

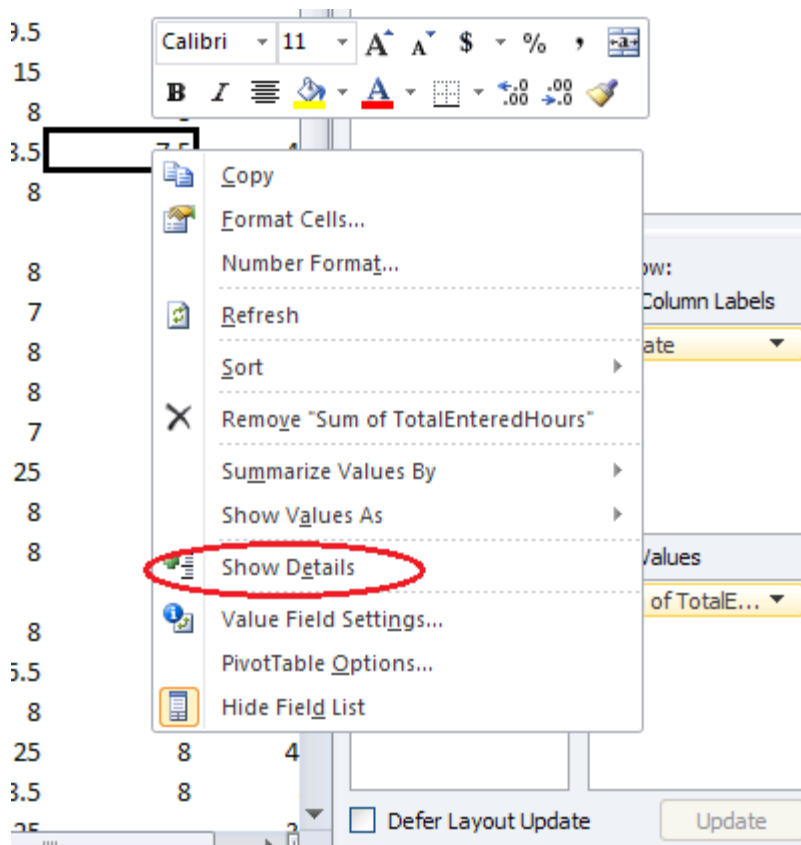
How To: Use Excel Drill-Through to Fact Table with Oracle OLAP



How-To #:	10120616
Last Revised:	2012-09-26
Product(s):	MDX Provider for Oracle OLAP 2.0.2.9 and later
Database Version(s)	Drill-through requires Oracle Database 11.2.0.1 or later
Client Application(s):	Microsoft Excel 2007, 2010, and 2013 are suitable drill-through client applications
Platform(s):	Microsoft Windows PC as specified in the MDX Provider for Oracle OLAP User and Admin Guide

Overview

Simba's MDX Provider for Oracle OLAP's "drill-through" feature allows you to view the source data (e.g. relational transactions) that were aggregated into any given PivotTable cell. Note this is in contrast to the more common drill-down. Excel users can "drill-through" by right-clicking on any measure cell, and selecting "Show Details".



Excel will then create a new and separate worksheet, and use it to display the first 1000 rows (by default) returned by the database. These rows contain those fact table rows that were aggregated into that measure cell in the PivotTable.

Considerations When Using Drill-Through

Only measures with a defined mapping (via AWM) will be shown in the drill-through (i.e. not calculated measures).

When doing a drill-through, dimension member descriptions will be shown whenever possible. Long descriptions are shown in preference to short descriptions. When those are not available, the fact table foreign key for that dimension will be shown.

Keys rather than descriptions will be shown in the following situations:

1. Neither long nor short descriptions have a mapping in that level.
2. If the cube is aggregated at load time to a level higher than that contained in the fact table, the key will be shown in order to provide some context to uniquely identify the fact table rows.

Specifically, if the join condition for a dimension uses a column that is not used in mapping the lowest level of that dimension, the extra foreign key will also be shown.

DIMENSIONS	
TIME_FM2005	
TOTAL_TIME	
YEAR	
QUARTER	
MONTH	
WEEK_NUMBER	
DAY	FOODMART_ADV.TIME_BY_DAY.FULL_DATE
Join Condition	FOODMART_ADV.SALES_FACT_FM2005.TIME_ID = FOODMART_ADV.TIME_BY_DAY.TIME_ID

In this example, the join condition uses TIME_ID while the mapping for the DAY level uses FULL_DATE, thus drill-through on this measure will also show a TIME_ID column, since this can helpfully indicate the time of the transaction in the fact table on the particular date.

Database Access

In order for a user to be able to drill-through to the source data, the user will need to be granted database access to those tables. The following commands need to be executed by a database administrator on your Oracle database.

First, the user will need access to the fact table and all the dimension tables:

```
GRANT SELECT ON sales_fact TO global;  
GRANT SELECT ON dimension_1 TO global;  
GRANT SELECT ON dimension_2 TO global;  
GRANT SELECT ON dimension_3 TO global;  
...
```

Oracle Database 11g

When using Oracle Database 11g, then for the very first time (and only the first time) a user needs to drill through, they will need:

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

Oracle Database 12c or Later

Oracle Database 12c introduces a drill-through API that the Simba MDX Provider for Oracle OLAP can leverage to drill-through on a more diverse set of cubes, such as cubes built against a snowflake schema and cubes built using complicated mapping expressions.

Use of the drill-through API requires that the DBA install a helper package located within the installation folder for the Simba MDX Provider for Oracle OLAP:

```
Database/pkg_simba_mdx_drillthrough.sql
```

This package requires that a user called `mdxprovider` be present; we recommend that the `mdxprovider_user_creation.sql` script, located in the same folder, be used to create this user. These scripts can be installed using SQL*Plus, Oracle SQL Developer, or another tool of your choice.

If you are using Oracle database 12c or later and the required helper packages have been installed, the API will be preferred over the provider's built-in drill-through functionality.

User Configurable Settings

Drill-Through behaviour can be tailored by user-configurable settings on a per Excel connection basis. Note that these options are *only* available when using the provider's built-in drill-through functionality. This is always the case when connecting to Oracle database 11g. Users of Oracle Database 12c will by default use the drill-through functionality provided by the Oracle database, which does not support these user-configurable options.

These settings are specified as an Extended Property in the data connection, as described below:

MeasureRestriction (default: false)

By default, all measures with a defined mapping are shown in the drill-through result table. To restrict the columns returned to just the measure that was selected for drill-through, set this property to true. See below for instructions on how to change this setting.

SuppressDimensionKeys (default: true)

By default, when a description column is available for dimension members, the associated key column will be suppressed. This allows the drill-through user to see the more meaningful long descriptions (or if long descriptions are unavailable, then short descriptions). However, if you really want to see the raw keys of the dimension members, users can set this property to false. See below for instructions on how to change this setting.

DistinctDrillthroughRows (default: false)

By default, the results of the drill-through can contain many duplicate rows. Setting this option to true allows the drill-through user to see only unique rows in the drill-through results tab. See instructions below on how to change this setting.

Changing User Configurable Settings

There are three opportunities to set the Extended Properties in the data connection for drill-through customization:

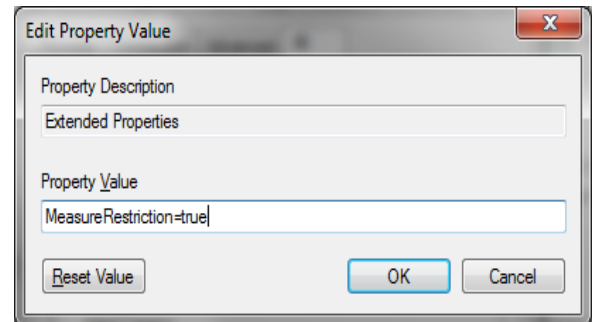
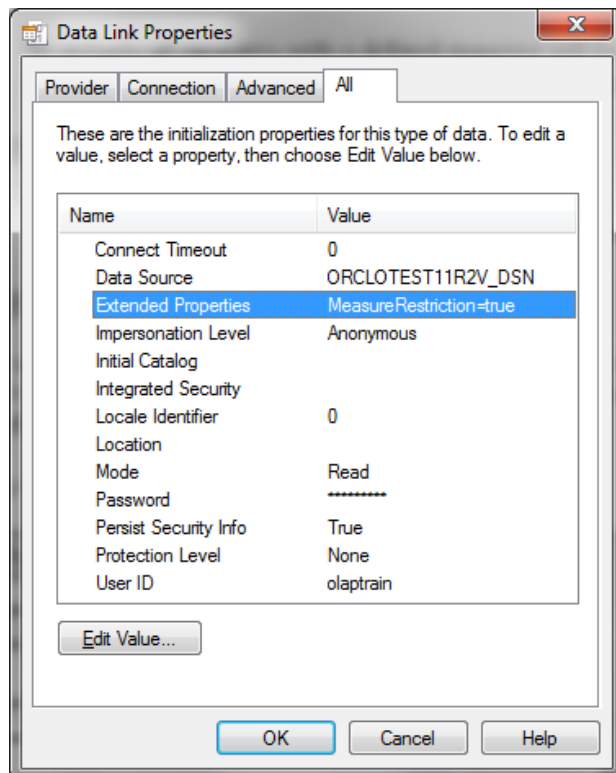
1. When creating a brand new data connection using the Data Connection Wizard's Data Link Properties dialog box
2. When creating a new PivotTable using an existing connection through the Properties button in the Import Data dialog box
3. Updating an existing connection on an existing PivotTable via the Properties dialog box

Note that in certain cases when changing settings for existing connections you may be asked to re-enter your Oracle database password once (or even twice) in these setting modification processes.

If you do change the settings on an existing connection, you need to decide if the settings are to be used for the current session only, or for the current workbook only, or if they need to be applied to future workbooks that will re-use this connection. How to set this is described below.

Data Connection Wizard – Data Link Properties dialog box

Normally, to create a new data connection, on the Excel ribbon go to Data > From Other Sources > From Data Connection Wizard > Other/Advanced. After selecting the MDX Provider for Oracle OLAP in the Provider tab and specifying the ODBC data source name, Oracle username and password, and initial catalog to use, most users would simply click OK. To set an Extended Property, before clicking OK, go the All tab in the Data Link Properties dialog box, select Extended Properties, and click Edit Value.



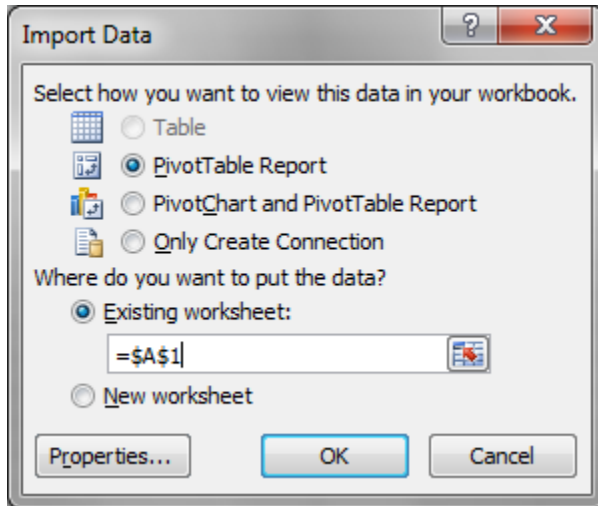
If you want to set more than one Extended Property, you can separate them with semicolons, e.g.

```
MeasureRestriction=true;SuppressDimensionKeys=false
```

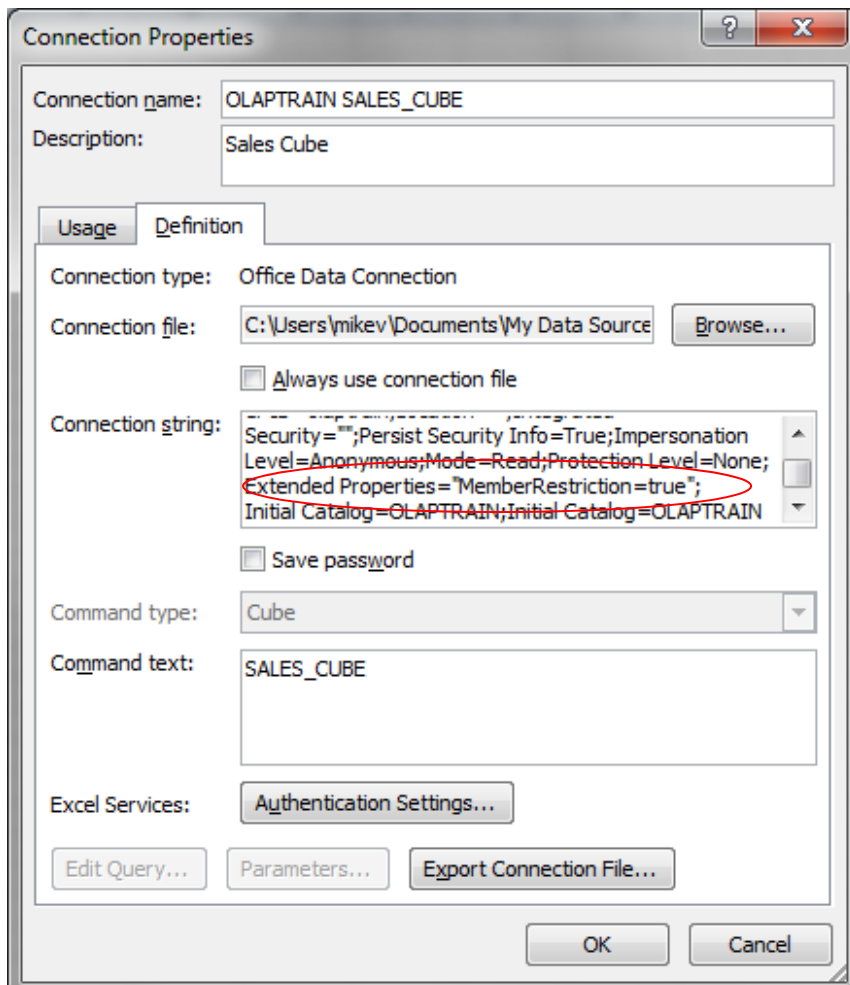
This setting will be preserved as part of the Office Data Connection file, and will be in place each time the spreadsheets using this connection file are opened.

New PivotTable from Existing Connection

You can also add, modify, or remove an Extended Property when using a pre-existing data connection to create a new PivotTable. After you have selected your existing connection to use via the Excel ribbon Data > Existing Connections, you will see the Import Data dialog box. Normally, you would simply click OK to place the PivotTable at the default location. To set an Extended Property, first click on Properties button



Then select the Definition tab as shown below, look for Connection String, and then edit in place:



By default, the Extended Properties string is empty (Extended Properties=""). You will need to fill in the blank string between the pair of double quotes as in the screenshot above. If you want to set more than one Extended Property, you can separate them with semicolons, e.g.

```
ExtendedProperties="MeasureRestriction=true;SuppressDimensionKeys=false"
```

If this setting is to be used for this workbook only, and not for any other workbooks using this connection, ensure the checkbox "Always use connection file" is *not* set. When you click OK, you will get a warning dialog box that says:

The connection in this workbook will no longer be identical to the connection defined in the external file located at *filename.odc*. The link to that external file will also be removed. Do you want to proceed with changes to the connection in this workbook?

Click OK to confirm.

NOTE: If you leave "Always use connection file" checked, then whatever changes you make here will *not* be used or preserved, even if you click OK! The reason is hinted at in the above message – the workbook will use the connection defined in the external *.odc* file, not in the connection string settings you have overridden above.

On the other hand, you can make this drill-through setting change a permanent property of the connection. This means that other workbooks that use this connection, as well as any new workbooks created with this connection will use these updated drill-through settings. To do this, ensure that the "Always use connection file" checkbox is set, click on Export Connection File, and then overwrite the existing connection file.

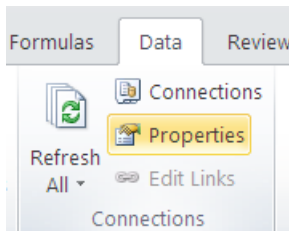
If you save this connection file with a different name, then only this workbook will use the new drill-through setting (as well as any new workbooks created with this connection), while existing workbooks using the old connection file will use the original drill-through settings.

Connection Properties dialog box of existing connection

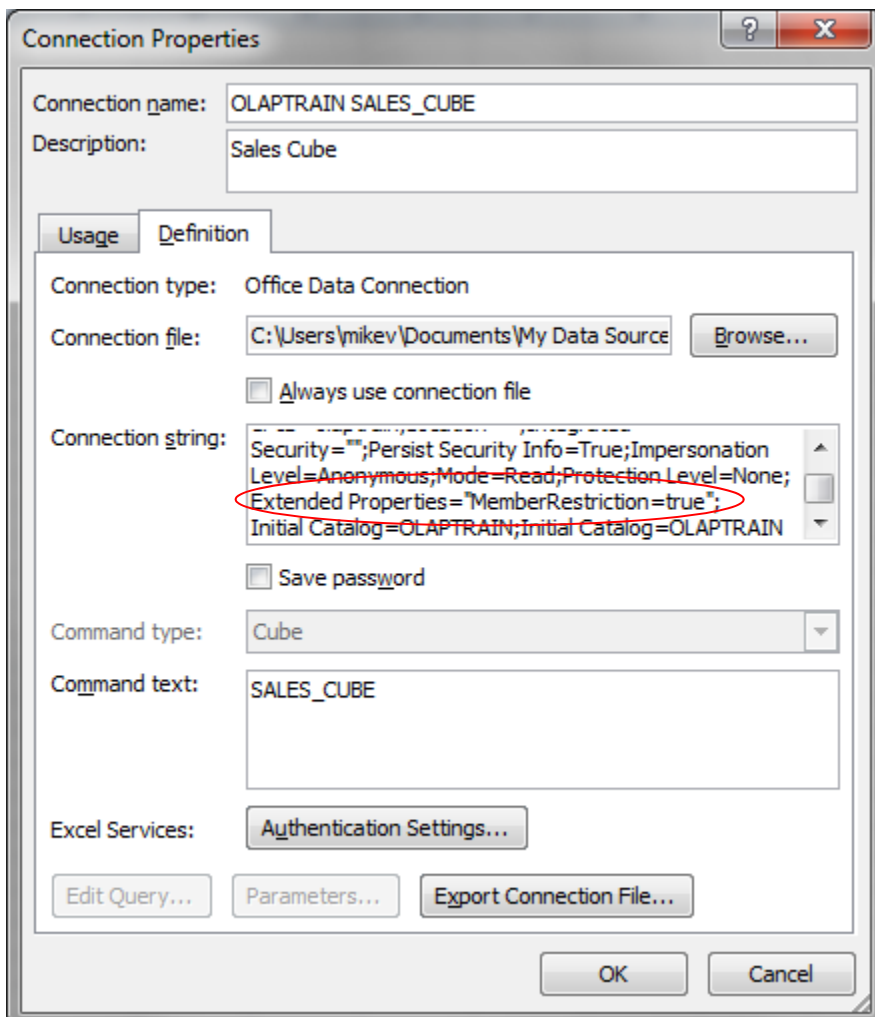
This section covers adding or updating an Extended Property of an existing connection in an existing PivotTable.

NOTE: There are some rare instances where Excel simply will not save the updated connection string of a live connection. If you have difficulties, the straightforward workaround is to close your spreadsheet to temporarily take the connection out of use, and then re-open the sheet. Once re-opened, and without clicking on Data > Refresh or doing any other manipulations of the PivotTable, follow the instructions below.

To update an Extended Property of an existing connection on an existing PivotTable, click anywhere in the PivotTable to select it, then go to the Data tab and select the Properties button.



Select the Definition tab shown below. As in the previous example, look in the Connection string box, and edit in place the Extended Properties string.



By default, the Extended Properties string is empty (Extended Properties=""). You will need to fill in the blank string between the pair of quotes as in the screenshot above. If you want to set more than one Extended Property, you can separate them with semicolons, e.g.

```
ExtendedProperties="MeasureRestriction=true; SuppressDimensionKeys=false"
```

If this setting is to be used for this workbook only, and not for any other workbooks using this connection, ensure the checkbox "Always use connection file" is *not* set. When you click OK, you will get a warning dialog box that says:

The connection in this workbook will no longer be identical to the connection defined in the external file located at *filename.odc*. The link to that external file will also be removed. Do you want to proceed with changes to the connection in this workbook?

Click OK to confirm.

NOTE: If you leave "Always use connection file" checked, then whatever changes you make here will *not* be used or preserved, even if you click OK! The reason is hinted at in the above message – the workbook will use the connection defined in the external .odc file, not in the connection string settings you have overridden above.

On the other hand, you can make this drill-through setting change a permanent property of the connection. This means that other workbooks that use this connection, as well as any new workbooks created with this connection will use these updated drill-through settings. To do this, ensure that the "Always use connection file" checkbox is set, click on Export Connection File, and then overwrite the existing connection file.

If you save this connection file with a different name, then only this workbook will use the new drill-through setting (as well as any new workbooks created with this connection), while existing workbooks using the old connection file will use the original drill-through settings.

If this procedure does not work for you, please read the second-to-last note above on closing the worksheet and trying the procedure on an opened but un-manipulated/un-refreshed worksheet.

Maximum Number of Records to Retrieve

By default, Excel will retrieve the first 1000 rows from the OLAP data source in response to a drill-through request. The Connection Properties dialog box allows you to increase or decrease this number from the default on an existing pivot table as follows:

1. In the Usage tab, there is a section near the bottom, titled "OLAP Drill Through."
2. Adjust the value of "Maximum number of records to retrieve" from the default of 1000 to the desired number of records.
3. Select the Definition tab. Ensure the "Save password" checkbox is checked. *If this is not checked, then Excel will not save the new value of maximum number of records to retrieve, and the value will remain at 1000.*