_JOB.

Duty Roles

Job duties are tasks one must do on a job. A person is hired into a job role. These are the responsibilities one has for a job.

Duty roles are roles that are associated with a specific duty or a logical grouping of tasks. Generally, the list of duties for a job is a good indicator of what duty roles should be defined.

Duty roles should:

- Read as a job description at a job posting site.
- Duties that are created should be self-contained and pluggable into any existing or new job or abstract role.

Naming Convention: All the Retail duty role names end with '_DUTY'.

Example: RESA_AUDITRULE_MGMT_DUTY

Privilege Roles

Privilege is the logical collection of permissions. A privilege can be associated with any number of UI components. Privileges are expressed as application roles.

Naming Convention: All the Retail Privilege role names end with '_PRIV'.

Example: SEARCH_AUDITRULE_PRIV.

Privilege roles carry security grants.

```
<grant>
  <grantee>
    <principals>
      <principal>
        <class>oracle.security.jps.service.policystore.
          ApplicationRole</class>
        <name> SEARCH_AUDITRULE_PRIV </name>
      </principal>
    </principals>
  </grantee>
  <permissions>
    <permission>
      <class>oracle.adf.controller.security.TaskFlowPermission</class>
      <name>/WEB-INF/oracle/retail/apps/resa/auditrule/search/publicui/flow/SearchAuditRuleFlow.xml
        #SearchAuditRuleFlow</name>
      <actions>view</actions>
    </permission>
  </permissions>
</grant>
```

Retail Role Hierarchy

Retail role hierarchies are structured to reflect the retail business process model.



Job roles inherit duty roles. For example, the Sales Audit Analyst Job role inherits the RESA_AUDITRULE_MGMT_DUTY roles.

```
<app-role>
  <name>RESA_AUDITRULE_MGMT_DUTY</name>
  <class>oracle.security.jps.service.policystore.ApplicationRole</class>
  <members>
    <member>
      <class>oracle.security.jps.internal.core.principals.
        JpsXmlEnterpriseRoleImpl</class>
      <name>SALES_AUDIT_ANALYST_JOB</name>
    </member>
  </members>
</app-role>
```

Duty roles inherit Privilege roles. Duty roles can inherit one or more other Duty roles.

Example: RESA_AUDITRULE_MGMT_DUTY inherits RESA_AUDITRULE_INQUIRY_DUTYrole.

```
<app-role>
  <name>RESA_AUDITRULE_INQUIRY_DUTY</name>
  <class>oracle.security.jps.service.policystore.ApplicationRole</class>
  <members>
    <member>
      <class>oracle.security.jps.internal.core.principals.
        JpsXmlEnterpriseRoleImpl</class>
      <name>SALES_AUDIT_ANALYST_JOB</name>
    </member>
    <member>
      <class>oracle.security.jps.service.policystore.ApplicationRole</class>
      <name>RESA_AUDITRULE_MGMT_DUTY</name>
    </member>
  </members>
</app-role>
```

Example: RESA_AUDITRULE_INQUIRY_DUTYrole inherits the SEARCH_AUDITRULE_PRIV role.

```
<app-role>
  <name>SEARCH_AUDITRULE_PRIV</name>
  <class>oracle.security.jps.service.policystore.ApplicationRole</class>
  <members>
    <member>
      <class>oracle.security.jps.service.policystore.ApplicationRole</class>
      <name>RESA_AUDITRULE_INQUIRY_DUTY</name>
    </member>
  </members>
</app-role>
```

For more details on the roles/privileges for ReSA, refer the *Oracle Retail Merchandising Security Guide*

Default Security Reference Implementation

Retail Applications ship with a default security reference implementations. The source of truth for default reference implementation is jazn-data.xml.

Privileges

Name	Description
Search Store Days Priv	A privilege for searching for store days and store day total transaction data summary information (transaction data summary).

Duties

Name	Description	List of Privileges
Store Day Inquiry Duty	A duty for viewing store days.	- Search Store Days Priv - View Store Days Priv - View Flash Reports Priv

Role Mapping

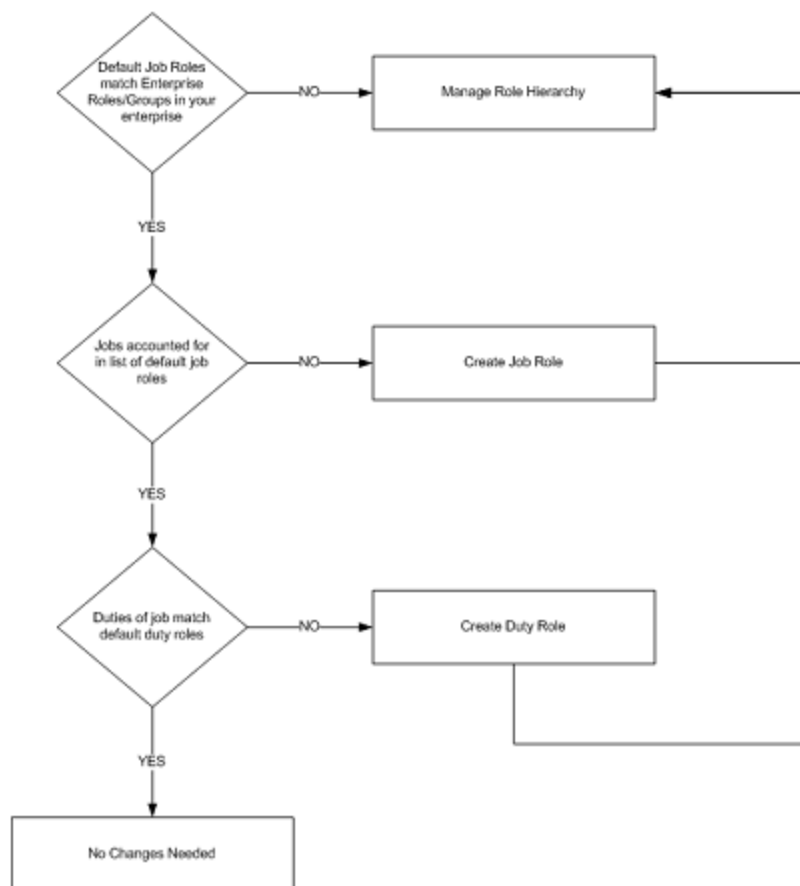
Name	Description	List of Privileges
Store Day Inquiry Duty	A duty for viewing store days	- Search Store Days Priv - View Store Days Priv - View Flash Reports Priv

Extend the Default Security Reference Implementation

The common decisions made to match your enterprise to the default security reference implementation include the following:

- Do the default job roles match the equivalent job roles in your enterprise?
- Do the jobs in your enterprise exist in the security reference implementation?
- Do the duties performed by the jobs in your enterprise match the duties in the security reference implementation?

Note: Make sure that the policy store is loaded with the default security configuration. For more information, see the post-installation steps in the Oracle Retail Sales Audit Installation Guide.



Note: It is important when constructing a role hierarchy that circular dependencies are not introduced. Best practice is to leave the default security configuration in place and first incorporate your customized application roles in a test environment.

Managing Roles in Retail Application Administration Console

Retail Applications provide a way in which retailers can modify the default roles to map to their security groups through the Retail Application Administration Console (RAAC). RAAC is installed along with the Retail Application. Users with proper security privileges to access RAAC can launch RAAC by clicking on a link from the Retail Application's global menu.

For more details about using RAAC, refer to the *Oracle Retail Merchandising Implementation Guide*.

Disabling Content

There are situations where administrators need to disable certain links or the default content such as Dashboards due to unavailability or other reasons. Retail Applications provide the flexibility to disable such content so that the application remains largely unaffected.

Safe Mode

Applications can choose to serve certain content such as dashboards to users upon launching the application. This is referred to as “Default Content”. However sometimes this default content may cause delays in application launch after logging-in or worse it may render the application unusable.

To handle such scenarios Retail Applications provide a feature for Administrators called “Safe Mode” which allows the user to log in without serving up any default content. Once this mode is turned on, no default content is shown to any user when the application is launched. To turn on this mode the property “uishell.load.safe.mode” must be set to true in the RetailAppsViewController.properties file.

Disabling Links in the Sidebar

Administrators may occasionally need to disable content launchable from links in the sidebar navigation tree. Retail applications provide the ability to disable such links.

To disable a link the Administrator must first find the “id” of that link as specified in the SidebarNavigationModel.xml file. This value must then be provided to the property “uishell.sidebar.invalid.item.ids” within the RetailAppsViewController.properties file. To disable more than one link, pass in multiple ids separated by a comma.

Managing Oracle Metadata Services (MDS)

Retail Applications are built using ADF and one of the features within ADF is the Oracle Metadata Services (MDS) framework which provides a facility for retailers to customize the applications.

For more information on MDS, refer to the document, Oracle Fusion Middleware Fusion Developer’s Guide for Oracle Application Development Framework:

<https://docs.oracle.com/middleware/1213/adf/develop/adf-web-customizing-apps.htm#ADFFD2077>

Overview of Oracle Metadata Services (MDS)

Oracle Metadata Services (MDS) is a key infrastructure component in Oracle Fusion Middleware. It is the layer through which metadata is loaded, saved, cached, stored, managed, and customized both by various middleware components and by the applications built on Fusion Middleware.

The use of MDS in ADF applications, for example, can allow applications to remember how users like to work, and therefore not require them to set up the application for every session. This may include, for example, saving of common searches and screen layouts for every user. This allows making use of the application easier and more intuitive for the users. MDS provides a foundation that can be leveraged by Oracle Application Development Framework (ADF) applications to provide such persistent personalization.

Oracle Metadata Services (MDS) makes use of metadata repositories or partitions. A Metadata repository or partition contains metadata for Oracle Fusion Middleware components. It can also contain metadata about the configuration of Oracle Fusion Middleware and metadata for applications. Oracle Metadata Services (MDS) stores the customizations in a metadata repository and retrieves them at runtime to merge the customizations with the base metadata to reveal the customized application.

A common problem when a patch is installed for a Retail Application is that certain screens would fail to load or UI elements fail to display data properly.

The cause of this issue is commonly attributed to user personalization on screen elements that are now removed in the patch.

For example, prior to patching the application, users may have saved search criterias on certain screens as a way to conveniently recall their desired search results whenever they use the application. Those saved search criterias are persisted by ADF in the MDS repository. If the patch involves the removal of one of the attributes used in the search criterias, applying the patch will cause the screens that have those search criterias fail to load.

The MDS repository is configured in the WebLogic server where the Retail Application is deployed. The repository is database-based and it is organized or subdivided into partitions. Retail Applications are deployed with their own partition within the server's MDS repository.

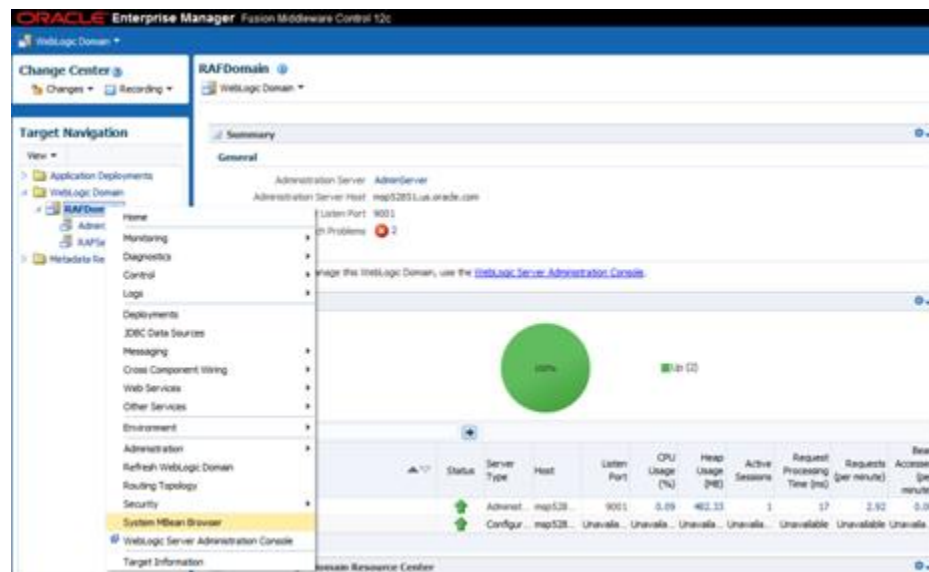
It is recommended to not delete the MDS partition during the upgrade of the Retail application, instead use the functions described in this document to resolve any issues related to MDS.

Using the system MBean Browser and the MDSAppRuntime MBean

For managing MDS Customizations in Retail Fusion Applications, use the Oracle Enterprise Manager to perform common metadata service tasks such as exporting, deleting, and importing of MDS Customizations. This can be done in the Oracle Enterprise Manager using the System MBean Browser and the MDSAppRuntime MBean.

Perform the following steps to access the MDSAppRuntime MBean:

1. Login to the Oracle Enterprise Manager by navigating to the URL in the following format:
http://<host>:<port>/em/
2. From the Navigation menu, under WebLogic Domain, right-click on the application domain and navigate to System MBean Browser from the context menu. Choose the correct domain based on your installation. The screenshot below displays RAFDomain.

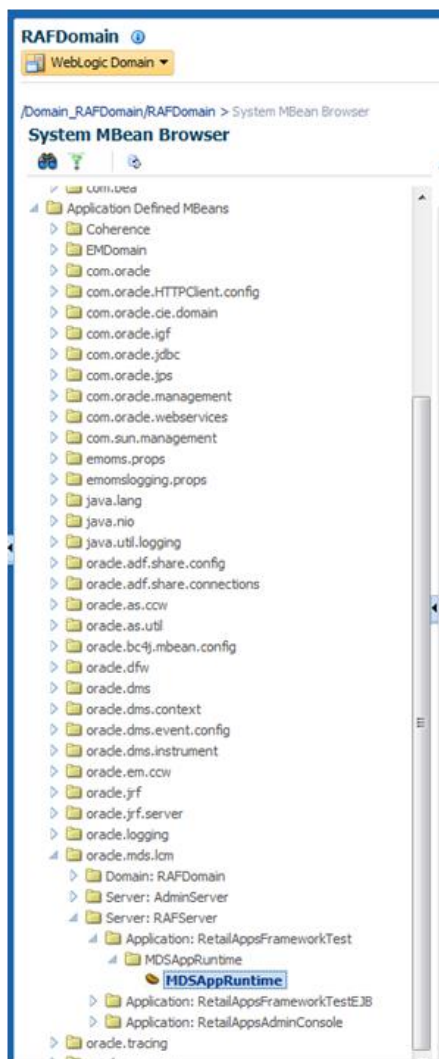


3. Under Application Defined MBeans, locate MDSAppRuntime which can be found under the following folder structure:

```
> oracle.mds.lcm
> Server: AppServer
```

```
> Application: Application Name
> MDSAppRuntime
```

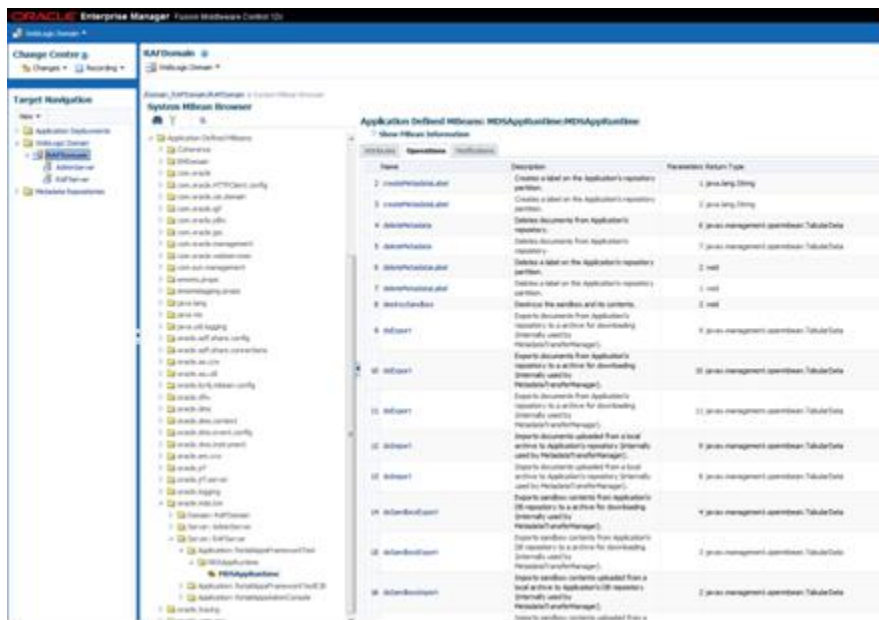
4. Choose the correct server and the Retail Application name based on your installation. The screenshot below displays RAFServer and RetailAppsFrameworkTest application.



5. Click MDSAppRuntime management bean (MBean).



6. Select the Operations tab to view the operations available for the MDSAppRuntime MBean.



These are the operations which can be used in managing MDS Customizations. The exportMetadata, deleteMetadata, importMetadata, createMetadataLabel, listMetadataLabels, deleteMetadataLabel, and promoteMetadataLabel; will be briefly discussed in the following sections.

Exporting All MDS Customizations

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Export metadata by selecting the exportMetadata operation available from the **Operations** tab.
3. For **toLocation**, provide a valid absolute path to a directory or archive in the file system to which the selected documents will be exported. This location must be accessible from the machine where the application is running. If it does not exist, a directory will be created except that when the name ends with ".jar", ".JAR", ".zip", or ".ZIP", an archive will be created. Exporting metadata to an existing archive will overwrite the existing file.

Example: /tempDir/downloads/mdsExport/RetailAppsFrameworkTestMDS.zip

4. Click **Invoke** (located at the upper-right corner of the page) to proceed with the export operation.
5. Click **Return** to return to the list of operations.

Exporting MDS Customization for a Specific User

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Export metadata by selecting the exportMetadata operation available from the Operations tab.
3. For toLocation, provide a valid absolute path to a directory or archive in the file system to which the selected documents will be exported. This location must be accessible from the machine where the application is running. If it does not exist, a directory will be created except that when the name ends with ".jar", ".JAR", ".zip", or ".ZIP", an archive will be created. Exporting metadata to an existing archive will overwrite the existing file.

Example: /tempDir/downloads/mdsExport/RetailAppsFrameworkTestMDS.zip

4. For docs, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter a list of comma-separated, fully qualified document names or document name patterns to export.

To export customizations for a specific page, simply enter the fully qualified base document name in the Element box.

Example:

/oracle/retail/apps/framework/uishell/skin/page/TestTablesAndTrees.jsff

You can provide the path to multiple documents to export, by clicking the Add button. Do not provide any docs in case you want to export all customizations for the user.

5. For restrictCustTo, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter the list of customization layer names. This can be a list of comma-separated customization layer names used to restrict the operation to only customization documents that match the specified customization layers.

Each customization layer name can contain, within a pair of brackets, optional customization layer values and value patterns separated by commas. Wildcards (%) may also be used for restricting the operation.

For Example:

Value	Description
user[buyer]	restricts operation to the user 'buyer'
user[buyer, betty_buyer]	restricts operation to the users 'buyer', and 'betty_buyer'
user[bu%]	restricts operation to user names that start with 'bu' (such as buyer)
user[be%]	restricts operation to user names that start with 'be' (for example. betty_buyer)
user[%bu%]	restricts operation to users with 'bu' in the name (for example; buyer and betty_buyer)

6. Click the Invoke button, located at the upper-right corner of the page, to proceed with the export operation.
7. A confirmation message will display in the page. Click Return to return to the list of operations.

Deleting all MDS Customizations for a User

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Delete metadata by selecting the **deleteMetadata** operation available from the Operations tab.
3. For **docs**, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter a list of comma-separated, fully qualified document names or document name patterns.
To delete all customizations for a user, enter `"/**"` (without the quotes).
These will recursively delete all customizations under `"/` including any other customizations located in the folder(s) under it. Click OK.
4. For **restrictCustomizationTo**, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter the list of customization layer names. This can be used to restrict the operation to only customization documents that match the specified customization layers.
Each customization layer name can contain, within a pair of brackets, optional customization layer values and value patterns separated by commas. Wildcards (%) may also be used for restricting the operation.

Value	Description
<code>user[buyer]</code>	restricts operation to the user 'buyer'
<code>user[buyer, betty_buyer]</code>	restricts operation to the users 'buyer', and 'betty_buyer'
<code>user[bu%]</code>	restricts operation to user names that start with 'bu' (such as. buyer)
<code>user[be%]</code>	restricts operation to user names that start with 'be' (for example. betty_buyer)
<code>user[%bu%]</code>	restricts operation to users with 'bu' in the name (for example. buyer and betty_buyer)

5. Click the Invoke button, located at the upper-right corner of the page, to proceed with the delete operation.
6. A confirmation message will display in the page. Click Return to return to the list of operations.

Deleting a Customization for a Specific Page for All Users

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Delete metadata by selecting the **deleteMetadata** operation available from the Operations tab.
3. For **excludeBaseDocs**, select true. This is a Boolean value indicating whether to exclude base metadata documents from being deleted.

4. For docs, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter a list of comma-separated, fully qualified document names or document name patterns.

To delete customizations for a specific page, simply enter the fully qualified base document name in the Element box.

Example:

```
/oracle/retail/apps/framework/uishell/skin/page/TestTablesAndTrees.jsff
```

You can provide the path to multiple documents to be deleted, by clicking the Add button. When done, click the OK button.

5. For restrictCustTo, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter the list of customization layer names. This can be used to restrict the operation to only customization documents that match the specified customization layers.

Each customization layer name can contain, within a pair of brackets, optional customization layer values and value patterns separated by commas. Wildcards (%) may also be used for restricting the operation.

To delete customizations for all users, you may either:

- remove any values for restrictCustTo or
- enter "user[%]" in the Element box.

Value	Description
user[buyer]	restricts operation to the user 'buyer'
user[buyer, betty_buyer]	restricts operation to the users 'buyer', and 'betty_buyer'
user[bu%]	restricts operation to user names that start with 'bu' (such as buyer)
user[be%]	restricts operation to user names that start with 'be' (for example; betty_buyer)
user[%bu%]	restricts operation to users with 'bu' in the name (for example; buyer and betty_buyer)

6. Click the Invoke button, located at the upper-right corner of the page, to proceed with the delete operation.
7. A confirmation message will display in the page. Click Return to return to the list of operations.

Deleting a Customization for a Specific Page for a Particular User

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Delete metadata by selecting the deleteMetadata operation available from the Operations tab.
3. For excludeBaseDocs, select true. A Boolean value indicating whether to exclude base metadata documents from being deleted.
4. For docs, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter a list of comma-separated, fully qualified document names or document name patterns.

To delete customizations for a specific page, simply enter the fully qualified base document name in the Element box.

Example:

```
/oracle/retail/apps/framework/uishell/skin/page/TestTablesAndTrees.jsff
```

You can provide the path to multiple documents to be deleted, by clicking the Add button. When done, click the OK button.

- For restrictCustTo, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter the list of customization layer names. This can be used to restrict the operation to only customization documents that match the specified customization layers.

Each customization layer name can contain, within a pair of brackets, optional customization layer values and value patterns separated by commas. Wildcards (%) may also be used for restricting the operation.

To delete customizations for a particular user, enter "user[<username>]" in the Element box. See the table below for other examples.

Value	Description
user[buyer]	restricts operation to the user 'buyer'
user[buyer, betty_buyer]	restricts operation to the users 'buyer', and 'betty_buyer'
user[bu%]	restricts operation to user names that start with 'bu' (such as buyer)
user[be%]	restricts operation to user names that start with 'be' (for example; betty_buyer)
user[%bu%]	restricts operation to users with 'bu' in the name (for example; buyer and betty_buyer)

- Click the Invoke button, located at the upper-right corner of the page, to proceed with the delete operation.
- A confirmation message will display in the page. Click Return to return to the list of operations.

Importing All MDS Customizations

- Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
- Import metadata by selecting the importMetadata operation available from the Operations tab.
- For fromLocation, enter the path of the directory or archive from which the documents will be imported.
- Example: /tempDir/downloads/mdsExport/RetailAppsFrameworkTestMDS.zip
- Click the Invoke button, located at the upper-right corner of the page, to proceed with the import operation.
- A confirmation message will display in the page. Click Return to return to the list of operations.

Importing a Specific Page Customization for a User

- Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".

2. Import metadata by selecting the importMetadata operation available from the Operations tab.
3. For fromLocation, enter the path of the directory or archive from which the documents will be imported.
Example: /tempDir/downloads/mdsExport/RetailAppsFrameworkTestMDS.zip
4. For excludeBaseDocs, select true. A Boolean value indicating whether to exclude base metadata documents from being imported.
5. For docs, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter a list of comma-separated, fully qualified document names or document name patterns. To import customizations for a specific page, simply enter the fully qualified base document name in the Element box.

Example:

```
/oracle/retail/apps/framework/uishell/skin/page/TestTablesAndTrees.jsff.
```

You can provide the path to multiple documents to be imported, by clicking the Add button. When done, click the **OK** button.

6. For restrictCustTo, click the pencil icon. On the Edit Parameter popup, click Add, and in the Element box, enter the list of customization layer names. This can be used to restrict the operation to only customization documents that match the specified customization layers.

Each customization layer name can contain, within a pair of brackets, optional customization layer values and value patterns separated by commas. Wildcards (%) may also be used for restricting the operation.

To import customizations for a particular user, enter "user[<username>]" in the Element box. See the table below for other examples.

Value	Description
user[buyer]	restricts operation to the user 'buyer'
user[buyer, betty_buyer]	restricts operation to the users 'buyer', and 'betty_buyer'
user[bu%]	restricts operation to user names that start with 'bu' (such as buyer)
user[be%]	restricts operation to user names that start with 'be' (for example; betty_buyer)
user[%bu%]	restricts operation to users with 'bu' in the name (for example; buyer and betty_buyer)

7. Click the Invoke button, located at the upper-right corner of the page, to proceed with the import operation.
8. A confirmation message will display in the page. Click Return to return to the list of operations.

Creating Metadata Labels

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Create metadata label by selecting the createMetadataLabel operation available from the Operations tab.
3. For label, enter a valid name of the new metadata label to be created.

4. Click the Invoke button, located at the upper-right corner of the page, to proceed with the operation.
5. A confirmation message will display in the page. Click Return to return to the list of operations.

Promoting Metadata Labels

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Promote metadata label by selecting the promoteMetadataLabel operation available from the Operations tab.
3. For label, enter a valid name of the new metadata label to be promoted. Promoting metadata labels can be used to roll back to an earlier version of the document, as captured by the label.
4. Click the **Invoke button**, located at the upper-right corner of the page, to proceed with the operation.
5. A confirmation message will display in the page. Click Return to return to the list of operations.

Listing Metadata Labels

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. List all metadata labels by selecting the listMetadataLabels operation available from the Operations tab.
3. Click the **Invoke button**, located at the upper-right corner of the page, to proceed with the operation.
4. This will list all the available metadata labels previously created. You can use this, for example, to get the latest metadata label that you want to promote.
5. Click Return to return to the list of operations.

Deleting Metadata Labels

1. Navigate to the MDSAppRuntime management bean (MBean), as described in the section "Using the System MBean Browser and the MDSAppRuntime MBean".
2. Delete metadata label by selecting the deleteMetadataLabel operation available from the Operations tab.
3. For label, enter a valid name of the metadata label to be deleted.
4. Click the Invoke button, located at the upper-right corner of the page, to proceed with the operation.

A confirmation message will display in the page. Click Return to return to the list of operations.

Security in Retail Applications

Retail Applications leverage ADF's security framework that is based on the Oracle Platform Security Services.

Displaying External Application Contents in Non SSO Environments

Retail Applications allow retailers to display content from external applications. These contents are typically business intelligence reports from a third party application that are configured to display within the Retail Application's dashboard.

Some of these contents might be secured requiring users to login before the contents can be accessed and displayed.

In non-SSO environments, when a user logs out of the Retail Application, they may not be logged out of any secured content they had configured access to. Therefore, it is highly recommended that customers only configure access to external content in a SSO-enabled environment where the application logout manages the logout from any other secured content that was previously accessed.

Web Services in Retail Applications

Retailers can access backend functionality in Retail Applications by calling the applications' ReSTful Web Services.

For more information on ReST as an architectural style applied to building web services, refer to:

<http://www.oracle.com/technetwork/articles/javase/index-137171.html>

Common Characteristics of Retail application ReSTful Web Services

This section describes the common characteristics of a retail application ReSTful web services.

Deployment

A Retail Application will package its ReST services as part of the application's Enterprise Archive (EAR) file. Specifically, those services are packaged as a Web Archive (WAR) within the EAR. Installation of the ReST web services is therefore done by default.

Security

Services are secured using J2EE-based security model.

1. **Realm-based User Authentication.** This verifies users through an underlying realm. The username and password is passed using Http Basic authentication.
2. **Role-based Authorization.** This assigns users to roles, which in turn are granted or restricted access to resources/services. The authorization of ReSTful web services is static and cannot be reassigned to other rules post installation. The following role(s) is/are associated with ReSTful Web Services and should be added to the Enterprise LDAP:
 - ADMINISTRATOR_JOB
 - AUDITOR_JOB
 - AUDITOR_MANAGER_JOB
 - FINANCE_MANAGER_JOB

All enterprise roles defined above are mapped in web.xml and weblogic.xml of the ReST Service webapp.

The communication between the server and client is encrypted using one way SSL. In non-SSL environments the encoding defaults to BASE-64 so it is highly recommended that these ReST services are configured to be used in production environments secured with SSL connections.

All enterprise roles defined above are mapped in web.xml and weblogic.xml of the ReST Service webapp.

The communication between the server and client is encrypted using one way SSL. In non-SSL environments the encoding defaults to BASE-64 so it is highly recommended that these ReST services are configured to be used in production environments secured with SSL connections.

Standard Request and Response Headers

Retail Application ReSTful web services have the following standard HTTP headers

```
Accept: application/xml or application/JSON
Accept-Version: 15.0 (service version number)
Accept-Language: en-US,en;q=0.8
Accept-Versioning: False
```

Note: Specify 'Accept-Versioning: False' in the Service Request to bypass 'Accept-Version' validation on services.

Depending on the type of the operation or HTTP method, the corresponding response header is updated in the Http response with the following codes:

```
GET/READ : 200
PUT/CREATE : 201 created
POST/UPDATE : 204
DELETE : 204
```

Standard Error Response

Example response payload in case of service error is depicted below:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
  <messagesRDOes>
    <messagesRDO>
      <message>REST Service Version Mismatch</message>
      <messageType>ERROR</messageType>
      <status>BAD_REQUEST</status>
    </messagesRDO>
  </messagesRDOes>
```

- **message:** The error message - translated.
- **messageType:** Value of 'ERROR' is returned.
- **status :** For a bad request or error, the status is BAD_REQUEST.
- The http error code for an error response is 400

List of ReSTful Web Services

This section describes the ReSTful web services.

Platform ReSTful Web Services

The Platform ReSTful web services are described in detail in the following sections.

Notification ReST Services

Description	URL	HTTP Method
Creating Notifications	/Notifications/create	POST
Updating Notifications	/Notifications/update	PUT
Deleting Notifications	/Notifications/delete/{id}	DELETE
Fetch Notifications	/Notifications/fetch?appCode={appCode}	GET
Get number of unread Notifications	/Notifications/fetch/unreadCount?appCode={appCode}	GET
Search Notifications	/Notifications/search?appCode={appCode}	GET

Description	URL	HTTP Method
Filter Notifications – Return list of Notifications	/Notifications/filter/list	POST
Filter Notifications – Return grouped list of Notifications	/Notifications/filter/group	POST
Filter Notifications – Return a summarized list of Notifications	/Notifications/filter/summarize	POST
Count Notifications matching the filter	/Notifications/filter/count	POST
Persist the Criteria	/Notifications/criteria	POST
Fetch the Criteria	/Notifications/fetch/criteria?appCode={appCode}	GET
Fetch Recipients	/Notifications/fetch/recipients/{id}	GET
Fetch Notification Context	/Notifications/fetch/context/{id}	GET
Fetch Notification Time Periods	/Notifications/fetch/timeperiods?appCode={appCode}	GET
Fetch Notification Hierarchy Levels	/Notifications/fetch/hierarchylevels?appCode={appCode}	GET
Fetch Notification Types	/Notifications/fetch/notificationtypes?appCode={appCode}	GET
Status update for multiple Notifications	/Notifications/update/multiple/status	PUT
Delete multiple Notifications	/Notifications/delete/multiple	POST

Access Control ReST Services

Description	URL	HTTP Method
FetchFilteredRoles	/AccessRoles	POST

Favorites ReST Services

Description	URL	HTTP Method
Fetch all Favorites	/Favorites/fetch	GET
Add a Favorite	/Favorites/add	POST
Delete a Favorite	/Favorites/delete	DELETE
Update a Favorite	/Favorites/update	POST
Replace a Favorite	/Favorites/replace	POST

Summary of Open Store Days

This section gives you a summary of open store days

Business Overview

This service provides at a glance the number of open stores for which the sales audit manager is responsible. The stores for which the user is responsible are those associated with the user in ReSA's employee maintenance via location traits.

Service Type

Get

ReST URL

/summaryOpenStoreDay

Input Parameters

No Input

Output

- Record Type-DATE, OLDER, ALL
 - For record type DATE: Five records of type date are displayed for today minus 1 through today minus 5
 - One record type OLDER: is for store days older than today minus 5
 - One record type ALL: for all store days
- Record Date --Date of date type rows
- Open Store Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No

Allowed Job Roles

No Input

Summary of Errors

This section explains the summary of errors

Business Overview

This service provides, at a glance, the number outstanding errors on the specified days for stores for which the sales audit manager is responsible. An outstanding error is defined as an error that exists against a store day that has not been overridden

Service Type

Get

ReST URL

/summaryerror

Input Parameters

No input

Output

- Record Type - DATE, OLDER, ALL
 - For record type DATE: Five records of type date are displayed for today minus 1 through today minus 5
 - One record type OLDER: is for store days older than today minus 5
 - One record type ALL: for all store days
- Record Date - Date of date type rows
- Error Count

Table Format

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No

Summary of Over/Short Count**Business Overview**

This service provides at a glance the count of overages and the count of shortages for all open stores on a given day for which the sales audit manager is responsible. If the Over/Short value for the store day is a positive value it is considered an overage, if the Over/Short value for the store day is a negative value it is a shortage

Service Type

Get

ReST URL

/summaryOverShortCount

Input Parameters

No Input

Output

- Record Type - DATE, OLDER, ALL
 - For record type DATE: Five records of type date are displayed for today minus 1 through today minus 5
 - One record type OLDER: is for store days older than today minus 5
 - One record type ALL: for all store days
- Record Date - Date of date type rows
- Over Count

- Short Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
STORE	Yes	No	No	No

Summary of Over/Short Amount**Business Overview**

This service provides at a glance the sums of all overages and all shortages for all open stores on a given day for which the sales audit manager is responsible. If all locations to which the user is responsible have the same local currency, all monetary values will be displayed in the local currency. Otherwise, all monetary values will be displayed in the retailer's primary currency. If the Over/Short value for the store day is a positive value it is considered an overage, if the Over/Short value for the store day is a negative value it is a shortage.

Service Type

Get

ReST URL

/summaryOverShortAmount

Input Parameters

No Input

Output

- Record Type - DATE, OLDER, ALL
 - For record type DATE: Five records of type date are displayed for today minus 1 through today minus 5
 - One record type OLDER: is for store days older than today minus 5
 - One record type ALL: for all store days
- Record Date - Date of date type rows
- Over Amount
- Short Amount
- Currency Code

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
MV_CURRENCY_CONVERSION_RATES	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
STORE	Yes	No	No	No

Get Store Days**Business Overview**

The service displays a list of open stores to which the user is assigned, for a single day, for 'Older' days, or for All Days.

Service Type

Get

ReST URL

/getStoreDays?store={store}&recordType={recordType}&recordDate={recordDate}&sortAttrib={sortAttrib}&sortDirection={sortDirection}&pageSize={pageSize}&pageNumber={pageNumber}

Input Parameters

Parameter Name	Required	Description	Valid values
RecordType	Yes	Record Type	ALL, OLDER, DATE
RecordDate	No	Record Date, required when recordType is DATE	
Store	No	Store ID	
SortAttrib	No	Sort Attribute	STORENAME, AUDITOR, OSVALUE, ERRORCNT, DATASTATUS, OPENDAYS, OSDAYS and OSSUMS

Parameter Name	Required	Description	Valid values
SortDirection	No	Sort Direction	ASC, DESC
PageSize	No	Maximum number of locations to retrieve per page	
PageNumber	No	Result page to retrieve	

Output

- Store
- Store Day Seq No
- Auditors
- Business Date
- Store Name
- Chain
- Chain Name
- Data Status
- Data Status Description
- Audit Status
- Audit Status Description
- Audit Changed Datetime
- Fuel Status
- Fuel Status Description
- Over Short Amount
- Currency Code
- Error Count
- Transaction Count
- Loaded File Count
- Expected File Count
- Total Record Count
- Next Page URL
- Previous Page URL

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No

SA_STORE_DATA	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_SYSTEM_OPTIONS	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
V_CHAIN	Yes	No	No	No
V_CODE_DETAIL	Yes	No	No	No
V_STORE	Yes	No	No	No

Get Store Errors

This section lists the Get Store errors

Business Overview

The service retrieves summary of store day errors.

Service Type

Get

ReST URL

/getStoreErrors?store={store}&recordType={recordType}&recordDate={recordDate}
5.2.10.4. Input Parameters

Input Parameters

Parameter Name	Required	Description	Valid values
RecordType	Yes	Record Type	ALL, OLDER, DATE
RecordDate	No	Record Date, required when recordType is DATE	
Store	No	Store ID	

Output

- Store
- Error Code
- Error Description
- Error Percentage

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
SA_ERROR	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
V_SA_ERROR	Yes	No	No	No
V_STORE	Yes	No	No	No

Get Store Aggregations

This section describes the Get Store Aggregation details.

Business Overview

Retrieves aggregated store day information for all dates or store days older than vdate -5.

Service Type

Get

ReST URL

/getStoreAggregations?allOlderInd={allOlderInd}&stores={stores}&sortAttrib={sortAttrib}&sortDirection={sortDirection}&pageSize={pageSize}&pageNumber={pageNumber}

Input Parameters

Parameter Name	Required	Description	Valid values
AllOlderInd	Yes	search string for locations Id or Name	ALL, OLDER
Stores	No	Comma Separated values for stores	
SortAttrib	No	Sort Attribute	STORENAME, AUDITOR, OSVALUE, ERRORCNT, DATASTATUS, OPENDAYS, OSDAYS and OSSUMS
SortDirection	No	Sort Direction	ASC, DESC
PageSize	No	Maximum number of locations to retrieve per page	
PageNumber	No	Result page to retrieve	

Output

- Store
- Store Name
- Chain
- Chain Name
- Auditors
- Open Days
- Over Days
- Short Days
- Over Amount
- Short Amount
- Currency Code
- Error Count
- Total Record Count
- Next Page URL
- Previous Page URL

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
SA_ERROR	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
V_CHAIN	Yes	No	No	No
V_STORE	Yes	No	No	No

Store Search**Business Overview**

The web service enables store search and return aggregated store information.

Service Type

Get

ReST URL

```
/storeSearch?searchString={searchString}&searchFilter={searchFilter}&sortAttrib={sortAttrib}&sortDirection={sortDirection}&pageSize={pageSize}&pageNumber={pageNumber}
```

Input Parameters

Parameter Name	Required	Description	Valid values
SearchString	Yes	search string for locations Id or Name	
SearchFilter	Yes	Search all stores or assigned stores	ALL, ASSIGN
SortAttrib	No	Sort Attribute	STORENAME, AUDITOR, OSVALUE, ERRORCNT, DATASTATUS, OPENDAYS, OSDAYS and OSSUMS
SortDirection	No	Sort Direction	ASC, DESC
PageSize	No	Maximum number of locations to retrieve per page	
PageNumber	No	Result page to retrieve	

Output

- Store
- Store Name
- Chain
- Chain Name
- Auditors
- Open Days
- Over Days
- Short Days
- Over Amount
- Short Amount
- Currency Code
- Error Count
- Total Record Count
- Next Page URL
- Previous Page URL

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
STORE	Yes	No	No	No
V_CHAIN	Yes	No	No	No
V_STORE	Yes	No	No	No

Get Store Day Date Indicator**Business Overview**

This web service allows the user to find which store days have records that needs attention.

Service Type

Get

ReST URL

/getStoreDateInd?store={store}

Input Parameters

Parameter Name	Required	Description	Valid values
store	Yes	Store ID	store

Output

- Record Type - DATE, OLDER, ALL
 - For record type DATE: Five records of type date are displayed for today minus 1 through today minus 5
 - One record type OLDER: is for store days older than today minus 5
 - One record type ALL: for all store days
- Record Date - Date of date type rows
- Store Has Value Indicator

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
SA_STORE_DAY	Yes	No	No	No
V_STORE	Yes	No	No	No

In-Context Launchable Task Flows in Retail Applications

Retail Applications can expose select task flows retailers can directly launch into. This feature is referred to as in-context launching in a Retail Application. Retailers can launch these task flows directly through specific URLs.

Retail Applications will provide information about the various task flows retailers can in-context launch into including the URLs and the required parameters.

Retailers can use these URLs in other web pages as links. For example: the URL to a task flow that invokes the Create Allocation Flow in a Retail Application can be added as a link to dashboard report on a BI server.

When the user clicks on a URL to a task flow, the Retail Application will open in a new browser window or tab depending on the specified target of the URL. The requested task flow will be shown as a UI tab within the Retail Application.

Limitations of In-Context Launch via URLs

- The In-Context launch feature will not detect if there is an already opened window or tab for the Retail Application. So when a user clicks on a link to a Retail Application's task flow, a new browser window or tab will be opened even though the user already has an existing browser window or tab opened for that same Retail Application.
- If a dashboard is added on the Retail Application, and if that dashboard has a report that contains links to in-context launchable task flows in the same Retail Application, a new browser window or tab will still be opened.

List of In-Context Launchable Task Flows

The following is the list of in-context launchable task flows:

Source	Mandatory parameter	Optional	Sample Url
StoreDay Search	Store / BusinessDay	AutoExecute, AssignedStores, DataStatus, OverAllStatus	Error! Hyperlink reference not valid. SearchStoreDayTF? Store =<store Id>& BusinessDay =< BusinessDay >
Storeday Maintenance	StoreSeqNo/ Store / BusinessDate	TabToDisclose	Error! Hyperlink reference not valid. ResaPortal /faces/Home?navModelItemId=MaintainStoreDayTF? StoreSeqNo =<Store day sequence No.>& Store =<Store ID> & BusinessDate =< BusinessDate >
Transaction Maintenance	TransactionSeqNo		Error! Hyperlink reference not valid. ResaPortal /faces/Home?navModelItemId=MaintainTransactionTF? TransactionSeqNo=< TransactionSeqNo>

Source	Mandatory parameter	Optional	Sample Url
Transaction Search	TransactionSeq/ StoreId / TranBusinessDate	ErrorExists, AutoExecute	Error! Hyperlink reference not valid. ResaPortal /faces/Home?navModelItemId= ManageTransactionTF? TransactionSeq =< TransactionSeq >& Store =<Store ID> & TranBusinessDate =< TranBusinessDate >

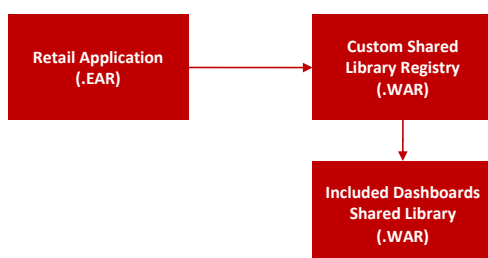
Customization of Retail Applications

This section discusses supported steps for customizing Retail Applications

Understanding the Deployment of Retail Applications

In order to customize the Retail Application, retailers must understand the deployment of the Retail Application.

A Retail Application can install one or more application artifacts into a Weblogic server instance. The diagram below shows a typical installation of a Retail Application:



The Retail Application is deployed as a standalone application and deployed using an EAR file.

Two shared libraries are typically installed along with the application EAR:

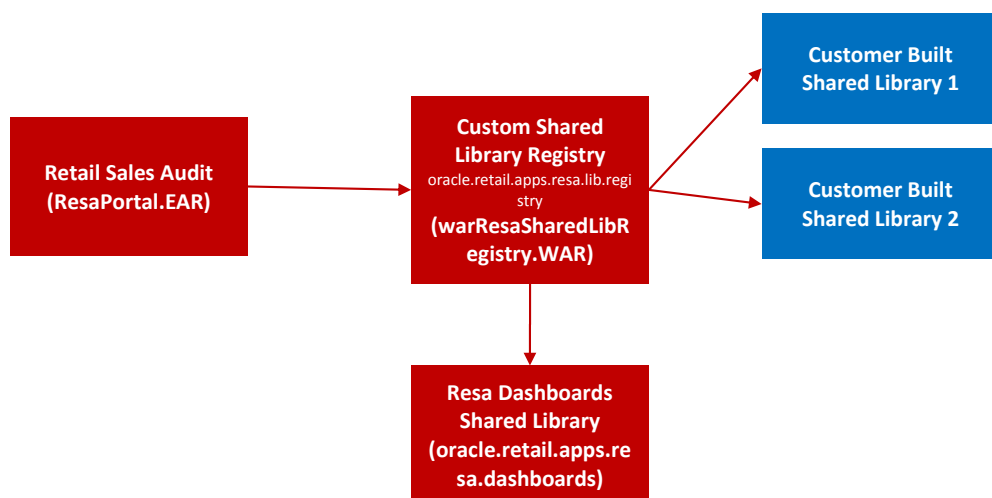
- The Included Dashboards Shared Library
- The Custom Shared Library Registry

The Included Dashboards Shared Library contains the Retail Application-built dashboards. These dashboards can be customized.

A Retail Application that allows for customization will have as part of its installation an intermediary shared library that will serve as a registry to reference the actual retailer-built shared libraries. This is called the Custom Shared Library Registry.

When retailers need to add their own content into the application, metadata to register their content into the application's UI including the binaries for the content itself (for example task flows and pages) are expected to be packaged into a Web Archive (WAR) file and deployed as a shared library in the same managed server as the application itself.

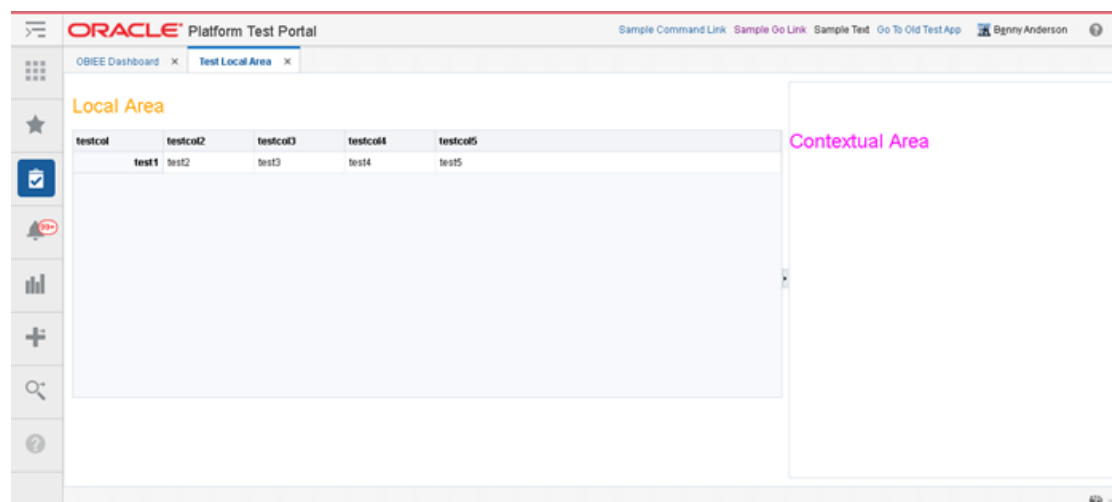
Then, the names of these shared libraries have to be referenced in the Custom Shared Library Registry.



Understanding the Retail Application Interface

Retail Applications allow retailers to add and display custom content such as new workflows and dashboards. These custom contents can be accessed from the Retail Application's user interface (UI).

The Retail Application user interface organizes the contents into visual containers that fulfill common layout and navigational requirements in a structured, consistent manner.



The high-level containers or areas in the UI are highlighted below:

- Global Area
- Navigation Pane and Sliding Sidebar Menu
- Local Area
- Contextual Area



The Local Area is the main content area of the application. Workflows that allow users to get tasks done in the application are presented in this area. The workflows are launched into this area as a result of actions the user take in the navigation pane, sliding sidebar panel and global area.

The Navigation Pane organizes the different actions a user can take on the application as iconic menu items. The options or actions available to the users for each menu item are presented in the Sliding Sidebar panel next to the Navigation Pane. There are five (5) standard Navigation Pane menus that are available to users:

- Application Navigator/Switcher - This menu allows users to switch between Retail Applications.
- Favorites - This menu allows users to access their own favorite list of actions or tasks within the application.
- Tasks - This menu presents a hierarchy of tasks or actions the user can access in the application.
- Reports - This menu presents a hierarchy of links to the application reports and dashboards.
- Notification - This menu allows users to access unread and past notifications around business processes that are happening in the application.

The Global Area of the application contains branding information on the left hand side and application wide menu options on the right hand side. Application wide menu options include access to application preferences, login and logout, application help and application information.

The Contextual Area is a collapsible area on the right of the page, which provides space to present information that can assist users in completing their tasks. The Contextual Area is presented per Local Area tab. Each task flow is presented in the local area can have a contextual area.

Supported Customization Scenarios

Adding a Custom Shared Library

As discussed in the section, Understanding the Deployment of Retail Applications, a Retail Application that allows for customization will have as part of its installation an intermediary shared library that will serve as a registry to reference the actual retailer-built shared libraries. This is called the Custom Shared Library Registry.

This section contains steps retailers can follow to create a custom shared library that will contain new custom made content, reference that shared library from the registry, and deploy it to the server.

Download JDeveloper

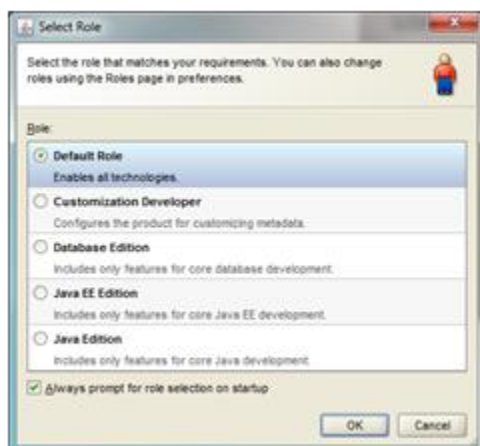
To create the custom shared library, it is recommended that retailers download and install JDeveloper version 12.2.1 by following the link below:

<http://www.oracle.com/technetwork/developer-tools/jdev/downloads/index.html>

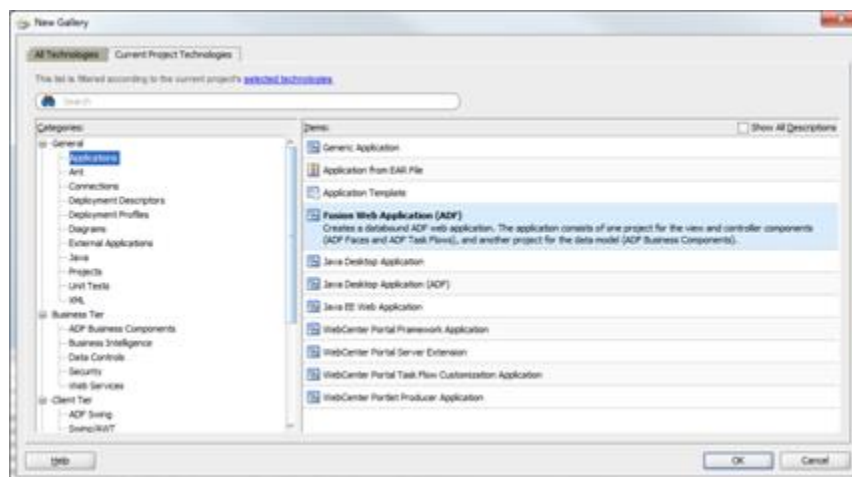
Create the Custom Shared Library Workspace through JDeveloper

This section describes the steps to create and configure the Custom Shared Library Workspace in JDeveloper, which will house the code for any custom content the retailer wants to add into the Retail Application. Through JDeveloper, a shared library web application archive file (.WAR) can be generated which can be deployed in the same managed server as the Retail Application.

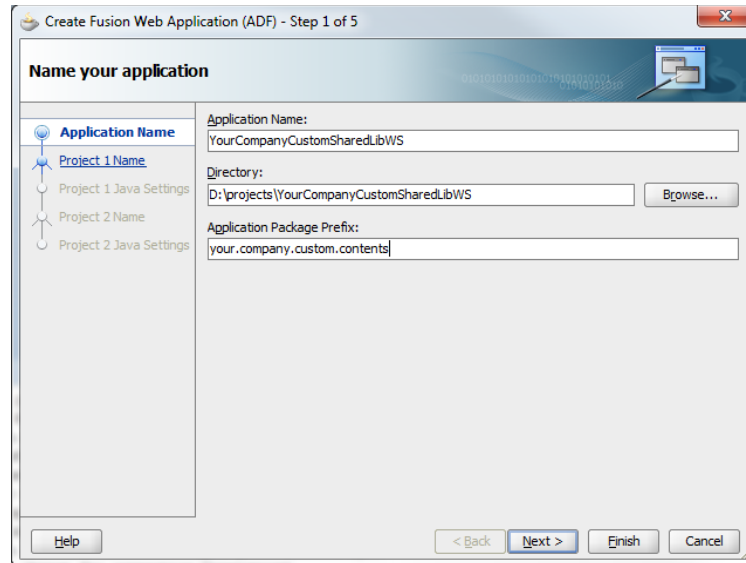
1. Open JDeveloper and choose Developer Role when prompted



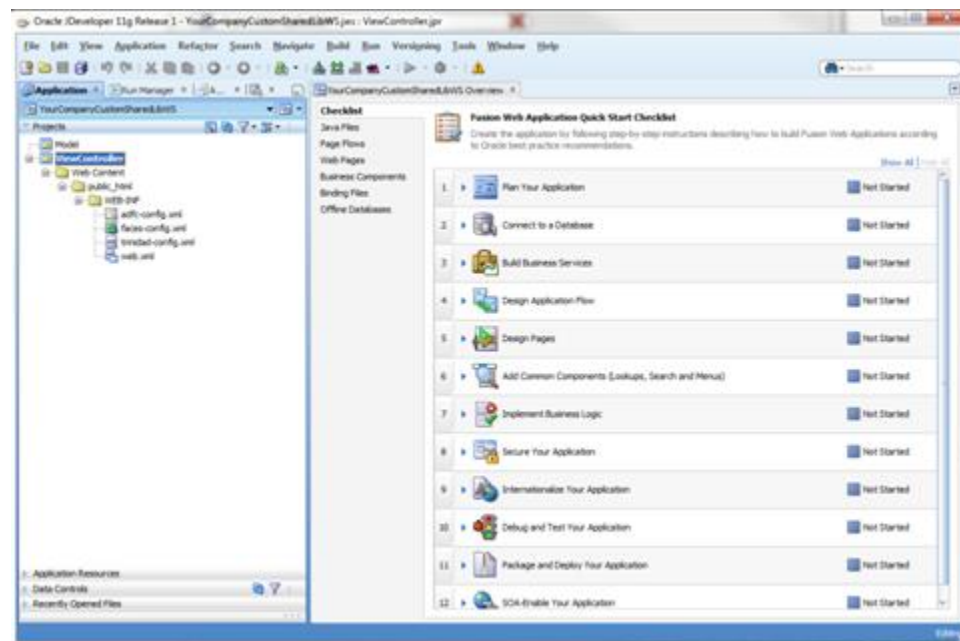
2. Create a new Fusion Web Application JDeveloper workspace.
 - a. Go to File New to invoke the New Gallery dialog. Choose Fusion Web Application (ADF) as the type of application to create and click OK.



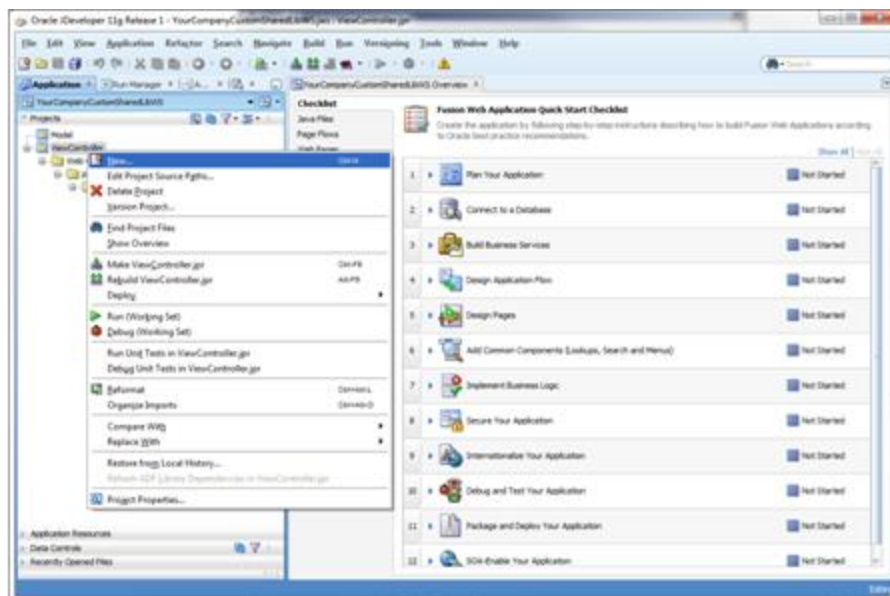
- b. Provide a meaningful application name, a directory path to the workspace and an application (Java) package prefix and click Finish.



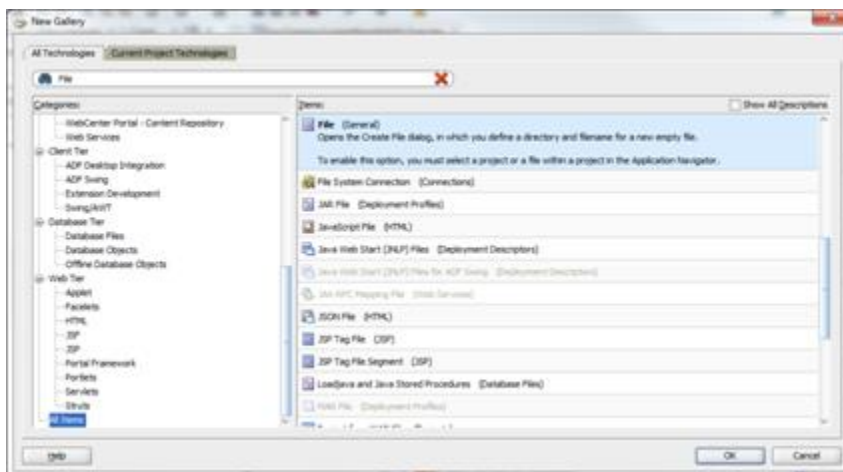
- c. JDeveloper will generate a new workspace with two projects: Model and View-Controller.



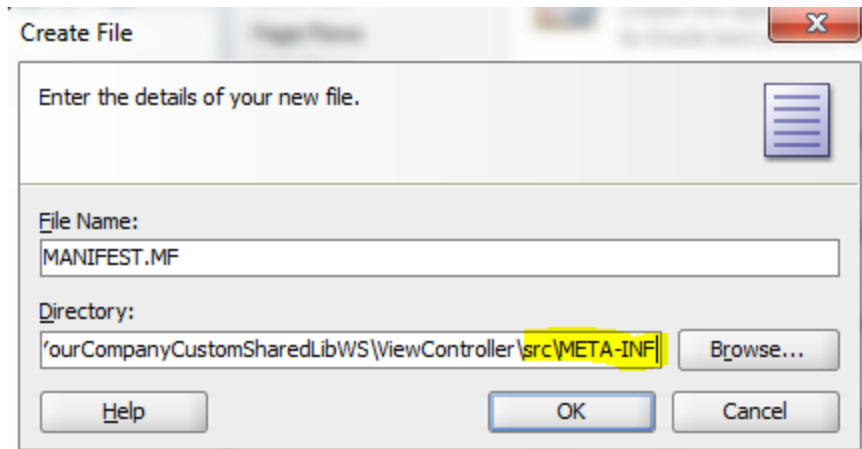
3. Add a Manifest file containing the name of the shared library.
- a. Right-click the View-Controller project and choose New from the context menu



- b. The New Gallery dialog appears. Choose the option, File (General), in the All Technologies section of the dialog. Click OK.



- c. The Create File dialog opens. For the File Name, specify MANIFEST.MF. For the Directory, the new file must be added under the src/META-INF subdirectory under the View-Controller project's directory.



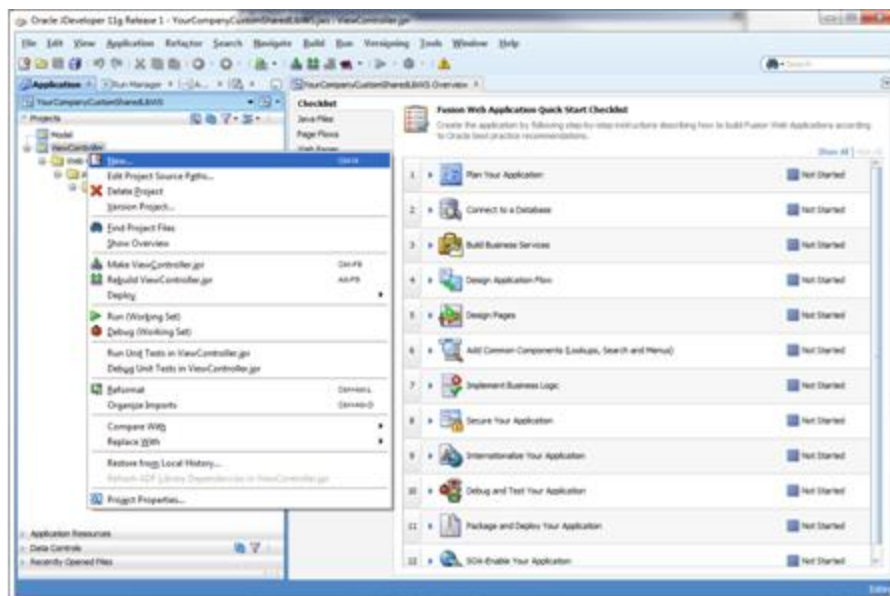
- d. Edit the new `MANIFEST.MF` file and add the following entries:
 - Manifest-Version: 1.0
 - Implementation-Vendor: companyName
 - Implementation-Title: Custom Shared Library for companyName
 - Implementation-Version: 1.0
 - Extension-Name: companyname.custom.shared.lib
 - Specification-Version: 1.0
 - Created-By: companyName

Modify the contents such that meaningful and unique values are used for Implementation-Vendor, Implementation-Title, Extension-Name and Created-By.

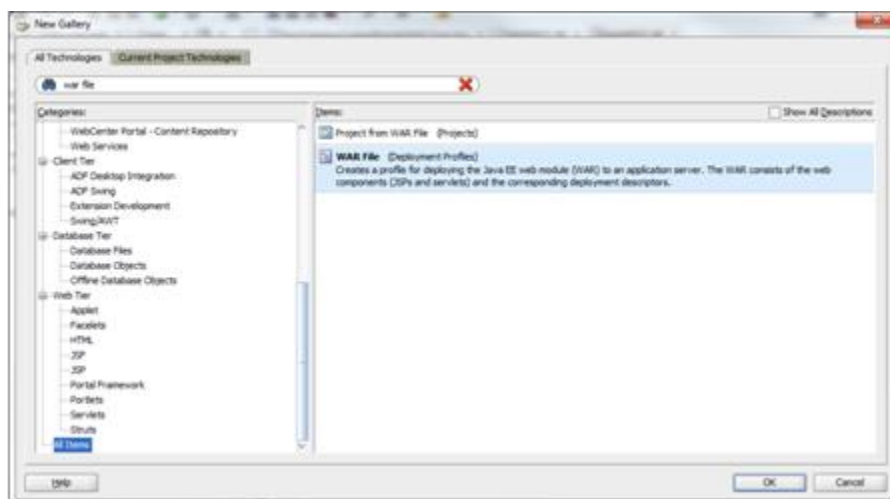
Example:

- Manifest-Version: 1.0
- Implementation-Vendor: Acme Retail
- Implementation-Title: Custom Shared Library for Acme Retail
- Implementation-Version: 1.0
- Extension-Name: acmeretail.custom.shared.lib.procurement
- Specification-Version: 1.0
- Created-By: AcmeRetail

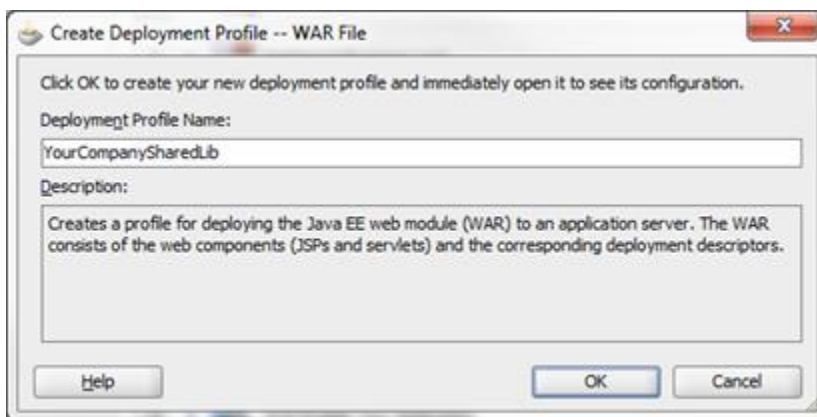
4. Create a deployment profile for the shared library.
 - a. Right-click the View-Controller project and choose New from the context menu.



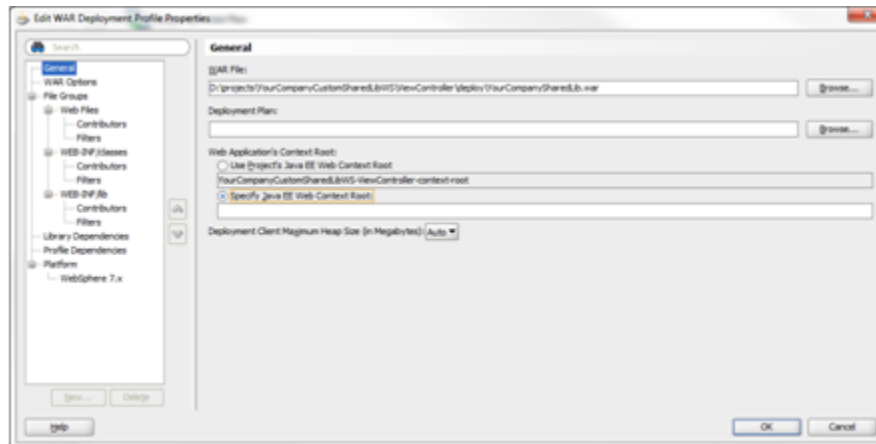
- b. The New Gallery dialog appears. Choose the option, WAR File (Deployment Profiles), in the All Technologies section of the dialog. Click OK.



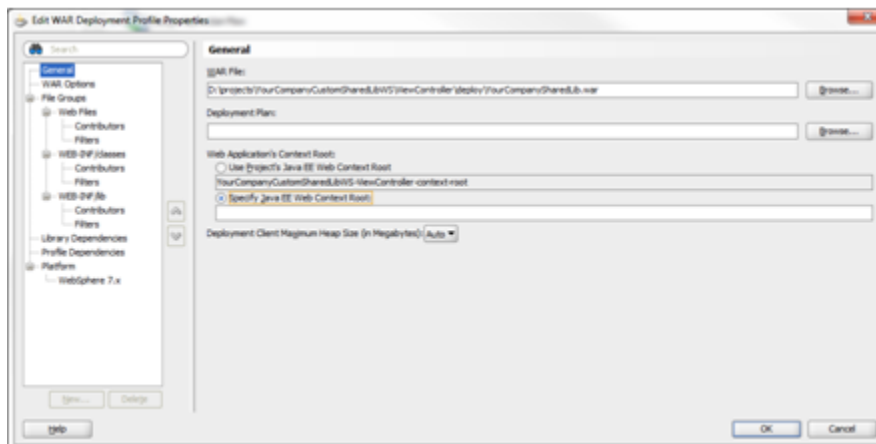
- c. Provide a unique and meaningful name for the Deployment Profile and click OK.



d. The Edit WAR Deployment Profile Properties dialog is shown.



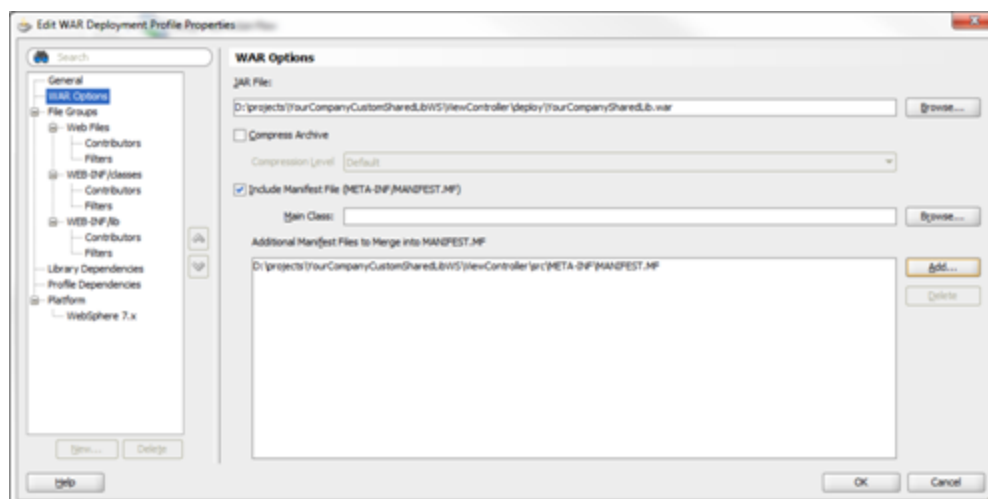
e. Under the General section, make sure that the Specify Java EE Web Context Root is selected without any value.



When you navigate away from this section – you will be prompted to confirm that you really want a blank context root. Respond **Yes** to the confirmation dialog.



f. Under the WAR Options section, enable the Include Manifest File option and add the MANIFEST.MF file you created under .../View-Controller/src/META-INF.

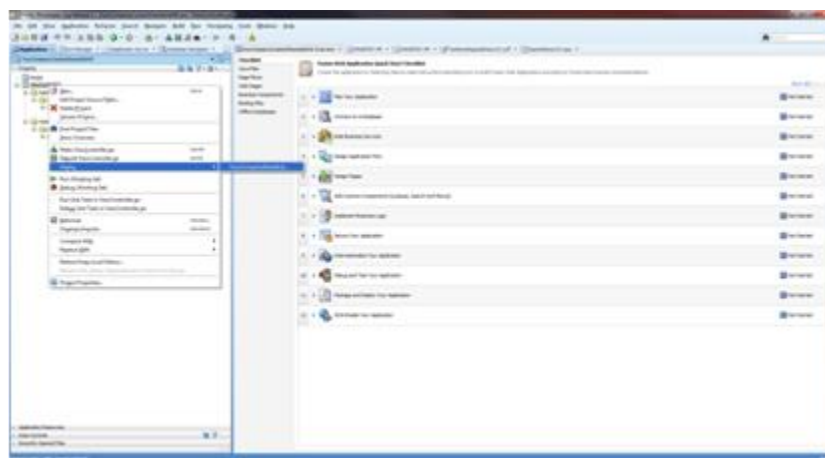


g. Click OK.

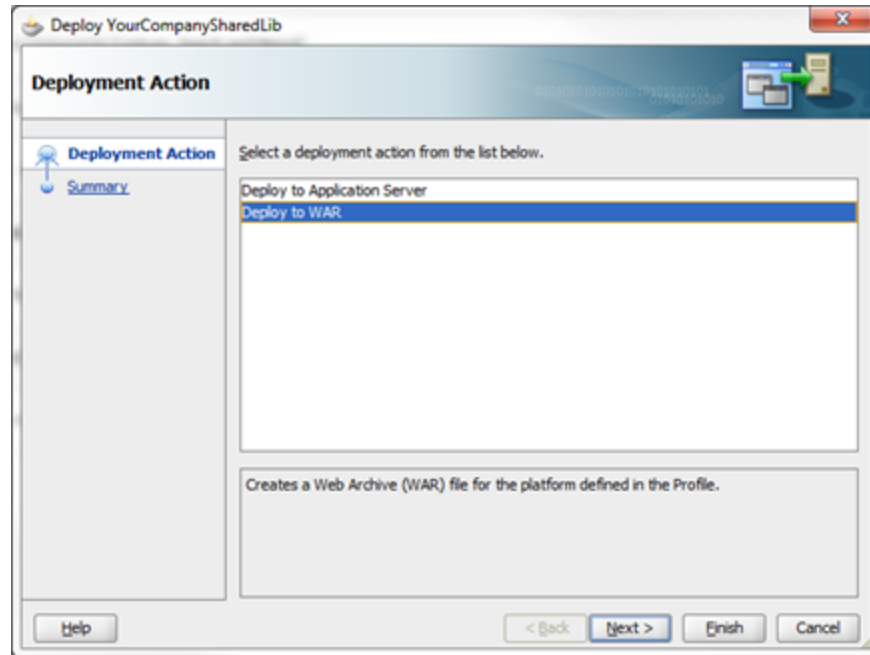
Generate and Deploy the Custom Shared Library WAR

This section describes the steps to generate and deploy the Custom Shared Library WAR file.

1. Generate the share library WAR file through JDeveloper.
 - a. Open the Custom Shared Library workspace.
 - b. Right-click the View-Controller project and choose the shared library WAR deployment profile created previously under the Deploy option



c. The Deploy dialog opens. Select Deploy to WAR and click **Finish**.



- d. JDeveloper will generate the WAR file into the View-Controller project folder subdirectory, deploy.

```

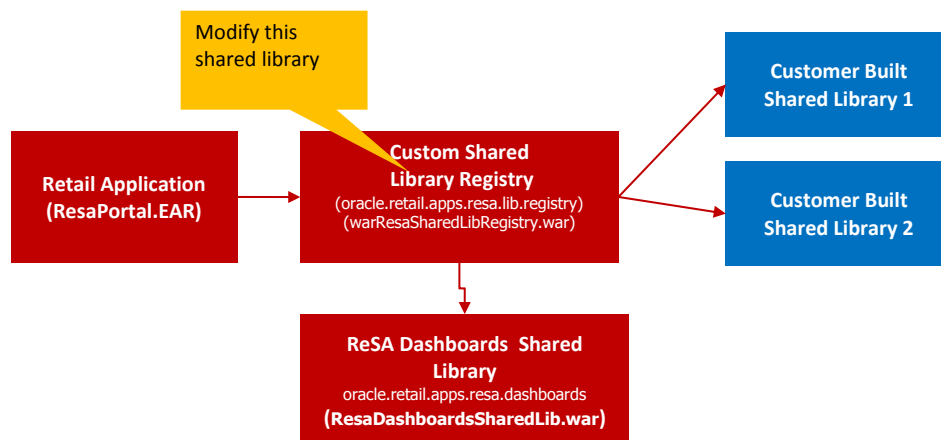
Deployment - Log
{03:59:36 PM} ---- Deployment started. ----
{03:59:36 PM} Target platform is (Weblogic 10.3).
{03:59:36 PM} Running dependency analysis...
{03:59:36 PM} Building...
{03:59:36 PM} Deploying profile...
{03:59:37 PM} Wrote Web Application Module to D:\projects\YourCompanyCustomSharedLib\VC\ViewController\deploy\YourCompanySharedLib.war
{03:59:37 PM} Elapsed time for deployment: 1 second
{03:59:37 PM} ---- Deployment finished. ----

```

2. Deploy the generated WAR file to the same managed server as the Retail Application as a shared library. Refer to section 6 of the Deploying Applications to Oracle WebLogic Server documentation (<http://docs.oracle.com/middleware/1221/wls/DEPGD/deploy.htm#DEPGD212>). This task has to be done using the WebLogic Administration Console or Enterprise Manager Fusion Middleware Control with a user having WebLogic administration permissions

Reference the Custom Shared Library from the Retail Application

Once the retailer has created and deployed its own custom shared library, the retailer needs to modify the configuration of the Custom Shared Library Registry to add references to the retailer's shared library.



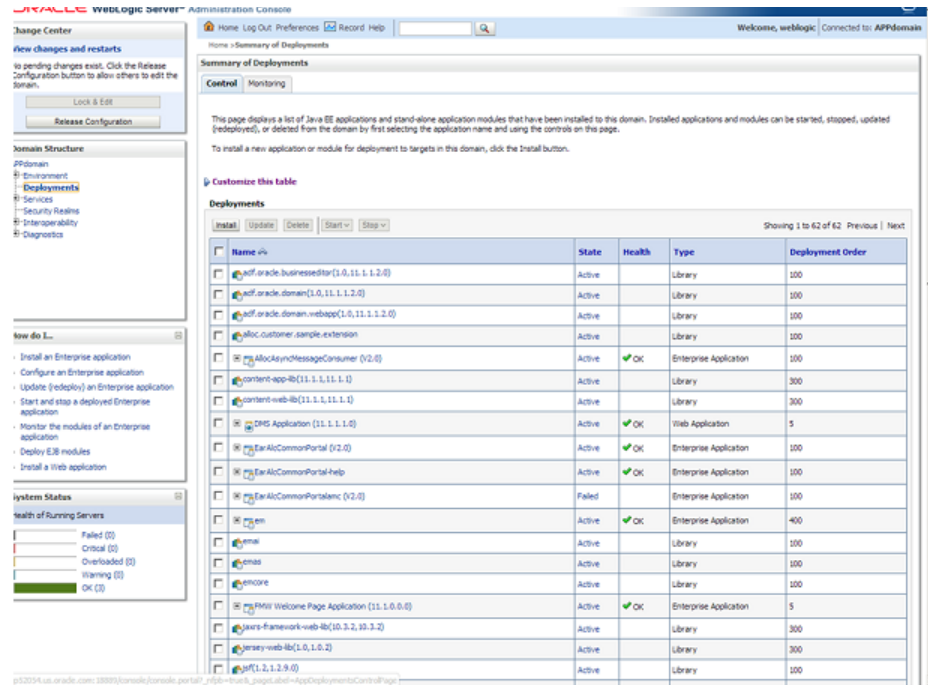
The library name of the Custom Shared Library Registry for ReSA is oracle.retail.apps.resa.portal.extension.

To do this:

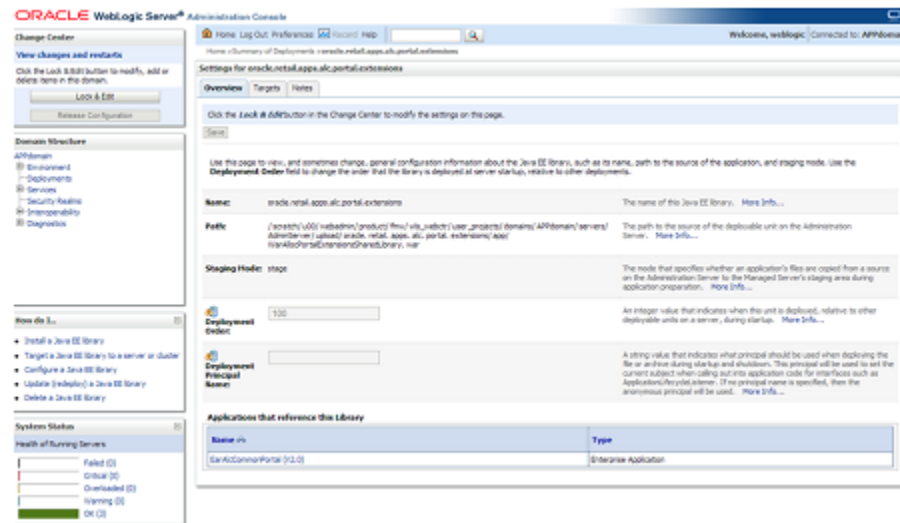
1. Log into the WebLogic Administration Console as a user with administrative permissions.
2. If the administration console was configured with domain configuration locking, go ahead and click the Lock & Edit button to ensure that other administrators can be prevented from making changes during your edit session.



3. Navigate to the **Deployments** section.



4. Look for the Retail Application deployment and shut it down. Choose “Force Stop Now” when appropriate. Wait for the shutdown process to complete.
5. Get the deployment location of the Retail Application’s custom shared library registry. Under the deployments list, click the link for the library named oracle.retail.apps.resa.lib.registry. The Settings page for the library appears.



The Settings page will show the file location of the registry’s WAR file under the Path entry. Make note of this file location.

6. Using the operating system's file manager application, go to the location of the WAR file. You will need read and write permissions to the file system where the WAR file is located.
7. Make a copy of the WAR file as back-up.

8. Open the original WAR file using an archive file manager and update the /WEB-INF/weblogic.xml by adding a new <library-ref> entry pointing to your custom shared library.

```
<library-ref>
<library-name>companyname.custom.shared.lib</library-name>
</library-ref>
```

Note that the library-name has to match the Extension-Name you provided in your custom shared library's MANIFEST.MF file. Once this change is done, you have now linked your custom shared library to the Retail Application.

9. Return to the WebLogic Administration Console. Go to the Environments' Servers section. Under the Control tab, select the managed server where Retail Application is deployed to. Shut it down and start it back again.

Creating New ADF Content

Custom ADF and Java based components can be coded into the Custom Shared Library workspace. Typically, retailers can include task flows that add new UI workflows into the Retail Application UI. These task flows may implement:

- A new workflow to maintain the Retail Application's data.
- A dashboard page to highlight key performance indicators and important metrics based on the Retail Application's data.

This section contains important points that developers must consider when building new custom ADF-based contents for Retail Applications.

Custom Shared Library Must Be Regenerated

Custom ADF content must be implemented within the custom shared library workspace. Retailers must create a new custom shared library workspace if none exists.

The WAR artifact for the custom shared library must be regenerated and redeployed.

Refer to the section, Adding a Custom Shared Library.

New Components Should Have Security Grants

Since Retail Applications are secured web applications, the addition of new ADF UI pages and task flows will need to be secured using the application roles and policies that are recognized by the Retail Application. The provisioning process is done using the Oracle Enterprise Manager Fusion Middleware Control console.

Refer to Section 10, Managing Policies of the Oracle® Fusion Middleware Securing Applications with Oracle Platform Security Services for details (<https://docs.oracle.com/middleware/1221/opss/JISEC.pdf>).

ADF Best Practices Must Be Applied

Developers build components in both Model and View-Controller layers using the tools and standards available for Oracle ADF. New ADF screens have their own business components, task flows, pages, and bindings. These components must comply with published best practices and standards for that technology.

Refer to the Oracle JDeveloper and Oracle ADF Technical Resources web site

<http://www.oracle.com/technetwork/developer-tools/jdev/learnmore/index.html>

Of particular interests are coding guidelines published under the ADF Architecture Square section of the site <http://www.oracle.com/technetwork/developer-tools/adf/learnmore/adfarchitect-1639592.html>.

Task Flow and Page Configuration Must Be Supported

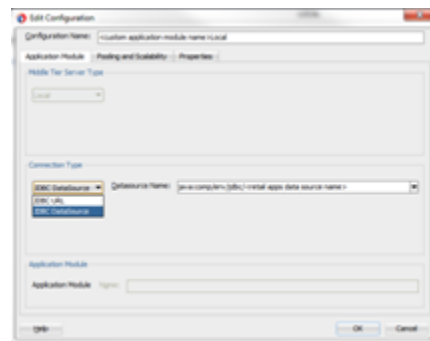
Task flows must be built as bounded task flows using JSF page fragments.

The task flow must have an isolated data control scope. This is configured in JDeveloper's task flow designer by going to the Behavior tab and setting data control share option as "Isolated".



The Same Data Source Must Be Used

New application modules must be configured to use Data Sources and not JDBC URLs when accessing the database layer. This can be configured in JDeveloper's application module designer.



The data source name must be the same as the Retail Application's primary data source name (jdbc/ResaDBDS).

Adding or Modifying an Item in the Reports Menu

- New application modules must be configured to use Data Sources and not JDBC URLs when accessing the database layer.
- This can be configured in JDeveloper's application module designer.
- To add new contents in the Retail Application's Reports Menu, the retailer must override the reports menu model.
- All items seen by the user in the Reports Menu are registered in an XML file called the Reports Menu Model.
- This file is kept in the application's EAR file but can be extracted, copied and modified so retailers can add references to their own dashboards or reports.

To add or modify an item in the Reports Menu, follow the steps below:

1. Add a custom shared library. Refer to the section, Adding a Custom Shared Library for details.

2. Using JDeveloper, open the Custom Shared Library workspace in Developer Role.
3. Add new custom reports as required.
4. Regenerate the shared library WAR file from the workspace and redeploy the shared library. Shutdown and restart of the Retail Application and its shared library registry is required.
5. Changes Required in Shared Library Registry for Custom Reports Menu Model

- a. Obtain the application's Reports menu model XML file

Reports Menu Model XML \oracle\retail\apps\resa\view\uishell\config\custom\HomeReportsMenuModel.xml

- b. Refer the Section Reference the Custom Shared Library from the Retail Application., to register custom reports menu model shared library within the Retail Application.
- c. Open the original WAR file using an archive file manager and copy the above Reports menu model xml file in View-Controller project src directory, preferably under a subdirectory called custom.
- d. Add a new or modify existing file called PageTemplateOverrideModel.properties under the View-Controller/src directory.
- e. Modify this file and add the following entry:

```
Home.reportsMenuModelXml=<path to sidebar model xml within view-controller/src>
```

Example:

```
Home.reportsMenuModelXml=/custom/HomeReportsMenuModel.xml
```

- f. Modify the copy of the model. Add new items, which are created in the shared library project. Refer to the section, Reports Menu Model XML Items.

6. Test the Retail Application.

Report Menu Model XML Items

The Reports menu model is composed of Item elements. An item renders as either a launchable link or a submenu in the Reports menu of the Retail Application. Below is an example of what a Reports Menu Model XML might look like:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<NavigationDefinition ... >
  <Items>
    <Item id="myFolder" title="My Folder" type="folder">
      <Items>
        <Item id="myContent" type="taskflow"
          title="My Content">
          <url>
            /WEB-INF/mycompany/CustomDashboardTaskFlow.xml#CustomDashboardTaskFlow
          </url>
          <Parameters>
            <Parameter id="productName">"Acme"</Parameter>
          </Parameters>
        </Item>
      </Items>
    </Item>
  </Items>
```

```

    </Items>
  </NavigationDefinition>

```

Item Attributes

Attribute	Description
visible	Indicates if the item should be rendered (visible) or not. It can be an EL Expression that evaluates to true or false. Or it can be a plain string value equal to "true" or "false". Defaults to "true".
type	Indicates the type of the item. The main values are "folder", "taskflow", "link". The type "folder" indicates that the item contains additional sub-navigation items. The type "taskflow" indicates it is a task flow, and the type "link" is used for URLs.
title	The attribute title is used to provide the title of the sidebar item. This attribute is a required attribute.
targetTitle	The attribute targetTitle is used to provide the title of the tab in the content area. This attribute is an optional attribute. If not provided, the value of the title attribute will be used as the title of the tab in the content area.
accessKey	The attribute accessKey is used to specify the keyboard keystroke or a group of keystrokes that are used to access the navigation item using the keyboard.
shortDesc	The attribute shortDesc is used to provide the description of the navigation item which will be displayed when the user hovers over a menu item.
showCloseIcon	Mainly used when the content is being rendered in a popup, and indicates if the 'x' icon should show or not on the top right corner of the popup to facilitate manual closing of the popup. Takes the values "true" or "false". Defaults to "false".
defaultContent	Indicates whether the corresponding items from the model show up by default in tabs in the content area when the page template loads. Takes values "true" or "false", or may even take an EL Expression evaluating to "true" or "false".
reuseInstance	The attribute reuseInstance is used to specify whether the navigation items with the same title and url will use the same tab or not. When this attribute is set to false, the request to open the content for that navigation item will always use a new tab. When the attribute is true, the navigation items with the same title and url will share the same tab in the content area. It defaults to true.

Attribute	Description
keysList	Takes name value pairs separated by a semicolon. The attribute keysList provides a way to differentiate two navigation items with the same title and url. If keysList is not provided, then the two navigation items with the same title and url will always use the same tab. When the keysList is provided, it provides uniqueness to the navigation items with the same title and url enabling them to use different tabs. Example keysList="key1=value1;key2=value2"
urlRendererHeight, urlRendererWidth	Example values are shown below. These used in the case of a popup and indicate the height and width of the popup. urlRendererHeight="200px" urlRendererWidth="200px"
reloadTab	When this attribute is set to true, an already opened tab will be reloaded with the new input parameters for the taskflow. When it is set to false, a previously opened tab will only be re-focused, but not reloaded with new input parameters for the taskflow. The reload tab functionality has some limitations..
refreshOnDisclosure	When the navigation item has refreshOnDisclosure attribute set to true then the tab displaying that item in the Content Area will be refreshed every time it's disclosed. The attribute can take either of the two values true or false. Default is false. The attribute is useful in the scenarios where we want to display to the user the latest information from the database every time he/she comes back to the tab. The attribute should be used with caution because if the data in that tab is not committed before leaving the tab then the uncommitted data will be lost upon coming back to the tab.
dynamicTabFocus	When a navigation item is invoked, the tab displaying that item will have its text focused. To override this behavior, set dynamicTabFocus to "false". This attribute defaults to "true".
popupId	Applicable only when target="_popup". Must be a number between 1 and 15. This attribute allows consuming applications to target a specific popup within the UI Shell. The framework provides 15 popups that consuming applications can take advantage of. In case this attribute has not been specified, a default popup will be used by the framework. This default popup will not store its dimensions in MDS.
popupContentHeight	Applicable only when target="_popup". This attribute is used to provide the height in pixels of the resulting popup dialog window.
popupContentWidth	Applicable only when target="_popup". This attribute is used to provide the width in pixels for the resulting popup dialog window.

Attribute	Description
popupStretchChildren	Applicable only when target="_popup". This attribute is used to indicate the stretching behavior for the contents of the resulting popup window. The contents are referred to as child components. Valid values are: none – does not attempt to stretch any children (the default value and value you need to use if you have more than a single child; also the value you need to use if the child does not support being stretched). first – stretches the first child (not to be used if you have multiple children as such usage will produce unreliable results; also not to be used if the child does not support being stretched).
popupResize	Applicable only when target="_popup". This attribute is used to indicate the resulting popup window's resizing behavior. Valid values are: on – user can resize the dialog with their mouse by dragging any of the dialog edges. off – the dialog automatically sizes its contents if popupStretchChildren is set to "none"
popupHelpTopicId	Applicable only when target="_popup". This attribute is used to look up a topic in a helpProvider for the resulting popup window.
popupShortDesc	Applicable only when target="_popup". This attribute is used to provide short description of the resulting popup window.
contentListener	Specifies the fully qualified name of the class implementing the ContentListener interface. This allows applications to have the ability to inject any session or request values before opening tabs.
tabShortDesc	Specifies the text to be shown when the user hovers over the application tab. Using this attribute application team can keep the title short and the tabShortDesc as fully qualified tab name which can be shown as the tooltip of the tab. This attribute will be displayed as tab title in screen reader mode.

Item Sub-elements

Sub-element	Description
url	The location of the item being launched. If the type is "taskflow" – then the URL element must contain the path to the task flow XML. If the type is "link" – then the URL of the external system must be indicated in this sub element. The entire URL must be marked as character data (for example, enclosed in CDATA)

Parameter	The <Parameters> sub-element within <Item> should list all the parameters to the dashboard page if there are any. Each parameter is represented as a <Parameter> element inside <Parameters>. The <Parameter> id should be the actual parameter reference name recognized by the dashboard URL. The value of each <Parameter> is a string value. This is the only supported data type.
-----------	---

Securing Access to Items

To restrict access to report items to specific security roles, set the `visible` property on the <Item> element for the dashboard URL to an Expression Language (EL) expression that calls ADF's `securityContext` API's `isUserInRole` method.

Example:

```
<Item id="myDashboard1"
      type="link"
      title="Profitability Dashboard"
      visible="#{securityContext.isUserInRole['BUYER_JOB']}" >
```

The parameter to the `securityContext.isUserInRole` method is a logical security role that is configured for the Retail Application. The API returns true if the user is included in the specified security role. If the user is not authenticated or is not found in the role, the API returns false.

Adding or Modifying an Item in the Tasks Menu

To add new contents in the Retail Application's Tasks Menu, the retailer must override the tasks menu model.

All items seen by the user in the Tasks Menu are registered in an XML file called the Tasks Menu Model.

This file is kept in the application's EAR file but can be extracted, copied and modified so retailers can add references to their own workflows.

To add or modify an item in the Tasks Menu, follow the steps below:

1. Add a custom shared library. Refer to the section, Adding a Custom Shared Library for details.
2. Using JDeveloper, open the Custom Shared Library workspace in Developer Role.
3. Add all the custom task menu items as required.
4. Regenerate the shared library registry WAR file from the workspace and redeploy the shared library. Shutdown and restart of the Retail Application and its shared library registry is required.
5. Changes Required in Shared Library Registry for Custom Task Menu Model
 - a. Obtain the application's Tasks menu model XML file

Tasks Menu	\oracle\retail\apps\resa\view\uishell\config\custom\
Model XML	HomeSidebarNavigationTreeModel.xml

- b. Refer the section Reference the Custom Shared Library from the Retail Application, to register custom task menu model shared library with in the Retail Applications.

- c. Open the original WAR File using an archive file manager and copy the above TaskMenuModel.xml file in the View-Controller project src directory, preferably under a subdirectory called custom.
- d. Add a new file called PageTemplateOverrideModel.properties under the View-Controller/src directory. Modify this file and add the following entry:

```
Home.taskMenuModelXml=<path to sidebar model.xml within view-  
controller/src>
```

Example:

```
Home.taskMenuModelXml=/custom/HomeTaskMenuModel.xml
```

- e. Modify the copy of the model. Add new items defined in the custom shared library above. The format of the tasks menu model is similar to the format of the reports menu model. Refer to the section, Reports Menu Model XML Items
6. Test the Retail Application

Dashboard Customization Scenarios

Understanding Dashboards in Retail Applications

A dashboard is a page within a Retail Application that displays the status of metrics and key performance indicators relevant to the Retail Application. They are typically tailored for specific roles and they allow users to easily monitor the status of the current data within the application.

Users can access dashboards from the application's Reports menu.



The example below shows the dashboard page as rendered in the local area of a Retail Application's UI.



- The dashboards are implemented using a common framework called ADF Dashboard Prompts to allow for a standard way of customizing them.

Retailers can customize included dashboards

Adding a New ADF based Dashboard in Reports Menu

This section describes the steps for adding ADF based dashboard reports into the Retail Application's UI Sidebar. ADF-based reports can be integrated into the Retail Application by adding the dashboard report's task flow URL in the application's reports menu model XML file:

1. Add a new custom shared library. Refer to the section, Adding a Custom Shared Library.
2. Implement the dashboard page components in the custom shared library workspace. Dashboard page components are built as Oracle ADF bounded task flows. Refer to the section, Creating New ADF Content, for important considerations when building custom ADF content.
3. Note the task flow URL and the parameters of the dashboard task flow.
4. Register the task flow URL and parameters into the application's Reports Menu Model. Refer to section, Adding or Modifying an Item in the Reports Menu.
5. Re-generate the Custom Shared Library WAR file from the Custom Shared Library workspace. Shutdown the Retail Application and its Custom Shared Library Registry, redeploy the Custom Shared Library WAR file, and restart the Retail Application components.
6. Grant security permissions to dashboard page components. Refer to the section, Creating New ADF Contents.
7. Test the Retail Application. Log-in and verify the newly added content.

Adding a New External Dashboard into the Reports Menu

This section describes the steps for adding external dashboard reports into the Retail Application's UI Sidebar. The reports such as OBIEE, BI Publisher or Microstrategy can be integrated into the Retail Application by adding the web URL of the dashboard report in the application's reports menu model XML file:

1. Create the dashboard report in the reporting server instance.
2. Obtain the URL to the dashboard report along with any parameters needed to render it.
3. Add a New Custom Shared Library. Refer to the section, Adding a Custom Shared Library.
4. Open the Custom Shared Library workspace in JDeveloper.
5. Add a new item in the reports menu for the URL and parameters of the dashboard report. Refer to the section, Adding or Modifying an Item in the Reports Menu.
6. Re-generate the Custom Shared Library WAR file from the Custom Shared Library workspace. Shutdown the Retail Application and its Custom Shared Library Registry, redeploy the Custom Shared Library WAR file, and restart the Retail Application components.
7. Test the Retail Application. Log-in and verify that a link to the BI dashboard appears in the UI's sidebar task tree under a folder "My Custom Dashboards"

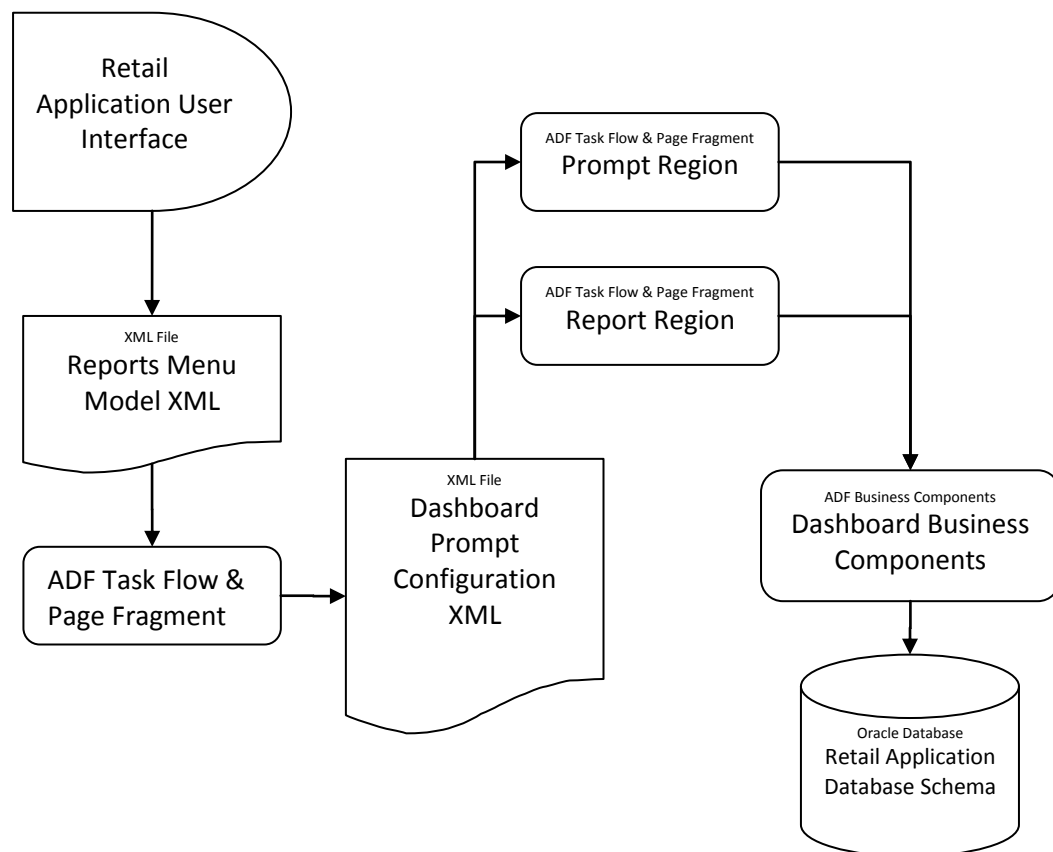
Retail Application Included Dashboard Customization Scenarios

This section contains supported customization use cases for out-of-the-box dashboards included in the Retail Application installation.

Understanding Design Patterns of Included Dashboards

As mentioned in the section, Anatomy of a Dashboard, dashboards are composed of prompt regions and report regions.

The representations of those parts at runtime are depicted in the diagram below:



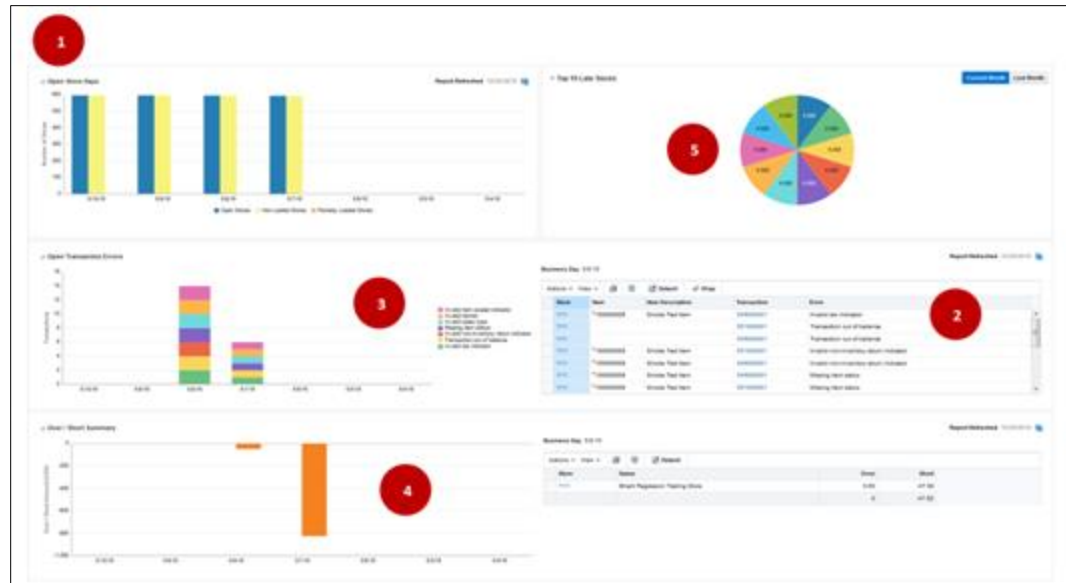
The dashboard page, prompts and reports are implemented as ADF bounded task Flows and page fragments. The prompts and regions are configured in an XML file called a Dashboard Prompt Configuration XML.

The dashboard prompt XML arranges visually the prompts and regions on the dashboard page.

The dashboard task flow is launchable from the Retail Application User Interface's Reports Menu. In order to make the report launchable, the dashboard task flow is registered in the application's reports menu model XML.

A set of ADF business components enable data from the Retail Application schema to be rendered in the report regions.

The figure below shows a rendering of the Retail Sales Audit dashboard:



1	Dashboard Page	This is the Retail Sales Audit Dashboard. It contains 3 prompts and 4 reports.
2	Prompt Region	This is the prompt region that users modify to change the view of the various reports in this dashboard.
3	Open Transaction Errors Report	A report region showing an information graph and a detail table. It is implemented as an ADF bounded task flow called OpenTransactionErrorsReportFlow.
4	Over / Short Summary Report	A report region showing an information graph and a detail table. It is implemented as an ADF bounded task flow called OverShortSummaryReportFlow.
5	Late Stores Report	A report region showing an information graph and a button to switch the view. It is implemented as an ADF bounded task flow called Top10LatePollingStoresReportFlow.

The dashboard is launched from the application's reports menu. The retail sales audit model XML file (as shown below) contains all flows for each report to register the task flows into the reports menu.

```
<?xml version="1.0" encoding="UTF-8" ?>
<Dashboard layout="row"
xmlns="urn:www.oracle.com:oracle.retail.apps.framework.dashboard"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="urn:www.oracle.com:oracle.retail.apps.framework.dashboard
classpath:oracle/retail/apps/framework/dashboard/model/schema/dashboardSchema.xsd"
>

    <Vectors>
        <Vector height="400px">
            <Items>
                <Item id="openStoreDays" type="report">
```

```

        <url>/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVTContextAwareReportFlow.xml#DVTContextAwareReportFlow</url>
        <Parameters>
            <Parameter id="taskflowURL">/WEB-INF/oracle/retail/apps/resa/dashboards/view/openstoreday/flow/OpenStoreDaysReportFlow.xml#OpenStoreDaysReportFlow</Parameter>
        </Parameters>
    </Item>
    <Item id="top10LatePollingStores" type="report">
        <url>/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVTContextAwareReportFlow.xml#DVTContextAwareReportFlow</url>
        <Parameters>
            <Parameter id="taskflowURL">/WEB-INF/oracle/retail/apps/resa/dashboards/view/latepollingstore/flow/Top10LatePollingStoresReportFlow.xml#Top10LatePollingStoresReportFlow</Parameter>
            <Parameter id="actionType">Top10LatePollingStoresSelectedEvent</Parameter>
            <Parameter id="parameterName1">stores</Parameter>
            <Parameter id="payloadKeyName1">Stores</Parameter>
            <Parameter id="parameterValue1">#{payload.valueMap['Stores']}</Parameter>
        </Parameters>
    </Item>
</Items>
</Vector>

<Vector >
    <Items>
        <Item id="openTransactionErrors" type="report">
            <url>/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVTContextAwareReportFlow.xml#DVTContextAwareReportFlow</url>
            <Parameters>
                <Parameter id="taskflowURL">/WEB-INF/oracle/retail/apps/resa/dashboards/view/opentransactionerror/flow/OpenTransactionErrorsReportFlow.xml#OpenTransactionErrorsReportFlow</Parameter>
            </Parameters>
            <Parameter id="actionType">OpenTransactionErrorsSelectedEvent</Parameter>
            <Parameter id="parameterName1">stores</Parameter>
            <Parameter id="payloadKeyName1">Stores</Parameter>
            <Parameter id="parameterValue1">#{payload.valueMap['Stores']}</Parameter>
        </Item>
    </Items>
</Vector>
<Vector >
    <Items>
        <Item id="overShortSummary" type="report">
            <url>/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVTContextAwareReportFlow.xml#DVTContextAwareReportFlow</url>
            <Parameters>
                <Parameter id="taskflowURL">/WEB-INF/oracle/retail/apps/resa/dashboards/view/overshort/flow/OverShortSummaryReportFlow.xml#OverShortSummaryReportFlow</Parameter>
            </Parameters>
        </Item>
    </Items>
</Vector>

```

```
</Vectors>
</Dashboard>
```

The Dashboard Prompt Configuration XML File

The root element of the model is the “Dashboard” element. Other than schema and namespace information, the “Dashboard” element has a “layout” attribute that must be provided, and must contain a value of either “row” or “column”. This attribute arranges the regions of the dashboard in rows or columns.

Inside the “Dashboard” element is a “Vectors” element, which contains a list of “Vector” elements. If the dashboard layout=“row”, then each “Vector” corresponds to a single row in the dashboard. Conversely, if layout=“column”, then each “Vector” corresponds to a column. To add a new row or column, simply add another “Vector” element inside the “Vectors” element.

Up to 12 rows and 6 columns can be displayed in a dashboard, not including separate header and footer regions. Any items beyond 12 rows or 6 columns will not appear on the dashboard.

Rows in the dashboard display from top to bottom. If layout=“row”, the first “Vector” will appear toward the top of the page. Columns appear from left to right, so if layout=“column”, the first “Vector” will appear toward the left of the page.

Each “Vector” element contains an “Items” element, which contains a list of “Item” elements. The xml structure for “Item” elements is very similar to the tasks or reports sidebar menu models.

The following attributes are supported on dashboard items:

Name	Description	Required
id	A unique id for this region	Yes
type	The type of content contained in this region. Valid values: prompt, report	Yes
width	The width of this region. See below for more details.	No
height	The height of a region. See below for more details.	No
url	The task flow url to open in this region	Yes
Parameters	Parameters to be sent to the URL	No

In addition to the items arranged in rows or columns, you can add a header and footer region to the dashboard. Both horizontally span the full width of the dashboard, with the header appearing at the top and the footer appearing at the bottom. These can be added in the model by specifying a “HeaderItem” or FooterItem” child of the root “Dashboard” element. These regions support all the same properties as other items in the dashboard. Vectors and items expose width and height attributes to enable applications to resize elements to best fit on the dashboard. Certain rules and best practices apply when using these attributes.

First, if the dashboard is in row layout, then all items in a row must have the same height. The height attribute from the vector is used to specify the height of every item in that row. Since rows are assumed to span the full width, the vector width is ignored in this layout.

In the same way, when the dashboard is arranged in column layout, all items in a column must have the same width. The vector width is used to specify the width of every item in that column. Columns should expand vertically to accommodate all content, allowing a scrollbar if necessary. Therefore, vector height is ignored in this layout.

In addition to the width and height attributes, a vector also provides a `dimensionsFrom` attribute. The valid values of the `dimensionsFrom` attribute can be `auto`, `child` or `parent`. The `dimensionsFrom` attribute is used to specify whether the Items in the vector inherit their dimensions from the parent decorative box or not. When the `dimensionsFrom` attribute is `parent`, the Items in the vector will be stretched to fill any available space in the vector. When the `dimensionsFrom` attribute is `child`, the Items in the vector won't stretch but will display scroll bars if they cannot be accommodated in the available space in the decorative box. The default value of the `dimensionsFrom` attribute is 'auto' which gives preference to the child dimensions.

The following table indicates which attributes are used, based on which dashboard layout has been selected.

	Row layout	Column layout
Vector width	ignored	valid
Vector height	valid	ignored
Item height	ignored	valid
Item width	valid	ignored

In column layout, either every vector width should be provided, or every width should be omitted. If all widths are omitted, columns default to divide the total width evenly. When the widths are omitted, the `dimensionsFrom` attribute of the vector can be set to `parent` if stretching of the Items is desired. If widths are provided, they should be specified as a percentage, and the sum of all widths should equal 100%.

In row layout, heights may be specified or omitted as desired. If a row's height is omitted, it will default to get the dimension from the content inside the regions. When the row's height is omitted, the `dimensionsFrom` attribute of the vector can be set to `parent` if stretching of the Items is desired. Heights should be specified using an exact unit such as `px` or `em`. Percentages should not be used.

If these rules and best practices are ignored, results may be inconsistent or undesirable. Items may not size as intended and horizontal scrollbars or nested vertical scrollbars may appear.

In addition to resizing entire rows or columns, individual items inside the row or column can also be resized. As mentioned above, items in a row should all have the same height, so in row layout, item height is ignored and only item width is valid. And items in a column should have the same width, so item width is ignored and only item height is valid. See the table above for details.

The same rules and best practices that apply to vector height and width also apply to setting item height and width.

Refreshing Reports on Prompt Changes

When the user changes a value on the dashboard prompt, that value translates as a parameter change on the different reports on the dashboard.

This is accomplished through a feature in ADF called Contextual Events. To put simply, contextual events are signals that a page in a task flow can generate for which pages in other task flows can listen and react to.

For the included dashboards, prompt regions generate a contextual event whenever the user changes a prompt field value. When a report “hears” an event, it will process the contextual event information (called a payload) to extract the changed prompt value, use that value as a parameter to the report query and refresh the report region.

In the example depicted in the previous section, the dashboard prompt configuration XML file shows all three reports registered under a wrapper task flow called the DVTContextAwareReportFlow.

```
<Items>
  <Item id="openTransactionErrors" type="report">
    <url>/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVTContextAwareReportFlow.xml#DVTContextAwareReportFlow</url>
    <Parameters>
      <Parameter id="taskflowURL">/WEB-INF/oracle/retail/apps/resa/dashboards/view/opentransactionerror/flow/OpenTransactionErrorsReportFlow.xml#OpenTransactionErrorsReportFlow</Parameter>
      <Parameter id="actionType">OpenTransactionErrorsSelectedEvent</Parameter>
      <Parameter id="parameterName1">stores</Parameter>
      <Parameter id="payloadKeyName1">Stores</Parameter>
      <Parameter id="parameterValue1">#{payload.valueMap['Stores']}</Parameter>
    </Parameters>
  </Item>
</Items>
</Vector>
<Vector >
  <Items>
    <Item id="overShortSummary" type="report">
      <url>/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVTContextAwareReportFlow.xml#DVTContextAwareReportFlow</url>
      <Parameters>
        <Parameter id="taskflowURL">/WEB-INF/oracle/retail/apps/resa/dashboards/view/overshort/flow/OverShortSummaryReportFlow.xml#OverShortSummaryReportFlow</Parameter>
      </Parameters>
    </Item>
  </Items>
</Vector>
```

The DVTContextAwareReportFlow wrapper task flow enables a report to listen to contextual events generated by prompt regions.

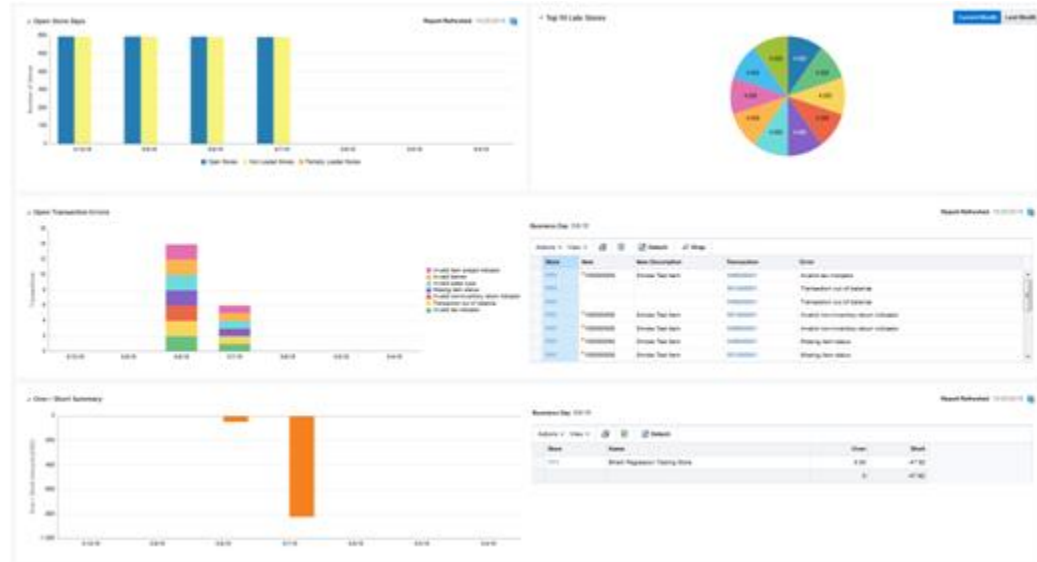
Note the pairs of parameterNameN and payloadKeyNameN registered in the <Parameters> section for the report task flow BottomSellerFlow. A pair of parameter name and payload key name tells the framework what prompt value is mapped to a specific report parameter. From the example above, parameterName1 is specified as “departmentIds” and payloadKeyName1 as “departmentIds”. This means the following:

- There is a task flow parameter for the OpenTransactionErrorsReportFlow called “stores”
- When the user changes the value of the store in the prompt region, the system will generate a contextual event with the new store value stored as reference “stores”.
- The report is context aware (as indicated by the wrapper task flow – DVTContextAwareReportFlow). When the report detects the contextual event, the framework will get the new store value from the payload by using the key “store”, use it to update the OpenTransactionErrorsReportFlow task flow’s “store” parameter, and refresh the report region.

For more details on the DVTContextAwareReportFlow, refer to the section Adding a DVT Taskflow-based Contextual Report.

List of Retail Sales Audit Included Dashboards

This section provides details on the dashboard included in the Sales Audit application.



The salient features of Sales Audit Dashboard are:

- The dashboard will provide graphical views of open store days, errors, and over/short information of user's specific stores for a period of time which will allow them to better focus their work effort.
- Key responsibilities
 - Month end close process
 - Audit store transaction for exceptions on a daily basis
- Dashboard focused on
 - Reports that provide the user an improved way to see areas of work to focus on at a glance, as well as the ability drill to lower level of detail and launch ReSA screens to execute tasks.

Job roles with access to the Sales Audit dashboard are as follows:

- FINANCE_MANAGER_JOB
- SALES_AUDIT_ANALYST_JOB
- SALES_AUDIT_MANAGER_JOB
- RESA_APPLICATION_ADMINISTRATION_JOB

Different reports under the Sales Audit dashboard are as below:

- Open Store Days
- Open Transaction Errors
- Over/Short Summary
- Top 10 Late Polling Stores

The path for the "ResaDashboardModel" for Sales Audit dashboard is as below

oracle/retail/apps/resa/dashboards/common/view/model/ResaDashboardModel.xml

Adding or Replacing a Report in an Included Dashboard

This section discusses the steps needed to add or replace a report on an included dashboard.

1. Add a custom shared library. Refer to the section, [Add a Custom Shared Library](#). An existing custom shared library can be reused.
2. Identify the dashboard to be modified. Refer to the section, [List of Retail Sales Audit Included Dashboards](#).
3. If needed, open the custom shared library workspace in JDeveloper and build your own custom report as an ADF bounded task flow. Refer to the section, [Creating New ADF Content](#).

If the report has to refresh when a prompt on the dashboard is changed by the user, make sure that task flow parameters are present for the prompt values your report will need to react to. Refer to the section, [List of Retail Sales Audit Included Dashboards](#), for a list of prompt payload values that can be generated for the dashboard.

4. Note the new report's task flow URL and parameters.
5. Obtain a copy of the dashboard prompt configuration XML file for the dashboard to be modified. Refer to the section, [List of Retail Sales Audit Included Dashboards](#).
6. Modify the copy of the dashboard prompt configuration XML file to add an item or replace an existing item for the new report. Refer to the section, [The Dashboard Prompt Configuration XML File](#) for details on properly creating a new item entry in the configuration file.

If the report has to refresh when a prompt on the dashboard is changed by the user, make sure that report task flow is wrapped in a `DVTContextAwareTaskFlow` for its item entry in the dashboard prompt configuration XML file. Use the example in the section, [Understanding Design Pattern for Included Dashboards](#), as reference. Refer to the section, [Adding a DVT Taskflow-based Contextual Report](#) for usage of the `DVTContextAwareTaskFlow` framework.

7. Modify the included dashboard's entry in the application's Reports Menu to reference the location of your copy of the dashboard prompt configuration XML file. Refer to the section, [Adding or Modifying an Item in the Reports Menu](#).
8. Re-generate the Custom Shared Library WAR file from the Custom Shared Library workspace. Shutdown the Retail Application and its Custom Shared Library Registry, redeploy the Custom Shared Library WAR file, and restart the Retail Application components.
9. Test the Retail Application.

Removing a Report from an Included Dashboard

This section discusses the steps needed to remove a report from an included dashboard.

1. Add a custom shared library. Refer to the section, [Add a Custom Shared Library](#). An existing custom shared library can be reused.
2. Identify the dashboard to be modified. Refer to the section, [List of Retail Sales Audit Included Dashboards](#).
3. Obtain a copy of the dashboard prompt configuration XML file for the dashboard to be modified. Refer to the section, [List of Retail Sales Audit Included Dashboards](#).
4. Modify the copy of the dashboard prompt configuration XML file and remove the report. You may need to readjust the position of the other reports.

Refer to the section, The Dashboard Prompt Configuration XML File for details on the configuration XML attributes that control the rendering of the dashboard.

5. Modify the included dashboard's entry in the application's Reports Menu to reference the location of your copy of the dashboard prompt configuration XML file. Refer to the section, Adding or Modifying an Item in the Reports Menu.
6. Re-generate the Custom Shared Library WAR file from the Custom Shared Library workspace. Shutdown the Retail Application and its Custom Shared Library Registry, redeploy the Custom Shared Library WAR file, and restart the Retail Application components.
7. Test the Retail Application.

Change the Layout of an Included Dashboard

This section discusses the steps needed to change the layout of the reports in included dashboards.

1. Add a custom shared library. Refer to the section, Add a Custom Shared Library. An existing custom shared library can be reused.
2. Identify the dashboard to be modified. Refer to the section, List of Retail Sales Audit Included Dashboards.
3. Obtain a copy of the dashboard prompt configuration XML file for the dashboard to be modified. Refer to the section, List of Retail Sales Audit Included Dashboards.
4. Modify the copy of the dashboard prompt configuration XML file and rearrange the position of the item entries. Refer to the section, The Dashboard Prompt Configuration XML File for details on the attributes to control the layout of dashboard.
5. Modify the included dashboard's entry in the application's Reports Menu to reference the location of your copy of the dashboard prompt configuration XML file. Refer to the section, Adding or Modifying an Item in the Reports Menu.
6. Re-generate the Custom Shared Library WAR file from the Custom Shared Library workspace. Shutdown the Retail Application and its Custom Shared Library Registry, redeploy the Custom Shared Library WAR file, and restart the Retail Application components.
7. Test the Retail Application.

Adding Contextual Reports

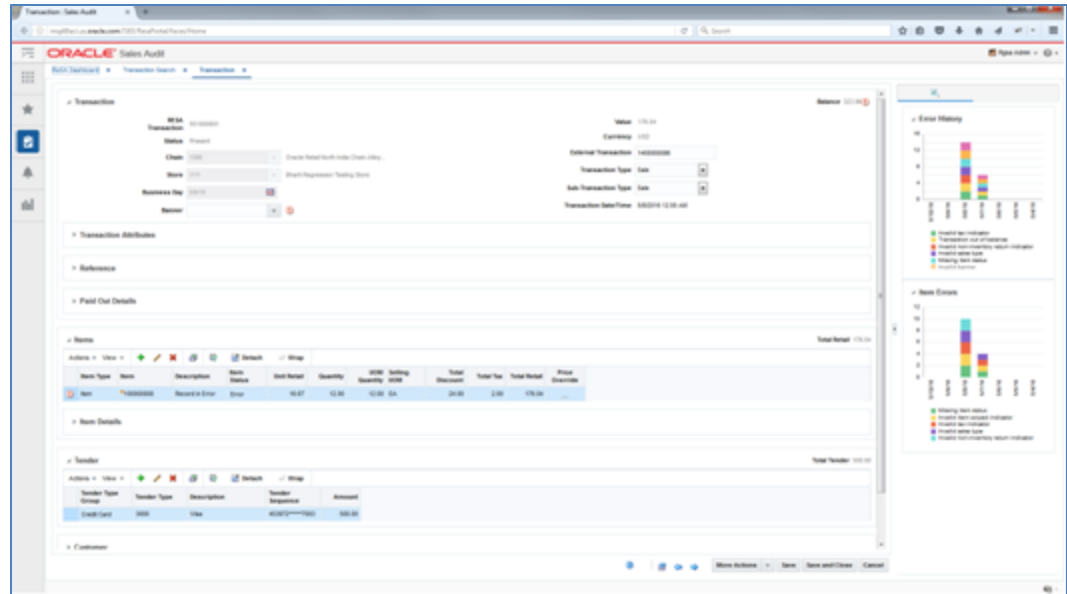
Contextual Reports are reports that appear in a task flow's contextual area section. As discussed in the section, Understanding the Retail Application User Interface, the Contextual Area is a collapsible section to the right of the local area that provides a space to present information that can assist users in completing their tasks.

Since information presented in a contextual area is presented depending on the task or workflow the user is on, contextual areas are associated to task flows and there can be at most one contextual area per task flow.

Within a contextual area – multiple contextual reports can be configured.

Each contextual report can change its contents depending on the action being performed in the user's current workflow.

For example, in the screenshot below, as the user selects the item from the item panel table, the bar graph will show the count of open and closed item level errors by error code over the last 7 days for item selected.



Each task flow publishes contextual business events on key activities happening in the screen. Contextual reports can listen to those events and change its content depending on the payload information associated with the event.

Contextual reports can either be ADF based DVT reports or can be maintained in a separate BI reporting tool. The ADF based DVT reports are ADF taskflows, which are built using the ADF Data Visualization components. The reports maintained in an external reporting tool are URLs accessible in a web browser via a URL. Oracle Retail recommends using Oracle Business Intelligence Enterprise Edition (Oracle BI EE) for an external reporting tool.

The contextual reports are added into a Retail Application by adding and configuring the task flow's contextual area model XML file into the Custom Shared Library.

Retail Applications may provide retailers with a list of possible contextual business events each flow generates. Retailers can configure their contextual reports to react to these events. Each event will also include information about the event's payload information (example: the item ID of the item being selected in the Transaction Maintenance screen).

List of Contextual Business Events and Payloads

Event Name	Task Flow	Contextual Area Name	Contextual Area Model XML Location	Generated when...	Payload Values
OnloadEvent (Store Status History)	StoreStatusHistoryMyStoreReportFlow	StoreStatusHistoryMyStoreReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/SearchStoreday_ContextualAreaModel_ContextAwareReport.xml	The Store Day Search screen is loaded	Store – The store selected by the user.

Event Name	Task Flow	Contextual Area Name	Contextual Area Model XML Location	Generated when...	Payload Values
OnloadEvent (Error History)	ErrorHistoryStoreDaySearchReportFlow	ErrorHistoryStoreDaySearchReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/SearchStoreday_ContextualAreaModel_ContextAwareReport.xml	The Store Day Search screen is loaded	None
OverShortHistorySelectedEvent	OverShortHistoryReportFlow	OverShortHistoryReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/SearchStoreday_ContextualAreaModel_ContextAwareReport.xml	The Store Day Search screen is loaded	ReqStore - The store selected by the user.
OnloadEvent (Store Status History)	StoreStatusHistoryCurrStoreReportFlow	StoreStatusHistoryCurrStoreReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/MaintainStoreday_ContextualAreaModel_ContextAwareReport.xml	The Store Day Summary screen is loaded	Store - The store selected by the user.
OnloadEvent (Error History)	ErrorHistoryStoreDaySummaryReportFlow	ErrorHistoryStoreDaySummaryReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/MaintainStoreday_ContextualAreaModel_ContextAwareReport.xml	The Store Day Summary screen is loaded	Store - The store selected by the user.
OnloadEvent (Cashier Register)	CashierRegisterOverShortPrimFlow	CashierRegisterOverShortPrimFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/MaintainStoreday_ContextualAreaModel_ContextAwareReport.xml	The Store Day Summary screen is loaded	Store Sequence ID - Sequence ID of the Store selected by the user Currency - the Currency of the store selected by the user.
TableSelectedEvent (Error History)	ErrorHistoryTransactionMaintenanceReportFlow	ErrorHistoryTransactionMaintenanceReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/MaintainTransaction_ContextualAreaModel_ContextAwareReport.xml	The Transaction screen is loaded	Store - The store selected by the user. TranSeqNo - The Sequence Number of the Transaction selected by the user

Event Name	Task Flow	Contextual Area Name	Contextual Area Model XML Location	Generated when...	Payload Values
TableSelectedEvent (Item Errors)	ItemErrorsReportFlow	ItemErrorsReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/MaintainTransaction_ContextAwareReport.xml	The user selects an item in the Item table in Transaction screen	Store - The store selected by the user. ItemSeqNo - The Sequence Number of the Item selected by the user TranSeqNo - The Sequence Number of the Transaction selected by the user Item
TableSelectedEvent (Tender Summary)	TenderSummaryReportFlow	TenderSummaryReportFlow	/oracle/retail/apps/resa/dashboards/view/uishell/config/contextualarea/TenderSummary_ContextAwareReport.xml	Results are returned in the Tender Summary screen	Store - The store selected by the user Currency - the Currency of the store selected by the user.

Preparing the Custom Shared Library for Adding Contextual Reports

This section describes how to prepare the Custom Shared Library so retailers will be able to add contextual reports in Retail Application task flows.

1. Perform the steps described in the section Add a Custom Shared Library to create a Custom Shared Library workspace, generate a shared library WAR out of it, deploying the WAR, and associating the library to the Retail Application.
2. Using JDeveloper, open the Custom Shared Library workspace in Developer Role.
3. Add new contents as required.
4. Regenerate the shared library WAR file from the workspace and redeploy the shared library. Shutdown and restart of the Retail Application and its shared library registry is required.
5. Changes required in Shared Library Registry for Custom Contextual Reports
 - a. Obtain a copy of the task flow contextual area model XML files where contextual reports will be added. Refer to section, List of Contextual Business Events and Payloads.
Example: If the contextual area model XML for the task flow MaintainRuleAttributeFlow is called RuleAttributeFlowContextualAreaModel.xml – then that file's path must be View -Controller/src/custom/ RuleAttributeFlowContextualAreaModel.xml.
 - b. Register custom contextual reports shared library with in the Retail Applications.
 - c. Open the original WAR file using an archive file manager and copy the contextual area model XML file in the View-Controller project src directory, preferably under a subdirectory called custom.

- d. Add a new or open the existing file called `PageTemplateOverrideModel.properties` under the `View-Controller/src` directory. Modify this file and add the following entry:
`<ContextualAreaName>.contextualAreaModel=<path to the contextual area model for the flow>.`

Example:

```
MaintainRuleAttributeFlow.sidebarModel=/custom/
RuleAttributeFlowContextualAreaModel
```

6. Test the Retail Application. Navigate to the flow and make sure the flow is functional.

Adding a URL Based Contextual Report

Adding a contextual report to a task flow entails the modification of the task flow's Contextual Area Model XML file. Multiple reports can be added to the model. Each report is rendered in a collapsible panel box.

Before adding a URL based contextual report, the retailer must have:

- Built, prepared, deployed, and tested the Custom Shared Library as described in the section *Preparing the Custom Shared Library for Adding Contextual Reports*.
- Obtained information about the Retail Application's list of contextual business events that can be broadcast from various workflows.
- Created one or more contextual BI reports in the BI reporting tool (for example, Oracle BI EE).
 - The web URL for each report must be available in order to proceed with the steps in this section.
 - Any parameters to configure the content of the report must be known and should be accessible as parameters to the dashboard's URL.

Once the above pre-requisites have been satisfied, proceed with the following steps:

1. Assume the following example scenario when following the steps:
 - A contextual report called "Store Metrics" showing information about a store is to be added to the Rule Attribute Maintenance Flow's main page. When the user selects a store on the page, the report will show information for the selected store.
 - Retail Application has provided the following information about the contextual business event:

Event Name	Task Flow	Page	Contextual Area Model XML Location	Generated when...	Payload Values
RuleAttributeMaintenanceStoreSelectedEvent	MaintainRuleAttributeFlow	MaintainRuleAttributes	EAR name → war name → jar name → /oracle/retail/apps/xyz/RuleAttributeFlowContextualAreaModel.xml	The user selects a store on the Rule Attribute Maintenance Flow's main screen.	SelectedStore – the store selected by the user. Always generated.

- The Store Metrics report was built in the retailer's BI reporting tool (for example, Oracle BI EE). It was built considering the payload values the contextual business event will generate.
2. Open the Custom Shared Library workspace in JDeveloper.
 3. Open the task flow contextual area model XML file (ex. `ViewController/src/custom/RuleAttributeFlowContextualAreaModel.xml`).

4. Add an `<Item>` element within the topmost `<Items>` element that references the task flow called `ViewContextAwareReportFlow`. The `ViewContextAwareReportFlow` is a framework for rendering URL based reports that will be aware of contextual business events emanating from the Retail Application task flows.

Example:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<NavigationDefinition ... >
  <Items>
    ...
    ...

    <Item id="showStoreMetric"
          type="taskflow"
          title="Store Metric">
      <url>
/WEB-
INF/oracle/retail/apps/framework/contextawarereport/publicui/flow/ViewContextAware
ReportFlow.xml#ViewContextAwareReportFlow
      </url>
    </Item>

  </Items>
</NavigationDefinition>
```

Note

Make sure that the `<Item>` id is unique.

Make sure the `<Item>` type is "taskflow"

Provide a meaningful title.

5. Populate the parameters to the `ViewContextAwareReportFlow` by adding the following `<Parameter>/<Parameters>` elements.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<NavigationDefinition ... >
  <Items>

    <Item id="showCustomerMetric"
          type="taskflow"
          title="Customer Metric">
      <url>
/WEB-
INF/oracle/retail/apps/framework/contextawarereport/publicui/flow/ViewContextAware
ReportFlow.xml#ViewContextAwareReportFlow
      </url>

      <Parameters>
        <Parameter id="reportDescription">Store Metric</Parameter>
        <Parameter
id="actionType">RuleAttributeMaintStoreSelectedEvent</Parameter>
        <Parameter id="primaryUrl">
<![CDATA[/faces/oracle/retail/apps/framework/contextawarereport/publicui/page/View
ContextAwareReportTestPage.jspx?paramItemId=<selectedStoreId>&paramItemType=<selec
tedStoreType:token01>&paramLanguage=<language>]]>
        </Parameter>
        <Parameter id="token01">regular</Parameter>
      </Parameters>

    </Item>
```

```
</Items>
</NavigationDefinition>
```

Note the following:

- The `<Parameter id="reportDescription">` element is the title of the contextual area report. Set this to a meaningful value.
- The `<Parameter id="actionType">` element indicates the contextual business event name the report will listen to.
- The `<Parameter id="primaryUrl">` element indicates the URL to the contextual area report in the BI server. The entire URL must be marked as character data (for example, enclosed in CDATA). Note that the parameters to the URL are tokenized. The example above uses a test page called `ViewContextAwareReportTestPage.jspx` which can be replaced with the actual report URL.
 - The `"?paramStoreId=<selectedStoreId>"` portion of the URL instructs the system to pass the contextual business event payload value called `selectedStoreId` into the URL parameter `paramStoreId` when rendering the contextual report.
 - The `"?paramStoreType=<selectedStoreType:token01>"` portion of the URL instructs the system to pass the contextual business event payload value called `selectedStoreType` into the URL parameter `paramStoreType` when rendering the contextual report. If that payload value is empty or null at runtime, then a default value of `regular` is used as referenced in a `<Parameter id="token01">` entry. The colon symbol separates the payload value from the default value if the payload value is null.
 - The `"?paramLanguage=<language>"` portion of the URL instructs the system about the current locale of the user. The `"language"` identifier is a reference to a value in the contextual event payload. This is a built-in value that all Retail Application contextual business event payloads will have.
 - The `<Parameter id="token01">` element holds the default value for the URL parameter `selectedItemType`. Token parameters hold default values and you can define up to 20 default value tokens.
- 6. Re-generate the Custom Shared Library WAR file from the Custom Shared Library workspace. Shutdown the Retail Application and its Custom Shared Library Registry, redeploy the Custom Shared Library WAR file, and restart the Retail Application components.
- 7. Test the Retail Application. Go to the flow where the report was added and verify that the report is rendered correctly

Adding a DVT Taskflow-Based Contextual Report

Before adding a DVT taskflow based contextual report, the retailer must have:

- Built, prepared, deployed, and tested the Custom Shared Library as described in the section *Preparing the Custom Shared Library for Adding Contextual Reports*.
- Obtained information about the Retail Application's list of contextual business events that can be broadcast from various workflows.
- Created one or more taskflows using the ADF DVT components.
 - Any parameters to configure the content of the report must be known and should be accessible as taskflow parameters.

Once the above pre-requisites have been satisfied, proceed with the following steps:

1. Assume the following example scenario when following the steps:

- A contextual report called “Item Metrics” showing information about an item is to be added to the Allocation Maintenance Flow’s main page. When the user selects an item on the page, the report will show information for the selected item.
- Retail Application has provided the following information about the contextual business event:

Event Name	Task Flow	Page	Contextual Area Model XML Location	Generated when...	Payload Values
RuleAttributeMaintStoreSelectedEvent	MaintainRuleAttributeFlow	MaintainRuleAttributes	EAR name → war name → jar name → /oracle/retail/apps/xyz/RuleAttributeFlowContextualAreaModel.xml	The user selects a store on the Rule Attribute Maintenance Flow’s main screen.	▪ Selected Store – the store selected by the user. <i>Always generated.</i> ▪ SelectedStoreType – the type of store. Can be “Regular” or “Franchise”. <i>Optional.</i> If not supplied, assume store is a regular type.

- The Store Metrics report was built in ADF. It was built considering the payload values the contextual business event will generate
2. Re-generate the Custom Shared Library WAR file from the Custom Shared Library workspace. Shutdown the Retail Application and its Custom Shared Library Registry, redeploy the Custom Shared Library WAR file, and restart the Retail Application components.
 3. Changes Required in Shared Library Registry for Custom DVT Taskflow based Contextual Report.
 - a. Obtain the task flow contextual area model XML file (ex. ViewController/src/custom/RuleAttributeFlowContextualAreaModel.xml).
 - b. Add an <Item> element within the topmost <Items> element that references the task flow called DVtContextAwareReportFlow. The DVtContextAwareReportFlow is a framework for rendering ADF DVT based reports that will be aware of contextual business events emanating from the Retail Application task flows.

Example:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<NavigationDefinition ... >
  <Items>
    ...
    ...

    <Item id="showIStoreMetric"
      type="taskflow"
      title="Store Metric">
        <url>
/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVTContextAwareReportFlow.xml#DVtContextAwareReportFlow
        </url>
      </Item>

  </Items>
</NavigationDefinition>
```

Note

Make sure that the <Item> id is unique.

Make sure the <Item> type is "taskflow"

Provide a meaningful title.

- c. Populate the parameters to the DVContextAwareReportFlow by adding the following <Parameter>/<Parameters> elements.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<NavigationDefinition ... >
  <Items>

    <Item id="showCustomerMetric"
          type="taskflow"
          title="Customer Metric">
      <url>
/WEB-INF/oracle/retail/apps/framework/dvtcontextawarereport/publicui/flow/DVContextAwareReportFlow.xml#DVContextAwareReportFlow
      </url>
      <Parameters>
        <Parameter id="taskflowURL">/WEB-INF/oracle/retail/apps/framework/uishell/navigation/contextualarea/flow/StoreMetricFlow.xml#StoreMetricFlow</Parameter>
        <Parameter id="parameterName1">storeId</Parameter>
        <Parameter id="payloadKeyName1">storeId</Parameter>
        <Parameter
id="parameterValue1">#{payload.valueMap['storeId']}</Parameter>
        <Parameter id="refreshOnDisclosure">#{true}</Parameter>
      </Parameters>
    </Item>

  </Items>
</NavigationDefinition>
```

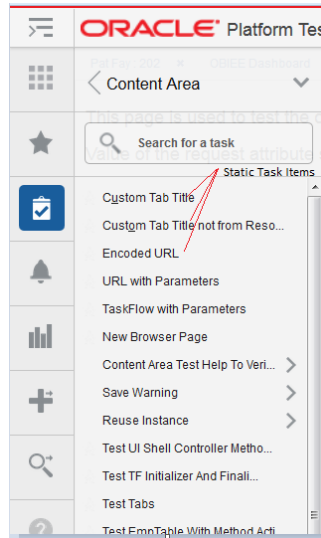
Note the following:

- The <Parameter id="taskflowURL"> element is the URL of the DVT taskflow that will be displayed in the contextual area.
 - The <Parameter id="parameterName1"> element indicates a parameter for the DVT taskflow. A maximum of 15 parameters can be specified.
 - The <Parameter id="payloadKeyName1"> element indicates the name of the payload key that maps to the taskflow parameter parameterName1. A maximum of 15 payload keys can be specified. The value of the payload key in the event payload will be used for the parameter in the DVT taskflow.
 - The <Parameter id="parameterValue1"> element holds the default value of the DVT taskflow. A maximum of 15 parameter values can be specified.
 - The <Parameter id="refreshOnDisclosure"> element is used to refresh the DVT taskflow on the disclosure of the tab.
4. Test the Retail Application. Go to the flow where the report was added and verify that the report is rendered correctly

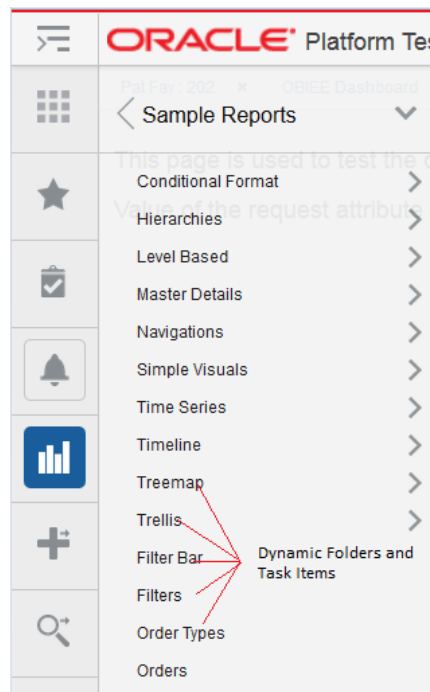
Enabling Dynamic Tasks in the Retail Application

The Retail Application provides the capability to display both static and dynamic tasks in the task list. The static tasks are based off an xml model file, for example,

HomeTaskMenuModel.xml, HomeReportsMenuModel.xml. These tasks should be predefined in the tasks or reports menu model file.



The dynamic tasks can be sourced from any data source like OBIEE, BIPublisher, database tables, Web Services and so on. The complete hierarchy of task items including the folders and actions can be generated dynamically at runtime.



From the user's perspective, there is no difference between the static versus the dynamic task items. They look and behave the same.

The DynamicContentHandlerInterface

The Retail Application provides an interface called `DynamicContentHandler` that can be implemented to add dynamic tasks in the task menu. The interface is as follows

```
package oracle.retail.apps.framework.uishell.taskmenu.dynamiccontent.handler;
import java.util.List;
```

```

import
oracle.retail.apps.framework.uishell.taskmenu.dynamiccontent.dataobject.TaskMenuIt
em;
import
oracle.retail.apps.framework.uishell.util.RetailUiShellHttpSessionListeners;

public interface DynamicContentHandler extends
RetailUiShellHttpSessionListeners.RemovalListener {
    public List<TaskMenuItem> getChildren(TaskMenuItem taskMenuItem) throws
Exception;

    public List<TaskMenuItem> getDefaultTaskMenuItems() throws Exception;

    public TaskMenuItem getInContextTaskMenuItem(String taskMenuItemId) throws
Exception;
}

```

The interface extends another interface called

`RetailUiShellHttpSessionListeners.RemovalListener`.

The `RemovalListener` interface provides the following method.

```

public static interface RemovalListener extends Serializable {
    public void onSessionRemove();
}

```

The below table explains the use of these methods.

<code>getChildren(TaskMenuItem taskMenuItem)</code>	This method provides the child task items for a given task menu item.
<code>getDefaultTaskMenuItems()</code>	This method provides the task items that will be loaded as the default content in the Retail Application.
<code>getInContextTaskMenuItem(String taskMenuItemId)</code>	This method provides the task item based on a given task menu id for In-Context launching.
<code>onSessionRemove()</code>	This method will be called by the Retail Application when the user logs out of the application. The method can be used to do any resource cleanup or can be used to logout from the external data source.

Dynamic Content Type

The Item element of the menu model file supports a type called 'dynamicContent' along with the type's taskflow and link. When the Retail Application encounters the type as `dynamicContent`, it looks for the attribute called `dynamicContentHandler`. The `dynamicContentHandler` attribute will tell the Retail Application the name of the implementation class which will be used to provide the dynamic task items. The class should implement the `DynamicContentHandler` interface.

```

<Item id="customDynamicMenuFolder" visible="#{true}" title="Custom Dynamic Menu"
    type="folder">
    <Items>
        <Item id="customTreeModelDynamicContent" title="Custom Dynamic
Menu"
            type="dynamicContent"

            dynamicContentHandler="oracle.retail.apps.framework.uishell.taskmenu.handler.custo
m.CustomTreeModelDynamicContentHandler"
            visible="#{securityContext.authenticated}"/>
    </Items>
</Item>

```

The Item element with the type attribute as dynamicContent can be placed anywhere in the hierarchy of the static task items in the tasks or reports menu model file. The dynamic task items will begin exactly from the location where the dynamicContent Item is defined.

The menu model file can be customized to add an entry for the dynamic content as shown above. Refer to the section Adding or Modifying an Item in the Tasks Menu for more details.

Example Implementation of the DynamicContentHandler Interface

We will start with a simple example to show how to display the dynamic task items in the task menu. The example uses the org.apache.myfaces.trinidad.model.TreeModel implementation called org.apache.myfaces.trinidad.model.RowKeyPropertyTreeModel to pull and display data in the task menu hierarchy. The class org.apache.myfaces.trinidad.model.RowKeyPropertyTreeModel is a subclass of org.apache.myfaces.trinidad.model.ChildPropertyTreeModel. The class ChildPropertyTreeModel creates a TreeModel from a list of beans and the class RowKeyPropertyTreeModel adds the support of row keys to the TreeModel. Let's assume that we have a TreeModel object created for a hierarchy of Employee objects. We want to display the names of the employees as tasks in the task list. The managers will be displayed as folders. The action on the manager's name will open the list of directs for the manager. The action on the leaf employee names will open the employee details screen for the selected employee.

The implementation class for the DynamicContentHandler interface is named as CustomTreeModelDynamicContentHandler. It has a method that builds the TreeModel from the list of Employee objects.

```
/**
 * Build a custom tree model.
 * @return
 */
private TreeModel buildTreeModel() {
    List<Employee> allEmployees = new ArrayList<Employee>();

    Employee manager1 = new Employee(197, "Kevin Feeny");
    Employee emp = new Employee(198, "Donald OConnel");
    manager1.addDirect(emp);
    emp = new Employee(199, "Douglas Grant");
    manager1.addDirect(emp);

    Employee manager2 = new Employee(200, "Jennifer Whalen");
    emp = new Employee(201, "Michael Harstein");
    manager2.addDirect(emp);
    Employee manager3 = new Employee(203, "Susan Marvis");
    emp = new Employee(202, "Pat Fay");
    manager3.addDirect(emp);
    manager2.addDirect(manager3);

    emp = new Employee(204, "Hermann Baer");

    allEmployees.add(manager1);
    allEmployees.add(manager2);
    allEmployees.add(emp);

    //create a RowKeyPropertyTreeModel with employeeId as a row key and
    directs as child property
    return new RowKeyPropertyTreeModel(allEmployees, "directs", "employeeId");
}
```

The TreeModel is initialized on the initialization of the class CustomTreeModelDynamicContentHandler.

```
public class CustomTreeModelDynamicContentHandler implements
DynamicContentHandler {

    private static final ADFLogger LOG =
        ADFLogger.createADFLogger(CustomTreeModelDynamicContentHandler.class);
    private TreeModel treeModel;
    private static final String TASKMENU_ITEM_ID_SEPARATOR = "_";

    public CustomTreeModelDynamicContentHandler() {
        super();
        this.treeModel = buildTreeModel();
    }
}
```

We will implement the getChildren method of the DynamicContentHandler interface.

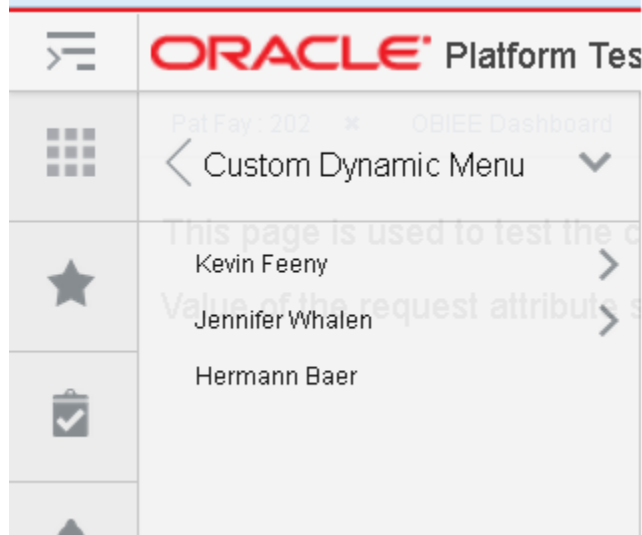
```
/**
 * This method is called by the Retail Application to get the dynamic task
items.
 * @param taskMenuItem
 * @return
 */
public List<TaskMenuItem> getChildren(TaskMenuItem taskMenuItem) {
    //if taskMenuItem is null then framework is trying to load the root
objects,
    //otherwise the framework has already navigated the tree
    if (taskMenuItem != null) {
        this.treeModel.setRowKey(taskMenuItem.getPath());
        this.treeModel.enterContainer();
        this.treeModel.setRowIndex(0);
    } else {
        this.treeModel.setRowKey(null); //move to root
    }
    return getChildrenForCurrentRowKey();
}

/**
 * This method returns the children for the current row key in the tree model.
 * @param model
 * @return
 */
private List<TaskMenuItem> getChildrenForCurrentRowKey() {
    List<TaskMenuItem> childTaskMenuItemList = new ArrayList<TaskMenuItem>();
    int rowCount = this.treeModel.getRowCount();
    for (int i = 0; i < rowCount; i++) {
        this.treeModel.setRowIndex(i);
        TaskMenuItem childTaskMenuItem = buildTaskMenuItem();
        if (childTaskMenuItem != null)
            childTaskMenuItemList.add(childTaskMenuItem);
    }
    return childTaskMenuItemList;
}
```

The Retail Application will instantiate the class oracle.retail.apps.framework.uishell.taskmenu.handler.custom.CustomTreeModelDynamicContentHandler. It will cache the class for subsequent requests after instantiating it once.

On the initial load of the page, the Retail Application will call getChildren on the dynamicContentHandler implementation class by passing it a null value of the TaskMenuItem object.

When the argument is null, the method `getChildren` should return the root dynamic task items. The Retail Application will display the root items on the initial load of the page. In the example above, the employees Kevin, Jennifer and Hermann are the root items of the `TreeModel` so they will be loaded by the Retail Application and displayed as the initial dynamic task items for the `CustomTreeModelDynamicContentHandler`



When the user clicks on a Folder, the Retail Application will send the current selected `TaskMenuItem` object to the `getChildren` method to load the children of the current selected task item. When the argument of the `getChildren` method is a valid `TaskMenuItem` object, the `getChildren` method should return the children of the `TaskMenuItem` object.

The Retail Application always lazy loads the dynamic items. This means that the children of a dynamic Folder will only be loaded when the user clicks on the Folder. Once the children are loaded they are cached by the Retail Application. In the above example, even though the Retail Application lazy loads the dynamic items, the `TreeModel` pre-loads all the employees.

TaskMenuItem class

The `TaskMenuItem` class is an abstraction of a dynamic task in the task menu. It is an equivalent of the 'Item' element in the task menu model file. The `TaskMenuItem` class can be used to add dynamic links, taskflows and folders in the task menu. The class has the following attributes.

```
private Object path;
private String id;
private String title;
private String url;
private String shortDesc;
private boolean visible = true;
private TaskMenuItemType type = TaskMenuItemType.LINK;
private TaskMenuTarget target;
private List<Parameter> parameters;
private List<Attribute> attributes;
private String accessKey;
private boolean disabled;
```

The following is a java doc screenshot of the TaskMenuItem class.

oracle.retail.apps.framework.uisHELL.taskmenu.dynamiccontent.dataobject

Class TaskMenuItem

java.lang.Object
oracle.retail.apps.framework.uisHELL.taskmenu.dynamiccontent.dataobject.TaskMenuItem

```
public class TaskMenuItem
extends java.lang.Object
```

Nested Class Summary

Modifier and Type	Class and Description
static class	TaskMenuItem.TaskMenuItemType
static class	TaskMenuItem.TaskMenuTarget

Constructor Summary

Constructor and Description
TaskMenuItem()

All Methods	Instance Methods	Concrete Methods
Modifier and Type	Method and Description	
java.lang.String	getAccessKey()	
java.util.List<Attribute>	getAttributes()	
java.lang.String	getId()	
java.util.List<Parameter>	getParameters()	
java.lang.Object	getPath()	
java.lang.String	getShortDesc()	
TaskMenuItem.TaskMenuTarget	getTarget()	
java.lang.String	getTitle()	
TaskMenuItem.TaskMenuItemType	getType()	
java.lang.String	getURL()	
boolean	isDisabled()	
boolean	isVisible()	
java.lang.String	retrieveAttribute(java.lang.String attributeName) return attribute value for a given attribute.	
java.lang.String	retrieveParameter(java.lang.String parameterName) return parameter value for a given parameter.	
void	setAccessKey(java.lang.String accessKey)	
void	setAttribute(java.lang.String attributeName, java.lang.String attributeValue) This method sets a single attribute for task menu item.	
void	setAttributes(java.util.List<Attribute> attributes)	
void	setDisabled(boolean disabled)	
void	setId(java.lang.String id)	
void	setParameter(java.lang.String parameterName, java.lang.String parameterValue) This method sets a single parameter for task menu item.	
void	setParameters(java.util.List<Parameter> parameters)	
void	setPath(java.lang.Object path)	
void	setShortDesc(java.lang.String shortDesc)	
void	setTarget(TaskMenuItem.TaskMenuTarget target)	
void	setTitle(java.lang.String title)	
void	setType(TaskMenuItem.TaskMenuItemType type)	

All Methods	Instance Methods	Concrete Methods
Modifier and Type		Method and Description
java.lang.String		getAccessKey()
java.util.List<Attribute>		getAttributes()
java.lang.String		getId()
java.util.List<Parameter>		getParameters()
java.lang.Object		getPath()
java.lang.String		getShortDesc()
TaskMenuItem.TaskMenuTarget		getTarget()
java.lang.String		getTitle()
TaskMenuItem.TaskMenuItemType		getType()
java.lang.String		getUri()
boolean		isDisabled()
boolean		isVisible()
java.lang.String		retrieveAttribute(java.lang.String attributeName) return attribute value for a given attribute.
java.lang.String		retrieveParameter(java.lang.String parameterName) return parameter value for a given parameter.
void		setAccessKey(java.lang.String accessKey)
void		setAttribute(java.lang.String attributeName, java.lang.String attributeValue) This method sets a single attribute for task menu item.
void		setAttributes(java.util.List<Attribute> attributes)
void		setDisabled(boolean disabled)
void		setId(java.lang.String id)
void		setParameter(java.lang.String parameterName, java.lang.String parameterValue) This method sets a single parameter for task menu item.
void		setParameters(java.util.List<Parameter> parameters)
void		setPath(java.lang.Object path)
void		setShortDesc(java.lang.String shortDesc)
void		setTarget(TaskMenuItem.TaskMenuTarget target)
void		setTitle(java.lang.String title)
void		setType(TaskMenuItem.TaskMenuItemType type)

The attribute 'path' can be used to store the information of the current node. The 'path' attribute is of type 'Object' so it can store any object which can be used to identify the current node in the external hierarchy. In the example above, the path stores the row key of the TreeModel which is an ArrayList of employeeId's starting from the root to the current selected node. The path can vary based on the implementation of the DynamicContentHandler interface. For example, if the DynamicContentHandler implementation reads the database tables to display a dynamic menu then the path can be an ArrayList of the primary keys of the database tables, if the DynamicContentHandler implementation calls an external web service to generate a dynamic menu then the path can be a String object which identifies a node in the external system.

The following code snippet shows how a TaskMenuItem can be built in the DynamicContentHandler implementation class.

```
/**
 * build a task menu item from the custom object.
 * @param rowKey
 * @param employee
 * @return
 */
private TaskMenuItem buildTaskMenuItem() {

    List<Object> rowKey = (List<Object>)this.treeModel.getRowKey();
    Employee employee = (Employee)this.treeModel.getRowData();

    if (this.treeModel.isContainer()) {
        return buildContainerTaskMenuItem(rowKey, employee);
    } else {
        return buildLeafTaskMenuItem(rowKey, employee);
    }
}

/**build container taskmenu item.
```

```

    * @param rowKey
    * @param employee
    * @return
    */
    private TaskMenuItem buildContainerTaskMenuItem(List<Object> rowKey, Employee
employee) {
        TaskMenuItem taskMenuItem = new TaskMenuItem();
        taskMenuItem.setPath(rowKey);
        taskMenuItem.setId(generateUniqueId(rowKey));
        taskMenuItem.setTitle(employeefor exampleletName());
        taskMenuItem.setShortDesc(employeefor exampleletName() + " : " + employeefor
exampleletEmployeeId());
        taskMenuItem.setType(TaskMenuItem.TaskMenuItemType.FOLDER);
        return taskMenuItem;
    }

    /**build leaf task menu item.
    * @param rowKey
    * @param employee
    * @return
    */
    private TaskMenuItem buildLeafTaskMenuItem(List<Object> rowKey, Employee
employee) {
        TaskMenuItem taskMenuItem = new TaskMenuItem();
        taskMenuItem.setPath(rowKey);
        taskMenuItem.setId(generateUniqueId(rowKey));
        taskMenuItem.setTitle(employeefor exampleletName());
        taskMenuItem.setShortDesc(employeefor exampleletName() + " : " + employeefor
exampleletEmployeeId());
        taskMenuItem.setType(TaskMenuItem.TaskMenuItemType.TASKFLOW);
        taskMenuItem.setUrl("/WEB-INF/oracle/retail/apps/framework/uishell/navigation/contentarea/flow/TestOverrideC
loseTabFlow.xml#TestOverrideCloseTabFlow");

        //set attributes on taskMenuItem
        taskMenuItem.setAttribute("TabTitle",
                                employeefor exampleletName() + " : " + employeefor
exampleletEmployeeId());
        taskMenuItem.setAttribute("tabShortDesc",
                                "Employee " + employeefor exampleletName() + " has
employee Id " +
                                employeefor exampleletEmployeeId() + ".");

        //set parameters on taskMenuItem
        taskMenuItem.setParameter("EmployeeId", String.valueOf(employeefor
exampleletEmployeeId()));
        return taskMenuItem;
    }

    /**This method generages a unique id for the taskmenu item.
    * @param rowKey
    * @return
    */
    private String generateUniqueId(List<Object> rowKey) {
        return rowKey.stream().map(c ->
c.toString()).collect(Collectors.joining(TASKMENU_ITEM_ID_SEPARATOR));
    }
}
```

Default Dynamic Task Items

When a user logs in the Retail Application, the user sees the default content that has been configured in the Retail Application. The default content opens up directly in a Retail

UIShell tab without the user having to launch it from the task menu. The dynamic task items can also be configured as the default content in the application. The `DynamicContentHandler` interface provides a method called `getDefaultTaskMenuItems` which returns a List of `TaskMenuItem` objects. The items returned from this method will be launched automatically after the user logs in.

The following is a sample implementation of the `getDefaultTaskMenuItems` method.

```
/**Get the default task menu items. These will be automatically loaded on
initial load of the home page.
 * @return
 */
@Override
public List<TaskMenuItem> getDefaultTaskMenuItems() {
    List<Object> rowKey = new ArrayList<Object>();
    rowKey.add(200); //"Jennifer Whalen"
    rowKey.add(203); //"Susan Marvis"
    rowKey.add(202); //"Pat Fay"
    Employee employee = (Employee) this.treeModel.getRowData(rowKey); //get Pat
Fay
    TaskMenuItem taskMenuItem = buildLeafTaskMenuItem(rowKey, employee);
    List<TaskMenuItem> defaultTaskMenuItems = new ArrayList<TaskMenuItem>();
    defaultTaskMenuItems.add(taskMenuItem);
    return defaultTaskMenuItems;
}
```

In Context Launch of Dynamic Task Patterns

The Retail Application provides a way to launch links and taskflows directly using a browser URL. The content is launched in the context of the external application by passing parameters in the URL.

The Retail Application requires a `navModelItemId` parameter in the request to identify the content that needs to be launched. The Retail Application checks the static task menu model files to see if an Item exists with that id in the model file. If the Retail Application does not find a static item, it consults the list of dynamic content handlers configured with the application to look for the item. If the dynamic content handler returns a `TaskMenuItem` for the given id, it will be launched in the Retail Application. The dynamic content handler should implement a method called `getInContextTaskMenuItem(String taskMenuItemId)` which will return the `TaskMenuItem` object for the `taskMenuItemId` received. The `getInContextTaskMenuItem` should be able to find the Item using the `taskMenuItemId`.

The following is a sample implementation of the `getInContextTaskMenuItem(String taskMenuItemId)` method.

```
/**This method returns an in-context item.
 * @param taskMenuItemId
 * @return
 */
@Override
public TaskMenuItem getInContextTaskMenuItem(String taskMenuItemId) {
    TaskMenuItem inContextTaskMenuItem = null;
    Employee employee = null;
    List<Object> rowKey = null;
    if (taskMenuItemId != null) {
        try {
            rowKey =
Arrays.stream(taskMenuItemId.split(TASKMENU_ITEM_ID_SEPARATOR)).map(c ->
Integer.valueOf(c)).collect(Collectors.toList());
            employee = (Employee) this.treeModel.getRowData(rowKey);
}
```

```
        if ((employee != null) && (employeefor  
exampleleetDirects().isEmpty())) {  
            inContextTaskMenuItem = buildLeafTaskMenuItem(rowKey,  
employee);  
        }  
    } catch (Exception e) {  
        if (LOG.isWarning()) {  
            LOG.warning("Error occurred looking for dynamic In-Context  
Item with id " +  
                                taskMenuItemId, e);  
        }  
    }  
    }  
    }  
    return inContextTaskMenuItem;  
}
```

The custom dynamic content handler can be added to the classpath of the Retail Application by deploying it as a shared library. Refer to the section Adding a Custom Shared Library for details on how to deploy a shared library.

Report Adapters

The `DynamicContentHandler` interface can be used to add dynamic task items in the task menu from a variety of data sources including OBIEE, BIPublisher, database tables, and custom Web Services and so on. The Retail Application provides the default implementation of the `DynamicContentHandler` interface for OBIEE and BIPublisher. These implementations are called Report Adapters. The Report Adapters can display the user's reports from OBIEE and BIPublisher as tasks in the task list. The user can click the tasks to display individual reports and dashboards.

Note: The connection to both the OBIEE and BIPublisher should be secured using TLS protocol. Ensure that the Report Adapter integration is done using secured protocol in the production environments.

OBIEE Report Adapter

The `RetailAppsObieeAdapter` relies on a properties file called `RetailAppsObieeAdapter.properties` for the OBIEE configuration. Create `RetailAppsObieeAdapter.properties` in any location on the file system. Modify the `setDomainEnv.cmd` for the Windows environment or `setDomainEnv.sh` file for the Unix environment to add the `RetailAppsObieeAdapter.properties` as a Java system property specifying the location in the file system where the `RetailAppsObieeAdapter.properties` file resides

For example for windows environment

```
set EXTRA_JAVA_PROPERTIES=-  
DRetailAppsObieeAdapter.properties=D:\Work\RetailAppsFramework\RetailAppsObieeAdap  
ter.properties %EXTRA_JAVA_PROPERTIES%
```

For Unix environment

```
EXTRA_JAVA_PROPERTIES="-DRetailAppsObieeAdapter.properties  
=/scratch/u00/product/Oracle/Middleware/user_projects/domains/RAFDomain/custom_pro  
perties/RetailAppsObieeAdapter.properties ${EXTRA_JAVA_PROPERTIES}"  
export EXTRA_JAVA_PROPERTIES
```

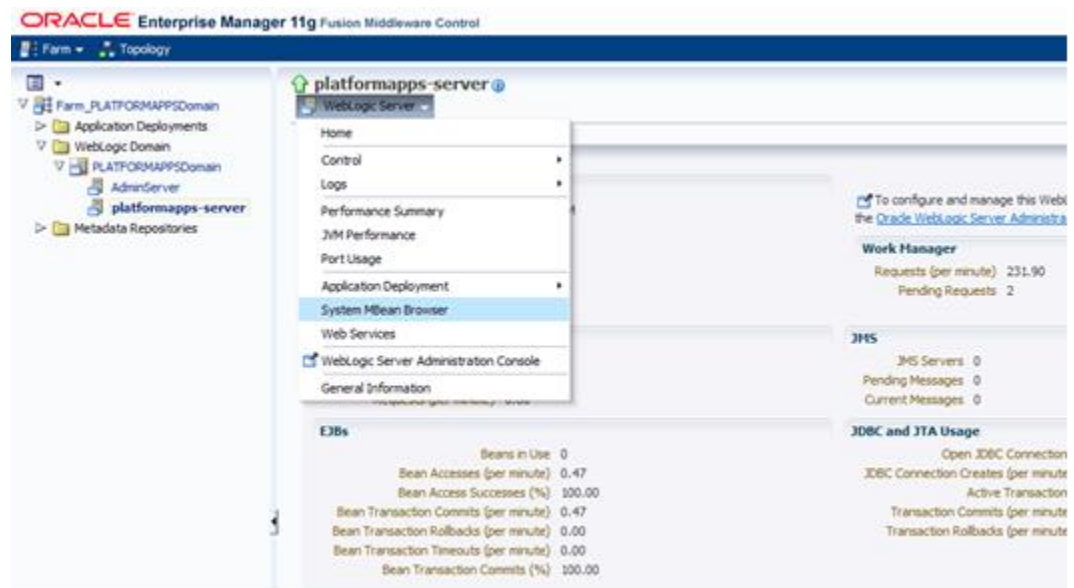
The `RetailAppsObieeAdapter.properties` can be used to specify the following properties for the OBIEE Report Adapter configuration.

Property	Required	Description
bi.connection.name	Yes	This property is used to specify the name of the BISOapConnection used to display the OBIEE reports. The connection should be created using the Enterprise Manager. Refer to the section Creating the BICConnection for more details.
bi.bipublisher.context.path	No	If the OBIEE installation includes both the OBIEE analytics and BIPublisher then the BIPublisher reports can also be displayed using the RetailAppsObieeAdapter. The bi.bipublisher.context.path is used to specify the context root of the BIPublisher installation. The default value is xmlpserver.
bi.external.integration	No	This property can be used to disable the RetailAppsObieeAdapter integration. Setting this to false will disable the RetailAppsObieeAdapter integration. The default value is true.
bi.report.new.browser.tab	No	This property can be used to display the OBIEE reports in a new browser tab on in a new Retail UI Shell tab. The default behavior of the RetailAppsObieeAdapter is to open the OBIEE reports in a new browser tab. Setting this property to false opens the reports in a new UI Shell tab. The default value is true.

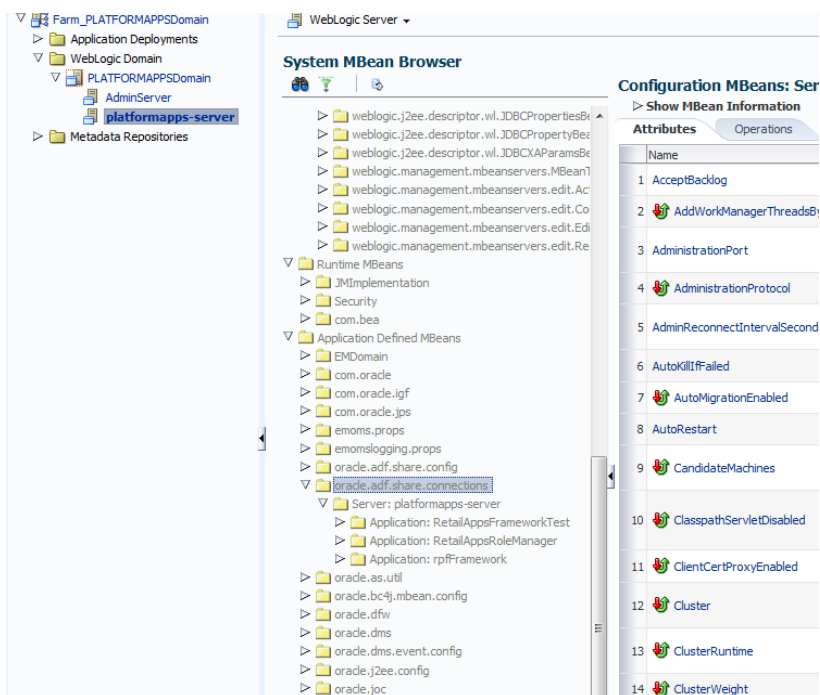
Creating the BI Connection

Use the following steps to create the BICConnection for the RetailAppsObieeAdapter configuration.

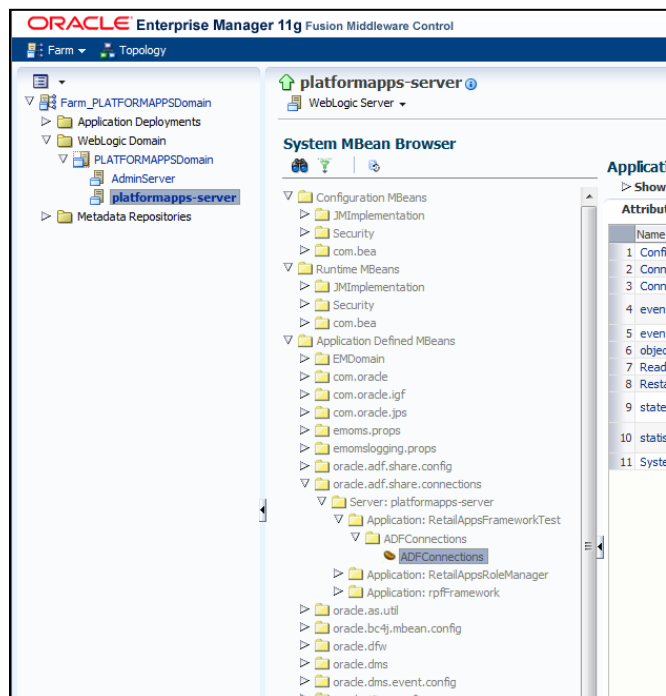
1. Login to the Enterprise Manager of the environment where the Retail Application is deployed and go to 'System MBean Browser' as shown below.



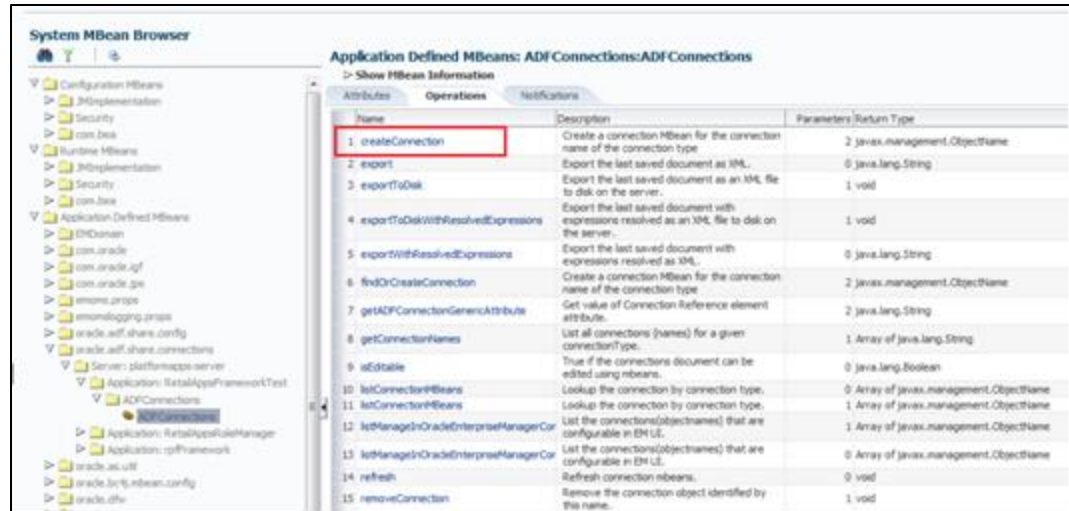
2. Go to 'Application Defined MBeans' and its sub folder 'oracle.adf.share.connections'



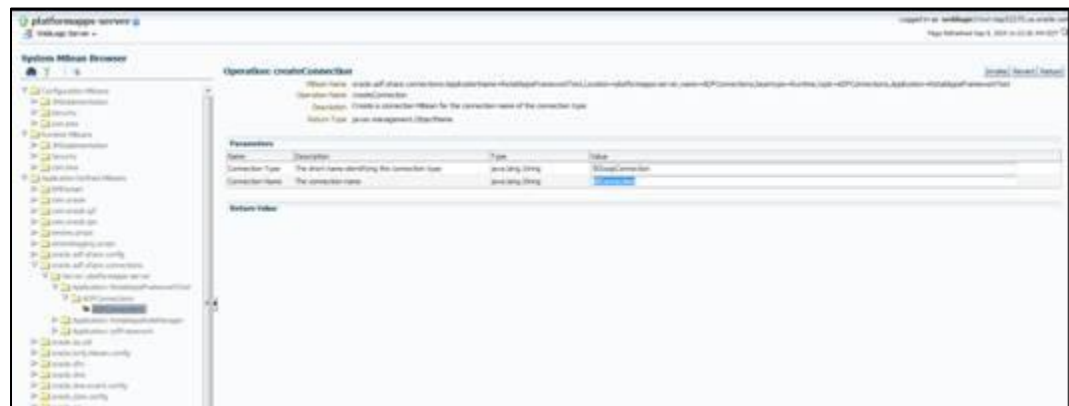
- Expand 'Application: <AppName>' and select 'ADFConnections'. The following example uses RetailAppsFrameworkTest as the AppName.



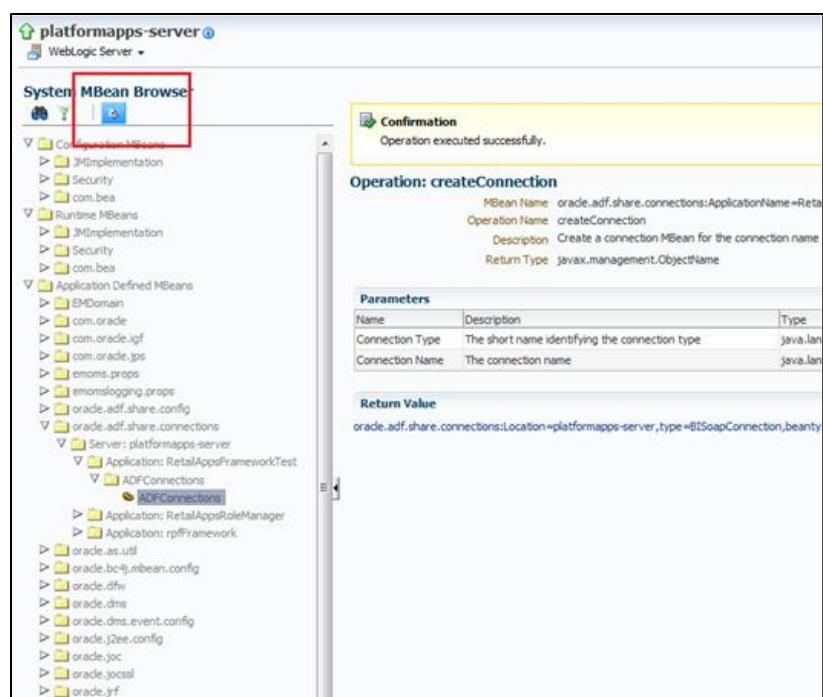
- Go to the 'Operations' tab and click 'createConnection'.



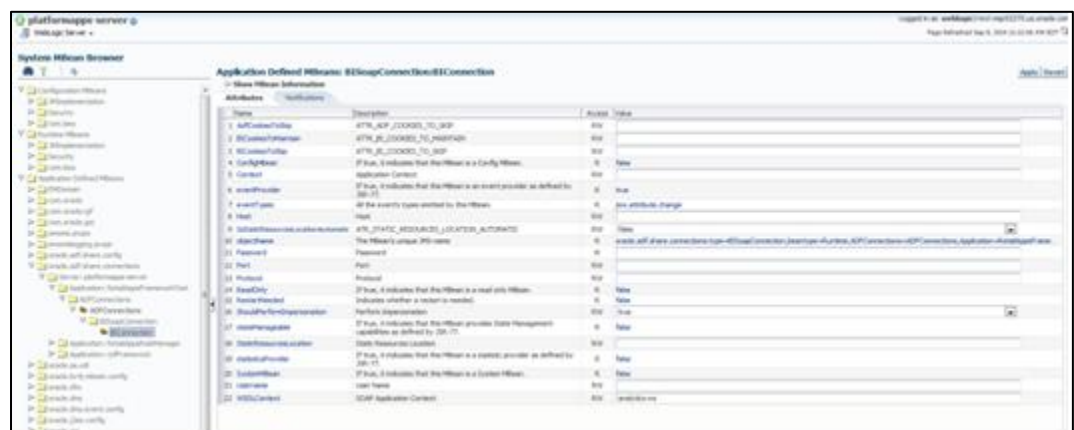
5. Enter Connection Type as BISOapConnection and Connection Name as BICConnection. Click Invoke on top right.



6. Refresh the tree using the button 'Refresh cached tree data'



- Once the tree is refreshed, you will notice that 'ADFConnections' becomes a folder and it has a new connection 'BIConnection'. Click the BIConnection to open its properties in the right pane.

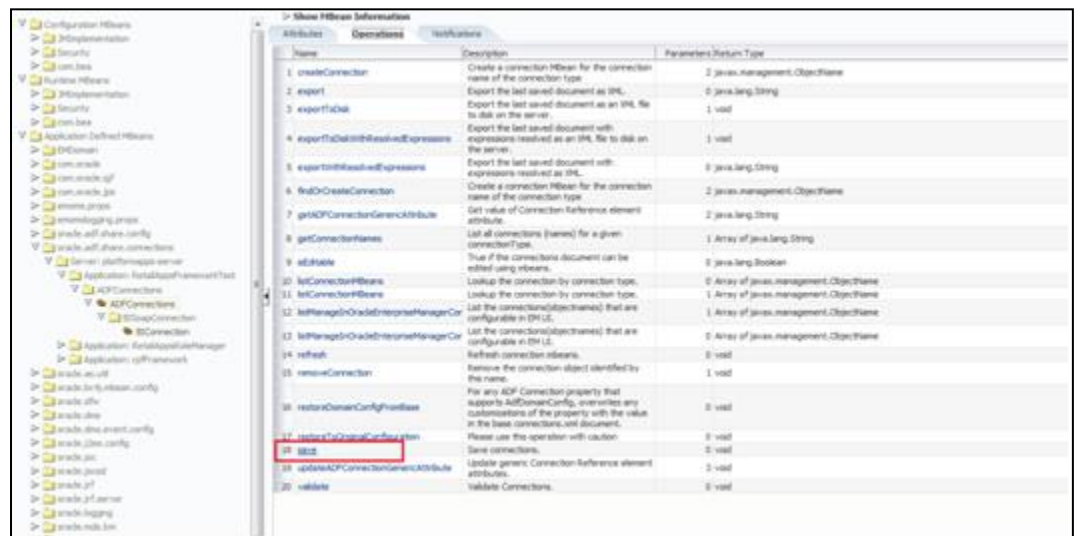


- Enter the values shown in the table below. Once done click Apply on the top right.

Context	The context root of the Oracle BI EE installation. Example: analytics
Host	The host of the Oracle BI EE installation.
IsStaticResourcesLocationAutomatic	The IsStaticResourcesLocationAutomatic attribute can be either true or false. When this attribute is true, the BI Presentation Server will be used to specify the location of the static resources. When this attribute is false, the attribute 'StaticResourcesLocation' should be provided. The attribute StaticResourcesLocation will be used to find the static resources when the attribute IsStaticResourcesLocationAutomatic is false.

Password	The password for the BIImpersonateUser.
Port	The port of the Oracle BI managed server. Example 9704
Protocol	http or https For production environments, use https.
ShouldPerformImpersonation	true (keep it true, default is true)
StaticResourcesLocation	The path of the location where the static resources are available. If the IsStaticResourcesLocationAutomatic attribute is true then use the following URL for the StaticResourcesLocation attribute. http://<obiee_host>:<obiee_port>/analytics If the IsStaticResourcesLocationAutomatic attribute is false, then use the following URL for the StaticResourcesLocation attribute. http://<web_tier_host>:<web_tier_port> The Oracle BI EE static resources, namely the 'res' and 'analyticsRes' directories should be available from the Oracle Web Tier's htdocs directory when the IsStaticResourcesLocationAutomatic attribute is false.
Username	The username that has been configured on the Oracle BI EE with the impersonate permissions. Example: BIImpersonateUser
WSDLContext	analytics-ws

9. Go to 'ADFConnections' to save the changes. Click 'save' operation in the Operations tab.



10. Click 'Invoke' on the top right to save the changes.



11. Once the connection is created successfully, modify the `RetailAppsObieeAdapter.properties` to add the `bi.connection.name` as `BICConnection`.

Configuring the Reports Menu

Once we have configured the `RetailAppsObieeAdapter.properties` and created a `BICConnection`, we can add an Item of type="dynamicContent" in the `HomeReportsMenuModel.xml` file to display the OBIEE Reports in the Reports menu. The implementation of the `DynamicContentHandler` interface for OBIEE is called `oracle.retail.apps.framework.report.obiee.handler.ObieeDynamicContentHandler`

```
<Items>
  <Item id="obieeDynamicContent" title="OBIEE Dynamic Menu"
type="dynamicContent"

dynamicContentHandler="oracle.retail.apps.framework.report.obiee.handler.ObieeDyna
micContentHandler"

        visible="#{securityContext.authenticated}"/>
</Items>
</Item>
```

The reports menu model can be customized to add an entry for the dynamic content as shown above. Refer to the section [Adding or Modifying an Item in the Reports Menu](#) for more details.

BIPublisher Report Adapter

The `RetailAppsBiPublisherAdapter` relies on a properties file called `RetailAppsBiPublisherAdapter.properties` for the BIPublisher configuration. Create `RetailAppsBiPublisherAdapter.properties` in any location on the file system. Modify the `setDomainEnv.cmd` for the Windows environment or `setDomainEnv.sh` file for the Unix environment to add the `RetailAppsBiPublisherAdapter.properties` as a Java system property specifying the location in the file system where the `RetailAppsBiPublisherAdapter.properties` file resides.

For example for windows environment:

```
set EXTRA_JAVA_PROPERTIES=--
DRetailAppsBiPublisherAdapter.properties=D:\Work\RetailAppsFramework\RetailAppsBiP
ublisherAdapter.properties %EXTRA_JAVA_PROPERTIES%
```

For Unix environment

```
EXTRA_JAVA_PROPERTIES="-
DRetailAppsBiPublisherAdapter.properties=/scratch/u00/product/Oracle/Middleware/us
er_projects/domains/RAFDomain/custom_properties/RetailAppsBiPublisherAdapter.prope
rties ${EXTRA_JAVA_PROPERTIES}"
export EXTRA_JAVA_PROPERTIES
```

The RetailAppsBiPublisherAdapter.properties can be used to specify the following properties for the BIPublisher Report Adapter configuration.

Property	Required	Description
bipublisher.wsdl.location	Yes	This property is used to specify the WSDL URL of the BIPublisher PublicReportService. For example: https://bipublisher_host:bipublisher_port/xmlpserver/services/PublicReportService?wsdl
bipublisher.external.integration	No	This property can be used to disable the RetailAppsBiPublisherAdapter integration. Setting this to false will disable the RetailAppsBiPublisherAdapter integration. The default value is true.
bipublisher.report.new.browser.tab	No	This property can be used to display the BIPublisher reports in a new browser tab on in a new Retail UI Shell tab. The default behavior of the RetailAppsBiPublisherAdapter is to open the BIPublisher reports in a new browser tab. Setting this property to false opens the reports in a new UI Shell tab. The default value is true.

Store the BIPublisher Admin Credentials

The RetailAppsBiPublisherAdapter requires the admin credentials of the BIPublisher to be stored in the WebLogic domain credential store where the Retail Application is deployed. The admin credentials are used by the RetailAppsBiPublisherAdapter to connect to the BIPublisher.

The admin credentials can be stored the in domain credential store by using WebLogic Scripting tool or the Enterprise Manager.

WebLogic Scripting Tool

After running the wlst script, connect to the WebLogic Domain using the connect() command and run the following createCred() command. Replace the <bip_admin_user> and <bip_admin_password> with the BIPublisher admin user and password.

```
createCred(map="oracle.retail.apps.framework.report.bipublisher", key="bipadmin",
user="<bip_admin_user>", password="<bip_admin_password>", desc="BIPublisher admin
user credentials")
```

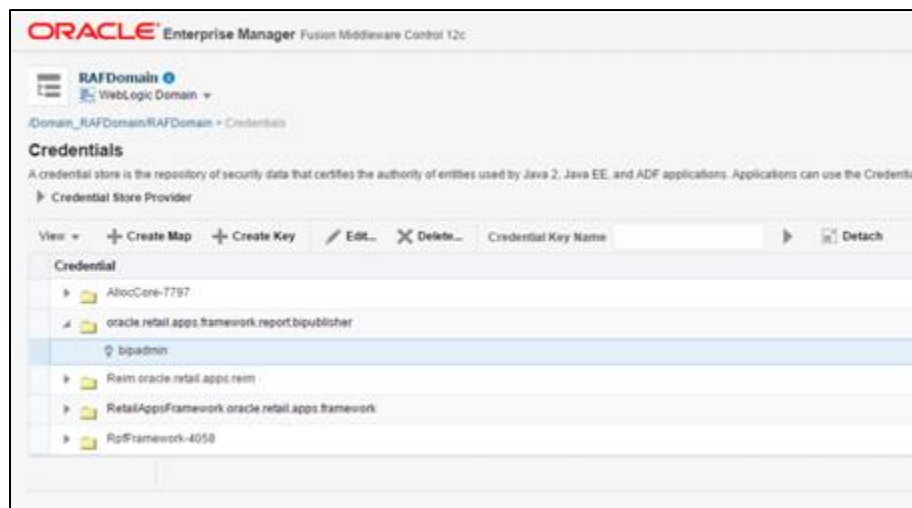
If the credentials already exist for the map

'oracle.retail.apps.framework.report.bipublisher' and key 'bipadmin', update them using the following command

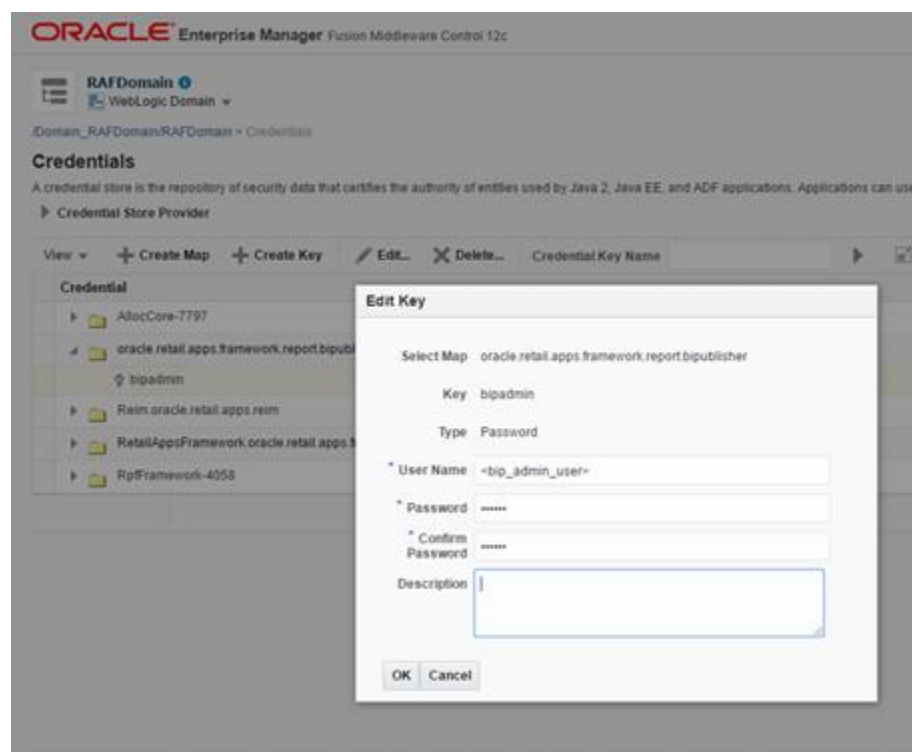
```
updateCred(map="oracle.retail.apps.framework.report.bipublisher", key="bipadmin",
user="<bip_admin_user>", password="<bip_admin_password>")
```

Enterprise Manager

Navigate to Security/Credentials.



Create a new map called 'oracle.retail.apps.framework.report.bipublisher'. Inside this map create a new key called 'bipadmin' and enter the BIPublisher admin credentials.



Configuring the Reports Menu

Once we have configured the RetailAppsBiPublisherAdapter.properties and have added the BIPublisher WSDL URL property in the properties file, we can add an Item of type="dynamicContent" in the HomeReportsMenuModel.xml file to display the BIPublisher Reports in the Reports menu. The implementation of the DynamicContentHandler interface for the BIPublisher is called

oracle.retail.apps.framework.report.bipublisher.handler.BiPublisherDynamicContentHandler.

```

                                <Item id="bipublisherFolder" visible="#{true}" title="BiPublisher"
type="folder">
                                <Items>
                                <Item id="bipublisherDynamicContent" title="BiPublisher Dynamic
Menu"
                                type="dynamicContent"

dynamicContentHandler="oracle.retail.apps.framework.report.bipublisher.handler.BiP
ublisherDynamicContentHandler"
                                visible="#{securityContext.authenticated}"/>
                                </Items>
                                </Item>

```

The reports menu model can be customized to add an entry for the dynamic content as shown above. Refer to the section [Adding or Modifying an Item in the Reports Menu](#) for more details.

Oracle Retail Sales Audit Batch Process and Designs

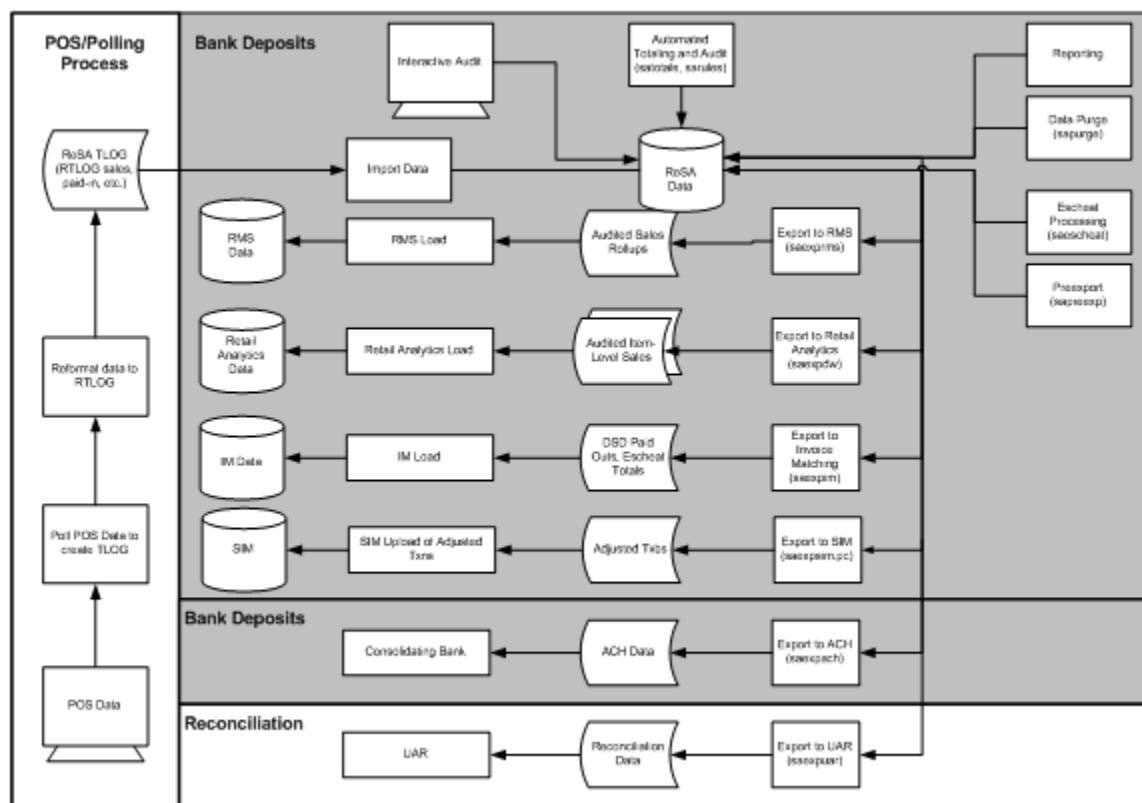
This chapter describes the batch processing modules that ReSA uses.

The term store day is used throughout this chapter. Store day describes all transactions that occur in one business day at one store or location. Because retailers need the ability to audit transactions on a store-by-store basis for a defined period of time, store day data is maintained separately beginning with the initial import of data from the POS/OMS system.

Oracle Retail sales Audit Dataflow Diagram

The following diagram illustrates how data flows within ReSA and between ReSA and other applications.

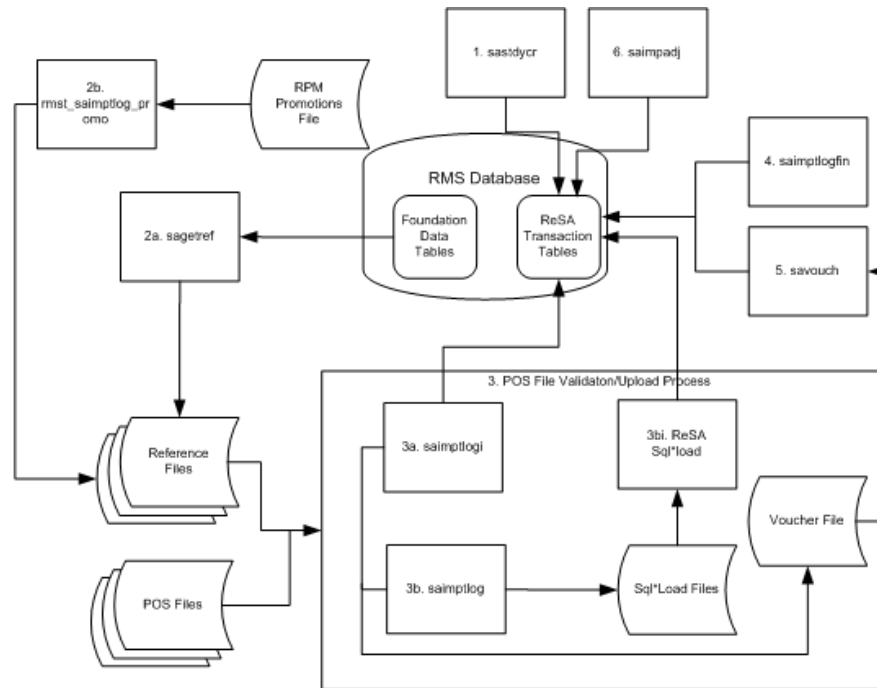
Note: All integrations are not depicted in this diagram



Oracle Retail Sales Audit Dataflow Diagram

Oracle Retail Sales Import Process

Importing data from the POS to ReSA is a multi-step process that involves several ReSA batch processes.



Oracle Retail Sales Import Process

1. sastdyrcr.pc prepares the ReSA tables for data upload.
2. Reference File Creation involves two processes:
 - a. sagetref.pc creates a number of reference files to be used for validation in the File Validation/Upload Process.
 - One of the reference data files created by sagetref contains code values from the RMS CODE_HEAD and CODE_DETAIL tables. If the codes that ReSA uses are customized during the implementation, a library must be recompiled. This is discussed in detail in the Design Assumptions section of the sagetref program level information below.
 - The way primary variants are set up in RMS affects the data collected by sagetref and used in the File Validation/Upload Process. This is discussed in detail in the Design Assumptions section of the sagetref program level information below.
 - b. rmst_saimptlog_promo.ksh transforms a promotions file from Oracle Retail Price Management (RPM) to the ReSA reference file format
3. The POS File Validation/Upload Process can be executed one of two sub-processes:
 - a. saimptlogi.c validates files and uploads their transactions into the ReSA tables. This includes (as necessary) creating errors for the auditors to address
 - b. saimptlog.c validates POS files and creates Sql*Loader Files. This includes (as necessary) creating errors for the auditors to address.
 - A Sql*Load process moves the transactions and errors into the ReSA tables.
 - c. Both saimptlog and saimptlogi create a voucher file to be used in later processing.

4. saimptlogfin.pc executes a number of import cleanup processes.
5. savouch.pc processes voucher sales and redemptions.
6. saimpadj.pc imports adjustments.

Each of the processes related to the import process are discussed in more detail at the program level later in this chapter.

POS File Validation/Upload Sub-Process saimptlog vs saimptlogi

saimptlogi.c and saimptlog.c perform the same business functions. Saimptlogi.c inserts directly into the database. Saimptlog uses SQL*Load to insert data. A retailer trickle polling or exporting a relatively small TLOG would be a good candidate to use saimptlogi.c. The detail discussion of these programs below contains more detail about the processing of these jobs.

Total Calculations and Rules

By providing additional values against which auditors can compare receipts, totaling is integral to the auditing process. Totaling also provides quick access to other numeric figures about the day's transactions.

Totaling in ReSA is dynamic. ReSA automatically totals transactions based on calculation definitions that the retailer's users create using the online Totals Calculation Definition Wizard. In addition, the retailer is able to define totals that come from the POS, but that ReSA does not calculate. Whenever users create new calculation definitions or edit existing ones, they become part of the automated totaling process the next time that satotals.pc runs.

Evaluating rules is also integral to the auditing process. Rules make the comparisons among data from various sources. These comparisons find data errors that could be the result of either honest mistakes or fraud. Finding these mistakes during the auditing process prevents these errors from being passed on to other systems, (for example, a merchandising system, a data warehouse system, and so on).

Like totaling, rules in ReSA are dynamic. They are not predefined in the system — retailers have the ability to define them through the online Rules Calculation Definition Wizard.

Errors uncovered by these rules are available for review during the interactive audit. Like satotals.pc, after users modify existing rules or create new ones, they become part of the rules the next time that sarules.pc runs.

Totals when Transactions are Modified

If a retailer modifies transactions during the ReSA interactive audit process, the totaling and auditing processes run again to recalculate store day totals. The batch module sapreexp.pc tracks all changed totals for the store day since the last export by comparing the latest prioritized version of each total defined for export with the version that was previously sent to each system. The module writes the changes to revision tables that the export modules later recognize as ready for export.

Oracle Retail Sales Export Process

ReSA prepares data for export to applications after:

- Some or all of the transactions for the day are imported (depending upon the application receiving ReSA's export).
- Totals have run.

- Audit rules have run.
- Errors in transactions and totals relevant for the system receiving the associated data are eliminated or overridden. Depending upon the application, exported data consists of either transaction data or totals, or both. The process of exporting transaction data varies according to the unit of work selected in ReSA's system options. There are two units of work, transaction and store day. If the unit of work selection is transaction, ReSA exports its transactions to downstream applications, (for example, RMS, SIM, RA, and so on.) as soon as they are free of errors. If the unit of work selection is store day, transactions are not exported until all errors for that store day are either overridden or corrected. The data export jobs, to the various downstream applications, can be run multiple times in a day.

Full Disclosure and Post Export Changes

If a retailer modifies data during the interactive audit that was previously exported to RMS, ReSA export batch modules re-export the modified data in accordance with a process called full disclosure. Full disclosure means that any previously exported values (dollars, units, and so on) are fully backed out before the new value is sent.

For example: a transaction originally shows a sale of 12 items, and that transaction is exported. During the interactive audit, a retailer determines that the correct amount is 15 items, (where three are more than the original amount) and makes the change. ReSA then flags the corrected amount for export to the application.

The detail discussion of these programs below contains more detail about the processing of these jobs.

Batch Design Summary of ReSA Modules

The following list summarizes the ReSA batch modules that are involved with processing POS/OMS transaction data, audit totals and rules, exports to other applications, and modifications and adjustments.

Import Process Programs

- `sastdycr.pc` (Create Store Day for Expected Transactions)
- `sagetref.pc` (Get Reference Data for Sales Audit Import Processing)
- `rmst_saimptlog_promo.ksh` (Transform Promotion Reference File from RPM format to Sales Audit Import Processing File Format)
- `saimptlog.c/saimptlogi.c` (Import of Unaudited Transaction data from POS to ReSA)
- `saimptloglogtdup_upd` (Processing to Allow Re-Upload of Deleted Transactions)
- `saimptlogfin.pc` (Complete Transaction Import Processing)
- `savouch.pc` (Sales Audit Voucher Upload)
- `saimpadj.pc` (Import Total Value Adjustments From External Systems to ReSA)

Totals/Rules Programs

- `satotals.pc` (Calculate Totals based on Client Defined Rules)
- `sarules.pc` (Evaluate Transactions and Totals based on Client Defined Rules)

Export Programs

- `sapreexp.pc` (Prevent Duplicate Export of Total Values from ReSA)
- `saexprms.pc` (Export of POS transactions from ReSA to RMS)

- saordinvexp.pc (Export Inventory Reservation/Release for In Store Customer Order and Layaway Transactions from ReSA)
- saexpdw.pc (Export from ReSA to Oracle Retail Analytics)
- saexpsim.pc (Export of Revised Sale/Return Transactions from ReSA to SIM)
- saexpim.pc (Export DSD and Escheatment from ReSA to Invoice Matching)
- saexpgl.pc (Post User Defined Totals from ReSA to General Ledger)
- ang_saplgen.ksh (Extract of POS Transactions by Store/Date from ReSA for Web Search)
- saescheat.pc (Download of Escheated Vouchers from ReSA for Payment)
- saescheat_nextesn.pc (Generate Next Sequence for Escheatment Processing)
- saexpach.pc (Download from ReSA to Account Clearing House (ACH) System)
- saexpuar.pc (Export to Universal Account Reconciliation System from ReSA)

Other Programs

- saprepost.pc (Pre/Post Helper Processes for ReSA Batch Programs)
- sapurge.pc (Purge Aged Store/Day Transaction, Total Value, and Error Data from ReSA)

sastdycr (Create Store Day for Expected Transactions)

Module Name	sastdycr.pc
Description	Create Store Day for Expected Transactions
Functional Area	Oracle Retail Sales Audit
Module Type	Business Processing
Module Technology	ProC
Integration Catalog ID	RSA15

Design Overview

The sastdycr batch program will create store/day, import log, and export log records. This program should run prior to uploading the sales data from POS/OMS for a given store/day. Store/days will be created for any open store expecting sales

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Daily – In the date set phase.
Scheduling Considerations	It should run before the DTESYS batch program and before the next store/day's transactions are received.
Pre-Processing	NA
Post-Processing	dtesys
Threading Scheme	NA

Restart/Recovery

The logical unit of work in this program is store. Records are committed to the database when the commit counter is reached. The commit counter is defined by the value of INCREMENT_BY on the ALL_SEQUENCE table for the sequence SA_STORE_DAY_SEQ_NO_SEQUENCE.

Key Tables Affected

Table	Select	Insert	Update	Delete
ALL_SEQUENCES	Yes	No	No	No
SYSTEM_OPTIONS	Yes	No	No	No
STORE	Yes	No	No	No
SA_STORE_DAY	Yes	Yes	No	No
COMPANY_CLOSED	Yes	No	No	No
COMPANY_CLOSED_EXCEP	Yes	No	No	No
LOCATION_CLOSED	Yes	No	No	No
PERIOD	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No
SA_IMPORT_LOG	No	Yes	No	No
SA_EXPORT_LOG	No	Yes	No	No
SA_FLASH_SALES	No	Yes	No	No

Integration Contract

Integration Type	NA
File Name	NA
Integration Contract	NA

Design Assumptions

NA

sagetref (Get Reference Data for Sales Audit Import Processing)

Module Name	sagetref.pc
Description	Get Reference Data for Sales Audit Import Processing
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA00

Design Overview

This program will fetch all reference information needed by SAIMPTLOG.PC for validation purposes and write this information out to various output files. The following files are produced:

- Items - contains a listing of all items in the system.
- Wastage - contains information about all items that have wastage associated with them.
- Reference Items - contains reference items, or below transaction-level items.
- Primary Variant - contains primary variant information.
- Variable Weight UPC - contains all variable weight Universal Product Code (UPC) definitions in the system.
- Store/Days - contains all of the valid store/day combinations in the system.
- Codes & Code Types - contains all code types and codes used in field level validation.
- Error Codes & Descriptions - contains all error codes, error descriptions, and systems affected by the error.
- Store POS Mappings
- Tender Types
- Merchants
- Partners
- Suppliers
- ReSA Employees
- Banners
- Currency Codes
- Promotions (from RPM)
- Physical Warehouses
- Inventory Statuses

These files will be used by the automated audit to validate information without repeatedly hitting the database.

When running sagetref.pc, retailers can either create and specify the output files, or create only the output that they desire. For example, a retailer interested in only creating a more recent employeefile would simply place a hyphen (-) in place of all the other parameters, but still specify an employeefile name. This technique can be applied to as many or as few of the parameters as retailers wish.

However, the item-related files (itemfile, refitemfile, wastefile, and primvariantfile) contain significant interdependence. Thus, item files must all be created or not created together.

In the list of reference data files above, standard UOM is part of the itemfile. To obtain the value, ReSA converts the selling Unit of Measure (UOM) to the standard UOM during batch processing. This conversion enables ReSA to later export the standard UOM to the systems that require its use

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Daily – Anytime – Sales Audit is a 24/7 system.

Schedule Information	Description
Scheduling Considerations	This module should be executed in the earliest phase, before the first import of RTLOGs into ReSA.
Pre-Processing	Sastdycr.pc
Post-Processing	Saimptlog.c or saimptlogi.c
Threading Scheme	NA

Restart/Recovery

NA

Key Tables Affected

Table	Select	Insert	Update	Delete
ITEM_MASTER	Yes	No	No	No
ITEM_LOC	Yes	No	No	No
VAR_UPC_EAN	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_STORE	Yes	No	No	No
SA_IMPORT_LOG	Yes	No	No	No
CURRENCIES	Yes	No	No	No
ADDR	Yes	No	No	No
CODE_DETAIL	Yes	No	No	No
SA_ERROR_CODES	Yes	No	No	No
SA_STORE_POS	Yes	No	No	No
POS_TENDER_TYPE_HEAD	Yes	No	No	No
NON_MERCH_CODE_HEAD	Yes	No	No	No
PARTNER	Yes	No	No	No
SUPS	Yes	No	No	No
SA_STORE_EMP	Yes	No	No	No
STORE	Yes	No	No	No
BANNER	Yes	No	No	No
CHANNELS	Yes	No	No	No
CLASS	Yes	No	No	No
VAT_CODES	Yes	No	No	No
RPM_PROMO_V	Yes	No	No	No
RPM_PROMO_COMP_V	Yes	No	No	No
WH	Yes	No	No	No
INV_STATUS_CODES	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No

Integration Contract

Integration Type	Download from RMS
File Name	Determined by runtime parameters
Integration Contract	IntCon000113 (itemfile) IntCon000114 (wastefile) IntCon000115 (refitemfile) IntCon000116 (primvariantfile) IntCon000117 (varupcfile) IntCon000118 (storedayfile) IntCon000119 (promfile) IntCon000120 (codesfile) IntCon000121 (errorfile) IntCon000122 (storeposfile) IntCon000123 (tendertypefile) IntCon000124 (merchcodesfile) IntCon000125 (partnerfile) IntCon000126 (supplierfile) IntCon000127 (employeefile) IntCon000128 (bannerfile) IntCon000129 (promfile) IntCon000130 (whfile) IntCon000131 (invstatusfile)

File Name: Item File

The ItemFile file name (Itemfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Item	Char(25)		Item number
	Dept	Number(4)		Department ID
	Class	Number(4)		Class id
	Subclass	Number(4)		Subclass ID
	Standard UOM	Char(4)		Standard Unit of Measure
	Catchweight Ind	Char(1)		Catch weight indicator
	Class vat Ind	Char(1)		Class Vat Ind

File Name: Waste Data File

The Waste Data File file name (wastefile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Item	Char(25)		Item number
	Waste type	Char(6)		Waste type

Record Name	Field Name	Field Type	Default Value	Description
	Waste pct	Number(12,4)		Waste pct

File Name: Reference Item Data

The Reference Item Data file name (ref_itemfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Ref Item	Char(25)		Reference Item number
	Item	Char(25)		Item number

File Name: Primary Variant Data File

The Primary Variant Data File file name (prim_variantfile) is not fixed; it is determined by a runtime parameter

Record Name	Field Name	Field Type	Default Value	Description
	Location	Number(10)		Location number
	Item	Char(25)		Item number
	Prim Variant	Char(25)		Primary variant

File Name: Variable Weight UPC Definition File

The Variable Weight UPC Definition File file name (varupcfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Format Id	Char(1)		Format id
	Format desc	Char(20)		Format description
	Prefix length	Number(1)		Pefix Length
	Begin item digit	Number(2)		Item digit begin
	Begin var digit	Number(2)		Var digit begin
	Check digit	Number(2)		Check digit
	Default prefix	Number(1)		Default prefix
	Prefix	Number(1)		Prefix

File Name: Valid Store/Day Combination File

The Valid Store/Day Combination File file name (storedayfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
-------------	------------	------------	---------------	-------------

Store	Number(10)	Store number
Business date	Char(8)	Business date in YYYYMMDD format
Store day seq no	Number(20)	Store day sequence number
Day	Number(3)	Day
Tran no generated	Char(6)	Generated transaction number
POS data expected	Char(1)	If system_code is POS, then Y; otherwise N
Currency rtl dec	Number(1)	Currency rtl dec
Currency code	Char(3)	Currency code
Country id	Char(3)	Country ID
Vat Include Ind	Char(1)	Vat Include Indicator

File Name: Codes File

The Codes File file name (codesfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Code type	Char(4)		Code type
	Code	Char(6)		Code ID
	Code seq	Number(4)		Code sequence

File Name: Error Information File

The Error Information File file name (errorfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Error code	Char(25)		Error code
	System Code	Char(6)		System Code
	Error desc	Char(255)		Error description
	Rec solution	Char(255)		Error rectify solution

File Name: Store POS Mapping File

The Store POS Mapping File file name (storeposfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Store	Number(10)		Store
	POS Type	Char(6)		Point Of Sale type
	Start Tran No.	Number(10)		Start transaction number
	End Tran No.	Number(10)		End transaction number

File Name: Tender Type Mapping File

The Tender Type Mapping File file name (tendertypefile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Non Merch Code	Char(6)		Non-merchant code

File Name: Partner Mapping File

The Partner Mapping File file name (partnerfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Partner Type	Char(6)		Partner Type
	Partner Id	Char(10)		Partner ID

File Name: Supplier Mapping File

The Supplier Mapping File file name (supplierfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Supplier	Number(10)		Supplier ID
	Sup status	Char(1)		Supplier status

File Name: Employee Mapping File

The Employee Mapping File file name (employeefile) is not fixed; it is determined by a runtime parameter.

Note: The data in the employee file is not used anymore with the removal of store user audit and the deprecation of system option, AUTO_VALIDATE_TRAN_EMPLOYEE_ID.

Record Name	Field Name	Field Type	Default Value	Description
	Store	Number(10)		Store ID
	POS Id	Char(10)		Point Of Sale ID
	Emp Id	Char(10)		Employee ID

File Name: Banner Information File

The Banner Information File file name (bannerfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Store	Number(10)		Store ID

Banner data

Number(4)

Banner ID

File Name: Currency Information File

The Currency Information File file name (currencyfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Currency Code	Char(1)		Currency Code

File Name: Promotion Information File

The Promotion Information File file name (promfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Promotion	Number(10)		Promotion ID
	Component	Number(10)		Component ID

File Name: Physical Warehouse Information File

The Physical Warehouse Information File filename (whfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Warehouse	Number(10)		Warehouse ID

File Name: Inventory Status Information File

The Inventory Status Information File file name (invstatusfile) is not fixed; it is determined by a runtime parameter.

Record Name	Field Name	Field Type	Default Value	Description
	Inventory Status	Char(10)		Inventory Status

Design Assumptions**Making Changes in the CODE_DETAIL Table**

After making changes in the code_detail table for code_types that ReSA uses, the library programs must be recompiled. Follow these steps:

1. Navigate to the \$I directory and recompile libres.a and install:


```
make -f retek.mk resa
make -f retek.mk install
```
2. Navigate to the \$c directory and recompile the next libraries:


```
make -f mts.mk resa-libchange
make -f mts.mk resa
```

- a. Recompile the appropriate library depending upon which of the following products is being used:
 - resa-rms
 - resa-rdw
 - resa-ach
 - resa-uar
 - resa-im

```
make -f mts.mk ( name of library )
```
- b. `make -f mts.mk resa-install`

Primary Variant Relationships

Depending upon a retailer's system parameters, the retailer designates the primary variant during item setup (through the front-end) for several reasons. One of the reasons is that, in some cases, an item may be identified at the POS by the item parent, but the item parent may have several variants.

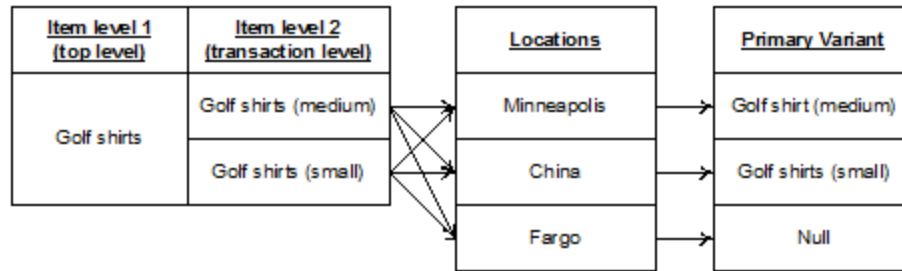
The primary variant is established through a form at the item location level. The retailer designates which variant item is the primary variant for the current transaction level item. For more information about the new item structure in RMS, see the Oracle Retail Merchandising System User Guide.

In the example shown in the diagram below, the retailer has established their transaction level as an Item Level 2. Note that the level of the primary variant is Item Level 1, and Item Level 3 is the sub-transaction level (the refitem).

The retailer set up golf shirts in the merchandising system as its Item Level 1 above the transaction level. The retailer set up two items at level 2 (the transaction level) based on size (small and medium). Note that the retailer assigned the level 2 items to all of the available locations (Minneapolis, China, and Fargo). The retailer also designated a primary variant for a single location – a medium golf shirt, in the case of Minneapolis, and a small golf shirt, in the case of China. The retailer failed to designate a primary variant for Fargo.

The primary variant affects ReSA in the following way. Sometimes a POS system does not provide ReSA with item level 2 (transaction item) data. For example, assume that the POS system in Minneapolis sold 10 medium golf shirts and 10 small golf shirts but only informed ReSA that 20 golf shirts were sold. 20 golf shirts presents a problem for ReSA because it can only interpret items at item level 2 (the transaction level). Thus, because medium golf shirts was the chosen primary variant for Minneapolis, the SAGETREF.PC module automatically transforms the 20 golf shirts into 20 medium golf shirts. If the same type of POS system in China informed ReSA of 20 golf shirts (instead of the 10 medium and 10 small that were sold), the sagetref.pc module would transform the 20 golf shirts sold in China into 20 small golf shirts. As the table shows, small golf shirts was the chosen primary variant for the China location. ReSA then goes on to export the data at the item 2 level (the transaction level) to, for example, a merchandising system, a data warehouse, and so on.

Note: Depending upon system parameters, if a retailer fails to set up the primary variant for a location, an invalid item error is generated during batch processing. In the example below, if the POS system in Fargo sold 10 medium golf shirts and 10 small golf shirts, but only informed ReSA that 20 golf shirts were sold, the sagetref.pc module would not have a way to transform those 20 golf shirts to the transaction level. Because ReSA can only interpret items above the transaction level in conjunction with a primary variant, the invalid item error would occur during batch processing.



Primary Variant Relationships

saimptlog/saimptlogi (Import of Unaudited Transaction Data from POS to ReSA)

Module Name	saimptlog.c saimptlogi.c
Description	Import of Unaudited Transaction data from POS to ReSA
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA11a RSA11b
Runtime Parameters	N/A

Design Overview

Importing POS and Order Management System (OMS) data to ReSA is a 5 or 6 step process depending on whether saimptlogi or saimptlog is used. Saimptlog produces SQL*Loader files, while saimptlogi does inserts directly into the database. Saimptlogi is meant for use in a trickle feed environment.

To import POS and OMS data, perform the following:

1. SAGETREF must be run to generate the current reference files:
 - Items
 - Wastage
 - Sub-transaction level items
 - Primary variant relationships

- Variable weight PLU
- Store business day
- Code types
- Error codes
- Store POS
- Tender type
- Merchant code types
- Partner vendors
- Supplier vendors
- Employee ids
- Banner ids
- Currency File
- Warehouse File
- Inventory Status File

These files are all used as input to SAIMPTLOG and SAIMPTLOGI. Because SAIMPTLOG and SAIMPTLOGI can be threaded, this boosts performance by limiting interaction with the database.

2. Either SAIMPTLOG or SAIMPTLOGI must be run against each file. The files are the transaction log files in Oracle Retail compatible format called RTLOG. The retailer is responsible for converting its transaction logs to RTLOGs. Both SAIMPTLOG and SAIMPTLOGI create a write lock for a store/day combination on ReSA tables and then set the data_status to loading until SAIMPTLOGFIN is executed. SAIMPTLOG generates distinct SQL*Loader files for that store/day for the sa_tran_head, sa_tran_item, sa_tran_disc, sa_tran_igtax (item Level Tax not VAT), sa_tran_payment (Payment details), sa_tran_tax, sa_tran_tender, sa_error, sa_customer, sa_cust_attrib, and sa_missing_tran tables, whereas SAIMPTLOGI inserts data to the database directly. Both produce an Oracle Retail formatted voucher file for processing.
3. SQL*Loader is executed to load the transaction tables from the files created by SAIMPTLOG. The store/day SQL*Loader files can be concatenated into a single file per table to optimize load times. Alternatively, multiple SQL*Loader files can be used as input to SQL*Loader. SQL*Loader may not be run in parallel with itself when loading a table. Header data (primary keys) must be loaded before ancillary data (foreign keys). This means that the sa_tran_head table must be loaded first, sa_tran_item before sa_tran_disc, and sa_customer before sa_cust_attrib. The remaining tables may be loaded in parallel.
4. SAVOUCH is executed to load each of the voucher files in Oracle Retail standard formatted. SAVOUCH may not be multi-threaded.
5. SAIMPTLOGFIN is executed to populate the sa_balance_group table, cancel post voided transactions and vouchers, validate missing transactions, and mark the import as either partially or fully complete loaded. SAIMPTLOGFIN may not be multi-threaded.

Note: This design covers only Steps 2 and 3.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	saimptlog.c or saimptlogi.c should run after the sagetref.pc to get the reference files as input. RTLOGs must also be ready as input files.
Pre-Processing	saprepost saimptlog pre – change constraints on ReSA tables OR saprepost saimptlogi pre – change constraints on ReSA tables.
Post-Processing	saprepost saimptlog post – change back constraints on ReSA tables OR saprepost saimptlogi post – change back constraints on ReSA tables sqlldr – use sql loader to load data into ReSA tables (for saimptlog only).
Threading Scheme	saimptlog and saimptlogi may be threaded as long as the parallel executions do not include the same store/day.

Restart and Recovery

NA

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_ROUNDING_RULE_HEAD	Yes	No	No	No
SA_ROUNDING_RULE_DETAIL	Yes	No	No	No
SA_STORE_DAY	Yes	No	Yes	No
SA_TRAN_HEAD	No	Yes	No	No
SA_CUSTOMER	No	Yes	No	No
SA_CUST_ATTRIB	No	Yes	No	No
SA_TRAN_ITEM	No	Yes	No	No
SA_TRAN_IGTAX	No	Yes	No	No
SA_TRAN_DISC	No	Yes	No	No
SA_TRAN_TAX	No	Yes	No	No
SA_TRAN_PAYMENT	No	Yes	No	No
SA_ERROR	No	Yes	No	No
SA_MISSING_TRAN	No	Yes	No	No
ALL_SEQUENCES	Yes	No	No	No

Integration Contract

Integration Type	Upload to ReSA
File Name	Determined by runtime parameter
Integration Contract	Inputs from sagetref.pc: IntCon000113 (itemfile) IntCon000114 (wastefile) IntCon000115 (refitemfile) IntCon000116 (primvariantfile) IntCon000117 (varupcfile) IntCon000118 (storedayfile) IntCon000119 (promfile) IntCon000120 (codesfile) IntCon000121 (errorfile) IntCon000122 (storeposfile) IntCon000123 (tendertypefile) IntCon000124 (merchcodesfile) IntCon000125 (partnerfile) IntCon000126 (supplierfile) IntCon000127 (employeefile) IntCon000128 (bannerfile) IntCon000129 (promfile) IntCon000130 (whfile) IntCon000131 (invstatusfile) Inputs from POS: IntCon000048 (RTLOG) Outputs (if using saimptlog SQL Loader Option Note that saimptlogi inserts directly into ReSA tables and does not create these output files) IntCon000160 (SAVO) IntCon000161 (satdisc.ctl) IntCon000162 (saigtax.ctl) IntCon000163 (sacust.ctl) IntCon000164 (sathead.ctl) IntCon000165 (satitem.ctl) IntCon000166 (sattend.ctl) IntCon000167 (satypmt.ctl) IntCon000168 (samisstr.ctl) IntCon000169 (sattax.ctl) IntCon000170 (sacustatt.ctl) IntCon000171 (saerror.ctl)

The input files for this program are reference files generated by sagetref.pc and RTLOGs. For the input file specifications, refer to the details for the sagetref.pc program.

Output File Layout**File Name: SAVO (Sales Audit Voucher File)**

Record Name	Field Name	Field Type	Default Value	Description
FHEAD	File Type Record Descriptor	Char(5)	FHEAD	File type Record descriptor
	SA File Line No	Char(10)		Sales Audit File Line number
	Translator Id	Char(5)	SAVO	Identifies transaction type
	Sys Date	Char(14)		System date in YYYYMMDDHHMMSS format
	Is business date	Char(8)		Business date in YYYYMMDD format
FDETL	Record Descriptor	Char(5)	FDETL	File Type Record descriptor
	SA File Line No	Number(10)		Sales Audit File Line number
	Voucher seq Number	Number(20)		Unique identifier for an entry to sa_voucher table
	Voucher No	Char(25)		Voucher Number
	Voucher Type	Number(6)		Voucher Type
	Assigned Business Date	Char(8)		Business date in YYYYMMDD format
	Assigned Store	Number(10)		Store to which the voucher is assigned
	Issuing Date	Char(8)		Date this document was issued
	Issuing store	Number(10)		Store this document was issued from
	Issuing POS Register	Char(5)		Issuing Point Of Sale register
	Issuing Cashier	Char(10)		Issuing cashier
	Issued Tran Seq No.	Number(20)		Transaction sequence number
	Issued item seq number	Number(4)		Will hold the item sequence of the item when the voucher is sold as an item (gift voucher)
	Issued Tender Seq No.	Number(4)		Tender sequence number
	Issued Amount	Number(20)		Issued Amount * 10000 (4 implied digits)
	Issued Cust Name	Char(120)		Issued customer name
	Issued Customer Addr1	Char(240)		Issued customer addr1
	Issued Customer Addr2	Char(240)		Issued customer addr 2

Record Name	Field Name	Field Type	Default Value	Description
	Issued Customer City	Char(120)		City of the customer, the voucher is issued
	Issued Customer State	Char(3)		State of the customer
	Issued Customer Postal Code	Char(30)		Postal address of the customer
	Issued Customer Country	Char(3)		Country of the customer the voucher was issued
	Recipient Name	Char(120)		Name of the intended recipient
	Recipient State	Char(3)		The state of the intended recipient
	Recipient Country	Char(3)		The country of the intended recipient
	Redemption Date	Char(8)		Date the voucher was redeemed
	Redemption Store	Number(10)		Store, the voucher was redeemed at
	Redemption Register	Char(5)		Register, the document was redeemed at
	Redemption cashier	Char(10)		Cashier redeeming the voucher
	Redemption tran seq number	Number(20)		Transaction number when the document was redeemed
	Redemption Tender seq number	Number(4)		This column will hold the tender sequence of the tender within the transaction when a voucher is redeemed as tender
	Redemption Amount	Number(20)		Amount the document was redeemed for*10000 (4 implied decimal places)
	Expiry Date	Char(8)		Expiry date
	Status	Char(1)		Indicator showing the document's status, issued or redeemed. Valid values = I - Issued, R - Redeemed
	Comments	Char(2000)		Comments
FTAIL	Record Descriptor	Char(5)	FTAIL	File Type Record descriptor
	SA File Line No.	Number(10)		Sales Audit File Line Number
	#lines	Number(10)		Total number of transaction lines in the file (not including FHEAD and FTAIL)

Control Files**File Name: Satdisc.ctl**

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_TRAN_D ISC	TRAN_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	ITEM_SEQ_NO	INTEGER EXTERNAL	4	21:24	
	DISCOUNT_SEQ_NO	INTEGER EXTERNAL	4	25:28	
	RMS_PROMO_TYPE	CHAR	6	29:34	
	PROMOTION	INTEGER EXTERNAL	10	35:44	
	DISC_TYPE	CHAR	6	45:50	
	COUPON_NO	CHAR	40	51:66	
	COUPON_REF_NO	CHAR	16	67:82	
	QTY	DECIMAL EXTERNAL	14	83:96	
	UNIT_DISCOUNT_A MT	DECIMAL EXTERNAL	21	97:117	
	STANDARD_QTY	DECIMAL EXTERNAL	14	118:131	
	STANDARD_UNIT_D ISC_AMT	DECIMAL EXTERNAL	21	132:152	
	REF_NO13	CHAR	30	153:182	
	REF_NO14	CHAR	30	183:212	
	REF_NO15	CHAR	30	213:242	
	REF_NO16	CHAR	30	243:272	
	ERROR_IND	CHAR	1	273:273	
	CATCHWEIGHT_IND	CHAR	1	274:274	
	UOM_QUANTITY	INTEGER EXTERNAL	12	275:286	
	PROMO_COMP	INTEGER EXTERNAL	10	287:296	
	STORE	INTEGER EXTERNAL	10	297:306	
	DAY	INTEGER EXTERNAL	3	307:309	

File Name: Saigtax.ctf

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_TRAN_IG TAX	TRAN_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	ITEM_SEQ_NO	INTEGER EXTERNAL	4	21:24	
	IGTAX_SEQ_NO	INTEGER EXTERNAL	4	25:28	
	TAX_AUTHORITY	CHAR	10	29:38	
	IGTAX_CODE	CHAR	6	39:44	
	IGTAX_RATE	DECIMAL EXTERNAL	11	45:65	
	TOTAL_IGTAX_AM T	DECIMAL EXTERNAL	22	66:87	
	STANDARD_QTY	DECIMAL EXTERNAL	14	88:101	
	STANDARD_UNIT_I GTAX_AMT	DECIMAL EXTERNAL	21	102:122	
	ERROR_IND	CHAR	1	123:123	
	REF_NO_21	CHAR	30	124:153	
	REF_NO_22	CHAR	30	154:183	
	REF_NO_23	CHAR	30	184:213	
	REF_NO_24	CHAR	30	214:243	
	STORE	INTEGER EXTERNAL	10	244:253	
	DAY	INTEGER EXTERNAL	3	254:256	

File Name: Sacust.ctf

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_CUSTOM ER	tran_seq_no	INTEGER EXTERNAL DATE	20	1 :20	
	cust_id	CHAR	16	21 :36	
	cust_id_type	CHAR	6	37 :42	
	name	CHAR	240	43 :162	
	addr1	CHAR	240	163:402	
	addr2	CHAR	240	403:642	
	city	CHAR	240	643:762	
	state	CHAR	3	763:765	

Table Name	Column Name	Field Type	Field Width	Position	Description
	postal_code	CHAR	30	766:795	
	country	CHAR	3	796:798	
	home_phone	CHAR	20	799:818	
	work_phone	CHAR	20	819:838	
	e_mail	CHAR	100	839:938	
	birthdate	DATE	8	939:946	Format is YYYYMMDD
	STORE	INTEGER EXTERNAL	10	947:956	
	DAY	INTEGER EXTERNAL	3	957:959	

File Name: Sathead.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
Sa_tran_head	Tran_seq_no	Integer external	20	1:20	
	Rev_no	Integer external	3	21:23	
	Store_day_seq_no	Integer external	20	24:43	
	Tran_datetime	date	14	44:57	Format is YYYYMM DDHH24MI SS
	Register	char	5	58:62	
	Tran_no	Integer external	10	63:72	
	Cashier	char	10	73:82	
	Salesperson	char	10	83:92	
	Tran_type	char	6	93:98	
	Sub_tran_type	char	6	99:104	
	Orig_tran_no	Integer external	10	105:114	
	Orig_reg_no	char	5	115:119	
	Ref_no1	char	30	120:149	
	Ref_no2	char	30	150:179	
	Ref_no3	char	30	180:209	
	Ref_no4	char	30	210:239	
	Reason_code	char	6	240:245	
	Vendor_no	char	10	246:255	
	Vendor_invc_no	char	30	256:285	

Table Name	Column Name	Field Type	Field Width	Position	Description
	Payment_ref_no	char	16	286:301	
	Proof_of_delivery_no	char	30	302:331	
	Status	char	6	332:337	
	Value	char	22	338:359	Includes an optional negative sign and a decimal point
	Pos_tran_ind	char	1	360:360	
	Update_id	char	30	361:390	
	Update_datetime	date	14	391:404	Format is YYYYMM DDHH24MI SS
	Error_ind	char	1	405:405	
	Banner_no	Integer external	4	406:409	
	round_amt	Integer external	22	410:431	
	ROUNDED_OFF_AMT	INTEGER EXTERNAL	22	432:453	
	CREDIT_PROMOTION_ID	INTEGER EXTERNAL	10	454:463	
	REF_NO25	CHAR	30	464:493	
	REF_NO26	CHAR	30	494:523	
	REF_NO27	CHAR	30	524:553	
	STORE	INTEGER EXTERNAL	10	554:563	
	DAY	INTEGER EXTERNAL	3	564:566	
	RTLOG_ORIG_SYS	CHAR	3	567:569	
	TRAN_PROCESS_SYS	CHAR	3	570:572	

File Name: Satitem.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_TRAN_ITEM	TRAN_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	ITEM_SEQ_NO	INTEGER EXTERNAL	4	21:24	
	ITEM_STATUS	CHAR	6	25:30	
	ITEM_TYPE	CHAR	6	31:36	

Table Name	Column Name	Field Type	Field Width	Position	Description
	ITEM	CHAR	25	37:61	
	REF_ITEM	CHAR	25	62:86	
	NON_MERCH_ITEM	CHAR	25	87:111	
	VOUCHER_NO	CHAR	25	112:136	
	DEPT	INTEGER EXTERNAL	4	137:140	
	CLASS	INTEGER EXTERNAL	4	141:144	
	SUBCLASS	INTEGER EXTERNAL	4	145:148	
	QTY	DECIMAL EXTERNAL	14	149:162	Includes an optional negative sign and a decimal point
	UNIT_RETAIL	DECIMAL EXTERNAL	21	163:183	Includes a decimal point
	UNIT_RETAIL_VAT_INCL	CHAR	1	184:184	Indicates whether unit retail includes or excludes VAT
	SELLING UOM	CHAR	4	185:188	
	OVERRIDE_REASON	CHAR	6	189:194	
	ORIG_UNIT_RETAIL	DECIMAL EXTERNAL	21	195:215	Includes a decimal point
	STANDARD_ORIG_UNIT_RETAIL	DECIMAL EXTERNAL	21	216:236	
	TAX_IND	CHAR	1	237:237	
	ITEM_SWIPED_IND	CHAR	1	238:238	
	ERROR_IND	CHAR	1	239:239	
	DROP_SHIP_IND	CHAR	1	240:240	
	WASTE_TYPE	CHAR	6	241:246	
	WASTE_PCT	DECIMAL EXTERNAL	12	247:258	Includes a decimal point
	PUMP	CHAR	8	259:266	
	RETURN_REASON_CODE	CHAR	6	267:272	
	SALESPERSON	CHAR	10	273:282	
	EXPIRATION_DATE	DATE	8	283:290	Format is YYYYMMDD
	STANDARD_QTY	DECIMAL EXTERNAL	14	291:304	Includes an optional negative sign and a decimal point

Table Name	Column Name	Field Type	Field Width	Position	Description
	STANDARD_UNIT_RETAIL	DECIMAL EXTERNAL	21	305:325	Includes a decimal point
	STANDARD_UOM	CHAR	4	326:329	
	REF_NO5	CHAR	30	330:359	
	REF_NO6	CHAR	30	360:389	
	REF_NO7	CHAR	30	390:419	
	REF_NO8	CHAR	30	420:449	
	CATCHWEIGHT_IND	CHAR	1	450:450	
	SELLING_ITEM	CHAR	25	451:475	
	CUSTOMER_ORDER_LINE_NO	INTEGER EXTERNAL	6	476:481	
	MEDIA_ID	INTEGER EXTERNAL	10	482:491	
	UOM_QUANTITY	INTEGER EXTERNAL	12	492:503	Format is YYYYMMDDHH 24MISS
	TOTAL_IGTAX_AMT	DECIMAL EXTERNAL		504:524	
	UNIQUE_ID	CHAR	25	525:652	
	STORE	INTEGER EXTERNAL	10	653:662	
	DAY	INTEGER EXTERNAL	3	663:665	
	CUST_ORDER_NO	CHAR	48	666:713	
	CUST_ORDER_DATE	DATE	14	714:727	
	FULFILL_ORDER_NO	CHAR	48	728:775	
	NO_INV_RET_IND	CHAR	1	776:776	
	SALES_TYPE	CHAR	1	777:777	
	RETURN_WH	INTEGER EXTERNAL	10	778:787	
	RETURN_DISPOSITION	CHAR	10	788:797	

File Name: Sattend.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
Sa_tran_tender	Tran_seq_no	Integer external	20	1:20	
	Tender_seq_no	Integer external	4	21:24	
	Tender_type_group	char	6	25:30	

Table Name	Column Name	Field Type	Field Width	Position	Description
	Tender_type_id	Integer external	6	31:36	
	Tender_amt	decimal external	22	37:58	Includes an optional negative sign and a decimal point.
	Cc_no	Integer external	40	59:98	The value must be masked.
	Cc_exp_date	date	8	99:106	
	Cc_auth_no	char	16	107:122	
	Cc_auth_src	char	6	123:128	
	Cc_entry_mode	char	6	129:134	
	Cc_cardholder_verf	char	6	135:140	
	Cc_term_id	char	5	141:145	
	Cc_spec_cond	char	6	146:151	
	Voucher_no	char	25	152:167	
	Coupon_no	char	40	168:183	
	Coupon_ref_no	char	16	184:199	
	CHECK_ACCT_NO	CHAR	30	209:238	The value must be masked.
	CHECK_NO	INTEGER EXTERNAL	10	239:248	
	IDENTI_METHOD	CHAR	6	249:254	
	IDENTI_ID	CHAR	40	255:294	
	ORIG_CURRENCY	CHAR	3	295:297	
	ORIG_CURR_AMT	DECIMAL EXTERNAL	22	298:319	
	Ref_no9	char	30	320:349	
	Ref_no10	char	30	350:379	
	Ref_no11	char	30	380:409	
	Ref_no12	char	30	410:439	
	Error_ind	char	1	440:440	
	STORE	INTEGER EXTERNAL	10	441:450	
	DAY	INTEGER EXTERNAL	3	451:453	

File Name: Satpymt.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_TRAN_PAYMENT	TRAN_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	PAYMENT_SEQ_NO	INTEGER EXTERNAL	20	21:24	
	PAYMENT_AMT	DECIMAL EXTERNAL	5	25:46	
	ERROR_IND	CHAR	10	47:47	
	STORE	INTEGER EXTERNAL	6	48:57	
	DAY	INTEGER EXTERNAL	3	58:60	

File Name: Samisstr.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_MISSING_TRAN	MISS_TRAN_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	STORE_DAY_SEQ_NO	INTEGER EXTERNAL	20	21:40	
	REGISTER	CHAR	5	41:45	
	TRAN_NO	INTEGER EXTERNAL	10	46:55	
	STATUS	CHAR	6	56:61	
	RTLOG_ORIG_SYS	CHAR	3	62:64	

File Name: Sattax.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_TRAN_TAX	TRAN_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	TAX_CODE	CHAR	6	21:26	
	TAX_SEQ_NO	INTEGER EXTERNAL	4	27:30	

Table Name	Column Name	Field Type	Field Width	Position	Description
	TAX_AMT	DECIMAL EXTERNAL	22	31:52	Includes an optional negative sign and a decimal point
	ERROR_IND	CHAR	1	53:53	
	REF_NO17	CHAR	30	54:83	
	REF_NO18	CHAR	30	84:113	
	REF_NO19	CHAR	30	114:143	
	REF_NO20	CHAR	30	144:173	
	STORE	INTEGER EXTERNAL	10	174:183	
	DAY	INTEGER EXTERNAL	3	184:186	

File Name: Sacustatt.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_CUST_ATT RIB	TRAN_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	ATTRIB_SEQSO	CHAR	4	21:24	
	ATTRIB_TYPE	CHAR	6	25:30	
	ATTRIB_VALUE	CHAR	6	31:36	
	STORE	INTEGER EXTERNAL	10	37:46	
	DAY	INTEGER EXTERNAL	3	47:49	

File Name: Saerror.ctl

Table Name	Column Name	Field Type	Field Width	Position	Description
SA_ERROR	ERROR_SEQ_NO	INTEGER EXTERNAL	20	1:20	
	STORE_DAY_SEQ_NO	INTEGER EXTERNAL	20	21:40	
	BAL_GROUP_SEQ_NO	INTEGER EXTERNAL	20	41:60	

Table Name	Column Name	Field Type	Field Width	Position	Description
	TOTAL_SEQ_NO	INTEGER EXTERNAL	20	61:80	
	TRAN_SEQ_NO	INTEGER EXTERNAL	20	81:100	
	ERROR_CODE	CHAR	25	101:125	
	KEY_VALUE_1	INTEGER EXTERNAL	4	126:129	
	KEY_VALUE_2	INTEGER EXTERNAL	4	130:133	
	REC_TYPE	CHAR	6	134:139	
	STORE_OVERRIDE_I ND	CHAR	1	140:140	
	HQ_OVERRIDE_IND	CHAR	1	141:141	
	UPDATE_ID	CHAR	30	142:171	
	UPDATE_DATE TIME	DATE	14	172:185	Format is YYYYMMDDH H24MISS
	ORIG_VALUE	CHAR	70	186:255	
	STORE	INTEGER EXTERNAL	10	256:265	
	DAY	INTEGER EXTERNAL	3	266:268	

ReSA Interface File Layout [rtlog]

The following example illustrates the file layout format of the Oracle Retail TLOG. The content of each Oracle Retail TLOG file is per store per day. The filename convention is RTLOG_STORE_DATETIME.DAT (for example, RTLOG_1234_01221989010000.DAT).

Fields, credit promotion ID, tax (vat) at item level and payment amount of customer orders are rounded off. Both VAT and tax are handled.

```

FHEAD          (Only 1 per file, required)
THEAD          (Multiple expected, one per transaction, required for each
transaction)
TCUST          (Only 1 per THEAD record allowed, optional for some transaction
types, see table below)
CATT          (Attribute record specific to the TCUST record - Multiple allowed,
only valid if TCUST exists)
TITEM         (Multiple allowed per transaction, optional for some transaction
types, see table below)
IDISC         (Discount record specific to the TITEM record - Multiple allowed
per item, optional see table below)
IGTAX         (Vat/Tax record specific to the TITEM record - Multiple allowed per
item, optional. Either TTAX or IGTAX should appear in a given RTLOG, but not both,
see table below)

```

TTAX (Vat/Tax record specific to the THEAD record - Multiple allowed per transaction, optional. Either TTAX or IGTAX should appear in a given RTLOG, but not both, see table below)

TPYMT (Multiple allowed per transaction, will have the deposit amount for pickup/delivery/layaway orders, optional see table below)

TTEND (Multiple allowed per transaction, optional for some transaction types, see table below)

TTAIL (1 per THEAD, required)

FTAIL (1 per file, required)

The order of the records within this transaction layout is important. It aids processing by ensuring that the information is present when it is needed.

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
File Header	File Type Record Descriptor	Char(5)	FHEAD	Identifies file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	File Type Definition	Char(4)	RTLGL	Identifies file as Oracle Retail TLOG.	Y	Left/Blank
	File Create Date	Char(14)	Create date	Date and time file was written by external system (YYYYMMDDHHMMSS).	Y	Left/None
	Business Date	Char(8)	Business Date to process	Business date of transactions (YYYYMMDD).	Y	Left/None
	Location Number	Char(10)	Specified by external system	Store or warehouse identifier.	Y	Left/None
	Reference Number	Char(30)	Specified by external system	This may contain the Polling ID associated with the consolidated TLOG file or used for other purpose.	N	Left/Blank
	RTLOG Originating System	Char(3)	POS	Identifies the system the RTLOG file originated from. Valid values are OMS and POS.	Y	Left/None
Transaction Header	File Type Record Descriptor	Char(5)	THEAD	Identifies file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	Register	Char(5)		Till used at the store.	Y	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Transaction Date	Char(14)	Transaction date	Date for the transactions that were processed at the POS (YYYYMMDDHHMMSS).	Y	Left/None
	Transaction Number	Number(10)		Transaction identifier. If sa_system_options, wkstation_tran_appended_ind is Y, the first 3 digits indicate the workstation ID and last 7 digits indicate the transaction number. Note: When ReSA is integrated with Oracle Retail Xstore Point of Service , wkstation_tran_appended_ind must be set to N.	Y	Right/0
	Cashier	Char(10)		Cashier identifier.	N	Left/Blank
	Salesperson	Char(10)		Salesperson identifier.	N	Left/Blank
	Transaction Type	Char(6)	Refer to TRAT code_type for a list of valid types.	Transaction type.	Y	Left/Blank
	Sub-transaction type	Char(6)	Refer to TRAS code_type for a list of valid types.	Sub-transaction type. For sale, it can be employee, drive-off, and so on.	N	Left/Blank
	Orig_tran_no	Number(10)		Populated only for post-void transactions. Transaction number for the original transaction that will be cancelled.	N	Right/0
	Orig_reg_no	Char(5)		Populated only for post-void transactions. Register number from the original transaction.	N	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Reason Code	Char(6)	Refer to REAC code_type for a list of valid codes. If the transaction type is PAIDOU and the sub transaction type is MV or EV, the valid codes come from the non_merch_code_head table.	Reason entered by the cashier for some transaction types. Required for Paid In and Paid out transaction types, but can also be used for voids, returns, and so on.	N	Left/Blank
	Vendor Number	Char(10)		Supplier ID for a merchandise vendor paid out transaction; partner ID for an expense vendor paid out transaction.	N	Left/Blank
	Vendor Invoice Number	Char(30)		Invoice number for a vendor paid out transaction.	N	Left/Blank
	Payment Reference Number	Char(16)		The reference number of the tender used for a vendor payout. This could be the money order number, check number, and so on.	N	Left/Blank
	Proof of Delivery Number	Char(30)		Proof of receipt number given by the vendor at the time of delivery. This field is populated for a vendor paid out transaction.	N	Left/Blank
	Reference Number 1	Char(30)		Number associated with a particular transaction, for example, whether for a Store Conditions transaction. The SA_REFERENCE table defines what this field can contain for each transaction type.	N	Left/Blank
	Reference Number 2	Char(30)		Second generic reference number.	N	Left/Blank
	Reference Number 3	Char(30)		Third generic reference number.	N	Left/Blank
	Reference Number 4	Char(30)		Fourth generic reference number.	N	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
Transaction Customer	Value Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of the value.	Y if Value is present.	Left/None
	Value	Number(20)		Value, with 4 implied decimal places. Populated by the retailer for TOTAL transaction, populated by ReSA for SALE and RETURN transactions.	Y if transaction is a TOTAL.	Right/0 when value is present. Blank when no value is sent.
	Banner id	Number(4)		Banner ID of the location.	Y	Right/0 when value is present. Blank when no value is sent
	Rounded Amount Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of rounded amount.	Y	Left/None
	Rounded Amount	Number(20)		Total rounded amount, with 4 implied decimal places.	Y	Right/0 when RoundedAmount is present otherwise blank
	Rounded Off Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.		Y	Left/None
	Rounded Off Amount	Number(20)		Rounded off amount, with 4 implied decimal places	Y	Right/0 when RoundedAmount is present otherwise blank
	Credit Promotion Id	Char(10)		Credit Promotional ID.	Y	Left/None
	Reference Number 25	Char(30)			N	Left/Blank
	Reference Number 26	Char(30)			N	Left/Blank
	Reference Number 27	Char(30)			N	Left/Blank
	Transaction Processing System	Char(3)	Valid values are OMS and POS.	Contains the ID of the system that processed the transaction.	N	Left/None
	File Type Record Descriptor	Char(5)	TCUST	Identifies the file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Customer ID	Char(16)	Customer identifier	The ID number of a customer.	Y	Left/Blank
	Customer Type ID	Char(6)	Refer to CIDT code_type for a list of valid types.	Customer ID type.	Y	Left/Blank
	Customer Name	Char(120)		Customer name.	N	Left/Blank
	Address 1	Char(240)		Customer address.	N	Left/Blank
	Address 2	Char(240)		Additional field for customer address.	N	Left/Blank
	City	Char(120)		City.	N	Left/Blank
	State	Char(12)	State identifier	State.	N	Left/Blank
	Zip Code	Char(30)	Zip identifier	Zip code.	N	Left/Blank
	Country	Char(3)		Country.	N	Left/Blank
	Home Phone	Char(20)		Telephone number at home.	N	Left/Blank
	Work Phone	Char(20)		Telephone number at work.	N	Left/Blank
	E-mail	Char(100)		E-mail address.	N	Left/Blank
	Birthdate	Char(8)		Date of birth. (YYYYMMDD)	N	Left/Blank
	Customer Attribute	File Type Record Descriptor	CATT	Identifies file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	Attribute type	Char(6)	Refer to SACA code_type for a list of valid types.	Type of customer attribute	Y	Left/Blank
	Attribute value	Char(6)	Refer to members of SACA code_type for a list of valid values.	Value of customer attribute.	Y	Left/Blank
	Transaction Item	File Type Record Descriptor	TITEM	Identifies file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Item Status	Char(6)	Refer to SASI code_type for a list of valid codes.	Status of the item within the transaction. Valid values are: V - Void item S - Sold item R - Returned item ORI - Order Initiate ORC - Order Cancel ORD - Order Complete LIN - Layaway Initiate LCA - Layaway Cancel LCO - Layaway Complete	Y	Left/Blank
	Item Type	Char(6)	Refer to SAIT code_type for a list of valid codes.	Identifies what type of item is transmitted.	Y	Left/Blank
	Item number type	Char(6)	Refer to UPCT code_type for a list of valid codes.	Identifies the type of item number if the item type is ITEM or REF.	N	Left/Blank
	Format ID	Char(1)	VPLU format ID	Used to interpret VPLU items.	N	Left/Blank
	Item	Char(25)	Item identifier	Identifies the merchandise item.	N	Left/Blank
	Reference Item	Char(25)	Item identifier	Identifies the sub-transaction level merchandise item.	N	Left/Blank
	Non-Merchandise Item	Char(25)	Item identifier	Identifies a non-merchandise item.	N	Left/Blank
	Voucher	Char(25)		Gift certificate number.	N	Right/0
	Department	Number(4)		Identifies the department to which this item belongs. This is filled in by saimptlog.	N	Right/Blank
	Class	Number(4)	Class of the item	Class of item sold or returned. Not required from a retailer; populated by ReSA. This is filled in by saimptlog.	N	Right/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Subclass	Number(4)	Subclass of the item	Subclass of the item sold or returned. Not required from a retailer; populated by ReSA. This is filled in by saimptlog.	N	Right/Blank
	Quantity Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of the quantity	Y	Left/None
	Quantity	Number(12)		Number of items purchased, with 4 decimal places.	Y	Right/0
	Selling Unit of Measure	Char(4)		Unit of measure of the item's quantity.	Y	Left/None
	Unit Retail	Number(20)		Unit retail, with 4 implied decimal places.	Y	Right/0
	Override Reason	Char(6)	Refer to ORRC code_type for a list of valid codes.	This column is populated when an item's price has been overridden at the POS to define why it was overridden.	Y if unit retail was manually entered	Left/Blank
	Original Unit Retail	Number(20)		Value, with 4 implied decimal places. This column is populated when the item's price was overridden at the POS and the item's original unit retail is known.	Y if unit retail was manually entered	Right/0
	Taxable Indicator	Char(1)	Refer to YSNO code_type for a list of valid codes.	Indicates whether or not item is taxable.	Y	Left/None
	Pump	Char(8)		Fuel pump identifier.	N	Left/Blank
	Reference Number 5	Char(30)		Number associated with a particular item within a transaction, for example, special order number. The sa_reference table defines what this field can contain for each transaction type.	N	Left/Blank
	Reference Number 6	Char(30)		Second generic reference number at the item level.	N	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Reference Number 7	Char(30)		Third generic reference number at the item level.	N	Left/Blank
	Reference Number 8	Char(30)		Fourth generic reference number at the item level.	N	Left/Blank
	Item_swipe_d_ind	Char(1)	Refer to YSNO code_type for a list of valid codes.	Indicates if the item was automatically entered into the POS system or if it had to be manually keyed.	Y	Left/None
	Return Reason Code	Char(6)	Refer to SARR code_type for a list of valid codes.	The reason an item was returned.	N	Left/Blank
	Salesperson	Char(10)		The salesperson who sold the item.	N	Left/Blank
	Expiration_date	Char(8)		Gift certificate expiration date (YYYYMMDD).	N	
	Drop Ship Ind	Char(1)	Refer to YSNO code_type for a list of valid codes.	Indicates whether the item is part of a drop shipment.	Y	Left/None
	Uom_qty	Number(12)		Quantity of items purchased in the given UOM, with 4 decimal places.	Y	Right/0
	Catchweight_ind	Char(1)	Valid values are Y and N.	Identifies if the item is a catchweight item.		Left/None
	Selling item	Char(25)	Item identifier	Identifies the selling item.	N	Left/Blank
	Customer order line no	Number(6)		Identifies the customer order number.	N	Left/Blank
	Media id	Number(10)		Identifies the customer media ID.	N	Left/Blank
	Total Igtax Amount	Number(21)		Contains the Igtax amount.	N	Right/0
	Unique ID	Char(128)			N	Left/Blank
	Customer Order Number	Char(48)		Contains the customer order ID.	N	Left/None
	Customer Order Date	Char(14)		Contains the customer order date. Format is: YYYYMMDDHHMMS	N	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
Item Discount	Fulfillment Order Number	Char(48)		Contains the order ID of the fulfillment order.	N	Left/None
	No Inventory Return	Char(1)		Indicates if there is an associated inventory with the return transaction with an External Customer Order sales type.	N	Left/Blank
	Sales Type	Char(1)		Indicates if the transaction is an In Store Customer Order, External Customer Order, or Regular Sale.	Y	Left/Blank
	Return Warehouse	Char(10)		Contains the ID of the physical warehouse to which the inventory is returned.	N	Left/Blank
	Return Disposition	Char(10)		Contains the return disposition of the returned items.	N	Left/Blank
	File Type Record Descriptor	Char(5)	IDISC	Identifies the file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	RMS Promotion Number	Char(6)	Refer to PRMT code_type for a list of valid types.	The RMS promotion type.	Y	Left/Blank
	Discount Reference Number	Number(10)		Discount reference number associated with the discount type. For example, if the discount type is a promotion, this contains the promotion number.	N	Left/Blank
	Discount Type	Char(6)	Refer to SADT code_type for a list of valid types.	The type of discount within a promotion. This allows a retailer to further break down coupon discounts within the In-store promotion, for example.	N	Left/Blank
	Coupon Number	Char(40)		Number of a store coupon used as a discount.	Y if coupon	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Coupon Reference Number	Char(16)		Additional information about the coupon, usually contained in a second bar code on the coupon.	Y if coupon	Left/Blank
	Quantity Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of the quantity.	Y	Left/None
	Quantity	Number(12)		The quantity purchased for which the discount is applied, with 4 implied decimal places.	Y	Right/0
	Unit Discount Amount	Number(20)		Unit discount amount for this item, with 4 implied decimal places.	Y	Right/0
	Reference Number 13	Char(30)		Number associated with a particular transaction type at the discount level. The sa_reference table defines what this field can contain for each transaction type.	N	Left/Blank
	Reference Number 14	Char(30)		Second generic reference number at the discount level.	N	Left/Blank
	Reference Number 15	Char(30)		Third generic reference number at the discount level.	N	Left/Blank
	Reference Number 16	Char(30)		Fourth generic reference number at the discount level.	N	Left/Blank
	Uom_qty	Number(12)		Quantity of items purchased in the given UOM with 4 decimal places.	Y	Right/0
	Catchweight_ind	Char(1)	Valid values are Y and N.	Identifies if the item is a catchweight item.		Left/None
	Promo component	Number(10)		If the discount is a promotion, this field contains the promotion component value associated with the promotion (discount reference number).	N	Left/Blank
Item Tax	File Type Record Descriptor	Char(5)	IGTAX	Identifies the file record type	Y	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
Transaction Tax	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	Tax Authority	Number(10)			Y	Left/0
	Igtax Code	Char(6)	Refer to tax_code/vat_code of tax_codes/vat_codes tables.	IGtax code (tax code/VAT code) to represent whether it is a State, City, or some other tax code/VAT code.	Y	Left/Blank
	Igtax Rate	Number(20)		Igtax rate, with 4 implied decimal places.	Y	Right/0
	Igtax Amount Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of the Igtax amount.	Y	Left/None
	Igtax Amount	Number(21)		Total igtax amount for this item, with 5 implied decimal places.	Y	Right/0
	Reference Number 21	Char(30)			N	Left/None
	Reference Number 22	Char(30)			N	Left/None
	Reference Number 23	Char(30)			N	Left/None
	Reference Number 24	Char(30)			N	Left/None
	File Type Record Descriptor	Char(5)	TTAX	Identifies the file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	Tax Code	Char(6)	Refer to TAXC code_type for as list of valid types.	Tax code (tax code/VAT code) to represent whether it is a State, City, or some other tax code/VAT code.	Y	Left/Blank
	Tax Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of the tax amount.	Y	Left/None
	Tax Amount	Number(20)		Total Tax amount for this item, with 4 implied decimal places.	Y	Right/0

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Reference Number 17	Char(30)			N	Left/None
	Reference Number 18	Char(30)			N	Left/None
	Reference Number 19	Char(30)			N	Left/None
	Reference Number 20	Char(30)			N	Left/None
Transaction payment	File Type Record Descriptor	Char(5)	TPYMT	Identifies the file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	Payment Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of the deposit amount.	Y	Left/None
	Payment Amount	Number(20)		Deposit amount paid, with 4 implied decimal places.	Y	Right/0
Transaction Tender	File Type Record Descriptor	Char(5)	TTEND	Identifies the file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	Tender Type Group	Char(6)	Refer to TENT code_type for as list of valid types	High-level grouping of tender types.	Y	Left/Blank
	Tender Type ID	Number(6)	Refer to the pos_tender_type_head table for as list of valid types.	Low-level grouping of tender types.	Y	Left/Blank
	Tender Sign	Char(1)	Refer to SIGN code_type for a list of valid codes.	Sign of the value.	Y	Left/None
	Tender Amount	Number(20)		Amount paid with this tender in the transaction, with 4 implied decimal places.	Y	Right/0
	Cc_no	Char(40)		Credit card number. The value sent in the RTLOG should be masked.	Y if credit card	Left/Blank
	Cc_auth_no	Char(16)		Authorization number for a credit card.	Y if credit card	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	cc authorization source	Char(6)	Refer to CCAS code_type for as list of valid types.		Y if credit card	Left/Blank
	cc cardholder verification	Char(6)	Refer to CCVF code_type for as list of valid types.		Y if credit card	Left/Blank
	cc expiration date	Char(8)		YYYYMMDD	Y if credit card	Left/Blank
	cc entry mode	Char(6)	Refer to CCEM code_type for as list of valid types.	Indicates whether the credit card was swiped, thus automatically entered, or manually keyed.	Y if credit card	Left/Blank
	cc terminal id	Char(5)		Terminal number from which the transaction was sent.	N	Left/Blank
	cc special condition	Char(6)	Refer to CCSC code_type for as list of valid types.		Y if credit card	Left/Blank
	Voucher_number	Char(25)		Gift certificate or credit voucher serial number.	Y if voucher	Right/0
	Coupon Number	Char(40)		Number of a manufacturer's coupon used as a tender.	Y if coupon	Left/Blank
	Coupon Reference Number	Char(16)		Additional information about the coupon, usually contained in a second bar code on the coupon.	Y if coupon	Left/Blank
	Check Account Number	Char(30)		Account number of the check.	N	Left/Blank
	Check Number	Number(10)		Check number.	Required for the tender type CHECK	Right/0
	Identification Method	Char(6)	Refer to IDMH code_type for list of valid types.	Identification Method (such as a driver's license number or photo credit card).	N	Left/Blank
	Identification Id	Char(40)		Identification ID (license ID or photo card number).	N	Left/Blank

Record Name	Field Name	Field Type	Default Value	Description	Required ?	Justification/Padding
	Original Currency	Char(3)	Refer to the CURRENCIES table for valid currency codes.	The original currency with which the customer made the payment.	N	Left/Blank
	Original Currency Amount	Number(20)		Amount paid with this tender in the original currency, with 4 implied decimal places.	N	Right/0
	Reference No 9	Char(30)		Number associated with a particular transaction type at the tender level. The sa_reference table defines what this field can contain for each transaction type.	N	Left/Blank
	Reference No 10	Char(30)		Second generic reference number at the tender level.	N	Left/Blank
	Reference No 11	Char(30)		Third generic reference number at the tender level.	N	Left/Blank
	Reference No 12	Char(30)		Fourth generic reference number at the tender level.	N	Left/Blank
Transaction Trailer	File Type Record Descriptor	Char(5)	TTAIL	Identifies file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	Transaction Record Counter	Number(10)		Number of records processed in the current transaction (only those records between transaction head and tail).		
File Trailer	File Type Record Descriptor	Char(5)	FTAIL	Identifies the file record type.	Y	Left/Blank
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Y	Right/0
	File Record Counter	Number(10)		Number of transactions processed in the current file (only the records between the file head and tail).	Y	Right/0

The RTLOG file is imported into the Sales Audit tables after validation by the batch program saimptlog. This section describes the requirements and validations performed on the records.

Common Requirements/Validations

This section details the common requirements and validations performed on all transactions. The following sections describe the specific requirements of each type of transaction. If a transaction is not mentioned, it does not have specific requirements.

Record Type Requirements:

Transaction Type	Includes item records?	Includes tender records?	Includes tax records? IGTX?	Includes customer records?
OPEN	No	No	No	No
NOSALE	No	Optional	No	No
VOID	Optional	Optional	Optional	Optional
PVOID	No	No	No	No
SALE	Optional	Yes	Optional	Optional
RETURN	Yes	Yes	Optional	Optional
EEXCH	Yes	No	Optional	Optional
PAIDIN	No	Yes	No	No
PAIDOU	No	Yes	No	No
PULL	No	Yes	No	No
LOAN	No	Yes	No	No
COND	No	No	No	No
CLOSE	No	No	No	No
TOTAL	No	No	No	No
REFUND	This transaction is not sent through the RTLOG. It is entered at the HQ level. The TITEM and TCUST records are optional. The TTEND record is required. A TTAX record should not be included if IGTX appears in a transaction. IGTX is an item-level tax and TTAX is a transaction-level tax. Either IGTX or TTAX can be used, but not both.			
METER	Yes	No	No	No
PUMPT	Yes	No	No	No
TANKDP	Yes	No	No	No
TERM	TERM records are created by saimptlog and then loaded into the database. They do not come from the RTLOG file. They require one TITEM, one TTEND, one TTAX, one TCUST record, one CATT record, IGTX, and one TPYMT.			
DCLOSE	No	No	No	No
SPLORD	Optional	Yes	Optional	Optional

Requirements per record type:

Record Type	Requirements
IDISC	IDISC records must immediately follow their associated TITEM record.

Record Type	Requirements
IGTAX	IGTAX will immediately follow TITEM if IDISC is not coming, otherwise it should follow IDISC. Even if IGTAX is coming prior to IDISC, it will be processed, but for maintaining proper format, ReSA expects it to come after IDISC.
TTAX	Either this record or IGTAX should appear in the transaction. IGTAX and TTAX cannot be both used at the same time.
TPYMT	This record should be right before the TTEND record. It contains the deposit amount for pickup/delivery/layaway orders.
CATT	CATT records must immediately follow their associated TCUST record.

Code Type Validations:

Record Name	Field Name	Code Type
Transaction Header	Transaction Type	TRAT
	Sub-transaction Type	TRAS
	Reason Code	REAC or values from non_merch_code_head if the transaction type is PAIDOU and the sub-transaction type is MV or EV.
	Value Sign	SIGN
	Vender No	If the transaction type is PAIDOU and the sub-transaction type is MV, this field is validated against the supplier table. If the transaction type is PAIDOU and the sub-transaction type is EV, this field is validated against the partner table.
Transaction Item	Transaction Processing System	TSYS
	Item Type	SAIT
	Item Status	SASI
	Item Number Type	UPCT
	Quantity Sign	SIGN
	Taxable Indicator	YSNO
	Price Override Reason Code	ORRC
	Item Swiped Indicator	YSNO
	Sales Type	SASY
	Return Disposition	INV_STATUS_CODES table
	No Inventory Return	YSNO
	Return Reason Code	SARR
Item Discount	RMS Promotion Type	PRMT
	Discount Type	SADT
	Quantity Sign	SIGN

Record Name	Field Name	Code Type
Transaction Customer	Customer ID Type	CIDT
Customer Attribute	Attribute Type	SACA
	Attribute value	Code types from the codes in SACA.
Transaction Tax	Tax code	TAXC from the CODE_DETAIL table or VATC from the VAT_CODES table.
	Tax sign	SIGN
Transaction Payment	Payment (Deposit Amount) Sign	SIGN
Transaction Tender	Tender Type Group	TENT
	Tender Sign	SIGN
	Tender Type ID	Pos_tender_type_head table
	CC Authorization Source	CCAS
	CC Cardholder Verification	CCVF
	CC Entry Mode	CCEM
	CC Special Condition	CCSC

The following dates are validated: Business Date, Transaction Date, and Expiration Date. Also, saimptlog accepts only business dates that are within the PERIOD.VDATE minus the SA_SYSTEM_OPTIONS.DAYS_POST_SALE value.

The store number is validated against the STORE table. Numeric fields are checked for non-numeric characters.

For transactions of type SALE, RETURN, and EEXCH, saimptlog checks whether a transaction is in balance:

- When TAX is on in the system (system_options.default_tax_type equals SALES):
 - Transaction Items (Unit Retail * Unit Retail Sign * Quantity) of items which are on Regular Sale, Return, or EEXCH
 - + Item Discounts (Unit Discount Amount * Unit Discount Sign * Quantity) of items which are on Regular Sale, Return, or EEXCH
 - + Item Level Tax (Total Igtax Amount) of items which are on Regular Sale, Return, or EEXCH
 - + Transaction Tax (Tax Amount * Tax Sign)
 - + Transaction payment (Payment Amount * Payment Sign)
 equals Transaction Tenders (Tender Amount * Tender Sign)
- saimptlog will populate the Value field (on THEAD) with the transaction's sales value (item value minus discount value plus tax value) from the preceding calculation if it was not provided in the RTLOG. The following change is made in the sale total balancing: Value field in THEAD will be: (item value - discount value + tax value) for items which are on Regular Sale, Return, or EEXCH + payment value.

Note: If this Value field is being used in creating some totals, then accordingly, these totals needs to be modified to accommodate the extra amount coming in.

- When VAT is on in the system (system_options.default_tax_type in GTAX, SVAT), look for other system options, along with class level and store level VAT indicators, which tell whether the unit retail is inclusive or exclusive of VAT. The logic of balancing will vary:
 - Transaction Items (Unit Retail * Unit Retail Sign * Quantity) of items which are on Regular Sale, Return, or EEXCH
 - + Item Discounts (Unit Discount Amount * Unit Discount Sign * Quantity) of items which are on Regular Sale, Return, or EEXCH
 - + Item Level Tax (Total Igtax Amount) of items which are on Regular Sale, Return, or EEXCH (when VAT is off at the item level).
 - + Transaction Tax (Tax Amount * Tax Sign)
 - + Transaction payment (Payment Amount * Payment Sign)
 - equals Transaction Tenders (Tender Amount * Tender Sign)

Vouchers are treated as follows:

- If an item sold is as a gift certificate (Transaction Item, Voucher field has a value), the issued information is written to the SA_VOUCHER table.
- If the Transaction Type is RETURN, and the Transaction Tender Type Group is voucher (VOUCH), the issued information is written to the SA_VOUCHER table.
- If the Transaction Type is SALE and the Transaction Tender Type Group is a voucher (VOUCH), the redeemed information is written to the SA_VOUCHER table.
- When a gift certificate is sold, the customer information should always be included. A receiving customer name value should be populated in the ref_no5 field, receiving customer state value should be populated in the ref_no6 field, and receiving customer country should be populated in the ref_no7 field. These reference fields can be changed by updating the sa_reference table, but the code needs to be modified as well. The expiration date is put in the expiration_date field in the TITEM record.

Other validations and points to consider:

- The salesperson in the TITEM record takes precedence over the salesperson in the THEAD record.
- If an item sold is a sub-transaction (REF) item (Transaction Item, reference item field has a value and item does not), it will be converted to the corresponding transaction level item (ITEM).
- If an item sold is an ITEM (Transaction Item, item field has a value), it will be validated against the RMS item tables.
- The corresponding Department, Class, Subclass, and Taxable Indicator will be selected from the RMS tables and populated for an item.

The balancing level determines whether the register or the cashier fields are required:

- If the balancing level is R (register), the register field on the THEAD must be populated.
- If the balancing level is C (cashier), the cashier field on the THEAD must be populated.
- If the balancing level is S (store), neither field is required to be populated.

- The tax_ind and the item_swiped_ind fields can only accept Y or N values. If an invalid value is passed through the RTLOG, an error will be flagged and the value will be defaulted to Y.

Transaction of Type SALE

A transaction of type SALE is generated whenever an item is sold. If a sale is for an employee, the sub-transaction type is EMP. If it is a drive-off sale, when someone drives off with unpaid gas, the sub-transaction type is DRIVEO. A special type of sale is an odd exchange, sub-transaction type EXCH, where items are sold and returned in the same transaction. If the net value of the exchange is positive, then it is a sale. If the net value is negative, it is a return.

Requirements per record type (other than what is described in the preceding Layout section):

Record Type	Requirements
THEAD	
ITEM	▪ Item Status is a required field; it determines whether the item is Sold (S), Returned (R), or Voided (V). If the item status is S, the quantity sign is expected to be P. If the item status is R, the quantity sign is expected to be N. Also, if the item status is ORI, LIN, ORD, or LCO, the quantity sign should be P. In the case of ORC or LCA, it should be N. ▪ If the item status is V, the quantity sign is the reverse of the quantity sign of the voided item. That is, if an item with status S is voided, the quantity sign would be N. Furthermore, the sum of the quantities being voided cannot exceed the sum of the quantities that are Sold or Returned. Note: Neither of the two validations are performed by saimptlog, but an audit rule could be created to check this. ▪ The following item statuses are used for handling items on customer order layaway: - ORI – Order Initiate - ORD – Order Complete - ORC – Order Cancel - LIN – Layaway Initiate - LCA – Layaway Cancel - LCO – Layaway Complete ▪ In a typical sale, the items all have a status of S. In the case of an odd exchange, some items will have a status of R. ▪ In a typical return, the items all have a status of R. In the case of an odd exchange, some items will have a status of S. ▪ If an item has status R, then the Return Reason Code field may be populated. If it is, it will be validated against code type SARR. Also, it is better to capture the Return Reason Code in the case of items on ORC or LCA, but it is not mandatory. No validation is kept for these new item statuses for checking of SARR. ▪ If the price of an item is overridden, the Override Reason and Original Unit Retail fields must be populated.

Record Type	Requirements
IDISC	- The RMS Promotion Type field must always be populated with values of code type PRMT. - The Promotion field is validated, when a value is passed, against the promhead table. - If the promotion is In Store (code 1004), the Discount Type field must be populated with values of code type SADT. - The Discount Reference Number is a promotion number which is of status A, E, or M. - If the Discount Type is SCoup for Store Coupon, the Coupon Number field must be populated. The Coupon Reference Number field is optional.
IGTAX	- The IGTAX_CODE field must always be populated depending on the system's default tax type. For a default tax type of SALES, this field will be populated with values of code_type TAXC. For a default tax type of SVAT or GTAX,, this field will be populated with VATC (vat_code from vat_codes table). IGTAX is an Item-level tax. - The TAX_AUTHORITY field must always be populated when the default tax type is GTAX.
TTAX	The TAX_CODE field must always be populated depending on the system's default tax type. For a default tax type of SALES, this field will be populated with values of code_type TAXC. For a default tax type of GTAX or SVAT, this field will be populated with VATC (vat_code from vat_codes table). TTAX is a Transaction-level tax.
TPYMT	Payment (Deposit amount) sign and Payment (Deposit) amount fields are necessary if this line is appearing. Basically, this is the accumulation of various items being considered in one transaction, which are on pick up/delivery/lay away.
TTEND	If the tender type group is COUPON, the Coupon Number field must be populated. The Coupon Reference Number field is optional.

Meaning of reference number fields:

Note: The meaning of these reference number fields may be changed through the sa_reference table. The transaction type SPLORD is the same as SALE, but the inventory will not be reserved for the orders at its line level.

Transaction Type	Sub-transaction Type	Item Type	Tender Type Group	Reference Number Field	Meaning of Reference Field	Req?
SALE				1	Speed Sale Number	Y
SALE		GCN		5	Recipient Name	N
SALE		GCN		6	Recipient State	N
SALE		GCN		7	Recipient Country	N
SALE			CHECK	9	Check Number	N
SALE			CHECK	10	Driver's License Number	N

Transaction Type	Sub-transaction Type	Item Type	Tender Type Group	Reference Number Field	Meaning of Reference Field	Req?
SALE			CHECK	11	Credit Card Number	N
SALE	DRIVEO			1	Incident Number	Y
SALE	EMP			3	Employee Number of the employee receiving the goods.	N

Expected values for sign fields:

TRANSACTION TYPE	TITEM.Quantity Sign	TTEND.Tender Sign	TTAX.Tax Sign	IDISC.Quantity Sign
SALE	P if item is sold; N if item is returned; reverse of original item if item is voided.	P	P	P if item is sold; N if item is returned; reverse of original item if item is voided.
SALE	P if item is on ORI, LIN, ORD, or LCO; N if item is on ORC or LCA.	P	P	P if item is on ORI, LIN, ORD, or LCO; N if item is on ORC or LCA.

Transaction of Type PVOID

This transaction is generated at the register when another transaction is being post voided. The orig_tran_no and orig_reg_no fields must be populated with the appropriate information for the transaction being post voided. The PVOID transaction must be associated with the same store day as the original transaction. If the PVOID needs to be generated after the store day is closed, the transaction needs to be created using the forms.

Transaction of type RETURN

This transaction is generated when a customer returns an item.

This type of transaction has similar record type requirements as a SALE transaction.

Meaning of reference number fields:

Note: The assumption is that new item statuses will not come under transaction type RETURN.

If a customer wants to return the items (ORI, LIN), these will come under SALE but with item statuses as ORC or LCA.

Note: The meaning of these reference number fields may be changed through the sa_reference table.

Transaction Type	Sub-transaction Type	Reference Number Field	Meaning of Reference Field	Req?
RETURN		1	Receipt Indicator (Y/N)	Y
RETURN		2	Refund Reference Number	N
RETURN	EMP	3	Employee Number of the employee returning the goods.	N

Expected values for sign fields:

TRANSACTION TYPE	TITEM.Quantity Sign	TTEND.Tender Sign	TTAX.Tax Sign	IDISC.Quantity Sign
RETURN	P if item is sold; N if item is returned; reverse of original item if item is voided.	N	N	P if item is sold; N if item is returned; reverse of original item if item is voided.

Transaction of type SPLORD

This transaction is generated when a customer picks up an item, which is not in stock. The item status can be ORI, ORC, or ORD. (Order Initiate, Order Cancel, or Order Complete).

Transaction of type EEXCH

This transaction is generated when there is an even exchange.

This type of transaction has similar record type requirements as a SALE transaction.

It is expected that the number of items returned equals the number of items sold.

However, this validation is not performed by saimptlog. An audit rule could be created for this. Saimptlog only expects that there would be at least two item records.

No tender changes hands in this transaction.

Meaning of reference number fields:

Note: The items, which are on customer order or layaway, should not be come under this transaction type.

The meaning of these reference number fields may be changed through the sa_reference table.

Transaction Type	Sub-transaction Type	Reference Number Field	Meaning of Reference Field	Req ?
EEXCH		1	Receipt Indicator (Y/N)	Y
EEXCH	EMP	3	Employee Number of the employee exchanging the goods.	N

Transaction of Type PAIDIN

This type of transaction has only one TTEND record.

A reason code is required.

Meaning of reference number fields:

Note The meaning of these reference number fields may be changed through the sa_reference table.

Reason Code	Reference Number Column	Meaning	Req?
NSF	1	NFS Check Credit Number	N
ACCT	1	Account Number	N

Transaction of Type PAIDOU

This type of transaction has only one TTEND record.

A reason code is required (code type REAC). If the sub-transaction type is EV or MV, the reason code comes from the non_merch_codes_head table.

If the sub-transaction type is EV or MV, then at least one field among the vendor number, vendor invoice number, payment reference number, and proof of delivery number fields should be populated.

If the sub-transaction type is EV, the vendor number comes from the partner table. If the sub-transaction type is MV, the vendor number comes from the supplier table.

Meaning of reference number fields:

Note: The meaning of these reference number fields may be changed through the sa_reference table.

Sub Transaction Type	Reason Code	Reference Number Column	Meaning	Req?
EV		2	Personal ID Number	N
EV		3	Routing Number	N
EV		4	Account Number	N
	PAYRL	1	Money Order Number	N
	PAYRL	2	Employee Number	N
	INC	1	Incident Number	N

Transaction of Type PULL

This transaction is generated when cash is withdrawn from the register.

This type of transaction has only one TTEND record.

Expected values for sign fields

TRANSACTION TYPE	TITEM.Quantity Sign	TTEND.Tender Sign	TTAX.Tax Sign	IDISC.Quantity Sign
PULL	N/A	N	N/A	N/A

Transaction of Type LOAN

This transaction is generated when cash is added to the register.

This type of transaction has only one TTEND record.

Expected values for sign fields:

TRANSACTION TYPE	TITEM.Quantity Sign	TTEND.Tender Sign	TTAX.Tax Sign	IDISC.Quantity Sign
LOAN	N/A	P	N/A	N/A

Transaction Type Cond

This transaction records the condition at the store when it opens. There can be at most one COND record containing weather information and at most one COND record containing temperature information. Both of these pieces of information may be in the same COND record. There may be any number of COND records containing traffic and construction information.

This type of transaction does not have TITEM, IDISC, IGTAX, TTAX, TPYMT, or TTEND records

Note: The meaning of these reference number fields may be changed through the sa_reference table

Reference Number Column	Meaning	Req?
1	Weather – code type WEAT	N
2	Temperature – a signed 3 digit number.	N
3	Traffic – code_type TRAF	N
4	Construction – code_type CONS	N

Transaction of Type TOTAL

This transaction records the totals that are reported by the POS and OMS. The value field must be populated. Some systems generate only one transaction number for all totals. In order to avoid duplicate errors being reported, only one total transaction can have a transaction number and the subsequent ones can have blank transaction numbers. In other words, a TOTAL transaction is not required to have a transaction number.

This type of transaction does not have TITEM, IDISC, IGTAX, TTAX, TPYMT, TTEND records.

Transaction of Type METER

This transaction is generated when a meter reading of a fuel pump is taken.

This type of transaction has only TITEM records.

Meaning of reference number fields:

Note: The meaning of these reference number fields may be changed through the sa_reference table.

Reference Number Column	Meaning	Req?
1	Reading Type: (A for adjustment, S for shift change, P for price change, or C for store close)	Y
5	Opening Meter Readings	Y
6	Closing Meter Reading	Y
7	If the reading type is P for price change, the old unit retail should be placed here. Decimal places are required.	Y
8	Closing Meter Value	Y

Transaction of Type PUMPT

This transaction is generated when a pump test is performed. This type of transaction has only TITEM records.

Transactions of Type TANKDP

This transaction is generated when a tank dip measurement is taken.

This type of transaction has only TITEM records.

Meaning of reference number fields:

Note: The meaning of these reference number fields may be changed through the sa_reference table.

Reference Number Column	Meaning	Req?
1	Tank identifier	Y
5	Dip Type (FUEL, WATER, and so on)	Y
6	Dip Height Major (decimal places required)	Y
7	Dip Height Minor (decimal places required)	Y

Transaction of Type DCLOSE

This transaction is generated when the day closed. The transaction number for this type of transaction has to be blank.

Note: Vouchers are minimally handled by saimptlog. Voucher information is written to the savouch file which is passed to the program savouch.pc.

- A voucher will appear on the TITEM record only if it was sold. When saimptlog encounters a SALE transaction with a voucher, it writes the voucher to the savouch file as an I for Issued voucher.
- A voucher will be issued when it appears on the TTEND record of transactions of type RETURN and PAIDOU. In other words, saimptlog will write it to the savouch file with status I.
- A voucher will be redeemed when it appears on the TTEND record of transactions of type SALE and PAIDIN. In other words, saimptlog will write it to the savouch file with status R.

Vouchers may not be returned. However, a transaction of type PAIDOU may be generated when the customer exchanges a voucher for another form of tender.

Transaction of Type OTHER

This transaction is a generic transaction type to support Micros Xstore integration. This will identify all the other transaction types that are not currently supported. This type of transaction has only THEAD and TTAIL records.

Design Assumptions

Transaction Code	Transaction Type
OPEN	Open
CLOSE	Close
COND	Daily Store Conditions
DCLOSE	Day close indicator
LOAN	Loan
METER	Meter Reading for Fuel
NOSALE	No Sale
PAIDIN	Paid In
PAIDOU	Paid Out
PULL	Pull
PUMPT	Pump Test for Fuel
PVOID	Post Void (A transaction that was rung later into the register to void something that occurred earlier at the same store/day. A post void updates the original transaction's sub-transaction type.)
REFUND	Return of customer's original check.
RETURN	Return
SALE	Sale
TANKDP	Tank Dip
TOTAL	POS generated totals
EEXCH	Even exchange
VOID	Void (aborted transaction)
OTHER	Others

DCLOSE Transaction Type

When the retailer is sending only one file to the system, SAIMPTLOG.PC marks the store day record in the ReSA import log as partially or fully loaded in the database by looking for a transaction type of DCLOSE. However, if the retailer is sending more than one file (as in, for example, a trickle polling situation), the retailer can specify the number of files that the system should expect in combination with the DCLOSE transaction type. This ensures that the system receives all of the files, even if the DCLOSE transaction type is, for some reason, received before the final file.

For example, if 24 files are expected over a given amount of time, and the file with the DCLOSE transaction type is, for some reason, sent before the 24th file, the RMS system waits until the last file arrives before marking the store day record as partially or fully loaded in the database.

The import process is completed after SAIMPTLOGFIN.PC has updated the store, data, and audit status of each store day record.

saimptlogtdup_upd (Processing to Allow Re-Upload of Deleted Transactions)

Module Name	saimptlogtdup_upd.pc
Description	Processing to Allow Re-Upload of Deleted Transactions
Functional Area	Oracle Retail Sales Audit
Module Type	Admin
Module Technology	ProC
Integration Catalog ID	RSA19

Design Overview

The purpose of this batch module is to fetch all deleted transactions for a store day and modify the tdup<Store><rtlog originating system>.dat file to remove deleted transactions, from the tdup range, in order to facilitate the saimptlog/saimptlogi batch to upload deleted transactions again. The batch will process all the store day with data status in Partially Loaded and Ready For Import and a business date that lies between the vdate minus the sa_system_options.day_post_sale and the vdate. The batch will not process a store day, if the tdup<Store><rtlog originating system>.dat file does not exist. The batch is designed to work only if sa_system_options.check_dup_miss_tran is set to Y, otherwise, do nothing and come out with successful completion. Also, the batch will not terminate with an error, if the deleted transaction to be removed from tdup range does not exist in the tdup<Store><rtlog originating system>.dat file.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Adhoc
Scheduling Considerations	This program should be run before running saimptlog/saimptlogi if any Store-Day's have been deleted.
Pre-Processing	NA

Schedule Information	Description
Post-Processing	NA
Threading Scheme	NA

Restart/Recovery

NA

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	Yes	No
SA_TRAN_HEAD	Yes	No	No	No

Integration Contract

Integration Type	NA
File Name	NA
Integration Contract	NA

Design Assumptions

NA

saimptlogfin (Complete Transaction Import Processing)

Module Name	saimptlogfin.pc
Description	Complete Transaction Import Processing
Functional Area	Oracle Retail Sales Audit
Module Type	Admin
Module Technology	ProC
Integration Catalog ID	RSA18

Design Overview

The saimptlogfin program creates the balances (over or under) by store, register, or cashier and populates it in the SA_BALANCE_GROUP table. It also cancels post voided transactions and vouchers and validates missing transactions. It marks the store day record in the ReSA import log as partially or fully loaded. This will unlock the store day records after all store transactions are imported.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	Run towards the end of loading POS transaction data into ReSA. It should run after SAIMPTLOG or SAIMPTLOGI and SAVOUCH, but before SATOTALS.PC.
Pre-Processing	Saimptlog/saimptlogi, savouch
Post-Processing	satotals
Threading Scheme	NA

Restart/Recovery

NA

Key Tables Affected

Table	Select	Insert	Update	Delete
STORE_DAY_SEQ_NO	Yes	No	No	No
STORE	Yes	No	No	No
SA_STORE_DAY	Yes	No	Yes	No
SA_CUST_ATTRIB	Yes	No	No	Yes
SA_CUSTOMER	Yes	No	No	Yes
SA_TRAN_DISC	Yes	No	No	Yes
SA_TRAN_ITEM	Yes	No	No	Yes
SA_TRAN_TAX	Yes	No	No	Yes
SA_TRAN_TENDER	Yes	No	No	Yes
SA_ERROR	Yes	No	Yes	Yes
SA_MISSING_TRAN	Yes	No	No	Yes
SA_TRAN_HEAD	Yes	No	Yes	Yes
SA_BALANCE_GROUP	Yes	Yes	No	No
SA_TRAN_HEAD CANCEL	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No
SA_IMPORT_LOG	No	No	Yes	No
SA_TRAN_HEAD_REV	No	Yes	No	No
SA_TRAN_ITEM_REV	No	Yes	No	No
SA_TRAN_TENDER_REV	No	Yes	No	No
SA_TRAN_TAX_REV	No	Yes	No	No
SA_TRAN_DISC_REV	No	Yes	No	No

Table	Select	Insert	Update	Delete
SA_ERROR_REV	No	Yes	No	No
SA_EXPORTED_REV	No	Yes	No	No

Integration Contract

Integration Type	NA
File Name	NA
Integration Contract	NA

Design Assumptions

NA

savouch (Sales Audit Voucher Upload)

Module Name	savouch.pc
Description	Sales Audit Voucher Upload
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA08

Design Overview

Because gift certificates can enter the Sales Audit system as either items or tender, processing must be done to match up the sales and redemptions. This module is used to aggregate gift certificate and voucher records. It compares records in the input files to the database. If a record for the voucher does not exist on the database, the record is inserted. If the voucher already exists on the database, the record should be updated with the appropriate information. The voucher details are updated to SA_VOUCHER table.

Some retailers assign gift certificates to a given store, which means that before a gift certificate is sold at a store, it is assigned to a given store. When a retailer assigns a gift certificate to a given store, a record is written to the database. When the gift certificate is then sold by the store and redeemed by the consumer, this existing record must be updated to include the sale and redemption information. Some retailers choose not to assign gift certificates and instead simply sell gift certificates. In that case, the record will be inserted into the database when the gift certificate is sold and then updated when the gift certificate is redeemed.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily

Schedule Information	Description
Scheduling Considerations	This program needs to be scheduled after either saimptlog.pc and its sqlldr process, or saimptlogi.pc, but before saimptlogfin.pc.
Pre-Processing	saimptlog/ saimptlogi
Post-Processing	Saimptlogfin.pc

Restart/Recovery

Restart/recovery logic for file-based processing is used. Records will be committed to the database when the commit_max_ctr defined in the RESTART_CONTROL table is reached.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_VOUCHER	Yes	Yes	Yes	No

Integration Contract

Integration Type	Upload to ReSA
File Name	The input file name is not fixed; the input file name is determined by a runtime parameter. Records rejected by the import process are written to a reject file. The reject file name is not fixed; the reject file name is determined by a runtime parameter.
Integration Contract	IntCon000160 (SAVO)

Input File Layout

Record Name	Field Name	Field Type	Default Value	Description
FHEAD	Record descriptor/	Char(5)	FHEAD	File head marker.
	Line id	Number(10)	0000000001	Unique line ID.
	Translator id	Char(5)	SAVO	Identifies transaction type.
	File create date	Char(14)		Vdate in YYYYMMDDHH24MISS format.
	Business Date	Char(8)	Business Date	Vdate in YYYYMMDD format.
FDETL	Record descriptor/	Char(5)	FDETL	File head marker.
	Line id	Number(10)		Unique line ID.

Record Name	Field Name	Field Type	Default Value	Description
	Voucher seq Number	Number(20)		Unique identifier for an entry to the SA_VOUCHER table.
	Voucher No	Char(16)		Serial Number of the voucher.
	Tender Type Id	Number(6)		Type of Voucher (Valid values for tender type are maintained in the pos_tender_type_head table with tender_type_group as VOUCH.
	Assigned Date	Char(8)		Date the voucher was assigned.
	Assigned store	Number(10)		Store to which the voucher is assigned.
	Issuing Date	Char(8)		Date this document was issued.
	Issuing store	Number(10)		Store this document was issued from.
	Issuing Register	Char(5)		Register this document was issued from.
	Issuing Cashier	Char(10)		Cashier issuing the document.
	Issued transaction number	Number(20)		Transaction number at the time of issuance.
	Issued item seq number	Number(4)		Will hold the item sequence of the item when the voucher is sold as an item (gift voucher).
	Issued tender seq number	Number(4)		Will hold the tender sequence of the tender when the voucher is sold as a tender (Merchandise Credit).
	Issued Amount	Number(20)		Amount the voucher was issued for*10000 (4 implied decimal places).
	Issued Customer Name	Char(120)		Name of the customer, who was issued the voucher.
	Issued Customer Addr1	Char(240)		The address of the customer who was issued the voucher.
	Issued Customer Addr2	Char(240)		The second line address of the customer who was issued the voucher.
	Issued Customer City	Char(120)		City of the customer, the voucher is issued.
	Issued Customer State	Char(3)		State of the customer.
	Issued Customer Postal Code	Char(30)		Postal address of the customer .
	Issued Customer Country	Char(3)		Country of the customer where the voucher was issued.

Record Name	Field Name	Field Type	Default Value	Description
	Recipient Name	Char(120)		Name of the intended recipient.
	Recipient State	Char(3)		The state of the intended recipient.
	Recipient Country	Char(3)		The country of the intended recipient.
	Redemption Date	Char(8)		Date the voucher was redeemed.
	Redemption Store	Number(10)		Store at which the voucher was redeemed.
	Redemption Register	Char(5)		Register at which the document was redeemed.
	Redemption cashier	Char(10)		Cashier redeeming the voucher.
	Redemption tran seq number	Number(20)		Transaction Number when the document was redeemed.
	Redemption Tender seq number	Number(4)		This column will hold the tender sequence of the tender within the transaction when a voucher is redeemed as tender.
	Redemption Amount	Number(20)		Amount the voucher was redeemed for*10000 (4 implied decimal places).
	Expiry Date	Char(8)		Expiry Date.
	Status	Char(1)		Indicator showing the document's status - issued or redeemed. Valid values = I - Issued, R - Redeemed.
	Comments	Char(2000)		Comments.
FTAIL	Record type	Char(5)	FTAIL	Describes file record and marks the end of file.
	Line id	Number(10)		Unique file line ID.
	#lines	Number(10)		Total number of transaction lines in file (not including FHEAD and FTAIL).

Design Assumptions

NA

saimpadj (Import Total Value Adjustments From External Systems to ReSA)

Module Name	saimpadj.pc
Description	Import Total Value Adjustments From External Systems to ReSA
Functional Area	Oracle Retail Sales Audit
Module Type	Integration

Module Technology	ProC
Integration Catalog ID	RSA07

Design Overview

This module posts external system adjustments to the Sales Audit total value table.

The sales audit adjustments are passed to the module in an external file.

Records that fail necessary validations would be written to the reject file. The input and reject file names are passed as arguments.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This module should be executed after the ReSA transaction import process and before the ReSA totaling process.
Pre-Processing	Saimptlogfin.pc
Post-Processing	Satotoals.pc
Threading Scheme	NA

Restart/Recovery

Restart/recovery logic for file-based processing is used. The logical unit of work for this module is a parameterized number defined in the restart tables.

Record level locking is done on sa_store_day before updating.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_TOTAL	Yes	No	No	No
SA_HQ_VALUE	No	Yes	No	No
SA_STORE_DAY	Yes	No	Yes	No
SA_EXPORT_LOG	Yes	Yes	No	No
SA_TOTAL_USAGE	Yes	No	No	No

Integration Contract

Integration Type	Upload to ReSA
File Name	Determined by runtime parameters.
Integration Contract	IntCon000047

Input File

Record Name	Field Name	Field Type	Default Value	Description
FHEAD	File Type Record Descriptor	Char(5)	FHEAD	Identifies file record type (the beginning of the input file).
	File Line Identifier	Number(10)	Sequential number	ID of the current line being read from input file.
	File head descriptor	Char(4)	IMPA	Describes file line type.
	Current date	Char(14)		File date in YYYYMMDDHH24MISS format.
FDETL	File Type Record Descriptor	Char(5)	FDETL	Identifies the file record type to upload a new deal header.
	File Line Identifier	Number(10)	Sequential number	ID of the current line being read from input file.
	Data source	Char(6)		Name of the external system that produced the file.
	New value sign	Char(1)		Sign(+/-) for the new value.
	New Value	Number(20)		Value for the total entered by Headquarters user*10000 (4 implied decimal places).
	Total seq no	Number(20)		Identifies the unique result set for this total ID, total revision, or store/day. Balancing group and index values.
	Store	Number(10)		Store number for a store/day combination.
	Business Date	Char(8)		Date for store/day combination.
	Total id	Char(10)		ID to uniquely identify the total.
	Ref no 1	Char(30)		The first reference value based by which the total is grouped.
	Ref no 2	Char(30)		The second reference value based by which the total is grouped.
	Ref no 3	Char(30)		The third reference value based by which the total is grouped.
FTAIL	File Type record descriptor	Char(5)	FTAIL	Identifies the file record type (the end of the input file).
	File Line Identifier	Number(10)	Sequential number	ID of the current line being read from input file.

Record Name	Field Name	Field Type	Default Value	Description
	File Record Counter	Number(10)	Sequential number	Number of records/transactions in the current file (only records between head and tail).

Design Assumptions

NA

satotals (Calculate Totals based on Client Defined Rules)

Module Name	satotals.pc
Description	Calculate Totals based on Client Defined Rules
Functional Area	Sales Audit, Totals
Module Type	Business Processing
Module Technology	ProC
Integration Catalog ID	RSA16

Design Overview

This module produces totals from user-defined total calculation rules. Totaling is integral to the sales auditing process. Totaling provides the values against which auditors can compare receipts. These comparisons find data errors that could be the result of either honest mistakes or fraud. Finding these mistakes during the sales auditing process prevents these errors from being passed on to merchandising and data warehouse systems. Totaling also provides quick access to other numeric figures about the day's sales transactions.

Totaling in ReSA is dynamic. ReSA automatically totals transactions based on calculation definitions that the retailer's users create using the online Totals Calculation Definition Wizard. In addition, the retailer is able to define totals that come from the POS, but that ReSA does not calculate. Whenever users create new calculation definitions or edit existing ones, they become part of the automated totaling process the next time that this process runs.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This program will run after the batch program saimptlogfin.pc and before sarules.pc.
Pre-Processing	Saimptlogfin.pc
Post-Processing	Sarules.pc

Threading Scheme

This program runs against a single store at a time.

Restart/Recovery

The logical unit of work for this program is a SA_STORE_DAY record. Records are committed to the database when the commit_max_ctr defined for SATOTALS on the RESTART_CONTROL table is reached. This program achieves inherent restart/recovery due to the fact that store/day records that are processed will be updated to an audit_status of T for Totaled and will not be fetched by the driving cursor when the program restarts.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	Yes	No
SA_TOTAL	No	Yes	No	No
SA_TOTAL_HEAD	Yes	No	No	No
SA_ERROR	No	Yes	No	Yes
SA_ERROR_WKSHT	No	Yes	No	Yes
SA_POS_VALUE	No	Yes	No	No
SA_POS_VALUE_WKSHT	No	Yes	No	No
SA_SYS_VALUE	No	Yes	No	No
SA_SYS_VALUE_WKSHT	No	Yes	No	No
SA_ERROR_REV	No	Yes	No	No
SA_EXPORTED_REV	No	Yes	No	No
SA_EXPORTED	No	No	No	Yes

Integration Contract

Integration Type	NA
File Name	NA
Integration Contract	NA

Design Assumptions

NA

sarules (Evaluate Transactions and Totals based on Client Defined Rules)

Module Name	sarules.pc
Description	Evaluate Transactions and Totals based on Client Defined Rules
Functional Area	Oracle Retail Sales Audit
Module Type	Business Processing

Module Technology	ProC
Integration Catalog ID	RSA17

Design Overview

Evaluating rules is integral to the sales auditing process. Rules make the comparisons between data from various sources. These comparisons find data errors that could be the result of either honest mistakes or fraud. Finding these mistakes during the sales auditing process prevents these errors from being passed on to merchandising and data warehouse systems.

Rules in ReSA are dynamic. Aside from basic data validations, rules are not predefined in the system. Retailers have the ability to define them through the online Rule Definition Wizard. Errors uncovered by these rules are available for review online during the interactive audit process. After users modify existing rules or create new ones, they become part of the rules the next time that sarules.pc runs.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This program will run after SATOTALS and before SAESCHEAT. It should also be run before SAPREEXP and any of the ReSA export modules that extract store/day transaction data to other applications (for example, SAEXPRMS, SAEXPIM, SAEXPRDW, SAEXPACH, SAEXPUAR, and SAEXPGL).
Pre-Processing	satotoals
Post-Processing	Saescheat, sapreexp
Threading Scheme	This program runs against a single store at a time.

Restart/Recovery

The logical unit of work for this program is a SA_STORE_DAY record. Records are committed to the database when the commit_max_ctr defined for SARULES on the RESTART_CONTROL table is reached. This program achieves inherent restart/recovery due to the fact that store/day records that are processed will be updated to an audit_status of A (audited), H (HQ errors pending), or S (store errors pending) and will not be fetched by the driving cursor when the program restarts.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	Yes	No
SA_RULE_HEAD	Yes	No	No	No
SA_RULE_LOC_TRAIT	Yes	No	No	No
SA_ERROR_WKSHT	No	Yes	No	Yes

Table	Select	Insert	Update	Delete
SA_ERROR_TEMP	No	Yes	No	No
SA_ERROR	No	Yes	Yes	Yes
SA_TOTAL	No	No	Yes	No
SA_TRAN_HEAD	No	No	Yes	No
SA_TRAN_ITEM	No	No	Yes	No
SA_TRAN_DISC	No	No	Yes	No
SA_TRAN_TENDER	No	No	Yes	No
SA_TRAN_TAX	No	No	Yes	No

Integration Contract

Integration Type	NA
File Name	NA
Integration Contract	NA

Design Assumptions

NA

sapreexp (Prevent Duplicate Export of Total Values from ReSA)

Module Name	sapreexp.pc
Description	Prevent Duplicate Export of Total Values from ReSA
Functional Area	Oracle Retail Sales Audit
Module Type	Admin
Module Technology	ProC
Integration Catalog ID	RSA20

Design Overview

When a user modifies or revises a transaction through the ReSAuser application, numerous totals may be affected and require re-totaling. The sales audit pre-export module is designed to compare the latest prioritized version of each total defined for export with the version that was previously sent to each system. If they are the same, an SA_EXPORTED entry is created for the total for that particular system, so that the same value will not be exported twice. By determining which totals have not changed since the last export date time (SA_EXPORTED_REV), this module will then create entries on SA_EXPORTED to prohibit any third-party application from receiving multiple export revisions.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This module should be run after the ReSA auditing process and before any export processes.
Pre-Processing	Sarules.pc
Post-Processing	saexpach saexpgl saexpim saexpdw saexpsim saexprms saexpuar
Threading Scheme	NA

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Only two commits will be done. One to establish the store/day lock (this will be done by the package) and one at the end after a store/day or store/day/total has been completely processed.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_EXPORT_LOG	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_TOTAL_USAGE	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	No	No
SA_EXPORTED	Yes	Yes	No	No
SA_EXPORTED_REV	Yes	No	No	No

Integration Contract

Integration Type	NA
File Name	NA
Integration Contract	NA

Design Assumptions

NA

saexprms (Export of POS transactions from ReSA to RMS)

Module Name	saexprms.pc
Description	Export of POS transactions from ReSA to RMS
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA01

Design Overview

The purpose of this batch module is to fetch all sale and return transactions that do not have RMS errors from the ReSA database tables for transmission to Oracle Retail Merchandising System (RMS). Transaction data is rolled up to the item/store/day/price point/sales type level for the SALES transaction type and item/store/day/price point/sales type/no inventory return indicator/return disposition/return warehouse level for the RETURN transaction types.

If the Unit of Work system parameter is defined as S, the whole store/day is skipped if any RMS error is found. If this value is T, only transactions with RMS errors are skipped.

If the transaction has a status of Deleted and it has previously been transmitted, a reversal of the transaction will be sent.

A file is generated for each store/day.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This program should run towards the end of the Sales Auditing cycle where the total (SATOTALS.PC) and rule (SARULES.PC) data are ready to be exported to the external systems.
Pre-Processing	NA
Post-Processing	saprepost saexprms post
Threading Scheme	Multi-threaded by store

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Records will be fetched, updated, and inserted in batches of pl_commit_max_ctr. Only two commits will be done, one to establish the store/day lock and another at the end, to release the lock after a store/day has been completely processed. The POSU formatted output file will be created with a temporary name and renamed just before the end of store/day commit.

In case of failure, all work done will be rolled back to the point right after the call to `get_lock()` and the lock will be released. Thus, the rollback segment should be large enough to hold all inserts into `sa_exported` for one store/day.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	Yes	No
V_RESTART_STORE	Yes	No	No	No
STORE	Yes	No	No	No
CURRENCIES	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_ERROR_IMPACT	Yes	No	No	No
SA_EXPORTED	Yes	Yes	No	No
SA_TRAN_SEQ_TEMP	No	Yes	No	Yes
SA_TRAN_HEAD_REV	Yes	No	No	No
SA_EXPORTED_REV	Yes	No	No	No
SA_SYSTEM_OPTIONS	Yes	No	No	No
SA_TRAN_ITEM_REV	Yes	No	No	No
ITEM_MASTER	Yes	No	No	No
SA_TRAN_DISC_REV	Yes	No	No	No
SA_TRAN_DISC	Yes	No	No	No
SA_TRAN_ITEM	Yes	No	No	No
SA_TRAN_SEQ_TEMP	Yes	Yes	No	Yes
SA_STORE_DAY_READ_LOCK	No	Yes	No	Yes
SA_TRAN_IGTAX_REV	Yes	No	No	No
SA_TRAN_IGTAX	Yes	No	No	No
SA_TRAN_TAX	Yes	No	No	No
SA_TRAN_TAX_REV	Yes	No	No	No
VAT_ITEM	Yes	No	No	No

Integration Contract

Integration Type	Download from ReSA
File Name	POSU_ appended with store number, business date and system date
Integration Contract	IntCon000044

Record Name	Field Name	Field Type	Default Value	Description
FHEAD	Record descriptor	Char(5)	FHEAD	Identifies the file record type.
	File Line Id	Char(10)	0000000001	Sequential file line number.
	File type definition	Char(4)	POSU	Identifies the file type
	File Create Date	Char(14)		File Create Date in YYYYMMDDHHMMSS format.
	Store	Number(10)		Store location.
	Vat include indicator	Char(1)		Determines whether or not the store values include VAT. Not required, but populated by ReSA.
	Vat region	Number(4)		VAT region the given location is in. Not required, but populated by ReSA.
	Currency code	Char(3)		Currency of the given location. Not required, but populated by ReSA.
	Currency retail decimals	Number(1)		Number of decimals supported by given the currency for retails. Not required, but populated by ReSA.
THEAD	Record descriptor	Char(5)	THEAD	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Transaction date	Char(14)		Transaction date in YYYYMMDDHHMMSS format. Corresponds to the date that the sale/return transaction was processed at the POS.
	Item Type	Char(3)	REF or ITM	Can be REF or ITM.
	Item	Char(25)		ID number of the ITM or REF.
	Dept	Number(4)		Department of item sold or returned.
	Class	Number(4)		Class of item sold or returned.
	Sub Class	Number(4)		Subclass of item sold or returned.
	Pack Ind	Char(1)		Pack indicator of item sold or returned.
	Item Level	Number(1)		Item level of item sold or returned.
	Tran level	Number(1)		Transaction level of item sold or returned.
	Wastage Type	Char(6)		Wastage type of item sold or returned.

Record Name	Field Name	Field Type	Default Value	Description
	Wastage pct	Number(12)		Waste pct (4 implied decimal places).
	Tran type	Char(1)		Transaction type code to specify whether transaction is a sale or a return.
	Drop Shipment indicator	Char(1)		Indicates whether the transaction is a drop shipment or not.
	Total sales qty	Number(12)		Total sales quantity (4 implied decimal places).
	Selling UOM	Char(4)		Selling Unit of Measure for the item.
	Sales sign	Char(1)		Determines if the Total Sales Quantity and Total Sales Value are positive or negative.
	Total Sales Value	Number(20)		Total sales value of goods sold/returned (4 implied decimal places).
	Last Date time modified	Char(14)		Date and time of last modification in YYYYMMDDHHMMSS format.
	Catchweight indicator	Char(1)		Indicates if item is a catchweight item.
	Total weight	Number(12)		The actual weight of the item, only populated if catchweight_ind = Y.
	Sub Tran type indicator	Char(1)		Transaction type for ReSA. Valid values are A, D, and NULL.
	Total IG TAX Value	Number(20)		This indicates total of all IG TAX amount for the item.
	Sales Type	Char(1)		This column indicates whether the line item is a Regular Sale, a customer order serviced by OMS (External CO), or a customer order serviced by a store (In Store CO).
	No Inventory Return Indicator	Char(1)		This column contains an indicator that identifies a return without inventory. This is generally a non-required column, but in the case of Returns, this is required.
	Return Disposition	Char(10)		This column contains the disposition code published by Oracle Retail Warehouse Management System (RWMS0 as part of the Returns upload to OMS.

Record Name	Field Name	Field Type	Default Value	Description
	Return Warehouse	Char(10)		This column contains the physical warehouse ID for the warehouse identifier where the item was returned.
TTAX	Record descriptor	Char(5)	TTAX	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Tax Code	Char(6)		The Tax Code of the item.
	Tax Rate	Number(20)		The tax rate of the item (10 implied decimal places).
	Total Tax Amount	Number(20)		The item level tax or prorated transaction level tax of the item (4 implied decimal places).
TDETL	Record descriptor	Char(5)	TDETL	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Promo Tran Type	Char(6)		Code for the promotional type from code_detail where code_type equals PRMT.
	Promotion Number	Number(10)		Promotion number from RMS.
	Sales quantity	Number(12)		Sales quantity sold for this promotion type (4 implied decimal places).
	Sales value	Number(20)		Sales value for this promotion type (4 implied decimal places).
	Discount value	Number(20)		Discount value for this promotion type (4 implied decimal places).
	Promotion component	Number(10)		Links the promotion to additional pricing attributes.
TTAIL	Record descriptor	Char(5)	TTAIL	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Tran Record Counter	Number(6)		Number of TDETL records in this transaction set.
FTAIL	Record descriptor	Char(5)	FTAIL	Identifies the file record type.
	File Line Id	Number(10)		Sequential file line number.
	File Record counter	Number(10)		Number of records/transactions processed in the current file (only records between head and tail).

Design Assumptions

1. Tax can be sent either in TTAX or IGTAX regardless of the default_tax_type of SVAT, GTAX, or SALES. But prorated tax in TTAX will only be sent to RMS in an SVAT configuration since proration is based on VAT_ITEM and VAT_ITEM and is only defined for SVAT.
2. POS can send either transactional level tax details in TTAX lines or item-level tax details in IGTAX lines through the RTLOG file to ReSA. These tax details will be passed on to RMS in the TTAX lines of the POSU file. Even though POS can pass multiple IGTAX/TTAX lines to ReSA and from ReSA to RMS, RMS only supports one tax code per item. If multiple taxes for an item are sent from POS to ReSA, they will be summed to a single tax in RMS sales upload process and assigned one of the applicable tax codes when writing tran_data 88.

saordinvexp (Export Inventory Reservation/Release for In Store Customer Order & Layaway Transactions from ReSA)

Module Name	saordinvexp.pc
Description	Export Inventory Reservation/Release for In Store Customer Order & Layaway Transactions from ReSA
Functional Area	Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA12

Design Overview

This batch program will generate a flat file to reserve or un-reserve the inventory for items on in-store customer order or layaway transactions. Inventory will be reserved for items on customer order/layaway initiate and un-reserved for customer order/layaway cancel or complete transactions.

Customer orders can be categorized into two categories: In-Store Customer Orders and External Customer Orders. The In-Store Customer Orders are defined as orders that are serviced at the store and inventory reservation is done in Oracle Retail Store Inventory Management (SIM). While the External Customer orders are serviced by an external order management system, no inventory reservation will be made at the store in SIM.

This batch should only process records where the sales type is not equal to External Customer Sales, as it handles only the in-store type orders.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	
Frequency	
Scheduling Considerations	
Pre-Processing	NA

Schedule Information	Description
Post-Processing	NA
Threading Scheme	Multithreaded based on store number

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination.

Records are fetched, updated, and inserted in batches of `pl_commit_max_ctr`. Only two commits are done, one to establish the store/day lock and another at the end, to release the lock after a store/day is completely processed. The ORIN formatted output file is created with a temporary name and renamed just before the end of store/day commit.

In case of failure, all work done is rolled back to the point right after the call to `get_lock()` and the lock is released. Thus, the rollback segment should be large enough to hold all inserts into `sa_exported` for one store/day.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_SYSTEM_OPTIONS	Yes	No	No	No
SA_EXPORTED	Yes	Yes	No	No
SA_EXPORT_LOG	Yes	No	Yes	No
SA_STORE_DAY	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_ERROR_IMPACT	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_TRAN_HEAD_REV	Yes	No	No	No
SA_TRAN_ITEM	Yes	No	No	No
SA_TRAN_ITEM_REV	Yes	No	No	No
ITEM_MASTER	Yes	No	No	No

Integration Contract

Integration Type	Inventory Export from ReSA to RMS
File Name	ORIN_<store>_<tran_date>_<sysdate>
Integration Contract	IntCon000049

Output File Layout

Record Name	Field Name	Field Type	Default Value	Description
FHEAD	Record descriptor	Char(5)	FHEAD	Identifies the file record type.
	File Line Id	Char(10)	0000000001	Sequential file line number.

Record Name	Field Name	Field Type	Default Value	Description
THEAD	File type Definition	Char(4)	ORIN	Identifies the file type.
	File Create Date	Char(14)		File Create Date in YYYYMMDDHHMMSS format.
	Location	Number(10)		Store location number.
	Record descriptor	Char(5)	THEAD	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Transaction Date & Time	Char(14)	Transaction Date	Date and time of the order processed.
	Transaction Type	Char(6)	SALE	Transaction type code specifies whether the transaction is sale or return.
TDETL	Record descriptor	Char(5)	TDETL	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Item Type	Char(3)	REF or ITM	Can be REF or ITM.
	Item	Char(25)		ID number of the ITM or REF.
	Item Status	Char(6)	LIN - Layaway Initiate LCA - Layaway Cancel LCO - Layaway Complete PVLCO - Post void of Layaway complete ORI - Pickup/delivery Initiate ORC - Pickup/delivery Cancel ORD - Pickup/delivery Complete PVORD - Post void of Pick-up/delivery complete	Type of transaction.
	Dept	Number(4)		Department of item sold or returned.
	Class	Number(4)		Class of item sold or returned.

Record Name	Field Name	Field Type	Default Value	Description
	Sub class	Number(4)		Subclass of item sold or returned.
	Pack Ind	Char(1)		Pack indicator of item sold or returned.
	Quantity Sign	Chanr(1)	P or N	Sign of the quantity.
	Quantity	Number(12)		Quantity * 10000 (4 implied decimal places), number of units for the given order (item) status.
	Selling UOM	Char(4)		UOM at which this item was sold.
	Catchweight Ind	Char(1)		Indicates if the item is a catchweight item. Valid values are Y or NULL.
	Customer Order number	Char(48)		Customer Order number.
TTAIL	File Type Record Descriptor	Char(5)	TTAIL	Identifies file record type.
FTAIL	File Line Identifier	Number(10)	Specified by ReSA	ID of current line being processed by input file.
	Transaction count	Number(6)	Specified by ReSA	Number of TDETL records in this transaction set.
	File Type Record Descriptor	Char(5)	FTAIL	Identifies file record type.
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.
	File Record Counter	Number(10)		Number of records/transactions processed in the current file (only records between FHEAD and FTAIL).

Design Assumptions

NA

saexpdw (Export from ReSA to Oracle Retail Analytics)

Module Name	saexpdw.pc
Description	Export from ReSA to Oracle Retail Analytics
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC

Integration Catalog ID	RSA02
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Design Overview

The purpose of this batch module is to fetch all sales and return transactions that do not have Retail Analytics errors from the ReSA database tables for transmission to the Oracle Retail Analytics application. The data will be sent at the store day level. If the transaction has a status of Deleted, and if it has been previously Transmitted, a reversal of the transaction will be sent.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This will run after auditors have made corrections to the data.
Pre-Processing	sapreexp.pc
Post-Processing	resa2dw
Threading Scheme	Multi-threaded by store

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Records will be fetched, updated, and inserted based on the commit_max_ctr. Only two commits will be done: one to establish the store/day lock and another at the end, to release the lock after a store/day has been completely processed. The RDWT, RDWF, RDWS, and RDWC formatted output files will be created with temporary names and renamed just before the end of store/day commit.

In case of a failure, all the work done will be rolled back to the point right after the call to get_lock() and the lock is released. The rollback segment should be large enough to hold all inserts into sa_exported for one store/day.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	No	No
V_RESTART_STORE	Yes	No	No	No
SA_STORE_PRICE_HIST_TEMP	No	Yes	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_CUSTOMER	Yes	No	No	No
SA_STORE_EMP	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_ERROR_IMPACT	Yes	No	No	No

Table	Select	Insert	Update	Delete
SA_EXPORTED	Yes	No	No	No
SA_TRAN_HEAD_REV	Yes	No	No	No
SA_EXPORTED_REV	Yes	No	No	No
SA_TRAN_ITEM	Yes	No	No	No
SA_TRAN_ITEM_REV	Yes	No	No	No
SA_TRAN_DISC	Yes	No	No	No
SA_TRAN_DISC_REV	Yes	No	No	No
SA_TRAN_TENDER	Yes	No	No	No
SA_VOUCHER	Yes	No	No	No
SA_TRAN_TENDER_REV	Yes	No	No	No
SA_STORE_DAY_READ_LOCK	No	Yes	No	Yes

Integration Contract

Integration Type	Download from ReSA
File Name	RDWT_ appended with store number, business date, and system date. RDWF_ appended with store number, business date, and system date. RDWS_ appended with store number, business date, and system date. RDWC_ appended with store number, business date, and system date.
Integration Contract	IntCon000041 (RDWT) IntCon000156 (RDWF) IntCon000157 (RDWS) IntCon000158 (RDWC)

Four output files will be created for each store_day:

- RDWT - Transaction File
- RDWF - Form of Payment (Tender) file
- RDWS - Store Totals output file
- RDWC - Cashier output File

Each output file is converted into a format for loading into Retail Analytics by the resa2dw Perl script.

Oracle Retail Sales Audit (ReSA) – File Layout – Retail Analytics

- File layouts for the interface between sales audit and Retail Analytics.
- Char fields are left justified and blank filled.
- Number fields are right justified and zero filled. They can contain only numbers.
- Numeric fields are left justified and blank filled. They can contain only numbers.

RDWT File

Record Name	Field Name	Field Type	Default Value	Description	Required
File Header	File Type Record Descriptor	Char(5)	FHEAD	Identifies file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	File Type Definition	Char(4)	RDWT	Identifies file as Retail Analytics Transaction file.	Yes
	File Create Date	Number(14)	Create date	Date file was written by external system. Format YYYYMMDDHH24MISS	Yes
Transaction Header	File Type Record Descriptor	Char(5)	THEAD	Identifies transaction record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	Business date	Number(8)		Format YYYYMMDD (Note: This is the date the Retail Analytics will consider the transaction date.)	Yes
	Transaction Date	Number(14)	Transaction date	Date sale/ return transaction was processed at the POS. Format YYYYMMDDHH24MISS (Note: the Retail Analytics only uses the HH24MI part of this date.)	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier.	Yes
	Register ID	Char(5)		The register identifier.	Yes, -1 for null
	Banner ID	Char(4)		The unique identifier of the banner.	Yes, -1 for null

Record Name	Field Name	Field Type	Default Value	Description	Required
	Line Media ID	Char(10)		The identifier of the media for the order line. For non-merchandise items, such as Shipping & Handling, Service Lines, and gift certificates, the media code will be that of the order line with which it is associated.	Yes, -1 for null
	Selling Item ID	Char(25)		The unique identifier of a selling item.	Yes, -1 for null
	Customer Order Header ID	Char(48)		The unique identifier of a customer order.	Yes, -1 for null
	Customer Order Line ID	Char(30)		The identifier of a customer order line. For a Value Added Service, such as monogramming, this will be the line number for the item which the service was applied.	Yes, -1 for null
	Customer Order Create Date	Char(8)		The date when the customer order was created/placed.	Yes, -1 for null
	Cashier Identifier	Char(10)		The cashier number. This will be the unique employee number.	Yes, -1 for null
	Salesperson Identifier	Char(10)		The salesperson number. This will be the unique employee number.	Yes, -1 for null
	Customer ID Type	Char(6)		The type of ID number used by this customer.	Yes, -1 for null
	Customer ID Number	Char(16)		Customer ID associated with the transaction.	Yes, -1 for null
	Transaction Number	Number(10)		The unique transaction reference number generated by the POS.	Yes
	Original Register ID	Char(5)		Register ID of the original transaction.	Yes for a transaction type of PVOID.

Record Name	Field Name	Field Type	Default Value	Description	Required
	Original Transaction Number	Number(10)		Transaction number of the original transaction.	Yes for a transaction type of 'PVOID'.
	Transaction Header Number	Numeric(20)		Unique reference used within sales audit to represent the date/store/register/tran_no.	Yes
	Revision number	Number(3)		Number used to identify the version of the transaction being sent.	Yes
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Transaction Type	Char(6)		Transaction type code.	Yes
	Sub Transaction Type	Char(6)		The Sub Transaction type.	Yes, -1 for null
	Retail Type	Char(1)	R (Regular), P (Promo), or C (Clearance)		Yes
	Item_Seq_No	Number(4)		The order in which items were entered during the transaction.	No
	Employee Number (Cashier)	Char(10)		Employee identification number. This will only be populated if the sub transaction type is EMP.	Yes, -1 for null
	Receipt Indicator	Char(1)		Flag that identifies returns that have been processed without a receipt. This field will only be populated if the transaction type is RETURN.	No
	Reason Code	Char(6)		A reason is required with a Paid In/Out transaction type, and optional with a return transaction.	Yes, -1 for null
	Vendor number	Numeric(10)		This will only get populated when the paid in code is Expense Vendor.	No

Record Name	Field Name	Field Type	Default Value	Description	Required
	Item Type	Char(6)	item type identifier	Type of item sold: ITEM, REF, GCN (gift certificate number), or NMITEM.	No
	Item	Char(25)		ID number of the item or gift certificate.	No. Required if Item Type is not null.
	Ref Item	Char(25)		Sub-transaction level item.	No. Also, this field can never be populated without a transaction level item in the item field.
	Taxable Indicator	Char(1)		Taxable/non-taxable status indicator.	No
	Entry/ mode	Char(6)		Indicator that identifies whether the item was scanned or manually entered.	No
	Department	Number(4)		Department of item sold or returned. Need to validate if using ReSA.	No
	Class	Number(4)		Class of item sold or returned. Need to validate if using ReSA.	No
	Subclass	Number(4)		Subclass of item sold or returned. Need to validate if using ReSA.	No
	Total Sales Quantity	Number(12)		Number of units sold at a particular location, with 4 implied decimal places.	No
	Total Transaction Value	Number(20)		Sales value, net sales value of goods sold/returned, with 4 implied decimal places.	No

Record Name	Field Name	Field Type	Default Value	Description	Required
	Override Reason	Char(6)		This column will be populated when an item's price has been overridden at the POS to define why it was overridden. This will also always be sent if the transaction originated in RCOM.	Yes, -1 for null
	Return Reason	Char(6)		The reason an item was returned.	Yes, -1 for null
	Total original sign	Char(1)	'P' - positive 'N' - negative		No
	Total Original Sales Value	Number(20)		This column will be populated when the item's price was overridden at the POS and the item's original unit retail is known. This will always be written when the transaction originated in RCOM. This has 4 implied decimals.	No
	Weather	Char(6)		For transaction types of COND, this field will store the type of weather for the store-day.	No
	Temperature	Char(6)		For transaction types of COND, this field will store the type of temperature for the store-day.	No
	Traffic	Char(6)		For transaction types of COND, this field will store the type of traffic for the store-day.	No
	Construction	Char(6)		For transaction types of COND, this field will store information regarding any construction on that store-day.	No
	Drop Shipment Indicator	Char(1)	Y or N	Indicates whether the item is involved in a drop shipment.	No

Record Name	Field Name	Field Type	Default Value	Description	Required
	Item Status	Char(6)		The status of the item, required for voided or exchanged items. Valid values are found in the code_detail table under code_type SASI.	Y, -1 for null
	Tran Process Sys	Char(3)		This column holds the name of the system that processed the transaction. This will be used for filtering duplicate transactions coming from the different systems for export to downstream systems. Expected values are POS – Point of Sale, OMS – Order Management System and, SIM – Store Inventory Management.	Y, -1 for null
	Return Wh	Number(10)		This column contains the physical warehouse ID for the warehouse identifier where the item was returned.	N, -1 for null
	Fulfill Order No	Char(48)		This column holds the number from OMS related to the fulfillment details. One or more fulfillment orders could relate back to a single customer order in OMS. This column is required if the order is a cross channel order (that is, Sales Type equals E) and the item status is ORD.	N, -1 for null
	No Inventory Return Ind	Char(1)		This column contains an indicator that identifies a return without inventory. This is generally a non-required column, but in the case of returns, this is required.	N

Record Name	Field Name	Field Type	Default Value	Description	Required
Transaction Detail	Sales Type	Char(1)		This column indicates whether the line item is a Regular Sale, a customer order serviced by OMS (External CO), or a customer order serviced by a store (In Store CO).	Y
	Return Disposition	Char(10)		This column will contain the disposition code published by RWMS as part of the Returns upload to OMS.	N, -1 for null
	File Type Record Descriptor	Char(5)	TDETL	Identifies transaction record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	Discount Type	Char(6)		Code for discount type from code_detail, code_type equals SADT.	No
	Promotional Transaction Type	Char(6)		Code for promotional type from code_detail, code_type equals PRMT.	Yes
	Promotion Number	Numeric(10)	Promotion number	Promotion number from the RMS.	No
	Promotion Component Number	Numeric(10)	Promo_comp_id from RPM		Required if it is a promotional sale.
	Coupon Number	Char(40)			Yes, if Discount Type is SCoup.
	Coupon Reference Number	Char(16)			No
	Sales Quantity	Number(12)		Number of units sold in this promotion type, with 4 implied decimal places.	No
	Transaction Sign	Char(1)	P- positive N - negative		Yes

Record Name	Field Name	Field Type	Default Value	Description	Required
Transaction Trailer	Transaction Value	Number(20)		Value of units sold in this promotion type, with 4 implied decimal places.	Yes
	Discount Value	Number(20)		Value of discount given in this promotion type, with 4 implied decimal places.	Yes
	File Type Record Descriptor	Char(5)	TTAIL	Identifies file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of current line being processed by input file.	Yes
File Trailer	Transaction Count	Number(6)	Specified by external system	Number of TDETL records in this transaction set.	Yes
	File Type Record Descriptor	Char(5)	FTAIL	Identifies file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	File Record Counter	Number(10)		Number of records/transactions processed in the current file (only records between head and tail).	Yes

Transaction Item Information Produced by saexpdw.pc after Translation by resa2dw

Record Name	Field Name	Field Type	Default Value	Description	Required
	Business date	Number(8)		Format YYYYMMDD.	Yes
	Transaction Date	Number(14)	Transaction date	Date sale/return transaction was processed at the POS. Format YYYYMMDDHH24MISS	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier.	Yes
	Register ID	Char(5)		The register identifier.	Yes, -1 for null
	Banner ID	Char(4)		The unique identifier of the banner.	Yes, -1 for null

Record Name	Field Name	Field Type	Default Value	Description	Required
	Line Media ID	Char(10)		The identifier of the order line media. For non-merchandise items, such as Shipping & Handling, Service Lines, and gift certificates, the media code will be that of the order line with which it is associated.	Yes, -1 for null
	Selling Item ID	Char(25)		The unique identifier of a selling item.	Yes, -1 for null
	Customer Order Header ID	Char(48)		The unique identifier of a customer order.	Yes, -1 for null
	Customer Order Line ID	Char(30)		The identifier of a customer order line. For a Value Added Service, such as monogramming, this will be the line number for the item, which the service was applied.	Yes, -1 for null
	Customer Order Create Date	Number(8)		The customer order creation date.	Yes, transaction date for null
	Cashier Identifier	Char(10)		The cashier number. This will be the unique employee number.	Yes, -1 for null
	Salesperson Identifier	Char(10)		The salesperson number. This will be the unique employee number.	Yes, -1 for null
	Customer ID Type	Char(6)		The type of ID number used by this customer.	Yes, -1 for null
	Customer ID Number	Char(16)		Customer ID associated with the transaction.	Yes, -1 for null
	Transaction Number	Number(10)		The unique transaction reference number generated by the POS.	Yes
	Original Register ID	Char(5)		Register ID of the original transaction.	Yes for a transaction type of 'PVOID'.
	Original Transaction Number	Number(10)		Transaction number of the original transaction.	Yes for a transaction type of 'PVOID'.

Record Name	Field Name	Field Type	Default Value	Description	Required
	Transaction Header Number	Numeric(20)		Unique reference used within sales audit to represent the date/store/register/transaction_no.	Yes
	Revision number	Number(3)		Number used to identify the version of the transaction being sent.	Yes
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Transaction Type	Char(6)		Transaction type code.	Yes
	Sub Transaction Type	Char(6)		The Sub Transaction type.	Yes, -1 for null
	Retail Type	Char(1)	R (Regular), P (Promo), or C (Clearance)		Yes
	Item_Seq_No	Number(4)		The order in which items were entered during the transaction.	No
	Employee Number (Cashier)	Char(10)		Employee identification number. This will only be populated if the sub transaction type is EMP.	Yes, -1 for null
	Receipt Indicator	Char(1)		Flag that identifies returns that have been processed without a receipt. This field will only be populated if the transaction type is RETURN.	No
	Reason Code	Char(6)		A reason is required with a Paid In/Out transaction type, and optional with a return transaction.	Yes, -1 for null
	Vendor number	Numeric(10)		This will only get populated when the paid in code is Expense Vendor.	No
	Item Type	Char(6)	Item type identifier	Type of item sold, ITEM, REF, GCN (gift certificate number), or IMITEM.	No

Record Name	Field Name	Field Type	Default Value	Description	Required
	Item	Char(25)		ID number of the item or gift certificate.	No. Required if Item Type is not null.
	Ref Item	Char(25)		Sub-transaction level item.	No. Also, this field can never be populated without a transaction level item in the item field.
	Taxable Indicator	Char(1)		Taxable/non-taxable status indicator.	No
	Entry/mode	Char(6)		Indicator that identifies whether the item was scanned or manually entered.	No
	Department	Number(4)		Department of item sold or returned. Need to validate if using ReSA.	No
	Class	Number(4)		Class of item sold or returned. Need to validate if using ReSA.	No
	Subclass	Number(4)		Subclass of item sold or returned. Need to validate if using ReSA.	No
	Total Sales Quantity	Number(12)		Number of units sold at a particular location, with 4 implied decimal places.	No
	Total Transaction Value	Number(20)		Sales value, net sales value of goods sold/returned, with 4 implied decimal places.	No
	Override Reason	Char(6)		This column will be populated when an item price has been overridden at the POS to define why it was overridden. This will always be sent if the transaction originated in RCOM.	Yes, -1 for null
	Return Reason	Char(6)		The reason an item was returned.	Yes, -1 for null
	Total original sign	Char(1)	P- positive N - negative		No

Record Name	Field Name	Field Type	Default Value	Description	Required
	Total Original Sales Value	Number(20)		This column will be populated when the item's price was overridden at the POS and the item's original unit retail is known. This will always be sent if the transaction originated in RCOM. This has 4 implied decimals.	No
	Weather	Char(6)		For transaction types of COND, this field will store the type of weather for the store-day.	No
	Temperature	Char(6)		For transaction types of COND, this field will store the type of temperature for the store-day.	No
	Traffic	Char(6)		For transaction types of COND, this field will store the type of traffic for the store-day.	No
	Construction	Char(6)		For transaction types of COND, this field will store information regarding any construction on that store-day.	No
	Drop Shipment Indicator	Char(1)	Y or N	Indicates whether the item is involved in a drop shipment.	No
	Item Status	Char(6)		The status of the item, required for voided or exchanged items. Valid values are found in the code_detail table under code_type SASI.	Y, -1 for null

Record Name	Field Name	Field Type	Default Value	Description	Required
	Tran Process Sys	Char(3)		This column holds the name of the system that processed the transaction. This will be used for filtering duplicate transactions coming from the different systems for export to downstream systems. Expected values are POS – Point of Sale, OMS – Order Management System and, SIM – Store Inventory Management.	Y, -1 for null
	Return Wh	Number(10)		This column contains the physical warehouse ID for the warehouse identifier where the item was returned.	N, -1 for null
	Fulfill Order No	Char(48)		This column holds the number from OMS related to the fulfillment details. One or more fulfillment orders could relate back to a single customer order in OMS. This column is required if the order is a cross channel order (that is, Sales Type equals E) and the item status is ORD.	N, -1 for null
	No Inventory Return Ind	Char(1)		This column contains an indicator that identifies a return without inventory. This is generally a non-required column, but in case of returns, this is required.	N
	Sales Type	Char(1)		This column indicates whether the line item is a Regular Sale, a customer order serviced by OMS (External CO), or a customer order serviced by a store (In Store CO).	Y

Record Name	Field Name	Field Type	Default Value	Description	Required
	Return Disposition	Char(10)		This column will contain the disposition code published by RWMS as part of the Returns upload to OMS.	N, -1 for null
	Discount Type	Char(6)		Code for discount type from code_detail, code_type equals SADT.	No
	Promotional Transaction Type	Char(6)		Code for promotional type from code_detail, code_type equals PRMT.	Yes
	Promotion Number	Numeric(10)	Promotion number	Promotion number from the RMS.	No
	Promotion Component Number	Numeric(10)	Promo_comp_id from RPM		Required if it is a promotional sale.
	Coupon Number	Char(40)			Yes if Discount Type is SCoup.
	Coupon Reference Number	Char(16)			No
	Sales Quantity	Number(12)		Number of units sold in this promotion type, with 4 implied decimal places.	No
	Transaction Sign	Char(1)	P - positive N - negative		Yes
	Transaction Value	Number(20)		Value of units sold in this promotion type, with 4 implied decimal places.	Yes
	Discount Value	Number(20)		Value of discount given in this promotion type, with 4 implied decimal places.	Yes

RDWF File

Record Name	Field Name	Field Type	Default Value	Description	Required
File Header	File Type Record Descriptor	Char(5)	FHEAD	Identifies file record type.	

Record Name	Field Name	Field Type	Default Value	Description	Required
File Detail	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	File Type Definition	Char(4)	RDWF	Identifies the file as a Retail Analytics Form of Payment (Tender) file.	Yes
	File Create Date	Numeric(14)	Create date	Date the file was written by external system. Format YYYYMMDDHH24MISS.	Yes
	File Type Record Descriptor	Char(5)	FDETL	Identifies file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	Business date	Numeric(8)		Format YYYYMMDD	Yes
	Transaction Date	Numeric(14)	Transaction date	Date sale/return transaction was processed at the POS. Format YYYYMMDDHH24MISS	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier.	Yes
	Cashier Identifier	Char(10)		The cashier number. This will be the unique employee number.	Yes, -1 for null
	Register Identifier	Char(5)			Yes, -1 for null
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Transaction Sequence Number	Numeric(20)		Unique reference used within sales audit to represent the date/store/register/transaction number.	Yes
	Revision number	Number(3)		Number used to identify the version of the transaction being sent.	Yes

Record Name	Field Name	Field Type	Default Value	Description	Required
	Transaction Type	Char(6)		Transaction type code.	Yes
	Tender type group	Char(6)			Yes
	Tender type id	Numeric(6)		Tender type code.	Yes
	Tender amount	Number(20)		Tender amount.	Yes
	Credit Card Number	Numeric(40)		This value is masked.	No
	Credit Card Expiration Date	Numeric(8)		Format YYYYMMDD	No
	Credit Card Authorization Number	Char(16)			No
	Credit Card Authorization Source	Char(6)		Contains whether the authorization number was electronically transmitted or manually keyed in after obtaining it through a telephone call. The code type for this field is CCAS.	No
	Credit Card Entry Mode	Char(6)		Contains the method in which the transaction was entered at the POS. Possible entry modes could include: Terminal Used, Magnetic Strip Track One Read, Magnetic Strip Two Read, Magnetic Strip One Transmitted, or Magnetic Strip Two Transmitted. The code type for this field is CCEM.	No

Record Name	Field Name	Field Type	Default Value	Description	Required
	Credit Card Cardholder Verification	Char(6)		Contains the method of identification that was used by the cardholder to verify their identity. Possible values include Signature Verified (S), Card Shown (C), PIN Entered (P), Mail Order / Phone (M). The code type for this field is CCVF.	No
	Credit Card Terminal ID	Char(5)		Contains the identification code of the terminal within the store that the transaction was transmitted.	No
	Credit Card Special Conditions	Char(6)		Contains the special condition of the transaction (mail, phone or electronic-secured or non-secured authentication). The code type for this field is CCSC.	No
	Voucher Number	Char(25)			No
	Voucher Age	Numeric(5)		Age of the gift certificate. Redeemed date minus sold date.	Yes if Tender Type Group is VOUCH.
	Escheat Date	Numeric(8)		Date on which this gift certificate escheats. Format is YYYYMMDD.	Yes if voucher can escheat.
	Coupon Number	Char(40)			Yes if Tender Type Group is COUPON.
	Coupon Reference Number	Char(16)			No. Only if Tender Type Group is COUPON.
File Trailer	File Type Record Descriptor	Char(5)	FTAIL	Identifies file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes

Record Name	Field Name	Field Type	Default Value	Description	Required
	File Record Counter	Number(10)		Number of records/ transaction processed in the current file (only records between head and tail).	Yes

Retail Analytics Form of Payment File after translation by resa2dw

Record Name	Field Name	Field Type	Default Value	Description	Required
	Business date	Numeric(8)		Format YYYYMMDD	Yes
	Transaction Date	Numeric(14)	Transaction date	Date the sale/ return transaction was processed at the POS. Format YYYYMMDDHH24MISS	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier.	Yes
	Cashier Identifier	Char(10)		The cashier number. This will be the unique employee number.	Yes, -1 for null
	Register Identifier	Char(5)			Yes, -1 for null
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Transaction Sequence Number	Numeric(20)		Unique reference used within sales audit to represent the date/store/register /transaction number.	Yes
	Revision number	Number(3)		Number used to identify the version of the transaction being sent.	Yes
	Transaction Type	Char(6)		Transaction type code.	Yes
	Tender type group	Char(6)			Yes
	Tender type id	Numeric(6)		Tender type code.	Yes
	Tender amount	Number(20)		Tender amount.	Yes

Record Name	Field Name	Field Type	Default Value	Description	Required
	Credit Card Number	Numeric(40)	This value is masked.		No
	Credit Card Expiration Date	Numeric(8)		Format YYYYMMDD	No
	Credit Card Authorization Number	Char(16)			No
	Credit Card Authorization Source	Char(6)		Contains whether the authorization number was electronically transmitted or manually keyed in after obtaining it through a telephone call. The code type for this field is CCAS.	No
	Credit Card Entry Mode	Char(6)		Contains the method in which the transaction was entered at the POS. Possible entry modes could include: Terminal Used, Magnetic Strip Track One Read, Magnetic Strip Two Read, Magnetic Strip One Transmitted, or Magnetic Strip Two Transmitted. The code type for this field is CCEM.	No
	Credit Card Cardholder Verification	Char(6)		Contains the method of identification that was used by the cardholder to verify their identity. Possible values include Signature Verified (S), Card Shown (C), PIN Entered (P), Mail Order / Phone (M). The code type for this field is CCVF.	No

Record Name	Field Name	Field Type	Default Value	Description	Required
	Credit Card Terminal ID	Char(5)		Contains the identification code of the terminal within the store where the transaction was transmitted.	No
	Credit Card Special Conditions	Char(6)		Contains the special condition of the transaction (mail, phone or electronic-secured or non-secured authentication). The code type for this field is CCSC.	No
	Voucher Number	Char(25)			No
	Voucher Age	Numeric(5)		Age of the gift certificate. Redeemed date minus sold date.	Yes if Tender Type Group is VOUCH.
	Escheat Date	Numeric(8)		Date on which this gift certificate escheats. Format is YYYYMMDD.	Yes if voucher can escheat.
	Coupon Number	Char(40)			Yes if Tender Type Group is COUPON.
	Coupon Reference Number	Char(16)			No. Only if Tender Type Group is COUPON.

RDWS File

Record Name	Field Name	Field Type	Default Value	Description	Required
File Header	File Type Record Descriptor	Char(5)	FHEAD	Identifies file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	File Type Definition	Char(4)	RDWS	Identifies file as a Retail Analytics Store Totals file.	Yes

Record Name	Field Name	Field Type	Default Value	Description	Required
File Detail	File Create Date	Numeric(14)	Create date	Date file was written by the external system. Format YYYYMMDDHH24 MISS	Yes
	File Type Record Descriptor	Char(5)	FDETL	Identifies the transaction record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	Business date	Number(8)		Format YYYYMMDD	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier.	Yes
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Total ID	Char(10)		Category identifier used to determine the type of total.	Yes
	Reference Number 1	Char(30)			No
	Reference Number 2	Char(30)			No
	Reference Number 3	Char(30)			No
File Trailer	Total Sign	Char(1)	P - positive N - negative		Yes
	Total Amount	Number(20)		Total over/short amount, with 4 implied decimal places.	Yes
	File Type Record Descriptor	Char(5)	FTAIL	Identifies the file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	File Record Counter	Number(10)		Number of records/transactions processed in the current file (only records between head and tail).	Yes

Store Totals Information after Translation by resa2dw

Record Name	Field Name	Field Type	Default Value	Description	Required
	Business date	Number(8)		Format YYYYMMDD	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier.	Yes
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Total ID	Char(10)		Category identifier used to determine the type of total.	Yes
	Reference Number 1	Char(30)			No
	Reference Number 2	Char(30)			No
	Reference Number 3	Char(30)			No
	Total Sign	Char(1)	P - positive N - negative		Yes
	Total Amount	Number(20)		Total over/short amount, with 4 implied decimal places.	Yes

RDWC File

Record Name	Field Name	Field Type	Default Value	Description	Required
File Header	File Type Record Descriptor	Char(5)	FHEAD	Identifies file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	File Type Definition	Char(4)	RDWC	Identifies the file as a Retail Analytics Cashier/Register Totals file.	Yes
	File Create Date	Numeric(14)	Create date	Date the file was written by the external system. Format YYYYMMDDHH24 MISS	Yes
File Detail	File Type Record Descriptor	Char(5)	FDETL	Identifies the transaction record type.	

Record Name	Field Name	Field Type	Default Value	Description	Required
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes
	Business date	Number(8)		Format YYYYMMDD	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier.	Yes
	Cashier Identifier	Char(10)		The cashier number.	If Cashier_id is NULL, then Register_id has value. If Cashier_id has value, then Register_id is NULL. Yes, -1 for null
	Register ID	Char(5)		The register identifier.	If Cashier_id is NULL, then Register_id has value. If Cashier_id has value, then Register_id is NULL. Yes, -1 for null
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Total ID	Char(10)		Category identifier used to determine the type of total.	Yes
	Reference Number 1	Char(30)			No
	Reference Number 2	Char(30)			No
	Reference Number 3	Char(30)			No
File Trailer	Total Sign	Char(1)	P - positive N - negative		Yes
	Total Amount	Number(20)		Total over/short amount, with 4 implied decimal places.	Yes
	File Type Record Descriptor	Char(5)	FTAIL	Identifies the file record type.	
	File Line Identifier	Number(10)	Specified by external system	ID of the current line being processed by input file.	Yes

Record Name	Field Name	Field Type	Default Value	Description	Required
	File Record Counter	Number(10)		Number of records/transactions processed in the current file (only records between head and tail).	Yes

Cashier/ Register Totals Information after Translation by resa2dw

Record Name	Field Name	Field Type	Default Value	Description	Required
	Business date	Number(8)		Format YYYYMMDD	Yes
	Location	Number(10)	Specified by external system	Store or warehouse identifier	Yes
	Cashier Identifier	Char(10)		The cashier number	If Cashier_id is NULL, then Register_id has value. If Cashier_id has value, then Register_id is NULL. Yes, -1 for null
	Register ID	Char(5)		The register identifier.	If Cashier_id is NULL, then Register_id has value. If Cashier_id has value, then Register_id is NULL. Yes, -1 for null
	Sales Sign	Char(1)	P - positive N - negative	Determines if the Total Sales Quantity and Total Sales Value are positive or negative.	Yes
	Total ID	Char(10)		Category identifier used to determine the type of total.	Yes
	Reference Number 1	Char(30)			No
	Reference Number 2	Char(30)			No
	Reference Number 3	Char(30)			No
	Total Sign	Char(1)	P - positive N - negative		Yes

Record Name	Field Name	Field Type	Default Value	Description	Required
	Total Amount	Number(20)		Total over/short amount, with 4 implied decimal places.	Yes

Design Assumptions

NA

saexpsim (Export of Revised Sale/Return Transactions from ReSA to SIM)

Module Name	Saexpsim.pc
Description	Export of Revised Sale/Return Transactions from ReSA to SIM
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA14

Design Overview

The purpose of this batch module is to fetch all revised sale and return transactions that do not have SIM errors from the ReSA database tables for transmission to SIM. It retrieves all quantity revision transaction data for SALES, RETURN, EEXCH, VOID, and SPLORD transaction types.

If sa_system_options.unit_of_work is S, the whole store/day is skipped if any SIM error is found. If this value is T, then only transactions with SIM errors are skipped.

The batch will only export transactions whose quantity has been revised. The batch will write these revised transactions to the output file along with a reversal of the quantity.

A file of type SIMT is generated for each store/day.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Scheduling Considerations	This program should run towards the end of the Sales Auditing cycle where the total (SATOTALS.PC) and rule (SARULES.PC) data are ready to be exported to the external systems.
Pre-Processing	Satotals, sarules, sapreexp
Post-Processing	saprepost saexpsim post, resa2sim
Threading Scheme	Multi-threaded by store

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Records will be fetched, updated, and inserted in batches of `pl_commit_max_ctr`. Only two commits will be done, one to establish the store/day lock and another at the end, to release the lock after a store/day has been completely processed. The SIMT formatted output file will be created with a temporary name and renamed just before the end of store/day commit.

In case of failure, all work done will be rolled back to the point right after the call to `get_lock()` and the lock released. Thus, the rollback segment should be large enough to hold all inserts into `SA_EXPORTED` for one store/day.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	Yes	No
V_RESTART_STORE	Yes	No	No	No
STORE	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_ERROR_IMPACT	Yes	No	No	No
SA_EXPORTED	Yes	Yes	No	No
SA_TRAN_HEAD_REV	Yes	No	No	No
SA_EXPORTED_REV	Yes	No	No	No
SA_SYSTEM_OPTIONS	Yes	No	No	No
SA_TRAN_ITEM_REV	Yes	No	No	No
ITEM_MASTER	Yes	No	No	No
SA_TRAN_ITEM	Yes	No	No	No
SA_STORE_DAY_READ_LOCK	No	Yes	No	Yes

Integration Contract

Integration Type	Download from ReSA
File Name	SIMT_ appended by store number, business date, and system date
Integration Contract	IntCon000045

Output File

Record Name	Field Name	Field Type	Default Value	Description
FHEAD	Record descriptor	Char(5)	FHEAD	Identifies the file record type.
	File Line Id	Char(10)	0000000001	Sequential file line number.

Record Name	Field Name	Field Type	Default Value	Description
THEAD	File type definition	Char(4)	SIMT	Identifies the file type.
	Store	Number(10)		Store location.
	Business Date	Char(8)		Business Date in YYYYMMDD format.
	File Create Date	Char(14)		File Create Date in YYYYMMDDHHMMSS format.
	Record descriptor	Char(5)	THEAD	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Transaction Number	Number(10)		Transaction Identifier.
	Revision Number	Number(3)		Revision Number of the transaction.
	Transaction date	Char(14)		Transaction date in YYYYMMDDHHMMSS format. Corresponds to the date that the transaction occurred.
	Transaction Type	Char(6)		Transaction Type.
TDETL	POS Transaction Indicator	Char(1)		Indicates if the transaction was received from POS or manually created. Valid values: Y - POS N - Manual
	Record descriptor	Char(5)	TDETL	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Item Sequence Number	Number(4)		Item sequence number.
	Item	Char(25)		Identifies the merchandise item.
	Item number type	Char(6)		Identifies the type of item number if the item type is ITEM or REF.
	Item Status	Char(6)		Status of the item within the transaction, V for item void, S for sold item, R for returned item. ORI - Order Initiate ORC - Order Cancel ORD - Order Complete LIN - Layaway Initiate LCA - Layaway Cancel LCO - Layaway Complete
	Serial Number	Char(128)		Unique ID.
	Pack Indicator	Char(1)		Pack Indicator.

Record Name	Field Name	Field Type	Default Value	Description
	Catchweight Indicator	Char(1)		Catchweight Indicator.
	Quantity Sign	Char(1)		Sign of the quantity.
	Quantity Value	Number(12)		Number of items, with 4 implied decimal places.
	Standard Unit of Measure	Char(4)		Standard Unit of Measure of the item.
	Selling Unit of Measure	Char(4)		Unit of Measure of the quantity value.
	Waste Type	Char(6)		Waste Type.
	Waste Percent	Number(12)		Waste Percent.
	Drop Ship Indicator	Char(1)		Indicates whether the item is part of a drop shipment.
	Actual Weight	Number(12)		Contains the weight of the item sold, with 4 implied decimal places.
	Actual Weight Sign	Char(1)		Sign of the actual weight.
	Reason Code	Char(6)		Reason entered by the cashier for some transaction types.
	Sales Value	Number(20)		Transaction value, with 4 implied decimal places
	Sales Value Sign	Char(1)		Transaction value sign.
	Unit Retail	Number(20)		Unit retail, with 4 implied decimal places.
	Sales Type	Char(1)		Indicates if the transaction is an In Store Customer Order, External Customer Order, or Regular Sale.
	Customer Order Number	Char(48)		Contains the customer order ID.
	Customer Order Type	Char(6)		Customer order type.
	Fulfillment Order Number	Char(48)		Contains the order ID of the fulfillment order.
TTAIL	Record descriptor	Char(5)	TTAIL	Identifies the file record type.
	File Line Id	Char(10)		Sequential file line number.
	Tran Record Counter	Number(6)		Number of TDETL records in this transaction set.
FTAIL	Record descriptor	Char(5)	FTAIL	Identifies the file record type.
	File Line Id	Number(10)		Sequential file line number.

Record Name	Field Name	Field Type	Default Value	Description
	File Record counter	Number(10)		Number of records/transactions processed in the current file (only records between head and tail).

Design Assumptions

NA

saexpim (Export DSD and Escheatment from ReSA to Invoice Matching)

Module Name	saexpim.pc
Description	Export DSD and Escheatment from ReSA to Invoice Matching
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA04

Design Overview

The purpose of this program is to support interfacing invoices from Direct Store Delivery and Escheatment sales audit transactions to the Oracle Retail Invoice Matching (ReIM) application. Direct Store Delivery invoices refer to products or services that are delivered to the store and paid for at the store. This program will take DSD invoices that have been staged to the SA_TRAN_HEAD table by the saimptlog.pc program and move them into the INVC_HEAD table. All DSD transactions will be assumed paid. They can be assumed received if there is a proof of delivery number listed on them. Transactions with a vendor invoice ID or a proof of delivery number should be matched to any existing invoice in INVC_HEAD, and that invoice updated with the new information being interfaced. Invoices that do not match an existing invoice in INVC_HEAD will need to be inserted. Each transaction will be exported to INVC_HEAD table only once.

The Sales Audit Transaction type used to identify invoices for Direct Store Delivery transactions will be Paid Out. The Paid Out transaction has a code of PAIDOU. The Sales Audit sub-transaction types will be used to identify whether the invoice is an Expense Vendor Payout or a Merchandise Vendor Payout. The codes are EV for Expense Vendor Payout and MV for Merchandise Vendor Payout. Any Paid Out transaction with a sub-transaction type of Expense Vendor will create a non-merchandise invoice and cause a record to be written to the INVC_NON_MERCH table. ReSA will store non-merchandise codes in the reason_code field on sa_tran_head. Valid values for these reason codes should correspond to the codes stored on the non_merch_code_head table.

In addition to DSD invoices, this program will also interface Escheatment totals to Invoice Matching. Escheatment is the process where an unredeemed gift certificate/voucher or credit voucher will, after a set period of time, be paid out as income to the issuing retailer, or in some states, the state receives this escheatment income. ReSA will be the governing system that determines who receives this income, but Invoice Matching will send the totals, with the related Partner, to an Accounts Payable system. Escheatment information will be stored on the ReSA SA_TOTALS table

and will be used to create non-merchandise invoices in Invoice Matching. These invoices will be assumed not paid.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This module should be executed after the ReSA transaction import process after sapreexp. Ideally, after saescheat (if run before, some transactions will not be posted until the next run).
Pre-Processing	Sapreexp, saescheat
Post-Processing	N/A
Threading Scheme	N/A

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Records will be fetched, updated, and inserted based on the commit_max_ctr specified on the restart_control table. Only two commits will be done, one to establish the store/day lock and another at the end, to release the lock after a store/day has been completely processed.

In case of failure, all work done will be rolled back to the point right after the call to get_lock and releases the lock. Thus, the rollback segment should be large enough to hold all inserts into sa_exported for one store_day.

Key Tables Affected

Table	Select	Insert	Update	Delete
SYSTEM_OPTIONS	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_TRAN_TENDER	Yes	No	No	No
SA_EXPORTED	Yes	Yes	No	No
INVC_HEAD	Yes	Yes	Yes	No
INVC_NON_MERCH	No	Yes	Yes	No
INVC_XREF	No	Yes	No	No
TERMS	Yes	No	No	No
SUPS	Yes	No	No	No
PARTNER	Yes	No	No	No
CURRENCY_RATES	Yes	No	No	No
ADDR	Yes	No	No	No

Table	Select	Insert	Update	Delete
SA_ERROR	Yes	No	No	No
SA_ERROR_IMPACT	Yes	No	No	No

Integration Contract

Integration Type	Download from ReSA
File Name	NA
Integration Contract	IntCon000043 INVC_HEAD table

Design Assumptions

NA

saexpgl (Post User Defined Totals from ReSA to General Ledger)

Module Name	saexpgl.pc
Description	Post User Defined Totals from ReSA to General Ledger
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA09

Design Overview

The purpose of this module is to post all properly configured user-defined ReSA totals to a general ledger application (Oracle or PeopleSoft). Totals without errors will be posted to the appropriate accounting ledger, as defined in the Sales Audit GL cross-reference module. Depending on the unit of work system parameter, the data will be sent at either the store/day or individual total level. Newly revised totals, that have already been posted to the ledger, will have their previous revision reversed, and the new total posted to the appropriate accounts. Transactions that are from previous periods will be posted to the current period.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This program should run after the ReSA Totaling process (satotals.pc) and Audit Rules process (sarules.pc) and sapreexp.pc.
Pre-Processing	Satotals. Sarules, sapreexp

Schedule Information	Description
Post-Processing	N/A
Threading Scheme	N/A

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Records will be fetched, updated, and inserted in batches the size of commit max counter. Only one commit will be done after a store/day has been completely processed. A call to release_lock() performs a commit.

Key Tables Affected

Table	Select	Insert	Update	Delete
SYSTEM_OPTIONS	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	Yes	No
STORE	Yes	No	No	No
SA_FIF_GL_CROSS_REF	Yes	No	No	No
STG_FIF_GL_DATA	No	Yes	No	No
IF_ERRORS	No	Yes	No	No
SA_EXPORTED	No	Yes	Yes	No
MV_LOC_SOB	Yes	No	No	No
KEY_MAP_GL	No	Yes	No	No
SA_GL_REF_DATA	No	Yes	No	No
SYSTEM_VARIABLES	Yes	No	No	No

Integration Contract

Integration Type	Download from ReSA
File Name	N/A
Integration Contract	IntCon000019 STG_FIF_GL_DATA

Design Assumptions

NA

ang_saplgen (Extract of POS Transactions by Store/Date from ReSA for Web Search)

Module Name	ang_saplgen.pc
Description	Extract of POS Transactions by Store/Date from ReSA for Web Search

Functional Area	Oracle Retail Sales Audit (ReSA)
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RMS162

Design Overview

The purpose of this batch module is to fetch all corrected sale and return transactions that do not have RMS errors from the ReSA database tables for transmission to an external web search engine. If the transaction has a status of Deleted or Post Voided and has previously been transmitted, a reversal of the transaction will be sent. A file of type POSLOG is generated for each store/day.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This program should run towards the end of the Sales Auditing cycle and before SAEXPRMS.PC.
Pre-Processing	N/A
Post-Processing	N/A
Threading Scheme	Multi-threaded by store

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Records will be fetched, in batches of pl_commit_max_ctr. The POSLOG formatted output file will be created with a completion of store/day looping.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_TRAN_ITEM	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	No	No
SA_EXPORTED	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_ERROR_IMPACT	Yes	No	No	No
STORE	Yes	No	No	No
ITEM_MASTER	Yes	No	No	No
ITEM_LOC	Yes	No	No	No
DEPS	Yes	No	No	No

Table	Select	Insert	Update	Delete
CODE_DETAIL	Yes	No	No	No
RPM_ITEM_ZONE_PRICE	Yes	No	No	No
RPM_ZONE_LOCATION	Yes	No	No	No

Integration Contract

Integration Type	Download from ReSA
File Name	POSLOG_<store>_<business date>_<system date>.xml
Integration Contract	IntCon000018

Output File Layout

Record Name	Field Name	Field Type	Default Value	Description
	BatchID	CHAR(18)		A concatenation of store number and business date for a store.
	RetailStoreID	CHAR(10)		The store number for which the POSLog file has to be extracted.
	WorkStationID	CHAR(5)		RegistryID for the store.
	TillID	CHAR(5)		RegistryID for the store.
	SequenceNumber	CHAR(10)		Point of Sale system defined transaction number associated with a transaction.
	BeginDate	CHAR(8)		Starting date time of the transaction.
	EndDate	CHAR(8)		End date time of the transaction.
	CurrencyCode	CHAR(3)		Code of the currency used during the transaction.
	VoidFlag	CHAR(5)		Indicates if the item in the transaction is voided or not. Valid values are TRUE and FALSE.
	Item_Status	CHAR(40)		Status of the item is required for voided, exchanged, or returned item.
	MerchandisingHierarchy	CHAR(4)		Department number to which the item belongs.
	Description	CHAR(250)		Item description that has been sold.
	Item	CHAR(25)		Item number.

Record Name	Field Name	Field Type	Default Value	Description
	TaxIncludedIn Price	CHAR(5)		Indicates if the item is being taxed or not. Valid values are TRUE and FALSE.
	RegularSalesUnitPrice	CHAR(20)		Field holds the unit retail in the standard unit of retail for the item/location combination.
	ActualSalesUnitPrice	CHAR(20)		Retail price for the item.
	ExtendedAmount	CHAR(20)		Total sales for the item in the detail level.
	Qty	CHAR(21)		Unit sold of the item.

Design Assumptions

NA

saescheat (Download of Escheated Vouchers from ReSA for Payment)

Module Name	saescheat.pc
Description	Download of Escheated Vouchers from ReSA for Payment
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA05

Design Overview

The laws of individual states and countries may require a retailer to return monies for aged, unclaimed gift certificates, and vouchers. This process is called escheatment. This program writes records for this data to tables that are read into Oracle Retail Invoice matching (ReIM) by the program saexpim.pc. The data can then be sent as invoices approved for payment to a financial application.

The saescheat batch program will set the status of vouchers that have met certain state's escheats rules or have expired to the proper status and produce a total for later export to Invoice Matching.

The rules for escheatment are defined on the sa_escheatment_options table. This program calls the function nextEscheatSeqNo () in saescheat_nextesn batch program, which will select a block of available sequence numbers.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc

Schedule Information	Description
Frequency	Monthly
Scheduling Considerations	Should run after ReSA Totaling and Auditing process (satotals.pc and sarules.pc) and before the export to Invoice Matching (saexpim.pc) and Sales Audit purge (sapurge.pc).
Pre-Processing	N/A
Post-Processing	N/A
Threading Scheme	N/A

Restart/Recovery

The logical unit of work is a store/day. The program commits when the number of store/day records processed has reached the commit_max_ctr.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	No	No
SA_VOUCHER	Yes	No	Yes	No
STORE	Yes	No	No	No
ADDR	Yes	No	No	No
SA_VOUCHER_OPTIONS	Yes	No	No	No
SA_ESCHEAT_VOUCHER	No	Yes	No	No
SA_ESCHEAT_TOTAL	No	Yes	No	No
SA_ESCHEAT_OPTIONS	Yes	No	No	No
COMPHEAD	Yes	No	No	No

Integration Contract

Integration Type	Download from ReSA
File Name	N/A
Integration Contract	IntCon000039

Design Assumptions

NA

saescheat_nextesn (Generate Next Sequence for Escheatment Processing)

Module Name	saescheat_nextesn.pc
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Description	Generate Next Sequence for Escheatment Processing
Functional Area	Oracle Retail Sales Audit
Module Type	Admin
Module Technology	ProC
Integration Catalog ID	RSA25

Design Overview

This batch program gets the next free sequence for use in the saescheat.pc process. This routine goes and gets a block of numbers when starting, and parcels them out as needed. Once they are all used up, it gets another block and returns a pointer to the string containing the next available number or NULL if an error occurs.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Monthly
Scheduling Considerations	This process is executed as a part of the saescheat.pc processing.
Pre-Processing	NA
Post-Processing	NA
Threading Scheme	NA

Restart/Recovery

NA

Key Tables Affected

Table	Select	Insert	Update	Delete
ALL_SEQUENCES	Yes	No	No	No
SYSTEM_OPTIONS	Yes	No	No	No

Design Assumptions

NA

saexpach (Download from ReSA to Account Clearing House (ACH) System)

Module Name	saexpash.pc
Description	Download from ReSA to Account Clearing House (ACH) System

Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA03

Design Overview

This module will post store/day deposit totals to the SA_STORE_ACH table and bank deposit totals for a given day in a file formatted for export to an ACH (Account Clearing House). The ACH export deviations from the typical Sales Audit export in that store/days must be exported even though errors may have occurred for a given day or store (depending on the unit of work defined), and also, the store/day does not need to be closed for the export to occur. The nature of the ACH process is such that as much money as possible must be sent as soon as possible to the consolidating bank. Any adjustments to the amount sent can be made using the sabnkach screen in the online system.

Deposits for store/days that have not been Fully (F) loaded will not be transferred to the consolidating bank. After they are fully loaded, their deposits will be picked up by the next run of this program.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This module should be run towards the end of the Sales Auditing cycle where the total (SATOTALS.PC) and rule (SARULES.PC) data are ready to be exported to the external systems.
Pre-Processing	SAPREEXP.PC (preprocessing of sales auditing export modules that require totals), SATOTALS.PC and SARULES.PC
Post-Processing	NA
Threading Scheme	NA

Restart/Recovery

This module is in two distinct parts, with two different logical units of work. Thus, restart/recovery has to be implemented so that the first part does not get reprocessed in case the program is being restarted. Details on the implementation follow.

The first driving cursor in this module retrieves a store/day to generate ACH totals. Once the first cursor is complete, the second retrieves bank locations by account numbers.

The first Logical Unit of Work (LUW) is defined as a unique store/day combination. Records will be fetched, using the first driving cursor, in batches of commit_max_ctr, but processed and committed one store/day at a time.

The first driving cursor will fetch all store/days that have been Fully Loaded (F), whose audit status is Audited (A), HQ Errors Pending (H), or Store Errors Pending (S) and that

are ready to be exported to ACH. Before processing starts, a write lock is obtained using `get_lock ()`. This driving cursor only fetches store/days with a `sa_export_log.status` of `SAES_R`. After a store/day is processed, `sa_export_log.status` is set to `SAES_P` so that this store/day will not be selected again if the program is restarted. The commit is performed using `retek_force_commit` after each store/day has been processed and `sa_export_log` updated, so as to release the lock.

In case a store/day could not be processed due to locking, the store/day information is placed on a list (called locked store/day list) and the next store/day is processed. This list is kept in memory and is available only during processing. If the store for a store/day obtained from the first driving cursor, is on the locked store/day list, then this store/day cannot be processed. This is the case because there is a data dependency such that data from a particular store/day is dependent on data for the same store but at an earlier date. Thus, if a store/day cannot be processed, then subsequent store/days for the same store cannot be processed either. After the driving cursor returns no more data, the program attempts to process each store/day on the list two more times. If the store/day is still locked, then it is skipped entirely and a message is printed to the error log.

The second LUW is a bank account number. Again, records will be fetched in batches of `commit_max_ctr`. The second driving cursor cannot retrieve information by the LUW because it is possible for the store's currency to be different from the local bank's currency. In that case, a currency conversion is needed.

For each store/day, the query should retrieve the required ACH transfer. The latter is determined by adding the estimated deposit for the next day, the adjustment to the estimate for the current day, and any manual adjustment to the estimate.

Since a store can be associated with different accounts at different banks, only accounts that are consolidated should be retrieved. Since it is possible for the local bank to be in a different country than the consolidating bank, the currency of the partner should also be fetched.

Since processing is dependent on the type of account at the RDFI, the account type should be fetched by this cursor.

Due to differences in transaction processing in cases when the bank is outside the United States, the partner's country should also be fetched. The results of the query should be sorted by partner country. The results of the query should also be ordered by accounts.

Security Considerations

The fact that this program automates the transfer of funds on behalf of the user makes it a likely target for electronic theft. It must be made clear that the responsibility of electronic protection lies with the users themselves.

Following are some tips and recommendation to users:

- A specific user should be used to run the program. This user would be the only one (or one of a few) who has access to this program.
- The umask for this user should be set up so as to prevent other users from reading/writing its files. This would ensure that when the output file is created, it would not be accessible to other users.
- The appropriate permissions should be set up on the directory, which holds the ACH files. The most restrictive decision would be to not allow any other user to view the contents of the directory.
- The password to this user should be kept confidential.
- A secure means of communication should be implemented for transferring the file from where it has been created to the ACH network. This may be done through

encryption, or by copying the file to a disk and trusting the courier to deliver the files intact.

- The ACH network needs to be secure.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_ACH_INFO	Yes	No	No	No
COMPHEAD	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
COMPANY_CLOSED	Yes	No	No	No
COMPANY_CLOSED_EXCEP	Yes	No	No	No
LOCATION_CLOSED	Yes	No	No	No
SA_STORE_ACH	Yes	Yes	Yes	No
SA_BANK_STORE	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	Yes	No
STORE	Yes	No	No	No
PARTNER	Yes	No	No	No
CURRENCY_RATES	Yes	No	No	No
SA_BANK_ACH	Yes	Yes	Yes	No

Integration Contract

Integration Type	Download from ReSA
File Name	ACH_ appended with the consolidating routing number, consolidating account number, and current system date.
Integration Contract	IntCon000040

Output File

Record Name	Field Name	Field Type	Default Value	Description
ACH File Header	Section No.	Number(3)	101	Constant number.
	Console Route No	Number(10)		The routing number of the consolidating bank.
	Sender ID	Char(10)		ID used by the Originator to identify itself.
	Current Date	Char(6)		Vdate in YYMMDD format.
	Day Time	Char(4)		Time of file creation in HH24MM format.
	File Header No.	Number(7)	0094101	Constant number.

Record Name	Field Name	Field Type	Default Value	Description
ACH CCD Batch Header	Console Bank Name	Char(23)		Name of the Originating Financial Depository Institution.
	Company Name	Char(23)		The name of the company name.
	Ref Code	Char (8)		Reference code.
	Section No.	Number(4)	5225	Constant number.
	Company Name	Char(16)		The name of the company.
	Comp Disc Data	Char(20)	NULL	Any kind of data specific to the company.
	Comp Id	Char(10)		Alphanumeric code to identify the company.
	CCD Header Id	Char(3)	CCD	Constant value.
	Comp Entry Desc	Char(10)	"CONSOL"	A short description from the Originator about the purpose of the entry.
	Tomorrow	Char(6)		Vdate+1 in YYMMDD format.
	Tomorrow	Char(6)		Vdate+1 in YYMMDD format.
	Settle Date	Char(3)	NULL	This is inserted by receiving the ACH Operator.
	Reserved	Number(1)	1	Constant number.
	Odfi Id	Number(8)		8-digit routing number of the ODFI.
ACH CBR Batch Header	Batch No	Number(7)		Batch number.
	Section No.	Number(4)	5225	Constant number.
	Company Name	Char(16)		The name of the company.
	Reserved	Char(3)	FV1	Constant value.
	Exch Rate	Number(15)		Exchange rate for the specified currency.
	Reserved	Char(2)	US	Constant value.
	Comp Id	Char(10)		Alphanumeric code to identify the company
	CBR Header Id	Char(3)	CBR	Constant value.
	Comp Entry Desc	Char(10)	"CONSOL"	A short description from the Originator about the purpose of the entry.
	Partner Curr Code	Char(3)		Code identifying the currency the partner uses for business transactions.
	Reserved	Char(3)	USD	Constant value.
	Tomorrow	Char(6)		Vdate+1 in YYMMDD forma.

Record Name	Field Name	Field Type	Default Value	Description
ACH CCD Entry	Settle Date	Char(3)	NULL	This is inserted by the receiving ACH Operator.
	Reserved	Number(1)	1	Constant number.
	Odfi Id	Number(8)		8-digit routing number of the ODFI.
	Batch No	Number(7)		Batch number.
	Section No.	Number(1)	6	Constant number.
	Trans Code	Char(2)		Code used to identify the type of debit and credit. Value accepted are 27 and 37.
	Routing No	Number(9)		Routing number for the bank account.
	Acct No	Char(17)		Account number of the bank.
	Deposit	Number(10)		The amount involved in the transaction* 10000 (4 implied decimal places).
	Id	Char(15)	Null	Identification number. Optional field containing a number used by the Originator to insert its own number for tracing purposes.
	Store Name	Char(22)		Name of the local store.
	Disc Data	Char(2)	Null	Discretionary data. Any kind of data specific to the transaction.
	Reserved	Number(1)	0	Constant number.
ACH CBR Entry	Trace No	Number(15)		Used to uniquely identify each entry within a batch. The first 8 digits contain the routing number of the ODFI and the other 7 contains a sequence number.
	Section No.	Number(1)	6	Constant number.
	Trans Code	Char(2)		Code used to identify the type of debit and credit. Values accepted are 27 and 37.
	Routing No	Number(9)		Routing number for the bank account.
	Acct No	Char(17)		Account number of the bank
	Deposit	Number(10)		The amount involved in the transaction* 10000 (4 implied decimal places).

Record Name	Field Name	Field Type	Default Value	Description
	Id	Char(15)	Null	Identification number. Optional field containing a number used by the Originator to insert its own number for tracing purposes.
	Store Name	Char(22)		Name of the local store.
	Disc Data	Char(2)	Null	Discretionary data. Any kind of data specific to the transaction.
	Reserved	Number(1)	1	Constant number.
	Trace No	Number(15)		Used to uniquely identify each entry within a batch. The first 8 digits contain the routing number of the ODFI and the other 7 contains a sequence number.
ACH CBR Addendum	Section No.	Number(3)	701	Constant number.
	Payment Info	Char(80)	Null	Payment related information.
	Reserved	Number(4)	0001	Constant number.
	Trace Seq No	Number(7)		Sequence number part of the Trace Number of the entry record to which this addendum is referring.
ACH Batch Control	Section No.	Number(4)	8225	Constant number.
	Batch Line Count	Number(6)		The number of entries and addenda in the batch.
	Hash Count	Number(10)		Sum of the RDFI IDs in the detail records.
	Total Batch Debit	Number(12)		Contains the accumulated debit and debit for the file * 10000 (4 implied decimal places).
	Total Batch Credit	Number(12)		Contains the accumulated credit and credit for the file * 10000 (4 implied decimal places).
	Comp Id	Char(10)		An alphanumeric code identifying the company.
	Auth	Char(19)	Null	Message Authentication Code. The first 8 characters represent a code from the Data Encryption Standard (DES) algorithm. The remaining eleven characters are blanks.
	Reserved	Char(6)	Null	Reserved.
	ODFI Id	Number(8)		8-digit routing number of the ODFI.

Record Name	Field Name	Field Type	Default Value	Description
ACH File Control	Batch No	Number(7)	9	Batch number.
	Section No.	Number(1)		Constant number.
	Batch count	Number(6)		The number of batches sent in the file.
	Block count	Number(6)		The number of physical blocks in the file, including both File Header and File Control Records. This is the ceiling of the number of records divided by the blocking factor, which is 10.
	Entry count	Number(8)		The number of entries and addenda in the file.
	Total hash count	Number(10)		Sum of the Entry Hash fields on the Batch Control Records.
	Total file debit	Number(12)		Contains the accumulated debit and debit for the file * 10000 (4 implied decimal places).
ACH Completed Block	Total file credit,	Number(12)	Null	Contains the accumulated credit and credit for the file * 10000 (4 implied decimal places).
	Reserved	Char(39)		Reserved.
	End string	Char(94)		Mark the end of the file: a string of 94 '9' characters. The number of end lines with a string of 94 '9' characters is identified by the following equation: $10 - \text{mod}(\text{number of lines in the file}, 10)$.

Design Assumptions

Oracle Retail assumes that there is only one total to be exported for ACH per store/day.

saexpuar (Export to Universal Account Reconciliation System from ReSA)

Module Name	saexpuar.pc
Description	Export to Universal Account Reconciliation System from ReSA
Functional Area	Oracle Retail Sales Audit
Module Type	Integration
Module Technology	ProC
Integration Catalog ID	RSA06

Design Overview

The SAEXPUAR program is used to select the lottery, bank deposit, money order, and credit card totals and write them to output files for export to an external account clearing house application. For each store day, saexpuar posts specified totals to their appropriate output files.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This program should run after the ReSA Totaling process and Audit Rules process.
Pre-Processing	Satotals, sarules, sapreexp
Post-Processing	N/A
Threading Scheme	N/A

Restart/Recovery

The logical unit of work for this module is defined as a unique store/day combination. Records will be fetched, updated, and inserted in batches of commit_max_ctr. Only two commits will be done. One to establish the store/day lock (this will be done by the package) and the other is done at the end, after a store/day has been completely processed.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	Yes	No
SA_EXPORTED	No	Yes	Yes	No
SA_EXPORTED_REV	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_TOTAL_HEAD	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_STORE_VALUE	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_TOTAL_USAGE	Yes	No	No	No
SA_STORE_DAY_WRITE_LOCK	Yes	No	No	No
SA_STORE_DAY_READ_LOCK	Yes	Yes	No	Yes

Integration Contract

Integration Type	Download from ReSA
File Name	UAR usage type appended with system date.
Integration Contract	IntCon000046

Output File Layout

The output file will contain one line for each store/day detail record in a comma-delimited format. The fields are surrounded by double quotes. For example, a record for store 1000 on May 20, 2001 with an amount of 19.99 will look something like this:

```
"1","1000","1999","20010520","2","","1","","","","","","","","","MN","RET"
```

Field Name	Field Type	Description
Detail Flag	Char	"1" for detail record.
Store	Number	Store number.
Amount	Number	Total Value * 100 (with 2 implied decimal places).
TranDate	Char	Transaction Date in YYYYMMDD format.
UAR TranCode	Char	Transaction Code. "1" for negative amount, "2" for positive amount.
User Defined Value 1	Char	Ref Number 1 on SA_TOTAL.
User Defined Value 2	Char	Total Seq Number on SA_TOTAL.
User Defined Value 3	Char	Ref Number 2 on SA_TOTAL.
User Defined Value 4	Char	Ref Number 3 on SA_TOTAL.
User Defined Value 5	Char	Not used.
User Defined Value_6	Char	Not used.
User Defined Value 7	Char	Not used.
User Defined Value 8	Char	Not used.
User Defined Value 9	Char	Not used.
User Defined Value 10	Char	Not used.
State	Char	State.
Account	Char	Total Identification on SA_TOTAL.

Design Assumptions

NA

saprepost (Pre/Post Helper Processes for ReSA Batch Programs)

Module Name	saprepost.pc
--------------------	--------------

Description	Pre/Post Helper Processes for ReSA Batch Programs
Functional Area	Oracle Retail Sales Audit
Module Type	Admin
Module Technology	ProC
Integration Catalog ID	RSA26

Design Overview

The Sales Audit pre/post module facilitates multi-threading by allowing general system administration functions (such as table deletions or mass updates) to be completed after all threads of a particular Sales Audit program have been processed.

This program will take three parameters: username/password to log in to Oracle, a program before or after which this script must run, and an indicator of whether the script is a pre or post function. It will act as a shell script for running all pre-program and post-program updates and purges.

saprepost contains the following helper functions, which should be individually scheduled with the related main programs.

Catalog ID	Saprepost Job	Related Main Program
	saprepost saimptlog saimptlogi pre	
	saprepost saimptlog saimptlogi post	
	saprepost sapurge pre	
	saprepost sapurge post	
RSA27	saprepost saexprms post	saexprms
RSA28	saprepost saexpdw post	saexpdw
RSA29	saprepost saordinvexp post	saordinvexp
RSA30	saprepost saexpsfm post	
RSA31	saprepost saexpsim post	saexpsim
RSA32	saprepost (saimptlog) (saimptlogi) pre	Either saimptlog or saimptlogi, depending on which is being run. See the detail design for information about how the two related jobs differ.
RSA33	saprepost saimptlog saimptlogi post	Either saimptlog or saimptlogi, depending on which is being run. See the detail design for information about how the two related jobs differ.
RSA34	saprepost sapurge pre	Sapurge.pc
RSA35	saprepost sapurge post	Sapurge.pc

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	NA
Pre-Processing	NA
Post-Processing	NA
Threading Scheme	NA

Restart/Recovery

NA

Key Tables Affected

Table	Select	Insert	Update	Index	Delete	Truncate	Trigger
SA_EXPORT_LOG	Yes	Yes	No	No	No	N	No
SA_STORE_DAY	Yes	No	No	No	No	No	No
SA_TRAN_SEQ_TEMP	No	No	No	No	No	Yes	No
ALL_OBJECTS	Yes	No	No	No	No	No	No
ALL_SYNONYMS	Yes	No	No	No	No	No	No
ALL_CONSTRAINTS	Yes	No	No	No	No	No	No
DBA_OBJECTS	Yes	No	No	No	No	No	No
SA_EXPORTED	No	No	No	Yes	No	No	No
RESTART_PROGRAM_STATUS	Yes	No	Yes	No	No	No	No

Integration Contract

Integration Type	NA
File Name	NA
Integration Contract	NA

Design Assumptions

NA

sapurge (Purge Aged Store/Day Transaction, Total Value and Error Data from ReSA)

Module Name	sapurge.pc
Description	Purge Aged Store/Day Transaction, Total Value and Error Data from ReSA
Functional Area	Oracle Retail Sales Audit
Module Type	Admin
Module Technology	ProC
Integration Catalog ID	RSA21

Design Overview

This program will be run daily to control the size of the tables in the sales audit database. Older information will be deleted to ensure optimal performance of the system as a whole.

Different kinds of data need to be kept in the system for different amounts of time. Transactions, all associated transaction details, and Totals calculated or reported for a store day will be deleted when they meet the following criteria:

- The Business Date for those transactions and totals is older than or equal to today's date minus the days_before_purge parameter set up on the sales audit system parameters.
- No locks exist on the store/day.
- One of the two following statements is true for the store/day:
 - Fully loaded, and all errors either corrected or overridden (sa_store_day.audit_status is A (Audited) and sa_store_day.data_status equals F (Fully loaded)). In addition, there are no outstanding exports (records for the store/day in the sa_export_log table where sa_export_log.status equals R (Ready for export)).
 - Never loaded (sa_store_day.audit_status is U (Unaudited) and sa_store_day.data_status equals R (Ready for import)).

Flash Sales data will be deleted when it meets the following criteria:

- Date is two years before today's date minus the days_before_purge parameter set up on the sales audit system parameters.
- Company open and close dates will also need to be kept for two years plus days_before_purge, so that the historical comparisons in flash sales reporting carry the appropriate weight.

Voucher data will be deleted when it meets the following criteria:

- The redeemed date or the escheat date for the specific voucher type is before today's date minus the purge_no_days on sales audit voucher options table for the corresponding voucher type.

The program can also take in a list of store_day_seq_no to delete. For example, the command line could be: sapurge userid/passwd 1000 1001 1002, where 1000, 1001 and 1003 are store_day_seq_nos that the user wants to delete. These must also meet the criteria defined above. If a store_day_seq_no is passed to this program, but does not meet the criteria, an error will be written out to the error log.

An output file will be created to store a record for each store and business date that was purged. The file name must be passed in at the command line as a parameter to sapurge.

Scheduling Constraints

Schedule Information	Description
Processing Cycle	Ad Hoc
Frequency	Daily
Scheduling Considerations	This program should be run as the last program in the ReSA batch flow. It can be run as part of the daily or monthly ReSA schedules.
Pre-Processing	saprepost sapurge pre
Post-Processing	saprepost sapurge post
Threading Scheme	Threaded by store

Restart/Recovery

Restart/recovery is implicit in purge programs. The program only needs to be run again to restart appropriately.

Key Tables Affected

Table	Select	Insert	Update	Delete
SA_STORE_DAY	Yes	No	Yes	Yes
SA_SYSTEM_OPTIONS	Yes	No	No	No
SA_EXPORT_LOG	Yes	No	No	Yes
SA_TRAN_HEAD_REV	Yes	No	No	Yes
SA_TRAN_ITEM_REV	Yes	No	No	Yes
SA_TRAN_HEAD	Yes	No	No	Yes
SA_TRAN_HEAD_TEMP	Yes	Yes	No	Yes
SA_TOTAL	Yes	No	No	Yes
SA_BALANCE_GROUP	Yes	No	No	Yes
SA_ESCHEAT_TOTAL	Yes	No	No	Yes
SA_VOUCHER_OPTIONS	Yes	No	No	No
SA_EXPORTED	No	No	No	Yes
SA_EXPORTED_REV	No	No	No	Yes
SA_ERROR_REV	No	No	No	Yes
SA_TRAN_TAX_REV	No	No	No	Yes
SA_TRAN_DISC_REV	No	No	No	Yes
SA_TRAN_TENDER_REV	No	No	No	Yes
SA_TRAN_TAX	No	No	No	Yes
SA_TRAN_DISC	No	No	No	Yes

Table	Select	Insert	Update	Delete
SA_TRAN_ITEM	No	No	No	Yes
SA_TRAN_TENDER	No	No	No	Yes
SA_CUST_ATTRIB	No	No	No	Yes
SA_CUSTOMER	No	No	No	Yes
SA_COMMENTS	No	No	No	Yes
SA_ERROR	No	No	No	Yes
SA_POS_VALUE	No	No	No	Yes
SA_POS_VALUE_WKSHT	No	No	No	Yes
SA_SYS_VALUE	No	No	No	Yes
SA_SYS_VALUE_WKSHT	No	No	No	Yes
SA_STORE_VALUE	No	No	No	Yes
SA_HQ_VALUE	No	No	No	Yes
SA_ERROR_WKSHT	No	No	No	Yes
SA_MISSING_TRAN	No	No	No	Yes
SA_IMPORT_LOG	No	No	No	Yes
SA_BANK_ACH	No	No	No	Yes
SA_ESCHEAT_VOUCHER	No	No	No	Yes
SA_STORE_DAY_WRITE_LOCK	No	No	No	Yes
SA_FLASH_SALES	No	No	No	Yes
SA_VOUCHER	No	No	No	Yes
SA_STORE_ACH	No	No	No	Yes
KEY_MAP_GL	No	No	No	Yes
SA_GL_REF_DATA	No	No	No	Yes
SA_TRAN_PAYMENT_REV	No	No	No	Yes
SA_TRAN_IGTAX_REV	No	No	No	Yes
SA_TRAN_ITEM_TEMP	Yes	Yes	No	Yes
SA_TRAN_IGTAX	No	No	No	Yes
SA_TRAN_PAYMENT	No	No	No	Yes

Integration Contract

Integration Type	NA
File Name	An optional output file name is passed into the program as a runtime parameter; the output file lists deleted items.
Integration Contract	NA

Design Assumptions

NA

In-Context Launching Task Flows in Retail Applications

Retail applications can expose select task flows that you can directly launch. This feature is referred to as an in-context launch in a Retail application. You can launch these task flows directly through specific URLs.

Retail applications provide information about the various task flows that you can in-context launch into, including the URLs and the required parameters.

You can use these URLs in other web pages as links. For example, the URL to a task flow that invokes the Store Day Search Flow in a ReSA Application can be added as a link to dashboard report on a BI server. Since access to the task flows are initiated through URL links, the Retail application, with the requested task flow opened in a UI Shell local area, is shown in a new browser instance of either a window or a tab.

Limitations of an In-Context Launch via URLs

This section provides details on how the ReSA application is functionally integrated with other systems (including other Oracle Retail systems). The discussion primarily concerns the flow of ReSA-related business data across the enterprise:

- The In-Context launch feature does not detect if there is a window or tab already open for the Retail application. If you click on a link to a Retail application's task flow, a new browser window or tab opens even though you already have an existing browser window or tab open for that same Retail application.

List of In-Context Launchable Task Flows

The following is the list of in-context launchable task flows:

Source	Mandatory parameter	Optional	Sample Url
StoreDay Search	Store / BusinessDay	AutoExecute, AssignedStores DataStatus, OverAllStatus	http://<host>:<port>/ResaPortal/faces/Home?navModelItemId=SearchStoreDayTF? Store =<store Id>& BusinessDay =< BusinessDay >
Storeday Maintenance	StoreSeqNo/ Store / BusinessDate	TabToDisclose	http://<host>:<port>/ ResaPortal /faces/Home?navModelItemId=MaintainStoreDayTF? StoreSeqNo =<Store day sequence No.>& Store =<Store ID> & BusinessDate =< BusinessDate >
Transaction Maintenance	TransactionSeqNo		http://<host>:<port>/ ResaPortal /faces/Home?navModelItemId=MaintainTransactionTF? TransactionSeqNo=< TransactionSeqNo>

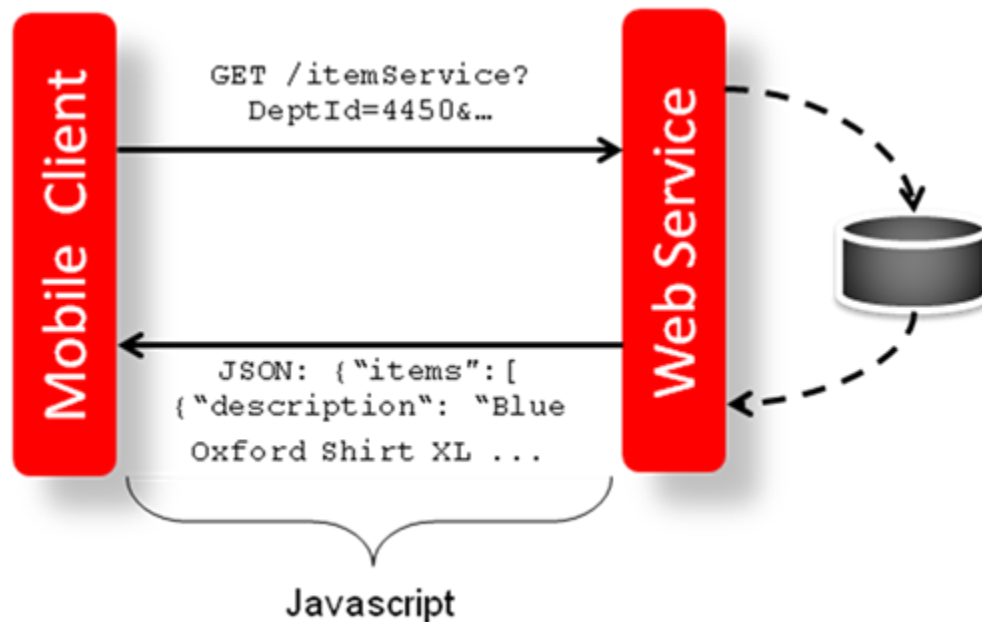
Source	Mandatory parameter	Optional	Sample Url
Transaction Search	TransactionSeq/ StoreId / TranBusinessDate	ErrorExists, AutoExecute	http://<host>:<port>/ ResaPortal /faces/Home?navModelItemId=ManageTransactionTF? TransactionSeq =< TransactionSeq >& Store =<Store ID> & TranBusinessDate =< TranBusinessDate >

ReSA ReSTful Web Service Implementation

This chapter gives an overview about the ReSA ReSTful Web Service Implementation API designs used in the ReSA environment and various functional attributes used in the APIs.

Retailers can access backend functionality in Retail Applications by calling the applications' ReSTful Web Services.

Refer to <http://www.oracle.com/technetwork/articles/javase/index-137171.html> to learn more about ReST as an architectural style applied to building web services.



The services can be used as is for the client's custom mobile application. The ReSTful Web Services Java code cannot be customized, but the MBL PL/SQL functions and object types can be customized for client use. In addition the client can use the RSL tool to create their own custom services in place of the ReSTful Web Services.

Using ReSTful Web Service during Batch Window

The services should not be used during the restricted batch window.

Common Characteristics of Retail Application ReSTful Web Services

Deployment

A Retail Application will package its ReST services as part of the application's Enterprise Archive (EAR) file. Specifically, those services are packaged as a Web Archive (WAR) within the EAR.

Installation of the ReST web services is therefore done by default.

Security

Services are secured using J2EE-based security model.

- Realm-based User Authentication. This verifies users through an underlying realm. The user name and password is passed using Http Basic authentication.
- Role-based Authorization. This assigns users to roles, which in turn are granted or restricted access to resources/services. The authorization of ReSTful web services is static and cannot be reassigned to other rules post-installation.
- The communication between the server and client is encrypted using one way SSL.
- RMS\ReSA user data security are implemented in the APIs.

Standard Request and Response Headers

Retail Application ReSTful web services have the following standard HTTP headers:

```
Accept: application/xml or application/JSON
Accept-Version: 15.0 (service version number)
Accept-Language: en-US,en;q=0.8
```

Depending on the type of the operation or HTTP method, the corresponding response header is updated in the Http response with the following codes:

- GET/READ : 200
- PUT/CREATE : 201 created
- POST/UPDATE : 204
- DELETE : 204

Standard Error Response

Example response payload in case of service error is depicted below:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<messagesRDOes>
  <messagesRDO>
    <message>REST Service Version Mismatch</message>
    <messageType>ERROR</messageType>
    <status>BAD_REQUEST</status>
  </messagesRDO>
</messagesRDOes>
```

- message: The error message - translated.
- messageType: Value of ERROR is returned.
- status : For a bad request or error, the status is BAD_REQUEST.
- The http error code for an error response is 400

URL Path

To access the ReSA ReSTful web services javadoc:

`http://host:port/ResaReSTService`

To access the ReSA ReSTful web services javadoc:

`http://host:port/ResaReSTService/services/private/Resa</service>`

HTTP Header

- **Accept-Version:** the value should match the ReSA release version. Example: 15.0
- **Accept and Content-Type:** determines output/input style. Supported styles are JSON and XML. Example: application/json

Date Format

All output date fields are in long format, and all input date must also be in long format.

Paging

Some of the ReSA ReSTful web services have the potential to bring back a large number of records and, therefore, these services are equipped to segment the result into pages. The page number to retrieve and size of the page are added as input parameters to all the paged services.

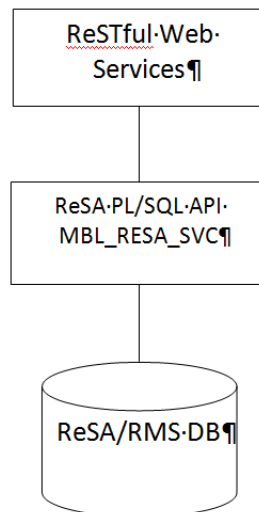
Each paged result will include the following information:

- **Total Record Count:** the number of all records matching the service input criteria.
- **Next Page URL:** the service URL with the same input parameters, but with the pageNumber plus 1 when more records exist.
- **Previous Page URL:** the service URL with same input parameters and the pageNumber input value minus 1 when the page number is not 1.

Both the next and pervious page URL will not be provided when:

- No records are returned.
- When the page number is 1 and there is no previous page.
- When last page of records and there is no next page.

Process Flow for the Web Service APIs



List of ReSTful Web Services

Following are the different ReSTful web services:

Summary of Open Store Days

Business Overview

This service provides, at a glance, the number of open stores for which the sales audit manager is responsible. The stores for which the user is responsible are those associated with the user in ReSA's employee maintenance through location traits.

Service Type

Get

ReST URL

/summaryOpenStoreDay

Input Parameters

No input.

Output

Record Type - DATE, OLDER, ALL

- For record type DATE: five records of type date are displayed for today minus 1 through today minus 5
- One record type OLDER: for store days older than today minus 5
- One record type ALL: for all store days

Record Date - Date of date type rows

Open Store Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No

Summary of Errors

Business Overview

This service provides, at a glance, the number outstanding errors on the specified days for stores for which the sales audit manager is responsible. An outstanding error is defined as an error that exists against a store day that has not been overridden.

Service Type

Get

ReST URL

/summaryError

Input Parameters

No input.

Output

Record Type – DATE, OLDER, ALL

- For record type DATE: five records of type date are displayed for today minus 1 through today minus 5
- One record type OLDER: for store days older than today minus 5
- One record type ALL: for all store days

Record Date – Date of date type rows

Error Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No

Summary of Over/Short Count**Business Overview**

This service provides, at a glance, the count of overages and shortages for all open stores on a given day for which the sales audit manager is responsible. If the Over/Short value for the store day is a positive value, it is considered an overage. If the Over/Short value for the store day is a negative value, it is a shortage.

Service Type

Get

ReST URL

/summaryOverShortCount

Input Parameters

No input.

Output

Record Type – DATE, OLDER, ALL

- For record type DATE: five records of type date are displayed for today minus 1 through today minus 5
- One record type OLDER: for store days older than today minus 5
- One record type ALL: for all store days

Record Date – Date of date type rows

Over Count

Short Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
STORE	Yes	No	No	No

Summary of Over/Short Amount**Business Overview**

This service provides, at a glance, the sum of all overages and shortages for all open stores on a given day for which the sales audit manager is responsible. If all locations to which the user is responsible have the same local currency, all monetary values will be displayed in the local currency. Otherwise, all monetary values will be displayed in the retailer's primary currency. If the Over/Short value for the store day is a positive value, it is considered an overage. If the Over/Short value for the store day is a negative value, it is a shortage.

Service Type

Get

ReST URL

/summaryOverShortAmount

Input Parameters

No input.

Output

Record Type - DATE, OLDER, ALL

- For record type DATE: five records of type date are displayed for today minus 1 through today minus 5
- One record type OLDER: for store days older than today minus 5
- One record type ALL: for all store days

Record Date - Date of date type rows

Over Amount

Short Amount

Currency Code

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
MV_CURRENCY_CONVERSION_RATES	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
STORE	Yes	No	No	No

Get Store Days**Business Overview**

The service displays a list of open stores to which the user is assigned, for a single day, Older days, or All Days.

Service Type

Get

ReST URL

```
/getStoreDays?store={store}&recordType={recordType}&recordDate={recordDate}&sortAttrib={sortAttrib}&sortDirection={sortDirection}&pageSize={pageSize}&pageNumber={pageNumber}
```

Input Parameters

Parameter Name	Required	Description	Valid values
RecordType	Yes	Record Type	ALL, OLDER, DATE
RecordDate	No	Record Date, required when recordType is DATE	
Store	No	Store ID	
SortAttrib	No	Sort Attribute	STORENAME, AUDITOR, OSVALUE, ERRORCNT, DATASTATUS, OPENDAYS, OSDAYS and OSSUMS
SortDirection	No	Sort Direction	ASC, DESC
PageSize	No	Maximum number of locations to retrieve per page	

Parameter Name	Required	Description	Valid values
PageNumber	No	Result page to retrieve	

Output

- Store
- Store Day Seq No
- Auditors
- Business Date
- Store Name
- Chain
- Chain Name
- Data Status
- Data Status Description
- Audit Status
- Audit Status Description
- Audit Changed Datetime
- Fuel Status
- Fuel Status Description
- Over Short Amount
- Currency Code
- Error Count
- Transaction Count
- Loaded File Count
- Expected File Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_SYSTEM_OPTIONS	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
V_CHAIN	Yes	No	No	No
V_CODE_DETAIL	Yes	No	No	No

TABLE	SELECT	INSERT	UPDATE	DELETE
V_STORE	Yes	No	No	No

Get Store Errors

Business Overview

Retrieves the summary of store day errors.

Service Type

Get

ReST URL

/getStoreErrors?store={store}&recordType={recordType}&recordDate={recordDate}

Input Parameters

Parameter Name	Required	Description	Valid values
RecordType	Yes	Record Type	ALL, OLDER, DATE
RecordDate	No	Record Date, required when recordType is DATE	
Store	No	Store ID	

Output

- Store
- Error Code
- Error Description
- Error Percentage

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
SA_ERROR	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
V_SA_ERROR	Yes	No	No	No
V_STORE	Yes	No	No	No

Get Store Aggregations

Business Overview

Retrieves aggregated store day information for all dates or store days older than vdate -5.

Service Type

Get

ReST URL

/getStoreAggregations?allOlderInd={allOlderInd}&stores={stores}&sortAttrib={sortAttrib}&sortDirection={sortDirection}&pageSize={pageSize}&pageNumber={pageNumber}

Input Parameters

Parameter Name	Required	Description	Valid values
AllOlderInd	Yes	search string for locations Id or Name	ALL, OLDER
Stores	No	Comma Separated values for stores	
SortAttrib	No	Sort Attribute	STORENAME, AUDITOR, OSVALUE, ERRORCNT, DATASTATUS, OPENDAYS, OSDAYS and OSSUMS
SortDirection	No	Sort Direction	ASC, DESC
PageSize	No	Maximum number of locations to retrieve per page	
PageNumber	No	Result page to retrieve	

Output

- Store
- Store Name
- Chain
- Chain Name
- Auditors
- Open Days
- Over Days
- Short Days
- Over Amount
- Short Amount
- Currency Code
- Error Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
SA_ERROR	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No

TABLE	SELECT	INSERT	UPDATE	DELETE
SA_ERROR	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
V_CHAIN	Yes	No	No	No
V_STORE	Yes	No	No	No

Store Search

Business Overview

The web service enables store search and returns aggregated store information.

Service Type

Get

ReST URL

/storeSearch?searchString={searchString}&searchFilter={searchFilter}&sortAttrib={sortAttrib}&sortDirection={sortDirection}&pageSize={pageSize}&pageNumber={pageNumber}

Input Parameters

Parameter Name	Required	Description	Valid values
SearchString	Yes	Search string for locations ID or name	
SearchFilter	Yes	Search all stores or assigned stores	ALL, ASSIGN
SortAttrib	No	Sort attribute	STORENAME, AUDITOR, OSVALUE, ERRORCNT, DATASTATUS, OPENDAYS, OSDAYS and OSSUMS
SortDirection	No	Sort direction	ASC, DESC
PageSize	No	Maximum number of locations to retrieve per page	
PageNumber	No	Result page to retrieve	

Output

- Store
- Store Name
- Chain
- Chain Name
- Auditors
- Open Days
- Over Days
- Short Days

- Over Amount
- Short Amount
- Currency Code
- Error Count

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
LOC_TRAITS_MATRIX	Yes	No	No	No
SA_ERROR	Yes	No	No	No
SA_HQ_VALUE	Yes	No	No	No
SA_POS_VALUE	Yes	No	No	No
SA_STORE_DATA	Yes	No	No	No
SA_STORE_DAY	Yes	No	No	No
SA_SYS_VALUE	Yes	No	No	No
SA_TOTAL	Yes	No	No	No
SA_TRAN_HEAD	Yes	No	No	No
SA_USER_LOC_TRAITS	Yes	No	No	No
STORE	Yes	No	No	No
V_CHAIN	Yes	No	No	No
V_STORE	Yes	No	No	No

Get Store Day Date Indicator**Business Overview**

This web service enables the user to find which store days have records that need attention.

Service Type

Get

ReST URL

/getStoreDateInd?store={store}

Input Parameters

Parameter Name	Required	Description
store	Yes	Store ID

Output

Record Type – DATE, OLDER, ALL

- For record type DATE: five records of type date are displayed for today minus 1 through today minus 5
- One record type OLDER: for store days older than today minus 5

- One record type ALL: for all store days

Record Date – Date of date type rows

Store Has Value Indicator

Table Impact

TABLE	SELECT	INSERT	UPDATE	DELETE
SA_STORE_DAY	Yes	No	No	No
V_STORE	Yes	No	No	No

Internationalization

Internationalization is the process of creating software that can be translated more easily. Changes to the code are not specific to any particular market. ReSA is internationalized to support multiple languages.

This section describes configuration settings and features of the software that ensure that the base application can handle multiple languages.

Translation

Translation is the process of interpreting and adapting text from one language into another. Although the code itself is not translated, components of the application that are translated may include the following:

- Graphical user interface (GUI)
- Error messages
- Reports

The following components are not translated:

- Documentation (online help, release notes, installation guide, user guide, operations guide)
- Batch programs and messages
- Log files
- Configuration tools
- Demonstration data
- Training materials

The user interface for ReSA is available in these languages:

- Chinese (simplified)
- Chinese (traditional)
- Croatian
- Dutch
- French
- German
- Greek
- Hungarian
- Italian
- Japanese
- Korean
- Polish
- Portuguese (Brazilian)
- Russian
- Spanish
- Swedish
- Turkish

ReSA User Interface Language

When you first log into ReSA, the user interface will be set to the default language for that installation. The default language is specified in the <default-locale> tag in the faces-config.xml. You can change the language in the User Preferences screen.

There are two dropdown menus for language settings:

- Default
- Current Session

If you change the default language, that language will be the default language whenever you use ReSA. If you change the Current Session, that setting will only affect the current session.

The values for the language menus are set in the faces-config.xml file in the application archive file EarResaPortal.ear (located under the WEB-INF folder in the web archive WarResaPortal.war).

All user data, include default language, is stored internally in the ADF Metadata Stored (MDS) provided by the RAF platform library.

The User Interface strings are stored in a series of xlf files deployed with the application. The data translation for content fetched from the database like rtk_errors or code_detail uses the RMS translation tables like tl_shadow or code_detail_trans.

Unlike RMS which relies on the language code mapped to the database user id, ReSA uses the locale of the logged in application user. The language is set to the database session context RETAIL_CTX. APP_ISO_LANGUAGE. The base RMS data translation packages are changed to refer to RETAIL_CTX. APP_ISO_LANGUAGE if available, otherwise use database user's language to fetch the translated data.