Introduction

Welcome to the User Guide for Oracle Metadata Management (OMM).

Disclaimer

Some of the features detailed in this document may not apply and/or be available for the particular Oracle Metadata Management (OMM) edition you may have.

Metadata Overview

Oracle Metadata Management (OMM) provides a comprehensive and well integrated set of Metadata Management (MM), Data Cataloging (DC) and Data Governance (DG) solutions supporting on premise, cloud based or hybrid Enterprise Architectures ranging from the classic Data Warehouse to the latest Data Lakes and Data Vaults:

- Integrated Solutions: Metadata Management, Data Cataloging, and Data Governance
- Multi-Deployments: On Premise, Cloud, or hybrid (Cloud with on premise harvesting)
- Multi-Architectures from the Data Warehouse to the new Data Lake / Data Vault
- Multi-Vendors from any Data Integration and Business Intelligence tools
- Multi-Technologies from files and SQL based RDBMS, to the new NoSQL, JSON, Avro, Parquet, XML and Hadoop big data technologies, REST API Data Services
- Multi-Storage File Systems: Data Cataloging by file crawling over Linux/Windows, Hadoop HDFS, Amazon S3, Azure Blob Storage, OpenStack Swift, Apache Kafka, etc.
- Multi-Configurations with Change Management and Incremental Metadata Harvesting, Comparison, Version & Configuration Management and automatic stitching
- Multiple integrated tools for Search, Data Flow and Semantic Lineage, Data Modeling, Data Mapping, Multi-Vendor BI Web Portal

Oracle Metadata Management (OMM) provides solutions for a full range of users:

- Most business end users in need of a multi-vendor Business Intelligence (BI) web Portal with quick access to the right report understand its content with proper business definitions from the enterprise business glossary.
- Advanced business users and compliance officers looking for information traceability (data lineage) and data privacy for General Data Protection Regulation (GDPR), Sarbanes-Oxley (SOX) regulations, and more.

- Data stewards, data modelers, and data quality experts working on enterprise data standardization, common vocabulary, data modeling and business rules with powerful tools like the business glossary, semantic mapper, data modeler.
- Data analysts in need of self-service data integration, preparation, and business intelligence using the data mapping design tool.
- IT engineers, data scientists data Integration and business intelligence developers looking complex multi-vendor and multi-architecture end to end linage in great details down the design level information of each tool with support for change impact with full detailed version and configuration management.

Features

Metadata Harvesting

- Data Stores
  - Databases (Oracle, SQL Server, Teradata, IBM DB2, PostgreSQL, MySQL, AWS Redshift, GreenPlum, Netezza, SAP HANA, etc.)
  - Big Data (Hadoop Hive, Hcatalog, Google Big query, etc.)
  - NoSQL (Cassandra, HBase, MarkLogic, MongoDB, etc.)
  - Flat Files (CSV, XLSX)
  - Hierarchical Files (JSON, Avro, Parquet, XML, XML XSD, etc.)
  - File Systems ((Linux/Windows)
  - Data Lake and Cloud Hadoop HDFS, Amazon S3, etc.)
  - Data Services (Open API, etc.)
- Metadata Stores
  - Data Modeling Tools (Erwin, ER/Studio, PowerDesigner, etc.)
  - Metadata Management (Atlas, Navigator, etc.)
  - Semantic Web Ontology (OWL/RDF)
- Data Integration
  - DI/ETL Scripts (Oracle PL/SQL, Teradata BTEQ/FastLoad/BulkLoad, Hadoop HiveQL, Sqoop, SAS code, etc.)
  - DI/ETL Tools (Informatica PowerCenter, IBM DataStage, Oracle ODI, Microsoft SSIS, SQP Data Services, SAS DI, Talend, etc.)

- Business Intelligence (SAP BusinessObjects, IBM Cognos, Microsoft SSAS/SSRS, Azure PowerBI, Oracle OBIEE, Microstrategy, Qlik, Tableau, ThoughSpot, TIBCO Spotfire, etc.)
- Business Applications (SAP Business Suite, SAP Business Warehouse, Salesforce, etc.)

Metadata Management (MM)

- Model Manager (with automatic metadata stitching, and Enterprise Architecture diagramming)
- Metadata Search (metadata driven pre and post filters, semantic search language)
- Metadata Browser (hierarchical metadata browsers with custom metadata profiles per tool/technology)
- Metadata reporting capabilities where both search and browse end up to the same reporting page which is also directly available at Browse > Report.
- Metadata Tabular Analyzer Reporter (with bulk editing capabilities)
- Data Model Visualizer (ER Diagrams)
- Data Flow Lineage and Impact Analyzer (Data flow Lineage and impact analyzer down to feature level, with data vs control flow)
- Multi-Configuration Management (multi configurations for different enterprise architectures and groups)
- Multi-Version Management (efficient automatic incremental harvesting, with model history/SOX compliance)
- Metadata Comparator (comparison with previous versions for the impact of change)

Data Governance (DG)

- Business Glossary (BG) (with customizable workflow automation)
- Semantic Mapper (search driven, auto map, and multi-levels from glossaries to data stores via design models)
- Semantic Lineage Analyzer (term usage, and automatic glossary definition on data pass through)
- Local Documentation (quick in place editing of business names and descriptions while browsing harvested data stores)

- Glossary Linking (quick in place semantic linking while browsing harvested data stores, DI jobs, and BI reports)
- Data Tagging (applying reusable Labels available in search)
- Comments and Reviews (collecting business user feedback and managing reviews)

Data Cataloging (DC)

- File System Crawling (file type auto-detection, partitioning auto-detection)
- Data Profiling (from data sampling to full data profiling with statistical results)
- Semantic Discovery (patterns/lists machine learning)
- Relationship Discovery (metadata driven inferred from usage in DI, BI, SQL, etc.)
- Social Curation (endorsement, warnings, certifications with impact on search)
- Data Modeling
- Data Store Documenter (automatic reverse engineering of naming standards with supervised machine learning)
- Data Store Modeler (with full data model diagram editing)
- Data Store Designer (new data store specifications and design)

Data Mapping

- Data Mapper (from business user data mapping specifications to design for bulk and feature/SQL with joins/filters/lookups)
- Metadata Applications
- BI Web Portal (Multi-vendor BI Web Portal with bi-directional integration, and glossary generation)

Administration, Customization, & Extensions

- Custom Attribute Extensions (MyCompanyCertificationLevel, etc.)
- Customizable UI (menus, widget layout, etc.)
- REST API (glossary lookups, linage trace, automatic harvesting, search, browse, update, etc.)

Explore Metadata

Fundamentally, Oracle Metadata Management (OMM) is a metadata management tool. Thus, a key aspect of the feature of Oracle Metadata Management (OMM) centers around looking up, finding or discovering metadata that is harvested into the system.

In particular, you may use the search (both immediately as you type as well as a more advanced search page) by contained text. In addition, you may browse directly by metadata category and type. Finally, you may locate elements by navigating the current configuration architecture.

Customization: The search categories, results and available actions may all be customized and new categories defined. Please see the Customization tutorial for this capability.

Search Metadata

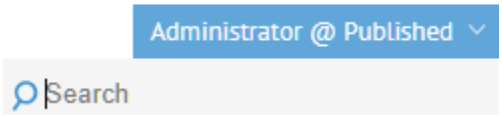
Immediate Search

You may immediately perform searches from anywhere.

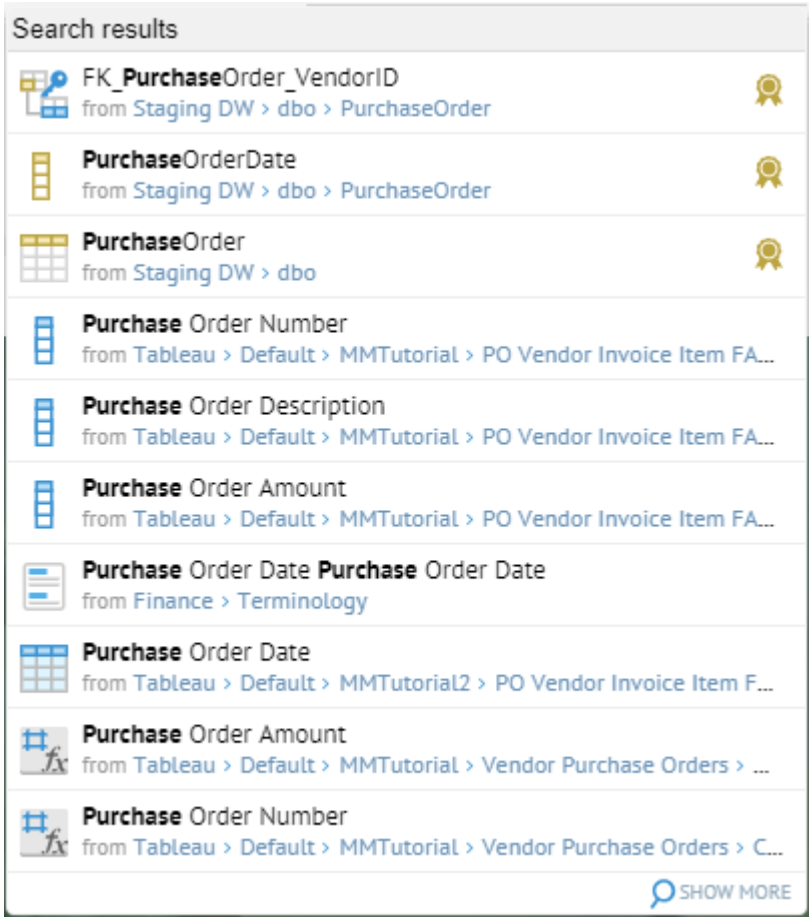
Steps

1. Click in the Search text box in the upper right.
2. Enter any text.

Example



You search for any metadata element containing the word “purchase”.



Partial Search: As you enter the text the search is already performed, thus partial entries will produce search results as you type.

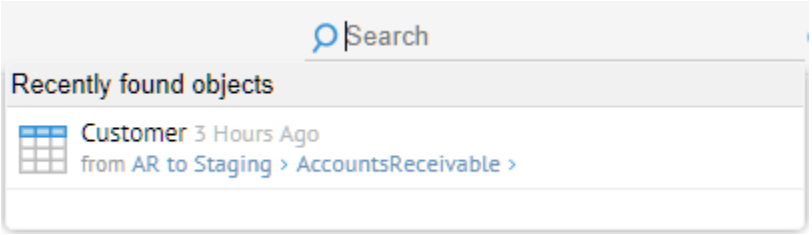
Relevance and Ordering of Results: The first metadata element in the list of results are Certified. The presentation order of the search results are altered by actions like certification. To learn more go here.

Semantic Search: The search uses semantic search rules so that you may specify fairly sophisticated queries within a simple syntax. This syntax is documented here.

Explore Further

Recent searches

The Search will initially show recent search requests that you may select before you type anything in the text box.



Open the metadata element home page

Click any metadata element or any of the structures in its Context (or model path) to view the home page.

Show full results

Only the most relevant few results are listed in the immediate search dropdown. Press Enter to present the full Search Page.

Search Page

Steps

1. From the immediate search, click enter.
2. You are then presented with the common metadata results (report) page.

Semantic Search Syntax

Before you type, a simple click will list your previous searches. Otherwise, search is automatically activated as your type, offering you choices that you can select in the suggested list, or type enter to get to the advanced search window.

When searching for words with spaces or punctuation characters, such exact words must be quoted (e.g. “Product SKU”). Note that search is not case sensitive (even when quoted).Search is only based on the name (use advanced search to search in descriptions and more).

Semantic search offers the use of the following key words in your search:

- Object Types: term, dataset, attribute, *table*, column, file, field, database, model, data model, and report. Such key words can be used in singular or plural (e.g. terms).
- Model Categories: glossary, glossaries, database, databases, db, modeling, data modeling, bi, reporting, tableau, bo, cognos, and obi.

Note that the above key words do not need to be quoted when space is used (e.g. data model).

Then such key words can be used in a user friendly convenient syntax with additional qualifier key words as follows:

- *customer table* : returns all database tables having *customer* in the name.
- *datasets with ssn* : returns all tables (or files) with a column (or fields) having *ssn* in the name.
- *tables with sensitive label* : returns all tables with a label applied to them having *sensitive* in the name.
- *my terms* : returns all terms for which I am the steward.
- *john's terms* : returns all terms for which *john* is the steward.
- *customer in tableau* : returns any tableau BI reports having *customer* in the name of any objects.

The search uses semantic search rules so that you may specify fairly sophisticated queries within a simple syntax. This syntax is documented below.

Semantic Search BNF Syntax

<semantic search query> ::= <type> | <children> | <label> | <steward> | <category>

<type> ::= <name> <types>

<name> ::= <alphanumeric>+ | "<character>+"

<types> ::= "datasets" | "dataset" | "tables" | "table" | "files" | "file" |

"attributes" | "attribute" | "columns" | "column" | "fields" | "field" |

"reports" | "report" |

"terms" | "term" |

"databases" | "database" |

"data models" | "data model" | "models" | "model"

<children> ::= <types> "with" <name>

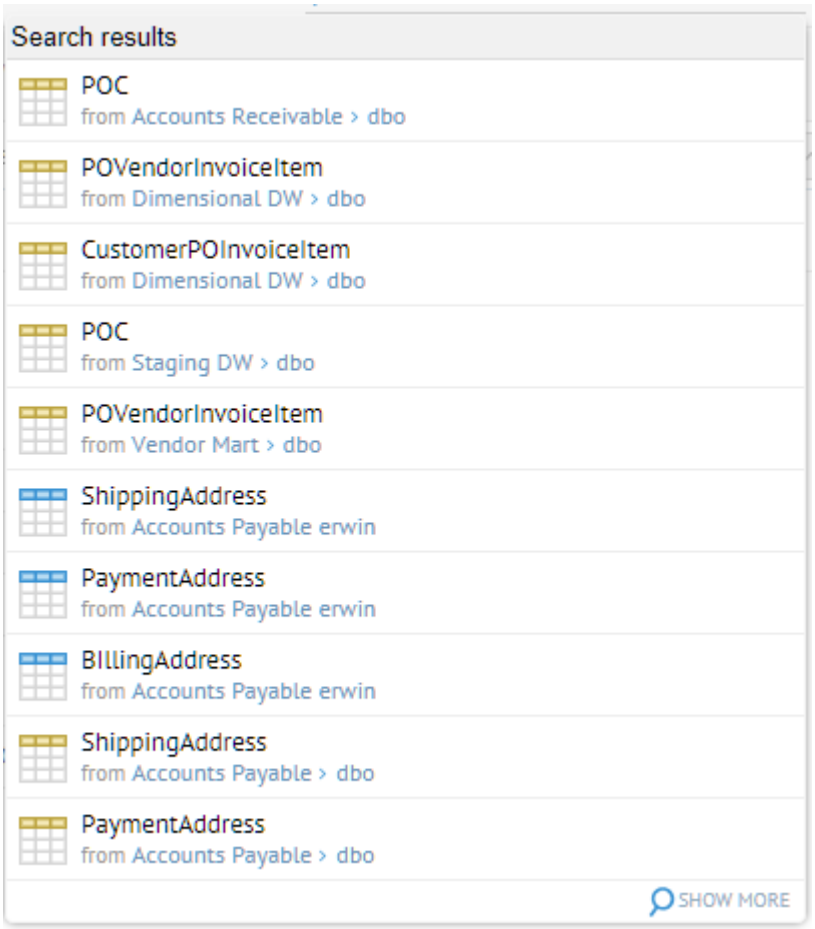
<label> ::= <types> "with" <name> "label"

<steward> ::= "my terms" <types> | *<name>* ***"'s terms"***

<category> ::= <name> "in" <categories> *<categories> ::= "glossary" | "glossaries" | "database" | "databases" | "db" | "modeling" |* *"data modeling" | "bi" | "reporting" | "tableau" | "bo" | "cognos" | "obi"*

Example

You search for “dataset with mail”.



The results contain all tables that contain a column that has the word “mail” in the name, physical name or description or

Browse Metadata

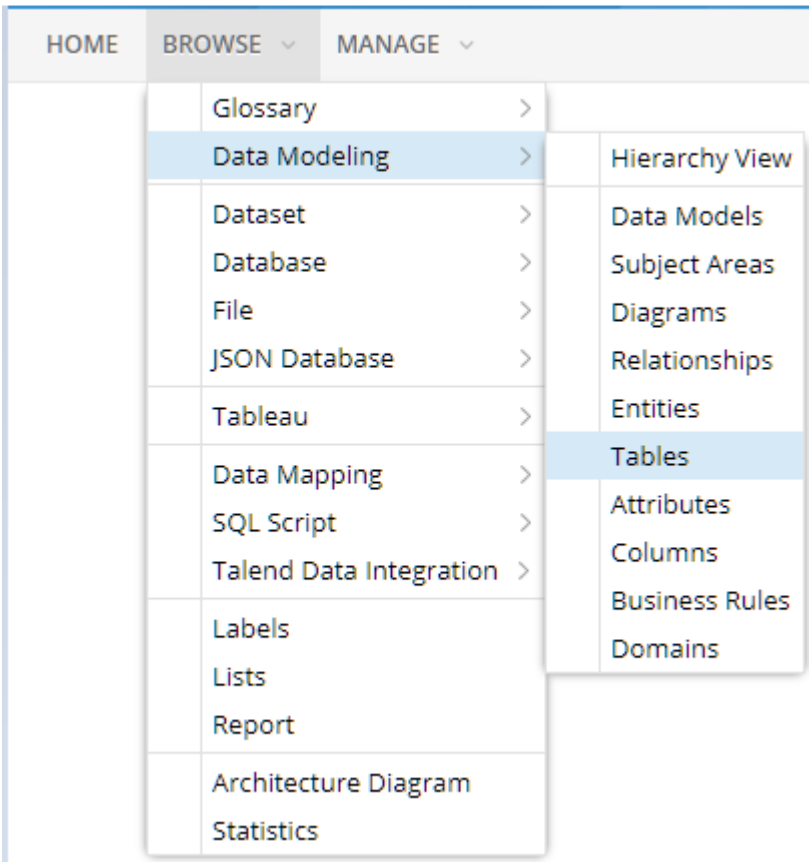
Browse as a List

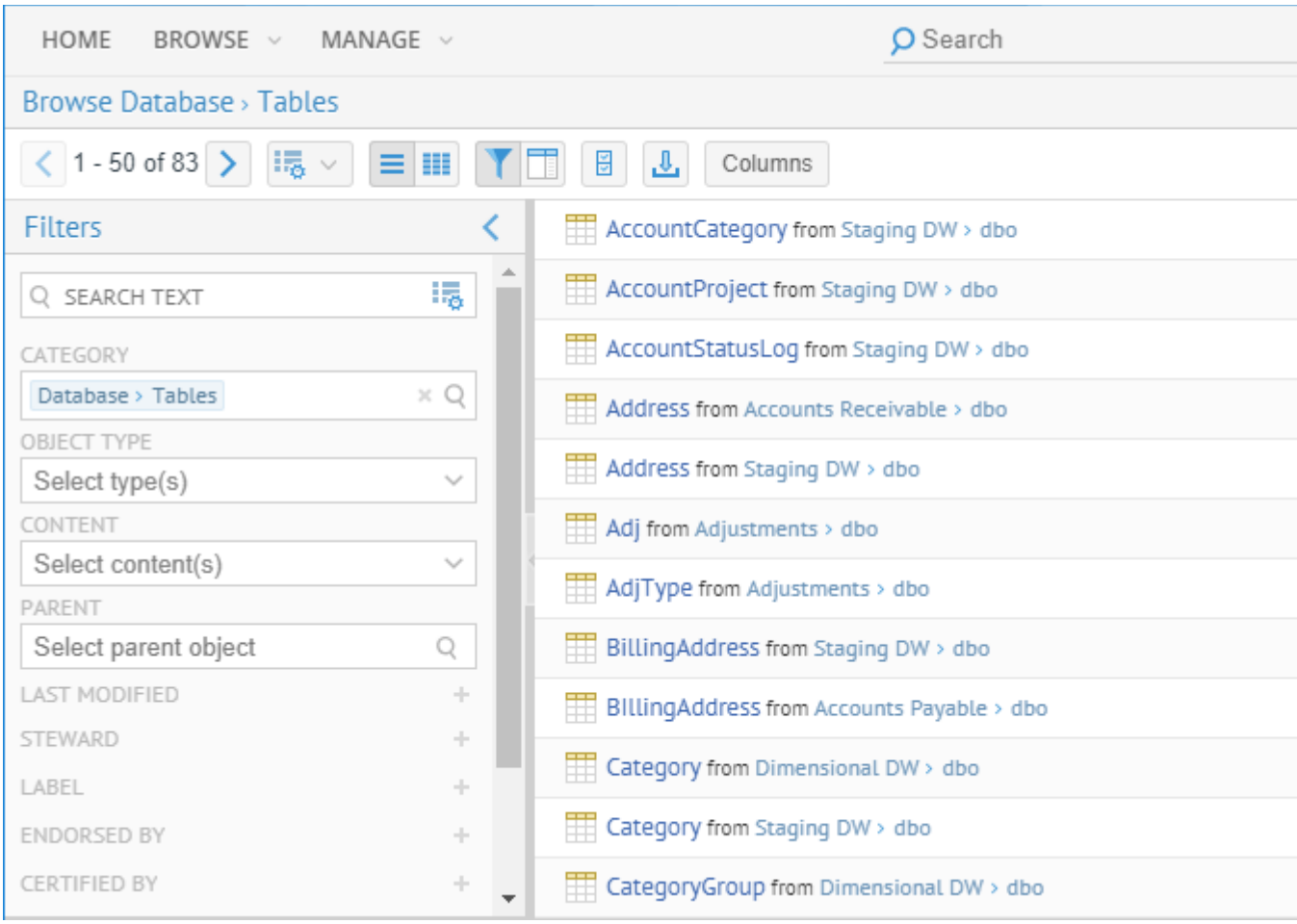
Steps

1. Click BROWSE in the banner.
2. In the menu, select the type of metadata you wish to browse.

Example

When you select one of the metadata element types (e.g., **Data Modeling > Tables**)





The results are presented in a simple list format by default, each line containing the actual metadata element name and its model path.

The organization of categories in the BROWSE menu are defined in the customization MM installation file /conf/resources/MetadataExplorer.xml. One may control the categories, results and available actions using this file. You may Please see the Customization tutorial for this capability.

By default, the browse categories are in the order:

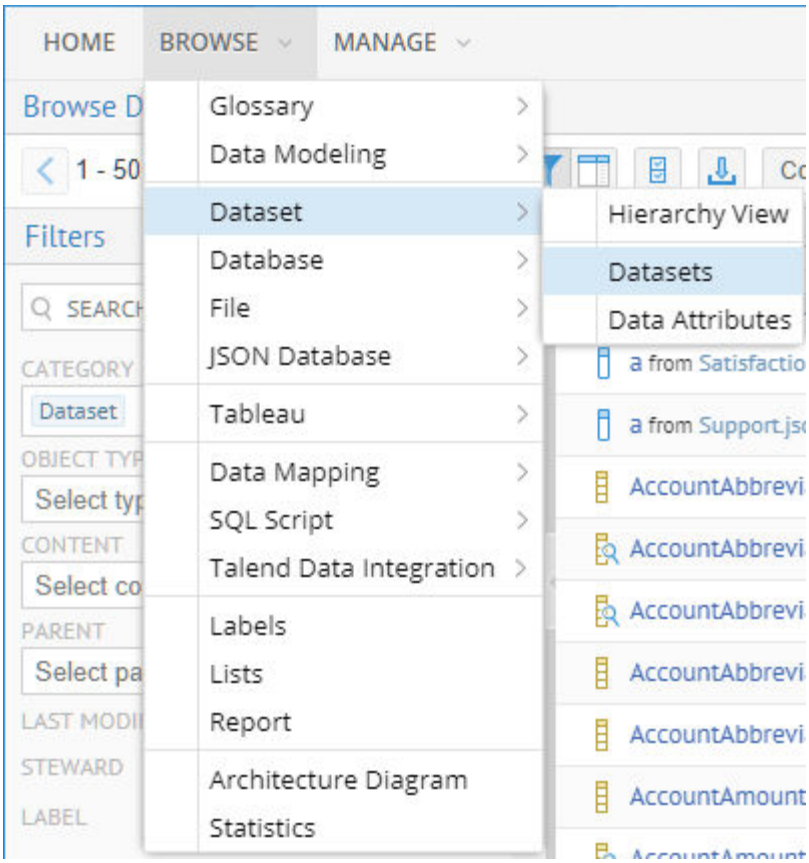
- *Data Governance*
- *Data Stores*
- *Business Intelligence*
- *Business Applications*

- *Data Integration*

Some categories actually work across the different high-level groups above. E.g., ***Dataset >***

Datasets *or* ***Data Attributes*** *refer to all "table like" or "column like" elements*

Thus, if one instead selectes BROWSE > Dataset > Datasets



One has a much longer list that includes not only database tables, but also flat files, JSON files or database packages, data modeling entities, etc., all of which are "table like".

Hierarchy View: Selecting Hierarchy View provides a tree-based navigation method through all the different metadata types listed for that category. More details are available here.

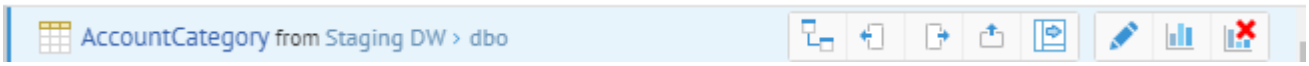
Explore Further

Open the metadata element home page

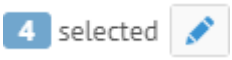
Click any metadata element or any of the structures in its Context (or model path) to view the home page.

One-click actions

Click the line a particular metadata element is on (but not the name or context itself) to see action icons that you may click to act on this metadata element without first navigating to its home page.



Multi-select: You may select more than one row (Shift-click, Ctrl-click, etc.). With this feature one may apply an action to all of the selected rows. Only those actions available to ALL of the selected rows will be presented.



You may also add multi-selections to a list

Analyzing the results (Common results features)

A core feature of the Oracle Metadata Management (OMM) UI is the ability to analyze, edit and manage metadata results. Navigation, filtering, spreadsheet-like editing, are all available for that purpose. These features are provided in a consistent and rational manner throughout the product. Complete details and examples of it use are available here.

Download

While the user interface provides the best method for browsing, analyzing and editing the metadata, there are still times when you may wish to download the filtered and massaged results you see on the screen. It is downloaded to CSV format.

Browse as a Hierarchical Tree

Selecting Hierarchy View provides a tree-based navigation method through all the different metadata types listed for that category. This method of navigation is highly effective when browsing through deeply hierarchical structures like file system, HDFS, etc., and hierarchical metadata sources like JSON, XML, etc.

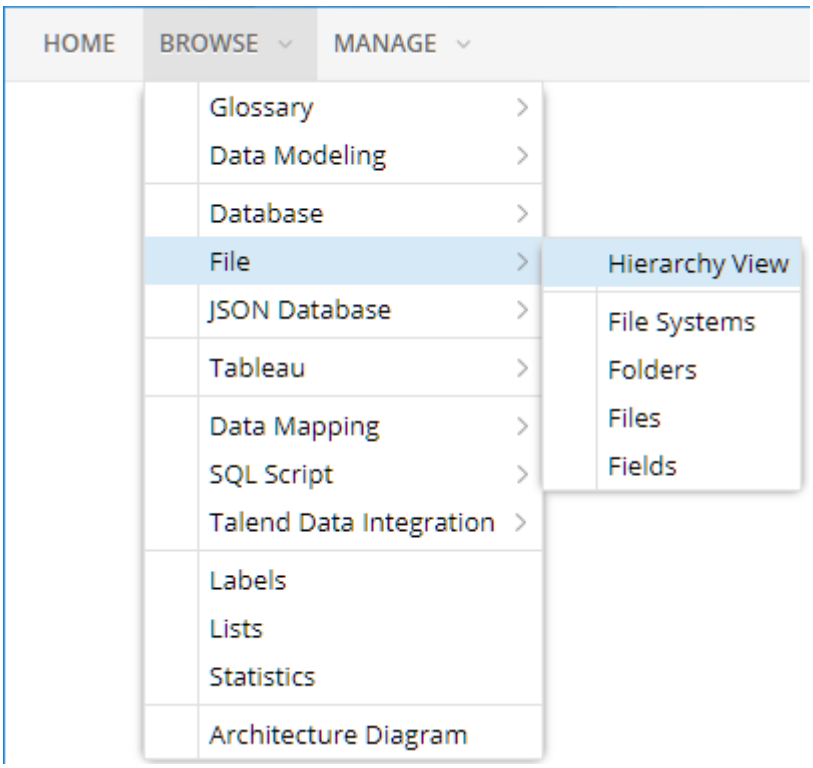
Steps

1. Click BROWSE in the banner.
2. In the menu, select the category of metadata you wish to browse. Then select Hierarchy View.

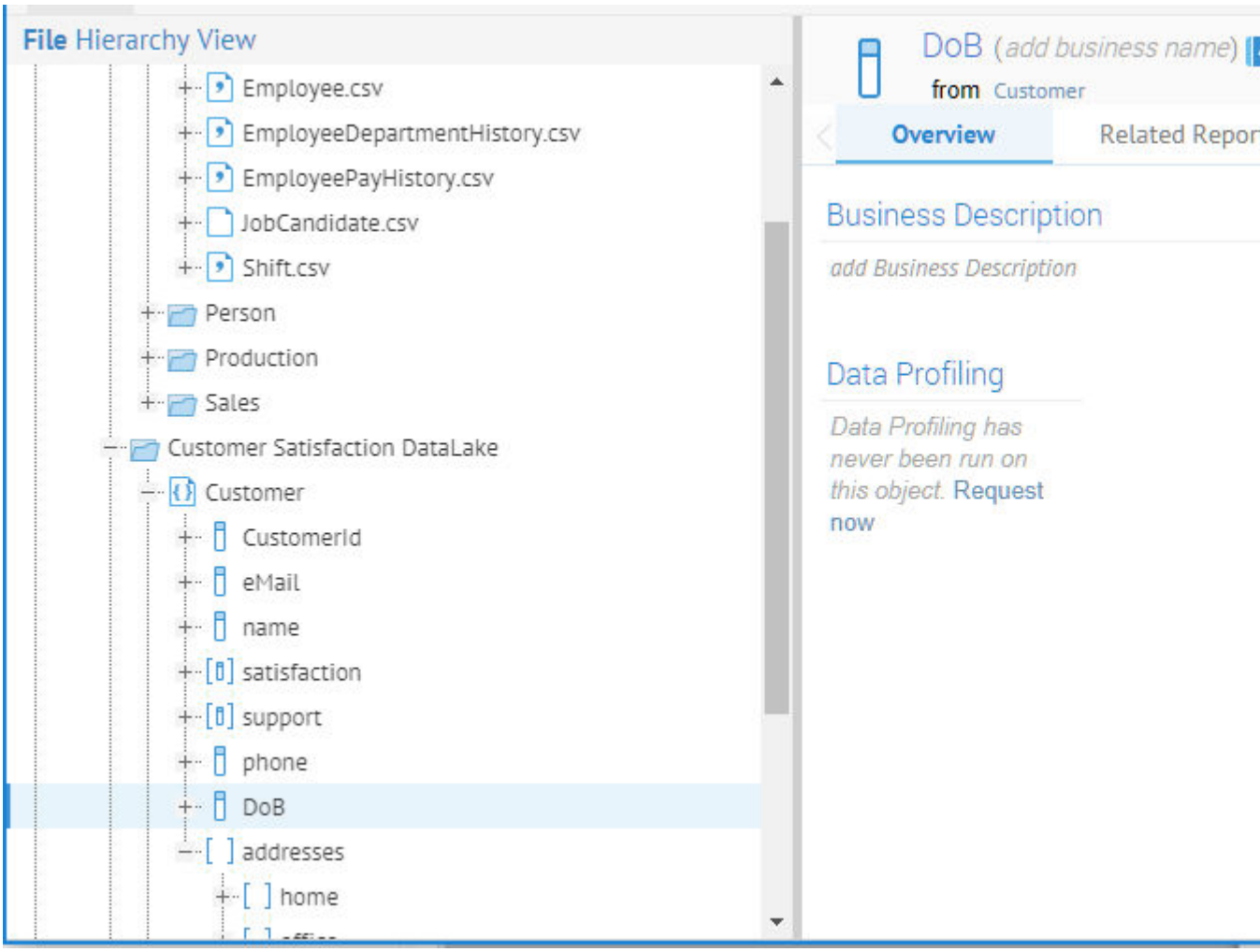
The search categories, results and available actions may all be customized and new categories defined. Please see the Customization tutorial for this capability.

Example

When you select one of the metadata element types (e.g., Files)



You will be presented with a tree on the left and home page for the selected tree element on the right.



Explore Further

For details on using the metadata home page for a metadata element click here.

In the **Tree View** panel you may:

- Expand / Contract metadata elements
- Click on and metadata element to view metadata home page.

Reporting on Metadata

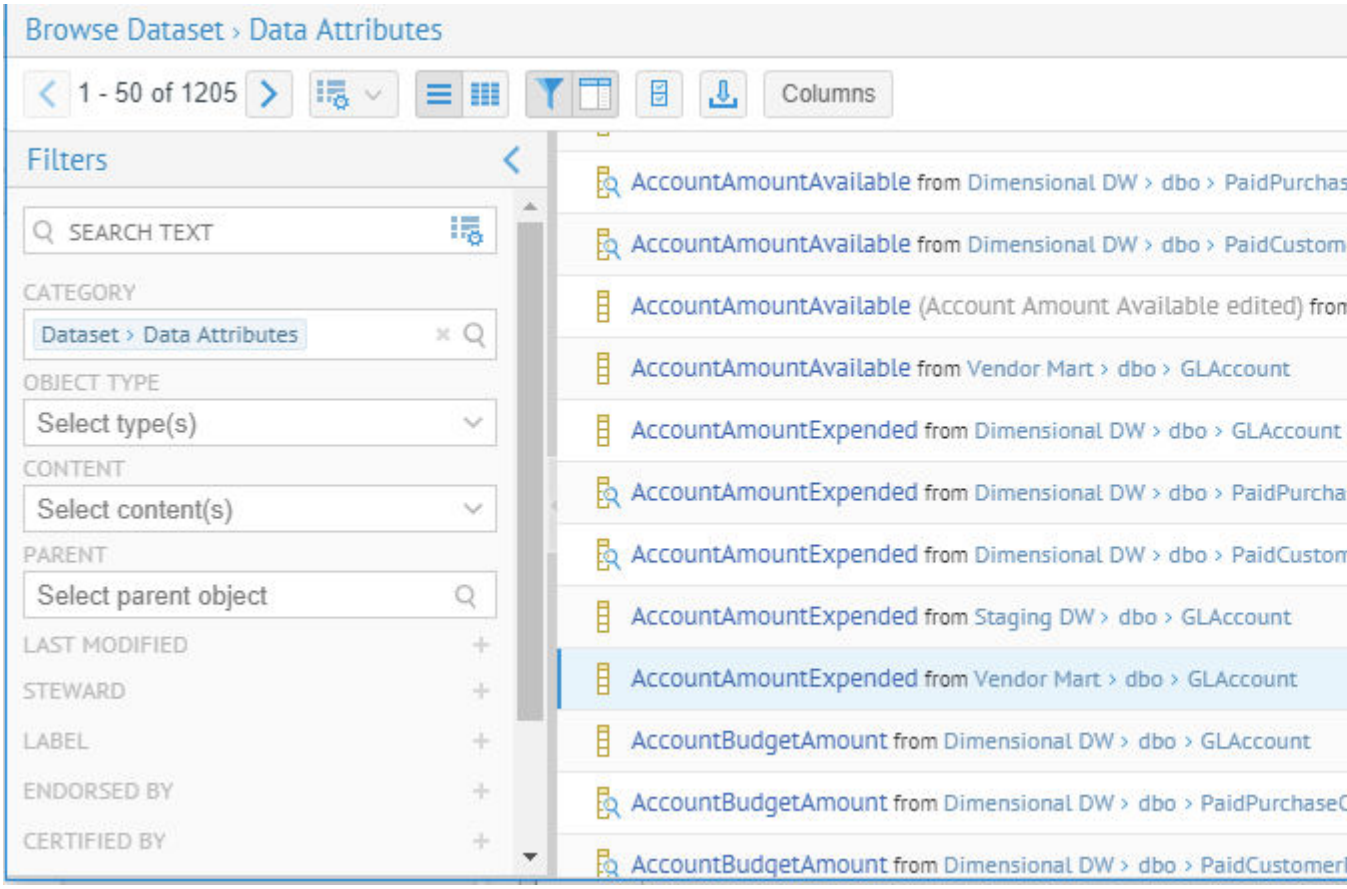
Oracle Metadata Management (OMM) provides metadata reporting capabilities where both search and browse (as well as a direct link in the BROWSE menu) lead to the a common reporting page.

Starting from search simply predefines the text filtering (e.g. customer), while browsing predefines a category (e.g. database / tables), and direct access to reporting does not predefine anything.

The reporting capabilities offers to select multiple categories (e.g. database / tables + Flat files) and subset by content (My Data lake + Sales DW database) before drilling down with the following filters:

- Then filtering is available for Last Modified, Stewards, Labels, Endorsed By, Certified By, Created By, Warning By, and Commented By
- Finally, more custom filtering per attribute (including custom attributes) common to the metadata subset (e.g. SecurityLevel = Orange)
- Reports can be reused by saving the URL as favorites (further versions will support full report management within the application).

Metadata List Model



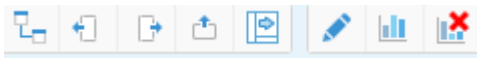
A core feature of the Oracle Metadata Management (OMM) UI is the ability to analyze, edit and manage metadata results. Navigation, filtering, spreadsheet-like editing, are all available for that purpose. These features are provided in a consistent and rational manner throughout the product.

Open the metadata element home page

Click any metadata element or any of the structures in its Context (or model path) to view the home page.

One-click actions

Click the line a particular metadata element is on (but not the name or context itself) to see action icons that you may click to act on this metadata element without first navigating to the information page.



Multi-select: You may select more than one row (Shift-click, Ctrl-click, etc.). With this feature one may apply an action to all of the selected rows. Only those actions available to ALL of the selected rows will be presented.

You may also add multi-selections to a list

Search within results

One may filter on text contained within the Columns presented.

List vs. Grid Mode

One may toggle between presenting the results as a simple list or as a spreadsheet-like grid. Oracle Metadata Management (OMM) provides a rich set of features to manage the columns in a grid and allows for editing of the cells just as with a spreadsheet. Details are provided here.

In either mode, it may be useful to use checkboxes  when selecting rows

Paginated display and navigation

If the list of metadata elements is long, only a portion of that list is presented. Oracle Metadata Management (OMM) provides a number of common navigation tools for these lists. Details are provided here.

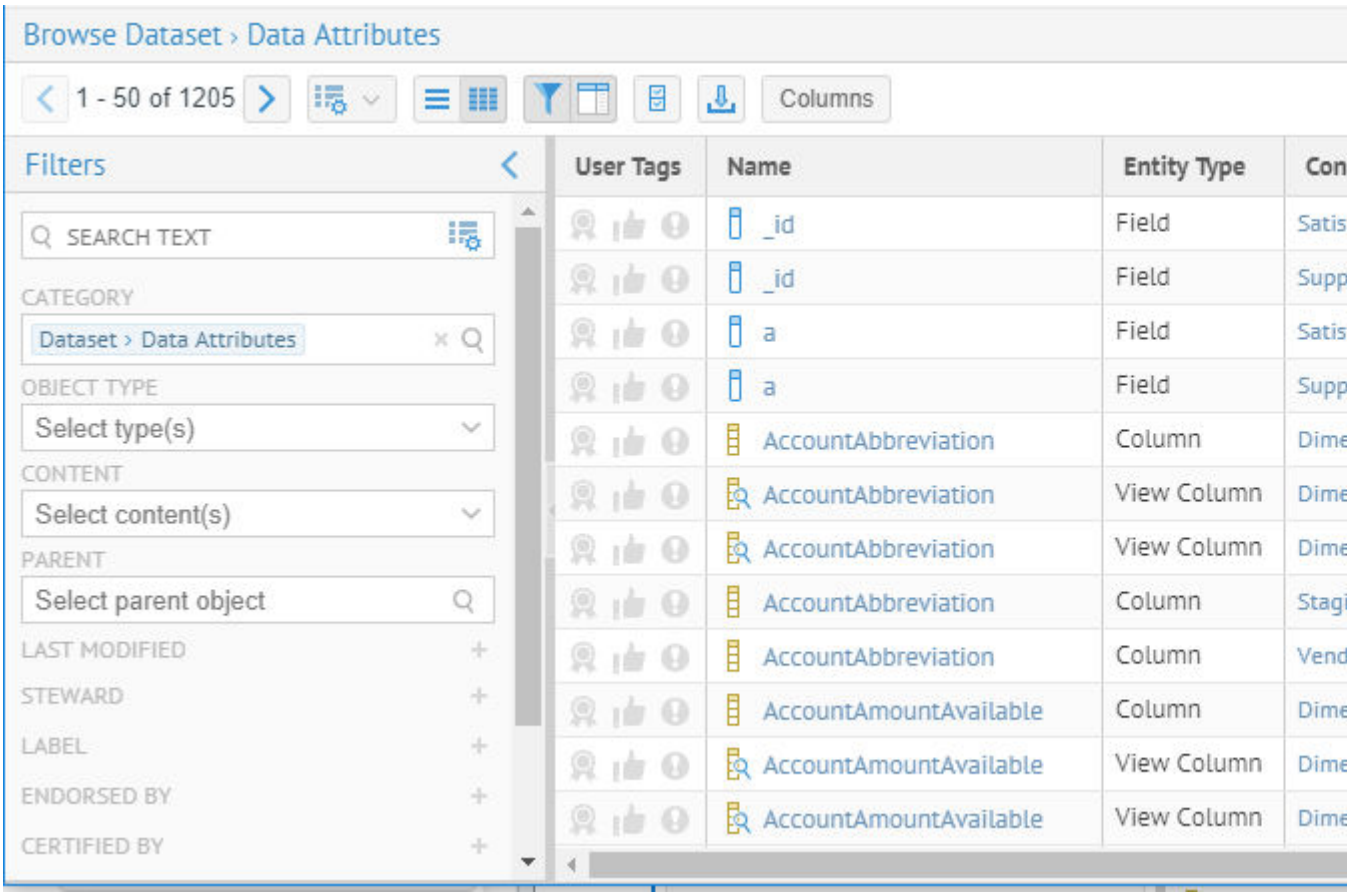
Filtering

A filter panel can be presented to the left of the results. Oracle Metadata Management (OMM) provides a sophisticated set of post filtering options. Details are provided here.

Properties Panel

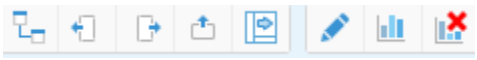
In order to see all properties for a selected object, without navigating to its home page, you may expand (or hide) a properties panel with the complete set of properties

Metadata Grid Mode



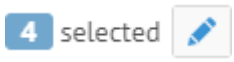
One may toggle between presenting the results as a simple list or as a spreadsheet-like grid. Oracle Metadata Management (OMM) provides a rich set of features to manage the columns in a grid and allows for editing of the cells just as with a spreadsheet.

One-click actions



Select the row a particular metadata element is on to see action icons that you may click to act on this metadata element without first navigating to its home page. These action icons are presented at the top of the grid.

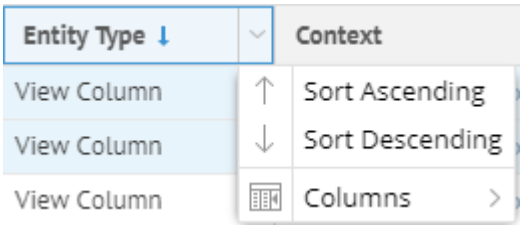
Multi-select: You may select more than one row (Shift-click, Ctrl-click, etc.). With this feature one may apply an action to all of the selected rows. Only those actions available to ALL of the selected rows will be presented.



You may also add multi-selections to a list

Sorting by columns

One may sort by any column displayed. To do so, click any column headers and click the icon.



Adding and removing columns

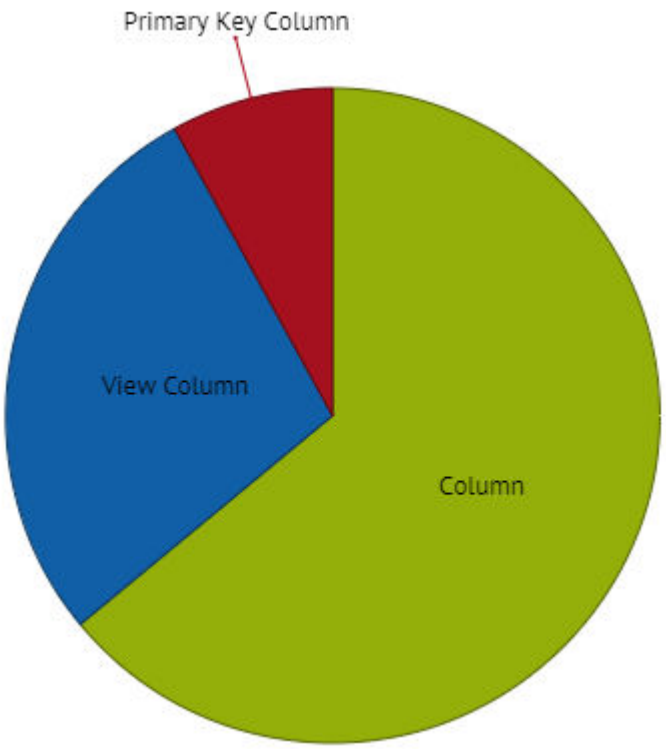
By default a subset of the possible columns are displayed. You may add and remove columns as required. To do so, click any column headers and click the icon to choose or remove columns from the grid display.

Identify distinct values by column

You may quickly obtain a list of the distinct values available in the metadata. To do this, right-click a cell in the grid and select that option.

The result is statistics on the distinct values present according to the filters defined

Value	Count	Repartition
Column	32	64%
View Column	14	28%
Primary Key Column	4	8%



Editing cells

If you have sufficient permission, you may edit cells in the metadata results. To do this, either double-click that cell or right-click and select Edit. You may then use the Tab and Enter keys to traverse the grid for editing further.

Paginated Display and Navigation

If the list of metadata elements is long, only a portion of that list is presented. This portion is referred to as a Page. Oracle Metadata Management (OMM) provides a number of common display and navigation tools for these lists.

Curating rows

You may click the Certify, Endorse and/or Warn icons for any row.

Navigating through the pages

To page through the results, one page at a time, click the (Next) or the (Previous) icons.

Controlling page size and display

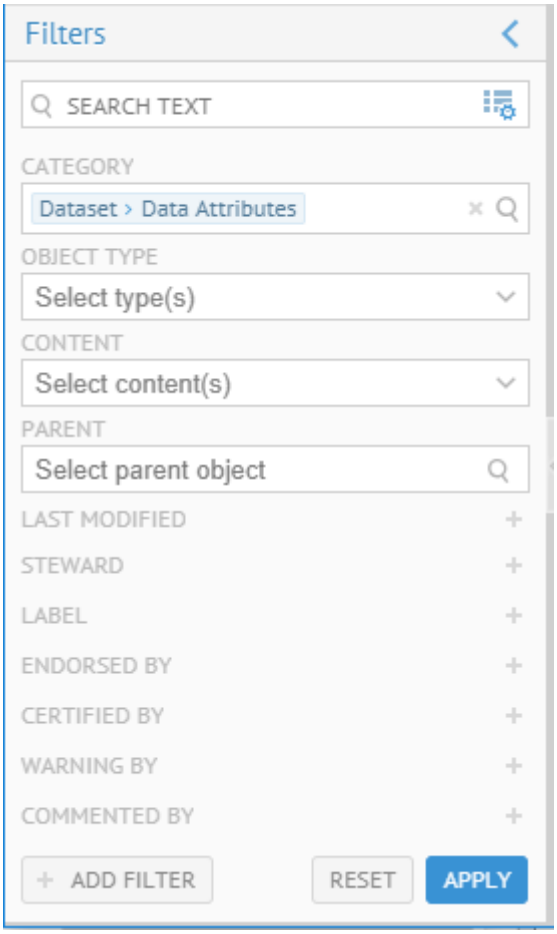
Select 

- Select the number of Items per Page
- Word Wrap checkbox
- Refresh the list.

Filtering, sorting, etc., only apply to a page of the results at a time. Be sure to specify a large enough Items per page to ensure that you are getting the results you expect.

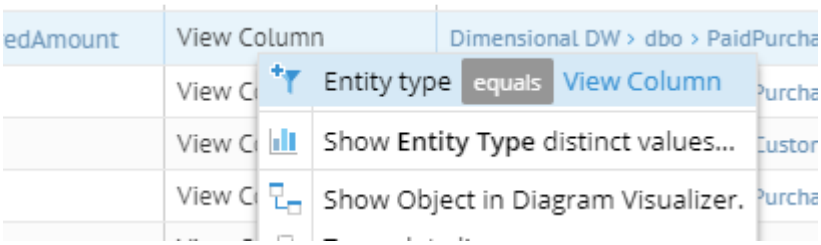
Metadata Filtering

A filter panel can be presented to the left of the results. Oracle Metadata Management (OMM) provides a sophisticated set of post filtering options.



Filter by example by column

You may always filter the results by what is already presented. E.g., if one wishes to only see columns for Type View Column, you may simply right-click a cell in the grid that contains that value and select that option.



Using the filter panel

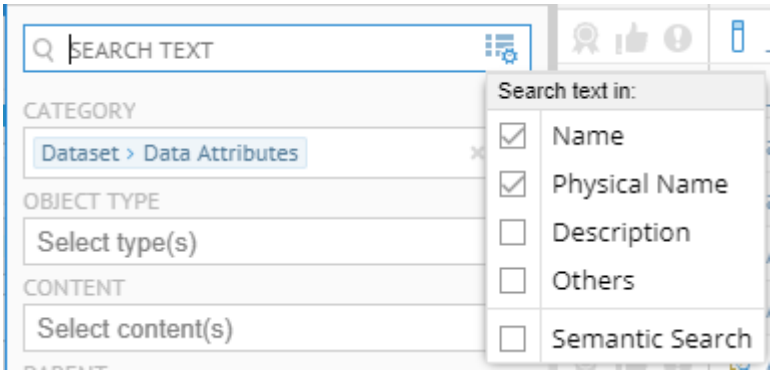
You may also expand () the Filters panel on the left in order to limit the results based upon advanced matching criteria.

FilterCriteria	Description
SEARCH TEXT	Text to match against. One may select which properties (e.g., name vs. description) to match against.
CATEGORY	Filter by categories defined in the customization MM installation file /conf/resources/MetadataExplorer.xml.
OBJECT TYPE	Where specific (Sub) Types of the element type selected, e.g. a view vs. table
CONTENT	Only those results in particular Contents
PARENT	Only those results contained by a particular parent object
STEWARD	Only those results with a particular Steward assignment
LABEL	Only those results tagged by particular Labels
ENDORSED BY	Only those results endorsed and/or endorsed by a particular individual or set of individuals
CERTIFIED BY	Only those results certified and/or certified by a particular individual or set of individuals
WARNING BY	Only those results warned and/or warned by a particular individual or set of individuals
COMMENTED BY	Only those results commented on and/or commented on by a particular individual or set of individuals
Other	Additional properties specific to the type of metadata element

Use Add Filter to add addition filter criteria, Reset to clear the selected the filter criteria or Apply to apply the selected the filter criteria to the displayed results.

Filter by Search Text

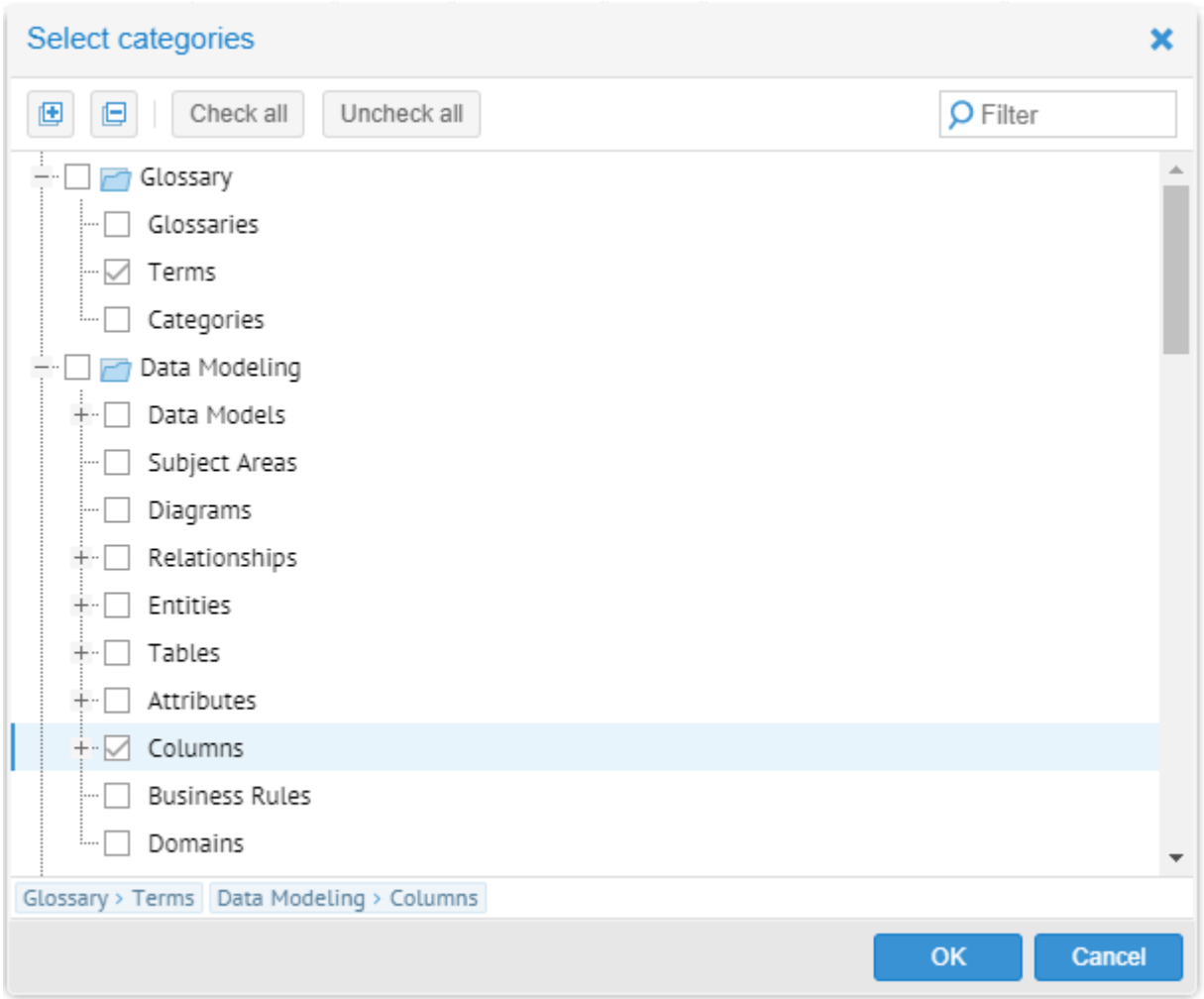
You may enter text to filter by, and the text will be matched to the properties specified, as follows:



The semantic search language is defined here.

Filter by Category

You may specify from a hierarchical pick list which metadata element types to include in the results. Thus, you may include, e.g., both Terms and Database Columns in the search results.



The organization of categories in the pick list are defined in the customization MM installation file /conf/resources/MetadataExplorer.xml. One may control the categories, results and available actions using this file. You may Please see the Customization tutorial for this capability.

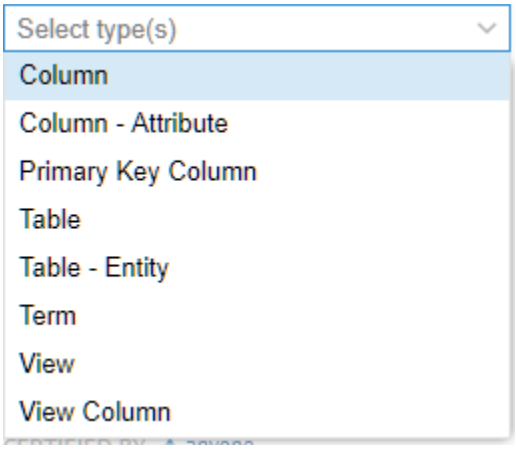
By default, the browse categories are in the order:

- *Data Governance*
- *Data Stores*
- *Business Intelligence*
- *Business Applications*
- *Data Integration*

Filter by Object Type

Depending upon the CATEGORY filter, multiple metadata object types may be presented in the results at the same time.

Using the Object Type filter you may pick a subset of those matching object types.



The OBJECT TYPE filter option is only presented when you have included more than one type due to the CATEGORY filter criteria.

Filter by Content

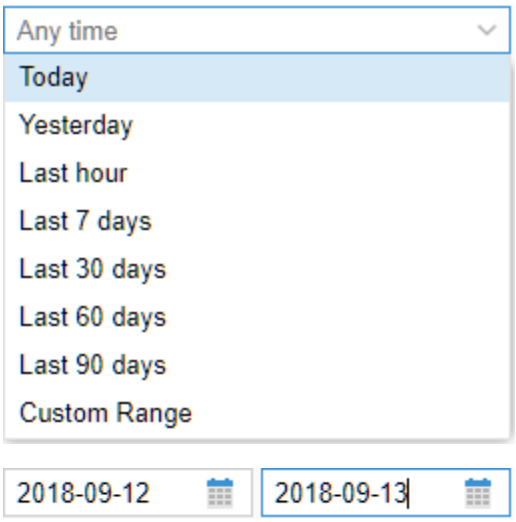
Use this filter to restrict the results to only those which are a contained within particular contents (e.g., a specific model or glossary).

Filter by Parent

Filter to only those results which are children (contained within)specific metadata objects picked from the repository.

Filter by Date Modified

Filter to only those results which have a Date Modified value in a specific date range.



Filter by Steward

Filter to only those results which are assigned to one or more Stewards.

Filter by Label

Filter to only those results which have one of the selected labels assigned.

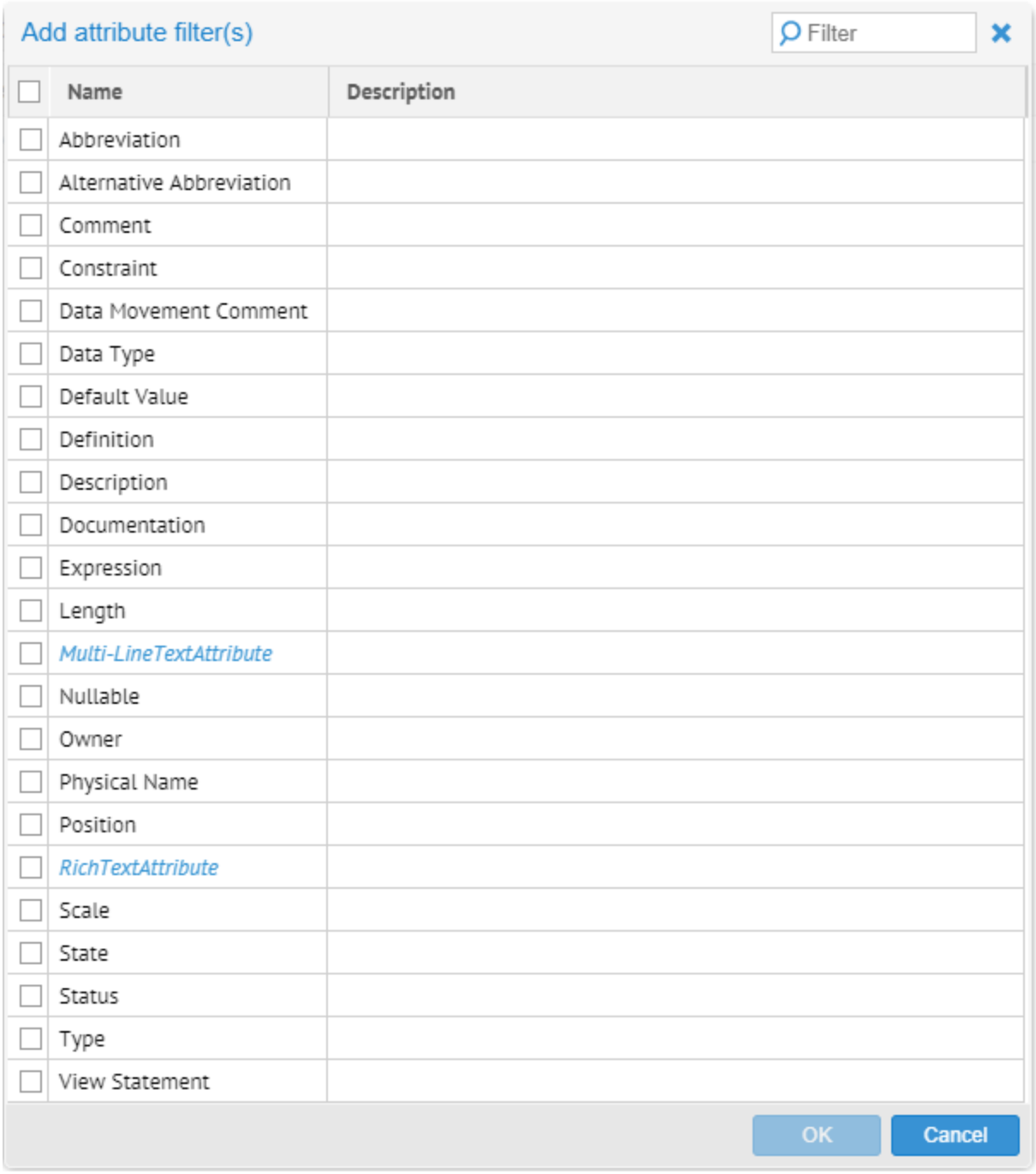
Filter by Curation Status

You may endorse, certify, warn and comment on any metadata element.

You may then filter to only those results which have any of these or any of these from a specific set of individuals.

Other Filters

You may filter to only those results which have specific values in specifc properties. The list of properties includes:



Navigate the Enterprise Architecture (Configuration)

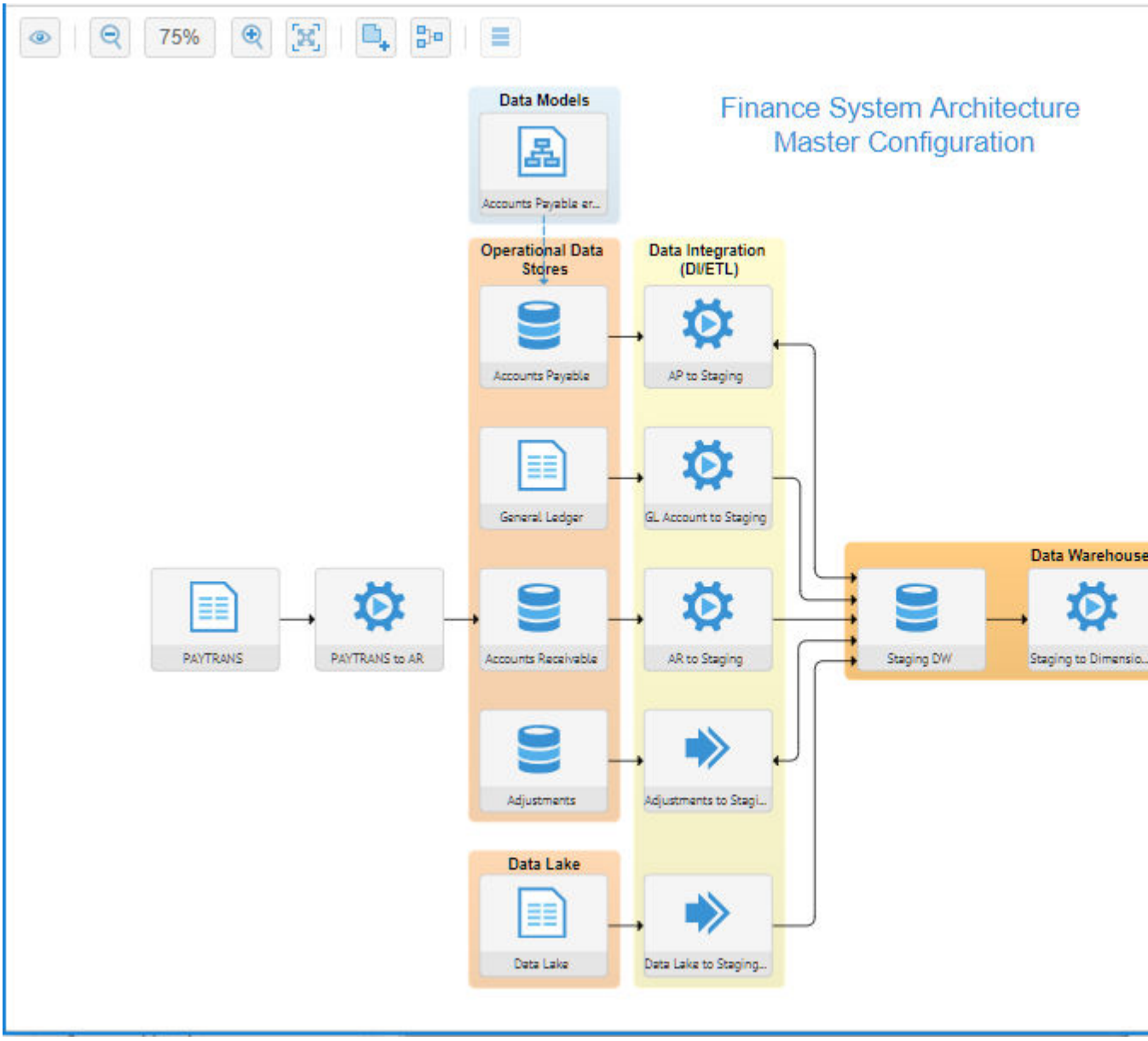
Once stitched, the relationships among Repository Objects in a Configuration can be visualized producing a data flow and semantic based architecture diagram. One may edit the layout and annotate these diagrams using the Configuration manager.

Steps

1. Click BROWSE in the banner.

2. Select the Architecture Diagram menu item.
3. Either
   - Double-click one of the objects
   - Right-click one of the objects and select Open

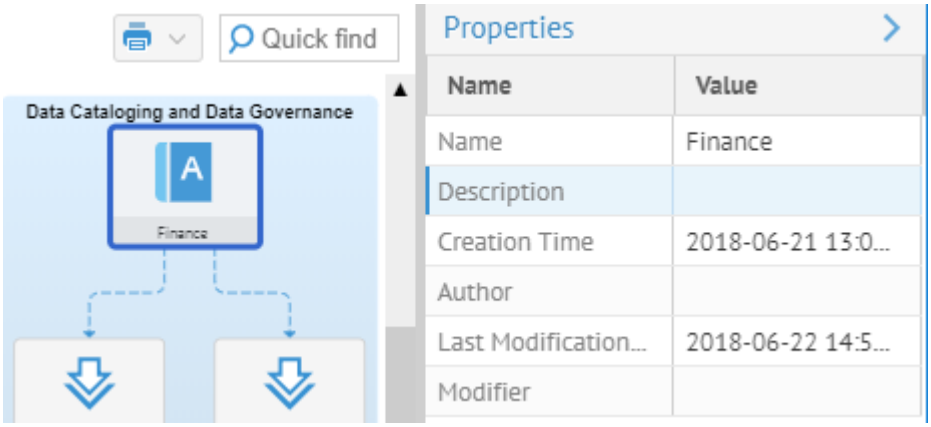
Example



Explore Further

Properties Panel

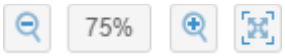
There is a Properties Panel on the right. If you show this panel then you may click on an object and view its properties in the panel.



Overview

For especially large architecture diagram you may click on the (Overview) icon to show a reduced view of the entire architecture. You may click anywhere on the overview to immediately move to that portion of the diagram.

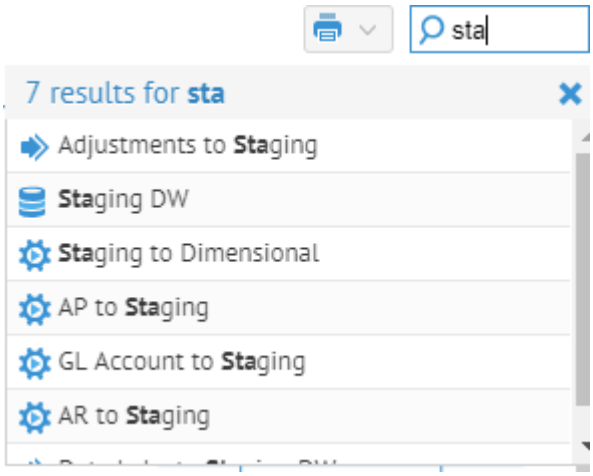
Zoom and Fit to Content



Use the zoom and Fit to Content controls to zoom in and out or fit the entire architecture diagram to the page.

Quick find

To quickly find an object in the diagram, the Quick Find feature will locate object that have a name match with the text you type.



Print the diagram

You may print the architecture diagram as either a PNG or SVG document which is downloaded to you.

Edit the diagram

With the appropriate permissions, you may edit the architecture diagram. To do so, simply drag any element to a new location, right-click for a menu of editing options, add annotations, or auto-layout the entire diagram. Click Save in order to commit your changes.

Configuration management

The Architecture diagram also provides access to the configuration management features of Oracle Metadata Management (OMM), including connection editing (stitching). For details go here.

- Search for specific objects within a Content in the displayed diagram.
- Right-click on an element or select the Actions ( ) icon for more options.
- Click on the Edit action and edit the diagram.

User Lists of Metadata

The list management feature allows users to define and mange lists of metadata objects. Just like labels, lists are available anywhere in the UI to add/remove objects, for bulk editing, and assisting in management.

Lists can contain any type of metadata such as “My favorite” list of terms, tables, reports, etc.

Lists can also can contain multiple types of content such us “My to do list” with terms, tables, reports, etc., in that list.

Lists may be shared with other users when marked as public, such as “Our quarterly review” list.

Lists are flat, therefore not hierarchical and with no sub-list or include concepts.

Create a User List

The list management feature allows users to define and mange lists of metadata objects. Just like labels, lists are available anywhere in the UI to add/remove objects, for bulk editing, and assisting in management.

Steps

1. Go to BROWSE > Lists. This is the List Management page.
2. Click the plus sign to Add a new list.
3. Provide a Name and Description.

Add Metadata Elements to a List

Lists can contain any type of metadata such as “My favorite” list of terms, tables, reports, etc.

Lists can also can contain multiple types of content such us ”My to do list” with terms, tables, reports, etc., in that list.

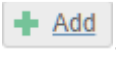
Add Metadata Elements to a List in the List Management Page

You may add items to the list from the List Management page.

Steps

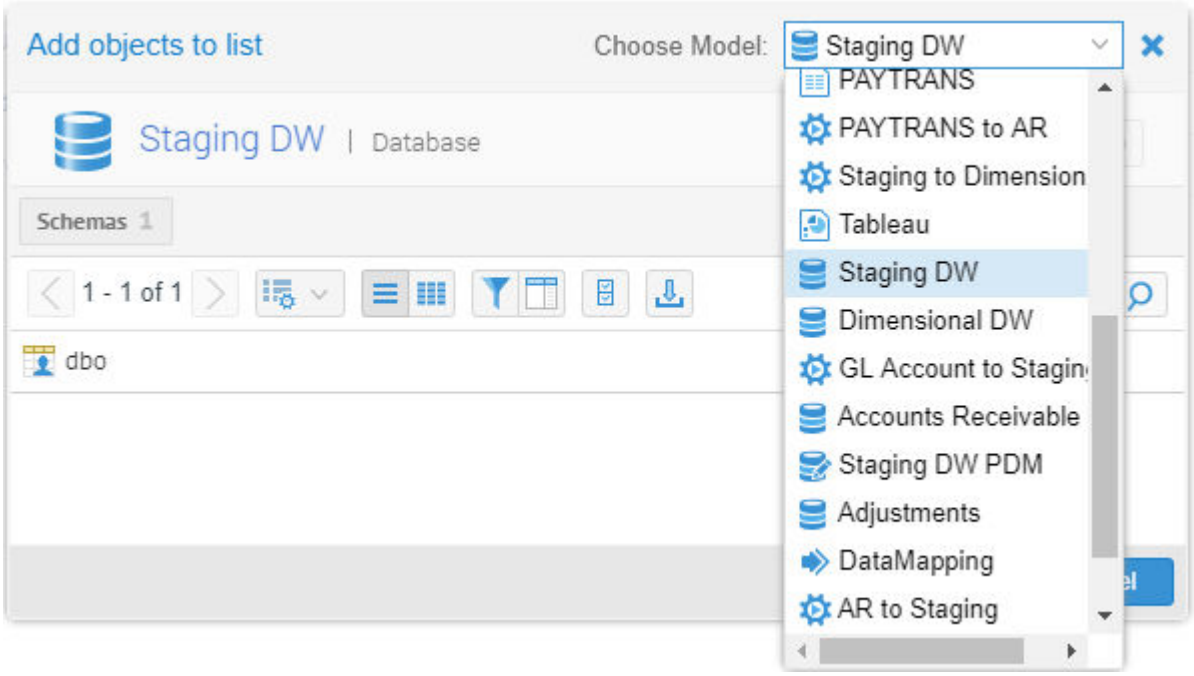
1. Go to the List Management page.
2. Click a list to open it.
3. Click the plus sign to Add an item to the list.
4. Use the search and filters to find elements to add to the list.

Example

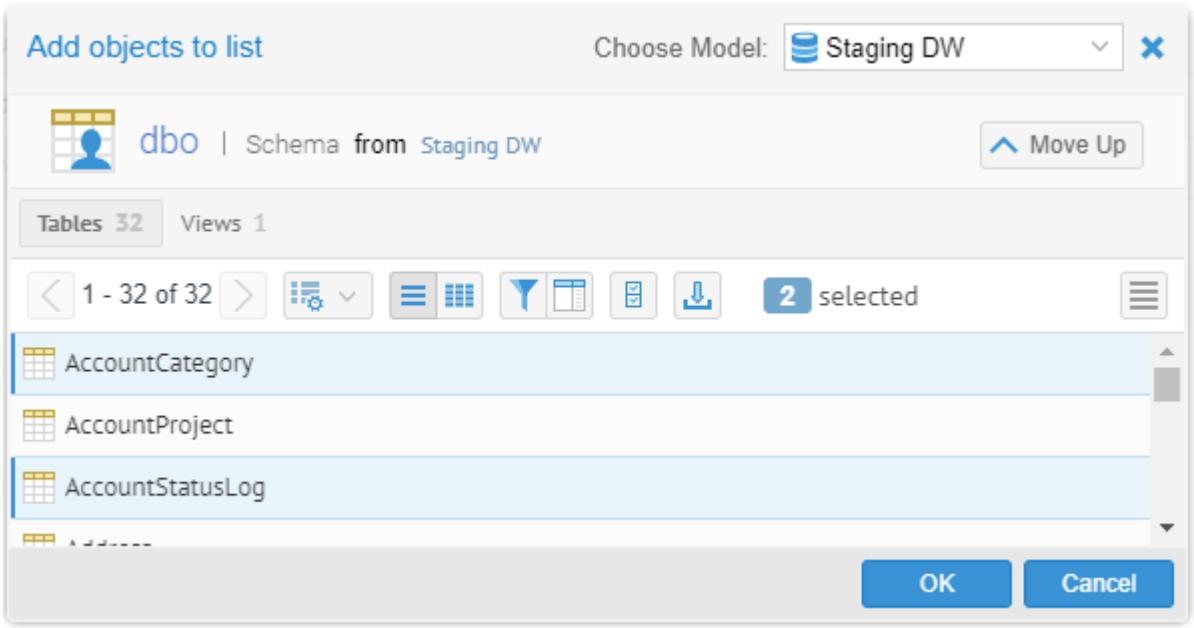
Go to BROWSE > Lists. Click on the My To Do list. Click 

.

Select the model where you want to pick elements from, in this case Staging DW.



Double-click dbo to open it. Ctrl-click the first and third table.



Click OK.

Add Metadata Elements to a List from the Home Page.

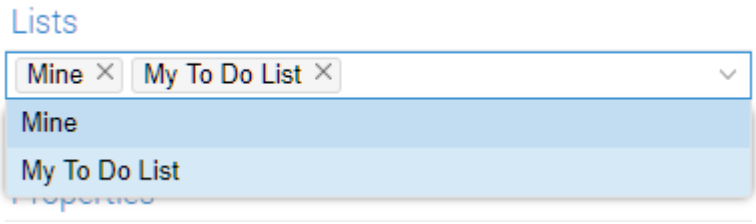
Steps

1. Navigate to the home page for the metadata element you wish to add to the list.
2. Select a list from the **Lists** pull-down.

Example

Navigate to the home page of the Adj table.

In the Lists area, click on the pull-down and select from the list.



You may add a metadata element to any number of lists

Add Metadata Elements to a List in a BROWSE or SEARCH Result.

Please see working with browse or search results.

Make a List Public

Lists may be shared with other users when marked as public, such as “Our quarterly review” list.

Steps

1. Go to the List Management page.
2. Right-click a list and click the **Public** checkbox.

Working with Lists

Just like labels, lists are available anywhere in the UI to add/remove objects, for bulk editing, and assisting in management.

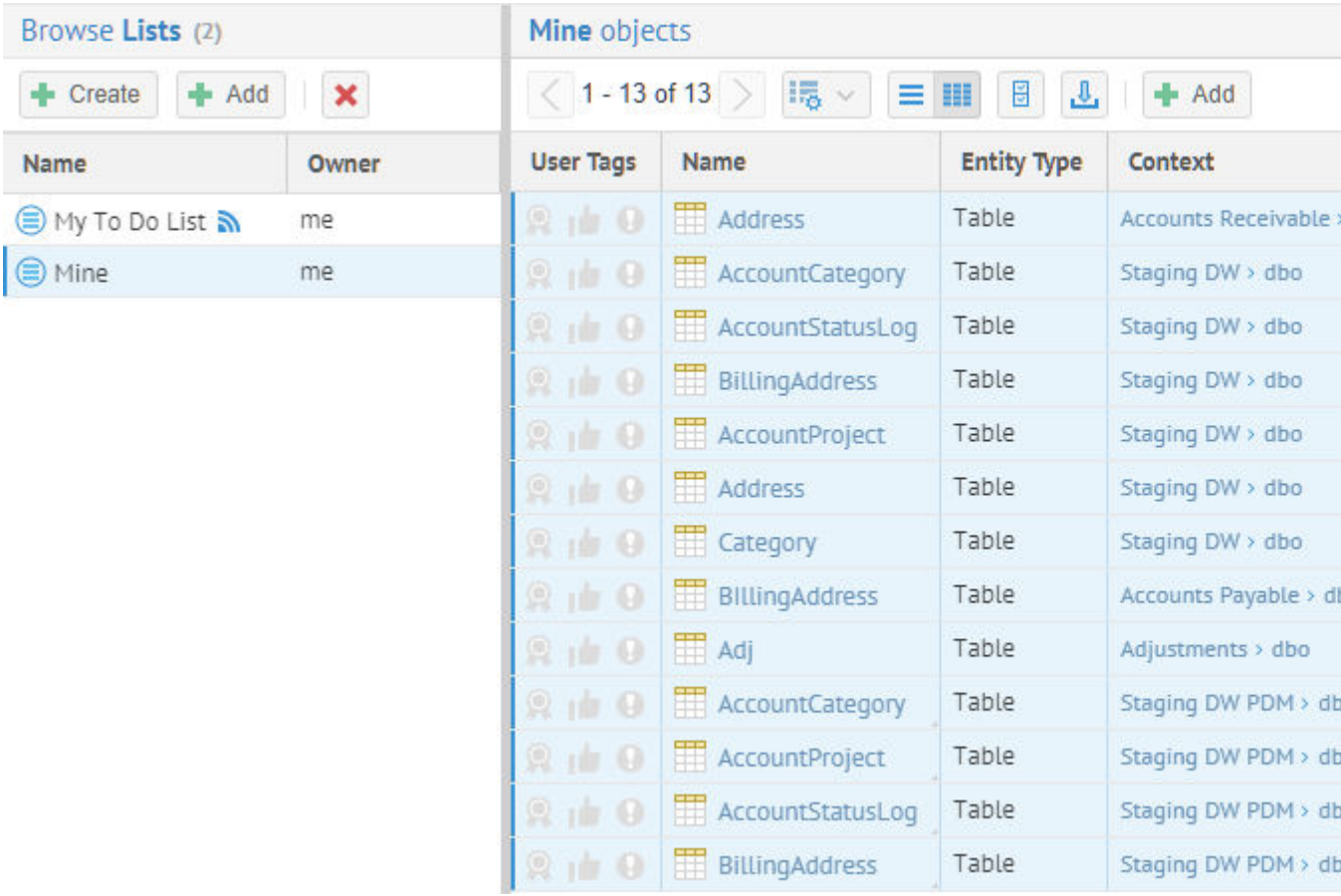
Explore Further

Working on Elements in a List

Steps

1. Go to the List Management page.
2. Click a list to open.
3. Results are a common results (reports) page where you may operate on the items in grid mode.

Example



Add a Public List to my Lists

Lists may be shared with other users when marked as public, such as “Our quarterly review” list.

Steps

1. Go to the List Management page.
2. Click the Add plus sign and pick a list from what is Public.

Analyze Metadata

View Metadata Home Page

Each metadata element in Oracle Metadata Management (OMM) has a dynamically constructed home page. All the information about that metadata element is available from the home page.

> *Identifying Information such as sample data and profiling information may be hidden.*

In the top left, you will see the Physical name, Business name, metadata element type and context or parent structure of where this element is in the Model it is contained in.

Social curation

In the top right you may curate this metadata element. You have the option to Certify, Endorse and/or providing a Warning for this metadata element.

More details on social curation.

Tabs

Several different tabs run across the top. Click on any of these tab to see details about the metadata element. The specific tabs will vary depending upon the type of metadata element you are looking at.

Overview tab

The Overview tab contains general information about the metadata element, including:

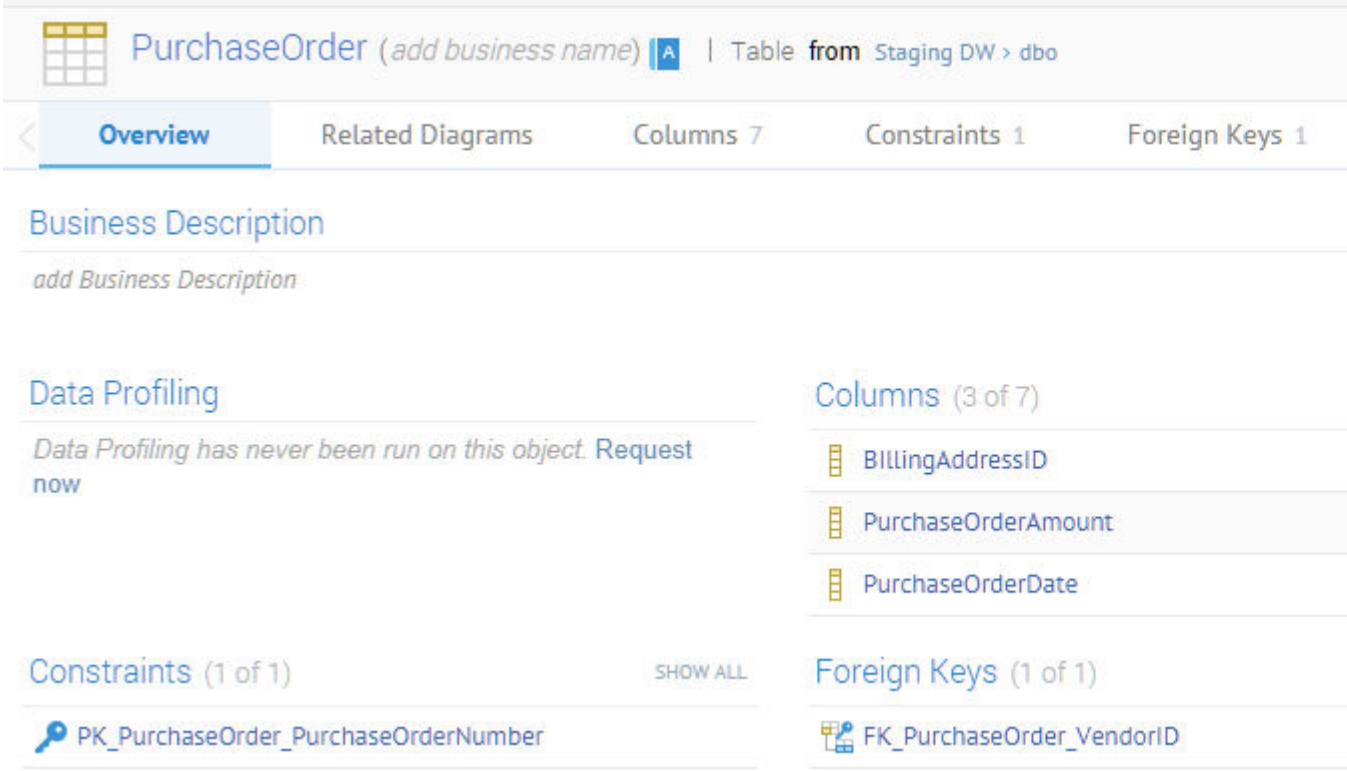
- Business Description which is determined by description information in a related Business Glossary, or determined by semantic links and data flow lineage dependencies.
- Data Profiling information collected when harvesting the model, if specified and available
- Labels assigned to the metadata element
- Additional Properties defined for the metadata element

Steps

The home page for a given metadata element may be accessed by search, metadata category browsing or browsing the architecture diagram. In addition, anywhere a hyperlink with the name of that element appears (e.g., in a diagram, lineage trace, or other list or display) that link will take you to the home page. Going to the home page is the default action for any hyperlinked metadata element and is the default action for the Open action icon and context (right-click) menu.

Example

Database table



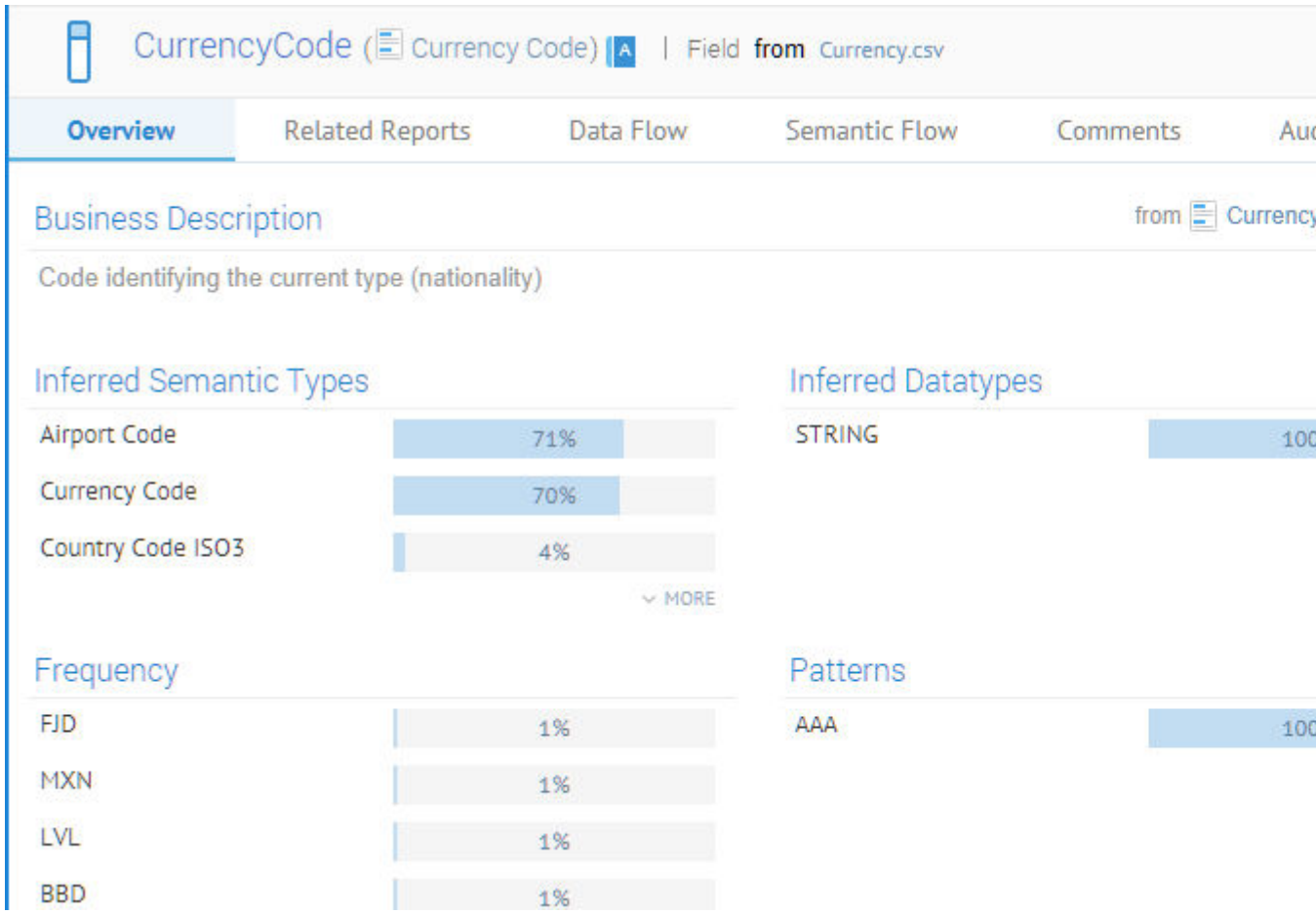
Tables in a database generally have a great deal of related information in tabs. For example, we have:

- Related Diagrams (or just Diagrams) with data modeling diagrams where available
- Columns contained within this table
- Database Constraints defined on the table
- Foreign Keys defined within this table

- **Relationships** including PK/FK, inferred and user-defined relationships with other tables. Especially important when joining this table with others, such as in a self-service BI tool.

*Note the numbers next to the tab headings, e.g., **Columns** 7, to indicate how many items are under that tab.*

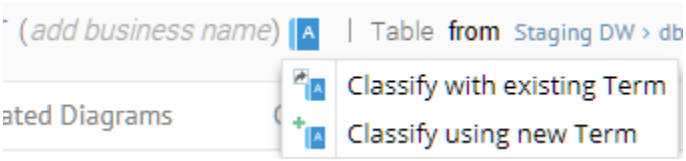
Field in a file with profiling information



Explore Further

Business Description

You may edit the business description directly (with the proper permission) or classify the metadata element with a new or existing term in the Business Glossary.

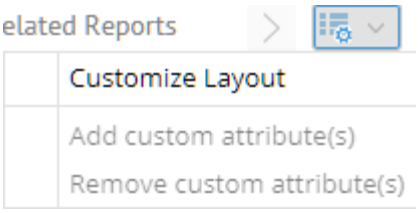


You may also semantically map the metadata element to any other object with a description to reuse by clicking the Semantic Flow tab.

Customization

You may arrange these sections of the Overview tab in any relative position by using Customize Layout in the options menu.

Custom Attributes may be defined and associated with the metadata element. To add an existing customer attribute click the same customize menu, but select the attribute(s) options.



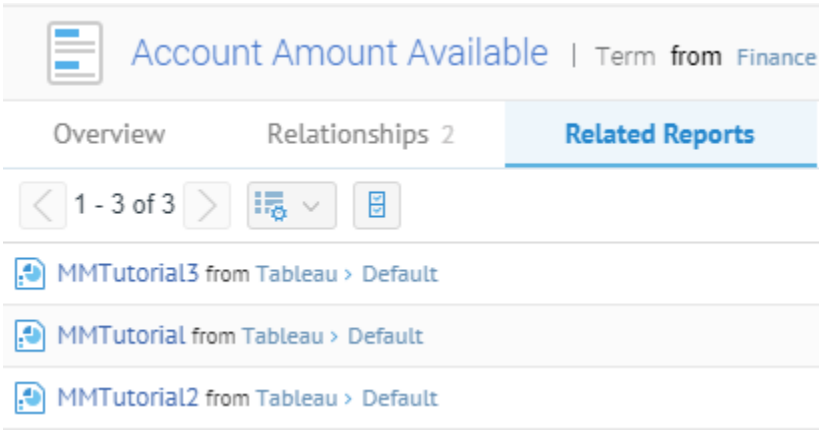
Everyone has permissions to assign labels. Labels are managed system-wide, so you should provide some differentiating information for special labels you wish to use.

Comments tab

Enter comments to this metadata element in the Comments tab. Everyone has permissions to comment.

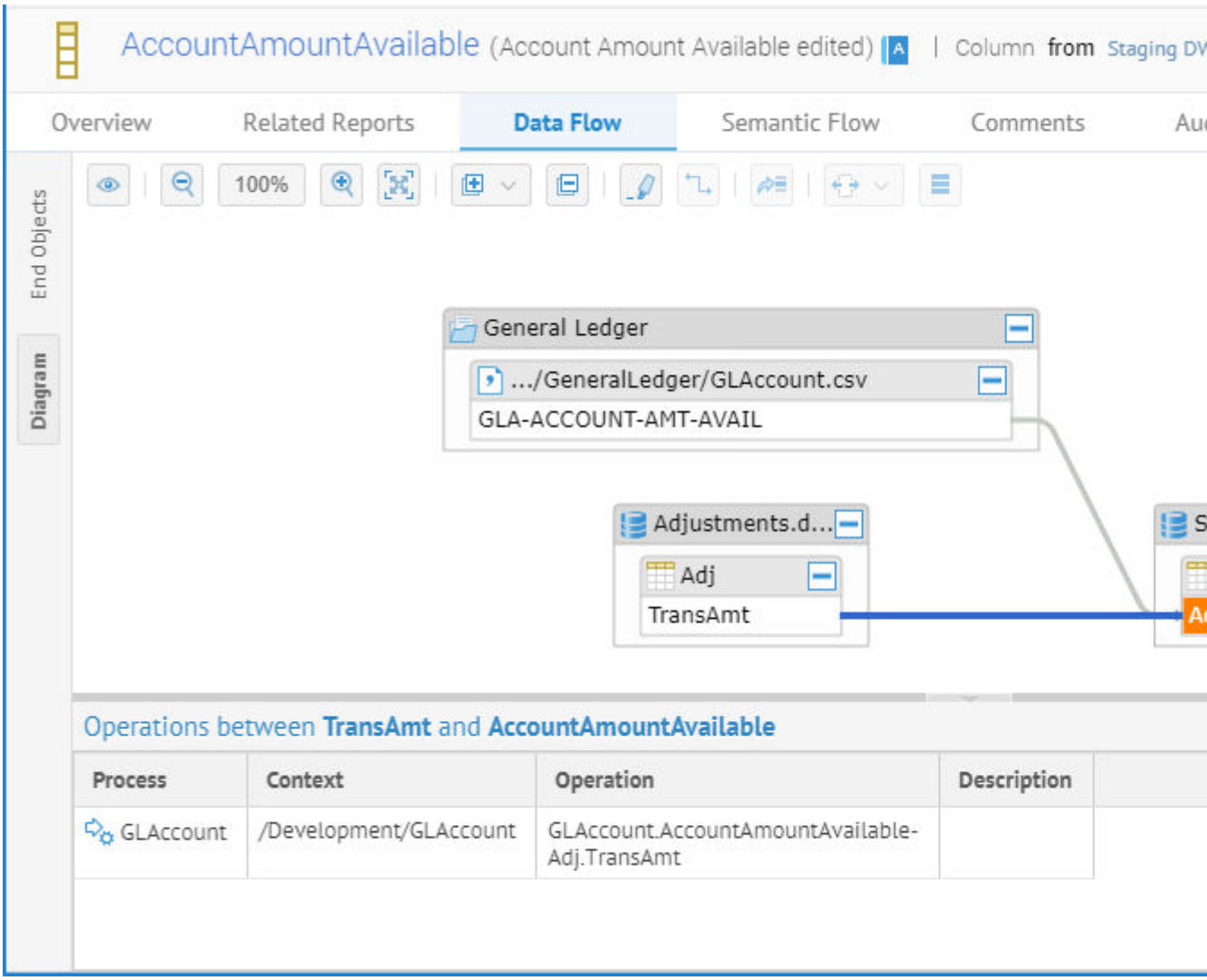
Related Reports

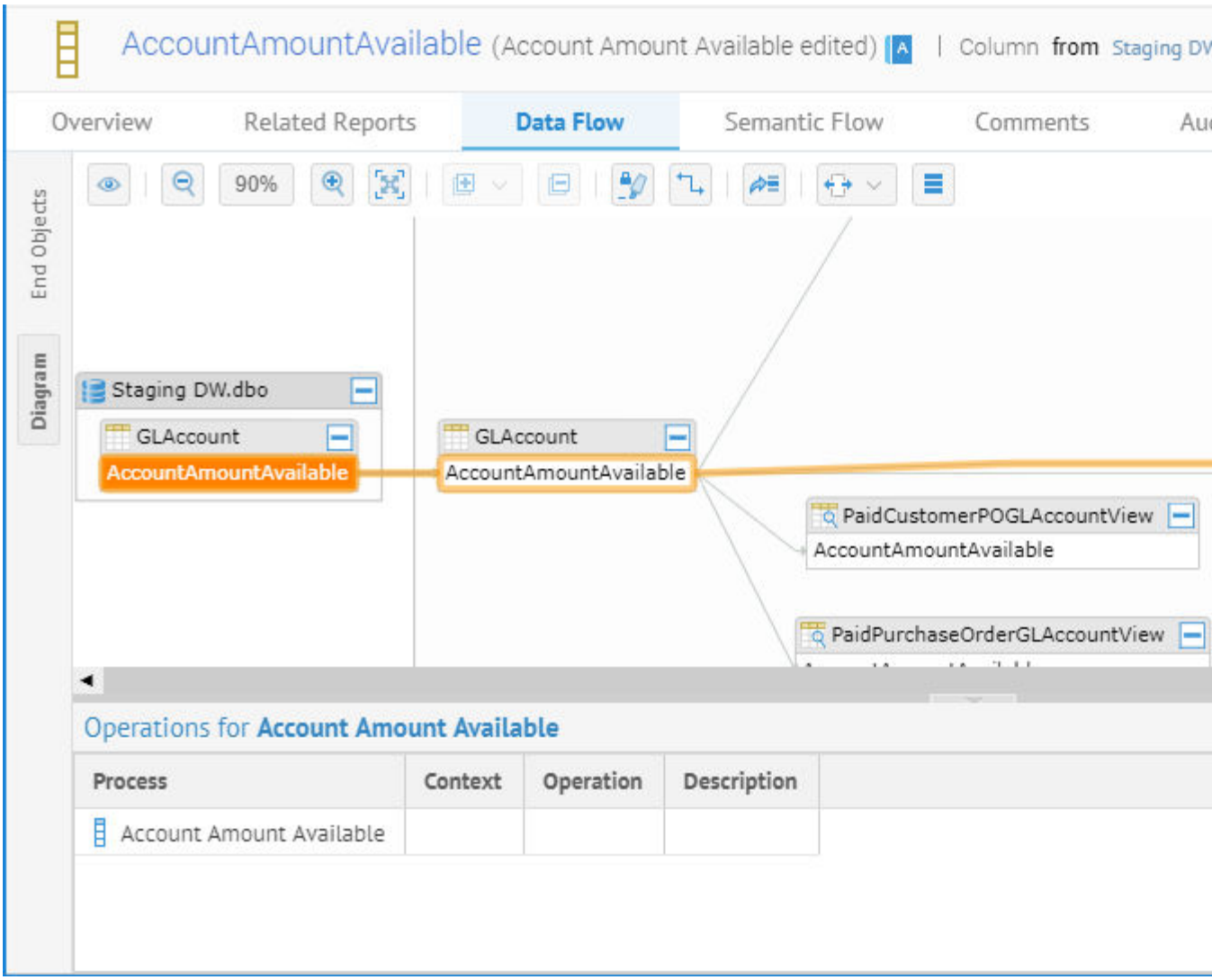
You may ask Oracle Metadata Management (OMM) to interrogate the data flow and semantic lineage to determine what business reports a particular metadata element is used on. Simply click the Related Reports tab. For more details on the process go here.



Data Flow

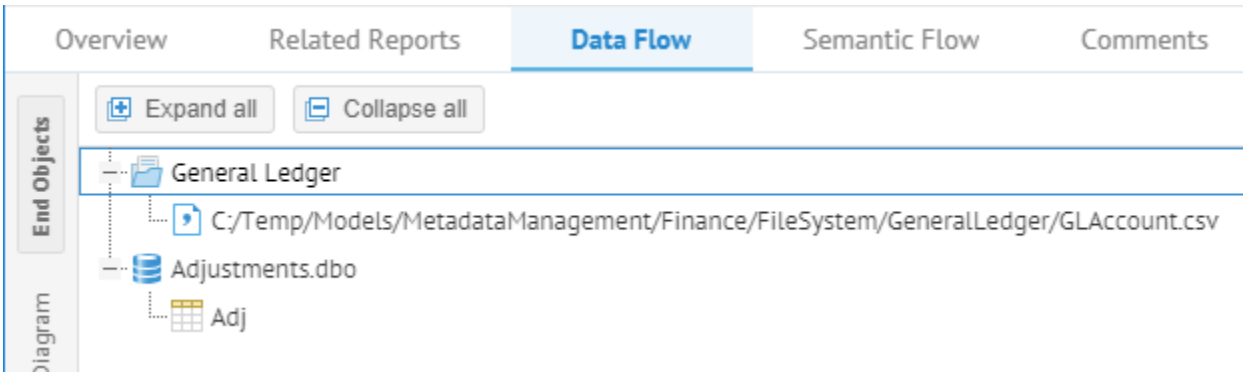
Click the Data Flow tab to report on the different types of data flow lineage traces that may be initiated from this element. Data flow traces look at how data moves through the inter-connected (stitched) systems from which metadata has been harvested. Both impact (forward) and lineage (backward) data flow traces may be performed by selecting the Type of trace in the top right pull-down.


AccountAmountAvailable (Account Amount Available edited)
Column from Staging DV
Overview
Related Reports
Data Flow
Semantic Flow
Comments
End Objects
Diagram
100%
General Ledger
.../GeneralLedger/GLAccount.csv
GLA-ACCOUNT-AMT-AVAIL
Adjustments.d...
Adj
TransAmt
Operations between TransAmt and AccountAmountAvailable
Process
Context
Operation
Description
GLAccount
/Development/GLAccount
GLAccount.AccountAmountAvailable-Adj.TransAmt



You may also zoom in/out, expand and collapse objects, highlight paths, show data flow transformation operations, show properties for selected objects, etc., by using the functions in the common trace controls.

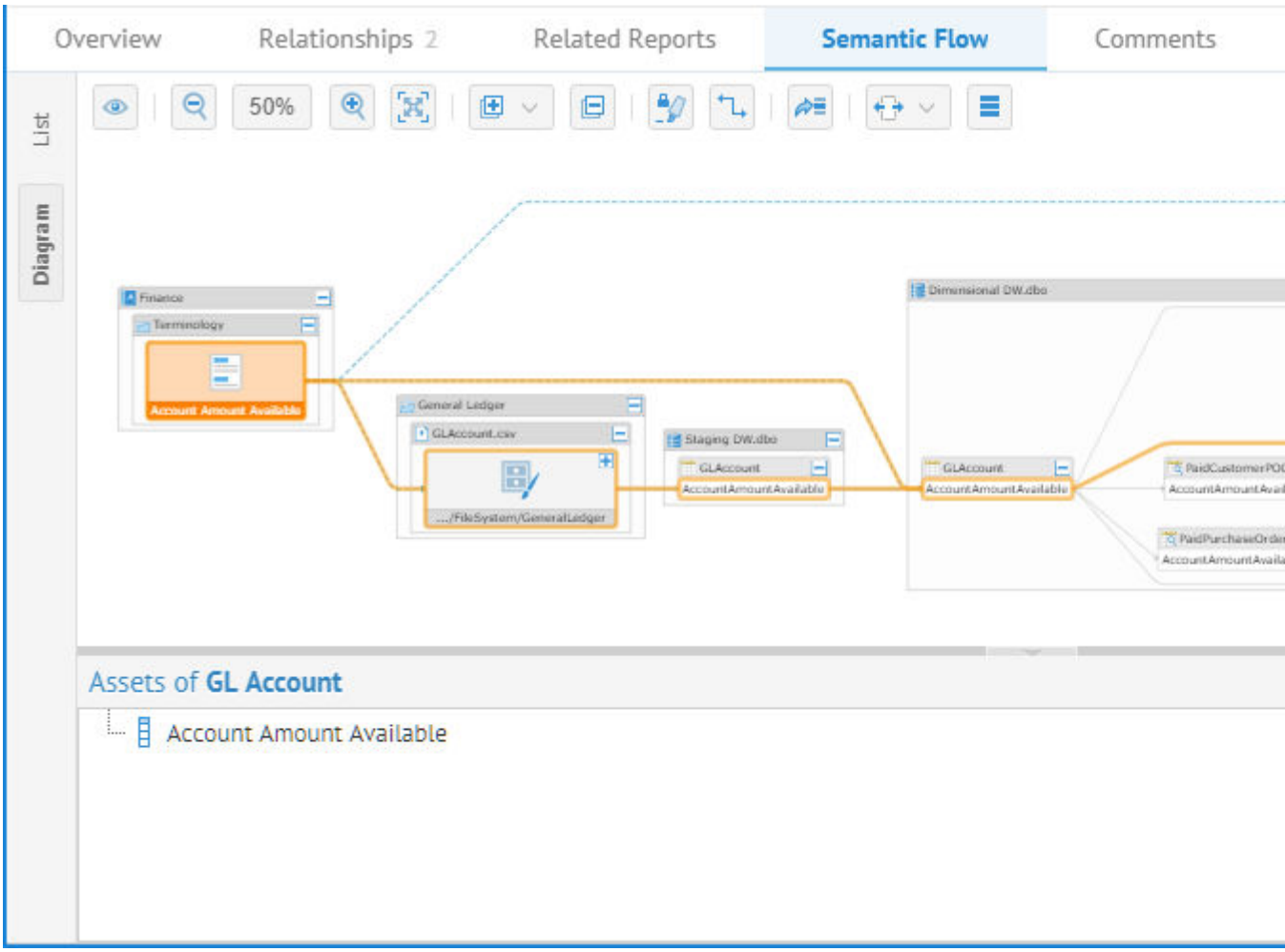
You may also choose to present the lineage as a set of end objects by using the End Objects tab on the left.



You may also download that report to CSV format.

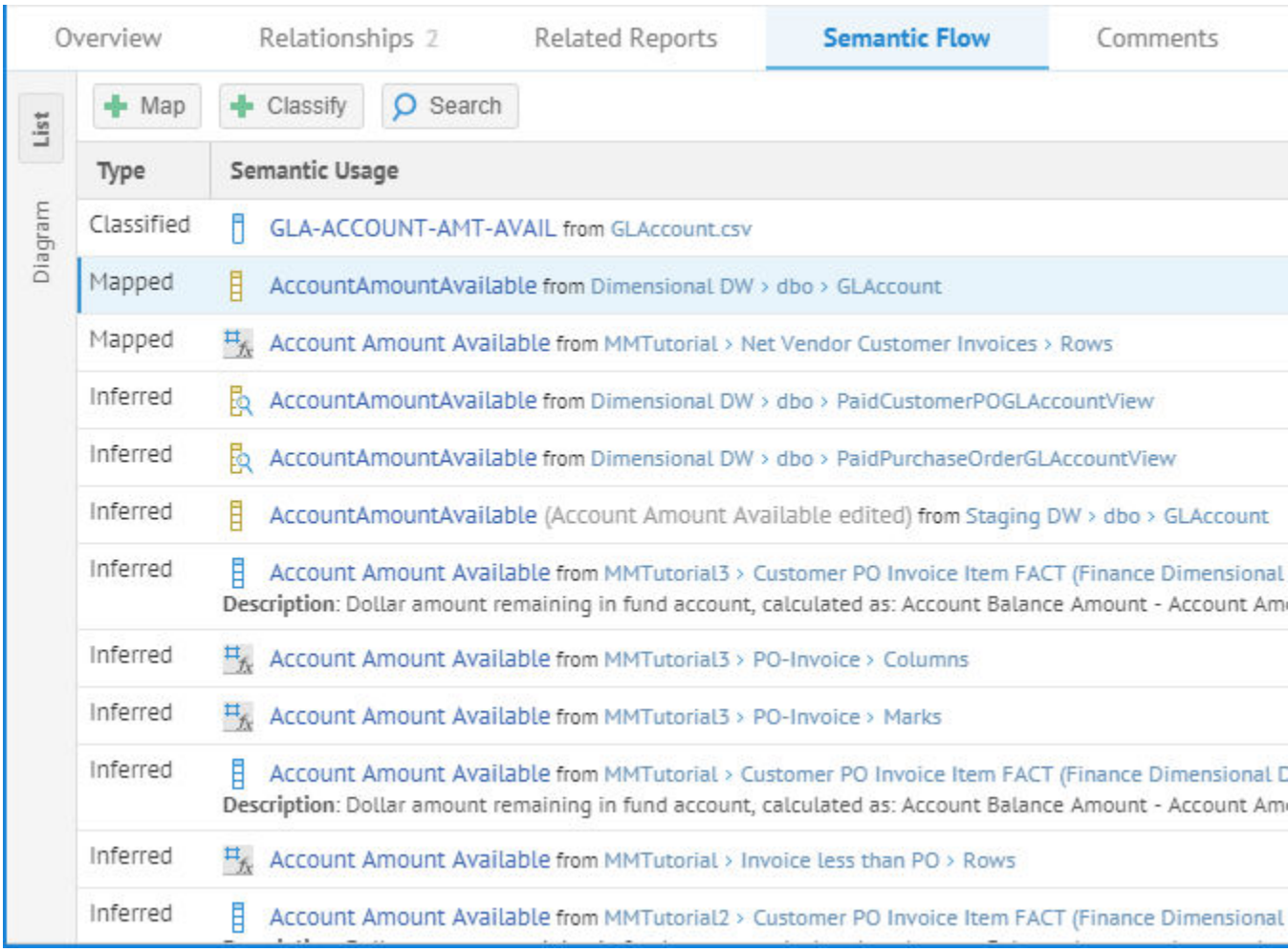
Semantic Flow

Click the Semantic Flow tab to report on the different types of semantic lineage traces that may be initiated from this element. Semantic flow traces look at how metadata elements relate to each other semantically and reflect relationships of similar meaning, generalizations/specification, design vs. implementations, terminology to fields, etc. Both usage (downward) and definition lookup (upward) semantic traces may be performed by selecting the Type of trace in the top right pull-down.



You may also zoom in/out, expand and collapse objects, highlight paths, show properties for selected objects, etc., by using the functions in the common trace controls.

You may also choose to present the lineage as a list, in particular this is useful for the definition lookup by using the List tab on the left.



You may also Download that report to CSV format.

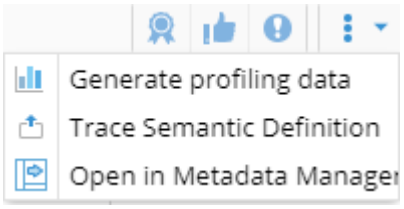
Audit Log tab

Review the changes that have occurred to this metadata element in the Audit Log tab.

Date/Time	User Name	Object Name	Event Type	Description
Just Now	Administrator	AddressID	Set Attribute	Business Name was changed to"**Address Identifier**"
1 Minute Ago	Administrator	AddressID	Set Attribute	Business Description was changed to"**Internal identif**

More actions

Additional actions are available for this metadata element in the upper right next to the social curation actions.



These include:

- Generate profiling data to invoke the harvesting process again and collect profiling statistics on the data contained within the metadata source.
- Trace Semantic Definition

Data and Semantic Flow

Once well managed, metadata is then open for detailed analysis, and true business level use cases may be solved. Oracle Metadata Management (OMM) supports full business level lineage and impact analysis down to the classifier (table/entity/dimension) and feature (column/attribute/measure) level.

Generally, there are two types of lineage: Data Flow and Semantic Flow. Oracle Metadata Management (OMM) can allow users to display and analyze both types of lineage.

Data flow

Based upon connection definitions to data stores and physical transformation rules which transform and move the data

Semantic flow

Detailing the relationships from a conceptual to logical Model, or a logical to physical Model.

Data Flow Lineage (sources)

These are the reporting analysis type use cases, generally posed as questions such as:

- Given an item on a report, what data entry system fields impact these results?
- Why are the numbers on this report the way that they are?

- How do change the system data to get the correct the results of this report?

This type of analysis, i.e., asking where the information comes from, is a question posed "upstream" in the dataflow. We refer to it as a reverse lineage question. When consumers of these reports ask these questions, a correct and responsive answer may be the most valuable information provided by a

Semantic Definition Lookup

In this use case, one has found a data element (a column in a table in a database for example, or a field in a report) and wants to understand what it means. By defining the semantic links properly, Oracle Metadata Management (OMM) can trace back through the physical data flow (as long as there is no transformation which would change the meaning) to an element that is mapped to a term in the Business Glossary and thus find a useful definition.

The caveat that the above only works "as long as there is no transformation which would change the meaning" implies that some subset of the fields in your reports will not provide a semantic definition. The trace will simply stop at the transformation and never get to a model (again likely the data warehouse) that has semantic lineage.

So, in addition to this method of "trace through the dataflow as long as there is no transformation which would change the meaning", there is another which is search based or name matching based. In this case, if there is a field in a report named "Net Account Amount" and it does not have a good data flow trace without transformation, one could still create a term in the Business Glossary named "Net Account Amount". When requesting a data element definition lookup in that case, Oracle Metadata Management (OMM) will perform a search for that term and report its definition, even without a clean lineage trace. In most case, it will be necessary to fill in the blanks in some of these cases by adding terms to the Business Glossary.

Of course, it is quite possible that no term directly matches the report field by name. In this case, one may define a direct semantic mapping from a term in the Business Glossary to the field in the report. The advantage of this approach is that one may control precisely what the preferred definition will be versus the name matching method. Also, it provides a definition, even though there may not be a data flow trace that does not contain transformations. Hence, it is the preferred method for fields for which there is no equivalent in the warehouse or lake (i.e., calculated in the report) and there is no term or multiple terms that match by name.

There are 5 types of semantic definition that Oracle Metadata Management (OMM) considers in the following order:

- Local semantic link (from a semantic mapping) to any object
- Closest remote semantic link
- Local definition

- Closest remote definition
- Glossary lookup by name

"Local" means on the starting object for the trace. "Remote" means from an object traced through a pass through data flow link.

All these types of semantic definitions can be turned on/off in the UI, meaning the users can select what kind of semantic definition they want to see.

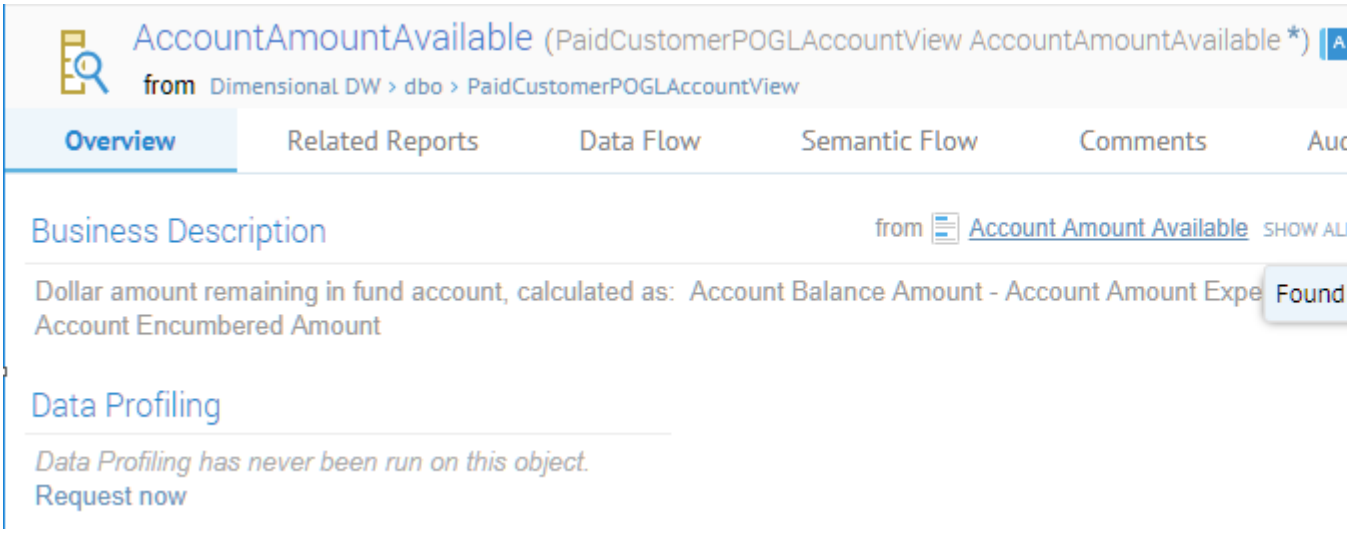
To summarize, there are three methods used to provide an answer to a definition lookup, applied in the following order:

- Direct semantic link from a term in a Business Glossary
- Data flow lineage to the warehouse (or some other data store in the physical architecture) and semantic up to a Business Glossary
- Name match between Business Glossary term and field name

Example

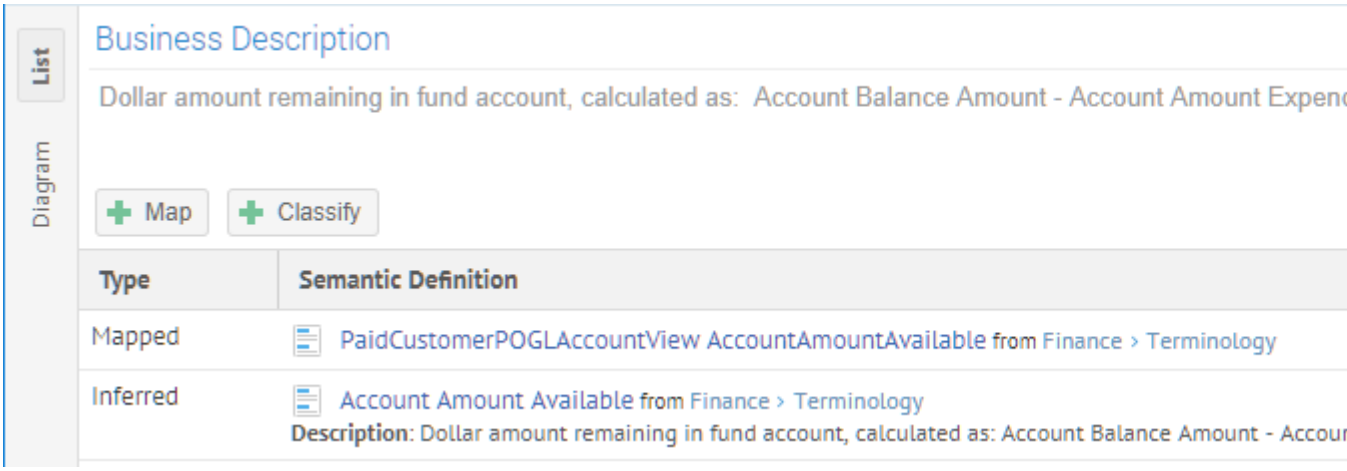
Navigate to AccountAmountAvailable, which is a view column in the Dimensional DW in the demo.

Then you see:

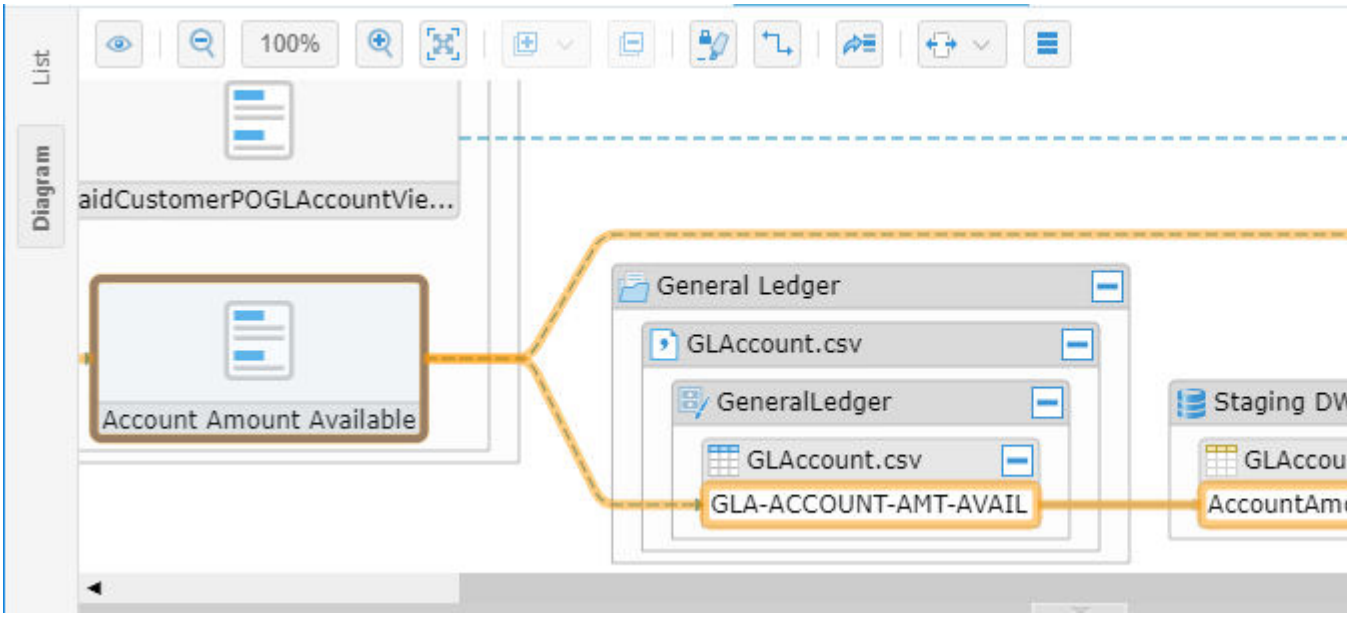


*The **Business Description** for the view column is already populated. It was inferred through semantic definition lookup.*

Click on the Semantic Flow tab and you see the inferred semantic definition from a term in the Glossary:



Then click the Diagram tab on the left and you see the actual semantic lineage trace that got to the term.



Semantic Usage

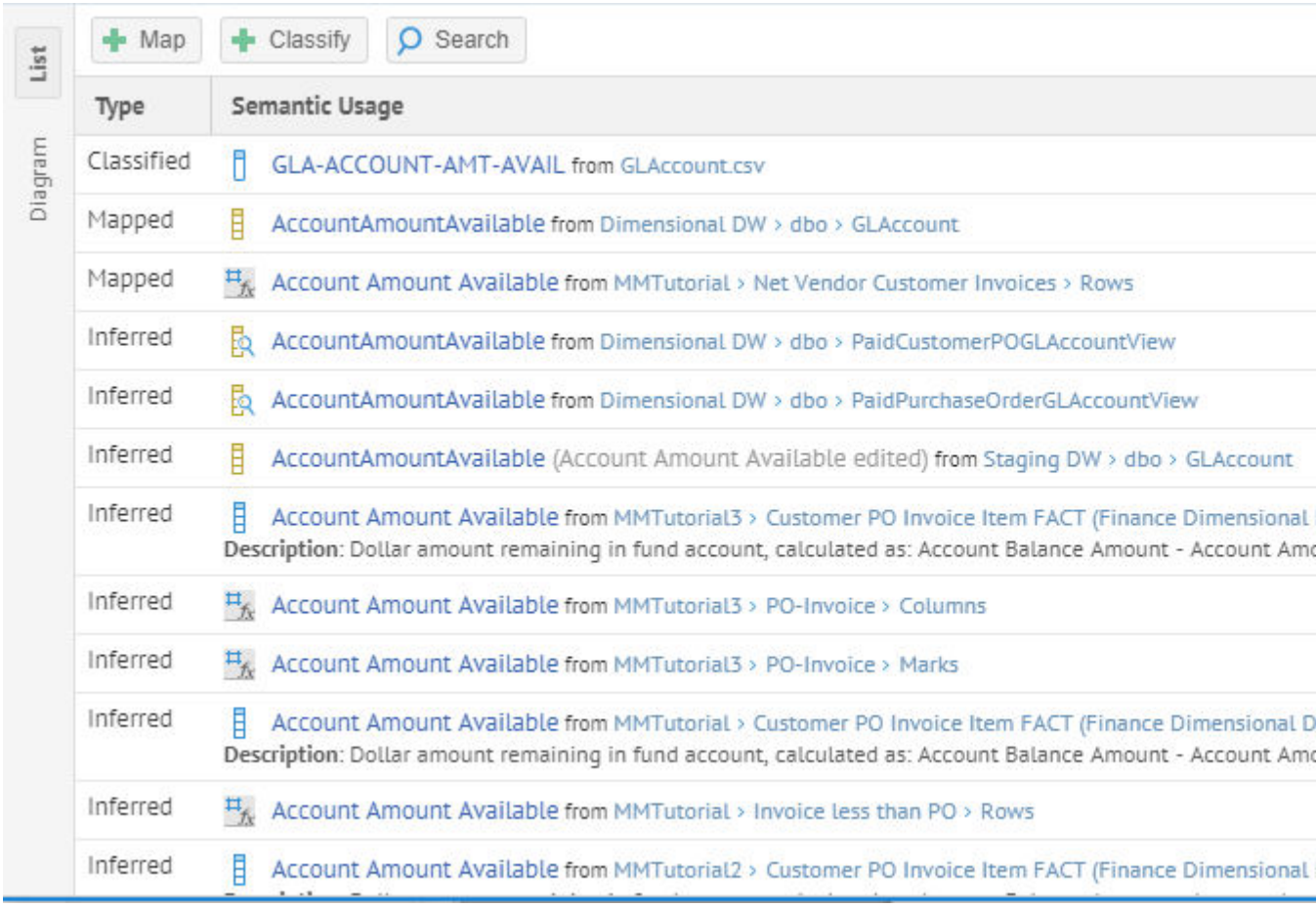
In this scenario, one may wish to see the usage of the semantic element (e.g., Business Glossary term) in the architecture.

In this scenario, from a Business Glossary term or conceptual/logical model element one may wish to simply discover what data element are semantically mapped in the data flow architecture and thus would be impacted by a change to the term or model element.

A semantic usage lineage trace is very nearly the reverse of semantic definition lookup. In general it is requested from a term's or logical model element's home page. The usage trace itself proceeds down each semantic link and then traces the data flow where there are no transformations (pass-through lineage) to all [metadata Elements] which may be reached in this manner.

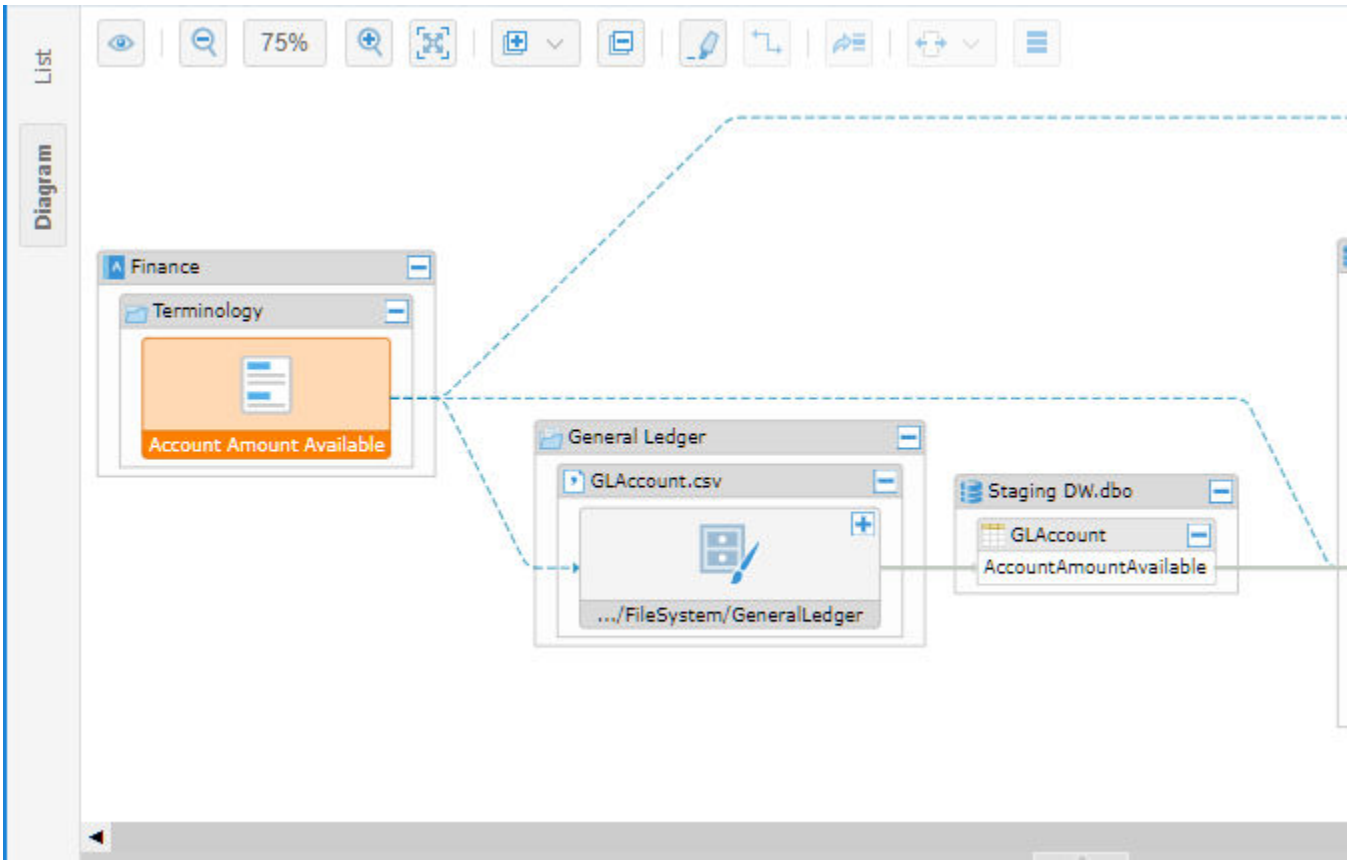
Example

Navigate to the term Account Amount Available in the Finance Glossary. Then click the Semantic Flow tab and List tab on the left.



You see a list of all the [metadata Elements] that express the term Account Amount Available, whether by direct classification (semantic) link (Classified), by a link in a semantic mapping (Mapped) or by inferred equivalence due to pass-through lineage in the data flow (Inferred).

Click the Diagram tab to see these traces:



Related Reports

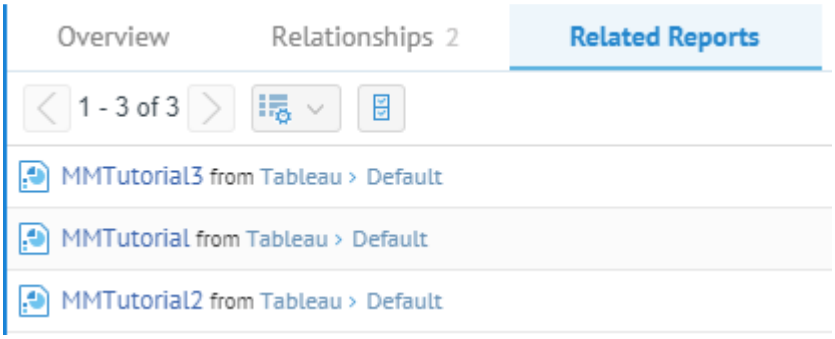
In this scenario, one may wish to see the business reports that use fields which are semantically related to a particular semantic element (e.g., Business Glossary term).

In this case Oracle Metadata Management (OMM) will use the semantic usage trace, then identify those [metadata Elements] that are fields on business reports, and provide an answer that is the list of those business reports.

Example

Navigate to the term Account Amount Available in the Finance Glossary. Then click the Related Reports tab and List tab on the left.

You will then see the list of all such reports for that metadata element.



From here you may click on any report in the list to view metadata home page

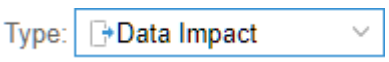
Click to select the line a particular report is on in the list to see action icons that you may click to act on this report without going to the report's home page. In particular, there is the Open in External Tool action which will open the report in the 3rd Party tool.

Explore Further

While the most common use of the Related Reports is to invoke it from terminology in a Business Glossary, this feature is also available from other metadata elements such as columns in a database or a report field. In this case, the result contains all reports which:

- Are impacted without transformation (data flow impact trace only via pass-through lineage)
- Are part of the semantic usage trace for terms which classify the original metadata element

Data Flow Impact



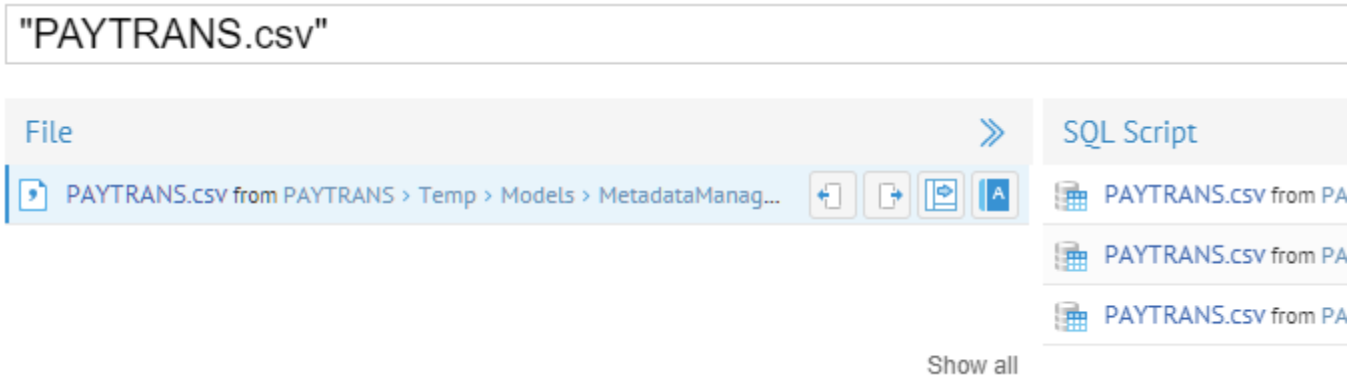
Many times one may ask these forward lineage or impact analysis type of questions:

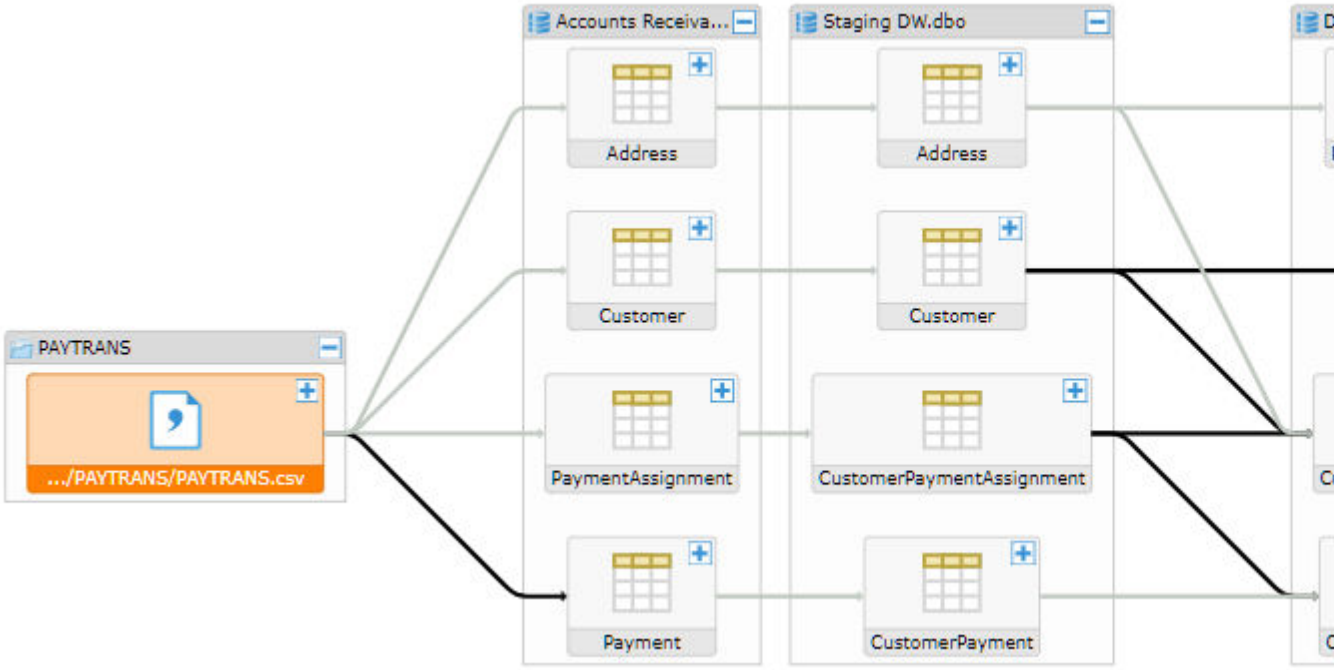
- If I make a change to this field, what reports will be impacted?
- How is this identity information merged with the personnel system information on these other reports?

A data flow impact reports traces the manner in which data flows from source to destination.

Example

Navigate to the home page for the file PAYTRANS.csv (a search string must be enclosed in quotation marks as the period (.) has special meaning in the search syntax, e.g. "PAYTRANS.csv"). Then click the Data Flow tab and Diagram tab on the left. Note, the Impact type is automatically selected, as the PAYTRANS.csv file is an ultimate source in the configuration, so it does not have any source lineage.





Lineage Trace in General

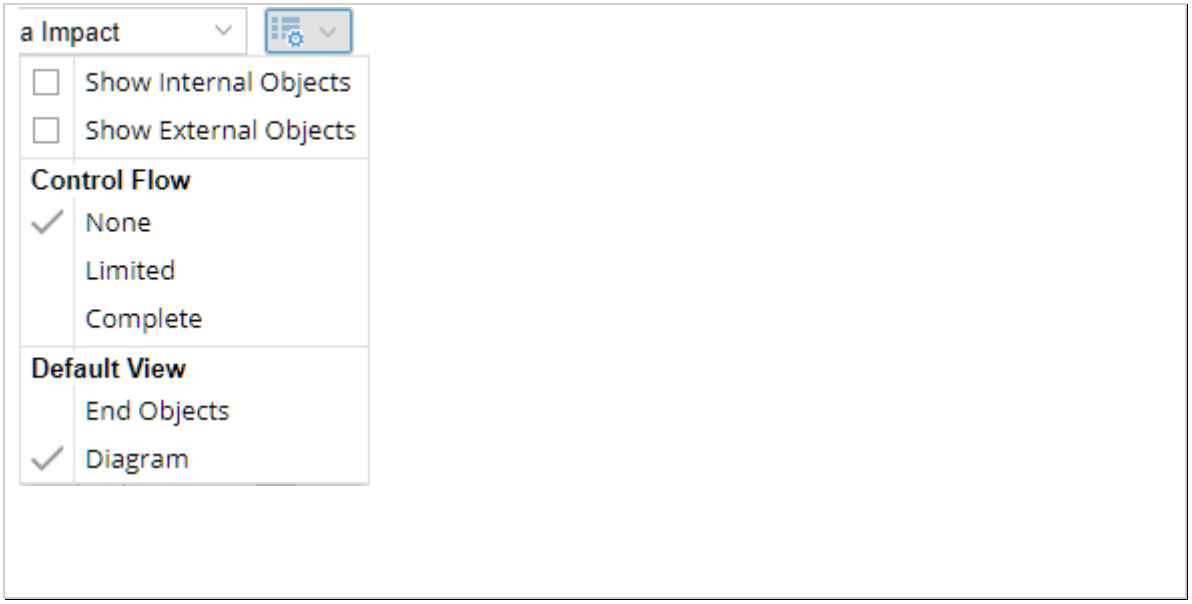
A lineage trace will always have a point of origin, and also has a **Type** or direction. For the Data Flow lineage tab,

There are a number of common features and tools available when visualizing a lineage trace. Reporting on lineage will bring you to the Lineage Trace Page.

First, though, you must choose to see the **Diagram** or the **End Object** (list view), by clicking the tabs on the left.

The last selection is what will be presented for that object type in the future, until you select otherwise.

You may override with Default settings using the more options action icon:



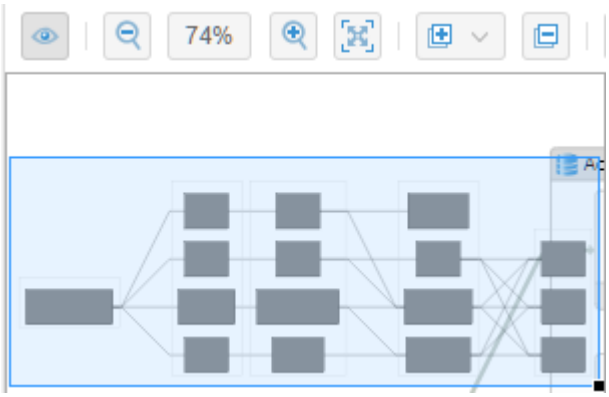
Lineage Diagram Trace in General

Select the Diagram tab on the left to obtain this presentation. You will see a graphical presentation of the lineage (data impact or data source) with round edges boxes representing nodes, many contained within larger boxes (container structures, e.g., a schema contains several tables). Then, connecting lines denote the lineage flow. In general, the lineage tools within Oracle Metadata Management (OMM) function identically whether one is analyzing data flow lineage, semantic lineage or both. However, the presentation is different, as follows:

		Thick Line	Thin Line
		Expandable (Click for details)	Not expandable
Black	Data Flow with Expression/ Transformation	Summary of Underlying Data Flow with Transformation of the Data	Transformation of the data without an underlying data flow
Gray	Pass-Through Data Flow	Summary of Underlying Data Flow resulting in a simple pass-through	Simple pass-through without an underlying data flow
Grey Doted	Column Control Flow	Summary of Control Flow which directly impacts values of columns (e.g. lookups) where there is an underlying process	Control Flow which directly impacts values of columns (e.g. lookups) without an underlying process
Grey Dashed	Row Control Flow	Summary of Control Flow which does not directly impact values of columns (e.g. filters) where there is an underlying process	Control Flow which does not directly impact values of columns (e.g. filters) without an underlying process
Blue Dashed	Semantic Link	N/A	Semantic link such as a derivation

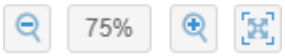
Overview

You may click this action icon to show or hide an Overview panel of the lineage trace diagram. Click in the overview to quickly move to a portion of the full diagram.



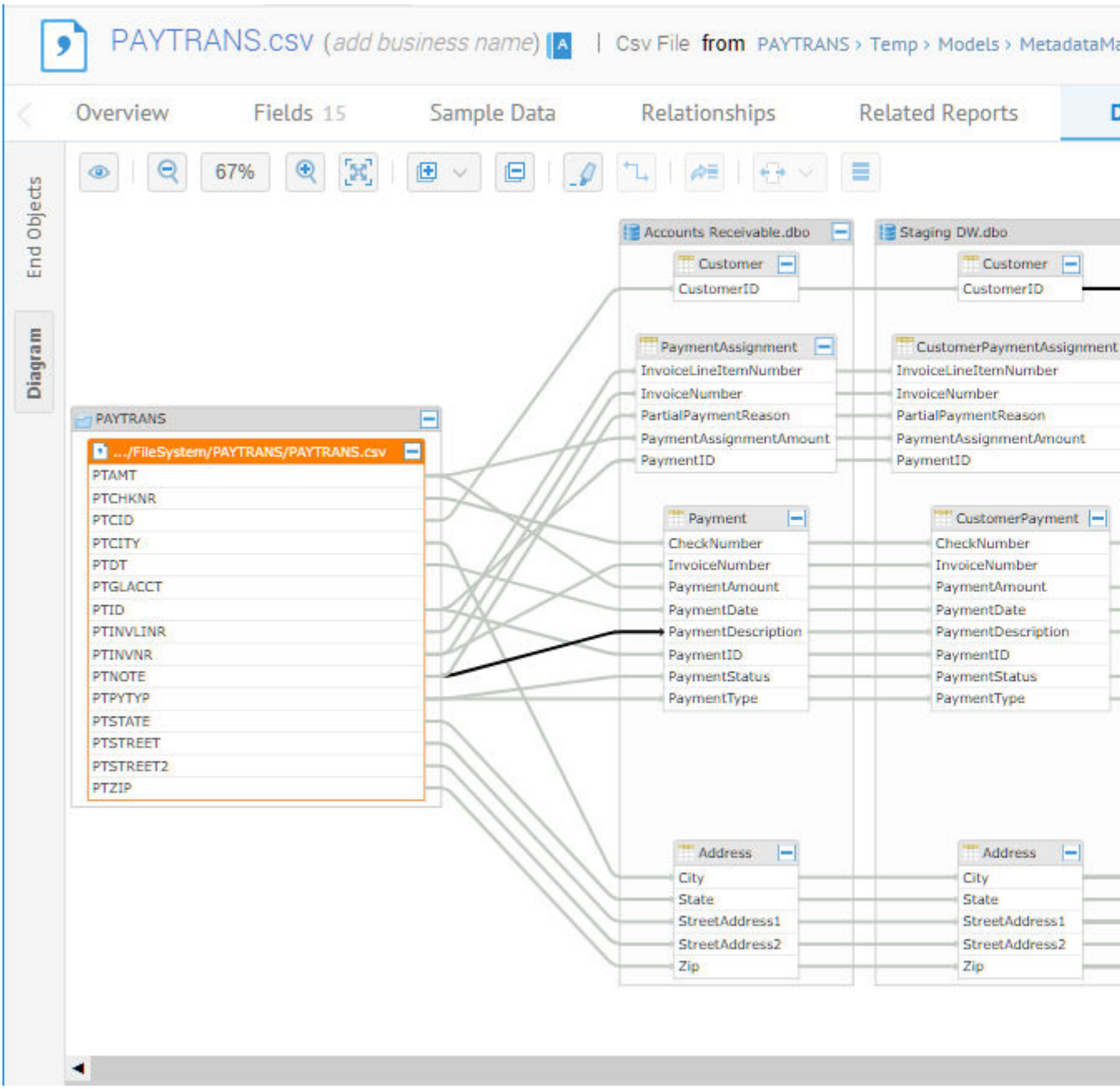
Zoom In/Out and Fit to content

Click Zoom in or Zoom out action icons to adjust the aspect ratio of the diagram. Also, you may click on the Fit to content action icon to view the entire diagram at the best zoom that will fit.

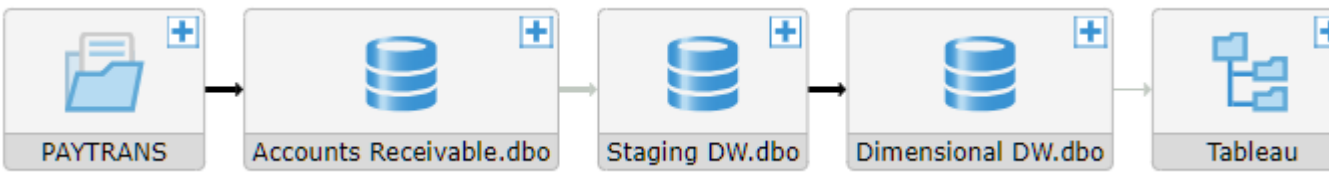


Collapse / Expand

Click Expand to Table level or Column level action icons to expand the entire diagram (ensure that you do not have an object selected, otherwise the action will only apply to that object).



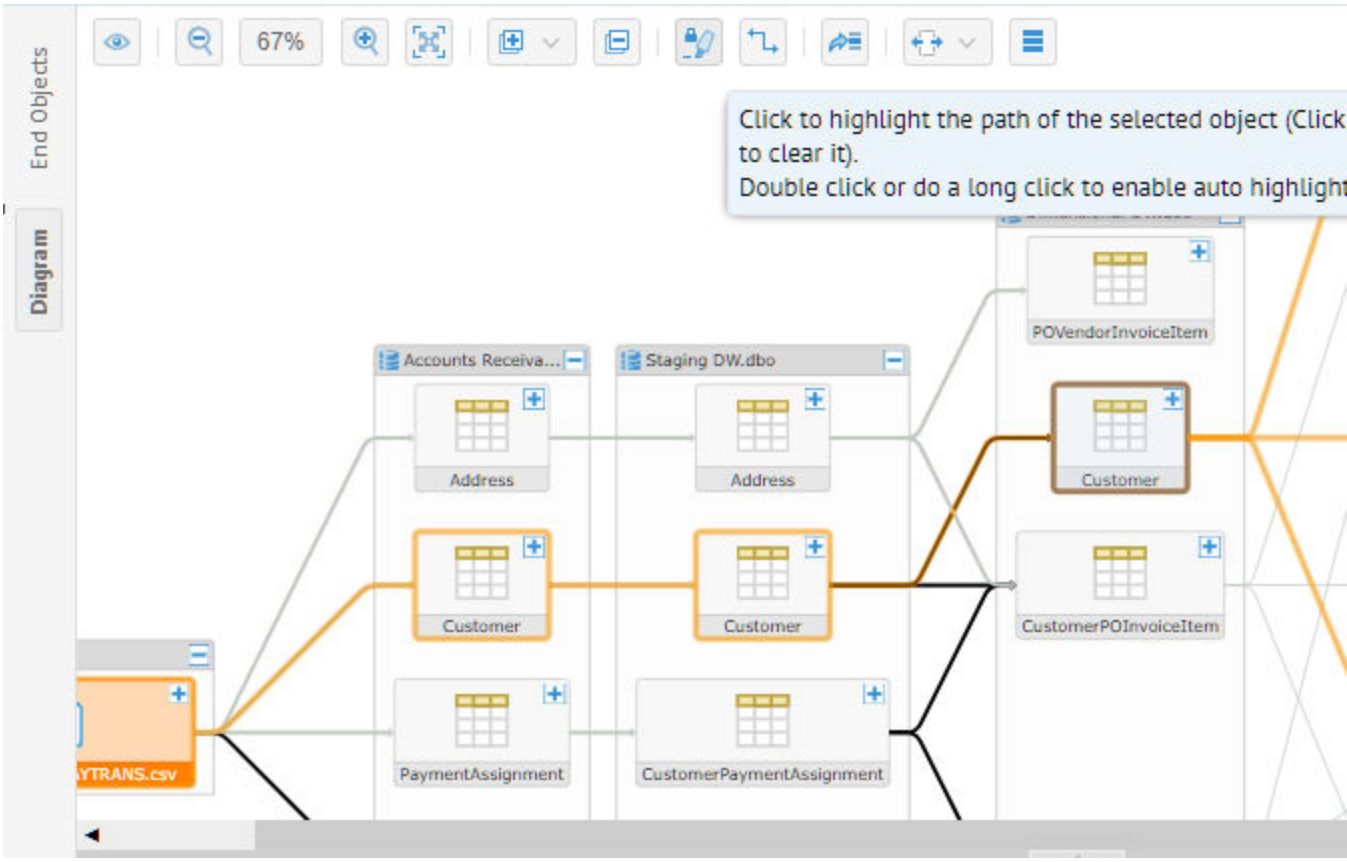
Click on Collapse to collapse all objects to the highest level.



You may also click on the plus sign for an object to expand and the minus sign to collapse just that object.

Highlight

Click to select an object in the trace and then click the **Highlight** action icon to highlight the path through that selected object.



You may double-click or perform a long click on the Highlight action icon to lock it in place and the path will highlight for any subsequently selected object.

Focus the lineage trace

You may focus the lineage trace to only include that portion of the trace that passes through another object in the diagram. Click to select an object and click on the **Only show the selected node ancestors and descendants** action icon.

To remove the focus and return to the entire lineage diagram simply click to close the dialog stating "Currently focusing on…"

Open the object's home page

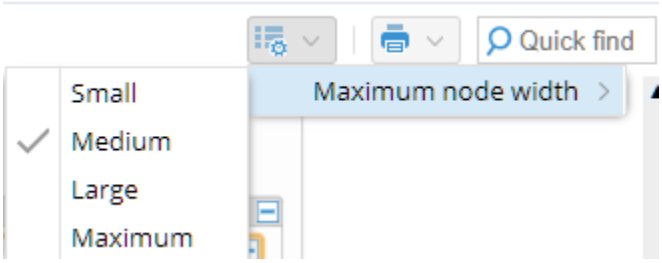
You may double-click, right-click and select **Open**, or select the object and use the **Open** action icon to navigate to the object's home page.

Trace lineage from another object

You may re-trace the lineage from any object in the diagram. Right-click and select **Trace Lineage**, or select the object and use the **Trace Lineage** action icon to restart the trace from that point with that type of trace.

Maximum node width

In many cases, names of objects may be too long to fit into the objects in the diagram. You may specify several different node width maximums to make the diagram more readable.



Print

You may download a PNG or SVG image of the diagram.

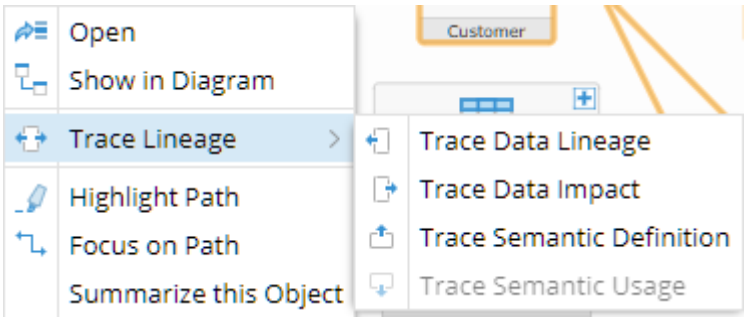
Quick find

In the upper right, there is a search text box that will provide a quick list of object names that contain the text you type. You may click on any of the results to select that object in the diagram and moving the focus there.

Explore Further

Invoking a lineage trace from any reference to a metadata element

You may invoke a lineage trace from any diagram or any list of results (e.g., from a Browse or Search), either via right-click context menu



or via action icons.

Interpreting the graphical lineage

In general, the lineage tools within Oracle Metadata Management (OMM) function identically whether one is analyzing data flow lineage, semantic lineage or both. However, the presentation is different, as follows:

		Thick Line	Thin Line
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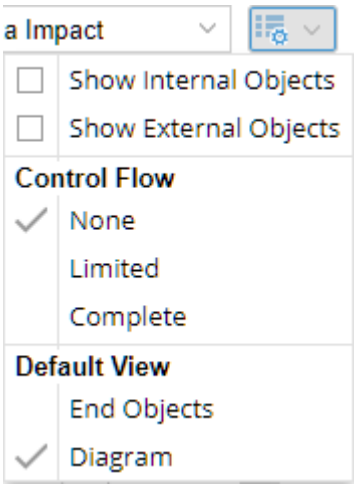
Blue Dashed	Semantic Link	N/A	Semantic link such as a derivation

In addition, Oracle Metadata Management (OMM) has four levels of presentation:

- Configuration Model Connections Overview – which is a diagram representing the various Models contained within a configuration and how they are related (or stitched) to each other based upon connection definitions manually assigned to Oracle Metadata Management (OMM).
- Model Connections Overview – which is a diagram representing the various Models contained within the directory of an external repository and how they are related (or stitched) to each other based upon connection definitions already provided in the external metadata repository.
- Model Lineage Overview – which is a diagram representing an overview of the lineage within a given Model.
- Lineage Trace analysis at the configuration or Model level – which is a fully detailed trace of semantic and/or data flow lineage for detailed analysis.

Show Objects



There are additional options to show Internal, External objects or Control Links in the lineage.

Limit Control Flow Lineage

It is easy to imagine a common scenario where you trace data impact and your impact trace affects a commonly used (in terms of joins and WHERE clauses) dimension, e.g., the time dimension in the warehouse, mart or otherwise. Just about every report will be using that dimension in some way, and thus the impact lineage is basically everything. In this case the diagram size quickly grows out of the capability of your browser to present the lineage let alone navigate and analyze it.

For this and other similar reasons, the same menu as above includes options to limit the lineage.

Oracle Metadata Management (OMM) may be used as an active data catalog, providing:

Control Lineage Option	Description	Delay in Presentation
None	No control flow data impacts are traced	None
Limited	Limited control flow data impacts are traced	May be slow
Complete	A control flow data impacts are traced	Likely slow or unresponsive

Click on the level next to Show at the bottom of the Log Message dialog to pick the log level being displayed.

Properties Panel

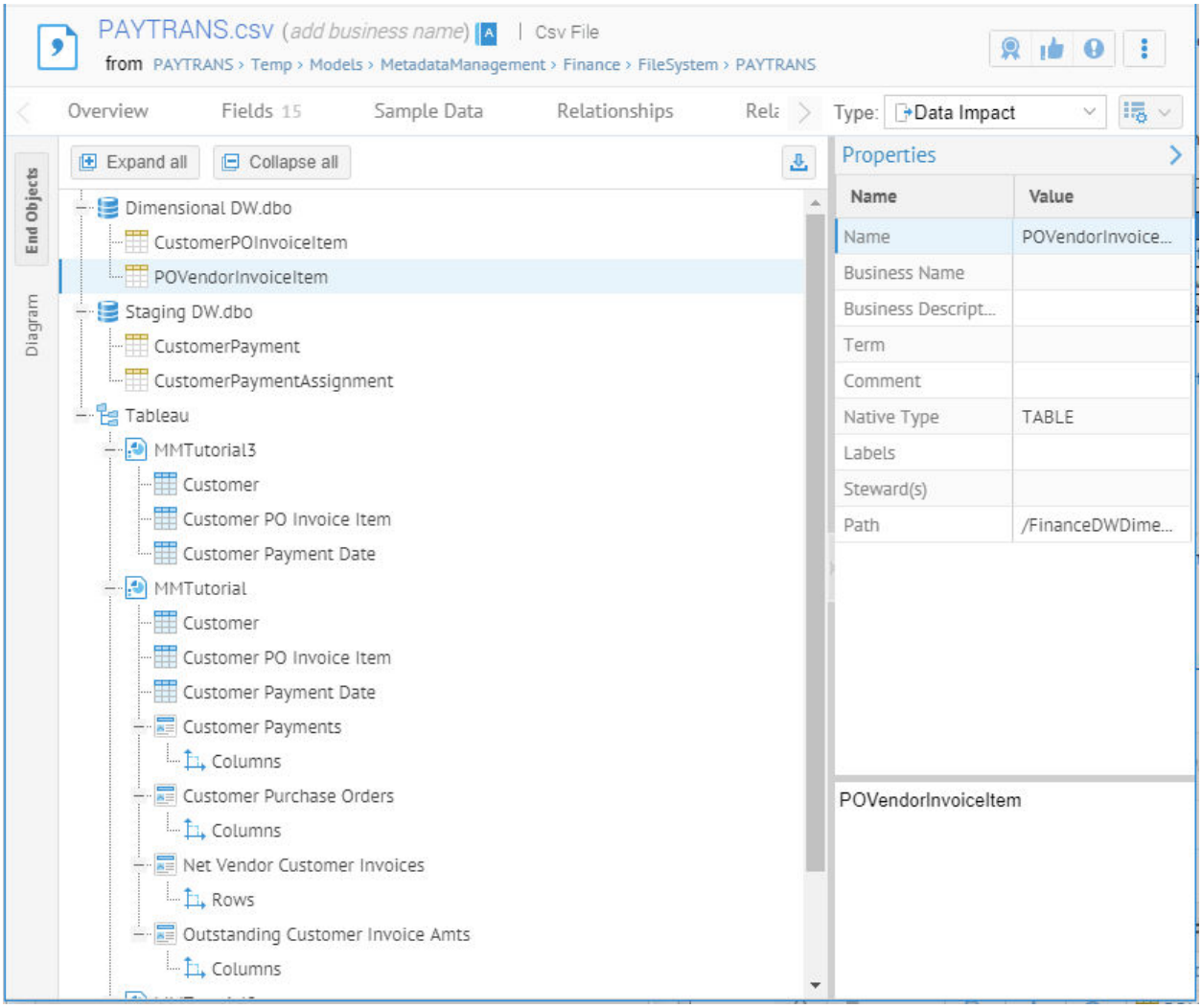
Click to select a metadata element and view its properties in the Properties Panel on the right. You may show and hide this panel as needed.

Lineage End Objects Trace in General

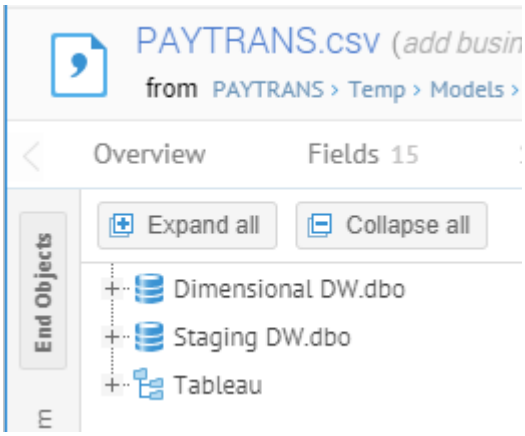
Select the Diagram tab on the left to obtain this presentation. You will see a list of the End Object for the lineage. End objects are the final nodes in the lineage where the trace stops. For impact, this often means report fields, for source lineage it often means operational system tables and columns.

Collapse / Expand

Click Expand to Table level or Column level action icons to expand the entire diagram (ensure that you do not have an object selected, otherwise the action will only apply to that object).



Click on Collapse to collapse all objects to the highest level.



You may also click on the plus sign for a node to expand and the minus sign to collapse just that node.

Properties Panel

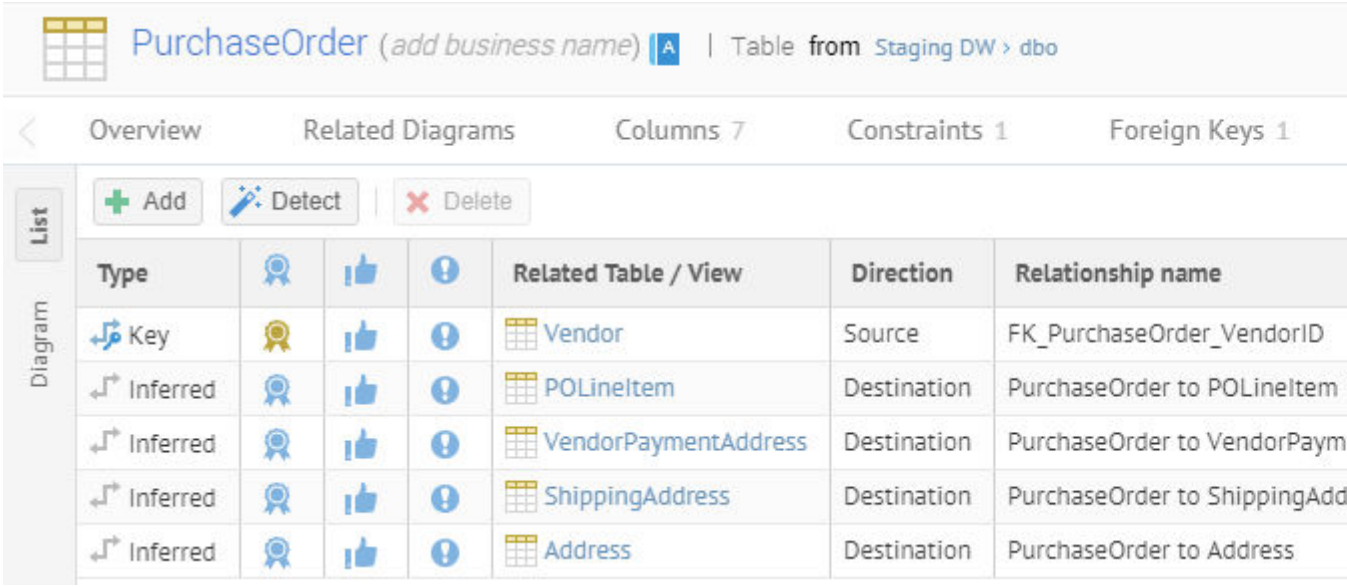
Click to select a metadata element and view its properties in the Properties Panel on the right. You may show and hide this panel as needed.

Relationships

Critical to any use of the data in tables and views that are cataloged within a data stores (e.g., hive data lake, relational data warehouse, NOSQL databases, etc.), is the ability to correctly and effectively join the information together. One may catalog and curate these join conditions by identifying and managing *relationships* in your data stores.

Example

In this case we will navigate to the home page of the PurchaseOrder table in the Staging DW database model, and click the Relationships tab.

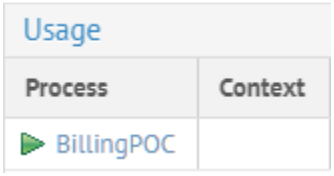


In this instance there is one relationship defined in the source database by a Primary Key – Foreign Key relationship.

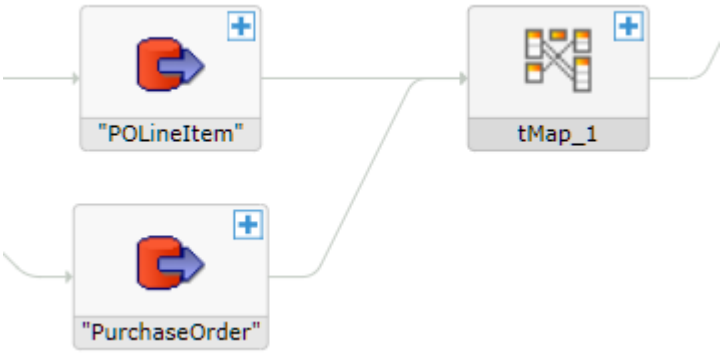
The operation (VendorID=VendorID) describes how the two tables should be joined, i.e., in this case each table has a column named ***VendorID*** *and the data from these two tables should be joined only where the values in the* ***VendorID*** *column match.*

Each of the other relationships is inferred from the ETL process that takes the PurchaseOrder table and joins it with others to produce the Dimensional DW database. The second relationship with POLineItem has a Usage Count of 1. This means there is one join in subsequent ETL jobs or business intelligence reports that use this table from which Oracle Metadata Management (OMM) inferred this relationship

Click the line where relationship with POLineItem is and the Usage information appears for that relationship, listing the single usage of this table and POLineItem. It is in the BillingPOC ETL mapping.



Click this mapping and then the Data Flow tab and you will see the join between the PurchaseOrder and POLineItem tables.



Returning to the list of relationships, click the certify action icon for one of the inferred relationships, enter a justification and note the relationship is now User defined.

Discovering Relationships

After harvesting a model, one may navigate to the home page for any classifier level metadata element (e.g., table, view, entity, etc.) and click the Relationships tab. Here you will be presented with pre-defined, user-defined and inferred relationships relating this table to others in the data store.

PK/FK relationships

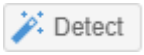
In some cases there is little to do as some databases will already have a very complete set of primary/foreign key relationships defined and thus this information is harvested as relationships in the model, such as the first one above between the PurchaseOrder and Vendor tables.

Inferred relationships

The ability to infer relationships that are not already defined within a data store is incredibly valuable. Referred to as metadata usage driven inference, Oracle Metadata Management (OMM) will automatically deduce these relationships by using the surrounding data flow usage such as joins in data integration (ETL Tools, SQL Scripts or Data Prep) and business intelligence (traditional or self-service) activities.

These relationships are always presented in the Relationships tab. They may be made user-defined by certifying them or by providing an Operation signature

Detected relationships

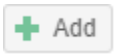


Oracle Metadata Management (OMM) is able to detect further potential relationships in an interactive fashion. You may request to detect these relationships by specifying an initial table and column. This, on demand detection is based on:

- Metadata Name Matching: for example PurchaseOrder.SKU = Product.SKU or Customer.AccountId = Account.Id)
- Semantic Definition Matching: classified by users to the same Business Glossary term

Managing and Curating Relationships

User defined relationships



You may also define relationships from scratch and these become user-defined.

Any inferred relationship becomes user-defined once it is certified or is given a new operation signature

When deleting these user-defined relationships, the inferred relationship will re-appear as it is still inferred.

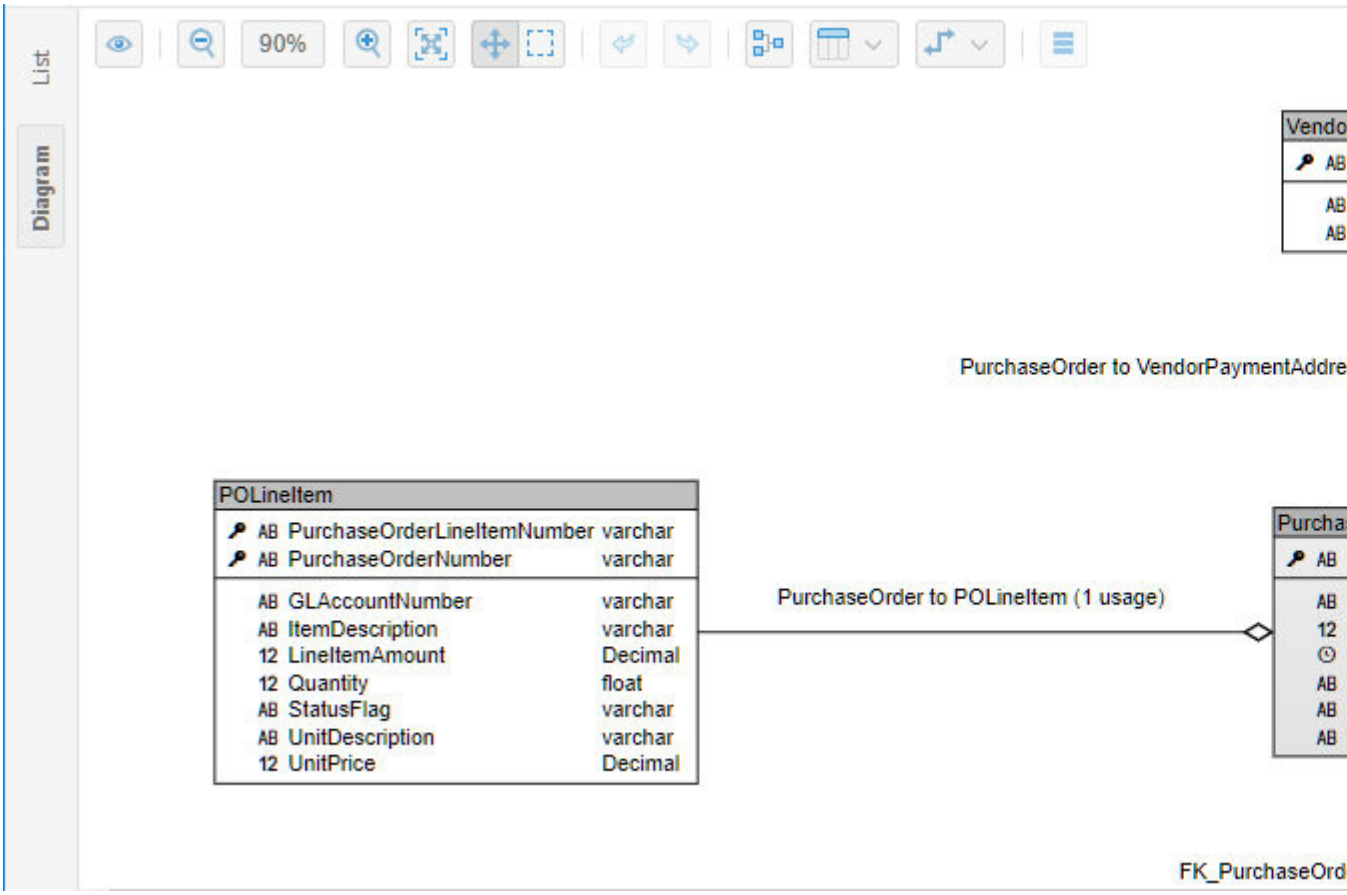
Social curation

You may endorse, certified (with appropriate permissions) and/or providing warnings on the relationships above.

Dynamic Data Model diagram generation from Relationships surrounding any object (e.g. table or file).

Dynamic Relationship Diagram

You may visualize these key, inferred and user defined relationships using the Diagram tab on the left when using the Relationships tab. Many of the controls that are provided to visualize the diagram of a model are available here, as well.



Visualize the Diagram of a Model

From the home page for a model you may click on Diagrams or Related Diagrams to see and editing diagrams for a model.

You may create new diagrams here as well

Once you have opened a diagram you may visualize it in a non-permanent manner, or you may save what you changed.

A number of tools are available for visualization, analyzing and editing these diagrams, described in detail here.

You may always return to the original published layout by clicking on the Show original button.

Including relationships in the diagram

You may select a relationship in any diagram and perform the following analysis:

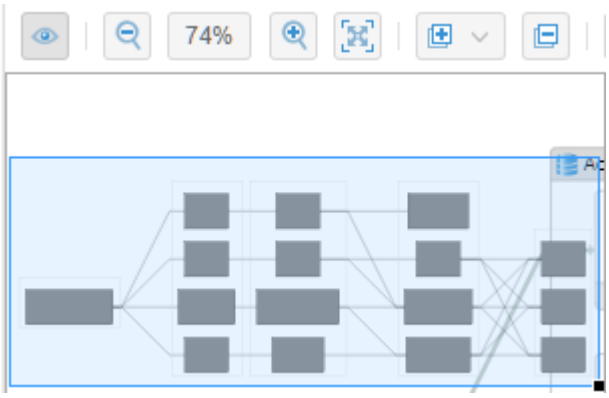
- The associated primary keys and foreign keys are highlighted in the associated tables in the diagram. If there is more than one PK/FK pair, each will be highlighted in a different color.
- In the Properties Panel you may copy and paste the Related Columns to be used to define the equivalent join directly in a reporting.

Data Model Diagram Visualization Common Features

There are a number of common features and tools available when visualizing a lineage trace. Reporting on lineage will bring you to the Lineage Trace Page.

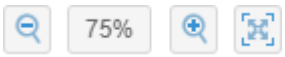
Overview

You may click this action icon to show or hide an Overview panel of the model diagram. Click in the overview to quickly move to a portion of the full diagram.



Zoom In/Out and Fit to content

Click Zoom in or Zoom out action icons to adjust the aspect ratio of the diagram. Also, you may click on the Fit to content action icon to view the entire diagram at the best zoom that will fit.



Panning vs. lasso

By default, you may pan through the diagram by dragging the pointer around. However, you may change this behavior for diagrams you are editing by clinging the lasso.

Undo / Redo

When editing a diagram, you may use the Undo and Redo action icons to undo or redo changes to a diagram.

Click on Show original to undo all changes since you last saved

Show original

Layout diagram

You may click the Layout Diagram action icon to clean up an entire diagram.

When editing you may use the Undo to revert back to the diagram before layout.

Display properties

Click Display properties to specify the preferences for the diagram display, including methodology, colors/fonts/graphical elements, and defaults.

Entity display options

Here you may specify the entity display level, entity column properties, and reset entity sizes.

Relationship display options

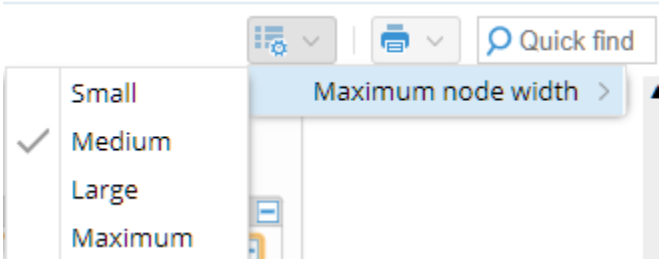
Here you may specify relationship label options, cardinality and label display, and layout the labels.

Trace lineage from an object

You may trace the lineage from any object in the diagram. Right-click and select Trace Lineage, or select the object and use the Trace Lineage action icon to restart the trace from that point with that type of trace.

Maximum node width

In many cases, names of objects may be too long to fit into the objects in the diagram. You may specify several different node width maximums to make the diagram more readable.



Print

You may download a PNG or SVG image of the diagram.

Quick find

In the upper right, there is a search text box that will provide a quick list of object names that contain the text you type. You may click on any of the results to select that object in the diagram and moving the focus there.

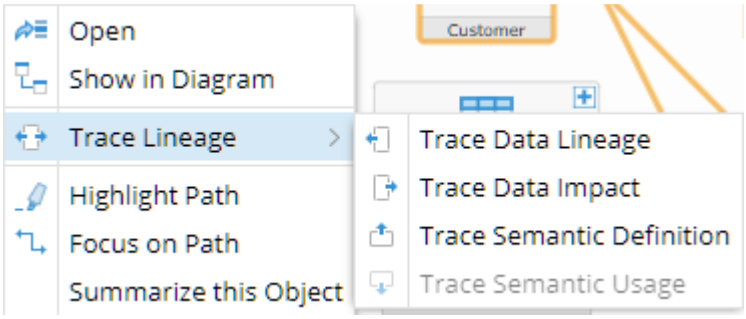
Properties Panel

Click to select a metadata element and view its properties in the Properties Panel on the right. You may show and hide this panel as needed.

Explore Further

Invoking a lineage trace from any reference to a metadata element

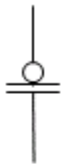
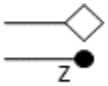
You may invoke a lineage trace from any diagram or any list of results (e.g., from a Browse or Search), either via right-click context menu



or via action icons.

Interpreting the graphical diagram

RELATIONSHIP NOTATIONS

Object Modeling	Data Modeling	UML	IDEF1X	IE
Generalization	SuperType/SubType			
Aggregation	Identifying			
Relationship	Non Identifying: one to many			
	Non Identifying: many to many			
	Zero or one			
	One only			
	Zero or more			
	One or more			

Label Metadata

Labels are single word Oracle Metadata Management (OMM) wide meta tags which may be applied to any object in a Model, then searched on, reviewed and/or managed centrally within a configuration.

Steps

To tag a metadata element with a label:

1. Navigate to the home page for the metadata element you wish to label. Then click the Related Reports tab and List tab on the left.
2. Click the area underneath Labels
3. Add a new label by typing it in (remember, each word is a separate label)
4. Assign already defined labels to this metadata element by typing one or more letters of that label and selecting from the resulting pick list.
5. Unassign a label by clicking to select the existing label and click the "x" next to the label you wish to unassign.

> *Labels are defined Oracle Metadata Management (OMM) wide. Please keep in mind that the pool of labels defined by all users is shared across Oracle Metadata Management (OMM) Once you have unassigned a particular label to all elements in the repository, the label is deleted from the pool. You, of course, may simply type it in to assign it to a new object and it is again a part of the label pool.*

Explore Further

Permissions

> *To make label assignments, one must have the **Editor** Security role on the content that contains the metadata element you are labelling.*

Tabular assignment of labels

When browsing in the grid mode label assignments may be entered just as one would update a spreadsheet.

Multi-item assignment of labels

When browsing any list of results (grid mode or otherwise), one may select multiple items and make mass label assignments.

Review label assignments

One may review the label assignments across an entire configuration.

1. Click BROWSE in the banner and select Labels.
2. Click any of the labels to see all the [metadata Elements] assigned that label.

The resulting list works just as a browse result, including multi-select, and is convenient for remove assignments in bulk.

This list does not enable grid mode *You may use the review label assignments or search to locate and remove all assignments for a particular label within a given configuration.* *However, this does not guarantee that all it is entirely unassigned as it may be assigned to objects only in another configuration or not in any configuration.*

Search for Label Assignments

When searching you may specify particular labels to filter the results by as a part of the advanced search or you may filter the results of any search (or browse) using the Filters panel to specific labels.

Compare Metadata

Collaboration with URL Bookmarks

The URL in the header of your browser is an effective bookmarking link. It is defined to identify the exact place you are in the Oracle Metadata Management (OMM) UI and the exact object.

Permanence of links (support for change)

Indeed, this object identifier is also designed to outlive the metadata it is a part of. As new versions of a model are harvested or what would normally be considered identifying information (e.g., Name) are updated, this URL will still take you to that same element you were viewing before, but just with the latest information available.

Comments and review

Comments are free-form text notes which may be queried for, reported on, reviewed and managed by Model. A comment tracks its author, creation time, update time, importance and status. The user can attach any file including pictures and multimedia to the Model and refer to them in a comment. One can leave one or more comment(s) per object and see comments made by others.

Everyone has permissions to comment.

Unlike labels, comments only apply to the specific Version of the Model they were entered in.

However, they are generally migrated forward and harvest and thus have a sense of

permanence. Still, if you make a change, older versions will show the older comment.

Steps

Add/Remove comments

1. Browse via the metadata element list or tree to a specific metadata element.
2. The last panel provides the use with the opportunity to add and edit comments.

a. Click on the icon to add a new comment

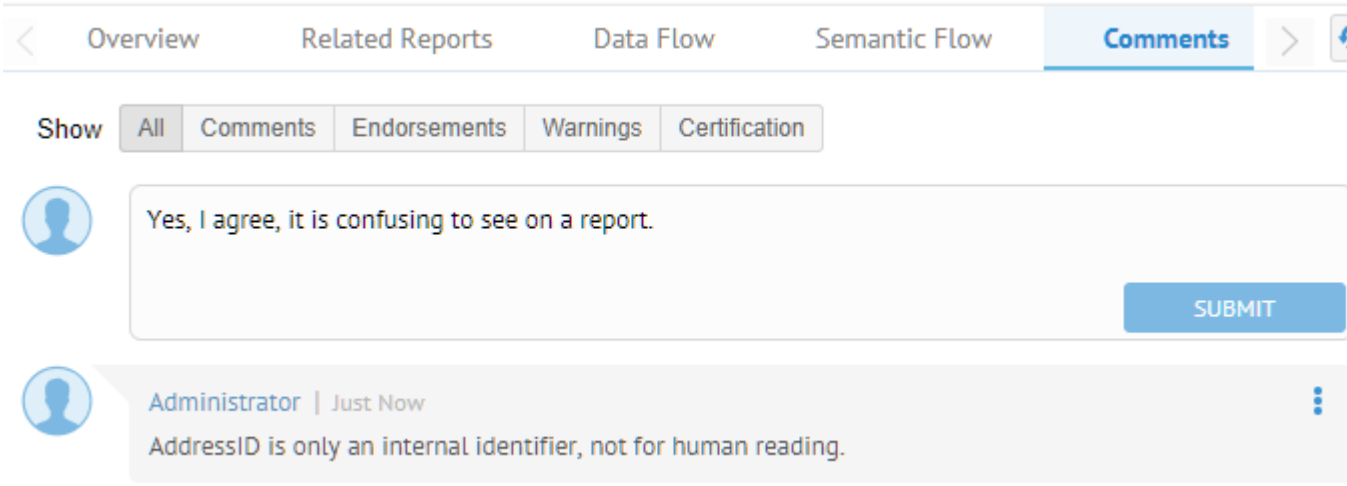
b. Click on the (Edit) icon to edit the comment

c. Click on the (Delete) icon to delete the comment

3. When editing a comment you may click on the number of stars ( ) to indicate the relative importance of the comment.

Example

Navigate to the home page for the metadata element you wish to comment on. Enter comments in the Comments tab.



Explore Further

Export to a 3rd Party Tool

In addition, these comments may then be exported out of Oracle Metadata Management (OMM) and opened in the external metadata tool, there to be reviewed and edited in the original external metadata model format (where supported in the external metadata tool user interface).

Manage Metadata Content

A fundamental feature of Oracle Metadata Management (OMM) is the ability to Harvest or import metadata from hundreds of different source tools, environments and formats. These may be databases, file systems, a data lake, data integration tools like ETL, business intelligence reporting environments, etc. Harvesting the metadata from these sources is a necessary step to constructing a complete picture of the existing information architecture. Along with stitching (configuration management) the result is an end-to-end understanding allowing for data flow impact and source lineage analysis.

Metadata Harvesting General Principles

When harvestings a model from source tools and formats, there are several considerations:

- Ensuring that one has proper connectivity to the external format metadata source. This could be:
    - One or more files
    - An external tool application programming interface (API)
    - An external tool API based upon a client installation

- Ensuring that one has full access to any auxiliary resources as need. This depends upon the external format one is attempting to connect to, but general examples include:
    - Substitution parameter definition files for tools where substitution variables may be defined in the source metadata and are required in order to parse it successfully
    - Connection information to data sources like database connection names

Many harvest actions will require pointing to files on the Oracle Metadata Management (OMM) application server. The drives available for browsing are controlled by the conf.properties file. More details may be found in the Oracle Metadata Management (OMM) ReadMe.html file on the application server.

Harvesting always captures the metadata of the source. In addition, in the case of data stores (e.g. File systems, databases, etc.) May also include sampling and profiling the data contained within these sources. It is optional and requires greater access to the source systems.

All these requirements are documented in the bridge tool tips, which are available in the Help panel on the Import Setup tab.

Create a Model and Import Metadata

Steps

Ensure proper permissions

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the Configuration you are in.

Create the content

2. Go to the MANAGE > Contents in the banner.
3. Click the plus sign under Manage Contents and select Model.
4. Enter a Name and Description for the model and select an Import Bridge.
5. Check the checkbox for Propagate Documentation as needed.

This is a property on the content that allows you to control the propagation of documentation from the latest version only (by default) or from any older version when set to true.

This only applies to documentation: diagrams, join relationships, business names and descriptions, as well as custom attributes.

6. Click OK.

You may always harvest using a remote harvesting server by specifying it here under ***Import Server****.*

Configure the import specifications

7. Click the **Import Setup** tab.
8. Here there will be a set of parameters which are unique to each import bridge. For each **Parameter**, click in the **Value** column and enter the appropriate value.
9. Be sure to click Save.

Expand the ***Help*** *panel to the right of the parameters. Oracle Metadata Management (OMM) provides detailed help for the bridge as a whole and for each parameter selected. It is* ***imperative*** *that you read these "tool tips" when using a new bridge or diagnosing an issue with the import.*

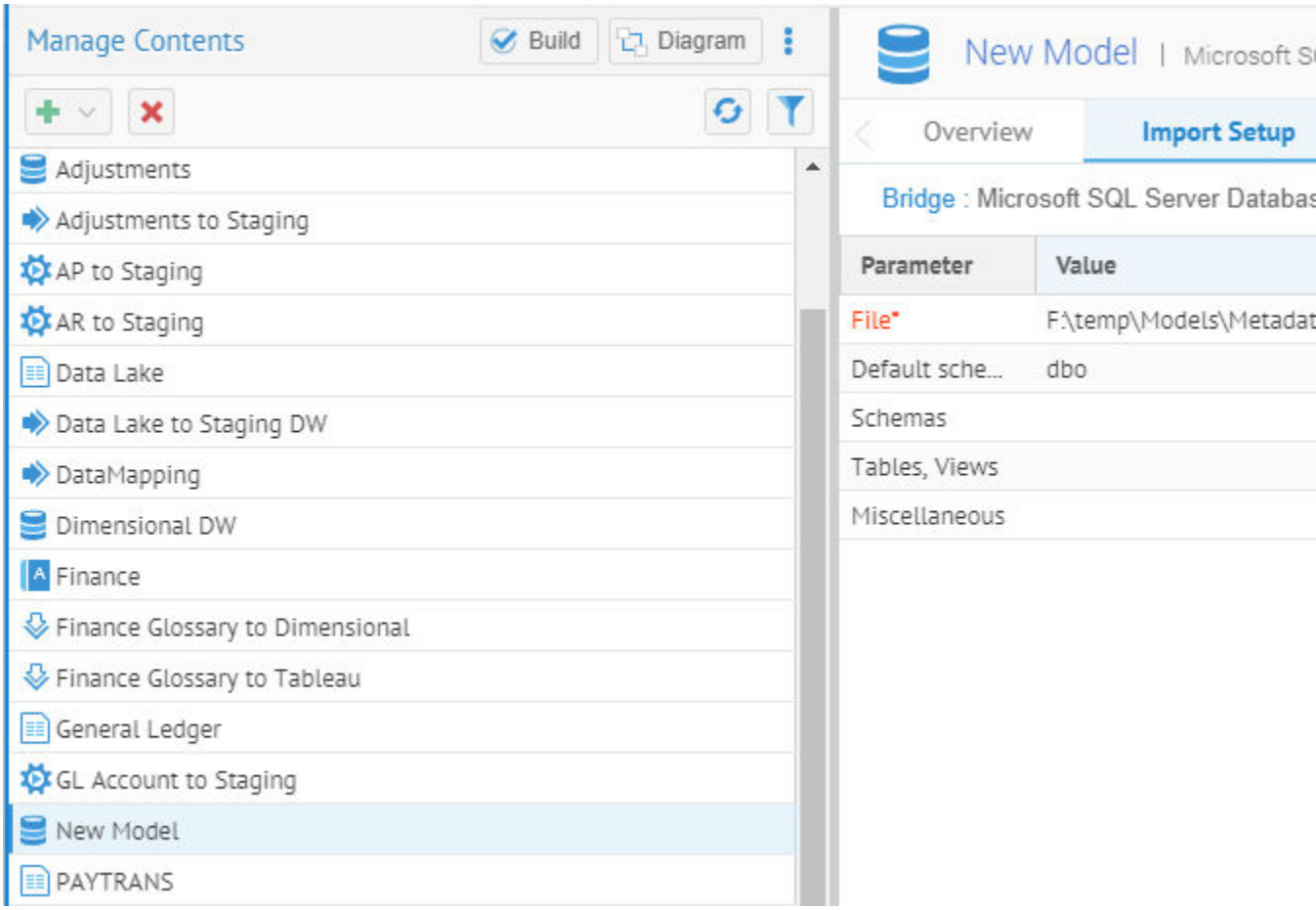
10. Click the **Import Options** tab.
11. Specify data sampling and data profiling options, as desired.
12. Click all checkboxes that apply to send eMail notification on import.

Special version management options will be presented in the multi-version editions of Oracle Metadata Management (OMM). Please see version management for details.

Import (a Version) of the model

13. Click Import.

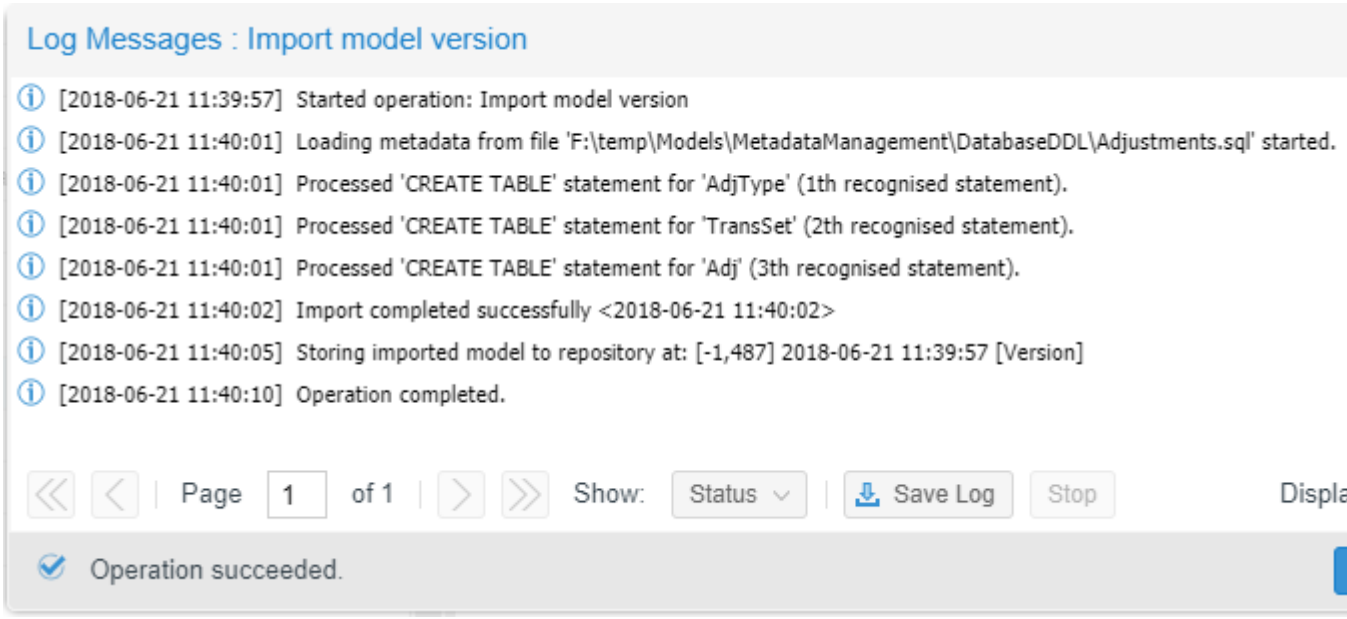
Example



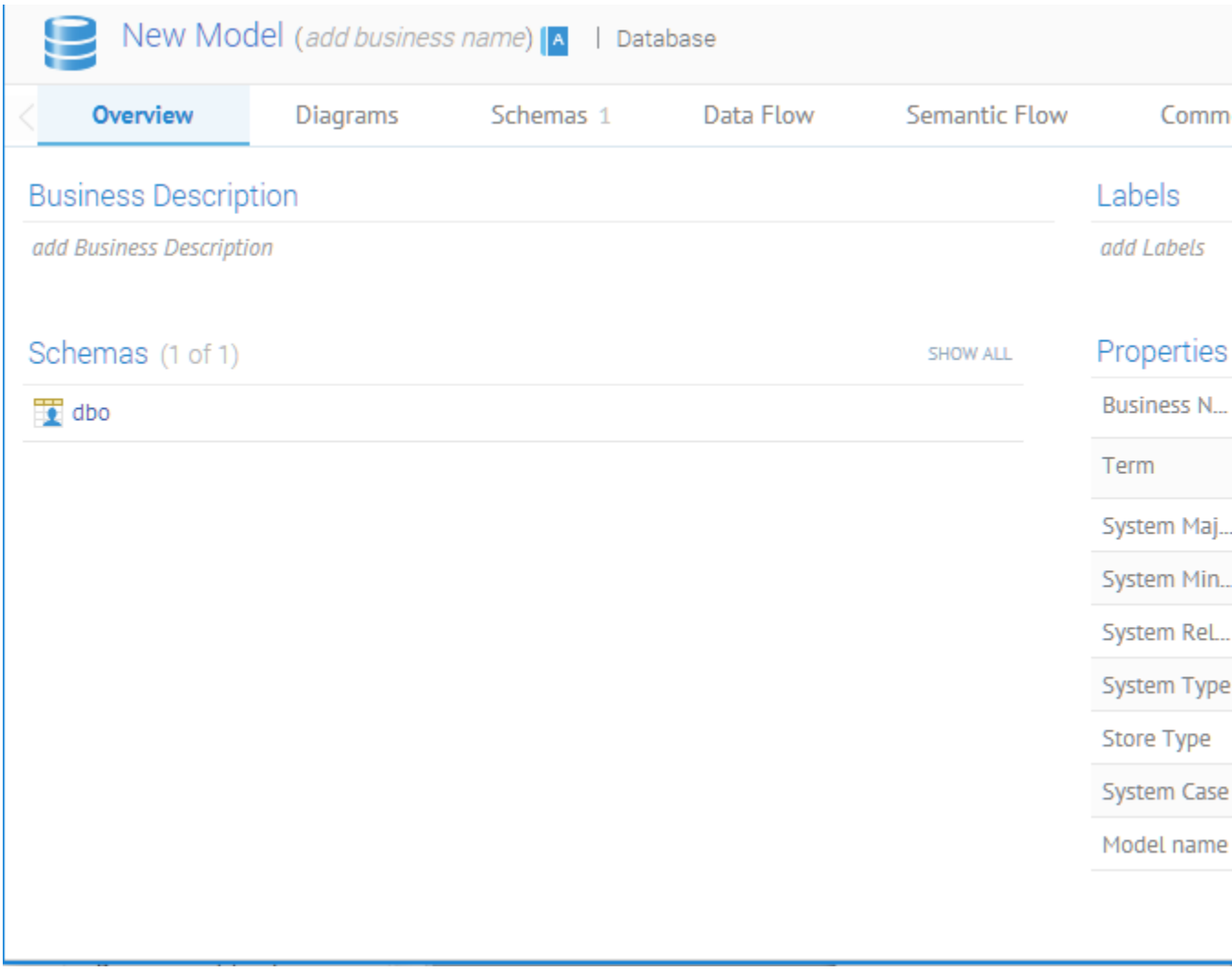
You click on the plus sign to create a model named New Model that is using the Microsoft SQL Server Database SQL DDL bridge. In the Import Setup tab, you enter the required parameter named File and the Default Schema.

Required bridge parameters are shown in red and have an asterisk (*) appended to the parameter name.

Click Import and the Log Messages dialog will appear.



With the Operation completed box checked, you have a successful import. So, select the New Model in the Manage Contents panel and click Open to open the model's home page, or navigate to the model or its contents.



Explore Further

Analyze the import log

With the Operation completed box is not checked at the end of the import of you see Import Unsuccessful in the log, you do have a successful import, and you will need to investigate the log to address any errors. Even without that indication, there may still be informational messages and warning that you will want to investigate.

The log messages are self-documenting and should provide enough information to analyze and correct the issue. If you must report an issue to the Oracle Metadata Management (OMM) support, be sure to include this log. Click Save Log to download the log file.

How to use the UI to analyze a log.

Connections and Configuration Management

As you have imported the model into the current configuration that you are operating under. Once you have imported a model, it then must be *stitched* to surrounding models in the architecture of the configuration.

Configure naming standards

Click the Naming Standards tab.

Assign security roles

Click the Security tab and associate the security roles with users or groups.

Versions

Click the Versions tab to see current and historical versions of the content.

Set new versions as default

When import a model, if a new version is to be created, then this new version can either be the default version or not. By default, the new version is set to be the default version of the model.

The default version is the one that:

- Is acted upon when you act on a content as a whole (e.g., if one opens a content, but not a specific version, in the metadata manager user interface, then it is the default version that is opened
- Is included in a configuration that is set to Auto Update.

Re-import only if changes are detected

Checking this box means that a new version will only be created if changes are detected. This generally only applies to BI tools, DI tools and data modeling tools. Differences are detected using various methods depending upon the specific technology imported from.

Propagate documentation

Oracle Metadata Management (OMM) allows you to enable and disable the propagation of documentation (including Business Name and Description, diagrams, join relationships and custom attributes) from older versions of a content. You can decide to enable the feature when

you need to fix an old version and would like the fix to be propagated to future versions as they are harvested. When you check the Propagate documentation checkbox, Oracle Metadata Management (OMM) propagates documentation changes made to any historial version to new versions as they are harvested.

If you leave this checkbox unchecked, then propagation of documentation will occur from the latest (last imported) version only (this is the default).

This feature can produce conflicts and unexpected results. For example, when you edit the same piece of documentation in different versions the latest edit wins. It is true even when you edit the latest version first and an old version later. You should disable the feature after you finish making future-proof changes to older versions to avoid unnecessary conflicts.

Harvest several Models from a directory of external metadata files.

It is common for an organization to have a large number of external metadata] files, but does not use an external metadata repository. Often, this organization would like import the files into Oracle Metadata Management (OMM) in batch in an automated fashion. Oracle Metadata Management (OMM) has the ability to support this scenario with the help of a harvesting script.

In this case, the files are stored under a file directory which is accessible to the Oracle Metadata Management (OMM) application server. The script scans the directory and its subdirectories for files of the particular external metadata type and finds matching Models under a particular folder in Oracle Metadata Management (OMM). The Oracle Metadata Management (OMM) repository folder and model structure will match the structure of files and their directories on the file system. When the necessary Model does not exist the script creates one and imports the file. When the content is present the script will re-import it if the file's version has not been harvested yet.

One can schedule MM to run the script periodically. It should allow customers to place files under the directory and be assured that Oracle Metadata Management (OMM) will import them automatically. It will work for any single model file-based bridges.

A special Model named Settings must also be defined in order to control how the files will be imported (what source tool and what bridge parameters).

Create the Oracle Metadata Management (OMM) folder

1. Sign in to Oracle Metadata Management (OMM) as a user with Metadata Manager UI privileges.
2. Go to the Metadata Manager UI

3. Right click on a folder in the Repository Panel where you want to place the folder containing the results of the import and select New > Folder.
4. Name the folder accordingly.

Create the Settings file to control the import of Models:

5. Right click on that new folder in the Repository Panel and select New > Model.
6. Select the General tab in the Create Model dialog.
7. Enter “Settings” in the Name for the Model.
8. Select the correct source format in the Import From pull-down.
9. Select the Import Setup tab.
10. For each of the Parameters, complete according to the tool-tips displayed in the right hand panel of the dialog. In particular, for the File: parameter :
11. Click on the icon and browse for a file inside the directory structure on the file system.
12. Update the File: parameter to so that the path only refers to the top level of the directory structure on the file system (i.e., remove the file name and any sub-directory names).
13. Click the check box Set as default if you wish to automatically set any new imported Version as the default Version.
14. Click Create.
15. A dialog will appear asking to import the Model. This is very important: Click No.

Harvest the Models on demand:

16. Right click on that new folder in the Repository Panel and select Scripts > Import new versions from folder.

17. Click on the Run Script button.
18. The Log Messages dialog then appears and log messages are presented as the import process proceeds.
19. If you receive the Import Successful result, click Yes to open the Model. If instead you see the Import Failed result, inspect the log messages and correct the source Model file accordingly.
20. Be sure to include those new models in the configuration.

You may now browse the Models.

Analyze Log

Log files are generated by Oracle Metadata Management (OMM) for most process such as model import.

Steps

To review a process log

1. Go to the MANAGE > Contents in the banner.
2. Select the content for which the process occurred (e.g., the model for a model import process)
3. Click on the Log tab.
4. Select the specific process log you wish to review.

There may be several logs for the same type of process, e.g., repeated imports of a model, so knowing the date and time is crucial. Generally, though, one will want the latest log at the end of the list.

You may delete a log at this time. All deleted logs are removed from the database and cannot be retrieved.

You may also schedule a regular maintenance task called ***Purge failed logs*** *to clean up older logs of processes that failed.*

Log level messages

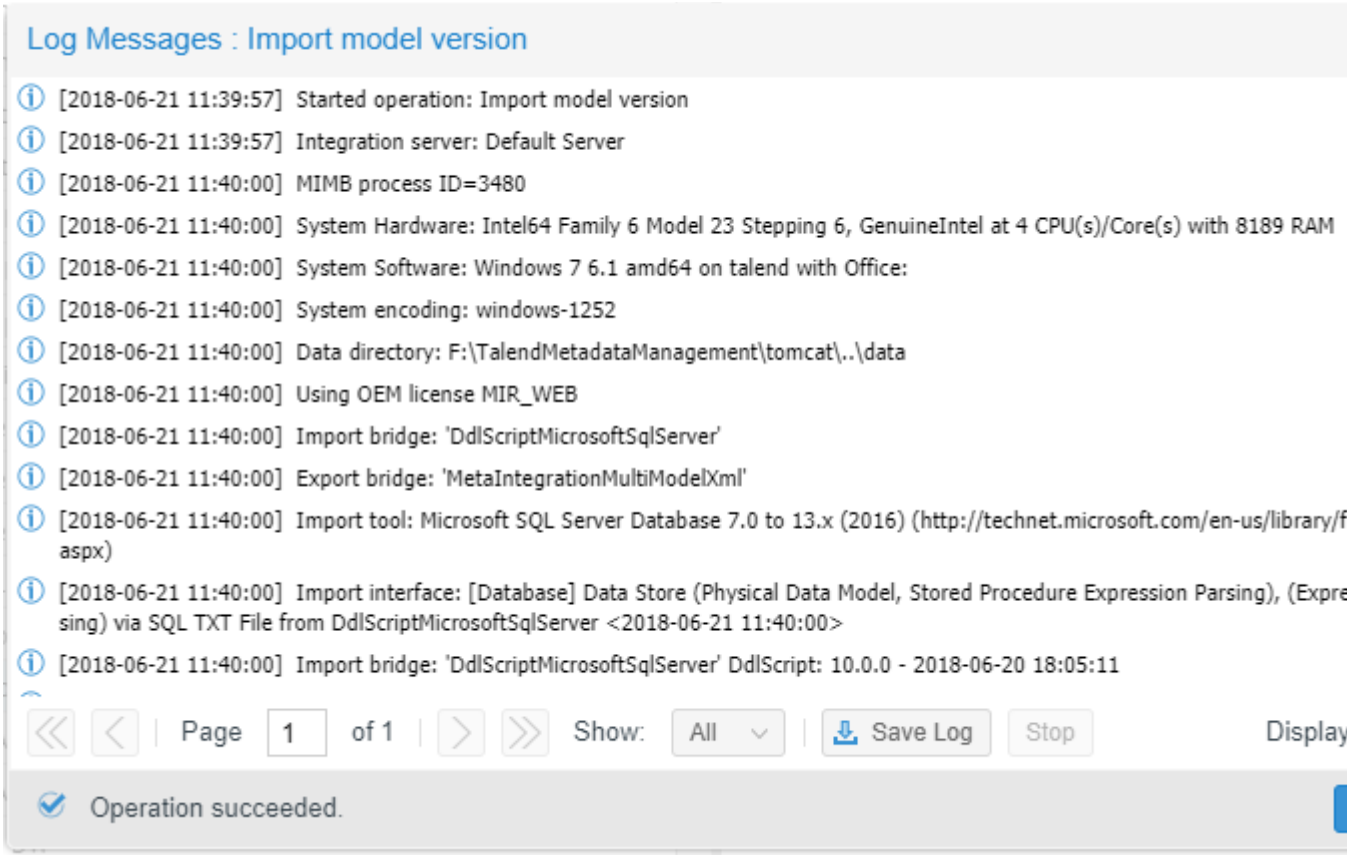
Log messages come in five levels:

Level	Description
Debug	Special diagnostic messages
Information	Basic informational message (e.g., parameter settings, connection events, etc.)
Status	Process step status messages (e.g., Importing model…)
Warning	Lower level issues identified which may compromise the results of the process
Error	Higher level issues identified which do compromise the results of the process and potentially cause it to fail entirely

Click on the level next to Show at the bottom of the Log Message dialog to pick the log level being displayed.

Example

After importing a model, you go to MANAGE > Contents and select the model. Then click on the Log tab and select the latest timestamped log and click Open.



Here we have selected All in the Show level pick list ensuring that all levels of log message are displayed.

*To search a log, click **Save Log** to download the log to a text editor.*

Explore Further

Enabling debug level log messages

You may do this in the Preferences menu option.

Stopping the process

You may stop any logged process by simply opening its log and clicking **Stop**.

System Log

The system as a whole also logs information after it is a process. Only those who are in the group Administrators may view the system log.

Bulk Harvesting

Creating Duplicate Models for Harvesting

You may create a Like Model, in order to reuse the bridge parameters and import options entered already for one model. This is convenient when you have to import a handful of models from the same source with the same credentials and options.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with Metadata Manager UI privileges.
2. Go to the Metadata Manager UI
3. Right click the model you wish to create another from in the Repository Panel
4. Select Create Like Model.

Author a Backup/Restore Script

One may create a backup script that can be restored of a master copy and then edit it to generate any number of others with slightly different parameters/options.

Steps

Create the original backup script

1. Sign in to Oracle Metadata Management (OMM) as a user with Metadata Manager UI privileges.
2. Go to the Metadata Manager UI
3. Right click the model you wish to create many copies of in the Repository Panel
4. Select More > Backup.
5. Uncheck all the check boxes.
6. Specify the location to write the backup script.
7. Click Backup.

Edit the backup script for copies

8. Edit the backup file to multiply the <E o='12345' et='308' n='db1' >...</E> and changing:
   - object id o='12345'
   - object name n='db1'
   - import parameters (e.g., <P n='Catalog' v='server2'/>)
9. Create as many copies as you want.
10. Right click the folder you wish to place the copies in from the Repository Panel
11. Select More > Restore.
12. Specify the location where the new backup scripts are.
13. Click Restore.

Analyze Versions

In some cases, one may wish to use the Repository to maintain a Version history for each Harvest or Upload of a Model. These Versions are individual objects within the Repository and represent the object's contents at a specific point in time.

The Administrator may manage any number of Versions. When using the Oracle Metadata Management (OMM) Metadata Explorer UI, as you are now, you will always be working with one version at a time. Because of this feature of this user interface Oracle Metadata Management (OMM) also provides an addition repository management user interface. Creating configurations and version management of existing configurations (including publishing) may only be accomplished using the Metadata Manager UI. You may switch to this UI at any time, as long as you have permissions and are not restricted to the Metadata Explorer UI only.

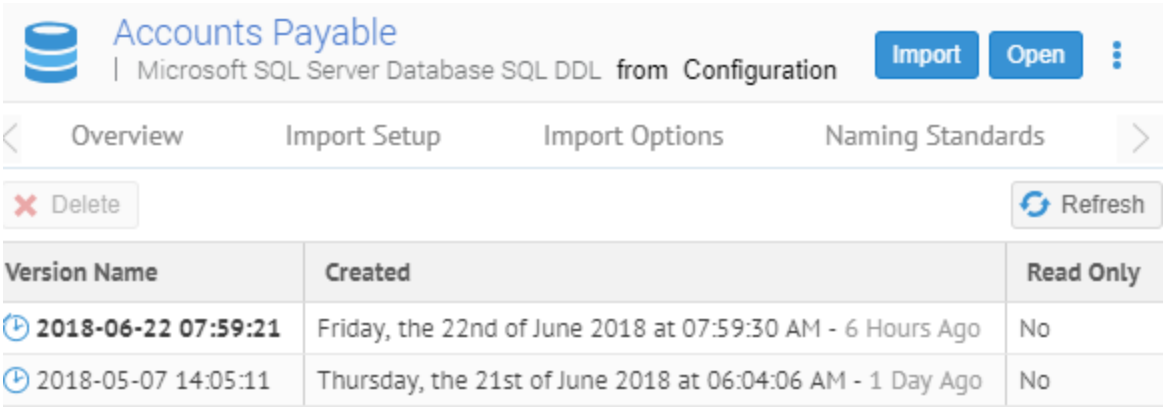
Viewing the Version History

[Process]

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the Configuration you are in.
2. Go to the MANAGE > Contents in the banner.
3. Click the Versions tab.

The list will show the version history.

Example



Here we imported the Accounts Payable model again.

*The current version (in **bold**) in the current configuration that you are viewing is generally automatically updated to include the latest version of a contained model. This automation may be turned off by an Administrator using the Metadata Manager UI.*

You cannot manage the versions here. Again, this must be managed by a user with sufficient permissions and using the Metadata Manager UI.

Manage Enterprise Architecture (Configuration)

The Configuration is an extremely important concept. It is the scope for many operations, including lineage analysis, search, Version management, etc. In this way, what would otherwise be an overload of information (everything in the repository) is instead well managed according to the Configuration of metadata one is interested in analyzing or working with. The name Configuration comes from the concept of "Version & Configuration Management" where a Configurations a collocation of particular version of Models.

A valid Configuration consists of a collection of Model Versions, mapping Versions, glossaries and stitchings. The model versions relate to data stores and data processes that have been harvested into Oracle Metadata Management (OMM).

A Configuration may be understood as any of the following:

- Repository workspace - a collection of Repository Objects to be analyzed together (search, browse, reports, etc.) as a technical scope, or business area under the same access permission scope.

- Enterprise architecture - a collection of data store Models (ODS, data staging areas, data warehouses, data marts, etc.) and data process Models (ETL/DI, and BI) connected together through data flow stitching.
- Design workflow - a collection of conceptual, logical and physical Models connected (semantically stitched) together through semantic mappings modeling the design process.

A Configuration may have one or more Configuration Versions. Configuration Versions may be understood each as a different collection of versions of Repository Objects. In this way, one can define several Configuration Versions, each containing various Versions of the Repository Objects. As a result, one may perform.

- Historical analysis using Configuration Versions containing older Versions of Models which were deployed at some time in the past
- What-if analysis using Configuration Versions containing the Versions of Models which may be deployed in the future.

When using the Oracle Metadata Management (OMM) Metadata Explorer UI, as you are now, you will always be working with one configuration (version) at a time. Because of this feature of this user interface Oracle Metadata Management (OMM) also provides an addition repository management user interface. Creating configurations and version management of existing configurations (including publishing) may only be accomplished using the Metadata Manager UI. You may switch to this UI at any time, as long as you have permissions and are not restricted to the Metadata Explorer UI only.

Explore Further

Assign a group to a configuration

Groups may be assigned to a particular configuration. In this way, any users who are associated with that group are provided with the Metadata Explorer UI and presented with only (the published version of) that configuration.

The checkbox is part of the group definition.

Changing the Current Configuration

When using the Oracle Metadata Management (OMM) Metadata Explorer UI, as you are now, you will always be working with one *configuration* at a time. The Configuration is an extremely important concept. It is the scope for many operations, including lineage analysis, search, Version management, etc. In this way, what would otherwise be an overload of information (everything in the repository including all historical and future versions of models, etc.) is

instead well managed according to the Configuration of metadata one is interested in analyzing or working with.

The configuration you are currently working in is displayed on the right in the header just after the name you logged in as.

Steps

To change the configuration:

1. Click the name of the current configuration.
2. Select Change Configuration.
3. Double-click he configuration you wish to be in or select one and click on OK.

> *In the multi-version editions of Oracle Metadata Management (OMM), configurations can have a* Published *(or default) version. This is the version you are selecting above. If you wish to open a different version, click* Choose Version *and select the specific version of the configuration you want to open.*

Stitching Models Together for Data Flow Mapping

Some external metadata Models may contain data movement source specifications and data movement rules. These are in turn imported into Oracle Metadata Management (OMM). In many cases, these data movement source specifications may match up with another external metadata Model which was imported separately. Such data movement specification Models may then be added to a configuration and may be "stitched" together with that second Model, where one Model is the complete representation of a source that is defined in another with data movement specifications.

Steps

Ensure proper permissions

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the Configuration you are in.

View the configuration architecture

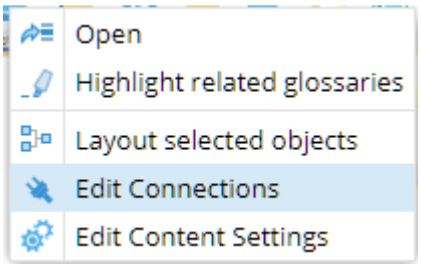
2. Go to the MANAGE > Contents in the banner.
3. Click Diagram.

You can do the same steps below right in the MANAGE > Contents page, but it is generally easier to identify the connection issues and especially the (as of yet) unconnected models that should be a part of a stitching when viewing the architecture diagram.

Identify stitching candidates

The contents in the diagram require stitching when they have a warning symbol like ⚠

4. Right-click on any content in the diagram with a warning and select Edit Connections



Stitch the connections

5. In the Connections tab, associate each Connection Name with a Model which represents or matches that connection by double-clicking that row under the heading Store.
6. If necessary, double-click the row under the heading Schema/Path to resolve any ambiguities in the harvested connection definition.

7. If necessary, click Edit Schemas to connect specific schemas as defined in the data process model connection (model with a warning) and how that schema is defined in the data Store selected.

> *Edits to the connection stitching are immediate. There is no need to commit them afterwards.*

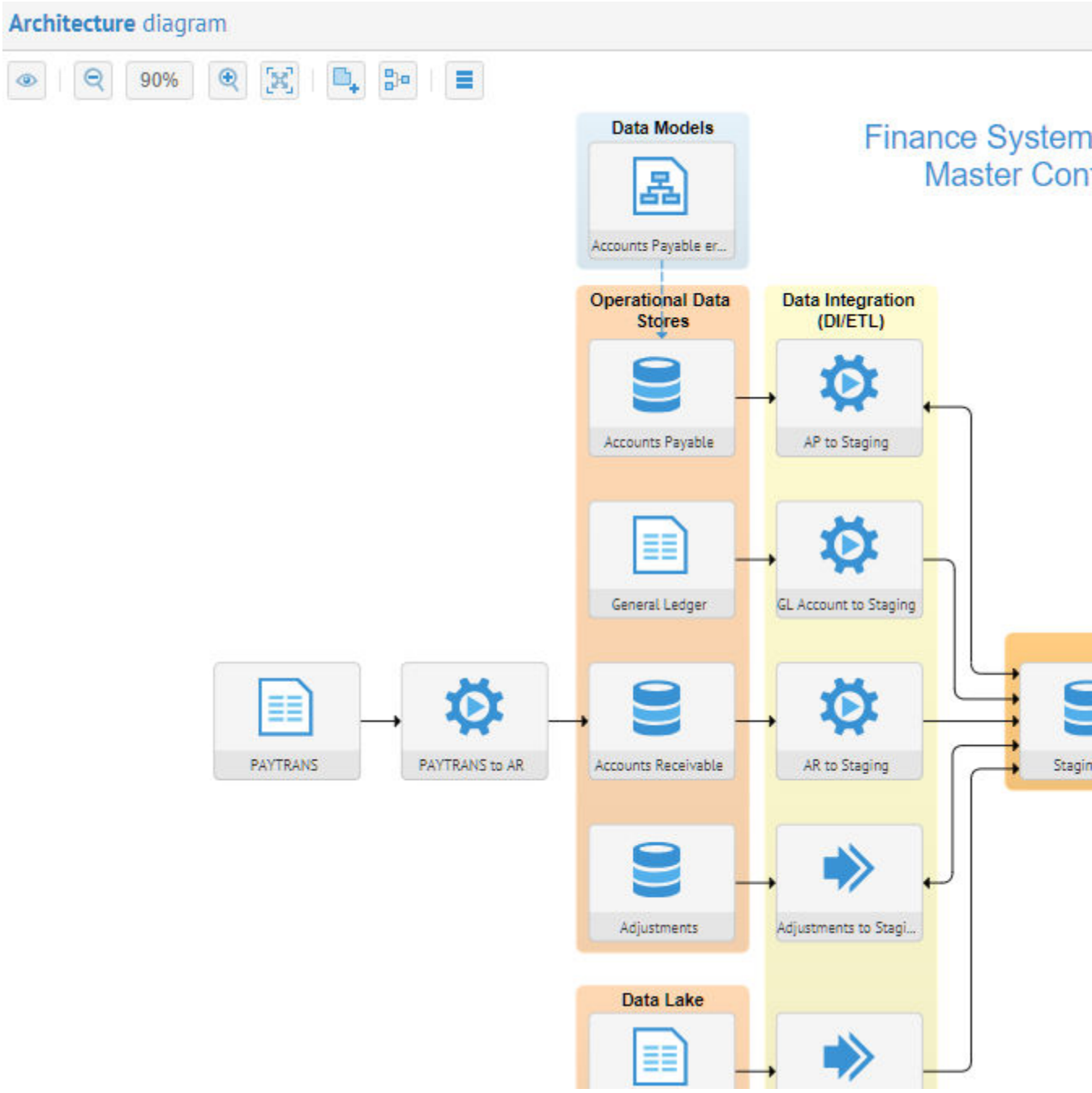
8. Return to the architecture diagram.
9. Repeat for all other connections with a warning.
10. Click Build.

> *Build validates the stitchings in the configuration and then builds indexes for lineage traces.*

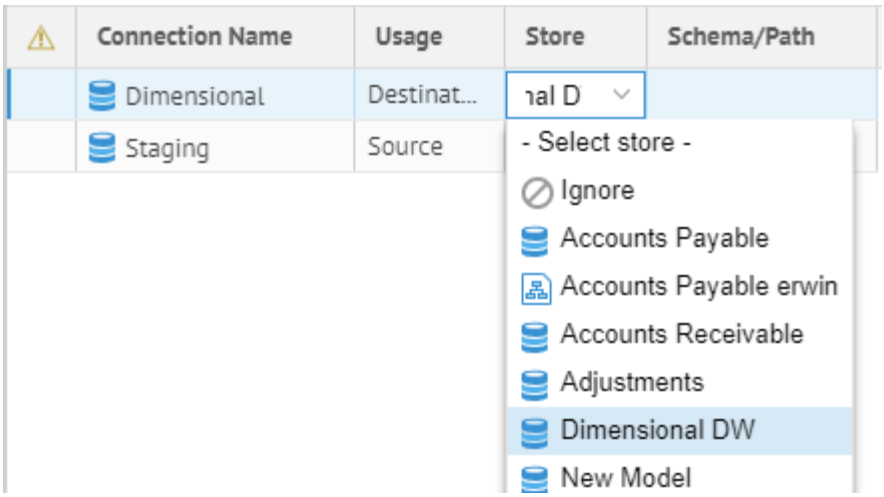
Example

You sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the Configuration you are in and go to the MANAGE > Contents in the banner. Click Diagram.

There is one content in the diagram with a warning, so right-click and select Edit Connections.



Then double-click on the first connection (Dimensional) line under Store and select the correct matching data store model.



Do the same for the Staging connection to the Staging DW model.

Click Build and return to the diagram.

Explore Further

View Log

View Log presents the Log Message dialog for the selected connection. You may see any connection errors documented as log messages.

Stitching Report

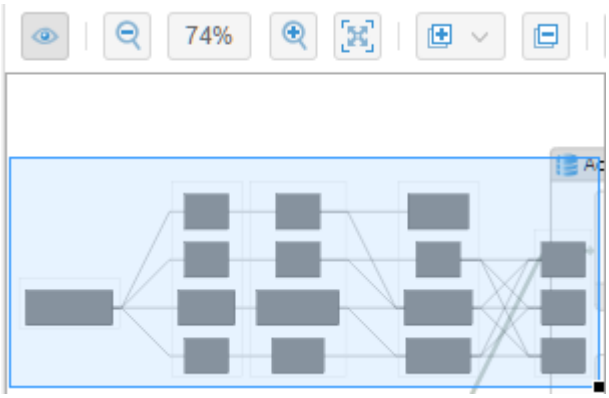
Stitching Report presents a complete report on what was and was not stitched between the connection and the data store. It is presented as a flat list that you may drill down in (e.g., schema > table > column)

Architecture Diagram

Once stitched, the relationships among Repository Objects in a Configuration can be visualized producing a data flow and semantic based architecture diagram. One may edit the layout and annotate these diagrams using the architecture diagram feature to obtain a high-level configuration overview of the architecture defined by a configuration.

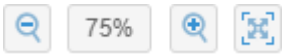
Overview

You may click this action icon to show or hide an Overview panel of the architecture diagram. Click in the overview to quickly move to a portion of the full diagram.



Zoom In/Out and Fit to content

Click Zoom in or Zoom out action icons to adjust the aspect ratio of the diagram. Also, you may click on the Fit to content action icon to view the entire diagram at the best zoom that will fit.



Add Annotation

Click Annotation then click in the diagram where you want the annotation to be placed to create annotations for a diagram. You may then right-click on the resulting object to edit further, including text content, style, color, etc.

Layout diagram

You may click the Layout Diagram action icon to clean up an entire diagram.

Layout *will undo any editing you have performed since the last* ***Save***   ***Layout Selected Objects*** *is a context menu (right-click) option that lays out only the selected objects.*

Print

You may download a PNG or SVG image of the diagram.

Quick find

In the upper right, there is a search text box that will provide a quick list of object names that contain the text you type. You may click on any of the results to select that object in the diagram and moving the focus there.

Properties Panel

Click to select a metadata element and view its properties in the Properties Panel on the right. You may show and hide this panel as needed.

Explore Further

Highlight Related Glossaries

The architecture diagram does not show the classification links between a Business Glossary and another model as a semantic lineage line. Otherwise, there would be such lines all over the diagram that one would have to maintain, even though these are system maintained links. Use the Higlight Related Glossary context menu option (right-click) to identify which Business Glossary (or more than one) is being used to classify terms in the selected model.

Edit Connections

As seen in the example above, Edit Connections is available in the Architecture Diagram itself.

Edit Content Settings

Edit Content Settings will take you back to the MANAGE > Contents page for the object that is selected (or right-clicked on).

Business Glossary

Data Governance

Critical to the development and management of complete data architecture is a Business Glossary. Oracle Metadata Management (OMM) provides an ISO 11179 based Business Glossary to capture, define, maintain and implement an enterprise Business Glossary of terminology, data definitions, code sets, domains, validation rules, etc. In addition, semantic mappings describe how elements in a source Model (more conceptual like the Business Glossary) define elements in a destination Model (closer to an implementation or representation).

The Business Glossary helps an enterprise to reach agreement between all stakeholders on their business assets (e.g. terms) and how they relate to data assets (e.g. database tables) and technology assets (e.g. ETL mappings). The Business Glossary can be used to document logical/physical data entities and attributes across IT collaboratively. Again, it involves tracing dependencies between business and technical assets.

The Business Glossary

In Oracle Metadata Management (OMM), a Business Glossary is a self-contained collection of categories and the terms sub-categories contained within each category. In turn, the terms may be semantically mapped to objects throughout the rest of the repository, such as tables and columns in a data model. Once mapped, one may perform semantic lineage traces such as definition lookups and term semantic usage across any configurations containing the Business Glossary, mappings and mapped objects.

Building a Business Glossary can be as simple as dragging in an existing well documented data model, via import from other sources via CSV file format, or can be populated directly via the user interface as well as during the process of classifying objects in other data store models. In general, a combination of such methods is employed in conjunction with one another.

In order to ensure that the Business Glossary is accurate, up-to-date, available to all who need access to it and integrated properly with the rest of the metadata in the repository, Oracle Metadata Management (OMM) also provides a robust collection of Data Governance tools and methodologies. The Oracle Metadata Management (OMM) Business Glossary provides a very flexible workflow and publication process that may alternatively be quite sophisticated or quite simple depending upon one's needs. In addition, one may maintain any number of business glossaries, each with different workflow and publication characteristics.

The Business Glossary may be part of your lineage, will appear in the repository panel and when you open a Business Glossary, you will presented with a different UI than for other (harvestable) Models.

Stewards

Stewards are users or groups of users who are assigned as point of contact to answer questions for specific terms or entire categories. In addition, they may be notified when changes are made to terms as part of the workflow. Finally, as a special case, one may restrict update to Stewards (Allow only stewards to edit terms).

Categories

A Business Glossary is organized into categories, which may then contain terms or other categories. Categorization can help with:

- Subset by subject matter or organizational structure
- Managing stewardship assignments (at the category level).

Relationships

Terms may be cross-linked in a wide variety of relationship types, including:

Business Glossary Relationship Type	Description	Effect on definition lookup	Effect on semantic usage
Synonyms			
See Also			
More General			
More Specific			
Contains			
Contained By			
Represents			
Represented By			

Simply edit a specific term to do so.

Glossary Workflow

By default, a Business Glossary will have no workflow requirement (including no approval process). In this simple state changes made to the Business Glossary are reflected immediately throughout the system. This is a very useful mode for organizations that did not want the complexity of a workflow process. It is also useful for other organizations when they are first building and populating a Business Glossary and related semantic mappings.

Oracle Metadata Management (OMM) also provides a very flexible and complete set of possible workflow and publication processes that you may employ. Choose these processes carefully, as once selected they cannot be undone or changed.

When your company would like to have a formal Business Glossary development process that involves multiple users you can enable the Business Glossary workflow. The workflow is prepackaged sequence of Business Glossary activities around term proposal, review,

acceptance, publishing and depreciation. It is a flexible process that can be customized to require only publishing activity, approval with or without review, approval and review by one or multiple users, etc.

Workflow roles

A user with the Administrator security role can enable the workflow and assign the following workflow roles to Categories:

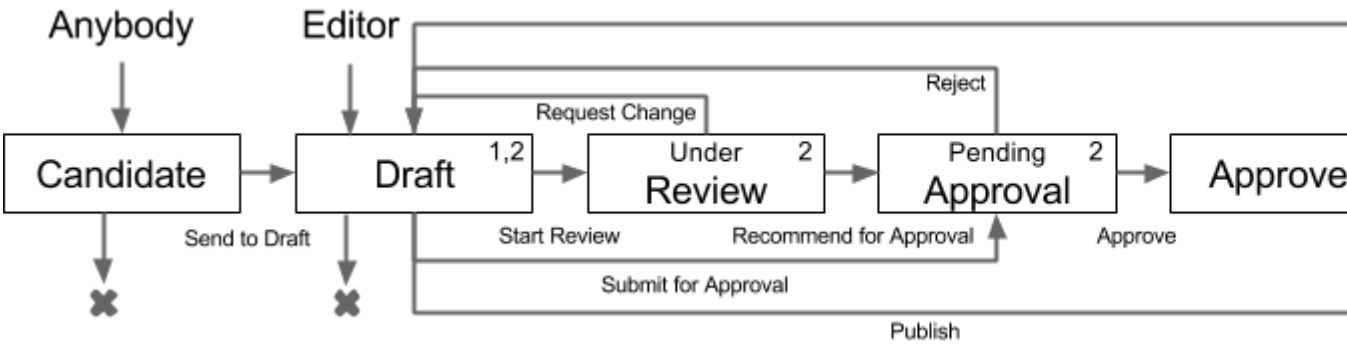
- Editor
- Reviewer
- Approver
- Publisher

A workflow role can be assigned to users and applies to all terms in the category. A Category inherits all user-to-role assignments from the parent category and can have additional ones.

Workflow process options

The workflow process applies to terms, but not categories. All changes to Categories made in the Manager UI are immediately visible (published) in the Explorer UI. When the workflow is enabled you cannot delete a category that has published terms.

The most complete workflow possible is in the diagram below:



You can enable the workflow when you create the Business Glossary or after. You cannot disable the workflow after it has been enabled.

Workflow Action	Workflow Role			
	Editor	Reviewer	Approver	Publisher
Propose Candidate	X	X	X	X
Create Draft	X			
Discard	X			

Start Review	X			
Mark for Deprecation	X			
Submit for Approval	X			
Send to Draft	X			
Recommend Approval		X		
Request Change		X		
Reject (Awaiting Approval)			X	
Approve			X	
Reject (Approved)				X
Publish				X
Publish (Deprecate)				X
Create, edit or remove attributes and relations	X	X	X	
Create comments	X	X	X	X
Edit or remove comments	X	X	X	
Create, edit or remove attachments	X		X	
Assign roles to users and groups			X	
Start/stop workflows and reassign tasks	X		X	

Term management dashboard

My Workflow Tasks provides an interactive dashboard identifying terminology and the actions that need to be taken for business glossaries by the logged in user in a configuration.

Workflow transition

When working with individual terms which are at some point in the workflow process, workflow transition buttons prompt you with possible actions, e.g., if a term is in Draft status, then the action icons would include:

- Start Review
- Submit for Approval
- Mark for Deprecation
- Discard

Versioning and workflow

When you enable workflow Oracle Metadata Management (OMM) creates another version of the Business Glossary named Published. The Published version is the one that is to be presented to most of the users. Its contents are not directly editable (with or without permission). Instead, one edits the Development version and then uses the Publish workflow step to change what is in the Published Business Glossary.

Thus, one will have access to the Published version of the Business Glossary by opening the Published version of the Configuration. One will have the ability to edit the Business Glossary only by opening the Development version of the Configuration. In this way, general users are given access to the Published Configuration, and users who are editing the workflow enabled Business Glossary will also be given access to the Development Configuration.

Add, Review and Edit Terminology

Note for business glossaries with workflow, general users are given access to the Published Configuration which contains the Published version of the Business Glossary. In order to edit (following the workflow process) a Business Glossary which is managed under workflow, you must also have access to the Development Configuration containing that same Business Glossary. Please see more details here.

Steps

Without Workflow

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the proper security role (e.g., Viewer or Editor) on the Business Glossary you wish to view or edit terms from.
2. Navigate to the home page for the metadata element you wish to label. Then click the Related Reports tab and List tab on the left.

Add a new term

A new term must be a part of a particular Business Glossary category.

3. Navigate to that category you wish to place the term in. If the category does not exist, Navigate to the home page of the business glossary and create a new category.

The new category may be part of an existing category or at the root of the business glossary

This interface is simply the standard home page and all the same features are available.

4. Click the Terms tab.

5. Click the plus sign (Add a new term).
6. Enter the name and description

You may click on Add another term to cause the ***Add a Term*** *dialog to stay open for adding additional terms each time you click OK.*

7. Click OK.

Edit a term

8. Navigate to the home page of the term or use the Grid Mode to in the Terms tab to edit the properties of the term or terms you just created.
9. In the Grid View, one may edit in place any property associated with any of the rows (or list items in the list view).

With Workflow

1. Sign in to Oracle Metadata Management (OMM) as a Metadata Explorer UI user which had editor permissions to the Business Glossary you wish to document and has access to the Development configuration which contains the Development version of the Business Glossary.
2. Navigate to the Business Glossary using the (please see Metadata Explorer UI User Interface Components). It will be a part of the Business Glossary category.
3. Navigate to any element (term or category) you wish to edit, or create a new category.

This interface is simply the standard home page and all the same features are available. However, according to the workflow steps one must first place the term in Draft status. To do so for an Approved term, click on the Create Draft button in order to place the term in draft mode and allow editing. One may also create a new term which will be placed in Draft status using one of the methods below.

Create and Manage a Business Glossary

Create a Business Glossary

Steps

Ensure proper permissions

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the **Manage** security role on the Configuration you are in.

Create the content

2. Go to the **MANAGE** > **Contents** in the banner.
3. Click the plus sign under Manage Contents and select **Glossary**.
4. Enter a Name and Description for the model and click OK.

Explore Further

Specify the Workflow Process for a Business Glossary

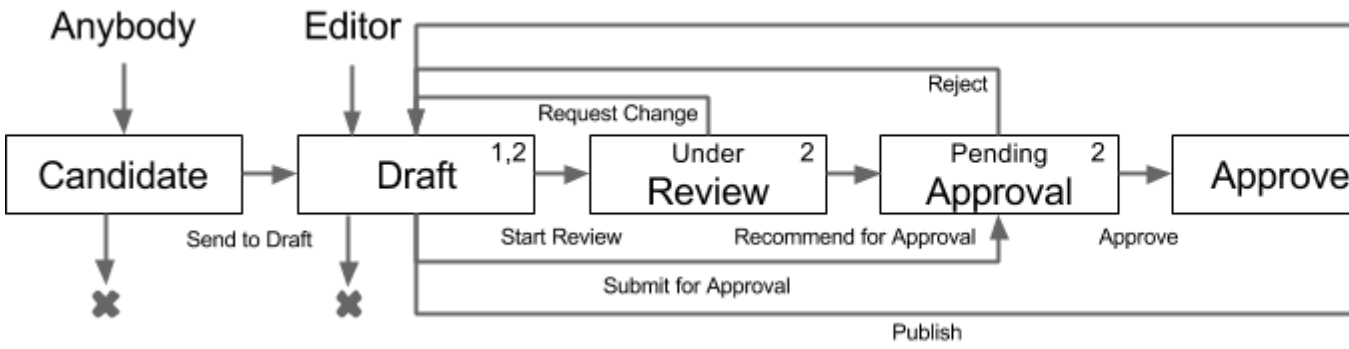
By default, a Business Glossary will have no workflow requirement (including no approval process. Oracle Metadata Management (OMM) also provides a very flexible and complete set of possible workflow and publication processes that you may employ. When your company would like to have a formal Business Glossary development process that involves multiple users you can enable the Business Glossary workflow. The workflow is prepackaged sequence of Business Glossary activities around term proposal, review, acceptance, publishing and depreciation. It is a flexible process that can be customized to require only publishing activity, approval with or without review, approval and review by one or multiple users, etc.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the **Manage** security role on the Business Glossary you are in.
2. Go to the **MANAGE** > **Contents** in the banner.
3. Click the **Workflow** tab.

4. Check the workflow entries you wish to specify.

The most complete workflow possible is in the diagram below:



5. Click Save.

Choose these processes carefully, as once selected they cannot be undone or changed.

Populate (Bootstrap) a Business Glossary from a Model

You may take an already well documented model and use it to bootstrap a Business Glossary, creating categories, terminology and relationships based upon what is already well-defined in the original model.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with metadata manager UI privileges.
2. Go to MANAGE > Metadata Manager UI in the banner.
3. Open the Business Glossary to populate.
4. Drag a Model from the Repository Panel to the Business Glossary.
5. Specify the Term Status (in the lifecycle) to assign all terms to be populated (created from the original Model).

6. Check whether or not to create a new category in the business glossary where all the populated terms will be created.
7. Check whether or not to create a semantic mapping between the Business Glossary and the original Model (from where all the populated terms will be derived) so that semantic lineage may be traced to and from the terms and objects in the original Model.
8. Enter the Name for the semantic mapping.
9. Click Import.
10. The Log Messages dialog then appears and log messages are presented as the import process proceeds.
11. If you receive the Import Successful result, click Yes to open the Model. If instead you see the Import Failed result, inspect the log messages and correct the source Model file accordingly.
12. You may now edit the Business Glossary.

View Term management Dashboard

Workflow based search criteria, or dashboards, are available as part of the search capability. They are only available (and only meaningful) if you have specified a workflow process for the Business Glossary.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a Metadata Explorer UI user which had editor permissions to the Business Glossary you wish to document and has access to the Development configuration which contains the Development version of the Business Glossary.
2. Navigate to the business glossary. Note, the Dashboards are accessible only that the top level in the Business Glossary, not when viewing a term or category, for example.
3. Click on the More Actions icon and select My Workflow Tasks.

4. From here you have a list of terms which are in various workflow statuses which you may sort and apply workflow actions to.

Depending upon the workflow roles you are assigned, only those terms that match your workflow role for that category will be displayed.

Assign Workflow Roles

A user with the Administrator security role can enable the workflow and assign the following workflow roles to Categories:

- Editor
- Reviewer
- Approver
- Publisher

A workflow role can be assigned to users and applies to all terms in the category. A Category inherits all user-to-role assignments from the parent category and can have additional ones.

The workflow process applies to terms, but not categories. All changes to Categories made in the Manager UI are immediately visible (published) in the Explorer UI. When the workflow is enabled you cannot delete a category that has published terms.

You can enable the workflow when you create the Business Glossary or after. You cannot disable the workflow after it was enabled.

1. Sign in to Oracle Metadata Management (OMM) as a Metadata Explorer UI user which had editor permissions to the Business Glossary you wish to document and has access to the Development configuration which contains the Development version of the Business Glossary.
2. Navigate to the business glossary. It will be a part of the Business Glossary category.
3. Navigate to any category you wish to work with.
4. Click on the More Actions ( ) icon and select Assign Workflow Roles.

Workflow Action	Workflow Role			
	Reviewer	Editor	Approver	Publisher
Create, edit or remove an asset		X	X	
Create, edit or remove attributes and relations	X	X	X	

Create, edit or remove comments	X	X	X	
Create, edit or remove comments/attachments		X	X	
Assign roles to users and groups			X	
Start/stop workflows and reassign tasks		X	X	
Publish an asset				X

Editor Workflow Role

The Editor is responsible for creating, revising and shepherding terms through the approval process. The Editor can import terms into the Business Glossary from files or create them manually. These terms start in the Draft status. The workflow can allow any Business Glossary user to propose a term. A proposed term starts in the Candidate status. The Editor of the category where the term is proposed can accept the term by promoting it to Draft or deleting it. The user who created the term can edit and delete it as long as it is Candidate.

When the approval activity is disabled the Editor is solely responsible for the terms' workflow. In this case, the Editor takes on the Publisher's responsibilities and can publish terms when the Editor deems ready.

Reviewer Workflow Role

The Reviewer is a subject matter expert (SME) responsible for assessing and commenting on assets under development. The Reviewer can list assets assigned to him/her for the review and comment, endorse or dismiss them individually. Each of the assets offers the Reviewer the Comment, Recommend for Approval and Request Change buttons. Pressing the buttons allows the user to explain the decision with a comment.

The Request Change action sends the asset back to Draft. The Editor is responsible for implementing requested changes or providing clarifications and re-submitting the asset for review again. The review is an iterative activity.

Approver Workflow Role

The Approver is an accountable decision maker who is responsible for rejecting or approving new assets of changes to published assets. The Approve action advances the asset to the Approved status. The Reject action returns the asset to the Draft status.

The approval activity is a part of the workflow process by default. The Administrator can disable it by setting the "Allow approval of terms" to No.

Publisher Workflow Role

The Publisher is an accountable decision maker who is responsible for publishing assets. Oracle Metadata Management (OMM) provides two UIs, Manager and Explorer. The Manager UI is the repository development environment. The Explorer UI is designed for reviewing the repository content by business users. You can use the Manager UI to create new and edit existing Business Glossary objects. If you do not want your business users to see unfinished Business Glossary changes in the Explorer UI you can enable the workflow. The workflow includes Publishing always.

When the workflow is enabled you can make multiple changes to different Business Glossary objects and publish all changes at once or groups of changes at a time. When the workflow is disabled all changes made in the Manager UI are immediately visible in the Explorer UI. You can change an object by editing its attributes (e.g. description) and adding/removing its relationships (e.g. contains). When the workflow is enabled the Manager UI shows all unpublished changes specially (e.g. yellowish background color). It allows you to view differences between published and unpublished versions of attributes and relationships (e.g. button to show differences in a popup dialog or inline).

When the workflow is enabled terms show their Publishing status in Manager UI. The application sets the attribute's value automatically. A new term is Unpublished. When the approval activity is enabled the Publisher can only publish Approved terms. The Administrator can configure the workflow to publish terms automatically when they are approved.

Assign a Steward

Stewards are users or groups of users who are assigned as point of contact to answer questions for specific terms or entire categories. Optionally, they may be notified when changes are made to terms as part of the workflow.

Otherwise, stewardship is treated as just another property of a term or category and thus one should refer to the instructions to add, review and edit terminology.

Note, only users who either have been identified as possible stewards or are members of a group of user identified as possible stewards can be selected from the pull-down list. Please refer to the User and Group Management section in the Metadata Manager UI help for more details.

In addition, to set up notification, please refer to the Scheduling and Notification sections Metadata Manager UI help.

Set the Status of a Term

You may not set the status of a term by editing it. Instead, you will use the workflow transition buttons presented to you based upon:

- The workflow processes enabled for the specific Business Glossary
- The status of the term you are editing.

Note: If there is no workflow process defined for the Business Glossary then the term will always be in Published status and there is no need to set it.

List Terms by Steward Assignment

You may set the steward of multiple terms from either a list a category contents or as the result of a search. After searching or browsing to a list of terms, you may either:

- Click on any column headers and click on the icon to include Steward as a column to display, and then sort on that column
- You may also expand ( ) the Filters panel and specify Steward as a criteria or right-click on an example of the Steward you wish to filter on and use the quick filter.

Produce an Audit Log

The Audit Log tab is available on a term's home page.

Export a Business Glossary

One may export one of two different types of file:

- A CSV format file which contains all the Business Glossary object (terms and categories),
- A CSV format file which contains relationships between those terms in the object file.

Steps

1. Go to BROWSE > Glossaries > and pick the business glossary to export from.
2. Navigate to the proper subset (category or term) to export, or stay at the root.
3. Click on the More action icon and select Export Glossary Objects or Export Glossary Relationships.
4. The CSV format file will be downloaded locally.

Import a Business Glossary

One may import from one of two different types of file:

- A CSV format file which contains all the Business Glossary object (terms and categories),
- A CSV format file which contains relationships between those terms in the object file.

The object files should be imported before relationships files so that the objects exist for relationship definitions.

One can bootstrap a Business Glossary, or import from existing Business Glossary type systems, using a pre-defined CSV file format. Go to Browse > Glossaries > and pick the Business Glossary to import to.

Steps

1. Go to BROWSE > Glossaries > and pick the Business Glossary to export from.

2. Click on the More action icon and select Import Glossary Objects/Relationships.
3. Select a CSV format file saved locally.

To see the format for this file, simply Export a subset of an existing Business Glossary to Excel.

Using the Glossary CSV format

It is not only possible to update and add new terms and categories, but by using the _Id_ column, one may also rename, move and delete terms and categories which already existing in the Business Glossary. Here are the guidelines for doing so:

- Adding – To add a term or category:
  - Either the entire _Id_ column must not exist in the CSV file or the _Id_ field is left empty for that line.
  - The Name value must be unique within the _Parent Path_.
  - The _Type_ is optional. However, if empty the object created will be a Term.
- Updating – To update an existing term or category:
  - One must provide either the _Id_ or one must provide the _Parent Path_ along with the Name
  - The _Type_ is optional. However, if empty the object will be assumed to be whatever it already is and _Type_ cannot be changed for an existing object.
  - All other fields are optional. Therefore empty fields do not mean clearing the property value but simply means not to change it.
- Renaming
  - One must provide the _Id_
  - The Name field specified then becomes the new Name
  - Other property updates can be made at the same time.
- Moving
  - One must provide the _Id_
  - The _Parent Path_ field specified then becomes the new _Parent Path_ (the object is moved)
  - Other property updates can be made at the same time
- Deleting
  - One must provide the _Id_ and no other fields
  - _Type_, _Parent Patch_, Name and all other fields must be empty (except _Id_), otherwise it is not a proper delete request.

Data Cataloging

Cataloging your data stores, reports, etc., is an import activity to ensure that potential users of the data can understand what is available, what it means, how it may (even should) be used, and what to expect as a result. Oracle Metadata Management (OMM) offers a number of features to support data cataloging and provide easy access to that information.

Data Documentation with a Business Glossary

Nearly any metadata element in Oracle Metadata Management (OMM) may be documented.

Documentation Type	Description
Business Name	User understandable name
Business Description	User understandable and fully contextual description
Other Properties	Other properties specific to the type of metadata element
Custom Attributes	Any number of custom defined attributes may be associated
Comments	Discussion and other general comments provided by all users
Labels	Meta tags which may be associated

Reuse Business Glossary Terminology

In this scenario you will reuse the Name and Description of a term in a Business Glossary

Steps

From the home page

1. Navigate to the home page for the metadata element you wish to document. Then click the **Overview** tab.

2. Click on the Business Glossary action icon  and select Classify with existing Term.

Oracle Metadata Management (OMM) automatically searches with the physical name of the metadata element.

You may wish to remove that search filter if you wish to find a different term or one that is spelled differently.

3. If it did not find the term you are looking for, remove the search filter. Then select the Business Glossary you wish to search for the term.
4. Search or navigate to the term you wish to use to classify this metadata element and select the term.
5. Click OK.

*The **Business Name** (next to the physical name) and **Business Description** now inherit from the term selected.*

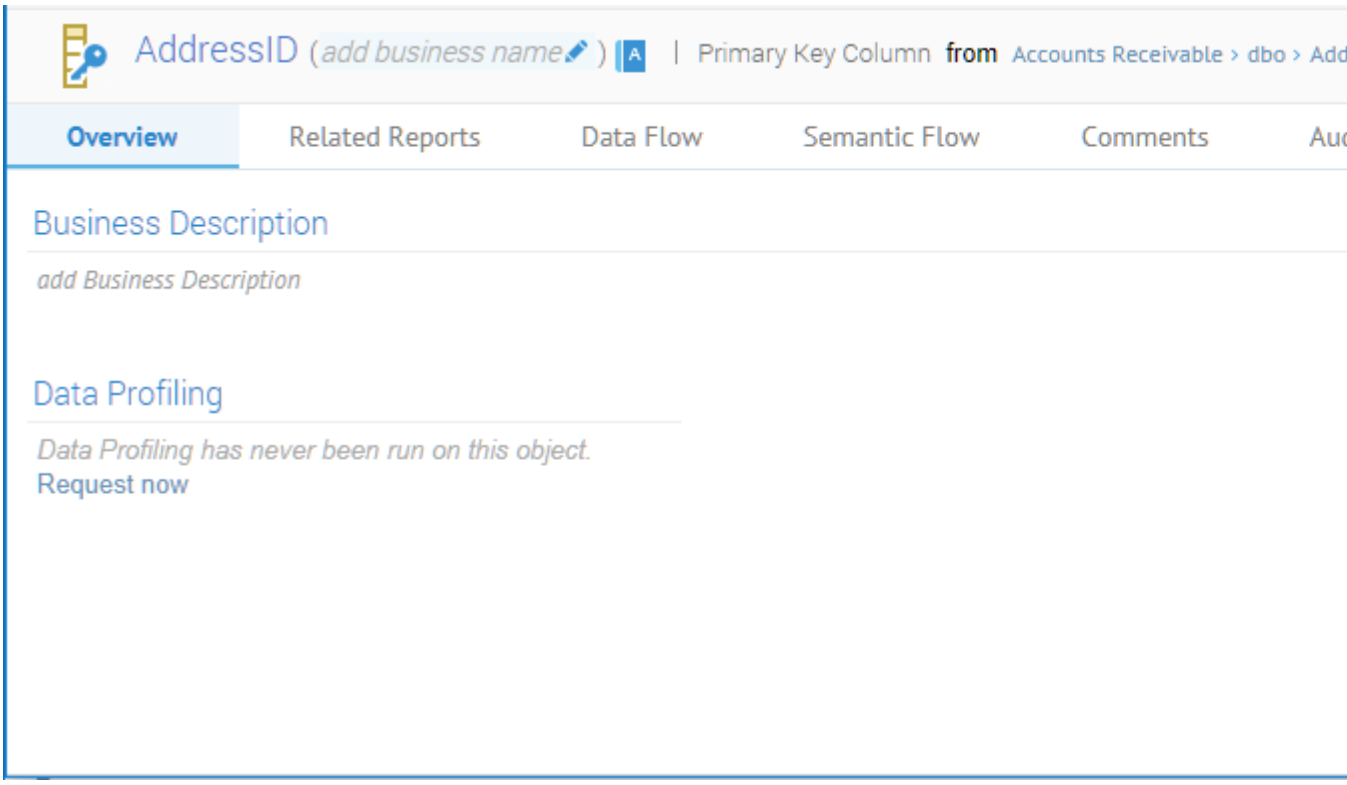
Also, you may still edit the name and description.

From the Semantic Flow tab

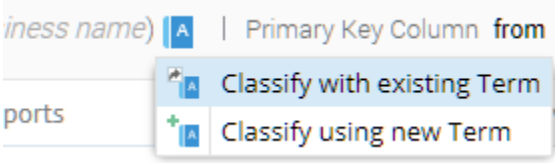
6. Navigate to the home page for the metadata element you wish to document. Then click the **Overview** tab.
7. Click the Semantic Flow tab.
8. Click the Classify button.

Example

Navigate to the home page for the column **AddressID** in the **Address** table of the **Accounts Receivable** model.

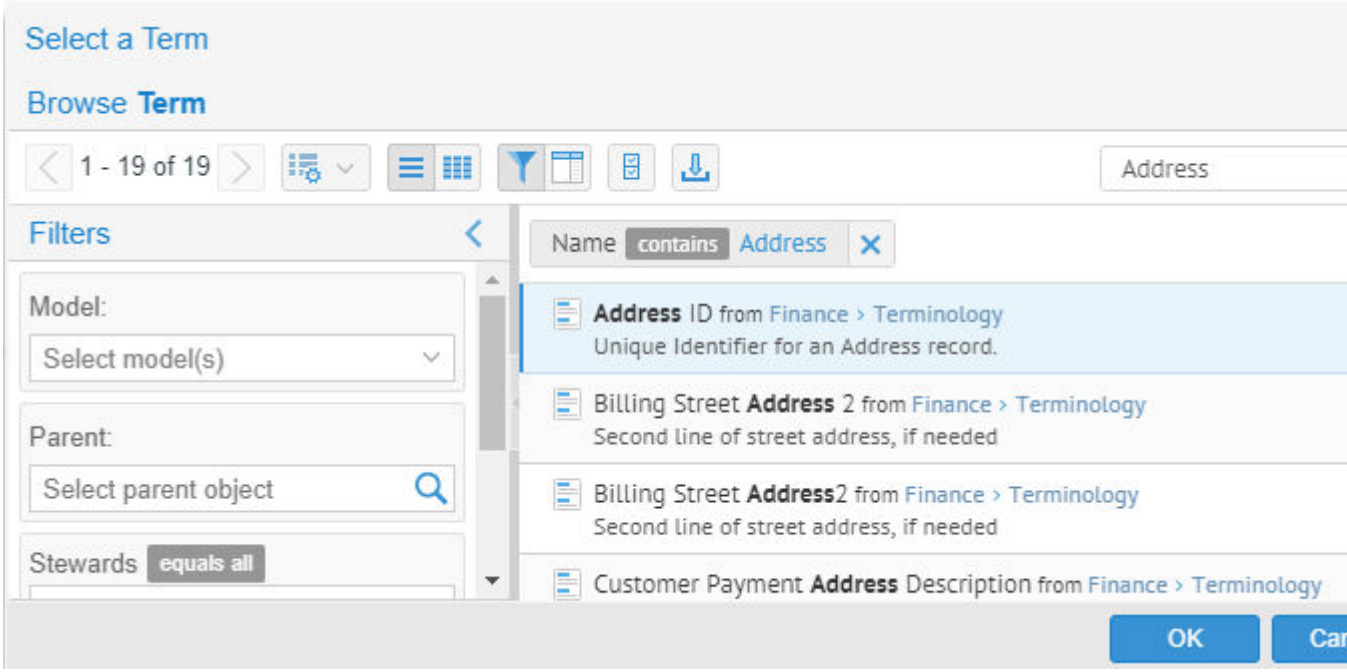


Click the Business Glossary action icon and select Classify with existing Term.

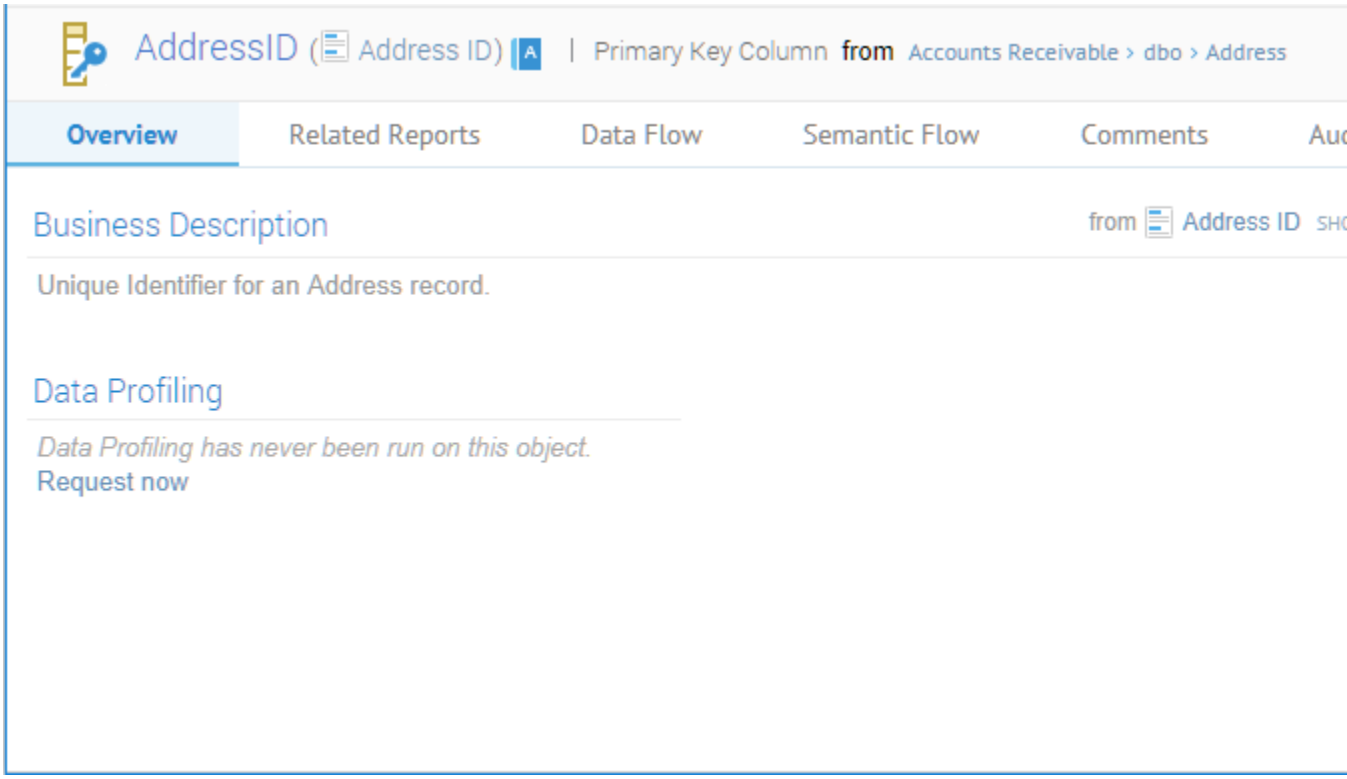


Oracle Metadata Management (OMM) automatically searched for AddressID but found no results so you should remove that search filter before looking for you term.

Remove the current search filter and search for “Address”.



Select the term Address ID and click OK.



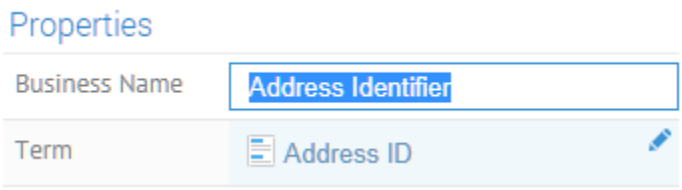
The Name and Business Description are now inherited from the term.

*You may remove this inheritance and the classification by again clicking the Business Glossary action icon and selecting **Un-Classify**.*

Even with this inheritance, you may edit the Business Name and Description later.

*You may update the **Business Name** manually, but you do so in the **Properties** section of the home page. The name in the upper left is the Name of the term and clicking there will open the home page for that term.*

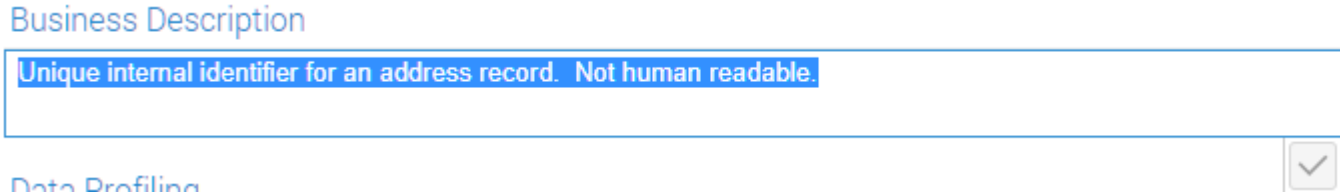
Go ahead and edit the Business Name.



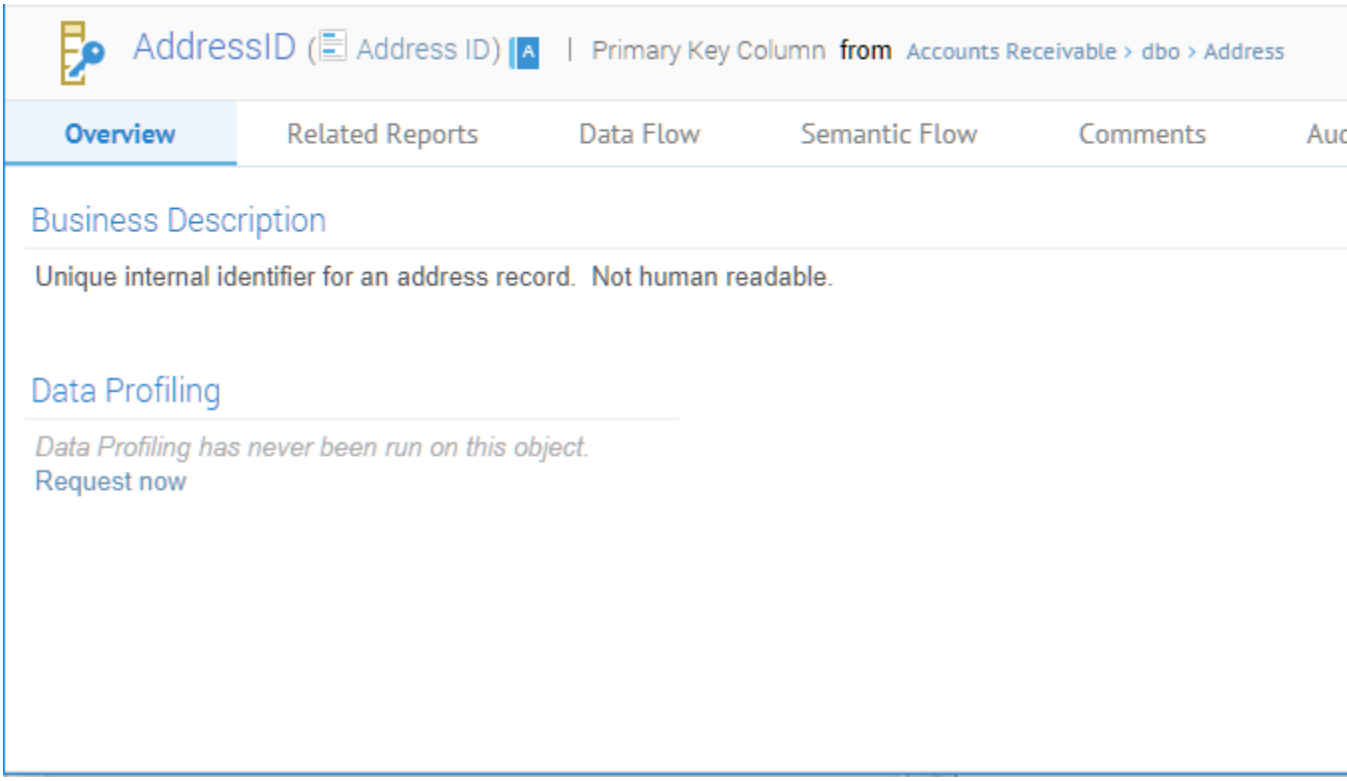
*Note, next to the **Business Description** you see **from Address ID**. This text indicates that the value in the **Business Description** is inherited from that term*

*You may edit the **Business Description** in place. In this case, the term **Description** is replaced by a local **Business Description**.*

Go ahead and edit the Business Description.



And press the checkmark.



And the Business Description is updated.

*You no longer see **from Address ID** next to the **Business Description**. This indicates that the value in the **Business Description** is no longer inherited from that term*

Semantic Flow Tab and Inferred Business Name and Description

Inferred semantic relationships and definitions

In this scenario you will work with inferred semantic relationships for the Business Name and Description.

Steps

From the home page

1. Navigate to the home page for the metadata element you wish to document. Then click the Overview tab.
2. Click the Semantic Flow tab.
3. Click Definition in the Type pull-down in the upper right.
4. If the metadata element you are on is not yet classified, you may click the Classify button to classify with a term
5. If there is a semantic mapping defined from another model to the model that this metadata element you are is in, then you may click the Map button to create a semantic link from a metadata element in that other model and this one.
6. Click the List tab on the left. You may see a number of items in the list. You may do the following here
7. Click Classify to directly classify the metadata element with a term
8. Click Map (if there is a semantic mapping defined to this model) to semantically map the metadata element
9. Click an item in the list and you may:
    - Classify/Un-Classify
    - Map/Un-Map
    - Standard action icons for lineage, etc.

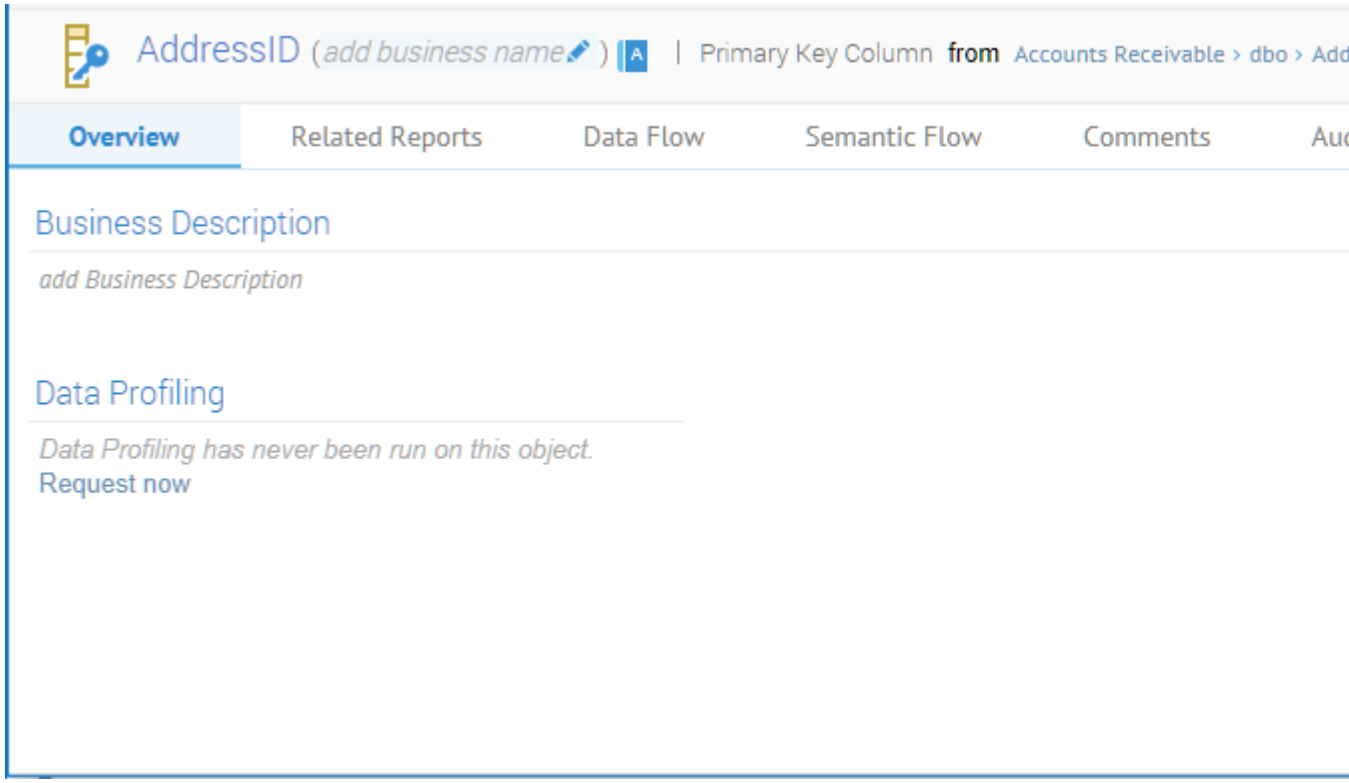
The items in the list are all the:

- ***Classifications*** *(terminology)*
- ***(semantically) Mapped*** *either term from other business glossaries or logical metadata element from logical or conceptual model*
- ***Inferred*** *semantic definitions which are Example*

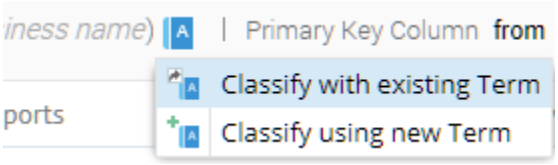
These items are used to infer the ***Business Description****. The order of priority is* ***Classified*** *then* ***Mapped*** *then* ***Inferred****.*

Example

Navigate to the home page for the column AddressID in the Address table of the Accounts Receivable model.

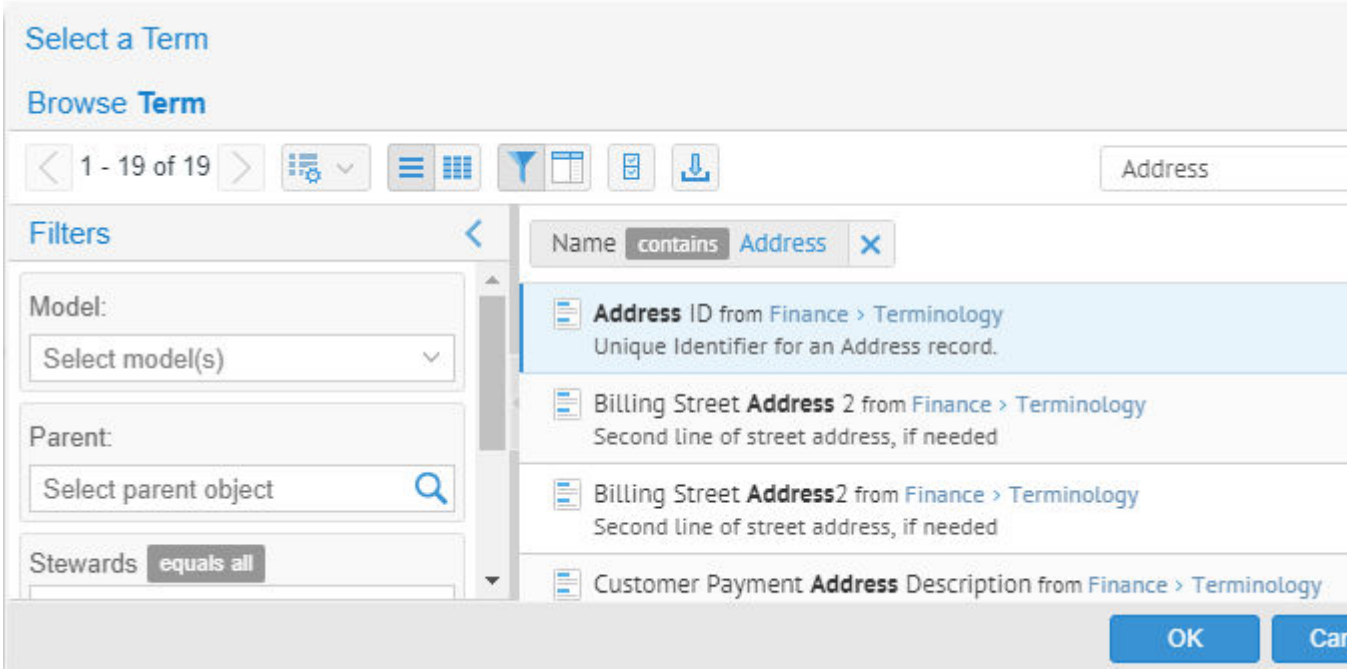


Click the Business Glossary action icon and select Classify with existing Term.

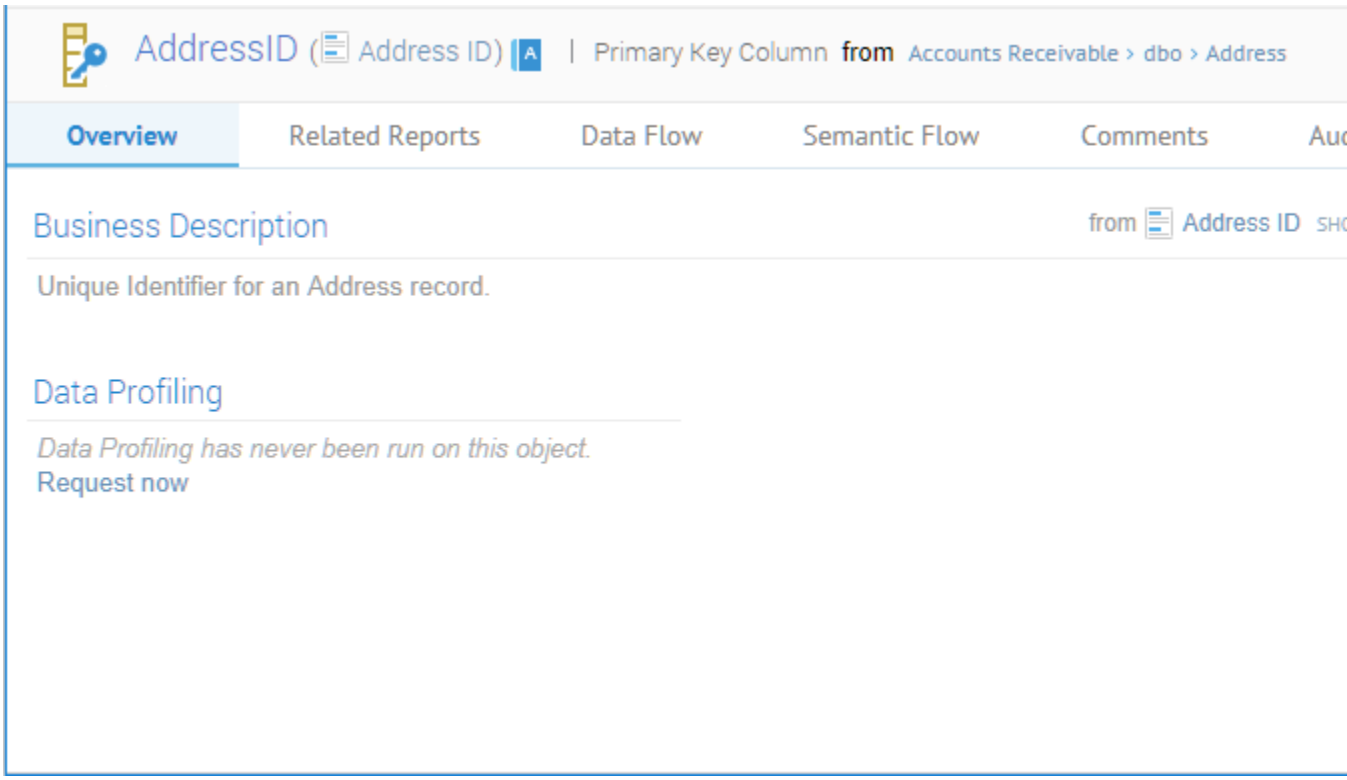


Oracle Metadata Management (OMM) automatically searched for AddressID but found no results so you should remove that search filter before looking for you term.

Remove the current search filter and search for “Address”.



Select the term Address ID and click OK.



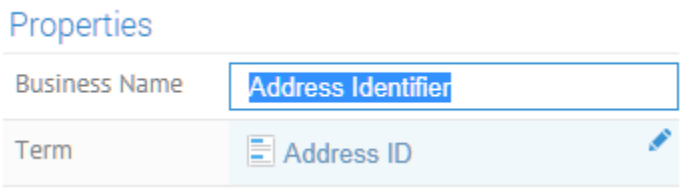
The Name and Business Description are now inherited from the term.

You may remove this inheritance and the classification by again clicking the Business Glossary action icon and selecting ***Un-Classify****.*

Even with this inheritance, you may edit the Business Name and Description later.

You may update the ***Business Name*** *manually, but you do so in the* ***Properties*** *section of the home page. The name in the upper left is the Name of the term and clicking there will open the home page for that term.*

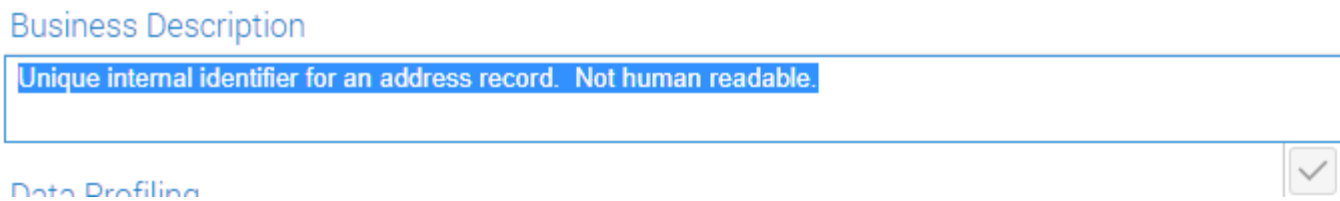
Go ahead and edit the Business Name.



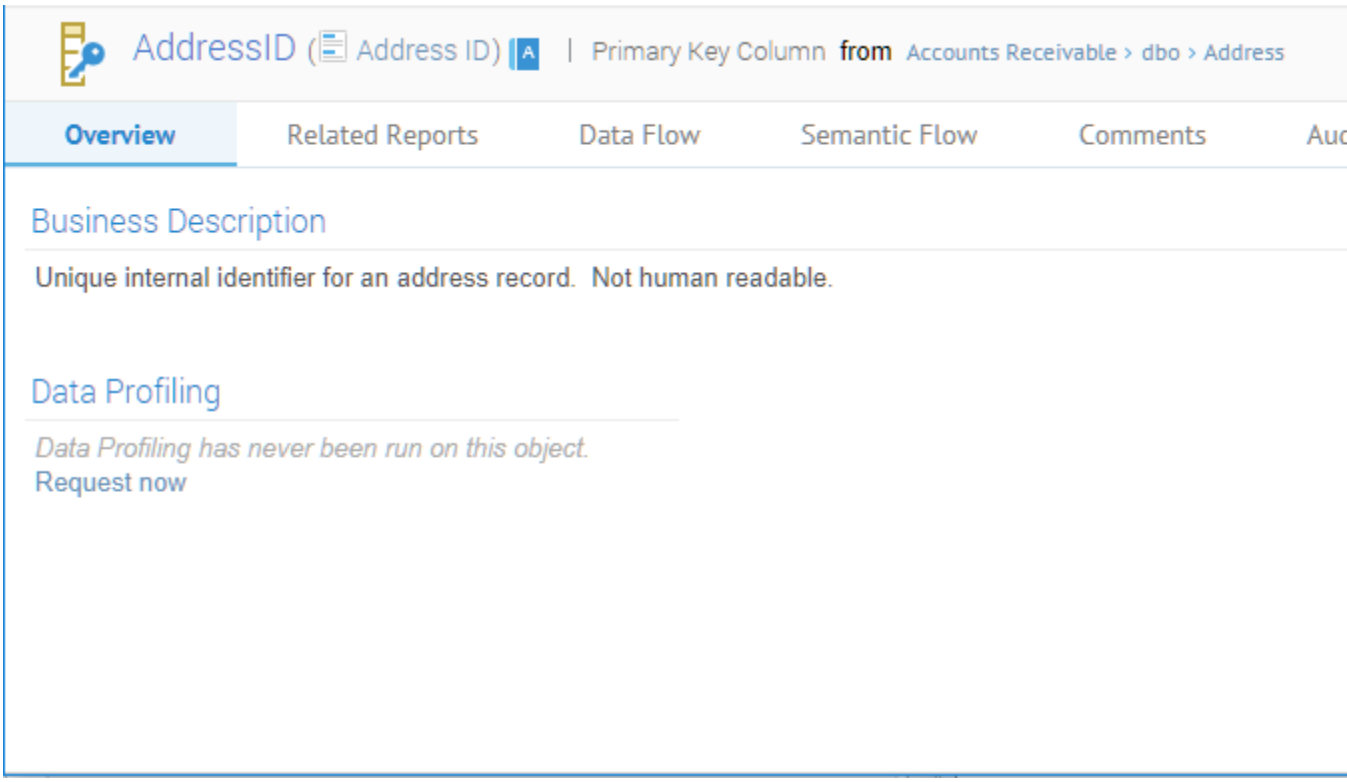
Note, next to the ***Business Description*** *you see* ***from Address ID****. This text indicates that the value in the* ***Business Description*** *is inherited from that term*

You may edit the ***Business Description*** *in place. In this case, the term* ***Description*** *is replaced by a local* ***Business Description****.*

Go ahead and edit the Business Description.



And press the checkmark.



And the **Business Description** is updated.

*You no longer see **from Address ID** next to the **Business Description**. This indicates that the value in the **Business Description** is no longer inherited from that term*

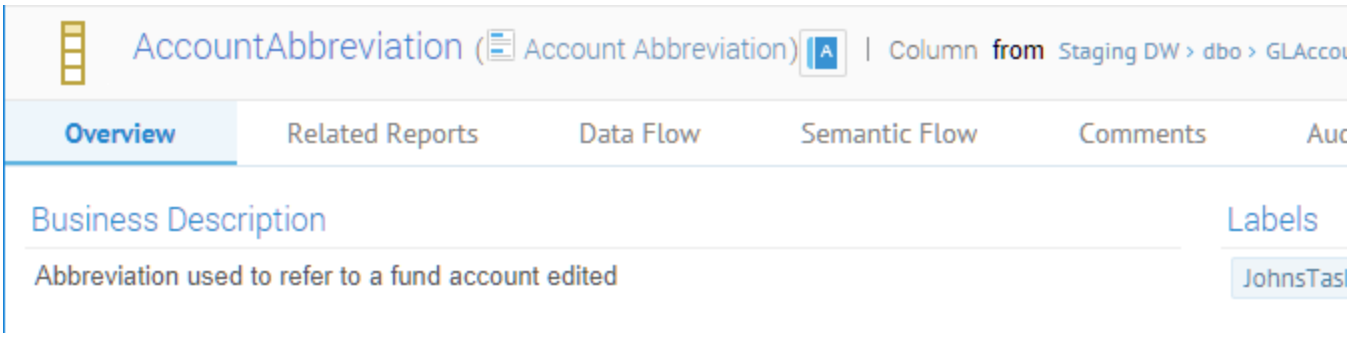
Social Curation

You may certify, Endorse or provide warnings on metadata elements and relationships among them. For metadata elements you may do so on that element's home page.

Steps

1. Navigate to the home page for the metadata element you wish to curate. You may do so from any tab.
2. Click on **Certify**, **Endorse** or **Warn**.

Example

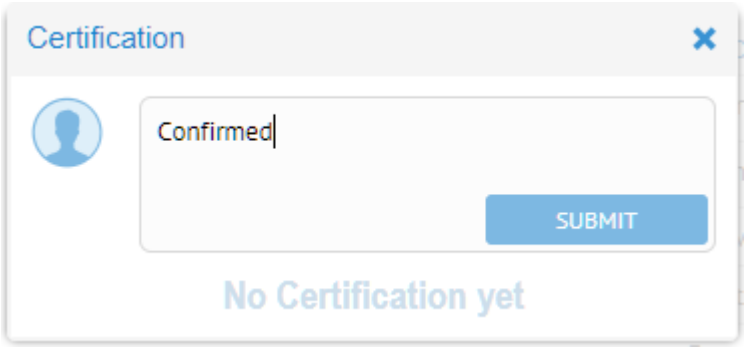


Certify

Click  **Certify**.

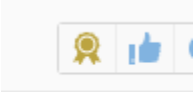
You must have the Steward assignment on the model containing this metadata element to *Certify*.

You then may document the certification action.



Click Submit, and close the dialog.

The metadata element is certified.

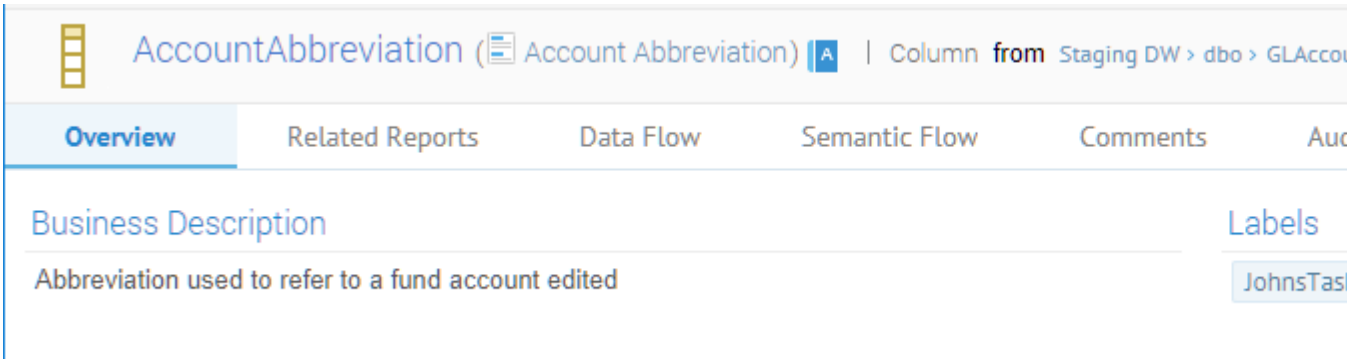


Endorse

Click  Endorse.

*Anyone may **Endorse**.*

You then may document the certification action.



Note the 1 next to the Endorse action icon. This tallies the number of endorsements.

Explore Further

Relationships among tables

One may also curate relationships by navigating to the home page for one of the tables (classifier level object, such as tables, flat files, entities, views, etc.) involved in the relationship. More details here.

Relationship Discovery and Curation

One may also curate relationships by navigating to the home page for one of the tables (classifier level object, such as tables, flat files, entities, views, etc.) involved in the relationship. More details here.

Active Data Cataloging

Oracle Metadata Management (OMM) may be used as an active data catalog, providing:

Active Data Catalog Feature	Description	Access Method
Publishing platform	All features identified in this user	Web based HTML

	guide	
Programmatic (API) based access to all cataloged metadata	Ability for other software and systems to: • Lookup definitions • Search for [metadata Elements] including terminology • Report on cataloged metadata • Retrieve lineage	Oracle Metadata Management (OMM) RESTful API (See separate user guide)
Export Business Glossary	Export terminology and inter-relationships within a business glossary	• UI and invoked from RESTful API • CSV format export
Export results of search and browse	Export the results of a search or browse	• UI and invoked from RESTful API • CSV format export
Export semantic mapping	Export semantic links in a given semantic mapping	• UI and invoked from RESTful API • CSV format export
Export data mapping	Export data mapping, including source and target definitions, mapping specs, joins, lookups, filters, documentation of all elements and mappings, etc.	• UI and invoked from RESTful API • Microsoft Excel metadata format • Data integration tool native format
Export to metadata target tool	From data store models, etc., can export the documentation, relationships, etc. to other business intelligence, data modeling, data virtualization, etc. tools	• UI and invoked from RESTful AP • Target tool native format

Semantic Mapping and Linking

Semantic mapping and linking involves creating links between metadata elements. In general, such semantic links describe a relationship between something that is:

- more general to something more specific, e.g., from a term “Quarterly Profit” to a field on a report named “Regional Quarterly Profit”
- from design to implementation, e.g., from an entity in a logical model to a table in a database that implements that logical model
- from a term in the business glossary to a field in the data lake.

In this way, you may trace linage both

- Semantic Usage: From the more general or design to the more specific or implemented (down)

- Semantic Definition: From an implementation or specific metadata element to its design or defining term (up).

Oracle Metadata Management (OMM) allows for two types of semantic linking:

Semantic Link Type	Description	Implementation
Classification	Links from a term to another metadata element, often a column or table in a database or field in a file in the data lake or on a report	Internally managed (imbedded) links
Mapping	General purpose semantic links used for all three use cases: • More general to more specific • Design to implementation • Defining term to defined element. While this activity should be associate with classification, if the defining object is not in a Glossary but in some other type of content, then one should use a semantic mapping.	Explicitly defined Semantic Mapping contents

This section deals with the second type: Semantic Mapping based links.

Create a Semantic Mapping

Steps

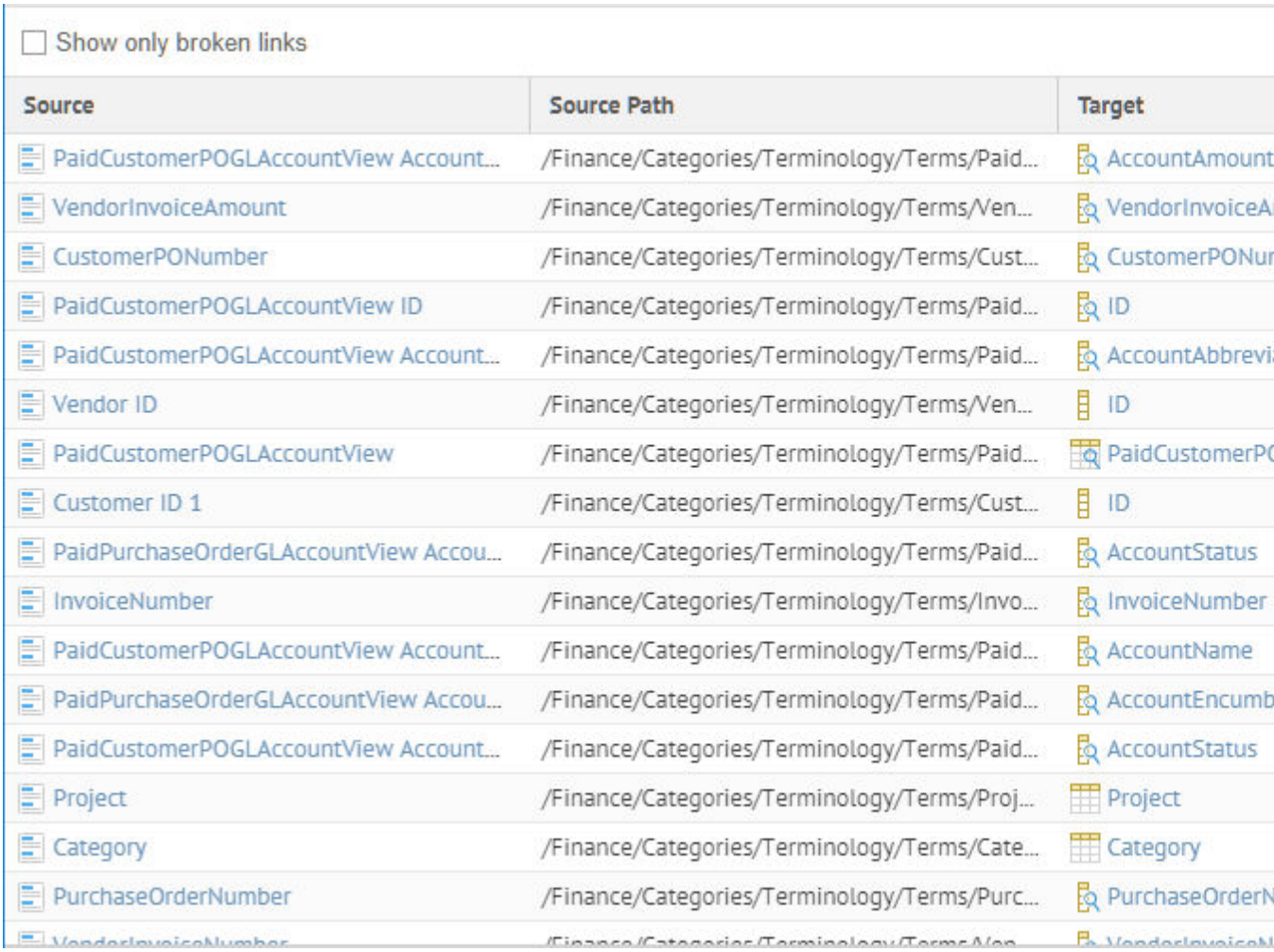
1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the configuration you are in.
2. Go to the MANAGE > Contents in the banner.
3. Click the plus sign under Manage Contents and select Glossary.
4. Enter a Name and Description
5. Pick a Source Content which is the more general, more abstract, defining or design model in the mapping
6. Pick a Target Content which is the more specific, less abstract, defined or implementation model in the mapping
7. Click OK to create the semantic mapping.

The semantic mapping is treated just like another content of the repository.

Within the Metadata Explorer UI you may view the mapping, but you edit the mapping from the homepages of the particular elements in the source or target model.

View a Semantic Mapping

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the **view** security role on the semantic mapping you are interested in
2. Go to the **MANAGE** > **Contents** in the banner.
3. Select the semantic mapping you wish to view.
4. Click **Open**.



*For diagnostic purposes you may click the **Show only broken links**.*

Linking a Metadata Element

Within the Metadata Explorer UI you may map a particular metadata element from the Semantic Flow tab on its home page. This action may be completed from the home page of either the source element (usage) or the target element (definition).

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the editor security role on the semantic mapping you are interested in. If you must create a new semantic mapping you must have the manager security role on the configuration you are in.
2. Navigate to the home page for the metadata element you wish to define a link.

It is a strategic decision as to which end of the semantic mapping to start from. If your intention is to identify a group of database columns that should be defined, you generally will start from those elements' home pages. However, if your task is to work with a set of objects in a logical model and link them to their proper columns in a database, then one would start from the home pages of the source (logical) objects.

3. Click the Semantic Flow tab.

Again, depending upon the strategic decision above, you must specify the semantic direction you wish to create links in

4. Click either Definition or Usage in the Type pull-down in the upper right.

You will see the Map button ONLY if you have already defined a semantic mapping which either has a source (when of type Usage) or destination (when of type Definition) content that contains this metadata element you are on the home page of.

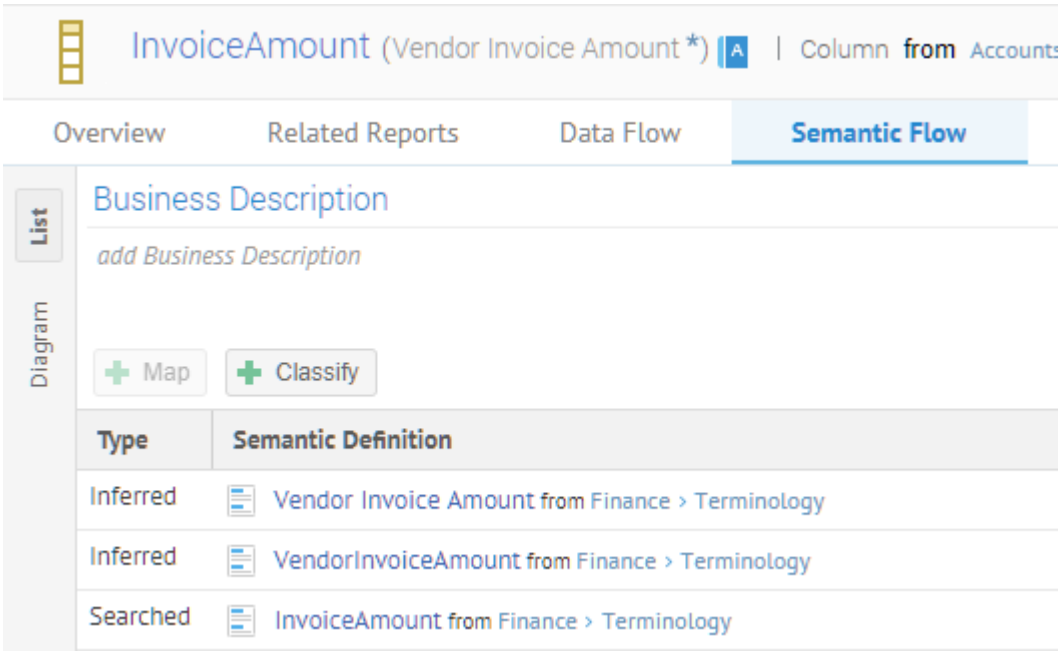
5. Click the Map button to create a semantic link from a metadata element in that other model and this one.

Example

Defining an element with a semantic mapping

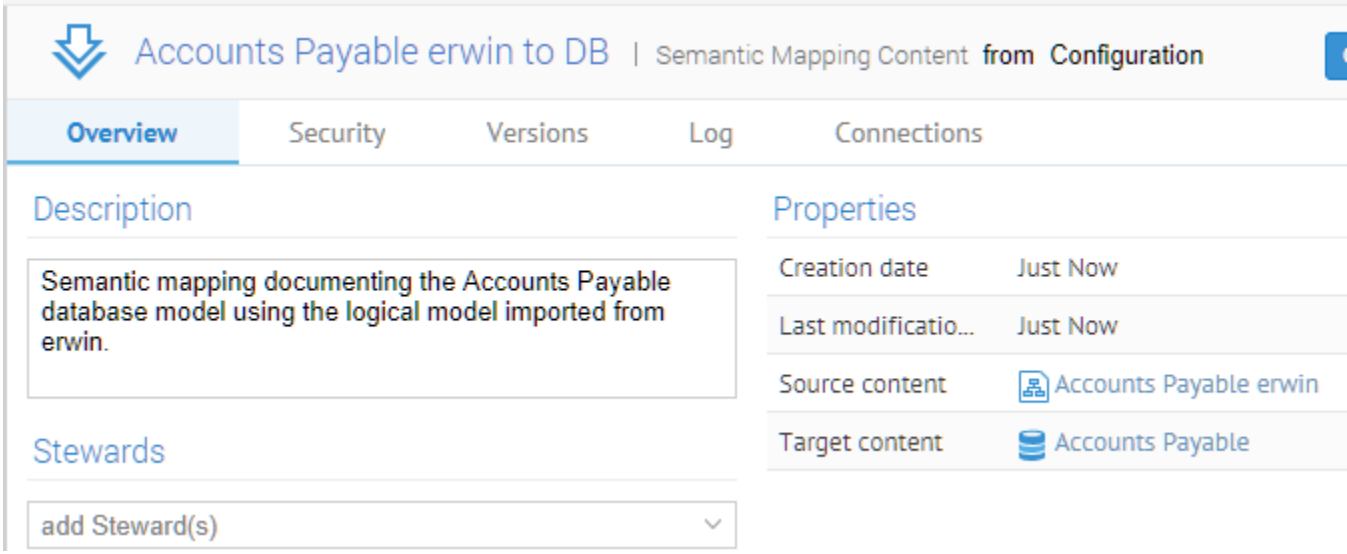
We are going to provide definitions for the columns in the Accounts Payable model. So, navigate the home page for the Invoice table in the Accounts Payable model (database), and then to the InvoiceAmount column.

Click the Semantic Flow tab, click the List tab and be sure to choose Definition in the Type pull-down in the upper right.

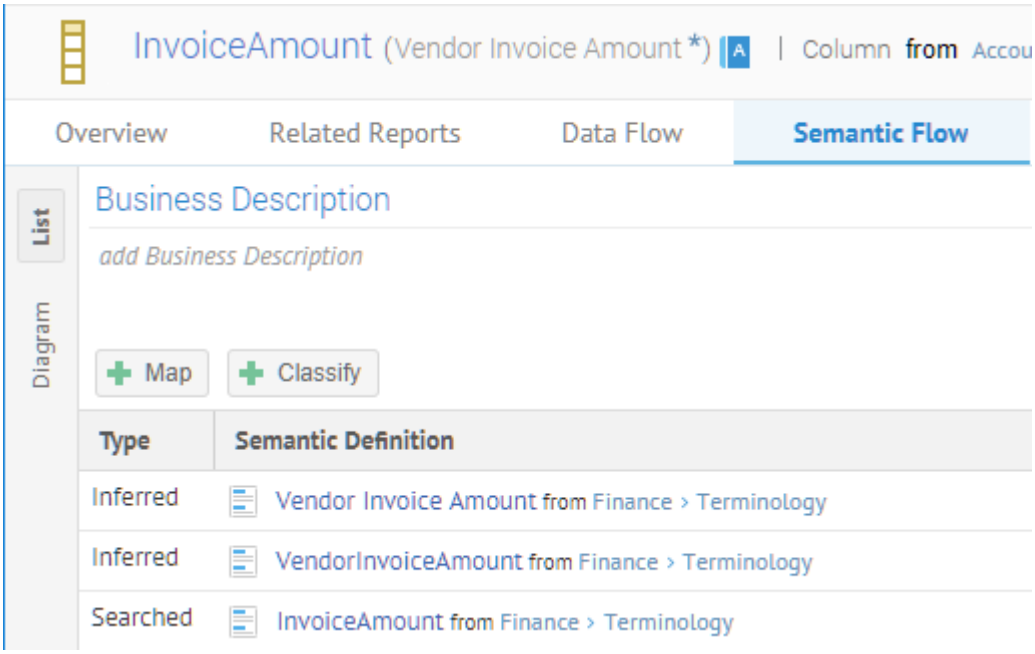


The Map button is disabled. This is because there is no semantic mapping defined between another model and this one.

Create a mapping between the Accounts Payable erwin model (source logical model) and the Accounts Payable database harvested model (target database) in MANAGE > Contents.



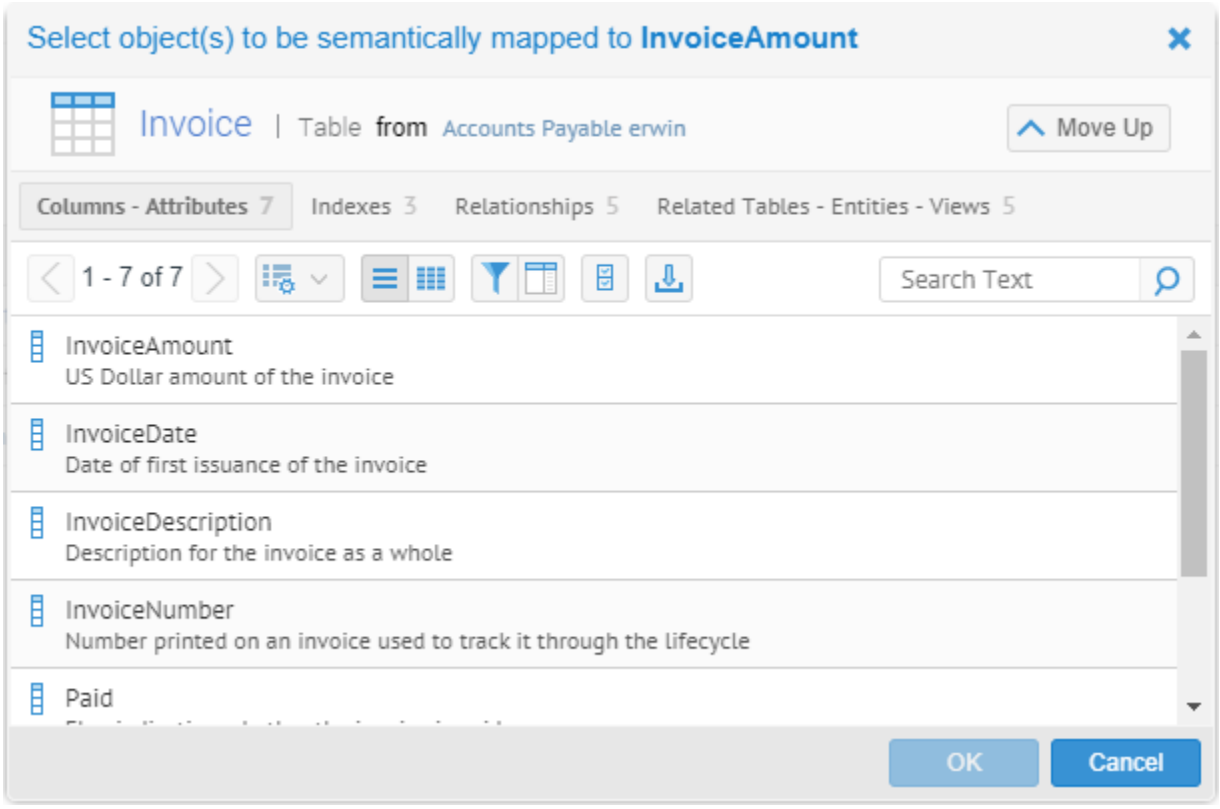
Then, refresh your browser and returning to the Invoice Amount home page and the Semantic Flow tab, we see the Map button.



There are already several inferred and searched semantic definitions found (based upon semantic and data flow traces). For more details, see semantic definition lookup and examples. Using those links you may pick one of those definitions by classifying. Our goal here, however, is to use the erwin based model for definitions. As you can see, this is a somewhat unusual, and counter-intuitive approach, and you would only use mappings instead of classification (imbedded links) in special circumstances.

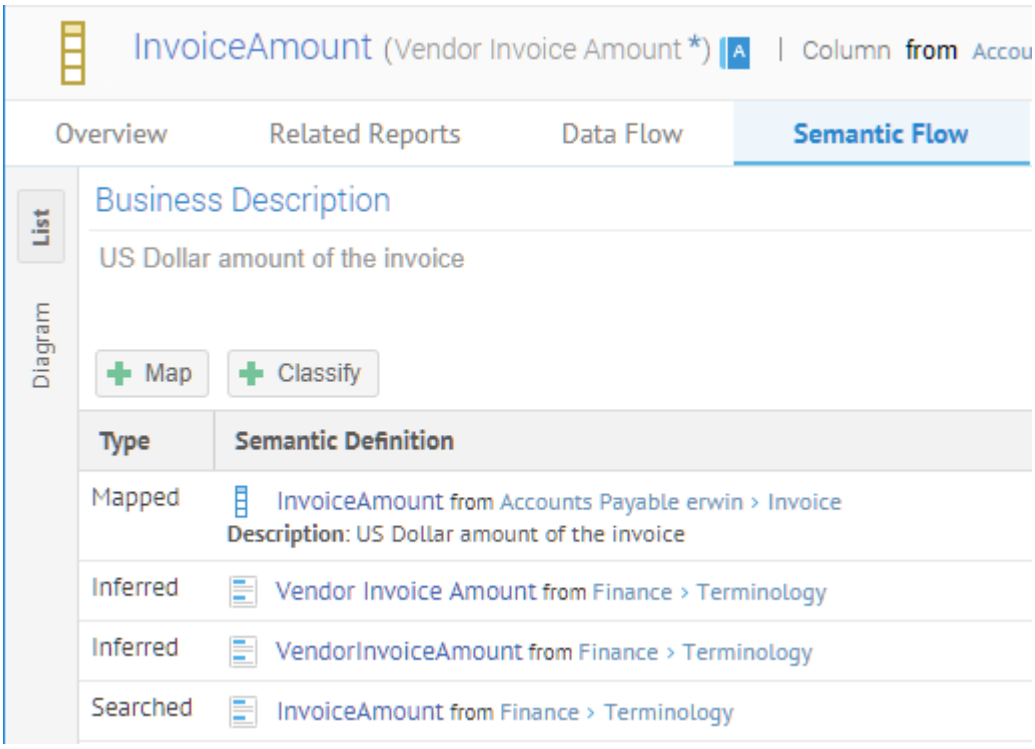
Also, the Business Name is derived from one of these links but the Business Description is not.

Click **Map**



*The list shows all the tables that are currently a part of the only model that has a mapping to this one is the one you just created (**Accounts Payable erwin to DB**).*

Double-click **Invoice** and then select **Invoice Amount** from the list. Click **OK**.



Note the Business Description and Business Name are now derived from this new mapping.

Importing a Semantic Mapping

You may import a semantic mapping from CSV file in a specific format defined for Oracle Metadata Management (OMM).

Steps

1. Be sure you already have created a semantic mapping.
2. Sign in to Oracle Metadata Management (OMM) as a user with Metadata Manager UI privileges and with at least the editor security role on the semantic mapping.
3. Go to the Metadata Manager UI.
4. Right click on the semantic mapping of interest in the Repository Panel and select Open.
5. Click on the More Action icon in the upper right and select “Import from CSV file”.
6. Browse for the actual file to import from.
7. Click Import.

To see the format for this file, simply Export a subset of an existing semantic mapping.

Exporting a Semantic Mapping

You may import a semantic mapping from CSV file in a specific format defined for Oracle Metadata Management (OMM).

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with Metadata Manager UI privileges and with at least the viewer security role on the semantic mapping.
2. Go to the Metadata Manager UI.
3. Right click on the semantic mapping of interest in the Repository Panel and select Open.
4. Click on the More Action icon in the upper right and select "Export to CSV file".
5. Enter the file path name to export to.
6. Click Export.

Data Mappings

Some data flow processes are not harvestable using the bridges provided as a part of the Metadata Import/Export tool suite. Of course, if these processed are not modeled in Oracle Metadata Management (OMM), it will leave gaps in the lineage and impact analysis answers and provide an incomplete picture of the physical architecture of your systems.

In order to address these gaps and produce proper lineage and impact results, Oracle Metadata Management (OMM) has a [data mapping] editing and management toolset. Data mappings] are essentially simply high-level logical (or notional) definitions of the way data "flows" from some number of source models into elements of a target model. These mappings are specified using a simple web based drag and drop type mapping specification editor and are defined using descriptive text and one may also define pseudo operations using an operation editor.

The data mapping forms a content within Oracle Metadata Management (OMM) which defines mappings between source and target data stores. The data stores themselves are modeled separately as model contents within Oracle Metadata Management (OMM) but external to the data mapping.

A data mapping content may contain many (any number of) mappings.

There are two types of mappings which a data mapping might contain:

- Query mapping - is most flexible and you define a column by column mapping definition for all the columns in the target table. They may include joins, filters, transformations, etc. Each query mapping is defined for one target classifier.
- Bulk mapping - is assumed to be for source and target tables which have matching columns names or positions. You may certainly define filters, but the mappings at the column level are simple and name or position matching. Each bulk mapping is defined for one target schema and one source schema.

When defining a query mapping, the target classifier my come from any data store model defined in the configuration. Sources too may come from any data store model(s), and as you may have many source classifiers, they could come from multiple source contents in the same mapping.

In addition to defining mapping specifications, the data mapping allows you to define all the physical data integration constructs, including joins, filters, transformation operations, etc., which may even be forward engineered into data integration tools.

Finally, the data mapper is round-trip compatible with the Excel metadata format that is defined and provided as part of the delivery of Oracle Metadata Management (OMM). In this way, you may export to this format for reporting purposed, or edit and re-import to a mapping.

Create a Data Mapping

A data mapping content may contain many (any number of) mappings. You may also create a hierarchy of folders that each may contain any number of mappings.

Steps

Ensure proper permissions

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the Configuration you are in.

Create the content

1. Go to the MANAGE > Contents in the banner.
2. Click the plus sign under Manage Contents and select Data Mapping.
3. Enter a Name and Description for the content and click OK.
4. Click Open.

Edit the folder structure

5. You may then click on the Mappings tab to create a new mapping directly at the root of the content or you may click on the Folders tab and create a folder structure.
6. Click the plus sign to add either folders or mappings depending upon which tab you are one. Ultimately, you must click the plus sign on the Mappings tab for the home page of the content or one of its folders to create a mapping.
7. Select Query mapping or Bulk mapping.

A query mapping is one that is most flexible and you define a column by column mapping definition for all the columns in the target table. They may include joins, filters, transformations, etc.

A bulk mapping is one that is assumed to be for source and target tables which have matching columns names or positions. You may certainly define filters, but the mappings at the column level are simple and name or position matching.

8. If a query mapping, you must select the tables you will map to at this time.
9. If a bulk mapping, you specify the target and source schemas later.

Edit a Query Mapping

When defining a query mapping, the target classifier my come from any data store model defined in the configuration. Sources too may come from any data store model(s), and as you may have many source classifiers, they could come from multiple source contents in the same mapping.

In addition to defining mapping specifications, the data mapping allows you to define all the physical data integration constructs, including joins, filters, transformation operations, etc., which may even be forward engineered into data integration tools.

Steps

Ensure proper permissions

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Editor security role on the Data Mapping you are going to edit.

Navigate to the mapping to edit

2. Navigate to the home page for the data mapping content and navigate to the folder if necessary.
3. Click the Mappings tab.
4. Create the query mapping if necessary.
5. Specify the target table(s), mapping Name and Description.
6. Click to open the query mapping.

Assign the source(s)

7. Click Select a source table.
8. Specify filters to narrow down the choices and select a table from the list.
9. Specify as many source tables as needed.

Map

10. Click the Detect Links magic wand to automatically match tables and columns.
11. Click the Joins tab to edit joins.
12. Click the Detect Joins magic want to automatically define joins for the source tables.
13. Click the Filters tab to edit filters.
14. Drag a specific source column to target column to map all the columns.
15. Edit the Operation for a target column, including using the functions editor.

16. Click Save.

Example

Create a new data mapping content

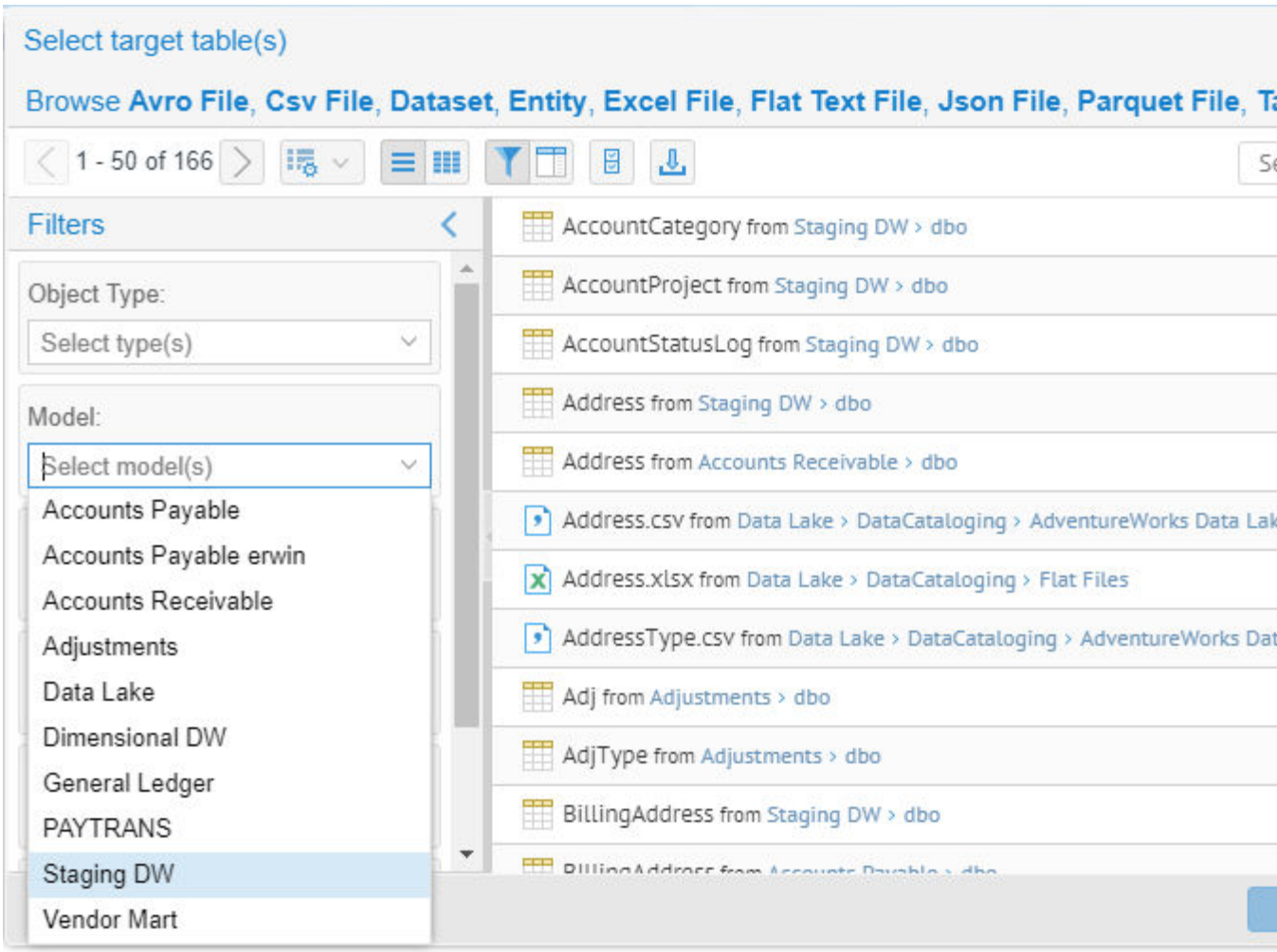
Go to the MANAGE > Contents in the banner. Click the plus sign under Manage Contents and select Data Mapping. Enter a Name and Description for the content and click OK.

Create a query mapping

Click Open. Click the Mappings tab. Click the plus sign  . Specify a Query mapping.

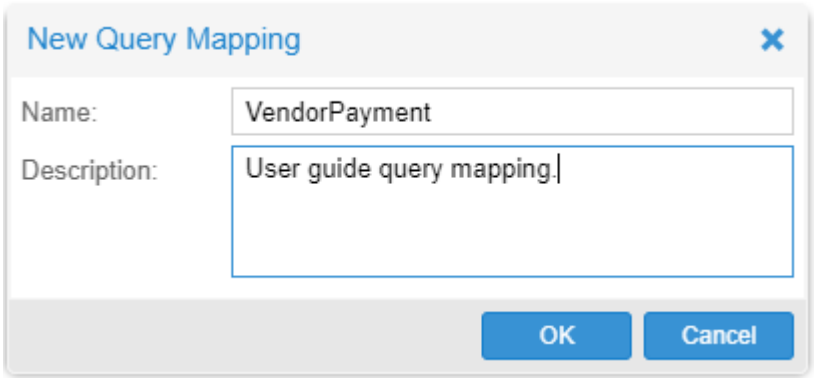
You must specify the target tables up front as that is the scope of the mapping

Filter to the target model (Staging DW).



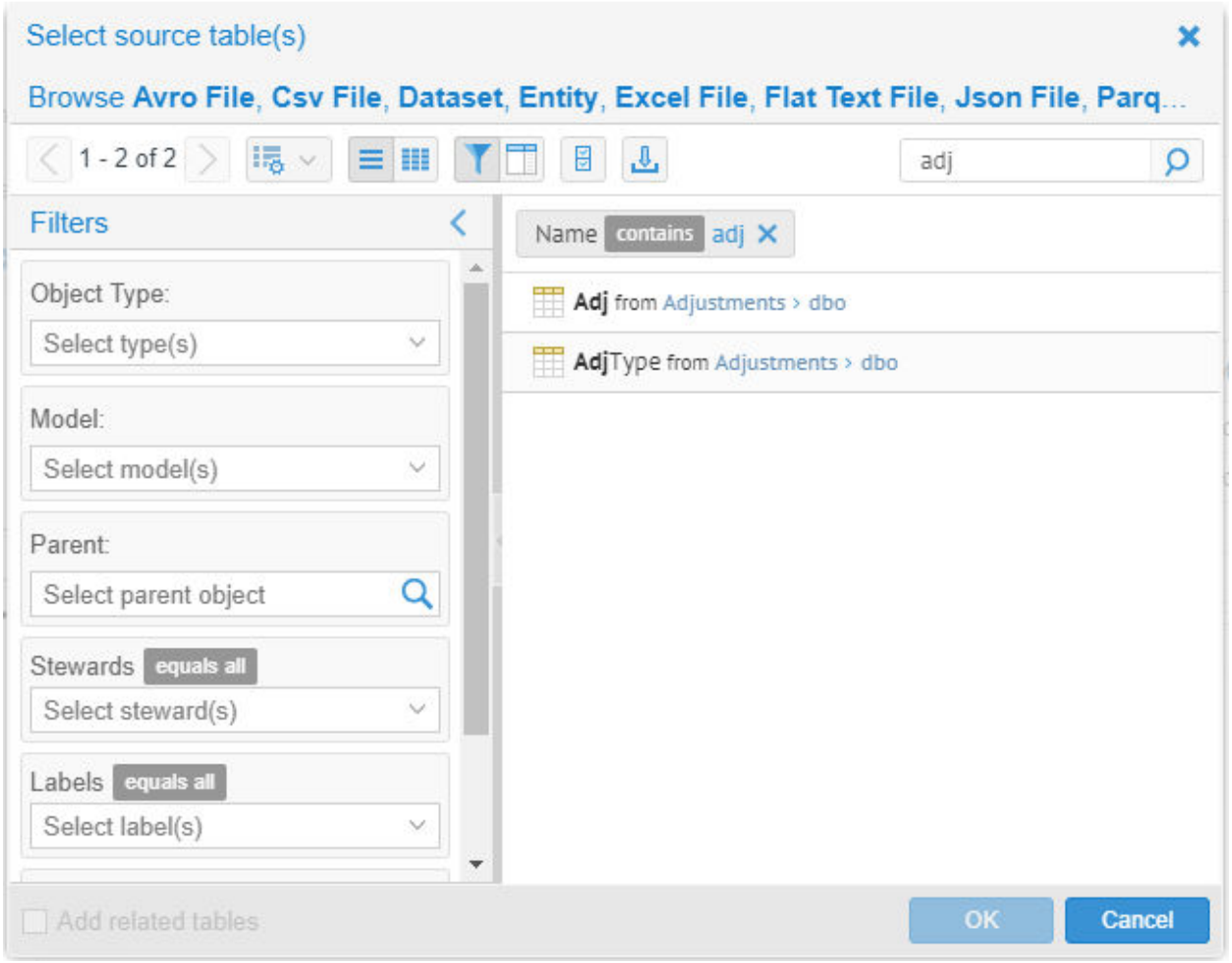
Pick the target table (Vendor Payment).

Enter the **Name** and **Description**.



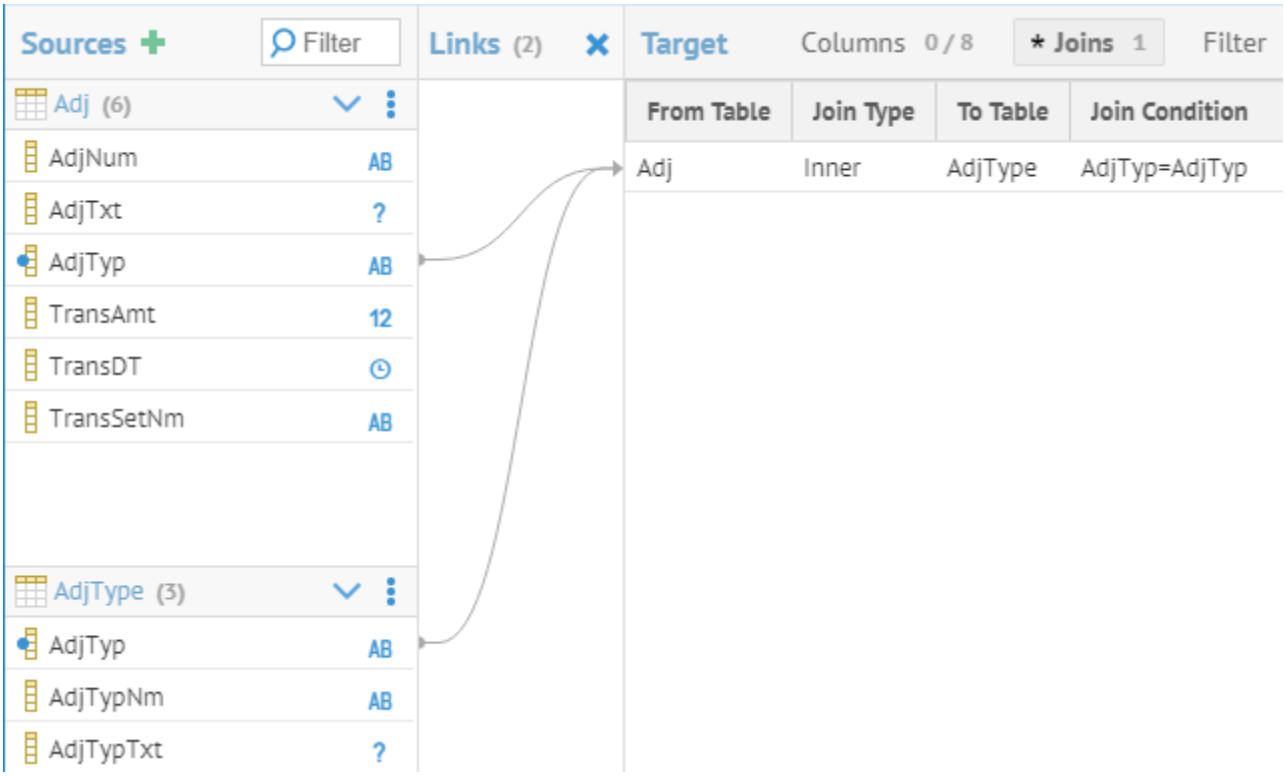
Add sources

Click **Add Source**. Filter to the **Adjustments** model. Select the **Adj** and **AdjType** tables.



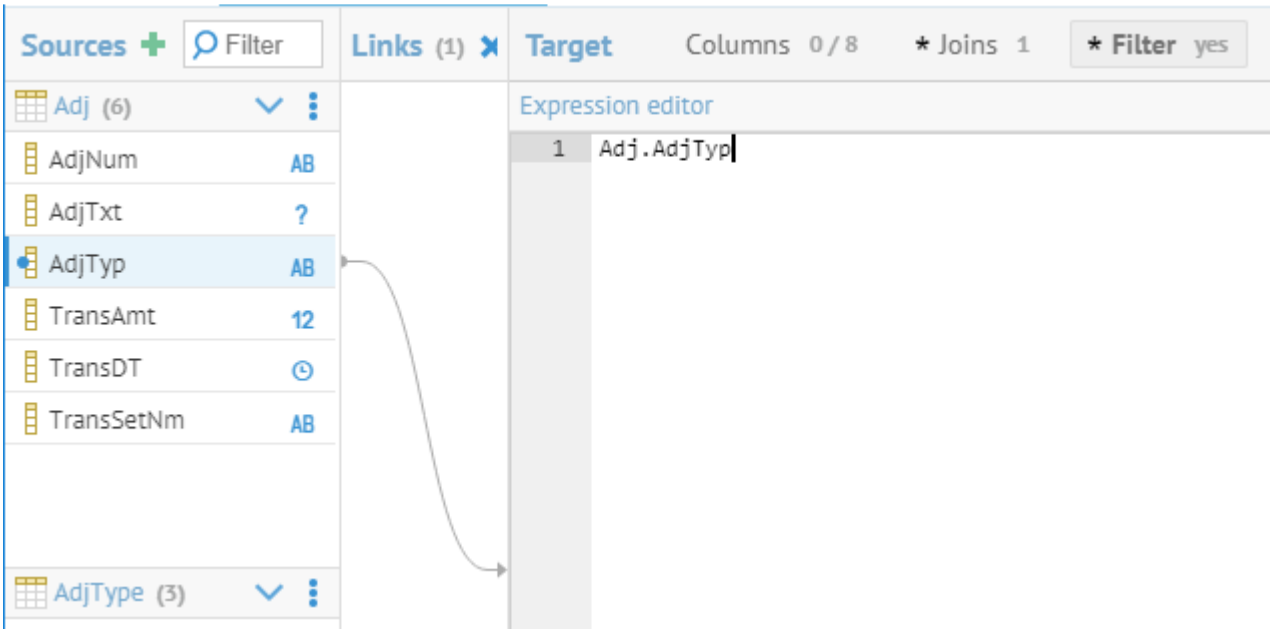
Define Joins

Click the **Joins** tab. Click the Detect Joins magic wand . Click OK to accept the suggestion.

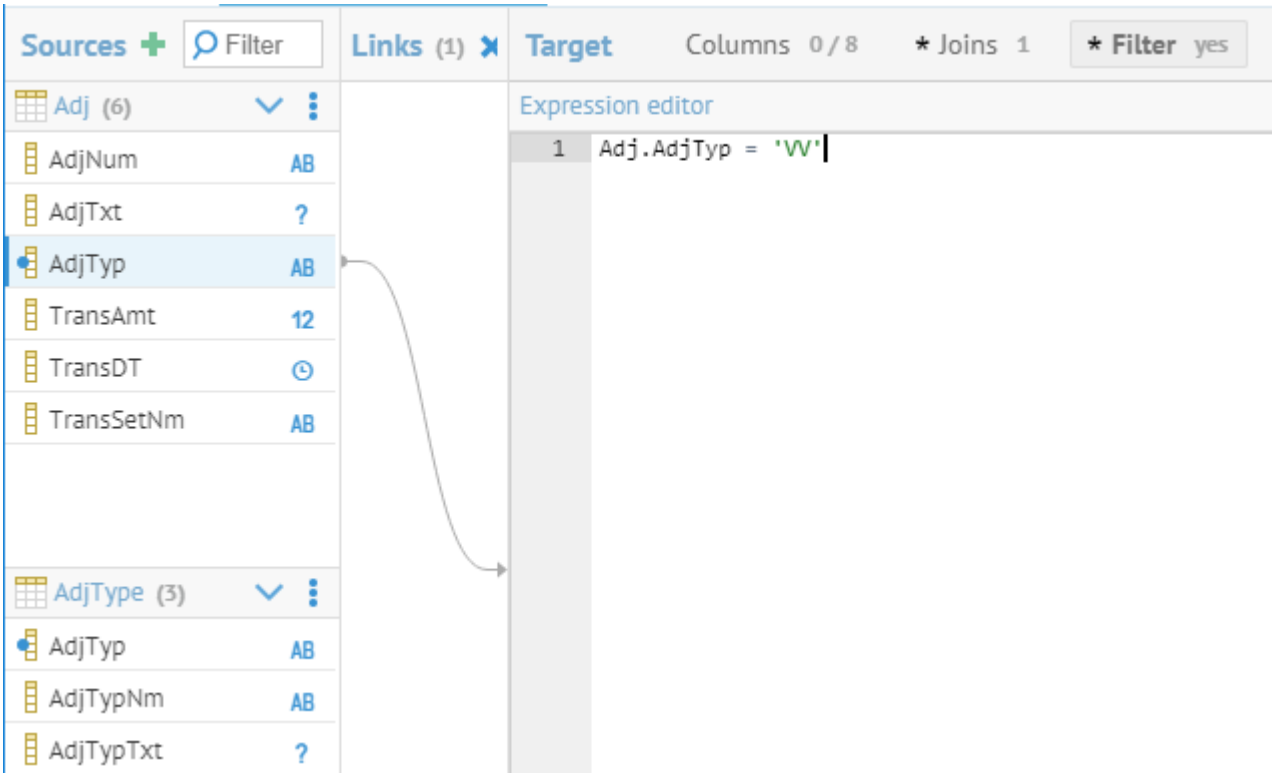


Define filters

Click the **Filters** tab. Drag **AdjTyp** to the expression.



Type “= 'VV'” in the expression.



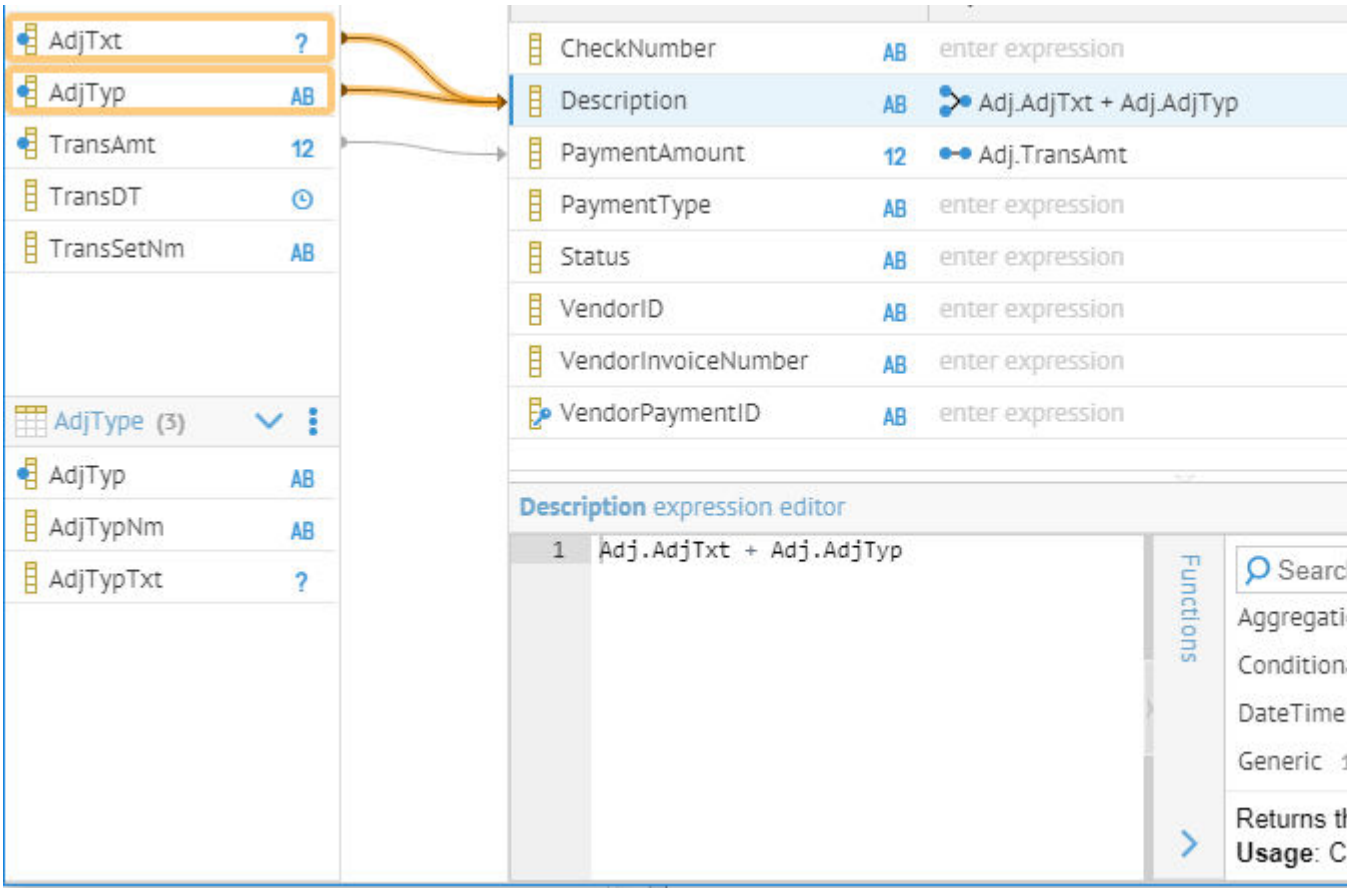
Oracle Metadata Management (OMM) validates the expression as you type, thus, the line disappears until you have a valid expression (finish the last single quote mark).

Define mappings

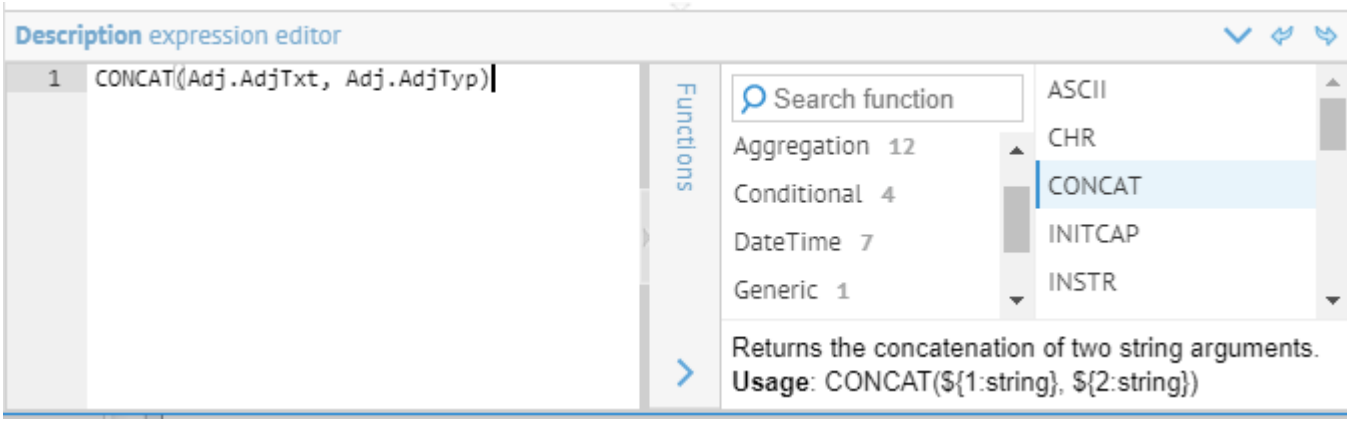
Click the **Columns** tab.

Drag the **Adj.TransAmt** column to the **PaymentAmount** column.

Select both the **Adj.AdjTyp** and **Adj.AdjTxt** columns and drag them to the **Description** column.
Click on the expression and expand the Functions panel at the bottom right.

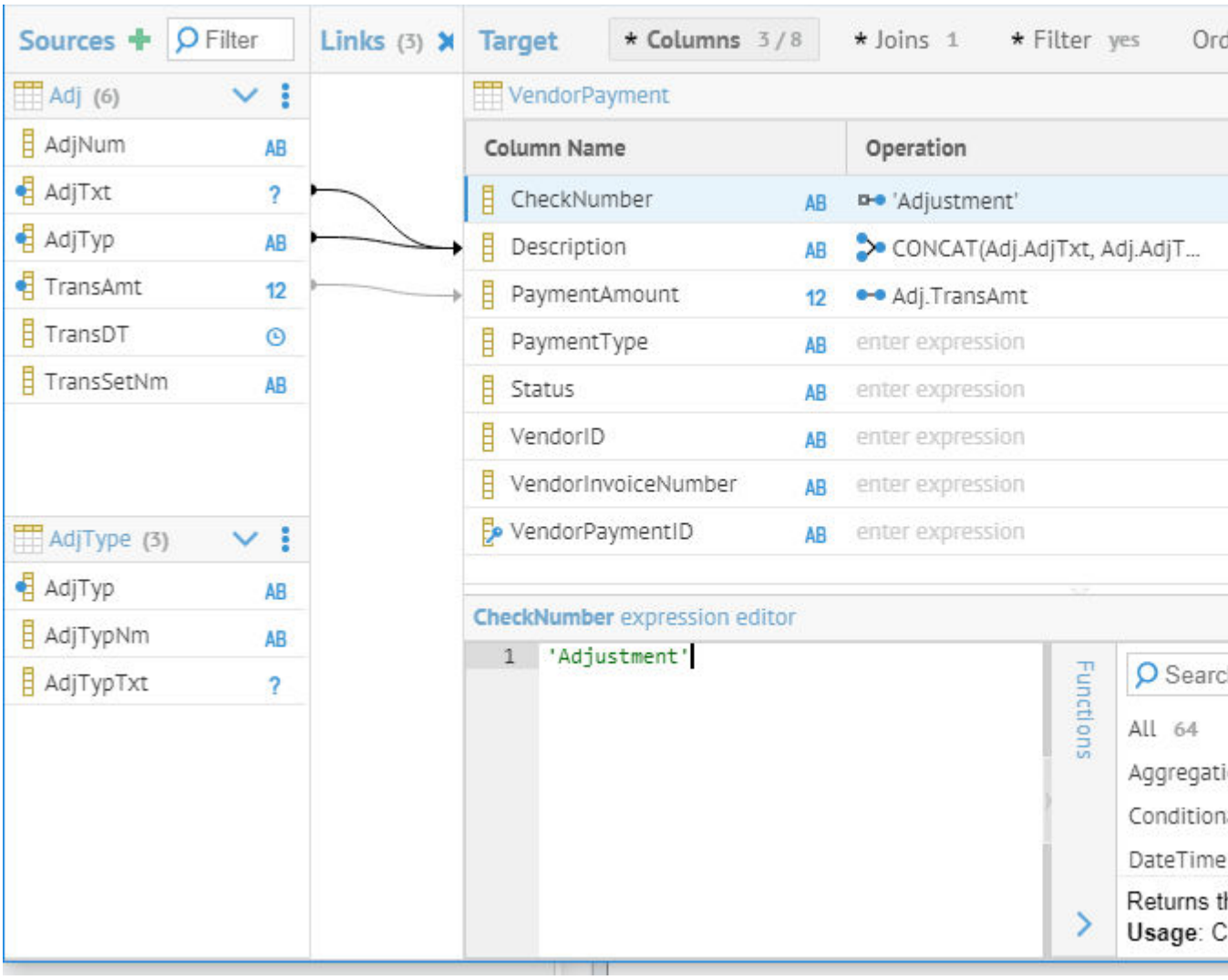


Select String (functions) and then double-click on CONCAT. Edit the expression to be "CONCAT(Adj.AdjTxt, Adj.AdjTyp)".



Again, the mapping lines disappear while the expression is invalid and only reappear when the expression is complete and valid.

Click on the Operation next to CheckNumber. Enter "'Adjustment'" in the expression text below.



Fixed value "mappings" are allowed too.

Click Save.

Edit a Bulk Mapping

A bulk mapping is assumed to be for source and target tables which have matching columns names or positions. You may certainly define filters, but the mappings at the column level are simple and name or position matching. Each bulk mapping is defined for one target schema and one source schema.

Steps

Ensure proper permissions

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Editor security role on the Data Mapping you are going to edit.

Navigate to the mapping to edit

2. Navigate to the home page for the data mapping content and navigate to the folder if necessary.
3. Create the bulk mapping if necessary.
4. Click the Mappings tab.
5. Click to open the bulk mapping.

Assign target and source

6. Click Select a target schema.
7. Specify filters to narrow down the choices and select a schema from the list.
8. Click Select a source schema.
9. Specify filters to narrow down the choices and select a schema from the list.

Map

10. Click the Detect Links magic wand to automatically match tables and columns.

11. Drag a specific source table to target table to map all the columns.
12. Click Save.

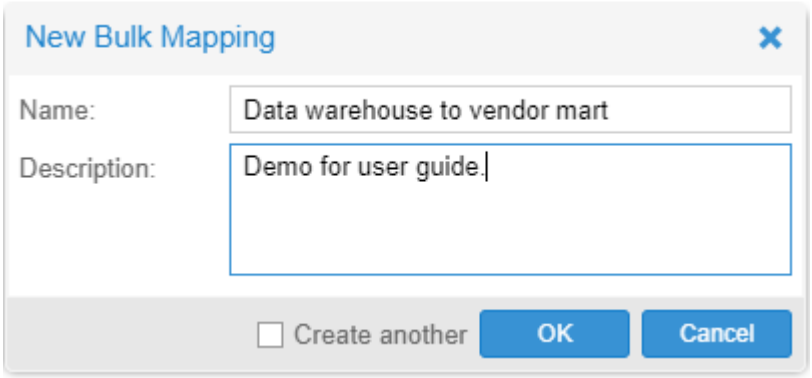
Example

Create a new data mapping content

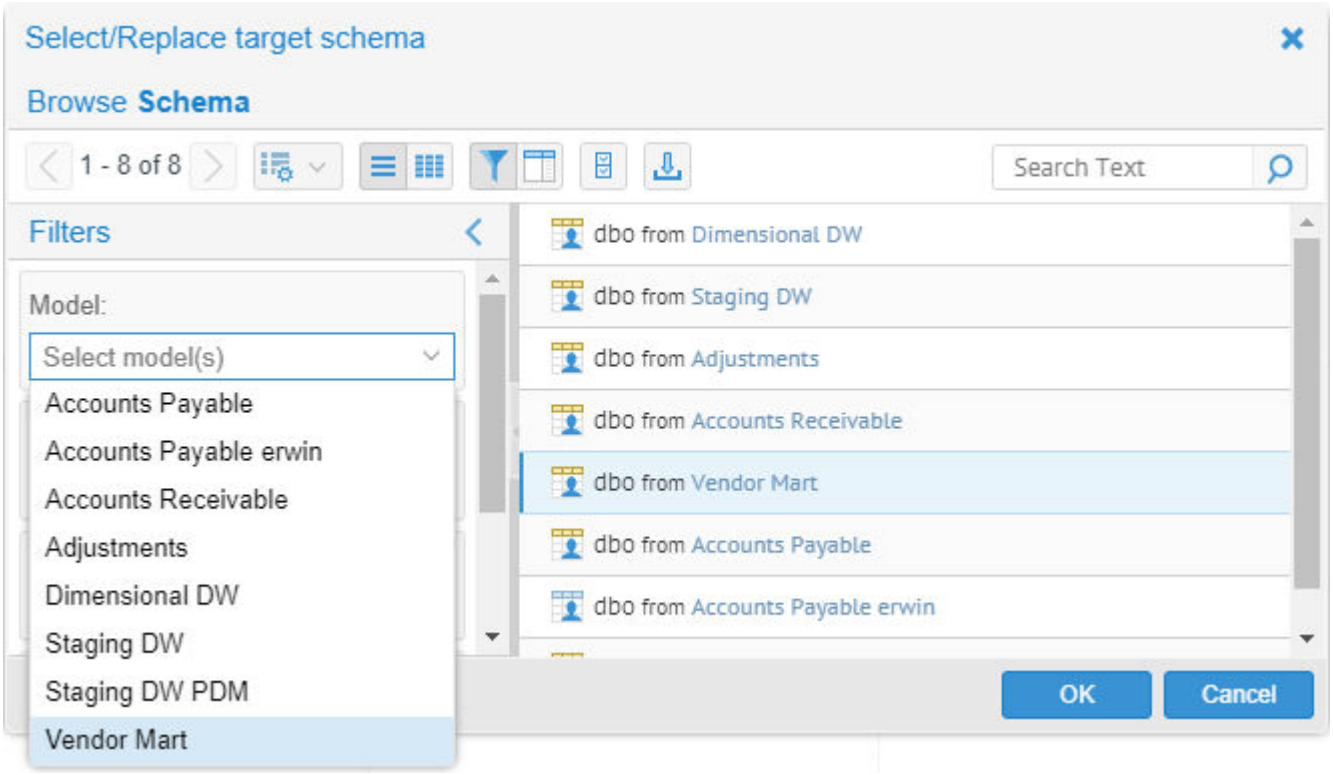
Go to the MANAGE > Contents in the banner. Click the plus sign under Manage Contents and select Data Mapping. Enter a Name and Description for the content and click OK.

Create a bulk mapping

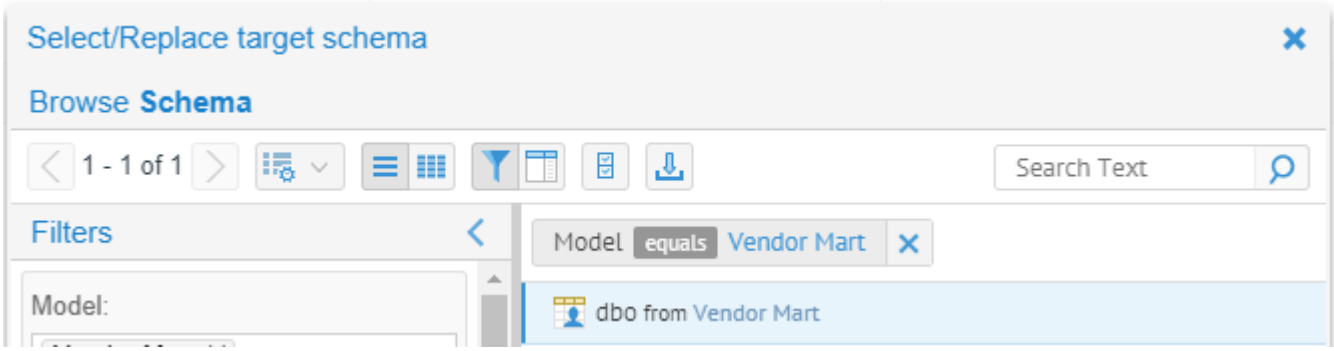
Click Open. Click the Mappings tab. Click the plus sign . Enter the Name and Description.



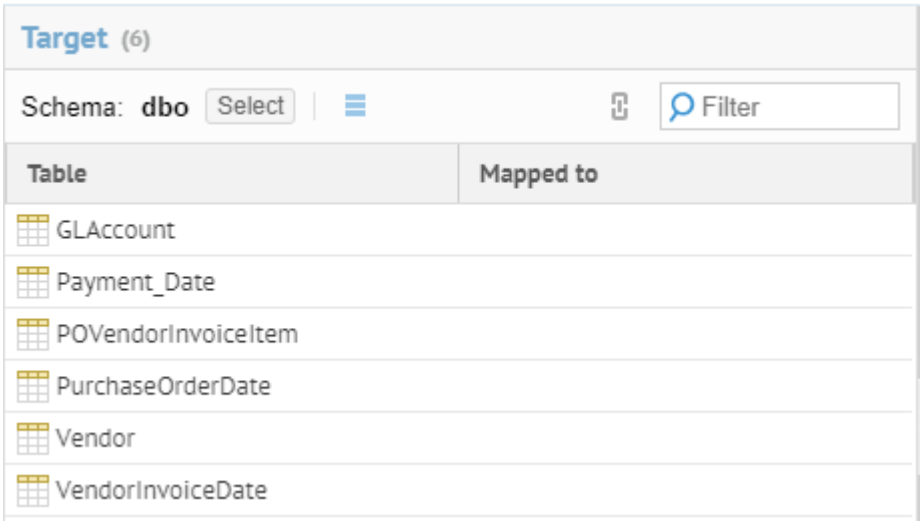
Click the Select button on the target (right-hand) side. Filter to the target data source (Vendor Mart).



Select the dbo schema (the only one now there with the filter).

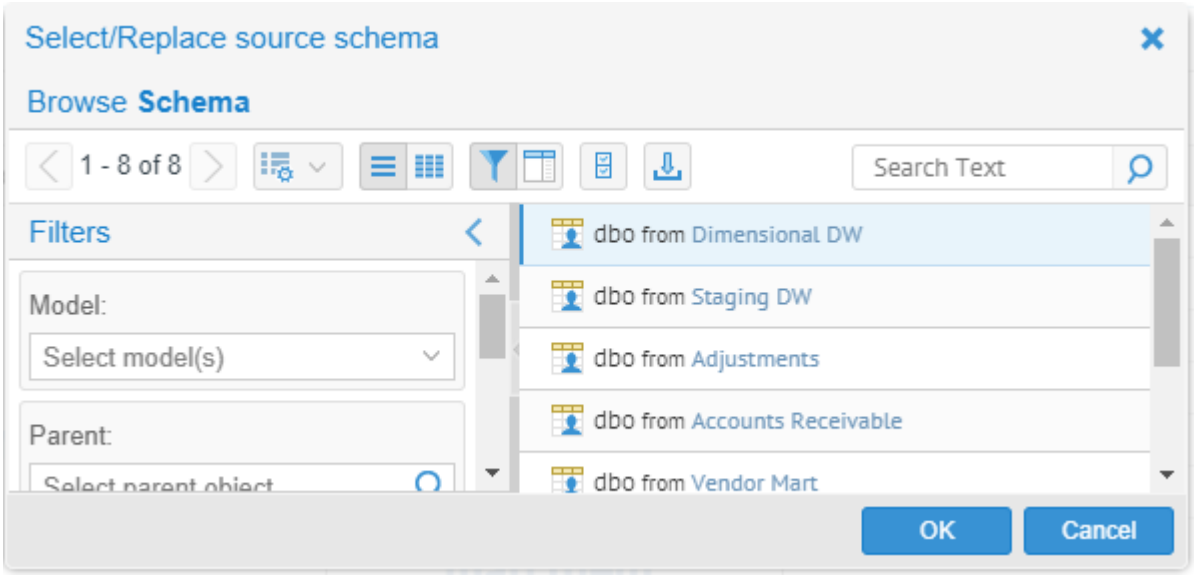


Click OK.

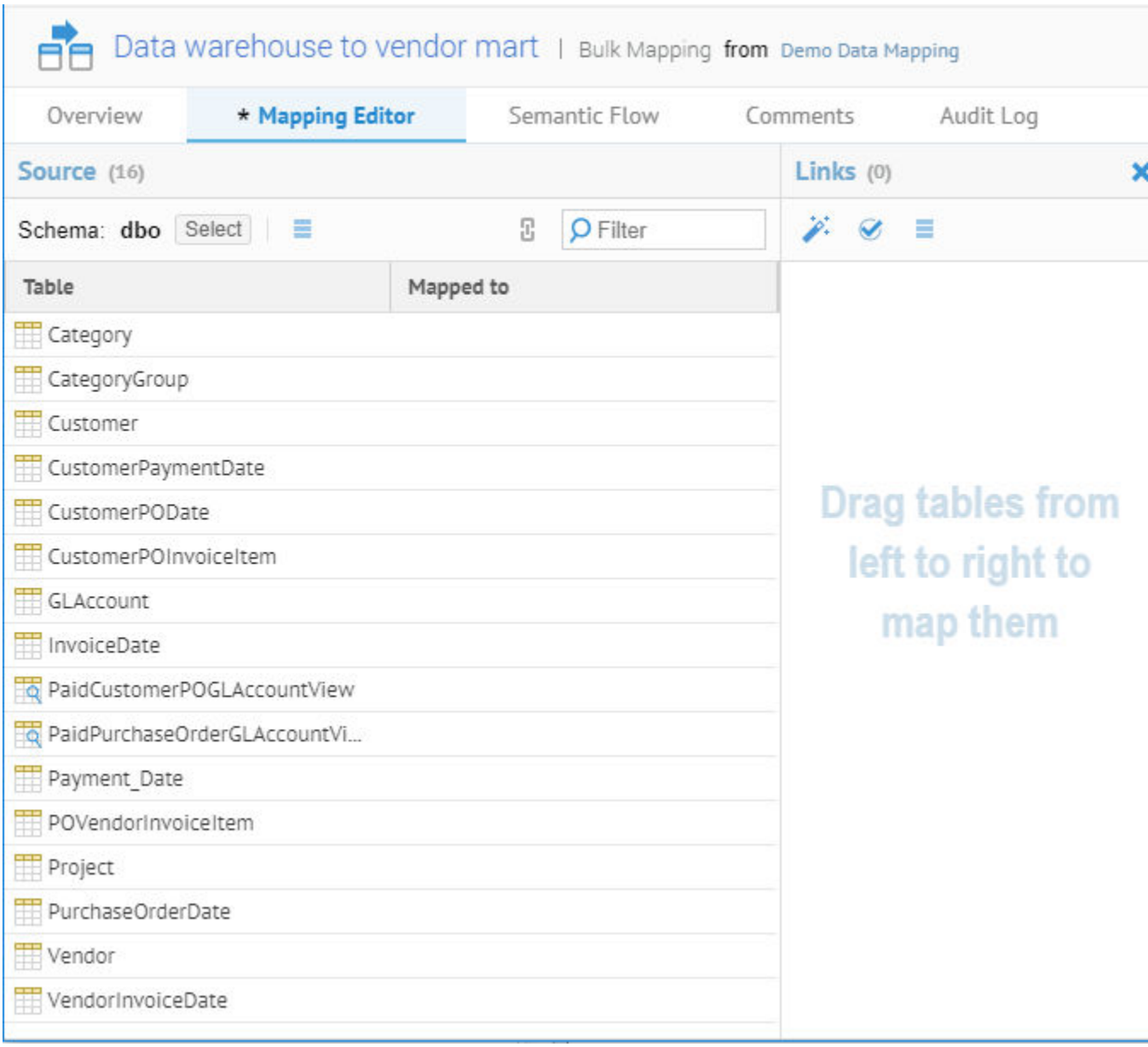


All the target tables in the dbo schema are listed on the target side.

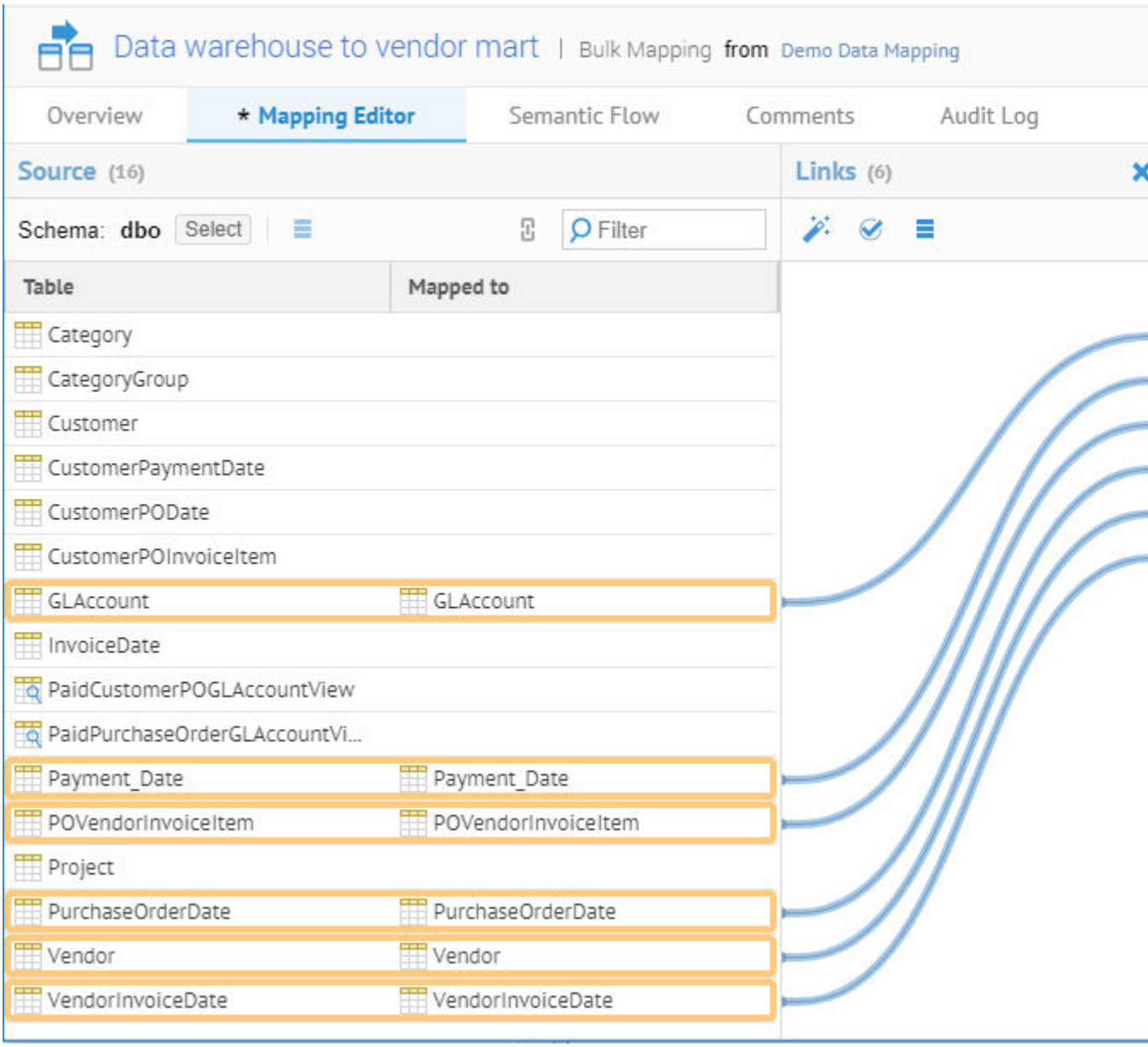
Click Select button on the target (right-hand) side. Select the data source (dbo from Dimensional DW).



Click OK.



Click the Detect Links magic wand to automatically match tables and columns.



Click Save.

Export a Data Mapping to Excel

The data mapper is round-trip compatible with the Excel metadata format that is defined and provided as part of the delivery of Oracle Metadata Management (OMM). In this way, you may export to this format for reporting purposed, or edit and re-import to a mapping.

Only query mappings are supported by the Excel format.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Viewer security role on the Data Mapping you are going to edit.
2. Navigate to the home page for the data mapping content.
3. Select Metadata Excel Format from the Export to pull-down.
4. Click Export.

Import a Data Mapping from Excel

The data mapper is round-trip compatible with the Excel metadata format that is defined and provided as part of the delivery of Oracle Metadata Management (OMM). In this way, you may export to this format for reporting purposed, or edit and re-import to a mapping.

Only query mappings are supported by the Excel format.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Editor security role on the Data Mapping you are going to edit.

Navigate to the mapping to edit

2. Navigate to the home page for the data mapping content. Create a new empty content if necessary.

Data Modeling

Data modeling tools have been conceived as database design tools to be use by data architects and database administrator to design logical. Although many of these data modeling tools are rather used to document (create a data model) of existing databases. Oracle Metadata Management (OMM) offers a different approach than traditional data modeling tool:

- The Business Glossary driven methodology allows for immediate reuse and creation of Terms and naming standards on the fly, fast tracking the data store documentation process
- The Web enabled tool offers better access than desktop tools
- The Data Modeling / Diagramming capabilities of the Oracle Metadata Management (OMM) are similar to conventional data modeling tools

- Full integration (import/export) to most popular data modeling tool.

In addition, Oracle Metadata Management (OMM) has a Business Glossary application that allows one to manage terminology and domain definitions across the enterprise. One can reuse these definitions not only among different enterprise applications but between versions of the same application. A glossary may be used to collect and apply naming standards based upon the name assignments made when editing a model. In addition, the Oracle Metadata Management (OMM) allows one to link tables and columns to terms and glossary domains and business rules.

Data Modeling with Ordinary Models

Edit a Model

You may edit the components of a model on the home page for that model or as the result of search or browse activity in grid mode.

Edit a Model in the Home Page

This method works well when editing a single metadata element in a model or proceeding through a models structure (schema, table, column) to edit a model completely.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user at least the editor security role on the model containing the metadata element you wish to edit.
2. Navigate to the home page for the metadata element.
3. Click the **Overview** tab.

> *All primary properties are available for editing here.*
>
> *In particular, the Business Description and Business name are also derived from semantic definition lookup. Thus, special care must be taken with these fields.*

4. Select Preferences > Add custom attributes to extend the properties associated with this metadata element.

> *Custom attributes are taken from a pool defined in the **MANAGE** > **Custom Attributes** function.*

5. Click the Related Diagrams tab to create new and edit existing diagrams using.

6. On the home page of a classifier (e.g., table, view) level metadata element you may click the Relationships tab to add (with inference and detection), edit and curate relationships with other classifiers.

These relationships may then be

- *included in the model diagrams*
- *used as part of joins and filters in data mappings.*

7. Click the Semantic Flow tab to add, edit, delete semantic links (classifications and mappings)

Edit a Model in Grid Mode

This method works well when editing multiple metadata elements in several different models that are collected together as the result of a search, browse filter or list.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user at least the editor security role on the models containing the metadata elements you wish to edit.
2. Search, specify a browse filter or open a list.
3. Click the Grid Mode action icon.

All the primary properties are available for editing here. They are columns in a spreadsheet like presentation. In particular, the **Business Description** *and* **Business Name** *are also derived from semantic definition lookup. Thus, special care must be taken with these fields. In fact, the columns for these two properties in the grid mode are the actual manually entered values that you see on the home page under* **Properties**. *They are* ***not*** *always the values presented next to the* **Physical Name** *and just underneath it.*

Edit a cell

4. Double-click on a cell in the grid (or right-click and select Edit) to edit it.

Those that are editable have a small triangle in the lower right corner.

Edit like a spreadsheet

5. Use the tab, enter and arrow keys to proceed through the editable cells of the grid.
6. Right-click any cell for the context menu options.

Multi-edit

7. Select more than one row (Shift-click, Ctrl-click, etc.) to apply action to all of the selected rows or to update common and editable properties shared by all the rows selected.

Only those actions available to ALL of the selected rows and permitted according to your permissions will be presented.

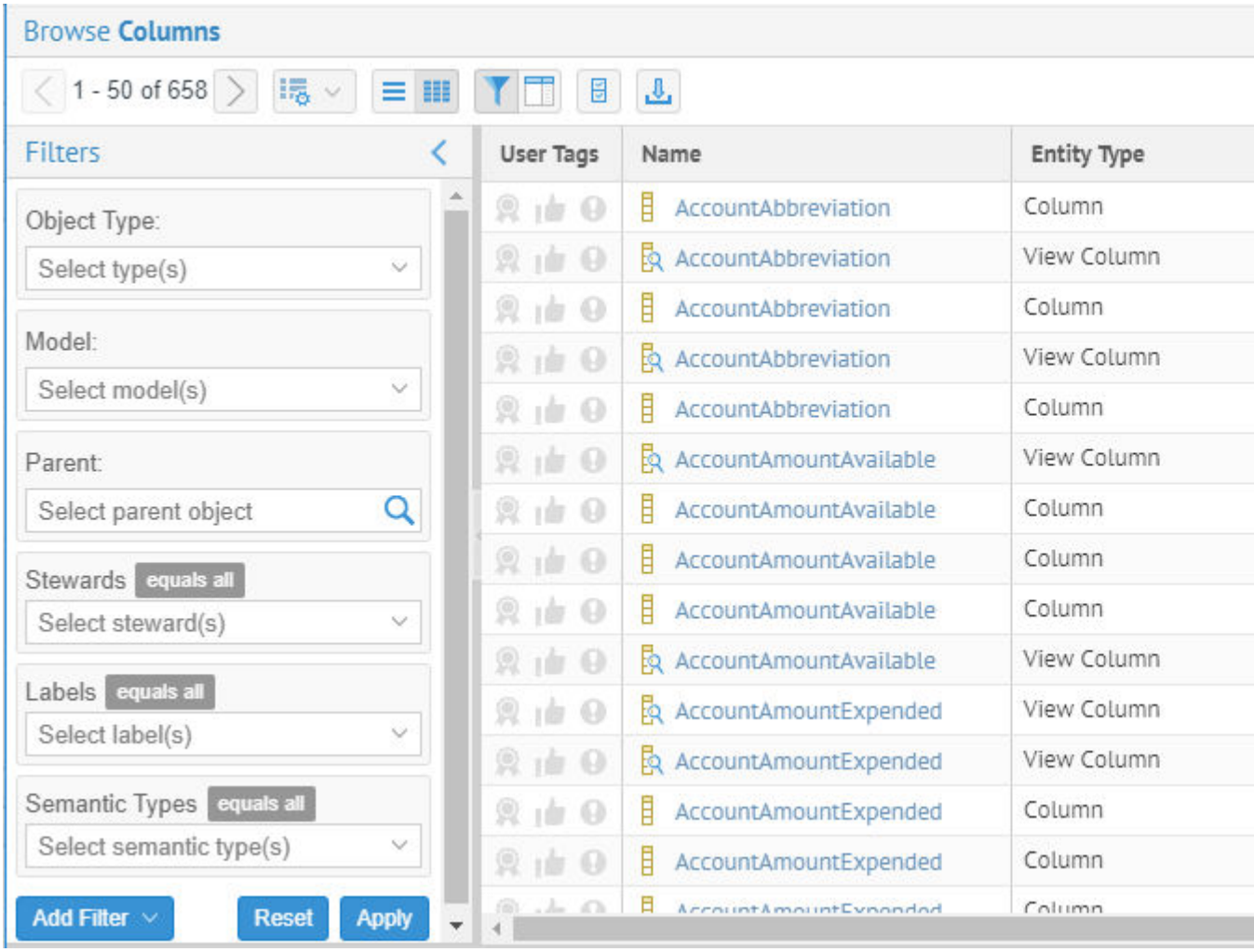
Sort and add/remove columns

8. Click on any column header to sort (toggles between ascending and descending).
9. Click on the down pointing caret to add or remove the columns displayed in the grid.

All possible properties for the metadata element types you are browsing are presented as well as all custom attributes defined for this type.

Example

Select BROWSE > Database > Columns in the banner and click the grid mode  icon.



Add a Model Diagram

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user at least the editor security role on the model containing the metadata element you wish to edit.
2. Navigate to the home page for the model as a whole.
3. Click the Related Diagrams tab.
4. Click the plus sign to add a diagram.

5. From here you may edit the model diagram.

Edit a Model Diagram

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user at least the editor security role on the model containing the metadata element you wish to edit.
2. Navigate to the home page for the model as a whole.
3. Click the Diagrams tab.
4. Click to Open the diagram.
5. From here you may use all the options to visualize a diagram.
6. Click Start Editing to edit the diagram.

The panel on the left provides a pool of all classifier level objects in the model which may be included in the diagram.

7. Drag and drop tables, etc., from the pool into the diagram to include that object in the diagram.
8. Multi-select (Shift-click and Ctrl-click) in the pool and drag and drop the selection into the diagram to include that object in the diagram.

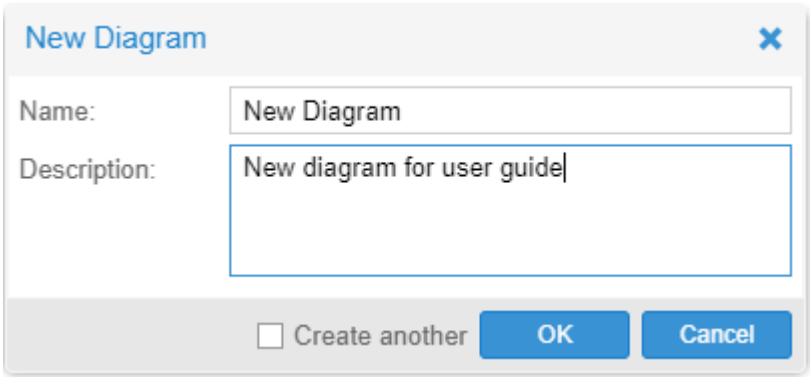
As you include objects from the pool, you will notice that relationships among the current set of classifiers in the diagram are also included. By default, only user-defined (either created or certified inferred) relationships are included automatically. *These relationships are simply join conditions, not true logical relationships and in entity-relationship modeling. Thus, all you specify for them is a join condition and a description.*

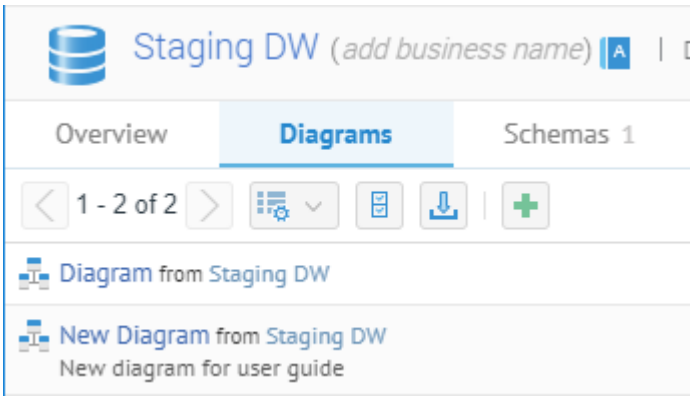
9. To include additional relationships inferred between the currently included classifiers, right-click on a classifier and select Import Relationships…, select the rows to include and click OK.
10. Click Add Annotation to add any annotation with text to the diagram.
11. Click Add Relationship (Join) to add a new relationship to the diagram. Do so, by dragging from one classifier to another.
12. Double-click on any relationship defined in this way to edit the Description.
13. To edit the join condition of a relationship:
    - Right-click on one of the classifiers of a relationships
    - Select Open
    - Click on the Relationships tab
    - Right-click on the row representing the relationship and select Edit operation.
    - Drag and drop the columns that are part of the operation to define it.

Example

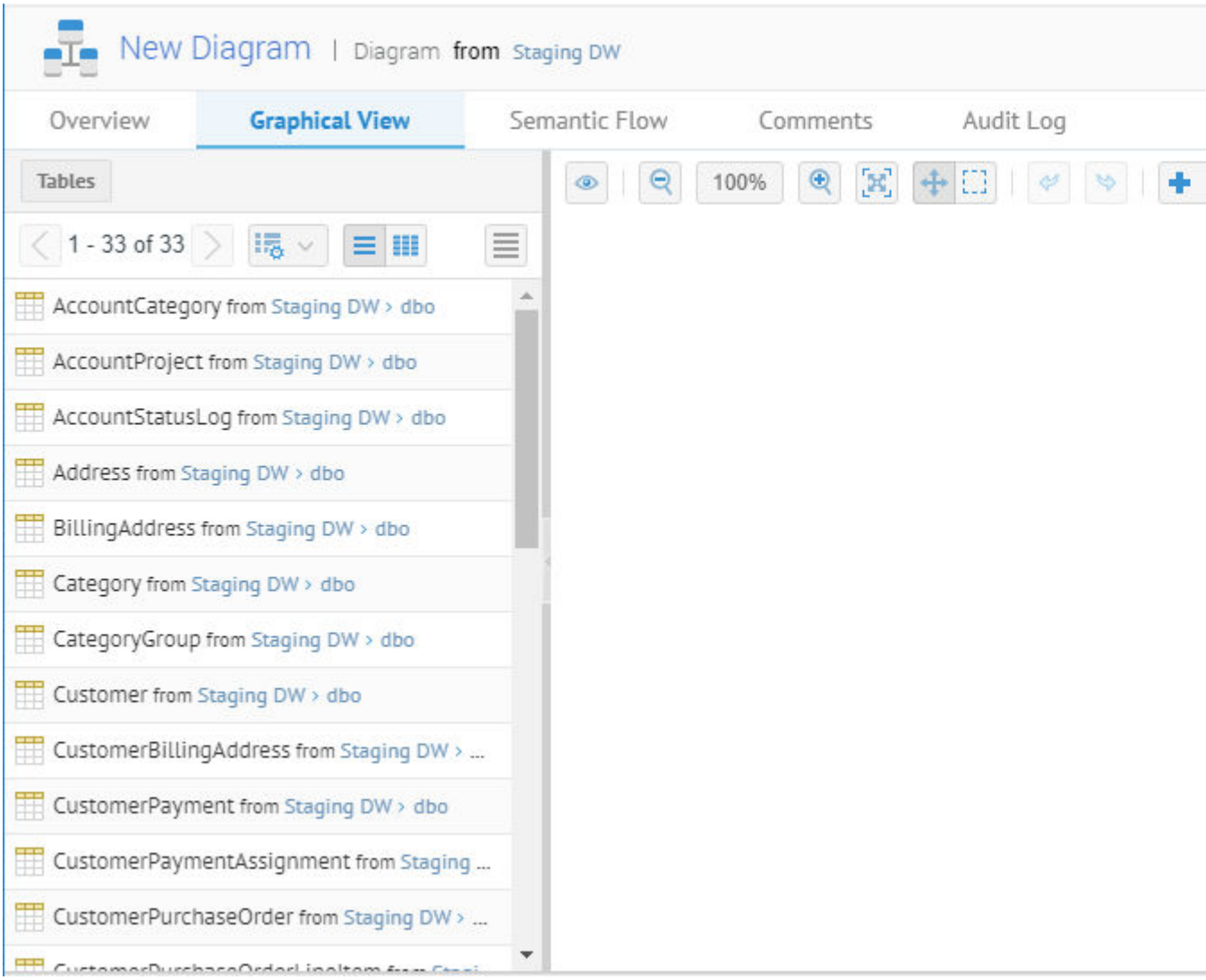
Navigate to the home page for the Staging DW database model and click the Diagrams tab.

Click the plus sign  to create a new diagram.





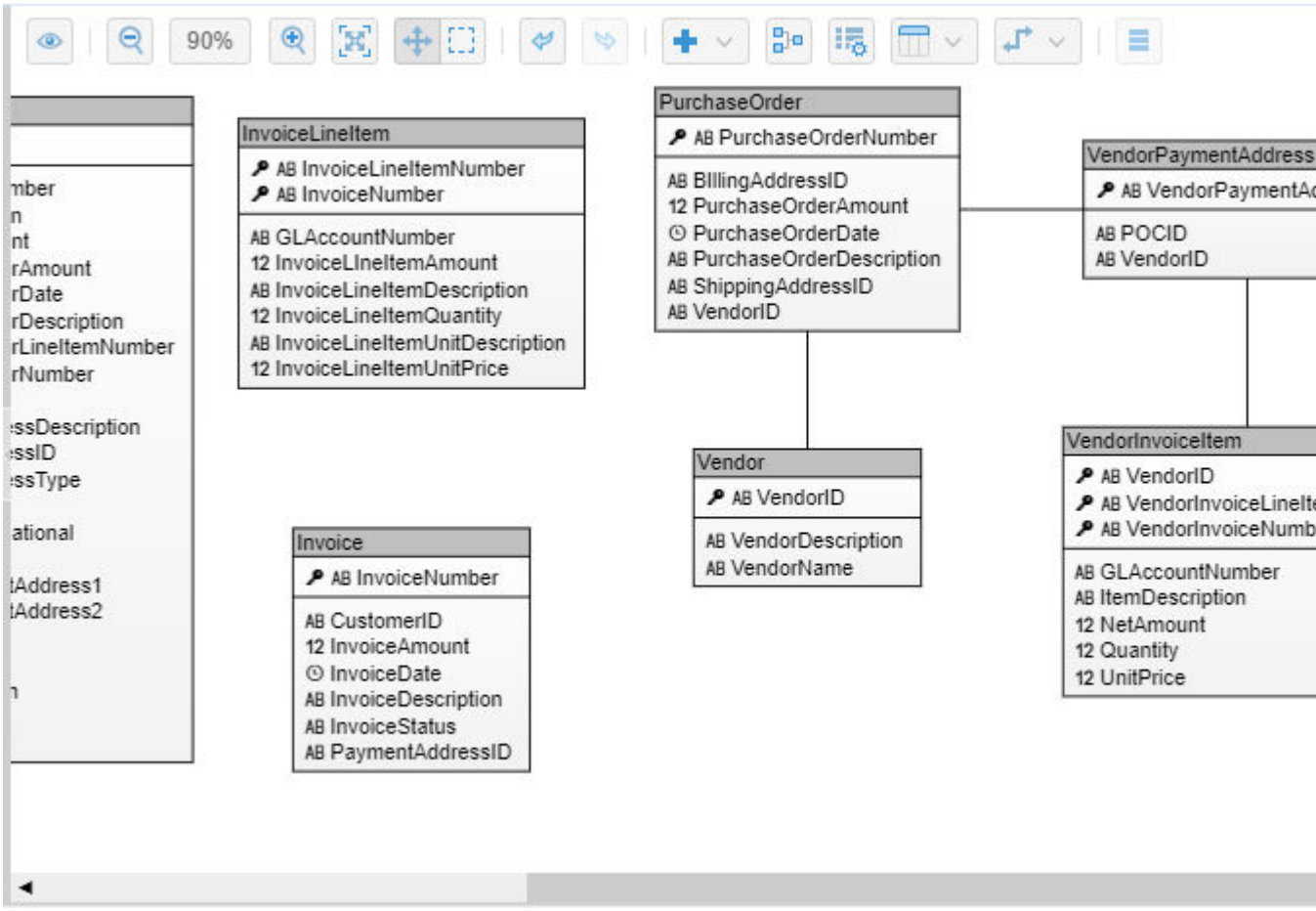
Click the **New Diagram**. Then click **Start Editing**.



The possible tables to include are on the left.

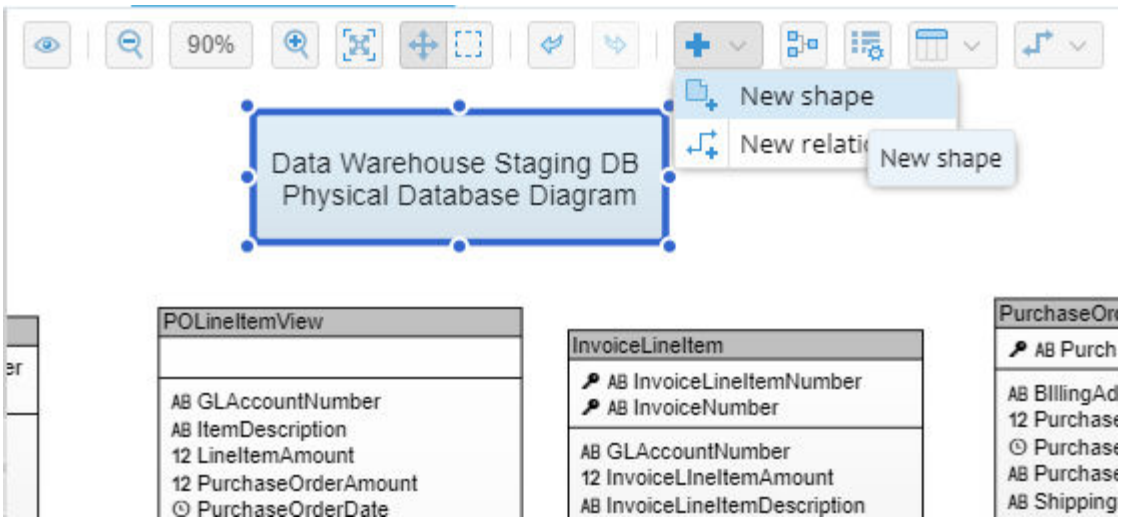
If you move away from this page or click Stop editing and do not save, all changes will be lost.

Type Ctrl-A to select all the tables and drag the tables into the diagram

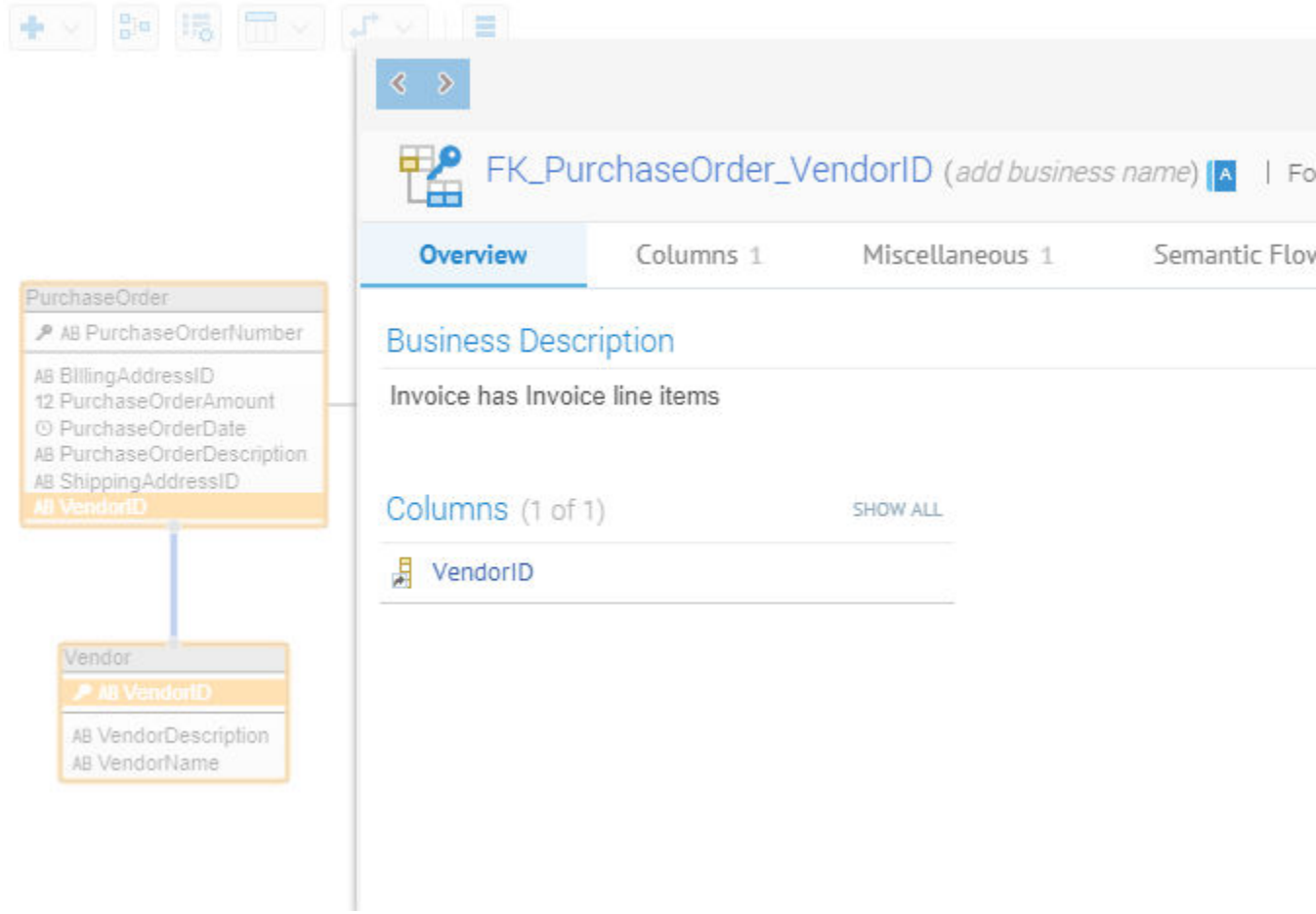


Relationships are also included that are either PK-FK or user-defined for these tables.

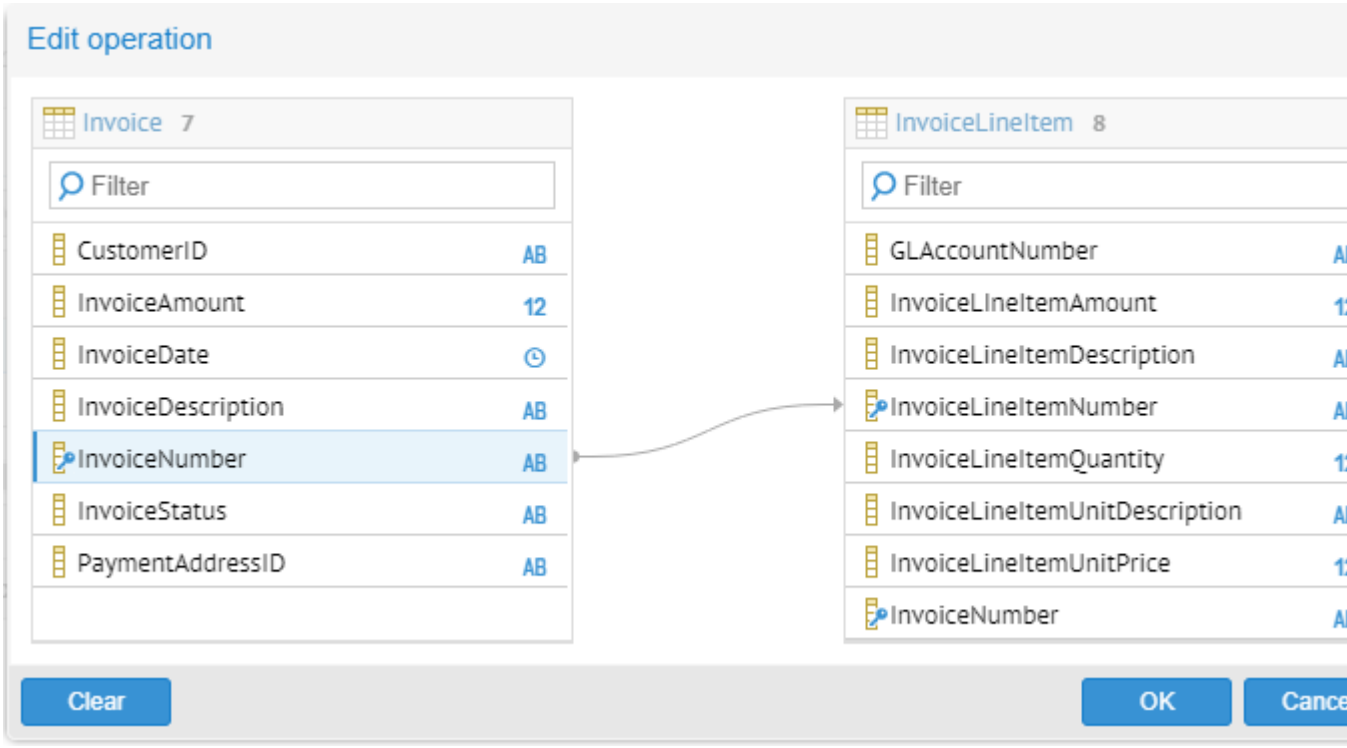
Drag the edge of the panel with the pool of tables on the left to hide most of it and get more room to work. Then, click Add > New shape and create a title annotation for this diagram.



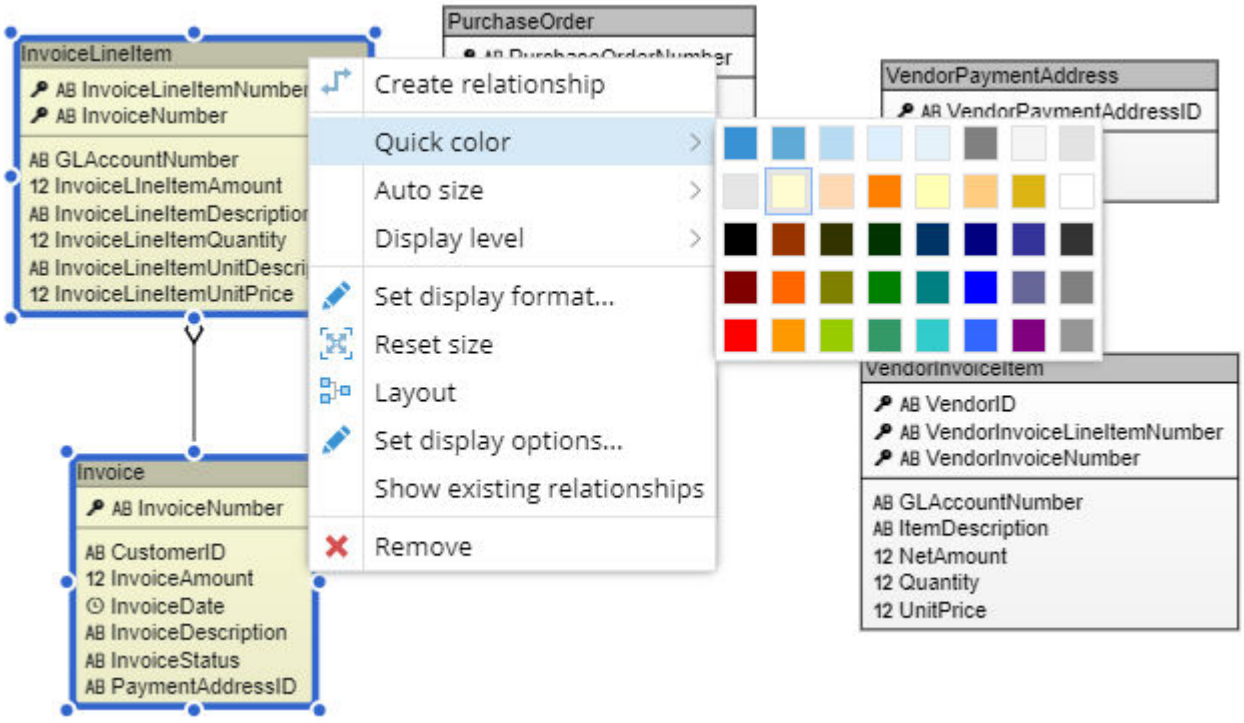
Click Add > New relationship and then drag from the InvoiceLineItem table to the Invoice table. Double-click on the resulting relationship line and provide a Description.



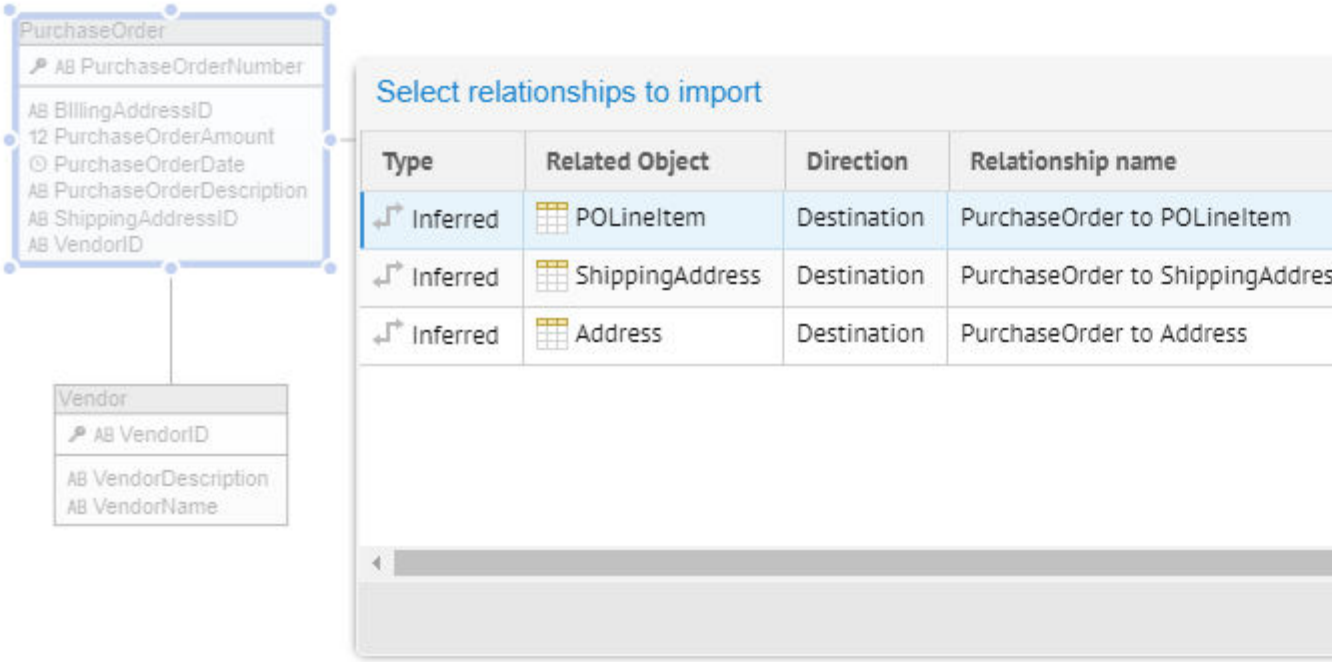
Right-click on the Invoice table, select Open. Then, go to the Relationships tab and edit the relationship you just created to give it an operation.



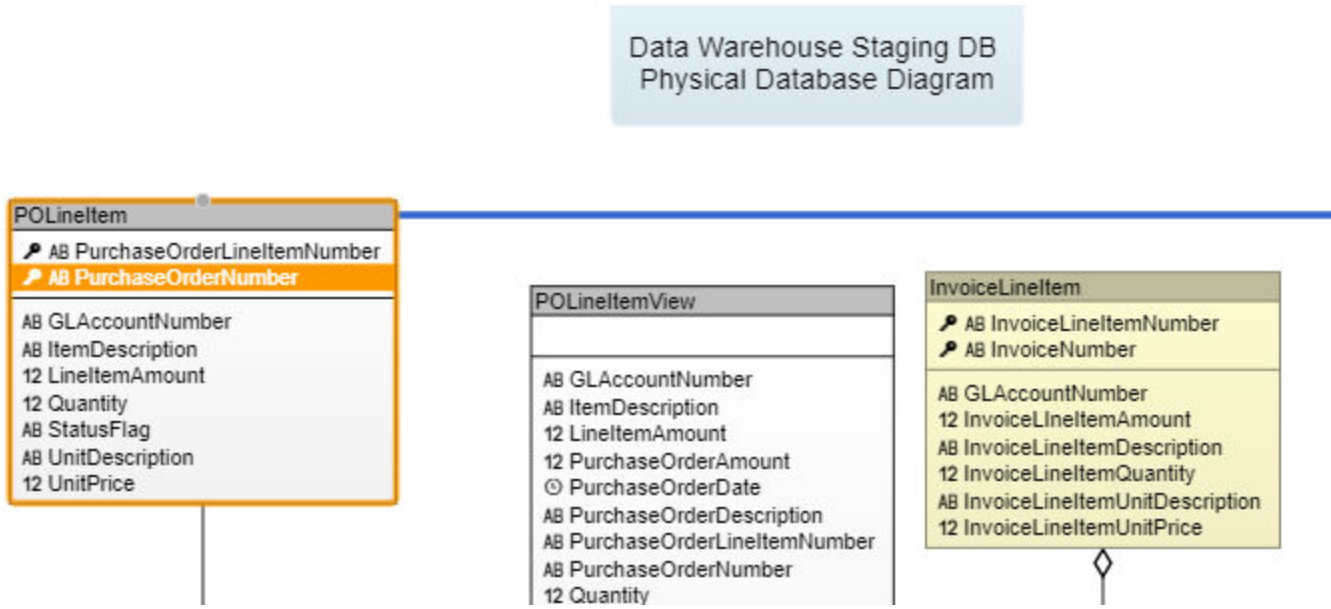
Commit that change, close the Invoice table dialog. Select the two tables you just related (with Ctrl-click or with the lasso  tool), right-click on one and select Quick Color.



Now, right-click on the Purchase Order table and select Import Relationships. Then, pick the first relationship (with POLineItem) and click OK.



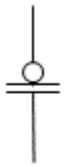
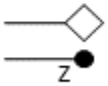
And we have a new relationship.



Explore Further

Interpreting the graphical diagram

RELATIONSHIP NOTATIONS

Object Modeling	Data Modeling	UML	IDEF1X	IE
Generalization	SuperType/SubType			
Aggregation	Identifying			
Relationship	Non Identifying: one to many			
	Non Identifying: many to many			
	Zero or one			
	One only			
	Zero or more			
	One or more			

Naming Standard for a Model

Abbreviation/Naming standard can help one to derive business names from physical ones in a consistent manner. For example, a physical name empl_first_name can be interpreted as a business name Employee First Name by tokenizing the physical name over the "_" separator, assuming "empl" is an abbreviation of "employee" and capitalizing the first letters of each word. This process is automated by Oracle Metadata Management (OMM) based upon any defined naming standard.

A naming standard is a list of abbreviations and words they represent, defined as terms in a glossary. Oracle Metadata Management (OMM) allows one to define a naming standard once and reuse it for documenting different models and their new versions.

Oracle Metadata Management (OMM) can generate an initial naming standard from a physical model. It is a list of all unique abbreviation tokens produced from table and column physical names. The application tokenizes names by separating characters (e.g. "_") and capitalized letters (e.g. EmployeeName). The application cleanses the list from obvious noise (e.g. numbers).

To associate a glossary with a model for naming standard purposes, you may do so at model creation time or when editing the Options of the Model.

Associate a Naming Standard with a Model

Associating a naming standard with a model is performed at model creation time or later under the model Naming Standards tab.

Steps

Ensure proper permissions

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the model you are defining naming standards for.

Create the content

2. Go to the MANAGE > Contents in the banner.
3. Click the Naming Standards tab.
4. Check the Enable Naming Standards checkbox then select your options, including
   - Pick a glossary to contain the naming standards lookup values. You may need to open that glossary separately and create a new category.

*Using a glossary category means that terms are created under the specified category that is the business names for the objects to which the naming standard applies. The physical name that is equivalent for each term is placed in the **Abbreviation** property for that term.*

- Specify the options you wish to use.

5. Click Save.

Explore Further

Naming Standard Supervised Learning

When supervised learning is specified in the Naming Standards tab for the documentable model, every time you edit the (logical) Name property for columns and tables, the associated naming standard Business Glossary category terms will be updated to reflect the new naming. E.g., if and column has the Physical Name ACT, and then one edits the (logical) Name to be Action, a term Action will be created with and Abbreviation ACT.

One may apply the naming standard on demand as needed.

Apply a Naming Standard

Ensure that naming standards are defined for the model.

Steps

For the entire model (schema, table, etc.)

1. Sign in to Oracle Metadata Management (OMM) as a user at least the editor security role on the model containing the metadata element you wish to edit.
2. Navigate to the home page for the model as a whole.
3. Go to More Actions > Apply naming standards to the entire model.

To do so, when editing a metadata element, use the apply naming standard icon  .

Version and Configuration Management

Manage Model Versions

In some cases, one may wish to use the Repository to maintain a version history for each harvest or import of a model. These versions are individual objects within the Repository and represent the object's contents at a specific point in time.

The Administrator may manage any number of versions. By default, however, the metadata manager UI only shows one version of a model. The technical user may change to a multi-version user interface mode at any time. In addition, a particular version may be designated to be the default version. It is the default version of a model which is used when the metadata manager UI is in single-version mode.

In addition, when including a model in a configuration, one is actually including a specific version of that model in the configuration. This means that one may control which versions of which models are to be Published at any point in time. E.g., one may place the approved version of a model in a Published configuration while data modelers continue to edit and Upload newer version as work in progress (unpublished).

The user of the metadata explorer UI is restricted to a single configuration, and thus in all cases the metadata explorer UI only shows one version of a model.

Show / Hide Content and Configuration Versions

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Administrator security group.
2. Go to the metadata manager UI: Go to Tools > Preferences the upper right.
3. Use the check box to either show or hide versions.

Add a New Version to a Model

Adding a new version of a model simply involves harvesting or importing the model again.

Review import log

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the model.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Contents in the banner. Select the content. Click on the Versions tab.
   - Metadata manager UI: Repository Panel. Right click on the model for which you want to view the log messages and select View log.
3. As a model may be imported several times, select the log for the specific date and time of the import in question and click on View Log.

Publish a Version of a Content

When including a model in a configuration, one is actually including a specific version of that model in the configuration. This means that one may control which versions of which models are to be Published at any point in time. E.g., one may place the approved version of a model in a Published configuration while data modelers continue to edit and Upload newer version as work in progress (unpublished).

To publish then means to add the version of the content to the Published version of a configuration.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Edit security role on the configuration.
2. Go to the metadata manager UI: Repository Panel
3. Open the Published version of the configuration.

> *Be sure the Repository Panel is filtered to show the content versions.*

4. Drag and drop the content you wish to Publish from the Repository Panel into the published configuration.
5. You may now view the content when signed into the metadata explorer UI.

Make a Version of a Content the Default

The default version of a content is the version that is used when an action is taken against the content as a whole. For example, if one opens a content but not a specific version, then the default version is opened.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the model.
2. Go to the metadata manager UI: Repository Panel.

> *Be sure the Repository Panel is filtered to show the content versions.*

3. Right-click on the version of the content in the Repository Panel and select Set to default.

The previous default version will no longer be default.

Manage Configurations

The configuration is an extremely important concept. It is the scope for many operations, including lineage analysis, search, version management, etc. In this way, what would otherwise be an overload of information (everything in the repository) is instead well managed according to the configuration of metadata one is interested in analyzing or working with. The name configuration comes from the concept of "Version & Configuration Management" where a configuration is a collocation of particular version of models.

A valid configuration consists of a collection of model versions, mapping versions, glossaries and stitchings. The model versions relate to data stores and data processes that have been harvested into Oracle Metadata Management (OMM).

A configuration may be understood as any of the following:

- Repository workspace - a collection of repository objects to be analyzed together (search, browse, reports, etc.) as a technical scope, or business area under the same access permission scope.
- Enterprise architecture - a collection of data store models (ODS, data staging areas, data warehouses, data marts, etc.) and data process models (ETL/DI, and BI) connected together through data flow stitching.
- Design workflow - a collection of conceptual, logical and physical models connected (semantically stitched) together through semantic mappings modeling the design process.

A configuration may have one or more configuration versions. configuration versions may be understood each as a different collection of versions of repository objects. In this way, one can define several configuration versions, each containing various versions of the repository objects. As a result, one may perform

- Historical analysis using configuration versions containing older versions of models which were deployed at some time in the past
- What-if analysis using configuration versions containing the versions of models which may be deployed in the future.

One may also *publish* a configuration version, or make it available to users of the metadata explorer UI. In this way, a configuration may be used by an administrator of MIMM to ensure the completeness and correctness of what is visible to business users and how all users search and analyze within the full complexity of Oracle Metadata Management (OMM).

Oracle Metadata Management (OMM) accomplishes this management within the UI by way of the configuration Manager. This tool provides a drag and drop based visual interface for constructing configurations of repository objects. One may:

- Define any number of configurations
- Publish a configuration to a different set of users (by group)
- Publish none, some, or all configurations.

In this way, one has infinitely fine control of who sees what and when they may see it.

Create a New Configuration

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the folder where the configuration will go.
2. Go to the metadata manager UI: Repository Panel.

Be sure the Repository Panel is filtered to show the content versions.

3. Right click on a folder In the Repository Panel where you want the configuration to be located, and select New > Configuration.

Assign a Group to a Configuration

Groups may be assigned to a particular configuration. In this way, any users who are associated with that group are provided with the metadata explorer UI and presented with only that configuration.

Publish a Configuration

A configuration may have one or more configuration versions. configuration versions may be understood each as a different collection of versions of repository objects. In this way, one can define several configuration versions, each containing various versions of the repository objects. As a result, one may perform

- Historical analysis using configuration versions containing older versions of models which were deployed at some time in the past
- What-if analysis using configuration versions containing the versions of models which may be deployed in the future.

One may *publish* a configuration version, or make it available to users of the metadata explorer UI. In this way, a configuration may be used by an administrator of MIMM to ensure the completeness and correctness of what is visible to business users and how all users search and analyze within the full complexity of Oracle Metadata Management (OMM).

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the folder where the configuration will go.
2. Go to the metadata manager UI: Repository Panel.
3. Expand the configuration to show versions.

> *Be sure the Repository Panel is filtered to show the content versions.*

4. Right click on the configuration version in the Repository Panel and select Publish.

Publish a Content to Any Configuration

See publish a version.

Manage Configuration Structure

The contents contained within a configurations may be organized into configuration folders. This organizational structure will NOT be reflected in the metadata explorer UI when browsing for contents.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Edit security role on the configuration.
2. Go to the metadata manager UI: Repository Panel.
3. Open the configuration you wish to define or update the structure for.

4. Use the Add action of the configuration editor to add a folder and the Delete action to remove one.
5. Drag and drop contents into folders, or the root, to reorganize them.

Setting up a Configuration for Automatic Update

Configurations may be defined for automatic update (and hence publication) of new content versions. In this way, each time a new version of a model is harvested (say, based upon a schedule) or Uploaded using the external metadata tool, that new version of the model will be reflected as a member of the Published configuration.

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Manage security role on the configuration.
2. Go to the metadata manager UI: Repository Panel.
3. Open the configuration you wish to update
4. Check the Automatic Update checkbox in the More Actions menu at the upper right.

Manage Configuration Versions

In some cases, one may wish to maintain a version history for a configuration. E.g., one may wish to maintain historical configurations of content versions for historical analysis. In addition, one may wish to perform what-if analysis by placing the latest, but not approved, version of the contents in a new (and unpublished) version of that configuration.

As with contents, these Configuration versions are individual objects within the Repository and represent the configuration of the contents at a specific point in time.

The Administrator may manage any number of Configuration versions. By default, however, the metadata manager UI only shows one version of a configuration. The metadata manager UI may be changed to a multi-version user interface mode at any time.

Additionally, when one sets a version of a configuration to Published status, it is then available to users of the metadata explorer UI. I.e., one is actually designating a specific version of that configuration as the Published version. This means that one may Publish a precise collection of content versions.

In all cases, the metadata explorer UI only shows the Published version of a configuration, which is simply seen as the configuration.

Administration and System Management

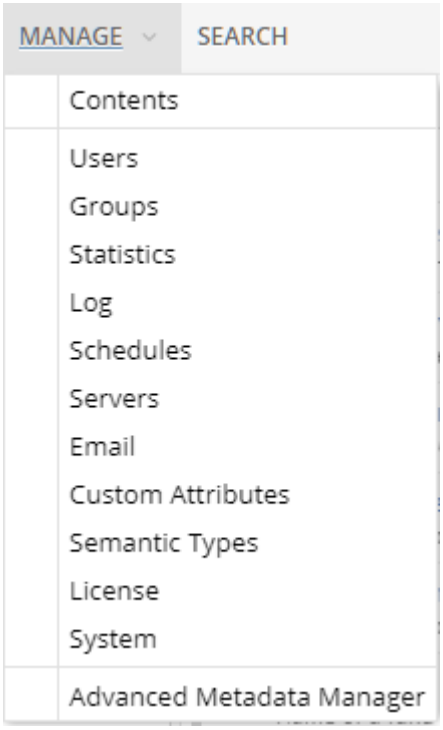
Most of the management tasks may be carried out in the Metadata Explorer UI. A few (centered around version and configuration management) still require the configuration independent Metadata Manager UI.

Steps

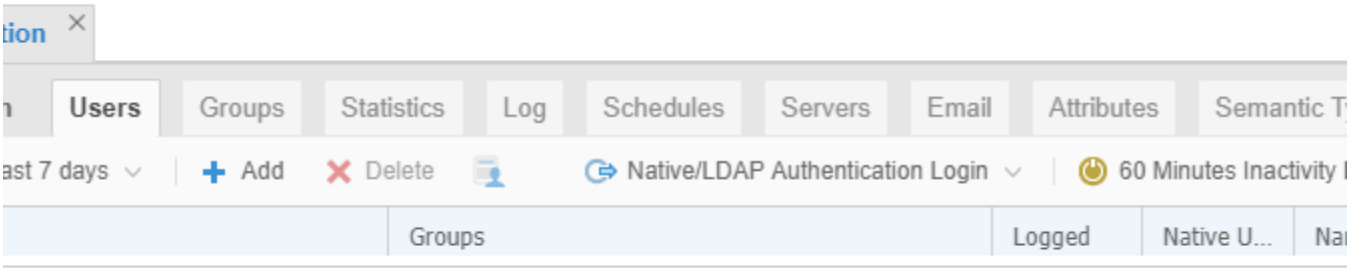
1. Go to either:
   - Metadata explorer UI: the MANAGE > in the banner
   - Metadata manager UI: Tools > Administration > in the upper right.

Example

Metadata Explorer



Metadata Manager



User Group Administration

Each user of the system is assigned one or more groups. Each group assigned to a user controls the user interface associations (Metadata Manager UI or Metadata Explorer UI) and security roles assigned (Viewer/Editor/Manager). Security roles are then associated with the types of permissions one has to an object in Oracle Metadata Management (OMM).

The basic configuration of Oracle Metadata Management (OMM) has one group defined, which may not be removed:

- Administrators – Users assigned this group are given all security roles and may use the Metadata Manager UI or Metadata Explorer UI.

A user assigned to the Administrators group may create any number of groups with different user interface assignments and access security role assignments.

NOTE: All security role related operations are available to both users and user groups.

There are two types of security roles in Oracle Metadata Management (OMM):

- A security role can be assigned to users and groups and applies to repository objects, like folders and contents.
- A workflow role typically applies to a particular content type and its workflow (see Workflow process for details (e.g., Business Glossary workflow).

Permissions	Security Administrators (Group)	Application Administrators (Group)	Security Manager (Role)	Mar (R
Security				
Users	x			

Groups	x			
External Autentication	x			
Security roles on folders and contents	x		x	
Administration				
Application administration, e.g., custom attributes		x		
View the folder properties and children		x		
Edit the folder properties, e.g., description		x		
Create, delete and move child folders and content		x		
Create and delete child versions, like import model		x		
Edit the content properties, e.g., description		x		
Edit version properties		x		
Set default version		x		
Publish a version (e.g. configuration)		x		
Archive a version		x		
Content objects metadata				
View		x		
Add/Remove labels		x		
Add/Remove/Edit your comments		x		
Edit		x		
View Audit trail		x		
Remove any comment		x		
Certify/Un-certify		x		
Content objects data				
View data profiling/sampling details		x		
Hide profiling/sampling data		x		
Run data profiling/sampling		x		
Glossary Workflow				
Enable and disable Glossary workflow		x		
Assign Glossary workflow security roles		x		
Configuration Management				
Add, remove and replace configuration contents and edit connections		x		

Create a New Group

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Groups in the banner
   - Metadata manager UI: Tools > Administration > Groups
3. Click the Add plus sign.
4. Provide Name and Description.
5. Check Steward to include the members of this group in the list of possible stewards.
6. Check Use Metadata Explorer to assign all the members of this group to the metadata explorer UI.
7. Select a published configuration from the Default Configuration search box.

Assign Security Roles to a Repository Object

Keep in mind that in order to have any security role assignments on a child object in Oracle Metadata Management (OMM), one must at least have the Viewer security role to its parent. Thus, in order to create portions of the repository which are entirely inaccessible to a group, you may create a new folder at the root of the Repository Panel in order to assign special Viewer security role assignments privileges there.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Contents in the banner. Select the content. Click on the Security tab.

- Metadata manager UI: Repository Panel. Right-click on the folder or content.

3. Assign security roles by group (please see table below).

The security roles that you set for a configuration apply to the configuration, not its contents. Thus, when you assign a group or user to the Editor security role on that configuration then they have the ability to, e.g. add a model to the configuration, but do not necessarily have permissions to edit the contained models within the configuration. Instead, each model in the configuration may also have its own security role assignments. Thus, if you wish to be able to edit the contained model properties, you will need to assign the Editor security role to that user or group. This is a very powerful feature that allows one to control who is Editor or Manager for individual models in a configuration, separately from security role assignments to the configuration itself.

While security roles assignments are not inherited through the configuration, security role assignments are inherited through the actual folder structure in Oracle Metadata Management (OMM). Thus, if you assign a group or user to the Editor security role for a parent folder (e.g., "public") then all contained contents and folders are included in those security role assignments.

Permissions	Manager (Role)	Editor (Role)	Viewer (Role)
Security			
Users			
Groups			
External Autentication			
Security roles on folders and contents			
Administration			
Application administration, e.g., custom attributes			

View the folder properties and children	x		x
Edit the folder properties, e.g., description	x		
Create, delete and move child folders and content	x		
Create and delete child versions, like import model	x		
Edit the content properties, e.g., description	x		
Edit version properties	x		
Set default version	x		
Publish a version (e.g. configuration)	x		
Archive a version	x		
Content objects metadata			
View			x
Add/Remove labels			x
Add/Remove/Edit your comments			x
Edit		x	
View Audit trail			x
Remove any comment	x		
Certify/Un-certify			
Content objects data			
View data profiling/sampling details			
Hide profiling/sampling data			
Run data profiling/sampling			
Glossary Workflow			
Enable and disable Glossary workflow	x		
Assign Glossary workflow security roles	x		
Configuration Management			
Add, remove and replace configuration contents and edit connections	x		

Special Groups

Membership in specific, pre-defined, groups provides permissions that would otherwise be assigned out via security roles and some which are available only to members of these groups.

The following table details the permissions provided through group membership.

Permissions	Security Administrators (Group)	Application Administrators (Group)	Security Manager (Role)
Security			
Users	x		
Groups	x		
External Autentication	x		
Security roles on folders and contents	x		x
Administration			
Application administration, e.g., custom attributes		x	
View the folder properties and children		x	
Edit the folder properties, e.g., description		x	
Create, delete and move child folders and content		x	
Create and delete child versions, like import model		x	
Edit the content properties, e.g., description		x	
Edit version properties		x	
Set default version		x	
Publish a version (e.g. configuration)		x	
Archive a version		x	
Content objects metadata			
View		x	
Add/Remove labels		x	
Add/Remove/Edit your comments		x	
Edit		x	
View Audit trail		x	
Remove any comment		x	
Certify/Un-certify		x	
Content objects data			
View data profiling/sampling details		x	
Hide profiling/sampling data		x	
Run data profiling/sampling		x	
Glossary Workflow			
Enable and disable Glossary workflow		x	

Assign Glossary workflow security roles		x	
Configuration Management			
Add, remove and replace configuration contents and edit connections		x	

Administrators Group

Members of this group have the union of Security Administrators and Application Administrators.

Security Administrator Group

Members of this group have permission to fully manage users, group, external autentication and security roles on folders and contents.

Application Administrator Group

Members of this group have full Manager, Editor, Viewer permissions to contents in the repository.

Download Group Report

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Groups in the banner.
   - Metadata manager UI: Go to Tools > Administration > Groups.
3. Click the Download action icon.

User Authentication Login Modes

Native/LDAP Authentication

In this mode, users may be defined as either a native (local) or LDAP authenticated user. When logging in, if the user name is associated with a native user the system will authenticate that user with native authentication (based on the local password). Otherwise, the system will attempt to authenticate the username with LDAP authentication (requiring the LDAP connection to be configured).

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Click the LDAP action icon.
4. Complete the
   - Type of LDAP system (e.g. “Microsoft Active Directory” by default)
   - URL (e.g. ldap://MyLdapServer)
   - User Name (and matching Password) with sufficient privileges to query the needed LDAP users and groups.

In addition, one may use the Advanced button to customize how the LDAP user attributes (login (username, full name, e-mail, description, etc.) are automatically populated by appropriate LDAP attributes (e.g. sAMAccountName is used by default for login on Microsoft Active Directory).

The LDAP authentication can be disabled (gray **LDAP** icon) by deleting the LDAP URL. In such case, only native authentication will be in effect.

Explore Further

Multiple LDAP Considerations

From the practical perspective, the LDAP connection dialog for Oracle Metadata Management (OMM) only allows one to specify a single URL for connection to LDAP. This is the case as otherwise you would have to add policy decision in every tool that uses LDAP to authenticate. The only way to work with disjoint LDAP domains is federation and trust. For example, there is a solution for Microsoft Active Directory.

Multiple authentication servers (forests) in Windows Active Directory

Authentication with multiple forests works similarly to a single LDAP forest. However, there are additional considerations, including

- Delegating trusts – you must ensure that there is a fully trusted connection between these domains (forests) and not just an external two-way trust, but if the customer has

2 or more independent forests, you must use a forest trust (at least one way) from the LDAP server specified in the LDAP host to a DC of the other forest.. Also, please ensure that each AD forest is configured for trust delegation: that means a user from domain1 should be able to log on against domain2. Please see https://technet.microsoft.com/en-us/library/cc730798(v=ws.11).aspx for more details.

- Sufficient privileges for username/password combination used in the LDAP setup dialog. It must have sufficient privileges against that portion of the LDAP structure. Be sure to coordinate with the local LDAP administration to obtain a permanent username that will have the proper permissions, including read only access to the structure within the LDAP environment in order to determine who is a member of these LDAP groups. Without that, any group assignment queries will fail.
- Specify fully qualified domains. Note, the Domain\Username form is not supported in Microsoft Active Directory (the domain part is simply dropped): the UPN (User Principal Name) must be used instead (the UPN is in the form user@domain.fqdn).

Create a New Native User

Native users are manually created/updated by the Administrator. A Native user is required to have a password defined at the creation time. Native Users can coexist with LDAP Users, which may be useful in creating temporarily logins for administrators, support, consultants, etc.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Click the Add action icon.
4. Provide a Username, Password, and other identifying information.
5. Assign a group to the user.

Delete a User

You may delete any user. However, LDAP and externally authenticated users will be recreated if that user signs in and is again properly authenticated.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the **User Admin** security role.
2. Go to either:
   - **Metadata explorer UI**: the **MANAGE** > **Users** in the banner.
   - **Metadata manager UI**: Go to **Tools** > **Administration** > **Users**.
3. Click the **Add** action icon.
4. Select the user from the list.
5. Use the **Delete** action icon.

Create a New LDAP User

There is no need to create an LDAP user manually. Instead, an LDAP user is automatically created/updated as a result of a successful LDAP authentication login. Thus, all that is required is that the user/password combination is valid for the LDAP authentication connection definitions and query rules.

The LDAP user attributes (login, full name, e-mail, description, etc.) are automatically mapped to selected LDAP attributes (e.g. sAMAccountName is used by default for login on Microsoft Active Directory). In addition, one may change this mapping using the Advanced LDAP connection button.

External Authentication

Configuration of Oracle Metadata Management (OMM) to support an external SSO environment requires working with your System Administrator. In this mode, the system default login page is disabled and not presented. It must be replaced by an external authentication login system.

> *Administrators can always login even in External Authentication Mode using the dedicated administrator rescue login URL: http://localhost/MM/Admin.*
>
> *Please refer to the readme for more details.*

Add an External Authentication User

External authentication users are automatically created/updated by successful external authentication login. They are assigned groups according to the rules provided by the authentication system, or the guest group by default.

One may specify additional group assignments manually (see Assign a group to a user).

Download User Report

A complete report of users may be downloaded.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Click the Download action icon.

Review User Statistics

Detailed user session statistics may be downloaded.

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Select the user from the list.
4. Click the Show Statistics action icon.
5. Use the Statistics For: control to change the period for which statistics are presented.

User Group Assignment

Users may be assigned to one or more groups, as defined in user group administration. Each group assigned controls the user interface associations (metadata manager UI or the metadata explorer UI) and security roles assigned (Viewer/Editor/Manager).

Native Group Assignment

Native group assignment applies to all native users. It may also apply to LDAP users when the LDAP Driven Group Assignment is not enabled (which is the case by default). In this case, one may configure the LDAP connection setting up LDAP authentication without specifying how groups will be assigned when an LDAP user logs in. Thus, users will be authenticated using LDAP and these users will not be assigned to any group.

In all these cases, any group assignments may be made as follows.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Select the user from the list.
4. If you have not already done so create a new user.
5. If you have not already done so create a new group.
6. Assign the selected group to the user.

Explore Further

Define Administrative Users

Administrative users are those who are assigned the group Administrator. To create an administrative user.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Select the user from the list.
4. If you have not already done so create a new user.
5. Assign the Administrator group to the user.

LDAP Driven Group Assignment

The LDAP configuration window offers a second tab for LDAP driven group assignment. In this case, the groups assignments may be associated to predefined LDAP groups or queries. There

are two convenience features helping non LDAP experts retrieve/build the group assignments they need:

- The LDAP group data entry allows one to search for groups defined in your LDAP environment and retrieve the exact LDAP query for such groups. This is very useful when planning to use large predefined groups of business users in group assignment.
- The LDAP search filter data entry allows one to automatically build a proper query to create an LDAP based virtual group of users. This is very useful in creating small Administrator groups or temporarily groups for a project.

In order to create queries defining LDAP driven group assignment.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Select LDAP Authentication from the Authentication type pull-down in the header.
4. Click on LDAP in the header.
5. Click on the Group Assignment tab.
6. Click on the Add icon.
7. Enter the following:
   - Provide a Name for the query
   - Define the group you wish to associate with users in the query

To assign groups by group name:

8. Click on the Browse icon in the Group entry
9. Enter a group name in the LDAP system or search text
10. Select the Distinguished Name for that group

To specify a search filter and include individual users

11. Specify a Search Root like:CN=company,CN=Users,DC=company,DC=local
12. Click on the Browse icon in the Search Filter entry and select users in that filter.

To specify a search filter and exclude individual users, you may

13. Specify a Search Root: CN=company,CN=Users,DC=company,DC=local
14. Use the following syntax:

    (&(!(sAMAccountName=username1))(!(sAMAccountName=username)))
15. Click OK.

Please keep in mind, when you create the first LDAP query for group assignment, you are now switching from native (manually managed) group assignment to LDAP driven (automatic) group assignment for all LDAP users. Any LDAP user will lose any previous native group assignment at the next login.

Similarly, when deleting the last LDAP query for group assignment, you are now switching from LDAP driven (automatic) group assignment, to native (manually managed) group assignment. Any LDAP user will now be only associated to the "Guest" group, until more groups are manually granted to that user.

External Group Assignment

For external group assignment, one may:

1. Log in as that user to establish that user in Oracle Metadata Management (OMM), and then assign groups manually
2. Pass group assignments to Oracle Metadata Management (OMM) from the external single sign on system.

Multiple Group Assignments

One may assign more than one up to any number of groups to a given user. In doing so:

- The user then has the union of all security role assignments provided by those groups
- If any of the groups assigned to the user are defined as restricted to the metadata explorer UI
  - Then whenever the user first signs in, they are presented with the metadata explorer UI and given a choice of configurations from the union of all configurations the groups assigned have access to.
  - It is possible at this time or subsequent sign-ins to define a default configuration.
  - They may change configurations at any time going to BRPWSE > Configuration > Change Configuration.
  - They may always use the Top Right menu in the metadata explorer UI to go to the metadata manager UI, if at least one group assigned to the user is NOT restricted to the metadata explorer UI.
- If none of the groups assigned to the user are defined as restricted to the metadata explorer UI
  - Then whenever the user first signs in they are presented with the metadata manager UI.
  - They may always use the Administrative Tools menu to go to the metadata explorer UI.
- If one of the groups assigned to the user is Administrator, then whenever the user first signs in they are presented with the metadata manager UI.

Group Assignment Considerations

A common practice, whether using Native/LDAP or External Authentication is to not depend upon these authentication modes to provide proper group assignment. This is because, those systems are managed by other authorities and are generally not maintained in order to group users so that group assignments logically map.

Instead, it is common to simply use the default group assignment, so that by default, any user is given the Guest group when logging the first time or when created. By default, Guest group is assigned to the Published configuration. In this way, one controls the default presentation to new users, and it is based on the metadata explorer UI and in a controlled default configuration.

Once the user's true groups and responsibilities are identified, further groups are assigned to the user.

Note, the considerations for multiple group assignments.

Concurrent User Management

The Oracle Metadata Management (OMM) license may include licensing for both named and floating concurrent users. E.g., if a license provides 10 named and 5 floating users, then up to 10 users may be set as named users and thus can always log in, and the rest of the users are considered floating, where only 5 can sign on concurrently.

Determining the Number of Users Available

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > License in the banner.
   - Metadata manager UI: Go to Tools > Administration > License.

Assigning Named Users

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Click the user in the list.
4. Select the Named License checkbox.
5. Click Save.

Assigning Concurrent (Floating) Users

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Click the user in the list.
4. Uncheck the Named License checkbox.
5. Click Save.

> *Remember, all users not explicitly named are considered floating.*

Setting User Inactivity Logout Duration

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the User Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Users in the banner.
   - Metadata manager UI: Go to Tools > Administration > Users.
3. Click on the number of minutes of inactivity before logout.

User Statistics and Server Audit Log

All user logins, login attempts (rejected) and object creation/update/delete actions are recorded in a Server Audit Log..

Review system logs

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.

2. Go to either:

    - Metadata explorer UI: the MANAGE > Log in the banner. Metadata manager UI: Go to Tools > Administration > Log.

Administer Scheduled Tasks

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:

    - Metadata explorer UI: the MANAGE > Schedules in the banner.
    - Metadata manager UI: Go to Tools > Administration > Schedules.

Manage Remote Harvesting Servers

If the specific external tool client software (and associated API) is not available locally on the Oracle Metadata Management (OMM) application server, there is the option to create and utilize a remote bridge server where this client software is available.

Installing a remote bridge server is equivalent to installing Oracle Metadata Management (OMM) on an application server, except that one specifies Metadata Harvesting Server Only in the Application Server tab in the setup.bat utility and no license is required and thus it will not have an available web based UI. Please refer to the installation instructions for more details and special instructions for Oracle Metadata Management (OMM) installations in the cloud.

Once such a remote harvesting server is installed and working, one must add it to the list of servers in Oracle Metadata Management (OMM).

To add a remote harvesting server to Oracle Metadata Management (OMM).

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:

    - Metadata explorer UI: the MANAGE > Servers in the banner.
    - Metadata manager UI: Go to Tools > Administration > Servers.

3. Specify
    - The Name to refer to this remote server by
    - The Type of remote harvesting server to create
        i. Local Network – Remote harvesting server that is within the same domain as the Oracle Metadata Management (OMM) server.
        ii. Over the Web (Cloud) – Remote harvesting server that is local to the organization but the Oracle Metadata Management (OMM) server is Cloud-based.
    - The URL for this remote server (generally one only need update the machine name inside the URL signature suggested):
        i. For Local Network remote harvesting servers it is of the form

            http://<hostname>:<port>/MIMBWebServices

        where <hostname> and <port> is the hostname or ip address and port that the remote harvesting server runs on.
        ii. For Over the Web (Cloud) remote harvesting servers it is of the form

            listener://<agentname>

        where <agentname> is the M_AGENT_NAME assigned to the remote harvesting server as defined in the configuration files.

Please refer to the installation instructions for more details and special instructions for Oracle Metadata Management (OMM) installations in the cloud.

4. A Description
5. One may also specify:

- Compress Data – to use data compression for the communication between the servers
- Set as Default – To make this remote harvesting server the default when creating models.

6. Click Save.

> *When harvesting using a remote bridge server, one would perform the same steps as for any other harvesting activity with the exception selecting a (remote) Server name in the pull-down.*

Manage Custom Attributes

One may customize the Repository to include custom attributes (like user defined properties) which will then be associated with any specific object type (e.g., folder, model, entity, column, or configuration, etc.).

Add a New Custom Attribute

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Attributes in the banner.
   - Metadata manager UI: Go to Tools > Administration > Attributes.
3. Click the Add plus sign.
4. Specify the Name and Description for the attribute.
5. Associate the new attribute with one or more metadata object type Scope.

> *These associations define the type of object (say table or column or term) to which this custom attribute may be assigned. There are no restrictions to selecting multiple Types.*

One may click Advanced to see a more complete list of Types.

6. Select the data **Type** of the custom attribute.
7. If you picked **Enumeration** as the **Type**, then enter **Possible Values**.
8. Enter a **Default Value**.
9. Specify a user or group assignment allowing only that user or group members to have **Edit Permission** to this custom attribute.

That user or group of users must also have the Editor security role assigned to the content containing a particular metadata object with the customer attribute.

Remove a Custom Attribute

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the **Admin** security role.
2. Go to either:
   - **Metadata explorer UI**: the **MANAGE** > **Attributes** in the banner.
   - **Metadata manager UI**: Go to **Tools** > **Administration** > **Attributes**.
3. Select the custom attribute to be removed.
4. Click on the Add action in the header.

Update the Value of a Custom Attribute for a Repository Level Object

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the **Edit** security role on the content.
2. Go to either:
   - **Metadata explorer UI**: the **MANAGE** > **Attributes** in the banner.
   - **Metadata manager UI**: Go to **the Repository panel**. Click the content and open the Properties panel. Populate the attribute..

3.

Manage Email Notification

In order to send out notifications of changes, Oracle Metadata Management (OMM) requires access to an e-mail server that provides SMTP access for sending mail.

There are two types of notifications in Oracle Metadata Management (OMM):

- Notification of model harvest, i.e., import of new model version. Notification can occur whether these events are scheduled or manual.
- Summary report type notification of changes to a glossary which is under workflow control.

For notification of model harvest, one must specify in settings that a model is to be subject to notification emails. That is all that is required from the model perspective.

These notification e-mails are only sent to the users who are stewards of the particular model, or steward of a term in a workflow glossary. Of course, users who are members of a group that is that type of steward are also notified.

Thus, in order to receive notification, one must have:

- Configured Oracle Metadata Management (OMM) to use an email server (as above)
- Assigned stewardship to some number of users and groups
- Given e-mail addresses to these groups or users
- For glossary workflow update summaries, a schedule must be created.

Specify the Connectivity Information for the Email

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Email in the banner.
   - Metadata manager UI: Go to Tools > Administration > Email.
3. You are presented with the required parameters. Specify
   - The Host Name for this SMTP server

- The Port to use when connecting to this SMTP server
- The User Name to use when connecting to the SMTP server
- The Password to use when connecting to the SMTP server
- The Sender Address to provide to the SMTP server that will appear as the sender in e-mail notifications
- The actual scheduled Time to execute the script, which many be
    - One time – specify one time for the script to run
    - Recurring – specify a recurring scheduled for the script to run
    - Advanced – use a cron type scheduling command

4. Click Add.

Summary Report Type Notification of Changes

For summary report type notification of changes to a glossary (which is under workflow control), one must define a schedule as to how often one would like summary report notifications to be sent.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
    - Metadata explorer UI: the MANAGE > Email in the banner.
    - Metadata manager UI: Go to Tools > Administration > Email.
3. Check the Add icon to add a schedule
4. You are presented with the required scheduling parameters dialog. Specify
    - The Name for this schedule
    - The Description to describe this schedule
    - The Object to apply the schedule to. Go to either

i. Metadata explorer UI: Click to browse for a workflow glossary content.

ii. Metadata manager UI: Drag and drop the workflow glossary from the Repository panel into this box.

- The Script to apply to the object. In this case you should specify Send glossary workflow notifications.
- The actual scheduled Time to execute the script, which many be
  - One time – specify one time for the script to run
  - Recurring – specify a recurring scheduled for the script to run
  - Advanced – use a cron type scheduling command

5. Click Add.

The user may replace the following line in MM installation directory/tomcat/conf/tomcat.properties

M_SERVER_FQDN=localhost{code}

with

M_SERVER_FQDN=<server name>{code}

The glossary notifications will have the server name instead of localhost in the URL.

Preferences

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > Preferences in the banner.
   - Metadata manager UI: Go to Tools > Administration > Email.

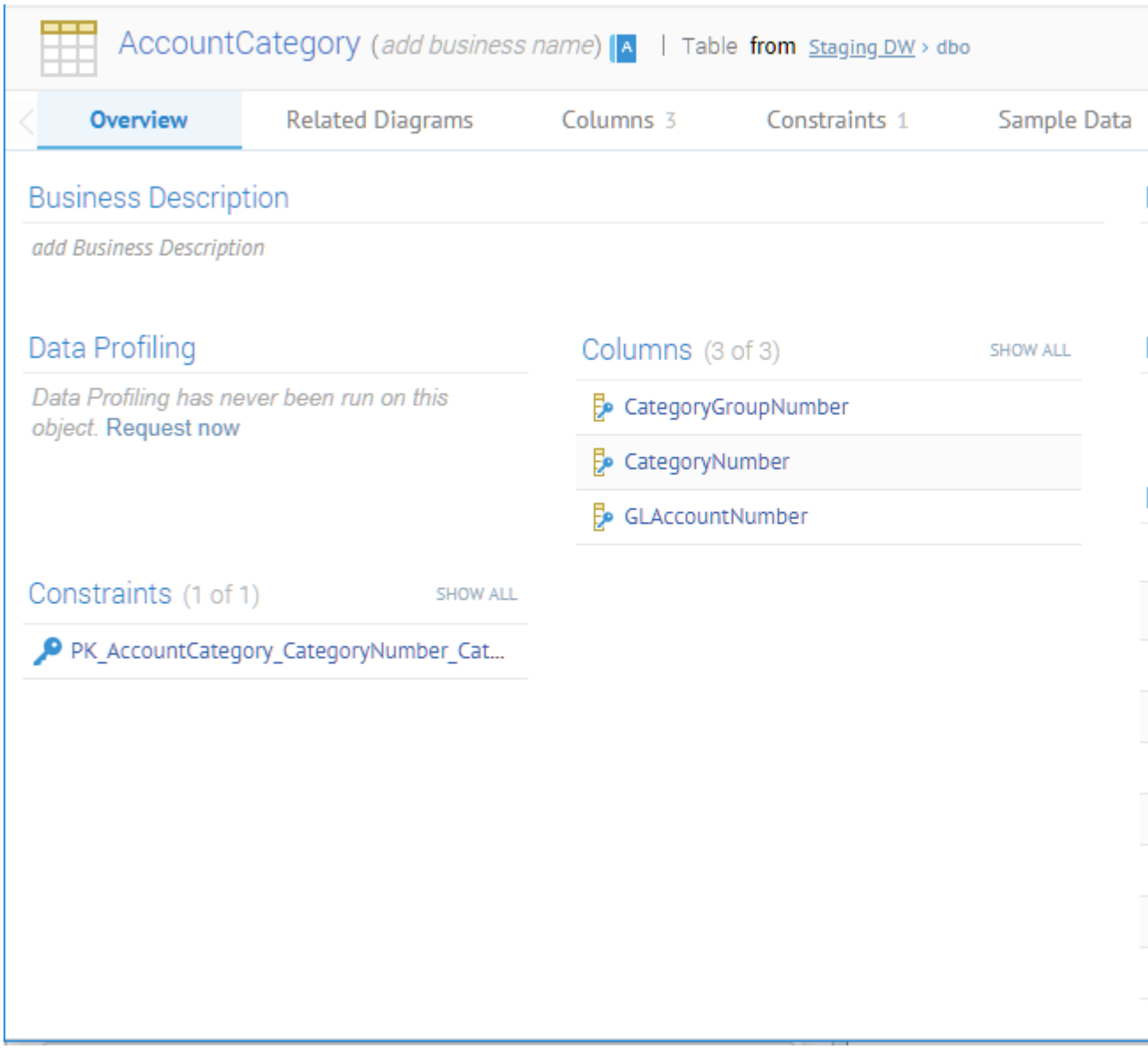
Other Useful Management Tasks

Obtain an object ID

For many admin task and most RESTful API calls, it is necessary to know the internal object_id of particular metadata elements, models, contents, etc.

Steps

1. Go to the pull-down in the upper-right with your username and then select> Preferences in the banner.
2. Change the system preferences to Print Debug Log Messages.
3. Navigate to the home page for the metadata element for which you wish to obtain the object_id.
4. In the Properties area of the home page, see the Model Id and Object Id fields.



The Object Id displayed here is in the context of the model it is in. The universal object_id is the combination of the Model Id and Object Id displayed on the home page.

The universal (repository wide, rather than model specific) object_id that most API calls are looking for is the concatenation of the Model Id and Object Id displayed on the home page. You must separate them with an underscore ("_").

E.g., in this case, the object_id is 62_30.

Be sure to include any negative or minus-signs (e.g., -1_22)

You may remove the debug preference once you have obtained the object_id, as leaving it enabled will greatly increase logging unnecessarily.

Switch to Metadata Manager UI

Steps

1. Go to MANAGE > Advanced Metadata Manager.

Analyze Content Statistics

Configuration Statistics

Simple, easy to read statistics report. To be used by any administrator wishing to obtain high level statistics for a given configuration.

Steps

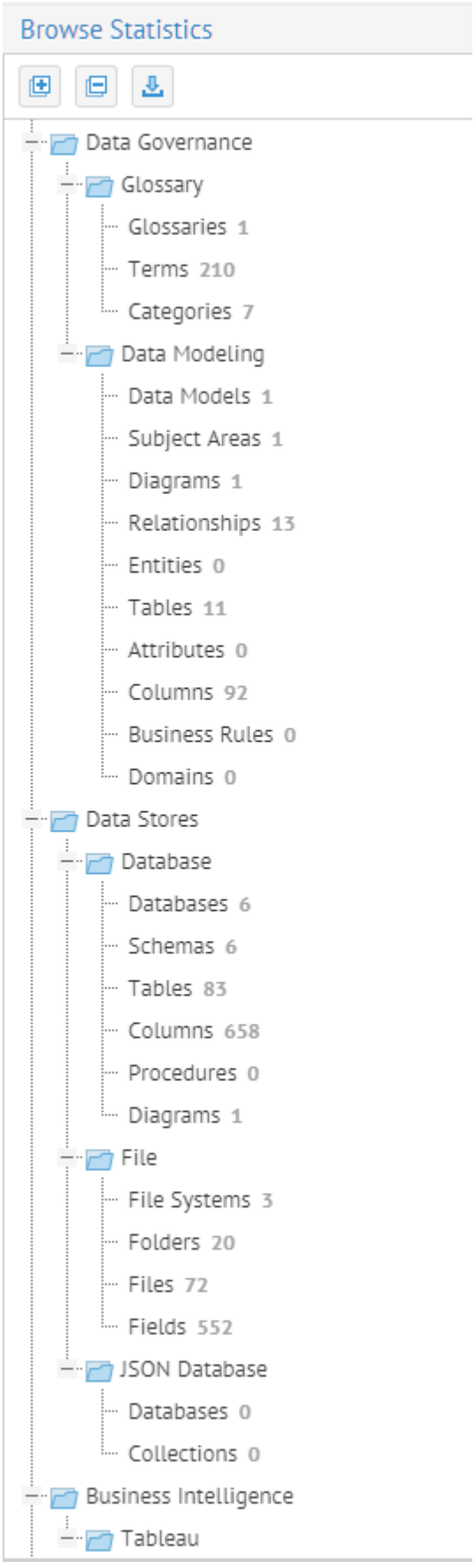
1. Go to BROWSE > Configuration Statistics in the banner.

The report is presented in the same order as in the BROWSE categories, as defined in the MM installation directory/conf/MetadtaExplorer.xml file. (See the Customization Tutorial for more details).

Explore Further

You may download () the report to CSV format.

Example


Browse Statistics
Data Governance
Glossary
Glossaries 1
Terms 210
Categories 7
Data Modeling
Data Models 1
Subject Areas 1
Diagrams 1
Relationships 13
Entities 0
Tables 11
Attributes 0
Columns 92
Business Rules 0
Domains 0
Data Stores
Database
Databases 6
Schemas 6
Tables 83
Columns 658
Procedures 0
Diagrams 1
File
File Systems 3
Folders 20
Files 72
Fields 552
JSON Database
Databases 0
Collections 0
Business Intelligence
Tableau

Repository Statistics

(Default) Statistics

Simple, easy to read statistics report. To be used by any administrator wishing to obtain high level statistics on the repository content and features used.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > System in the banner.
   - Metadata manager UI: Go to Tools > Administration > System.
3. Go to Scripts > Generate repository content statistics.

Example

[11/Get repository content statistic] 2018-07-25 09:04:37 OPER_S0166

1 Configurations (1 versions)

1 Glossaries (1 versions)

2 Semantic Mappings (2 versions)

3 Data Mappings (3 versions)

18 Models (18 versions)

0 Naming Standards

0 File Attachments

4 imports from File System (CSV, Excel, XML, JSON, Avro, Parquet)

2 imports from Metadata Excel Format

7 imports from Microsoft SQL Server Database SQL DDL

1 imports from Tableau Server (Repository)

3 imports from Talend Data Integration

1 imports from erwin 9.x Data Modeler (File)

1 Servers

1 Schedules

6 Users

4 Groups

1 Folders

System Statistics

To be used exclusively for support purposes debugging DB issues.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
   - Metadata explorer UI: the MANAGE > System in the banner.
   - Metadata manager UI: Go to Tools > Administration > System.
3. Go to Scripts > Generate repository system statistics.

System Management Tasks

Administer the Database

Many of the common database management tasks may be performed from the metadata manager UI without the need to connect directly to the database server.

Steps

4. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.

5. Go to either:
    - Metadata explorer UI: the MANAGE > System in the banner.
    - Metadata manager UI: Go to Tools > Administration > System.

Run Database Maintenance

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
    - Metadata explorer UI: the MANAGE > System in the banner.
    - Metadata manager UI: Go to Tools > Administration > System.
3. Click on the Run Maintenance button.

The database maintenance is a multi-step operation, including:

- *it will perform actual deletion of model data*
- *it will maintain the database tables and indexes*
- *it will maintain the search index*

This is a fairly heavy operation. So there is another operation to help people who perform large initial imports. The Build Database Table Indices is available also, which simply performs step 2 of the database maintenance operation.

Clear Database Cache

Certain repository objects are cached for faster retrieval. You may clear the cache so that the Repository will load these objects from the database the next time they are accessed.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.

2. Go to either:
    - Metadata explorer UI: the MANAGE > System in the banner.
    - Metadata manager UI: Go to Tools > Administration > System.
3. Click on the Clear Cache button.
4. Select which cache to clear.

Run performance script

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Go to either:
    - Metadata explorer UI: the MANAGE > System in the banner.
    - Metadata manager UI: Go to Tools > Administration > System.
3. Click on **Scripts** > Test Performance.

System Backup

Regular backups of contents of the repository are highly recommended. Oracle Metadata Management (OMM) stores all the data entirely in the database, including models, the cache of what is harvested (to be used when exporting or when populating a glossary from a harvested model, as well as information maintained to support incremental harvesting), users and Admin information, and logs.

The UI based backup/restore is not a substitute for a full database backup, as it does not contain critical admin data, such as logs.

The UI based backup/restore use cases are typically:

- For support to reproduce issues as explained in the Help: http://metaintegration.com/Products/MIMM/OEM/MITI/Help/MetadataManager/#!Documents/reportingissues.htm
- To deliver demos/tutorial
- To deliver from development to production (with a backup without content and harvest in production)
- To migrate to a new type of database such as PostgreSQL to Oracle.

The rules by which the backup and restore process works are as follows:

- A repository backup may be performed at the repository root level, or at any repository sub levels. In all cases, the full path of the backup starting level is not recorded within the backup so that it can then be restored at any repository sub-levels later.
- When restoring a repository backup, some repository objects may already exist and will be reused as is (rather than overwritten) by the content of the backup.
- Any repository backup may contain repository objects having repository object dependencies, which is the case of a Directory, Configuration, Data Mapping, Semantic Mapping. In such a case, each dependent repository object is saved in the backup with its full path from the root. Therefore, when performing the backup, the start level name must not conflict with any root level object names.

Installation

For installation and configuration details, please refer to the ReadMe document.

HostInfo File and Licensing

When requesting a license, a HostInfo.xml file generated for the server machine is required. One is located in the root of the installation directory after install of the Oracle Metadata Management (OMM).

Troubleshooting

General Troubleshooting

For any issue when you see something unexpected

Steps

1. Apply the latest MM Cumulative Patch (and make sure Database Script has run long enough)

Explorer Further

UI Troubleshooting

For any issue where you see something unexpected in the UI, please perform the following steps.

Steps

1. Stop Oracle Metadata Management (OMM) service on the server machine and run Oracle Metadata Management (OMM) as a desktop app by selecting Start -> All Programs -> Meta Integration -> Server Restart.
2. Close all instances of the web browser you are using.
3. Check that the browser and Adobe Flash are updated to the latest patches.
4. Open an instance of the browser.
5. Clear the cache and recent history on the web browser.
6. Close all instances of the web browser.
7. Open the browser and reconnect to Oracle Metadata Management (OMM).
8. Remove any zoom effects on the browser, generally by using Ctrl-0.

Bridge Troubleshooting

For any issue where you see something unexpected when importing a model, please perform the following steps.

Steps

1. Review the tool tips (help) for the bridge in general and each bridge parameter individually to ensure that the bridge is being used correctly.
2. Open the import (or export) log and be sure to select Show: All. Then, make any changes specified in the log messages.
3. Stop Oracle Metadata Management (OMM) service on the server machine and run Oracle Metadata Management (OMM) as a desktop app by selecting Start -> All Programs -> Meta Integration -> Server Restart. If this step resolved the problem, then

refer to the Oracle Metadata Management (OMM) Readme and be sure you have followed:

- Step (3.) in section (5.1) “Default install on Windows with bundled Tomcat”
- All the steps in section (6.) “MIMB (Metadata Harvesting)”.

4. Clear the import cache directories on the application server machine at:

   C:\ProgramData\Meta Integration\data\MIMB\cache

5. Change the system preferences to Print Debug Log Messages, run the bridge again and review the log messages.

Configuration Troubleshooting

For any issue where you see something unexpected and neither of the above have resolved the issue.

Steps

1. Ask the system administration staff to review the installation and configuration steps in the ReadMe, especially the sections covering installation and testing of the Application Server and software.

Reporting an Issue

When reporting an issue, there is some information you should collect beforehand.

Steps

1. Sign in to Oracle Metadata Management (OMM) as a user with at least the Admin security role.
2. Get the Application Server and Database Server Details by going to either:
   - Metadata Explorer UI > Top banner menus > MANAGE > System
   - Metadata Manager UI > Top right menus > Tools > Administration > System

   then
   - Click Download (top right) to obtain a TXT file of the application and database server Information

- Click Scripts (top left) > Get repository content statistics (run script and save log)
- Click Scripts (top left) > Test performance (run script and save log)

3. Get the Database Maintenance Status by going to either:

   - Metadata Explorer UI > Top banner menus > MANAGE > System
   - Metadata Manager UI > Top right menus > Tools > Administration > System

   then

   - Select the script (top panel) Run Database Maintenance
   - Select the latest execution in the History (bottom panel) and click View Log (on the right)
   - In the Log Messages dialog, click on Show All (bottom), and Save

4. Get the Repository Content Statistics for (each) Configuration by going to:

   - Metadata Explorer UI > Top banner menus > BROWSE > Statistics

   then

   - In the banner, click on Download (top left) the CSV file of the configuration statistics.

Creating a Backup

In order for Support staff to reproduce an issue you report, please be sure to back up the relevant portion of Oracle Metadata Management (OMM). In general, it is best to create a backup of the configuration containing the model or models where the problem was observed.

Steps

1. Sign in to the Repository as a user with full access privileges to all of the models and configurations contained with the backup scope.
2. In Metadata Manager UI:
   - Select the root object in the Repository Panel which will be backed up. Remember, all contained models and configurations will also be backed up.
   - Right-click and select More -> Backup.
   - Browse for a directory on the server machine where you wish to create the backup. If you specify a directory which does not exist, Oracle Metadata Management (OMM) will create it when backing up.

- If the issue is related to users, groups, security role assignments or other system configuration settings, be sure to select the check box for Backup system managedobjects like Groups.

For security reasons, user passwords are reset to their user names.

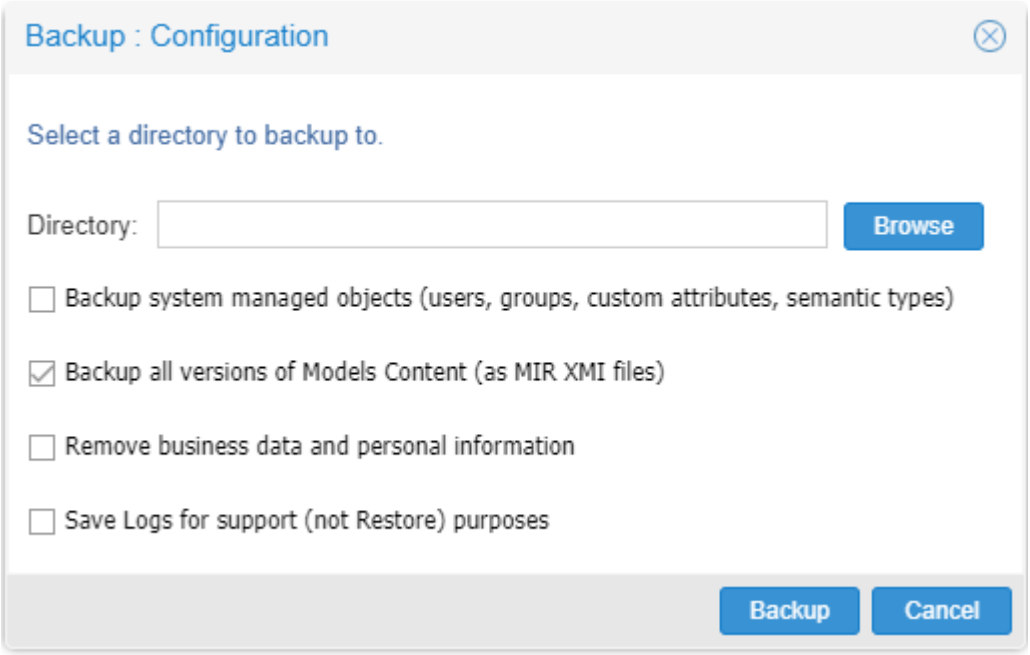
- Be sure to select the check box for Backup all versions of models Content.
- Click on the Backup button.

3. In Metadata Explorer UI:
   - Go to MANAGE > Contents.
   - To backup one content or multiples, select the content(s). Click More Actions > Backup.
   - To backup the entire configuration, do not select any contents. Click More Actions > Backup.
   - Browse for a directory on the server machine where you wish to create the backup. If you specify a directory which does not exist, Oracle Metadata Management (OMM) will create it when backing up.
   - If the issue is related to users, groups, security role assignments or other system configuration settings, be sure to select the check box for Backup system managed objects like Groups

For security reasons, user passwords are reset to their user names.

- Be sure to select the check box for Backup all versions of models Content.
- Click on the Backup button.

Example



Explore Further

Backup Without Profiling and Sampling Data

Including the actual data profiling and sample data in the backup is optional and by default it will not be included.

Backup Advanced System Objects

You may include system objects like Users and groups

For security reasons, user passwords are reset to their user names.

Backup Version History

You may include all versions of Models Content (as MIR XMI files). By default it will not be included.

If you do not include this option, then only the content definition will be included, and none of the versions imported.

Remove business data and personal information

Removes:

- all data profiling and sampling information (retaining only metadata names)
- and removes all personal information including all information on users (names, emails, etc.)

- and all bridge parameters (such as user names and passwords used to connect to databases)

Save Logs for support (not Restore) purposes

If creating the backup to report an issue, please be sure to include the import and other log information.

Restoring a Backup

One may restore a backup using either the Metadata Manager UI or the Metadata Explorer UI.

> *When restoring using the Metadata Explorer UI, which is restricted to a specific configuration, the structure of the backup must match the current configuration, including configuration name and folder path in the repository. If they do not match, you should create a new empty folder using the Metadata Manager UI and restore there.*

Steps

1. Sign in to the Repository as a user with full access privileges to all of the models and configurations contained with the backup scope.
2. In Metadata Manager UI:
    - Create and empty folder in the Repository Panel which will be used to restore the backed up models. Remember, all contained models and configurations will also be restored.
    - Right-click and select More -> Restore.
    - Browse for a directory on the server machine where you created the backup before
    - Click on the Restore button.
3. In Metadata Explorer UI:
    - Go to MANAGE > Contents.
    - Click More Actions > Restore.

The restore menu in the Metadata Explorer UI is only visible when the user has write permissions on the configuration and the configuration management and version management features are not enabled, i.e., only with single version and single configuration licenses.