

Oracle Utilities Analytics Warehouse

Oracle Utilities Analytics Warehouse

Installation and Configuration Guide



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1

Oracle Utilities Analytics Warehouse Installation and Configuration

Welcome to the Oracle Utilities Analytics Warehouse documentation. Use this information to learn what steps you need to take to install and configure the Oracle Utilities Analytics Warehouse product version 25.10.0.0.0. Have a question? Contact your Delivery Team or visit [My Oracle Support](#).

Quick Links

- [Get Started](#)
- [System Requirements Supported Platforms](#)
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- [Install and Configure Oracle Utilities Analytics Warehouse](#)
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Get Started

Oracle Utilities Analytics Warehouse (OUAW), previously known as Oracle Utilities Analytics (OUA), is a suite of pre-built analytics products for the utilities industry that supports near real time data extraction from a utility's source application systems using Oracle GoldenGate Microservices (OGG MS), as well as data transformation using Oracle Data Integrator (ODI). Also, this product provides actionable intelligence in its pre-built analytics through Oracle Analytics Server (OAS), which enables business users to make informed decisions.

Product Overview

OUAW consists of a single data warehouse with available data integrations to the following Oracle Utilities source applications (also known as edge applications):

- Oracle Utilities Customer Care and Billing
- Oracle Utilities Customer to Meter
- Oracle Utilities Meter Data Management
- Oracle Utilities Mobile Workforce Management
- Oracle Utilities Work and Asset Management
- Oracle Utilities Network Management System

OUAW also supports end-to-end analytic workflows including the ability to drill back to the source application data. The extractors and schemas are designed with pre-built mapping between the source and the target. Its warehouse is a separate database from the operational database. The data warehousing involves large volumes of data used primarily for analysis. The data warehouse has the following features:

1. Includes pre-built star schemas, pre-built metrics, pre-built reports, and pre-built dashboards.
2. Makes data structures easily accessible for end user reporting needs.
3. Retrieves large volumes of data quickly, which allows for fast rendering of the graphics that showcase key performance indicators (KPIs).
4. Contains star schemas and graphics suited for the data retrieved from various Oracle Utilities edge applications.
5. Provides you with the ability to add star schemas and graphics per your requirements using the required development tools.
6. Supports schema extensibility with built-in user-defined fields, dimensions, and measures.

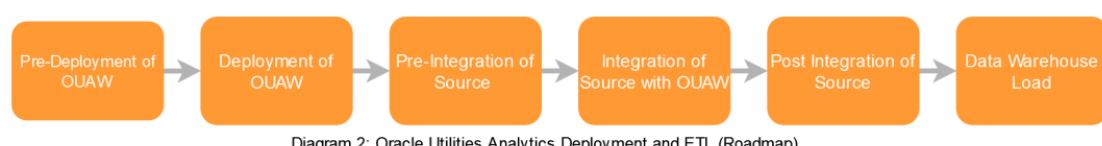
All tables configured to be replicated from edge application databases are replicated to the corresponding replication schema using Oracle GoldenGate. The data in the replication area is transformed into appropriate star schemas using Oracle Data Integrator. Oracle Data Integrator generates the aggregated materialized views based on the star schemas. Oracle Analytics Server is used for presenting the data in the star schemas and the associated materialized views on dashboards for each subject area.

Audience

The intended audience for the documentation on this site is administrators and specialists who must install and configure the OUAW version 2.8.0.2 or higher.

Solution Components

The diagrams below illustrate the solution components of OUAW, and the roadmap for Analytics Deployment and ETL.



Acronyms

The list below defines the acronyms most commonly used in this document.

- APEX: Oracle Application Express
- CC&B: Oracle Utilities Customer Care and Billing
- CDC: Changed Data Capture
- ELT: Extraction, Loading, and Transformation
- ETL: Extraction, Transformation, and Loading
- MDM: Oracle Utilities Meter Data Management
- MWM: Oracle Utilities Mobile Workforce Management
- NMS: Oracle Utilities Network Management System
- OAS: Oracle Analytics Server
- ODI: Oracle Data Integrator
- ODM: Oracle Utilities Operational Device Management
- OGG: Oracle GoldenGate
- OUAW: Oracle Utilities Analytics Warehouse
- OUAF: Oracle Utilities Application Framework

Terminology

This section covers basic terminology related to OUAW and the main products needed for its implementation.

Oracle Utilities Analytics Warehouse

Data Source Indicator

OUAW receives data from multiple source applications. The Data Source Indicator (DSI) is an identifier for the originating source application or system-of-record for the data. Both fact and dimension tables have a DSI value for each record.

Entity

The data warehouse consists of star schemas, which in turn consist of facts and dimensions. Each fact and dimension is considered an entity. We also use materialized views to aggregate data in the facts for improving the analytics performance. These are also considered entities.

Instance

Each deployment of the source product is considered to be an instance of that product. A product instance may include multiple servers in a clustered deployment. Instances differ by the source database connections and possibly by the differing configurations. The Data Source Indicator is unique across instances and products, as this allows you to identify the source of the data in the data warehouse.

Late Arriving Dimension

The late arriving dimensions are the dimensions where the fact (measurable quantities) table records come early when compared to the dimension table records.

Product

A product is the source system or edge application that acts as the source for the transactional data that is loaded in the data warehouse. The following scenarios are expected depending on your global presence and the implementation of your products:

- The edge applications may be deployed in different locations across the globe, and so transactions may occur in multiple time zones.
- There may be multiple instances of each of the source systems that you have implemented.
- Oracle Utilities products support cross-product integration. It is possible that some of the master data is integrated across multiple systems.

Oracle Data Integrator

Agent

An agent is a component that executes the Oracle Data Integrator jobs. Multiple agents can be created and utilized for load balancing.

Change Data Capture

This is the process of identifying and tracking data that has changed since the last known state. The change data capture mechanisms are implemented by the Journalizing Knowledge Modules (JKM).

Context

A context is a collection of logical schemas mapped to physical schemas. All logical schemas may not be mapped to the physical schemas in a context. A context identifies the physical schemas and connections that are utilized for the data access. The interfaces can be executed in any context as this allows reusing the same code for multiple instances.

Interface

An interface is a declarative mapping between the source to the target. It utilizes Loading Knowledge Modules (LKM), Integration Knowledge Module (IKM), and Check Knowledge Module (CKM), as required, for execution. The joins, aggregations, filters, and data transformations are performed in an interface.

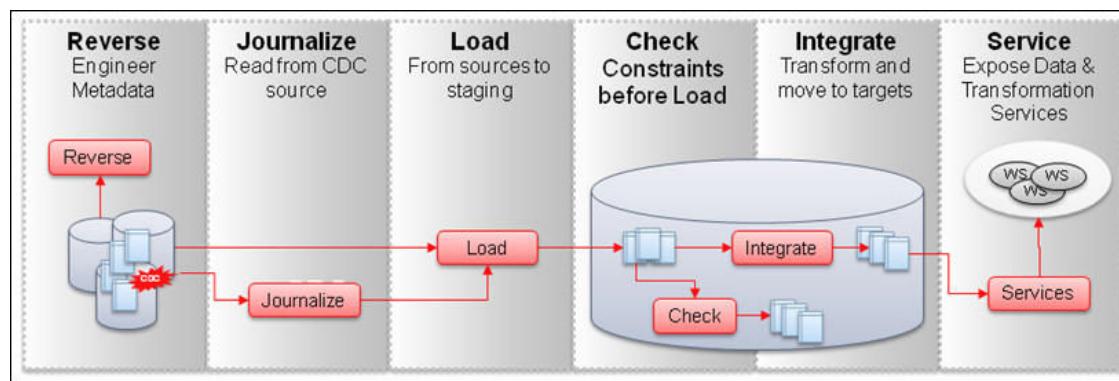
Journalization

This is the process of keeping track of data changes, enabling incremental data access, transport, and transformation.

Knowledge Modules

Oracle Data Integrator Knowledge Modules (KMs) are components that implement reusable transformation and ELT (Extraction, Loading, and Transformation) strategies across different technologies.

- Knowledge modules are code templates. Each KM is dedicated to an individual task in the overall data integration process.
- Knowledge modules may be reused across several interfaces or models so a change made to a KM will be automatically propagated to all of the transformations that include it.
- Knowledge modules are based on logical tasks that are performed. They do not contain references to the physical objects (data stores, columns, physical paths, and so on.).
- Knowledge modules may be written with different programming languages, types, and styles (for example, native RDBMS SQL, scripting languages such as Jython or JavaScript, or even Java).



There are six types of knowledge modules mentioned below. Refer to Oracle Data Integrator documents for more details. Oracle Utilities Analytics Warehouse uses the first four knowledge modules.

1. Reverse-engineering Knowledge Modules (RKM)
2. Loading Knowledge Modules (LKM)
3. Integration Knowledge Modules (IKM)
4. Journalizing Knowledge Modules (JKM)
5. Check Knowledge Modules (CKM)
6. Service Knowledge Modules (SKM)

Logical Schema

A logical schema is a logical representation of a storage location. The same physical schemas can be associated with different logical schemas.

Model

A model is a set of data stores corresponding to data structures contained in a physical schema. The tables, files, JMS messages, and elements from an XML file are represented as data stores.

Package

A package is made up of a sequence of steps organized into an execution diagram.

Physical Schema

A physical schema is the actual schema where data is retrieved or stored.

Reverse Engineering

Reverse engineering is the process of identifying the data structures, constraints, and relations from an existing data store. The data store can be any database management system, files, or any other Oracle Data Integrator supported data store.

Scenario

A scenario is a self-contained prepackaged executable version of a package, interface, or procedure in Oracle Data Integrator. The logic within a scenario cannot be viewed using the Oracle Data Integrator client.

Oracle GoldenGate

Distribution Service

Distribution Service functions as a networked data distribution agent in support of conveying and processing data and commands in a distributed deployment. It is a high-performance application that can handle multiple commands and data streams from multiple source trail files, concurrently. Distribution Service replaces the classic multiple source-side data pumps with a single instance service.

This service distributes one or more trails to one or more destinations and provides lightweight filtering only (no transformations).

Extract

The Extract process is the extraction (capture) mechanism of Oracle GoldenGate. The extract process runs on a source system or on a downstream database, or both, depending on the database and the implementation requirements. When configured for change synchronization, extract process captures the DML and DDL operations that are performed on objects in the Extract configuration. The Extract process stores these operations until it receives commit records or rollbacks for the transactions that contain them. When a rollback is received, the Extract discards the operations for that transaction. When a commit is received, the Extract persists the transaction to disk in a series of files called a trail, where it is queued for propagation to the target system. All of the operations in each transaction are written to the trail as a sequentially organized transaction unit. This design ensures both speed and data integrity.

Service Manager

The Service Manager is the primary watchdog service within Oracle GoldenGate MA that allows you to control and administer the deployments and associated services running on the host server. In the Services we can see how many services are running, failed and other. Service Manager is run as a system service and maintains inventory and configuration information about your deployments and allows you to maintain multiple local deployments. We can use Service Manager to start or stop various services like Administrator server, Distribution server and Receiver server.

Parameter Files

Most Oracle GoldenGate functionalities are controlled by means of parameters specified in the parameter files. A parameter file is a plain text file that is read by an associated Oracle GoldenGate process.

Replicat

The Replicat process runs on the target system, reads the trail on that system, and then reconstructs the DML or DDL operations and applies them to the target database. The Replicat uses the dynamic SQL to compile a SQL statement once, and then execute it many times with different bind variables.

Trail Files

To support the continuous extraction and replication of the database changes, Oracle GoldenGate stores records of the captured changes temporarily on the disk in a series of files called a trail. A trail can exist on the source system, an intermediary system, the target system, or any combination of those systems, depending on how you configure Oracle GoldenGate. On the local system, it is known as an extract trail (or local trail). On a remote system, it is known as a remote trail.

Oracle Analytics Server

Analysis/Report

This is a query that you create on the Criteria tab in Presentation Services. An analysis can optionally contain one or more filters or selection steps to restrict the results.

Business Model and Mapping Layer

The Business Model and Mapping Layer defines the business or logical model of the data and specifies the mapping between the business model and the physical layer schemas. This layer can contain one or more business models. The business model and mapping layer determines the analytic behavior that is seen by users, and defines the superset of objects available to you. It also hides the complexity of the source data models. Sometimes, this layer is also referred to as the logical layer.

Dashboard

An object that provides personalized views of corporate and external information. A dashboard consists of one or more pages. Pages can display anything that you can access or open with a web browser, such as results of analyses, images, alerts from agents, and so on.

Oracle Analytics Server Presentation Catalog

It stores business intelligence objects, such as analyses and dashboards, and provides an interface where you create, access, and manage objects, and perform specific object-based tasks (for example, export, print, and edit). The catalog is organized into folders that are either shared or personal.

Oracle Analytics Server Repository

It is a file that stores Oracle Analytics Server metadata. The metadata defines logical schemas, physical schemas, physical-to-logical mappings, aggregate table navigation, and other constructs. The repository file has an extension of .rpd. Oracle Analytics Server repositories can be edited using the Oracle Utilities Analytics Administration Tool.

Physical Layer

It is a layer of the Oracle Analytics Server repository containing objects that represent physical data constructs from back-end data sources. The physical layer defines the objects and relationships available for writing physical queries. This layer encapsulates source dependencies to enable portability and federation.

Subject Area

In an Oracle Analytics Server repository, a subject area is an object in the presentation layer that organizes and presents data about a business model. It is the highest-level object in the presentation layer and represents the view of the data that you see in Presentation Services.

Oracle Analytics Server repository subject areas contain presentation tables, presentation columns, and presentation hierarchies. In Presentation Services, subject areas contain folders, measure columns, attribute columns, hierarchical columns, and levels.

Deployment Architecture and Components

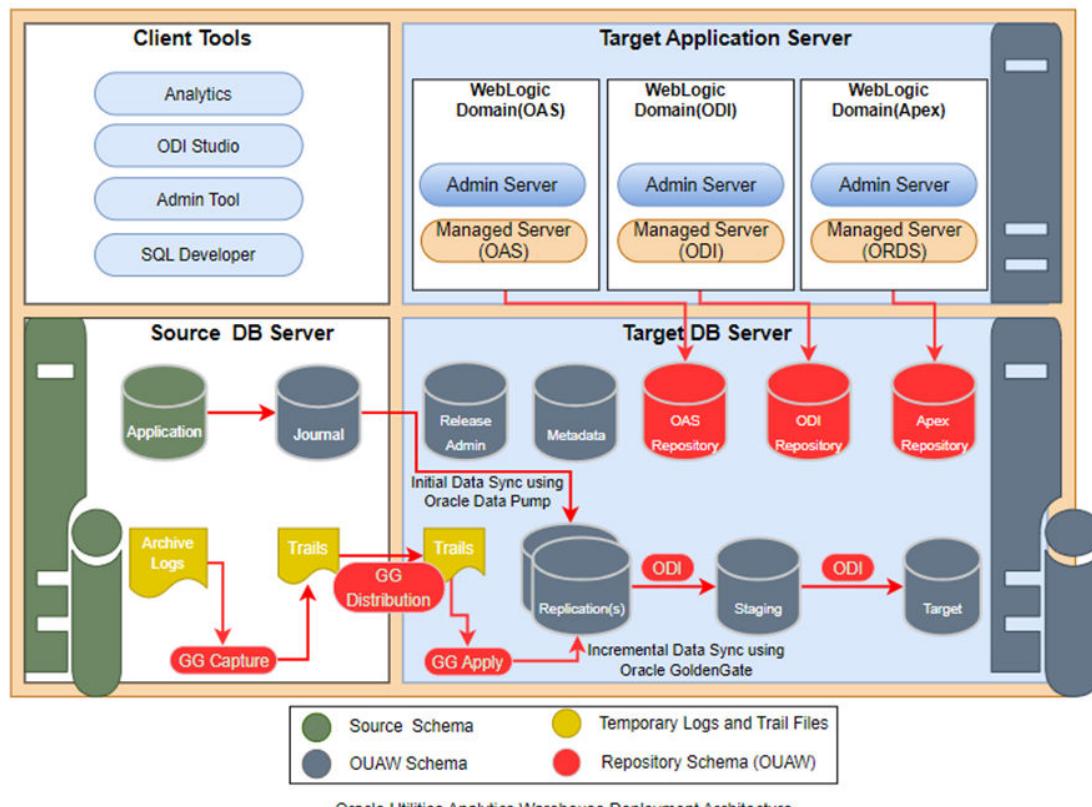
This page describes the standard deployment architecture for Oracle Utilities Analytics Warehouse (OUAW).

Product Overview

Oracle Utilities Analytics Warehouse has four basic components:

- Database
- ETL
- Dashboard
- Administration Tool

The following is a high-level diagram of OUAW's deployment architecture.



Database

The database component of OUAW consists of all required schemes and objects in the database. This section provides a high-level description of the necessary database schemes and their requirements.

Release Administration

This is a metadata schema generated at the time of the database component's installation. It is composed of the database objects that store the product's version number and the information regarding the component's installation.

Metadata

This is a metadata schema generated at the time of the database component's installation. It is composed of the database objects used to store and maintain the ETL configuration. Its layer contains information about the configuration details for each source system, ETL job configuration, scheduling information, execution logs, and others to facilitate the ETL process.

For details about the configurations in the metadata schema, see [Metadata Model](#).

Journal

This schema is generated in the source application database at the time of integrating source with OUAW. It contains the database objects required for the data extraction process. This isolates all data warehouse specific objects from the main transactional system and has read-only access to the base application database objects.

Replication

This schema is a separate layer in the target data warehouse where data from different source systems will be stored. One replication schema is created for each source instance while integrating the source system with OUAW. The table structures of the replication are similar to the source's, but include the timestamps and the operation type columns to facilitate the ETL process.

The key benefits of this layer are:

- Its trickle feed replication process reduces the load on the source system.
- It permits to retain history.
- It facilitates the debugging or tracking back from target to replication.
- It simplifies the loading process by merging data from multiple tables together into a unified view that emulates that of the target fact or dimension structure.

Staging

This schema, generated at the time of installing OUAW, is a separate layer in the target data warehouse. Data will be transformed here before loading into the target schema.

Only one staging schema is created for OUAW, and at the time of deployment there will be no object into this schema. As this layer is to hold intermediate data, objects will be created at the time of loading target dimensions and facts. As data is not persistent in this layer and it will be required to analyze the ETL job failures, it is recommended that business users do not have access to it. A configurable data retention period is implemented to ensure that the volume of data retained is manageable and meaningful. The default retention period is seven days.

Target

This schema, generated at the time of installing OUAW, is a separate layer in the target data warehouse where the final transformed data is stored. Business users will have access to this layer to run their appropriate analytical queries. The schema contains the fact and dimension tables that make up the dimensional model to support users' analytical queries. This is also

called a presentation schema. This schema contains all target dimensions, facts, and materialized views based on which pre-built analytics are built.

ETL

This is a core component of Oracle Utilities Analytics Warehouse (OUAW) that consists of the ETL objects required for extraction of data from the source database into their respective replication schema. It converts and loads final transformed data into target star schemes. This component is built using Oracle fusion middleware technologies such as Oracle Data Integrator and Oracle GoldenGate.

OUAW is usually installed after the transactional systems have been operational for a few years, which implies that during implementation the data warehouse needs to be synchronized with the historical data that has been created in the source system. Extraction of initial source data is performed by the Oracle Database DBMS_DATAPUMP feature. OUAW uses Oracle GoldenGate to change data synchronization.

OUAW uses Oracle Data Integrator for the integration of data and then loads the final transformed data into the target schema. Oracle Data Integrator keeps in the database all objects required for the data integration into schemes, also called repositories, and there are two types of repositories in Oracle Data Integrator: Master and Work.

Master Repository

The Oracle Data Integrator master repository for OUAW stores the following:

- **Connection Information:** JDBC URLs, LDAP information, usernames, and passwords for source or target connections.
- **Security Information:** Usernames, passwords, ODI users privileges, and profiles information.
- **Version Information:** When a new version of an object is created in the ODI, that information is also saved in the Master repository.

Information contained in the master repository is maintained in ODI Studio with the topology and the security navigators. Data contained in the master repository is mostly static data and will be going through minimum changes whenever any topology or security information is added or updated. ODI components access the master repository whenever they need the topology and security information data stored in it.

Work Repository

The Oracle Data Integrator work repositories for OUAW stores the following:

- **Project Information:** Folders, packages, mappings, procedures, variables, sequences, functions, knowledge modules, and so on.
- **Models:** Data store structures, metadata, fields, columns, constraints, and so on.
- **Load Plans and Scenarios:** Scenarios to transform and load data into target entities in the data warehouse.
- **Operations:** Execution details, scheduling information, and logs.

The contents of a work repository are managed by using Designer and Operator navigators. They are also accessed by the agent at run time.

Apart from the master and work repository schema, Oracle Data Integrator requires a few more schemes in the target data warehouse database for the WebLogic domain and agent. These schemes are created by the repository creation utility (RCU) at the time of creating and

configuring the WebLogic domain and the agent for ETL jobs. This is covered in more detail in the [Install and Configure Oracle Utilities Analytics Warehouse](#) section. For more information about ETL framework jobs and their usage, see [ETL Project and Framework Jobs](#).

Dashboard

This is a visual component of OUAW that is built using Oracle Analytics Server. It contains pre-built analytics and visualizations for the utilities industry and populates data from the target data warehouse. The key benefits of this component are:

- It contains analytics for the most important business use cases.
- It supports user customization.
- Customers can extend this component and build their own dashboards and analytics for their specific needs.

Note

Customers must follow a certain approach to extend this component for a smooth upgrade of OUAW. How to extend this component is explained in the Oracle Utilities Analytics Warehouse Developer Guide.

Administration Tool

This tool is an administration component of OUAW that lets you perform tasks such as modifying default metadata configuration, adding or modifying storage parameters, or configuring ETL jobs. See [Administration](#) for more information.

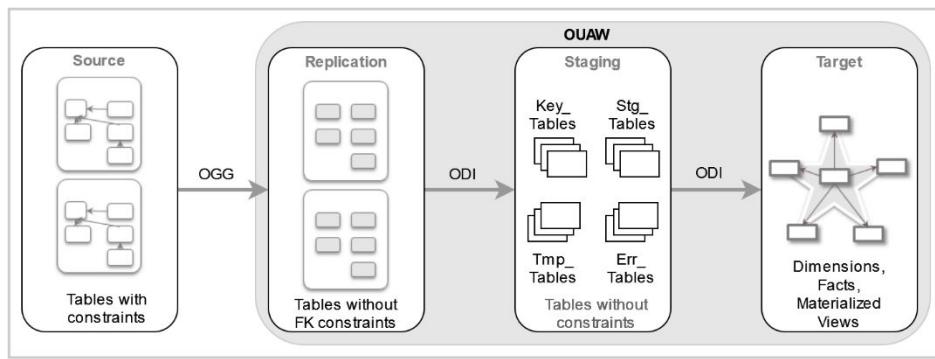
Data Flow

This page describes the standard data flow for Oracle Utilities Analytics Warehouse (OUAW).

Product Overview

Oracle Utilities Analytics Warehouse extracts data from the utilities application source database into the replication layer. After data extraction, it transforms raw data in the staging area, and then loads this transformed data into the target star schemas for business users to consume.

The following image is a high-level diagram of OUAW's data flow.



Basic Data Flow Diagram

Data Extraction (Replication Layer)

The replication layer is the landing zone of OUAW. During the integration of the source database instance with OUAW, there is one replication schema generated for each one of the source instances. These schemas serve to store the extracted data (that is, both existing historical and ongoing change data) from the source. The key benefits of this layer are:

- It can be configured to retain history.
- It facilitates debugging.
- It allows to have multiple parallel loads.
- It is possible to reset and to reload entities.
- It simplifies the loading process by creating replication views and loading target facts and dimensions from them.
- It is possible to configure it to replicate additional tables from source database for user customization purposes.

Note the following details about the replication schema for a source instance in OUAW:

- It contains all the tables that were selected for replication.

Note

There are different types of tables in the replication schema (for example, Overwritten Type, History Type, and so on). The replication table patterns are explained below in this section. See [Replication Table Patterns](#).

- The table and column names in the replication layer will be the same as in the source.
- Additional columns (for example, JRN_*) will be generated, as they are required for the ETL process.

Note

The replication layer table structure is explained below in this section. See [Replication Table Structure](#).

- Tables in the replication layer do not contain any referential integrity, and not null constraints for faster data replication.
- Each table in this schema contains a primary key and an index on a column called JRN_SLICING_TS for faster data processing.
- Some functional indexes are created in the replication schema tables to speed up data processing.

Replication Views

Replication views are metadata-driven views for a specific source instance to simplify the loading of dimensions and facts into the target data warehouse. These views are created during the integration of the source with OUAW. The replication view of a specific target dimension or fact table populates data from one or more dependent replicated tables. It contains all simple and direct transformations in order to simplify the loading of that target entity.

However, for target columns that require complex transformations such as grouping, aggregation, conditional grouping, and so on, it is necessary to make a separate mapping to transform the data into an intermediate staging table and then load it into the target.

Replication Table Patterns

The following table patterns are used when replicating tables from the source. The use of these patterns should be based on how the tables are being used in the source system and on the target entities to be loaded from them.

Pattern	Details
Overwrite (OVRD)	<p>Description: Historical changes for these types of replicated tables are not tracked in the replication layer. These are typically the transactional or the master data used to populate the slowly changing dimension of type 1 dimension or an accumulation fact.</p> <p>Approach:</p> <ul style="list-style-type: none">• Adds a new record to the table in the replication schema when a new record is added from the source.• Overwrites the replication table when an existing record is modified from the source.• The DML operation flag in the target replication schema is set to D for rows deleted from the source. <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"><p> ⓘ Note</p><p>OUAW does not remove that record completely from the replication table.</p></div>

Pattern	Details
Effective-Dated (EFDT)	<p>Description: The source maintains history by using an effective date column, however the end date is not defined and needs to be calculated for better responsiveness of the data load processes.</p> <p>Approach:</p> <ul style="list-style-type: none"> • Adds a new record into the table in the replication schema when the natural key is updated or a new record is added from the source. • A change in the source is updated as is. • The effective end date is calculated. • The latest record is marked as current. • The DML operation flag in the target replication schema is set to D for rows deleted from the source and effective end date is also modified to the timestamp when transaction was removed. <div data-bbox="997 834 1478 1030" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p> ⓘ Note</p> <p>OUAW does not remove that record completely from the replication table.</p> </div>
Key Tables (KEY)	<p>Description: Oracle Utilities Application Framework products store the keys for the primary tables of an MO into this type of table. This data is not deleted when data from the base tables is archived or purged. This is required to differentiate between a deletion on the source system and an archival on the source system.</p> <p>Approach: The table consists of key columns only and is replicated as is with the timestamp and the source system change number.</p>
History (HIST)	<p>Description: Change history is not maintained in the source product, but historical changes for these types of replicated tables are tracked in the replication layer. These tables are mostly required for populating slowly changing dimension of type 2 and periodic snapshot fact.</p> <p>Approach:</p> <ul style="list-style-type: none"> • Every change is treated as a new historical item. • The previous row for the same key must be marked with an end date. • The latest record is marked as current.

Pattern	Details
History Type 2 (SCD2)	<p>Description: This type of table can only be seen in the replication schema for the Network Management System source. Source system maintains history by keeping BIRTH and DEATH for every record in this type of table.</p> <p>Approach: In the Oracle Utilities Network Management System source system, some of the tables follow the SCD2 behavior, using birth and death columns to store the effective start and effective end dates.</p>

Replication Table Structure

A replicated table has all columns of the source table and additional attributes depending on the categorization. The column order of the replicated table matches the column order of the source table. The additional columns will be added to the right end of the table.

The following table shows the columns that are going to be generated for each replication pattern.

Column	Overwrite (OVRD)	Effective Dated (EFDT)	Key (KEY)	History (HIST)	History Type2 (SCD2)
All Source Columns	Yes	Yes	Yes	Yes	Yes
Slicing Timestamp (JRN_SLICING_TS)	Yes	Yes	Yes	Yes	Yes
System Change Number (JRN_SCN)	Yes	Yes	Yes	Yes	Yes
Operation Indicator (JRN_FLAG)	Yes	Yes	No	Yes	Yes
Cleansed Indicator (JRN_CLEANED_FLAG)	Yes	Yes	No	Yes	Yes
Last Change Timestamp (JRN_UPDATE_DTTM)	Yes	Yes	No	No	Yes
Effective Start Timestamp (JRN_EFF_START_DTTM)	No	No	No	Yes	No
Effective End Timestamp (JRN_EFF_END_DTTM)	No	No	No	Yes	No
Current Indicator (JRN_CURRENT_FLAG)	No	Yes	No	Yes	Yes

Note

Installation of OUAW is usually done after the transactional systems have been operational for a few years. Therefore, the source system may have accumulated a large amount of historical data over the years. Apart from existing historical data, ongoing change data is required to be extracted from the source. OUAW has two different approaches to bring the initial and incremental data into the target replication schema: initial and incremental.

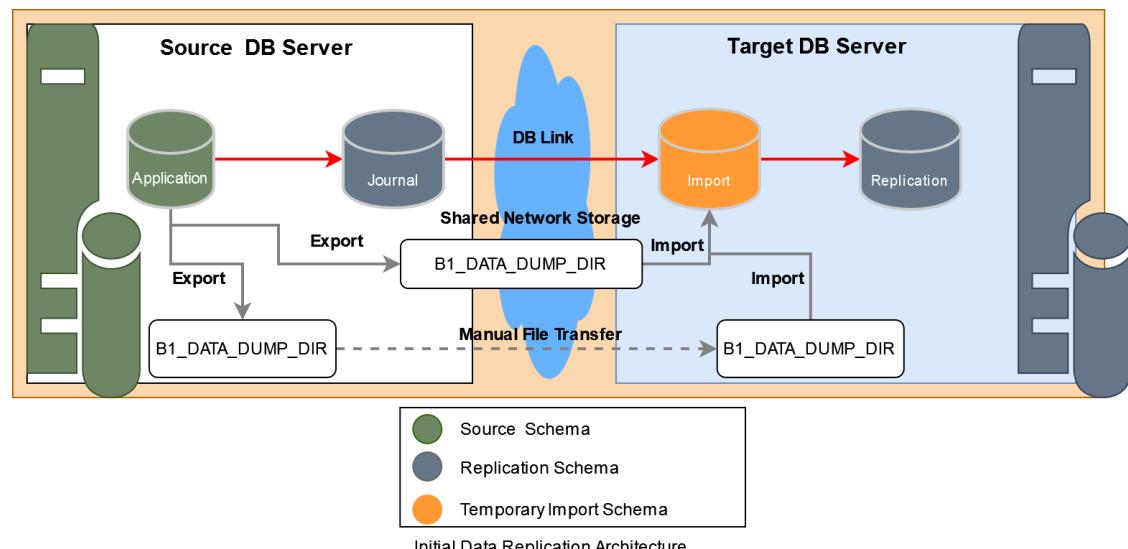
Initial Data Replication Approach

This section explains the methods used to load the initial data in OUAW through the Oracle Database feature DBMS_DATAPUMP to bring existing historical data from the source database to the replication schema. There are three different modes to synchronize the initial source data with the target:

- **Export and Import:** In this mode, data is first exported from the source into the database directory (B1_DATA_DUMP_DIR) in source. Then the dump file needs to be transferred from the source into target manually. Once dump files are moved into the database directory (B1_DATA_DUMP_DIR) in target, then data is imported into the replication schema. Export and import logs are written into the source and target database directory, respectively.
- **Export and Import Using Shared Network Storage :** This mode is similar to the previous one, but this mode requires shared network storage. Both source and target should be able to access the database directory (B1_DATA_DUMP_DIR) in this shared network storage. In this method file transfer is not required and this is the best mode to load a large volume of initial data into the target.
- **Database Link:** In this mode data will be imported directly from the source into the target using the database link, which is created during the integration of the source with OUAW.

Note

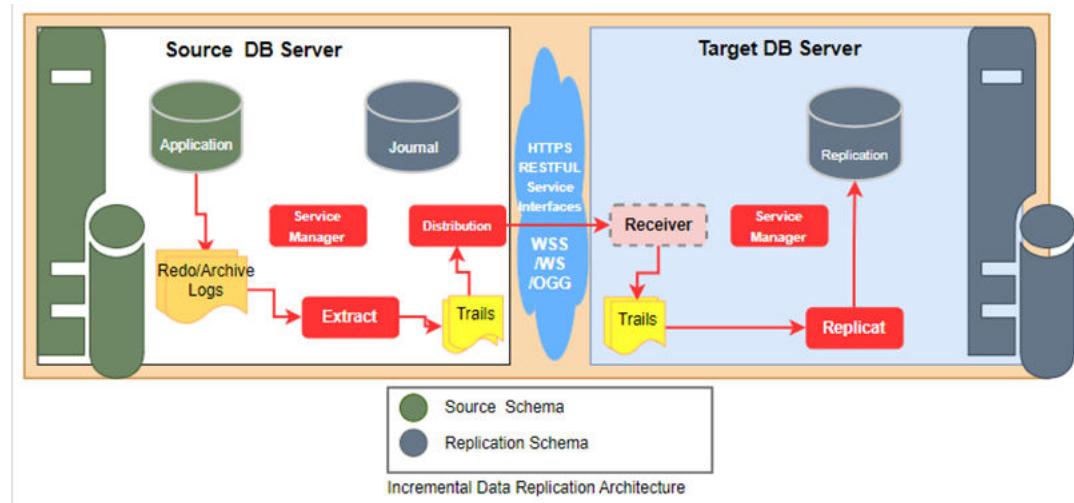
- Tables in the replication schema contain a few additional columns called journal columns for ETL purposes. Transformation logic needs to be applied to populate these additional columns into the replication schema.
- Data transformation at the time of extraction from source over network will impact performance. Therefore, raw source data is first imported into a temporary schema called import schema and then it is transformed and loaded into the target replication schema from the import schema. Import schema is dropped by the initial data synchronization job at the end of initial data load.
- No data filtering is applied at the time of initial data synchronization. Therefore, initial synchronization job synchronizes complete data from the source for all tables configured to be replicated.



Incremental Data Replication Approach

OUAW uses Oracle GoldenGate Microservice Architecture to replicate change data into the target replication schema. The change data synchronization process is set by the Oracle Data Integrator process during the integration of the source system with OUAW. The GoldenGate primary extract process in the source is meant to capture change data from the redo or archive

logs and write that data into trail files in the trail location. GoldenGate distribution process sends those trails over the network and into the target trail location. Finally, GoldenGate replicat process applies those transactions in trail files into the target replication schema. Oracle Utilities Analytics Warehouse uses integrated extract and integrated replicat process to synchronize change data from the source into the target database.



DDL Capture Support

Any product can undergo data structure changes from one release to other. When a source application is upgraded to the current release, it is quite possible that tables used by OUAW undergo structural changes in source. Those structural or DDL changes need to be replicated into the replication schema in target. Oracle GoldenGate supports all DDL replication, but OUAW has implemented some restrictions for the successful execution of the ETL jobs.

The following table explains which DDL changes are supported and which are not.

Structural Change	Expected Behavior
Existing replicated table renamed in source	OUAW does not rename the table in the target replication schema. This is not supported because it would impact all the ETL jobs that use this table. Oracle Data Integrator mappings need to be modified to refer to the renamed table. GoldenGate extract and replicat parameter files also need to be modified to support this change. Therefore, impact analysis is required before applying this type of change into target replication schema.
Existing replicated table dropped from source	OUAW does not drop the table from the target replication schema. This is not supported because it would impact all the ETL jobs that use this table. Therefore, impact analysis is required. If no ETL mapping is referring to the table dropped from source, then it can be dropped manually from the target replication schema.
Existing replicated table altered from source: <ul style="list-style-type: none"> • New column added • Existing column modified • Existing column renamed • Existing column dropped 	OUAW supports all these operations and applies these changes into the target replication schema.

Data Transformation (Staging Layer)

After the source data is replicated into the replication layer, the raw data need to be cleansed, confirmed, and transformed before loading into the target star schema. You must perform the following operations in the staging area to transform the raw data into summary data in accordance with the business requirements:

1. Eliminate unwanted data.
2. Find and remove duplicates.
3. Convert the data.
4. Aggregate the data.
5. Look up the dimension key.
6. Reprocess the missing dimension key.
7. Validate the data in accordance with the target constraints.

Note

- Some transformations are more complex and need to be performed in multiple stages. Partially transformed data needs to be stored into intermediate tables to simplify the loading process. Different types of intermediate tables are created as part of the ETL process. Types of intermediate tables and their uses are mentioned below. Not every ETL job or process will create all these types of intermediate tables. These tables will be created based on their complexity and the type of the target entity.
- Except for the primary error table, all other types of tables are created dynamically. The names of these type of tables follow the pattern "resource name of the target data store". For every fact table, primary error tables are created in the staging area when their respective ETL job is executed for the first time. Primary error tables are never dropped from the staging layer.

Key Table

When an ETL process starts, it first applies the slice start and end date ranges and identifies the data sets that need to be processed to populate the current sliced data into the target. Then it tries to identify the list of natural keys (in accordance with the target entity's natural key) present within the data set and store those keys into the key table. The key table is created automatically by the ETL process. Its name is the resource name of the target data stored in the Oracle Data Integrator mapping used to load the key table. Resource name for the key table is usually given as KEY_#GLOBAL.B1_JOB_ID, where KEY_ resource name prefix and #GLOBAL.B1_JOB_ID is an Oracle Data Integrator global variable that stores the job execution ID. So, if the ID of an ETL job is 123456, then the key table name would be KEY_123456. Apart from the natural keys, the key table might contain additional attributes.

Temporary Table

The temporary table is created automatically and used to store partially transformed data for the ETL processes, which may require zero or more temporary tables for the complete transformation of data.

The name of the temporary table is the resource name of the target data stored in the Oracle Data Integrator mapping used to load the temporary table. The resource name for the temporary table is usually given as TMP_#GLOBAL.B1_JOB_ID, where TMP_ resource name prefix and #GLOBAL.B1_JOB_ID is an Oracle Data Integrator global variable that stores the job execution ID. So, if the job execution ID of an ETL job is 123456, then the temporary table name would be 'TMP_123456'. ETL process might require storing intermediate data into multiple temporary tables. Therefore, you might see prefixes like TMP01_, TMP02_, AGG_, AGG01_, AGG02_, and so on.

Staging Table

The staging table is the last intermediate table in the staging layer where all transformed data is merged. For every dimension and fact in the target data warehouse one staging table is created for each job run. This table contains final transformed data in it before loading into their respective dimension or fact. Target dimension and facts are loaded from the staging table. Name of the staging table is STG_ followed by the job execution ID. If the job execution ID of an ETL job is 123456, then the staging table name would be STG_123456.

Primary Error Table

In a data warehouse, it is possible that a transactional record referring to a dimension arrives to the target before an entry is made for the dimension in the corresponding dimension table. These types of dimensions are called late arriving dimensions, and there are many ways to handle them. The above scenario is handled in OUAW in the following manner:

1. A reference dimension key is populated into the fact staging table with a missing key value (-99).
2. The transaction is marked as an error, and a copy of it is kept in an error table in the staging area. This error table is called the primary error table.
3. Transactions with missing dimension reference are loaded into the target fact along with other valid transactions.
4. After their respective dimension is arrived into the target, those missing dimension reference transactions in the error table are reprocessed and then merged into their respective fact table.
5. After the reprocess, if there is a missing dimension reference found for a transaction, the transaction is removed from the error table to a temporary error table.

Therefore, every fact contains a primary error table. In general, the name of the primary error table is ERR_ followed by the name of the target fact. For example, if the fact name is CF_FT, then their primary error table name would be ERR_CF_FT.

Temporary Error Table

The temporary error table is created to reprocess only those rows from the primary error table for which missing dimensions are found. The naming convention for the table is ERR_#GLOBAL.B1_JOB_ID, where #GLOBAL.B1_JOB_ID is the job execution ID of the running slice of the fact table. For example, if the global job execution ID of the ETL job is 123456, then the name of the temporary error table name would be ERR_123456.

Note

A primary error table might contain thousands of rows with missing dimension references, which could be due to only 10 missing dimensions. It is not necessary that all missing dimensions arrive at a time before the next job execution, because it is costly to reprocess rows disregarding if their missing dimensions arrived or not.

Cleanup of Staging Layer

The staging layer is used for the data transformation purpose. It creates temporary intermediate objects to store partially transformed data. The size of this layer grows over a period of time if those temporary objects are not removed from the staging layer. OUAW manages this layer automatically. It removes all temporary intermediate objects from the staging layer after the retention period is over. By default, the retention period for the cleanup of the staging layer is 7 days, but this can be increased or decreased depending on the size of the storage allocated for this layer. How to configure the staging retention period and the information about the cleanup job is explained later.

As objects and data in this layer are not persistent, no reporting should be done from this layer, and business users should not have access to this layer. This layer can only be accessed for debugging ETL jobs or analyzing the issue with the ETL process.

Data Loading (Target Layer)

The target layer is the presentation layer that contains dimensions, facts, summary tables, and stores final transformed data. This layer is dimensionally modeled, and business users can have access to it in order to run report queries. All pre-built analytics populate data from this layer.

The OUAW target layer is the single database schema where all star schema objects (that is, the centralized fact and dependent dimensions) are present. Star schemas are associated with the source product, and those will be populated only if their corresponding source is configured. Few dimension entities such as Account, Address, Person, Premise, Service Agreement, Message, Crew, and Fiscal Period dimensions are conformed dimensions. These dimensions are populated from more than one source product. Every target entity (dimension, fact, or materialized view) contain a source indicator column (DATA_SOURCE_ID) to know the actual source of a transaction. Different types of entities present in the target layer of Oracle Utilities Analytics Warehouse (OUAW) are explained in this section.

Dimensions

Dimensions are business entities that contain descriptive attributes based on the measures described in the fact. OUAW's target layer contains the following types of dimensions:

- **Static Dimension:** Static dimensions are loaded only once. Data in this type of dimension are never modified after being loaded. These types of dimensions contain different bucket ranges. Each bucket contains values for start and end ranges. Target fact refers to the appropriate bucket by populating their respective dimension key based on measures or expression that falls within the start and end range. To reconfigure a bucket start and end range, it is required to reset all its dependent facts and the bucket dimension and reload after new bucket ranges are configured.
- **Slowly Changing Dimension Type I:** This type of dimension does not track history. Whenever a newer version of an existing dimension record arrives, it overwrites the existing row with the newer version.

- **Slowly Changing Dimension Type II:** This type of dimension tracks history. Whenever a newer version of an existing dimension record arrives, it expires the previously existing record by setting the effective end to the current date and inserts a new record with the effective start time to current time.

Facts

Facts contain measurements and dimensions reference based on the measurements described. OUAW's target layer contains the following types of facts:

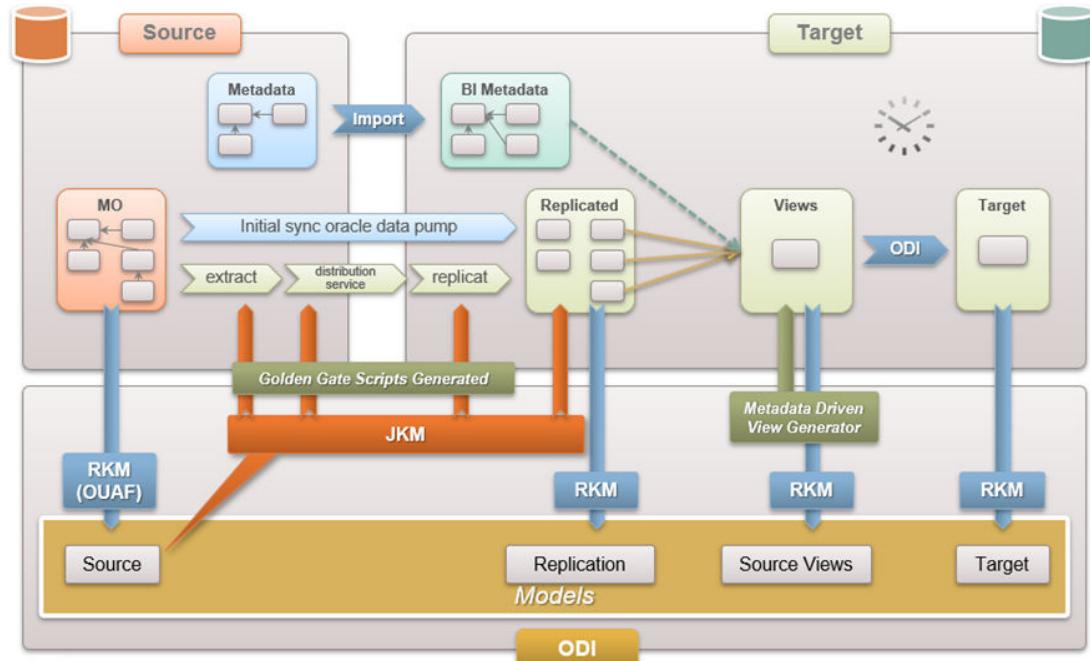
- **Accumulating Fact:** Some business transactions are not discrete. They pass through a fixed set of states and those states are analyzed as a whole. A row in an accumulating fact table summarizes the measurement events occurring at predictable steps between the beginning and the end of a process. Therefore, in an accumulation fact, only one record will be present for a natural key.
- **Periodic Snapshot Fact:** A row in a periodic snapshot fact table summarizes many measurement events occurring over a standard period such as a hour, day, a week, or a month.
- **Derived Fact:** These types of facts are either accumulating or periodic snapshot facts, but they are not loaded directly from the raw source data in the replication layer. These facts are loaded from data from the detailed facts in the target layer and contain summary data.

ETL Architecture

This page describes the ETL architecture for Oracle Utilities Analytics Warehouse (OUAW).

Overview

The following diagram shows the different components of the source, the target, and the Oracle Data Integrator (ODI), as well as the relation between them within the ETL architecture.



In this diagram, the ETL architecture has been divided into three sections.

- **Source:** This section contains source product instance components and components that are added to the source product environment to facilitate real-time synchronization.
- **Target:** This section covers components on the target OUAW database and application server to facilitate the initial and ongoing data loads into the star schemas.
- **Oracle Data Integrator:** This section contains the ODI components that are leveraged for the configuration and the ongoing data loads.

After the installation, Oracle Utilities Analytics Warehouse contains the metadata and the ODI components designed to load data into the target star schemas using the replication schema objects. However, no source product instance is associated with OUAW, which is why attaching a source product instance is the first step after installation.

Attach a Source Product Instance to OUAW

Attaching a source product instance to OUAW is the first action to take after installation. It involves the following:

1. **Import Source System Metadata:** OUAW imports source product metadata into its metadata structure. This involves the creation of a product instance entry and detecting some of the configurations that have been implemented on the source product.
2. **Create Job Configuration Entries:** The job configurations with predefined defaults are created for all entities associated with the source instance. All jobs are disabled by default.
3. **Reverse Engineer Models:** This step creates one or more models (Oracle Data Integrator) and executes a custom Reverse-Engineering Knowledge Module (RKM) to import specific tables into each model. The association of tables to models is preconfigured. The tables are reverse-engineered at the time of implementation to ensure that any changes in the table structures are automatically captured.
4. **Enable Ongoing Sync:** Once the source models have been created, the Journalizing Knowledge Module (JKM) is executed. This enables journalization on the tables of the model. The replication schema is created and the corresponding replica tables are created for each model. This step also generates the extract, data pump and replicat parameter files for each model. These parameter files control the ongoing synchronization. The extract and the data pump parameter files are deployed on the source, and the replicat is deployed on the target.
5. **Perform Initial Sync:** Once these parameter files have been deployed successfully, the initial synchronization is performed. The data volume to be synced depends on how long the source product instance has been active at your location. The data sync is performed by executing an Oracle Data Integrator scenario, which internally utilizes Oracle Data Pump to copy data from the source database to the replica database.
6. **Generate Metadata-Driven Views:** Once the replicated tables and the source instance specific metadata have been imported, the metadata-driven views are generated in the replication schema. These views are the sources for the Oracle Data Integrator interfaces that load the dimensions and facts.
7. **Enable Jobs:** Having configured OUAW to work with the source instance to load the associated star schemas, the Oracle Utilities Analytics Administration user interface may be used to enable jobs, load the star schemas, and view the loaded data in the dashboards.

Metadata Model

This page describes the metadata model used by the implementation of Oracle Utilities Analytics Warehouse (OUAW).

Overview

This metadata model comprises a set of tables and views that help achieve the following objectives:

- Maintain the configuration details of each source system.
- Maintain the configuration of each instance of the source system when multiple instances of the same source system have been implemented.
- Maintain the configuration of each of the target entities, by reusing interfaces and packages for multiple instances.
- Manage dependencies.
- Manage multiple Data Source Indicators (DSIs) allowing external references at the instance level and also at granularity of individual rows of the source data.

Note

You should not change any of the metadata entries that are delivered by default in these metadata tables. Wherever your inputs are needed or allowed, the Oracle Utilities Analytics Administration Tool supplied with the OUAW product should be used to provide inputs. Other than this method, any other means to change the metadata is strictly prohibited.

Metadata Tables

The tables used in the metadata model are listed as below:

- **Products:** This table is used to store a list of the products supported by the implementations, to identify which products are supported, and to determine the Oracle Data Integrator scenario to be used to import source metadata and configurations.
- **Instances:** You may have multiple instances of the same product that you want to integrate with OUAW. The instance object represents each instance of the same product that can be used as a source. The objective is to enable the development of a single interface that can be used across multiple instances.
- The instances differ by the source database connections and possibly by differing configurations. The Data Source Indicator (DSI) is unique across instances and products, as it provides the ability to identify the source of the data in the data warehouse.
- **Global Configuration:** This table is used to store the configuration name-value pairs that are applicable. These configurations are used to control the execution modes for interfaces.
- **Entities:** This table holds the configurations for the target entities in the data warehouse. The target entities can be dimensions, facts, or materialized views. The same target entity may be loaded from multiple source instances. The table stores the configuration that is common across multiple instances.
- **Job Configuration:** This table is used to provide configuration for the package (the executable logic) for populating the target entities for each instance. This table stores the current state information and an override package for use when the logic for one instance differs from the logic used for other instances. The override package name can be used to provide a custom scenario in case you want to deviate from the logic provided.

- **Schedule:** This table is used to provide configuration for scheduling jobs at regular intervals. This table also stores the start and end time of the job within a day to enable the job to run during a specific time period.
- **Objects:** This table is used to store all the objects and their common configurations. The objects can be the source tables that need to be replicated, the database objects that need to be generated, the source Maintenance Objects (MOs), or the Business Objects (BOs). Any object that is created during installation or when a source is attached is listed in this table along with configuration associated with the object.
- **Mapped Objects:** This table contains a list of all the source objects that are mapped to a target object. It provides the primary data entry point used to map views to be generated for the target entities, which are identified by an object type flag.

The table below lists the object type flags and their usage.

Object Type Flag	Description
MO	Maintenance Object: The value in the source object field is identified as OUAF Maintenance object based on this flag.
TBL	Table: The value in the source object field is identified as an NMS source table based on this flag.
PRVW	Primary View: The value in the source object field is identified as primary view to load the data into the target object based on this flag.
MVDP	Materialized View Dependency: Based on this flag, it is assumed that the value in the source object column is a dimension or fact entity and the value in the target object is a materialized view. This also indicates that the materialized view load should depend on the load of the entity specified in the source object column.
DMDP	Dimension Dependency: Based on this flag, it is assumed that the value in the source object column is a dimension entity and the value in the target object is a fact entity. This also indicates that the fact load should depend on the dimension load.

- **Source Tables:** This table contains configurations that control which tables are replicated and the replication mode.
- **Job Executions:** This table is used for tracking the execution of the ELT processes. An entry is created for each execution. Some attributes are populated from the SNP_SESSION table which is used by Oracle Data Integrator to track sessions.
OUAW supports configuring the data retention period for this table. The retention period can be configured from the **Global Configuration** page of AdminTool. For more information, refer to the [Configuring Log Retention Period for Job Executions](#) section.
- **Dependencies:** This table is used to map a job to the jobs it is dependent on. The dependent objects are only executed up to the minimum synchronization timestamp of all of the dependencies.
- **DSI Mapping:** A source system may be integrated with other source systems. When pulling information from multiple source instances, it is possible that the data in one instance refers to the master data from another instance. This table allows such cross

references to be configurable. By default, the configuration is at an instance level that is a product and instance number level. However, more fine-grained control is possible by specifying the entity for which the configuration should be applied.

- **Server Configuration:** This table is used to generate the Oracle GoldenGate scripts for ongoing synchronization. It stores database, GoldenGate, and JAgent specific information of the target and source system.
- **GoldenGate Checkpoint:** This table is used by Oracle GoldenGate replication process to track its processing activities. This table is used by the scheduler process to ensure that the warehouse loading tasks only process data that has been synchronized. The structure is controlled by Oracle GoldenGate.
- **Extract Parameters:** This table stores configurations that control the extraction of data. Each source system may have different codes used for the same purpose. It allows you to configure the codes so that the extraction routine can use it appropriately.
- **Storage Configuration:** This table is used to store configuration for allocation of table spaces while creating objects within the knowledge models. It has the default configurations at the pre-loaded Global context level.

Metadata Views

The views used in the metadata model are listed as below:

- **Context Configuration:** The view associates the product instance with the logical and physical schemas defined in Oracle Data Integrator.
- **Replication Configuration:** The replication configuration view is a summary of the settings that are used to control the tables to be replicated.
- **Job Configuration:** The job configuration view shows all the jobs based on the configuration in the metadata table. The schedule date and the slice start and end date are calculated along with the maximum retry interval, retry interval, and staging retention period.
- **Storage Configuration:** The storage configuration view shows the tablespaces configured for different object types for each logical schema. The configuration can be common or can be granular at logical schema level. This view breaks down the configurations at the lowest granularity and provides easy access to all attributes of storage configuration handling the complexities of identifying context and logical schema specific configurations that override the global configurations. All the attributes of storage configuration handle the complexities of identifying context and logical schema specific configurations that override the global configurations.
- **Dependencies:** The Oracle GoldenGate processes can be tracked via the Oracle GoldenGate Checkpoint table. A source instance can have multiple Oracle GoldenGate processes and each process consists of multiple tables. A target entity can be loaded only up to the maximum synchronization timestamp of all the Oracle GoldenGate processes associated with the context in which it is executing. A fact load is dependent on the load of Type 2 dimensions associated with the fact. The fact associated with a Type 2 dimension cannot be loaded beyond the time that the dimension has been synchronized. A materialized view becomes stale if any of the underlying tables is modified. Hence, the materialized view depends on the execution of any of its underlying tables. The view identifies the base object and the timestamp associated with its dependencies so that appropriate actions can be taken to avoid any data loss.
- **Schedule:** This is a consolidated list of the start time of the job for a given schedule. Based on the start time at regular intervals the jobs are picked for execution.

- **Jobs:** This is a consolidated way of viewing all jobs that are being executed or that have completed. The view shows the slicing units, duration of execution, and volumes being processed. This can be used for health checks and for monitoring the load processes.
- **Ready for Load:** This view governs the selection of execution jobs and control its pattern. Note the applicable rules:
 - The entity should not be disabled.
 - The configured scenario should exist.
 - All dependencies should have run.
 - The number of running or error instances of the job should be less than the maximum parallel executions allowed.
 - If the instance has been configured to run once, then it should not execute again once it has been successfully executed.
 - If a job fails, it should be retried until the maximum retries per day is reached. The interval between successive retries should be based on the configuration.
 - The Oracle GoldenGate models comprising of the source tables used in the entity should have been synchronized. In case the synchronization timestamps vary across multiple models, then the least common synchronization timestamp is used.
 - The snapshot entities are executed during or after the snapshot end period.
 - The schedule time can be used to stagger loads and distribute processing. A job is not executed until the current time crosses the scheduled time.
- **Wait Reasons:** This view can be used to diagnose the reasons causing that a job is not being executed. This view applies the rules for scheduling and reverses the logic to obtain those causes. The following issues can be identified using this view.
 - An entity is deactivated.
 - The Oracle GoldenGate replication is not configured for model {model name}.
 - The configured scenario does not exist.
 - This job is scheduled to run at {timestamp}.
 - This one time load interface has already executed successfully.
 - Reached max retries allowed per day.
 - The approximately {X} minutes until next retry.
 - The maximum number of parallel materialized views execution reached.
 - Waiting for a change to occur in dependent entity.
 - Waiting on a dependent entity to be loaded.
 - Waiting for at least one minute of incremental data to arrive.
 - The cut-off time has been enabled. All the entities are loaded only up to {timestamp}.
 - The temporary table is not reversed in the staging model.
 - The staging table is not reversed in the staging model.
 - The flex fields are not set for table.

ETL Project and Framework Jobs

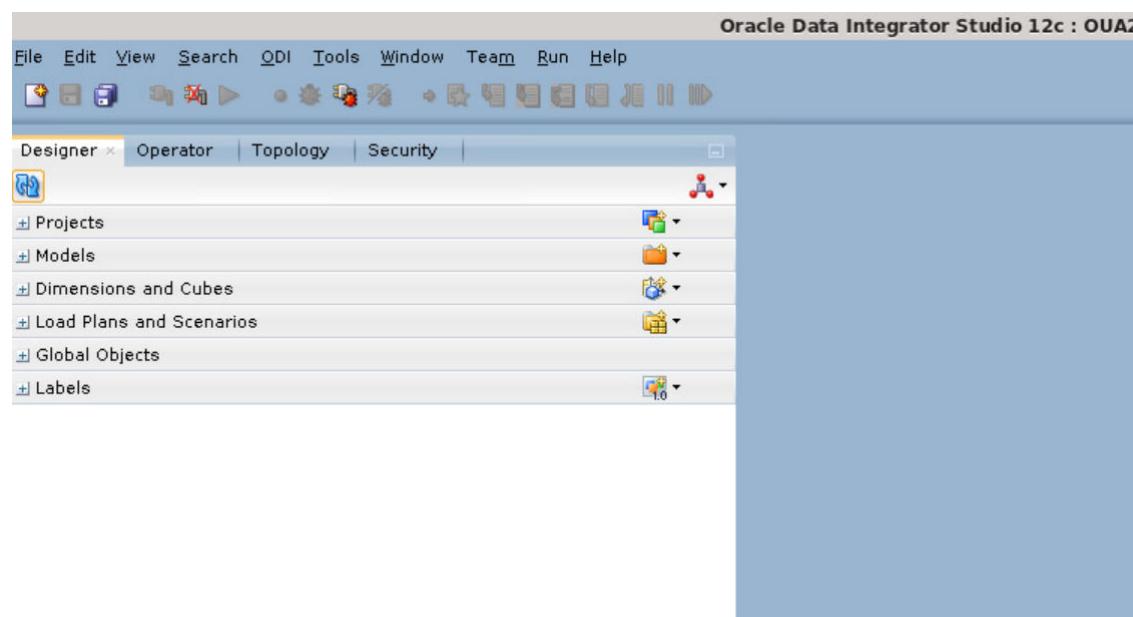
This page provides an overview of the Oracle Data Integrator (ODI) ETL components, including the Oracle Utilities BI project and the ETL Framework scenarios that are shipped with the product.

Overview

The following types of ETL components are shipped with the product:

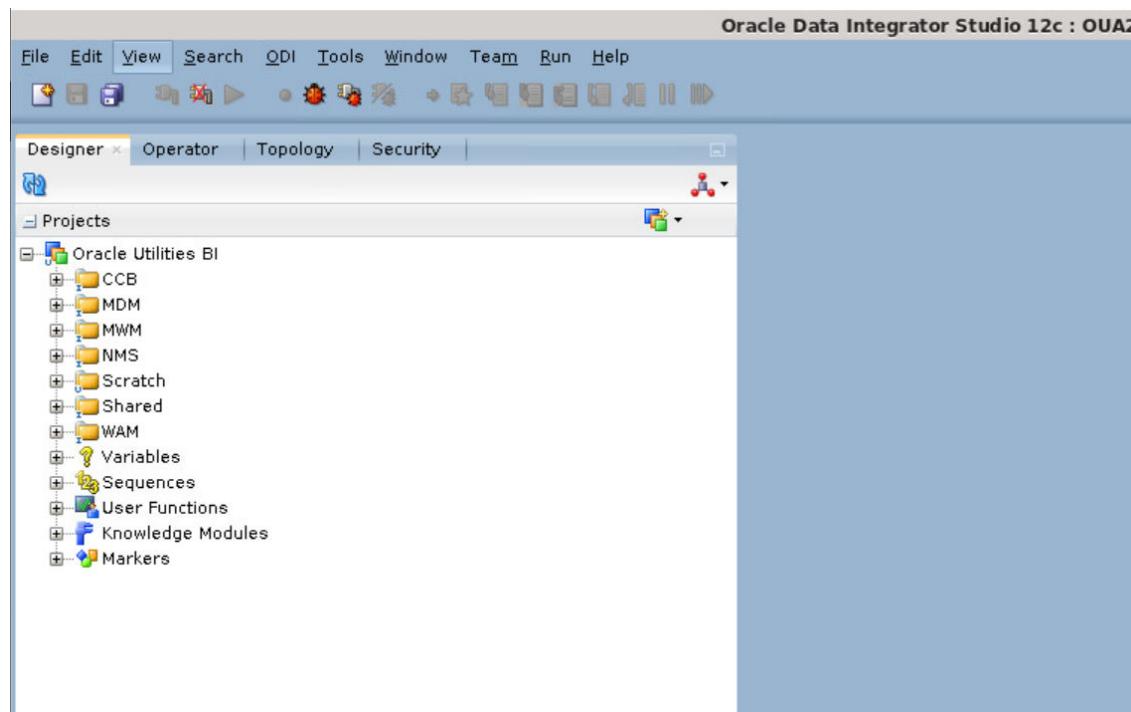
- An ODI Designer project (named Oracle Utilities BI)
- Mappings
- Procedures
- Packages
- Scenarios
- Models
- Datastores
- Variables (Global and Project)
- Knowledge Modules

The mappings, procedures, packages, scenarios, and project variables are all contained in the Oracle Utilities BI project, whereas the models and datastores are housed in the **Models** section of ODI. The global variables and knowledge modules are in the **Global Objects** section.



ETL Project Oracle Utilities BI

The image below shows the structure of the ETL project, as seen in ODI Studio's **Designer** tab.

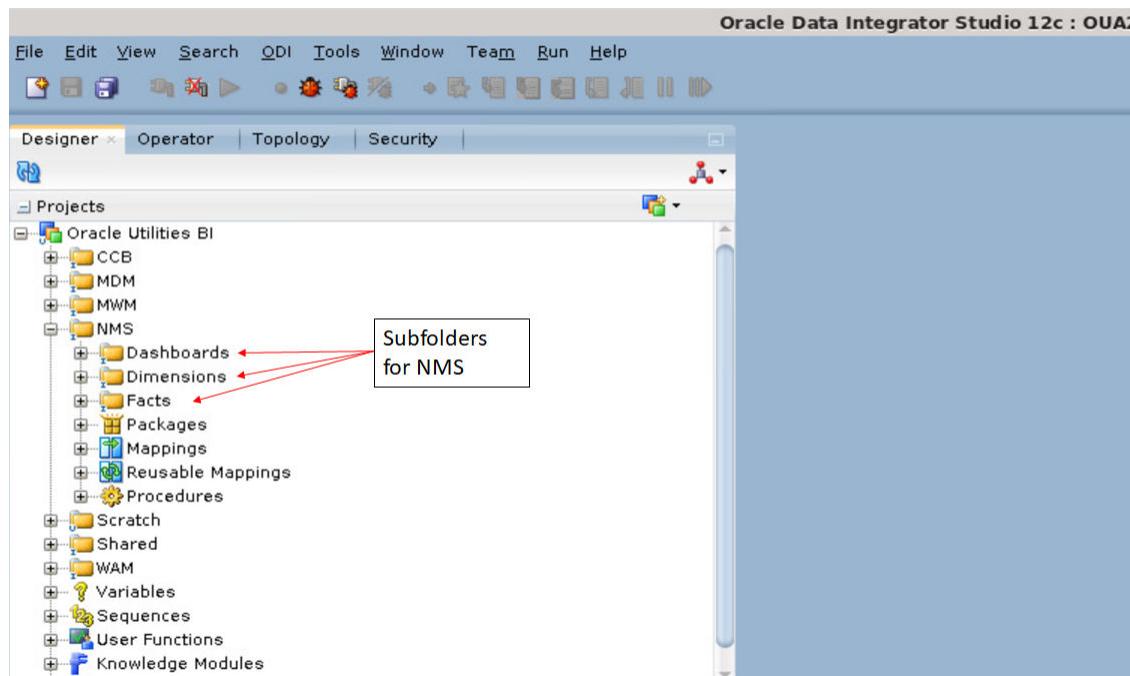


Product Folders

Source products have respective folders where their individual design components are stored. Nonetheless, some of the source products share components, which are housed in the **Shared** folder. The respective source folders contain sub-folders for the following types of entities:

- Dimensions
- Facts
- Materialized Views
- Dashboards

For example, inside the folder NMS, you will find four subfolders, as shown in the image below.



Each subfolder, for its part, contains the folders for the individual entities labelled by the logical name of the entities.

For example, all the design components for the Account Type Dimension of the NMS product will be found inside the **Account Type Dimension** folder, which is stored in the **Dimensions** subfolder of the **NMS** folder.

Note

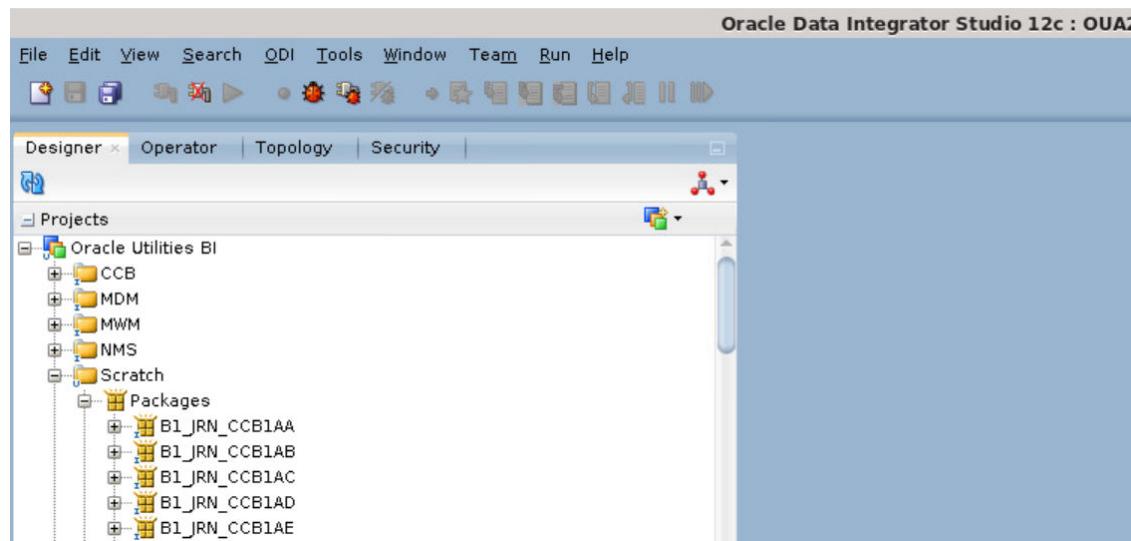
The **Materialized Views** folder exists only for CCB, MDM and MWM. The **Dashboards** folder exists only for NMS.

Shared Folder

The **Shared** folder houses the design components for the dimensions shared across the products, and it has the same structure as the **Product** folder.

Scratch Folder

This folder houses the design components created during the process of integrating source applications with OUAW configuring sources.

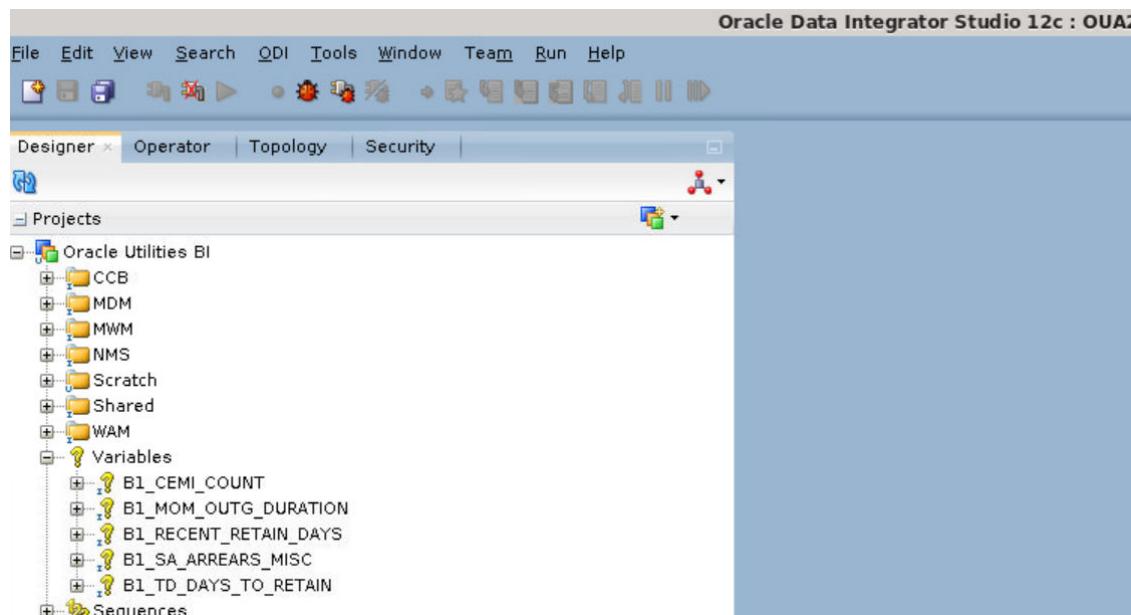


Note

Oracle strongly recommends that you create a separate project for ETL customization, and not to modify any of the components in the ETL project that are provided by default.

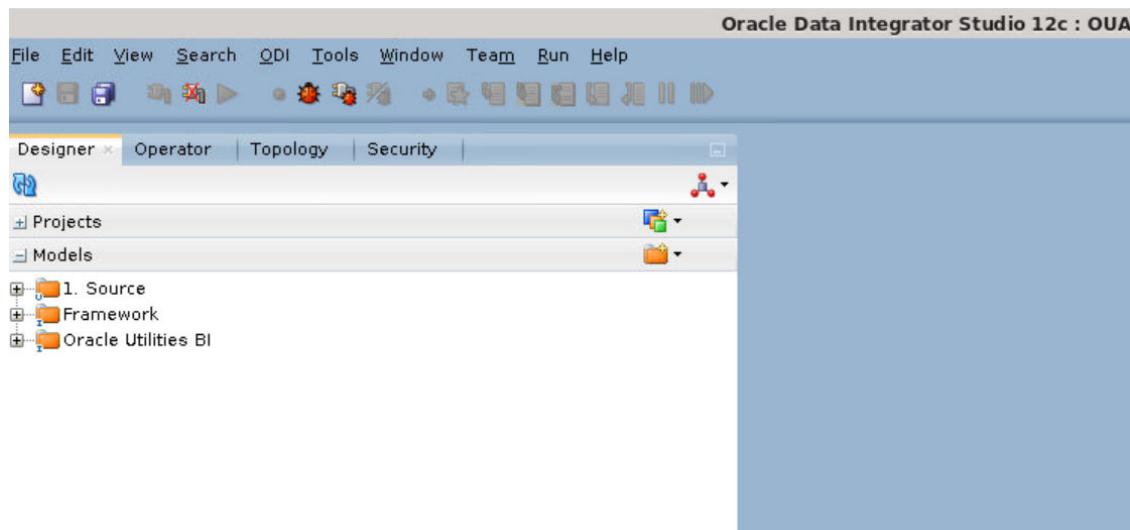
Project Variables

The project variables are housed in the **Variables** accordion that is located inside the Oracle Utilities BI project.



Models

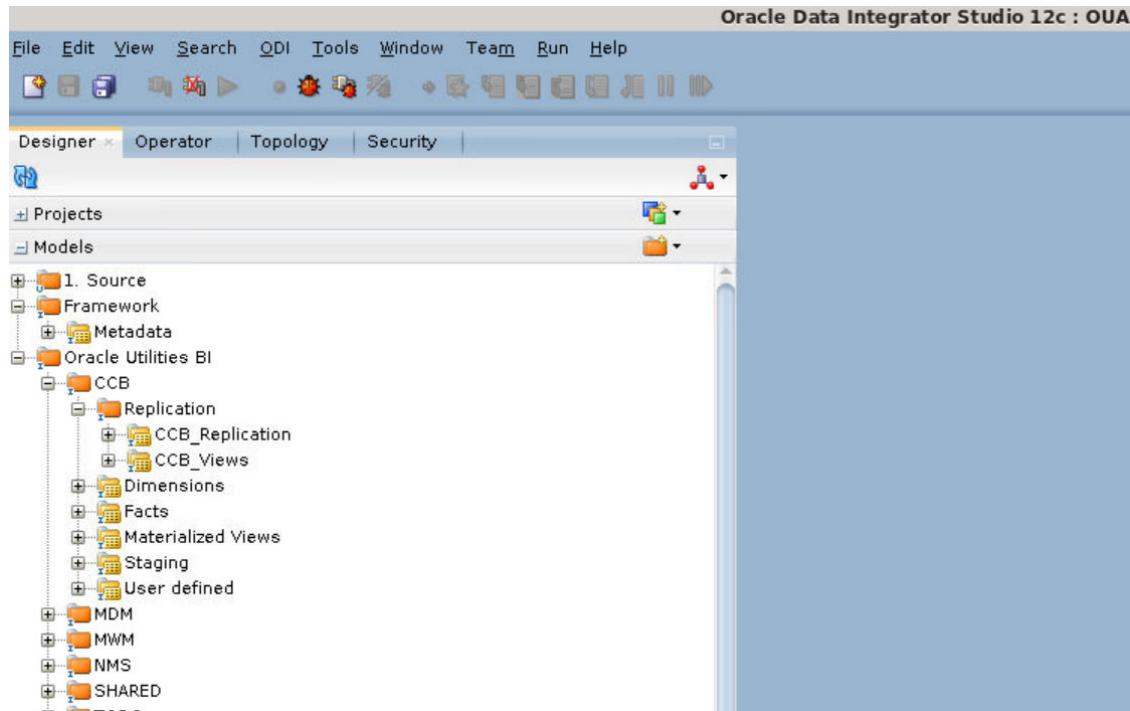
Oracle Data Integrator Studio is shipped with the **Framework** and the **Oracle Utilities BI** model folders (and their underlying components).



The **Framework** model folder stores the metadata model and the datastores for all the Oracle Utilities Analytics Warehouse (OUAW) metadata framework tables used by the ETL design components.

The **Oracle Utilities BI** folder houses subfolders for individual source products, each of which stores models for dimensions, facts, materialized views, staging tables and user defined tables. These models contain the datastores for the respective tables. Besides the folders for structural components of entities, it also houses a **Replication** folder for components like replication tables and views.

The following image shows the **Framework** and the **Oracle Utilities BI** folders structure.



Load Plan and Scenarios

This section contains the scenario folders and scenarios that are shipped with the product.

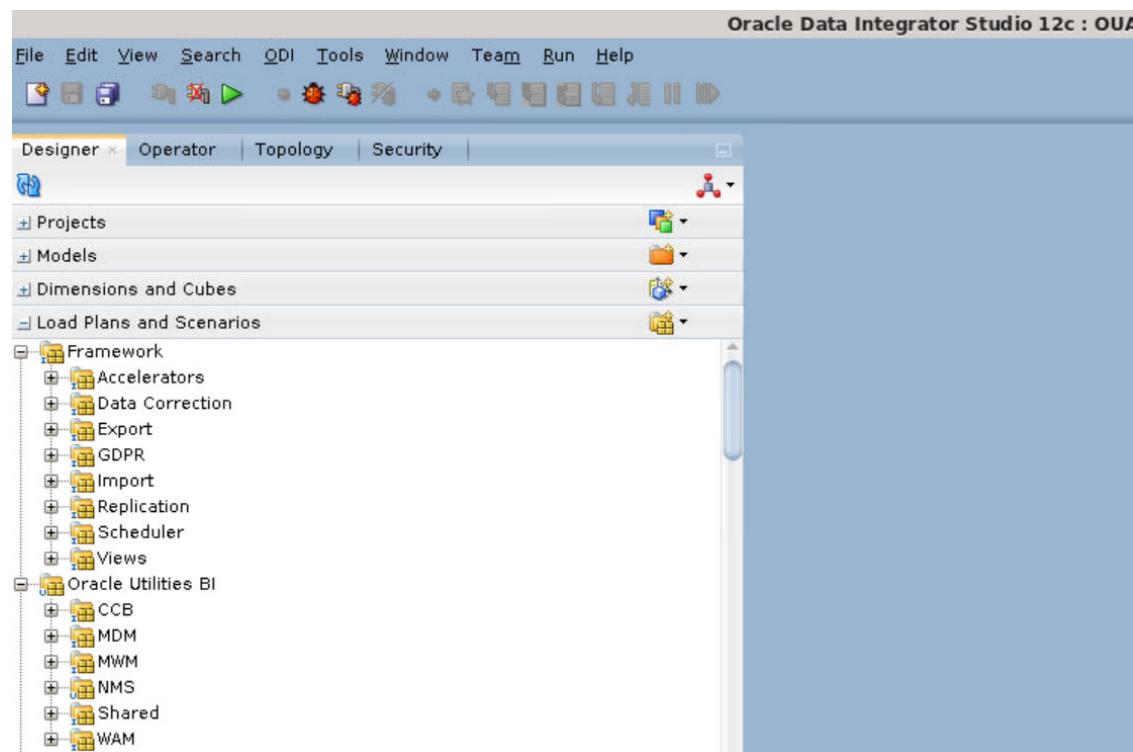
Note

The scenarios in this section are the same as the ones in **Projects**.

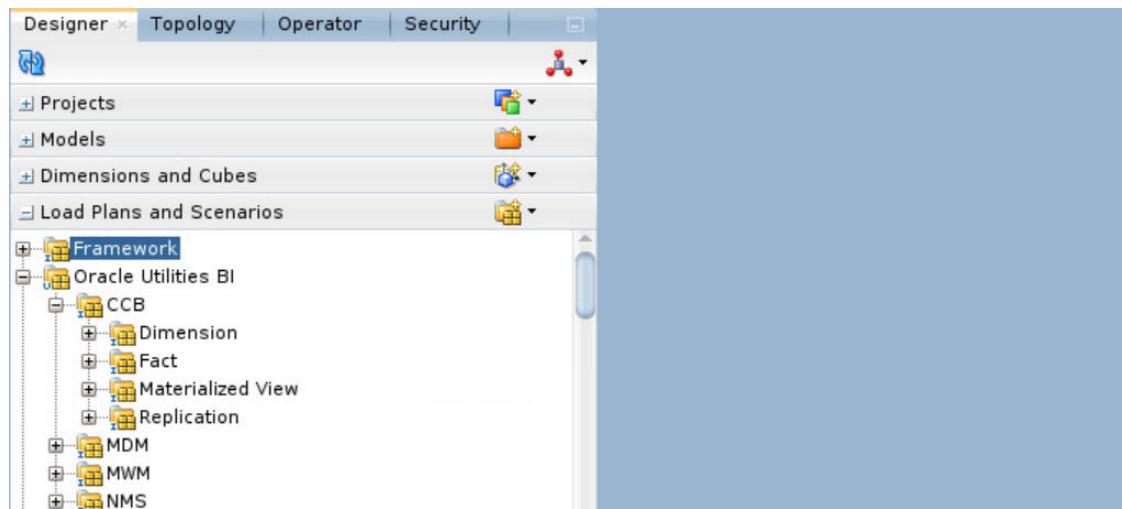
This section consists of two folders:

- **Framework**: Folder that comprises all ETL framework related scenarios. Further details on the framework scenarios are provided in the **Framework Scenarios** section.
- **Oracle Utilities BI**: Folder that comprises all the individual products scenarios. These scenarios are grouped and housed in individual product folders that contain the folders for every entity type.

The following image shows the **Framework** and the **Oracle Utilities BI** scenario folders organization.



As an example, the following image shows the **CCB** source product scenario folder content and its organization.



Global Objects

The global variables and knowledge modules used in the product can be found in this section.

ETL Framework Scenarios

Oracle Utilities Analytics Warehouse (OUAW) provides two sets of scenarios for the different ETL functions: the framework scenarios and the Oracle Utilities BI scenarios. This section provides details on the scenarios located inside the **Framework** scenario folder under the **Load Plan and Scenarios** section of the ODI Studio client's **Designer** tab.

Framework Scenarios

These scenarios are part of the OUAW ELT framework that are used for product deployment, configuration, and housekeeping purposes. The Framework scenarios are grouped under the following categories:

- **Accelerators:** This folder's scenarios are used for integration of different sources with OUAW.
- **Data Correction:** This folder's scenarios are used for modification of certain staging tables and backfilling of data in case of upgrades.
- **GDPR:** This folder's scenarios are used for provisioning General Data Protection Regulation (GDPR) functionality for OUAW.
- **Import:** This folder's scenarios are used during OUAW installation for importing ODI objects into the work repository.
- **Replication:** This folder's scenarios are used for creation of certain database objects in the replication schema
- **Scheduler:** This folder's scenarios are used for daily administration of the OUAW entities. Some of the frequently used scheduler scenarios are the following:
 - **B1_CFG_UDX_PROC**

This scenario is used for the configuration of the char mapping feature provided by OUAW.

B1_CLEANUP_REPLICATION

This scenario is used to delete the data from all the tables in replication schema. This is used in the event of corruption of data in the replication schema, causing the data to be reloaded again.

B1_CLEAR_LOGS

This is used for housekeeping of the execution logs data in the warehouse. The scenario in turn invokes the B1_PURGE_SESSIONS and B1_PURGE_STAGING scenario which clean up the ODI logs and drop the staging tables respectively.

B1_DWH_LOAD

This scenario is used for sequential loading of the dimensions, facts and materialized views. The scenario enables the dimension jobs first, then the fact jobs and then the MV jobs. It needs B1_RUN_ALL to be scheduled.

B1_GATHER_SCHEMA_STATS

This scenario is used to gather statistics on tables of different schemas of OUAW.

B1_INITIAL_SETUP_PKG

This scenario is used to load data in the Date and Time dimensions and the dummy records with 0 and -99 keys in all the dimension tables.

B1_PURGE_SESSIONS

This scenario is used to delete the ODI logs and the job execution data from the B1_JOB_EXEC table. This is invoked by the B1_CLEAR_LOGS scenario.

B1_PURGE_STAGING

This scenario is used for dropping the different staging tables from the Staging schema.

B1_RESET_ENTITY

This scenario is used to delete the data from the target table and reset the job configuration values in the B1_JOB_CONFIG table.

B1_RESET_INSTANCE

This scenario is used to delete the data from the Dimensions, Facts, and Materialized views of a configured instance. For each of the entities configured for a source product instance, it invokes the B1_RESET_ENTITY table scenario.

B1_RUN_ALL

The B1_RUN_ALL scenario is used to invoke the configured entities that are enabled for execution. The scenario is required to be scheduled in ODI Designer for the automatic execution of the entity jobs.

B1_SYNC_CONTEXT

This scenario is used to load data from the tables in the source database to the tables of replication schema in the target database. It invokes the B1_SYNC_MODEL scenario for every configured group of the replication tables.

B1_SYNC_MODEL

This scenario is executed for every configured group of replication tables and in turn calls the B1_SYNC_TABLE for every table in the group. The scenario fetches the data from the source schema and loads it in a temporary schema.

B1_SYNC_TABLE

This scenario is used to load data from the temporary schema (created during the B1_SYNC_MODEL scenario execution) into the replication tables.

- **Views:** This folder contains the scenarios for the ELT framework related views created in the Metadata schema MDADM.

Administration

This page describes the administrative tasks that can be performed using the Oracle Utilities Administration Warehouse (OUAW) tool to configure the out-of-the-box and custom ELT jobs, and to view the configurations made during the installation and source configuration processes.

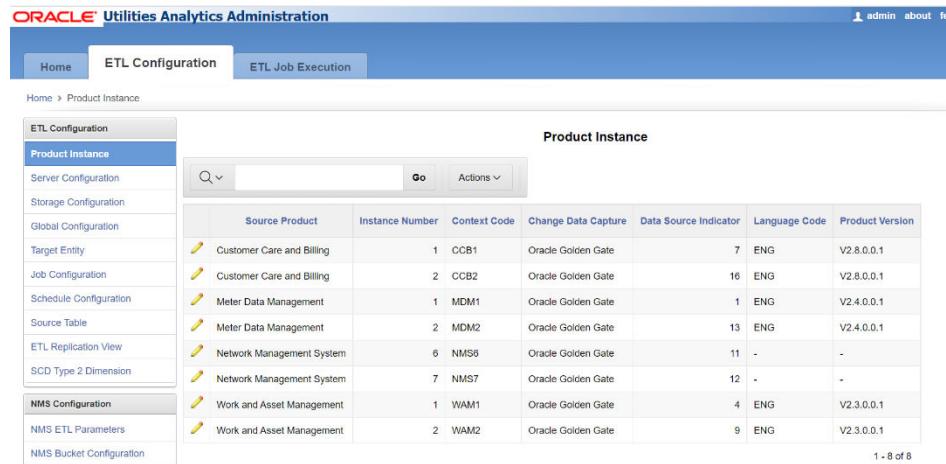
Product Instance Configuration

The product instance represents a specific instance of a source application that can be configured as a source for the Oracle Utilities Analytics Warehouse (OUAW) solution. A record is created for every product instance where ELT is set up to extract data. OUAW delivers a record for the product that uses Oracle Data Integrator for the ELT.

Note

You may have multiple instances of the same source application to integrate with OUAW.

The **Product Instance** page, accessible through the **ETL Configuration** tab, displays information about the product instances configured with OUAW.



Source Product	Instance Number	Context Code	Change Data Capture	Data Source Indicator	Language Code	Product Version
Customer Care and Billing	1	CCB1	Oracle Golden Gate	7	ENG	V2.8.0.1
Customer Care and Billing	2	CCB2	Oracle Golden Gate	16	ENG	V2.8.0.1
Meter Data Management	1	MDM1	Oracle Golden Gate	1	ENG	V2.4.0.0.1
Meter Data Management	2	MDM2	Oracle Golden Gate	13	ENG	V2.4.0.0.1
Network Management System	6	NMS6	Oracle Golden Gate	11	-	-
Network Management System	7	NMS7	Oracle Golden Gate	12	-	-
Work and Asset Management	1	WAM1	Oracle Golden Gate	4	ENG	V2.3.0.0.1
Work and Asset Management	2	WAM2	Oracle Golden Gate	9	ENG	V2.3.0.0.1

The following attributes are available on the product instance metadata table.

Attribute	Purpose
Product Code	A reference to the product code that identifies the product for this instance.
Instance Number	A unique number starting with 1 to uniquely identify the instance.
Context Code	A unique code comprised of the product code and instance number that is used to identify the connections in Oracle Data Integrator. Due to limitations imposed by Oracle GoldenGate (used for replication), the context code cannot be more than five characters in length.

Attribute	Purpose
Change Data Capture	A flag identifying the methodology to be used for replicating source tables. The default is GoldenGate.
Drill Back URL	A URL to be used to allow you to drill back to the source system from the analytics.
Time Zone Code	The time zone of the source product instance. This allows the interfaces to be built so that dependencies on job execution for multiple time zones are handled correctly.
Currency Code	The currency used in the source product instance. Multiple currencies are not supported.
Language Code	The primary language supported by the data warehouse. This is used to filter language specific data in the data warehouse.
Data Source Indicator	A unique value representing the instance. For Oracle Utilities Application Framework products, this is the environment ID of the source instance.
Source Instance Version	The current version number of the source product instance. This can be used to validate whether the version is supported by the data warehouse or provide suggestions if upgrades or patches need to be applied to enable support for the source product.

To add a new product instance, use the script delivered as a part of the installation package. For more details, see 'Configuring the Source' under the 'Upgrading Oracle Utilities Analytics Based ELT Component' section in Chapter 5: Upgrading Oracle Utilities Analytics.

Server Configuration View

The **Server Configuration** page, accessible through the **ETL Configuration** tab, displays the details of the source and target servers used for configuring Oracle GoldenGate for OUAW.

As part of the OUAW installation process, Oracle GoldenGate, Oracle Database, and JAgent configuration records are generated for the configured source application and the target OUAW application, and are stored in the **B1_SERVER_CFG** table in MDADM schema. The data from

this table are displayed on the **Server Configuration** page, and its content cannot be edited from the Oracle Utilities Analytics Administration tool.

Context	Host Name	Port	Db Service Name	Home Path	Username	Db Client Home	Server Type
B1	ugbu-phx-471.snpixprshared1.gbuclient02phx.oracledev.com	5560	-	/scratch/euaci01/goldengate	gbuora	-	JAgent
NMS6	ugbu-phx-473.snpixprshared1.gbuclient02phx.oracledev.com	5560	-	/scratch/euaci01/goldengate	gbuora	-	JAgent

The following attributes are displayed:

Attribute	Purpose
Context	The code is either the context code identifying the instance uniquely or B1 for the target data warehouse.
Host Name	The host name of the data server based on the server type.
Port	The port that the data server utilizes.
DB Service Name	The service name of the database.
Home Path	The home folder of the data server as defined by the server type.
User Name	The username to connect to the data server. For example <ul style="list-style-type: none"> The database user if the server type is the database. The server user that has access to the software if the server type is GoldenGate or JAgent.
Server Type	The type of server to identify the different configurations. For example: <ul style="list-style-type: none"> Database: Details about the database. Golden Gate: Details about the GoldenGate JAgent: Details about the JAgent configuration

Storage Configuration

The **Storage Configuration** page, accessible through the **ETL Configuration** tab, enables you to manage the tablespaces that are used for the database objects created during the execution of the Oracle Data Integrator jobs, which allows you to maintain existing records related to configuration and to add new records.

Note

Base product-owned records are delivered out-of-the-box for the star schemas tables that come with OUAW, and they cannot be deleted. If you want to add any entity to the ELT, you can create a new record, which can be later edited or deleted.

The screenshot shows the Oracle Utilities Analytics Administration interface. The top navigation bar has tabs for Home, ETL Configuration (which is selected and highlighted in blue), and ETL Job Execution. On the left, a sidebar menu lists various configuration sections: Product Instance, Server Configuration, Storage Configuration (selected and highlighted in blue), Global Configuration, Target Entity, Job Configuration, Schedule Configuration, Source Table, ETL Replication View, and SCD Type 2 Dimension. The main content area is titled 'Storage Configuration' and contains a table with the following data:

Storage Config Id	Context Code	Logical Schema	Object Type	Sequence	Tablespace Name	Owner
2	GLOBAL	-	Index	0	CISTS_01	B1
1	GLOBAL	-	Partition	0	STAGE_02	B1
3	GLOBAL	-	Schema	0	CISTS_01	B1
4	GLOBAL	-	Table	0	CISTS_01	B1
5	GLOBAL	-	User	0	CISTS_01	B1

At the bottom right of the table, it says '1 - 5 of 5'.

The following are the attributes available on the page:

Attribute	Purpose
Context Code	Identifies the context for which this is applicable. A value of "GLOBAL" is allowable across all the contexts unless overridden by an entry for the specific context.
Logical Schema	The logical schema for which the configuration is applicable. An empty value indicates that this is applicable to all logical schemas.
Object Type	The type of object for which the configuration is applicable. This can be Table, Index, or Partition.
Sequence	The default is 0. This is applicable only to partitions. This can be used to map multiple tablespaces in round-robin scheduling while creating the new partitions within the same table.
Tablespace Name	The name of the tablespace to be associated with the object.

Global Settings Configuration

The **Global Configuration** page, accessible through the **ETL Configuration** tab, is used for setting up the global parameters needed for OUAW, allowing you to enter or edit values for the configuration settings. As a part of the OUAW installation process, the global configuration records are generated for both the configured source application and the target OUAW application. The configuration values must be entered in the specified data format. Entering values in any other format causes errors during ELT processing.

Product	Instance Number	Description	Value
Customer Care and Billing	(None)	Product Extract Date - The date from which all ETL jobs for the specific product instance will be configured to start the initial load	01-JAN-2000
Customer Care and Billing	(None)	SOCKS Proxy HOST PORT to set up Secure tunnel for Golden Gate Replication. The proxy should convert anonymous TCP/IP connection to an authorized secure connection	-NA-
Customer Care and Billing	(None)	The Product Sync mode type. Valid values DPUMP_EXPORT,DPUMP_IMPORT,DBLINK,DBLINK,DPUMP_SHARED	DBLINK
Customer Care and Billing	(None)	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import of target database	8
Customer Care and Billing	1	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import of target database	8
Customer Care and Billing	1	Product Extract Date - The date from which all ETL jobs for the specific product instance will be configured to start the initial load	01-JAN-2000
Customer Care and Billing	1	SOCKS Proxy HOST PORT to set up Secure tunnel for Golden Gate Replication. The proxy should convert anonymous TCP/IP connection to an authorized secure connection	-NA-
Customer Care and Billing	1	The Product Sync mode type. Valid values DPUMP_EXPORT,DPUMP_IMPORT,DBLINK,DBLINK,DPUMP_SHARED	DBLINK
Customer Care and Billing	2	Product Extract Date - The date from which all ETL jobs for the specific product instance will be configured to start the initial load	01-JAN-2000

The following are the attributes displayed on the page:

Attribute	Purpose
Product	A reference to the product code that identifies the product for this instance. This could be one of the configured source products or the base Oracle Utilities Analytics Warehouse product itself.
Instance Number	The unique number of the configured source product instance. For the base Oracle Utilities Analytics Warehouse product configuration settings, this value is set to null.
Description	This column describes the purpose of the specific global configuration setting.
Value	The configuration value that you can update based on their setup.
Data Type	The data type of the configuration value that a user is expected to enter.
Data Format	The specific format of the data that a user is expected to enter the configuration value in.

Target Entities Configuration

The **Target Entity** page, accessible through the **ETL Configuration** tab, displays the configuration information for the viz. dimensions, facts, and materialized views target entities, which can be loaded for multiple source instances. The configuration that is common across multiple instances is stored in this table. You can add, edit, or delete records on this page.

Note

Base product-owned records are delivered out-of-the-box for the star schemas tables that come with OUAW, and they cannot be deleted. If you want to add any entity to the ELT, you can create a new record, which can be later edited or deleted.

Target Entity Id	Entity Name	Entity Type	ODI Package Name	Staging Retention Days	Owner
5	B1_BR_SW_PLAN_JOBS	Dimension SCD1	B1_PKG_B1_BR_SW_PLAN_JOBS	7	B1
65	CD_ACCT_TYPE	Dimension SCD1	B1_PKG_CD_ACCT_TYPE	7	B1
68	CD_ALARM_LOG	Dimension SCD1	B1_PKG_CD_ALARM_LOG	7	B1
69	CD_APPT_TM	Dimension SCD1	B1_PKG_CD_APPT_TM	7	B1
70	CD_APPT_TM_OF_DAY	Dimension SCD1	B1_PKG_CD_APPT_TM_OF_DAY	7	B1
71	CD_ASSET_AGE	Dimension SCD1	B1_PKG_CD_ASSET_AGE	7	B1
72	CD_ASSET_DISP	Dimension SCD1	B1_PKG_CD_ASSET_DISP	7	B1
73	CD_ASSET_INSRT_STATUS	Dimension SCD1	B1_PKG_CD_ASSET_INSRT_STATUS	7	B1
74	CD_ASSET_INSTALL_AGE	Dimension SCD1	B1_PKG_CD_ASSET_INSTALL_AGE	7	B1
75	CD_ASSET_INSTORE_AOE	Dimension SCD1	B1_PKG_CD_ASSET_INSTORE_AOE	7	B1

The following are the attributes displayed on this page:

Attribute	Purpose
Entity Name	The name of the entity that needs to be scheduled for loading into the target.
Entity Type	The type of entity supported by Oracle Utilities Analytics Warehouse: <ul style="list-style-type: none"> Slowly changing dimension Type 1 Slowly changing dimension Type 2 Accumulation facts Snapshot facts Materialized views
Maximum Parallel Executions	It may be necessary to execute multiple instances to efficiently load data with each instance working on a different data set. This attribute controls how many parallel executions can be spawned for a single entity load.
Maximum Retries	This attribute controls the maximum number of retry attempts in a day. If the load is still failing when this limit is reached, it is retried the next day.
Retry Interval	The base architecture has been designed for automatic retries. In case of failures, job are retried and this attribute controls the interval between successive retries. Default is 30 minutes, but it can be configured according to your requirements.
Scheduling Type	Three different modes of schedules are supported: <ul style="list-style-type: none"> Daily Incremental Load: Loads are executed as soon as data is available to load. Near Real Time Load: Loads are executed within a configured interval. This is for future use. One Time Load: A load is executed only once.

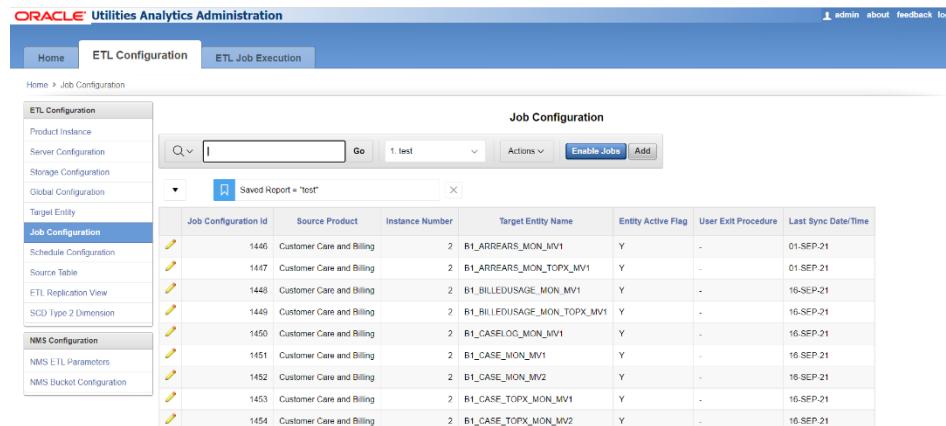
Attribute	Purpose
Slice Duration Type	A slice is a volume of data bound within a time span (duration). Different objects have differing data distribution and load processing requirements. This attribute controls the duration between two slices. The following slicing intervals are supported: <ul style="list-style-type: none"> • Day(s) • Week(s) • Month(s) • Quarter(s) • Year(s) • Hour(s) • Minute(s)
Slice Duration	The number identifying the slice duration based on the slice duration type.
ODI Package Name	The name of the Oracle Data Integrator scenario that should be executed.
Staging Retention Days	The number of days to retain data in the staging tables.
Owner Flag	Indicates whether the record is owned by the base product (BI) or you (CM)

Job Configuration

The **Job Configuration** page, accessible through the **ETL Configuration** tab, is used to provide configuration for the package (the executable logic) to populate the target entities for each instance. This page allows you to add, edit, and delete records.

Note

Base product-owned records are delivered out-of-the-box for the star schemas tables that come with OUAW, and they cannot be deleted. If you want to add any entity to the ELT, you can create a new record, which can be later edited or deleted.



Job Configuration Id	Source Product	Instance Number	Target Entity Name	Entity Active Flag	User Exit Procedure	Last Sync Date/Time
1446	Customer Care and Billing	2	B1_ARREARS_MON_MV1	Y	-	01-SEP-21
1447	Customer Care and Billing	2	B1_ARREARS_MON_TOPX_MV1	Y	-	01-SEP-21
1448	Customer Care and Billing	2	B1_BILLEDUSAGE_MON_MV1	Y	-	16-SEP-21
1449	Customer Care and Billing	2	B1_BILLEDUSAGE_MON_TOPX_MV1	Y	-	16-SEP-21
1450	Customer Care and Billing	2	B1_CASELOG_MON_MV1	Y	-	16-SEP-21
1451	Customer Care and Billing	2	B1_CASE_MON_MV1	Y	-	16-SEP-21
1452	Customer Care and Billing	2	B1_CASE_MON_MV2	Y	-	16-SEP-21
1453	Customer Care and Billing	2	B1_CASE_TOPX_MON_MV1	Y	-	16-SEP-21
1454	Customer Care and Billing	2	B1_CASE_TOPX_MON_MV2	Y	-	16-SEP-21

The following are the attributes displayed on this page:

Attribute	Purpose
Source Product	A reference to the product code, which identifies the product for this instance.
Instance Number	To be populated for instance specific deviations. Ideally most data should be reusable across instances of the same product.
Target Entity	A reference to the entity.
Entity Active Flag	Indicates whether the ELT job should be picked up for execution by the Oracle Data Integrator Scheduler.
Slice Date/Time	That starting timestamp for the next execution.
Initialize Flag	Controls the initialization of the entity for slicing.
Execution Sequence	Sequence of execution within the same group.
Last Sync Timestamp	Stores the timestamp of the most recent successful slice.
Override Slice Duration Type/Override Slice Duration	<p>The override slice duration fields act as the overriding value for the ones in the target entity:</p> <ul style="list-style-type: none"> Type: The override duration unit of measure (for example, Year) Duration: The value for the override slice duration
User Exit Procedure	The procedure name, which can be used to load the user-defined columns in the entity.

Maintain Job Configuration

To specify configuration for a job, open the **Maintain Job Configuration** page by clicking the **Add (+)** or the **Edit** buttons for a selected job record row on the **Job Configuration** page.

Maintain Job Configuration

Main

Job Configuration Id: 1446

Source Product *: Customer Care and Billing

Instance Number *: 2

Target Entity *: 1 B1_ARREARS_MON_MV

Schedule Id *: 2 INC

Scheduling Parameters

Entity Active Flag *: Yes

Slice Start Date/Time *: 01-SEP-2021 00:00:00
Note: Specify in the following format 'DD-MON-YYYY HH24:MI:SS'

Initialize Flag *: Yes

Execution Sequence:

Last Sync Date/Time: 01-SEP-21

Customization Attributes

Override Slice Duration Type: Years

Override Slice Duration:

Override ODI Package Name:

User Exit Procedure:

Record Information

Update Date/Time: 19-Sep-2021 07:44:46

Updated by User: ADMIN

Jobs Enablement

A job can be enabled from the **Job Configuration** page by clicking its respective **Edit** button. Alternately, a group of jobs can be enabled together using the **Enable Jobs** button. There are three job type options:

- **Dimension Jobs**
- **Facts**
- **Facts and Materialized Views**

When the selected job type is either **Dimension Jobs** or **Facts**, the replication objects to be loaded with dimensions and facts are also enabled.

Source Product * Customer Care and Billing

Instance Number * 1

Job Type * Dimension Jobs

Schedule Configuration

The **Schedule Configuration** page, accessible through the **ETL Configuration** tab, is used to configure a job's scheduled start and interval. Multiple schedule types can be created with different schedule periods and jobs can be assigned to them; the various job schedules may be distributed so multiple jobs do not run simultaneously. The schedule period has to be created first and then it has to be updated in the **Job Configuration** page. See [Job Configuration](#) for details.

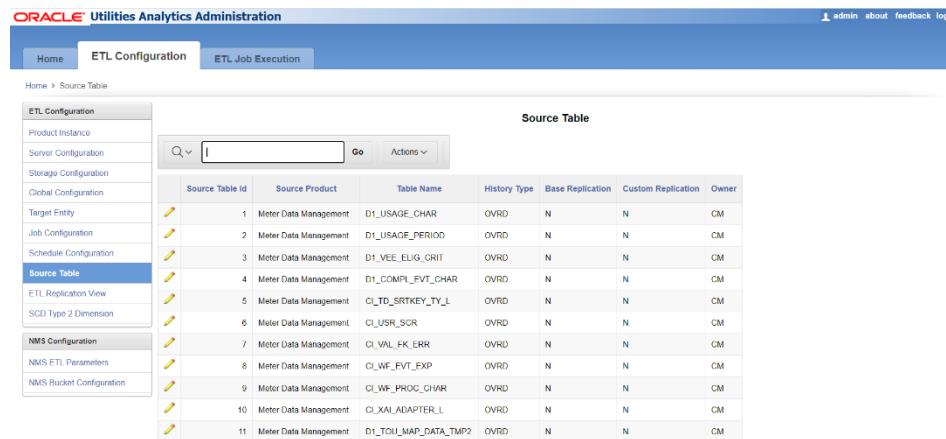
Schedule Id	Schedule Type	Owner	Start Time (HH24:MI:SS)	Interval (HH24:MI:SS)	End Time (HH24:MI:SS)
1	Near Real Time	CM	00:00:00	00:02:00	23:59:59
5	Near Real Time	B1	00:00:00	00:10:00	23:59:59
2	Incremental Update	B1	00:00:00	00:05:00	23:59:59
4	Initial Load Only	B1	00:00:00	00:05:00	20:00:00
3	Daily Refresh	B1	00:00:00	04:00:00	20:00:00

The following are the attributes displayed on the page:

Attribute	Purpose
Schedule Type	There are four schedule types: <ul style="list-style-type: none"> Incremental Update: Load the data when the data is changed in the source. Near Real Time Load: Loads are executed within a configured interval. Daily Refresh: Loads the data once daily (full load). One Time Load: A load is executed only once.
Schedule Start Time	The time in a day when the load can be started.
Schedule Interval	The time interval between the consecutive execution of jobs.
Schedule End Time	The time in a day after which the load cannot be started.

Source Table Configuration

The **Source Table** page, accessible through the **ETL Configuration** tab, displays the list of tables from the source applications that are available for replication in Oracle Utilities Analytics Warehouse (OUAW) and their mode of replication. For those tables that are not replicated in the base product, this page allows you to enable custom replication.



Source Table Id	Source Product	Table Name	History Type	Base Replication	Custom Replication	Owner
1	Meter Data Management	D1_USAGE_CHAR	OVRD	N	N	CM
2	Meter Data Management	D1_USAGEF_PERIOD	OVRD	N	N	CM
3	Meter Data Management	D1_VEE_ELIG_GRIT	OVRD	N	N	CM
4	Meter Data Management	D1_COMPL_FVT_CHAR	OVRD	N	N	CM
5	Meter Data Management	CL_TD_SRTKEY_TV_L	OVRD	N	N	CM
6	Meter Data Management	CL_USR_SCR	OVRD	N	N	CM
7	Meter Data Management	CL_WL_FK_ERR	OVRD	N	N	CM
8	Meter Data Management	CL_WF_EVT_EXP	OVRD	N	N	CM
9	Meter Data Management	CL_WF_PROC_CHAR	OVRD	N	N	CM
10	Meter Data Management	CL_XAI_ADAPTER_L	OVRD	N	N	CM
11	Meter Data Management	D1_TOU_MAP_DATA_TMP2	OVRD	N	N	CM

To enable custom replication for a table:

- Click on the pencil icon on the first column to the left of the table.
- Set the Custom Replication flag value to **Y** for the table in the **Manage Replication Details** section.
- You may also change the History Type of the table to be replicated.

 **Note**

Changing the history type of a table already configured and replicated may result in error in the processing of ELT jobs and in data processing by GoldenGate.

The following are the attributes of the table:

Attribute	Purpose
Source Product	A reference to the product code that identifies the product for this instance.
Table Name	The name of the source table. There is also a corresponding entry in the objects table.
History Type	The following scenarios exist: <ul style="list-style-type: none"> Source system tracks history using an effective date column. No history in source, but history needed for the Type 2 dimensions. No history required.
Effective Date Column Name	The column name used for storing the effective dates in the source.
Characteristic Entity	Identifies the Char Entity flag in the source Oracle Utilities Application Framework application.
Base Replication	Controls whether the table is required to be replicated for target entity load.
Group Number	Defines the grouping of various tables for a source product. The group numbers are used to define the various GoldenGate models that are set up to extract data from the source system.
Custom Replication	Extension for customizations. The additional tables to be marked for replication.
Purge Enabled	Controls whether the replicated table should be purged or not.
Replication Retention Days	The number of days the data should be retained in the replication layer.
Owner Flag	Indicates whether the record is owned by the base product (B1) or you (CM).

ETL Replication View

Every ETL job in the data warehouse depends on one or more Oracle Data Integrator interfaces to populate the target fact or dimension tables. The starting point is a view defined for the ETL job in the replication layer of the specific source product. This ETL replication view fetches the base values from the replication tables as a starting point for further transformations to be done by the Oracle Data Integrator interfaces.

In certain business scenarios, it might be necessary for you to override the definition of the provided ETL replication view. For example, in Oracle Utilities Network Management System, a particular type of data may be stored in different tables based on the network model. The base view definitions supplied for Oracle Utilities Network Management System ETL are designed based on the OPAL network model. When you use a different model, you might have to change the definition of some of these views in the replication layer for your network model.

Object Id	Source Product	View Name	View Type	Custom ODI Scenario Name	Target Entity
2197	Customer Care and Billing	B1_D_UOM_VW	Primary View	-	CD_UOM
2181	Customer Care and Billing	B1_F_CASE_VW	Primary View	-	CF_CASE
2138	Customer Care and Billing	B1_F_ANRILARS_VW	Primary View	-	CF_ANRILARS
1544	Customer Care and Billing	B1_D_CASE_COND_VW	Primary View	-	CD_CASE_COND
1543	Customer Care and Billing	B1_F_COIL_PROC_VW	Primary View	-	CF_COIL_PROC
2180	Customer Care and Billing	B1_F_FT_COL_VW	Primary View	-	CF_FT_COL
2277	Customer Care and Billing	B1_D_DAYS_LAST_FRZ_BS_VW	Primary View	-	CD_DAYS_LAST_FRZ_BS
2282	Customer Care and Billing	B1_D_PAY_METHOD_VW	Primary View	-	CD_PAY_METHOD
2183	Customer Care and Billing	B1_D_PAY_CAN_RSN_VW	Primary View	-	CD_PAY_CAN_RSN
1533	Customer Care and Billing	B1_D_UCOLPROC_TMPL_VW	Primary View	-	CD_UCOLPROC_TMPL

To take a more specific example, the B1_D_ACCT_VW for the account dimension in the Oracle Utilities Network Management System star schema tries to fetch the account-related attributes from the CES_CUSTOMERS_HISTORY table. If your model stores the account attributes in a different table, then the view definition needs to be changed. The **Maintain ETL Replication Views** page in the Oracle Utilities Analytics Administration Tool allows you to do this by defining a custom Oracle Data Integrator interface to generate the view. The view name and the column names in the view should be exactly as it was delivered. However, the view definition can be changed in accordance with your requirements.

A scenario should be generated for the custom Oracle Data Integrator interface and should be shown in the **Oracle Utilities Analytics Administration** tool page against the appropriate view name with a definition that needs to be overridden. When views are then generated through the Run View Generator script, the ETL framework creates the view-based Oracle Data Integrator scenario that you entered.

SCD Type 2 Dimension Column Properties of Type 2 Slowly Changing Dimension

A type 2 slowly changing dimension has the following column types:

- Natural Key
- SCD Start
- SCD End
- SCD Flag

Any change in any of the remaining columns is treated as a new history item for the same natural key. You can decide which of the columns should not be considered for creating a new history item. Using Oracle Data Integrator, this is done by changing the corresponding property

of the column in the model of the target dimension. However, this change requires regeneration of the dimension load scenario. The customization that you do will get overridden by any future upgrades provided by Oracle. You can control the columns where a change causes a history to be created.

You can change the properties by accessing the administration tool.

SCD Type 2 Dimension - Hybrid Behavior

Dimension Id	Source Product	Dimension Table Name	Owner
155	Customer Care and Billing	CD_TD_TYPE	B1
169	Customer Care and Billing	CD_RATE	B1
171	Customer Care and Billing	CD_COLLPROC_IMPL	B1
269	Customer Care and Billing	CD_ADJ_TYPE	B1
283	Customer Care and Billing	CD_PREF	B1
288	Customer Care and Billing	CD_PKG	B1
307	Customer Care and Billing	CD_ACCT	B1
313	Customer Care and Billing	CD_CAMPAIGN	B1
314	Customer Care and Billing	CD_UCOLPROC_IMPL	B1

Modify SCD Type 2 Dimension Behavior

Dimension Name	CD_TD_TYPE							
Dimension Id	Dimension Column Id	Column Name	Ts	Data Type	Column Behavior	Updated Date/Time	Updated By	Owner
155	5791	TD_TYPE_DESCR		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	5562	UDF10_CD		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	5939	UDF10_DESCR		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	5879	UDF1_CD		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	4217	UDF1_DESCR		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	5937	UDF2_CD		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	6880	UDF2_DESCR		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	6881	UDF3_CD		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	5715	UDF3_DLSCR		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	5716	UDF4_CD		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	
155	5580	UDF4_DLSCR		VARCHAR2(60)	Add Row On Change	03-AUG-2021 14:11:20	ORACLE	

Once the configurations have been changed, a script needs to be executed to ensure the changes have been applied to the appropriate scenarios. For Unix, perform the following steps:

1. Navigate to the /bin directory.
2. Add Java 8 to the following path variable:
`export PATH=/bin:$PATH`
3. Run `ksh ./updateODIMetadata.sh`.

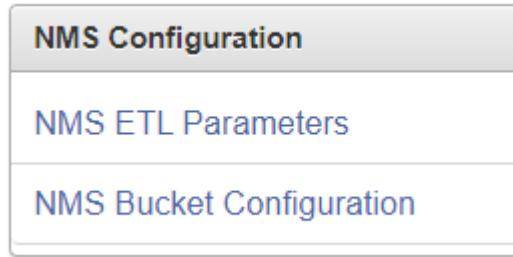
Note

After the SCD2 dimension behavior is customized, execute the script after every upgrade to retain the customized behavior.

NMS Configuration

Before attaching a specific source system to Oracle Utilities Analytics Administration, there are some configurations that need to be done for every source system for its ETL to function properly. These configurations include setting up certain parameters to be referred to during the extraction or setting up bucket ranges to classify the measures in a fact.

You can set up the configurations needed for the Oracle Utilities Network Management System ETL processes via the Oracle Utilities Analytics Administration Tool using the two pages grouped under the NMS Configuration.



Note

Details are covered in the Configuring Source > Oracle Utilities Network Management System (NMS) section in Chapter 5: Configuring Oracle Utilities Analytics, where the configurations needed for every source system are discussed at length with all necessary details.

ETL Job Execution

The **Job Execution** page, accessible through the **ETL Job Execution** tab, is used for tracking the execution of ETL processes. An entry is created for each execution.

The following image shows an example of the job execution log table.

Source Product	Instance	Entity Name	Session	Status	Slice Start Date	Slice End Date	Session Start Date	Session End Date
Meter Data Management	1	CD_IMD_TYPE	1451	Done	01-JAN-2005 00:00:00	01-JAN-2006 00:00:00	11-AUG-2021 10:18:33	11-AUG-2021 10:18:36
Meter Data Management	1	CD_SF_STATUS	1405	Done	01-JAN-2003 00:00:00	01-JAN-2004 00:00:00	11-AUG-2021 10:18:21	11-AUG-2021 10:18:30
Meter Data Management	1	CD_DEVICE_EVT_STATUS	1382	Done	01-JAN-2002 00:00:00	01-JAN-2003 00:00:00	11-AUG-2021 10:18:16	11-AUG-2021 10:18:25
Meter Data Management	1	CD_VLL_RULE	1406	Done	01-JAN-2003 00:00:00	01-JAN-2004 00:00:00	11-AUG-2021 10:18:21	11-AUG-2021 10:18:24
Meter Data Management	1	CD_IOM_TOU_SQL	1407	Done	01-JAN-2003 00:00:00	01-JAN-2004 00:00:00	11-AUG-2021 10:18:22	11-AUG-2021 10:18:25
Meter Data Management	1	CD_IOM_TOU_SQL	1452	Done	01-JAN-2005 00:00:00	01-JAN-2006 00:00:00	11-AUG-2021 10:18:33	11-AUG-2021 10:18:36
Meter Data Management	1	CD_VEE_RULE	1359	Done	01-JAN-2001 00:00:00	01-JAN-2002 00:00:00	11-AUG-2021 10:18:11	11-AUG-2021 10:18:13
Meter Data Management	1	CD_DEVICE_ACTIVITY_STATUS	1335	Done	01-JAN-2000 00:00:00	01-JAN-2001 00:00:00	11-AUG-2021 10:18:05	11-AUG-2021 10:18:12
Meter Data Management	1	CD_DEVICE_EVT_STATUS	1453	Done	01-JAN-2005 00:00:00	01-JAN-2006 00:00:00	11-AUG-2021 10:18:34	11-AUG-2021 10:18:43
Meter Data Management	1	CD_USAGE_GROUP	1383	Done	01-JAN-2002 00:00:00	01-JAN-2003 00:00:00	11-AUG-2021 10:18:16	11-AUG-2021 10:18:18

The following are the attributes on this table:

Attribute	Purpose
Job Configuration	A reference to the job configuration.
Session Number	Reference to the Oracle Data Integrator session number.
Scheduled Start Time	Start time as set in the schedule.
Slice Start	Starting timestamp of the slice.
Slice End	Ending timestamp of the slice.

Attribute	Purpose
Status	A composite status of the job. The status is primarily derived from SNP_SESSION; however additional statuses are tracked in job executions: <ul style="list-style-type: none">• Pending• Submitted• Reprocessed• Error• Done• Running
Actual Start Time	The timestamp when the job actually started.
Actual End Time	The timestamp when the job actually ended.
Duration	The total execution time in seconds.
Insert Count	The number of records inserted.
Update Count	The number of records updated.
Delete Count	The number of deletions.
Error Count	The number of rows identified as error.
Total Count	The number of rows processed. Sum of all the counts mentioned above.

System Requirements Supported Platforms

An Oracle Utilities Analytics Warehouse installation has specific requirements, and is tested and supported on specific operating systems, software, and database server combinations. For more information, see the **Supported Platforms Notice** section in the *Oracle Utilities Analytics Warehouse Release Notes* included in the [Oracle Utilities Analytics Warehouse](#) v25.10.0.0.0 documentation.

Supported Source Applications

Oracle Utilities Analytics Warehouse v25.10.0.0 supports specific source application versions. (A source application is software provided by Oracle Utilities to enable utility operations, such as Customer Care and Billing or Work and Asset Management.) For more information, see the **Supported Source Application Versions** section in the Oracle Utilities *Analytics Warehouse Release Notes* included in the [Oracle Utilities Analytics Warehouse](#) v25.10.0.0 documentation.

Install and Configure Oracle Utilities Analytics Warehouse

This section provides you with the respective flows for the initial installation and configuration of Oracle Utilities Analytics Warehouse (OUAW). As part of this initial installation, you will assess what hardware you need to acquire based on the customer's data size. You will also install prerequisite software, install, and configure the required components on database and application servers, and run installation validations.

In this section:

[Perform Pre-Installation Steps for OUAW](#)

[Install Database Component](#)

[Install Dashboards Component](#)

[Install ETL Component](#)

[Install Admin Tool](#)

[Configure ETL Source for OUAW](#)

[Configure Analytics](#)

[Configure Spatial Data](#)

[Configure Email Alerts for ETL Jobs](#)

Perform Pre-Installation Steps for OUAW

This page will help you plan and execute the installation and configuration of the Oracle Utilities Analytics Warehouse (OUAW). Use the instructions and information below to download and install the prerequisite software, and then carry out the validations tasks on the database and application servers as described.

Note

This page assumes you have database and middleware administrator knowledge.

System Requirements and Supported Platforms

Before you begin installation, verify that the minimum system hardware and network requirements are met. See [System Requirements Supported Platforms](#).

Next, determine your installation target. One possible OUAW deployment topology option is a multi-nodes topology, which deploys the database and application components on separate dedicated servers. The other option is to deploy both the OUAW database and application components on a single high-capacity server.

Pre-Installation Requisites for OUAW Database Server

The prerequisite software for installing OUAW on a target database server is listed below. The target database server will be used by the OUAW database component, as well as the repositories created for the Oracle Data Integrator-based ETL, Dashboards, and Admin Tool components.

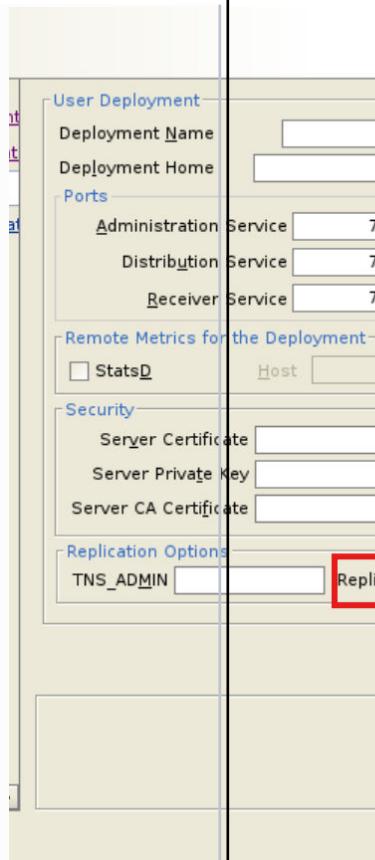
Note

While the table below includes some example directory structures, you can decide where the software will be installed. Make sure you keep track of all the home directories you create, as these will be used at the time of OUAW installation. Additionally, make sure the same OS user installs all software, and replace all parameters enclosed in <> with actual values.

Task	Description
Download and install the Java Development Kit	<ol style="list-style-type: none">1. Download the Oracle Java Development Kit (JDK) 17.0.16+ version from My Oracle Support to a temporary directory. Example: </u01/ouaw/temp/java>.2. Install the JDK at a customized location. Example: </u01/ouaw/java>. This location will be referred to as JAVA_HOME.
Download and install Oracle Database Server Enterprise	<ol style="list-style-type: none">1. Download Oracle Database Server Enterprise Edition 19c from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/database>.2. Install the database at a customized location. Example: </u01/ouaw/database>. This location will be referred to as ORACLE_HOME.
Download and apply Database Server Patch	Download and apply the Database Server Patch 37960098 from My Oracle Support . <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> Note<p>Find the detailed patch installation steps in the README file within each Patch Package.</p></div>
Create database for installation	Create a database for OUAW installation. Use the AL32UTF8 character set.

Task	Description
Download and install GoldenGate Microservices	<ol style="list-style-type: none"><li data-bbox="926 266 1468 413">1. Download Oracle GoldenGate Microservices 23ai from Oracle Software Delivery Cloud to a temporary directory. See Installing Oracle GoldenGate Microservices for details.<li data-bbox="926 413 1468 561">2. Install Oracle GoldenGate Microservices on the Target Database server(s) at a customized location. <p data-bbox="926 561 1468 677">Example: </u01/ouaw/temp/goldengate>. This will be referred to as Oracle GoldenGate Microservices Installation Home.</p>
Apply patch for GoldenGate Microservices	<p data-bbox="926 688 1400 751">Download and apply patch 38139662 (for Linux) from My Oracle Support.</p> <div data-bbox="1142 792 1468 1045" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p data-bbox="1166 813 1281 844"> Note</p><p data-bbox="1199 865 1460 1024">Find the detailed patch installation steps in the README file within each Patch Package.</p></div>

Task	Description
Create Oracle GoldenGate Microservices Deployment	<p>Prerequisite:</p> <ul style="list-style-type: none">• Ensure you have Root CA Certificates, Server Certificates, Client Certificates for Distribution (Source) and Receiver (Target) GoldenGate Microservices Servers and create the trust between the Certificates before Oracle GoldenGate Microservices Deployment. See more details for Secure. <p>Add Oracle GoldenGate Microservices Deployment with the following command:</p> <pre><Oracle GoldenGate Microservices Installation Home>/bin/oggca.sh</pre> <p>Refer to Deploy for more information.</p> <p>Examples:</p> <ul style="list-style-type: none">• </u01/ouaw/goldengate_SM> - This will be referred to as Oracle GoldenGate Microservices Service Manager Home.• </u01/ouaw/goldengate_Deploy> - This will be referred to as Oracle GoldenGate Microservices Deployment Home. <p>Note</p> <p>Set the Replication Schema settings.</p> <ol style="list-style-type: none">1. Set the Replication Schema to MDADM for the Receiver (Target) GoldenGate Microservices.

Task	Description
	 <p>2. Set the Replication Schema to the Oracle GoldenGate Owner like <i>C##GGOWNER</i> for the Distribution (Source) GoldenGate Microservices. This user will be created during the configuration in Configure ETL Source for OUAW.</p>

Task	Description
Download and extract Oracle APEX	<ol style="list-style-type: none">1. Download Oracle APEX 24.2 from Oracle APEX to a local directory. Example: </u01/ouaw/apex>.2. Extract the APEX installer into customized location. Example: </u01/ouaw/apex>. This location will be referred to as the APEX Home directory.

Task	Description
Download the OUAW database software	<ol style="list-style-type: none"><li data-bbox="917 261 1449 382">1. Download "Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip" from Oracle Software Delivery Cloud.<li data-bbox="917 397 1449 487">2. Unzip the file to a temporary directory using any zip command. Example: </u01/ouaw/temp/database>. <div data-bbox="1165 536 1472 853" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p>i Note</p><p>You can find the OUAW Database Installers at the following location after unzipping the file </u01/ouaw/temp/database/BI251000> .</p></div>
Extract the Admin Tool	<ol style="list-style-type: none"><li data-bbox="917 903 1449 994">1. Download "Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip" from Oracle Software Delivery Cloud.<li data-bbox="917 1009 1449 1184">2. Extract "Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip" AdminTool folder to a temporary directory. Example: </u01/ouaw/temp/AdminTool>. This directory contains database SQL scripts.

Pre-Installation Requisites for OUAW Application Server

This section covers the downloads and installation instructions that can be performed on the OUAW application server.

i Note

While the table below includes some example directory structures, you can decide where the software will be installed. Make sure you keep track of all the home directories you create, as these will be used at the time of OUAW installation. Additionally, make sure the same OS user installs all software, and replace all parameters enclosed in <> with actual values.

Task	Description
Download and install the Java Development Kit	<p>Java 8</p> <ol style="list-style-type: none"> 1. Download Oracle Java Development Kit (JDK) 17.0.16+ from My Oracle Support to a temporary directory on the application server. Example: </u01/ouaw/temp/java> 2. Install the JDK at a customized location. Example: </u01/ouaw/java8>. <div data-bbox="997 530 1475 713" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p> ⓘ Note</p> <p>This will be referred to as JAVA_HOME for FMW 12c and OAS installation.</p> </div> <p>Java 17</p> <ol style="list-style-type: none"> 1. Download Oracle Java Development Kit (JDK) 17.0.16+ from My Oracle Support to a temporary directory on the application server. Example: </u01/ouaw/temp/java> 2. Install the JDK at a customized location. Example: </u01/ouaw/java17>. This will be referred to as JAVA_HOME. <div data-bbox="997 1030 1475 1290" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p> ⓘ Note</p> <p>This will be referred to as JAVA_HOME for FMW 14c, ODI 14c, Apex 24.2, ORDS 25.1, and Oracle Utilities Analytics Warehouse installation.</p> </div>
Download and install database client	<p>Download the Oracle Database Client from Oracle Software Delivery Cloud and install it at a customized location. Example: </u01/ouaw/clientBase>.</p> <div data-bbox="1139 1459 1475 1854" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p> ⓘ Note</p> <p>This task is optional if both the OUAW application server and the database server are installed on the same machine. See Install Oracle Database Client for more information.</p> </div>

Task	Description
Download and install Oracle Fusion Middleware Infrastructure	<p>FMW 12c</p> <ol style="list-style-type: none">1. Download the Oracle Fusion Middleware Infrastructure 12.2.1.4 from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/middleware>.2. Install the software at a customized location. Example: </u01/ouaw/middleware12c>. <div data-bbox="997 587 1475 741" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p>ⓘ Note</p><p>This will be referred to as FMW 12c Home for OAS installation.</p></div> <p>See Install Oracle Fusion Middleware Infrastructure for more information.</p>
	<p>FMW 14c</p> <ol style="list-style-type: none">1. Download the Oracle Fusion Middleware Infrastructure 14.1.2.0 from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/middleware>.2. Install the software at a customized location. Example: </u01/ouaw/middleware14c>. <div data-bbox="997 1157 1475 1410" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p>ⓘ Note</p><p>This will be referred to as FMW 14c Home for Apex Domain where i.war (Apex 24.2) and ords.war (ords 25.1.1) will be deployed and ODI 14c installation.</p></div> <p>See Install Oracle Fusion Middleware Infrastructure for more information.</p>

Task	Description
Download and apply Oracle Fusion Middleware Infrastructure Patch	<p>FMW/WLS 12c Patches</p> <p>FMW/WLS 14c Patches</p> <ol style="list-style-type: none"> 1. Download the Oracle WebLogic Server 14.1.2 Patch 38166406 from My Oracle Support. 2. Download and apply the Oracle Fusion Middleware Infrastructure 14.1.2 Patches 38015961, 38184117, and 38032126 from My Oracle Support. <p>Note Find the detailed patch installation steps in the README file within each Patch Package.</p>
Download and install Oracle Analytics Server (OAS)	<ol style="list-style-type: none"> 1. Download the Oracle Analytics Server version 8.2 (2025) from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/oas> 2. Install the OAS software at the <FMW 12c Home> location, here considers ORACLE_HOME path. Example: </u01/ouaw/middleware12c>. After installation, you can find the "bi" directory inside the FMW Home. Example: <FMW 12c Home>/bi. <p>See Install Oracle Analytics Server for more information.</p>

Task	Description
Download and apply Oracle Analytics Server (OAS) Patch	<p>Download and apply the Oracle Analytics Server 8.2 patches 38161336 and 34809489 from My Oracle Support.</p> <div data-bbox="1142 369 1468 623" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p>Note</p> <p>Find the detailed patch installation steps in the README file within each Patch Package.</p> </div>
Configure Oracle Analytics Server domain	<ol style="list-style-type: none"> 1. Navigate to the OAS installed \$ORACLE_HOME/bi/bin location. Example: <FMW 12c Home>/bi/bin. 2. Run the following script: ./config.sh 3. Configure the Oracle Analytics Server domain with a customized name. Example: <oas_domain> at a customized location, such as </u01/ouaw/domains>. This will be referred to as DOMAIN Home. 4. While running the Oracle Repository Creation Utility as part of the domain configuration, do the following: <ul style="list-style-type: none"> • Enter the connection string based on the type of database as 'Oracle'. • Enter a unique schema prefix, such as 'OAS'. <p>See Configuring the Oracle Analytics Server Domain with the Configuration Assistant for additional details.</p>
Download and install Oracle Data Integrator (ODI)	<ol style="list-style-type: none"> 1. Download Oracle Data Integrator (ODI) 14.1.2 from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/ODI>. 2. Extract and install ODI at the ORACLE_HOME location at same as FMW 14c Home path. Example: </u01/ouaw/middleware14c>. After installation, you can find the ODI directory under the FMW Home path. Example: <FMW 14c Home>/odi. <p>If necessary, see Install Oracle Data Integrator for detailed instructions.</p>

Task	Description
Download and apply the ODI patch	<p>Download and apply the Oracle Data Integrator 14.1.2 patches 38172533 and 36668195 from My Oracle Support.</p> <div data-bbox="1142 380 1468 623" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p> Note</p><p>Find the detailed patch installation steps in the README file within each Patch Package.</p></div>

Task	Description																										
Configure repository	<p>1. Ensure JAVA_HOME is defined.</p> <p>2. Ensure ODI is installed.</p> <p>3. Run the Repository Creation Utility (RCU) for ODI schema. Example execution:</p> <pre><FMW 14c Home>/oracle_common/bin ./rcu</pre> <p>4. Create a Schema repository for ODI and provide the database connection details. On the Select Components section, create a new prefix (for example, 'ODI') and select the schema as per screenshot below.</p> <div data-bbox="979 718 1468 887" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>Do not select the Oracle Data Integrator checkbox.</p> </div> <div data-bbox="971 950 1558 1478" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p>Specify a unique prefix for all schemas created in this session, so you can easily locate, reference, and manage the schemas later.</p> <p><input type="radio"/> Select existing prefix: <input type="text"/></p> <p><input checked="" type="radio"/> Create new prefix: <input type="text" value="ODI"/> Alpha numeric only. Cannot start with a number. No ...</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Component</th> <th style="text-align: left;">Schema Owner</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Oracle AS Repository Components</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> AS Common Schemas</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Common Infrastructure Services *</td> <td>ODI_STB</td> </tr> <tr> <td><input checked="" type="checkbox"/> Oracle Platform Security Services</td> <td>ODI_OPSS</td> </tr> <tr> <td><input type="checkbox"/> User Messaging Service</td> <td>UMS</td> </tr> <tr> <td><input checked="" type="checkbox"/> Audit Services</td> <td>ODI_IAU</td> </tr> <tr> <td><input checked="" type="checkbox"/> Audit Services Append</td> <td>ODI_IAU_APPEND</td> </tr> <tr> <td><input checked="" type="checkbox"/> Audit Services Viewer</td> <td>ODI_IAU_VIEWER</td> </tr> <tr> <td><input type="checkbox"/> Metadata Services</td> <td>MDS</td> </tr> <tr> <td><input checked="" type="checkbox"/> Weblogic Services *</td> <td>ODI_WLS</td> </tr> <tr> <td><input type="checkbox"/> Oracle Data Integrator</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Master and Work Repository</td> <td>ODI_REPO</td> </tr> </tbody> </table> <p>* Mandatory component. Mandatory components cannot be deselected.</p> <p style="text-align: right;">< Back <input type="button" value="Next >"/> <input type="button" value="Finish"/> <input type="button" value="Cancel"/></p> </div> <p>5. Click Next and proceed through the rest of the screens to create the repository.</p> <div data-bbox="979 1626 1468 1837" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>Keep track of the password given. It will be required while creating the Oracle Data Integrator domain.</p> </div>	Component	Schema Owner	<input type="checkbox"/> Oracle AS Repository Components		<input checked="" type="checkbox"/> AS Common Schemas		<input checked="" type="checkbox"/> Common Infrastructure Services *	ODI_STB	<input checked="" type="checkbox"/> Oracle Platform Security Services	ODI_OPSS	<input type="checkbox"/> User Messaging Service	UMS	<input checked="" type="checkbox"/> Audit Services	ODI_IAU	<input checked="" type="checkbox"/> Audit Services Append	ODI_IAU_APPEND	<input checked="" type="checkbox"/> Audit Services Viewer	ODI_IAU_VIEWER	<input type="checkbox"/> Metadata Services	MDS	<input checked="" type="checkbox"/> Weblogic Services *	ODI_WLS	<input type="checkbox"/> Oracle Data Integrator		<input type="checkbox"/> Master and Work Repository	ODI_REPO
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<input checked="" type="checkbox"/> Audit Services Viewer	ODI_IAU_VIEWER																										
<input type="checkbox"/> Metadata Services	MDS																										
<input checked="" type="checkbox"/> Weblogic Services *	ODI_WLS																										
<input type="checkbox"/> Oracle Data Integrator																											
<input type="checkbox"/> Master and Work Repository	ODI_REPO																										

Task	Description
Download APEX	Download the Oracle APEX 24.2 from Oracle APEX and extract it to a local directory. Example: </u01/ouaw/apex>. After extraction you can see the apex folder. Example: </u01/ouaw/apex/apex>.
Download ORDS	Download the Oracle REST Data source (ORDS) 25.1.1 version from Oracle REST Data Services and extract it to a local directory.
Download the OUAW application software	<ol style="list-style-type: none"> 1. Download "Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip" and "Oracle Utilities Analytics Warehouse v25.10.0.0 Dashboard Component.zip" from Oracle Software Delivery Cloud. 2. Extract "Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip" and "Oracle Utilities Analytics Warehouse v25.10.0.0 Dashboard Component.zip" to a temporary directory. Example: </u01/ouaw/temp/application>. The ETL component installer jar file is OUAW_25.10.0.0.0_ETL_generic.jar and Dashboard Components are <OAS Version>/rpd, catalog, and WriteBackTemplates.

OUAW Directory Structures and Other Required Information

The example software installation directories listed below can be used for OUAW installations and configurations. These locations will be referred to as the Java Home, Oracle Home, GoldenGate Home, Domain Home, Database, and Application Home.

Information Type	Example
JAVA_HOME The Java installation path on the OUAW database and application servers.	<Java Home on Application Server> Example: </u01/ouaw/java8> or </u01/ouaw/java17>
ORACLE_HOME The Oracle database installation path on the OUAW database server.	<Database Home on Database Server> Example: </u01/ouaw/database>
Database Client The Oracle Database client installation path on the OUAW application server.	<Database Client Home on Application Server> Example: </u01/ouaw/clientBase>
GoldenGate Microservices Installation Home The Oracle GoldenGate Microservices installation path on the OUAW database server.	<GoldenGate Microservices Installation Home on Database Server> Example: </u01/ouaw/goldengate_MA>
GoldenGate Microservices Service Manager Home The Oracle GoldenGate Microservices Service Manager path on the OUAW database server.	<GoldenGate Microservices Service Manager Home on Database Server> Example: </u01/ouaw/goldengate_SM>

Information Type	Example
GoldenGate Microservices Deployment Home	<GoldenGate Microservices Deployment Home on Database Server>
The Oracle GoldenGate Microservices Deployment Home on the OUAW database server.	Example: </u01/ouaw/goldengate_Deploy>
FMW Home	<FMW Home on Application Server Used for OAS/ODI>
The Oracle Fusion Middleware Infrastructure installation path on the OUAW application server.	Example: </u01/ouaw/middleware12C> or </u01/ouaw/middleware14c>
OAS Domain	Example: </u01/ouaw/domains/oas_domain>
The OAS Domain path. Keep track of this value, as it is referenced while Installing OUAW Dashboards.	
Source & Target GoldenGate Microservice Service Manager Port	Example: <7860>
Source & Target GoldenGate Microservice Admin Service Port	Example: <7861>
Keep track of this value, as it is referenced while installing OUAW ETL and Source Configuration	
Source & Target GoldenGate Microservice Distribution Service Port	Example: <7862>
Keep track of this value, as it is referenced while configuring Source	
Source & Target GoldenGate Microservice Receiver Service Port	Example: <7863>
Keep track of this value, as it is referenced while installing OUAW ETL	
Database Server Host Name	Example: <target.dbserver.hostname>
The database server where the database needs to be installed.	
Source & Target GoldenGate Microservice Host Name	Example <target.ggms.server.host> = <target.dbserver.hostname> <source.ggms.server.host> = <source.dbserver.hostname>
Application Server Host Name	Example: <appserver.hostname>
The application server where Java, FMW, ODI, and OAS software components need to be installed.	

Install Database Component

This page will guide you in installing the Database component for Oracle Utilities Analytics Warehouse (OUAW).

Note

The tasks below must be followed in sequential order.

Prerequisites

Before installing the OUAW Database component, verify the following:

- Ensure the same OS user installs the required software.
- Ensure Java 17 is installed on the database server.
- Ensure Oracle Database Server Enterprise Edition is installed on the database server.
- Ensure the database is created.
- Ensure the storage.xml file (included in the package in <TEMPDIR>/BI251000/<DB Schema>/Install-Upgrade) allocates all the base tables and indexes to the default tablespace **CISTS_01**. If a few tables or indexes outside of the default tablespace need to be allocated, it should be reflected in the storage.xml file by changing the tablespace name from the default value to a custom value.

See [Perform Pre-Installation Steps for OUAW](#) for more information.

Create OUAW Users and Tablespaces

The following configurations are required for the OUAW database server.

Set the Database Parameters

1. Connect to the database server with sys administrator credentials. Example:

```
sqlplus sys/<sys password>@<database service name> as sysdba
```

2. Check the current values of the parameters below:

```
show parameter cursor
show parameter Processes
```

3. If the open_cursor value and processes values are less than 3000 and 1000, then change the values as follows:

```
alter system set open_cursors=3000 scope=both;
alter system set processes=1000 scope=both;
```

Create Users and Tablespaces

1. Create the required tablespaces and proceed with user creation. The default name of the application tablespace is **CISTS_01**. Assign the tablespaces created in this step as the default tablespaces while creating the users mentioned in next step.

① Note

If you are not creating and assigning the CISTS_01 tablespace as the default tablespace to DWADM, MDADM, and RELADM users (or if DWADM, MDADM, and RELADM users do not have a quota on the CISTS_01 tablespace), then edit the Storage.xml file to indicate the correct tablespace name on which ADM schemas have quota. The Storage.xml file is located under the Install-Upgrade directory.

2. Create users in the database with the names below (without giving specific roles):
 - **DWADM**: Contains star schema objects (such as facts and dimensions) containing the data of the data warehouse.
 - **DWUSER**: User with read/write access to objects in DWADM schema.
 - **DWREAD**: User with read only access to objects in DWADM schema.
 - **MDADM**: A metadata schema consisting of database objects used for storing the Oracle Utilities Analytics metadata.
 - **RELADM**: A metadata schema consisting of database objects used to store the product version and component installation information.
 - **OUA_MASTER**: ODI Master repository schema.
 - **OUA_WORK**: ODI Work repository schema.
 - **DWSTAGE**: The staging schema of the data warehouse.
3. Create roles with the following names:
 - **DW_USER**: Assigned to DWUSER. This contains all grants for READ/WRITE access to objects in the DWADM schema.
 - **DW_READ**: Assigned to DWREAD. This contains all grants for read-only access to objects in the DWADM schema.
 - **DW_PRIVS_ROLE**: Assigned to MDADM. This contains the privileges necessary for the proper functioning of Oracle Utilities Analytics.
 - **DW_REPLICATE**: Assigned to various replication users that get created automatically during the source configuration. The privileges necessary for this role are automatically assigned by Oracle Utilities Analytics.
4. Connect to the database as a sys user.

```
sqlplus sys/<sys password>@<database service name> as sysdba
```

5. Run the SQL below to enable the CHAR Semantic mode.

```
@ouaw_set_char_semantic.sql in <TEMPDIR>/BI251000/Scripts/  
ouaw_set_char_semantic.sql
```

6. Run this SQL to grant the required permission to the previously created users.

```
@Usersgrants.sql in <TEMPDIR>/BI251000/Scripts/Usersgrants.sql
```

Install RELADM Schema

1. Log in to the Database server.

2. Navigate to the temporary directory where the Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip file is unzipped.

```
cd database/BI251000/RELADM/Install-Upgrade
```

3. Review Storage.xml to ensure the RELADM user has quota on mentioned tablespace in file. If not, edit the file with correct tablespace name.
4. Add JAVA_HOME/bin to the PATH variable.
5. Set CLASSPATH pointing to the location where OraDBI.jar and all dependency jars exist.

```
export CLASSPATH=<TEMPDIR>/BI251000/RELADM/Jarfiles/*
```

6. Execute the RELADM installation command below. When it is completed, the utility creates the RELADM schema and system data definitions. If an error occurs while executing a SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

```
java com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE SERVICENAME>,RELADM,<Password of RELADM User>,,,,,RELADM -l 1,2 -o -q true
```

7. To generate database statistics after connecting to sys user, run the statement below:

```
exec DBMS_STATS.GATHER_SCHEMA_STATS( 'RELADM' )
```

Install MDADM Schema

1. Log in to the Database server.
2. Navigate to the temporary directory where Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip file is unzipped.

```
cd database/BI251000/MDADM/Install-Upgrade
```

3. Review Storage.xml to ensure the MDADM user has quota on mentioned tablespace in file. If not, edit the file with correct tablespace name.
4. Add JAVA_HOME/bin to the PATH variable.
5. Set CLASSPATH pointing to the location where OraDBI.jar and all dependency jars exist.

```
export CLASSPATH=<TEMPDIR>/BI251000/MDADM/Jarfiles/*
```

6. Execute the MDADM installation command below. When it is completed, the utility creates the MDADM schema and system data definitions. If an error occurs while executing a SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

```
java com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE SERVICENAME>,MDADM,<Password of MDADM User>,,,,,MDADM -l 1,2 -o -q true
```

7. To generate database statistics after connecting to sys user, run the statement below:

```
exec DBMS_STATS.GATHER_SCHEMA_STATS( 'MDADM' )
```

Install DWADM Schema

1. Log in to the Database server.
2. Navigate to the temporary directory where Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip file is unzipped.

```
cd database/BI251000/DWADM/Install-Upgrade
```

3. Review Storage.xml to ensure the DWADM user has quota on mentioned tablespace in file. If not, edit the file with correct tablespace name.
4. Add JAVA_HOME/bin to the PATH variable.
5. Set CLASSPATH pointing to the location where OraDBI.jar and all dependency jars exist.

```
export CLASSPATH=<TEMPDIR>/BI251000/DWADM/Jarfiles/*
```

6. Execute DWADM installation command below. When it is completed, the utility creates the DWADM schema and system data definitions. If an error occurs while executing a SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

```
java com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE SERVICENAME>,DWADM,<Password of DWADM User>,DWUSER,DWREAD,DW_USER,DW_READ,DWADM -p <Password of DWUSER>,<Password of DWREAD> -l 1,2 -o -q true
```

7. To generate database statistics after connecting to sys user, run the statement below:

```
exec DBMS_STATS.GATHER_SCHEMA_STATS( 'DWADM' )
```

Install Dashboards Component

This page describes the installation process for the Oracle Utilities Analytics Warehouse (OUAW) Dashboards component on the application server.

Prerequisites

Before you begin installing the OUAW Dashboards component, verify the following:

- Ensure the same OS user installs the required software.
- Ensure that all the prerequisite software (such as Java, Oracle Database Client, Oracle Fusion Middleware, Oracle Analytics Server) is installed.
- Ensure that the Oracle Analytics Server (OAS) domain is installed and configured, and that the domain paths are available.
- Verify that the OUAW Dashboards Components are unzipped and available in the <TEMPDIR>/application directory on the application server.

See [Perform Pre-Installation Steps for OUAW](#) for more information.

Set Up the Dashboard Environment

1. Log in to application server.
2. Create a Dashboard Home directory.

Example: `mkdir -p </u01/ouaw/deployment/OUAW_DASHBOARD>`

 **Note**

This directory location is referred to as Dashboards Homes. Keep note of it because it will be used during some deployment steps.

3. Copy catalog, WriteBackTemplates, rpd folders from <TEMPDIR/application> to Dashboard Home folder.

```
cp -rp <TEMPDIR>/application/<OAS Version>/* </u01/ouaw/deployment/OUAW_DASHBOARD>
```

Deploy the Web Catalog

On the Oracle Analytics Server, you can deploy the latest catalogs into the environment using online mode.

1. Navigate to <OAS DOMAIN>/bitools/bin.
2. Create a new credentials file called boot.txt and add the following contents to it:

```
login=<OAS Weblogic admin user>
pwd=<OAS Weblogic admin password>
```

3. For each catalog present under <Dashboards Home>/catalog directory, run the following command from the <OAS DOMAIN HOME>/bitools/bin location. Replace all parameters enclosed in <> with actual values.

 **Note**

The inputFile parameter must be in double quotes, and the catalog filename includes spaces.

```
./runcat.sh -cmd unarchive -folder "/shared" -online http://<OAS SERVER Host>:<OAS Managed SERVER PORT>/analytics-ws/saw.dll -credentials boot.txt -inputFile "<Dashboards Home>/catalog/<Catalog Name>" -overwrite all
```

4. Deploy the 'Spatial Metadata Catalog' on the System folder. Replace all parameters enclosed in <> with actual values.

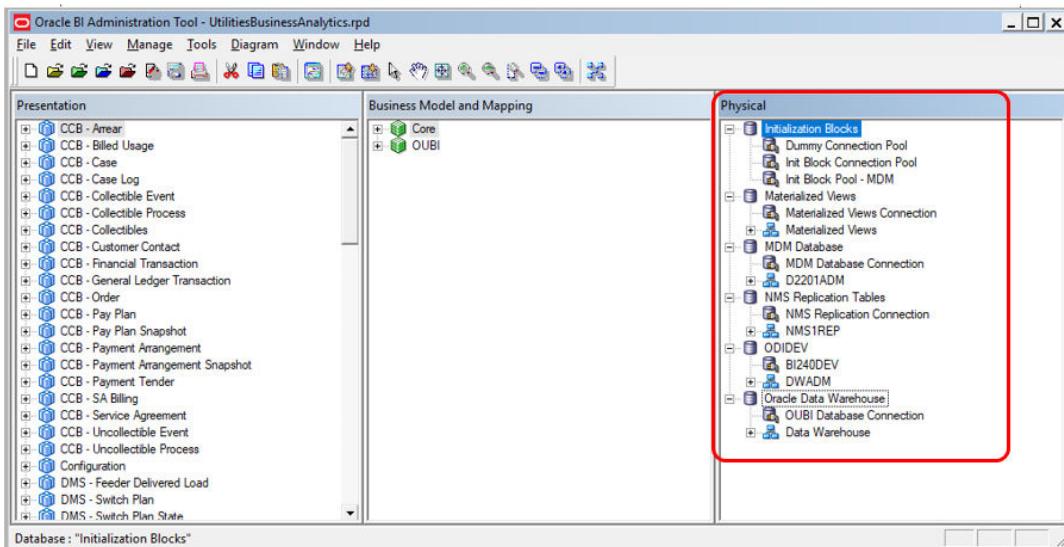
① Note

The inputFile parameter must be in double quotes, and the catalog filename includes spaces.

```
./runcat.sh -cmd unarchive -folder "/system" -online http://<OAS SERVER Host>:<OAS Managed SERVER PORT>/analytics-ws/saw.dll -credentials boot.txt -inputFile "<Dashboards Home>/catalog/Spatial Metadata.Catalog" -overwrite all
```

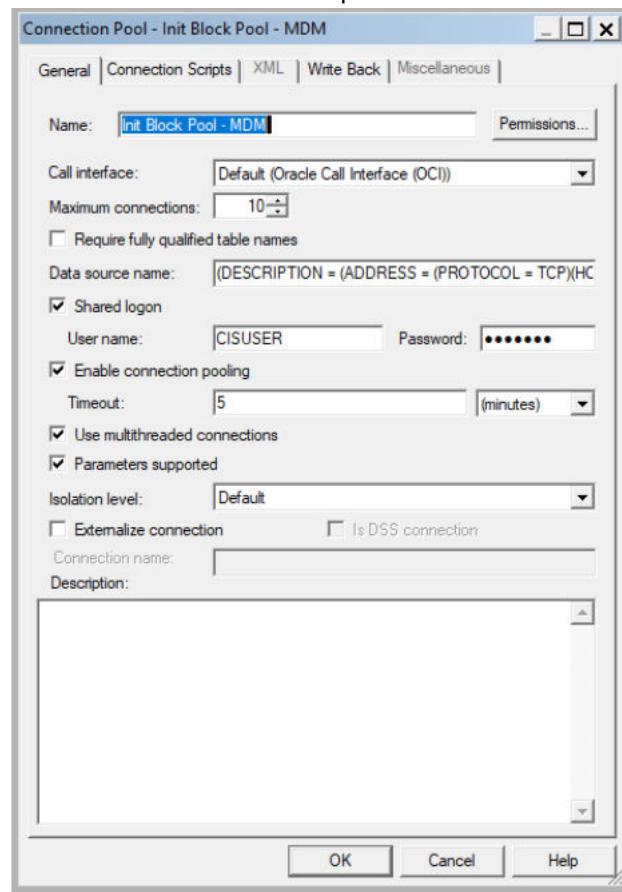
Deploy the Repository (RPD) File

1. Take the Utilities Business Analytics RPD file (UtilitiesBusinessAnalytics.rpd) backup from the OUAW Dashboards component copied location. Example: <**Dashboards Home**>/rpds/UtilitiesBusinessAnalytics.rpd.
2. Copy the file to the Windows machine where Oracle Analytics Client Tools 2025 is installed.
3. Make sure you download Oracle Analytics Client Tools 2025 from [OTN](#) and install it on the Windows machine before proceeding to the next step.
4. Click **Start > Programs > Oracle Analytics Client Tools > Model Administration Tool**.
5. Click **File > Open > Offline...** to open the RPD in offline mode.
6. Provide the RPD password. The default password is “oracle123”.
7. In the Oracle BI Administration tool, go to the **Physical** pane and expand the tree.

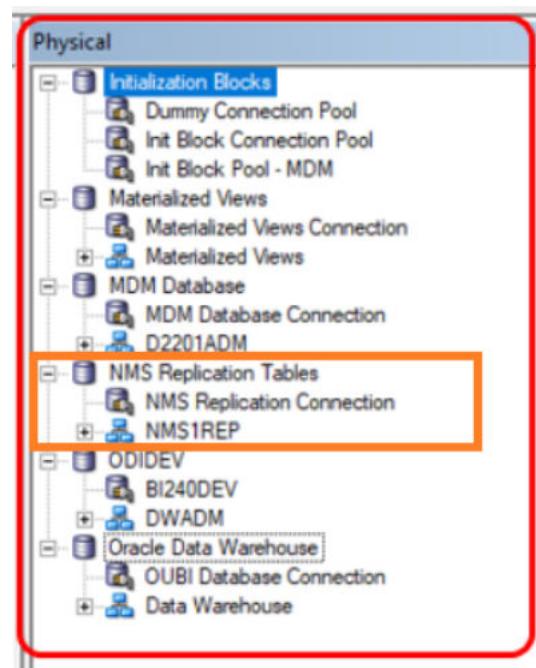


8. Double-click **Init Block Connection Pool** and enter the following:
 - **Data source name:** BI Database name
 - **Username:** DWREAD
 - **Password:** DWREAD User password
9. Double-click **Init Block Pool - MDM** and enter the following (only for Oracle Utilities Meter Data Management):
 - **Data source name:** MDM database name

- **Username:** CISUSER
- **Password:** CISUSER User password



10. Double-click **Materialized Views Connection** and enter the following:
 - **Data source name:** BI Database name
 - **Username:** DWREAD
 - **Password:** DWREAD User password
11. Double-click **MDM Database Connection** and enter the following (only for Oracle Utilities Meter Data Management):
 - **Data source name:** MDM database name
 - **Username:** CISUSER
 - **Password:** CISUSER User password
12. Double-click **NMS Replication Tables** and enter the following (only for Oracle Utilities Network Management System):
 - **Data source name:** BI database name
 - **Username:** DWREAD
 - **Password:** DWREAD User password



Note

The default schema name is <NMS4REP>. If the replication schema name is different, then rename it to the actual value.

13. Double-click **ODIDEV Connection** and enter the following:
 - **Data source name:** BI database name
 - **Username:** DWUSER
 - **Password:** DWUSER User password
14. Double-click **Oracle Data Warehouse OUBI Database Connection** and enter the following:
 - **Data source name:** BI database name
 - **Username:** DWREAD
 - **Password:** DWREAD User password
15. Click **File** and then click **Save the changes**. Click **Yes** when you see the prompt "Do you wish to check global consistency?" Ignore any warnings that appear after the consistency check is complete.
16. Copy the modified RPD back to the path: <Dashboards Home>/rpd/UtilitiesBusinessAnalytics.rpd
17. On the application server where the Oracle Analytics Server (OAS) Domain exists, navigate to <OAS DOMAIN HOME>/bitools/bin and run the following command to deploy the RPD:
 - In Unix if SSL is enabled:

```
./datamodel.sh uploadrpd -I <Dashboards Home>/rpd/UtilitiesBusinessAnalytics.rpd -W <rpd password>, default password is
```

```
oracle123> -U <WebLogic username of OAS domain> -P <WebLogic password of OAS domain> -SI ssi -SSL -TS <keystore> -TSP <keystore_password>
```

- In Unix if SSL is disabled:

```
./datamodel.sh uploadrpd -I <Dashboards Home>/rpd/  
UtilitiesBusinessAnalytics.rpd -W <rpd password, default password is  
oracle123> -U <WebLogic username of OASdomain> -P <WebLogic password of OAS domain> -SI ssi
```

18. Run the following commands from <OAS DOMAIN HOME>/bitools/bin directory to stop and start the OAS domain services respectively.

```
./stop.sh  
./start.sh
```

Deploy Writeback Templates

1. Log in to the application server and run the following commands to deploy writeback templates:

```
mkdir -p <FMW 12c Home>/bi/bifoundation/web/msgdb/l_en/custommessages  
cp <Dashboards Home>/WriteBackTemplates/* <FMW 12c Home>/bi/  
bifoundation/web/msgdb/l_en/custommessages/
```

2. Restart the Oracle Analytics Server services after deploying these writeback templates in the specified path.

```
cd <OAS DOMAIN>/bitools/bin  
./stop.sh  
./start.sh
```

Enable the Autocomplete Feature in Oracle Analytics Server

1. Log in to the Analytics application. <http://<Application Server Host>:<port>/analytics>
2. Click the User profile icon in the top right section of the page.
3. From the drop-down menu, select **My Account**.
4. On the **Preferences** tab, set **Prompt AutoComplete** to **ON**.
5. Click **OK**.

Configure the MapViewer

Configuring and deploying the MapViewer on the application server involves two tasks: configuring the data source for the MapViewer and modifying the instanceconfig.xml file.

Configure the Data Source for the MapViewer

1. Log in to the WebLogic admin console.
2. To create the 'MAP_DS' data source, click **Lock and edit** on the change center.
3. Navigate to **Services > Data Sources**.

4. Click **New > Generic Data Source**.
5. Enter the following details and click **Next**.
 - **Name**: MAP_DS
 - **JNDI Name**: MAP_DS
 - **Database Type**: Oracle
6. Select the following and click **Next**.
 - **Database Driver**: *Oracle's Driver (Thin) for Service connections; Versions:Any
7. On the next page, do not change any values. Click **Next**.
8. Enter the following connection properties and click **Next**.
 - **Database Name**: BI Database Name
 - **Host Name**: Database host
 - **Port**: Database port
 - **Database Username**: dwadm
 - **Password**: dwadm user password
9. On the next page, click **Test Configuration**. After a successful test, click **Next**.
10. On the **Select Target** page, select **AdminServer** under **Servers**, and **bi_cluster** under **Clusters**. Click **Finish** to save the configuration.
11. Click **Activate Changes** on the change center.

Configure MapViewer for OUAW

To work with OUAW Analytics, there are a few changes that need to be made in the mapViewerConfig file. The file is in <OAS DOMAIN>/config/fmwconfig/mapviewer/conf. Ensure you take a backup before updating it.

To update the MapViewer configuration from the MapViewer Admin Console:

1. Log in to MapViewer: <http://<App Server Host>:<port>/mapviewer>.
2. Navigate to **MapViewer > Administration > Configuration**. This section enables you to edit mapViewerConfig.xml file. If the customer environment runs behind the proxy, then on the application server, insert the list of host names for all the third-party service providers in the security_config node.

```
<proxy_enabled_hosts>elocation.oracle.com</proxy_enabled_hosts>
```

3. Add the following ns_data_provider node:

```
<ns_data_provider id="obieeNsdp"
class="com.oracle.utilities.birdseye.BirdseyeNSDP" />
```

4. Add the current map_tile_server with the following map_tile_server node:

```
<map_tile_server><tile_storage default_root_path="/mytilecache/" /></map_tile_server>
```

5. Add the below map data source code in the mapViewerConfig.xml with the appropriate values as Database server details:

```
<map_data_source name="mapconn"
  jdbc_host="<DB server name>"
  jdbc_sid="//<DB Service name>"
  jdbc_port="1521"
  jdbc_user="DWADM"
  jdbc_password="!<DWADM user password>"
  jdbc_mode="thin"
  number_of_mappers="32"
  allow_jdbc_theme_based_foi="true" />
```

Modify Instanceconfig.xml

Ensure you take a backup before updating the instanceconfig.xml file.

1. Run the proper command in UNIX to go to the directory containing the instanceconfig.xml file. The path will have a pattern like <OAS DOMAIN>/config/fmwconfig/biconfig/OBIPS. Example:

```
cd </u01/ouaw/domains/oas_domain/config/fmwconfig/biconfig/OBIPS>
```

2. Remove <ServerInstance> tag from the instanceconfig.xml file, and add the following XML stanzas before </WebConfig>:

```
<ServerInstance>
  <LightWriteback>true</LightWriteback>
  <Security>
    <HttpOnlyCookies>false</HttpOnlyCookies>
    <CookieDomain/>
    <CookiePath>/</CookiePath>
  </Security>
  <Prompts>
    <MaxDropDownValues>256</MaxDropDownValues>
    <AutoApplyDashboardPromptValues>true</AutoApplyDashboardPromptValues>
    <AutoSearchPromptDialogBox>true</AutoSearchPromptDialogBox>
    <AutoCompletePromptDropDowns>
      <SupportAutoComplete>true</SupportAutoComplete>
      <CaseInsensitive>true</CaseInsensitive>
      <MatchingLevel>MatchAll</MatchingLevel>
      <ResultsLimit>50</ResultsLimit>
    </AutoCompletePromptDropDowns>
  </Prompts>
  <SpatialMaps>
    <MapViewAPIV2Enabled>false</MapViewAPIV2Enabled>
  </SpatialMaps>
</ServerInstance>
```

Enable WriteBack

1. Log in to the Analytics application: <http://<App Server Host>:<port>/analytics>.
2. Click the profile icon in the top right corner of the screen and click **Administration**.

The screenshot shows the Oracle Analytics Home screen. The top navigation bar includes 'Home', 'Catalog', 'Favorites', 'Dashboards', 'Create', and 'Sign Out'. Below the navigation is a 'Recent' section with a 'Dashboards' category. Under 'Dashboards', there are two items: 'Base Field Maintenance - ...' and 'My Dashboard - page 1'. Each item has 'Open', 'Edit', and 'More' options. Below the dashboards is a 'Most Popular' section with a note: 'No recommendations are currently available. Most Popular items will be displayed here when results become available.' A 'Download Desktop Tools' link is also present.

3. In the **Administration** screen, under the **Security** area, click **Manage Privileges**.

The screenshot shows the Oracle Analytics Administration screen. The top navigation bar includes 'Home', 'Catalog', 'Favorites', 'Dashboards', 'Create', and 'Open'. Below the navigation is a 'Security' section with a 'Manage Privileges' link. The 'Manage Catalog Captions' section contains 'Export Captions' and 'Import Captions' links. A vertical scroll bar is visible on the right side of the page.

4. In the **Manage Privileges** area, in the **Write Back > Write Back to Database** row, click **Authenticated User**.

The screenshot shows the Oracle Analytics Administration screen with the 'Manage Privileges' table. The table has two columns: 'Actions' and 'Permissions'. The 'Actions' column lists various view and edit permissions for different content types. The 'Permissions' column lists the corresponding BI roles. The 'Write Back' row is selected, showing 'Write Back to Database' in the Actions column and 'Authenticated User' in the Permissions column. A vertical scroll bar is visible on the right side of the page.

Actions	Permissions
View Legend	Add/Edit Legend View
View Map	Add/Edit Map View
View Narrative	Add/Edit Narrative View
View No Results	Add/Edit No Results View
View Pivot Table	Add/Edit Pivot Table View
View Generic Plugin View	Add/Edit Generic Plugin View
View Report Prompt	Add/Edit Report Prompt View
View Create Segment	Add/Edit Create Segment View
View Selection Steps	Add/Edit Selection Steps View
View Logical SQL	Add/Edit Logical SQL View
View Table	Add/Edit Table View
View Create Target List	Add/Edit Create Target List View
View Ticker	Add/Edit Ticker View
View Title	Add/Edit Title View
View Treemap	Add/Edit Treemap View
View Trellis	Add/Edit Trellis View
View View Selector	Add/Edit View Selector View
Write Back	Authenticated User
	Manage Write Back
	BI Service Administrator

5. In the dialog box that displays, click the menu in the **Permissions** column and select **Granted** from the drop-down menu.

The screenshot shows a dialog box titled 'Privilege: Write Back to Database'. The title bar includes a close button and a help icon. The main area is titled 'Hive: Write Back'. Below that is a 'Permissions' section with a '+' button and a 'X' button. A table has two columns: 'Accounts' and 'Permissions'. The 'Accounts' column lists 'Authenticated User'. The 'Permissions' column has a dropdown menu with 'Granted' selected. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

6. Click **OK**.

Install ETL Component

This page will guide you in installing the Oracle Data Integrator-based ETL Component on the Oracle Utilities Analytics Warehouse (OUAW) application server.

 **Note**

All the tasks below need to be followed in sequential order.

Prerequisites

Before installing the OUAW ETL component, verify the following:

- Use the same operating system user used to install the required software.
- Ensure Oracle GoldenGate Microservices is installed on the target database server.
- Ensure that Oracle GoldenGate Microservice Manager, Admin, and Receiver Services are running on the target database server.
- Ensure that the ODI Repository schema is created on the target database server.
- Ensure Java 17 (for example, 17.0.16+) is installed on the application server.
- Ensure Oracle Fusion Middleware Infrastructure 14.1.2.0 is installed on the target application server.
- Ensure Oracle Data Integrator (ODI) 14.1.2.0 is installed on the target application server.

See [Perform Pre-Installation Steps for OUAW](#) for more information.

Set Up the Target Database Server for Oracle GoldenGate Microservices

Connect to the target database as a sys user and run the command below:

```
alter system set enable_goldengate_replication=TRUE scope=both;
```

Create a Security Wallet on the Target Database Server

1. Log in to the target database server.
2. Create a directory which will be used for security wallet creation.

Example:

```
mkdir -p /scratch/ouawcicd/ouaw_target_wallet
```

3. Copy the Target GoldenGate Microservice Root CA & Intermediate certificates (if any) to the created directory and create the wallet with orapki.

```
orapki wallet create -wallet <wallet location> -auto_login -pwd <wallet password>
```

Example:

```
orapki wallet create -wallet /scratch/ouawcicd/ouaw_target_wallet/wallet -  
auto_login -pwd oracle123
```

Where /scratch/ouawcicd/ouaw_target_wallet/wallet is Target Security Wallet location.

4. Import the Target GoldenGate Microservice Root CA & Intermediate certificates to the created wallet.

```
orapki wallet add -wallet <wallet location> -trusted_cert -cert <Root CA/  
Intermediate Certificate> -pwd <wallet password>
```

Example:

```
orapki wallet add -wallet /scratch/ouawcicd/ouaw_target_wallet/wallet -  
trusted_cert -cert DigiCert_Global_G2_TLS_RSA_SHA256_2020_CA1_INT.pem -pwd  
oracle123
```

Install the ETL Component

1. Log in to Target application server.
2. Navigate to the temporary directory where OUAW installer is downloaded. Example: <TEMPDIR/application>.
3. Set the JAVA 17 HOME and add PATH.

```
export JAVA_HOME=<JAVA 17 HOME>  
export PATH=$JAVA_HOME/bin:$PATH
```

 **Note**

ETL Installer is now only supported with Java 17.0.16+.

4. Launch the OUAW installer by running the command below. The OUAW installer **Welcome** page appears.

```
java -jar OUAW_25.10.0.0.0_ETL_generic.jar -logLevel finest
```

5. Review the information before you begin the installation. Click **Next** to continue.

 **Note**

If you are installing Oracle software on the server for the first time, provide central inventory details such as the inventory directory location and operating system group.

6. On the **Installation Location** page, define the installation location in the **Oracle Home** field and click **Next**.

① Note

The specified Oracle home directory must be an empty directory.

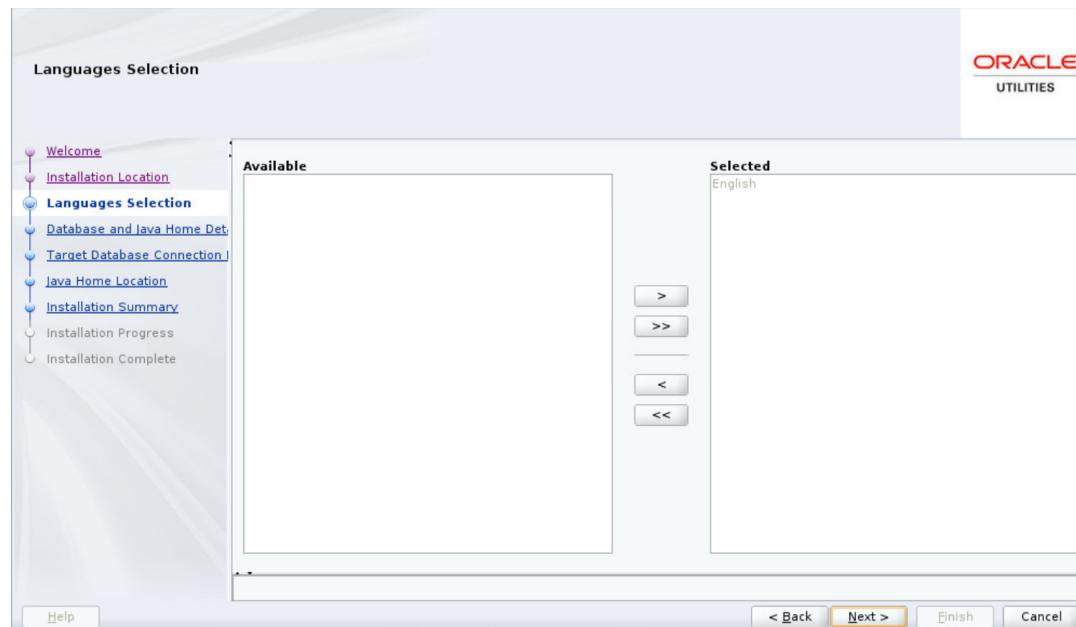


Field Name and Description	Value
Oracle Home: The directory where the Oracle Utilities Analytics Warehouse ETL is going to be installed.	Example: <OUA ETL Home> </scratch/ouawcicd/deployments/ OUAW_ETL>

① Note

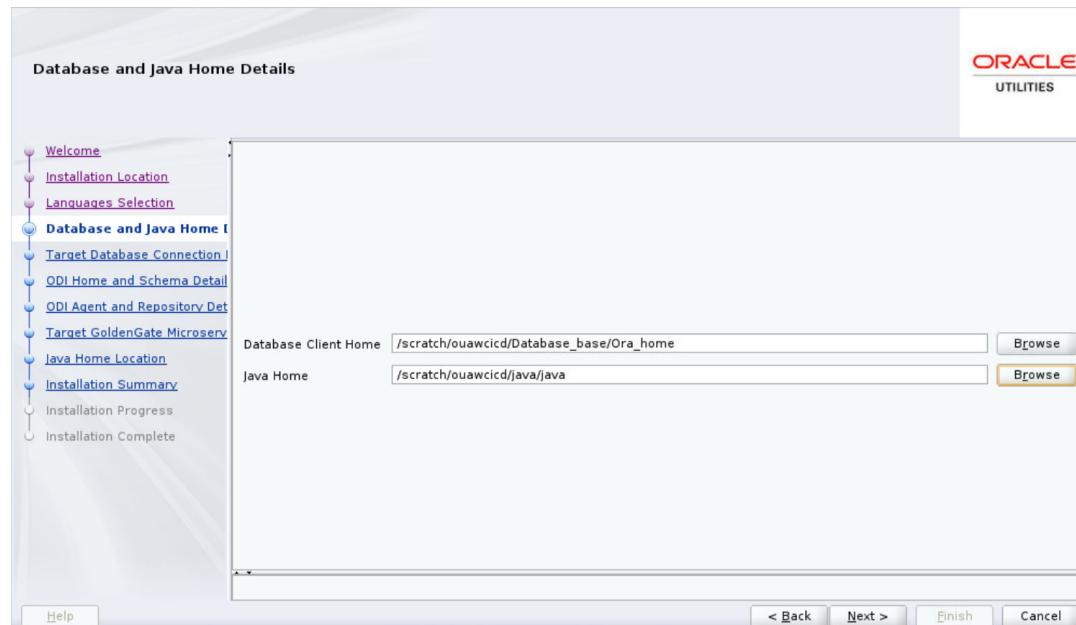
This directory location is called the **ETL Home**. Keep track of it as it will be used during some deployment steps.

7. On the **Languages Selection** page, select **English** and click **Next**.



Field Name and Description	Value
Language Selection: The language for the installation process.	English

8. On the **Database and Java Home Details** page, enter the details as in the table below, and click **Next**.



Field Name and Description	Value
Database Client Home: Enter the Oracle Database Client installed location or Database Home location in the case where the same server is being used for both the application and database server.	Example: <Database Client> or <ORACLE_HOME> </scratch/ouawcicd/dbclient> or </scratch/ouawcicd/Database_base/Ora_home>
Java Home: Enter the Java installed location.	Example: <JAVA HOME> </scratch/ouawcicd/java/java>

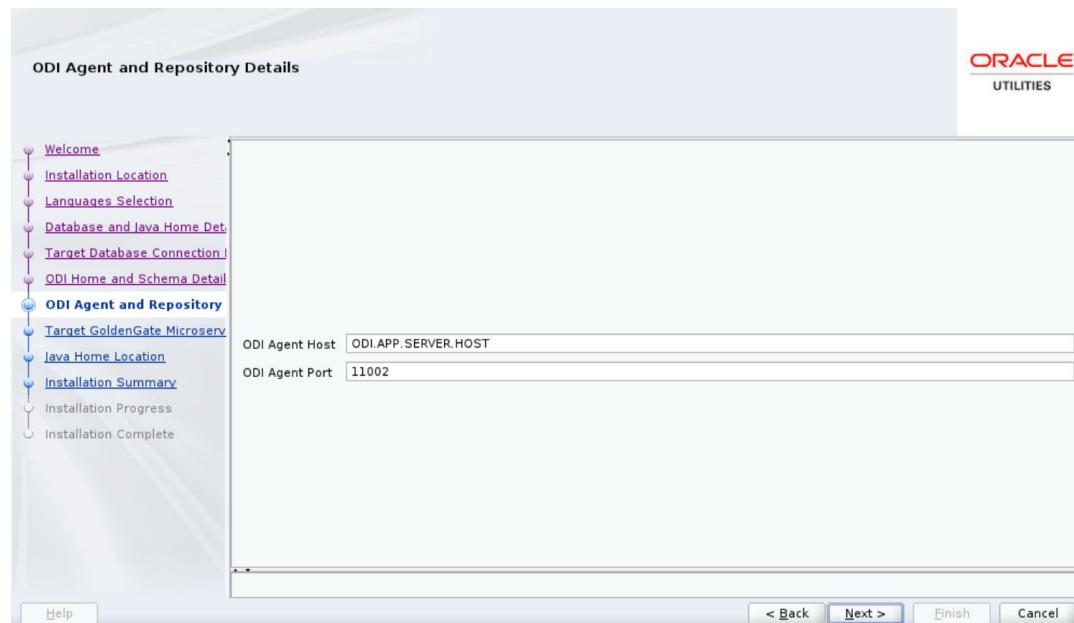
9. On the **Target Database Connection Details** page, enter the following and click **Next**.

Field Name and Description	Value
Host: The target database server where database resides.	Target Database server host name. Example: target.dbserver.hostname
Port: The target database server port number.	Target Database port. Example: <1521>
Service Name: The target database service name.	<Database service name>
Target Schema Password: Password for the target schema (DWADM).	<DWADM user password>
Confirm Target Schema Password: Confirm password for the target schema (DWADM).	<DWADM user password>
Target Schema Password: Password for the metadata schema (MDADM).	<MDADM user password>
Confirm Target Schema Password: Confirm password for the metadata (MDADM) schema.	<MDADM user password>
Adb Wallet Directory: Directory of ADB wallet location.	Keep it blank
Adb Service Name: ADB Service Name	Keep it blank

10. On the **ODI Home and Schema Details** page, enter the following and click **Next**.

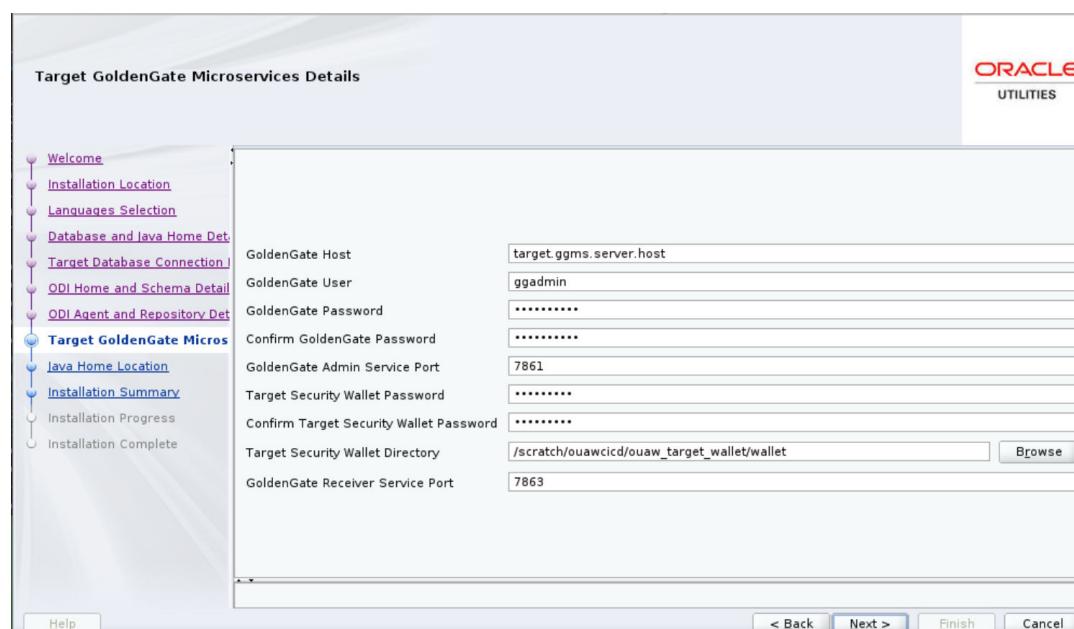
Field Name and Description	Value
ODI Home: The directory where Oracle Data Integrator (ODI) is installed.	Location of FMW Home Example: </scratch/ouawcicd/weblogic>
Supervisor User: Name of the Oracle Data Integrator Supervisor.	SUPERVISOR
Supervisor Password: Enter the Supervisor Password and store it for future reference.	<Supervisor user password >
Confirm Supervisor Password: Enter same as Supervisor Password.	<Supervisor user password >
Master Repository Schema Name: Oracle Data Integrator master repository schema name.	OUA_MASTER
Master Repository Schema Password: Master Repository schema password.	<OUA_MASTER user password>
Confirm Master Repository Schema Password: Confirm password of the Oracle Data Integrator master repository schema.	<OUA_MASTER user password>
Work Repository Schema Name: Oracle Data Integrator work repository schema name.	OUA_WORK
Work Repository Schema Password: Work Repository schema password.	<OUA_WORK user password>
Confirm Work Repository Schema Password: Confirm password of Oracle Data Integrator work repository schema.	<OUA_WORK user password>

11. On the **Oracle Data Integrator Agent and Repository Details** page, enter the details as in the table below and click **Next**.



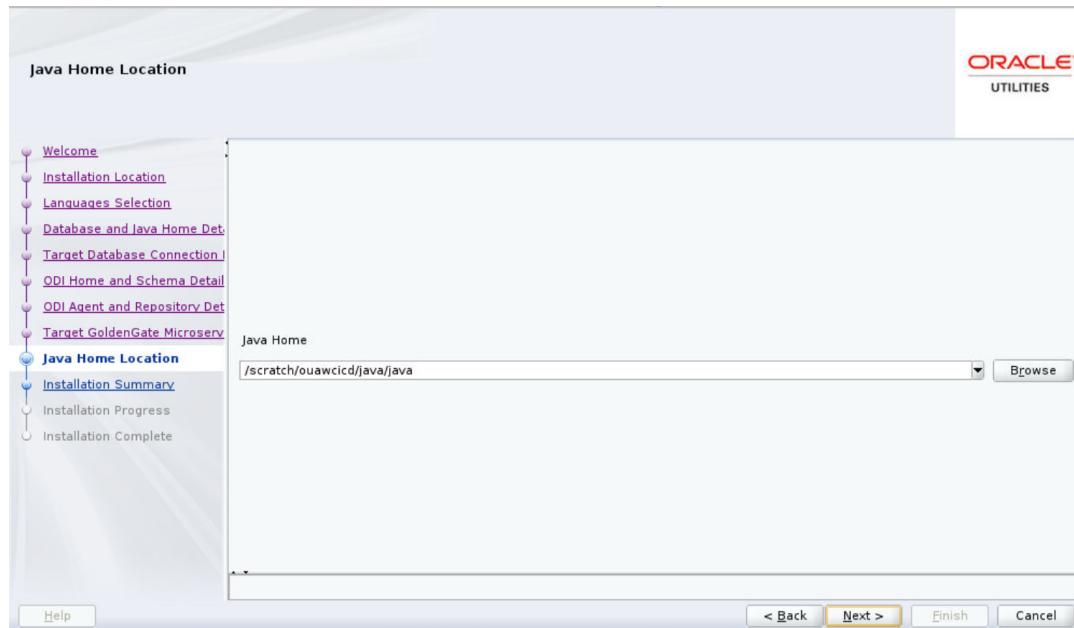
Field Name and Description	Value
ODI Agent Host: The application server hostname where the ODI application server is installed.	Target APP Server Host Example: <ODI.APP.SERVER.HOST>
ODI Agent Port: Enter the port which is the Oracle Data Integrator WebLogic Managed Server port. Make sure that you use the same port while creating Oracle Data Integrator managed server.	Example: <11002>

12. On the **Target GoldenGate Microservices Details** page, enter the details as in the table below, and click **Next**.



Field Name and Description	Value
GoldenGate Host: Target Oracle GoldenGate Microservice Host. Enter the Target database hostname where GoldenGate Microservices is installed.	Target database server host/Target GoldenGate Microservice Server Host Example: <target.ggms.server.host> = <target.dbserver.hostname>
GoldenGate User: Enter the GoldenGate Microservices Admin user.	Example: <ggadmin>
GoldenGate Password: Enter the GoldenGate Microservices Admin user password.	Example: <ggadmin user password>
Confirm GoldenGate Password: Re-enter the GoldenGate Microservices Admin user password.	Example: <ggadmin user password>
GoldenGate Admin Service Port: The Target Oracle GoldenGate Microservices Admin Service port which is running on the target database server host.	Example: <7861>
Target Security Wallet Password: Enter the Wallet Password on the target database server host.	<Target Security Wallet Password>
Confirm Target Security Wallet Password: Re-enter the Wallet Password on the target database server host.	<Target Security Wallet Password>
Target Security Wallet Directory: Enter the Security Wallet directory path on the target database server host. See the Create a Security Wallet on the Target Database Server section.	Example: <scratch/ouawcicd/ouaw_target_wallet/wallet>
GoldenGate Receiver Service Port: The Target Oracle GoldenGate Microservices Receiver Service port which is running on the target database server host.	Example: <7863>

13. On the **Java Home Location** page, enter the details as in the table below, and click **Next**.

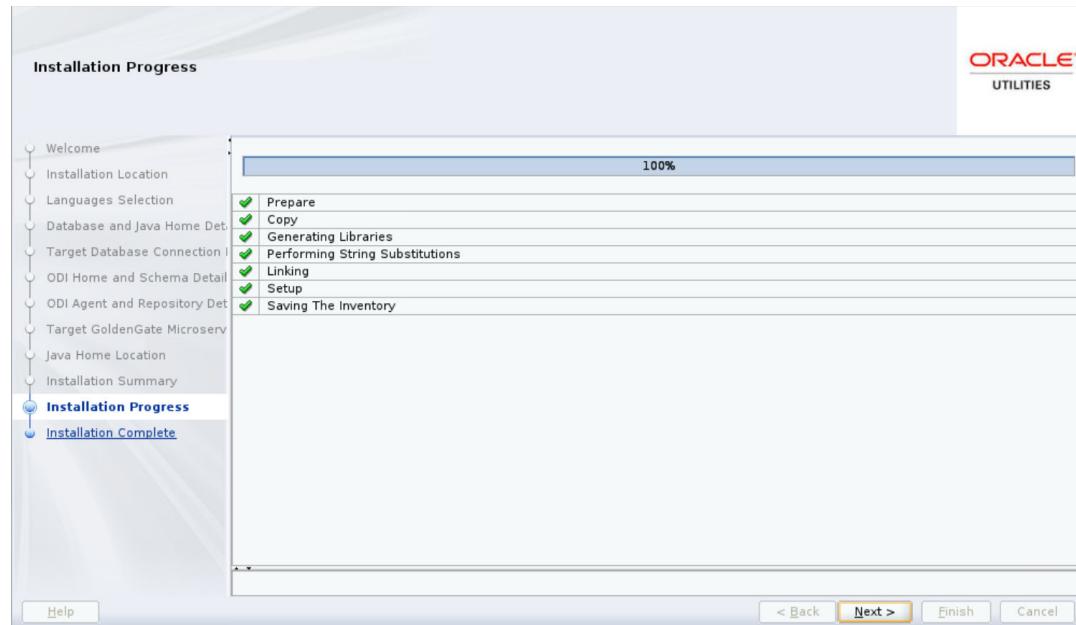


Field Name and Description	Value
Java Home: Enter the Java installed location (on the Application server).	Example: </scratch/ouawcicd/java/java>

14. On the **Installation Summary** page, a summary is displayed. Click the **Install** button to proceed.



15. On the **Installation Progress** page, click **Next** when the progress reaches 100%.



16. On the **Installation Complete** page, note the displayed details and click **Finish** to close the installer wizard. The ETL is now installed.



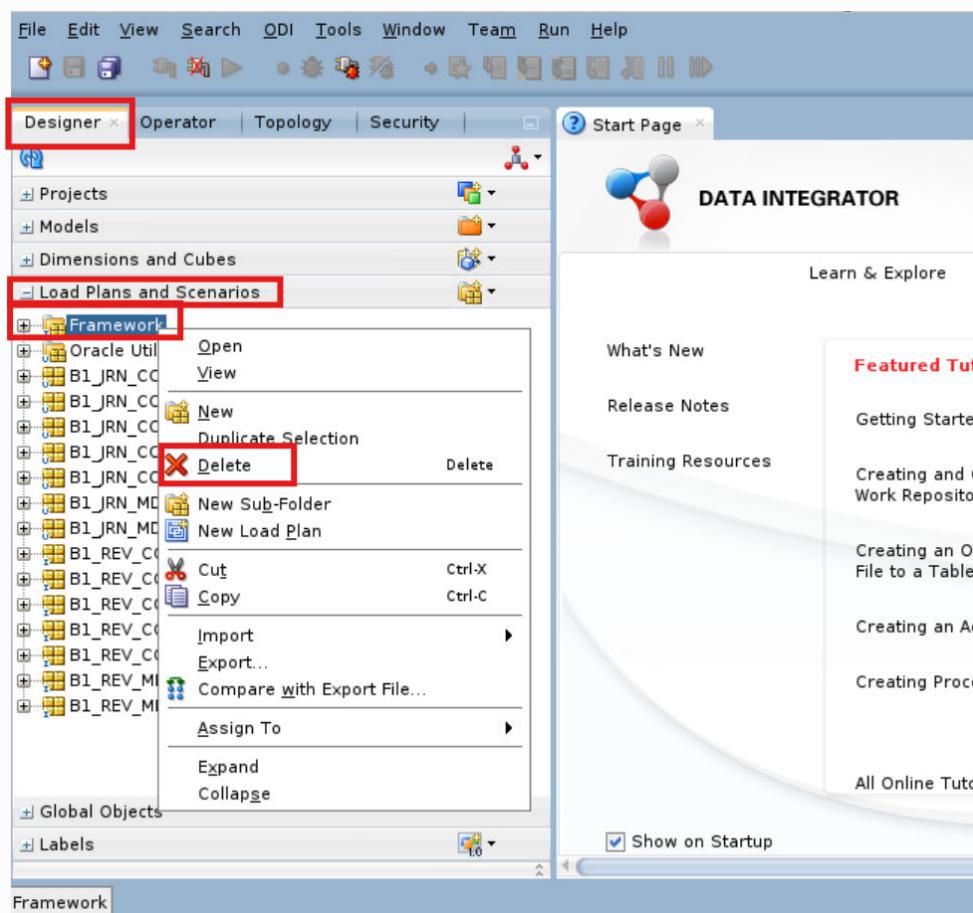
Note

The installation may fail with the error below if you want to run the installer for the second time or for incremental data.

```
ERROR (oua.base.BIScenario) Scenario Importing SFOL Framework
execution failed after 3 attempt(s) Session Failed :148259 : ODI-1217:
Session Importing SFOL Framework (148259) fails with return code
7000._ODI-1226: Step Import XML fails after 1 attempt(s)._ODI-1241:
Oracle Data Integrator tool execution fails._Caused By:
java.lang.StackOverflowError
```

Delete the SFOL Framework in ODI and run the installer again to resolve the error.

1. In ODI Studio, navigate to **Designer Tab > Load Plans and Scenarios > Framework**.
2. Right-click on **Framework** then click **Delete**.



3. Delete the failed OUAW ETL Home folder (Example: /u01/ouawcicd/deployments/OUAW_ETL) from the application server.
4. Run the ETL installer again. See the [Install the ETL Component](#) section.

Verify the OUAW ETL Installation

Review the contents of the installation log files to make sure that the installer did not encounter any problems. The OUAW installer logs location will be shown in the launched terminal. To see the directory structure, navigate to <ETL Home> and enter the following command:

```
cd <ETL HOME>;
tree -d <OUA_ETL> -L 1
```

This will confirm that the ETL component installation was successful.

Create a Database Directory

Create a database directory **B1_DATA_DUMP_DIR** on the target database. This directory is used for logging the export/import task used during the initial ETL load. The following is a sample SQL that creates the database directory pointing to the file system path. Example: </u01/file_data>.

```
CREATE DIRECTORY B1_DATA_DUMP_DIR AS '</u01/file_data>';
```

Create the WebLogic Domain for Oracle Data Integrator Agent

Create the WebLogic Domain to bring up the WebLogic Agent (ODI Agent) to complete the steps in this section. The ODI Domain creation utility is an automated script that lets you create a non-clustered domain or a clustered domain. Choose which type of domain you want to create and follow the steps below. There are also steps for adding another ODI managed server and editing .sh files for ODI agent connectivity.

1. Create a Non-Clustered ODI Domain
2. Create a Clustered ODI Domain
3. Add Another ODI Managed server.

Create a Non-Clustered ODI Domain

Note

The password fields values (RCUSCHEMAPWD,WEBLOGIC_PASSWORD) will be cleared from ODI_CONFIG.properties after executing createDomain.sh or createMachine.sh. Ensure these fields are updated for each invocation of createDomain.sh or createMachine.sh.

1. Navigate to the <ETL Home>/etc directory and provide the following properties in the ODI_CONFIG.properties file.

Property	Description
DOMAIN_PATH	The directory where odi_domain will be created. Example : </u01/ouaw/domains/odi_domain>

Property	Description
RCUPREFIX	Repository prefix created in the Perform Pre-Installation Steps for OUAW - Prerequisites for Application Server - Configure Repository . Example: ODI
RCUSCHEMAPWD	Enter the RCU SCHEMA PASSWORD.
WEBLOGIC_USERNAME	WebLogic user name for <odi_domain>.
WEBLOGIC_PASSWORD	WebLogic password for <odi_domain>.
CLUSTER_NAME(OPTIONAL)	--
ODI_DB SERVER	ODI database server name (target.databaseserver).
ODI_DBPORT	ODI database port (target database port). Example: 1521
ODI_DBNAME	ODI database service name (target database service name).
ADMIN_PORT	ODI WebLogic domain AdminServer port. Example: 11000
MANAGED_SERVER_PORT	ODI WebLogic domain ManagedServer port. Example: 1001 If not specified, default port 15101 will be assigned.
NONSSL_PORT	ODI WebLogic NONSSL_PORT. Example: 11000 If not specified, default port 7001 will be assigned.
ODI_DOMAIN_HOSTNAME	Host name(application server) on which the odi_domain is to be created.
MACHINE_NAME (OPTIONAL)	--
MACHINE_PORT (OPTIONAL)	--
MANAGED_SERVER_NAME	Example: <ODI_Server1>

2. Navigate to the <ETL Home>/bin directory and invoke the createDomain.sh script. After creating the ODI Domain, see [Start the ODI Domain](#) below to start the admin server and managed server.

Create a Clustered ODI Domain

Note

The scope of the domain creation scripts for clustered domain is limited to creation of a 2 node cluster with managed servers running on the same machine but on different ports. In case your cluster needs more than two managed servers or if the managed servers will be running on different machines, the clustered domain should be created manually using ODI documentation as reference.

Note

The password fields values (RCUSCHEMAPWD,WEBLOGIC_PASSWORD) will be cleared from ODI_CONFIG.properties after executing createDomain.sh or createMachine.sh. Ensure these fields are updated for each invocation of createDomain.sh or createMachine.sh.

1. Navigate to the <ETL Home>/etc directory and provide the following properties in the ODI_CONFIG.properties file

Property	Description
DOMAIN_PATH	The directory where <odi_domain> will be created. Example: </u01/ouaw/domains/odi_domain>
RCUPREFIX	Repository prefix created in the LINK TO ODI RCU. Example: ODI
RCUSCHEMAPWD	Enter the RCU SCHEMA PASSWORD.
WEBLOGIC_USERNAME	WebLogic user name for <odi_domain>.
WEBLOGIC_PASSWORD	WebLogic password for <odi_domain>.
CLUSTER_NAME	Additional mandatory property ODI Cluster name <odi_cluster>.
ODI_DBSERVER	ODI database server name (target database server).
ODI_DBPORT	ODI database port (target database port). Example: <1521>
ODI_DBNAME	ODI database name (target database name).
ADMIN_PORT	ODI WebLogic domain AdminServer port. Example: <11000>
MANAGED_SERVER_NAME	The managed server name can be used as <ODI_Server1> and can be added to CLUSTER_NAME.
MANAGED_SERVER_PORT	ODI WebLogic domain Managed Server port. Example: <11001> If not specified, default port 15101 will be assigned.
NONSSL_PORT	ODI WebLogic NONSSL_PORT. Example: 11000 If not specified, default port 7001 will be assigned.
ODI_DOMAIN_HOSTNAME	Host name(application server) on which the <odi_domain> is to be created.

2. Navigate to the <ETL Home>/bin directory and invoke the createDomain.sh script. This creates an ODI domain with an admin server and a managed server (called <ODI_server1>) assigned to the cluster.

Add Another ODI Managed Server

Follow the steps below to create another managed server and add it to the cluster.

1. Navigate to the <ETL Home>/etc directory and provide the following mandatory properties in the ODI_CONFIG.properties file:
 - MANAGED_SERVER_NAME
 - MANAGED_SERVER_PORT
2. Provide the following optional properties in the ODI_CONFIG.properties file:
 - MACHINE_NAME
 - MACHINE_PORT

3. Navigate to <ETL Home>/bin and invoke createMachine.sh. A new managed server is created with the specified name and assigned to the cluster.

Start the ODI Domain

Starting the ODI Domain involves two steps: starting the AdminServer and starting the ODI_server1 managed server.

Start the AdminServer

1. In the command shell, change the directory to <ODI DOMAIN>/servers/AdminServer/security.
2. Create a boot.properties file with <username and password>. Example:
 - username=<weblogic username>
 - password=<weblogic password>
3. Change the directory to <ODI DOMAIN>/bin and execute the following command:

```
nohup ./startWebLogic.sh > startWebLogic.log 2>&1 &
```

Start the Managed Server <ODI_server1>

1. In the command shell, change directory to <ODI DOMAIN>/servers/<Managed server name>/security.

Example: </u01/ouaw/domains/odi_domain>/servers/<ODI_server1>/security/

If the ODI_server1/security directory does not exist under <ODI DOMAIN>/servers, then create it manually using the following command:

```
mkdir -p ODI_server1/security
```

2. Create a boot.properties file with <username and password>. Example:
 - username=<weblogic username>
 - password=<weblogic password>
3. Change the directory to <ODI DOMAIN>/bin and execute the following command:

```
nohup ./startManagedWebLogic.sh <ODI_server1> > StartManagedWeblogic.log  
2>&1 &
```

Perform Initial Setup for Star Schema

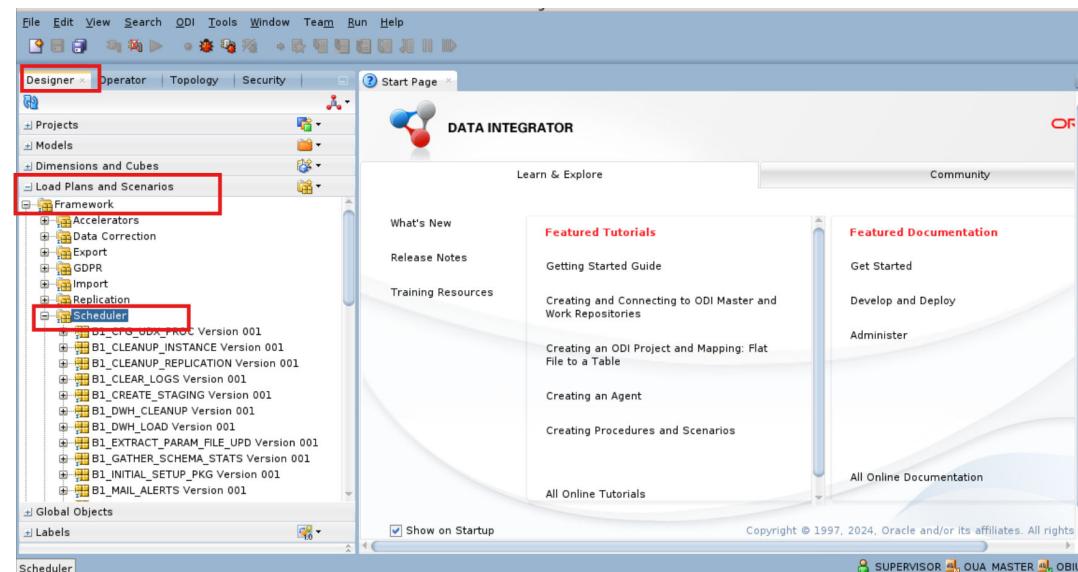
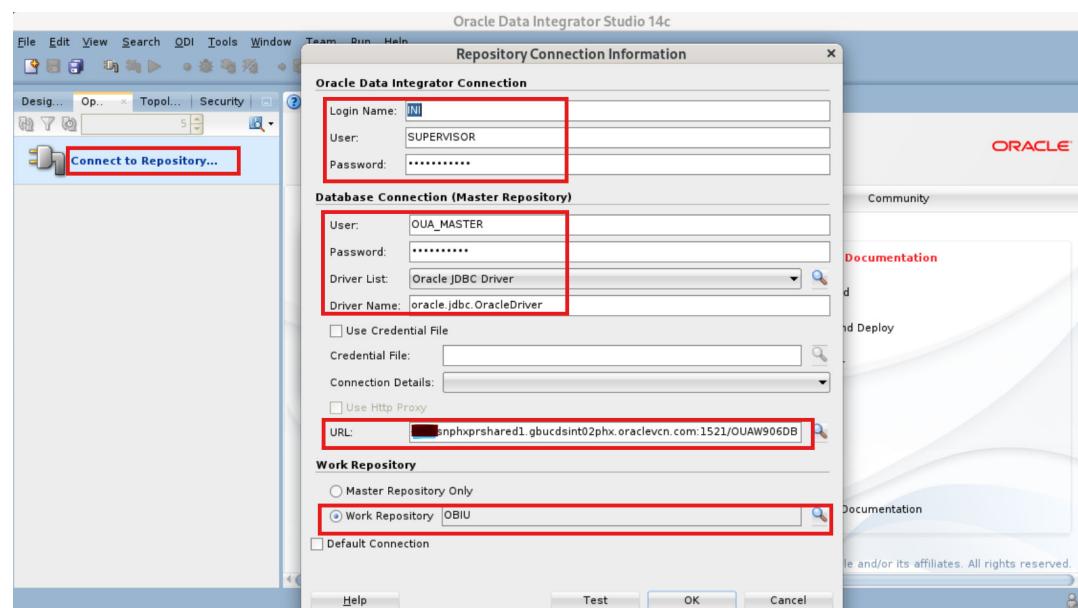
Follow the steps below to execute the B1_INITIAL_SETUP_PKG from the ODI console.

1. Change the directory to <FMW 14c HOME>/odi/studio/bin.
2. Set the JAVA HOME.

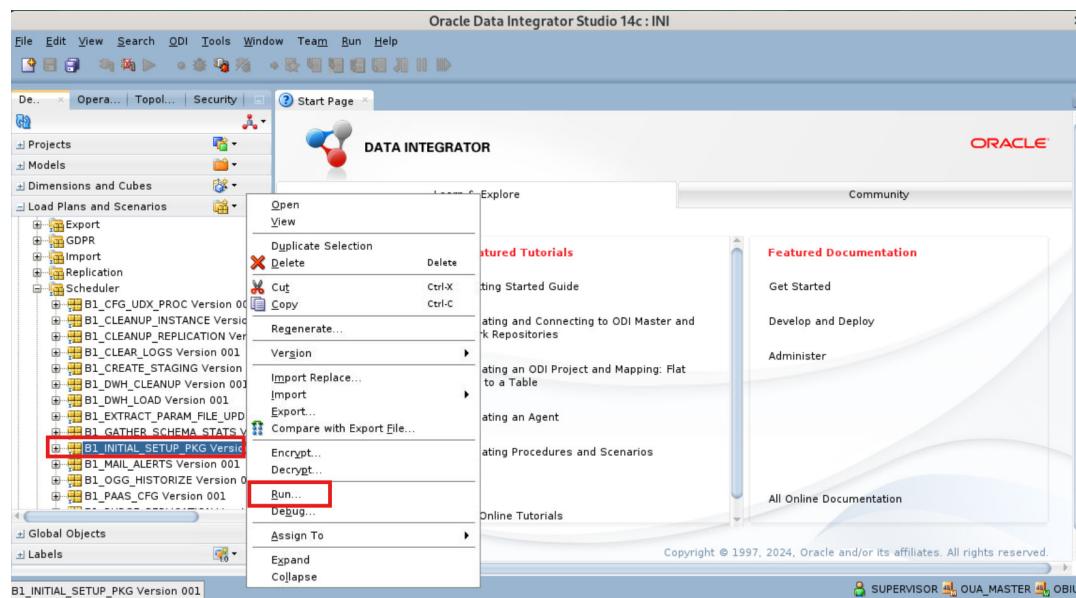
```
export JAVA_HOME=<JAVA_HOME>  
export PATH=$JAVA_HOME/bin:$PATH
```

3. Run the ODI executable file ./odi. This opens Oracle Data Integrator Studio.

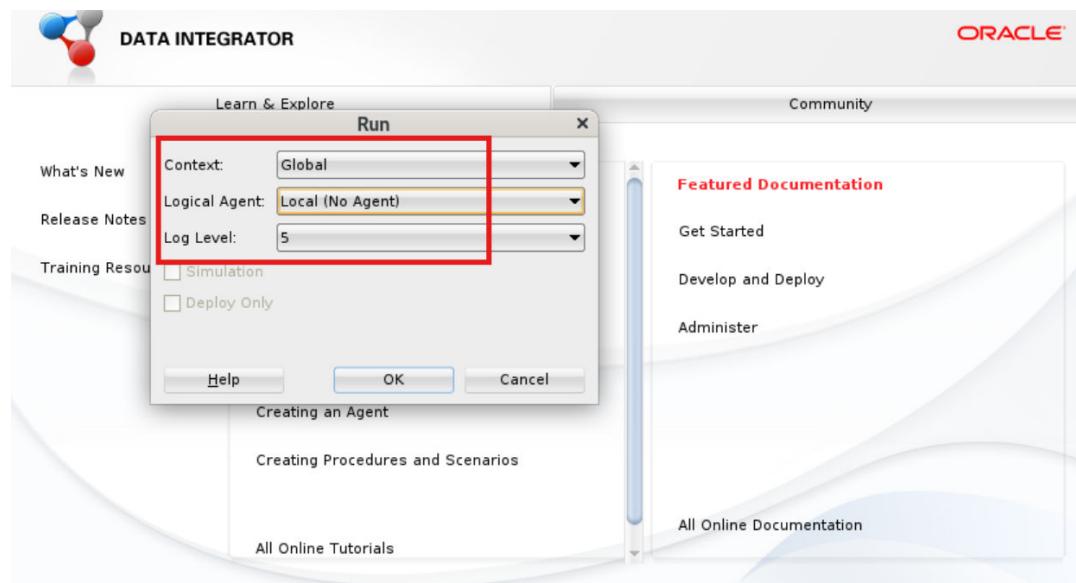
4. Log in to Oracle Data Integrator Studio with required credentials and navigate to **Designer > Load Plans and Scenarios > Framework > scheduler**.



5. Right-click on **B1_INITIAL_SETUP_PKG Version 001** and click **Run**. A popup window opens.



6. In the **Context** field, select **GLOBAL**. In the **Logical Agent** field, select **Local (No Agent)**. Click **OK**.



Enable ODI Scheduler

1. In Oracle Data Integrator Studio, navigate to **Designer > Load Plans and Scenarios > Framework > B1_RUN_ALL Version 001 > Scheduling**.
2. Right-click scheduling and select the **New Scheduling** option.
3. Select the source context as global, agent as **WLS_AGENT**, and the log level as 1.
4. To specify how often the scheduler should run, navigate to the **Execution Cycle** tab of the Scheduler and select the **Many Times** option. Set the interval between repetitions.
5. Navigate to **Topology > Agents > OracleDIAgent**.
6. Right-click on OracleDIAgent and click **Update Schedule**.

Modify Maximum Table Name Length Parameter

Modify the value of the parameter 'Maximum Table Name Length' to 128 in ODI.

1. In ODI studio, navigate to **Topology > Physical Architecture > Technologies**.
2. Right click on **Oracle** and select **Open**.
3. Navigate to the **Advanced** tab and set the value of the **Maximum Table Name Length** parameter to 128.
4. Click **Save**.

Install Admin Tool

This page will guide you in installing the Oracle Utilities Analytics Warehouse Admin Tool component.

 **Note**

All the tasks below need to be followed in sequential order.

Prerequisites

Before installing the OUAW Admin Tool component, verify the following:

- Ensure Oracle Database Server Enterprise is installed on the database server.
- Ensure Java 17 is installed on the application servers.
- Ensure Oracle Fusion Middleware Infrastructure 14.1.2.0 is installed on the application server.
- Ensure Oracle APEX is downloaded on the application server and database server.
- Ensure Oracle REST Data source (ORDS) is downloaded on the application server.

See [Perform Pre-Installation Steps for OUAW](#) for more information.

Install APEX on the Database Server

This section provides the steps to install Apex 24.2.

 **Note**

Make sure the same OS user installs all software, and replace all parameters enclosed in <> with actual values.

1. Navigate to the Apex extracted directory. Example: </u01/ouaw/apex>
2. Connect to the Oracle Utilities Analytics Warehouse Database with sys user and execute the following commands in order:
 - `sqlplus sys/<SYS USER PASSWORD>@<DATABASE SERVICE NAME> as sysdba`

- @apxrtins.sql <Tablespace name> <Tablespace name> <Temp Tablespace name> /i/

Example: @apxrtins.sql <CISTS_01> <CISTS_01> <TEMP> /i/

- @apxchpwd.sql

A sample output for @apxchpwd.sql is shown below. Provide the inputs and store it for future reference.

```
SQL> @apxchpwd.sql
...set_appun.sql
=====
=====
This script can be used to change the password of an Application
Express instance
administrator.
If the user does not yet exist, a user record will be created.
=====
=====
Enter the administrator's username [ADMIN]
User "ADMIN" does not yet exist and will be created.
Enter ADMIN's email [ADMIN] <admin email id>
Enter ADMIN's password [] Created instance administrator ADMIN.
```

- ALTER USER APEX_PUBLIC_USER ACCOUNT UNLOCK;
ALTER USER APEX_PUBLIC_USER IDENTIFIED BY APEX_PUBLIC_USER;
- @apex_rest_config.sql

A sample output for @apex_rest_config.sql is shown below. Provide the inputs and store it for future reference.

```
SQL> @apex_rest_config.sql
Enter a password for the APEX_LISTENER user      []
Enter a password for the APEX_REST_PUBLIC_USER user      []
...set_appun.sql
...setting session environment
...create APEX_LISTENER and APEX_REST_PUBLIC_USER users SQL>
```

Note

Make sure that you save the passwords for APEX_LISTENER user and
APEX_REST_PUBLIC_USER

Configure APEX Workspace for OUAW

On the database server, navigate to the AdminTool directory from the installer zip file (Oracle Utilities Analytics Warehouse V25.10.0.0 Multiplatform.zip), connect to the database with the sys user, and execute the following scripts in order:

- To connect to the database with the sys user:

```
sqlplus sys/<SYS USER PASSWORD>@<DATABASE SERVICE NAME> as sysdba
```

- To create a workspace and configure the users:

```
@CreateAppWorkspace.sql
```

- To import the OUAW application run:

```
@DeployAdminApp.sql
```

Install ORDS on the Application Server

This section provides the steps to install ORDS 25.1.1.

Installing ORDS 25.1.1

1. Create the configuration and installation log directories on the application server to configure ORDS.

Example:

```
mkdir -p </u01/ouaw/ords_configuration>
```

```
mkdir -p </u01/ouaw/ords_install_log>
```

2. Navigate to the ORDS extracted directory on the application server and make sure that the Apex extracted directory is available in the location.

Example: </u01/ouaw/ords>

3. To install ords, execute the following commands:

```
export JAVA_HOME=</u01/ouaw/java17>
export PATH=$JAVA_HOME/bin:$PATH
/u01/ouaw/ords/bin/ords --config /u01/ouaw/ords_configuration install --
interactive --log-folder /u01/ouaw/ords_install_log
```

Note

See below an example of the command prompt, in which default options will appear enclosed in square brackets []. Use these options or provide the necessary inputs for your requirement.

```
ORDS: Release 25.1 Production on Tue Nov 11 12:17:33 2025
```

```
Copyright (c) 2010, 2025, Oracle.
```

```
Configuration:
```

```
/scratch/ouawcicd/ords_configuration
```

```
The configuration folder /scratch/ouawcicd/ords_configuration does not
contain any configuration files.
```

```
Oracle REST Data Services - Interactive Install
```

```
Enter a number to select the TNS net service name to use from /scratch/
ouawcicd/Database_base/Ora_home/network/admin/tnsnames.ora or specify the
```

```
database connection
[1] OUACICDB      SERVICE_NAME=OUACICDB
[2] OUAW906DB      SERVICE_NAME=OUAW906DB
[S] Specify the database connection
Choose [1]: <target pdb service name>
Provide database username with administrator privileges.
Enter the administrator username: sys
Enter the database password for SYS AS SYSDBA:

Retrieving information.
ORDS is not installed in the database. ORDS installation is required.

Enter a number to update the value or select option A to Accept and
Continue
[1] Connection Type: TNS
[2] TNS Connection: TNS_NAME=OUAW906DB TNS_FOLDER=/scratch/ouawcicd/
Database_base/Ora_home/network/admin
Administrator User: SYS AS SYSDBA
[3] Database password for ORDS runtime user (ORDS_PUBLIC_USER): <generate>
[4] ORDS runtime user and schema tablespaces: Default: SYSAUX Temporary
TEMP
[5] Additional Feature: Database Actions
[6] Configure and start ORDS in Standalone Mode: Yes
[7] Protocol: HTTP
[8] HTTP Port: 8080
[9] APEX static resources location:
[A] Accept and Continue - Create configuration and Install ORDS in the
database
[Q] Quit - Do not proceed. No changes
Choose [A]: 3
Enter your choice for the runtime user password (ORDS_PUBLIC_USER)
[S] Specify your own password
[G] Generate password
[C] Cancel - No Changes
Choose [G]: S
Enter the database password for ORDS_PUBLIC_USER:
Confirm password:
Enter a number to update the value or select option A to Accept and
Continue
[1] Connection Type: TNS
[2] TNS Connection: TNS_NAME=OUAW906DB TNS_FOLDER=/scratch/ouawcicd/
Database_base/Ora_home/network/admin
Administrator User: SYS AS SYSDBA
[3] Database password for ORDS runtime user (ORDS_PUBLIC_USER): <specified
password>
[4] ORDS runtime user and schema tablespaces: Default: SYSAUX Temporary
TEMP
[5] Additional Feature: Database Actions
[6] Configure and start ORDS in Standalone Mode: Yes
[7] Protocol: HTTP
[8] HTTP Port: 8080
[9] APEX static resources location:
[A] Accept and Continue - Create configuration and Install ORDS in the
database
[Q] Quit - Do not proceed. No changes
Choose [A]: 6
```

```
Enter a number to update the value or select option A to Accept and
Continue
[1] Connection Type: TNS
[2] TNS Connection: TNS_NAME=OUAW906DB TNS_FOLDER=/scratch/ouawcicd/
Database_base/Ora_home/network/admin
Administrator User: SYS AS SYSDBA
[3] Database password for ORDS runtime user (ORDS_PUBLIC_USER): <specified
password>
[4] ORDS runtime user and schema tablespaces: Default: SYSAUX Temporary
TEMP
[5] Additional Feature: Database Actions
[6] Configure and start ORDS in Standalone Mode: No
[A] Accept and Continue - Create configuration and Install ORDS in the
database
[Q] Quit - Do not proceed. No changes
Choose [A]:
The setting named: db.connectionType was set to: tns in configuration:
default
The setting named: db.tnsAliasName was set to: OUAW906DB in configuration:
default
The setting named: db.tnsDirectory was set to: /scratch/ouawcicd/
Database_base/Ora_home/network/admin in configuration: default
The setting named: plsql.gateway.mode was set to: proxied in
configuration: default
The setting named: db.username was set to: ORDS_PUBLIC_USER in
configuration: default
The setting named: db.password was set to: ***** in configuration: default
The setting named: feature.sdw was set to: true in configuration: default
The global setting named: database.api.enabled was set to: true
The setting named: restEnabledSql.active was set to: true in
configuration: default
The setting named: security.requestValidationFunction was set to:
ords_util.authorize_plsql_gateway in configuration: default
2025-11-11T12:20:06.063Z INFO      Installing Oracle REST Data Services
version 25.1.1.r1411642 in OUAW906DB
2025-11-11T12:20:07.418Z INFO      ... Verified database prerequisites
2025-11-11T12:20:07.773Z INFO      ... Created Oracle REST Data Services
proxy user
2025-11-11T12:20:08.189Z INFO      ... Created Oracle REST Data Services
schema
2025-11-11T12:20:08.744Z INFO      ... Granted privileges to Oracle REST
Data Services
2025-11-11T12:20:11.076Z INFO      ... Created Oracle REST Data
Services database objects
2025-11-11T12:20:21.818Z INFO      Completed installation for Oracle
REST Data Services version 25.1.1.r1411642. Elapsed time: 00:00:15.732

2025-11-11T12:20:21.856Z INFO      Completed configuring PL/SQL gateway
user for Oracle REST Data Services version 25.1.1.r1411642. Elapsed time:
00:00:00.37

2025-11-11T12:20:21.858Z INFO      Log file written to /scratch/ouawcicd/
ords_install_log/ords_install_2025-11-11_122005_98638.log
```

4. Navigate to the ORDS directory. You will find the **ords.war**.

Example: cd </u01/ouaw/ords>

5. To create **i.war**, complete these steps.

a. Create a directory which is the source for your web archive. In that directory, create a **WEB-INF** directory with the following **web.xml** and **weblogic.xml**.

```
mkdir -p /u01/ouaw/temp/WEB-INF
```

b. Create **web.xml** and **weblogic.xml** inside **WEB-INF** folder.

```
cd /u01/ouaw/temp/WEB-INF
```

web.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE web-app PUBLIC
"-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"
"http://java.sun.com/j2ee/dtds/web-app_2_3.dtd">

<web-app>
<!-- This Web-App leverages the alternate doc-root functionality in
WebLogic to serve static content
For WebLogic refer to the weblogic.xml file in this folder
-->
</web-app>
```

weblogic.xml

```
<weblogic-web-app xmlns="http://www.bea.com/ns/weblogic/weblogic-web-
app">

<!-- This element specifies the context path the static resources are
served from -->
<context-root>/i</context-root>

<virtual-directory-mapping>
    <!-- This element specifies the location on disk where the static
resources are located -->
    <local-path>/scratch/apex/apex_21.2_en/images</local-path>
    <url-pattern>/*</url-pattern>
</virtual-directory-mapping>

</weblogic-web-app>
```

 **Note**

<local-path> is the path of apex image folder.

c. To create **i.war** with the **web.xml** and **weblogic.xml** files, execute the following command:

```
export JAVA_HOME=</u01/ouaw/java17>
export PATH=$JAVA_HOME/bin:$PATH
```

```
jar cMf i.war WEB-INF/web.xml WEB-INF/weblogic.xml
```

① Note

For more information, refer to [Deploying Oracle REST Data Services](#).

Create the Apex Domain

This section describes how to create the apex domain. The apex domain is configured on the application server using the ords.war and i.war files generated in the previous procedure.

1. Navigate to the following directory: <FMW 14c HOME>/oracle_common/common/bin.
2. Add JAVA_HOME/bin to the PATH variable.

```
export JAVA_HOME=<JAVA HOME PATH>
export PATH=$JAVA_HOME/bin:$PATH
```

3. Execute the following command to launch the Oracle Fusion Middleware Configuration Wizard for <apex_domain> configuration:

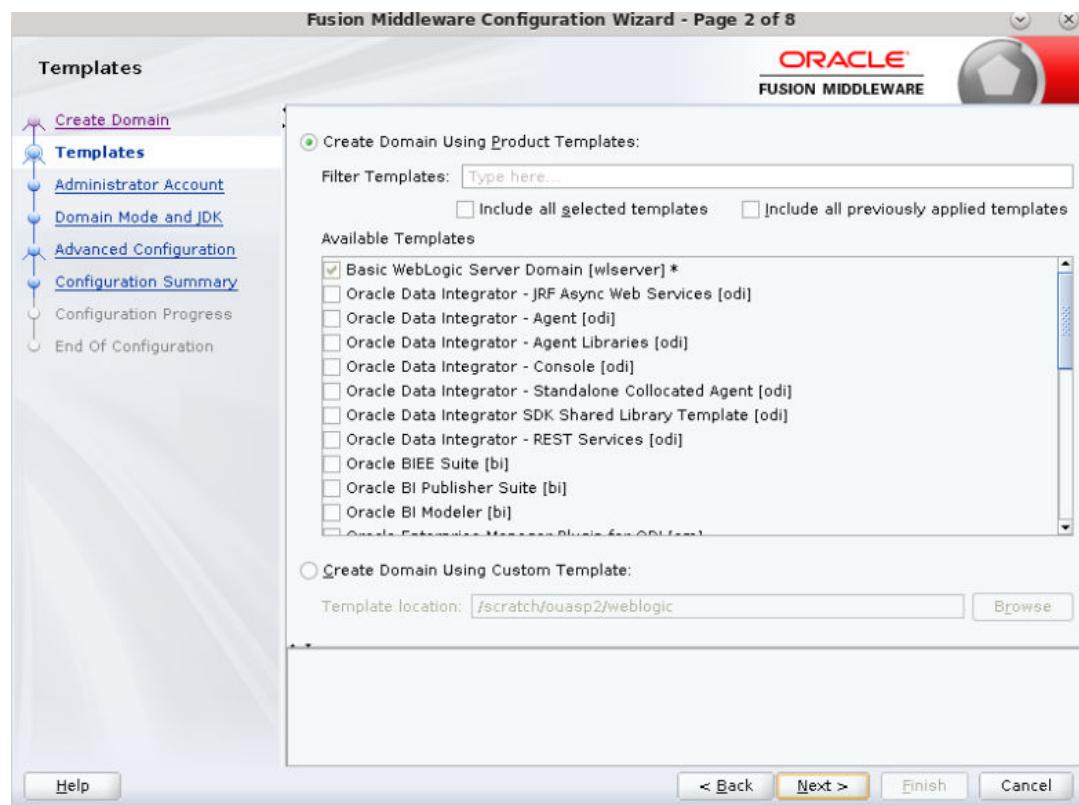
```
./config.sh
```

4. On the **Create Domain** screen, select **Create a new domain**, and click **Next**.

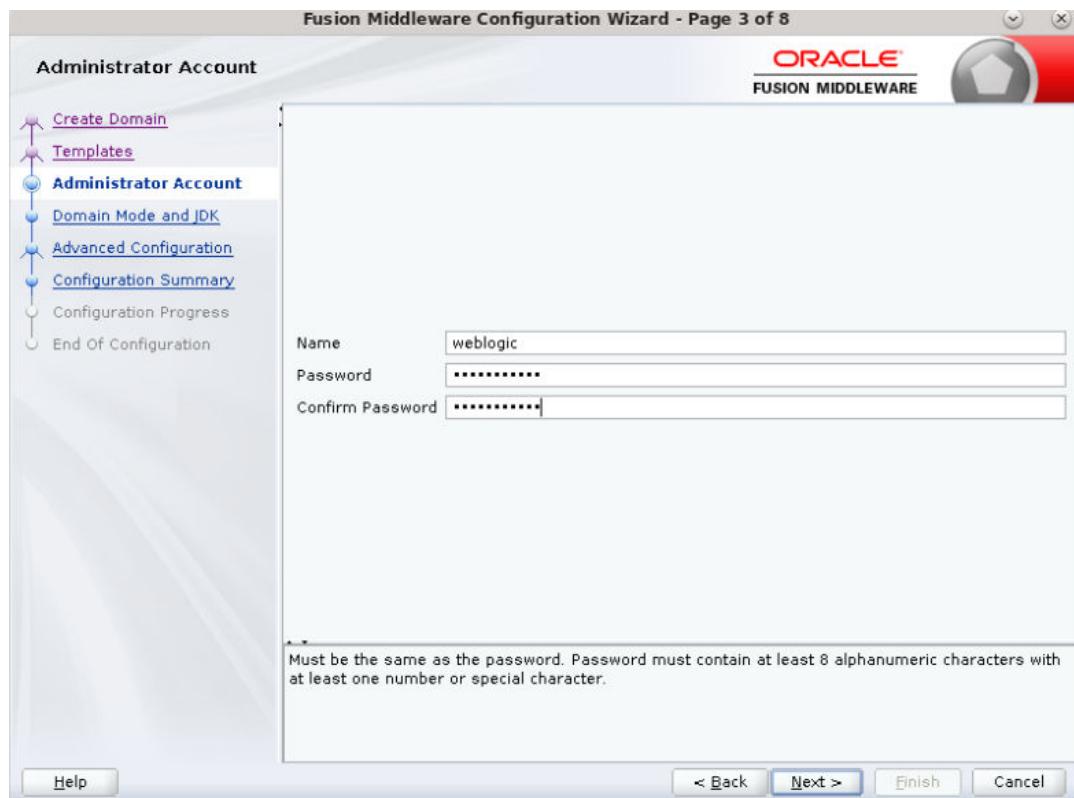


Field Name and Description	Value
Domain Location: Enter the location where the apex_domain can be created.	Example: </u01/ouaw/domains/apex_domain>

5. On the **Templates** page, below the **Available Templates** list, select **Basic WebLogic Server Domain** and click **Next**.

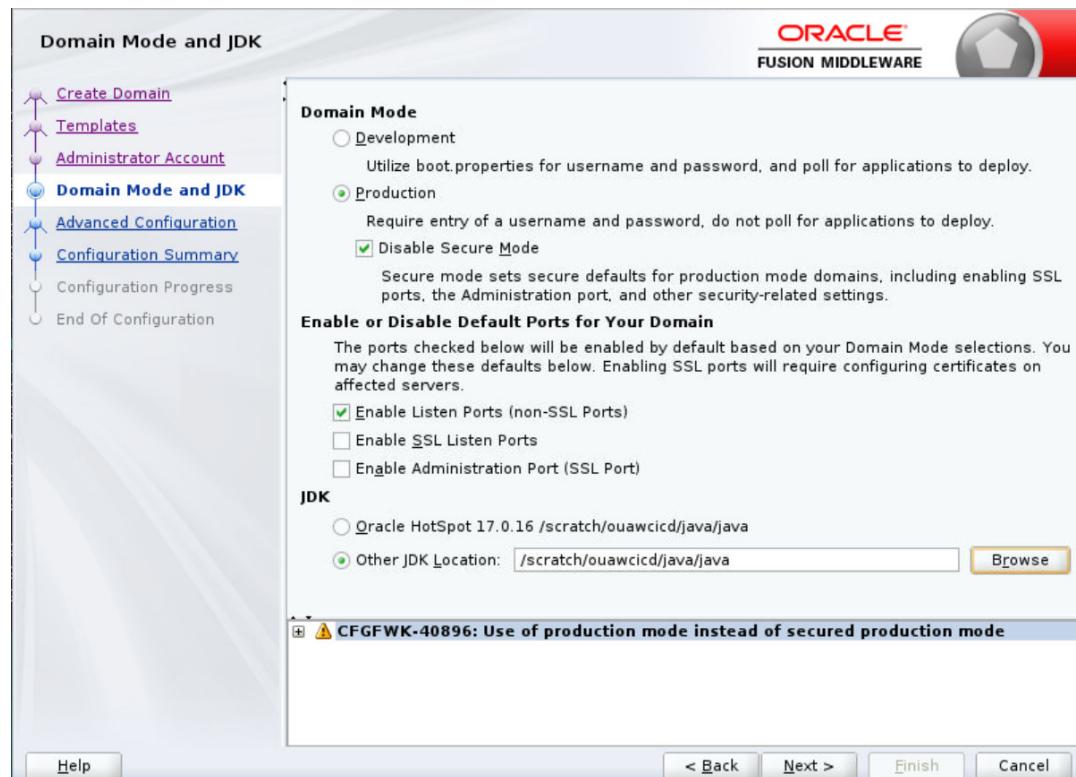


6. On the **Administrator Account** page, enter the following values and click **Next**.



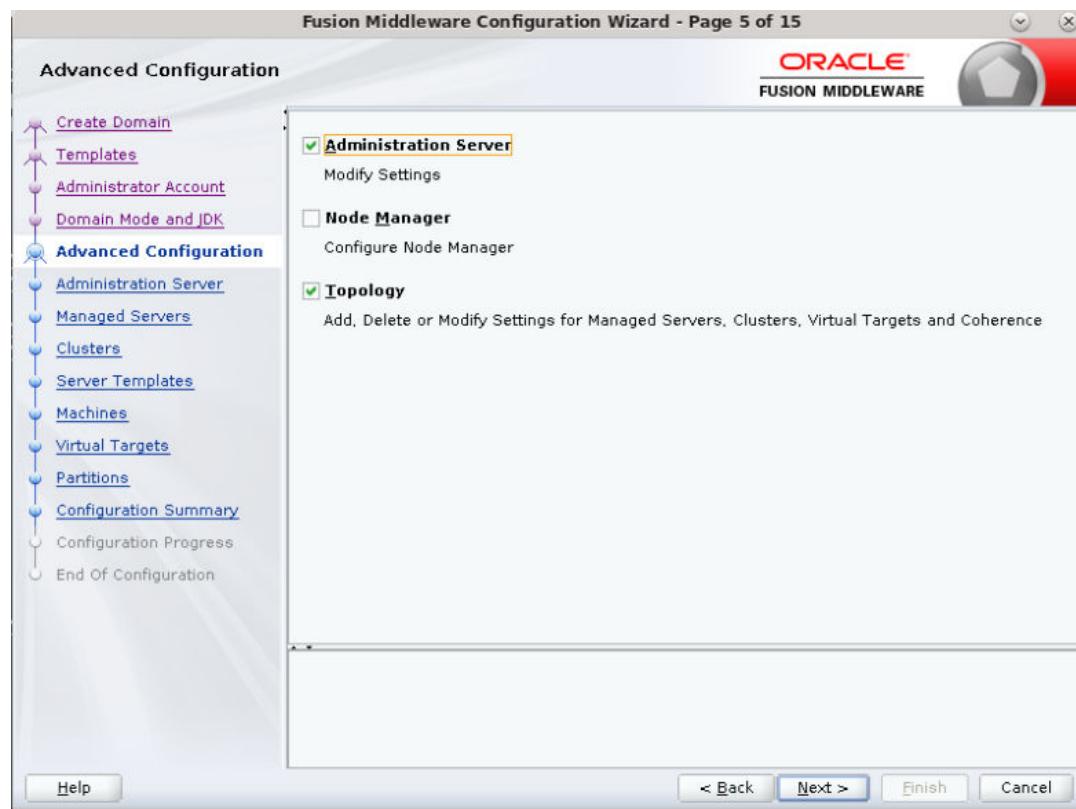
Field Name and Description	Value
Name: Enter the user name.	weblogic
Password: Enter the WebLogic user password.	<weblogic user password>
Confirm Password: Enter the same WebLogic user password as above.	<weblogic user password>

7. On the **Domain Mode and JDK** page, select the options as per your requirement, and click **Next**. The image below shows the option to configure NON SSL Domain.

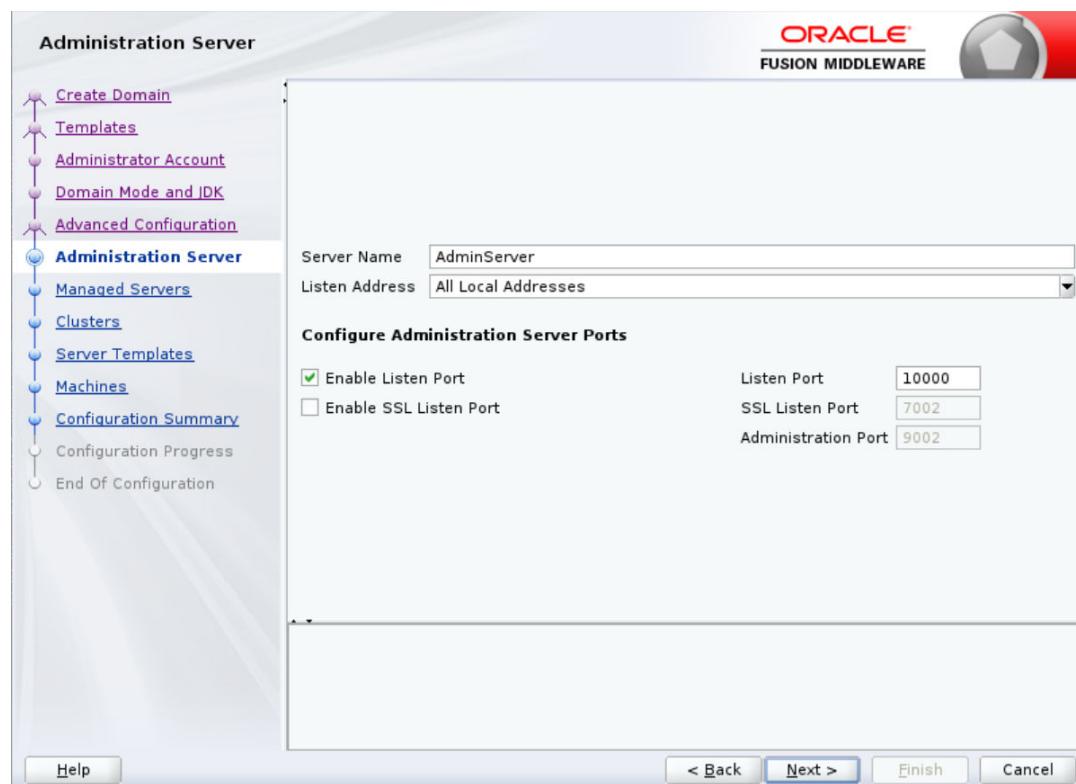


Field Name and Description	Value
Domain Mode: Select the appropriate domain mode.	Production mode
Disable Secure Mode:	Check as per your requirement
Enable or Disable Default Ports for Your Domain:	Check as per your requirement
JDK: Select the JDK location using a browser.	Example: <JAVA HOME>

8. On the **Advanced Configuration** page, select **Administration Server and Topology**.

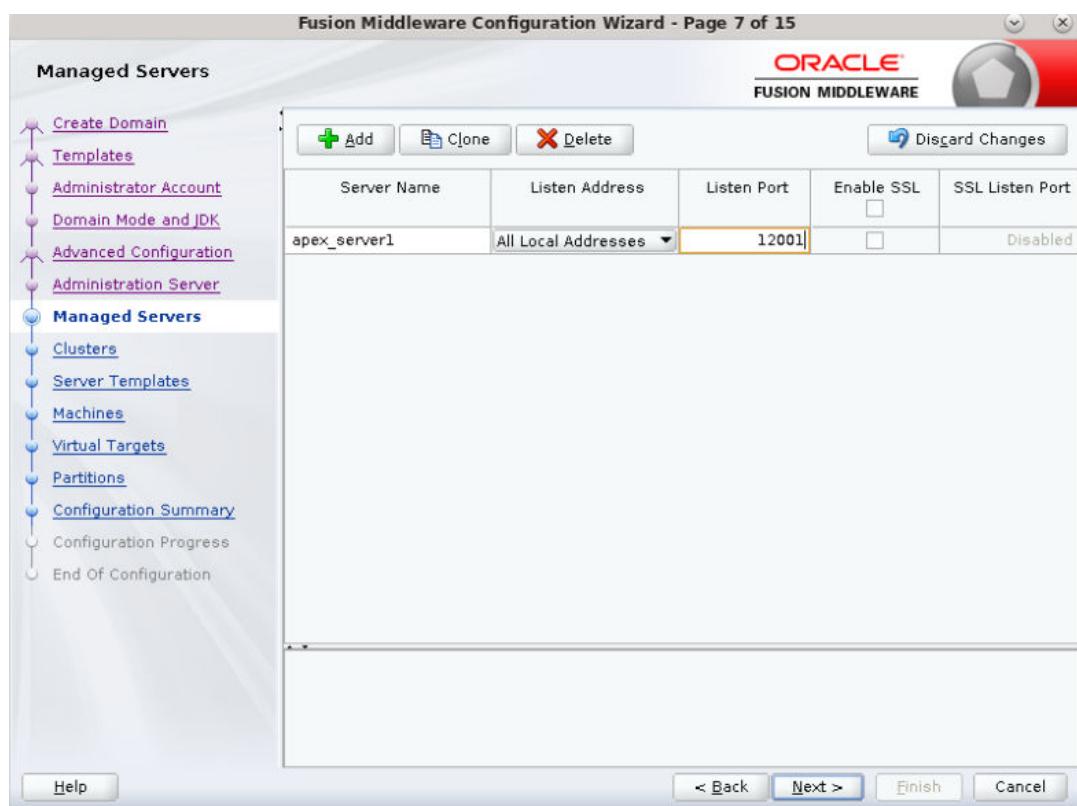


9. On the **Administration Server** page, enter the values as in the table below, and click **Next**.



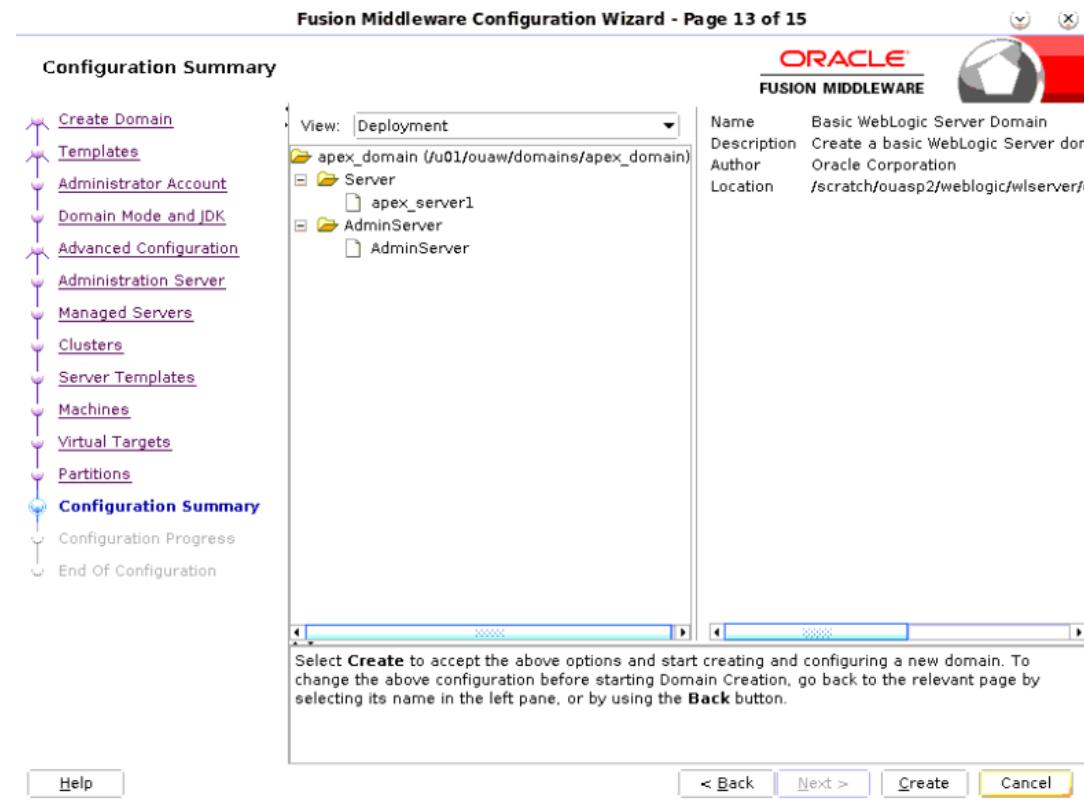
Field Name and Description	Value
Server Name: Enter the Admin server name.	AdminServer
Listen Address: Enter the listen address.	All local addresses
Enable Listen Port: For NON-SSL	Select the checkbox as per your requirement
Enable SSL Listen Port: For SSL	Select the checkbox as per your requirement
Listen Port: Enter the listen port number.	Example: <12000> NON-SSL Port
SSL Listen Port: Enter the SSL listen port number.	For SSL Domain

10. On the **Managed Servers** page, enter the following values to add a managed server. Click **Next**.

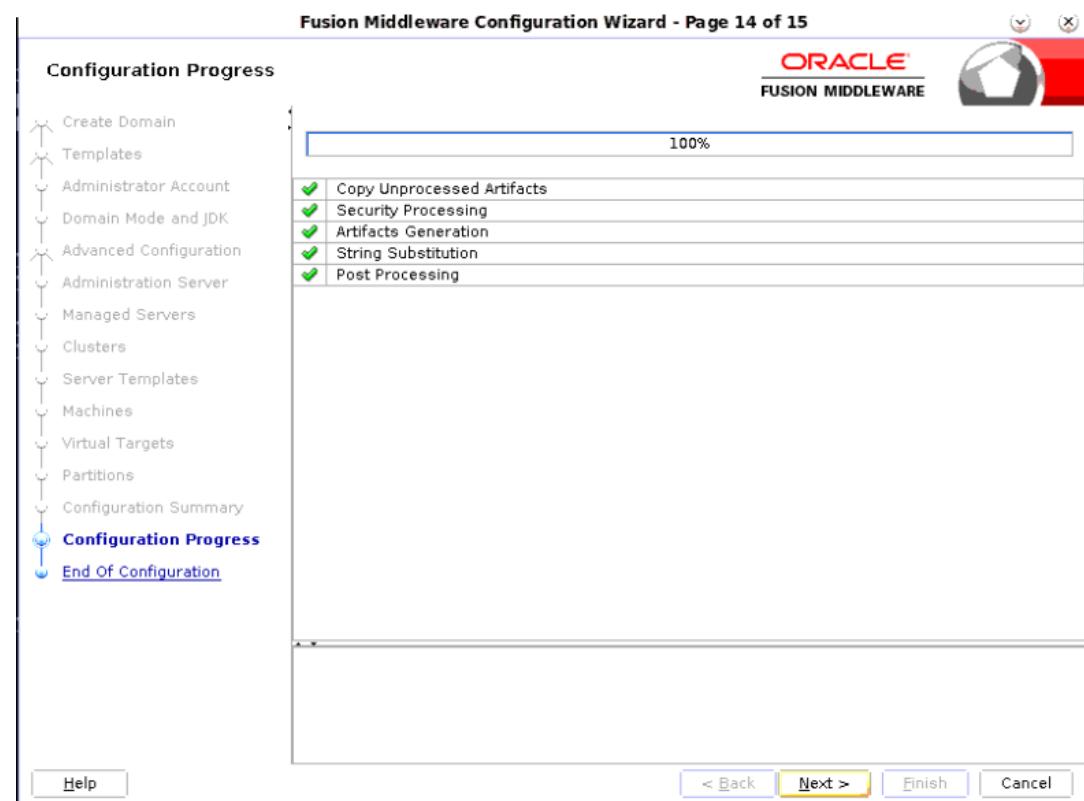


Field Name and Description	Value
Server Name: Enter the managed server name.	Example: <apex_server1>
Listen Address: Enter the listen address.	All local addresses.
Listen Port: Enter the listen port number.	Example: <12001>

11. Click **Next** on the **Clusters**, **Server Templates**, **Machines**, **Virtual Targets** and **Partitions** pages respectively. There is nothing to add or change to these pages.
12. On the **Configuration Summary** page, click **Create**.



13. On the **Configuration Progress** page, wait until the progress bar is 100% complete and then click **Next**.



14. On the **End Of Configuration** page, you will find the domain path and the administration server URL that will be used in the following steps. Click **Finish**.



Start the Apex Domain

1. Navigate to the appropriate <apex_domain>. Example: cd <apex_domain>
2. Create the boot.properties file under the AdminServer and Managed Server '<APEX DOMAIN>/servers' location.

```
mkdir -p AdminServer/security
mkdir -p apex_server1/security
```

3. Enter the following lines to boot.properties:

```
username=weblogic
password=weblogic123
```

4. Start the administration server and managed server apex_server1.

```
cd <APEX DOMAIN>/bin
nohup ./startWebLogic.sh > adminserver.log 2>&1 &
nohup ./startManagedWebLogic.sh apex_server1 > apex_server1.log 2>&1 &
```

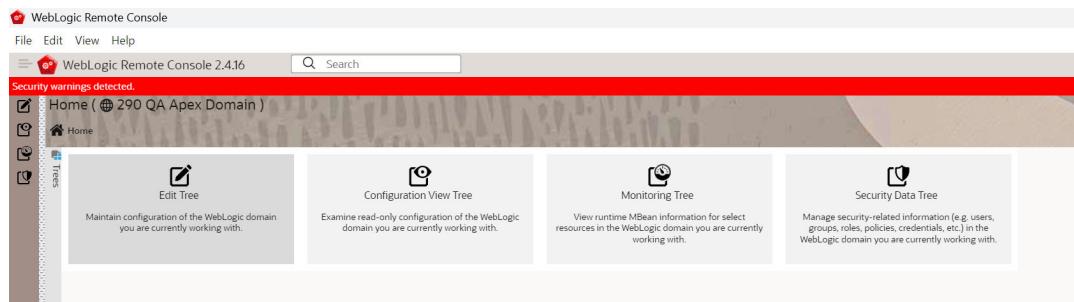
Install the ords.war and i.war Files

Installing ords.war and i.war in WebLogic 14c

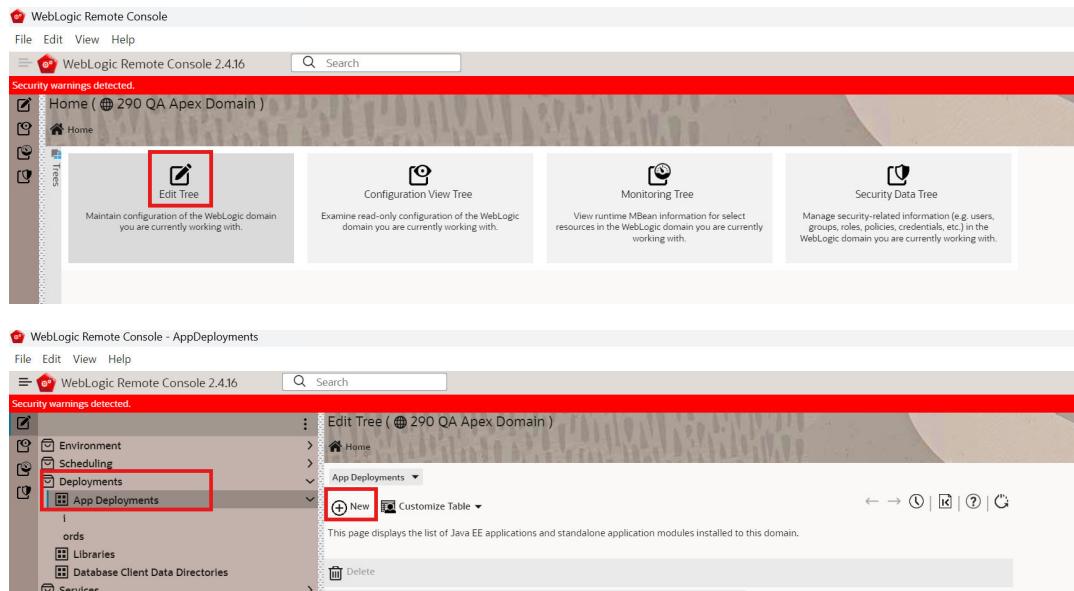
Note

To access the WebLogic 14c admin console, you need to install the WebLogic Remote Console in your system. Refer to [WebLogic Remote Console](#) for more information.

1. Log in to the <apex domain> WebLogic administration console.



2. Navigate to **Edit Tree > Deployments > App Deployments > New**.



3. Enter the appropriate values for **Name** (Example: i), **Targets** (Example: **Apex Managed Server apex_server1**), and **Source Path** (Example: full path of the i.war file location).

Edit Tree (290 QA Apex Domain)

App Deployments

+ Create - Cancel ?

Create a new Application Deployment

② Name*

② Targets* Available Chosen

AdminServer apex_server1

② Upload*

② Source Path*

② Plan Path

② Staging Mode Default

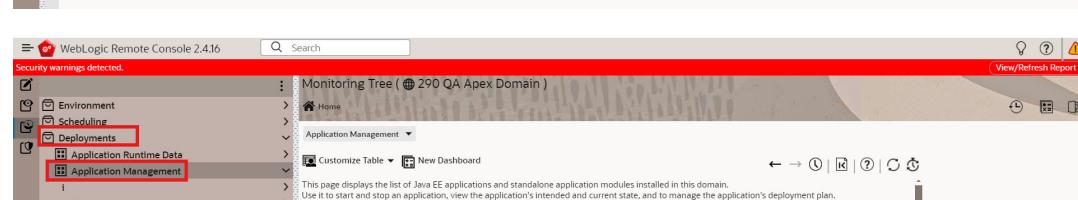
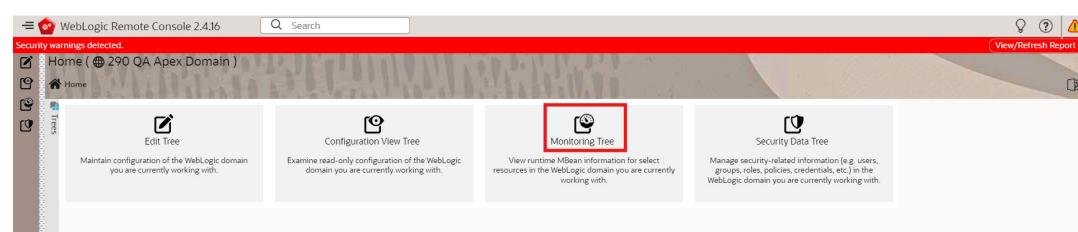
② On Deployment Do not start application

4. Click **Create** and **Save** then the **Commit Changes** () button.



5. Repeat steps 2 to 4 to deploy the `ords.war` file.

6. Navigate to **Monitoring Tree > Deployments > Application Management**.



7. Select the **i** and **ords** checkboxes then click **Start > Servicing All Requests**.

Name	State	Application Name	Application Version
i	Active	i	
ords	Active	ords	

8. Stop the Apex administration and managed servers.
9. Add this parameter to the end of **setDomainEnv.sh**, which is in the **Apex Domain/bin** folder.

```
JAVA_OPTIONS="${JAVA_OPTIONS} -Dconfig.url=/u01/ouaw/ords_configuration"
```

① Note

Dconfig.url is the path of ords configuration folder.

10. Restart the Apex administration and managed servers.

Access the AdminTool

1. Access the AdminTool from the following URL: http://<hostname>:<apex_server1_port>/ords/f?p=104
2. Provide the following credentials to access the Admin Tool.

Username: Admin

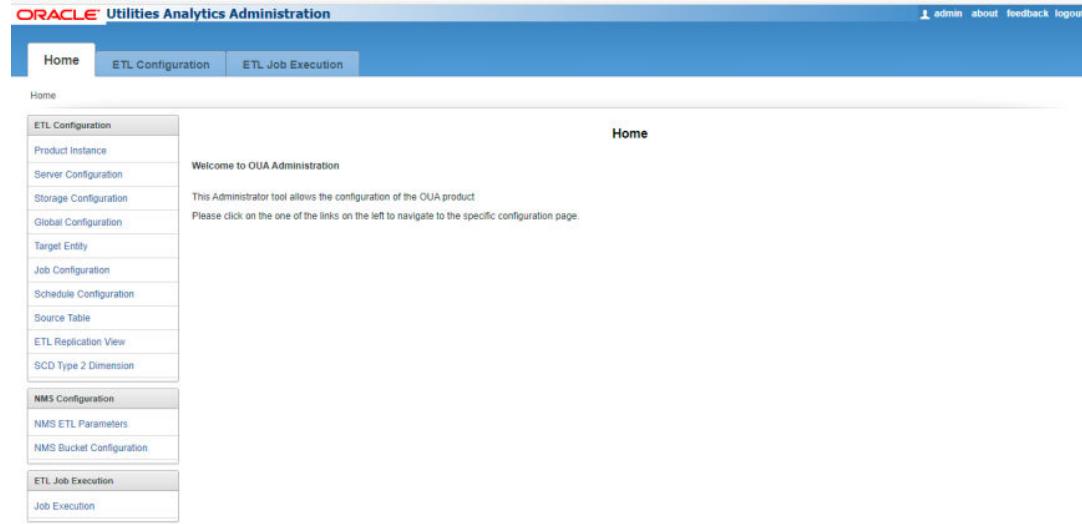
Password: Admin_123



① Note

After logging in to the application for the first time, you will be asked to change your password.

3. After logging in, you can get the following Admin Tool access to **ETL Configuration** and **ETL Job Execution**.



Change Default Password of the Admin User

This section describes the APEX API used to change the password of the admin user. This script should be run after connecting to the database as user **SYSTEM**. Replace the string 'New password' below with the new password for the admin account before running the script.

```
begin

wwv_flow_api.set_security_group_id(p_security_group_id=>nvl(wwv_flow_application_install.get_workspace_id,2090606133849294));end;
/
begin
apex_util.edit_user(
p_user_id => '1467765078687596',
p_user_name => 'ADMIN',
p_web_password => 'New password',
p_new_password => 'New password'
);
end;
/
commit;
/
```

① Note

It is strongly recommended that you change the default password after logging in.

Configure ETL Source for OUAW

This page describes the integration flow between source data and target data, detailing its preparation process and the configuration steps for the ETL process.

Prerequisites

- Ensure that Oracle GoldenGate Microservices are installed and configured on source and target database servers.
- Ensure that Oracle GoldenGate Microservices Service Manager, Admin, Receiver, Distribution Servers are up and running on the source and target database servers.
- Ensure that installing the Oracle Data Integrator (ODI)-based ETL component is completed.
- Ensure that the Oracle Data Integrator domain is created on the target application server.

Note

To perform the C2M Source Configuration, first complete the CCB Source Configuration and then proceed with MDM Source Configuration.

See [Perform Pre-Installation Steps for OUAW](#) for more information.

Set Up Source Database Server for Oracle GoldenGate Microservices

To set up each source instance:

1. Make sure that the source database is enabled in the ARCHIVELOG mode.
2. Connect to the source database as a sys user and execute the following statements.

```
alter database add supplemental log data (primary key) columns;  
alter system set enable_goldengate_replication=TRUE scope=both;
```

3. Run the sqlplus to connect to the database using SYSDBA sys user.

```
sqlplus sys/<sys password>@<source db service name> as sysdba
```

4. Create a new user. This will be the Oracle GoldenGate Owner. Make sure to assign to the new user a tablespace that is not assigned to any other.
 - For a standalone database: CCB01SRC
 - For a multi-tenant database: C##GGOWNER

Note

Keep track of the GoldenGate Owner username. It will be used in the Oracle Utilities Analytics Warehouse installation.

5. Connect to the source database with the sys user and run the following commands.

- For a standalone database:

 **Note**

Replace the GoldenGate Owner placeholder with the actual name for the database user that was created in the previous step.

```
grant CREATE SESSION,CONNECT,RESOURCE,ALTER SYSTEM to <GoldenGate Owner>;
grant unlimited tablespace to <GoldenGate owner> with admin option;
EXECUTE dbms_goldengate_auth.grant_admin_privilege('<GoldenGate Owner>','capture');
grant unlimited tablespace to <GoldenGate Owner> with admin option;
Revoke dba from <GoldenGate Owner>;
grant create any view to <GoldenGate Owner>;
grant select any dictionary to <GoldenGate Owner>;
GRANT CREATE ANY DIRECTORY TO <GoldenGate Owner>;
GRANT DROP ANY DIRECTORY TO <GoldenGate Owner>;
GRANT EXP_FULL_DATABASE TO <GoldenGate Owner>;
GRANT IMP_FULL_DATABASE TO <GoldenGate Owner>;
```

- For a multi-tenant database:

 **Note**

Modify the common user used for the GoldenGate owner placeholder <Common user for GG> with the actual name of the container common user created on your multi-tenant database.

```
grant CONNECT to <Common user for GG> container=all;
grant IMP_FULL_DATABASE to <Common user for GG> container=all;
grant RESOURCE to <Common user for GG> container=all;
grant EXP_FULL_DATABASE to <Common user for GG> container=all;
grant DROP ANY DIRECTORY to <Common user for GG> container=all;
grant UNLIMITED TABLESPACE to <Common user for GG> container=all;
grant CREATE ANY DIRECTORY to <Common user for GG> container=all;
grant ALTER SYSTEM to <Common user for GG> container=all;
grant SELECT ANY DICTIONARY to <Common user for GG> container=all;
grant CREATE ANY VIEW to <Common user for GG> container=all;
EXECUTE dbms_goldengate_auth.grant_admin_privilege('<GoldenGate Owner>','capture', container=>'all');
```

6. Connect to the <source application> ADM schema (for example, CISADM) and run the following commands.
 - For the Oracle Utilities Customer Care and Billing source database, run the following grants for the USER created in step 4:

```
Grant select on <application ADM Schema>.F1_MST_CONFIG to <GoldenGate owner>
Grant select on <application ADM Schema>.F1_EXT_LOOKUP_VAL to <GoldenGate owner>
```

```
Grant select on <application ADM Schema>.F1_BKT_CONFIG to <GoldenGate owner>
Grant select on <application ADM Schema>.F1_BKT_CONFIG_VAL to <GoldenGate owner>
```

- For the Oracle Utilities Operational Device Management source database, run the following grants:

```
Grant select on <application ADM Schema>.F1_MST_CONFIG to <GoldenGate owner>
Grant select on <application ADM Schema>.F1_EXT_LOOKUP_VAL to <GoldenGate owner>
```

- For the Oracle Utilities Meter Data Management source database, run the following grants:

```
Grant select on <application ADM Schema>.F1_MST_CONFIG to <GoldenGate Owner>;
Grant select on <application ADM Schema>.F1_EXT_LOOKUP_VAL to <GoldenGate Owner>;
```

- For the Oracle Utilities Work and Asset Management source database, run the following grants:

```
Grant select on <application ADM Schema>.F1_EXT_LOOKUP_VAL to <GoldenGate Owner>;
Grant select on <application ADM Schema>.F1_MST_CONFIG to <GoldenGate Owner>;
Grant select on <application ADM Schema>.F1_BKT_CONFIG to <GoldenGate Owner>;
Grant select on <application ADM Schema>.F1_BKT_CONFIG_VAL to <GoldenGate Owner>;
```

Configure Data Encryption Using ENCKEYS Method

Note

ENCKEYS should be same in both Source and Target GoldenGate Microservices Server.

- Change the directory to the Oracle GoldenGate Microservices Installation Home bin directory.

```
cd <Oracle GoldenGate Microservices Installation Home>/bin
./keygen <encryption key length (in bits)> [number of keys to generate]
```

Example:

```
cd </u01/ouaw/goldengate_MA/bin>
./keygen 128 1
0x8CE55035DD6893205A7BD6773FA8E670
```

2. Copy the key value to the ENCKEYS file against a logical name such as <CCB1KEY>. You must provide a unique logical name for each key-value generated above. The logical name should have this structure: logical name/space/key-value.

Example:

```
<CCB1KEY> 0x8CE55035DD6893205A7BD6773FA8E670
```

3. Repeat the step above for each key-value.
4. Save the file with the name ENCKEYS (upper case only) under **<Oracle GoldenGate Deployment Home>/etc/conf/ogg/** path without any extension in both source and target GoldenGate Microservices Deployment.

The source ENCKEYS file entry must be appended to the intermediate server or target server, which would be configured with the source system where the target Oracle GoldenGate Microservices are being configured.

Access Control Operations on Target Database Server

The following steps need to be performed for creation of Access Control List on Target Database Server.

1. Connect to the target database as a sys user.

```
sqlplus sys/<sys password>@<database service name> as sysdba
```

2. Run the below sql query by providing the Target Oracle GoldenGate Microservices Host and range of ports used in the Target GoldenGate microservices.

```
Begin
  DBMS_NETWORK_ACL_ADMIN.append_host_ace (
    host      => '< Target Oracle GoldenGate Microservices Host >',
    lower_port => < Lower Port >,
    upper_port => < Higher Port >,
    ace       => xs$ace_type(privilege_list => xs$name_list('http'),
                                principal_name => 'MDADM',
                                principal_type => xs_acl.ptype_db));
end;
/
```

Example:

```
Begin
  DBMS_NETWORK_ACL_ADMIN.append_host_ace (
    host      => 'target.ggms.hostname',
    lower_port => 7860,
    upper_port => 7865,
    ace       => xs$ace_type(privilege_list => xs$name_list('http'),
                                principal_name => 'MDADM',
                                principal_type => xs_acl.ptype_db));
end;
/
```

① Note

- **host** is referred to Target Oracle GoldenGate Microservices Host
- **lower_port** and **upper_port** are referred to range of ports used in the Target Goldengate microservices
- **principal_name** is referred to Oracle Utilities Analytics Metadata Schema, for example MDADM

3. Run the below sql query by providing the Source Oracle GoldenGate Microservices Host and range of ports used in the Source Goldengate Microservices.

```
Begin
    DBMS_NETWORK_ACL_ADMIN.append_host_ace (
        host      => '< Source Oracle GoldenGate Microservices Host >',
        lower_port => < Lower Port >,
        upper_port => < Higher Port >,
        ace       => xs$ace_type(privilege_list => xs$name_list('http'),
                                principal_name => 'MDADM',
                                principal_type => xs_acl.ptype_db));
end;
/
```

Example:

```
Begin
    DBMS_NETWORK_ACL_ADMIN.append_host_ace (
        host      => 'source.ggms.hostname',
        lower_port => 7860,
        upper_port => 7865,
        ace       => xs$ace_type(privilege_list => xs$name_list('http'),
                                principal_name => 'MDADM',
                                principal_type => xs_acl.ptype_db));
end;
/
```

① Note

- **host** is referred to Source Oracle GoldenGate Microservices Host
- **lower_port** and **upper_port** are referred to range of ports used in the Source Goldengate microservices
- **principal_name** is referred to Oracle Utilities Analytics Metadata Schema, for example MDADM

Add the Source GoldenGate Microservice Root CA & Intermediate Certificates to Target Secure Wallet on Target DB Server

Note

Ignore the below steps if all Source and Target Certificates are trusted by one ROOT CA Certificate.

1. Copy the Source GoldenGate Microservice Root CA & Intermediate certificates to Target GoldenGate Microservices Server (Target Database Server) secure wallet directory (Example: /scratch/ouawcicd/ouaw_target_wallet). See [Create a Security Wallet on the Target Database Server](#) for more information on specifying the Wallet directory path.
2. Run the below commands to add the Source GoldenGate Microservice Root CA & Intermediate (if any) certificates in Target Security Wallet ((Example: /scratch/ouawcicd/ouaw_target_wallet/wallet) on Target Database Server.
 - a. Log in to Target Database Server.
 - b. Import the copied certificates to the security wallet created on Target Database Server.

```
export ORACLE_HOME=<Oracle Database or client Home Path>
export PATH=$ORACLE_HOME/bin:$PATH
orapki wallet add -wallet <Target Security Wallet location> -cert
<Source Root CA/Intermediate Certificate> -pwd <Target client wallet
password>
```

Example:

```
orapki wallet add -wallet /scratch/ouawcicd/ouaw_target_wallet/wallet -
cert source_root_ca.pem -pwd oracle123
```

Create the Directories for Trail Files in the Source and Target GoldenGate Microservices Server

Create a directory with source product context name under <Oracle GoldenGate Microservices Deployment Home>/var/lib/data/<Product Name with Context Code> in both the Source and Target GoldenGate Microservices servers.

Example:

```
cd /u01/ouaw/goldengate_Deploy/var/lib/data/
mkdir -p <CCB1>
```

Note

Here, goldengate_Deploy is referred to as Oracle GoldenGate Microservice Deployment Home.

Configure Buckets and Extract Parameters

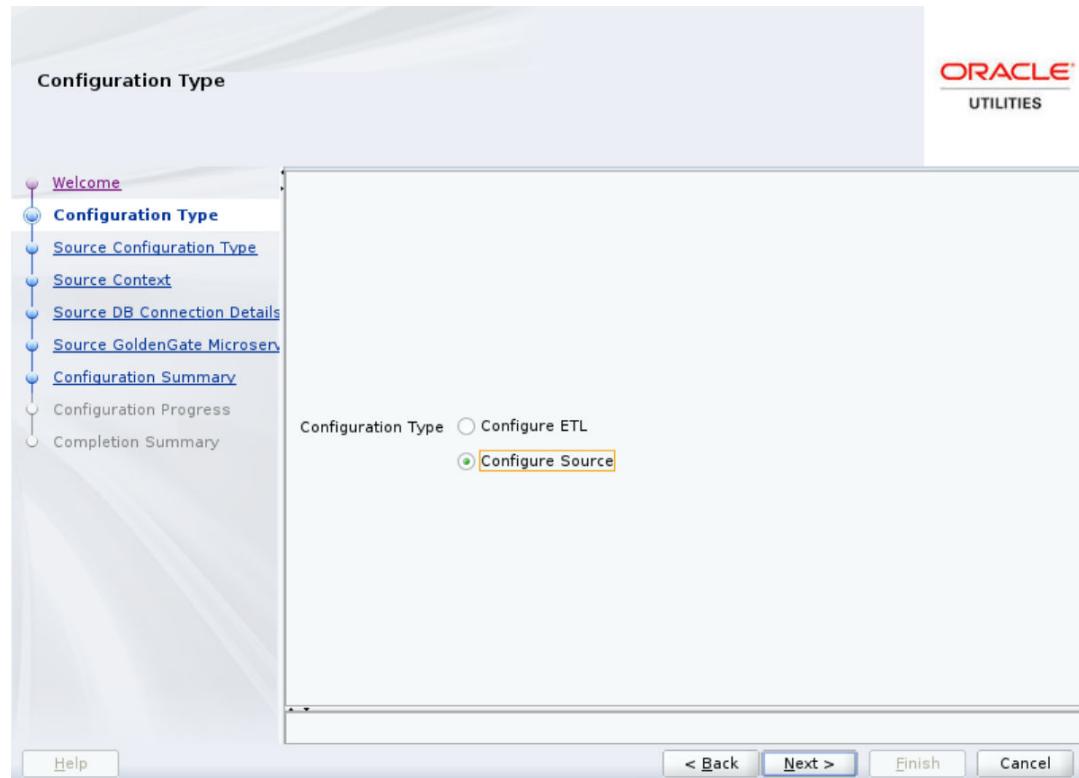
Before attaching a specific source system to Oracle Utilities Analytics Warehouse, it is necessary to complete some source application configurations as detailed on [Configure ETL Parameters and Buckets](#).

Source Configuration Using OUAW Wizard

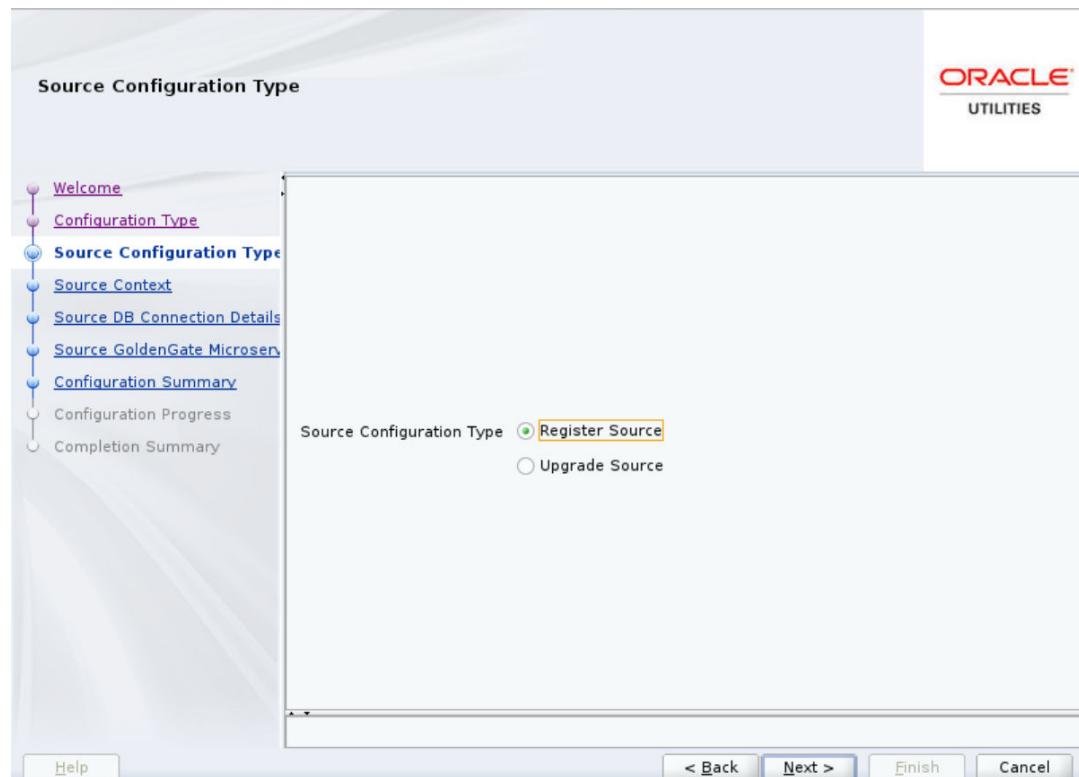
1. For the Network Management System (NMS) source application only, perform in ODI Studio the steps from the section [Network Management System \(NMS\) Source Application](#) before continuing with this process. *Ignore this step for other source applications.*
2. Log in to the Target Application Server.
3. Navigate to <ETL Home>/bin and run the following: ./config.sh. The configuration wizard opens.
4. On the **Welcome** page, click **Next**.



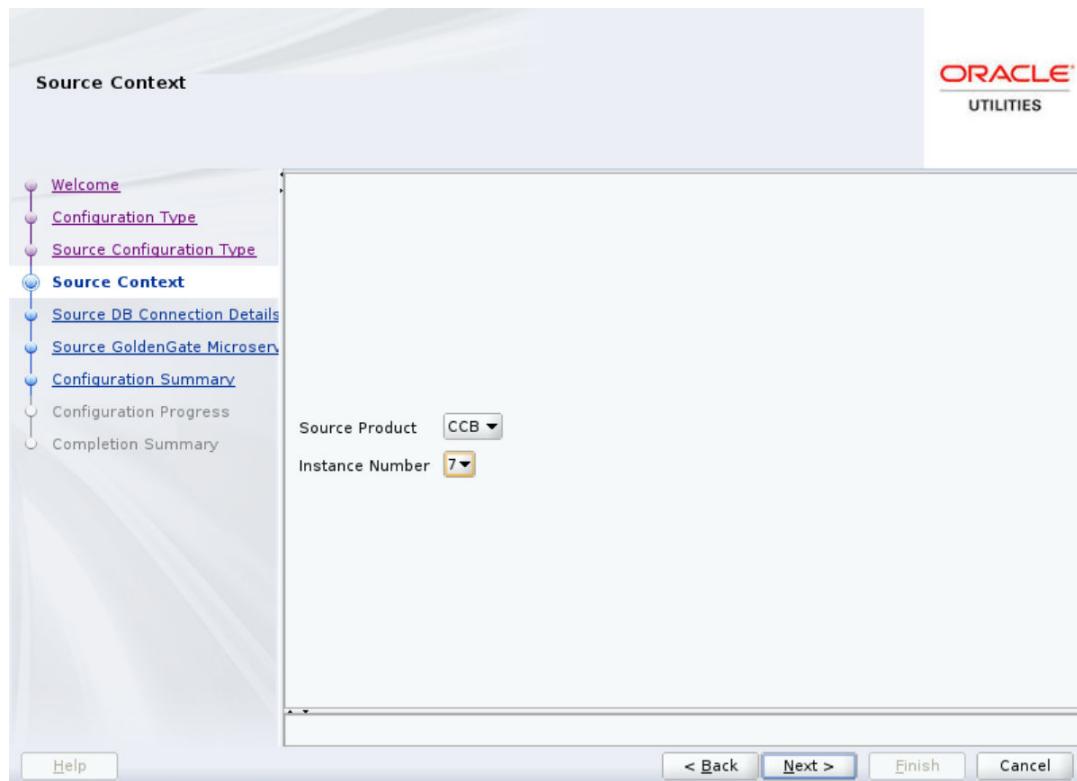
5. On the **Configuration Type** page, select **Configure Source** and click **Next**.



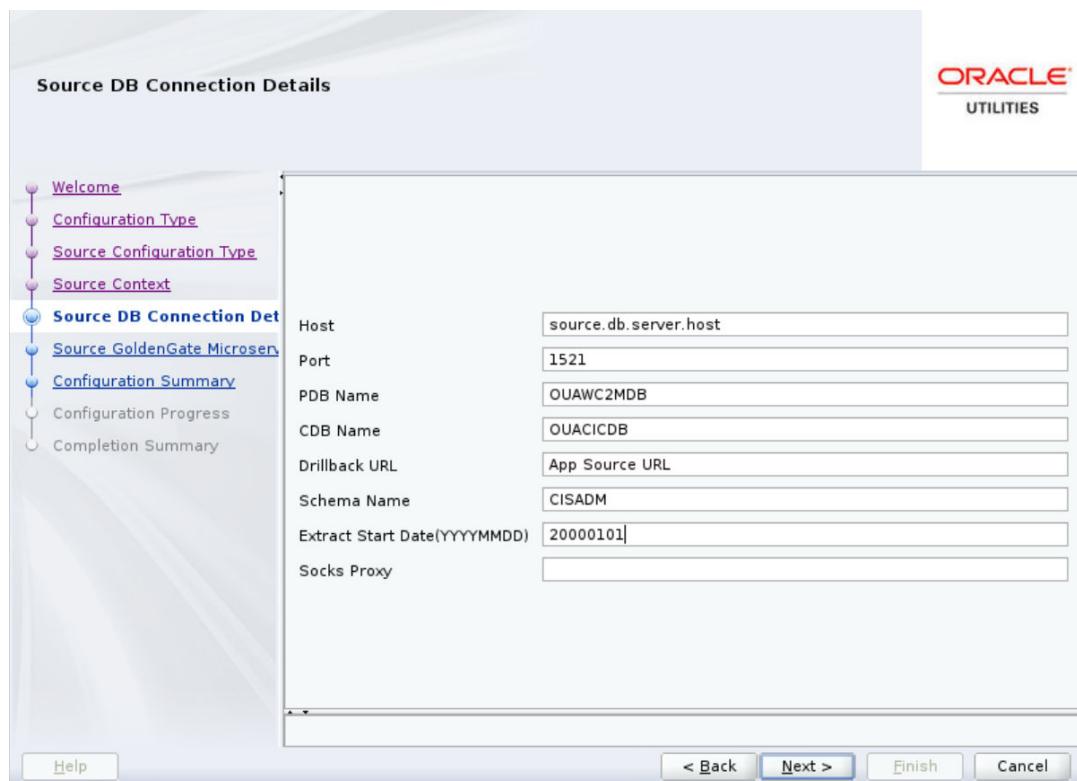
6. On the **Source Configuration Type** page, select **Register Source** and click **Next**.



7. On the **Source Context** page, select the appropriate source product and instance number from the drop-down menu and click **Next**.



8. On the **Source DB Connection Details** page, enter the information as in the table below and click **Next**.



Field Name and Description	Value
Host: Enter the source database host name.	<Source Database Server Host> Example: <source.dbserver.host>
Port: Enter the source database server port.	Example: <1521>
PDB Name: Enter the source database PDB name. For Non-Container database, PDB Name is the same as CDB Name.	<Source PDB name>
CDB Name: Enter the source Database CDB name.	Example: <Source CDB name>
Drillback URL: Enter the Edge product application URL.	Example: <http://source.application.host:port/ouaf>
Schema Name: Enter the source database schema name.	Example: <CISADM>
Extract Start Date (YYYYMMDD): This is the date from which data should be extracted from the source database.	20000101
Socks Proxy: This is the socks proxy host and port separated by a (:). Provide the value only if a socks proxy has been set up. Otherwise, leave the field blank.	[BLANK]

9. On the **Source GoldenGate Microservices Details** page, enter the details as in the table below and click **Next**.

Source GoldenGate Microservices Details

ORACLE UTILITIES

GoldenGate Host: source.ggms.server.host

GoldenGate User: ggadmin

GoldenGate Password: *****

Confirm GoldenGate Password: *****

GoldenGate Admin Service Port: 7861

GoldenGate Algorithm: AES128

GoldenGate Encryptkey: Generic

GoldenGate Distribution Service Port: 7862

GoldenGate Owner User: C##GGOWNER

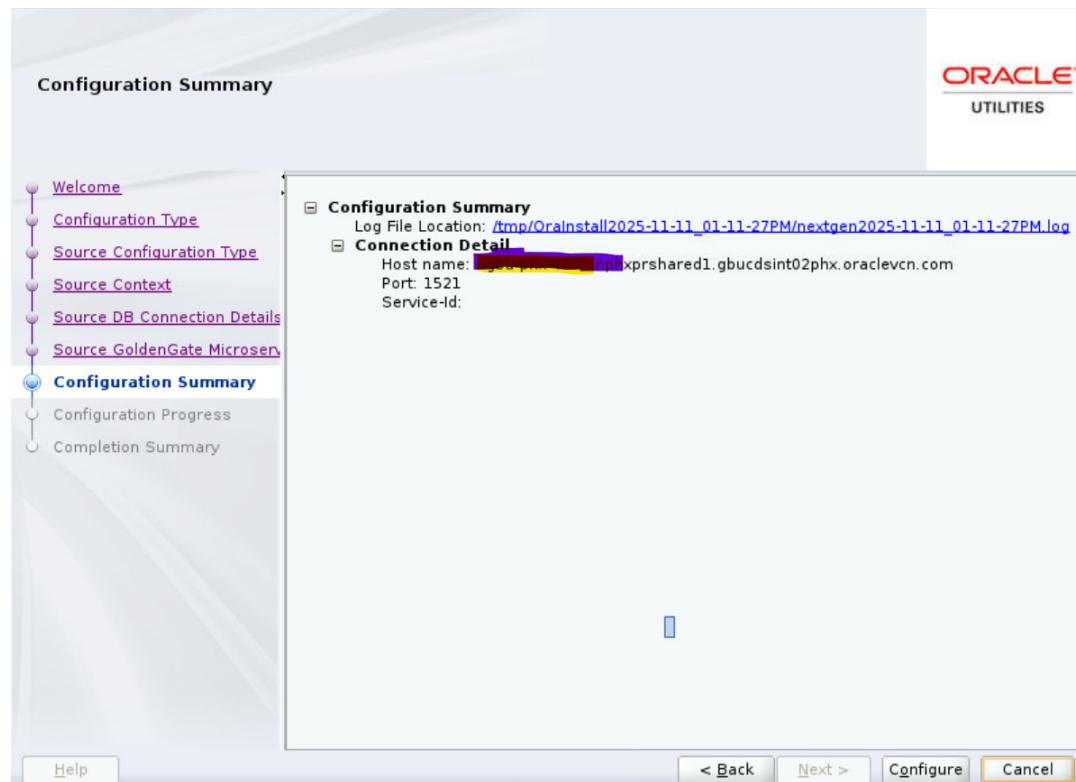
GoldenGate Owner Password: *****

Confirm GoldenGate Owner Password: *****

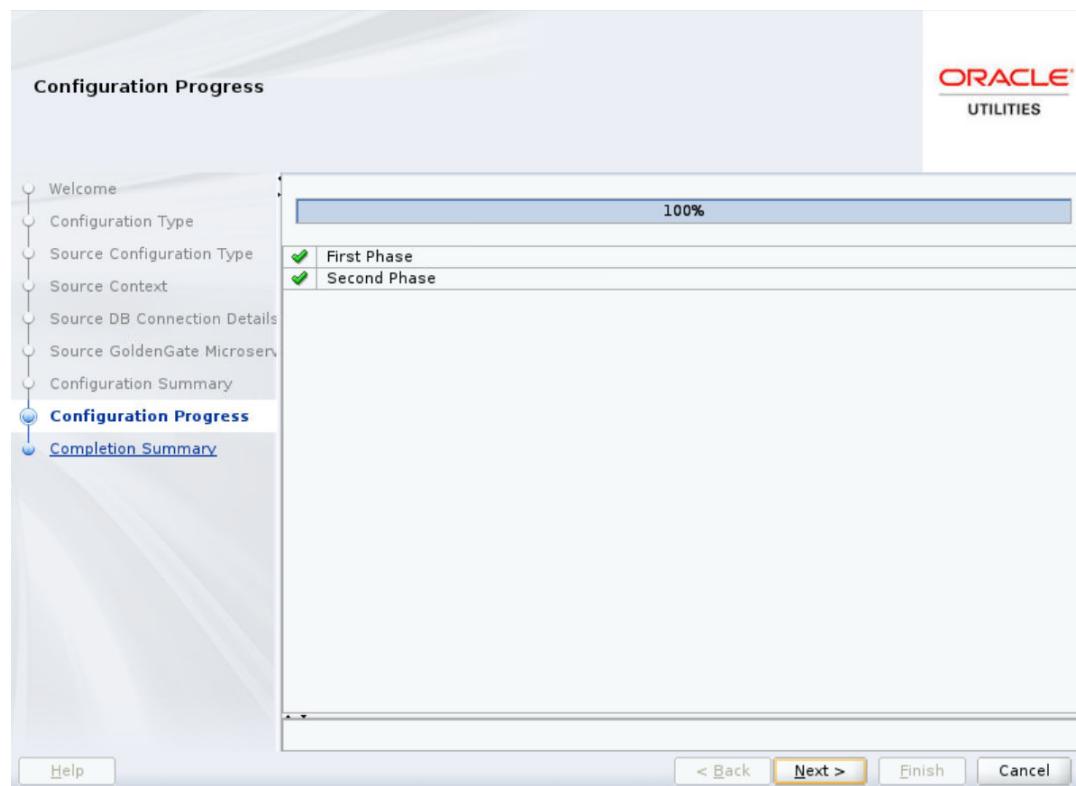
Help < Back Next > Finish Cancel

Field Name and Description	Value
GoldenGate Host: Enter the source database host where Source GoldenGate Microservices are installed.	<Source GoldenGate Microservice Host> Example: <source.ggms.server.host> = <source.db.server.host>
GoldenGate User: Enter the source Oracle GoldenGate Microservices Admin user.	Example: <ggadmin>
GoldenGate Password: Enter the source Oracle GoldenGate Microservices Admin user password.	Example: <ggadmin password>
Confirm GoldenGate Password: Re-enter the source Oracle GoldenGate Microservices Admin user password.	Example: <ggadmin password>
GoldenGate Admin Service Port: Enter the source Oracle GoldenGate Microservice Admin port.	Example: <7861>
GoldenGate Algorithm: This is the algorithm configured in GoldenGate Microservices on the source database server.	AES128
GoldenGate Encryptkey: The GoldenGate Microservices Encryptkey configured the source database server.	Generate ENCKEY. See Configure Data Encryption Using ENCKEYS Method .
GoldenGate Distribution Service Port: Enter the source Oracle GoldenGate Microservices Distribution port.	Example: <7862>
GoldenGate Owner User: This is the user name of the GoldenGate Owner user.	Example: <C##GGOWNER>
GoldenGate Owner Password: This is the password of the GoldenGate Owner user.	<GoldenGate Owner user password>
Confirm GoldenGate Owner Password: Re-enter the password of the GoldenGate Owner user.	<GoldenGate Owner user password>

10. On the **Configuration Summary** page, review the summary to verify that the entered information is correct, and click **Configure**.



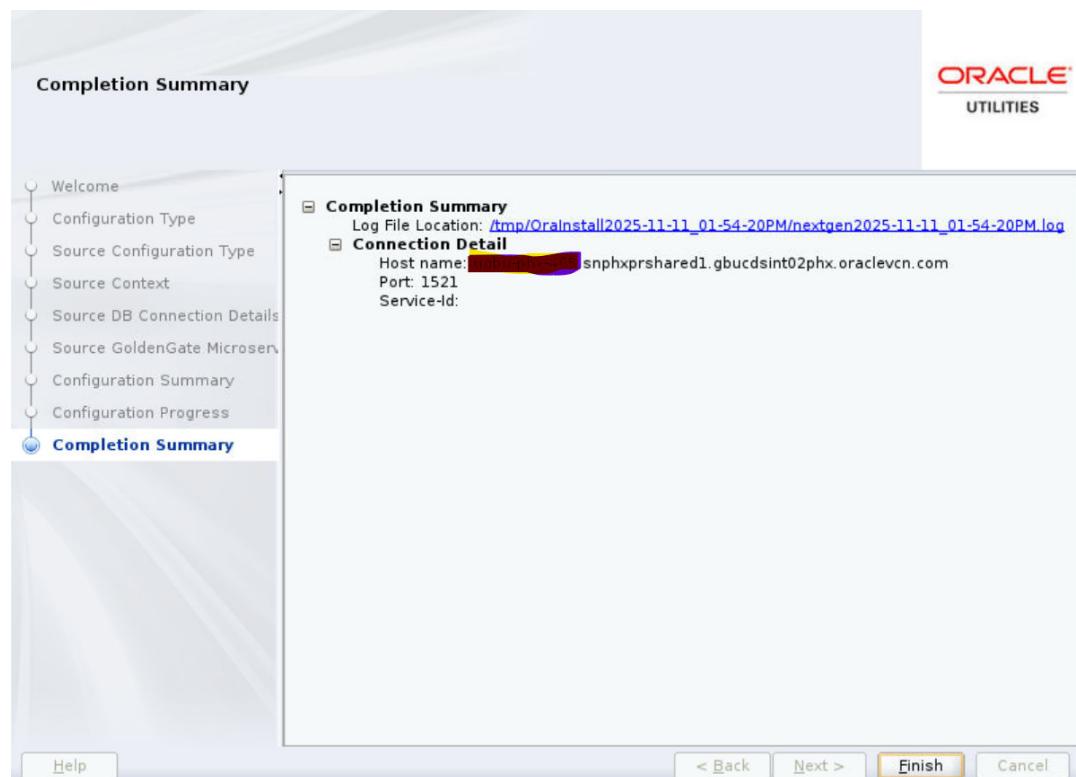
11. On the **Configuration Progress** page, review the progress of the configuration. Click **Next** when the progress bar is 100%.



12. On the **Complete Summary** page, click **Finish**. Review the source config log file in terminal, wait for source configuration completion. Upon completion, installer will automatically terminate once source configuration is completed.

Example:

```
- 2025-11-11 13:41:42,173 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Action : Generate Objects
- 2025-11-11 13:41:42,173 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Elapsed Time : 0:43
- 2025-11-11 13:41:42,173 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Task Count : 81
- 2025-11-11 13:41:42,173 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Skipped Count : 0
- 2025-11-11 13:41:42,173 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Failed Count : 0
- 2025-11-11 13:41:43,970 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Action : Processing Grants
- 2025-11-11 13:41:43,971 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Elapsed Time : 0:1
- 2025-11-11 13:41:43,971 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Task Count : 0
- 2025-11-11 13:41:43,971 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Skipped Count : 0
- 2025-11-11 13:41:43,971 [AWT-EventQueue-0] INFO (oua.base.BITaskWatcher) Failed Count : 0
- 2025-11-11 13:41:43,989 [AWT-EventQueue-0] INFO (oua.build.ConfigureSource) Source configuration successfully completed. For details refer to deployod.log in logs/system directory under OUA Home
[snphxrshared1.gbcdsint02phx.oraclevcn.com:1521]
```



Move Param Files from Target Application Server to Source and Target GoldenGate Microservices Servers

1. After source configuration is completed successfully, extracts and replicas param files (.prm files) are generated on the target application server. Param files are found under **<OUA_ETL HOME>/GGScriptsGen/<Models with Context Code Name>**.
2. Remove all existing param files from Source and Target GoldenGate Microservices under **<Oracle GoldenGate Microservice Deployment Home>/etc/conf/ogg**.

```
cd <Oracle GoldenGate Microservice Deployment Home>/etc/conf/ogg
rm -rf <Context Code>*
```

Example:

```
cd /u01/ouaw/goldengate_Deploy/etc/conf/ogg
rm -rf CCB1*
```

ⓘ Note

Here, CCB1(*) represents all param files with Context Code CCB1.

3. Copy all respective EXTRACT param files from Target Application Server under the **<OUA_ETL HOME>/GGScriptsGen/<Each Models with Context Code Name>/src/dirprm/*.prm** path to the **<Source Oracle GoldenGate Microservice Deployment Home>/etc/conf/ogg** path on Source GoldenGate Microservices Server.

```
scp -rp <App Server>:<OUA_ETL HOME>/GGScriptsGen/<Context Code>*/src/
dirprm/*.prm <Source GoldenGate Microservice Server>:<Source Oracle
GoldenGate Microservice Deployment Home>/etc/conf/ogg
```

Example:

```
scp -rp <appserver.hostname>:<OUA_ETL HOME>/GGScriptsGen/CCB1*/src/dirprm/
*.prm <Source GoldenGate Microservice Server>:/u01/ouaw/
goldengate_Deploy/etc/conf/ogg
```

ⓘ Note

- In the example, CCB1(*) represents all models with Context Code CCB1.
- All Param files must be copied from each model with same context code.
- **src** is the directory which contains Extract param files.
- Ensure all copied param files has **rw** permissions and required **ownership** (for example, same user and group that are used in OGG MS Installation).

4. Copy all respective REPLICAT param files from Target Application Server under the **<OUA_ETL HOME>/GGScriptsGen/<Each Models with Context Code Name>/stg/**

dirprm/*.prm path to the <Target Oracle GoldenGate Microservice Deployment Home>/etc/conf/ogg path on Target GoldenGate Microservices Server.

```
scp -rp <App Server>:<OUA_ETL HOME>/GGScriptsGen/<Context Code>*/stg/  
dirprm/*.prm <Target GoldenGate Microservice Server>:<Target Oracle  
GoldenGate Microservice Deployment Home>/etc/conf/ogg
```

Example:

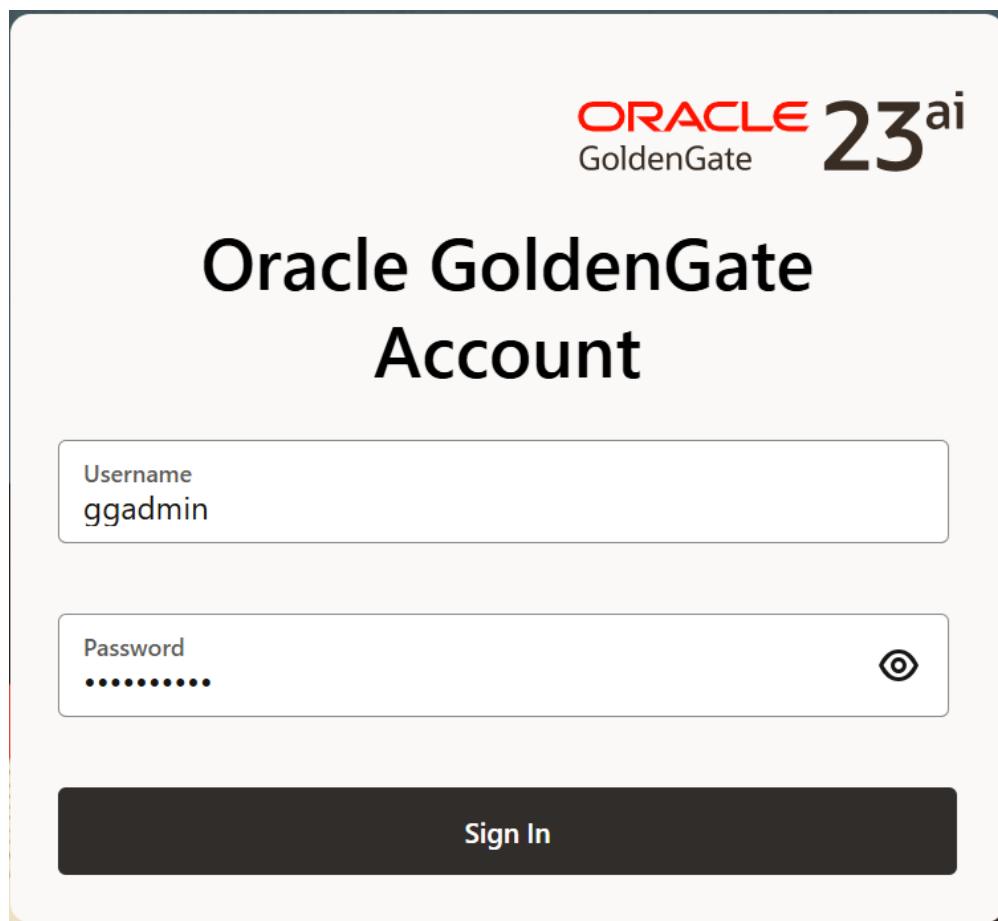
```
scp -rp <appserver.hostname>:<OUA_ETL HOME>/GGScriptsGen/CCB1*/stg/dirprm/  
*.prm <Target GoldenGate Microservice Server>:/u01/ouaw/  
goldengate_Deploy/etc/conf/ogg
```

 **Note**

- In the example, CCB1(*) represents all models with Context Code CCB1.
- All Param files must be copied from each model with same context code.
- **stg** is the directory which contains Replicat param files.
- Ensure all copied param files has **rw** permissions and required **ownership** (for example, user and group that are used in OGG MS Installation).

Add the Schema Trandata

1. Log in to the Source GoldenGate Microservices Administration Server.



2. Click **DB Connections**, select the appropriate connections as per your **Context Code** then click

The image shows the Oracle GoldenGate Services DB Connections page. The left sidebar shows a navigation tree with "ggadmin" selected. The main table lists five connections: CCB7, MDM1, MDM2, MDM7, and NMS1. The "DB Connections" section in the sidebar and the "MDM2" row in the table are highlighted with red boxes. The "MDM2" row is also expanded, showing its sub-connections: B1_OUAW_MDM1(B1_O, MDM1) and B1_OUAW_MDM2(B1_O, MDM2).

Connection	Source	Target	Context Code	Action
CCB7	CCB7	shared1.gbucdsint02 phx.oraclevcn.com:1 521/OUACICDB		
MDM1	MDM1	C##GGOWNER@ug bu-phx-465.snpbxpr shared1.gbucdsint02 phx.oraclevcn.com:1 521/OUACICDB		
MDM2	MDM2	C##GGOWNER@ug bu-phx-465.snpbxpr shared1.gbucdsint02 phx.oraclevcn.com:1 521/OUACICDB		
MDM7	MDM7	C##GGOWNER@ug bu-phx-465.snpbxpr shared1.gbucdsint02 phx.oraclevcn.com:1 521/OUACICDB		
NMS1	NMS1	C##GGOWNER@ug bu-phx-465.snpbxpr shared1.gbucdsint02		

3. In **TRANDATA Information**, click **+**, enter the appropriate parameters, and click **Submit**.

① Note

Provide the Schema Name as **<PDB NAME>.<SOURCE ADM SCHEMA>** for container database. For Non-Container database, provide only **<SOURCE ADM SCHEMA>**.

4. Verify the schema trandata.

ORACLE Oracle GoldenGate Services 23.9.0.25.07 for Oracle (Deployment_source)

Administration Service Distribution Service Receiver Service Performance Metrics Service

Connected to: OUACICDB

MDM7(C##GGOWNER@ugbu-phx-465.snpbxprshared1.gbucdsint02phx.oraclevcn.com:1521/OUACICDB)

TRANDATA Information +

Schema Table Procedure

<PDB NAME>.<SOURCE SCHEMA>

Schema Name Number of Prepared tables Supplemental Logging Options Actions

CISADM 3468

Allow Nonvalidated Keys (unchecked)

Scheduling Columns (checked)

All Columns (checked)

Partial JSON (unchecked)

Start GoldenGate Microservices Extracts, Distribution, and Replicats

1. In ODI Studio, navigate to **Load Plans and Scenarios > Framework > Scheduler** then right click **B1_START_GGMS_PROCESS** and click **Run with Context Code** to start the extract, distribution, and replicate process.

Desi... Opera... Topolo... Security Start Page

Projects Models Dimensions and Cubes Load Plans and Scenarios

B1_PURGE_SESSIONS Version 001 B1_PURGE_STAGING Version 001 B1_RESET_ENTITY Version 001 B1_RESET_INSTANCE Version 001 B1_RUN_ALL Version 001 B1_START_GGMS_PROCESS Version 001 B1_SYNC_CONTEXT Version 001 B1_SYNC_MODEL Version 001 B1_SYNC_TABLE Version 001 B1_VALIDATE_REP_PKG Version 001 B1_VALIDATION_ODI Version 001 PURGE_ALL Version 001 Views Oracle Utilities BI Global Objects

DATA INTEGRATOR

Run

Context: CCB9

Logical Agent: WLS_AGENT (ODI Agent)

Log Level: 5

Release Note: Simulation

Training Reso Deploy Only

Help OK Cancel

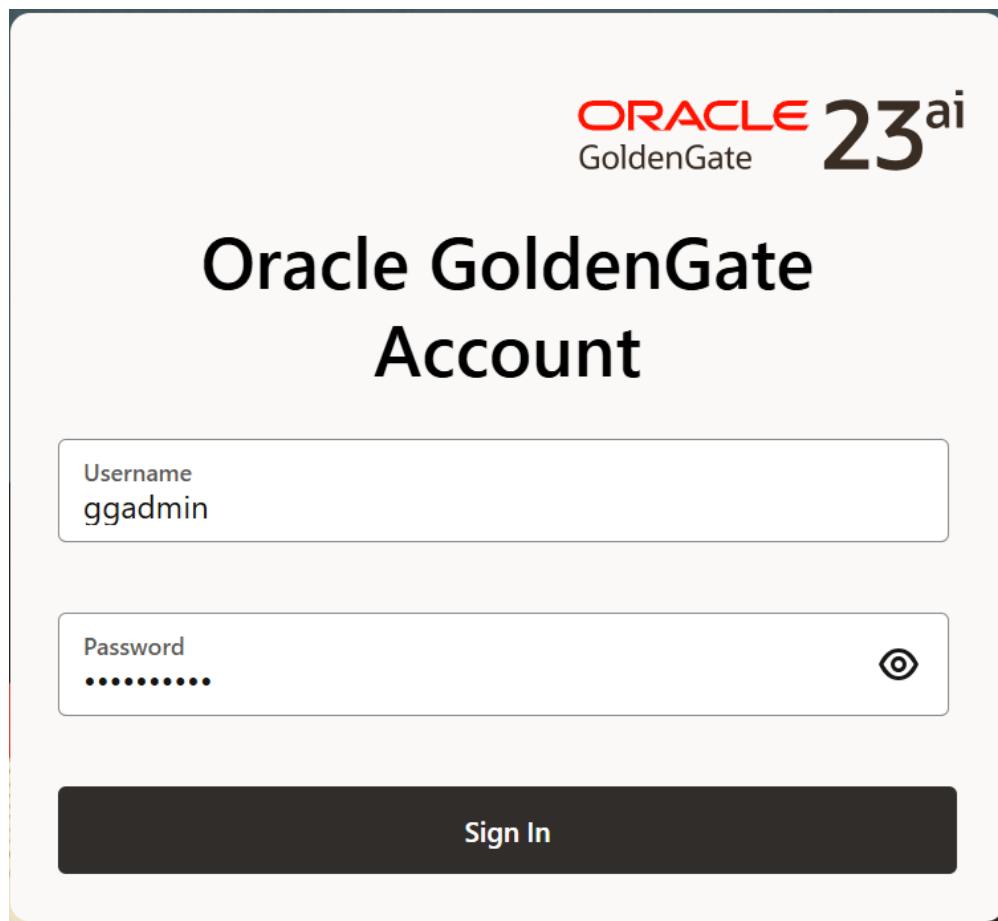
2. Log in to GoldenGate Microservices consoles and verify the status of the extract, distribution path and replicats.

Note

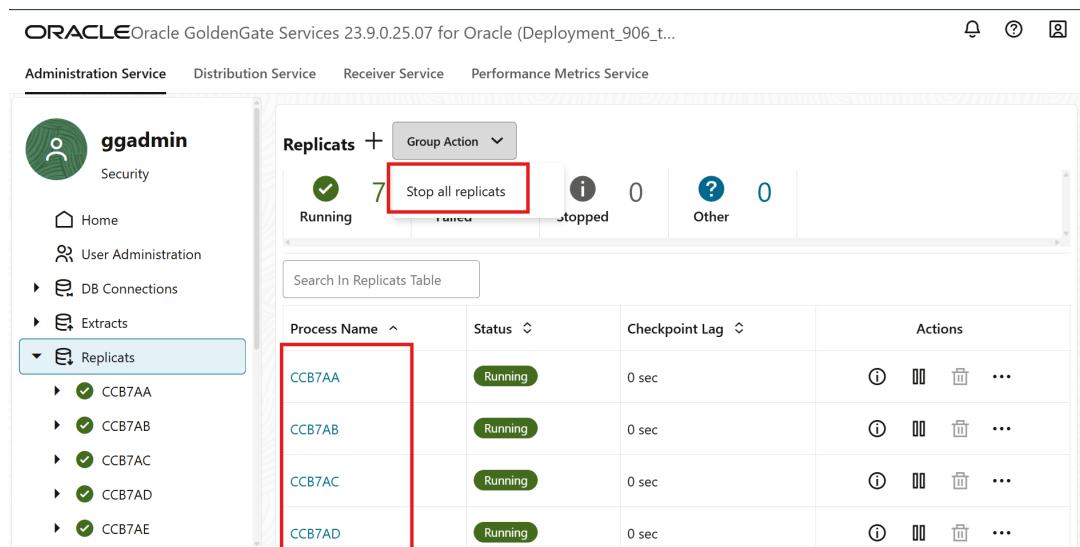
You can start all GoldenGate Extract and Replicat processes from the Source or Target GoldenGate Microservices Administration Server console respectively and start Distribution path from the Source GoldenGate Microservices Distribution Server console.

Configure the Source Product in Oracle Data Integrator

1. Log in to the Target GoldenGate Microservices Administration Server.



2. Stop all replicates with configured Context Code.

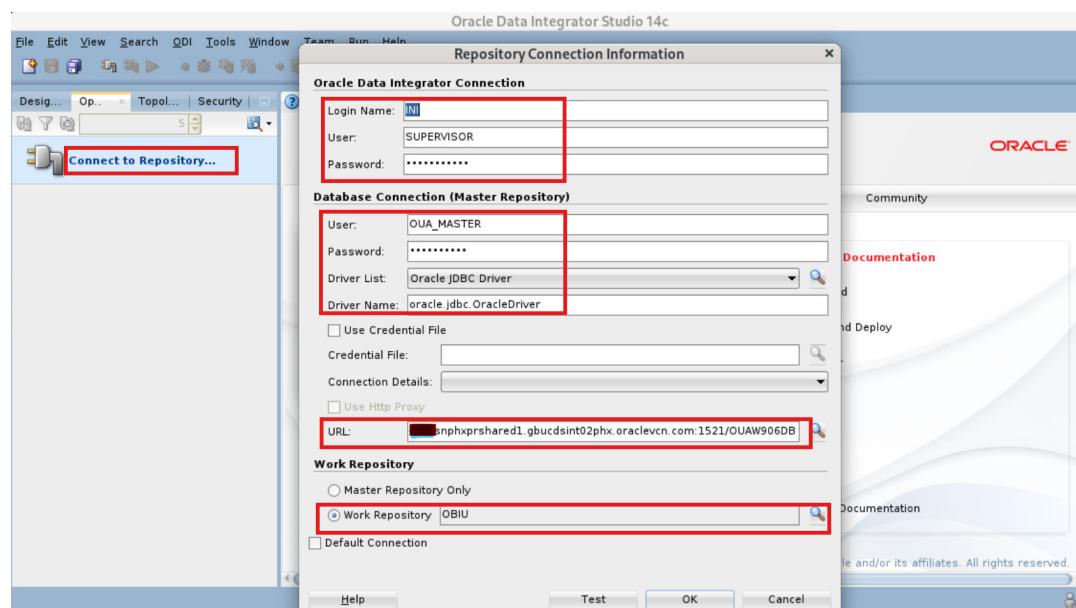


Process Name	Status	Checkpoint Lag	Actions
CCB7AA	Running	0 sec	Stop
CCB7AB	Running	0 sec	Stop
CCB7AC	Running	0 sec	Stop
CCB7AD	Running	0 sec	Stop

3. Navigate to <FMW 14c HOME>/odi/studio/bin, set JAVA HOME and PATH, and execute the ODI file. Oracle Data Integrator Studio opens.

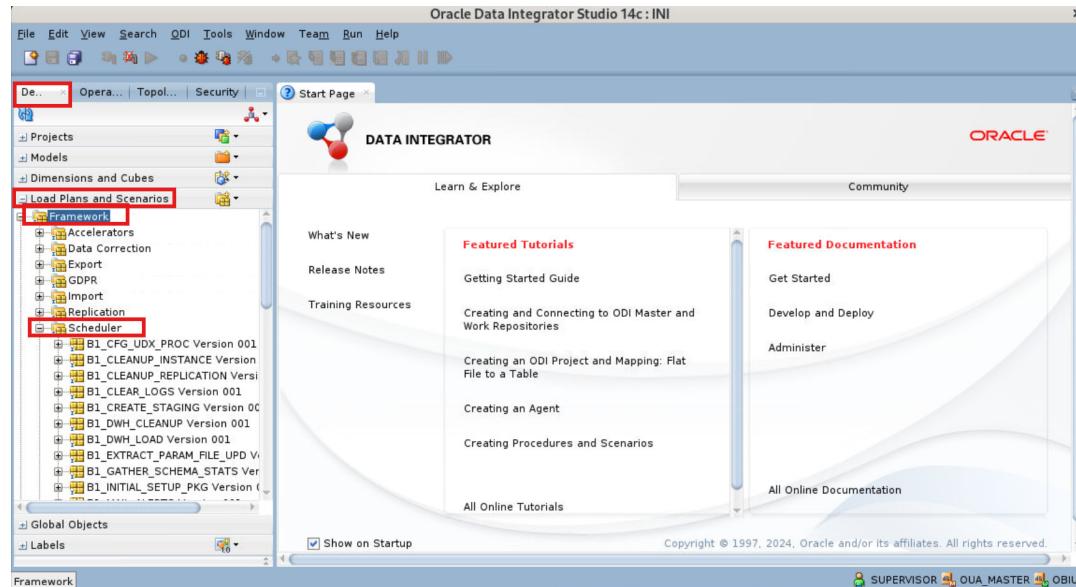
```
export JAVA_HOME=<JAVA HOME>
export PATH=$JAVA_HOME/bin:$PATH
./odi
```

4. Click **Connect to Repository** and provide the necessary **Repository Connection Information** inputs to execute the connection.

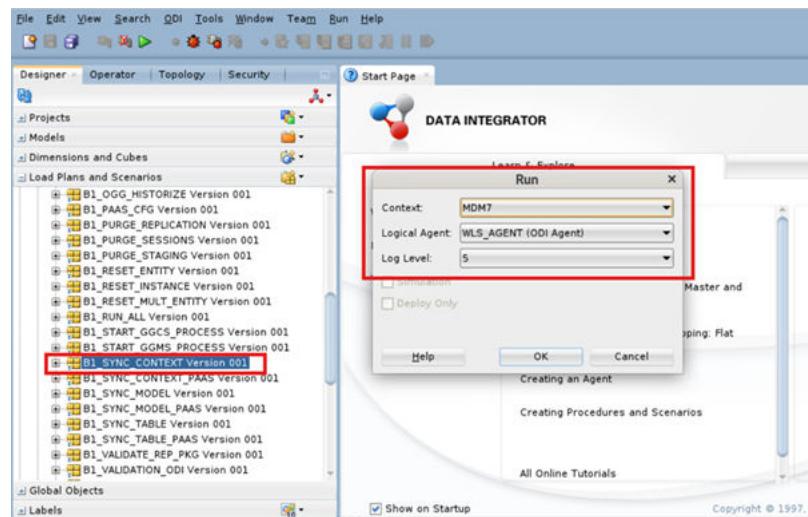


Field Name and Description	Value
ODI Connection	
Login Name: Enter the name.	Example: <ODIREPO2510>
Username: Enter the username as SUPERVISOR	SUPERVISOR
Password: Enter the password of user SUPERVISOR.	<password of SUPERVISOR>
Database connection (Master repository)	
User: Target database master repository username	Example: <OUA_MASTER>
Password: Target database master repository user password	Enter the password of Target database master repository user password
Driver list: Select the drivers from the list	Oracle JDBC Driver
Driver Name: Select the driver name from the list	oracle.jdbc.OracleDriver
Credentials Details	
URL: Provide the target database connection url	Example: <targetdatabase.host>:<port>/<target database servicename>
Work Repository	
Work Repository: Select the work repository from the search	OBIU

5. Navigate to Designer > Load Plans and Scenario > Framework > Scheduler.



6. Right click on **B1_SYNC_CONTEXT Version 001** and click **Run**. A popup window opens.



- In the **Run** popup window, select the appropriate source product and instance number from the **Context** field. In this example, **Context** is MDM7. In the **Logical Agent** field, select the appropriate logical agent. In this example, **Logical Agent** is set to **WLS_Agent (ODI Agent)**.
- Click **OK**.

Network Management System (NMS) Source Application

This section details the steps for the source application setup in different versions of Network Management System (NMS).

Note

The steps below are to be performed in ODI Studio. To execute the scenario below, right-click on the selected scenario name in ODI, click **run**, select context as **Global**, and then click **OK**.

Versions 2.6.0.0 and Later

1. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
2. Run the B1_UPD_NMS_SCEN_FROM_260 and B1_UPD_NMS_ACCT_SCEN_FROM_24013 scenarios.
3. Perform step 3 and the succeeding steps from [Source Configuration Using OUAW Wizard](#).

Versions 2.5.0.2 and below 2.6.0.0

1. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
2. Run the B1_UPD_NMS_SCEN_FROM_2502_UNDER_260 and B1_UPD_NMS_ACCT_SCEN_FROM_24013 scenarios.
3. Perform step 3 and the succeeding steps from [Source Configuration Using OUAW Wizard](#).

Versions 2.4.0.1.3 and below 2.5.0.2

1. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
2. Run the B1_UPD_NMS_SCEN_FROM_2401_UNDER_2502 and B1_UPD_NMS_ACCT_SCEN_FROM_24013 scenarios.
3. Perform step 3 and the succeeding steps from [Source Configuration Using OUAW Wizard](#).

Versions 2.4.0.1. and below 2.4.0.1.3

1. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
2. Run the B1_UPD_NMS_SCEN_FROM_2401_UNDER_2502 and B1_UPD_NMS_ACCT_SCEN_UNDER_24013 scenarios.
3. Perform step 3 and the succeeding steps from [Source Configuration Using OUAW Wizard](#).

Versions below 2.4.0.1

1. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
2. Run the B1_UPD_NMS_SCEN_UNDER_2401 and B1_UPD_NMS_ACCT_SCEN_UNDER_24013 scenarios.
3. Perform step 3 and the succeeding steps from [Source Configuration Using OUAW Wizard](#).

Configure ETL Parameters and Buckets

As part of the source application configuration process, you can configure extract parameters and buckets. This configuration is performed in the source application before it is attached to Oracle Utilities Analytics Warehouse. See the following pages for details:

- [CCB Extract Parameters and Bucket Configuration](#)

- [MDM Extract Parameters and Bucket Configuration](#)
- [C2M Extract Parameters and Bucket Configuration](#)
- [NMS Extract Parameters and Bucket Configuration](#)
- [ODM Extract Parameters and Bucket Configuration](#)
- [WAM Extract Parameters and Bucket Configuration](#)

CCB Extract Parameters and Bucket Configuration

This page provides information about the configurations required for the Oracle Utilities Customer Care and Billing (CCB) application to enable successful data extracts for Oracle Utilities Extractors and Schema.

 **Note**

You must complete these setups before starting the ELT processes to load data into Oracle Utilities Analytics Warehouse.

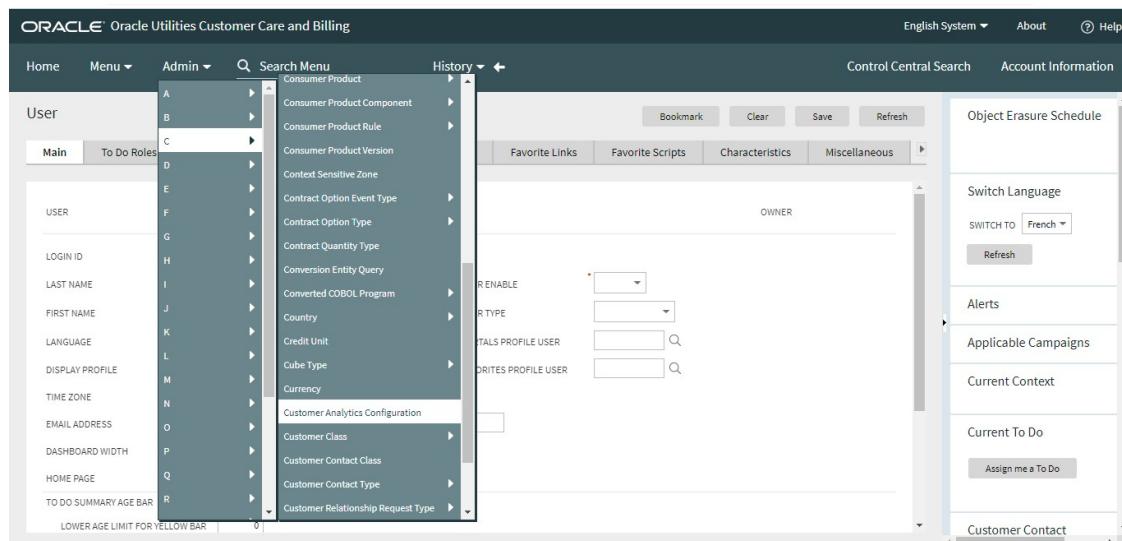
On this page:

- [Customer Analytics Configuration Page](#)
- [Customer Analytics Configuration Details](#)
 - [Extract Parameters](#)
 - [To Do Characteristic Types Parameter](#)
 - [Recent To Do Miscellaneous Parameter](#)
 - [Financial Transaction Characteristic Types Parameter](#)
 - [Financial Transaction Characteristic Value Parameter](#)
 - [Exclude Archive Adjustment Types Parameter](#)
 - [Broken PA Characteristic Types Parameter](#)
 - [Broken PA Characteristic Value Parameter](#)
 - [Broken PA Adjustment Cancel Reasons Parameter](#)
 - [Overdue Bill Characteristic Types Parameter](#)
 - [High Bill Complaint Characteristic Types Parameter](#)
 - [High Bill Complaint Case Types Parameter](#)
 - [Exclude High Bill Complaint Case Statuses Parameter](#)
 - [SA Snapshot Miscellaneous Parameter](#)
 - [Include Bill Calculation Lines Parameter](#)
- [Bucket Configuration List](#)
 - [Billing Day In Window Buckets](#)
 - [Days Before Bill Window Closes Buckets](#)
 - [Days of Unbilled Usage Buckets](#)
 - [Days Since Last Frozen Bill Segment Buckets](#)

- [PA Future Payment Age Buckets](#)
- [PA Number of Installments Buckets](#)
- [PA Recurring Charge Amount Buckets](#)
- [PP Future Payment Age Buckets](#)
- [SA Arrears Buckets](#)
- [Configure CCB Buckets](#)
 - [Add a New Bucket Configuration](#)
 - [Add Bucket Ranges for Configured Buckets](#)

Customer Analytics Configuration Page

The extract parameters and bucket configurations for Oracle Utilities Customer Care and Billing (CCB) application are to be made on the **Customer Analytics Configuration** page. To access it, log in to the source application and select **Customer Analytics Configuration** from **Admin** menu.



The **Customer Analytics Configuration** page for CCB is divided into two sections that will be described below: **Customer Analytics Configuration Details** and **Bucket Configuration List**. It also has a link to navigate to the **Master Configuration** page.

Customer Analytics Configuration Details

On the **Customer Analytics Configuration Details** section, you will find the list of the master configuration business objects (BOs) that were created for Oracle Utilities Extractors and Schema, as well as the extract parameters required for the ELT loads.

The parameters that have already been set up will have a foreign key link to the parameter type's parent page, and those that have not been set up yet will only have the parameter name header column.

APPLICABLE CHARACTERISTIC	CHARACTERISTIC TYPE
Account	Account ID Char with FK
Person	Person Char FK
Premise	Premise Foreign Key
Service Agreement	Service Agreement FK Char

Extract Parameters

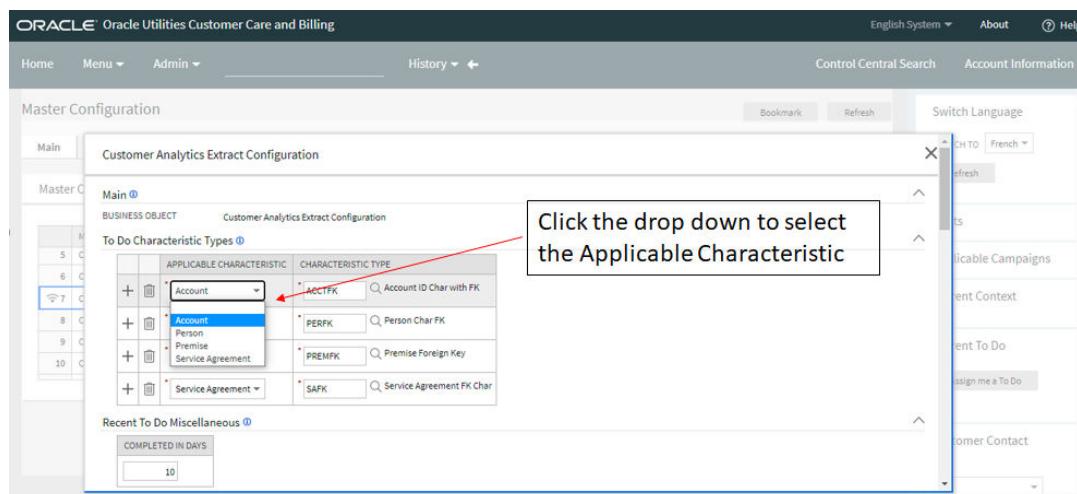
During extraction of source data to BI data warehouse, there are certain parameters that need to be configured by implementation to identify or filter data in accordance with business requirements. Once these parameters have been set up by the end user, the ELT process can then use this information to selectively extract data or to transform it from the source application and populate it into the warehouse. The BI Extract Parameters Configuration BO is delivered to contain the list of parameter values that need to be configured to be used by the ELT process.

To Do Characteristic Types Parameter

This single-valued extract parameter is used by the To Do facts (CF_TD_ENTRY and CF_RECENT_TD_ENTRY) to configure the Account, Service Agreement, Person, and Premise characteristic types that are used to determine the corresponding entities related to a To Do.

To set the parameter value:

1. Navigate to the **To Do Characteristic Types** parameter on the **Customer Analytics Extract Configuration** page.
2. Select an option from the **Applicable Characteristic** drop-down menu.



3. Click on the search icon to open the characteristic entities list and select a **Characteristic Type**. Click **Save**.

CHARACTERISTIC TYPE	DESCRIPTION	CHARACTERISTIC TYPE
ACCTFK	Account ID Char with FK	Foreign Key Value
C1-ACCT	Account	Foreign Key Value
C1-BILCY	Bill Cycle - CCB	Foreign Key Value
C1-BSGOT	Bill Segment Start Date	Adhoc Value
C1-CASE	Case	Foreign Key Value
C1-CISDV	CIS Division	Foreign Key Value
C1-CSTRR	Customer Relationship Request	Foreign Key Value
C1-CUSTC	Customer Class	Foreign Key Value
C1-EXITFA	External Activity Id	Adhoc Value
C1-PER	Person	Foreign Key Value

4. Follow the same steps to set the rest of the values.

Recent To Do Miscellaneous Parameter

This single-valued extract parameter is used to configure a numeric value that denotes the Completed in Days parameter. Recent To Do entry fact loads all active and completed To Do entries done within a configured range of days.

To set the parameter value:

1. Navigate to the **Recent To Do Miscellaneous** parameter on the **Customer Analytics Extract Configuration** page.
2. Provide a numeric value in the text entry box and click **Save**.

Financial Transaction Characteristic Types Parameter

This multi-valued extract parameter holds the Revenue and Tax characteristic values that are used by the Financial Transaction (CF_FT), Financial Transaction General Ledger (CF_FT_GL), and SA Billing (CF_SA_BILLING) facts to determine the revenue and tax amounts of the FT.

To set the parameter value:

1. Navigate to the **Financial Transaction Characteristic Types** parameter on the **Customer Analytics Extract Configuration** page.
2. Select the **Applicable Characteristic** from the drop-down menu.
3. Click on the search icon to open the characteristic entities list and select a **Characteristic Type**. Click **Save**.
4. To add more values, click the (+) icon and populate the required fields.

Financial Transaction Characteristic Value Parameter

This multi-valued extract parameter contains the GL Account characteristic types that are used to determine the GL Accounts that are extracted for the Financial Transaction (CF_FT), Financial Transaction General Ledger (CF_FT_GL), and SA Billing (CF_SA_BILLING) facts.

To set a parameter value:

1. Navigate to the **Financial Transaction Characteristic Values** parameter on the **Customer Analytics Extract Configuration** page.

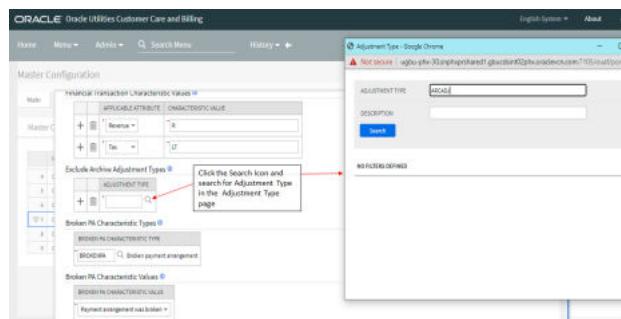
2. Select an option from the **Applicable Attribute** drop-down menu.
3. Populate the **Characteristic Value** text field and click **Save**.
4. To add more values, click the (+) icon and populate the required fields.

Exclude Archive Adjustment Types Parameter

This multi-valued extract parameter contains all the archive adjustment types that should be excluded by the FT (CF_FT) and FT GL (CF_FT_GL) facts.

To set the parameter value:

1. Navigate to the **Exclude Archive Adjustment Types** parameter on the **Customer Analytics Extract Configuration** page, and click the search icon to open the **Adjustment Type** window.
2. On the **Adjustment Type** window, provide the adjustment type or the description value and select the appropriate adjustment type from the list of results. Click **Save**.



3. To add more types, click the (+) icon and populate the required fields.

Broken PA Characteristic Types Parameter

This single-valued extract parameter is used by the Payment Arrangement facts (CF_PA and CF_PA_SNAP) and contains the Broken characteristic type that is used to identify if a payment arrangement is broken.

To set the parameter value:

1. Navigate to the **Broken PA Characteristic Types** parameter on the **Customer Analytics Extract Configuration** page, and click the search icon to open the **Characteristic Type** window.
2. On the **Characteristic Type** window, provide the characteristic type or the description value and select the appropriate characteristic type from the list of results. Click **Save**.

Broken PA Characteristic Value Parameter

This single-valued extract parameter is used by the Payment Arrangement facts (CF_PA and CF_PA_SNAP) and contains the Broken characteristic value that is used to identify if a payment arrangement is broken.

To set this parameter value:

1. Navigate to the **Broken PA Characteristic Values** parameter on the **Customer Analytics Extract Configuration** page.
2. Select the appropriate characteristic value from the drop-down menu.
3. Click **Save**.

Broken PA Adjustment Cancel Reasons Parameter

This single-valued extract parameter is used by the Payment Arrangement facts (CF_PA and CF_PA_SNAP) and contains the adjustment cancel reason that is used to identify if a payment arrangement is broken.

To set this parameter value:

1. Navigate to the **Broken PA Adjustment Cancel Reasons** parameter on the **Customer Analytics Extract Configuration** page.
2. Select a value from the **Adjustment Cancel Reason** drop-down menu.
3. Click **Save**.

Overdue Bill Characteristic Types Parameter

This multi-valued extract parameter is used by the Overdue Process (CF_COLL_PROC) and the Event (CF_COLL_EVT) extracts and contains the overdue bill characteristic type that is used to identify the bill that is associated with the Overdue Process.

To set the parameter value:

1. Navigate to the **Overdue Bill Characteristic Types** parameter on the **Customer Analytics Extract Configuration** page.
2. Select a value from the **Applicable Characteristic** drop-down menu and click the search icon on the **Characteristic Type** column to open the **Characteristic Type** window.
3. On the **Characteristic Type** window, provide the characteristic type or the description value and select the appropriate characteristic type from the list of results. Click **Save**.
4. To add more types, click the (+) icon, and populate the required fields.

High Bill Complaint Characteristic Types Parameter

This multi-valued extract parameter is used by the SA Billing fact (CF_SA_BILLING) and contains the characteristic type that is used to identify the bill associated with the High Bill Complaint case.

To set this parameter value:

1. Navigate to the **High Bill Complaint Characteristic Types** parameter on the **Customer Analytics Extract Configuration** page.
2. Select a value from the **Applicable Characteristic** drop-down menu and click the search icon on the **Characteristic Type** column to open the **Characteristic Type** window.
3. On the **Characteristic Type** window, provide the characteristic type or the description value and select the appropriate characteristic type from the list of results. Click **Save**.
4. To add more types, click the (+) icon and populate the required fields.

High Bill Complaint Case Types Parameter

This multi-valued extract parameter is used by the SA Billing fact (CF_SA_BILLING) and contains the case types for high bill complaint cases.

To set this parameter value:

1. Navigate to the **High Bill Complaint Types** parameter on the **Customer Analytics Extract Configuration** page.
2. Select the appropriate **Case Type** value from the drop-down menu and click **Save**.
3. To add more Case Type values, click the (+) icon and populate the required fields.

Exclude High Bill Complaint Case Statuses Parameter

This multi-valued extract parameter is used by the SA Billing (CF_SA_BILLING) fact to determine if a bill is associated to a high bill complaint and contains the case statuses for which High Bill Complaint cases should not be considered. If this parameter is configured then all these statuses will not be excluded at the time of populating high bill indicator.

To set this parameter value:

1. Navigate to the **Exclude High Bill Complaint Case States** parameter on the **Customer Analytics Extract Configuration** page.
2. Select a value from the **Case Status** drop-down menu and click **Save**.
3. To add more **Case Types**, click the (+) icon and select a value from the drop-down menu.
4. To add more **Case Statuses**, click the (+) icon and select the appropriate values.

SA Snapshot Miscellaneous Parameter

This single-valued extract parameter contains a numeric value to denote the Exclude SAs Closed in Days parameter. Exclude SAs Closed in Days, if specified, is used to retrieve SAs closed within the last x days and to include them on the SA Snapshot (CF_SA) and Payment Arrangement Snapshot (CF_PA_SNAP) facts.

To set this parameter value:

1. Navigate to the **SA Snapshot Miscellaneous** parameter on the **Customer Analytics Extract Configuration** page.
2. Populate the text field with a numeric value.
3. Click **Save**.

Include Bill Calculation Lines Parameter

This single-valued extract parameter contains a value for bill segment lines to be included. It is used to calculate CALC_AMT column in Billed Usage fact (CF_BILLED_USAGE).

To set this parameter value:

1. Navigate to the **Include Bill Calculation Lines** parameter on the **Customer Analytics Extract Configuration** page.
2. Select a value from the **Include Bill Calculation Lines** drop-down menu.
3. Click **Save**.

Bucket Configuration List

The **Bucket Configuration List** zone provides an overview of which bucket configurations have been set up so far and which are yet to be set up.

On this zone you will find the **Business Objects** and **Bucket Types** configured for the buckets. Under the **Bucket Configuration** column, the buckets that have already been set up will have a foreign key reference link to the **Bucket Configuration Maintenance** portal, which allows you to view or edit the current bucket values. Buckets that have not been configured will have an **Add** (+) button in the **Add** column.

Business Object	Bucket Type	Bucket Configuration	Add
1 Billing Day In Window Configuration	In Window	DAY_IN_WDW	
2 Billing Day In Window Configuration	Outside Window	DAY_OUTSIDE_WDW	
3 Days Before Bill Window Closes Configuration	Closed	DAY_AFTER_CLOSURE	
4 Days Before Bill Window Closes Configuration	Open	days before bill window	
5 Days of Unbilled Usage Configuration		days of unbilled usage	

Oracle Utilities Analytics Warehouse (OUAW) allows you to define a set of ranges, each representing a bucket, for which extracted measures can be grouped and classified. This allows the user to get reports with groups of data in accordance with a particular classification or bucket. These configurations can be made from the **Customer Analytics Configuration** portal in the CCB application.

Billing Day In Window Buckets

This configuration defines the bucket ranges that identify the day on which the bill segment got frozen within the billing window. It also indicates whether the range is within or outside the window. Two sets of ranges can be defined for this bucket configuration: one set for day ranges that fall inside the billing window (In Window status), and another set for day ranges that fall outside the billing window (Outside Window status). This bucket configuration data is extracted into the Billing Day In Window dimension (CD_BILL_DAY_IN_WIN) and referenced in the SA Billing fact (CF_SA_BILLING).

No values are delivered as a part of the base product. Here are some sample values:

Sample 1: Bill Window Status: In Window

Sequence	Bill Window Category	Start Range	End Range	Description
10	First Day	0	1	Day 1
20		1	2	Day 2
30		2	3	Day 3
40		3	4	Day 4
50		4	5	Day 5
60		5	10	Day 5+

Sample 2: Bill Window Status: Outside Window

Sequence	Bill Window Category	Start Range	End Range	Description
10		0	99,999	Outside Billing Window

The following rules are enforced for these buckets:

- Only one set of ranges can be defined for each bill window status (In Window and Outside Window).
- No gaps or overlaps are allowed within the bucket ranges for a bill window status.
- One initial bucket is required (bucket range starts at 0).
- One catch-all bucket is required for the bucket configuration with the bill window status of Outside Window (bucket end range with maximum value of 99999).
- One and only one bucket range should be categorized as First Day for the bucket configuration with the bill window status of In Window.

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

Days Before Bill Window Closes Buckets

This configuration defines the bucket ranges that identify the number of days left before the bill window closes. Two sets of ranges can be configured for this bucket configuration: one set for day ranges when the bill window is still open (Open status), and another set for days when the bill window is closed (Closed status). This bucket configuration data is extracted into the Days Before Bill Window Closes dimension (CD_DAYS_TO_WIN_CLS) and referenced in the SA Billing fact (CF_SA_BILLING) to determine the number of days left for correcting bill segments in Error state before the bill window closes.

No values are delivered as a part of the base product. Here are some sample values:

Sample 1: Window Closure Status: Open

Sequence	Start Range	End Range	Description
10	0	1	1 Day Before Bill Window Closes
20	1	2	2 Days Before Bill Window Closes
30	2	3	3 Days Before Bill Window Closes
40	3	4	4 Days Before Bill Window Closes
50	4	99,999	5+ Days Before Bill Window Closes

Sample 2: Window Closure Status: Closed

Sequence	Start Range	End Range	Description
10	0	99,999	Bill Window is Closed

The following rules are enforced for these buckets:

- Only one set of bucket configuration can be defined for each window closure status (Open and Closed).
- No gaps or overlaps are allowed within the bucket ranges of a window closure status.
- One bucket should have 0 as its start range.
- Only one range is allowed for the closed window status and it has to catch all the measures (end range has the maximum value of 99999).

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

Days of Unbilled Usage Buckets

This configuration defines the bucket ranges used to identify how many days of unbilled usage a service agreement has. The data is extracted into the Days of Unbilled Usage dimension (CD_DAYS_UNBILLED_USG) and is referenced in the SA Arrears Snapshot fact (CF_ARREARS).

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	30	0 - 30 Days
20	30	60	30 - 60 Days
30	60	90	60 - 90 Days
40	90	99,999	90+ Days

The following rules are enforced for these buckets:

- Only one set of the days of unbilled usage bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- Only one catch-all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- Only one initial bucket is allowed and required (bucket range that starts at 0).

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

Days Since Last Frozen Bill Segment Buckets

This configuration defines the bucket ranges used to identify the number of days past since a bill segment of the service agreement got frozen. This bucket configuration data is extracted into the Days Since Last Frozen Bill Segment dimension (CD_DAYS_LAST_FRZ_BS) and is referenced in the SA Arrears Snapshot fact (CF_ARREARS).

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	30	0 - 30 Days
20	30	60	30 - 60 Days
30	60	90	60 - 90 Days
40	90	180	90 - 180 Days
50	180	99,999	180+ Days

The following rules are enforced for these buckets:

- Only one set of the days since last frozen bill segment bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch-all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range starts at 0).

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

PA Future Payment Age Buckets

This configuration uses day ranges to define the age of scheduled payments (where "age" refers to the number of days within which a payment is supposed to be made) for payment arrangements. The future payments for a payment arrangement are approximated using the number of installments left and the frequency that the payment arrangement SA is billed (via the bill cycle schedule of the account). This bucket configuration data is used in PA Accumulation (CF_PA) and Snapshot (CF_PA_SNAP) facts.

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	30	30 Days
20	30	60	30 - 60 Days
30	60	90	60 - 90 Days
40	90	99,999	90+ Days

The following rules are enforced for these buckets:

- Only one set of future payment age bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One bucket should have the start range as 0
- One and only one catch-all bucket is allowed and required (bucket end range has maximum value of 99999).

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

PA Number of Installments Buckets

This configuration defines the bucket ranges used to group payment arrangements based on the number of installments. This bucket configuration data is extracted into the Number of Installments dimension (CD_INSTALLMENT_CNT) and is referenced in the PA Accumulation (CF_PA) and the Snapshot (CF_PA_SNAP) facts.

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	3	< 3 Installments
20	3	5	3 - 5 Installments
30	5	8	6 - 8 Installments
40	8	99,999	8+ Installments

The following rules are enforced for these buckets:

- Only one set of number of installment bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch-all bucket is allowed and required (bucket end range has maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range starts at 0).

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

PA Recurring Charge Amount Buckets

This configuration defines the bucket ranges used to group payment arrangements based on their recurring charge amounts. This bucket configuration data is extracted into the PA Recurring Charge Amount dimension (CD_REC_CHARGE_AMOUNT) and is referenced in the PA Accumulation/Snapshot fact (CF_PA/CF_PA_SNAP).

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	25	Less than \$25
20	25	50	\$25 - \$50
30	50	100	\$50 - \$100
40	100	200	\$100 - \$200
50	200	99,999	Greater than \$200

The following rules are enforced for these buckets:

- Only one set of recurring charge amount bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch-all bucket is allowed and required (bucket end range with maximum value of 99999).
- One and only initial bucket is allowed and required (bucket range starts at 0).

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

PP Future Payment Age Buckets

This configuration defines the age buckets for which future payments for pay plans are scheduled to be paid. This bucket configuration data is used in Pay Plan Accumulation (CF_PAY_PLAN) and Snapshot (CF_PAY_PLAN_SNAP) facts to categorize a payment plan's future payments into one of these buckets.

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	30	0 - 30 Days
20	30	60	30 - 60 Days
30	60	90	60 - 90 Days
40	90	99,999	90+ Days

The following rules are enforced for these buckets:

- Only one set of future payment age bucket configuration is allowed.

- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch-all bucket is allowed and required (bucket end range has maximum value of 99999).

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

SA Arrears Buckets

This configuration defines the bucket ranges for the service agreement's arrears age. This bucket configuration data is used in the SA Arrears Snapshot fact (CF_ARREARS).

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	15	0 - 15 Days
20	15	31	15 - 30 Days
30	31	61	31 - 60 Days
40	61	91	61 - 90 Days
50	91	99,999	90+ Days
60	31	99,999	31+ Days

The following rules are enforced for these buckets:

- Only one set of arrears age bucket configuration is allowed.
- At least one catch-all bucket has to be defined (bucket end range has maximum value of 99999).
- Gaps in bucket ranges are not allowed.
- Overlaps are allowed within the bucket ranges.

To add this bucket to the configuration list or to add new bucket ranges, follow the steps on Configure CCB Buckets.

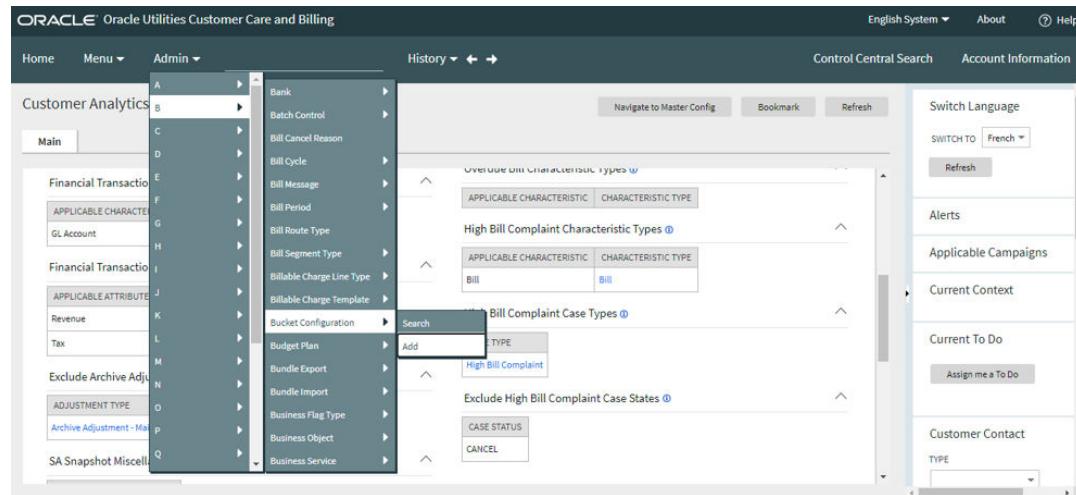
Configure CCB Buckets

This page details how to add new bucket configurations and bucket ranges for configured buckets for Oracle Utilities Customer Care and Billing (CCB) application.

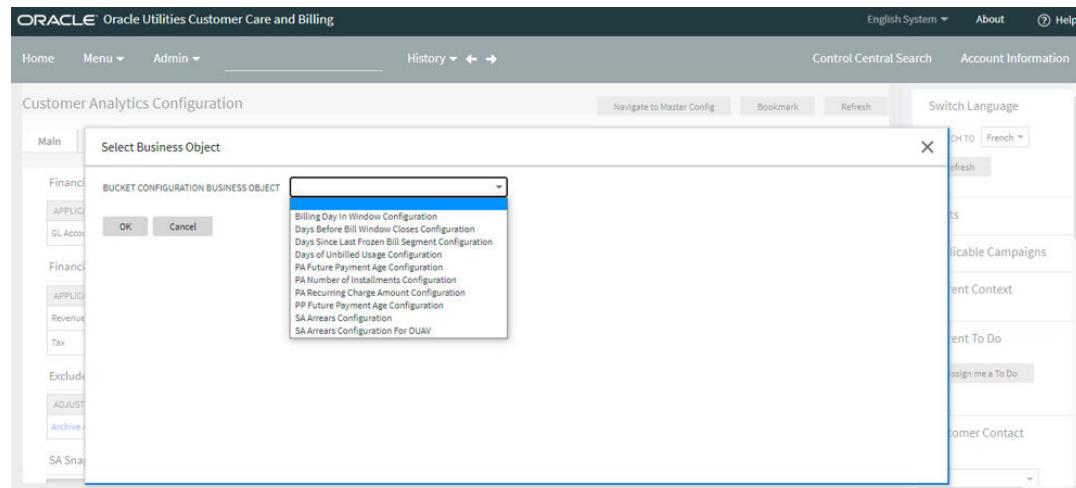
Add a New Bucket Configuration

To add a new bucket configuration:

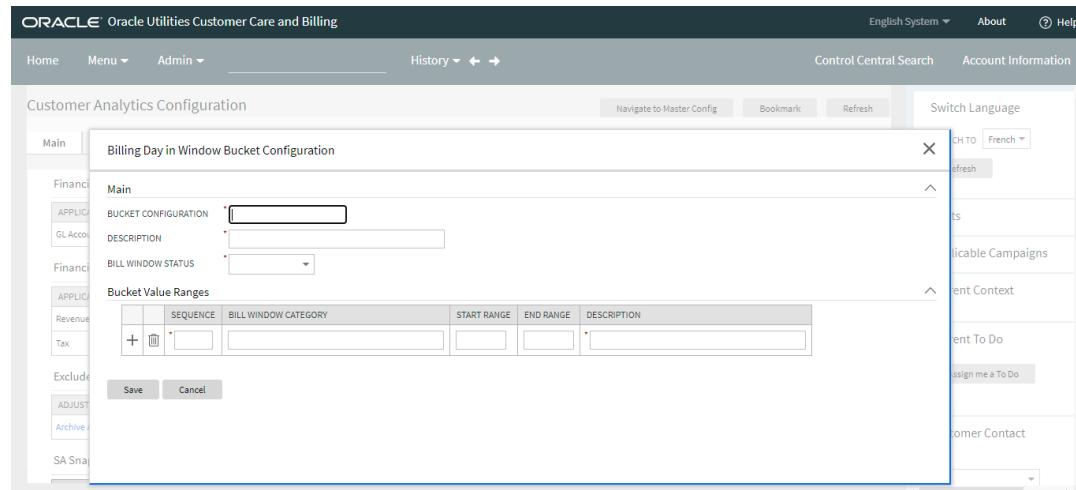
1. Navigate to the **Add Bucket Configuration** page from the **Admin** menu.



2. On the resulting **Select Business Object** drop-down menu, select the business object for which the buckets are to be configured and click **OK**.

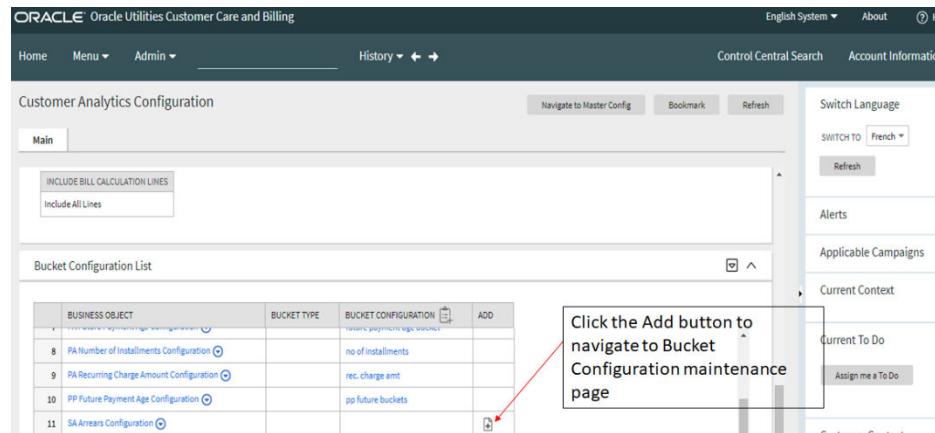


3. A new page for the selected configuration appears. Enter the required fields and also provide the bucket value ranges. Click **Save** and close the window.

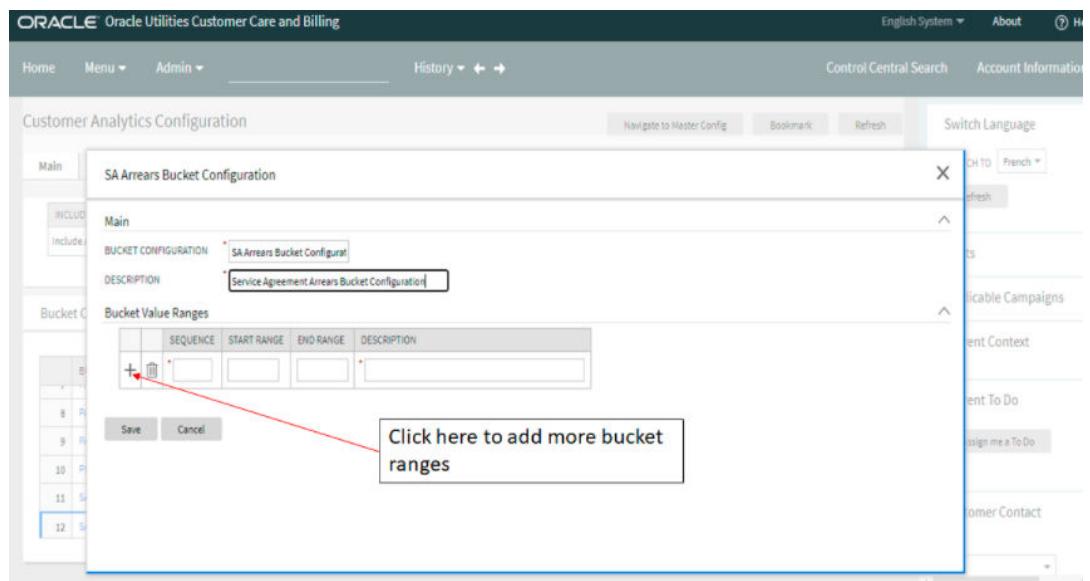


Add Bucket Ranges for Configured Buckets

- To navigate to the **Bucket Configuration** page of a bucket that has been added to the configuration list, but for which ranges have not been set up yet, click the **Add** (+) button (located in the **Add** column).



- Populate the **Bucket Configuration** and the **Description** text fields.



3. Provide values in the **Bucket Value Ranges** section. To add a new bucket range, click the **Add (+)** button on the left. While providing the bucket value ranges, ensure that:
 - At least one bucket has a start range of 0.
 - At least one bucket has an end range of 99999.
 - There is not overlapping between bucket ranges. For example, if there is a bucket with start range of 1 and an end range of 10, there cannot be a bucket with a start range of 5 and an end range of 13 (5 to 10 is the overlapping range).
 - The bucket ranges do not have gaps. For example, if there is a bucket with start range as 1 and end range as 10, the start range for the next consecutive bucket should be 11.

MDM Extract Parameters and Bucket Configuration

This page provides information about the configurations required for the Oracle Utilities Meter Data Management (MDM) application to enable successful data extracts for Oracle Utilities Extractors and Schema. The activities to be performed as a part of the configuration needed for MDM application are the following:

- BI Oriented Master Configuration
- BI Oriented Extendable Lookup Configuration
- Service Point Configuration
- BI Aggregators
- Setting up the Dynamic Group Extracts
- Setting up Snapshot Fact Extracts

The setting up of the Dynamic Group Extracts and Snapshot Fact Extracts are discussed on the [Set Up the Dynamic Usage Group Extracts](#) and [Set Up the Snapshot Fact Extracts](#) pages respectively.

ⓘ Note

You must complete these setup and configuration steps before starting the ELT processes to load data into the Oracle Utilities Analytics Warehouse (OUAW).

On this page:

- [Meter Data Analytics Configuration Page](#)
- [Analytics-Oriented Master Configuration Details](#)
 - [Market Relationship Types Parameter](#)
 - [Subscription Types Parameter](#)
 - [Activity Category Types Parameter](#)
 - [Device Event BOs to Exclude Parameter](#)
- [Analytics-Oriented Extendable Lookup Configuration](#)
 - [Measurement Condition Lookup Value](#)
 - [Days Since Last Normal Measurement Lookup Value](#)
 - [Usage Snapshot Type Lookup Value](#)
 - [Days Since Last Usage Transaction Lookup Value](#)
 - [Unreported Usage Analysis Snapshot Type Lookup Value](#)
 - [External System Mapping Lookup Value](#)
 - [External System Entity Name Lookup Value](#)
 - [External System ID Mapping Lookup Value](#)
- [Service Point Configuration](#)
 - [Usage Snapshot Configuration](#)
 - [Unreported Usage Snapshot Configuration](#)
- [BI Aggregators](#)
- [Aggregator Measuring Components](#)
- [Set Up Aggregation Parameters](#)
 - [Master vs. Sub-Aggregator](#)
 - [Measurement BOs](#)
 - [Timeliness Master Configuration](#)
 - [Determine Initial Measurement Data Timeliness](#)
 - [Value Identifiers on Aggregator MC Type \(Recommended\)](#)
- [Create and Aggregate BI Aggregators](#)
- [BI Aggregation Views](#)
- [Set Up the Dynamic Usage Group Extracts](#)
 - [Extract the Dynamic Usage Group](#)
- [Set Up the Snapshot Fact Extracts](#)
 - [Consumption Snapshot](#)

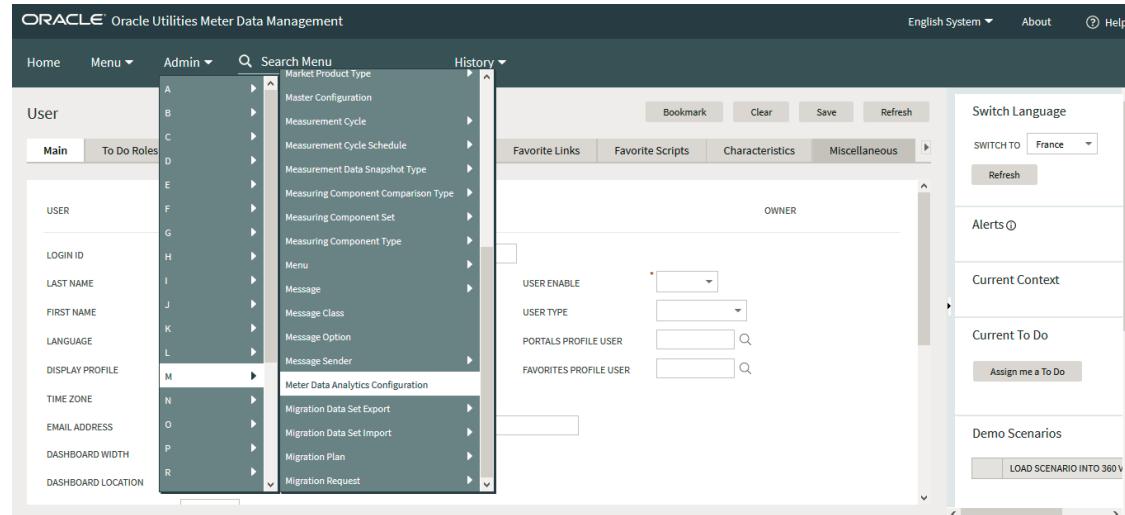
- * [Set Up the Consumption Snapshot](#)
- * [Extract the Consumption Snapshot](#)
- [Service Point Snapshot](#)
 - * [Set up the Service Point Snapshot](#)
 - * [Extract the Service Point Snapshot](#)
- [Service Point Unreported Usage Snapshot](#)
 - * [Set up the Service Point Unreported Usage Snapshot](#)
 - * [Extract the Service Point Unreported Usage Snapshot](#)
- [Service Point VEE Exception Snapshot](#)
 - * [Set up the Service Point VEE Exception Snapshot](#)
 - * [Extract the Service Point VEE Exception Snapshot](#)

Meter Data Analytics Configuration Page

The Oracle Utilities Meter Data Management (MDM) source application provides the **Analytics Configuration** portal that holds all the BI-oriented and the Oracle Data Integrator-based ELT configuration tasks.

The **Meter Data Analytics Configuration** portal is a display-only portal that gives an overview of the configurations set up for Oracle Utilities Extractors and Schema, providing links and guidelines for further configurations required to successfully run the data extraction process on MDM.

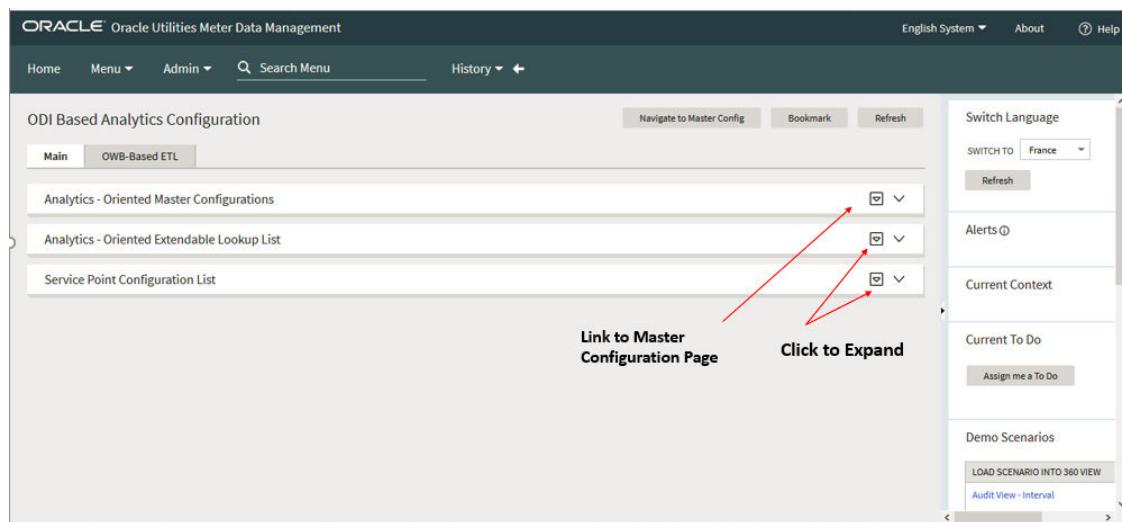
To access the **Meter Data Analytics Configuration** portal, log in to the source application and select **Meter Data Analytics Configuration** from the **Admin** menu.



Use the Meter Data Analytics Configuration portal to set up the following:

- Analytics-Oriented Master Configuration
- Analytics-Oriented Extendable Lookup List
- Service Point Configuration List

On the right side of each of the configuration sections, you will find a link to the **Master Configuration** page.



Analytics-Oriented Master Configuration Details

There are certain parameters that need to be configured during the extraction of source data to the BI Data Warehouse to identify or filter data in accordance with business requirements. Once these parameters have been set up by the end user, the ELT process can then use this information to selectively extract or transform data from the source application and to populate it into the warehouse.

The **Analytics-Oriented Master Configuration Details** section lists the master configuration **Business Objects** that were created for Oracle Utilities Extractors and Schema and the extract parameters required to be set before running the ELT loads.

Note

The ELT job that loads these parameters into the warehouse is configured to be initial load only. Any changes made to these buckets after the initial run are not going to be automatically captured in Oracle Utilities Analytics Warehouse because they could cause inconsistency in the loaded data. However, in case it is necessary to reconfigure the parameters, they can be modified on the source system and reloaded into warehouse through certain additional steps. Note that the star schema tables would also need to be truncated and reloaded. For the detailed steps involved in reloading the parameters, see [Configure ETL Parameters and Buckets](#).

The **BI Master Configuration-Oracle Data Integrator-Based** master configuration BO contains the list of parameter values that need to be configured to be used by the ELT process:

- Market Relationship Types
- Subscription Types
- Activity Category Types
- Device Event Business Objects (BOs) to Exclude

Market Relationship Types Parameter

A service point may have several service providers (for example, distributor, retailer, and so on) where each is defined with a specific market relationship type on either the service point directly or on the service point's market indirectly. All fact tables for meter data management populate SPR1_KEY and SPR2_KEY column based on two configured market relationship types.

To set the value for this parameter:

1. Navigate to the **Master Configuration** page from the **Analytics-Oriented Master** configuration portal.
2. Navigate to the **Oracle Data Integrator-Based** master configuration option in the table and click the **Edit** button under the **Action** column. This will open the **Oracle Data Integrator-Based** master configuration page where the values for the parameters can be set.

The top screenshot shows the 'Master Configuration' page with a table of master configurations. The second configuration (row 2) has an edit icon in the 'ACTION' column, with a red arrow pointing to it and a tooltip: 'Click to navigate to Analytics Master Configuration - ODI Based'.

The bottom screenshot shows the detailed view for the selected configuration, specifically the 'Market Relationship Types' section, where a subscription type is being selected from a dropdown menu.

Subscription Types Parameter

A service point may have several usage subscriptions. The service point-oriented facts can extract up to two usage subscription records, which are defined through Subscription Types. The third subscription type, the Oracle Utilities Customer Care and Billing (CCB) Subscription Type, is used to determine the usage subscription that holds the external ID to the CCB service agreement so that references to the CCB dimensions can be populated on the facts.

Note

It is not an error if no usage subscription is found.

To set this parameter:

1. Navigate to the **Subscription Types** parameter on the **Oracle Data Integrator-Based** master configuration page as shown in **Market Relationship Types** parameter description above.
2. Select the applicable subscription type from the drop-down menu and click **Save**.

3. To add multiple values, click the plus (+) button on the left, and set the parameter values accordingly.

Activity Category Types Parameter

The Activity accumulation fact (CF_DEVICE_ACTIVITY) can be limited to activities of specific activity-type categories. Only activities whose Activity Type Category is specified on this master configuration BO are included in the extract. This fact will not load any data if this parameter is not configured.

To set this parameter:

1. Navigate to the **Activity Category Types** parameter on the **Oracle Data Integrator-Based** master configuration page as shown in **Market Relationship Types** parameter description above.
2. Select the applicable subscription type from the drop-down menu and click **Save**.
3. To add multiple values, click the plus (+) button on the left, and set the parameter values accordingly.

Device Event BOs to Exclude Parameter

Device Event accumulation fact (CF_DEVICE_EVT) can be filtered to exclude certain device events. Thus, the device events whose **Device Event BO** is specified on this master configuration BO are excluded from the extract. For example, if this BO is configured with deviceEventBOs value, then ELT will exclude any related device event.

To set this parameter:

1. Navigate to the **Device Event BOs to Exclude** parameter on the **Oracle Data Integrator-Based** master configuration page as shown in **Market Relationship Types** parameter description above.
2. Select the applicable subscription type from the drop-down menu and click **Save**.
3. To add multiple values, click the plus (+) button on the left, and set the parameter values accordingly.

① Note

Some of the parameters that have already been set will have a foreign key link to the parent page of the parameter type, while those that have not been set will only have the parameter name header column.

Analytics-Oriented Extendable Lookup Configuration

Every **Extendable Lookup BO** created for Business Intelligence is listed in this section, which serves as a guide for the setting up of the lookup values. The extendable lookup values can be set for the following BOs.

- Measurement Condition
- Days Since Last Normal Measurement
- Usage Snapshot Type
- Days Since Last Usage Transaction
- Unreported Usage Analysis Snapshot Type
- External System Mapping
- External System Entity Name

- External System ID Mapping

To set the values for every BO:

1. Click the corresponding link under the **Description** section to navigate to the Extendable Lookup Maintenance portal.
2. Click the **Edit** button for the bucket for which the modification is to be made. This will take you to the page for the individual bucket.
3. Modify the values appropriately and click **Save**.

Measurement Condition Lookup Value

This extendable lookup is used to define a measurement, such as the source or type of the measurement (for example, a system estimate versus a normal read versus a human override). For more details on how condition codes are used on measurements, see the Measurements section in the Oracle Utilities Meter Data Management [Business User Guide](#).

These values are extracted into the Measurement Condition Code dimension (CD_MSRMT_COND).

Days Since Last Normal Measurement Lookup Value

This extendable lookup is used to define the age ranges for days since the last normal measurement was received. Each active instance in this extendable lookup is a bucket definition, where you describe what it is and what is the bucket's upper threshold. If a bucket is meant to have no upper limit (for example, 90+ days), it should be defined with an empty threshold (there should ideally only be one). The lookup value codes should be defined in such a way that when all the instances for the lookup BO are read in ascending order of the lookup value code, their corresponding upper thresholds are also in ascending order. This is important because the extract logic retrieves all the buckets in ascending order of lookup code, will compare the actual number of days on the ordered threshold, and will also apply whichever matches first (less than the upper threshold or the empty threshold). What this means is that the catch-all bucket (empty threshold) should ideally be defined so that it will be the last bucket retrieved. Otherwise, any other bucket definition after the empty threshold will be of no use.

For example, the desired bucket definition is as follows: 0-30 Days, 30-45 Days, 45-60 Days and 60+ Days. This means that the following extendable lookups should be created:

Lookup Value Code	Upper Threshold	Description
10	30	0-30 Days
20	45	30-45 Days
30	60	45-60 Days
40		60+ Days

The SP Snapshot fact has a measure for the number of days since the service point's last normal measurement, and this configuration is used to find the age bucket that corresponds with that number of days since the normal measurement.

These configured values are extracted into the Days Since Last Normal Measurement dimension (CD_DAYS_LAST_MSRMT).

Usage Snapshot Type Lookup Value

This extendable lookup is used to define the granularity of the aggregated consumption of a service point. It defines the TOU map that is applied to the service point's consumption, where every resultant TOU and condition results in a row on the SP Usage Snapshot fact. It is also

used to define the target UOM that is used to convert the source UOM prior to TOU mapping (for example: convert KW to KWH).

The Usage Snapshot Type lookup value allows an implementation to have different snapshots, such as:

- On/Off/Sh for CCF
- Day of Week for Therm
- Seasonal On/Off/Sh for Loss Adjusted kWh

This means that a given service point can have several consumption snapshots (but most implementations will have just one).

Days Since Last Usage Transaction Lookup Value

This extendable lookup is used to define the bucket definitions for the number of days since the last usage transaction was created for the service point. These age bucket definitions are used while extracting data for the Unreported Usage Snapshot fact. Unlike the Days Since Last Normal Measurement lookup value, the upper threshold is not defined here because of the possibility of differing bill cycles for different customer classes. For example, residential customers that bill quarterly vs. commercial or industrial customers that bill monthly. The thresholds are defined on the service point type configuration instead.

For more details, see [Service Point Configuration](#).

Unreported Usage Analysis Snapshot Type Lookup Value

This extendable lookup is used to define the different aging snapshots that can be taken for a service point for different types of usage subscriptions. Multiple snapshots of a single service point are allowed, as implementations could have multiple systems to send consumption to, and it may need a snapshot for each.

This allows an implementation to have different snapshots, such as Oracle Utilities Customer Care and Billing, Distribution, and so on.

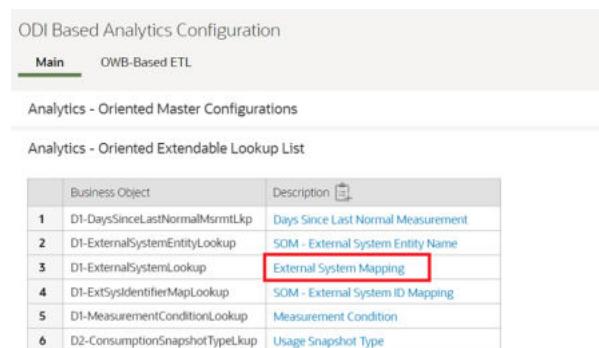
This means that a given service point can have different Unreported Usage Analysis snapshots (for different types of usage subscriptions).

External System Mapping Lookup Value

This extendable lookup provides a mapping of a configured Oracle Utilities Application Framework-based external system and its data source indicator to the configured MDM source in OUAW. The data source indicator is used to uniquely identify the source of the system data.

To set up the external system mapping lookup values for MDM product, perform these steps.

1. Navigate to **Meter Data Analytics Configuration > Analytics-Oriented Extendable Lookup List**.
2. Click **External System Mapping** in the **Description** column.



Analytics - Oriented Extendable Lookup List		
	Business Object	Description
1	D1-DaysSinceLastNormalMsrmLkp	Days Since Last Normal Measurement
2	D1-ExternalSystemEntityLookup	SOM - External System Entity Name
3	D1-ExternalSystemLookup	External System Mapping
4	D1-ExtSysIdentifierMapLookup	SOM - External System ID Mapping
5	D1-MeasurementConditionLookup	Measurement Condition
6	D2-ConsumptionSnapshotTypeLkp	Usage Snapshot Type

- Add an external system value and populate the details. This image illustrates the addition of an external system value for CCB.

Field Name	Description
External System	The name of external system to be mapped. This name would be referred again in External System ID Mapping.
Data Source Indicator	Data source indicator value of the external product to be mapped. This value could be identified from Apex > ETL Configuration > Product Instance > Value of 'Data Source Indicator' of the configured Source Product. In this example, CCB DSI value = 4.
Status	Status of external system to be mapped.
Description	Description of external system to be mapped.
Override Description	Override Description of external system to be mapped.
Detailed Description	Detailed Description of external system to be mapped.
Product	Select the external product from drop-down.

- Click **Save**.

External System Entity Name Lookup Value

This extendable lookup defines the names of the entities that can be received from external systems.

To set up the external system entity name lookup values for an MDM product, perform these steps:

1. Navigate to **Meter Data Analytics Configuration > Analytics-Oriented Extendable Lookup List**.
2. Click **SOM - External System Entity Name** in the **Description** column.

ODI Based Analytics Configuration		
Main OWB-Based ETL		
Analytics - Oriented Extendable Lookup List		
1	Business Object	Description 
2	D1-DaysSinceLastNormalMsmtLkp	Days Since Last Normal Measurement
2	D1-ExternalSystemEntityLookup	SOM - External System Entity Name 
3	D1-ExternalSystemLookup	External System Mapping
4	D1-ExtSysIdentifierMapLookup	SOM - External System ID Mapping
5	D1-MeasurementConditionLookup	Measurement Condition
6	D2-ConsumptionSnapshotTypeLkp	Usage Snapshot Type

3. Add an external system entity name and populate the details. This image illustrates the addition of an external system entity for CCB.

Extendable Lookup

Main 

Entity Name	* D1-CISPerson
Status	Active 
Description	CIS Person
Override Description	CIS Person
Detailed Description	CIS Person

 Save
 Cancel

Field Name	Description
Entity Name	The entity name of the external system. This name would again be used in External System ID mapping.
Status	Status of external system entity name.
Description	Description of external system entity name.
Override Description	Override Description of external entity name.
Detailed Description	Detailed Description of external entity name.

4. Click **Save**.

External System ID Mapping Lookup Value

This extendable lookup provides a mapping between the external identifiers captured in Oracle Utilities Meter Data Management and the external system where that identifier is from. Since it is possible that different sets of records for a particular entity may be synchronized from multiple external systems, it is necessary to specify the identifier type to use for each external system. The key information that is captured in this mapping is the maintenance object (which identifies the MO that stores the identifier collection), the identifier type, the external system, and the entity name (which identifies the type of entity that uses this identifier as its external primary key). For example, the Service Point MO can contain identifiers for the Oracle Utilities Customer Care and Billing Service Point ID and Oracle Utilities Customer Care and Billing Premise ID, as well as the Oracle Utilities Operational Device Management Service Point ID.

To set up the external system ID mapping lookup values for an MDM product, perform these steps:

1. Navigate to **Meter Data Analytics Configuration > Analytics-Oriented Extendable Lookup List**.

2. Click **SOM - External System ID Mapping** in the **Description** column.

ODI Based Analytics Configuration	
Main	OWB-Based ETL
Analytics - Oriented Master Configurations	
Analytics - Oriented Extendable Lookup List	
1	Business Object Description
1	D1-DaysSinceLastNormalMsmtLkp Days Since Last Normal Measurement
2	D1-ExternalSystemEntityLookup SOM - External System Entity Name
3	D1-ExternalSystemLookup External System Mapping
4	D1-ExtSysIdentifierMapLookup SOM - External System ID Mapping
5	D1-MeasurementConditionLookup Measurement Condition
6	D2-ConsumptionSnapshotTypeLkp Usage Snapshot Type

3. Add an external system ID mapping and populate the details. This image illustrates the addition of an external system ID for CCB.

This page displays the **Main** and **External System Identifier Mapping** sections.

Main

Maintenance Object: D1-CONTACT

Status: Active

Description: OUAW MDM-CCB Ext Sys Identifier Config

Override Description: OUAW MDM-CCB Ext Sys Identifier Config

Detailed Description: OUAW MDM-CCB Ext Sys Identifier Config

External System Identifier Mapping

	Identifier Type	External System	Entity Name
+	DTEI	CCB of C2M	CIS Person

Save Cancel

This table lists the fields of the **Main** section.

Field Name	Description
Maintenance Object	The maintenance object name of the external system ID mapping.
Status	Status of external system ID mapping.
Description	Description of external system ID mapping.
Override Description	Override Description of external system ID mapping.
Detailed Description	Detailed Description of external system ID mapping.

This table lists the fields of the **External System Identifier Mapping** section.

Field Name	Description
Identifier Type	Identifier for the external system ID mapping.
External System	External system mapping name which was set up in Meter Data Analytics Configuration > Analytics – Oriented Extendable Lookup List > External System Mapping > Description.

Field Name	Description
Entity Name	External system entity name which was set up in Meter Data Analytics Configuration > Analytics – Oriented Extendable Lookup List > External System Entity Name > Description.

- Click **Save**.

Service Point Configuration

This section lists all the service point types in the system and indicates whether the BI configuration has been set up for each of them or not. It provides a navigation link to the service point type where the necessary configuration can be set up or modified.

The service point type allows two configurations:

- Usage Snapshot Configuration
- Unreported Usage Snapshot Configuration

Usage Snapshot Configuration

This section of the service point type defines the configurations to be used to take the weekly or monthly usage snapshots. The configuration here is used when extracting data for the Usage Snapshot fact.

The Usage Snapshot Type defines the type of usage snapshot. Its extendable lookup definition contains the TOU map (used to map the consumption), and the target unit of measure (used if it is necessary to convert the source UOM to a target UOM prior to TOU mapping). The UOM, TOU, and SQI are used to define the source MCs value identifier that will be TOU mapped.

A given service point type can have many usage snapshot types if there are different ways to look at the monthly consumption. This is not limited to just different TOU maps, but could also be used to create snapshots of different measured values. For example, if a measurement contains two values, Actual and Normally Used, this can be used to create a snapshot of normal usage so it can be compared to a separate snapshot of actual usage. If the service point type does not have at least one configuration type, service points of this type do not have their usage snapshot taken.

Unreported Usage Snapshot Configuration

This section of the service point type defines the configurations to be used to take the weekly or monthly unreported usage snapshots. The configuration here is used while extracting data for the Unreported Usage Snapshot fact. The Unreported Usage Analysis Snapshot Type defines the type of unreported usage snapshot. The UOM, TOU, and SQI are used to define the source MC's value identifier that will be used to calculate the amount of unreported usage in various age buckets.

The Subscription Type is the type of subscription that the analysis will perform on for this type of snapshot. If the service point is not linked to such a subscription, the fact will be linked to a None-usage subscription, so analysis of consumption with no usage subscription can be performed.

The Days Since UT Buckets and their corresponding descriptions are used to categorize into different age buckets the amount of consumption that has not been billed. For example, if bucket 1 is defined as 30, bucket 2 as 45, and bucket 3 as 60, any unbilled consumption that is less than or equal to 30 days old will fall into bucket 1. Any unbilled consumption that is older than 30 days but is less than or equal to 45 days old will fall into bucket 2. Any unbilled consumption that is older than 45 days but is less than or equal to 60 days old will fall into bucket 3. Any unbilled consumption that is older than 60 days will fall into bucket 4.

A separate snapshot can be taken for different subscription types, so that a given service point can have multiple snapshots for a given month or week. If the service point type does not have at least one unreported usage configuration type, service points of this type do not have their unreported usage snapshot calculated.

BI Aggregators

The following types of groupings are used in Oracle Utilities Analytics Warehouse (OUAW) to calculate the totals by interval for every combination of dimensions.

- **Postal Code:** This is retrieved from the service point's address information.
- **City:** This is retrieved from the service point's address information.
- **Head-End System:** This is retrieved either from the override head-end system defined on the device or from the fallback head-end system on the device type, if there is no override on the device.
- **Usage Group:** This is retrieved either the override usage group on the usage subscription or the fallback usage group on the usage subscription type, if none on the usage subscription. The Usage Group can be set up as an optional dimension, and if so, service points without primary usage subscription can be included.
- **Market:** This is retrieved from the service point's market. The Market can be set up as an optional dimension, and if so, service points not participating in a market can be included.
- **Service Provider of Role 'X':** If the service point participates in a deregulated market, the service provider is for the role specified. The Service Provider can be set up as an optional dimension, and if so, service points that do not participate in a market and do not have any service provider for a given role can be included.
- **Service Type:** This is retrieved from the service point's details.
- **Device Type:** This is retrieved from the device currently installed on the service point.
- **Manufacturer and Model:** This is retrieved from the device. The Manufacturer and Model can be set up as optional dimensions, and if so, devices with no manufacturer or model definition can be included.
- **Geographic Code:** This is retrieved from the service point. The Geographic Code can be set up as an optional dimension, and if so, service points without geographic information can be included.

The **BI Aggregators** section includes the following:

- Aggregator Measuring Components
- Setting Up Aggregation Parameters
- Creating and Aggregating BI Aggregators
- Refreshing Materialized Views

Aggregator Measuring Components

For every combination of the dimensions listed above and for each type of aggregation there is a distinct aggregator measuring component. These measurements include the aggregated totals for their constituent measuring components.

The four types of aggregators are:

- **Measured Quantity:** In this type of aggregation, the aggregated measurements of the constituent measuring components are spread across buckets in accordance with their measurement conditions.

- **Quality Count:** In the quality count aggregation type, a count for each interval related to a constituent measuring component is placed into one of the quality buckets.
- **Timeliness Count:** In this aggregation type, a count for each interval related to a constituent measurement component is placed into one of the late buckets.
- **Timeliness Quantity:** In this aggregation type, the aggregated measurements of the constituent measuring components are spread across late buckets as per their measurement conditions.

Set Up Aggregation Parameters

This section contains the required and recommended aggregation parameters that should be set up while configuring the Oracle Utilities Meter Data Management application in Oracle Utilities Analytics Warehouse (OUAW), including:

- Master versus Sub Aggregator
- Measurement BOs
- Timeliness Master Configuration
- Determining Initial Measurement Data Timeliness
- Value Identifiers on Aggregator MC Type (Recommended)

Master vs. Sub-Aggregator

Note

This is a required configuration.

1. Nominate one of the BI aggregation types as the master aggregator, particularly if the data analysis in BI for various aggregation types is for the same set of customers. Nominating a master aggregator makes the setup and aggregation processes easier, because the master aggregator controls how and when the aggregations are to be performed.
2. Define this type's aggregator measuring component type as the master (the **Master Aggregation Hierarchy Type** option must be set as its **MC Type BO**). The master aggregator measuring component type controls the aggregation parameters (horizon, lag, and cutoff time), the valid measuring component types to aggregate, and its sub-aggregator measuring component types.
3. Ensure that the measuring component BO of the master aggregator measuring component type has the appropriate algorithms plugged in: a BO system event Find Constituent Measuring Components algorithm (which contains the logic on how to find the constituent measuring components) and an Enter algorithm on its Aggregate state (which contains the logic on how to aggregate the measurements).

ⓘ Note

- The sub-aggregator measuring component types can only define the value identifiers that are applicable to it. Its aggregation parameters and valid measuring component types are inherited from the master aggregator measuring component type. Similarly, the Find Constituent MC and Aggregate algorithms are defined on the master (defining these algorithms on the sub-aggregators BO will be ineffectual as they will never get triggered).
- The usage of each type of the BI aggregation depends on the implementation. In this case, the implementation should exclude defining this type of BI aggregation as master aggregator or in any of the sub-aggregator types.

Measurement BOs **ⓘ Note**

This is a required configuration.

1. Define the special measurement BOs for the four types of BI aggregation (described under Aggregator Measuring Components). These are used to differentiate the aggregated measurements from normal measurements created by initial measurement data.
2. Define the business objects on the corresponding aggregation type's measurement component type. The materialized views that were built to aggregate the individual intervals use this specific measurement BOs for performance reasons. These views are accessed directly by the BI analytics.

The measurement business objects are listed as follows:

- **Measured Quantity:** Measured Quantity Measurement (D2-MeasuredQuantityMsrmt)
- **Quality Count:** Quality Count Measurement (D2-QualityCountMsrmt)
- **Timeliness Count:** Timeliness Count Measurement (D2-TimelinessCountMsrmt)
- **Timeliness Quantity:** Timeliness Quantity Measurement (D2-TimelinessQuantityMsrmt)

Timeliness Master Configuration **ⓘ Note**

This is a required configuration.

For this configuration you must add the appropriate definitions for the timeliness buckets in the **Timeliness Master Configuration**. This is where definitions, gradation and ranges for lateness are set.

Depending on its severity, the lateness can be defined as **On Time**, **Late**, **Very Late**, or **Missing** (a measurement is considered missing if it does not exist or if its condition is either **System Estimated** or **No Read-Other**). In addition, this master configuration is where the heating and cooling degree day's factors are set up.

Determine Initial Measurement Data Timeliness

ⓘ Note

This is a required configuration.

Mark the initial measurement data with the number of hours of lateness. This definition is used to qualify whether or not a measurement arrived on time or late. This is done on the initial measurement data-level to allow dynamic configuration of what it means for initial measurement data (and measurements) to be late without the need to re-configure the aggregation logic. There is a measure on the initial measurement data's processed data that should store the number of hours of lateness that the initial measurement data have.

The base application is delivered with an Enter algorithm that calculates the initial measurement data's timeliness as the difference between the initial measurement data's end date time and its actual creation date/time in the system (Determine initial measurement data's Timeliness D2-DET-TML). This algorithm can be plugged in on the Pending state of the initial measurement data life cycle.

Value Identifiers on Aggregator MC Type (Recommended) **ⓘ Note**

This is a recommended configuration.

The base Enter algorithm for aggregating BI measurements (Aggregate Measurement Counts and Quantity D2-AGG-MCQ) has allocated the measurement buckets for Measured Quantity and Quality Count. While using this base algorithm, it is recommended that the following value identifiers are set up on the appropriate aggregator measuring component type, so that you looking at the aggregated data within the Oracle Utilities Meter Data Management system can see the appropriate identifier labels of each quantity.

- Measured Quantity
 - **Measurement Value:** Measured Quantity
 - **Value 1:** Regular Measurement Quantity
 - **Value 2:** Estimated Measurement Quantity
 - **Value 3:** User-Edited Measurement Quantity
 - **Value 4:** Misc Condition 1 Measurement Quantity
 - **Value 5:** Misc Condition 2 Measurement Quantity
 - **Value 6:** MC Count (per interval)
 - **Value 7:** Heating Degree Days
 - **Value 8:** Cooling Degree Days
 - **Value 9:** Average Consumption
- Quality Count
 - **Value 1:** Regular Measurement Count
 - **Value 2:** Estimated Measurement Count
 - **Value 3:** User Edited Measurement Count
 - **Value 4:** No Measurement/No IMD Count

- **Value 5:** No Measurement/IMD Exists Count
- **Value 6:** No Read Outage Count
- **Value 7:** No Read Other Count
- **Value 8:** Missing Count
- **Value 9:** Misc 1 Count
- **Value 10:** Misc 2 Count

The late buckets for **Timeliness Count and Quantity** are configured via the **Timeliness Master Configuration**. Similarly, it is recommended that these buckets get reflected on the corresponding aggregator measuring component type's Value Identifiers definition.

Create and Aggregate BI Aggregators

The BI aggregators can be created and aggregated either manually or automatically, just like the other aggregators. For more information, refer to the Aggregation section in the Oracle Utilities Meter Data Management Configuration Guide.

BI Aggregation Views

There are two types of views built for each type of BI Aggregation:

1. A view that contains all the BI aggregator measuring components only, where the dimensional values are flattened on the view. The pseudo-dimensions in BI are:
 - **Measured Quantity:** D2_MEASR_QTY_MV
 - **Quality Count:** D2_QUALITY_CNT_MV
 - **Timeliness Count:** D2_TIMELINESS_CNT_MV
 - **Timeliness Quantity:** D2_TIMELINESS_QTY_MV
2. A view that contains all the aggregated measurements for BI only. The pseudo-facts in BI are:
 - **Measured Quantity:** D2_MEASR_QTY_AGR_MV
 - **Quality Count:** D2_QUALITY_CNT_AGR_MV
 - **Timeliness Count:** D2_TIMELINES_CNT_AGR_MV
 - **Timeliness Quantity:** MVD2_TIMELINES_QTY_AGR_MV

Note

For MDM Versions prior to 2.4.x and C2M Versions prior to 2.8.x, the above given views are available as Materialized views. Whenever the dimension scanning or the aggregation is done, it is important that these materialized views are refreshed to make sure they contain the latest data set. An idiosyncratic batch job called Materialized View Refresh (D2-ACTMV) is delivered to perform this refresh. This batch job can refresh all the materialized views in one run, so long as the materialized view names are provided as batch parameters in the run.

Note

For MDM Versions greater than 2.4.x and C2M Versions greater than 2.8.x, the above given views are available as normal views and these no longer need a data refresh.

Set Up the Dynamic Usage Group Extracts

Oracle Utilities Analytics Warehouse allows the use of usage groups to break down the meter data analytics facts. However, in Oracle Utilities Meter Data Management, usage groups are determined dynamically through an algorithm plugged into the usage subscription's type.

Due to this dynamic configuration of usage groups, it is difficult to determine and replicate the logic that will be involved in determining the usage group. A download table is created instead to store the effective usage groups for usage subscriptions.

Extract the Dynamic Usage Group

An idiosyncratic batch process can be run on Initial Load or Incremental Load mode to determine the effective dynamic usage group of usage subscriptions. The batch process also writes the results into the US usage snapshot download table. This batch job is recommended to run the incremental mode daily, and to ensure that data in the download table will not be stale.

Run the **Usage Subscription Usage Group Download** (D2-DUGDL) batch process to determine the effective usage group of usage subscriptions.

Set Up the Snapshot Fact Extracts

This page guides you in setting up the snapshot fact extracts that are included with Oracle Utilities Analytics Meter Data Analytics to capture several SP-based information.

Note

- Taking weekly or monthly snapshots involves messaging or transforming the measurement data by applying a few core Oracle Utilities Meter Data Management functionalities, such as the conversion of scalar consumption to intervals, the axis conversion, and the time-of-use (TOU) mapping.
- It is not easy to replicate in the BI data warehouse the huge volume of measurement data and the core Oracle Utilities Meter Data Management functionalities. Accordingly, these snapshots will be taken into Oracle Utilities Meter Data Management through idiosyncratic batch jobs that will write the results into download tables. These download tables are the ones that the ELT process will replicate and load into the data warehouse.

Consumption Snapshot

The consumption snapshot allows KPIs that report on every service point's measured consumption. Weekly or monthly, the system applies a TOU map to the consumption of every active service point. Every resultant TOU code, quantity, and measurement condition results in a separate row on the Consumption Snapshot fact.

Set Up the Consumption Snapshot

These are the configuration steps required for a successful SP Usage Snapshot fact extract:

1. Navigate to the appropriate **Service Point BO** and ensure that the correct algorithm is plugged into the system event **Usage Snapshot**.

① Note

This event controls if and how snapshots are taken for the service point. If there is no such algorithm plugged into the service point's BO, the service point is skipped.

- a. Deactivate the algorithm **Aggregate SP Usage Snapshot and Write to Flat File (D2-SPCA)** if it is plugged in and has not been deactivated yet.
- b. Plug in the algorithm **Aggregate SP Usage Snapshot and Write to Download Table (D2- SP-USG-DL)** for the system event **Usage Snapshot**.

① Note

If the **Business Object Algorithm** table's caching regime is configured to be **Cached for Batch**, it is necessary to clear the cache for the algorithm changes to take effect. This can be done by either restarting the thread pool worker or running the **Flush All Cache (F1-FLUSH)** batch job.

2. Set up the **Usage Snapshot Type(s)**. See the **BI Oriented Extendable Lookups** section under **BI Configuration** portal for details on how to set up the data.
3. Configure the **Service Point Type**'s usage snapshot configuration. The **Service Point Type** holds the information that controls the extract:
 - a. **Usage Snapshot Type**
 - b. UOM/TOU/SQI: These are used to define the source measuring component's value identifier that will be TOU mapped. If there are multiple measuring components linked to the service point with such a combination of UOM/TOU/SQI, all will be mapped. If the service point has no measuring components with this combination, it will be skipped.
 - A given **Service Point Type** can have many **Usage Snapshot Types** for different ways to look at the monthly consumption. This is not limited to just TOU maps. This feature can also be used to create snapshots of different measured values. For example, if a measurement contains two values (actual and normally used), use this feature to create a snapshot of normal consumption, so it could be compared with a different snapshot of actual consumption.
 - If the **Service Point Type** does not have at least one entry in the **Usage Snapshot Configuration** list, it means service points of this type do not have their snapshot taken.

Extract the Consumption Snapshot

The Usage Snapshot fact has its own idiosyncratic batch process that takes the monthly or weekly consumption snapshot of all active service points in the system.

Run the **Service Point Usage Snapshot Usage Download (D2-USGDL)** batch process to retrieve the service point's consumption and populate the **SP Usage Snapshot** download table.

Service Point Snapshot

The Service Point Snapshot fact allows KPIs that report on the number of service points and devices that are installed over time. Weekly or monthly, the system takes a snapshot of every service point in the system, extracting service point-oriented information as well as information about the service point's install event and the snapshot date.

Set up the Service Point Snapshot

To configure a Service Point Snapshot fact extract:

1. Navigate to the appropriate **Service Point BO** and ensure that the correct algorithm is plugged into the system event **Service Point Snapshot**.

Note

This event controls if and how snapshots are taken for the service point. If there is no such algorithm plugged into the service point's BO, the service point is skipped.

- a. In case the algorithm **Take SP Snapshot and Write to Flat File** (D1-SPSNAP-SE) is plugged in and has not been deactivated yet, deactivate it.
- b. Plug in the algorithm **Take SP Snapshot and Insert to Download Table** (D1-SPSNAPDL).

Note

If the **Business Object Algorithm** table's caching regime is configured to be **Cached for Batch**, it is necessary to clear the cache for the algorithm changes to take effect. This can be done by either restarting the thread pool worker or running the **Flush All Cache** (F1-FLUSH) batch job.

2. Set up the **Days Since Last Normal Measurement**. Refer to the **BI Oriented Extendable Lookups** section under **BI Configuration** portal for details on how to set up the data. This will be used to reference the dimension containing the specific age bucket that corresponds with the number of days since the last normal measurement of the service point was received.

Extract the Service Point Snapshot

The Service Point Snapshot fact has its own idiosyncratic batch process that takes the monthly or weekly snapshot of all active service points in the system.

Run the **Service Point Snapshot Download** (D1-SPSDL) batch process to extract service point's information and populate the **SP Snapshot** download table.

Service Point Unreported Usage Snapshot

The Unreported Usage Analysis Snapshot fact allows KPIs that show the consumption that has not appeared on usage transactions. Weekly or monthly, the system reviews all active service points and determines the consumption had since the most recent usage transaction in the Sent status.

Set up the Service Point Unreported Usage Snapshot

To successfully configure the Unreported Usage Analysis Snapshot extract, follow these steps:

1. Navigate to the appropriate **Service Point BO** and ensure that the correct algorithm is plugged into the system event **Unreported Usage Analysis Snapshot**.

Note

This event controls if and how snapshots are taken for the service point. If there is no such algorithm plugged into the service point's BO, the service point is skipped.

- a. In case the algorithm **Analyze Unreported Usage Snapshot and Write to Flat File** (D2-SP-UT-AGE) is plugged in and has not been deactivated yet, deactivate it.
- b. Plug in the algorithm **Take SP Unreported Usage Snapshot and Insert to Download Table** (D2-SPUT-DL).

 **Note**

If the **Business Object Algorithm** table's caching regime is configured to be **Cached for Batch**, it is necessary to clear the cache so the algorithm changes take effect. This can be done by either restarting the thread pool worker or running the **Flush All Cache** (F1-FLUSH) batch job.

2. Set up the **Days Since Last Usage Transaction**. This will be used to reference the dimension containing the specific age bucket that corresponds to the number of days since the most recent sent usage transaction of the service point. See the **Unreported Usage Analysis Snapshot Type** dimension for the setup instructions.
3. Set up the **Unreported Usage Analysis Snapshot Type**. See the **Unreported Usage Analysis Snapshot Type** dimension for the setup instructions.
4. Configure the **Service Point Type**'s unreported usage analysis snapshot configuration. The **Service Point Type** holds the following information that controls the extract:
 - a. **Unreported Usage Analysis Snapshot Type**
 - b. **UOM/TOU/SQI**: These are used to define the source measuring component's value identifier that will be used to calculate the unbilled consumption in the various age buckets. If there are multiple measuring components linked to the service point with such a combination of UOM/TOU/SQI, all will be mapped. If the service point has no measuring components with this combination, it will be skipped.
 - c. **Subscription Type**: This is the type of subscription that the analysis will be performed on for this type of snapshot; if the service point is not linked to such a subscription, the fact will be linked to the None US, so that the analysis of consumption with no US can be performed.
 - d. The **Days Since UT** buckets and their corresponding descriptions: These are used to categorize the unbilled consumption into different age buckets. For example, if Bucket 1 is defined as 30; Bucket 2 is 45; and Bucket 3 is 60, then any unbilled consumption that is less than or equal to 30 days old will fall into bucket 1, any unbilled consumption that is older than 30 days but less than or equal to 45 days old will fall into bucket 2, and any unbilled consumption that is older than 45 days but is less than or equal to 60 days old will fall into bucket 3.

A separate snapshot can be taken for different subscription types so that a given service point can have multiple snapshots for a given month or week. If the **Service Point Type** does not have at least one entry in the **Unreported Usage Snapshot Configuration** list, it means that the service points of this type do not have their snapshot taken.

Extract the Service Point Unreported Usage Snapshot

The Unreported Usage Analysis Snapshot fact has its own idiosyncratic batch process that takes the monthly or weekly snapshot of all active service points in the system.

Run the **SP Unreported Usage Snapshot Download** (D2-UUSDL) to extract the service point's information and populate the **SP Unreported Usage** download table.

Service Point VEE Exception Snapshot

The Service Point VEE Exception Snapshot fact allows KPIs that report on VEE Exceptions. Weekly or monthly, the system looks at every service point and count the amount of initial measurement data with and without exceptions. For initial measurement data with exceptions, it further subdivides the count by VEE Exception Type, IMD Type, VEE Severity, VEE Group, and Rule. Every resultant subtotal will have a row on the VEE Exception Snapshot fact.

Set up the Service Point VEE Exception Snapshot

To successfully configure a Service Point VEE Exception Snapshot fact extract:

Navigate to the appropriate **Service Point BO** and ensure that the correct algorithm is plugged in on the system event **SP VEE Exception Snapshot**.

Note

This event controls if and how snapshots are taken for the service point. If there is no such algorithm plugged into the service point's BO, the service point is skipped.

1. In case the algorithm **Aggregate SP VEE Exceptions and Write to Flat File** (D2-SPVEEEXC) is plugged in and has not been deactivated yet, deactivate it.
2. Plug in the algorithm **Aggregate SP VEE Exceptions and Insert to Download Table** (D2-SPVEE-DL).

Note

If the **Business Object Algorithm** table's caching regime is configured to be **Cached for Batch**, it is necessary to clear the cache in order for the algorithm changes to take effect. This can be done by either restarting the thread pool worker or running the **Flush All Cache** (F1-FLUSH) batch job.

Extract the Service Point VEE Exception Snapshot

The Service Point VEE Exception Snapshot fact has its own idiosyncratic batch process that takes the monthly or weekly snapshot of all active service points in the system.

Run the **SP VEE Exception Snapshot Download** (D2-VEEDL) to extract the service point information and populate the **SP VEE Exception** download table.

C2M Extract Parameters and Bucket Configuration

This page provides information about the configurations required for the Oracle Utilities Customer to Meter (C2M) application to enable successful data extracts for Oracle Utilities Extractors and Schema. The activities to be performed as a part of the configuration needed for C2M application are the following:

1. For Extract Parameters and Bucket Configuration of CCB of C2M, perform the steps mentioned in [CCB Extract Parameters and Bucket Configuration](#) page.
2. For Extract Parameters and Bucket Configuration of MDM of C2M, perform the steps mentioned in [MDM Extract Parameters and Bucket Configuration](#) page.

ⓘ Note

You must complete these setups before starting the ELT processes to load data into Oracle Utilities Analytics Warehouse.

NMS Extract Parameters and Bucket Configuration

This page provides information about the various configurations to be setup so that the Oracle Utilities Network Management System's ELT functions successfully.

 ⓘ Note

You must complete these setup steps before starting the ELT processes to load data into the Oracle Utilities Analytics Warehouse (OUAW). Unlike other source systems, these configurations have to be set up using the Oracle Utilities Analytics Administration portal.

On this page:

- [NMS ETL Parameter Configuration](#)
 - [Country Parameter](#)
 - [Interruptions Count for CEMI Parameter](#)
 - [Momentary Outage Duration Parameter](#)
 - [Number of Retention Days Parameter](#)
 - [Priority Indicator Bit Parameter](#)
 - [Switch Plan Aborted Step Status Key\(s\) Parameter](#)
 - [Switch Plan Begin State Key\(s\) Parameter](#)
 - [Switch Plan End State Key\(s\) Parameter](#)
 - [Switch Plan Failed Step Status Key\(s\) Parameter](#)
 - [Switch Sheet Planned Category Parameter](#)
 - [Event Status Parameter](#)
 - [Account Type Parameter](#)
- [NMS Bucket Configuration](#)
 - [Outage Duration Bucket Configuration](#)
 - [Estimated Restoration Duration Bucket Configuration](#)
 - [Duration Deviation Bucket Configuration](#)
 - [Customers Out Bucket Configuration](#)
- [Configure NMS Buckets](#)
 - [Bucket Configuration Overview](#)
 - [Add a New Bucket Value](#)
 - [Modify an Existing Bucket Value](#)
- [Configure NMS Parameters](#)

- [Parameter Configuration Overview](#)
- [Add a New Parameter Value](#)
- [Modify an Existing Parameter Value](#)

NMS ETL Parameter Configuration

Note

- During extraction of source data to BI data warehouse, there are certain parameters that need to be configured by implementation to identify or filter data in accordance with business requirements. Once these parameters have been set up by the end user, the ELT process can then use this information to selectively extract data or to transform it from the source application and populate it into the warehouse.
- The ELT job that loads these parameters into the warehouse is configured to be initial load only. Any incremental changes to these parameters after the initial run is not going to be automatically captured in Oracle Utilities Analytics because any changes made to the existing parameters can cause inconsistencies in the loaded data. However, if there is a need to reconfigure the parameters, they can be changed on the source system and reloaded into the warehouse through certain additional steps. The star schema tables would also need to be truncated and reloaded. For the detailed steps involved in reloading the parameters, see [Configure ETL Parameters and Buckets](#).

Country Parameter

This single-valued parameter sets the appropriate country code.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Country** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click **Add New Row** again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Interruptions Count for CEMI Parameter

This single-valued parameter sets the number of interruptions that you should have experienced to calculate the CEMI index. This is required by the Control Zone Outage and City Outage extracts.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Interruptions Count for CEMI** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click **Add New Row** again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Momentary Outage Duration Parameter

This single-valued parameter sets in minutes the duration to be used for determining if an outage is a momentary outage or a sustained outage. This is required by the Control Zone Outage and City Outage extracts.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Momentary Outage Duration** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Number of Retention Days Parameter

This single-valued parameter sets the number of days in which restored outage data is retained in the Recent Call, Recent Crew, Recent Job and Recent Customer Outage facts.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Number of Retention Days** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Priority Indicator Bit Parameter

This single-valued parameter sets the Nth bit, which indicates the priority of the complaint registered in the Incidents table required by the Call fact extracts.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Priority Indicator Bit** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Switch Plan Aborted Step Status Key(s) Parameter

This single-valued parameter sets the codes used to identify the aborted steps status of a Switch Plan. This is required by the Switch Plan extracts.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Switch Plan Aborted Step Status Key(s)** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Switch Plan Begin State Key(s) Parameter

This single-valued parameter sets the codes used to identify the initial states of Switch Plans.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Switch Plan Begin State Key(s)** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Switch Plan End State Key(s) Parameter

This single-valued parameter identifies the final states of Switch Plans.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Switch Plan End State Key(s)** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Switch Plan Failed Step Status Key(s) Parameter

This single-valued parameter sets the codes used to identify the failed steps states of a Switch Plan. This is required by the Switch Plan extracts.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Switch Plan Failed Step Status Key(s)** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.

4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Switch Sheet Planned Category Parameter

This single-valued parameter sets the Planned Category code for Switch Sheets.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Switch Sheet Planned Category** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Event Status Parameter

This multi-valued parameter holds a list of excluded Event Status values. Those event status values specified in the parameters are excluded from the extract.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Event Status** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

Account Type Parameter

This multi-valued parameter holds a list of excluded Account Type values. Those account type values specified in the parameters are excluded from the extract.

To set the values for this parameter:

1. Navigate to the **Maintain NMS ETL Parameters** page through the **Edit** button located on the **NMS ETL Parameters** page.
2. Click **Add New Row** and select **Account Type** from the **Parameter Type** drop-down menu.
3. Populate the required fields and click **Save**.
4. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new parameter value or modify an existing one, see [Configure NMS Parameters](#).

NMS Bucket Configuration

Oracle Utilities Analytics Warehouse (OUAW) allows you to define a set of ranges, each representing a bucket, for which extracted measures can be grouped and classified. This

allows for reports that show data as a group that matches a particular classification or bucket. For example, in Oracle Utilities Network Management System, analysts may want to classify the outage duration based on certain ranges of duration (for example, 0-30 days, 30-60 days, 60-90 days, and so on. The maximum value is 9999999).

The following guidelines should be followed while doing bucket configurations:

- At least one bucket should have the start range set to 0.
- At least one bucket should have the end range set to 99999.
- There should not be overlaps within the bucket ranges. For example, if there is a bucket with start range 1 and end range 10, there cannot be an overlapping bucket with start range 5 and end range 13 (5 to 10 is the overlapping range).
- Similarly, there should not be any gaps in the bucket ranges. For example, if there is a bucket with start range as 1 and end range as 10, the start range for the next consecutive bucket should be 11.

Note

The ELT job that loads these buckets into the warehouse is configured to be initial load only. Any incremental changes after the initial run is not going to be automatically captured in Oracle Utilities Analytics because any changes made to the existing values can cause inconsistencies in the loaded data. However, in case it is necessary to reconfigure the buckets, these can be changed on the source system and reloaded into the warehouse through certain additional steps. The star schema tables would also need to be truncated and reloaded. For detailed steps, see [Configure ETL Parameters and Buckets](#).

Outage Duration Bucket Configuration

This configuration defines the bucket ranges used for classifying each outage based on how long it took before the outage was addressed and closed. The Restored Customer Outage fact uses this bucket configuration to map the outage duration measure to the corresponding bucket range. The configured data is extracted into the Outage Duration dimension through a separate ELT job.

To set this bucket value, navigate to the **Maintain NMS Bucket Configuration** page through the **Edit** button located on the **NMS Bucket Configuration** page. Click **Add Bucket Range** and select **Outage Duration Bucket** from the **Bucket Type** drop-down menu. Populate the required fields and click **Save**. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new bucket value or modify an existing one, see [Configure NMS Buckets](#).

Estimated Restoration Duration Bucket Configuration

This configuration defines the bucket ranges used for classifying each outage based on how long it took before the outage was addressed and closed. The Restored Customer Outage fact uses this bucket configuration to map the outage duration measure to the corresponding bucket range. The configured data is extracted into the Outage Duration dimension via a separate ELT job.

To set this bucket value, navigate to the **Maintain NMS Bucket Configuration** page through the **Edit** button located on the **NMS Bucket Configuration** page. Click **Add Bucket Range** button and select **Estimated Restoration Duration Bucket** from the **Bucket Type** drop-down menu. Populate the required fields and click **Save**. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new bucket value or modify an existing one, see [Configure NMS Buckets](#).

Duration Deviation Bucket Configuration

This configuration defines the bucket ranges used for classifying an outage based on how much its actual restoration time deviated from its estimated restoration time. The Restored Customer Outage fact uses this bucket configuration to map the duration deviation measure to the corresponding bucket range. The configured data is extracted into the Duration Deviation dimension via a separate ELT job.

To set this bucket value, navigate to the **Maintain NMS Bucket Configuration** page through the **Edit** button located on the **NMS Bucket Configuration** page. Click **Add Bucket Range** button and select **Duration Deviation Bucket** from the **Bucket Type** drop-down menu. Populate the required fields and click **Save**. To provide multiple values, click the **Add New Row** button again and enter additional values.

To add a new bucket value or modify an existing one, see [Configure NMS Buckets](#).

Customers Out Bucket Configuration

This configuration defines the bucket range for classifying the number of customers that were out during an outage event. The configured data is extracted into the Customers Out bucket dimension through a separate ELT job.

To add a new bucket value or modify an existing one, see [Configure NMS Buckets](#).

Configure NMS Buckets

This page details how to add and modify bucket values for Oracle Utilities Network Management System (NMS) application.

Bucket Configuration Overview

Oracle Utilities Analytics Warehouse (OUAW) allows you to define a set of ranges, each representing a bucket, for which extracted measures can be grouped and classified. This allows the creation of reports that show data as a group that matches a particular classification or bucket.

The following are the guidelines to configure buckets:

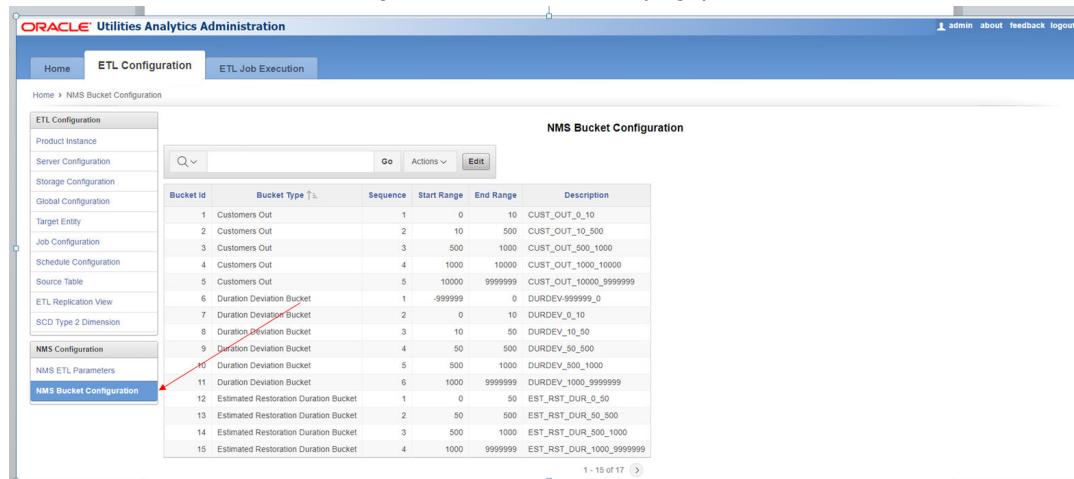
- At least one bucket should have the start range as 0.
- At least one bucket should have the end range as 99999.
- There is no overlapping of bucket ranges. For example, if there is a bucket with start range 1 and end range 10, there cannot be an overlapping bucket with start range 5 and end range 13 (5 to 10 is the overlapping range).
- The bucket ranges don't have gaps. For example, if there is a bucket with start range as 1 and end range as 10, the start range for the next consecutive bucket should be 11.

Note

The ELT job that loads these buckets into the warehouse is configured to be initial load only. Any incremental changes after the initial run is not going to be automatically captured in Oracle Utilities Analytics because any changes made to the existing values can cause inconsistencies in the loaded data. However, in case it is necessary to reconfigure the buckets, these can be changed on the source system and reloaded into the warehouse through certain additional steps. The star schema tables would also need to be truncated and reloaded. For the detailed steps involved in reloading the buckets, see [Configure ETL Parameters and Buckets](#).

Add a New Bucket Value

1. Navigate to **NMS Bucket Configuration** under **NMS Configuration** (located on the **Home** tab of the **Oracle Utilities Analytics Administration** page).



The screenshot shows the Oracle Utilities Analytics Administration interface. The left sidebar has a 'NMS Configuration' section with 'NMS Bucket Configuration' selected. The main area is titled 'NMS Bucket Configuration' and shows a table of bucket definitions. The table has columns: Bucket Id, Bucket Type, Sequence, Start Range, End Range, and Description. The 'Edit' button is located in the top right corner of the table header. A red arrow points to this 'Edit' button.

Bucket Id	Bucket Type	Sequence	Start Range	End Range	Description
1	Customers Out	1	0	10	CUST_OUT_0_10
2	Customers Out	2	10	500	CUST_OUT_10_500
3	Customers Out	3	500	1000	CUST_OUT_500_1000
4	Customers Out	4	1000	10000	CUST_OUT_1000_10000
5	Customers Out	5	10000	999999	CUST_OUT_10000_999999
6	Duration Deviation Bucket	1	-999999	0	DURDEV_-999999_0
7	Duration Deviation Bucket	2	0	10	DURDEV_0_10
8	Duration Deviation Bucket	3	10	50	DURDEV_10_50
9	Duration Deviation Bucket	4	50	500	DURDEV_50_500
10	Duration Deviation Bucket	5	500	1000	DURDEV_500_1000
11	Duration Deviation Bucket	6	1000	9999999	DURDEV_1000_9999999
12	Estimated Restoration Duration Bucket	1	0	50	EST_RST_DUR_0_50
13	Estimated Restoration Duration Bucket	2	50	500	EST_RST_DUR_50_500
14	Estimated Restoration Duration Bucket	3	500	1000	EST_RST_DUR_500_1000
15	Estimated Restoration Duration Bucket	4	1000	9999999	EST_RST_DUR_1000_9999999

2. Click **Edit** to open the **Maintain NMS Bucket Configuration** page.

ORACLE Utilities Analytics Administration

Home ETL Configuration ETL Job Execution

Home > NMS Bucket Configuration

ETL Configuration

- Product Instance
- Server Configuration
- Storage Configuration
- Global Configuration
- Target Entity
- Job Configuration
- Schedule Configuration
- Source Table
- ETL Replication View
- SCD Type 2 Dimension

NMS Configuration

- NMS ETL Parameters
- NMS Bucket Configuration**

NMS Bucket Configuration

Click the button to navigate to Maintain NMS Bucket Configuration

Bucket Id	Bucket Type ↑	Sequence	Start Range	End Range	Description
1	Customers Out	1	0	10	CUST_OUT_0_10
2	Customers Out	2	10	500	CUST_OUT_10_500
3	Customers Out	3	500	1000	CUST_OUT_500_1000
4	Customers Out	4	1000	10000	CUST_OUT_1000_10000
5	Customers Out	5	10000	9999999	CUST_OUT_10000_9999999
6	Duration Deviation Bucket	1	-999999	0	DURDEV-999999_0
7	Duration Deviation Bucket	2	0	10	DURDEV_0_10
8	Duration Deviation Bucket	3	10	50	DURDEV_10_50
9	Duration Deviation Bucket	4	50	500	DURDEV_50_500
10	Duration Deviation Bucket	5	500	1000	DURDEV_500_1000
11	Duration Deviation Bucket	6	1000	9999999	DURDEV_1000_9999999
12	Estimated Restoration Duration Bucket	1	0	50	EST_RST_DUR_0_50
13	Estimated Restoration Duration Bucket	2	50	500	EST_RST_DUR_50_500
14	Estimated Restoration Duration Bucket	3	500	1000	EST_RST_DUR_500_1000
15	Estimated Restoration Duration Bucket	4	1000	9999999	EST_RST_DUR_1000_9999999

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- Click **Add Bucket Range** and select the bucket type from the drop-down menu under **Bucket Type** column.
- Provide the **Sequence**, **Start Range**, **End Range**, and **Description** values.
Note: The sequence number can start from 0. For single-valued buckets, this will hold a single value. However, for multi-valued buckets, the sequence number can be incremented for every additional value.
- Once the values are added, click **Save**.

Modify an Existing Bucket Value

- Click **Edit** on **NMS Bucket Configuration** to open the **Maintain NMS ETL Bucket Configuration** page.
- Provide the **Start Range** and **End Range** for the bucket value that is to be modified.

ORACLE Utilities Analytics Administration

Home ETL Configuration ETL Job Execution

Home > NMS Bucket Configuration > Maintain NMS Bucket Configuration

Maintain NMS Bucket Configuration

Bucket ID	Bucket Type ↑	Sequence	Start Range	End Range	Description
1	Customers Out	1	0	10	CUST_OUT_0_10

Cancel **Clear Bucket Range** **Add Bucket Range** **Save**

- Click **Save**.

Configure NMS Parameters

This page details how to add and modify parameter values for Oracle Utilities Network Management System (NMS) application.

Parameter Configuration Overview

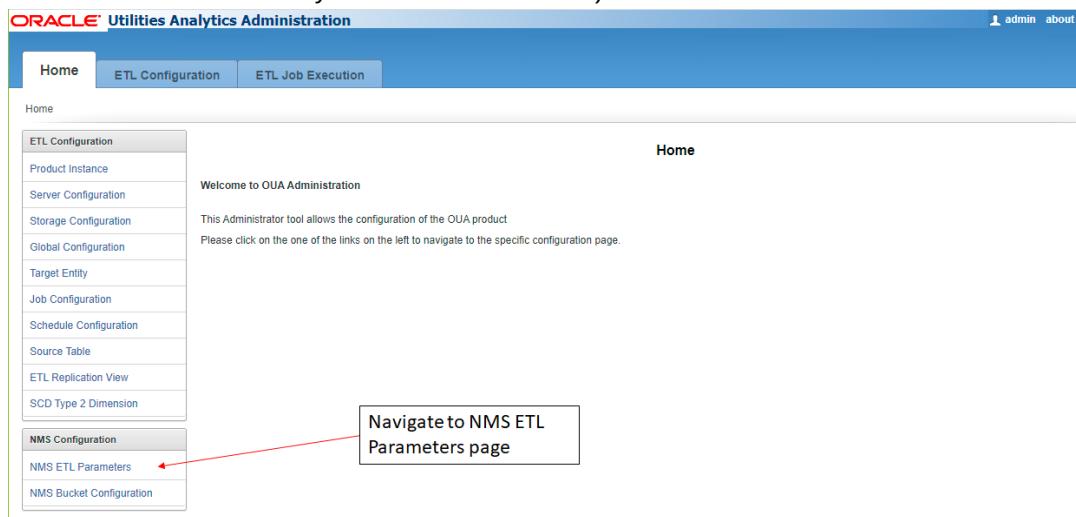
There are certain parameters that need to be configured during the extraction of source data to BI data warehouse to identify or filter data in accordance with business requirements. Once these parameters have been set up by the end user, the ELT process can then use this information to selectively extract data or to transform it from the source application and populate it into the warehouse.

Note

The ELT job that loads these parameters into the warehouse is configured to be initial load only. Any incremental changes to these parameters after the initial run is not going to be automatically captured in Oracle Utilities Analytics because any changes made to the existing parameters can cause inconsistencies in the loaded data. However, if there is a need to reconfigure the parameters, they can be changed on the source system and reloaded into the warehouse through certain additional steps. The star schema tables would also need to be truncated and reloaded. For the detailed steps involved in reloading the parameters, see [Configure ETL Parameters and Buckets](#).

Add a New Parameter Value

1. Navigate to **NMS ETL Parameters** under **NMS Configuration** (located on the **Home** tab of the Oracle Utilities Analytics Administration tool).



The screenshot shows the Oracle Utilities Analytics Administration interface. The top navigation bar includes the ORACLE Utilities Analytics Administration logo, a user icon labeled 'admin', and a 'about' link. The main menu has three tabs: 'Home' (which is selected and highlighted in blue), 'ETL Configuration', and 'ETL Job Execution'. On the left, a sidebar menu lists various configuration categories: ETL Configuration (Product Instance, Server Configuration, Storage Configuration, Global Configuration, Target Entity, Job Configuration, Schedule Configuration, Source Table, ETL Replication View, SCD Type 2 Dimension), NMS Configuration (NMS ETL Parameters, NMS Bucket Configuration), and a 'Home' link. A red arrow points from the 'NMS ETL Parameters' link in the sidebar to a callout box containing the text 'Navigate to NMS ETL Parameters page'.

2. Click **Edit** to open the **Maintain NMS ETL Parameters** page.

ETL Configuration

Home ETL Configuration ETL Job Execution

Home > NMS ETL Parameters

ETL Configuration

Product Instance

Server Configuration

Storage Configuration

Global Configuration

Target Entity

Job Configuration

Schedule Configuration

Source Table

ETL Replication View

SCD Type 2 Dimension

NMS Configuration

NMS ETL Parameters

NMS Bucket Configuration

NMS ETL Parameters

Parameter ID Instance Number Parameter Type Sequence Value Created Date Created By

124	1	Account Type	0	val	26-DEC-16	ADMIN
119	1	Account Type	1	AREALIGHT	20-DEC-16	ADMIN
84	1	Country	0	USA	23-JUN-14	BIBAL
120	1	Event Status	0	NON	20-DEC-16	ADMIN
125	1	Event Status	1	10	26-DEC-16	ADMIN
126	1	Event Status for Segmentation	0	-NA-	24-JUN-18	ADMIN
128	1	Event Status for Segmentation	1	VDO	24-JUL-18	ADMIN
85	1	Interruptions Count for CEMI	0	101	23-JUN-14	BIBAL
86	1	Momentary Outage Duration (mins)	0	1000	23-JUN-14	BIBAL
87	1	Number of Retention Days	0	15	23-JUN-14	BIBAL
90	1	Priority Indicator Bit	0	11	23-JUN-14	BIBAL
88	1	Switch Plan Aborted Step Status Key(s)	0	100	23-JUN-14	BIBAL
111	1	Switch Plan Begin State Key(s)	0	11	24-JUN-14	BIBAL

- Click **Add New Row** and select the parameter name from the drop-down menu under **Parameter Type** column.
- Provide the **Instance Number**, **Sequence** and **Value**. The sequence number can start from 0. For single-valued parameters, this will hold a single value. However, for multi-valued parameters, the sequence number can be incremented for every additional value.

Home > NMS ETL Parameters > Maintain NMS ETL Parameters

ETL Configuration

Product Instance

Server Configuration

Storage Configuration

Global Configuration

Target Entity

Job Configuration

Schedule Configuration

Source Table

ETL Replication View

SCD Type 2 Dimension

NMS Configuration

NMS ETL Parameters

NMS Bucket Configuration

Maintain NMS ETL Parameters

Parameter ID Instance Number Parameter Type Sequence Value Created Date Created By

115	1	Account Type	0	val	02-DEC-20	gbuora
561	4	Account Type	0	5	18-APR-21	gbuora
5	1	Country	0	USA	23-NOV-20	gbuora
105	1	Event Status	0	NON	18-APR-21	gbuora
106	1	Event Status	1	10	26-DEC-16	ADMIN
111	1	Event Status	0	1	18-APR-21	gbuora
665	4	Interruptions Count for CEMI	0	1	23-NOV-20	gbuora
15	1	Momentary Outage Duration (mins)	0	1000	02-DEC-20	gbuora
112	3	Momentary Outage Duration (mins)	0	1000	18-APR-21	gbuora
8	1	Number of Retention Days	0	15	23-NOV-20	gbuora
110	3	Number of Retention Days	0	15	02-DEC-20	gbuora
558	4	Priority Indicator Bit	0	1	23-NOV-20	gbuora
12	1	Priority Indicator Bit	0	1	02-DEC-20	gbuora
104	3	Priority Indicator Bit	0	1	18-APR-21	gbuora
559	4	Switch Plan Aborted Step Status Key(s)	0	1	18-APR-21	gbuora
7	1	Switch Plan Aborted Step Status Key(s)	0	1	23-NOV-20	gbuora
114	1	Switch Plan Begin State Key(s)	0	100	02-DEC-20	gbuora
304	4	Switch Plan Begin State Key(s)	0	100	18-APR-21	gbuora
9	1	Switch Plan End State Key(s)	0	100	23-NOV-20	gbuora
107	4	Switch Plan Failed Step Status Key(s)	0	1	02-DEC-20	gbuora
558	4	Switch Plan Failed Step Status Key(s)	0	17	18-APR-21	gbuora
1	1	Switch Plan Failed Step Status Key(s)	0	17	23-NOV-20	gbuora
108	3	Switch Plan Failed Step Status Key(s)	0	17	02-DEC-20	gbuora
560	4	Switch Plan Failed Step Status Key(s)	0	285	18-APR-21	gbuora
8	1	Switch Plan Failed Step Status Key(s)	0	285	23-NOV-20	gbuora
103	3	Event Status for Segmentation	0	1	02-DEC-20	gbuora

- Once the values are added, click **Save**.

Modify an Existing Parameter Value

- To modify an existing parameter value, click **Edit** on the **NMS ETL Parameters** page to open the **Maintain NMS ETL Parameters** page.
- Edit the value under the **Value** column of the parameter value that is to be modified.

Home > NMS ETL Parameters > Maintain NMS ETL Parameters

ETL Configuration

Product Instance

Server Configuration

Storage Configuration

Global Configuration

Target Entity

Job Configuration

Schedule Configuration

Source Table

ETL Replication View

SCD Type 2 Dimension

NMS Configuration

NMS ETL Parameters

NMS Bucket Configuration

Maintain NMS ETL Parameters

Parameter ID Instance Number Parameter Type Sequence Value Created Date Created By

115	1	Account Type	0	val	02-DEC-20	gbuora
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- Click **Save**.

ODM Extract Parameters and Bucket Configuration

This page provides information about the configurations required for the Oracle Utilities Operational Device Management (ODM) application to enable successful data extracts for Oracle Utilities Extractors and Schema.

Note

You must complete these setups before starting the ELT processes to load data into the Oracle Utilities Analytics Warehouse (OUAW).

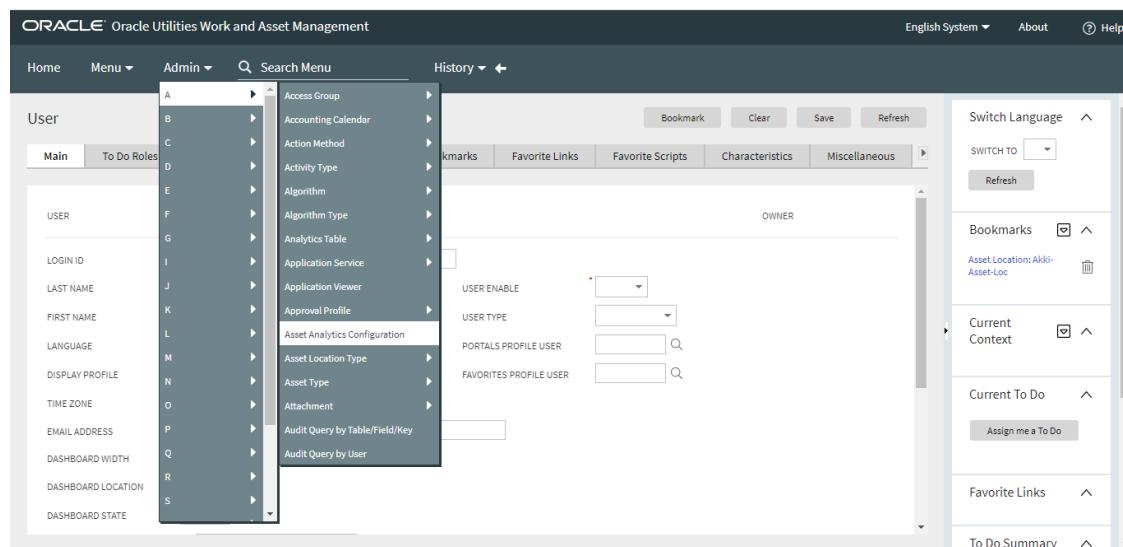
On this page:

- [Asset Analytics Configuration Page](#)
- [BI-Oriented Extendable Lookups](#)
 - [DSI Identifier Mapping](#)
- [BI Extract Parameters Configuration](#)
 - [Firmware Parameters](#)
 - [Operation Device BO Parameters](#)
 - [Asset Failure Parameters](#)
- [Bucket Configuration List](#)
 - [Asset Age Buckets](#)
 - [Asset Installation Age Buckets](#)
 - [Asset In Storage Age Buckets](#)
- [Configure ODM Buckets](#)
 - [Add a New Bucket Configuration](#)
 - [Add Bucket Ranges for Configured Buckets](#)

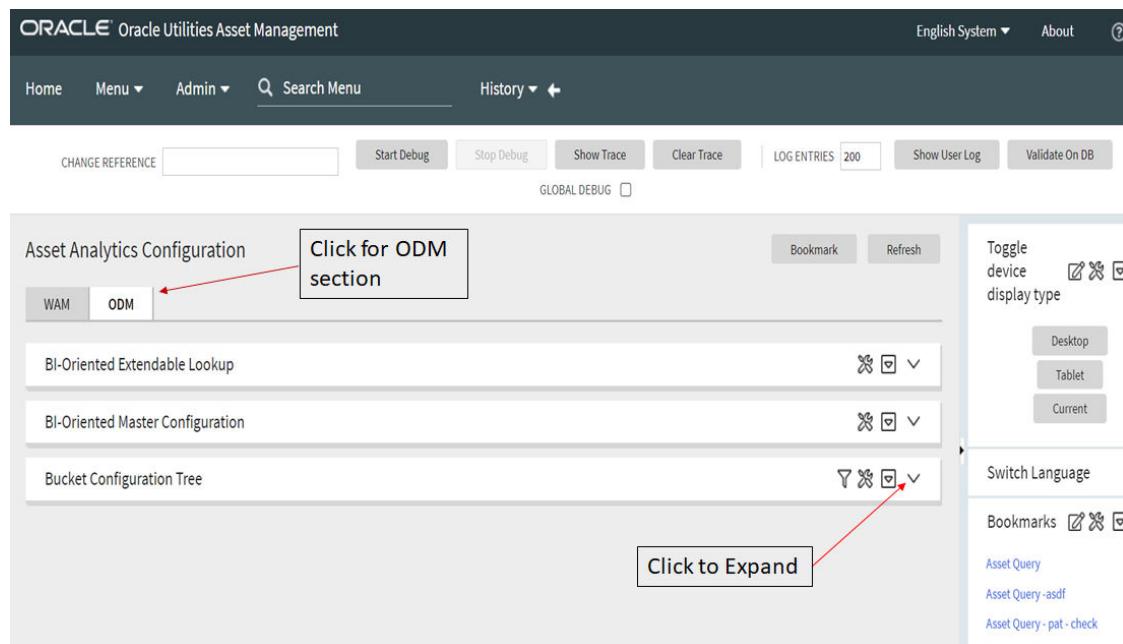
Asset Analytics Configuration Page

The **Asset Analytics Configuration** page holds information on all the analytics-oriented configuration tasks. It is a display-only portal that shows details about the configurations, providing links and guidelines to address further requirements to successfully run the ELT processes from OUAW.

To access the **Asset Analytics Configuration** page, log in to the source configuration and select **Asset Analytics Configuration** from **Admin** menu.



On the **Asset Analytics Configuration** page you will find **WAM** and **ODM** tabs. Click on the **ODM** tab to access the three main sections that will be described below: **BI-Oriented Extendable Lookup**, **BI-Oriented Master Configuration**, and **Bucket Configuration Tree**.



BI-Oriented Extendable Lookups

These are all the extendable lookup BI-Oriented Extendable Lookups that were created for Business Intelligence (BI). Their required configurations can be made from the **Asset Analytics Configuration** portal in the WAM application.

To navigate to the **Extendable Lookup Maintenance** portal where the lookup values are configured, click the link provided on the **BI-Oriented Extendable Lookup** zone.

Asset Analytics Configuration

WAM ODM

BI-Oriented Extendable Lookup

	BUSINESS OBJECT	DESCRIPTION
1	W1-DSIdentifierMap	Data Source Indicator Identifier Map

Click to navigate to Extendable Lookup page

DSI Identifier Mapping

The data source indicator (DSI) identifier mapping defines the integration points of Oracle Utilities Operational Device Management with other Oracle Utilities products (such as Oracle Utilities Meter Data Management). This information is pulled into the BI data warehouse to be used by the ELT processes. During the actual ELT, Oracle Utilities Operational Device Management facts are joined to Oracle Utilities Meter Data Management dimensions using the DSI identifier mapping information.

The Business Intelligence data warehouse uses service point integration between Oracle Utilities Operational Device Management and Oracle Utilities Meter Data Management to join Oracle Utilities Operational Device Management facts and Oracle Utilities Meter Data Management / Oracle Utilities Customer Care and Billing dimensions. Use the DSI identifier mapping to configure the following:

- Maintenance Object. The maintenance object of the entity being integrated between Oracle Utilities Operational Device Management and the external system.

ⓘ Note

In the OUASA 2.4.1 release, the ELT processes extract DSI mapping for **Node** maintenance object from the source Oracle Utilities Operational Device Management system.

- External System Mapping. Configure the following items under this group:

Item	Description
Identifier Type	The identifier type code used to identify the external identifier number from the integrating system.
Product	The product to which Oracle Utilities Operational Device Management is being integrated with.

Item	Description
Data Source Indicator	<p>The unique identifier of the integrating system. This is the environment ID of the Oracle Utilities Meter Data Management system. It can be identified from the Oracle Utilities Meter Data Management system using the query</p> <pre>select ENV_ID from F1_INSTALLATION ;</pre>

To set the DSI mapping:

1. Navigate to the **Data Source Indicator Map** page from the **Extendable Lookup** page as shown below.

Extendable Lookup

Extendable Lookup Value List

FILTERS: BUSINESS OBJECT Data Source Indicator Identifier Map (W1-DSIdentifierMap)

	VALUE	DESCRIPTION	OWNER	EDIT	DUPLICATE	DELETE	DETAILED DESCRIPTION
1	F1-EXT LKUP	RPL_Test	Oracle Utilities Asset Management				Test Extendable Lookup Description

1 Results.

Click to navigate to Data Source Identifier Map page

2. Populate the fields under **Main**.

Data Source Indicator Identifier Map

Main

MAINTENANCE OBJECT	Extendable Lookup
DESCRIPTION	RPL_Test
OVERRIDE DESCRIPTION	
DETAILED DESCRIPTION	Test Extendable Lookup Description
STATUS	Active (F1AC)

3. Populate the fields under **External System Mapping** (the descriptions for these fields are provided on the table above). Click **Save**.

External System Mapping

	IDENTIFIER TYPE	PRODUCT	DATA SOURCE INDICATOR	EXTERNAL SYSTEM
		<input type="text"/> Meter Data Management (MDM)	<input type="text"/>	<input type="text"/>

Save Cancel

BI Extract Parameters Configuration

During extraction of source data to BI data warehouse, there are certain parameters that need to be configured by implementation to identify or filter the data in accordance with the business requirements. Once these parameters have been set up by the end user, the ELT process can use this information to selectively extract data or to transform it from the source application and populate it into the warehouse.

The **BI Extract Parameters Configuration** window lists the master configuration BOs that were created for Oracle Utilities Extractors and Schema. To navigate to the **Master Configuration Maintenance** portal, where the configuration is maintained, click the link in the **Master Configuration** zone.

Note

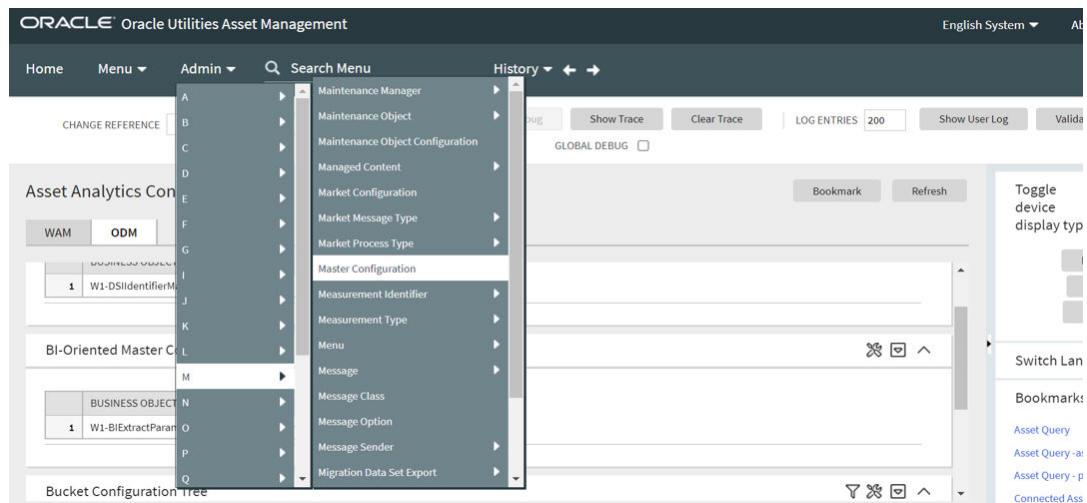
The ELT job that loads these parameters into the warehouse is configured to be initial load only. Any incremental change after the initial run is not going to be automatically captured in Oracle Utilities Analytics because any changes made to the existing parameters can cause inconsistencies in the loaded data. However, in case it is necessary to reconfigure the parameters, these can be changed on the source system and reloaded into the warehouse through certain additional steps. The star schema tables would also need to be truncated and reloaded. For the detailed steps involved in reloading the parameters, see [Configure ETL Parameters and Buckets](#).

Firmware Parameters

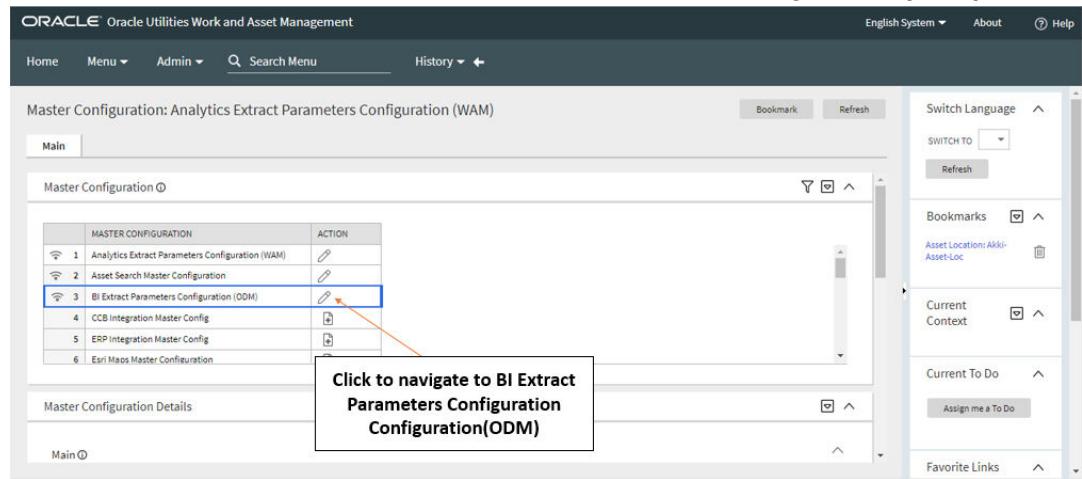
These parameters hold the firmware identifier types that are used in retrieving and extracting the appropriate firmware versions of the asset. The Operational Device dimension in the BI data warehouse has allocated 10 slots for storing an asset's firmware versions. Use this firmware parameter configuration to specify the type of firmware version that should be extracted into each of the columns.

To set a value for this parameter:

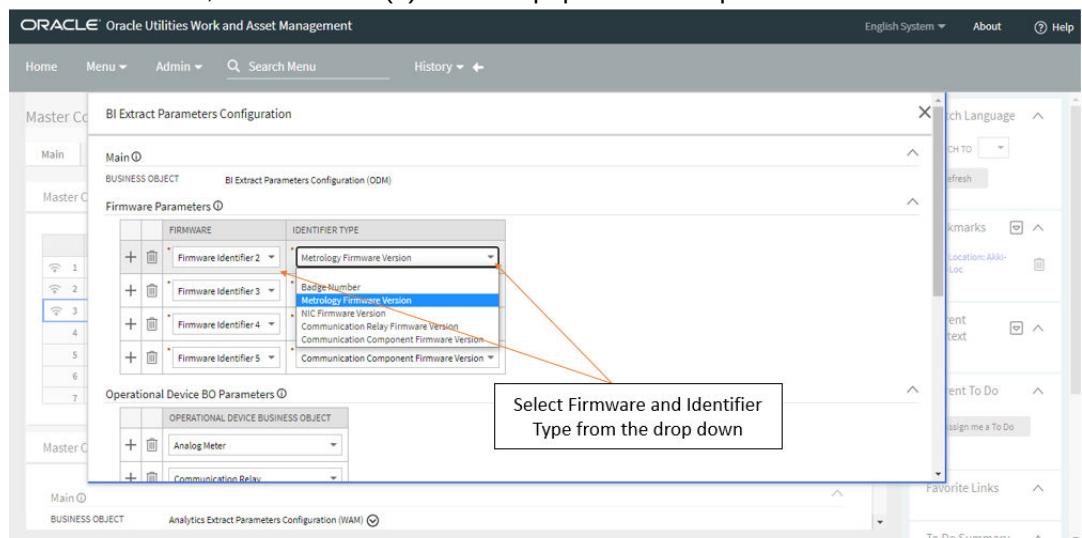
1. Navigate to the **Master Configuration** page from the **Admin** menu.



2. Click **Edit** on the **Action** column for **BI Extract Parameters Configuration (ODM)** row.



3. On the **BI Extract Parameters Configuration** window, navigate to the **Firmware Parameters** section.
 4. Select the firmware and the identifier type from the drop-down menu and click **Save**. To add more values, click the **Add (+)** icon and populate the required fields.

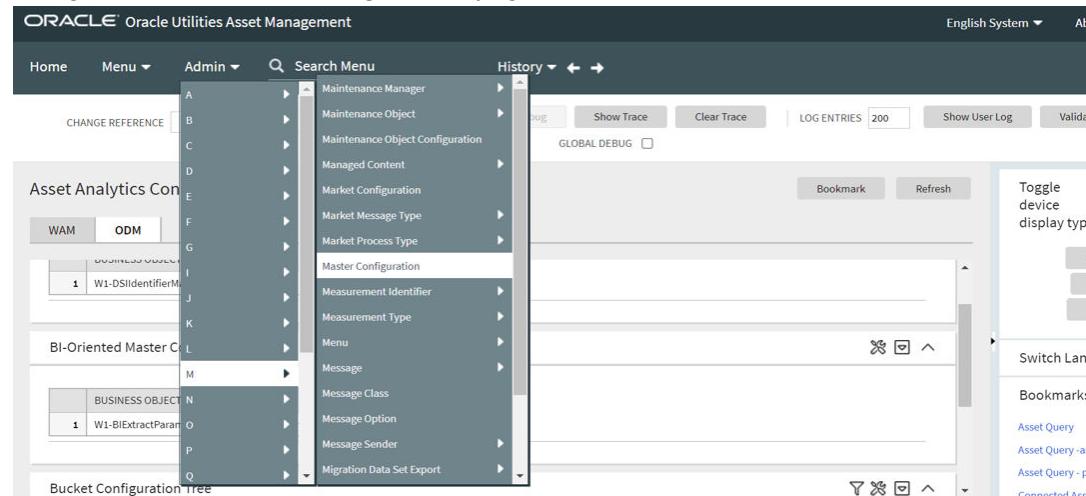


Operation Device BO Parameters

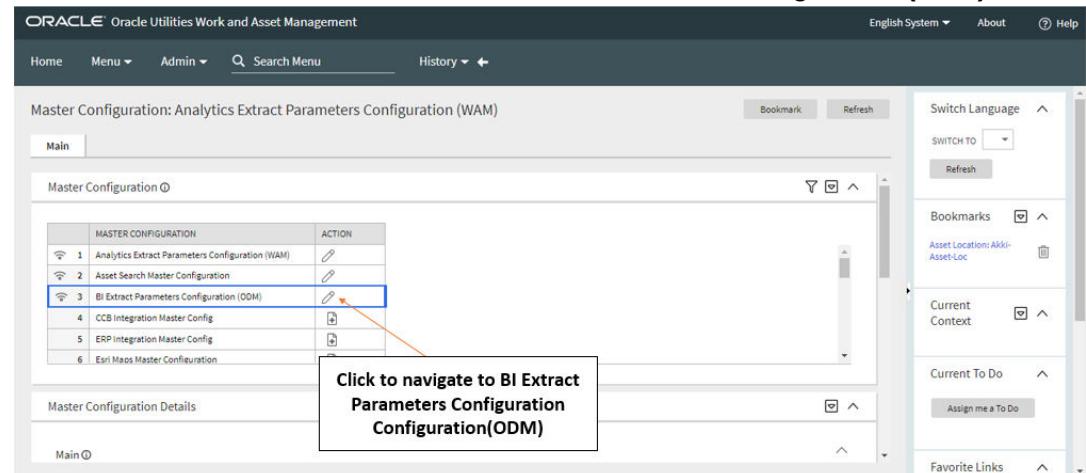
These parameters hold the business object names that are used to identify the operational devices that should be extracted. The Operational Device Snapshot and Operation Device Accumulation facts, as well as the Operational Device dimension in the Business Intelligence data warehouse, are designed to hold only the operational device data. Use this operational device parameter configuration to specify the business objects that are used to identify the assets that should be extracted into the star schema tables.

To set a value for this parameter:

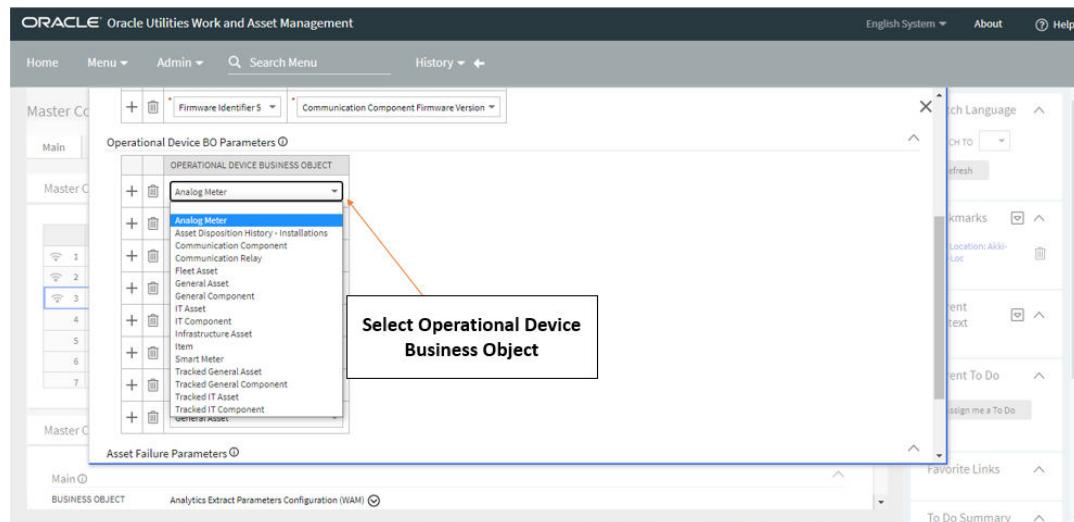
1. Navigate to the **Master Configuration** page from the **Admin** menu.



2. Click **Edit** on the **Action** column for **BI Extract Parameters Configuration (ODM)** row.



3. On the **BI Extract Parameters Configuration** window, navigate to the **Operational Device BO Parameters** section.
4. Select the **Operational Device Business Object** from the drop-down menu and click **Save**. To add more values, click the **Add (+)** icon and populate the required fields.

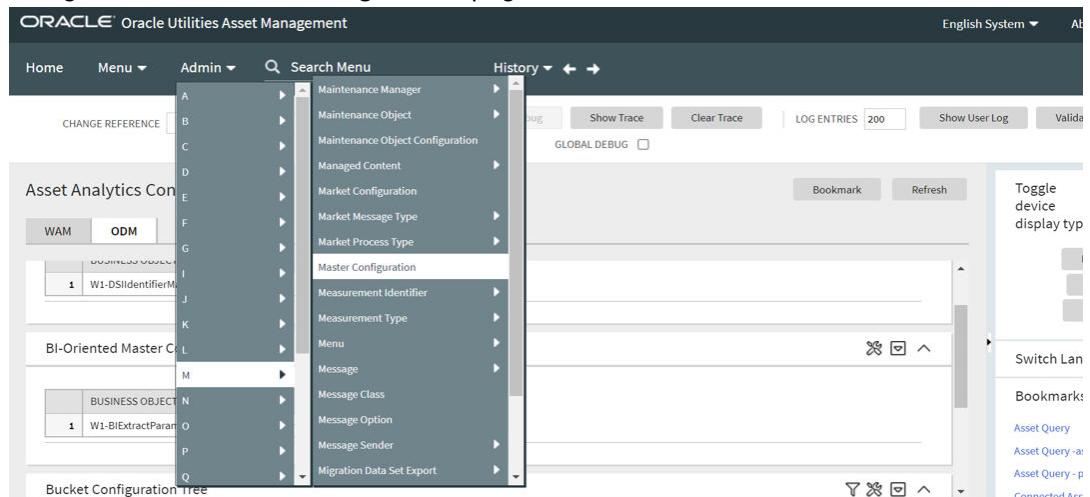


Asset Failure Parameters

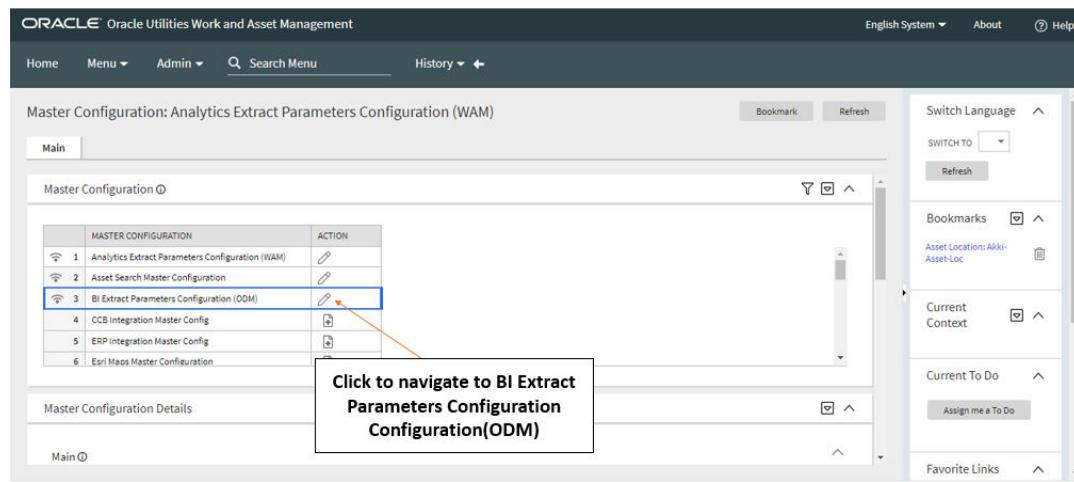
These parameters hold the failure condition codes to be considered for identifying asset failures during the extraction process. The Operational Device Snapshot and Asset Location facts in the Business Intelligence data warehouse have specific columns that indicate an asset's failure. Use this asset failure parameter configuration to specify the conditions that should be considered for marking an asset's failure.

To set a value for this parameter:

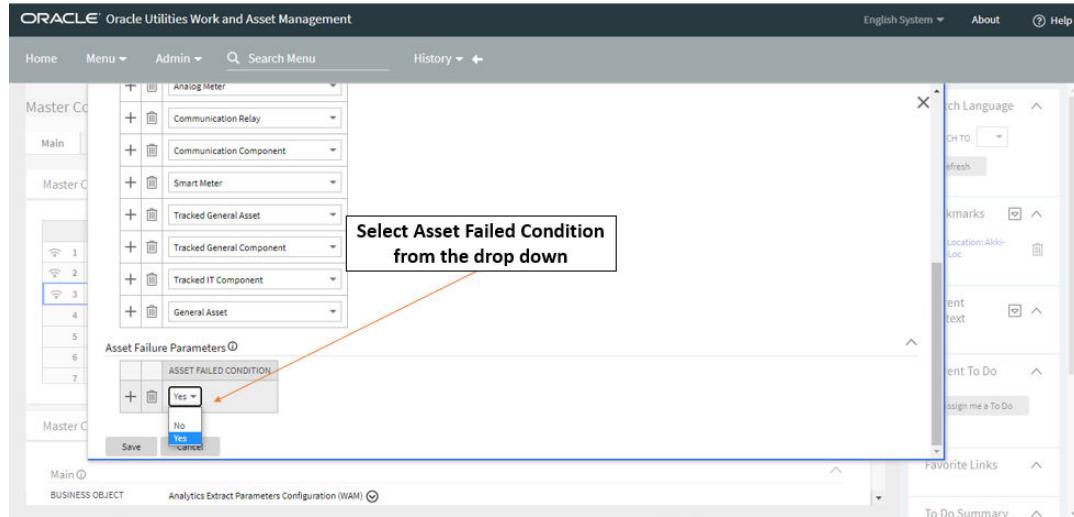
1. Navigate to the **Master Configuration** page from the **Admin** menu.



2. Click **Edit** on the **Action** column for **BI Extract Parameters Configuration (ODM)** row.



3. On the **BI Extract Parameters Configuration** window, navigate to the **Asset Failure Parameters** section.
4. Select the **Asset Failed Condition** from the drop-down menu and click **Save**. To add more values, click the **Add (+)** icon and populate the required fields.



Bucket Configuration List

OUAW allows you to define a set of ranges, each representing a bucket, for which extracted measures can be grouped and classified. This allows for reports that show the data as a group that matches a particular classification or bucket. For example, in Oracle Utilities Operational Device Management, an asset's age can be classified in accordance with an age group (such as Less than 6 Months Old, Between 6 Months to a Year Old, Between One to 5 Years Old, and Older than 5 Years).

Note

All the ELT jobs that load these bucket configurations into the warehouse are set to be initial load only. Any incremental changes to these buckets after the initial run are not going to be captured in Oracle Utilities Analytics because any changes made to the existing bucket configuration can cause inconsistencies to the loaded fact data. However, in case it is necessary to reconfigure the buckets, they can be changed on the source system and reloaded into the warehouse through certain additional steps. For the detailed steps involved in reloading the bucket configuration, see [Configure ETL Parameters and Buckets](#).

Asset Age Buckets

This configuration defines various bucket ranges that are used to classify how long an operational asset has been in the system. This bucket configuration data is extracted into the Asset Age Bucket dimension (CD_ASSET_AGE) and referenced in the Operational Device Snapshot fact to categorize an asset's age into the appropriate bucket.

No values are delivered as a part of the base product. Here are some sample values:

Default: Yes

Sequence	Start Range	End Range	Description
10	0	90	Less Than 3 Months
20	90	180	3 - 6 Months
30	180	270	6 - 9 Months
40	270	365	9 - 12 Months
50	365	730	1 - 2 Years
60	730	1095	2 - 3 Years
70	1095	99999	Older Than 3 Years

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **Asset Age Bucket Configuration (ODM) (W1-AssetAgeBuckets)** option from the drop-down menu.

To add this bucket to the configuration list or reconfigure bucket ranges for configured buckets, see [Configure ODM Buckets](#).

Asset Installation Age Buckets

This configuration defines various bucket ranges that are used to classify how long an operational asset has been installed on the field. This bucket configuration data is extracted into the Asset Installation Age Bucket dimension (CD_ASSET_INSTALL_AGE) and referenced in the Operational Device Snapshot fact to categorize an asset's install age into the appropriate bucket.

No values are delivered as a part of the base product. Here are some sample values:

Default: Yes

Sequence	Start Range	End Range	Description
10	0	90	Less Than 3 Months
20	90	180	3 - 6 Months
30	180	270	6 - 9 Months
40	270	365	9 - 12 Months
50	365	730	1 - 2 Years
60	730	1095	2 - 3 Years
70	1095	99999	Older Than 3 Years

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select **Asset Install Age Buckets (ODM) (W1-AssetInstallAgeBktConfig)** option from the drop-down menu.

To add this bucket to the configuration list or reconfigure bucket ranges for configured buckets, see [Configure ODM Buckets](#).

Asset In Storage Age Buckets

This configuration defines various bucket ranges that are used to classify how long an operational asset has been in store. This bucket configuration data is extracted into the Asset In Storage Age Bucket dimension (CD_ASSET_INSTORE_AGE) in the BI data warehouse and referenced in the Operational Device Snapshot fact to categorize an asset's in-store age into the appropriate bucket.

No values are delivered as a part of the base product. Here are some sample values:

Default: Yes

Sequence	Start Range	End Range	Description
10	0	30	Less Than 1 Month
20	30	180	2 - 6 Months
30	180	365	7 - 12 Months
40	365	99999	Older Than a Year

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select **Asset In Storage Bucket Configuration (W1-AssetInstoreAgeBktConfig)** option from the drop-down menu.

To add this bucket to the configuration list or reconfigure bucket ranges for configured buckets, see [Configure ODM Buckets](#).

Configure ODM Buckets

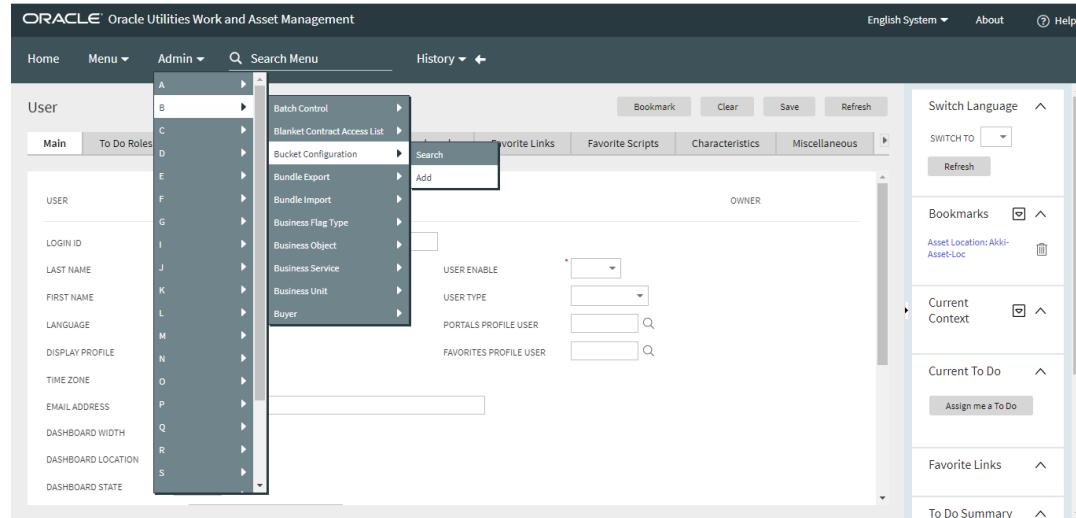
This page details how to add new bucket configurations and bucket ranges for configured buckets for Oracle Utilities Operational Device Management (ODM) application.

Note

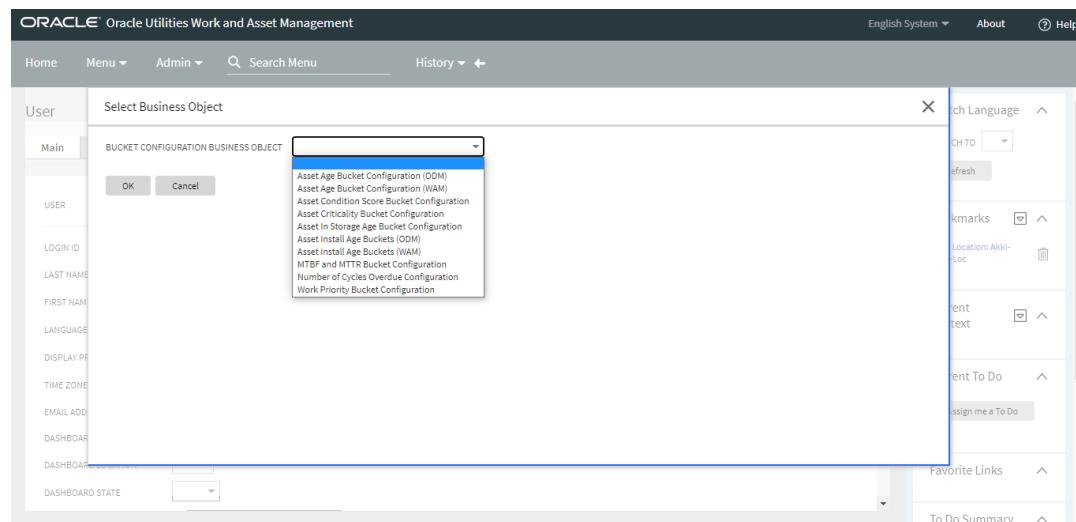
All the ELT jobs that load these bucket configurations into the warehouse are set to be initial load only. Any incremental changes to these buckets after the initial run are not going to be automatically captured in Oracle Utilities Analytics because any changes made to the existing bucket configuration can cause inconsistencies in the loaded fact data. However, in case it is necessary to reconfigure the buckets, certain additional steps can be carried out to pull the new configuration into the warehouse and ensure the changes get reflected in the star schema tables. For the detailed steps involved in reloading the bucket configuration, see [Configure ETL Parameters and Buckets](#).

Add a New Bucket Configuration

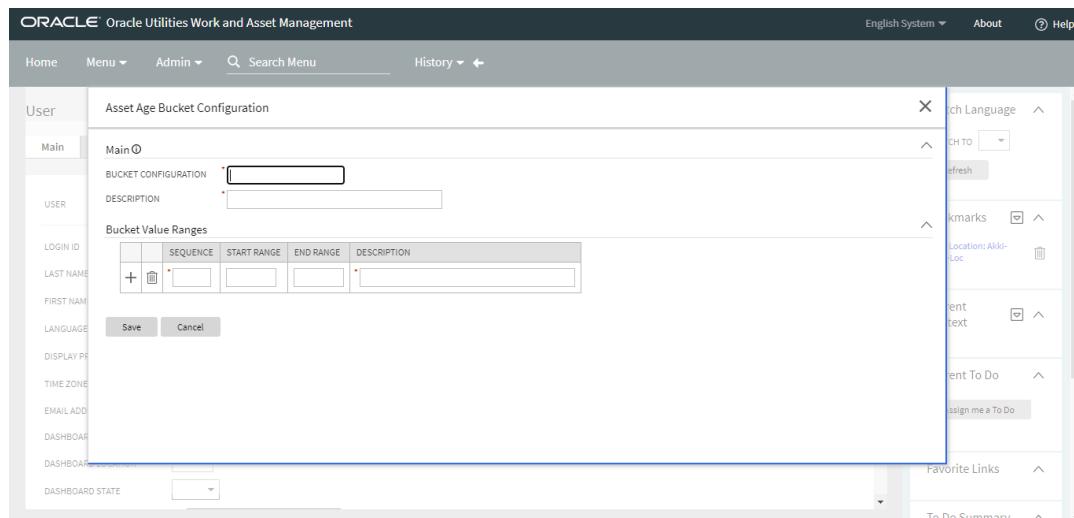
1. Navigate to the **Add Bucket Configuration** page from the **Admin** menu.



2. On the **Select Business Object** drop-down menu, select the business object for which the buckets are to be configured and click **OK**.



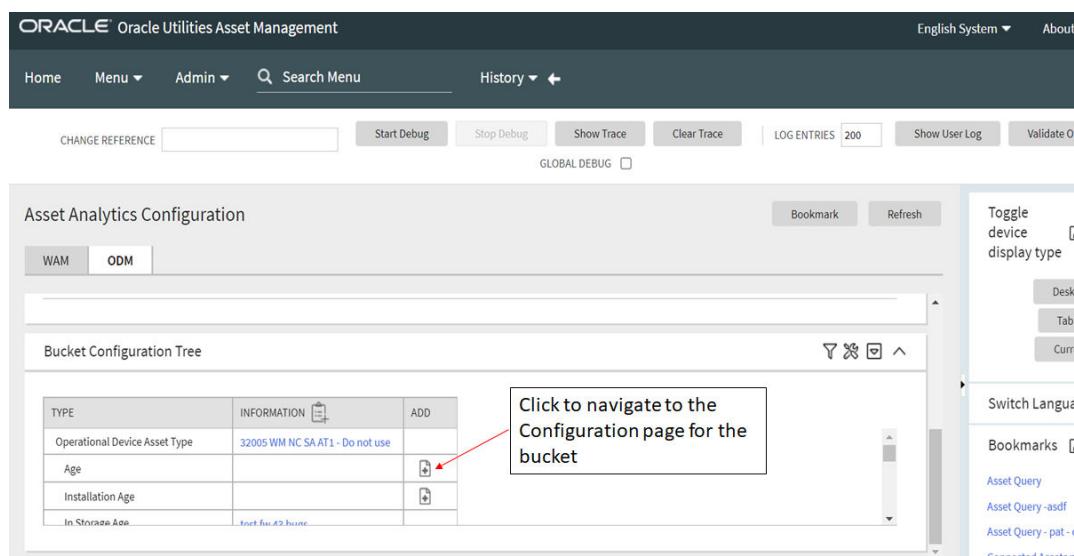
3. On the selected bucket's window, populate the required fields and provide the bucket value ranges.



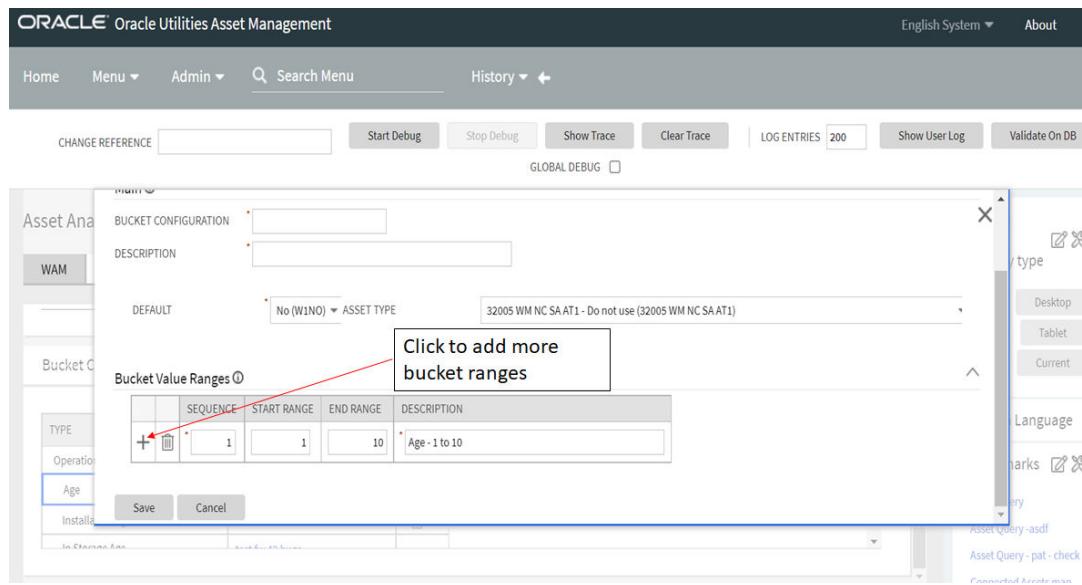
- Click **Save** and close the window.

Add Bucket Ranges for Configured Buckets

- To navigate to the **Bucket Configuration Maintenance** page of a bucket that have been added to the configuration list but which ranges have not been set up yet, click the **Add (+)** button that is located under the **Add** column.



- From the configuration window, you can add or edit value ranges. To add a new value range, click the **Add (+)** button on the left, populate the fields, and click **Save**. To edit a current value range, modify the values in the fields and click **Save**.



3. While providing the bucket value ranges, ensure that:

- At least one bucket has a start range of 0.
- At least one bucket has an end range of 99999.
- There is not overlapping of bucket ranges. For example, if there is a bucket with a start range of 1 and an end range of 10, there cannot be a bucket with a start range of 5 and an end range of 13 (5 to 10 is the overlapping range).
- There are no gaps between bucket ranges. For example, if there is a bucket with a start range of 1 and an end range of 10, the start range for the next consecutive bucket should be 11.

WAM Extract Parameters and Bucket Configuration

This page provides information about the configurations required for the Oracle Utilities Work and Asset Management (WAM) application to enable successful data extracts for Oracle Utilities Extractors and Schema.

Note

- You must complete these setups before starting the ELT processes to load data into the Oracle Utilities Analytics Warehouse.
- These configurations can be made from the **Asset Analytics Configuration** portal in the WAM application.

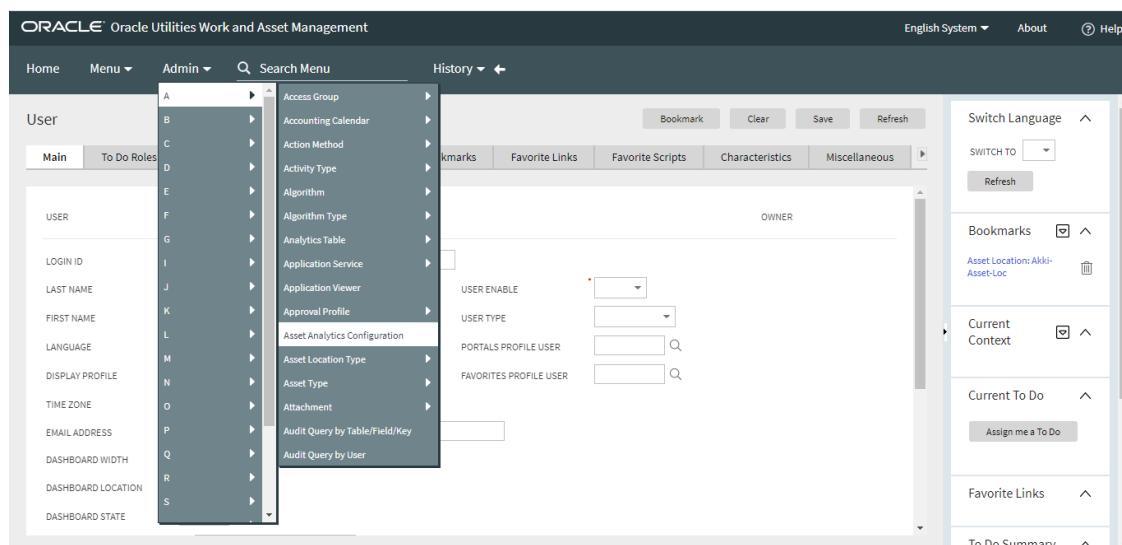
On this page:

- [Asset Analytics Configuration Page](#)
- [Analytics Extract Parameters Configuration](#)
 - [Location BO Parameters](#)
 - [Asset BO Parameters](#)
- [Bucket Configuration List](#)

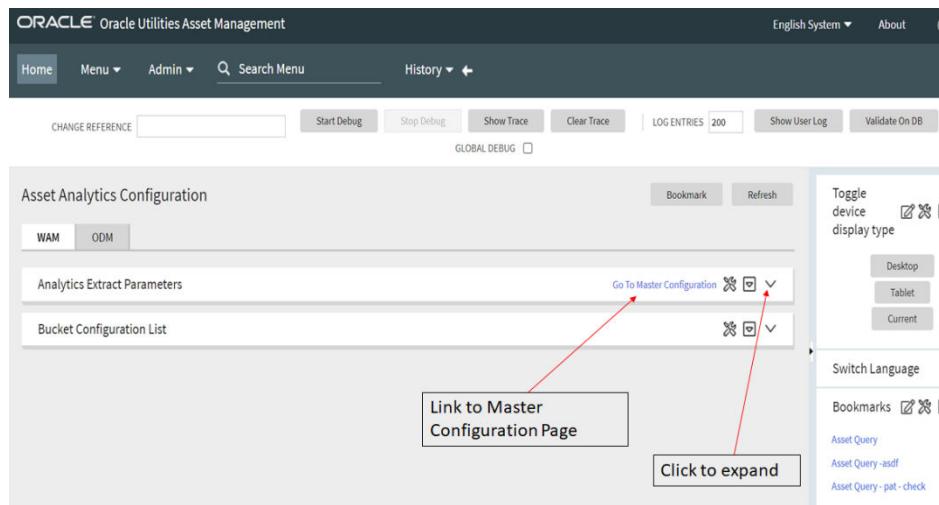
- [Asset Age Bucket Configuration](#)
- [Asset Installation Age Bucket Configuration](#)
- [Asset Critically Bucket Configuration](#)
- [Asset Condition Score Bucket Configuration](#)
- [Work Priority Bucket Configuration](#)
- [Number of Cycles Overdue Bucket Configuration](#)
- [MTBF/MTTR Bucket Configuration](#)
- [Configure WAM Buckets](#)
 - [Add a New Bucket Configuration](#)
 - [Add Bucket Ranges for Configured Buckets](#)

Asset Analytics Configuration Page

The extract parameters and bucket configurations for Oracle Utilities Work and Asset Management (WAM) application are to be made on the **Asset Analytics Configuration** page. To access it, log in to the source configuration and select **Asset Analytics Configuration** from **Admin** menu.



The **Asset Analytics Configuration** page for WAM is divided into two sections that will be described below: **Analytics Extract Parameters** and **Bucket Configuration List**.



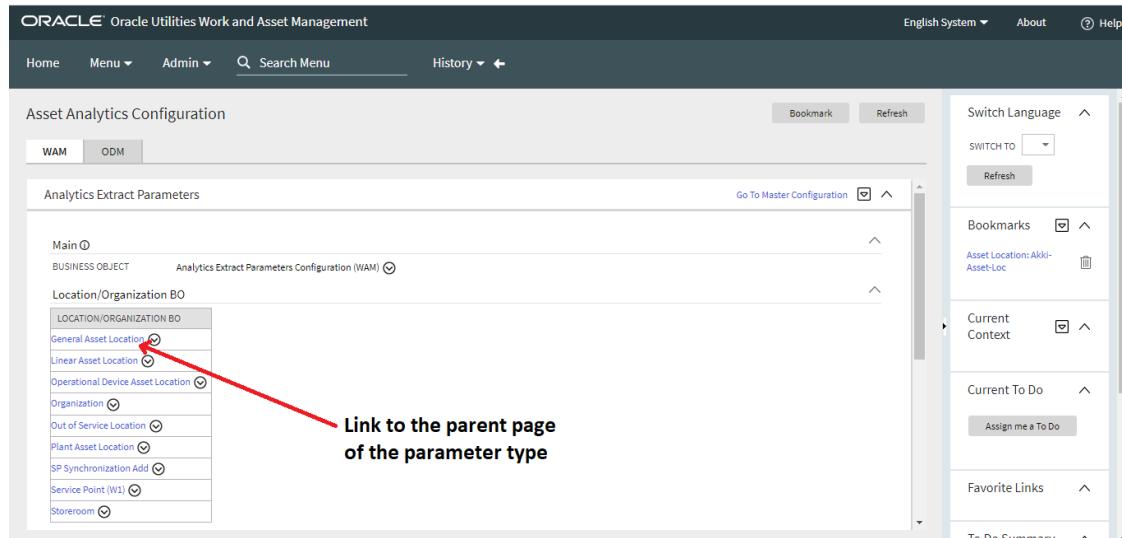
It also has a link to navigate to the **Master Configuration** page as shown in the image above.

Analytics Extract Parameters Configuration

There are certain parameters that need to be configured during the extraction of source data to BI data warehouse to identify or filter data in accordance with business requirements. Once these parameters have been set up by the end user, the ELT process can then use this information to selectively extract data or to transform it from the source application and populate it into the warehouse. The Analytics Extract Parameters Configuration (WAM) BO is delivered to contain the list of parameter values that need to be configured to be used by the ELT process.

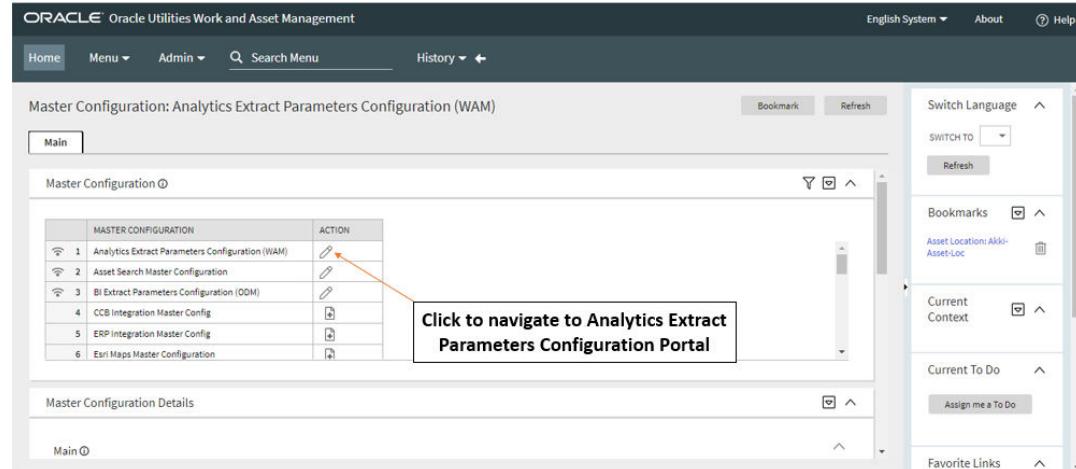
On the **Analytics Extract Parameters** section you will find the list of the master configuration business objects (BOs) that were created for Oracle Utilities Extractors and Schema, as well as the extract parameters required for the ELT loads. The Analytics Extract Parameters Configuration (WAM) BO contains the Location BO and Asset BO parameters, which need to be configured to be used by the ELT process.

The parameters that have already been set will have a foreign key link that navigates you to the parameter type's parent page, while those that have not been set will only have the parameter name header column.



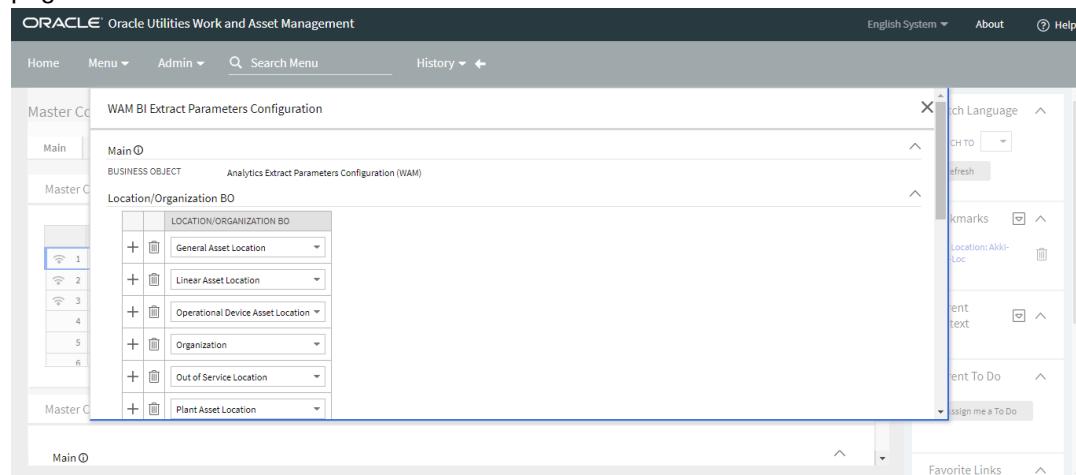
To set the parameters:

1. Navigate to the **Master Configuration** page from the **Asset Analytics Configuration** portal.
2. Navigate to the **Analytics Extract Parameters Configuration (WAM)** option in the table and click on the edit icon located under the **Action** column.



The screenshot shows the Oracle Utilities Work and Asset Management interface. The main title is 'Master Configuration: Analytics Extract Parameters Configuration (WAM)'. Below it, a table titled 'Master Configuration' lists several items, including 'Analytics Extract Parameters Configuration (WAM)'. An edit icon (pencil) is located in the 'ACTION' column for this row. A callout box with the text 'Click to navigate to Analytics Extract Parameters Configuration Portal' is positioned over the edit icon.

3. Set the values for the parameters on the **WAM BI Extract Parameters Configuration** page.



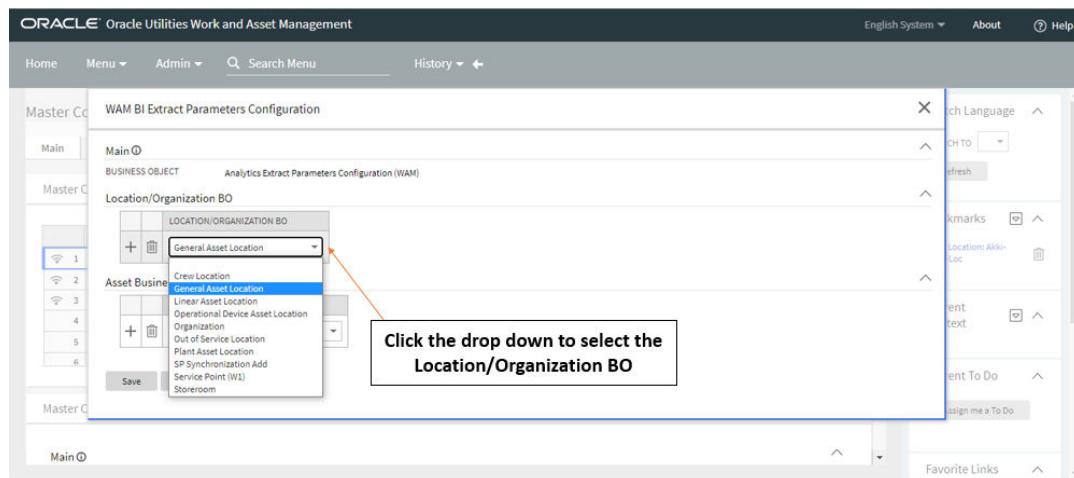
The screenshot shows the 'WAM BI Extract Parameters Configuration' page. The 'Location/Organization BO' section is highlighted with a blue border. A callout box with the text 'Click to navigate to Analytics Extract Parameters Configuration Portal' is positioned over the 'Location/Organization BO' section.

Location BO Parameters

These parameters hold the business object names that are used to identify the locations that should be extracted for the Location Snapshot fact CF_LOCATION_SNAP. Use this parameter configuration to specify the business objects that identify the records to be extracted into the star schema table.

To set a parameter value:

1. Navigate to **Location/Organization BO** on the **WAM BI Extract Parameters Configuration** page.
2. Set the **Location/Organization BO** by selecting the applicable BO from the drop-down menu. To add multiple BOs, click the **Add (+)** button on the left and select the BOs accordingly.



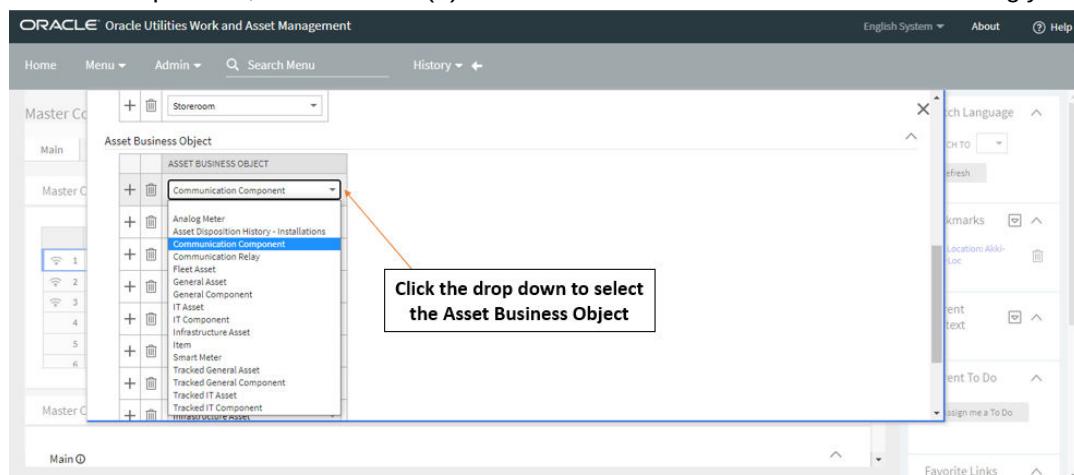
3. Click **Save** once the BOs have been added.

Asset BO Parameters

These parameters hold the business object names that are used to identify the assets that should be extracted for the **Asset Snapshot** fact CF_ASSET_SNAP. Use this parameter configuration to specify the business objects that identify the records to be extracted into the star schema table.

To set a parameter value:

1. Navigate to **Asset Business Object** on the **WAM BI Extract Parameters Configuration** page.
2. Set the **Asset Business Object** by selecting the applicable BO from the drop-down menu. To add multiple BOs, click the **Add** (+) button on the left and select the BOs accordingly.



3. Click **Save** once the BOs have been added.

Bucket Configuration List

Oracle Utilities Analytics Warehouse (OUAW) allows you to define a set of ranges, each representing a bucket, for which extracted measures can be grouped and classified. This allows for reports that show data as a group that matches a particular classification or bucket. For example, asset can be classified according to their asset age (for example, Less Than 30 Days, 30-60 Days, 6-90 Days, Older Than 90 Days).

The **Bucket Configuration List** zone lists all the buckets that need to be configured for Business Intelligence (BI) and shows which bucket configurations have already been set up and which are yet to be set. For Oracle Utilities Work and Asset Management application, the **Bucket Configuration List** zone is located on the **Asset Analytics Configuration** portal.

The list contains the **Business Objects** configured for the buckets and the **Bucket Configuration** description for the configured buckets. The buckets that have been previously set up will have a foreign key reference link in the **Bucket Configuration** column that navigates you to the **Bucket Configuration Maintenance** portal where you can view or edit the existing bucket values. Buckets that have not been configured will have an **Add (+)** button enabled in the **Add** column.

BUSINESS OBJECT	BUCKET CONFIGURATION	ADD
1 Asset Age Bucket Configuration (WAM)	AGE BUCKET CONFIGURATION	
2 Asset Condition Score Bucket Configuration	Asset Condition Score Bucket Configuration	
3 Asset Criticality Bucket Configuration	Asset Criticality Bucket Configuration	
4 Asset Install Age Buckets (WAM)	ASSET_INSTALL_AGE_BUK Descr	
5 MTBF and MTTR Bucket Configuration	MTBF BI Bucket Cfg descr	
6 Number of Cycles Overdue Configuration	NUM_OVRD_CYC_BUCKET Descr	

Note

All the ELT jobs that load these bucket configurations into the warehouse are set to be initial load only. Any incremental changes to these buckets after the initial run are not going to be captured in Oracle Utilities Analytics because any changes made to the existing bucket configuration can cause inconsistencies in the loaded fact data. However, in case it is necessary to reconfigure the buckets, they can be changed on the source system, and reload into the warehouse through certain additional steps. For the detailed steps involved in reloading the bucket configuration, see [Reloading the Bucket Configuration](#) section on [Configure ETL Parameters and Buckets](#).

Asset Age Bucket Configuration

This configuration defines various bucket ranges that are used to classify how long an asset has been in the system. The bucket configuration data are extracted into the Asset Age Bucket dimension (CD_W_ASSET_AGE).

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	365	Less Than A Year
20	365	1825	1-5 Years
30	1825	3650	5 - 10 Years
40	3650	5475	10 -15 Years
50	5475	9125	15 - 25 Years
60	9125	99999	Older Than 25 Years

This is referenced in the Asset Snapshot fact to categorize an asset's age into one of these buckets.

The rules for this bucket configuration type are the following:

- Only one set of bucket configuration is allowed.
- No gaps or overlaps are allowed for bucket ranges.
- One and only one catch-all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range that starts at 0).

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **Asset Age Bucket Configuration (WAM) (W1-WAssetAgeBuckets)** option from the drop-down menu.

To add this bucket to the configuration list or to reconfigure bucket ranges, follow the steps on [Configure WAM Buckets](#).

Asset Installation Age Bucket Configuration

This configuration defines various bucket ranges that are used to classify how long an asset has been installed on the field. This bucket configuration data are extracted into the Asset Installation Age Bucket dimension (CD_W_ASSET_INSTALL_AGE).

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	365	Less Than A Year
20	365	1825	1-5 Years
30	1825	3650	5 - 10 Years
40	3650	5475	10 -15 Years
50	5475	9125	15 - 25 Years
60	9125	99999	Older Than 25 Years

This is referenced in the Asset Snapshot fact to categorize an asset's age into one of these buckets.

The rules for this bucket configuration type are the following:

- Only one set of bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range that starts at 0).

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **Asset Install Age Buckets (WAM) (W1-WAssetInstallAgeBuckets)** option from the drop-down menu.

To add this bucket to the configuration list or to reconfigure bucket ranges, follow the steps on [Configure WAM Buckets](#).

Asset Criticality Bucket Configuration

This configuration defines various bucket ranges that are used to classify the criticality defined at a given location. These data are extracted into the Location dimension (CD_LOCATION). The criticality value in the location dimension will be categorized into one of these buckets.

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	31	Low Criticality
20	31	61	Medium Criticality
30	61	81	High Criticality
40	81	99999	Extremely Critical

The rules for this bucket configuration type are the following:

- Only one set of bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range that starts at 0).
- The Criticality Category must be unique per bucket range.
- A bucket range with Critical category is required.

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **Asset Criticality Bucket Configuration (W1-AssetCriticalityBuckets)** option from the drop-down menu.

To add this bucket to the configuration list or to reconfigure bucket ranges, follow the steps on [Configure WAM Buckets](#).

Asset Condition Score Bucket Configuration

This configuration defines various bucket ranges that are used to classify the condition score of a given asset. These data are extracted into the Asset dimension (CD_UTIL_ASSET). The condition score value in the asset dimension will be categorized into one of these buckets.

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	2	Very Good
20	2	3	Good
30	3	4	Average
40	4	5	Poor
50	5	99999	Extremely Critical

The rules for this bucket configuration type are the following:

- Only one set of bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch-all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range that starts at 0).

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **Asset Condition Score Bucket Configuration (W1-AssetConditionScoreBuckets)** option from the drop-down menu.

To add this bucket to the configuration list or to reconfigure bucket ranges, follow the steps on [Configure WAM Buckets](#).

Work Priority Bucket Configuration

This configuration defines various bucket ranges that are used to classify the priority set for a work order. This data is extracted into the Work Order dimension (CD_WO). The priority value in the work order dimension will be categorized into one of these buckets.

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Priority Category	Description
10	0	5		Low
20	5	6		Normal
30	6	7	High Priority	High
40	7	9	High Priority	Urgent
50	9	99999	High Priority	Emergency

The rules for this bucket configuration type are the following:

- Only one set of bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range that starts at 0).
- At least one bucket range must be configured as High Priority.

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **Work Priority Bucket Configuration (W1-WorkPriorityBuckets)** option from the drop-down menu.

To add this bucket to the configuration list or to reconfigure bucket ranges, follow the steps on [Configure WAM Buckets](#).

Number of Cycles Overdue Bucket Configuration

This configuration defines various bucket ranges that are used to classify how long an work order activity has been overdue in the system. These data are extracted into the Number of Cycles Overdue dimension (CD_NUM_CYC_OD). This is referenced in the Work Order Activity fact to categorize the number of days it has been overdue into one of these buckets.

No values are delivered as a part of the base product. Here are some sample values:

Number of Cycles	Catch All?	Description
1		1 Cycle
2		2 Cycles
3		3 Cycles
4	Yes	4+ Cycles

The rules for this bucket configuration type are the following:

- Only one set of bucket configuration is allowed.
- No gaps or overlaps are allowed within the bucket ranges.
- One and only one catch all bucket is allowed and required (the bucket end range has the maximum value of 99999).
- One and only one initial bucket is allowed and required (bucket range that starts at 0).
- One and only one row with a checked Catch All Indicator is required and allowed.

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **Number of Cycles Configuration (W1-NumberOfCyclesOverdueBucket)** option from the drop-down menu.

To add this bucket to the configuration list or to reconfigure bucket ranges, follow the steps on [Configure WAM Buckets](#).

MTBF/MTTR Bucket Configuration

This configuration defines various bucket ranges that are used to determine the Mean Time Between Failure (MTBF) or Mean Time To Repair (MTTR) ratings of a given asset. These data are replicated into the data warehouse and referenced in the Asset and Location Snapshot facts (CF_ASSET_SNAP & CF_LOCATION_SNAP) to determine the MTBF rating, MTTR rating, and the count of failures for each of these buckets. The calculated values will be populated into dedicated measure columns on the FACTS. If these buckets are not configured properly then these two facts will be impacted.

No values are delivered as a part of the base product. Here are some sample values:

Sequence	Start Range	End Range	Description
10	0	366	Year To Date
20	0	731	Last 2 Years
30	0	1096	Last 3 Years
40	0	1461	Last 4 Years
50	0	1826	Last 5 Years

The rule for this bucket configuration type is that only one set of the bucket configurations is allowed.

While selecting the **Business Object** in **Select Bucket Configuration Business Object** window, select the **MTBF and MTTR Bucket Configuration (W1-MTBFMTTRBuckets)** option from the drop-down menu.

To add this bucket to the configuration list or to reconfigure bucket ranges, follow the steps on [Configure WAM Buckets](#).

Configure WAM Buckets

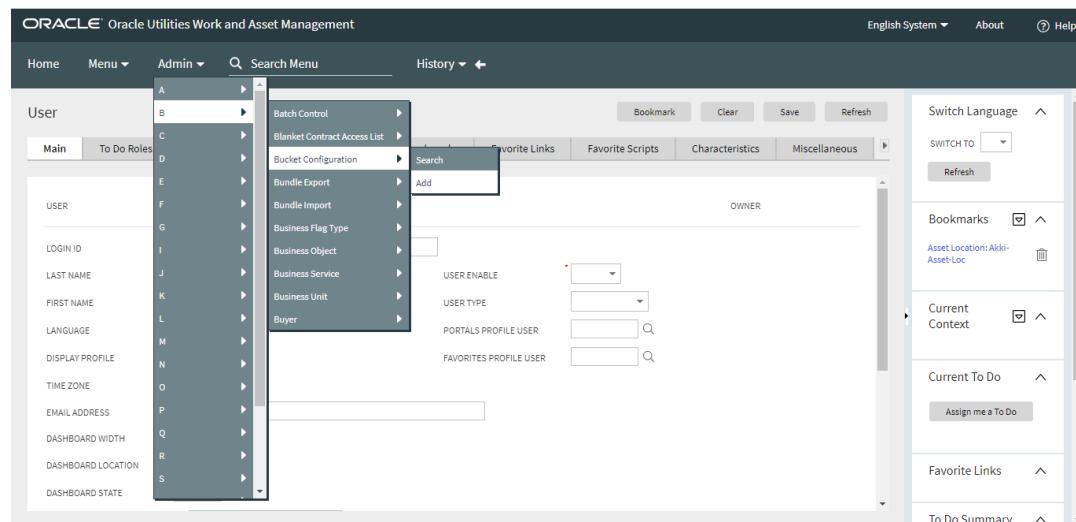
This page details how to add new bucket configurations and bucket ranges for configured buckets for Oracle Utilities Work and Asset Management (WAM) application.

Note

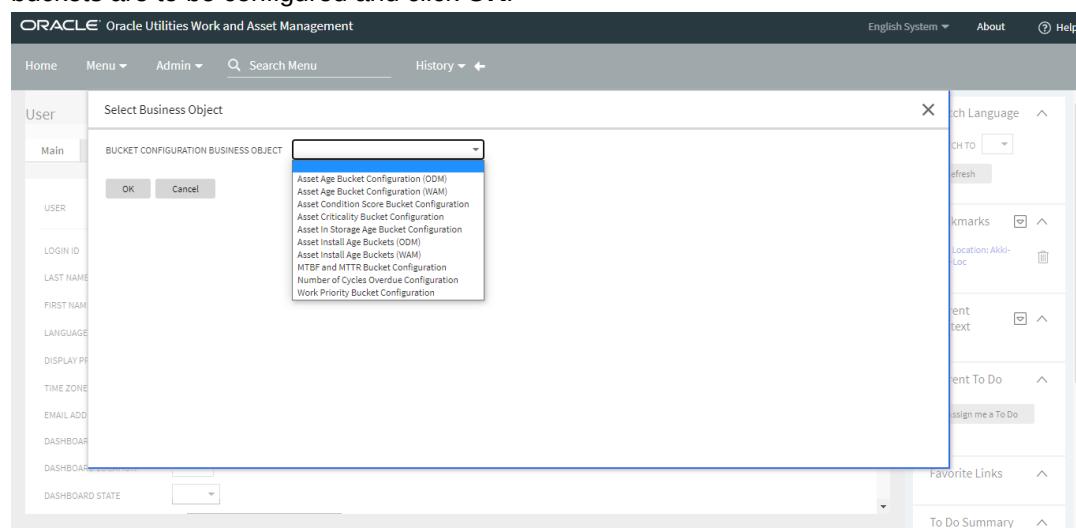
All the ELT jobs that load these bucket configurations into the warehouse are set to be initial load only. Any changes made after the initial run are not going to be automatically captured in Oracle Utilities Analytics Warehouse because they could cause inconsistencies in the loaded fact data. However, in case it is necessary to reconfigure the buckets, they can be changed on the source system, and reloaded into the warehouse through certain additional steps. To reload bucket configurations, follow the steps on [Configure ETL Parameters and Buckets](#).

Add a New Bucket Configuration

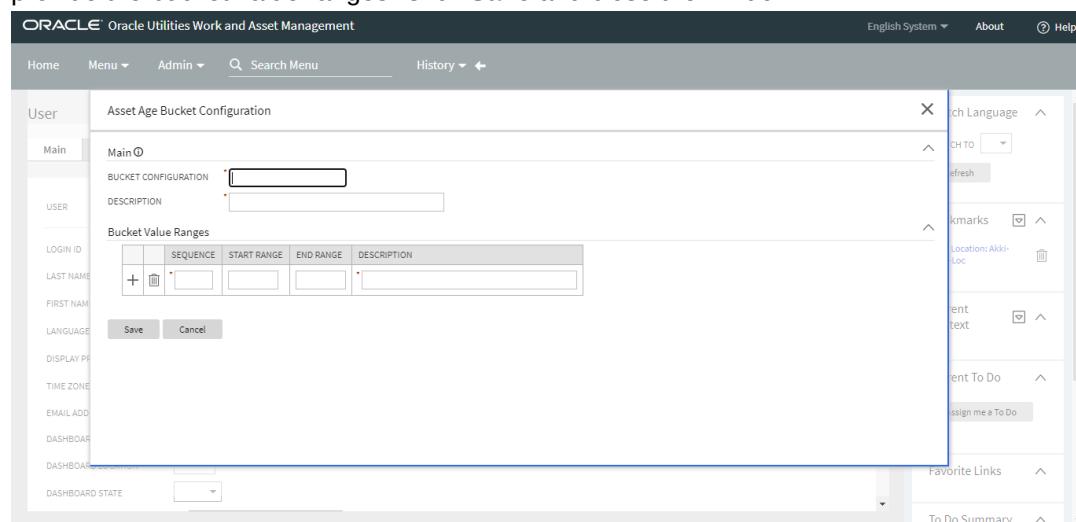
1. To add a new bucket configuration, navigate to the **Add Bucket Configuration** page from the **Admin** menu.



2. On the **Select Business Object** drop-down menu, select the business object for which the buckets are to be configured and click **OK**.



3. A new page appears for the selected bucket configuration. Populate the required fields and provide the bucket value ranges. Click **Save** and close the window.



Add Bucket Ranges for Configured Buckets

- To navigate to the **Bucket Configuration Maintenance** page of a bucket that have been added to the configuration list but which ranges have not been set up yet, click the **Add** (+) button (located in the **Add** column).

ORACLE Oracle Utilities Work and Asset Management

Asset Analytics Configuration

Analytics Extract Parameters

Bucket Configuration List

	BUSINESS OBJECT	BUCKET CONFIGURATION	ADD
1	Asset Age Bucket Configuration (WAM)	AGE_BUCKET_CONFIGURATION	
2	Asset Condition Score Bucket Configuration	Asset Condition Score Bucket Configuration	
3	Asset Criticality Bucket Configuration	Asset Criticality Bucket Configuration	
4	Asset Install Age Buckets (WAM)	ASSET_INSTALL_AGE_BI_BUK Descr	
5	MTBF and MTTR Bucket Configuration	MTBF Bi Bucket Cfg descr	
6	Number of Cycles Overdue Configuration		

Click the Add button to navigate to Bucket configuration maintenance page

- From the configuration window, you can add or edit value ranges. To add a new value range, click the **Add(+)** button on the left, populate the fields, and click **Save**. To edit a current value range, modify the values in the fields and click **Save**.

ORACLE Oracle Utilities Work and Asset Management

Bucket Configuration Maintenance

Number of Cycles Overdue Configuration

	NUMBER OF CYCLES	CATCH ALL?	DESCRIPTION
+	1	<input checked="" type="checkbox"/>	NUM_OVRD_CYC_BUCKET - 1

Save Cancel

Click here to add more bucket ranges

- While providing the bucket value ranges, ensure that:
 - At least one bucket has the start range 0.
 - At least one bucket has the end range 99999.
 - There is not any overlap within the bucket ranges. For example, if there is a bucket with a start range of 1 and an end range of 10, there cannot be an overlapping bucket with a start range of 5 and an end range of 13 (5 to 10 is the overlapping range).
 - There is not any gap in the bucket ranges. For example, if there is a bucket with a start range of 1 and an end range of 10, the start range for the next consecutive bucket should be 11.

Configure Analytics

This page describes the dashboards used to administer the OUAW analytics dashboard component and provides details for their configuration.

Administration Dashboards Maintenance

Base Fields Maintenance

This dashboard allows you to provide an override description for the fields delivered along with the product. These fields contain descriptions, which appear on both the report and the column titles for the dashboards delivered with the product.

 **Note**

For the complete details on the field labels, see [Configuring the Labels in the Configure the Dashboards section below](#).

Custom Fields Maintenance

This dashboard allows you to define additional fields and descriptions for the purpose of customization. The custom fields can be inserted, updated, or deleted.

 **Note**

For the complete details about field labels, refer to [Configuring the Labels in the Configure the Dashboards section below](#).

Configure the Dashboards

Configure Oracle Utilities Meter Data Management Answers

The Oracle Utilities Meter Data Management Answers below should be configured before viewing the data. For more details, see Oracle Utilities Analytics Warehouse Dashboards for Oracle Utilities Meter Data Analytics Metric Reference Guide.

- Tamper Events Answer (**Overview** dashboard)
- Usage Unreported for > 30 Days (**Overview** dashboard)
- Percent of Normal Intervals (**Overview** dashboard)
- Percent of On-Time Intervals (**Overview** dashboard)
- Degree Days (**Overview** dashboard)

 **Note**

After customizing the answers, save the reports in a separate CM catalog.

Configure the Labels

This section describes how to create and customize the labels that appear in answers and dashboards.

Note

You must have a full license of Oracle Utilities Analytics Warehouse (OUAW) to use this feature.

Labels Overview

OUAW uses labels for columns and tables in the delivered Oracle Analytics Server repository file when displaying the columns in the **Presentation** folders. These labels are displayed in the answers for the columns on the dashboards. In addition, the answers are also titled based on labels stored in the metadata displayed in report titles, subtitles, and other dashboard strings.

The application uses labels instead of hard-coding the text values in the answers and the RPD file for supporting translation of the dashboards into different languages. This also allows for easy overriding of labels for customization of the field label. Within an answer, for example, the labels can be referred to by Oracle Analytics Server variables.

Example: The **Device Activity - Distributions** report uses the following variable in the title section of the answer.

```
@{biServer.variables['NQ_SESSION.B1_RPT_DEV_ACTI_DISTRIBUTION']}
```

The **B1_RPT_DEV_ACTI_DISTRIBUTION** label is defined in the **B1_MD_FLD** table in **DWADM** schema. For the columns in the fact and dimension tables, the labels exist for every field.

Example: The **UDF1_DESCR** column in the **CD_ACCT** table has the description of the **Customer Class**, and the **Customer Class** label is displayed in the **Presentation** folder for this field.

Base Labels Overrides

There are several reasons that an implementer may want to update an existing label:

- A field may contain data that does not match the default extracted data for that field. In the **CD_ACCT** example, described in the above section, you may choose to store information other than customer class in the **UDF1_DESCR** field. If an extract change is made to the default **CD_ACCT** extract, then an implementation change in the label for the **UDF1_DESCR** field of the **CD_ACCT** table at one place changes the label in all the dashboards and answers that display that field. This reason also applies if data is extracted to a User Defined Field (UDF) that is not populated by default.
- Even if you use the default extract code, you may choose to use some other name for the extracted data other than the default name.

In the **CD_ACCT** example, if you execute the field extracted into the **UDF1_DESCR** field account class instead of customer class, you can make this change in one place and have it updated on all dashboards and answers.

- You may want to provide multilingual labels for your users. Oracle Utilities Analytics Warehouse application provides the labels to a user based on the language selected when logging in to Oracle Analytics Server, assuming that the language is present in the

B1_MD_FLD table. An implementation can add its own translated fields, or can download supported language packs from the Oracle Software Delivery Cloud.

① Note

The multilingual support is only provided for labels and not for the underlying data in the data warehouse. The data displayed in the database tables is not translatable from the extract language.

Multiple Languages Support

Oracle Utilities Analytics Warehouse supports English by default for labels on all the dashboards and answers. Both Oracle Analytics Server and Oracle Utilities Analytics Warehouse support the multiple languages.

The default language on the **Login** page is English. However, you can select any of the supported language on the **Login** page or can change the preferred language under the **Administration** menu to view dashboards in a different language. If you have not purchased and applied the specific language pack and you select a language other than English, the default Oracle Analytics Server labels will be translated into the selected language, but Oracle Utilities Analytics Warehouse product-specific labels appear in English.

Oracle Utilities Analytics Warehouse may release various language packs depending on user demands. Hence, for the language that is already released, installing the language pack is sufficient for creating the labels needed by the dashboards. To view the list of Oracle Utilities Analytics Warehouse language pack applied on an environment, you can navigate to the **About Oracle Utilities Analytics Warehouse** dashboard under the **Viewing the About Page in the Oracle Analytics Server** dashboards menu.

Contact your Oracle support representative to purchase an Oracle Utilities Analytics Warehouse language pack for additional language support.

To update a label for a base field, use the **Base Field Maintenance** dashboard in the **Administration** portal.

- **Table Labels:** Labels for records that have the **Table Name** field populated, but not the **Field Name**, this label is shown in the **Presentation** folder for the fields available in this table. For example, the **CD_ACCT** table has the label **Account Dimension** displayed in the **Presentation** folder wherever it is used.
- **Field Labels:** Labels for records that have both the **Table Name** and the **Field Name** fields populated. These are shown in the **Presentation** folder and on the answers whenever that field is used. For example, the **UDF1_DESCR** field in the **CD_ACCT** table has the label **Customer Class** displayed whenever it is used in an answer or when you select it from the **Presentation** folder when creating a new answer.
- **Report Labels:** Records that have a field name (such as **B1_RPT%**) and not a table name value, are used for the titles of answers in the dashboards. For example, the **B1_RPT_DEV_ACTI_DISTRIBUTION** label is defined to be **Device Activity Distribution**, and this is displayed on the **Oracle Utilities Meter Data Management** dashboard when the answer is displayed.
- **Other Labels:** All other non-report labels that have a field name, but not a table name that can be used for the calculations computed in the RPD logical layer for display on answers. For example, the **B1_APPT_IND_SUM** label is defined to be **Number of Appointments**, and is used in the Oracle Utilities Mobile Workforce Management answers to compute the number of crew appointments based on the **Appointment Indicator** field in the **CF_CREW_TASK** fact table.

If a base field label should be changed, then the implementation team can query the required record on the **Base Field Maintenance** dashboard. Populate a value in the **Override Description** field, and click **Update**. Once populated, the Oracle Analytics Server must be restarted for the changes to take effect.

Configure Spatial Data

This section describes how to configure mapping for Oracle Utilities Analytics Warehouse (OUAW).

Load Geographical Data

In order to place information on a geographic map, data in the data warehouse must match the geographic data (themes) configured in Oracle MapViewer. The standard map answers delivered with OUAW include maps that query state, city, county, postal codes, and network model summary data. As OUAW does not have access to this spatial data (and as each user may require different spatial data), you must set up the geographic themes used in the maps.

Note

For details regarding setting up these standard spatial themes, refer to the Oracle Utilities Analytics Warehouse Installation Guide.

The installation instructions refer to shape files downloaded from the US Census Bureau. However, the shape files can also be used for the state, city, county, and zip code boundaries. The only requirement is that the names of the geographic entities in the shape file match the corresponding name in the **CD_ADDR** table. This is not usually a problem for postal code data, but can be an issue for city and county names, as different sources may use different names to make geographic references. After loading the MapViewer shape files, make sure that the names in the geographic tables match the names that are in the **CD_ADDR** table. If these do not match, then the maps may not be displayed correctly.

Network Model Spatial Data in the Outage Analytics Setup

This section provides Oracle Utilities Network Management System (NMS) network model representation in Outage Analytics. Oracle Utilities Network Management System provides model build process to generate geometry data for various components of network model. The geographic data is stored in the **DIAGRAM_OBJECTS** table.

Note

For details regarding the steps required to set up the Network Management System Model Build process, refer to the *Oracle Utilities Network Management System Installation Guide*.

To plot these elements in Outage Analytics Dashboards, the **DIAGRAM_OBJECTS** table should be replicated in accordance with the instructions available in the section **Installing US State Spatial Data** in the Oracle Utilities Analytics Install Guide. The proper mechanism should be in place to be up to date with the **DIAGRAM_OBJECTS** table in the Source database.

To ensure that the network model can be displayed without coordinate translations during runtime, one of the geometry columns should use the same projection coordinate system as the base map used by the Outage Analytics Outage Maps. Out-of-the-box Oracle eLocation is used for the base map and the SRID (Spatial Reference System Identifier) is 54004.

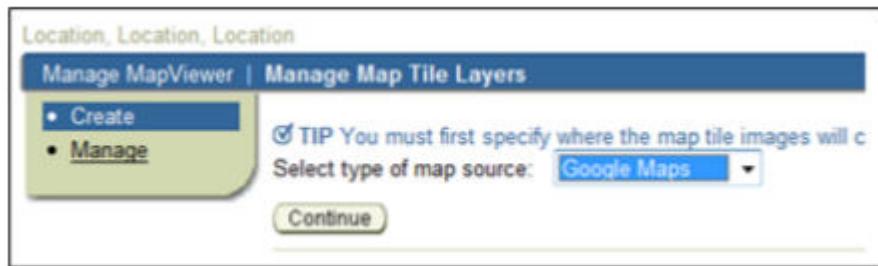
Note

The SRID is a unique value used to identify the coordinate system used in a Geographic Information System (GIS) application.

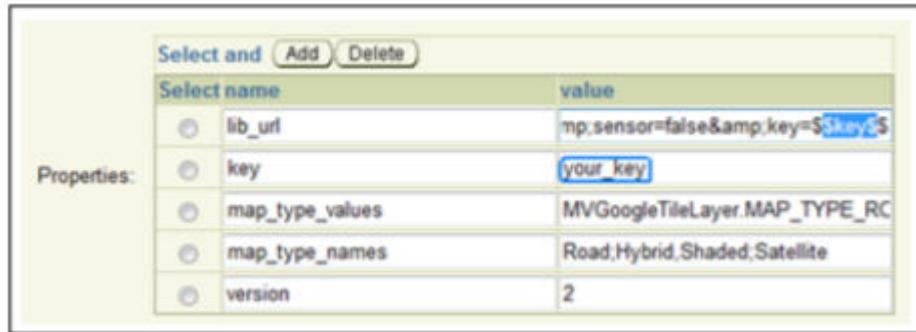
Google Map Tile Layer Configuration

Out-of-the-box Oracle Utilities Analytics Warehouse is configured to fetch the map tiles from the eLocation. However, you can switch to Google as an alternative source for the map tiles. Perform the following steps:

1. Log in to the **MapView**er console.
Sample URL: `http://<host-name>:<port>/mapviewer`
2. Click on **Admin** and enter the credentials.
3. On the **Management** tab, click on **Manage Map Tile Layers**.
4. Create a new tile layer by selecting **Google**.



5. Enter the key fetched from Google in the **key** field, edit the default lib_url to include the key value and choose the appropriate data source.



6. Click on **Submit** to save the information.
7. Click on **View map/Manage tiles** to verify that the new tile layer shows up properly.
8. Click on **Show Map** to view the map.
9. Log in to Oracle Analytics Server and navigate to **Administration > Manage Map Data**. Click on the **Background Maps** tab.
10. Import the **GOOGLE_MAP** tile layer created on the **MapView**er console.
11. Add layers to the map and click on **Save**. Subject areas will now be associated to the map.
12. Create a new answer and add a new map view to have the data displayed on the map.

Maps Implementation

This section describes the method of implementing maps in Oracle Utilities Analytics Warehouse (OUAW). The implementation method is the default implementation method for Oracle Analytics Server. This form of map can be seen in various dashboards, such as Oracle Utilities Meter Data Analytics, Oracle Utilities Mobile Workforce Analytics, and Oracle Utilities Customer Care and Billing Analytics. Using this method, you can create new answers using the MapView. The view uses the configuration defined under the **Administration** menu in the **Manage Map Data**.

The layers, background maps and images being used in the map must be defined in this page. The key column and geographical columns are mapped for each subject area used in the analysis. This is a one time setup unless any new subject areas are added.

Note

You should not customize the map metadata until you import the Spatial Catalog file.

For customization involving map analysis, all the modifications must be done in a separate folder in order to preserve those modifications during the Oracle Utilities Analytics Warehouse upgrade.

About Page

The **About** page shows information about the product name along with the current release version and patch number. It also lists all of the languages that are currently installed in the product.

Enable Weather Information

Oracle Utilities Analytics Warehouse (OUAW) product supports weather information display on some of its Oracle Analytics Server map reports. Currently, this feature is limited only to the users of Outage Analytics.

To enable this feature, perform the following:

1. Deploy the Custom MapViewer.
2. Subscribe to the Weather Service Provider.
3. Configure the Weather API Details.

Deploy Custom MapViewer

This is an optional step in the installation process. Outage Analytics users who wish to enable the weather features should carry out all the steps documented in the [Configure the MapViewer](#) section in [Install Dashboards Component](#).

Subscribe to Weather Service Provider

Weather information is not captured and stored anywhere in the Oracle Utilities Analytics Warehouse (OUAW) product. This is a complex process that falls out of the scope of OUAW. Nonetheless, there are third party vendors who provide weather information. Each vendor has their own set of APIs, which provide weather information in varied formats.

After OUAW code has been installed and configured, the application can contact a weather data vendor, process the data, and render it on the maps. The out-of-the-box the OUAW code will work with Pulse APIs provided by Earth Networks. You can subscribe from their website (<http://weather.weatherbug.com/pulseapi.html>) and opt for one of their packages.

Note

This is a third-party vendor, and you need to purchase the license separately from them.

Upon successful registration and purchase, you will be given a consumer key and secret key. Using this, you can generate an access token using the URL below.

```
https://thepulseapi.earthnetworks.com/oauth20/token?  
client_id=&client_secret=&grant_type=client_credentials
```

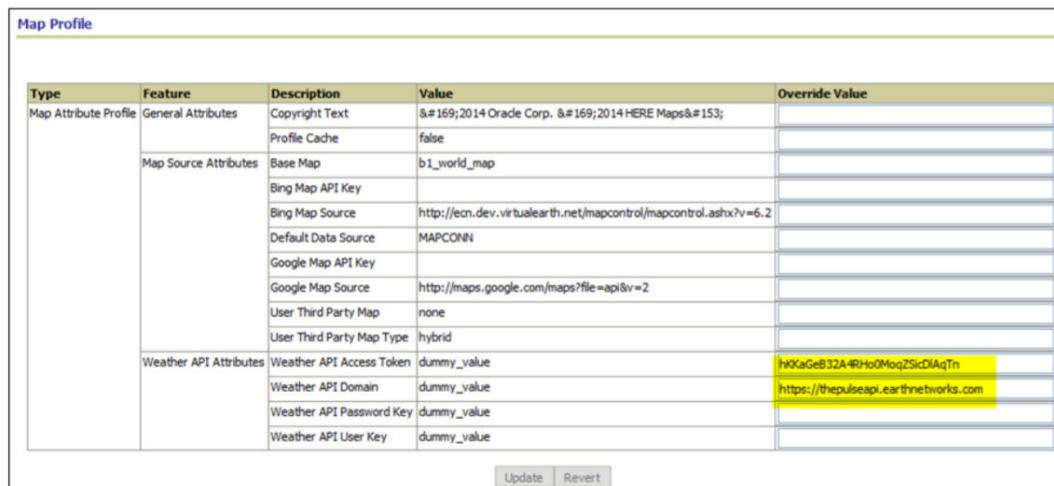
This should provide a JSON response with the access token. The response format is as follows:

```
{"OAuth20": {"access_token": {"token": "  
", "refresh_token": "", "token_type": "bearer", "expires_in": 86399}}}
```

Configure Weather API Details

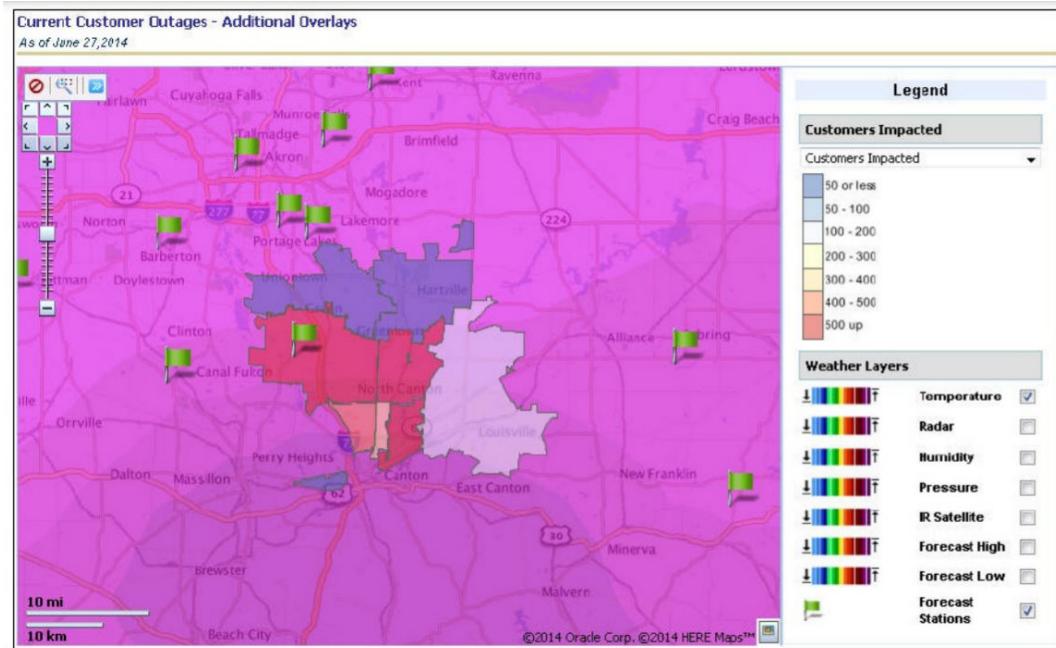
To configure the weather API provider's URL domain name and the access token of OUAW:

1. Log in to the Oracle Analytics Server dashboard environment.
2. Navigate to **Administration dashboards > Configuration > Map Profile**.
3. Update the records as shown below. Use the access token that was generated in the [Subscribe to Weather Service Provider](#) section.



Map Profile				
Type	Feature	Description	Value	Override Value
Map Attribute Profile	General Attributes	Copyright Text	©2014 Oracle Corp. ©2014 HERE Maps™	
		Profile Cache	false	
	Map Source Attributes	Base Map	b1_world_map	
		Bing Map API Key		
		Bing Map Source	http://ecn.dev.virtualearth.net/mapcontrol/mapcontrol.ashx?v=6.2	
		Default Data Source	MAPCONN	
		Google Map API Key		
		Google Map Source	http://maps.google.com/maps?file=api&v=2	
		User Third Party Map	none	
	Weather API Attributes	User Third Party Map Type	hybrid	
		Weather API Access Token	dummy_value	h0KaGeB32A4RH0MoqZ5icDIAqTn
		Weather API Domain	dummy_value	https://thepulseapi.earthnetworks.com
		Weather API Password Key	dummy_value	
		Weather API User Key	dummy_value	

4. Click on **Update** to save the changes. The weather configuration is now complete.
5. To see the weather information, navigate to **Outage Analytics > Current Outages** dashboard > **Overlay Map** page. The following figure shows a snapshot.



i Note

The out-of-the-box weather integration code of OUAW works for Pulse APIs. If you want to opt for other weather information vendors, they would need to customize the code to work with other APIs. Every weather vendor will have their own set of APIs, and the response format will vary from one to another. For additional details, refer to [Weather Integration using the Third Party Weather APIs \(Doc ID 1947857.1\)](#) document available on [My Oracle Support](#).

Configure Spatial Data

This page guides you in the setup and configuration of spatial data for the Oracle Analytics Server dashboards in Oracle Utilities Analytics Warehouse (OUAW).

i Note

The mapping between the spatial columns and the dimensional columns (such as City and State) from the Address dimension is defined in the spatial metadata catalog, which is available as a part of the Web Catalog component in OUAW. Through the spatial data and the map metadata, users can view the star schema data in the map reports that are delivered out-of-box.

Procure Spatial Data

Oracle Utilities Analytics Warehouse does not include any spatial data. The spatial data can be loaded from the various third party vendors, some of which can be found in [Oracle Spatial Partners Data](#).

① Note

Some of these vendors might require you to purchase a separate license for the spatial data. Contact the vendor directly to do this. You can then download a spatial data dump from the spatial data vendor.

Install Spatial Data

Spatial data acquired from a third party vendor can have various formats. Commonly, vendors provide shape files (.shp) or a database dump for download. The exact spatial data model varies from vendor to vendor, since there is not a standardized format for it. Hence, the documentation that comes along with the spatial data is of utmost importance, as it is necessary to identify what type of spatial data is available and where to locate it.

First, you must import the data in the shape file into the DWADM schema.

① Note

- A database dump can be imported by the standard oracle impdp command.
- A shape file can also contain the spatial data tables, along with the data that can be imported by Oracle MapBuilder.

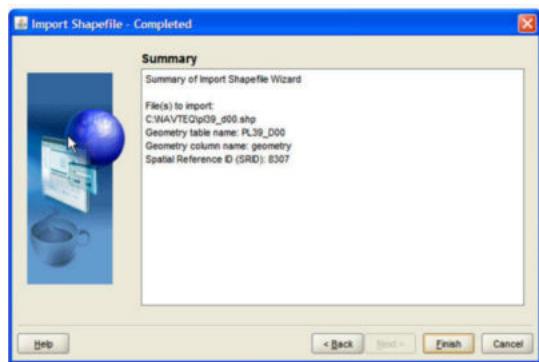
To import the data into the DWADM schema:

1. Unzip the .zip file (typically, the shape file is zipped for data compression) to a temp directory.
Example: /u01/Spatial/
2. Download the standalone MapBuilder application from this site:
<https://www.oracle.com/middleware/technologies/fusion-middleware-mapviewer-downloads.html>
3. Start the MapBuilder.

① Note

Refer to the MapViewer documentation for detailed instructions on installing and running MapBuilder from this site: <http://www.oracle.com/technetwork/middleware/mapviewer/documentation/index.html>

4. Create a connection to the DWADM schema in the Oracle Utilities Analytics Data Warehouse database by navigating to **File** and then to **New Connection**.
5. Navigate to **Tools** and then to **Import Shapefile**. Click **Next**.
6. Click on the shapefile.
7. Browse to the C:\Spatial directory, select the .shp file, and click **Open**.
8. Click **Next**.
9. Ensure the **Create Predefined Theme** box is unchecked, and click **Next**.
10. Review the summary information and click **Finish**. A sample screenshot is shown below.



Import Spatial Data into Spatial Data Tables

Once the spatial data tables from a third party vendor have been imported into the DWADM schema, the next step is to import the spatial data needed by Oracle Utilities Analytics Warehouse (OUAW) into certain specific tables. This step to import a certain subset of the data into a standardized set of OUAW tables is for decoupling. This decoupling helps the Oracle Analytics Server map reports and other Oracle Analytics Server map configuration to remain oblivious to the variations in the spatial data schema coming from various vendors. This way you do not need to handle the spatial metadata catalog or to modify any of the map reports being delivered out-of-the-box.

Oracle Utilities Analytics Warehouse needs the administrative boundary type of spatial data at four levels: State, City, County and Postal Code. All map reports in OUAW are using one of these levels. Since the spatial data model varies from vendor to vendor, further details provided in this section are based on a sample spatial data from a specific vendor. The following sections describe how to import the data based on a sample spatial data dump provided by [HERE Technologies](#) (formerly NAVTEQ). This sample data set contains administrative boundary data for the OHIO city in the US. The sample data set from the Oracle partner can be downloaded from [Oracle Spatial Partners Data](#).

However, the steps can be used with a little variation to set up the spatial data for OUAW for any city from any country. The extent of the changes to be done must be based on the vendor used to purchase the spatial data. Read through the documentation of the spatial data model provided by the vendor to understand the type of data provided and where to locate it.

The following table provides a simple mapping based on the HERE maps sample data.

Spatial Data Level	Table in Navteq Sample Data	Additional Filters	Oracle Utilities Analytics Spatial Data Table
State	WOM_AREA	Feature Type = 90996 ISO Country Code = 'USA'	Q1_STATES54004
City	PL39_d00	Q1_CITY54004	lsad_trans = 'city', 'village'
County	CO39_D00		Q1_COUNTY54004
Postal Code	ZT39_D00		Q1_USZIP54004

ⓘ Note

Apart from these four levels, there are also some standard themes and styles that need to be imported.

Next on this page, you will find the SQL statements to create and populate the various spatial data tables for OUAW. The prerequisites are:

- The procurement of spatial data from a third party vendor.
- The import of the spatial data dump into the DWADM schema.

 ⓘ Note

It is assumed that the eLocation website is being used as the base map in the Oracle Analytics Server mapviewer setup, for which the Spatial Reference System Identifier (SRID) is 54004. The SRID is a unique value used to identify the coordinate system used in a Geographic Information System (GIS) application. If some other base map is used, then the transform parameter in the insert statements should specify the SRID of the base map being used.

Import Theme-Related Spatial Data into Oracle Utilities Analytics Warehouse

The sdo_ tables are standard tables expected to be present in the spatial data from any vendor.

```
INSERT INTO user_sdo_maps SELECT * FROM sdo_maps;
INSERT INTO user_sdo_themes SELECT * FROM sdo_themes;
INSERT INTO user_sdo_styles SELECT * FROM sdo_styles;
INSERT INTO user_sdo_cached_maps SELECT * FROM sdo_cached_maps;
```

State Spatial Data Import into Oracle Utilities Analytics

In OUAW, the table Q1_STATES54004 is used to store the state-related administrative boundary. Create the table based on the DDL below and insert the values from one of the spatial data tables obtained from the vendor.

```
CREATE TABLE Q1_STATES54004 ( feature_id NUMBER, feature_name VARCHAR2(255),
area_id NUMBER, name_langcode VARCHAR2(35), feature_type VARCHAR2(30),
country_code_3 VARCHAR2(5), geometry SDO_GEOGRAPHY, carto_id NUMBER(10,0) );

INSERT INTO Q1_STATES54004_SDXSELECT NULL, name, NULL, lang_code,
feature_type,ISO_COUNTRY_CODE, sdo_cs.transform(geometry, 3857), carto_idFROM
WOM_AREA WHERE feature_type = 909996 AND iso_country_code ='ISO';
```

ⓘ Note

Customize the table name WOM_AREA, the feature type value and the ISO country code in accordance with the procured spatial data model. The following insert statement defines the Q1_table as a spatial table and to update the spatial metadata view to reflect the dimensional information for the areas. The parameters for the insert statement are: table name, geometry column name, X and Y boundaries (latitude and longitude) based on the data, and tolerance value.

```
INSERT INTO user_sdo_geom_metadata VALUES('Q1_STATES54004',  
'GEOMETRY',MDSYS.SDO_DIM_ARRAY(MDSYS.SDO_DIM_ELEMENT('X',-20500000,20500000,0.  
0005),MDSYS.SDO_DIM_ELEMENT('X',-50000000,19000000,0.0005)), 3857 );  
  
CREATE INDEX Q1_STATES54004_SDX ON Q1_STATES54004 (geometry) indextype IS  
MDSYS.SPATIAL_INDEX;
```

City Spatial Data Import into Oracle Utilities Analytics Warehouse

In OUAW, the table Q1_CITY54004 is used to store the city-related administrative boundary. Create the table based on the DDL below and insert the values from one of the spatial data tables obtained from the vendor.

```
CREATE TABLE Q1_CITY54004 ASSELECT upper(name) FEATURE_NAME,  
sdo_cs.transform(geometry, 3857)geometry, 'OHIO' state FROM pl39_d00 WHERE  
lsad_trans IN ('city', 'village');
```

 ⓘ Note

Customize the table name pl39_d00 and additional filters in accordance with the procured spatial data model. Map the state name dynamically for the current city record in the spatial data. The following insert statement defines the Q1_table as a spatial table and to update the spatial metadata view to reflect the dimensional information for the areas. The parameters for the insert statement are: table name, geometry column name, X and Y boundaries (latitude and longitude) based on the data, and tolerance value.

```
INSERT INTO user_sdo_geom_metadata VALUES('Q1_CITY54004',  
'GEOMETRY',MDSYS.SDO_DIM_ARRAY(MDSYS.SDO_DIM_ELEMENT('X',-20500000,20500000,0.  
0005),MDSYS.SDO_DIM_ELEMENT('X',-50000000,19000000,0.0005)), 3857 );  
  
CREATE INDEX Q1_CITY54004_sdx ON Q1_CITY54004 (geometry) indextype IS  
MDSYS.SPATIAL_INDEX;  
  
UPDATE Q1_CITY54004 SET geometry = SDO_UTIL.RECTIFY_GEOMETRY(geometry, .05);
```

County Spatial Data Import into Oracle Utilities Analytics Warehouse

In OUAW, the table Q1_COUNTY54004 is used to store the county-related administrative boundary. Create the table based on the DDL below and insert the values from one of the spatial data tables obtained from the vendor.

```
CREATE TABLE Q1_COUNTY54004 AS
SELECT name FEATURE_NAME, sdo_cs.transform(geometry, 3857)geometry, 'OHIO'
state FROM CO39_D00;
```

 **Note**

Customize the table name CO39_D00 in accordance with the available spatial data model. The following insert statement defines the Q1_ table as a spatial table and to update the spatial metadata view to reflect the dimensional information for the areas. The parameters for the insert statement are: table name, geometry column name, X and Y boundaries (latitude and longitude) based on the data, and tolerance value.

```
INSERT INTO user_sdo_geom_metadata VALUES('Q1_COUNTY54004',
'GEOMETRY',MDSYS.SDO_DIM_ARRAY(MDSYS.SDO_DIM_ELEMENT('X',-20500000,20500000,0.
0005),MDSYS.SDO_DIM_ELEMENT('X',-50000000,19000000,0.0005)), 3857 );

CREATE INDEX Q1_COUNTY54004_sdx ON q1_county54004 (geometry) indextype IS
MDSYS.SPATIAL_INDEX;

UPDATE Q1_COUNTY54004 SET geometry =SDO_UTIL.RECTIFY_GEOMETRY(geometry, .05);
```

Postal Code Spatial Data Import into Oracle Utilities Analytics Warehouse

In OUAW, the table Q1_USZIP54004 is used to store the county-related administrative boundary. Create the table based on the DDL below and insert the values from one of the spatial data tables obtained from the vendor.

```
CREATE TABLE Q1_USZIP54004 ASSELECT zcta ZCTA5CE, sdo_cs.transform(geometry,
3857) geom. FROMZT39_D00;
```

 **Note**

Customize the table name ZT39_D00 in accordance with the available spatial data model. The following insert statement defines the Q1_ table as a spatial table and update the spatial metadata view to reflect the dimensional information for the areas. The parameters for the insert statement are: table name, geometry column name, X and Y boundaries (latitude and longitude) based on the data, and tolerance value.

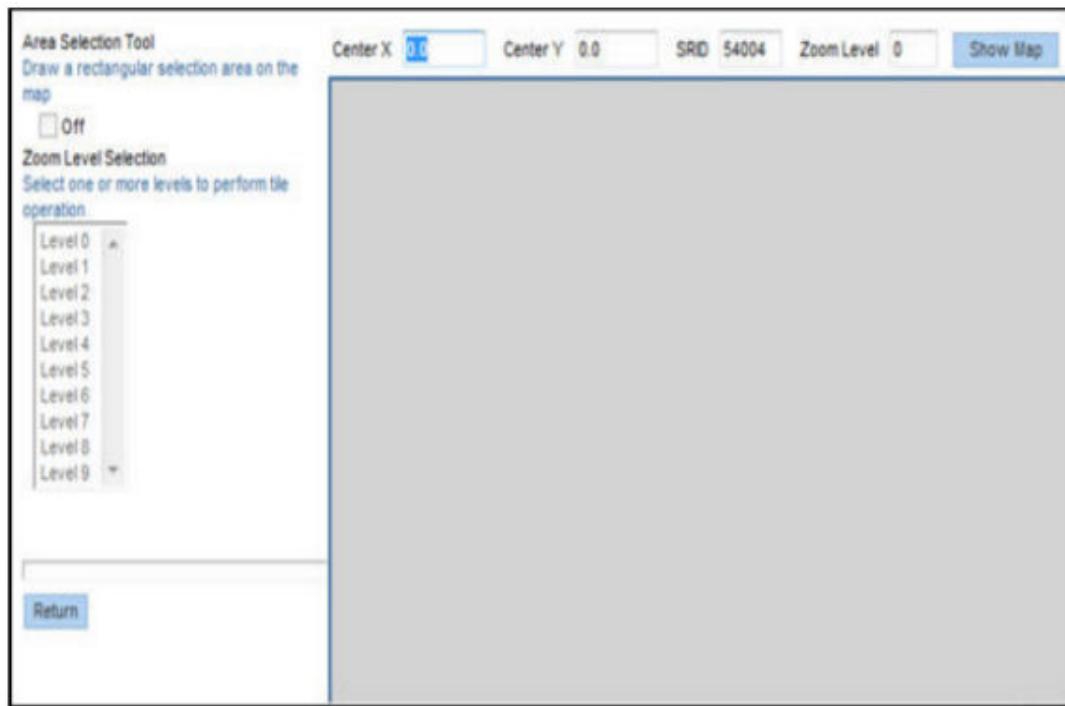
```
INSERT INTO user_sdo_geom_metadata VALUES('Q1_USZIP54004',
'GEOM',MDSYS.SDO_DIM_ARRAY(MDSYS.SDO_DIM_ELEMENT('X',-20500000,20500000,0.0005
),MDSYS.SDO_DIM_ELEMENT('X',-50000000,19000000,0.0005)), 3857 );

CREATE INDEX Q1_USZIP54004_SDX ON Q1_USZIP54004 (geom) indextypeIS
MDSYS.SPATIAL_INDEX;UPDATE Q1_USZIP54004 SET geom =
SDO_UTIL.RECTIFY_GEOMETRY(geom, .05);
```

Improve Performance by Prefetching the Map Tiles

Rendering map tiles dynamically can affect system performance. To avoid this, you may consider prefetching tiles by issuing an admin request to MapViewer on a non-production server or when the server is not under load. When MapViewer receives a prefetching request, it issues many concurrent map tile requests to itself, which are basically XML map requests, and stores them in the cache. This improves the system's performance as the images are readily available. Follow the following procedure to prefetch map tiles. These instructions are for MapViewer 11.1.1.9.1 version. If you are using a different version, refer to the MapViewer documentation for instructions.

1. In the **MapViewer** console, click on **Admin** in the top-right corner of the page and log in to the **Admin Console** page.
2. In the **Admin Console** page, click on **Management** and then on **Manage Map Tile Layers**.
3. Select the required online map tile and click on **View Map/Manage Tiles**. The Prefetching wizard opens.



4. Enter the X and Y coordinates of the center of the map, the SRID, and the zoom level. Click on **Show Map**.

To prefetch map images, enter the latitude and longitude values. You need to know these values of the center of the location in interest. The SRID is a unique value used to identify the coordinate system used in a GIS application.

Example: The following are the X and Y axis for Ohio city.



5. When you see the map, turn on **Area Selection** and select the area on the map for which you want to prefetch the tiles.
6. Select one or more zoom-levels for which you want to prefetch the tiles.

Load Oracle Utilities Specific Themes

This section describes how to load spatial metadata in the USER_SDO* tables for OUAW.

Use the following procedure to load spatial metadata in the target database:

1. Create the dump_dir directory in the database and copy the user_sdo.dmp file from/BI251000/Spatial-Metadata folder to that location.
2. Import the released spatial tables to the target database using the following command:

```
impdp directory=dump_dir dumpfile=user_sdo.dmp logfile= impdp_user_sdo.log  
schemas=DWADM remap_tablespace=cists_01:
```

 **Note**

Run this command from database server.

 **Note**

Make sure to change the tablespace_name to a tablespace name on which DWADM has the quota. If DWADM user have quota on cists_01 tablespace, then exclude whole remap_tablespace clause from command.

3. Review the impdp_user_sdo.log file to ensure the tables are imported successfully.
4. After importing the tables, run the following SQL scripts from the/BI251000/SpatialMetadata folder:

```
sqlplus DWADM/<DWADM password>@database-name  
@copy_spatial_metadata.sql  
@clean_sdo_release_tbls.sql
```

5. Review the log files.

Additional Setup for Oracle Utilities Outage Analytics Warehouse

The Outage Analytics product within Oracle Utilities Analytics Warehouse (OUAW) requires some additional spatial data setup, as Outage Analytics alone uses point information from spatial data for plotting outage event-related information on maps. This section should be skipped if NMS is not one of the source systems for OUAW.

To begin with this setup, it is necessary to replicate the DIAGRAM_OBJECTS table into the Oracle Utilities Analytics Warehouse database. However, a suitable mechanism needs to be built to refresh this table with the latest data from Oracle Utilities Network Management System whenever there are changes in the source system.

After replicating the DIAGRAM_OBJECTS table, the following steps set the Oracle Utilities Analytics Warehouse dashboards up to use the data in this replicated table.

1. Create the required spatial metadata:

```
INSERT INTO user_sdo_geom_metadata VALUES  
( 'DIAGRAM_OBJECTS' , 'LL_GEOMETRY' , MDSYS.SDO_DIM_ARRAY ( SDO_DIM_ELEMENT
```

```
('X', -20037508, 20037508, .05), SDO_DIM_ELEMENT ('Y', -45884542,  
45884542, .05) ), 3857);
```

2. Ensure that the spatial index is created on the LL_GEOMETRY column. The LL_GEOMETRY column by default stores spatial data using SRID 54004, so this works without changes with the eLocation base map:

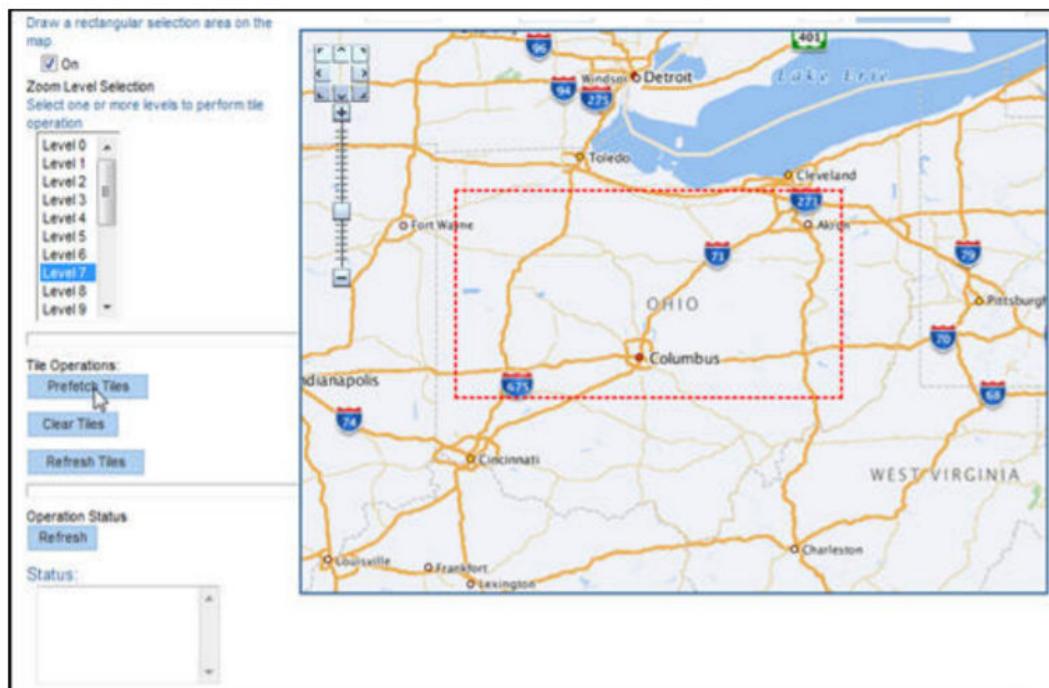
```
create index Q1_DIAGRAM_OBJECTS_SDX on diagram_objects (ll_geometry)  
indextype is mdsys.spatial_index;
```

Once DIAGRAM_OBJECTS table is replicated in the Oracle Utilities Analytics Warehouse database, follow the next steps to create the Q1_DIAGRAM_OBJECTS_54004 table:

1. Connect to the DWADM schema of Oracle Utilities Analytics Warehouse database and execute the following:

```
CREATE TABLE Q1_DIAGRAM_OBJECTS_54004 AS SELECT * FROM DIAGRAM_OBJECTS;
```

2. **INSERT INTO user_sdo_geom_metadata: VALUES**
('Q1_DIAGRAM_OBJECTS_54004', 'LL_GEOMETRY', MDSYS.SDO_DIM_ARRAY
(SDO_DIM_ELEMENT ('X', -20037508, 20037508, .05), SDO_DIM_ELEMENT ('Y',
-45884542, 45884542, .05)), 3857);
3. **CREATE INDEX Q1_DIAGRAM_OBJECTS_SDX_54004 ON Q1_DIAGRAM_OBJECTS_54004**
(ll_geometry) indextype is mdsys.spatial_index;.
4. **CREATE INDEX Q1_DIAGRAM_OBJECTS_IDX_54004 ON Q1_DIAGRAM_OBJECTS_54004(H_CLS, H_IDX);.**
5. Under **Tile Operations**, click on **Prefetch Tiles**. Here is a snapshot of the area selection and the tile operation.



This process takes some time, depending upon the hardware configuration of the system and the amount of data to be prefetched. To check the current status of the operation, click on

Refresh under **Operation Status**. The status will change to **Finished** when the operation is done.

Configure Email Alerts for ETL Jobs

OUAW supports configuring email alerts for ETL jobs, allowing users to receive email notifications when an ETL job run fails or exceeds a specified runtime threshold. This feature is currently supported for on-premise installation only.

OUAW facilitates two distinct types of Mail Alerts for ETL job monitoring, failures and runtime exceeding threshold duration.

Mail Alerts for ETL Job Failures

These alerts are sent when an out-of-the-box or customized ETL job fails. The alert email comprises the following information related to the ETL job:

- Type of Environment (Production, Testing, Development, and so on)
- Failure Severity of the Entity (1:Critical, 2:High, 3:Medium, 4:Low)
- Entity Name
- Context Code
- Session Number and Name
- Slice Start and End Time
- Session Start and End Time
- Error Message

Mail Alerts for ETL Jobs Exceeding Runtime Threshold Duration

These alerts are sent when an ETL job exceeds a pre-defined execution threshold duration value. These alerts are managed through a scheduled ODI scenario (B1_MAIL_ALERTS).

A single consolidated email is sent during each run, containing a summary of the Running jobs that have exceeded their configured threshold runtime and Completed jobs that have exceeded their threshold runtime between the previous and current scenario executions identified in that iteration.

The mail contains information related to Running Jobs, Completed Jobs, and Summary; provided in a tabular format.

The information for Running and Completed jobs comprises the following:

- Type of Environment (Production, Testing, Development, and so on)
- Execution Window (The period for which the job execution data is captured)
- Entity Name
- Context Code
- Session Number and Package Name
- Slice Start and End Time
- Session Start Time
- Status

- Threshold Value of the Job in Seconds
- Run Time of the Job in Seconds
- Session End Time (Applicable only for Completed jobs)

The following information is available in the Summary section:

- Entity Name
- Context Code
- Status
- Count of Sessions

Configure Mail Alerts

In this section:

[Prerequisites](#)

[Enable ETL Mail Alerts from Global Configuration](#)

Prerequisites

Before configuring mail alerts, you need to ensure that the following prerequisites are met:

- An SMTP server that accepts requests from the target database Linux server should be available.
- If the SMTP server uses certificates, a wallet must be created on the database server and the certificate should be added to it.
- Access Control Lists (ACLs) must be configured to allow the ODI work repository user and Metadata user to connect to the SMTP server. Perform these steps to create ACLs on the target database server.
 1. Connect to the target database as a sys user.
 2. Run this SQL query by providing the SMTP Server Host Name, SMTP Port Number, and the ODI Work Repository schema name.

```
BEGIN
    DBMS_NETWORK_ACL_ADMIN.append_host_ace (
        host      => '<SMTP Server Hostname>',
        lower_port => <SMTP Port Number>,
        upper_port => NULL,
        ace       => xs$ace_type(privilege_list => xs$name_list('connect'),
                                principal_name => '<ODI Work Repository
Schema Name>',
                                principal_type => xs_acl.ptype_db));
END;
/
```

3. Run this SQL query by providing the SMTP Server Host Name, SMTP Port Number, and the Metadata schema name.

```
BEGIN
    DBMS_NETWORK_ACL_ADMIN.append_host_ace (
        host      => '<SMTP Server Hostname>',
        lower_port => <SMTP Port Number>,
```

```

upper_port => NULL,
ace          => xs$ace_type(privilege_list => xs$name_list('connect'),
                           principal_name => '<Metadata Schema
Name>',
                           principal_type => xs_acl.ptype_db));
END;
/

```

Enable ETL Mail Alerts from Global Configuration

To enable ETL mail alerts, navigate to the Global Configuration page of AdminTool and provide values for the following parameters:

Parameter	Description
Sender email address	The email address used to send mail alerts.
Recipient email addresses	The email addresses of the recipients of the mail alerts. Multiple addresses can be entered, each separated by a semi-colon (;).
CC email addresses	The email addresses of additional recipients (CC) for the mail alerts. Multiple addresses can be entered, each separated by a semi-colon (;).
SMTP server name	Name of the SMTP server used for sending mail alerts. The below formats could be used: <ul style="list-style-type: none"> • <internal-mail-router>.<company domain> for internal mail router • <Hostname> if a mail transfer agent is used • <SMTP Public Endpoint> for OCI
SMTP server port number	The port number used by the SMTP server to send email alerts.
Type of Environment	This value to be included in the Email subject of the Mail Alerts (Production/Development/QA)

The screenshot shows the Oracle AdminTool interface. The top navigation bar has tabs for Home, ETL Configuration (which is selected), and ETL Job Execution. On the left, there's a sidebar with sections for ETL Configuration (Product Instance, Server Configuration, Storage Configuration, Global Configuration), Target Entity, Job Configuration, Schedule Configuration, Source Table, ETL Replication View, SCD Type 2 Dimension, and NMS Configuration (NMS ETL Parameters, NMS Bucket Configuration). The main content area is titled 'Maintain Global Configuration'. It shows a table with columns: Product, Instance Number, Description, Value, Data Type, and Data Format. The 'Global Configuration' section contains the following rows:

Product	Instance Number	Description	Value	Data Type	Data Format
B1	(None)	Database Edition Type - Mention the type of the Oracle Database, whether it is Standard Edition(SE) or Enterprise Edition(EE)	EE	VARCHAR2(2)	EE/SE
B1	(None)	Maximum number of MV interfaces which can run in parallel	8	NUMBER	99999
B1	(None)	Number of days for which the logs would be retained	3	NUMBER	99999
B1	(None)	Global ODI execution log level - 0 to 5. 0 - No log, 1 - Start and End time of job, 2 - Start and End time of level 1 of Each Step, 3 - Start and End time of level 2 of Each Step, 4 - Logs the Sql queries, 5 - complete Trace	6	NUMBER	9
B1	(None)	Table statistics gathering frequency	50	NUMBER	99999
B1	(None)	Travel Distance Unit of Measure. Valid values B1MI (Miles), B1KM (Kilometers), B1MT (Meters). This is used in reports to convert the travel distance to user defined measures	B1MT	VARCHAR2(4)	B1MI/B1KM/B1MT
B1	(None)	Number of days for which the data would be retained in B1_JOB_EXEC table. The default / minimum value for log retention is 30days, maximum value is 180days.	30	NUMBER	99999
B1	(None)	Sender email address - The email address used to send mail alerts for ETL job failures and jobs that exceed their configured runtime threshold		VARCHAR2	abc@xyz.com
B1	(None)	Recipient email addresses - The email addresses of the recipients who will receive mails about ETL job failures and jobs exceeding their runtime threshold. Separate multiple addresses using a semicolon (;)		VARCHAR2	abc@xyz.com; pqr@xyz.com
B1	(None)	CC email addresses - The email addresses of additional recipients (CC) who will receive mails about ETL job failures and jobs exceeding their runtime threshold. Separate multiple addresses using a semicolon (;)		VARCHAR2	mno@pqr.com; vvw@xyz.com

The screenshot shows the Oracle Utilities Analytics Administration interface. The top navigation bar includes 'Home', 'ETL Configuration' (which is selected), and 'ETL Job Execution'. The left sidebar has sections for 'ETL Configuration' (Product Instance, Server Configuration, Storage Configuration, Global Configuration, Target Entity, Job Configuration, Schedule Configuration, Source Table, ETL Replication View, SCD Type 2 Dimension) and 'NMS Configuration' (NMS ETL Parameters, NMS Bucket Configuration). The main content area is titled 'Maintain Global Configuration' and contains a table with the following data:

Product	Instance Number	Description	Value	Data Type	Data Format
B1	(None)	SMTP server name - Name of the SMTP server for job failures and long running job mail alerts For Example: 1.<internal-mail-router> <company domain> for internal mail router 2.<hostname> if a mail transfer agent is used 3.<SMTP Public Endpoint> for OCI		VARCHAR2	Hostname
B1	(None)	SMTP server port number - The port number used by the SMTP server to send email alerts for ETL job failures and jobs exceeding their runtime threshold		NUMBER	25465/587
B1	(None)	SMTP server username - The username required to authenticate with the SMTP server that sends email alerts for ETL job failures and jobs exceeding their runtime threshold For Example: <user_name> / <user>@<company domain>		VARCHAR2	Username
B1	(None)	SMTP wallet location - The location of the wallet (stored on the database server) that contains the SMTP server certificates used for sending email alerts		VARCHAR2	/scratch/wallets/smtp_wallet
B1	(None)	Jobs runtime threshold (seconds) - The global runtime threshold (in seconds) applied across all ETL entities. Jobs that exceed this runtime will be reported.		NUMBER	99999
B1	(None)	Enable ETL Failure Mail Alerts - Set this value to 'Y' to enable or 'N' to disable the ETL Failure Mail Alerts. If set to 'Y', ensure that all other required parameters for Mail Alerts are entered	N	VARCHAR2	Y/N
B1	(None)	Type of Environment - Used in mail alerts for ETL job failures and jobs exceeding their runtime threshold		VARCHAR2	Production/Dev/QA
B1	(None)	The time interval in hours for scheduling B1_FIX_NMSREP_CES_USER job, which syncs data and maintains proper historization from the NMS source table	3	NUMBER	99999

If the SMTP server requires authentication and certificates to connect to it from the database:

Note

If authentication is done using credentials only, leave the wallet location field empty in the Admin Tool (Step 1) and provide NULL for the wallet password parameter when executing the B1_SMTP_PASS_ENCRYPT procedure (Step 2).

- Provide the SMTP server username and SMTP wallet location in the Global Configuration page of the Admin Tool.

The screenshot shows the Oracle Utilities Analytics Administration interface. The top navigation bar includes 'Home', 'ETL Configuration' (selected), and 'ETL Job Execution'. The left sidebar has sections for 'ETL Configuration' (Product Instance, Server Configuration, Storage Configuration, Global Configuration, Target Entity, Job Configuration, Schedule Configuration, Source Table, ETL Replication View, SCD Type 2 Dimension) and 'NMS Configuration' (NMS ETL Parameters, NMS Bucket Configuration). The main content area is titled 'Maintain Global Configuration' and contains a table with the following data:

Product	Instance Number	Description	Value	Data Type	Data Format
B1	(None)	SMTP server username - The username required to authenticate with the SMTP server that sends email alerts for ETL job failures and jobs exceeding their runtime threshold For Example: <user_name> / <user>@<company domain>		VARCHAR2	Username
B1	(None)	SMTP wallet location - The location of the wallet (stored on the database server) that contains the SMTP server certificates used for sending email alerts		VARCHAR2	/scratch/wallets/smtp_wallet
B1	(None)	Jobs runtime threshold (seconds) - The global runtime threshold (in seconds) applied across all ETL entities. Jobs that exceed this runtime will be reported.		NUMBER	99999
B1	(None)	Enable ETL Failure Mail Alerts - Set this value to 'Y' to enable or 'N' to disable the ETL Failure Mail Alerts. If set to 'Y', ensure that all other required parameters for Mail Alerts are entered	N	VARCHAR2	Y/N
B1	(None)	Type of Environment - Used in mail alerts for ETL job failures and jobs exceeding their runtime threshold		VARCHAR2	Production/Dev/QA
B1	(None)	The time interval in hours for scheduling B1_FIX_NMSREP_CES_USER job, which syncs data and maintains proper historization from the NMS source table	3	NUMBER	99999

- Execute the SQL procedure B1_SMTP_PASS_ENCRYPT with the SMTP server password and wallet password.
 - Connect to the target database as a sys user.

b. Run the following SQL procedure by providing the SMTP Password and SMTP Wallet Password:

```
Begin
  <Metadata user>.B1_SMTP_PASS_ENCRYPT(<SMTP Password>,<SMTP Wallet
Password>);
end;
/
```

Deploy Mail Alerts for ETL Jobs

In this section:

[Deployment Instructions for ETL Job Failures](#)

[Deployment Instructions for ETL Jobs Exceeding Runtime Threshold](#)

Deployment Instructions for ETL Job Failures

1. Navigate to the **Global Configuration** page of AdminTool.
2. By default, ETL Failure Mail Alerts are disabled (N) at the Global level in the **Global Configuration** page. Set **Enable ETL Failure Mail Alerts** to "Y" to activate the ETL job failure mail alerts.

Product	Instance Number	Description	Value	Data Type	Data Format
B1	(None)	SMTP server username - The username required to authenticate with the SMTP server that sends email alerts for ETL job failures and jobs exceeding their runtime threshold For Example: <user_name> / <user>@<company domain>		VARCHAR2	Username
B1	(None)	SMTP wallet location - The location of the wallet (stored on the database server) that contains the SMTP server certificates used for sending email alerts		VARCHAR2	/scratch/wallets/smtp_wallet
B1	(None)	Jobs runtime threshold (seconds) - The global runtime threshold (in seconds) applied across all ETL entities. Jobs that exceed this runtime will be reported.		NUMBER	99999
B1	(None)	Enable ETL Failure Mail Alerts - Set this value to "Y" to enable or "N" to disable the ETL Failure Mail Alerts. If set to "Y", ensure that all other required parameters for Mail Alerts are entered.	N	VARCHAR2	Y/N
B1	(None)	Type of Environment - Used in mail alerts for ETL job failures and jobs exceeding their runtime threshold		VARCHAR2	Production/Dev/QA

3. Mail alerts can be enabled or disabled for specific entities from the **Customization Attributes** section of the **Job Configuration** page. By default, **ETL Failure Mail Alerts** are marked as "Enable" at the Entity level with a default severity value of 3 (Medium) in the **Job Configuration** page. You can change the severity by clicking on the severity description hyperlinks below the text box.

Customization Attributes

Override Slice Duration Type	Years
Override Slice Duration	<input type="text"/>
Override ODI Package Name	<input type="text"/>
User Exit Procedure	<input type="text"/>
ETL Failure Mail Alerts ^①	Enable
ETL Job Failure Severity ^{① *}	3 <small>Critical, High Severity, Medium Severity, Low Severity</small>
Job Runtime Threshold ^①	Enter the value in seconds

- Only once the **ETL Failure Mail Alerts** are enabled (set to "Y") at the Global level, the failure mail alerts would be received for all those entities that are marked as "Enable" for the parameter **ETL Failure Mail Alerts** in the **Job Configuration** page for an entity.

Deployment Instructions for ETL Jobs Exceeding Runtime Threshold

- In ODI, navigate to **Designer > Load Plans and Scenarios > Framework > Scheduler > B1_MAIL_ALERTS**.
- Right-click **Scheduling** and select **New Scheduling**.
- Select the **Source Context** as "Global", the **Agent** as "WLS_AGENT", and the **Log Level** as "5".
- To specify how often the scheduler should run, navigate to the **Execution Cycle** tab, and select **Many Times**.
- Set the **Interval between Repetitions**.

Example: To set up the scheduler to run every five minutes, refer to the image below.

Definition

Execution Cycle

Variables
Privileges
Version

Repetition

None (Execute once)
 Many times
 Maximum Number of Repetitions
 Maximum Cycle Duration <Undefined>
 Interval between Repetitions: Minute(s)

Constraints

Number of Attempts on Failure
 Stop Execution After <Undefined>

- The **Job Runtime Threshold** value can be given in two ways via AdminTool.
 - Global Level Threshold (applicable for all the entities), which can be updated from **Global Configuration** page of Apex.

Product	Instance Number	Description	Value	Data Type	Data Format
B1	(None)	SMTP server username - The username required to authenticate with the SMTP server that sends email alerts for ETL job failures and jobs exceeding their runtime threshold For Example: <user_name> / <user>@<company domain>		VARCHAR2	Username
B1	(None)	SMTP wallet location - The location of the wallet (stored on the database server) that contains the SMTP server certificates used for sending email alerts		VARCHAR2	/scratch/wallets/smtp_wallet
B1	(None)	Jobs runtime threshold (seconds) - The global runtime threshold (in seconds) applied across all ETL entities. Jobs that exceed this runtime will be reported.		NUMBER	99999
B1	(None)	Enable ETL Failure Mail Alerts - Set this value to 'Y' to enable or 'N' to disable the ETL Failure Mail Alerts. If set to 'Y', ensure that all other required parameters for Mail Alerts are entered.	N	VARCHAR2	Y/N
B1	(None)	Type of Environment - Used in mail alerts for ETL job failures and jobs exceeding their runtime threshold		VARCHAR2	Production/Dev/QA

- Job Level Threshold (applicable for individual entity), which can be updated from **Job Configuration** page of Apex.

Override Slice Duration Type	Years
Override Slice Duration	
Override ODI Package Name	
User Exit Procedure	
ETL Failure Mail Alerts	Enable
ETL Job Failure Severity	3 Critical, High Severity, Medium Severity, Low Severity
Job Runtime Threshold	Enter the value in seconds

Install and Configure Oracle Utilities Analytics Warehouse with Demo Data

On this page you will find the flows required to perform demo database installation, data import, and configuration for Oracle Utilities Analytics Warehouse (OUAW).

Note

As part of the demo data import, you must determine the hardware that will be necessary based on the customer's data size, install indispensable software, install and configure the required components on database and application servers, and run installation validations.

[Perform Demo Pre-Installation Steps for OUAW](#)

- [System Requirements and Supported Platforms](#)
- [Demo Pre-Installation Requisites for OUAW Database Server](#)
- [Demo Pre-Installation Requisites for OUAW Application Server](#)
- [OUAW Directory Structure and Other Required Information](#)

[Install Demo Database Component](#)

- [Create OUAW Users and Tablespaces on Demo Database Server](#)
- [Import Spatial Data](#)
- [Import Demo Data](#)
- [Post-Import Tasks](#)
- [Configure the Security](#)

[Install Demo Dashboards Component](#)

Perform Demo Pre-Installation Steps for OUAW

This page provides the information necessary to plan and execute the demo data import, installation, and configuration required for Oracle Utilities Analytics Warehouse (OUAW).

Note

- Before installing the prerequisite software, the user must perform a sequence of downloads and installations, as well as necessary validations on the database and application servers.
- The person responsible to install OUAW must have database and middleware administrator knowledge.

System Requirements and Supported Platforms

Before you begin the installation, note the following:

- Both the hardware and the network requirements must be met. See [System Requirements and Supported Platforms](#).
- You must determine your installation target. The Oracle Utilities Analytics Warehouse can be installed on either the database or the application servers.
- The OUAW deployment topology option is a multi-nodes topology that deploys the database and application components into separate dedicated servers, while a higher capacity server can have both OUAW database and application components on one single server.

Demo Pre-Installation Requisites for OUAW Database Server

This section lists the prerequisite software required to install OUAW on the database server target, which is going to be used by the demo database component and the repositories created for the OUAW dashboards component.

The following table includes some directory structures examples.

Note

- Customers can decide where to install this software. Make sure to note all the home directories on this list, as they will be used during OUAW installation.
- Make sure to do every installation using a single OS user and replace all parameters enclosed in <> with the appropriate values.

Task	Description
Download and install the database	<ol style="list-style-type: none">Download Oracle Database Server Enterprise Edition 19c from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/database>Installation can be done at the customized location. Example: </u01/ouaw/database> (referred to as ORACLE HOME).

Task	Description
Download and apply the database patch	<p>1. Download the database server patch 37960098 from My Oracle Support to a temporary directory. Example: </u01/ouaw/temp/database></p> <p>2. Unzip the patch and navigate to the patch top directory run the \$ORACLE_HOME/OPatch/opatch apply</p> <div data-bbox="1008 530 1475 720" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p> ⓘ Note</p> <p>Follow the readme file for applying patch which is under the patch top directory.</p> </div>
Create the database	Create the database for OUAW installation using the AL32UTF8 character set.
Download the OUAW database software	<p>1. The OUAW media pack can be downloaded from Oracle Software Delivery Cloud (Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip file).</p> <p>2. Unzip Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip to a temporary directory using any zip command utility. Example: </u01/ouaw/temp/database></p> <p>3. After unzip, find the OUAW Database Installers at the following location: </u01/ouaw/temp/database/BI251000></p>
Download the OUAW demo data	<p>1. Download Oracle Utilities Analytics v25.10.0.0 Oracle Demo Data part from the Oracle_Utilities_Analytics_Warehouse_v25.10.0.0_Demo_Data.zip file.</p> <p>2. Unzip Oracle_Utilities_Analytics_Warehouse_v25.10.0.0_Demo_Data.zip to a temporary directory. Example: </u01/ouaw/temp/demo></p> <p>3. After unzip, find the Demo Data dump file and users.sql at the following location after unzip: </u01/ouaw/temp/demo/BI251000/Demo></p>

Demo Pre-Installation Requisites for OUAW Application Server

This section covers the downloads and install instructions that can be performed on the OUAW application server.

The following table includes some directory structures examples.

ⓘ Note

- Customers can decide where to install this software. Make sure to note all the home directories on this list, as they will be used during OUAW installation.
- Make sure to do every installation using a single OS user and replace all parameters enclosed in <> with the appropriate values.

Task	Description
Download and install the JDK	<p>Java 8</p> <ol style="list-style-type: none">1. Download Oracle Java Development Kit (JDK) 1.8 from My Oracle Support to a temporary directory on the application server. Example: </u01/ouaw/temp/java>2. Install the JDK on a customized location. Example: </u01/ouaw/java8> (referred to as JAVA_HOME for FMW 12c and OAS installation). <p>Java 17</p> <ol style="list-style-type: none">1. Download Oracle Java Development Kit (JDK) 17.0.16+ from My Oracle Support to a temporary directory on the application server. Example: </u01/ouaw/temp/java>2. Install the JDK on a customized location Example: </u01/ouaw/temp/java17> (referred to as JAVA_HOME for OUAW installation).
Download and install Database Client	<p>Download the Oracle Database Client from Oracle Software Delivery Cloud and install it at a customized location. Example: </u01/ouaw/clientBase>.</p> <p> ⓘ Note</p> <p>This task is optional if both the OUAW application and database servers are installed on the same machine. See Install Oracle Database Client for more information.</p>

Task	Description
Download and install Oracle Fusion Middleware Infrastructure	<p>1. Download the Oracle Fusion Middleware Infrastructure 12.2.1.4 Version from Oracle Software Delivery Cloud into a temporary directory.</p> <p>Example: </u01/ouaw/temp/middleware></p> <p>2. Install the software on a customized location.</p> <p>Example: </u01/ouaw/middleware>. This will be referred to as FMW Home. This installation path can be used for Oracle Analytics Server's ORACLE_HOME.</p> <p>See Install Oracle Fusion Middleware Infrastructure for more information.</p>
Download and install Oracle Analytics Server (OAS)	<p>1. Download the latest Oracle Analytics Server (OAS) version 8.2 (OAS 2025) from Oracle Software Delivery Cloud into a temporary directory.</p> <p>Example: </u01/ouaw/temp/oas></p> <p>2. Install the OAS software at the <FMW Home> location considering the ORACLE_HOME path. See Install Oracle Analytics Server for more information.</p> <p>Example: </u01/ouaw/middleware>.</p> <div data-bbox="1008 1121 1475 1311" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p>Note</p> <p>After installation, the "bi" directory will be located inside the FMW home as <FMW Home>/bi.</p> </div>
Download and apply Oracle Analytics Server (OAS) Patch	<p>Download and apply the Oracle Analytics Server (OAS) patch 38161336 and 34809489 from My Oracle Support.</p> <div data-bbox="1008 1459 1475 1708" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> <p>Note</p> <p>Follow the README of each Patch Package for applying the patch.</p> </div>

Task	Description
Configure OAS domain	<ol style="list-style-type: none"> 1. Navigate to the OAS installed \$ORACLE_HOME/bi/bin location. Example: <FMW Home>/bi/bin 2. Run the ./config.sh file. 3. Configure Oracle Analytics Server domain with a customized name on the customized location. Example: <oas_domain> Example: </u01/ouaw/domains/oas_domain> (referred to as OAS DOMAIN Home). See Configure the Oracle Analytics Server Domain with the Configuration Assistant for more information. 4. While running RCU as part of domain configuration: <ul style="list-style-type: none"> • Enter the connection string based on the type of database as 'Oracle'. • Enter a unique schema prefix. Example: '<OAS>'
Download the OUAW application software	<ol style="list-style-type: none"> 1. The OUAW media pack can be downloaded from Oracle Software Delivery Cloud (Oracle Utilities Analytics Warehouse v25.10.0.0 Dashboard Component.zip file). 2. Unzip Oracle Utilities Analytics Warehouse v25.10.0.0 Dashboard Component.zip to a temporary directory. Example: </u01/ouaw/temp/application> 3. After unzipping, the Dashboard Component folders are <OAS Version>/rpd, catalog, and WriteBackTemplates.

OUAW Directory Structure and Other Required Information

The software installation directories can be used for OUAW installations and configurations. The locations specified on the following table will be respectively referred to as JAVA Home, Oracle Home, FMW Home, Domain Home and Dashboards Home.

Information Type	Description
JAVA_HOME	<p>This is the Java installed location on the OUAW database and application servers.</p> <p>Example: </u01/ouaw/java8> or </u01/ouaw/java17></p>
Database Home	<p>The Oracle database installed path on the OUAW database server.</p> <p>Example: </u01/ouaw/database></p>

Information Type	Description
Database Client	The Oracle database client installed path on the OUAW application server. Example: </u01/ouaw/clientBase>
FMW Home	Oracle Fusion Middleware Infrastructure installation location on the OUAW application server. Example: </u01/ouaw/middleware>
Domain Home	The WebLogic Domains (OAS Domain) will be configured in this directory on the OUAW application server. Example: </u01/ouaw/domains/oas_domain>
Dashboards Home	The OUAW installation location where OUAW_DASHBOARD directory will be created after its installation on the application server. Example: /u01/ouaw/deployment/OUAW_DASHBOARD>

Install Demo Database Component

This page will guide you in installing the Oracle Utilities Analytics Warehouse (OUAW) demo database component.

Prerequisites

Before installing the OUAW demo database component, verify the following:

- Java is installed on the database server.
- Oracle Database Enterprise Edition 19c is installed on the database server.

See [Perform Pre-Installation Steps for OUAW](#) for details.

Create OUAW Users and Tablespaces on Demo Database Server

The following configurations are required for the OUAW target demo database server.

Set the Database Parameters

1. Open the cursor limit to 3000.

```
alter system set open_cursors=3000 scope=both;
```

2. Set processes to 1000.

```
alter system set processes=1000 scope=both;
```

Create Users and Tablespaces

1. Create at least one tablespace for storing the application objects. The default name of the application tablespace is CISTS_01.
2. Create a tablespace "USERS" if USERS tablespace is not available in database.

3. Run users.sql under <TEMPDIR>/BI251000/Demo directory after replacing tablespace name as required.

Import Spatial Data

This section details how to import spatial metadata in the USER_SDO* tables for OUAW. Log in to the OUAW database server and follow these steps:

1. Set the following environment variables.

```
export ORACLE_SID=<DATABASE SERVICENAME>
export ORACLE_HOME=<ORACLE HOME>
export PATH=$ORACLE_HOME/bin:$PATH
```

2. Create the database directory in the database.

Example:

```
create directory <dump_dir> as '</u01/dumps>' ;
```

3. Copy the user_sdo.dmp dumpfile from the temporary directory <TEMPDIR>/database/BI251000/Spatial-Metadata to the database directory <dump_dir> location.

Example: </u01/dumps>

4. Execute the impdp command to import the USER_SDO* tables data.

```
impdp directory=<dump_dir> dumpfile=user_sdo.dmp logfile=impdp_user_sdo.log
schemas=DWADM remap_tablespace=cists_01:<tablespace_name>
```

5. Provide DWADM username password when prompted.

 **Note**

Ensure to change the tablespace_name to the name on which DWADM has the quota. If DWADM user have quota on cists_01 tablespace, then exclude whole remap_tablespace clause from command.

6. Review the impdp_user_sdo.log file to ensure the tables are imported successfully.
7. After importing the tables, run the following SQL scripts from the <TEMPDIR>/BI251000/Spatial-Metadata directory.

```
sqlplus DWADM/<DWADM>@<database service name>
@copy_spatial_metadata.sql
@clean_sdo_release_tb1s
```

8. Review the log files.

Import Demo Data

This section details how to import the demo data dump file into the database. Log in to the OUAW database server and follow these steps:

1. Set the following environment variables.

```
export ORACLE_SID=<DATABASE SERVICENAME>
export ORACLE_HOME=<ORACLE HOME>
export PATH=$ORACLE_HOME/bin:$PATH
```

2. Create the database directory in the database.

Example:

```
create directory <dump_dir> as '</u01/dumps>'
```

3. Copy the exp_demo.dmp dumpfile from the temporary directory <TEMPDIR/BI251000/Demo> to the database directory <dump_dir> location.

Example: </u01/dumps>

 **Note**

Gunzip the exp_demo.dmp.gz file to obtain exp_demo.dmp.

4. Execute the impdp command to import the demo data.

```
impdp directory=<dump_dir> dumpfile=exp_demo.dmp logfile=<exp_demo.log>
full=y remap_tablespace=cists_01:<tablespace_name>
```

5. Provide the system user and its password when prompted.

 **Note**

Make sure to change the tablespace_name to the tablespace name on which DWADM, RELADM, and MDADM have the quota. If DWADM, RELADM, and MDADM users have quota on cists_01 tablespace, then exclude the whole remap_tablespace clause from the command.

If the following error messages appear while importing the demo data, you can ignore them.

```
ORA-31684: Object type USER:"DWADM" already exists
ORA-31684: Object type USER:"MDADM" already exists
ORA-31684: Object type USER:"RELADM" already exists
ORA-39082: Object type FUNCTION:"MDADM"."B1_DECODE_STRING_FN" created with
compilation warnings
ORA-39082: Object type PROCEDURE:"MDADM"."B1_SMTP_PASS_ENCRYPT" created
with compilation warnings
ORA-39082: Object type PROCEDURE:"MDADM"."B1_ENCRYPT_STRING" created with
compilation warnings
```

Post-Import Tasks

1. Connect to the database with SYS schema. Example:

```
sqlplus sys/<sys password>@<DATABASE SERVICE NAME> as sysdba
```

2. Execute the following commands:

```
GRANT CREATE SYNONYM TO DW_USER;  
GRANT CREATE SYNONYM TO DW_READ;
```

3. Connect to the database with MDADM schema. Example:

```
sqlplus MDADM/<MDADM>@<DATABASE SERVICE NAME>
```

4. Execute the following commands.

```
create public synonym B1_TARGET_ENTITY for B1_TARGET_ENTITY;  
create public synonym B1_PROD_INSTANCE for B1_PROD_INSTANCE;  
create public synonym B1_JOB_CONFIG for B1_JOB_CONFIG;  
grant select on B1_TARGET_ENTITY to public;  
grant select on B1_PROD_INSTANCE to public;  
grant select on B1_JOB_CONFIG to public;
```

Configure the Security

The security scripts must be executed after the initial load and the materialized views are created for the given source product instance.

1. In the Oracle Utilities Analytics Warehouse database component installation package, navigate to the directory <TEMPDIR>/database/BI251000/DWADM/Install-Upgrade.
2. Set the Java Home and Classpath, and run OraGenSec.

```
export JAVA_HOME=<JAVA 17 HOME>  
export PATH=$JAVA_HOME/bin:$PATH  
export CLASSPATH=<TEMPDIR>/BI251000/DWADM/Jarfiles/*  
java com.oracle.ouaf.oem.install.OraGenSec -d  
DWADM,DWADM,jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE  
SERVICE NAME> -u DWUSER,DWREAD -r DW_USER,DW_READ -p <DWUSER>,<DWREAD> -a  
A CAPTION:Configuring Security LANGUAGE:ALL
```

Install Demo Dashboards Component

The Oracle Utilities Analytics Warehouse (OUAW) Dashboards demo component must be installed on the application server. The steps for this process are the same as those in [Install Dashboards Component](#). See that section for details.

Load the Data Warehouse

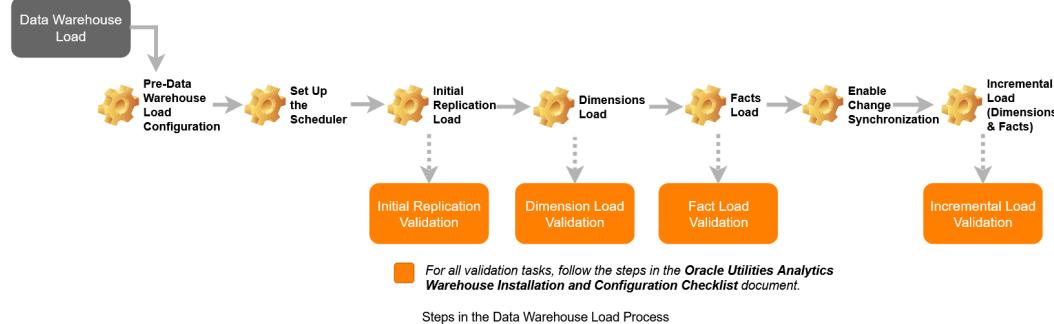
The primary objective of a data warehouse is to extract data from one or more source systems, transform that data according to the business logic, and then load the data into the data warehouse so that business users can make informed decisions. After successfully installing Oracle Utilities Analytics Warehouse (OUAW) and integrating any source applications, the data warehouse needs to be loaded.

Overview Diagram

The diagram below illustrates the steps involved in loading data into the target data warehouse.

Note

One part of the diagram refers to the [Oracle Utilities Analytics Warehouse Installation and Configuration Checklist](#), which is for version 2.7.0.2 of the product. The checklist can be used for version 25.10.0.0.0.



Pre-Data Warehouse Load Configuration

Oracle Utilities Analytics Warehouse ETL architecture is a metadata driven framework that allows you to configure out-of-the-box ETL jobs. The out-of-the-box ETL jobs are set up during the integration of the source system with the Oracle Utilities Analytics Warehouse. However, some additional configuration is required before starting the loading of data into the target data warehouse. This section contains only required metadata configurations before the data warehouse load, and these configurations augment those default configurations at the time of integration of the source system with the Oracle Utilities Analytics Warehouse.

Review Default Metadata Configuration

Some default metadata configurations can also be modified using the Oracle Utilities Analytics Warehouse Administration Tool. It is also mandatory to modify some default metadata configuration for the user customization. To know about default metadata configuration and how to modify them, follow the usage of Oracle Utilities Analytics Warehouse Administration Tool in the [Administration](#) topic.

Configure ETL Jobs

OUAW contains pre-built analytics for Oracle Utilities Analytics Framework (OUAF) and non-OUAF source applications. These source applications are listed below.

OUAF Source

- Oracle Utilities Analytics Customer Care and Billing
- Oracle Utilities Analytics Customer to Meter
- Oracle Utilities Analytics Meter Data Management
- Oracle Utilities Analytics Work and Asset Management
- Oracle Utilities Analytics Mobile Workforce Management

Non-OUAF Source

- Oracle Utilities Network Management System

If you have integrated one of these source system with OUAW, then perform the tasks below before the initial load of data into the data warehouse from each respective source.

Configure ETL Jobs

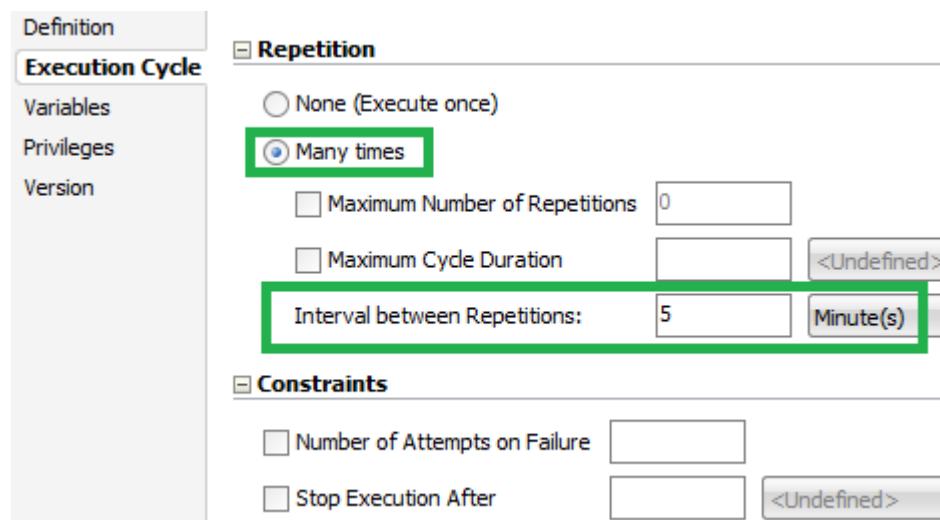
Oracle Data Integrator ETL jobs are configured at the time of integrating the source application with OUAW. These jobs are used to transform and load target dimensions, facts, and materialized views data from the replication layer into the target layer. Some ETL jobs are dependent on others. The dependency structure of target entities, and the order in which target entities should be loaded, are explained below.

1. Make sure that all required ETL parameters and buckets are configured.
 - For an OUAF source application, the respective parameters and buckets must be configured in source application before the integration of source application. If not configured, then configure all required ETL parameters and buckets, and regenerate all replication views.
 - For a non-OUAF source application (specifically Oracle Utilities Network Management System), the respective parameters and buckets must be configured using the Oracle Utilities Analytics Warehouse Administration Tool after the integration of the source application. If not configured, then configure all required ETL parameters and buckets, and regenerate all replication views.
2. All dimensions are independent. Therefore, all dimensions can be loaded simultaneously.
3. Facts are dependent on dimensions. Therefore, facts should be loaded only after their dependent dimensions are loaded completely at the time of initial loading. Dependency is managed by the ETL framework. During incremental load, all facts will be loaded until the time their dependent dimensions are loaded.

4. Accumulating fact contains only the latest version of a transaction or event. These types of facts are usually small and should be loaded fully, from the extract start date provided at the time of integration of the source application. The default slice duration is Yearly, but depending on the volume of data, the slice duration type can be modified from Yearly to Quarterly or Monthly, and so on.
5. Periodic snapshot facts contain the latest version of a transaction or event within a snapshot period. If there are no modifications for a transaction or event after it is loaded into the target fact, then the same record will be loaded for all subsequent snapshot periods. The default slice duration type for most of the periodic snapshot facts are Monthly, but this can be modified to Quarterly or Weekly and so on, depending on the business need.
6. Periodic snapshot fact used to report trends. If business users are only interested in analyzing trends for the last two years, then this fact should be loaded from the last two years. This will take less time to complete the loading, and it also reduces the storage cost. In this case, the slice start date should be modified to load data from the last two years.
7. The slice duration type and slice start date can be modified using the Administration Tool. How to modify these metadata configurations is explained in the [Administration](#) topic.

Set Up the Scheduler

1. Open Oracle Data Integrator Studio.
2. Navigate to **Designer > Load Plans and Scenarios > Framework > Scheduler > B1_RUN_ALL Version 001 > Scheduling**.
3. Right-click scheduling and select **New Scheduling**.
4. Select the source context as global, the agent as **WLS_AGENT**, and the log level as 5.
5. To specify how often the scheduler should run, navigate to the **Execution Cycle** tab and select **Many Times**.
6. Set the interval between repetitions. For example, to set up the scheduler to run every five minutes, follow the screenshot below:



7. Click **Save**.
8. Navigate to **Topology > Agents > OracleDIAgent**.
9. Right-click **OracleDIAgent** and click **Update Schedule**.

Run B1_INITIAL_SETUP_PKG Scenario

This scenario is used to populate the date and time dimension. This will insert two records into every dimension in the target schema. These two default records are necessary to handle missing and unassigned or unavailable dimension references in the fact.

1. Open Oracle Data Integrator Studio.
2. Navigate to **Designer > Load Plans and Scenarios > Framework > Scheduler**.
3. Right-click **B1_INITIAL_SETUP_PKG Version 001**, and select **Run**.
4. Select global as context, WLS_AGENT as logical agent, and then click **OK**.
5. Provide the minimum date range to populate the CD_DATE dimension in YYYYMMDD format. Uncheck the option and provide the values in the option. Make sure that no transaction should be present before this date.
6. Provide the maximum date range to populate the CD_DATE dimension in YYYYMMDD format. Uncheck the option and provide the values in the option. Make sure that you should populate the date dimension with advance entries for future dates. By default, this scenario will add date entries till December 31, 2050.
7. Navigate to the **Operator** tab and make sure that this scenario is executed successfully.

Initial Replication Load

For initial load from source to replication, the Oracle Data Integrator scenario B1_SYNC_CONTEXT should be executed. This job identifies all source application tables configured to be replicated and then synchronizes historical data from source into the replication schema for all those tables if not synchronized before. B1_SYNC_CONTEXT uses the database data pump functionality to synchronize historical data from the source database into the replication schema. The data can be copied to the replication layer using three methods:

- Export and Import
- Export and Import Using Shared Network Storage
- Database Link

Export and Import

Follow below steps to synchronize initial historical source data into the Oracle Utilities Analytics Warehouse replication layer.

1. Log in to the Oracle Utilities Analytics Warehouse Administration Tool.
2. Click **Global Configuration** in the left panel under **ETL Configuration**.
3. Click **Edit**.
4. Replace DBLINK with DPUMP_EXPORT for the appropriate Product and Instance (that is, the source product and instance for which you want to perform initial replication load) and click **Save**.

Global Configuration				
<input type="text"/> Go Actions <input type="button" value="Edit"/>				
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Instance Number contains 1				×
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Product contains 'Customer Care and Billing'				×
Product	Instance Number	Description	Value	
Customer Care and Billing	1	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import at target database.	8	
Customer Care and Billing	1	The Product Sync mode type. Valid values DPUMP_EXPORT, DPUMP_IMPORT, DBLINK, DPUMP_SHARED	DPUMP_EXPORT	
Customer Care and Billing	1	SOCKS Proxy HOST PORT to set up Secure tunnel for Golden Gate Replication. The proxy should convert anonymous TCP/IP connection to an authorized secure connection.	-NA-	
Customer Care and Billing	1	Product Extract Date - The date from which all ETL jobs for the specific product instance will be configured to start the initial load	01-JAN-2000	

5. Open Oracle Data Integrator.
6. Navigate to the **Load Plans and Scenario** folder in the **Designer** tab.
7. Expand the **Framework > Scheduler** folder.
8. Right click **B1_SYNC_CONTEXT Version 001** and click **Run** to start exporting data from the source. A popup window opens to enter the Context and Logical Agent. In the example provided, choose the appropriate context code and Logical agent as WLS Agent.
9. Make sure that B1_SYNC_CONTEXT job is completed without any error.
10. Move the dump files from source B1_DATA_DUMP_DIR to target B1_DATA_DUMP_DIR location manually.
11. Follow above step 1 - 4 to modify the global configuration from DPUMP_EXPORT to DPUMP_IMPORT.

Global Configuration				
<input type="text"/> Go Actions <input type="button" value="Edit"/>				
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Instance Number contains 1				×
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Product contains 'Customer Care and Billing'				×
Product	Instance Number	Description	Value	
Customer Care and Billing	1	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import at target database.	8	
Customer Care and Billing	1	The Product Sync mode type. Valid values DPUMP_EXPORT, DPUMP_IMPORT, DBLINK, DPUMP_SHARED	DPUMP_IMPORT	
Customer Care and Billing	1	SOCKS Proxy HOST PORT to set up Secure tunnel for Golden Gate Replication. The proxy should convert anonymous TCP/IP connection to an authorized secure connection.	-NA-	
Customer Care and Billing	1	Product Extract Date - The date from which all ETL jobs for the specific product instance will be configured to start the initial load	01-JAN-2000	

12. Run B1_SYNC_CONTEXT Version 001 again to import data into the replication schema.
13. Make sure that the job is completed successfully. This can be verified in the Oracle Data Integrator operator log.

Export and Import Using Shared Network Storage

In this method, no movement of files is required. Follow the steps below to load initial data into the replication schema.

1. Follow step 1-4 mentioned under the **Export and Import** method above, and set the value to DPUMP_SHARED in the **Global Configuration** section for the appropriate product and instance.

Global Configuration				
<input type="button" value="Q"/> <input type="button" value="Go"/> Actions <input type="button" value="Edit"/>				
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Instance Number contains 1				×
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Product contains 'Customer Care and Billing'				×
Product	Instance Number	Description	Value	
Customer Care and Billing	1	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import at target database.	8	
Customer Care and Billing	1	The Product Sync mode type. Valid values DPUMP_EXPORT, DPUMP_IMPORT, DBLINK, DPUMP_SHARED	DPUMP_SHARED	
Customer Care and Billing	1	SOCKS Proxy HOST:PORT to set up Secure tunnel for Golden Gate Replication. The proxy should convert anonymous TCP/IP connection to an authorized secure connection.	-NA-	
Customer Care and Billing	1	Product Extract Date - The date from which all ETL jobs for the specific product instance will be configured to start the initial load	01-JAN-2000	

- Follow step 6-12 mentioned under **Export and Import** method above to run **B1_SYNC_CONTEXT** job.
- Make sure that the job is completed successfully. This can be verified in the Oracle Data Integrator operator log.

Database Link

This is the default method to replicate initial data from source into their respective replication schema. Make sure that for your respective source product and instance, the value is set to DBLINK. If the global configuration is not set as DBLINK, then set to DBLINK as mentioned below. Follow step 6-12 mentioned under the **Export and Import** method above to run **B1_SYNC_CONTEXT** job. Make sure that this job executes successfully without any error.

Global Configuration				
<input type="button" value="Q"/> <input type="button" value="Go"/> Actions <input type="button" value="Edit"/>				
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Instance Number contains 1				×
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Product contains 'Customer Care and Billing'				×
Product	Instance Number	Description	Value	
Customer Care and Billing	1	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import at target database.	8	
Customer Care and Billing	1	The Product Sync mode type. Valid values DPUMP_EXPORT, DPUMP_IMPORT, DBLINK, DPUMP_SHARED	DBLINK	
Customer Care and Billing	1	SOCKS Proxy HOST:PORT to set up Secure tunnel for Golden Gate Replication. The proxy should convert anonymous TCP/IP connection to an authorized secure connection.	-NA-	
Customer Care and Billing	1	Product Extract Date - The date from which all ETL jobs for the specific product instance will be configured to start the initial load	01-JAN-2000	

Initial Star Schema Load

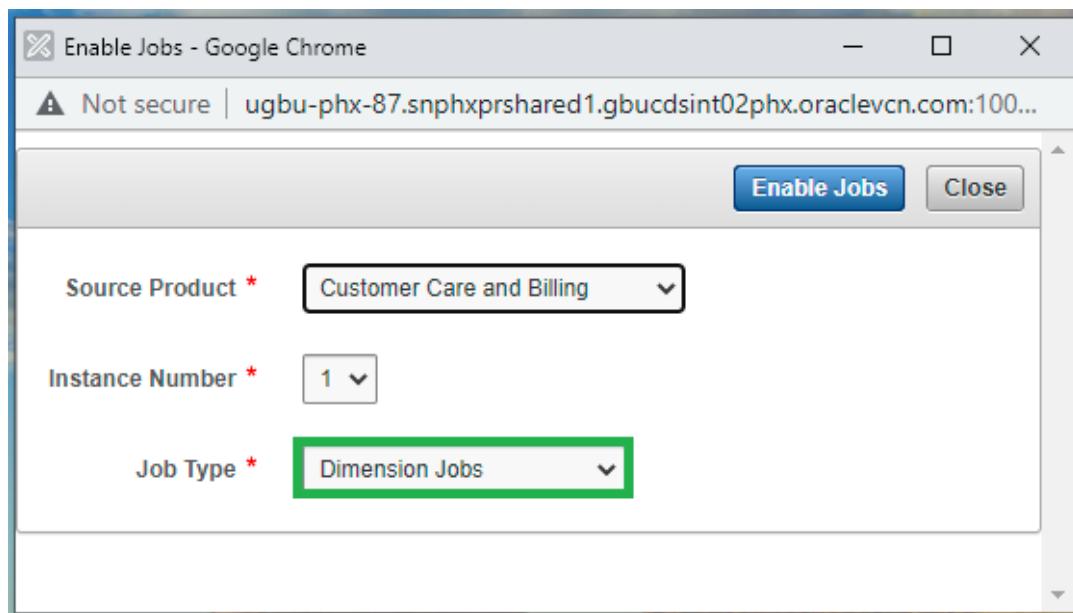
After existing historical data is replicated from the source into the Oracle Utilities Analytics Warehouse Analytics replication layer, Dimensions, Facts and Materialized views for the respective source should be loaded. Follow below steps for loading data into star schemas:

Dimensions Load

Dimensions are completely independent objects. Dimensions can be loaded until the time data is synchronized into the replication schema. Follow the steps below to enable all dimensions.

- Log in to the Oracle Utilities Analytics Warehouse Administration Tool.
- Click **Job Configuration** in the left panel under **ETL Configuration**.
- In the **Job Configuration** page, click **Enable Jobs**.

4. Select the appropriate **Source Product** and **Instance Number**.
5. In the **Job Type** field, select **Dimension Jobs**, and then click **Enable Jobs**.



Now all dimension jobs for the selected context are enabled. The scheduler agent B1_RUN_ALL is also configured. Therefore, dimension jobs will be triggered by the scheduler agent automatically.

Navigate to the **Operator** tab and monitor the execution status. You can also monitor the execution of jobs in B1_JOBS_VW in the metadata schema. Wait for all dimensions to load completely. Except for static one-time load dimensions, all other dimensions should be loaded until the time data synced into the replication schema. Use the [Oracle Utilities Analytics Warehouse Installation and Configuration Checklist](#) to validate the loading of dimensions into the target data warehouse.

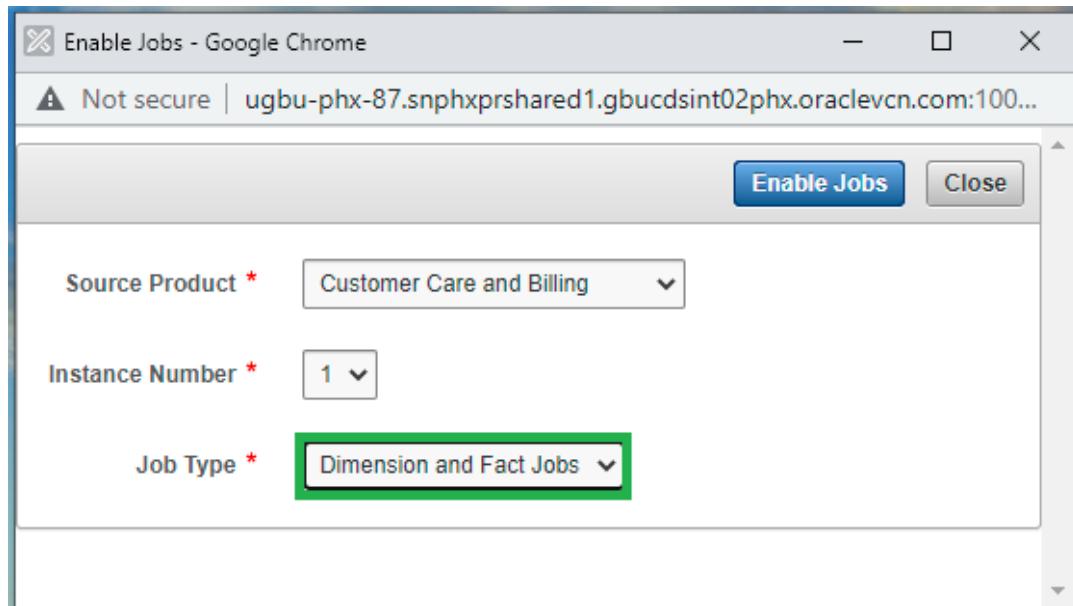
 **Note**

Although the latest [Oracle Utilities Analytics Warehouse Installation and Configuration Checklist](#) is for version 2.7.0.2 of the product, the steps still apply to version 25.10.0.0.0.

Facts Load

After all dimensions are loaded successfully, enable all fact ETL jobs by following these steps:

1. Log in to the Oracle Utilities Analytics Warehouse Administration Tool.
2. Click **Job Configuration** in the left panel under **ETL Configuration**.
3. In the **Job Configuration** page, click **Enable Jobs**.
4. Select the appropriate **Source Product** and **Instance Number**.
5. In the **Job Type** field, select **Dimension and Facts Jobs**, and then click **Enable Jobs**.



Now all fact ETL jobs are enabled. Scheduling the B1_RUN_ALL job will trigger these fact ETL jobs automation to load their respective target fact table. Navigate to the Oracle Data Integrator → Operator tab and monitor the execution status. You can also monitor the execution of jobs in B1_JOBS_VW in the metadata schema. Wait for all facts to load completely.

Configure the Exclusion of Control Zone Secondary Dimension Lookup for NMS Facts

Note

To configure the exclusion of the Control Zone Secondary Dimension lookup for NMS facts, follow the below section. This configuration is applicable only if the configured source product is Network Management System (NMS).

OUAW supports excluding the lookup on the Control Zone Secondary dimension table in the data flow of the out-of-the-box NMS Fact tables. This can be done by setting the global parameter **Exclude Control Zone Secondary Flag** to "Y" in the **Global Configuration** page of AdminTool. The exclusion of the lookup on this dimension helps in avoiding population of error keys (-99) in the fact table in case if a Secondary Control Zone is not configured in NMS.

The **Exclude Control Zone Secondary Flag** global parameter for the configured NMS context allows either "Y" or "N" values as input, "N" being the default value.

Product	Instance Number	Description	Value	Data Type	Data Format
Work and Asset Management	1	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import at target database.	8	NUMBER	99999
Work and Asset Management	1	Global Extract Date - The date from which all ETL jobs will be configured to start the initial load	01-JAN-2000	DATE	DD-MON-YYYY
Work and Asset Management	1	SOCKS Proxy HOSTPORT to set up Secure tunnel for Golden Gate Replication. The proxy should convert anonymous TCP/IP connection to an authorized secure connection.	-NA-	VARCHAR2	HostName Port
Work and Asset Management	1	The Product Sync mode type. Valid values DPUMP_EXPORT,DPUMP_IMPORT,DBLINK,DBLINK_SHARED	DBLINK	VARCHAR2	(None)
Network Management System	1	Exclude Control Zone Secondary Flag - Set the value to N if the dimension should be used to populate the related facts. Set the value to Y if the dimension should not be used to populate data in related facts. The default value is N	N	VARCHAR2(2)	Y/N
Network Management System	1	Exclude Error Reprocessing Flag - Set the value to N, if the fact should be used to run the error reprocessing procedure. Set the value to Y, if the fact should not be used to run the error reprocessing procedure. The default value is N	N	VARCHAR2(2)	Y/N
Network	1	Degree of parallelism applied at source database in case of export. It should be less than 100 and less than or equal to the parallelism applied for import at target database.	8	NUMBER	99999

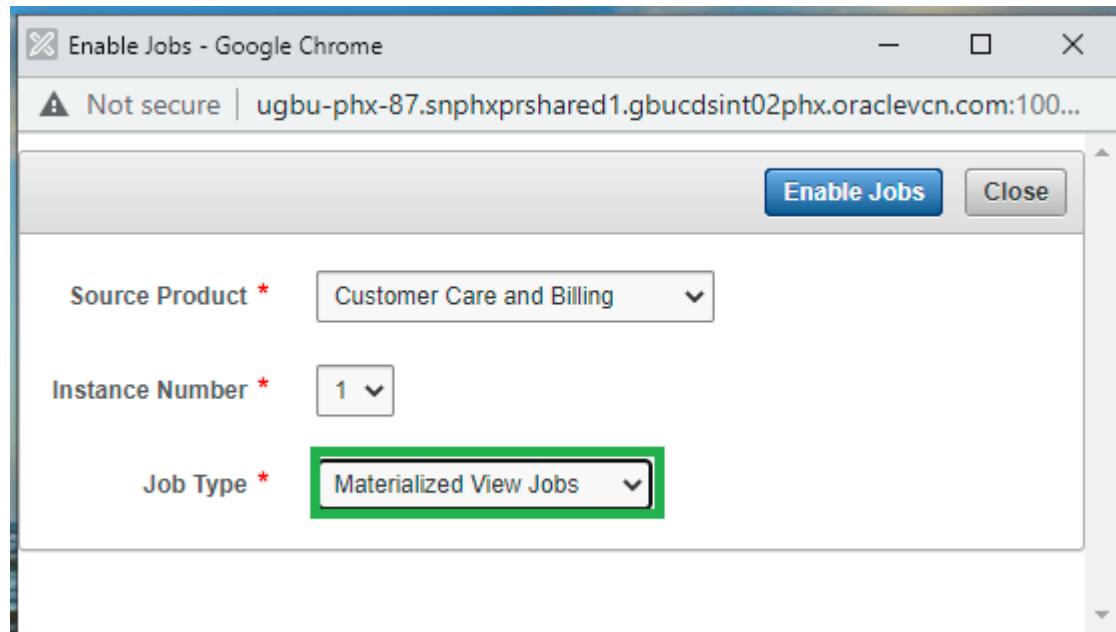
Setting the parameter value to "Y" excludes the Control Zone Secondary dimension lookup during the fact processing and populates the CTRL_ZONE_SEC_KEY column of the Fact table with 0 (zero). Setting the value to "N" performs the lookup on the dimension and populates the CTRL_ZONE_SEC_KEY column of the Fact table based on the lookup value.

The exclusion of Control Zone Secondary Dimension lookup applies to the following NMS Fact tables:

- Abnormal Device Log Fact
- Crew Activity Fact
- Damage Assessment Fact
- Damage Assessment Detail Fact
- Outage Fact
- Outage History Fact
- Recent and Restored Call Facts
- Recent and Restored Crew Facts
- Recent and Restored Customer Outage Facts
- Recent and Restored Job Facts
- Storm Fact
- Switch Plan Fact
- Switch Plan Segmentation Fact
- Switch Plan State Fact

Materialized Views (MV) Load

Follow the same steps in Facts Load above to enable materialized views for the configured source product, and make sure that all required materialized views are created. Except for Oracle Utilities Network Management System, all other source products contain materialized views.



Configure the Security

The security scripts must be executed after the initial load and the materialized views are created for the given source product instance.

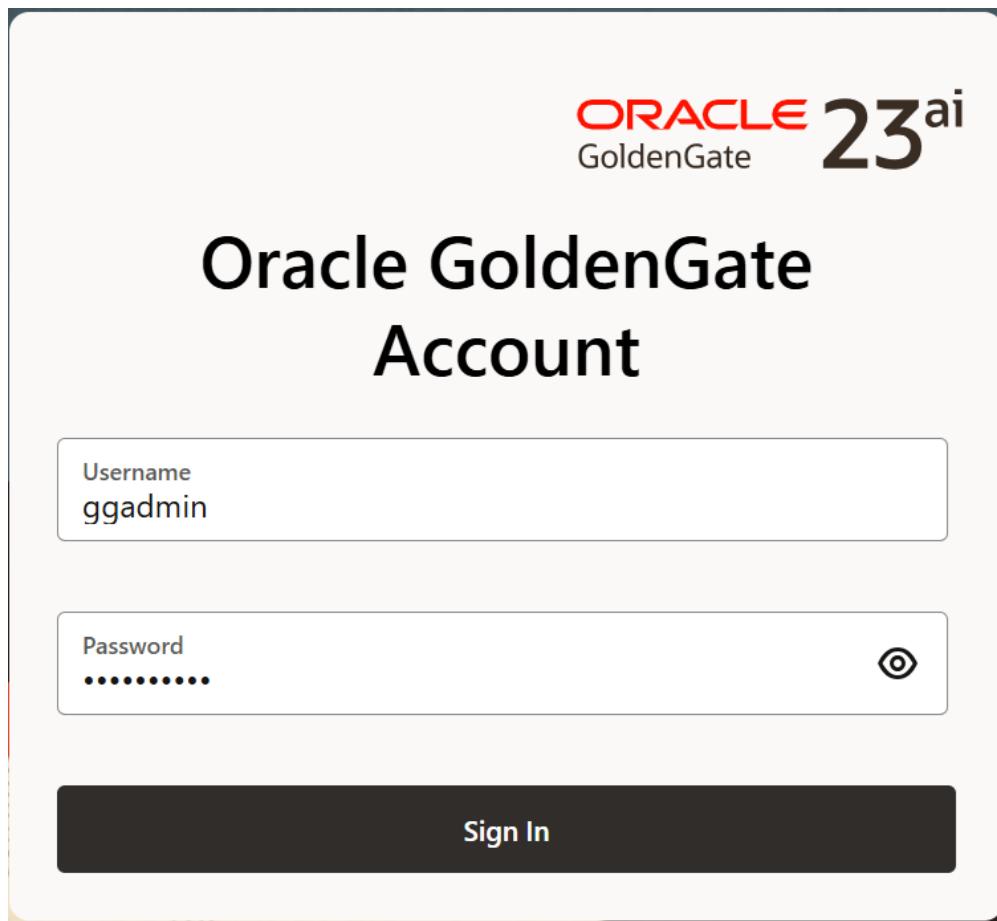
1. In the Oracle Utilities Analytics Warehouse database component installation package, navigate to the directory <TEMPDIR>/database/BI251000/DWADM/Install-Upgrade.
2. Set the Java Home and Classpath, and run OraGenSec.

```
export JAVA_HOME=<JAVA 17 HOME>
export PATH=$JAVA_HOME/bin:$PATH
export CLASSPATH=<TEMPDIR>/BI251000/DWADM/Jarfiles/*
java com.oracle.ouaf.oem.install.OraGenSec -d
DWADM,DWADM,jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE
SERVICE NAME> -u DWUSER,DWREAD -r DW_USER,DW_READ -p <DWUSER>,<DWREAD> -a
A CAPTION:Configuring Security LANGUAGE:ALL
```

Enable Change Data Synchronization

The change synchronization process needs to be enabled to bring incremental data from the source application after the initial source data is replicated completely. Follow the steps below to enable the change data synchronization process:

1. Log in to the Target GoldenGate Microservices Administration Server.



2. Ensure the GoldenGate replicat processes are in a stopped state.
3. Start the GoldenGate replicat processes for the respective context. Ensure that GoldenGate replicat processes for the configured context are in a running state.

The image shows the Oracle GoldenGate Services Administration Service dashboard. The left sidebar shows navigation options: Home, User Administration, DB Connections, Extracts, and Replicats. The Replicats section is expanded, showing five replicat processes: CCB1AA, CCB1AB, CCB1AC, CCB1AD, and CCB1AE. The status for all these processes is "Stopped". Above the replicat table, there is a "Replicats" section with a "Group Action" dropdown. The "Running" tab is selected, showing 20 replicats. A red box highlights the "Start all replicats" button. To the right of the replicats table, there are statistics: 11 "topped" and 0 "Other".

Incremental Star Schema Load

Once GoldenGate change synchronization processes are enabled, incremental data from the source application will automatically start flowing into the replication schema for all configured

tables. As ETL jobs and the scheduler are enabled, target star schema objects (for example, Dimensions, Facts, etc.) will also be loaded automatically. No manual activity is required to load the incremental data into the target schema. At this point, both ETL and Analytics need to be monitored at a regular interval of time for the smooth function of this product and can be open for the business users to access.

Upgrade from 2.8.0.2.1 to 25.10.0.0.0

- [Perform Pre-Upgrade Steps](#)
- [Upgrade Source Applications](#)
- [Upgrade Tech Stack for OUAW](#)
- [Upgrade OUAW Components](#)

Perform Pre-Upgrade Steps

This page details the actions to take before upgrading Oracle Utilities Analytics Warehouse from version 2.8.0.2.1 to version 25.10.0.0.0.

Note

- Customers need to upgrade to the latest supported tech Stack on 2.8.0.2. See section Supported Platforms and Hardware Requirements in the [Installation Guide 2.8.0.2](#) before performing the upgrade activities from 2.8.0.2.1 to 25.10.0.0.0.
- Before proceeding with the prerequisite steps on the target and the source database servers, ensure you have a rollback plan in case it is necessary to revert the changes.

1. Ensure that data in the source is in sync with the replication tables.

Note

The Lag for Chkpt and Time Since Chkpt in both the source and target databases should be 0.

2. Make sure that the ODI operator logs are available during and after the upgrade.

Note

This can be ensured by increasing the log retention period to 60 days from the **Global Configuration** page in Apex.

3. Make sure the ODI log level is set to maximum in **Global Configuration**.

Note

This can be ensured by increasing the ODI log level to 5 or 6 from the **Global Configuration** page in Apex.

4. Log in to Oracle Utilities Analytics Warehouse ODI server and start the ODI client.

```
export JAVA_HOME=<JAVA_HOME>
export PATH=$JAVA_HOME/bin:$PATH
cd <FMW 12c Home>/odi/studio/bin
./odi
```

5. Stop BI_RUN_ALL from ODI studio and follow these steps:
 - a. Log in to **Oracle Data Integrator Studio**.
 - b. Navigate to **Designer > Load plan and Scenarios > Framework > Scheduler > B1_RUN_ALL > Scheduling**.
 - c. Double-click **Global/WLS_AGENT**, select **Inactive**, and save the changes.
 - d. On the studio, navigate to the **Topology** tab.
 - e. Right-click **OracleDIAgent** and select **Update Schedule**.
6. Run the following query from the target database server to check if all jobs are complete.

```
SELECT * FROM mdadm.b1_jobs_vw WHERE status_flg in ('W', 'P', 'R');
```

 **Note**

No rows should be returned from the query mentioned above. If any rows are returned, that means jobs are not yet completed. Wait until they complete.

7. Stop both Oracle Data Integrator admin and managed servers.

```
cd <Domain Home>/<odi_domain>/bin
./stopManagedWeblogic.sh <ODI_server1>
./stopWeblogic.sh
```
8. Stop the OAS services:

```
cd <Domain Home>/<OAS_domain>/bitools/bin
./stop.sh
```
9. Stop Apex admin and managed servers.

```
cd <Domain Home>/<apex_domain>/bin
./stopManagedWebLogic.sh <apex_server1>
./stopWebLogic.sh
```
10. Stop the source application. Ensure the database is up and running in both the source and the target.
11. Stop all EXTRACTS, REPLICATS, MANAGER, JAGENT, and PMSRVR from the source and target GoldenGate.

```
cd <Goldengate Home>
./ggsci
stop *
stop MANAGER
```

```
stop JAGENT
stop PMSRVR
```

Upgrade Source Applications

This page describes how to upgrade your source applications to be compatible with Oracle Utilities Analytics Warehouse v25.10.0.0.0.

Note

- Before proceeding with source upgrade, ensure you have a proper backup plan to revert the changes in case of any failure.
- Upgrade the source applications to be compatible with Oracle Utilities Analytics Warehouse v25.10.0.0.0.

Upgrade Network Management System (NMS) Source Application

Note

Perform the following steps *only* if the upgraded source application is NMS, and you are upgrading to version 2.6.0 or later.

1. Ensure the source application is down.
2. Ensure the database is up and running in both the source and the target.
3. Upgrade the NMS source application *only*—without executing NMS UTC data conversion migration scripts, and without executing the normal setup process which runs other migrations involving DDL changes.
4. After a successful upgrade, do not release the source applications to end users. Ensure that you stop the source applications but keep the source databases up and accessible.
5. If the source database is *not* in UTC, then do the following:
 - a. Stop all Golden Gate Processes (EXTRACTS and REPLICATS in the source and the target).
 - b. Execute the NMS UTC data conversion migration script as part of the upgrade to NMS 2.6.0.1 before changing the source database time zone to UTC.
 - c. Update the source database time zone to UTC as part of the upgrade to NMS 2.6.0.1.
6. If the source database *is* in UTC and the source Application is *not* in UTC, perform the following steps:
 - a. Alter the initial checkpoint of the Golden Gate EXTRACT & PUMP processes using BEGIN NOW in the source.

```
GGSCI > ALTER EXTRACT <NMS1>AAX BEGIN NOW
GGSCI > ALTER EXTRACT <NMS1>AAP BEGIN NOW
```

Note: Here the product context code is <NMS1>.

- b. Ensure the source application is still down, and then start all Golden Gate Processes (EXTRACTS and REPLICATS) in the source and target.
7. If the source database and source Application are in UTC, ensure the source application is still down, and then start all Golden Gate Processes (EXTRACTS and REPLICATS) in the source and target.
8. Execute the normal setup process which runs other migrations involving DDL changes as part of upgrade to NMS 2.6.0.1.
9. Ensure that the table NMS_ACCOUNTS_HISTORY is created in the source database.
10. Ensure Incremental Changes (DDL and DML changes during the upgrade) are synced. The Lag for Chkpt and Time Since Chkpt in both the source and target databases should be 0.
11. Stop all Golden Gate Processes (EXTRACTS, REPLICATS, PMSRVR, JAGENT, MANAGER) in the source and the target.

Upgrade Other Source Applications

Note

Perform the following steps if the upgraded source applications are Meter Data Management (MDM), Customer Care and Billing (CCB), Customer to Meter (C2M), Work and Asset Management (WAM), and NMS (if you are upgrading to a version below 2.6.0).

1. Ensure the source application is down.
2. Ensure the database is up and running in both the source and the target.
3. Start all Golden Gate Processes (EXTRACTS, REPLICATS, PMSRVR, JAGENT, MANAGER) in the source and the target.
Make sure the data in the source is in sync with the replication tables. The Lag for Chkpt and Time Since Chkpt in both the source and target databases should be 0.
4. Upgrade the source application.
5. After a successful upgrade, do not release the source applications to end users. Ensure that you stop the source applications but keep the source databases up and accessible.
6. Ensure Incremental Changes (DDL and DML changes during the upgrade) are synced. Make sure the data in the source is in sync with the replication tables. The Lag for Chkpt and Time Since Chkpt in both the source and target databases should be 0.
7. Stop all Golden Gate Processes (EXTRACTS, REPLICATS, PMSRVR, JAGENT, MANAGER) in the source and the target.

Upgrade Tech Stack for OUAW

This page details the tasks required to upgrade the services that are used to run Oracle Utilities Analytics Warehouse.

GoldenGate Classic Processes Cleanup

⚠ Warning

GoldenGate processes cannot be rolled back once these have been cleaned up. Perform the GoldenGate process cleanup only if you have decided to upgrade Oracle Utilities Analytics Warehouse from version 2.8.0.2.1 to version 25.10.0.0.0.

ⓘ Note

Existing GG classic processes need to be cleaned up in both the source and target databases.

Clean Up the GG Processes on the Source Database

1. On the source database, log in to the GG command line interface (ggsci prompt).
2. Stop all extract and pump processes associated to this instance if they are not already stopped.
3. Unregister the primary extract processes on the source system related to this context.

```
GGSCI> dblogin userid <gguser name>, password <Password>
GGSCI> unregister extract <primary extract name> database
```

ⓘ Note

Run this command for each primary extract process created for context code. Primary extract process suffix with "X" and pump extract process suffix with "P". Once the extract process is unregistered, make sure that there is no data related to this context in the source database's DBA_CAPTURE view.

ⓘ Note

Run this query in the source database and verify that no results are displayed.

```
select * from dba_capture where capture_name like '%<contextcode>%';
```

4. Delete each one of the instance's extract and pump processes.

```
GGSCI> Delete extract <extract and pump process name>
```

5. Clean up all trail files present in <Source GG Home>/dirdat/<Context Code>.
6. Clean up all instance-related checkpoint files present in <Source GG Home>/dirchk/.
7. Clean up all context-related report files present in <Source GG Home>/dirrpt/.
8. Clean up all context-related temporary files present in <Source GG Home>/dirtmp.

9. Clean up all context-related obey files present in <Source GG Home>/diroby/.
10. Clean up all context-related parameter files present in <Source GG Home>/dirrpm/.

 **Note**

Do not modify or remove any other parameter file. For example, do not modify or remove *manager.prm* or *jagent.prm*. But the manager and jagent param files can be removed if you opt to uninstall Goldengate Classic.

11. Check if there is any data in the source GG owner schema B1_OGG_SYNC_LOG table.

If there is data for OGG_MODEL_CD, delete the records pertaining to the instance that is to be de-registered.

```
select OGG_MODEL_CD FROM <GG Owner Schema>.B1_OGG_SYNC_LOG WHERE
OGG_MODEL_CD like '<context code>%';
DELETE FROM <GG Owner Schema>.B1_OGG_SYNC_LOG WHERE OGG_MODEL_CD like
'<context code>%';
COMMIT;
```

Clean Up the GG Processes on the Target Database

1. On the target database, log in to the GG command line interface (ggsci prompt).
2. Stop all replicat processes associated to this context if they are not already stopped.
3. Log in to the database by using the **DBLOGIN** command from the GGSCI command prompt.

Use the DBLOGIN credential from the <Context Code>.oby file that is located in the <Goldengate Home>/dirtmp directory.

4. Delete from the target system all replicat processes related to this context.

```
GGSCI> Delete replicat <replicat process name>
```

5. Clean up all trail files present in <Source GG Home>/dirdat/<Context Code>.
6. Clean up all instance-related checkpoint files present in <Target GG Home>/dirchk/.
7. Clean up all context-related report files present in <Target GG Home>/dirrpt/.
8. Clean up all context-related temporary files present in <Target GG Home>/dirtmp.
9. Clean up all context-related obey files present in <Target GG Home>/diroby/.
10. Clean up all context-related parameter files present in <Target GG Home>/dirrpm/.

 **Note**

Do not modify or remove any other parameter file. For example, do not modify or remove *manager.prm* or *jagent.prm*. But the manager and jagent param files can be removed if you opt to uninstall Goldengate Classic.

11. Ensure that no entry is present in the checkpoint table for the replicat processes related to the current context.

```
Select * from mdadm.b1_checkPoint where group_name like '<context code>%';
```

Upgrade the Tech Stack for the Source Database Server

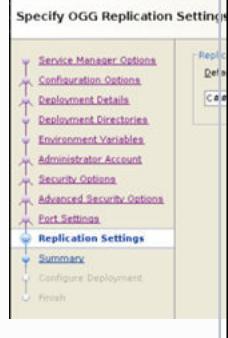
This section covers the instructions for the downloads, installations, and upgrades that can be performed on the source database server.

Note

- Before upgrading, back up the current environment and ensure you have a rollback plan.
- Make sure the same OS user installs all software, and that you replace all parameters enclosed in <> with valid values.
- While the table below includes some directory structures as examples, you can choose where to install the software.

Task	Description
Download and install GoldenGate Microservices	<ol style="list-style-type: none">1. Download Oracle GoldenGate Microservices 23ai from Oracle Software Delivery Cloud to a temporary directory. See Installing Oracle GoldenGate Microservices for details. Example: </u01/ouaw/temp/goldengate>2. Install Oracle GoldenGate Microservices on the Source Database server(s) at a customized location. Example: </u01/ouaw/goldengate_MA>. This will be referred to as Oracle GoldenGate Microservices Installation Home.
Apply patch for GoldenGate Microservices	<p>Download and apply patch 38139662 (for Linux) from My Oracle Support.</p> <div data-bbox="1165 1499 1472 1752"> Note Find the detailed patch installation steps in the README file within each Patch Package.</div>

Task	Description
Create Oracle GoldenGate Microservices Deployment	<p>Note OUAW only supports GoldenGate Microservice Secure Deployments.</p> <p>Prerequisite:</p> <ul style="list-style-type: none"> • Ensure you have Root CA Certificates, Server Certificates, Client Certificates for Distribution (Source) and Receiver (Target) GoldenGate Microservices Servers and create the trust between the Certificates before Oracle GoldenGate Microservices Deployment. See more details for Secure. <p>Add Oracle GoldenGate Microservices Deployment with the following command:</p> <pre><Oracle GoldenGate Microservices Installation Home>/bin/oggca.sh</pre> <p>Refer to Deploy for more information</p> <p>Examples:</p> <ul style="list-style-type: none"> • </u01/ouaw/goldengate_SM> - This will be referred to as Oracle GoldenGate Microservices Service Manager Home. • </u01/ouaw/goldengate_Deploy> - This will be referred to as Oracle GoldenGate Microservices Deployment Home. <p>Note Set the Replication Schema settings.</p> <ul style="list-style-type: none"> • Set the Default Schema to the Oracle GoldenGate Owner like <i>C##GGOWNER</i> for the Distribution (Source) GoldenGate Microservices. Do not create a new GoldenGate Owner. Use the same user that was used in GoldenGate

Task	Description
	<p>Classic Source configuration.</p> 

Upgrade the Tech Stack for the Target Database Server

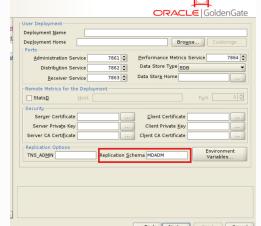
This section covers the instructions for the downloads, installations, and upgrades that can be performed on the Oracle Utilities Analytics Warehouse database server.

Note

- Before upgrading, back up the current environment and ensure you have a rollback plan.
- Make sure the same OS user installs all software, and that you replace all parameters enclosed in <> with valid values.
- While the table below includes some directory structures as examples, you can choose where to install the software.

Task	Description
Download and install the Java Development Kit	<p>Java 17</p> <ol style="list-style-type: none"> 1. Download the Oracle Java Development Kit (JDK) 17.0.16+ from Oracle Technology Network to a temporary directory. 2. Install the JDK at a customized location. Example: </u01/ouaw/java17>

Task	Description
Download and apply Database Server Patch	<p>Download and apply the Database Server Patch 37960098 from My Oracle Support to a temporary directory.</p> <div data-bbox="1142 369 1468 623" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p>i Note</p><p>Find the detailed path installation steps in the README file within each Patch Package.</p></div>
Download and install GoldenGate Microservices	<ol style="list-style-type: none">1. Download Oracle GoldenGate Microservices 23ai from Oracle Software Delivery Cloud to a temporary directory. See Installing Oracle GoldenGate Microservices for details. Example: </u01/ouaw/temp/goldengate>2. Install Oracle GoldenGate Microservices on the Target Database server(s) at a customized location. Example: </u01/ouaw/goldengate_MA>. This will be referred to as Oracle GoldenGate Microservices Installation Home.
Apply patch for GoldenGate Microservices	<p>Download and apply patch 38139662 (for Linux) from My Oracle Support.</p> <div data-bbox="1142 1214 1468 1467" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p>i Note</p><p>Find the detailed patch installation steps in the README file within each Patch Package.</p></div>

Task	Description
<p>Create Oracle GoldenGate Microservices Deployment</p> <p>Add Oracle GoldenGate Microservices Deployment with the following command:</p> <pre data-bbox="926 868 1372 931"><Oracle GoldenGate Microservices Installation Home>/bin/oggca.sh</pre> <p>Refer to Deploy for more information</p> <p>Examples:</p> <ul style="list-style-type: none"> • </u01/ouaw/goldengate_SM> - This will be referred to as Oracle GoldenGate Microservices Service Manager Home. • </u01/ouaw/goldengate_Deploy> - This will be referred to as Oracle GoldenGate Microservices Deployment Home. 	<p>Note OUAW only supports GoldenGate Microservice Secure Deployments.</p> <p>Prerequisite:</p> <ul style="list-style-type: none"> • Ensure you have Root CA Certificates, Server Certificates, Client Certificates for Distribution (Source) and Receiver (Target) GoldenGate Microservices Servers and create the trust between the Certificates before Oracle GoldenGate Microservices Deployment. See more details for Secure. <p>Set the Replication Schema settings.</p> <ul style="list-style-type: none"> • Set the Replication Schema to MDADM for the Receiver (Target) GoldenGate Microservices. 

Task	Description
	
Download and extract Oracle APEX	<ol style="list-style-type: none"> 1. Download the latest version of Oracle APEX 24.2 from Oracle APEX to a local directory. Example: </u01/ouaw/apex>. 2. Extract the APEX installer into customized location. Example: </u01/ouaw/apex> This location will be referred to as the APEX Home directory.
Download the OUAW database software	<ol style="list-style-type: none"> 1. Download "Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip" from Oracle Software Delivery Cloud. 2. Unzip the file to a temporary directory using any zip command. Example: </u01/ouaw/temp/database>. <div data-bbox="1008 994 1475 1220" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;">  Note <p>You can find the OUAW Database Installers at the following location after unzipping the file: </u01/ouaw/temp/database/BI251000></p> </div>
Extract the Admin Tool	<ol style="list-style-type: none"> 1. Download "Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip" from Oracle Software Delivery Cloud. 2. Extract "Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip" AdminTool folder to a temporary directory. Example: </u01/ouaw/temp/AdminTool>. This directory contains database SQL scripts.

Upgrade the Tech Stack for the Target Application Server

This section covers the instructions for the downloads, installations, and upgrades that can be performed on the Oracle Utilities Analytics Warehouse application server.

ⓘ Note

- Before upgrading, back up the current environment and ensure you have a rollback plan.
- Make sure the same OS user installs all software, and that you replace all parameters enclosed in <> with valid values.
- While the table below includes some directory structures as examples, you can choose where to install the software. Make sure to keep track of all the home directories you create, as these will be used for OUAW installation.

Task	Description
Download and install the Java Development Kit	<p>Java 8</p> <ol style="list-style-type: none">1. Download the Oracle Java Development Kit (JDK) 1.8.461 from Oracle Technology Network to a temporary directory.2. Install the JDK at a customized location. Example: </u01/ouaw/java> <div data-bbox="1003 897 1476 1077" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> ⓘ Note<p>This will be referred to as JAVA_HOME for FMW 12c and OAS installation.</p></div>
	<p>Java 17</p> <ol style="list-style-type: none">1. Download the Oracle Java Development Kit (JDK) 17.0.16+ from Oracle Technology Network to a temporary directory.2. Install the JDK at a customized location. Example: </u01/ouaw/java17> <div data-bbox="1003 1341 1476 1552" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"> ⓘ Note<p>This will be referred to as JAVA_HOME for FMW 14c, ODI 14c, Apex 24.2, ORDS 25.1.1, and and OUAW installation.</p></div>

Task	Description
Download and install database client	<p>Download the Oracle Database Client from Oracle Software Delivery Cloud and install it at a customized location.</p> <p>Example: </u01/ouaw/clientBase></p> <div data-bbox="1142 411 1468 813" style="border: 1px solid #ccc; padding: 10px; border-radius: 10px;"><p> Note</p><p>This task is optional if both the OUAW application server and the database server are installed on the same machine. See Install Oracle Database Client for more information.</p></div>

Task	Description
Download and install Oracle Fusion Middleware Infrastructure Patch	<p>FMW 12c</p> <ol style="list-style-type: none">1. Download the Oracle Fusion Middleware Infrastructure 12.2.1.4 from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/middleware>2. Install the software at a customized location. Example: </u01/ouaw/middleware12c>
	<p>FMW 14c</p> <ol style="list-style-type: none">1. Download the Oracle Fusion Middleware Infrastructure 14.1.2.0 from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/middleware>2. Install the software at a customized location. Example: </u01/ouaw/middleware14c>

 **Note**

This will be referred to as FMW Home for OAS installation. See [Installing and Configuring Oracle Fusion Middleware Infrastructure](#) for more information.

 **Note**

This will be referred to as FMW Home for Apex Domain where i.war (Apex 24.2) and ords.war (ords 25.1.1) will be deployed and ODI 14c installation. See [Installing and Configuring Oracle Fusion Middleware Infrastructure](#) for more information.

Task	Description
Download and apply Oracle Fusion Middleware Infrastructure Patch	<p>FMW/WLS 12c Patches</p> <p>FMW/WLS 14c Patches</p>
	<p>FMW/WLS 12c Patches</p> <p>FMW/WLS 14c Patches</p>
Download and install Oracle Analytics Server (OAS)	<ol style="list-style-type: none"> 1. Download the Oracle Analytics Server version 8.2 (2025) from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/oas> 2. Install the OAS software at the <FMW 12c Home> location, here considers ORACLE_HOME path. Example: </u01/ouaw/middleware12c>. After installation, you can find the "bi" directory inside the FMW Home. Example: <FMW Home>/bi. <p>See Install Oracle Analytics Server for more information.</p>
Download and apply Oracle Analytics Server (OAS) Patch	<p>Download and apply the Oracle Analytics Server 8.2 patches 38161336 and 34809489 from My Oracle Support.</p> <p>FMW/WLS 12c Patches</p> <p>FMW/WLS 14c Patches</p> <p>FMW/WLS 12c Patches</p> <p>FMW/WLS 14c Patches</p>

Task	Description
Download and install Oracle Data Integrator (ODI)	<ol style="list-style-type: none"> 1. Download Oracle Data Integrator (ODI) 14.1.2 from Oracle Software Delivery Cloud to a temporary directory. Example: </u01/ouaw/temp/ODI>. 2. Extract and install ODI at the ORACLE_HOME location at same as FMW 14c Home path. Example: </u01/ouaw/middleware14c>. After installation, you can find the ODI directory under the FMW Home path. Example: <FMW 14c Home>/odi. If necessary, see Install Oracle Data Integrator for detailed instructions.
Download and apply the ODI patch	<div style="border: 1px solid #ccc; padding: 10px; border-radius: 10px; text-align: center;"> <p>i Note</p> <p>Do not apply any ODI 14c patch in this step. Patches will be applied after ODI Domain Upgrade.</p> </div>
Download and Extract APEX	<p>Download Oracle APEX 24.2 from Oracle Application Express and extract it to a local directory.</p> <p>Example: </u01/ouaw/apex> After extraction, you can see the apex folder. Example: </u01/ouaw/apex/apex></p>
Download and Extract ORDS	<p>Download the Oracle REST Data source (ORDS) 25.1.1 version from Oracle REST Data Services Download and extract it to a local directory.</p> <p>Example: </u01/ouaw/ords> After extraction you can see the ords folder. Example: </u01/ouaw/ords></p>

Task	Description
Download the OUAW Application Software	<p>1. Download the Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip and Oracle Utilities Analytics Warehouse v25.10.0.0 Dashboard Component.zip files from https://www.oracle.com/technetwork/java/javase/downloads/index.html Oracle Software Delivery Cloud.</p> <p>2. Extract Oracle Utilities Analytics Warehouse v25.10.0.0 Multiplatform.zip and Oracle Utilities Analytics Warehouse v25.10.0.0 Dashboard Component.zip files to a temporary directory. Example: </u01/ouaw/temp/application>.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p> ⓘ Note</p> <p>The ETL Component installer jar file is OUAW_25.10.0.0.0_ETL_generic.jar and the Dashboard Components are <OAS Version>/rpd, catalog, and WriteBackTemplates.</p> </div>

Upgrade the Existing Domains and Repository

This section details how to upgrade the existing domains and the repository in accordance with the in-place upgrade domain strategy.

ⓘ Note

Before upgrading a repository or domain activity, make sure you have a rollback plan in case it is necessary to revert your changes.

ODI Repository and Domain In-Place Upgrades

1. For ODI repository and domain in-place upgrades, follow the steps in [Upgrading Oracle Data Integrator](#).

ⓘ Note

The ./ua -readiness may fail while running it, generating the exception: "Failed to establish a connection to data source WLSSchemaDataSource" because of the error "UPGAST-00214: Unable to connect to database as the schema user DEV_WLS_RUNTIME". To solve this, it is necessary to follow the steps from the document 2751829, which is available through [My Oracle Support](#).

2. Download and apply FMW/WLS 14c patches **38166406**, **38015961**, **38184117**, **38032126**, and ODI 14c patches **38172533** and **36668195** from [My Oracle Support](#).

Note

Find the detailed patch installation steps in the README file within each Patch Package.

OAS Repository and Domain In-Place Upgrades

For OAS repository and domain in-place upgrades, follow the steps in [Upgrading to the Latest Release of Oracle Analytics Server](#).

Apex Domain In-Place Upgrade

1. Start apex Admin and Managed server.

```
nohup ./startWebLogic.sh > startWebLogic.log 2>&1 &
nohup ./startManagedWebLogic.sh <apex_server1> > StartManagedWeblogic.log
2>&1 &
```

2. Remove ords.war and i.war apps from APEX WebLogic console.
 - a. Log in to APEX WebLogic console.
 - b. Navigate to **Deployments > Control**.
 - c. Click **Stop** and select **Force Stop Now**.
 - d. Click **Yes**.
 - e. On the **Configuration** tab, click **Lock and Edit**.
 - f. Under **Deployments**, select both i and ords.
 - g. Click **Delete**.
 - h. Confirm the deletion and click **Activate Changes**.
3. Stop apex Admin and Managed server during the apex domain upgrade.
4. The same steps that were used for upgrading the OAS domain will be used for the Apex domain in-place upgrade, except from the step for Upgrading Product Schemas. Product schemas/RCU schema are not present in this Apex domain. See [Upgrading to the Latest Release of Oracle Analytics Server](#) for details.

Upgrade OUAW Components

This page details how to upgrade the database, ETL, admin tool, and dashboard components for Oracle Utilities Analytics Warehouse v25.10.0.0.0.

Upgrade the Database Component

This section details the steps to upgrade the Oracle Utilities Analytics Warehouse database component.

Copy and Decompress the Install Media

1. Download Oracle Utilities Analytics Warehouse v25.10.0.0.0. Oracle Database part file (Oracle Utilities Analytics v25.10.0.0.0. Oracle Database Multiplatform.zip) from [Oracle Software Delivery Cloud](#) onto the target database server.

2. Create a temporary directory (example: </OUA/temp > for a Linux machine). This directory (referred to as <TEMPDIR> below) must be located outside any current working Oracle Utilities application environment. All files that are placed in this directory as a part of the installation can be deleted after completing a successful installation.
3. Unzip Oracle Utilities Analytics Warehouse v25.10.0.0.0. Oracle Database Multiplatform.zip to <TEMPDIR> using any zip utility.
4. Execute the SQL below before installing the RELADM, MDADM, and DWADM Schemas. This provides the required permissions to the users created.

```
Usersgrants.sql in <TEMPDIR>/BI251000/Scripts/Usersgrants.sql
```

Install the RELADM Schema

1. Log in to the target database server.
2. Navigate to the temporary directory into which the Oracle Utilities Analytics Warehouse v25.10.0.0.0. Oracle Database Multiplatform zip file was extracted.

```
cd database/BI251000/RELADM/Install-Upgrade
```

3. Review Storage.xml to ensure the RELADM user has quota on the mentioned tablespace in file. If not, edit the file with correct tablespace name.
4. Add JAVA_HOME/bin (JDK 17) to the PATH variable.
5. Set CLASSPATH pointing to the location where OraDBI.jar and all dependency jars exist.

```
export CLASSPATH=<TEMPDIR>/BI251000/RELADM/Jarfiles/*
```

6. Execute the command below. Once complete, the utility creates the RELADM schema and system data definitions.

```
java com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE SERVICENAME>,RELADM,<Password of RELADM User>,,,,,RELADM -l 1,2 -o -q true
```

 **Note**

If an error occurs while executing a SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

7. To generate database statistics after connecting to sys user, run the statement below:

```
exec DBMS_STATS.GATHER_SCHEMA_STATS( 'RELADM' )
```

Install the MDADM Schema

1. Log in to the target database server.
2. Navigate to the temporary directory into which the Oracle Utilities Analytics Warehouse v25.10.0.0.0. Oracle Database Multiplatform zip file was extracted.

```
cd database/BI251000/MDADM/Install-Upgrade
```

3. Review Storage.xml to ensure the MDADM user has quota on the mentioned tablespace in file. If not, edit the file with correct tablespace name.
4. Add JAVA_HOME/bin (JDK 17) to the PATH variable.
5. Set CLASSPATH pointing to the location where OraDBI.jar and all dependency jars exist.

```
export CLASSPATH=<TEMPDIR>/BI251000/MDADM/Jarfiles/*
```

6. Execute the command below. When completed, the utility creates the MDADM schema and system data definitions.

```
java com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE SERVICENAME>,MDADM,<Password of MDADM User>,,,,,MDADM -l 1,2 -o -q true
```

 **Note**

If an error occurs while executing a SQL or another utility, it logs and displays the error message and allows you to re-execute the current step.

7. To generate database statistics after connecting to sys user, run the statement below:

```
exec DBMS_STATS.GATHER_SCHEMA_STATS( 'MDADM' );
```

Install the DWADM Schema

1. Log in to the target database server.
2. Navigate to the temporary directory into which the Oracle Utilities Analytics Warehouse v25.10.0.0.0 Oracle Database Multiplatform.zip file was extracted.

```
cd database/BI251000/DWADM/Install-Upgrade
```

3. Review Storage.xml to ensure the DWADM user has quota on mentioned tablespace in file. If not, edit the file with correct tablespace name.
4. Add JAVA_HOME/bin (JDK 17) to the PATH variable.
5. Set CLASSPATH pointing to the location where OraDBI.jar and all dependency jars exist.

```
export CLASSPATH=<TEMPDIR>/BI251000/DWADM/Jarfiles/*
```

6. Execute the command below. When completed, the utility creates the DWADM schema and system data definitions.

```
java com.oracle.ouaf.oem.install.OraDBI -d jdbc:oracle:thin:@<DATABASE SERVER>:<DATABASE PORT>/<ORACLE SERVICENAME>,DWADM,<Password of DWADM User>,DWUSER,DWREAD,DW_USER,DW_READ,DWADM -p <Password of DWUSER>,<Password of DWREAD> -l 1,2 -o -q true
```

① Note

If an error occurs while executing a SQL or another utility, it logs and displays the error message, allowing you to re-execute the current step.

7. To generate database statistics after connecting to sys user, run the statement below:

```
exec DBMS_STATS.GATHER_SCHEMA_STATS( 'DWADM' );
```

Upgrade the ETL Component

Prerequisites

Before installing the OUAW ETL component, verify the following:

- Use the same operating system user used to install the required software.
- Ensure Oracle GoldenGate Microservices is installed on the target database server.
- Ensure that Oracle GoldenGate Microservices Manager, Admin, and Receiver Services are running on the target database server.
- Ensure latest Java 17 version (Example: 17.0.16+) is installed on the application server.
- Ensure Oracle Fusion Middleware Infrastructure 14.1.2.0 installation and patches are applied on the target application server.
- Ensure Oracle Data Integrator (ODI) 14.1.2.0 and patches are applied on the target application server.
- Ensure ODI domain admin and managed servers are in stopped state.
- Purge all the ODI operator logs.

Create a Security Wallet on the Target Database Server

1. Log in to the target database server.
2. Create a directory which will be used for security wallet creation.

Example:

```
mkdir -p /scratch/ouawcicd/ouaw_target_wallet
```

3. Copy the Target GoldenGate Microservice Root CA & Intermediate certificates (if any) to the created directory and create the wallet with orapki.

```
orapki wallet create -wallet <wallet location> -auto_login -pwd <wallet password>
```

Example:

```
orapki wallet create -wallet /scratch/ouawcicd/ouaw_target_wallet/wallet -auto_login -pwd oracle123
```

Where /scratch/ouawcicd/ouaw_target_wallet/wallet is Target Security Wallet location.

4. Import the Target GoldenGate Microservice Root CA & Intermediate certificates to the created wallet.

```
orapki wallet add -wallet <wallet location> -trusted_cert -cert <Root CA/Intermediate Certificate> -pwd <wallet password>
```

Example:

```
orapki wallet add -wallet /scratch/ouawcicd/ouaw_target_wallet/wallet -trusted_cert -cert DigiCert_Global_G2_TLS_RSA_SHA256_2020_CA1_INT.pem -pwd oracle123
```

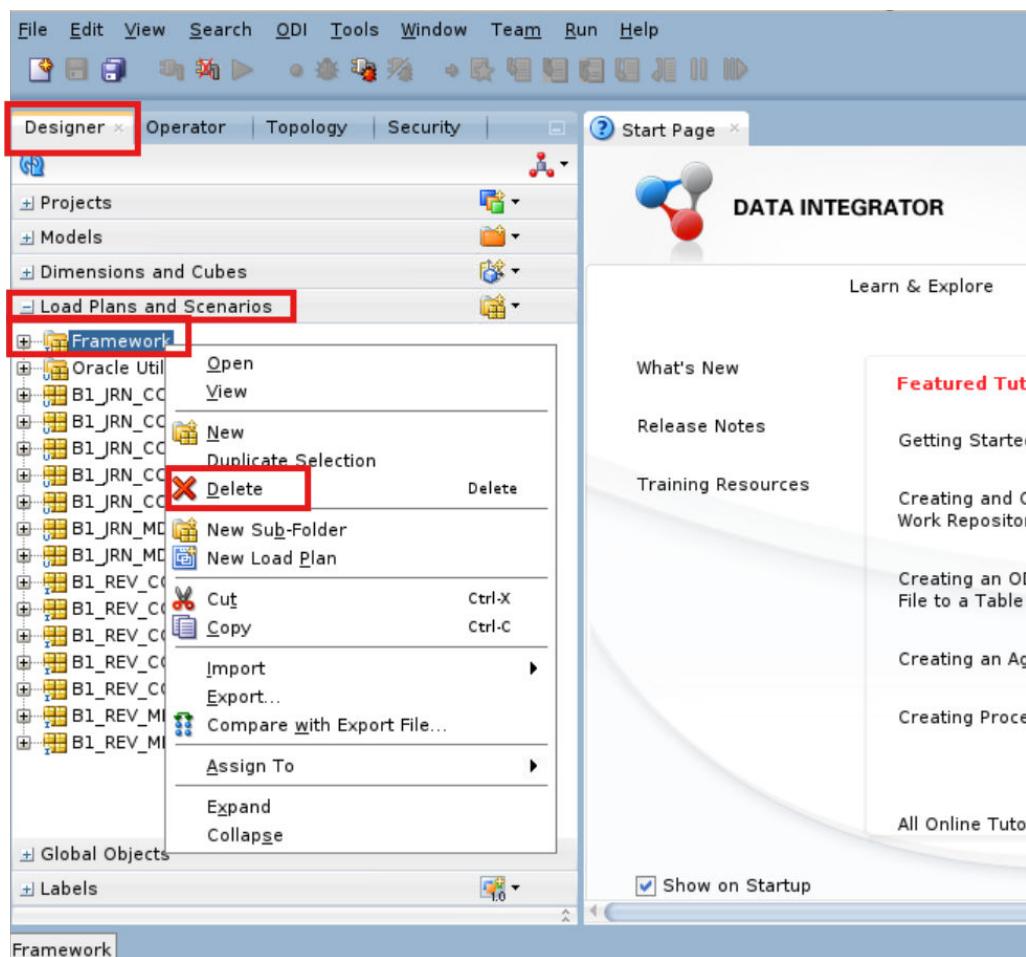
Install the ETL Component

1. Log in to Oracle Utilities Analytics Warehouse ODI server and start the ODI client.

```
export JAVA_HOME=<JAVA 17 HOME>
export PATH=$JAVA_HOME/bin:$PATH
cd <FMW 14c Home>/odi/studio/bin
./odi
```

2. Delete the SFOL framework.

- a. In ODI Studio, navigate to **Designer Tab > Load Plans and Scenarios > Framework**.
- b. Right-click on **Framework** then click **Delete**.



3. Navigate to the temporary directory where OUAW installer is downloaded. Example: <TEMPDIR/application>.
4. Set the JAVA 17 HOME and add PATH.

```
export JAVA_HOME=<JAVA 17 HOME>
export PATH=$JAVA_HOME/bin:$PATH
```

① Note

ETL Installer is now only supported with Java 17.0.16+.

5. Launch the OUAW installer by running the command below. The OUAW installer **Welcome** page appears.

```
java -jar OUAW_25.10.0.0.0_ETL_generic.jar -logLevel finest
```

6. Review the information before you begin the installation. Click **Next** to continue.

① Note

If you are installing Oracle software on the server for the first time, provide central inventory details such as the inventory directory location and operating system group.

7. On the **Installation Location** page, define the installation location in the **Oracle Home** field and click **Next**.

① Note

The specified Oracle home directory must be an empty directory.

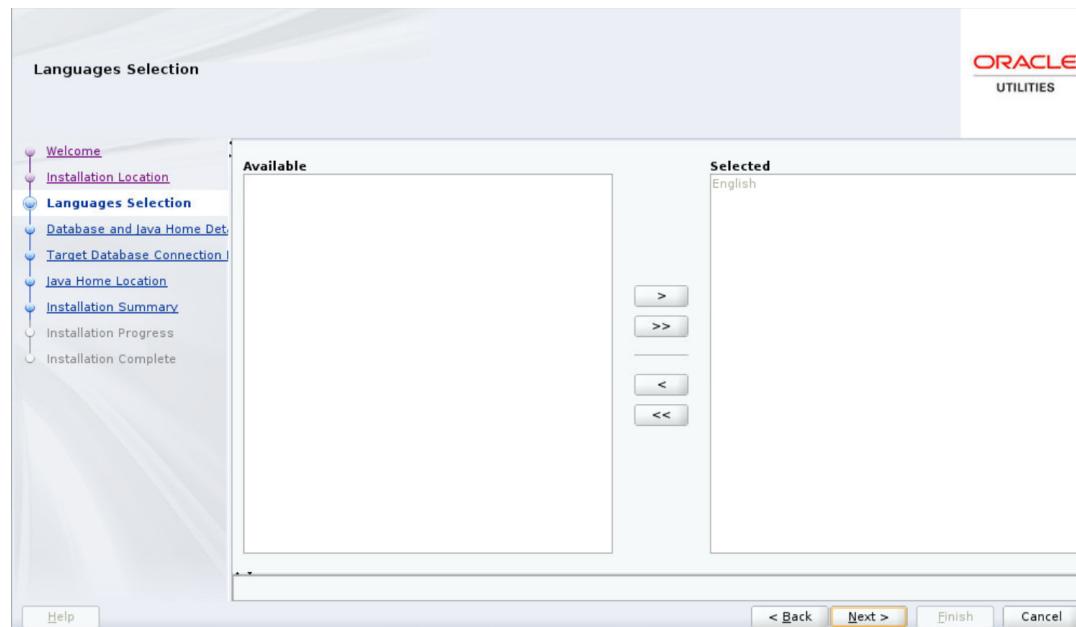


Field Name and Description	Value
Oracle Home: The directory where the Oracle Utilities Analytics Warehouse ETL is going to be installed.	Example: <OUA ETL Home> </scratch/ouawcicd/deployments/OUAW_ETL>

① Note

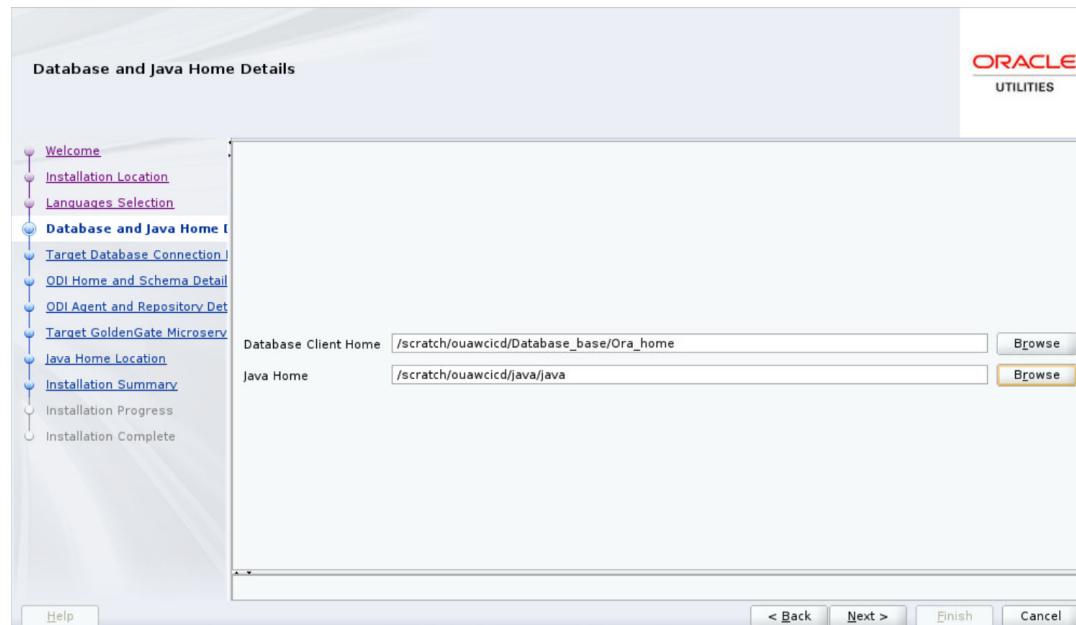
This directory location is called the **ETL Home**. Keep track of it as it will be used during some deployment steps.

8. On the **Languages Selection** page, select **English** and click **Next**.



Field Name and Description	Value
Language Selection: The language for the installation process.	English

9. On the **Database and Java Home Details** page, enter the details as in the table below, and click **Next**.



Field Name and Description	Value
Database Client Home: Enter the Oracle Database Client installed location or Database Home location in the case where the same server is being used for both the application and database server.	Example: <Database Client> or <ORACLE_HOME> </scratch/ouawcicd/dbclient> or </scratch/ouawcicd/Database_base/Ora_home>
Java Home: Enter the Java installed location.	Example: <JAVA HOME> </scratch/ouawcicd/java/java>

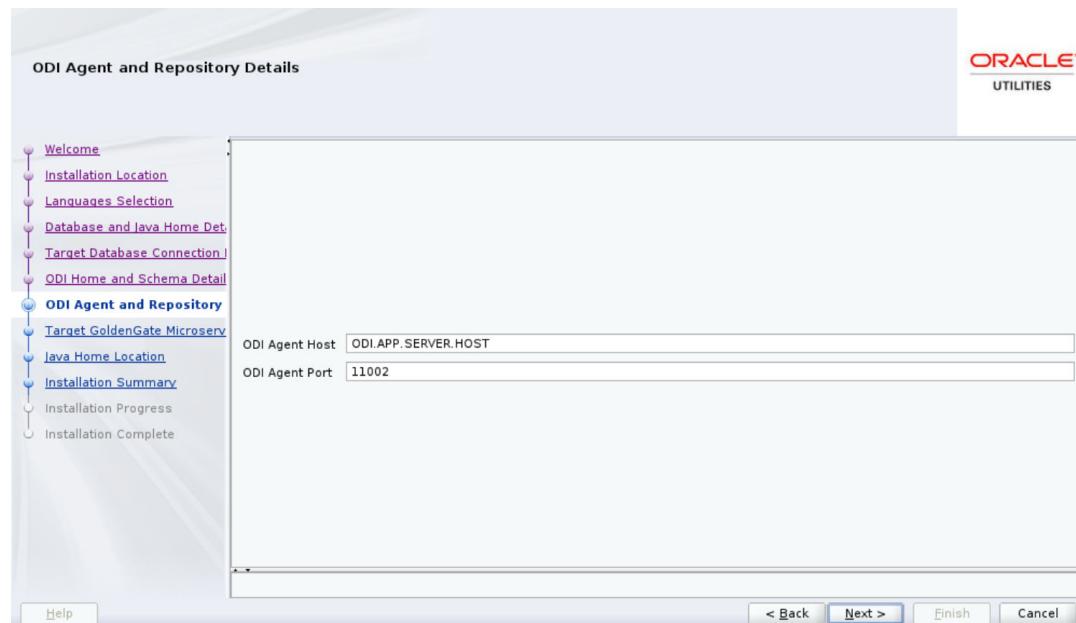
10. On the **Target Database Connection Details** page, enter the following and click **Next**.

Field Name and Description	Value
Host: The target database server where database resides.	Target Database server host name. Example: target.dbserver.hostname
Port: The target database server port number.	Target Database port. Example: <1521>
Service Name: The target database service name.	<Database service name>
Target Schema Password: Password for the target schema (DWADM).	<DWADM user password>
Confirm Target Schema Password: Confirm password for the target schema (DWADM).	<DWADM user password>
Target Schema Password: Password for the metadata schema (MDADM).	<MDADM user password>
Confirm Target Schema Password: Confirm password for the metadata (MDADM) schema.	<MDADM user password>
Adb Wallet Directory: Directory of ADB wallet location.	Keep it blank
Adb Service Name: ADB Service Name	Keep it blank

11. On the **ODI Home and Schema Details** page, enter the following and click **Next**.

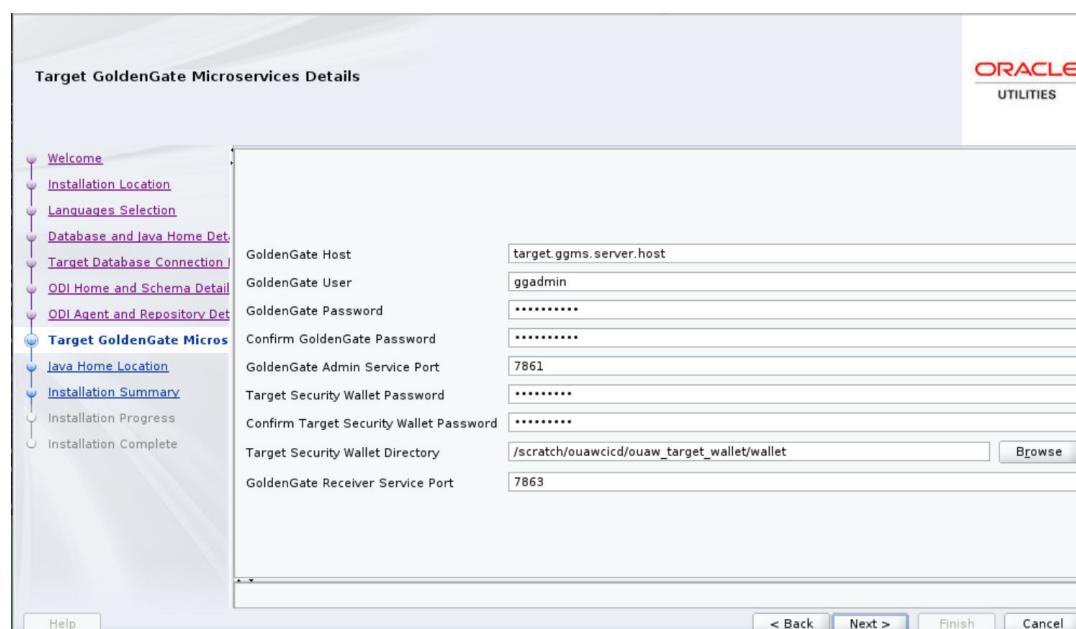
Field Name and Description	Value
ODI Home: The directory where Oracle Data Integrator (ODI) is installed.	Location of FMW Home Example: </scratch/ouawcicd/weblogic>
Supervisor User: Name of the Oracle Data Integrator Supervisor.	SUPERVISOR
Supervisor Password: Enter the Supervisor Password and store it for future reference.	<Supervisor user password >
Confirm Supervisor Password: Enter same as Supervisor Password.	<Supervisor user password >
Master Repository Schema Name: Oracle Data Integrator master repository schema name.	OUA_MASTER
Master Repository Schema Password: Master Repository schema password.	<OUA_MASTER user password>
Confirm Master Repository Schema Password: Confirm password of the Oracle Data Integrator master repository schema.	<OUA_MASTER user password>
Work Repository Schema Name: Oracle Data Integrator work repository schema name.	OUA_WORK
Work Repository Schema Password: Work Repository schema password.	<OUA_WORK user password>
Confirm Work Repository Schema Password: Confirm password of Oracle Data Integrator work repository schema.	<OUA_WORK user password>

12. On the **Oracle Data Integrator Agent and Repository Details** page, enter the details as in the table below and click **Next**.



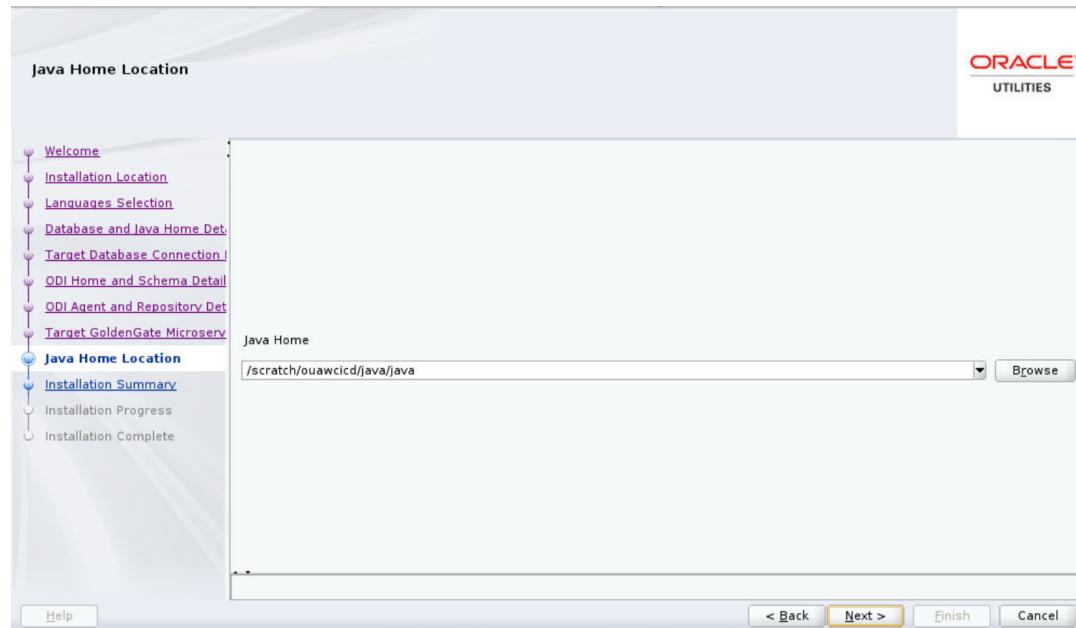
Field Name and Description	Value
ODI Agent Host: The application server hostname where the ODI application server is installed.	Target APP Server Host Example: <ODI.APP.SERVER.HOST>
ODI Agent Port: Enter the port which is the Oracle Data Integrator WebLogic Managed Server port. Make sure that you use the same port while creating Oracle Data Integrator managed server.	Example: <11002>

13. On the **Target GoldenGate Microservices Details** page, enter the details as in the table below, and click **Next**.



Field Name and Description	Value
GoldenGate Host: Target Oracle GoldenGate Microservice Host. Enter the Target database hostname where GoldenGate Microservices is installed.	Target database server host/Target GoldenGate Microservice Server Host Example: <target.ggms.server.host> = <dbserver.hostname>
GoldenGate User: Enter the GoldenGate Microservices Admin user.	Example: <ggadmin>
GoldenGate Password: Enter the GoldenGate Microservices Admin user password.	Example: <ggadmin user password>
Confirm GoldenGate Password: Re-enter the GoldenGate Microservices Admin user password.	Example: <ggadmin user password>
GoldenGate Admin Service Port: The Target Oracle GoldenGate Microservices Admin Service port which is running on the target database server host.	Example: <7861>
Target Security Wallet Password: Enter the Wallet Password on the target database server host.	<Target Security Wallet Password>
Confirm Target Security Wallet Password: Re-enter the Wallet Password on the target database server host.	<Target Security Wallet Password>
Target Security Wallet Directory: Enter the Wallet directory path on the target database server host. See Create a Security Wallet on the Target Database Server section.	Example: <scratch/ouawcicd/ouaw_target_wallet/wallet>
GoldenGate Receiver Service Port: The Target Oracle GoldenGate Microservices Receiver Service port which is running on the target database server host.	Example: <7863>

14. On the **Java Home Location** page, enter the details as in the table below, and click **Next**.

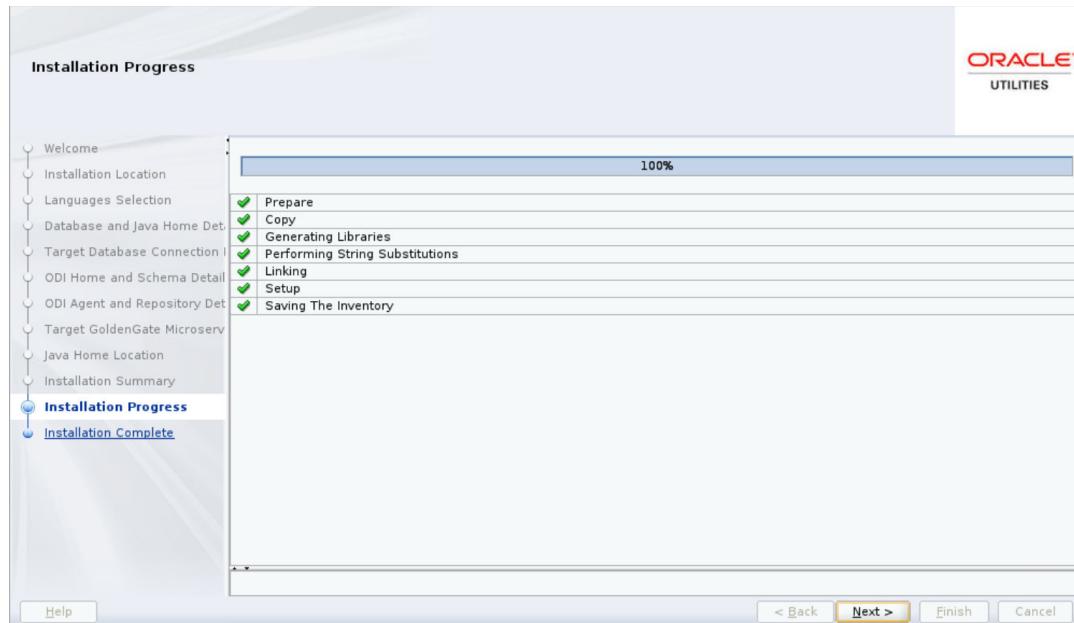


Field Name and Description	Value
Java Home: Enter the Java installed location (on the Application server).	Example: </scratch/ouawcicd/java/java>

15. On the **Installation Summary** page, a summary is displayed. Click the **Install** button to proceed.



16. On the **Installation Progress** page, click **Next** when the progress reaches 100%.



17. On the **Installation Complete** page, note the displayed details and click **Finish** to close the installer wizard. The ETL is now installed.



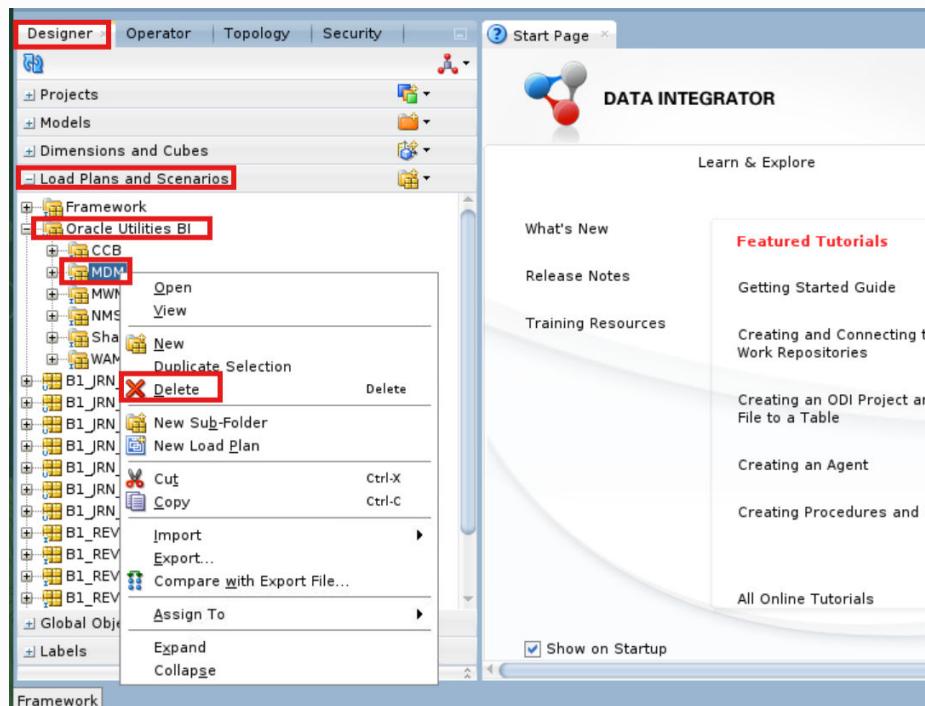
① Note

If the installation fails with "Error (ODI-10245: Cannot import SNP_SCENSTEP null ... because its referenced object is not found in the target repository)" perform the steps below and run the installer again.

Error Example

```
ERROR (oua.base.BIScenario) Scenario Importing SFOL MDM execution
failed after 3 attempt(s) Session Failed :54827 : ODI-1217: Session
Importing SFOL MDM (54827) fails with return code 7000._ODI-1226:
Step Import XML fails after 1 attempt(s)._ODI-1241: Oracle Data
Integrator tool execution fails._Caused By:
com.sunopsis.tools.core.exception.SnpsSimpleMessageException:
ODI-10245: Cannot import SNP_SCENSTEP null (with global id:
976cdcdc-dc61-44a7-88c0-65f63ea2d892 and internal id: 250 | 0)
belonging to SNP_SCEN B1_PKG_B1_VEE_EXCP_TOPX_MON_MV1 Version 001
(with global id: e94e9d0b-792a-31e7-87aa-f164342ca5c6 and internal
id: 250) because its referenced object is not found in the target
repository.
```

- a. In ODI Studio, navigate to **Designer Tab > Load Plans and Scenarios > Oracle Utilities BI > MDM** (Select the product folder as per your error, here it is MDM.).
- b. Right-click on **MDM** then click **Delete**.



- c. Run the ETL installer again.

18. Start ODI Admin and Managed servers.

```
nohup ./startWebLogic.sh > startWebLogic.log 2>&1 &
nohup ./startManagedWebLogic.sh <ODI_server1> > StartManagedWeblogic.log
2>&1 &
```

Upgrade the Administration Tool Component

Prerequisites

To remove the previously created Apex workspace from the database:

1. Connect to the target database as SYSTEM user.

```
export ORACLE_HOME=<ORACLE_HOME>
export ORACLE_SID=<DATABASE SERVICE NAME>
export PATH=$ORACLE_HOME/bin:$PATH
sqlplus system/<system user password>@<DATABASE SERVICE NAME>
```

2. Run the following PL/SQL procedure to remove the workspace.

```
BEGIN
APEX_INSTANCE_ADMIN.REMOVE_WORKSPACE('OBIU_ADM');
END;
/
```

3. Make sure no workspace with "OBIU" exists in the database.

```
select WORKSPACE from APEX_WORKSPACES where WORKSPACE like '%OBIU%';
```

① Note

No rows should be returned from this query.

4. Uninstall the existing ords.war from the database by navigating to ords unzip location on the application server and executing the commands below.

```
cd </u01>/<ords>
export JAVA_HOME=<JAVA 8 HOME>
export PATH=$JAVA_HOME/bin:$PATH
java -jar ords.war uninstall
```

① Note

Provide the necessary inputs for this command and use JDK1.8 to run it.

5. Download Apex 24.2 from [Oracle APEX](#) and place it under a temporary directory in both the OUAW database and application servers.

Example: </u01/temp>

6. Download ORDS 25.1.1 from [Oracle REST Data Services](#) and place it under a temporary directory in the application server.

Example: </u01/temp>

7. Download the Admin tool (Oracle Utilities Analytics Warehouse v25.10.0.0.0 Multiplatform.zip) file from the [edelivery](#) and place it under a temporary directory in the OUAW database server.

Example: </u01/temp>

Admin Tool Installation Steps

1. Log in to the target database server and navigate to the Apex extracted directory.

Example: cd </u01/ouaw/apex>

2. Connect to the Oracle Utilities Analytics Warehouse Database with sys user and execute the following commands in order:

```
export ORACLE_HOME=<ORACLE_HOME>
export ORACLE_SID=<DATABASE SERVICE NAME>
export PATH=$ORACLE_HOME/bin:$PATH
sqlplus sys/<sys user password>@<database service name> as sysdba
@apxrtins.sql <Tablespace name> <Tablespace name> <Temp Tablespace
name> /i/
```

Example:

@apxrtins.sql <CISTS_01> <CISTS_01> <TEMP> /i/

3. Set Apex Admin account and password. Execute the following:

@apxchpwd.sql

4. Run the following to install Apex for the first time:

```
EXEC DBMS_XDB.SETHTTPPORT(0);
SELECT DBMS_XDB.GETHTTPPORT FROM DUAL;
```

 **Note**

This query should result in zero (0).

5. Run the following SQL:

```
ALTER USER APEX_PUBLIC_USER ACCOUNT UNLOCK;
ALTER USER APEX_PUBLIC_USER IDENTIFIED BY APEX_PUBLIC_USER;
@apex_rest_config.sql
```

 **Note**

Make sure to note the password for these two users: APEX_LISTENER user and APEX_REST_PUBLIC_USER.

Configure APEX Workspace for OUAW

To import the Admin tool to configure Oracle Data Integrator:

1. Download and unzip the Oracle Utilities Analytics Warehouse v25.10.0.0.0 Multiplatform.zip file, which includes the AdminTool folder.
2. Copy the Multiplatform zip file into a temp directory within the target database server.
Example: </u01/temp>
3. Navigate to the TEMP directory and connect to the database using the system user.

```
cd </u01/temp/AdminTool>
sqlplus system/<system user password>@<DATABASE SERVICE NAME>
```

- a. Create a workspace and configure the users.

```
@CreateAppWorkspace.sql
```

- b. Import the application.

```
@DeployAdminApp.sql
```

Install ORDS on the Application Server

1. Create the configuration and installation log directories on the application server to configure ORDS.

Example

```
mkdir -p </u01/ouaw/ords_configuration>
mkdir -p </u01/ouaw/ords_install_log>
```

2. Navigate to the ORDS extracted directory on the application server and make sure that the APEX extracted directory is available in the location.

Example: </u01/ouaw/ords>

3. To install ords, execute the following commands:

```
export JAVA_HOME=</u01/ouaw/java17>
export PATH=$JAVA_HOME/bin:$PATH
/u01/ouaw/ords/bin/ords --config
/u01/ouaw/ords_configuration install -interactive --log-folder
/u01/ouaw/ords_install_log
```

See below an example of the command prompt, in which default options will appear enclosed in square brackets []. Use these options, or provide the necessary inputs for your requirements.

```
ORDS: Release 25.1 Production on Fri Jun 06 14:16:28 2025 Copyright (c)
2010, 2025, Oracle.
```

Configuration:

```
/u01/ouaw/ords_configuration
```

```
The configuration folder /u01/ouaw/ords_configuration does not contain
any configuration files. Oracle REST Data Services - Interactive Install
Enter a number to select the TNS net service name to use from /scratch/
ouawcicd/Database_base/Ora_home/network/admin/tnsnames.ora or specify the
database connection [1] OUACICDB      SERVICE_NAME=OUACICDB
[2] OUAW906DB      SERVICE_NAME=OUAW906DB
```

```
[S] Specify the database connection
Choose [1]: <select as per your target pdb service name>
Provide database username with administrator privileges.
Enter the administrator username: sys Enter the database password for SYS
AS SYSDBA:
Retrieving information.
ORDS is not installed in the database. ORDS installation is required.
Enter a number to update the value or select option A to Accept and
Continue
[1] Connection Type: TNS
[2] TNS Connection: TNS_NAME=OUAW906DB TNS_FOLDER=/scratch/ouawcicd/
Database_base/Ora_home/network/admin
Administrator User: SYS AS SYSDBA
[3] Database password for ORDS runtime user (ORDS_PUBLIC_USER):
<generate> [4] ORDS runtime user and schema tablespaces: Default: SYSAUX
Temporary
TEMP
[5] Additional Feature: Database Actions
[6] Configure and start ORDS in Standalone Mode: Yes
[7] Protocol: HTTP
[8] HTTP Port: 8080
[9] APEX static resources location: [A] Accept and Continue - Create
configuration and Install ORDS in the database [Q] Quit - Do not proceed.
No changes
Choose [A]: 3
Enter your choice for the runtime user password (ORDS_PUBLIC_USER)
[S] Specify your own password
[G] Generate password
[C] Cancel - No Changes
Choose [G]: S Enter the database password for ORDS_PUBLIC_USER:
Confirm password:
Enter a number to update the value or select option A to Accept and
Continue
[1] Connection Type: TNS
[2] TNS Connection: TNS_NAME=OUAW906DB TNS_FOLDER=/scratch/ouawcicd/
Database_base/Ora_home/network/admin
Administrator User: SYS AS SYSDBA [3] Database password for ORDS runtime
user (ORDS_PUBLIC_USER): <specified password> [4] ORDS runtime user and
schema tablespaces: Default: SYSAUX Temporary
TEMP
[5] Additional Feature: Database Actions
[6] Configure and start ORDS in Standalone Mode: Yes
[7] Protocol: HTTP
[8] HTTP Port: 8080 [9] APEX static resources location: [A] Accept and
Continue - Create configuration and Install ORDS in the database [Q] Quit
- Do not proceed. No changes
Choose [A]: 6
Enter a number to update the value or select option A to Accept and
Continue
[1] Connection Type: TNS
[2] TNS Connection: TNS_NAME=OUAW906DB TNS_FOLDER=/scratch/ouawcicd/
Database_base/Ora_home/network/admin
Administrator User: SYS AS SYSDBA [3] Database password for ORDS runtime
user (ORDS_PUBLIC_USER): <specified password> [4] ORDS runtime user and
schema tablespaces: Default: SYSAUX Temporary
TEMP
```

```
[5] Additional Feature: Database Actions
[6] Configure and start ORDS in Standalone Mode: No[A] Accept and
Continue - Create configuration and Install ORDS in the database [Q] Quit
- Do not proceed. No changes Choose [A]: The setting named:
db.connectionType was set to: tns in configuration:
default The setting named: db.tnsAliasName was set to: OUAW906DB in
configuration: default The setting named: db.tnsDirectory was set to: /
scratch/ouawcicd/
Database_base/Ora_home/network/admin in configuration: default The setting
named: plsql.gateway.mode was set to: proxied in configuration: default
The setting named: db.username was set to: ORDS_PUBLIC_USER in
configuration: default The setting named: db.password was set to: *****
in configuration: default
The setting named: feature.sdw was set to: true in configuration: default
The global setting named: database.api.enabled was set to: true The
setting named: restEnabledSql.active was set to: true in configuration:
default The setting named: security.requestValidationFunction was set to:
ords_util.authorize_plsql_gateway in configuration: default
2025-06-06T14:19:34.025Z INFO      Installing Oracle REST Data Services
version 25.1.1.r1411642 in OUAW906DB 2025-06-06T14:19:35.449Z
INFO      ... Verified database prerequisites 2025-06-06T14:19:35.777Z
INFO      ... Created Oracle REST Data Services proxy user
2025-06-06T14:19:36.214Z INFO      ... Created Oracle REST Data Services
schema 2025-06-06T14:19:36.741Z INFO      ... Granted privileges to
Oracle REST
Data Services 2025-06-06T14:19:39.255Z INFO      ... Created Oracle REST
Data Services database objects 2025-06-06T14:19:50.792Z INFO
Completed installation for Oracle
REST Data Services version 25.1.1.r1411642. Elapsed time: 00:00:16.744
2025-06-06T14:19:50.860Z INFO      Completed configuring PL/SQL gateway
user for Oracle REST Data Services version 25.1.1.r1411642. Elapsed time:
00:00:00.67
2025-06-06T14:19:50.862Z INFO      Log file written to /u01/ouaw/
ords_install_log/ords_install_2025-06-06_141933_94132.log
```

4. Navigate to the ORDS directory. You will find **ords.war**.

Example: `cd </u01/ouaw/ords>`

5. To create i.war, complete these steps.

- a. Create a directory which is the source for your web archive. In that directory, create a **WEB-INF** directory with the following **web.xml** and **weblogic.xml**.

```
mkdir -p /u01/ouaw/temp/WEB-INF
```

- b. Create **web.xml** and **weblogic.xml** inside **WEB-INF** folder.

```
cd /u01/ouaw/temp/WEB-INF
```

web.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE web-app PUBLIC
"-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"
"http://java.sun.com/j2ee/dtds/web-app_2_3.dtd">
```

```
<web-app>
  <!-- This Web-App leverages the alternate doc-root functionality in
  WebLogic to serve static content
  For WebLogic refer to the weblogic.xml file in this folder
  -->
</web-app>
```

weblogic.xml

```
<weblogic-web-app xmlns="http://www.bea.com/ns/weblogic/weblogic-web-
app">

  <!-- This element specifies the context path the static resources are
  served from -->
  <context-root>/i</context-root>

  <virtual-directory-mapping>
    <!-- This element specifies the location on disk where the static
    resources are located -->
    <local-path></scratch/apex/apex_21.2_en/images></local-path>
    <url-pattern>/*</url-pattern>
  </virtual-directory-mapping>

</weblogic-web-app>
```

 **Note**

<local-path> is the path of apex image folder.

c. To create **i.war** with the **web.xml** and **weblogic.xml** files, execute the following command:

```
export JAVA_HOME=</u01/ouaw/java17>
export PATH=$JAVA_HOME/bin:$PATH

jar cMf i.war WEB-INF/web.xml WEB-INF/weblogic.xml
```

 **Note**

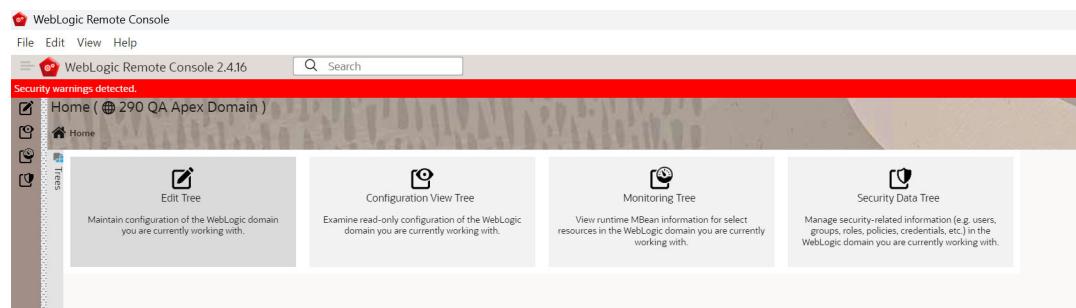
For more information, refer to [Deploying Oracle REST Data Services](#).

Install the **ords.war** and **i.war** files

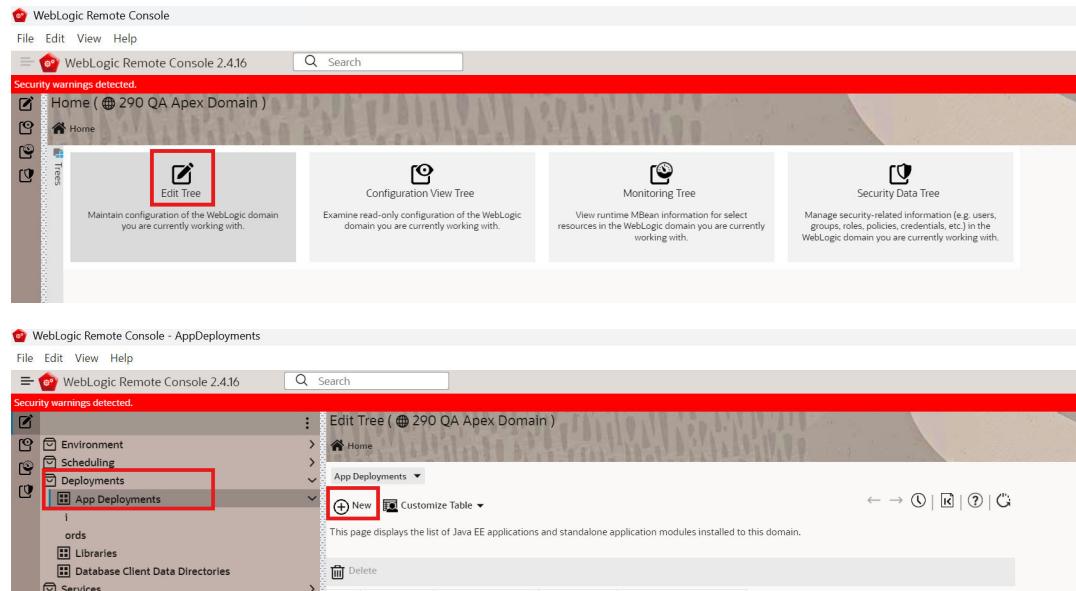
 **Note**

To access the WebLogic 14c admin console, you need to install the WebLogic Remote Console in your system. Refer to [WebLogic Remote Console](#) for more information.

1. Log in to the <apex domain> WebLogic administration console.



2. Navigate to **Edit Tree > Deployments > App Deployments > New.**



3. Enter the appropriate values for **Name (Example: i), Targets (Example: Apex Managed Server apex_server1), and Source Path (Example: full path of the i.war file location).**

App Deployments

Create a new Application Deployment

② Name*

② Targets* Available Chosen

AdminServer apex_server1

② Upload*

② Source Path*

② Plan Path

② Staging Mode

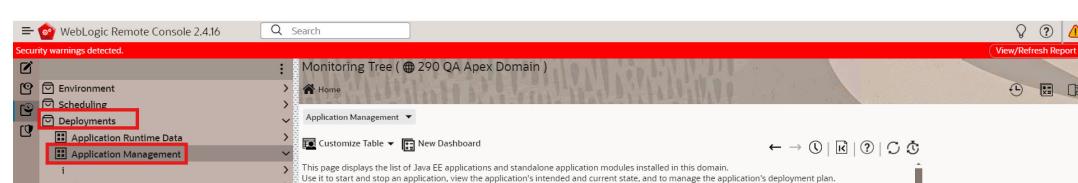
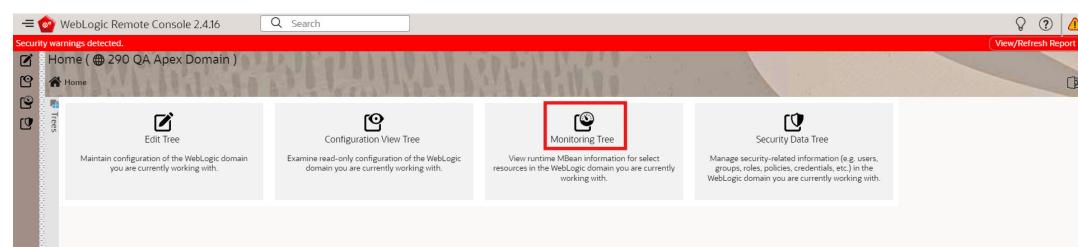
② On Deployment

4. Click **Create** and **Save** then the **Commit Changes** () button.



5. Repeat steps 2 to 4 to deploy the `ords.war` file.

6. Navigate to **Monitoring Tree > Deployments > Application Management**.



7. Select the **i** and **ords** checkboxes then click **Start > Servicing All Requests**.

Name	State	Application Name	Application Version
i	Active	i	
ords	Active	ords	

8. Stop the Apex administration and managed servers.
9. Add this parameter to the end of **setDomainEnv.sh**, which is in the **Apex Domain/bin** folder.

```
JAVA_OPTIONS="${JAVA_OPTIONS} -Dconfig.url=/u01/ouaw/ords_configuration"
```

① Note

Dconfig.url is the path of ords configuration folder.

10. Restart the Apex administration and managed servers.

Access the AdminTool

Use this URL to access the administration tool: http://<hostname>:<apex_server1_port>/ords/f?p=104

1. Provide the following credentials to access the Admintool:

Username: Admin

Password: Admin_123

**① Note**

After logging in to the application for the first time, you will be requested to change the password.

2. After logging in, you can access the **ETL Configuration** and **ETL Job Execution** through the respective tabs.

Change the Default Password of Admin User

This section describes the APEX API used to change the admin user's password.

The script below should be run after connecting to the database as user SYSTEM.

ⓘ Note

Replace the string 'New password' with the new password for the admin account before running the script.

```
begin
  wwv_flow_api.set_security_group_id(p_security_group_id=>nvl(wwv_flow_application_install.get_workspace_id,2090606133849294));
end;
/
begin
  apex_util.edit_user(
    p_user_id => '1467765078687596',
    p_user_name => 'ADMIN',
    p_web_password => 'New password',
    p_new_password => 'New password'
  );
end;
/
commit;
/
```

 ⓘ Note

It is strongly recommended to change the default password after logging in.

Upgrade the Dashboards Component

Prerequisites

Before you begin installing the OUAW Dashboards component, note the following:

- A single OS user must install all required software.
- All required software (such as Java, Oracle Database Client, Oracle Fusion Middleware, Oracle Analytics Server) must be installed.
- Verify that the OUAW Dashboards Components are unzipped and available in the <TEMPDIR>/application directory on the application server.

Set Up the Dashboard Environment

1. Log in to the application server.
2. Create a Dashboard Home directory.
Example:

```
mkdir -p </u01/ouaw/deployment/OUAW_DASHBOARD>
```

① Note

In the documentation, this directory location is referred to as Dashboards Home. Keep note of it because it will be used during some deployment steps.

3. Copy catalog, WriteBackTemplates, and rpd folders from <TEMPDIR/application> to Dashboard Home folder.

```
cp -rp <TEMPDIR>/application/<OAS Version>/* </u01/ouaw/deployment/OUAW_DASHBOARD>
```

Deploy the Web Catalog

On the Oracle Analytics Server, you can deploy the latest catalogs into the environment using the online mode.

① Note

In case you want to take a backup of the deployed catalog, follow the OAS Doc ID [2724149.1](#) in [My Oracle Support](#).

1. Navigate to <DOMAIN DOMAIN>/<OAS_DOMAIN>/bitools/bin.
2. Create a new credentials file called boot.txt and add the following contents to it:

```
login=<OAS Weblogic admin user>
pwd=<OAS Weblogic admin password>
```

For each catalog present under <Dashboards Home>/catalog directory, run the following command from the <OAS DOMAIN HOME>/bitools/bin location. Replace all parameters enclosed in <> with the appropriate values.

```
./runcat.sh -cmd unarchive -folder "/shared" -online http://<OAS SERVER Host>:<OAS Managed SERVER PORT>/analytics-ws/saw.dll -credentials boot.txt -inputFile "<Dashboards Home>/Catalog/<Catalog Name>" -overwrite all
```

① Note

The inputFile parameter must be in double quotes, and the catalog file name must include spaces.

3. Deploy the 'Spatial Metadata Catalog' on the System folder. Replace all parameters enclosed in <> with the appropriate values.

Deploy the Merged RPD File

To merge the customized 2.8.0.2.1 RPD file with the 25.10.0.0.0 RPD, which contains the database changes required:

ⓘ Note

The inputFile parameter must be in double quotes, and the catalog file name must include spaces.

1. Copy both 25.10.0.0.0 and 2.8.0.2.1 RPD files to the Windows machine where Oracle Analytics Client Tool 2025 is installed, then merge it.

 ⓘ Note

RPD file merge steps can be found here: [Merging Repositories](#)

2. Once the RPD file merge is complete, copy the modified RPD back to the <install dir>/rpd/UtilitiesBusinessAnalytics.rpd, where <install_dir> is the Oracle Utilities Analytics Warehouse Dashboard Component installation directory.

Upload the RPD File

1. Log in to the target application server where OAS is installed.
2. Navigate to <DOMAIN HOME>/<OAS DOMAIN>/bitools/bin.
3. Run the following command to deploy the RPD:

```
./datamodel.sh uploadrpd -I <Dashboards Home>/rpd/  
UtilitiesBusinessAnalytics.rpd -W <rpd password, defaultpassword is  
oracle123> -U <Weblogic user name of OAS domain> -P <Weblogic password of  
OAS domain> -SI ssi
```

4. Run the following commands from the <OAS_DOMAIN>/bitools/bin directory to stop and start the OAS domain services respectively.

```
./stop.sh  
./start.sh
```

Deploy Writeback Templates

1. Log in to the application server and run the following commands to deploy writeback templates:

```
cp -rp <Dashboards Home>/WriteBackTemplates/* <FMW 12c Home>/bi/  
bifoundation/web/msgdb/l_en/custommessages/
```

2. Restart the Oracle Analytics Server services after deploying these writeback templates in the specified path.

```
cd <OAS DOMAIN>/bitools/bin  
./stop.sh  
./start.sh
```

Configure Spatial Data

1. Log in to the target database server.

2. Navigate to the temporary directory where the Oracle Utilities Analytics Warehouse v25.10.0.0 Oracle Database Multiplatform.zip file was extracted.

```
cd database/BI251000/Spatial-Metadata
```

3. Set the following environment variables.

```
export ORACLE_SID=<DATABASE SERVICE NAME>
export ORACLE_HOME=<ORACLE HOME>
export PATH=$ORACLE_HOME/bin:$PATH
```

4. Create the database directory in the database after connecting to sys user.

```
sqlplus sys/<sys user password>@<DATABASE SERVICE NAME>
CREATE DIRECTORY <dump_dir> AS '/u01/dumps' ;
```

5. Copy the user_sdo.dmp dumpfile from the temporary directory <TEMPDIR>/database/BI251000/Spatial-Metadata to the database directory <dump_dir> location.

Example: </u01/dumps>

6. Execute the impdp command to import the USER_SDO* tables data.

```
impdp directory=dump_dir dumpfile=user_sdo.dmp logfile=impdp_user_sdo.log
schemas=DWADM remap_tablespace=cists_01:<tablespace_name>
```

7. Provide DWADM username password when prompted.

 **Note**

Ensure to change the tablespace_name to the name on which DWADM has the quota. If DWADM user have quota on cists_01 tablespace, then exclude the whole remap_tablespace clause from the command.

8. Review the impdp_user_sdo.log file to ensure the tables are imported successfully.
9. After importing the tables, run the following SQL scripts from the <TEMPDIR>/BI251000/Spatial-Metadata directory.

```
sqlplus dwadm/<dwadm user password>@<database service name>
@copy_spatial_metadata.sql
@clean_sdo_release_tbls.sql
```

10. Review the log files.

Post-Upgrade Steps

Run Post-Upgrade Steps

Note

Steps 1, 2, 9, 10, 11, and 12 are only valid for the Oracle Utilities Network Management System (NMS) Source. Ignore these steps for Oracle Utilities Customer Care and Billing, Meter Data Management, Customer To Meter, and Work and Asset Management.

1. Perform the steps below in accordance with the upgraded NMS version in ODI Studio.

Note

The following steps are only valid for the NMS source application.

For NMS Versions 2.6.0.0 and Later:

- a. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
- b. Right-click the **B1_UPD_NMS_SCEN_FROM_260** scenario.
- c. Click **Run**.
- d. Set **Context** as "Global".
- e. Click **OK**.

For NMS Versions after 2.5.0.2 and below 2.6.0.0:

- a. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
- b. Right-click the **B1_UPD_NMS_SCEN_FROM_2502_UNDER_260** scenario.
- c. Click **Run**.
- d. Set **Context** as "Global".
- e. Click **OK**.

For NMS Versions after 2.4.0.1 and below 2.5.0.2:

- a. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.
- b. Right-click the **B1_UPD_NMS_SCEN_FROM_2401_UNDER_2502** scenario.
- c. Click **Run**.
- d. Set **Context** as "Global".
- e. Click **OK**.

For NMS Versions below 2.4.0.1:

- a. Navigate to **Load Plans and Scenarios > Framework > Data correction > Repository Fixes**.

- b. Right-click the **B1_UPD_NMS_SCEN_UNDER_2401** scenario.
 - c. Click **Run**.
 - d. Set **Context** as "*Global*".
 - e. Click **OK**.
2. Rename the Account Dimension View scenario by performing the following steps:
 - a. Navigate to **Load Plans and Scenarios > Oracle Utilities BI > Shared > Dimensions > Account Dimension > Account Dimension Upto NMS 24013**.
 - b. On the **Definition** tab, double-click **B1_NMS_D_ACCT_VW_UPTO_24013 Version 001** and rename it to **B1_NMS_D_ACCT_VW Version 001**.
 - c. Click **Save**.
3. Run the source configuration in **REGISTER** mode.

 **Note**

- Context Code should be same with old Context Code which was cleaned during GoldenGate Classic cleanup process.
- Perform the source configuration as per the steps mentioned in [Configure ETL Source for OUAW](#) (except all steps from section *Set Up Source Database Server for Oracle GoldenGate Microservices* and step 1 from section *Source Configuration Using OUAW Wizard*).

4. Make sure that all EXTRACT, REPLICAT, Distribution Paths are up and running. Lag at the Chkpt and Time Since Chkpt should be zero (0). This can be confirmed through the info after logging in to Source and Target OGG MS Administration server console and the Source Distribution Server console.
5. Stop the GoldenGate Microservice REPLICAT processes in the target server.
6. Run **B1_SYNC_CONTEXT Version 001** in ODI studio for the configured product context.
7. Start the GoldenGate Microservice REPLICAT processes in the target server.
8. Bring up the source application.
9. Perform the following steps to correct the historical data in CD_DAMAGE_ASMT and CF_DAMAGE_ASMT entities from DAMAGE_ASSETS source table.

For NMS Versions 2.4.0.1 and Later:

- a. Navigate to **ODI Designer > Load Plans and Scenarios > Framework > Data correction > Data Fixes**.
- b. Right-click **B1_UPD_DAMAGE_ASMT_29001**.
- c. Click **Run**.

 **Note**

Select the appropriate context. If multiple contexts are configured, execute for each context separately.

10. Execute the following steps to update the Control zone secondary keys which are already loaded with -99 in the facts when the Control zone secondary key exclusion is enabled.

- a. Navigate to **ODI Designer > Load Plans and Scenarios > Framework > Data correction > Data Fixes**.
- b. Right-click **B1_UPD_CZS_KEY**.
- c. Click **Run**.

11. Disable all NMS facts and dimensions (including B1_BR_SW_PLAN_JOBS).

This can be ensured by checking that there is no record for any entity in B1_READY_VW view in MDADM schema:

```
select distinct entity_name from MDADM.b1_ready_vw;
```

12. For Account Dimension (NMS) related changes, perform an incremental or complete load of the data FROM NMS_ACCOUNTS_HISTORY table into Account Dimension.

Option 1: Incremental Data Load

CD_ACCT dimension will load only the incremental data FROM NMS_ACCOUNTS_HISTORY table. The data which is already loaded in the dimension FROM CES_CUSTOMERS_HISTORY table will not be modified or updated and remains the same. The dependent facts will not be impacted while performing initial load.

- a. Ensure the NMS_ACCOUNTS_HISTORY is present in replication layer with data.
- b. Stop the GoldenGate REPLICAT.
- c. Navigate to **Load Plans and Scenarios > Oracle Utilities BI > Shared > Dimensions > Account Dimension** to load all the initial and incremental data FROM CES_CUSTOMERS_HISTORY table into the dimension.
- d. On the **Definition** tab, double-click **B1_PKG_NMS_CD_ACCT_UPTO_24013 Version 001** and rename it to *B1_PKG_NMS_CD_ACCT Version 001*.
- e. On the **Definition** tab, double-click **B1_NMS_D_ACCT_VW_UPTO_24013 Version 001** and rename (if not already done) it to *B1_NMS_D_ACCT_VW Version 001*.
- f. Click **Save**.
- g. Run the View generation script for the configured NMS Context.
- h. Enable the entity active flag for CD_ACCT dimension and B1_RUN_ALL to load the Account dimension. This loads data from CES_CUSTOMERS_HISTORY until latest checkpoint.
- i. Ensure that the CD_ACCT dimension data loads are completed until the checkpoint date. The output of below queries should result in same date:

```
SELECT MAX (SLICE_END_DTTM) FROM MDADM.B1_JOBS_VW WHERE CONTEXT_CD= <NMS_context_code> AND ENTITY_NAME='CD_ACCT';  
SELECT LAST_UPDATE_TS FROM MDADM.B1_CHECKPOINT WHERE GROUP_NAME LIKE 'NMS%';
```

- j. Revert the changes for scenario names for CD_ACCT dimension upon completion of the job loads by navigating to **Load Plans and Scenarios > Oracle Utilities BI > Shared > Dimensions > Account Dimension**.
- k. On the **Definition** tab, double-click **B1_PKG_NMS_CD_ACCT Version 001** and rename it to *B1_PKG_NMS_CD_ACCT_UPTO_24013 Version 001*.
- l. On the **Definition** tab, double-click **B1_NMS_D_ACCT_VW Version 001** and rename it to *B1_NMS_D_ACCT_VW_UPTO_24013 Version 001*.
- m. Click **Save**.

- n. Stop B1_RUN_ALL from ODI Studio.
- o. Start the GoldenGate REPLICAT.
- p. Load the incremental data into CD_ACCT dimension FROM NMS_ACCOUNTS_HISTORY table by navigating to **Load Plans and Scenarios > Oracle Utilities BI > Shared> Dimensions > Account Dimension**.
- q. On the **Definition** tab, double-click **B1_PKG_NMS_CD_ACCT_FROM_24013 Version 001** and rename it to *B1_PKG_NMS_CD_ACCT Version 001*.
- r. On the **Definition** tab, double-click **B1_NMS_D_ACCT_VW_FROM_24013 Version 001** and rename it to *B1_NMS_D_ACCT_VW Version 001*.
- s. Click **Save**.
- t. Run the View generation for the Configured Context.
- u. Enable B1_RUN_ALL and load the Account dimension. At this point, the data is loaded from NMS_ACCOUNTS_HISTORY.
- v. Enable all other dimensions and facts, and perform incremental loads.

Option 2: Complete Data Load

CD_ACCT dimension will load the complete data FROM NMS_ACCOUNTS_HISTORY table. The data which is already loaded in the dimension FROM CES_CUSTOMERS_HISTORY table will be updated. All the dependent facts will also be updated with the latest ACCT_KEY values FROM CD_ACCT table. Once the loads are done, the older records in the account dimension (All the data loaded from CES_CUSTOMERS_HISTORY table) will be deleted.

- a. Stop B1_RUN_ALL from ODI studio. Run this query to ensure no ETL jobs are in the "Running" state:

```
SELECT * FROM MDADM.B1_JOBS_VW WHERE STATUS_FLG in ('W', 'P', 'R');
```

Note

If there are entries found, wait for the jobs to finish.

- b. Ensure that the NMS_ACCOUNTS_HISTORY table is present and with data in the replication layer.
- c. Ensure the scenario names for the existing CD_ACCT NMS Dimension are renamed (if not already done) with suffix 'UPTO_24013' in ODI by navigating to **Load Plans and Scenarios > Oracle Utilities BI > Shared> Dimensions > Account Dimension**.
- d. On the **Definition** tab, double-click **B1_PKG_NMS_CD_ACCT Version 001** and rename it to *B1_PKG_NMS_CD_ACCT_UPTO_24013 Version 001*.
- e. On the **Definition** tab, double-click **B1_NMS_D_ACCT_VW Version 001** and rename it to *B1_NMS_D_ACCT_VW_UPTO_24013 Version 001*.
- f. Click **Save**.
- g. Rename the scenario name for the new CD_ACCT NMS Dimension by navigating to **Load Plans and Scenarios > Oracle Utilities BI > Shared> Dimensions > Account Dimension**.
- h. On the **Definition** tab, double-click **B1_PKG_NMS_CD_ACCT_FROM_24013 Version 001** and rename it to *B1_PKG_NMS_CD_ACCT Version 001*.

- i. On the **Definition** tab, double-click **B1_NMS_D_ACCT_VW_FROM_24013 Version 001** and rename it to *B1_NMS_D_ACCT_VW Version 001*.
- j. Click **Save**.
- k. Run the View generation for the Configured NMS Context.
- l. Run the **B1_ACCT_DIM_UPD_28020** scenario for the configured NMS Context by navigating to **Load Plans and Scenarios > Framework > Data Correction > B1_ACCT_DIM_UPD_28020**.
- m. Enable the entity active flag of **CD_ACCT** dimension.
- n. Enable **B1_RUN_ALL** and load the **Account** dimension, where data is loaded from **NMS_ACCOUNTS_HISTORY**.
- o. Run the **B1_F_ACCT_KEY_UPD_28020** scenario for the configured NMS Context by navigating to **Load Plans and Scenarios > Framework > Data Correction > B1_F_ACCT_KEY_UPD_28020**.
- p. Run the **B1_ACCT_DIM_DEL_KEYS_28020** scenario for the configured NMS Context by navigating to **Load Plans and Scenarios > Framework > Data Correction > B1_ACCT_DIM_DEL_KEYS_28020**.
- q. Enable all other dimensions and facts, and perform incremental loads.

Install Network Management System BI Publisher Reports

The Oracle Utilities Network Management System (NMS) BI Publisher tool can be used to generate outage reports that support metrics recommended by the Institute of Electrical and Electronics Engineers (IEEE). Follow the steps below to install the Oracle Utilities Analytics Warehouse (OUAW) NMS IEEE outage reports.

Prerequisites:

1. Download the Oracle Utilities Analytics Warehouse NMS BI Publisher reports.zip file from edelivery.oracle.com.
2. Make sure the BI Publisher server state is running.

To install OUAW NMS IEEE outage reports:

1. Unzip the IEEE outage reports contained in Oracle Utilities Analytics Warehouse NMS BI Publisher reports.zip from the installation media to a temporary directory (example: TEMPDIR) on the server where Oracle BI Publisher is installed. The following directories appear after the unzip:
 - CELID
 - CEMI
 - DailyTroubleReport
 - DeviceOutageHistory
 - FeederImpactOnSystemMetrics
 - IEEE Benchmarking
 - IEEE TMED
 - IEEEIndiceCalculations
 - RecurringDeviceOutages
2. Log in to Oracle BI Publisher (<http://<BI Publisher server name>:<9502>/xmlpserver/>) as an administrator from a browser that has access to the TEMPDIR folder from step 1.
3. Set up a database connection.
 - a. Navigate to **Oracle BI Publisher Administration > Data Sources > JDBC Connection**.
 - b. Click **Add Data Source**.
 - c. In the **Data Source Name** field, enter **NMS BI Publisher** or a name of your choice.
 - d. Set the **Driver Type** to Oracle 12c.
 - e. Set the **Database Driver Class** to oracle.jdbc.OracleDriver.
 - f. Set the **Connection** string to:
`jdbc:oracle:thin:@<yourmachine>:<Port>/<ORACLE_SID>`

ⓘ Note

The database connection referring to OUA must be set up here.

- g. Use the same username and password as you do to log in to the Oracle Utilities Analytics database.

 ⓘ Note

Use the username MDADM and its respective password.

- h. Click **Test Connection** and verify the configuration.
- i. Click **Apply**.
4. From the **BI Publisher Catalog** page, select **Shared Folders** from the folders tree.
5. At the top of the folders section, search the **New** drop-down list and select **Folder**.
6. Enter **NMS IEEE Reports** as the folder name (or a name of your choice).
7. Click **Create**. The new folder is added. You may have to click **Refresh** to update the **Folders** list.
8. Select the **NMS IEEE Reports** folder in the folder list, and create another new folder within it named **NMS IEEE Data Models**.
9. Select the **NMS IEEE Data Models** directory, and then click **Upload** in the **Tasks** section on the bottom left.
 - a. Browse to the directory where the NMS IEEE BI Publisher reports exist (TEMPDIR from step 1, which contains the files listed below in the corresponding directories).
 - CELID DataModel.xdmz
 - CEMI Data Model.xdmz
 - DailyTroubleReport.xdmz
 - DeviceOutageHistory.xdmz
 - Feeder Impact on System Metrics.xdmz
 - IEEE Benchmarking Model.xdmz
 - IEEE_TMED_Calculations.xdmz
 - IEEEIndiceCalculations.xdmz
 - RecurringDeviceOutages.xdmz
 - b. Locate all of the data model files and upload them to the **NMS IEEE Data Models** directory. These files contain the xdmz extension and include the following:
 - CELID DataModel.xdmz
 - CEMI Data Model.xdmz
 - DailyTroubleReport.xdmz
 - DeviceOutageHistory.xdmz
 - Feeder Impact on System Metrics.xdmz
 - IEEE Benchmarking Model.xdmz
 - IEEE_TMED_Calculations.xdmz
 - IEEEIndiceCalculations.xdmz
 - RecurringDeviceOutages.xdmz
10. Select the **NMS IEEE Reports** directory and click **Upload** in the **Tasks** section.
 - a. Browse to the directory where the OUA NMS IEEE BI Publisher reports exist (TEMPDIR from step 1, which contains the files listed below in the corresponding directories).
 - CELID DataModel.xdoz
 - CEMI Data Model.xdoz
 - b. Locate all of the report files and upload them to the **NMS IEEE Reports** directory. These files contain xdoz extension and include the following:
 - CELID DataModel.xdoz
 - CEMI Data Model.xdoz

- DailyTroubleReport.xdoz
- DeviceOutageHistory.xdoz
- Feeder Impact on System Metrics.xdoz
- IEEE Benchmarking Model.xdoz
- IEEE_TMED_Calculations.xdoz
- IEEEIndiceCalculations.xdoz
- RecurringDeviceOutages.xdoz

11. Assign the appropriate JDBC connection to the imported data models.

- Click **Catalog**.
- Select the **NMS IEEE Data Models** directory and select the **CELID DataModel.xdmz** data model.
- Click **Data Model** on the top left.
- In the **Properties** frame on the right, make sure that the Default Data Source points to the data source you created earlier. This defaults to NMS BI Publisher.
- You must perform this step for all of the data models under the **NMS IEEE Data Models** directory.

12. Assign the appropriate data model to all of the **NMS IEEE Reports**.

- Click on **Catalog**.
- Select the **NMS IEEE Reports** directory. Click on **Edit** for the **CELID Report**.
- Click on **Search** on the top left of the page.
- Browse and select the appropriate data model file (it will have the name of the report with an extension of xdmz).
- Save the current report by clicking on **Save** on the top right of the page.
- You must repeat the steps above for all the reports under the NMS IEEE Reports directory.

You should now be able view the standard IEEE indices reports from BI Publisher by simply selecting the desired report from the **NMS IEEE Reports** directory under **Catalog**.

Manage Oracle Utilities Analytics Warehouse

This section describes the configuration settings to be applied to make sure Oracle Utilities Analytics Warehouse (OUAW) works smoothly over time. It also provides recommendations to utilize Oracle database partitioning to improve product performance.

In this section:

[Schedule, Monitor, Reload, and Troubleshoot ELT Processes](#)

[Performance Recommendations](#)

Schedule, Monitor, Reload, and Troubleshoot ELT Processes

This section describes how to apply configuration settings to ensure Oracle Utilities Analytics Warehouse (OUAW) works smoothly over time.

Oracle Data Integrator with Oracle GoldenGate extracts, loads, and transforms data from the source database to the target database. Oracle GoldenGate captures the changes in the selected tables of the source schema and transfers the data to the replication schema. The tables in the replication schema are similar in structure to the source tables with a few additional columns added for history tracking and audit. Data retention in the replication schema is controlled by configuration stored in the metadata.

Based on the scheduler configuration, data from the replication schema is transferred by Oracle Data Integrator to the staging schema. The tables in the staging schema are similar to the tables in the target schema with a few additional columns for data transformations. There are no constraints on the staging tables. The foreign key mapping and other transformations are performed in the staging area. The data retention in the staging schema is controlled by configuration stored in the metadata.

From the staging schema, Oracle Data Integrator transfers data to the facts and dimensions in the target schema. Oracle Data Integrator also loads and refreshes the materialized views in the target schema.

Recommended Configuration

This section describes the recommended database configurations, as well as the script for estimating connection pool size.

Database

Setting	Recommended
Open Cursors	<p>1000</p> <p>Rationale: Oracle Data Integrator based ELT processes utilize database connections to perform transformations to load data into the data warehouse. Depending on the number of processes running in parallel, additional connections are created to the database. Oracle Analytics Server also uses the database connections to query and fetch data for the answers on various dashboards. Depending on the number of concurrent connected users, Oracle Analytics Server spawns additional database connections. Considering these standard database accesses and other ad-hoc database access, the open cursors parameter should be set to a minimum of 1000. The higher values may be set based on the implementation usage.</p>

Weblogic

Setting	Recommended
Connection Pool Size	<p>200 (Default is 12)</p> <p>Rationale: Each Oracle Data Integrator job utilizes a connection from the pool and the connection is released when not in use by the job. Oracle Utilities Analytics Warehouse ELT executes multiple jobs in parallel. The default configuration enables 6 parallel instances of each entity. This is particularly helpful during initial load when a large volume of historical data needs to be loaded into the data warehouse. Depending on the source system being configured, this can result in spawning up to 300 jobs. In case more than one source system is attached to Oracle Utilities Analytics Warehouse, this number can increase further. Ensure that the connection pool size is increased appropriately when increasing the max_parallel configuration for an entity or when attaching more than one source system. In case the connection pool is not sized appropriately, you will notice that many jobs go into the waiting state until a connection becomes available.</p>

Estimating Connection Pool Size

Use the query below to estimate the connection pool size. This should be executed after any changes in the max_parallel setting for the entities or after attaching a new source instance.

```
select round(
  greatest(
```

```
        sum(case when te.entity_type_flg in ('SCD1','SCD2') then max_parallel
else 0 end),
        sum(case when te.entity_type_flg in ('FACT','RACC','SNAP') then
max_parallel else 0 end)
    ) *.6,-2) estimated_connection_pool_size
from
ndadm.b1_target_entity te , mdadm.b1_job_config jc
where jc.target_entity_id = te.target_entity_id;
```

Scheduling

In any data warehouse, the basic challenge is to get the data loaded quickly and efficiently whether it is the initial load or the incremental load. Data volumes are high during initial load and during incremental loads the volumes are considerably smaller. The Oracle Data Integrator based ELT processes utilize a time based slicing mechanism to split the load volumes into more manageable slices to process the initial as well as incremental loads. The metadata configurations allow you to control the size of the slice, parallelism of the loads, and much more. To ensure that the data loaded is always consistent, the process executions are governed by a set of rules. The following criteria are considered for the job execution:

- There should be no errors that need reprocessing.
- The maximum retries limit for the day should not be exceeded or reached.
- Tasks wait for the configured retry interval before submitting a retry for the job.
- Number of parallel jobs is always being limited to the maximum parallel configured.
- Jobs are not executed beyond the time of the most recent Oracle GoldenGate sync or to a specified cut off time, whichever is less.
- If a job is dependent on tables that are being synced by separate Oracle GoldenGate processes, then the common sync time of both processes is considered.
- If a scenario does not exist, then the jobs are not executed.
- An interface should be active.
- All dependencies should be run.
- The number of running/error instances of the job should be less than the maximum parallel executions allowed.
- If the instance is configured as run once, then it should not execute once it is successfully executed.
- If a job fails, it should be retried again until the maximum retries per day is reached. The interval between successive retries should be based on configuration.
- Oracle GoldenGate models comprising of the source tables used in the entity should have been synced. In case the sync timestamps vary across multiple models, then the maximum sync timestamp is used.
- The snapshot entities are executed on or after the snapshot end period.
- The schedule time can be used to stagger loads and distribute processing. A job is not being executed until the current time crosses the scheduled time. See [Administration > Target Entities Configuration](#) for more information about scheduling jobs.
- All job executions are internally managed by the scenario named B1_RUN_ALL. This is scheduled using Oracle Data Integrator to run every 1-10 minutes based on your requirements.

Monitoring the Jobs

As jobs keep running on a regular basis, they are monitored or tracked to ensure that the required performance parameters are met. Jobs are created so that they are capable of automatic re-execution and retries. However, the reasons for the failures should be examined and appropriate actions taken to resolve the issues. The following views are provided for achieving this:

View	Purpose
b1_jobs_vw	Provides a list of jobs executed with details of the slice start and end, scheduled execution time, actual start and end times, status, and record counts.
b1_config_vw	The consolidated view of the current configuration for all entities in the data warehouse.
b1_wait_reasons_vw	Erroneous configuration or other reasons may result in entities not running. Examine this view's results to see the reasons a job is prevented from executing.

Configuring Log Retention Period for Job Executions

OUAW supports configuring the data retention period for the B1_JOB_EXEC metadata table. The retention days can be configured from the **Global Configuration** page of AdminTool.

Product	Instance Number	Description	Value	Data Type	Data Format
B1	(None)	Database Edition Type - Mention the type of the Oracle Database, whether it is Standard Edition(SE) or Enterprise Edition(EE)	EE	VARCHAR2(2)	EE/SE
B1	(None)	Maximum number of MV Interfaces which can run in parallel	8	NUMBER	99999
B1	(None)	Number of days for which the logs would be retained	3	NUMBER	99999
B1	(None)	Global ODI execution log level - 0 to 5, 0 - No log, 1 - Start and End time of job, 2 - Start and End time of level 1 of Each Step, 3 - Start and End time of level 2 of Each Step, 4 - Logs the Sql queries, 5 - complete Trace	6	NUMBER	9
B1	(None)	Table statistics gathering frequency	50	NUMBER	99999
B1	(None)	Travel Distance Unit of Measure. Valid values B1MI (Miles), B1KM (Kilometers), B1MT (Meters). This is used in reports to convert the travel distance to user defined measures	B1MT	VARCHAR2(4)	B1MI/B1KM/B1MT
B1	(None)	Number of days for which the data would be retained in B1_JOB_EXEC table. The default / minimum value for log retention is 30days, maximum value is 180days.	30	NUMBER	99999
B1	(None)	Sender email address - The email address used to send mail alerts for ETL job failures and jobs that exceed their configured runtime threshold		VARCHAR2	abc@xyz.com

This parameter allows the retention period to be configured between 30 and 180 days, 30 being the default value. The records present in the B1_JOB_EXEC table would be purged based on the retention period configured and the value of **Session End Time** column of the table.

Exceptions:

- For all the Snapshot entities which are scheduled to be executed monthly, quarterly, or yearly; the data in B1_JOB_EXEC table would be retained for 180 days, regardless of the retention period configured.
- If no records exist for an entity within the retention period, the last successful executed record for the entity is retained (ensuring that the last successful record is always retained).
- Records in Error status would always be retained.

Debugging

Oracle Data Integrator jobs are designed to make it easy to examine the data that was processed to determine issues in the processing pipeline. To do this, staging tables are utilized that retain data for a configured duration. Each execution results in some data that has been processed from the replication layer into the staging area and then on to the target entity. Each such set is stored in the staging table with the session number to identify the executing session.

If a job fails or if you wish to examine how data was before it was loaded into the target, you can query the associated staging tables to view the data. The staging tables' names are derived by prefixing the target entity name with "STG_".

Handling Errors

There are three basic components used in the data processing pipeline:

- Oracle GoldenGate for replicating changes from the source to the target
- Oracle Data Integrator to load data from the replication layer to the target
- Oracle database to store and manage data in the different layers. Oracle data pump is utilized to perform the initial sync between the source and target database.

Errors may occur in one or more stages of the process. This section covers some of the details to help you identify the cause of the errors and how to resolve them.

1. **Failure of Initial Sync Processes:** In case of an error, you can execute the initial sync process again and it resumes from where it left off. If the Oracle GoldenGate replication process is running while the initial sync is performed, it is possible that the process will fail due to the duplicate keys. Here are the steps to resolve the issue:
 - a. Stop the relevant replicat process.
 - b. Delete the data from the tables, which are listed in the error.
 - c. Execute the initial sync process again.
 - d. After the initial sync has been successfully loaded, start the replicat processes.
2. **Failure of Oracle GoldenGate Processes:** Oracle GoldenGate processes can fail if the source or the target database goes down or network connectivity fails between the source and the target. To identify whether Oracle GoldenGate processes are running properly, you should login to the server and run the command `info all` on the Oracle GoldenGate command prompt. If any jobs are listed as ABENDED or STOPPED, verify the reason for the error by looking at the Oracle GoldenGate logs and start the jobs. Oracle GoldenGate processes will restart from the point of failure and continue the replication processes.
3. **Failure of Oracle Data Integrator Processes:** The Oracle Data Integrator processes have been designed to automatically retry for a configurable number of attempts per day.

If the issue is related to a table space not being available or database connectivity issues, the jobs would automatically execute once the issue has been resolved. If the issue resolution is anticipated to take a few hours, it is advisable to disable the failing jobs for the duration of the fix.

Query the view B1_JOBS_VW in the metadata schema to identify if any jobs have failed. In case of a failure, the status_flg column will show 'E'. You can log into Oracle Data Integrator and filter by the session number (available in the jobs view) and look at the error encountered.

Any failures will roll back any changes to the target. A late arriving dimension will be tagged to a default key (-99) in the dimension, and these will be reprocessed in subsequent loads. If the dimensional data has arrived in the warehouse, then the foreign key references will be corrected automatically.

Reload the Data

Data warehouses are usually designed based on the assumption that data is added only once to the warehouse. Although rare, sometimes the data must be reloaded again to reset specific entities. Oracle Utilities Analytics Warehouse provides the functionality to reset and reload individual entities or all data associated with a specific instance of a source system.

Reload Replication Schema Tables

Perform the following steps to reload the replication schema tables.

Warning

This should not be done in production environment, as the historical data would be lost.

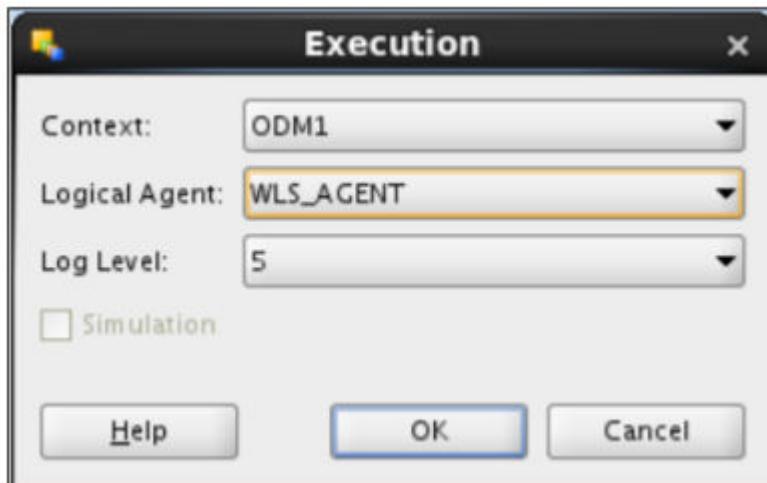
1. Log in to Oracle Data Integrator.
2. Navigate to the **Load Plans and Scenarios** section.
3. Select the scenario named B1_CLEANUP_REPLICATION, right-click it, and execute it.
4. In the dialog box, select the **Context**. For example, if you wanted to reset the replication schema for Oracle Utilities Work and Asset Management product instance 1, you would select the context **WAM1**.

After the B1_CLEANUP_REPLICATION is executed successfully, the initial load from source to replication can be done by executing the B1_SYNC_CONTEXT scenario.

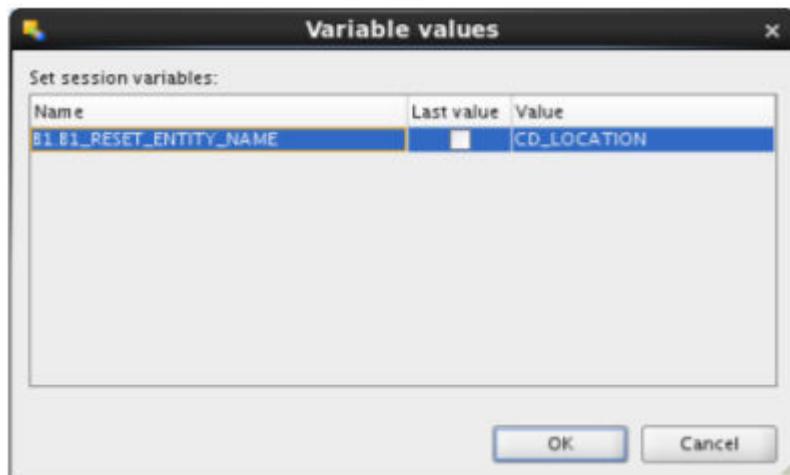
Reset an Entity

Perform the following steps to reset an entity:

1. Log in to Oracle Data Integrator.
2. Navigate to the **Load Plans and Scenarios** section.
3. Select the scenario named B1_RESET_ENTITY, right-click it, and execute it.
4. In the dialog box, select the **Context**. For example, if you wanted to reset the fact for Oracle Utilities Operational Device Management product instance 1, you would select **ODM1**.



5. Clear the **Last Value** checkbox. Specify the variable value and click the Name field.

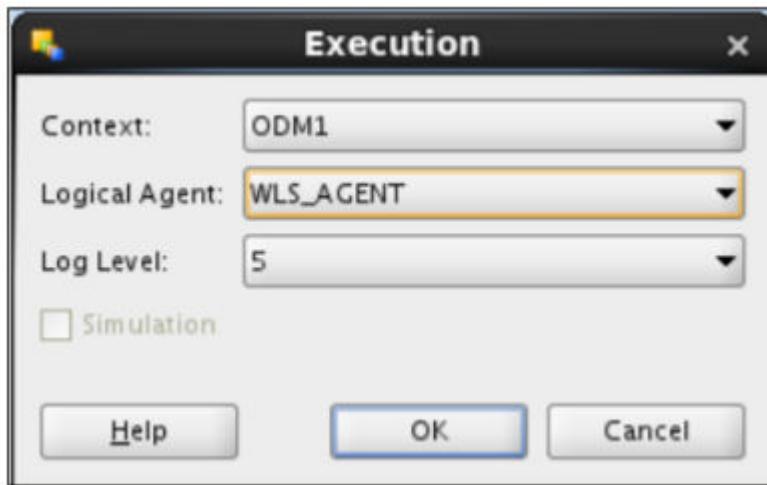


6. Click **OK**. This cleans up the metadata entries to execute the ELT job for this specific entity. The data loaded in the particular table for the entity will also be clear. Note that the ELT job for this entity will be in a "disabled" state.

Reset an Instance

Perform the following steps to reset an instance:

1. Log in to Oracle Data Integrator.
2. Navigate to the **Load Plans and Scenarios** section.
3. Select the **B1_RESET_INSTANCE** scenario, right-click it, and run it.
4. In the dialog box, select the **Context**. For example, if you wanted to reset all entities for Oracle Utilities Operational Device Management product instance 1, you would select **ODM1**.



5. After verifying the configurations, enable all the entities to be loaded.

① Note

When a reset instance is done on the data warehouse, the materialized view refresh jobs that are subsequently triggered can result in an error. It may result in a materialized view refresh path error. This is a known behavior of the Oracle database. To work around this issue, manually perform a complete refresh of all the materialized views.

Reload the Extract Parameters

① Note

The ELT job that loads these parameters into the warehouse is configured to be initial load only. Any incremental changes to these parameters after the initial run are not going to be captured in Oracle Utilities Analytics Warehouse because they could cause inconsistencies in the loaded data. However, in case it is necessary to reconfigure the parameters, they can be changed in the source system and reloaded into the warehouse through the steps detailed in this section. The star schema tables also need to be truncated and reloaded.

To modify the extract parameters defined in the source:

1. Modify the parameters in the source application. See [Configure ETL Source for OUAW](#) for details.
2. Regenerate the replication views of the source instance for which the parameters are being updated.

① Note

The "source instance" refers to the instance name given to the source in the [Configure ETL Source for OUAW](#) section. Example: ODM1.

- For Unix:

- a. Navigate to the /bin directory.
 - b. Add Java 8 to the path variable: `export PATH=/bin:$PATH`
 - c. Run the following command: `runviewGenerator.sh -c <source instance>`
- For Windows:
 - a. Navigate to the /bin directory.
 - b. Add Java 8 to the path variable: `set PATH= \bin;%PATH%`
 - c. Run the following command: `runviewGenerator.cmd -c <source instance>`

3. Reload all the facts for the source products. See [Reset an Entity](#) above for more details.

Reload the Bucket Configuration

Several key performance indicators in Oracle Utilities Analytics look at the measurement values and classify the value into an age range. These metrics can be used to review the ages classified into different groups, such as 0-30 days, 30-90 days, or 90+ days. Such age range configuration is usually done before the implementation, but there may be scenarios where you want to change it.

Note

All of the ELT jobs that load these bucket configurations into the warehouse are set to be initial load only. Any incremental changes to these buckets after the initial run are not captured in Oracle Utilities Analytics Warehouse because they could cause inconsistencies in the loaded fact data. However, in case it is necessary to reconfigure the buckets, certain additional steps need to be carried out to pull in the new configuration into the warehouse and ensure that it gets reflected in the star schema tables. The exact steps vary based on how the bucket configurations are used in the star schema ELT jobs. The following sections cover the possible scenarios. For details about which bucket configuration falls under which scenario, see [Configure ETL Source for OUAW](#).

Bucket Dimensions

This is the scenario where the configured buckets are loaded into dedicated bucket dimensions. The ELT jobs for the facts reference these bucket dimensions, and map a fact record to an appropriate bucket configuration record in the dimension. This is the typical scenario that most bucket configurations fall under.

To reload this type of bucket configurations:

1. Make the necessary changes to the bucket configurations in the source application.
2. Identify the bucket dimensions for the updated bucket configurations. See [Configure ETL Parameters and Buckets](#) for details.
3. The data that has been loaded into the bucket dimensions needs to be cleared and reloaded with the updated configuration. Both the dimensions and its related facts need to be reloaded. This list can be identified using the star schema mapping details provided in the Data Mapping Guides for the respective source product.
4. Follow the steps mentioned in [Reset an Entity](#) above to reload the bucket dimensions and related facts.
5. Reset the fact tables and the bucket dimensions.
6. When re-enabling the ELT jobs, enable the bucket dimensions and the facts.

Facts Referencing Bucket Configuration

This is the scenario where bucket configurations can be referenced by the fact ELT directly. This is a special use of the bucket configurations where a fact ELT would try to calculate a measure value based on the configured bucket ranges. Few bucket configurations fall under this scenario.

To reload this type of bucket configurations:

1. Make the necessary changes to the bucket configurations in the source application. For this type of bucket configuration where there is no dedicated bucket dimension, the data is loaded in the metadata table B1_RANGE_LOOKUP in the MDADM schema.
2. Delete the existing rows in the MDADM.B1_RANGE_LOOKUP table for the specific bucket whose configurations are being updated. The table below identifies the bucket business object name for each source product. The business object name is stored as the range code in the metadata table and can be used to identify the rows to be deleted.

Source Product	Bucket	Business Object Name	Fact Name
CCB	PA Future Payment Age Configuration	C1-PAFuturePaymentAge	CF_PA, CF_PA_SNAP
CCB	PP Future Payment Age Configuration	C1-PPFuturePaymentAge	CF_PAY_PLAN, CF_PAY_PLAN_SNAP
CCB	SA Arrears Configuration	C1-SAArrearsBuckets	CF_ARREARS
WAM	MTBF/MITR Buckets	W1-MTBFMTTRBuckets	CF_ASSET_SNAP, CF_LOCATION_SNAP

3. Reload the updated bucket configuration once the identified rows are deleted from the metadata table.
 - For Unix:
 - a. Navigate to the /bin directory.
 - b. Add Java 8 to the path variable: `export PATH=/bin:$PATH`
 - c. Run the following command: `runviewGenerator.sh -c`
 - For Windows:
 - a. Navigate to the /bin directory.
 - b. Add Java 8 to the path variable: `set PATH= \bin;%PATH%`
 - c. Run the following command: `runviewGenerator.cmd -c <source instance>`
4. Identify the affected facts for which the bucket configurations are updated (mentioned in the table in step 2). See [Configure ETL Parameters and Buckets](#) for details.
5. Follow the steps mentioned in [Reset an Entity](#) above to reload the related facts. This needs to be done because the data that had been loaded into these facts would have been using the older bucket configuration, which gets invalidated when the configuration changes.

Dimensions Referencing Bucket Configurations

This is the scenario where bucket configurations can be referenced by the dimension ELT directly. These would be like any other dimension with attribute columns, but will also have the bucket range values. It is a special use of the bucket configurations where the dimension ELT would try to map a value in the dimension (for example, condition score of an asset) to a matching bucket range it falls into, and populate the bucket range details in the dimension. Few bucket configurations fall under this scenario.

To reload this type of bucket configurations:

1. Make the necessary changes to the bucket configurations in the source application. For this type, the data is loaded in the metadata table B1_RANGE_LOOKUP in the MDADM schema.
2. Delete the existing rows in the MDADM.B1_RANGE_LOOKUP table for the specific bucket whose configurations are being updated. The following table identifies the bucket business object name for each source product. The business object name is stored as the range code in the metadata table and can be used to identify the rows to be deleted.

Source Product	Bucket	Business Object Name	Fact Name
WAM	Asset Condition Score Buckets	W1-AssetConditionScore Buckets	CD_UTIL_ASSET
WAM	Asset Criticality Buckets	W1-AssetCriticalityBuckets	CD_LOCATION
WAM	Work Priority Buckets	W1-WorkPriorityBuckets	CD_WO

3. Reload the updated bucket configuration after the identified rows are deleted from the metadata table.
 - For Unix:
 - a. Navigate to the /bin directory.
 - b. Add Java 8 to the path variable: `export PATH=<path to JDK directory>/bin:$PATH`
 - c. Run the following command: `runviewGenerator.sh -c <source instance>`
 - For Windows:
 - a. Navigate to the /bin directory.
 - b. Add Java 8 to the path variable: `set PATH= \bin;%PATH%`
 - c. Run the following command: `runviewGenerator.cmd -c <source instance>`
4. Identify the affected dimensions for which the bucket configurations are updated using the table above. See [Configure ETL Parameters and Buckets](#) for details.
5. Follow the steps mentioned in the [Reset an Entity](#) above to reload the related dimensions and facts. This needs to be done because the data loaded into these dimensions might use the older bucket configuration, which gets invalidated when the configuration changes. Since the dimensions are referenced by facts, the dependent facts on the affected dimensions have to be reloaded.

Performance Recommendations

This section provides recommendations to utilize Oracle database partitioning to improve the performance of the overall product. It focuses on configuring the database for better system performance through methods such as partitioning, parallelism, and archiving.

Partitioning

Partitioning helps to scale a data warehouse by dividing the database objects into smaller pieces, enabling access to smaller, more manageable objects. Having direct access to the smaller objects addresses the scalability requirements of the data warehouses.

It takes longer to scan a big table than it takes to scan a small table. Queries against partitioned tables may access one or more partitions that are small in contrast to the total size of the table. Similarly, queries may take advantage of partition elimination on indexes. It takes less time to read a smaller portion of an index from the disk than to read the entire index. The index structures that share the partitioning strategy with the table, such as local partitioned indexes, can be accessed and maintained on a partition-by-partition basis.

The partitioning of facts is explained in the sections that follow.

Partitioning of the Snapshot Facts

Most of the out-of-the-box snapshot facts are delivered as monthly snapshots. The fact has rows for each month from the beginning of the implementation.

All snapshot facts should be partitioned by the snapshot date. The table below lists Snapshot facts and the column on which the partition should be created. When converting an existing fact into a partitioned fact, make sure that the indexes, that do not have the partition key columns, are created as the local indexes. Make sure that the partitions are also created for the future periods so that the future snapshot loads do not fail while adding data.

For monthly snapshots, primary partition based on the year and sub-partition based on the calendar month work well. For snapshots that are not monthly, a different set can be used.

Source Product	Fact	Column	Partition Type
CCB	CF_ARREARS	SNAPSHOT_DT	List
CCB	CF_PAY_PLAN_SNAP	SNAPSHOT_DT	List
CCB	CF_PA_SNAP	SNAPSHOT_DT	List
NMS	CF_CITY_OUTG	SNAPSHOT_DT	List
NMS	CF_CTRL_ZONE_OUTG	SNAPSHOT_DT	List
NMS	CF_FEEDER_DLVRD_LOAD	SRC_DTTM	List
NMS	CF_OUTG	SNAPSHOT_DTTM	List
WAM	CF_OPR_DEVICE_SNAP	SNAPSHOT_DT	List
WAM	CF_ASSET_SNAP	SNAPSHOT_DT	List
WAM	CF_LOCATION_SNAP	SNAPSHOT_DT	List

Partitioning of the Accumulation Facts

The accumulation facts can be partitioned based on a date key. However, the data in the Accumulation facts will be spread across multiple dates and a list based partition will not work for the Accumulation facts. A range based partitioning scheme should be employed on the primary date_key column in the specific fact.

The following query gets the start and end range values from the CD_DATE dimension. Using this range, values for individual partitions can be defined.

```
select abs_month_nbr part_name_suffix , min(date_key) part_range_start ,
max(date_key) part_range_end  from dwadm.cd_date  group by abs_month_nbr
order by 1;
```

Parallelism

The database can take advantage of the distinct data sets in separate partitions if you use parallel execution to speed up queries, Data Manipulation Language (DML), and Data Definition Language (DDL) statements. Individual parallel execution servers can work on their own data sets, identified by the partition boundaries.

The parallel execution enables the application of multiple CPU and I/O resources to the execution of a single database operation. It dramatically reduces response time for data-intensive operations on large databases typically associated with a Decision Support System (DSS) and data warehouses. You can also implement parallel execution on an Online Transaction Processing (OLTP) system for batch processing or schema maintenance operations, such as index creation. Parallel execution is also called 'Parallelism'. Parallelism involves breaking down a task so that instead of one process doing all of the work in a query, many processes do part of the work at the same time.

For example, when four processes combine to calculate the total sales for a year, each process handles one quarter of the year instead of a single process handling all four quarters. The improvement in performance can be quite significant. The parallel execution improves processing for:

- Queries requiring large table scans, joins, or partitioned index scans
- Creation of large indexes
- Creation of large tables (including materialized views)
- Bulk insertions, updates, merges, and deletions

 **Note**

For details on parallelism, partitioning, and other performance enhancement options, see the Oracle Database VLDB and Partitioning Guide 19c.

Optimizing the Top N Answers

The Top N charts have to go through millions of records to find out the Top N objects that meet the criteria. Top N materialized views rearrange and partition the data so that the data reads are optimal. However, at times, depending on the amount of data, additional configuration may be required to reduce the size of the data set that is being scanned in order to identify the Top N objects.

For example, a large-sized utility with six million customers may have around six million service points in their Oracle Utilities Meter Data Management application. This means that the Consumption fact in the Oracle Utilities Meter Data Management star schema may have several million records for every snapshot month. So, for each month-level partition on the Consumption Detail Level materialized view, there will be several million records. The detail-level pages (Top N Analysis and Unreported Usage Details) on the Usage Summary dashboard under Oracle Utilities Meter Data Analytics tries to access a huge volume of data, which can sometimes result in sluggish performance. The recommendation in such scenarios is to set a key prompt filter, such as 'City', to mandatory. This ensures the report looks at a smaller data set, which in turn improves the report performance. You can choose to make any set of filters mandatory based on your data requirements.

Archiving the Historical Data

Assuming that the facts are partitioned as per the recommendations, it is now possible to archive historical data by selecting specific partitions and archiving them to a backup. Archival rules should be based on your data retention policies. This can be set up as a scheduled activity.