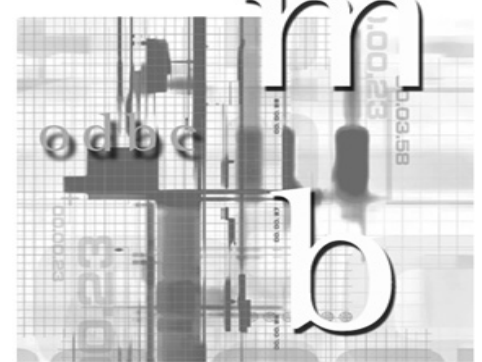
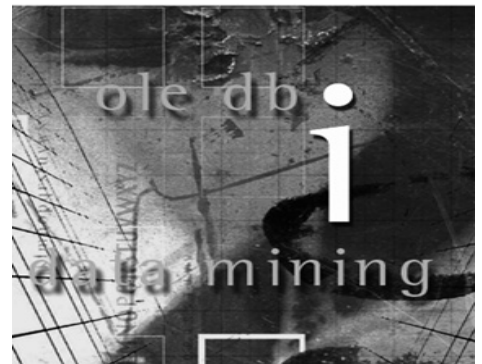


# MDX for Oracle OLAP XMLA edition

## Administration Guide

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# MDX for Oracle OLAP – XMLA edition Administration Guide

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# Introduction

MDX Provider for Oracle OLAP is software that allows the SAP BusinessObjects Analysis, edition for OLAP Business Intelligence (BI) client application to connect to an Online Analytical Processing (OLAP) multi-dimensional data cube provided by the OLAP Option of Oracle 11g Database.

MDX Provider for Oracle OLAP allows the OLAP cube to be presented and manipulated for BI analysis in real time, using a BI client application.

## Who Should Read this Manual

The *Administration Guide* provides instructions on how to configure Oracle OLAP for use with MDX Provider for Oracle OLAP.

This manual is intended for the following audience:

- OLAP cube administrators/DBAs that are familiar with:
  - ◆ Database connection information regarding Oracle TNS and Windows DSN.
  - ◆ Analytical Workspace Manager (AWM) for optional tailoring of the solution.

The *Administration Guide* assumes you have a general understanding of the OLAP concepts, ODBC configuration and Oracle client setup.

## Further Documentation

In addition to the *Administration Guide*, refer to the following documents for details related to respective components of MDX Provider for Oracle OLAP:

- *MDX for Oracle OLAP - XMLA edition Windows Installation Guide*—Discusses installation and configuration of MDX for Oracle OLAP - XMLA edition on the Windows platform
- *MDX for Oracle OLAP - XMLA edition Linux Installation Guide*—Discusses installation and configuration of MDX for Oracle OLAP - XMLA edition on the Linux platform

## Reference Information

For complete information on the Oracle 11g Client, the Analytical Workspace Manager software and the Oracle 11g OLAP option, see the Oracle documentation available from Oracle at <http://www.oracle.com/pls/db111/homepage>.

A good reference on MDX is *MDX Solutions*, 2nd ed. by George Spofford et al, Wiley, 2006.

- See also *References* on page 25 at the end of this manual.

# Conventions Used in This Guide

- *Italics* are used for referring to book, document and section titles.
- **Bold** is used in procedures for GUI elements that a user clicks and text that a user types.
- `Courier monospace` font is used for contents of plaintext files and source code.
- Underline is not used.

## Install and Usage Prerequisites

To use MDX Provider for Oracle OLAP, you need:

- An Oracle Database Enterprise Edition Release 11.1.0.7 (or later) server with OLAP Option.
- The latest OLAP patches. *Table 1* lists the appropriate patches currently available for various Oracle releases.

Table 1: OLAP Patches Available for Oracle Releases

| Oracle Release | Oracle Patch Name | Oracle Patch Number |
|----------------|-------------------|---------------------|
| 11.2.0.3       | OLAP Patch A      | 13819727            |
| 11.2.0.2       | OLAP Patch C      | 14216370            |
| 11.2.0.1       | OLAP Patch B      | 10130392            |
| 11.1.0.7       | OLAP Patch D      | 9147749             |

To find relevant OLAP patches from Oracle, or to see what is fixed in a given patch:

- a) Go to [support.oracle.com](http://support.oracle.com), and sign in.
  - b) Select the Patches and Updates tab.
  - c) Under Patch Search, click on Product or Family (Advanced).
  - d) Check - Include all products in a Family.
  - e) In the Product dropdown list, choose Oracle OLAP Products.
  - f) Choose the appropriate release.
  - g) Choose the appropriate platform.
  - h) Click Search. This will show Oracle OLAP patches only.
- A working Oracle schema with at least one Analytical Workspace (AW) and a cube schema with at least one measure in it.
  - A minimum of 2GB RAM is required
  - For installation only, administrative privileges are required.
  - SAP BusinessObjects Analysis, edition for OLAP

# Access and Security

Basic user access and troubleshooting are covered in Section on page 10. This section covers more advanced access and security administration issues.

## Granting a Non-Privileged User Access To A Cube

For a user to have SQL query access to a cube, that user must have SELECT privileges on the Analytical Workspace, the dimensions of the cube, and on the views that you are querying. To grant user 'global' access to a cube:

```
-- The AW.
GRANT SELECT ON aw$dm TO global;
-- Dimensions.
GRANT SELECT ON time TO global;
GRANT SELECT ON product TO global;
GRANT SELECT ON customer TO global;
GRANT SELECT ON channel TO global;
-- The cube.
GRANT SELECT ON sales_cube TO global;
-- Views
GRANT SELECT ON time_calendar_view TO global;
GRANT SELECT ON product_standard_view TO global;
GRANT SELECT ON geography_regional_view TO global;
GRANT SELECT ON channel_sales_channel_view TO global;
GRANT SELECT ON sales_cube_view TO global;
```

Henceforth 'global' will now be a valid user of this AW even if that is not an owner of the schema.

## Drill-Through

If the user needs to access details by drilling through to table data (see *Drill-Through to Fact Table* on page 40), then the user needs access to the respective fact and dimension tables:

```
GRANT SELECT ON sales_fact TO global;
GRANT SELECT ON product_dim TO global;
```

## Oracle Database 11g

When using Oracle database 11g, then for the first time only the user uses drill-through, they additionally will need:

```
GRANT CREATE PROCEDURE TO global;
```

# Measure Folders

OLAP cube measures can be grouped into folders within AWM and seen/chosen within the BI client application.

In order to enable measure folders, the AW owner needs to grant the following privileges to the appropriate users:

```
DELETE ANY MEASURE FOLDER;  
DROP ANY MEASURE FOLDER;  
INSERT ANY MEASURE FOLDER;
```

# Hiding Cubes

The MDX Provider for Oracle OLAP can be configured to prevent a cube from being visible to MDX clients. This functionality is primarily intended to prevent end users from inadvertently selecting and using a base cube that may have incomplete or intermediate calculated data. Such cubes are often used to create other user-visible cubes. A cube can be hidden by including the token "HIDEBASECUBE" (all upper case and without quotes) in the cube's description field (not the short or long label field) in AWM.

| Field        | Value                      |
|--------------|----------------------------|
| Name:        | HIDDEN_CUBE                |
| ID:          | GLOBAL.HIDDEN_CUBE         |
| Short Label: | Hidden Cube                |
| Long Label:  | Hidden Cube                |
| Description: | Hidden Cube (HIDEBASECUBE) |

Figure 1

**Note:** This functionality should not be used as a substitute for proper Oracle security practices.

# Encryption

Oracle Database automatically and transparently encrypts passwords during network (client-to-server and server-to-server) connections, using Advanced Encryption Standard (AES) before sending them across the network. For more information, see:

[http://download.oracle.com/docs/cd/B28359\\_01/network.111/b28531/authentication.htm](http://download.oracle.com/docs/cd/B28359_01/network.111/b28531/authentication.htm)

Oracle does not usually encrypt data, but there are ways to encrypt sensitive data in transmission. For more information on data encryption, see:

[http://download.oracle.com/docs/cd/E11882\\_01/network.112/e10746/asoappa.htm#g638255](http://download.oracle.com/docs/cd/E11882_01/network.112/e10746/asoappa.htm#g638255)



# Complexities Arising from Oracle Public Synonyms

Even though an ODBC connection is known to be working, there may be an issue whereby an OLAP connection cannot be created. Oracle has entities called "public synonyms" that are accessible by anyone who can log onto the server, but based on the user's privilege, they get different results from the same query.

If the user credentials used to access an Oracle cube is different from the cube's owning schema, then you need to grant proper privileges to that user so that they can gain access to the required schema objects (e.g., dimensions, levels, attributes and cubes).

Please consult Oracle OLAP documentation on how to grant such privileges.

# Performance Tuning

## Keep Size/Number of Member Attributes Modest

Dimension member attributes are characteristics associated with members. For example, a Region-Store dimension hierarchy might have individual retail stores as the hierarchy leaf members. Examples of useful attributes might be store floor area, or store manager name.

These attributes can take up much more space than the member itself, and can slow performance on wide area networks or virtual private networks if you have a huge number of members (e.g. 100,000 members).

To handle the issue, since these are generally useful attributes, a DBA can endeavour to keep their number and individual field sizes to moderate values.

## Available Settings For Tuning Provider Behavior and Performance

The settings described in *Table 2* on page 11 are available for tuning Provider behavior and performance.

In Windows, the settings are implemented using the Registry. To modify the Windows Registry, you must have Administrator privileges on the computer. Depending on the bitness of MDX for Oracle OLAP that you use, the Registry keys are located in the following paths:

- **32 bit**—[HKEY\_LOCAL\_MACHINE\Software\Wow6432Node\Simba\MDX Provider for Oracle OLAP\RuntimeSettings\]
- **64 bit**—[HKEY\_LOCAL\_MACHINE\Software\Simba\MDX Provider for Oracle OLAP\RuntimeSettings\]

**Important:** Use caution when modifying Registry keys.

In Linux, the settings are implemented using a configuration file named `runtime.conf`. By default, the file is located in the folder `/etc/mdxprovider/sxo`

**Note:** For details on installing MDX for Oracle OLAP – XMLA edition, see the respective Windows or Linux *Installation Guide*.

Table 2: MDX Provider Behavior and Performance Settings

| Key                  | Default Value     | Module Affected | Purpose   |
|----------------------|-------------------|-----------------|---|
| CacheAreaThreshold   | 20                | MDX Engine      | Controls how aggressively cell data is cached when queries are generated incrementally. Setting this value lower will make the cache more aggressive, at the cost of increasing memory consumption. Try tuning this value downwards when your Oracle OLAP cube has extremely expensive calculated measures.   |
| CSConversionType     | 0                 | SQL Generator   | Please see localization section   |
| EnableExplicitAttach | 1                 | SQL Generator   | When set to the default value of 1, the AW_ATTACH method is called to attach an analytic workspace when creating an Oracle session. When set to 0, AW_ATTACH is not called when creating a session and an analytic workspace is attached when first used. If a workspace is attached when used, then the workspace is attached each time the workspace is used. |
| EnableHideCube       | 0                 | SQL Generator   | When set to the default value of 0, the cube hiding feature described in <i>Hiding Cubes</i> on page 8 is disabled. When set to 1, the cube hiding feature is enabled.  |
| EnableServerTracing  | 0                 | SQL Generator   | Enables server tracing for foreground and background sessions. Note that you need server tracing command set as well if you decide to enable tracing.   |
| EnableSubqueries     | 1                 | MDX Engine      | Enables Label, Date and Value filtering in pivot tables. To disable filtering, set the value to 0.  |
| InListLimit          | 0x00001f40 (8000) | SQL Generator   | During cell retrieval SQL generation, this is the maximum number of members in an IN list. These lists can be ORed together during SQL generation.  |

Table 2: MDX Provider Behavior and Performance Settings

| Key                 | Default Value          | Module Affected | Purpose  |
|---------------------|------------------------|-----------------|--|
| LvlCardinalityLimit | 0x0000001e<br>(30)     | SQL Generator   | <p>Signifies the cut-off point, specified in percentage of the total level size, for fetching cells using a join with Oracle OLAP hierarchy views (as opposed to using a fixed IN list).</p> <p>Hence, level size is the total number of members in that level.</p> <p>For example, if a level has 1000 members, and this limit is set to 30, then if a query contains more than 300 members (i.e. 30% of 1000) the provider will over fetch the entire level by joining with the hierarchy view. The provider will switch back to IN lists if it cannot use level-based method.</p> |
| MaxCellCacheSize    | 0x000001e8<br>(488)    | SQL Generator   | <p>MDX provider caches the cells. This identifies the maximum number of cells in the cache in thousands (i.e., a value of 488 means 488,000).</p> <p>Larger caches will use more memory.</p> <p><b>Note:</b></p>   |
| MaxCellLoad         | 0x007A120<br>(500,000) | MDX Engine      | <p>MDX engine divides the cells that it needs to retrieve into batches. This setting signifies the approximate size of each batch.</p> <p>This value cannot be less than 1000; if it is less than 1000, the engine will set it to 1000.</p> <p>Do not set this limit to a smaller value than 100,000 or you will experience slow performance due to frequent queries, which will be aggravated in WAN environments.</p>  |

Table 2: MDX Provider Behavior and Performance Settings

| Key                          | Default Value                 | Module Affected              | Purpose  |
|------------------------------|-------------------------------|------------------------------|--|
| MaxMetadataCacheSize         | 0x00000400 (1024)             | MDX Engine and SQL Generator | Maximum size of metadata cache (in 1000s of units, i.e. a setting of 10 signifies 10,000 items). Metadata cache is used for dimension members, levels, hierarchies, dimensions and properties. The minimum for this cache is 1000. Setting this to anything below 1000 will result in the provider setting it to 1,000. The larger the cache the more memory will be used. |
| NlsLangOverride              | Empty                         | SQL Generator                | Overrides the NLS_LANG environment variable setting. For more details on using NLS_LANG, see <i>Locale and Character Set Issues</i> on page 17.  |
| ServerTraceCmd               | SQL statement to enable trace | SQL Generator                | Command that is run when EnableServerTracing is set to 1.  |
| UseDrillthroughAPI           | 1                             | MDX Engine                   | Controls whether the Oracle drill-through API should be used if available in 12c or later. Set this to 0 if you prefer the behavior of the provider's own built-in drill-through functionality.  |
| UseExtendedMetaDataProcedure | 1                             | SQL Generator                | When set to the default value of 1, enables the use of the GET_EXT_METADATA stored procedure for retrieving certain metadata information. Using the stored procedure significantly speeds up the process, compared with using SQL. To not use the stored procedure, set the value to 0.  |

# Troubleshooting

This section is meant to help you when your BI client application or Oracle are not behaving as expected, usually when the BI client application cannot connect to the Oracle OLAP database, or where no data is presented in the BI client application after a connection is made. This section outlines the most common scenarios which would lead to this behavior and how to correct them.

## Enabling Logging in the Provider

BI client application error messages can be fairly generic, and often do not contain enough information to troubleshoot problems. To help troubleshoot your issue, you may need to turn on logging in the MDX Provider, and then send the collected file to Technical Support for analysis.

For details on how to turn logging on and off, see the *MDX for Oracle OLAP Installation Guide* applicable to your implementation. For more information on the available *Installation Guides*, see *Further Documentation* on page 4.

## No Data Fields Are Available in the OLAP Cube

The message "No data fields are available in the OLAP cube" may appear in the BI client application if there are no measures in the cube.

Please check that you have properly imported the data into the cube. For more information, see "Oracle OLAP User's Guide 11g", or Analytical Workspace Manager documentation and help. You'll need to correctly use the AWM Maintain Analytical Workspace command available by right-clicking on an analytical workspace in the schema and workspace tree in the left pane.

## Cubes Created in OWB Are Not Visible

A cube that has been created using Oracle Warehouse Builder (OWB) may not be visible in the BI client application when trying to connect to a new data source.

Cube administrators typically use Oracle's Analytic Workspace Manager (AWM) to create OLAP cubes. However, Oracle Warehouse Builder (OWB) can also create OLAP cubes that can be used by Business Intelligence tools.

Cube administrators do have to be careful when using OWB, since OWB defaults to creating ROLAP-based cubes and dimensions. To work with the MDX Provider for Oracle OLAP, the dimensions and cubes need to be MOLAP-based, and therefore using an analytic workspace.

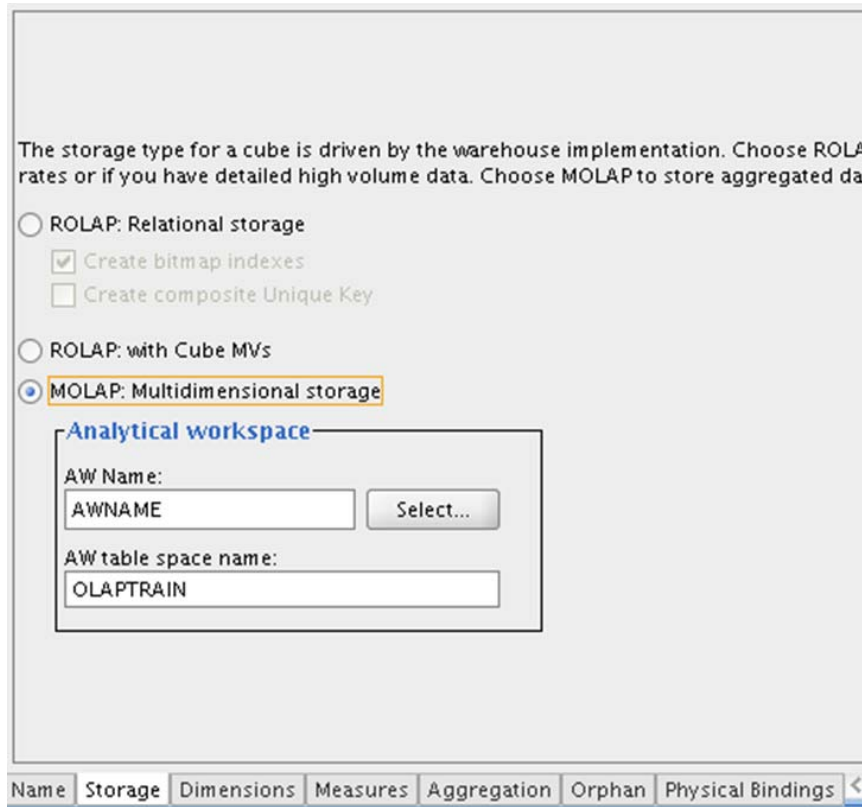


Figure 2

In addition, Oracle Warehouse Builder must be at least version 11g R2; only OWB 11g R2 can create 11g cubes. Cubes created by OWB 11.1 or earlier are 10g cubes, and are not visible to the provider.

## No Data Appears in the BI Client Application

If a cube is not yet fully defined and maintained, i.e. there is an empty dimension or hierarchy, then you cannot access the cube using the BI client application. You will likely see a "Query Failure" error. Ensure the cube has been fully defined in AWM, including all hierarchies and dimensions, and that it has been maintained, ensuring it contains data.

## Why Does Nothing Appear in First Cell of Initial Pivot Table?

When initially populating a pivot table's axes and cells, you should select a value/measure first. If you instead apply a dimension to an axis first, the pivot table measure cells may be blank. This is because in the absence of a Default Measure, MDX Provider will nominate the lexicographically-first measure as the default. Since not all measures have valid values or aggregations for certain time periods or other dimensions you may have selected, the measure cells will be blank.

To avoid this:

Select a value/measure from the pivot table field list before selecting dimensions for axes

# Using Parent-Child (Value-Based) Hierarchies

In Oracle OLAP, you have the choice to create either level-based or parent-child (also known as "value-based") hierarchies.

- A value-based hierarchy lacks levels; it contains only child-parent relationships with leaves at varying distance from the top.

To use a value-based hierarchy, the hierarchy view of the dimension must include the DEPTH column.

- The depth column will be automatically created when hierarchies are created in version 11R1 (i.e. 11.1.0.7, or later versions) of the Oracle Database.

In addition, if the hierarchy was created in an earlier version of the database, then it must be recreated in Oracle 11R1 (i.e. 11.1.0.7, or later).

## Dimension Member Names Start with "SYN"

MDX Provider for Oracle OLAP derives a dimension member's visible MEMBER\_CAPTION from the dimension's DESCRIPTION ATTRIBUTE\_ROLE. If this ATTRIBUTE\_ROLE is missing, the provider will look next for SHORT\_DESCRIPTION and, failing that, for LONG\_DESCRIPTION.

If the dimension does not have any of these ATTRIBUTE\_ROLE defined, MEMBER\_CAPTION will be derived from the dimension's DIM\_KEY column by prefixing it with "SYN" (for synthetic).

You can use AWM's "All Dimension Attributes" report to check on this.

| OWNER    | DIMENSION_N... | ATTRIBUTE_N... | TARGET_DIME... | ATTRIBUTE_ROLE    | DESCRIPTION       |
|----------|----------------|----------------|----------------|-------------------|-------------------|
| TESTOPTO | CALCULATION    | MEMBER_ORDER   |                |                   | Member Order      |
| TESTOPTO | CALCULATION    | CHILD_CARD...  |                |                   | Child Card...     |
| TESTOPTO | CALCULATION    | MEMBER_TYPE    |                |                   | Member Type       |
| TESTOPTO | CALCULATION    | SHORT_DESC...  |                | SHORT_DESCRIPTION | Short Desc...     |
| TESTOPTO | CALCULATION    | LONG_DESCR...  |                | LONG_DESCRIPTION  | Long Descr...     |
| TESTOPTO | CHANNEL        | CHANNELS_M...  |                |                   | Channels M...     |
| TESTOPTO | CHANNEL        | CHANNELS_M...  |                |                   | Channels M...     |
| TESTOPTO | CHANNEL        | CHANNELS_C...  |                |                   | Channels C...     |
| TESTOPTO | CHANNEL        | CHANNEL_CH...  |                |                   |                   |
| TESTOPTO | CHANNEL        | CHANNEL_TO...  |                |                   |                   |
| TESTOPTO | CHANNEL        | CHANNEL_LO...  |                |                   | Channel Lo...     |
| TESTOPTO | CHANNEL        | TOTAL_CHAN...  |                |                   | Total Chan...     |
| TESTOPTO | CHANNEL        | CHANNEL_LO...  |                |                   | Channel Lo...     |
| TESTOPTO | CHANNEL        | TOTAL_CHAN...  |                |                   | Total Chan...     |
| TESTOPTO | CHANNEL        | SHORT_DESC...  |                | SHORT_DESCRIPTION | Short Desc...     |
| TESTOPTO | CHANNEL        | LONG_DESCR...  |                | LONG_DESCR...     | Short Description |
| TESTOPTO | CUSTOMER       | SEGMENTS_M...  |                |                   | Segments M...     |
| TESTOPTO | CUSTOMER       | SEGMENTS...    |                |                   | Segments...       |

Figure 3

Here is an example of seeing the DIM\_KEY that "SYN" will be prefixed to.



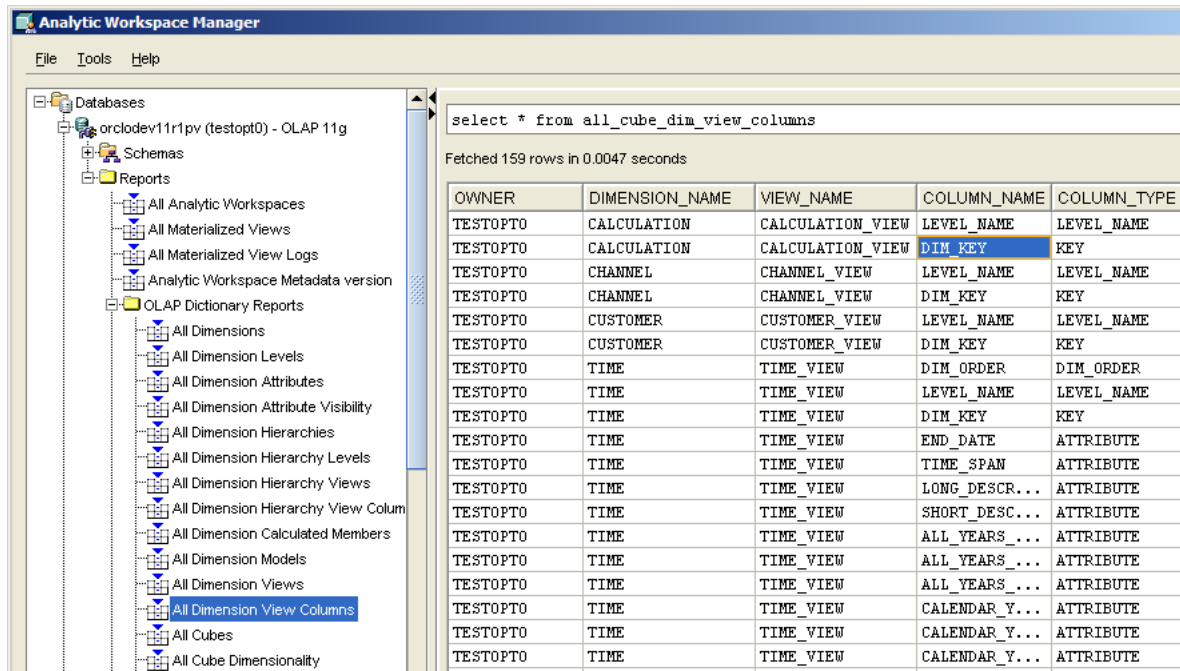


Figure 4

The solution is to provide members with the needed attribute values.

## Locale and Character Set Issues

### Introduction

This section describes character set and locale issues, gives some references and advice, and introduces an MDX Provider for Oracle OLAP registry variable that is useful in certain situations.

Setting up the language, territory, and character set/codepage for a complete Oracle client/server system can be complicated. Poor settings can cause MDX Provider for Oracle OLAP to malfunction due to character set conversion issues that cannot be detected or corrected by the MDX Provider at run-time.

The MDX Provider for Oracle OLAP's internal character representation is Unicode UTF-16 encoding. Therefore, all character data must be converted to UTF-16 encoding before being processed by the provider. There are 3 places where you can change the way this conversion is performed:

1. In your Oracle ODBC driver. This is not the preferred way to handle character set issues, but a setting here will override others discussed immediately below.
2. MDX Provider for Oracle OLAP can use a Windows registry value called CSConversionType.
  - ◆ The default setting of this value, which is equivalent to zero or not having this value in the registry, results in correct character set conversion if the database character set is UTF-8 (which is equivalent of AL32UTF8).
  - ◆ If the database character set is not UTF-8, then you have to set NLS-LANG as described further below.

3. You can use other values for the CSConversionType registry setting to manually control binding/conversion as described in further subsections below.

## Database Driver Settings

As mentioned above, and shown on the screenshot below, there is a setting in the **Workarounds** tab of the ODBC DSN setup that will override all other settings.

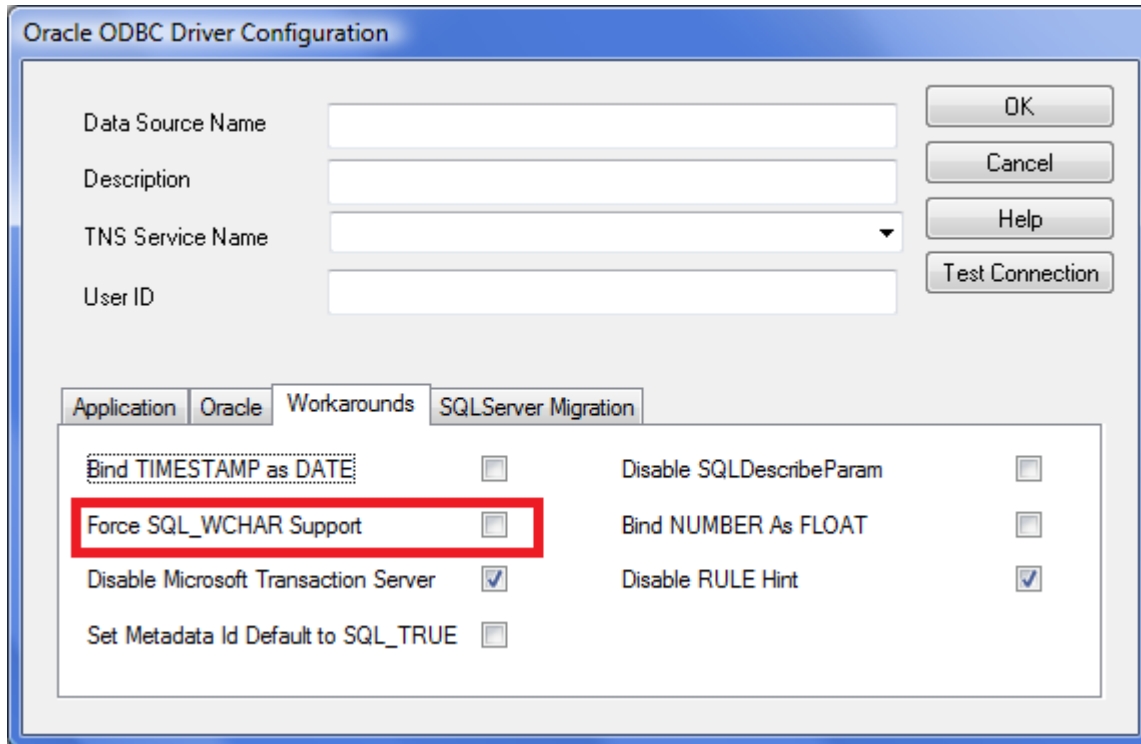


Figure 5

Checking "Force SQL\_WCHAR Support" will cause all connections through this DSN to use wide character column binding (SQL\_WCHAR) for all character data. This will force the Oracle Net layer to perform any required character set conversion between the database character set and the Unicode (UTF-16) used by the provider. But this is not a recommended setting when operating over wide area networks (WANs) as it will increase the traffic and number of round trip delays.

## CSConversionType Registry Setting

MDX Provider for Oracle OLAP uses a client computer Windows registry value called `CSConversionType` that is located under the following registry keys:

- For 32-bit versions of Windows [HKEY\_LOCAL\_MACHINE\Software\Simba\MDX Provider for Oracle OLAP\RuntimeSettings]
- For 64-bit versions of Windows [HKEY\_LOCAL\_MACHINE\Software\Wow6432Node\Simba\MDX Provider for Oracle OLAP\RuntimeSettings]

**Note:** Only a 64-bit version of MDX for Oracle OLAP - XMLA edition is available.

If `CSConversionType` is not set (i.e., does not exist) or is set to 0, then the default provider behavior is described here. For values other than 0, see the next subsection.

- If the database character set is UTF-8, then the provider binds to all character-data columns as wide characters (i.e., UTF-16 type). The client side database driver will handle the character set conversion (covers all Oracle database character sets that are UTF-8 based).
- If the database character set is not UTF-8, then the provider uses a multi-byte character set (MBCS) to wide character set (UTF-16) conversion. A correct MBCS to wide character conversion depends on your client machine `NLS_LANG` setting and your current Windows code page. Therefore, for databases that do not use UTF-8 encoding you need to set your client machine Windows code page to the same character set as `NLS_LANG` (which should be an appropriate character set for the language being used). For example, a 16-bit Japanese MBCS is not convertible to 7-bit ASCII. See the further discussion of `NLS_LANG` immediately below.

On MS-Windows clients, `NLS_LANG` can be set in either:

- The registry (preferred as can be done on a per Oracle client version basis if you have two versions of the Oracle client software),
- A Windows System Environment Variable, or
- A Windows User Environment Variable.

This list of locations is searched in reverse order.

In the absence of an `NLS_LANG` value on the client machine, the locale setting for the Oracle Instant Client (installed by MDX Provider) defaults to `AMERICAN_AMERICA.US7ASCII`. It does not default to the locale setting of the client OS.

The Oracle Net layer tries to convert the database character encoding (which pertains to all your textual data including OLAP dimension member names, etc.) to the client character encoding. If `NLS_LANG` is not defined on the client machine, your database character set will be converted to 7-bit ASCII. This may not be suitable if your database has a non-ASCII character encoding. For example, if you have a British '£' character in your database, and your client side `NLS_LANG` is not set, then that character will show up as a '#' in the MDX Provider. The '#' character is the result of character code conversion that is performed automatically by the Oracle Net layer.

We urge administrators having to work with `NLS_LANG` to fully read the following very comprehensive Oracle documents:

- [http://download.oracle.com/docs/cd/E11882\\_01/server.112/e10729/ch3globenv.htm#i1006280](http://download.oracle.com/docs/cd/E11882_01/server.112/e10729/ch3globenv.htm#i1006280)
- <http://www.oracle.com/technetwork/database/globalization/nls-lang-099431.html>

The above mentioned Oracle web references are a very important comprehensive reference with examples of both correct and incorrect locale settings, documentation on how to find out the existing settings on each different machine, and other Oracle locale-related FAQs.

## Other CSConversionType Registry Values

To override the default character set conversion behavior specified via CSConversionType=0, you can use registry setting values other than zero as described by the paragraph numbers immediately below:

1. For CSConversionType=1, the provider will bind to narrow (i.e., single-byte char type) columns as single-byte and converts the buffer to wide using UTF-8 to UTF-16 conversion.
2. Same as 1 but this time the provider uses a MBCS to wide character (i.e., MBCS to UTF-16) conversion, which requires your NLS\_LANG and Windows code page to be set properly.
3. Always binds to all character-type columns as wide character and doesn't perform any conversion in the provider. This is essentially same as setting the "Force SQL\_WCHAR Support" on ODBC DSN as described in the above section. This option relieves the need for setting NLS\_LANG and Windows code page, but it will create larger records which may degrade the performance over wide area networks.

# Known Oracle Issues

## Measure Folders

The Oracle Analytical Workspace Manager, along with some BI client applications, support the concept of measure folders. OLAP cube measures can be grouped into folders within AWM and seen/chosen within the BI client application.

## Nested Measure Folders

Nested folders—folders of folders—may also be supported. However, this nesting information is not made available to external providers such as the MDX Provider for Oracle OLAP. This means the user will only see one level of measure folders. That is, all folders appear at the top level.

In technical terms, the Oracle Data Dictionary does not contain information about the folder nesting, so the MDX Provider for Oracle OLAP is not able to describe how to organize the folders to the BI client application.

## Long Measure Names

While measures having long names can be created in AWM, such measures may not be filed properly into their associated folder in the BI client application. The workaround is to keep measure names short. Note that the measure descriptions can still be full length.

## Dimension Ordering

In Oracle 11g R1, dimensions and hierarchies always employ a depth-first ordering. Starting in Oracle 11g R2, there is an option to change the hierarchy or dimension member ordering in a variety of ways:

- You can specify ORDER BY clauses
- You can add an ordering column to the generated views

However, the MDX Provider for Oracle OLAP requires a hierarchy sort order whereby members are sorted depth-first within a hierarchy tree. (Technically, this means that every child has a higher order number than its parents, and the members are numbered in either clockwise or counter-clockwise fashion within the hierarchy tree.)

If the default depth-first dimension hierarchy ordering is overridden in 11g R2, the provider will not function properly.

## Duplicated Dimension Attributes

Some dimension attributes (also known as member properties) may appear to be duplicated. Oracle OLAP Analytical Workspace Manager (AWM) has a setting that can add an additional properties column to the

hierarchy views in order to mimic a relation's star schema table for relational reporting tools such as Oracle Business Intelligence Suite Enterprise Edition (OBIEE).

This setting can be enabled in AWM as follows:

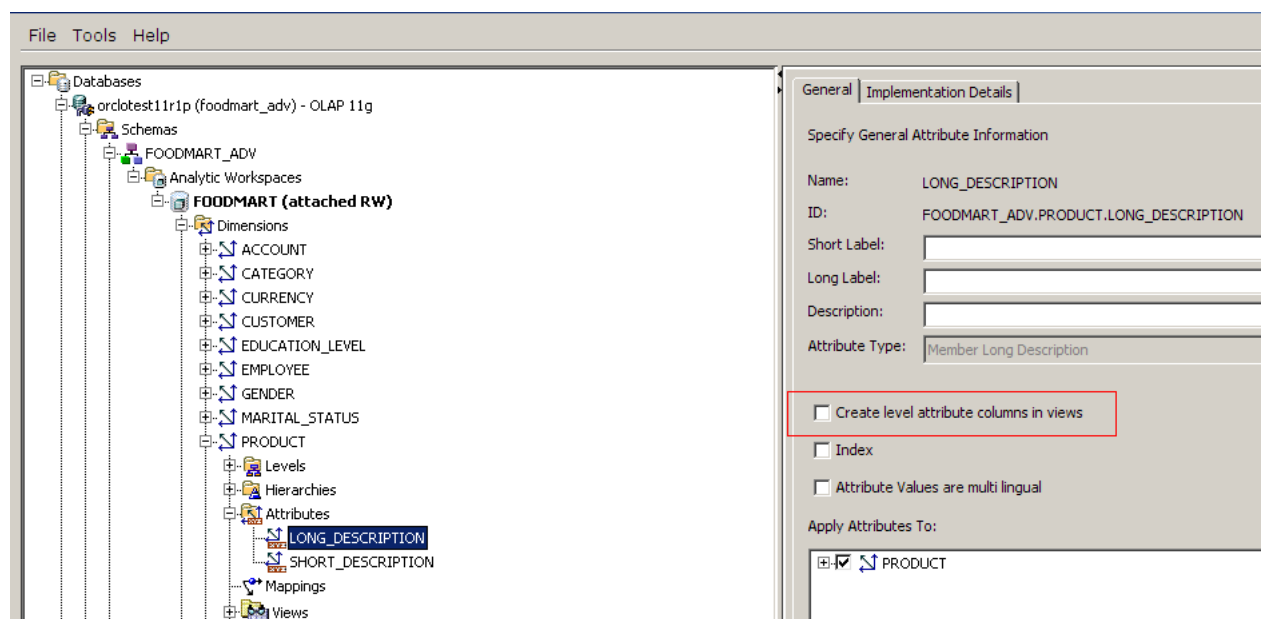


Figure 6

The pragmatic effect of enabling this AWM setting is that there are now two copies of the same attribute appearing in the BI client application.

Therefore, it is recommended to not use this setting.

## ORA-33674 DATA BLOCK EXCEEDS THE MAXIMUM SIZE

This error message is caused by a member attribute that is larger than its maximum data type size specified in AWM. There may be two causes for this issue:

1. The member attributes in the problematic dimension are mapped to source columns that are larger than the maximum size specified in AWM (most common).
2. The member attributes in the problematic dimension are literal text values that are larger than the maximum size specified in AWM.

In the first case above, the solution is simply to increase the size of the data type in AWM to match the maximum size of the column used for the attribute mapping.

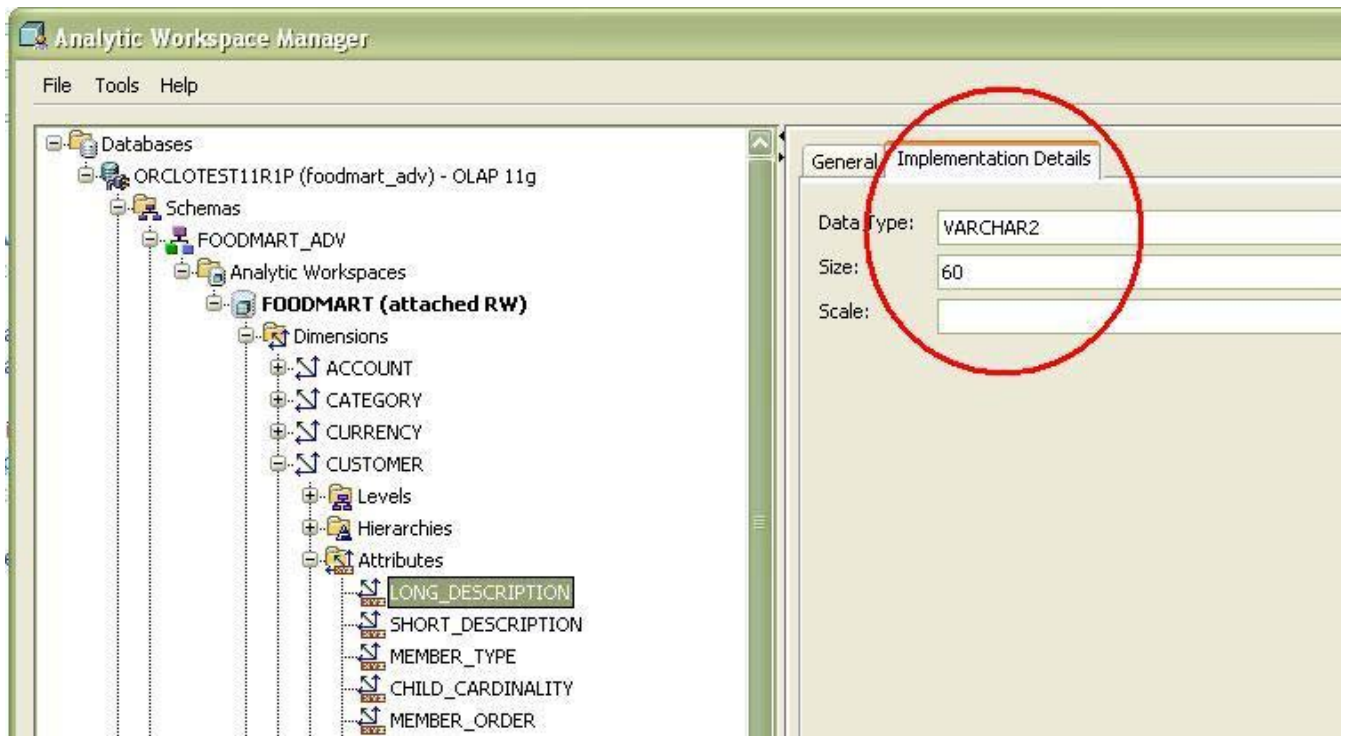


Figure 7

If the cube has been imported from an older version, the attribute can be dropped and recreated with the proper size, after which the cube can be maintained. If there are a lot of dimensions and attributes, a script can help determine the maximum required attribute sizes from the source table column widths.

In the second case above, please ensure *all* the latest OLAP patches have been applied and then contact Technical Support if the issue persists.

## ORA-12704 Character Set Mismatch

If there is a mismatch of data types used for LONG\_DESCRIPTION and SHORT\_DESCRIPTION, Oracle will generate the following error message which we will return through the provider:

[Oracle][ODBC][Ora]ORA-12704: character set mismatch.

The recommended fix is to adjust the data types for LONG\_DESCRIPTION and SHORT\_DESCRIPTION so they are the same whenever possible.

Users should endeavor to keep the data type used for LONG\_DESCRIPTION and SHORT\_DESCRIPTION the same across all their schemas. If this is not possible, it is highly recommended that dimensions within a single cube use the same data type for LONG\_DESCRIPTION and SHORT\_DESCRIPTION.

## Level and Hierarchy Names are Blank

Due to an issue with the Analytic Workspace Manager (AWM), blank level and hierarchy names may appear in the pivot table field list in the business intelligence client application.

AWM can silently set locale-specific descriptions on levels and hierarchies. Level and hierarchy names can appear blank when AWM sets the description for a locale that is not used by the computer running the business intelligence client application.

To fix blank level and hierarchy names, expand your Analytic Workspace in AWM as shown in *Figure 8*.

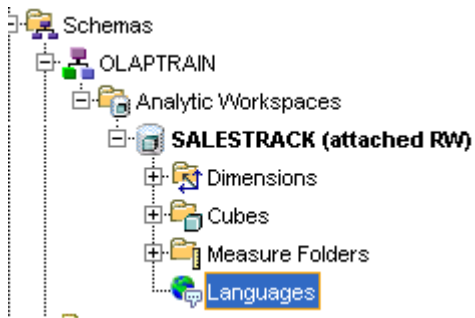


Figure 8

Left click on Languages and you will see a list of all the labels and descriptions, along with their related values in each of the different languages supplied so far. If there are any blanks, please make sure to fill them in with the appropriate label or description.



# References

1. Working with Ragged Hierarchies
  - ◆ <http://msdn.microsoft.com/en-us/library/ms365406.aspx>
2. Ragged Hierarchies
  - ◆ [http://msdn.microsoft.com/en-us/library/aa198080\(SQL.80\).aspx](http://msdn.microsoft.com/en-us/library/aa198080(SQL.80).aspx)
3. Server-side formatting specification.
  - ◆ Appendix D of "MDX Solutions, 2nd ed." by George Spofford et al, Wiley, 2006
  - ◆ <http://msdn.microsoft.com/en-us/library/ms146084.aspx>