Configuring an Oracle Resource in Metadata Manager 9.0
Abstract
This article shows how to create and configure an Oracle resource in Metadata Manager 9.0 to extract metadata from an Oracle database 10g and 11g.

Supported Versions
- Metadata Manager 9.0

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Oracle
You can create and configure an Oracle resource to extract metadata from Oracle. When you load the resource, Metadata Manager extracts schema details from an Oracle database.

Configuring Oracle
Before you create an Oracle resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

Configure the permissions for the Oracle database user account that you use to connect to the Oracle database.

Configure CONNECT and SELECT_CATALOG_ROLE permissions for the user account.

Or, if you cannot configure SELECT_CATALOG_ROLE permission for the user account, configure CONNECT and SELECT permissions on the required schema objects and corresponding system tables.
The following table lists the schema objects and corresponding system tables on which you must configure SELECT permissions for the Oracle database user account:

<table>
<thead>
<tr>
<th>Schema Objects</th>
<th>System Tables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tables</td>
<td>ALL_OBJECTS</td>
</tr>
<tr>
<td>Views</td>
<td>ALL_SOURCE</td>
</tr>
<tr>
<td>Indexes</td>
<td>ALL_USERS</td>
</tr>
<tr>
<td>Packages</td>
<td>DBA_COL_COMMENTS</td>
</tr>
<tr>
<td>Procedures</td>
<td>DBA_CONS_COLUMNS</td>
</tr>
<tr>
<td>Functions</td>
<td>DBA_CONSTRAINTS</td>
</tr>
<tr>
<td>Sequences</td>
<td>DBA_DEPENDENCIES</td>
</tr>
<tr>
<td>Triggers</td>
<td>DBA_IND_COLUMNS</td>
</tr>
<tr>
<td>Synonyms</td>
<td>DBA_INDEXES</td>
</tr>
<tr>
<td></td>
<td>DBA_MVIEWS</td>
</tr>
<tr>
<td></td>
<td>DBA_OBJECTS</td>
</tr>
<tr>
<td></td>
<td>DBA_RECYCLEBIN</td>
</tr>
<tr>
<td></td>
<td>DBASEQUENCES</td>
</tr>
<tr>
<td></td>
<td>DBA_SOURCE</td>
</tr>
<tr>
<td></td>
<td>DBA_SYNONYMS</td>
</tr>
<tr>
<td></td>
<td>DBA_TAB_COLUMNS</td>
</tr>
<tr>
<td></td>
<td>DBA_TAB_COMMENTS</td>
</tr>
<tr>
<td></td>
<td>DBA_TAB_PARTITIONS</td>
</tr>
<tr>
<td></td>
<td>DBA_TABLES</td>
</tr>
<tr>
<td></td>
<td>DBA_TRIGGERS</td>
</tr>
<tr>
<td></td>
<td>DBA_USERS</td>
</tr>
<tr>
<td></td>
<td>DBA_VIEWS</td>
</tr>
</tbody>
</table>

Creating an Oracle Resource

Before you create an Oracle resource, configure the Oracle source.

To create an Oracle resource:

1. On the Load tab, click **Actions > New Resource**.
   
The **Resource Selection** window appears.

2. Click **Database Management > Oracle**.

3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name for the resource. The resource appears in the Resources panel with this name. The name must be unique and have from 1 through 256 characters. It cannot include the following characters: /:*?&lt;&gt;</td>
</tr>
<tr>
<td>Description</td>
<td>Description for the resource. Description cannot exceed 4,000 characters.</td>
</tr>
</tbody>
</table>

5. Click **Next**.

   The **Configuration** page appears.
6. Configure the following resource connection properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User name</td>
<td>Name of the user account used to connect to the Oracle database.</td>
</tr>
<tr>
<td>Password</td>
<td>Password for the user account used to connect to the Oracle database.</td>
</tr>
<tr>
<td>JDBC connection URL</td>
<td>JDBC URL used to connect to the Oracle database. Metadata Manager uses this URL to verify connection information to the Oracle database. If the Oracle database is not clustered, the JDBC connection URL uses the following syntax: jdbc:informatica:oracle://[host]:[port];SID=[sid] You can enter the SID or edit the string to use the full service name. For example: jdbc:informatica:oracle://[host]:[port];ServiceName=[service name] If the Oracle database is clustered, edit the JDBC connection URL string to use the following syntax: jdbc:informatica:oracle://[host1]:[port1];ServiceName=[service name];AlternateServers = [{[host2]:[port2]};LoadBalancing=true</td>
</tr>
<tr>
<td>Connect string</td>
<td>Native connect string used to create a source connection to the database in the PowerCenter repository. The connect string is the same as the Oracle TNSNAMES entry on the machine where the associated Integration Service for Metadata Manager runs. The connect string uses the following syntax: &lt;database_name&gt;.world</td>
</tr>
<tr>
<td>Encoding</td>
<td>Code page for the Oracle database. The code page for the resource, the Metadata Manager repository, and the machine where the associated Integration Service for Metadata Manager runs must be the same.</td>
</tr>
</tbody>
</table>

7. Click **Test Connection** to test the connection to the source system. If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

9. To enable profiling information extraction for the resource, select the **Profile Source** option.

10. To add schemas to the Selected Schemas list, select the schema in the Available Schemas list and click **Add**.

11. To add all available schemas, click **Add All**.

12. To remove schemas from the Selected Schemas list, select the schema in the Selected Schemas list and click **Remove**.

13. To remove all schemas from the Selected Schemas list, click **Remove All**.

14. Click **Next**.

The Schedules window appears.

15. To add a schedule, select **Attach a Schedule** and select a schedule in the Schedule list. If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

16. Click **Finish**.

The resource appears in the Resources panel on the Load tab.

**Troubleshooting**

I loaded an Oracle resource with the profiling option enabled. However, when I view profiling data on a table for the Oracle resource, the following message appears in the Profile tab:

No profiling data available.
This error can occur for the following reasons:

- **No data in table.** The table does not contain any data.
- **Unsupported characters in table or column name.** Metadata Manager does not extract profiling information for tables or columns with the following characters in the name:
  
  + = ~ ' % ^ & * ( ) [ ] < > ; : / ? , < > \ \n @.

  In addition, Metadata Manager does not extract profiling information if the Oracle table begins with a numeral.
- **80 characters or more in table or column name.** Metadata Manager does not extract profiling information for tables or columns that have 80 characters or more in the name.
- **Unsupported column datatype.** Metadata Manager does not extract profiling information for Oracle XMLTYPE column types.
- **Table profile limit.** The number of tables to profile may exceed the table profile limit. The Max_Tables_To_Profile property in the imm.properties file determines the maximum number of tables to profile. Increase the value of the Max_Tables_To_Profile property to the number of tables in a resource.

  By default, imm.properties is located in the following directory:

  `<Informatica installation directory>\tomcat\shared\classes`

  After you configure properties in imm.properties, disable and enable the Metadata Manager Service for the changes to take effect.

When I load an Oracle resource in Metadata Manager, I get the following error in the session log:

```
ORA-26097: Unsupported conversion for column LAST_CHANGE (from type 180 to type 12).
```

This error can occur when the Metadata Load folder in the PowerCenter repository contains corrupt data. The Metadata Load folder stores the workflows that extract metadata from IME-based files when you load a resource. To resolve this error, remove the corrupt Metadata Load folder.

To remove the Metadata Load folder:

1. Use Informatica Administrator to disable the Metadata Manager Service.
2. From the PowerCenter Repository Manager, connect to the Repository Service associated with the Metadata Manager Service.
3. Open the Metadata Load folder.
4. If you have added custom metadata into the Metadata Manager warehouse, use the Repository Manager to export all the workflows created for the custom metadata to XML files.
5. Delete the Metadata Load folder and disconnect from the repository.
6. Use Informatica Administrator to enable the Metadata Manager Service.

   Enabling the service creates a new Metadata Load folder.
7. If you exported workflows created for custom metadata, then use the PowerCenter Repository Manager to import the workflows from the XML files.
8. Use Metadata Manager to load the Oracle resource again.

When I view the data lineage for an Oracle synonym, I get the following error:

```
An Exception occurred. See the Metadata Manager Service log events for more information.
```

This error can occur for the following reasons:

- The table that the synonym refers to is not loaded into the Metadata Manager warehouse. To resolve this issue, load the schema that contains the table that the synonym refers to.
- The synonym uses a database link to refer to a table in a different database. Metadata Manager does not support data lineage for objects created using a database link.
When I view the data lineage for an Oracle resource, Metadata Manager displays synonyms. However, I do not want to display the synonyms.

By default, Metadata Manager shows synonyms for all Oracle resource database tables in data lineage. You can hide the synonyms for all Oracle resource database tables by setting the Lineage.showSynonym property in the imm.properties file to false.

By default, imm.properties is located in the following directory:

- `<Informatica installation directory>\tomcat\shared\classes`

After you configure properties in imm.properties, disable and enable the Metadata Manager Service for the changes to take effect.

When I view the data lineage for a PowerCenter mapping with a source table that is an Oracle public synonym, the mapping is not connected to the source database.

An Oracle public synonym is defined in the Oracle PUBLIC schema. You must add the PUBLIC schema to the Oracle resource properties and load the resource again.

To add the PUBLIC schema to the Oracle resource properties:

1. Select the Oracle resource in the Resources panel on the Load tab.
2. Click Edit Resource, and then click the Parameters tab in the Edit Resource window.
3. Add the PUBLIC schema to the Schema Inclusion List parameter.
4. Load the resource again.

Reference

After you create and load an Oracle resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts the following database object types from Oracle:

- Database trigger
- Schema
- Schema trigger

Metadata Manager extracts the following object types from the Oracle schema:

- Function
- Index
  - Index column
- Materialized view
  - Check constraint
  - Column
  - Foreign key
- Package
  - Function
  - Procedure
Metadata Manager does not extract dropped tables, constraints, triggers, or indexes from the Oracle schema.

**Snapshots**

Oracle database snapshots do not display in the metadata catalog or data lineage.

**Public Schema**

Public schema is not a true Oracle schema. Metadata Manager creates a virtual schema, called PUBLIC schema, to properly display the owner of Oracle public synonyms. The Public schema owns and classifies all public synonyms created by any user. The Public schema appears as the owner name for all public synonyms in Metadata Manager.

**Public Synonym Handling**

Metadata Manager does not extract Oracle internal public synonyms.

Metadata Manager extracts Oracle public synonyms for the schemas that you select to load. Public synonyms appear for database tables included in the lineage diagram.

**Profiling**

Metadata Manager does not extract profiling information for all Oracle datatypes.

The following table lists Oracle datatypes and whether Metadata Manager extracts profiling information from them:

<table>
<thead>
<tr>
<th>Datatype</th>
<th>Profiled by Metadata Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFILE</td>
<td>No</td>
</tr>
<tr>
<td>BLOB</td>
<td>Yes</td>
</tr>
<tr>
<td>CHAR</td>
<td>Yes</td>
</tr>
<tr>
<td>CLOB</td>
<td>Yes</td>
</tr>
<tr>
<td>Datatype</td>
<td>Profiled by Metadata Manager</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Date</td>
<td>Yes</td>
</tr>
<tr>
<td>Interval Day to Second</td>
<td>No</td>
</tr>
<tr>
<td>Interval Year to Month</td>
<td>No</td>
</tr>
<tr>
<td>Long</td>
<td>Yes</td>
</tr>
<tr>
<td>Long raw</td>
<td>Yes</td>
</tr>
<tr>
<td>Nchar</td>
<td>Yes</td>
</tr>
<tr>
<td>Nclob</td>
<td>Yes</td>
</tr>
<tr>
<td>Number</td>
<td>Yes</td>
</tr>
<tr>
<td>NVarchar2</td>
<td>Yes</td>
</tr>
<tr>
<td>Raw</td>
<td>Yes</td>
</tr>
<tr>
<td>Ref</td>
<td>No</td>
</tr>
<tr>
<td>Rowid</td>
<td>No</td>
</tr>
<tr>
<td>Timestamp</td>
<td>Yes</td>
</tr>
<tr>
<td>Timestamp with Local Time Zone</td>
<td>No</td>
</tr>
<tr>
<td>Timestamp with Time Zone</td>
<td>Yes</td>
</tr>
<tr>
<td>Urowid</td>
<td>No</td>
</tr>
<tr>
<td>Varchar2</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Metadata Manager profiles columns with the following datatypes using the Null Count aggregate function only:

- Blob
- Clob
- Long
- Long raw
- Nclob
- Raw

**Data Lineage for Database Management Resources**

Data lineage includes a database table if data is extracted from or loaded to the table. If the table is included in a join statement but no data is extracted from or loaded to it, the table does not appear in data lineage.

For example, an SQL view includes two tables, CUSTOMER and CITY as described in the following SQL:

```sql
CREATE VIEW SF_CUST_VIEW AS SELECT CUSTOMER.ID, CUSTOMER.NAME
FROM CUSTOMER, CITY
WHERE CUSTOMER.CITY_ID = CITY.ID AND CITY.NAME = 'SFO'
```
Because the view only exposes data from the CUSTOMER table, the CITY table does not display in data lineage for the view. Instead, data lineage displays the CITY table as a Related Catalog Object of the view.

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