

# Review Guide for Data Validation Plug-in For Analytic Workspace Manager

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## Introduction

This document describes a sample analytic workspace and dimension tables that can be used to review the Data Validation Plug-in for Analytic Workspace Manager. The sample provides data that highlights features of the Data Validation Plug-in.

Allow 30 – 45 minutes to install the sample data and follow the examples in this review guide.

## Installing the Sample

The sample includes one analytic workspace and eight dimension tables. The sample can be installed in an existing schema as long as there are no conflicts with objects in that schema. Objects in the sample have been named to minimize the possibility of conflicts. Review the list of objects that are installed with the sample; this list is found in the following table. If any of these objects exist in your schema, the data validation sample cannot be installed in that schema.

### Objects Installed with Data Validation Sample

Name	Object Type
TIME_DV_TEST	Table
PRODUCT_DV_ORIGINAL	Table
PRODUCT_DV_TEST	Table
CUSTOMER_DV_ORIGINAL	Table
CUSTOMER_DV_TEST	Table
CHANNEL_DV_ORIGINAL	Table
CHANNEL_DV_TEST	Table
DIM_VALIDATION (AW\$DIM_VALIDATION)	Analytic Workspace (AW\$ table)
TIME_DV	OLAP Dimension
PRODUCT_DV	OLAP Dimension
CUSTOMER_DV	OLAP Dimension
CHANNEL_DV	OLAP Dimension

To install the sample, do the following:

1. Unzip dim\_valid\_sample.zip in a directory that is accessible by SQL Plus and Analytic Workspace Manager.

2. In SQL Plus, run the following scripts to create the dimension tables (\*.ORIGINAL and \*TEST tables).

```
SQL> @CREATE_SAMPLE_TABLES.SQL
```

```
SQL> @RESET_TABLES.SQL
```

3. Create the analytic workspace using the template DIM\_VALIDATION.XML in the same schema as the sample tables.
  - a. Start Analytic Workspace Manager.
  - b. Connect to the schema where the sample tables are installed.
  - c. Choose Create Analytic Workspace from Template (right mouse on Analytic Workspace node) and then select DIM\_VALIDATION.XML.

## Using the Sample Data

The sample data contains errors that can cause problems when building or querying OLAP dimensions and cubes. The data will provide the opportunity to use the Data Validation plug-in and find and correct these problems.

For each OLAP dimension there are two dimension tables, one with a name ending with TEST and the other ending with the name ending with ORIGINAL. The OLAP dimensions are mapped to the TEST tables. The SQL script RESET\_TABLES.SQL drops the TEST tables, creates new TEST tables using data in the ORIGINAL tables and makes modifications to the TEST tables. When you are using the sample data, make changes to only the TEST tables.

This review guide provides order lists of steps for examining and correcting data. Examine data validation reports and correction steps in the order that they are presented in this guide. After making a first pass through the data using the steps provided in this guide, experiment with different paths. Run the RESET\_TABLES.SQL script to reset the sample data to the original state. Before using the sample data, the Data Validation plug-in must be installed and enabled. Refer to the Data Validation Plug-in Guide (delivered with the plug-in as a PDF file) for installation and general use information.

## Examining Sample Data

To begin the Data Validation session:

1. Start Analytic Workspace Manager.
2. Connect to the schema that owns the DIM\_VALIDATION analytic workspace.
3. Attach the DIM\_VALIDATION analytic workspace.

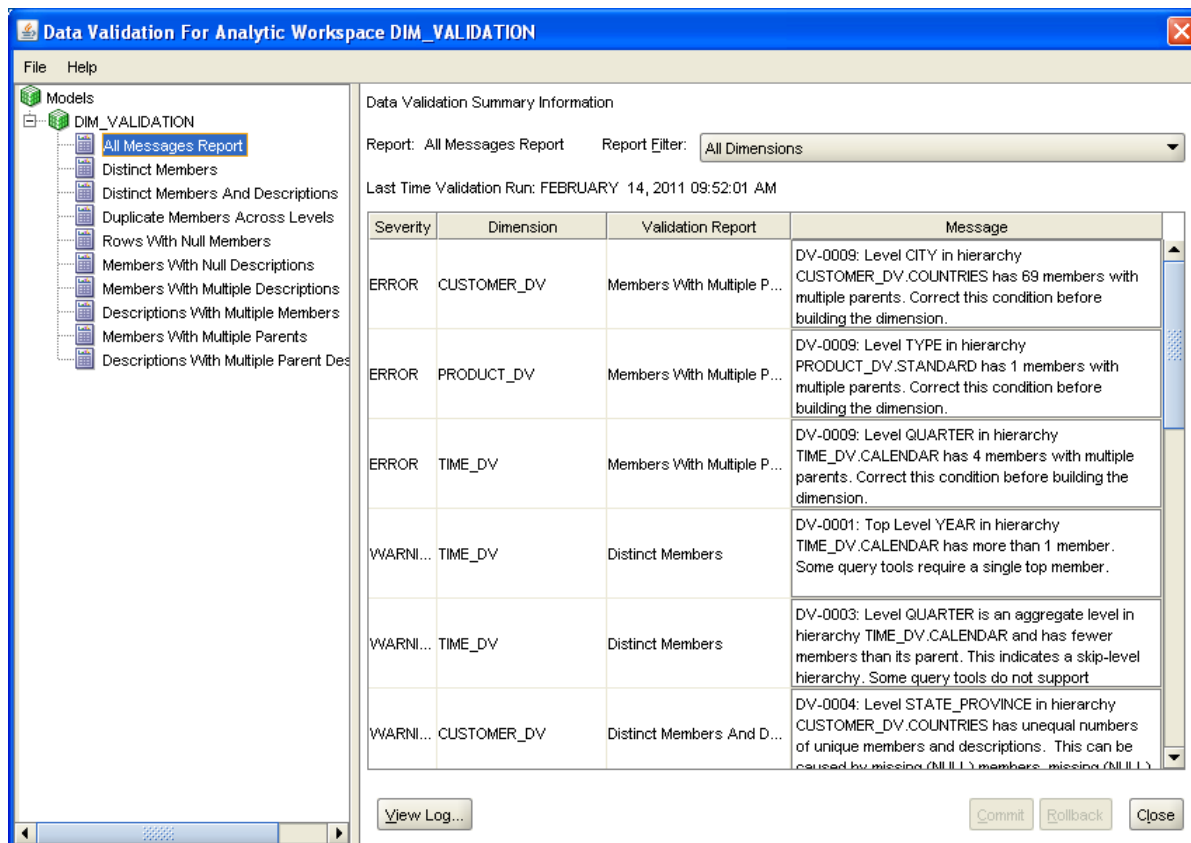
4. Start the Data Validation plug in (right mouse on the DIM\_VALIDATION analytic workspace).
5. Choose Yes at the Load Analytic Workspace Metadata prompt.
6. Run All Data Validation Reports for All Dimensions (right mouse on the DATA\_VALIDATION model node).

The following sections examine each of the validation reports, point out errors and suggest corrections. You will want to execute the reports in the order in this guide. After executing the reports, you will then correct issues that have been uncovered.

### ***All Messages Report***

The All Messages report provides a summary of errors and warnings generated when testing data. Use this report to familiarize yourself with the types of errors found in the dimension tables.

In general, the goal is to eliminate all errors and warnings that might be applicable to your application. If you are using Oracle Business Intelligence Enterprise Edition to query the cube, all errors and warnings should be eliminated before querying the cube. The only exception being the DV-0001 warning (top level has more than one member) when the dimension is mapped to a literal value for the top level. (Because literal values are not in source tables, the Dimension Validation plug-in cannot consider them when running validation tests.)



The All Messages report includes many errors and warnings. This will be examined and corrected with the Data Validation plug-in using instructions in this review guide.

## Distinct Members Report

This report provides a count of distinct values at each level. Review this report to see if the values match your expectations. If the top level of each dimension has one member and if lower levels have the same number of members or more members than the parent level, then the report will display no errors or warnings.

The sample data includes two warnings. The top level of the TIME\_DV dimension includes more than one member. This is a warning because it is recommended that dimensions always have a single top member to represent the aggregate of all members in that dimension. Examine the mappings for the TIME\_DV dimension and note that the top level is mapped to a literal value. This value will become a single top level member in the OLAP dimension. As a result, this warning can be disregarded.

**Data Validation For Analytic Workspace DIM\_VALIDATION**

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members**
  - Distinct Members And Descriptions
  - Duplicate Members Across Levels
  - Rows With Null Members
  - Members With Null Descriptions
  - Members With Multiple Descriptions
  - Descriptions With Multiple Members
  - Members With Multiple Parents
  - Descriptions With Multiple Parent Descriptions

Data Validation Summary Information

Report: Distinct Members

Last Time Validation Run: FEBRUARY 14, 2011 09:52:00 AM

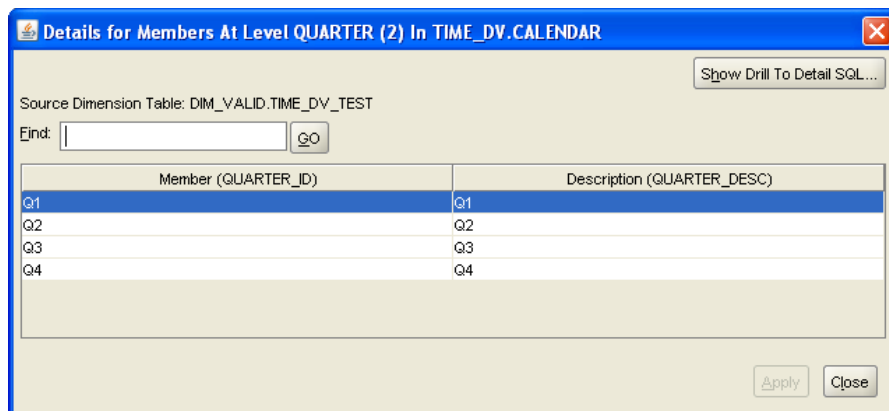
Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Distinct Members
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	1
✓	CHANNEL_DV	CLASSES	CLASS	2	2
✓	CHANNEL_DV	CLASSES	TYPE	3	3
✓	CHANNEL_DV	CLASSES	CHANNEL	4	11
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	1
✓	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	16
✓	CUSTOMER_DV	COUNTRIES	CITY	3	1278
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	1
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	2
✓	PRODUCT_DV	STANDARD	CATEGORY	3	3
✓	PRODUCT_DV	STANDARD	TYPE	4	8
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	31
✓	PRODUCT_DV	STANDARD	ITEM	6	251
⚠	TIME_DV	CALENDAR	YEAR	1	5
⚠	TIME_DV	CALENDAR	QUARTER	2	4
✓	TIME_DV	CALENDAR	MONTH	3	12
✓	TIME_DV	CALENDAR	DAY	4	1825

View Log... Commit Rollback Close

*Both the YEAR and QUARTER levels of the TIME\_DV dimension have errors.*

The Quarter level of the TIME\_DV dimension has fewer members than the Year level. This could be because the dimension is skip level or ragged, but in this case Quarter level members are not unique to Years. It has four distinct values (Q1, Q2, Q3 and Q4) and there are five years. This problem can also be seen on the Member with Multiple Parents report. For example, Q1 has parent values of 2006, 2007, 2008, 2009 and 2010.



*Details for members are the Quarter level. Members and descriptions for quarters are not unique to years. As a result, there are only four members at the quarter level while there are five years.*

The most appropriate fix to this problem is to concatenate Quarter level members with Year level members. This guide will provide steps to do this in the Members with Multiple Parents report.

### ***Distinct Members and Descriptions Report***

This report compares the number of distinct members and district descriptions. The number of distinct members and descriptions should be equal, with each member having a unique description.

The sample data contains two errors. At the STATE\_PROVINCE level there are 16 members and 19 descriptions. When there are more descriptions than members it is usually the case that one or more members have more than one description. When data is loaded into the OLAP dimension, the last description loaded from the dimension table will be used with the dimension member.

**Data Validation For Analytic Workspace DIM\_VALIDATION**

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members
  - Distinct Members And Descriptions**
  - Duplicate Members Across Levels
  - Rows With Null Members
  - Members With Null Descriptions
  - Members With Multiple Descriptions
  - Descriptions With Multiple Members
  - Members With Multiple Parents
  - Descriptions With Multiple Parent Descriptions

Data Validation Summary Information

Report: Distinct Members and Descriptions

Last Time Validation Run: FEBRUARY 14, 2011 09:52:00 AM

Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Distinct Members	Distinct De...
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	1	1
✓	CHANNEL_DV	CLASSES	CLASS	2	2	2
✓	CHANNEL_DV	CLASSES	TYPE	3	3	3
✓	CHANNEL_DV	CLASSES	CHANNEL	4	11	11
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	1	1
⚠	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	16	19
✓	CUSTOMER_DV	COUNTRIES	CITY	3	1278	1278
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	1	1
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	2	2
✓	PRODUCT_DV	STANDARD	CATEGORY	3	3	3
✓	PRODUCT_DV	STANDARD	TYPE	4	8	8
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	31	31
⚠	PRODUCT_DV	STANDARD	ITEM	6	251	250
✓	TIME_DV	CALENDAR	YEAR	1	5	5
✓	TIME_DV	CALENDAR	QUARTER	2	4	4
✓	TIME_DV	CALENDAR	MONTH	3	12	12
✓	TIME_DV	CALENDAR	DAY	4	1825	1825

View Log... Commit Rollback Close

*The STATE\_PROVINCE and ITEM levels both have unequal numbers of distinct members and descriptions.*

This condition will cause differences between SQL queries of a cube and a fact table. When querying the cube, only one value (CA or California) will be returned. When querying tables, values for both CA and California will be returned.

The Members with Multiple Descriptions report can be used to find and correct this problem.

Details for Members And Descriptions At Level STATE_PROVINCE (2) In CUSTOMER_DV.COUNTRIES																													
Source Dimension Table: DIM_VALID.CUSTOMER_DV_TEST																													
Find: <input type="text"/>	<input type="button" value="GO"/>																												
<table border="1"> <thead> <tr> <th>Member (STATE_PROVINCE_ID)</th><th>Description (STATE_PROVINCE_NAME)</th></tr> </thead> <tbody> <tr><td>CALIFORNIA</td><td>CA</td></tr> <tr><td>CALIFORNIA</td><td>California</td></tr> <tr><td>FLORIDA</td><td>Florida</td></tr> <tr><td>GEORGIA</td><td>Georgia</td></tr> <tr><td>ILLINOIS</td><td>Illinois</td></tr> <tr><td>MASSACHUSETTS</td><td>Massachusetts</td></tr> <tr><td>MICHIGAN</td><td>Michigan</td></tr> <tr><td>MISSOURI</td><td>Missouri</td></tr> <tr><td>NEVADA</td><td>Nevada</td></tr> <tr><td>NEW_YORK</td><td>NY</td></tr> <tr><td>NEW_YORK</td><td>New York</td></tr> <tr><td>OHIO</td><td>Ohio</td></tr> <tr><td>PENNSYLVANIA</td><td>Pennsylvania</td></tr> </tbody> </table>		Member (STATE_PROVINCE_ID)	Description (STATE_PROVINCE_NAME)	CALIFORNIA	CA	CALIFORNIA	California	FLORIDA	Florida	GEORGIA	Georgia	ILLINOIS	Illinois	MASSACHUSETTS	Massachusetts	MICHIGAN	Michigan	MISSOURI	Missouri	NEVADA	Nevada	NEW_YORK	NY	NEW_YORK	New York	OHIO	Ohio	PENNSYLVANIA	Pennsylvania
Member (STATE_PROVINCE_ID)	Description (STATE_PROVINCE_NAME)																												
CALIFORNIA	CA																												
CALIFORNIA	California																												
FLORIDA	Florida																												
GEORGIA	Georgia																												
ILLINOIS	Illinois																												
MASSACHUSETTS	Massachusetts																												
MICHIGAN	Michigan																												
MISSOURI	Missouri																												
NEVADA	Nevada																												
NEW_YORK	NY																												
NEW_YORK	New York																												
OHIO	Ohio																												
PENNSYLVANIA	Pennsylvania																												
<input type="button" value="Apply"/> <input type="button" value="Close"/>																													

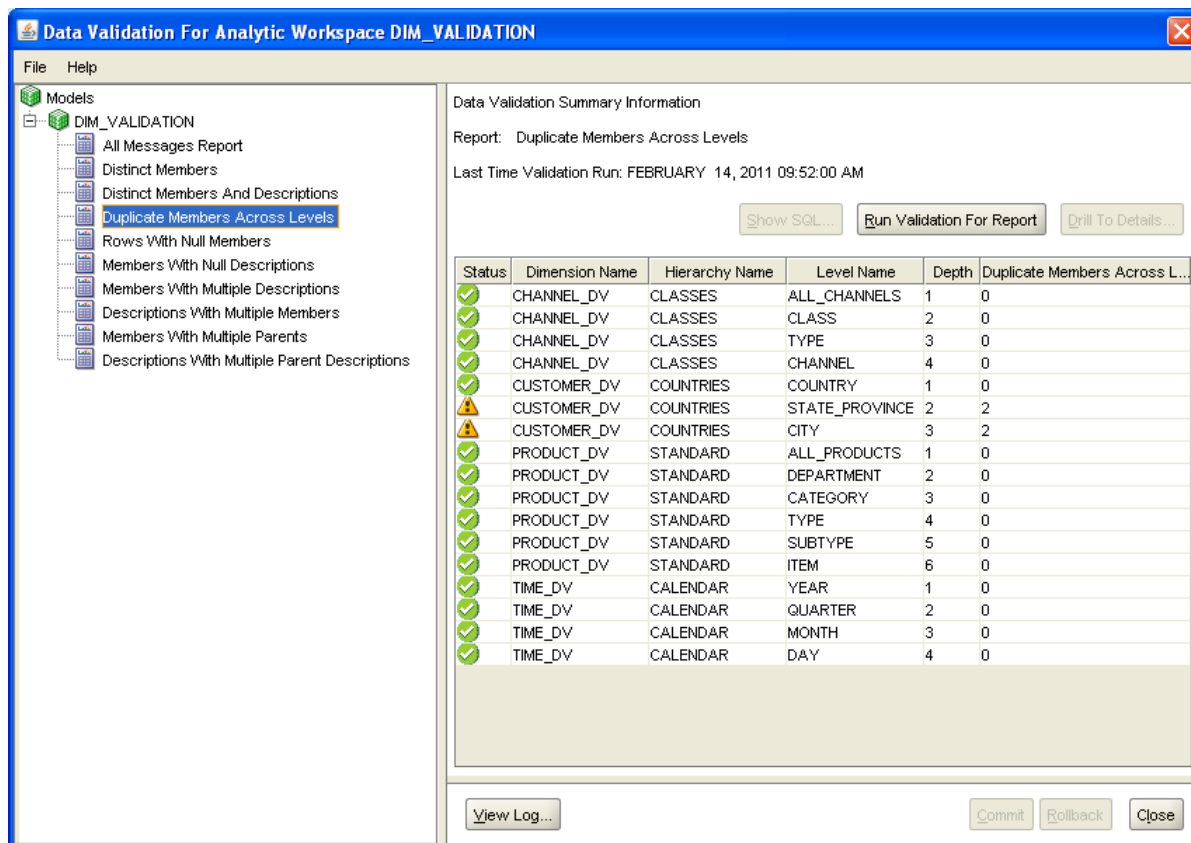
*The members CALIFORNIA, NEW\_YORK and VIRGINA each have more than one value for description.*

The second error is the ITEM level of the PRODUCT\_DV dimension. There are 251 members but only 250 descriptions. This is usually caused by a description being used with more than one member. The Descriptions with Multiple Members report can be used to find and fix this condition.

### ***Duplicate Members across Levels Report***

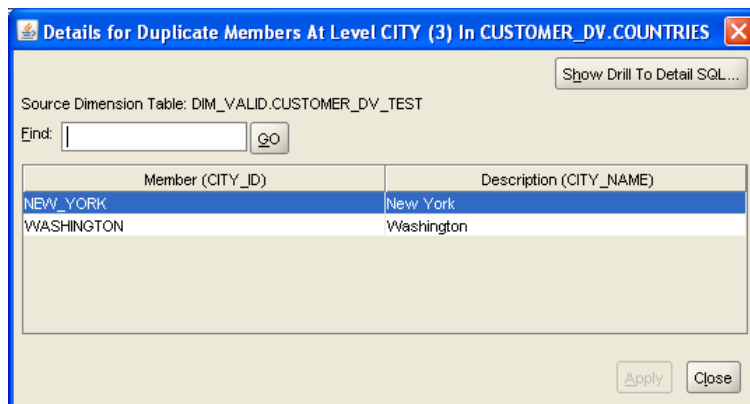
The Duplicate Members across Levels Report tests for cases when the same member exists at more than one level of the same dimension. Members must be unique within a dimension, so this condition is an error. Both the CITY and STATE\_PROVINCE levels have two members that exist at multiple levels. This is an indication that members at the CITY level also exist in the STATE\_PROVINCE level.



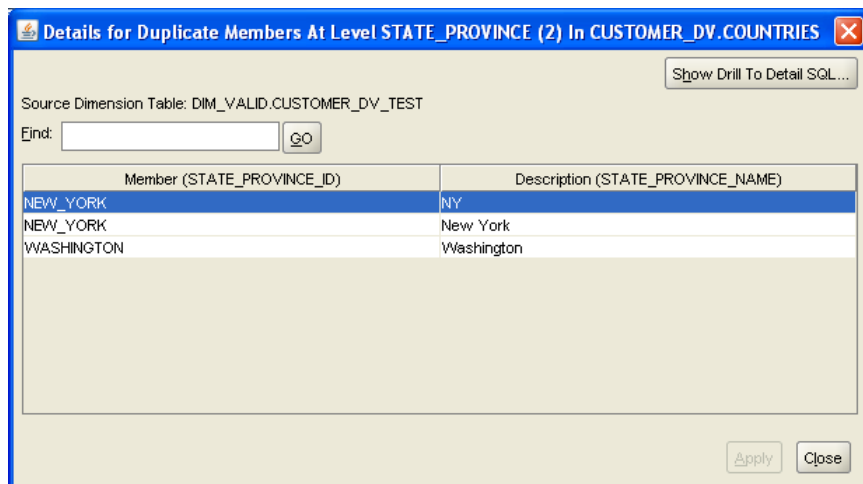


Both the CITY and STATE\_PROVINCE levels have members that also exist in other levels.

An examination of the details for the CITY level reveals that members NEW\_YORK and WASHINGTON exist at other levels of the CUSTOMER\_DV dimension.



Members NEW\_YORK and WASHINGTON at the City level also exist in another level within the CUSTOMER\_DV dimension.



*Members NEW\_YORK and WASHINGTON are also in the STATE\_PROVINCE level.*

This guide will return to the Duplicate Members Across Levels report later, after other errors have been corrected.

### ***Rows with Null Members Report***

The Rows with Null Members report tests for nulls in dimension tables. If there are null members, the dimension is either a skip-level hierarchy (where the parent of a member is an ancestor higher than the next level) or a ragged hierarchy (where the lowest level member of a branch in the hierarchy is not at the lowest level).

The OLAP dimension and cube can support skip-level and ragged hierarchies, but many business intelligence tools cannot.

**Data Validation For Analytic Workspace DIM\_VALIDATION**

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members
  - Distinct Members And Descriptions
  - Duplicate Members Across Levels
  - Rows With Null Members**
  - Members With Null Descriptions
  - Members With Multiple Descriptions
  - Descriptions With Multiple Members
  - Members With Multiple Parents
  - Descriptions With Multiple Parent Descriptions

Data Validation Summary Information

Report: Rows With Null Members

Last Time Validation Run: FEBRUARY 14, 2011 09:52:00 AM

Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Rows With Null Members
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	0
✓	CHANNEL_DV	CLASSES	CLASS	2	0
⚠	CHANNEL_DV	CLASSES	TYPE	3	3
✓	CHANNEL_DV	CLASSES	CHANNEL	4	0
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	0
✓	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	0
✓	CUSTOMER_DV	COUNTRIES	CITY	3	0
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	0
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	0
✓	PRODUCT_DV	STANDARD	CATEGORY	3	0
✓	PRODUCT_DV	STANDARD	TYPE	4	0
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	0
✓	PRODUCT_DV	STANDARD	ITEM	6	0
✓	TIME_DV	CALENDAR	YEAR	1	0
✓	TIME_DV	CALENDAR	QUARTER	2	0
✓	TIME_DV	CALENDAR	MONTH	3	0
✓	TIME_DV	CALENDAR	DAY	4	0

View Log... Commit Rollback Close

*The TYPE level is mapped to a table that has three null rows.*

An examination of the details of the TYPE level indicates that there are null members and descriptions where the CLASS level member is INDIRECT.

**Details for Null Member Rows At Level TYPE (3) In CHANNEL\_DV.CLASSES**

Source Dimension Table: DIM\_VALID.CHANNEL\_DV\_TEST

Find:

TYPE_ID	TYPE_DESC	CLASS_ID	CLASS_DESC	ALL_CHANNELS_ID	ALL_CHANNELS_DE...
(null)		INDIRECT	Indirect	ALL CHANNELS	All Channels

☒ Update Dimension Table

Data Correction Method:

☒ Set Null Members To Parent Member

☐ Set Null Members To Description

```
UPDATE DIM_VALID.CHANNEL_DV_TEST
SET TYPE_ID = 'TYPE_' || CLASS_ID
WHERE TYPE_ID IS NULL
```

*Rows containing the value of INDIRECT for the Class level member have null values for the TYPE level.*

A typical solution to this problem is to create a new value for the member using the value of the parent. For example, create the member TYPE\_INDIRECT for the Type level. This can be done by using the Set Null Members to Parent Member tool.

1. Choose the Rows with Null Members report.
2. Choose the TYPE level of the CHANNEL\_DV dimension.
3. Press the Drill to Details button.
4. Choose the Update Dimension Table checkbox.
5. Choose the Set Null Members to Parent Member Option.
6. Choose Apply.
7. Choose the Close button. Validation reports for this dimension will automatically run.

Updating the dimension table to correct for one problem may impact other data validation tests. Therefore, the Data Validation plug-in automatically re-runs the data validation tests for that dimension after making a change to the dimension table.

For example, there are now four distinct members at the Type level of the CHANNEL\_DV dimension when there used to be only three distinct members. This is an example of how changing data in one report can affect the results of other reports.

## Members with Null Descriptions Report

The Members with Null Descriptions Report tests for members that have null values in the description column. The TYPE level has one member that does not have a description.

**Data Validation For Analytic Workspace DIM\_VALIDATION**

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members
  - Distinct Members And Descriptions
  - Duplicate Members Across Levels
  - Rows With Null Members
  - Members With Null Descriptions**
  - Members With Multiple Descriptions
  - Descriptions With Multiple Members
  - Members With Multiple Parents
  - Descriptions With Multiple Parent Descriptions

Data Validation Summary Information

Report: Members with Null Descriptions

Last Time Validation Run: FEBRUARY 14, 2011 10:13:49 AM

Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Members With Null Descriptio...
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	0
✓	CHANNEL_DV	CLASSES	CLASS	2	0
⚠	CHANNEL_DV	CLASSES	TYPE	3	1
✓	CHANNEL_DV	CLASSES	CHANNEL	4	0
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	0
✓	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	0
✓	CUSTOMER_DV	COUNTRIES	CITY	3	0
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	0
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	0
✓	PRODUCT_DV	STANDARD	CATEGORY	3	0
✓	PRODUCT_DV	STANDARD	TYPE	4	0
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	0
✓	PRODUCT_DV	STANDARD	ITEM	6	0
✓	TIME_DV	CALENDAR	YEAR	1	0
✓	TIME_DV	CALENDAR	QUARTER	2	0
✓	TIME_DV	CALENDAR	MONTH	3	0
✓	TIME_DV	CALENDAR	DAY	4	0

View Log... Commit Rollback Close

One member of the TYPE level is mapped to a table with a null value as the description.

The details of the TYPE level shows that the TYPE\_INDIRECT member has a null value for its description.

Source Dimension Table: DIM\_VALID.CHANNEL\_DV\_TEST

Find:

Member (TYPE_ID)	Description (TYPE_DESC)
TYPE_INDIRECT	(null)

☒ Update Dimension Table

Data Correction Method:

☒ Set Null Descriptions to Member

Prefix:

Suffix:

```
UPDATE DIM_VALID.CHANNEL_DV_TEST
SET TYPE_DESC = ' ' || TYPE_ID || ' ' - TYPE'
WHERE TYPE_DESC IS NULL
```

*The TYPE\_INDIRECT member has a null value for description.*

This problem can be corrected by setting the description column to be equal to the member.

1. Choose the Members with Null Descriptions report.
2. Choose the TYPE level of the CHANNEL\_DV dimension.
3. Press the Drill to Details button.
4. Choose the Update Dimension Table checkbox.
5. Choose Apply.
6. Choose the Close button. Validation reports for this dimension will automatically run.

### ***Members with Multiple Descriptions Report***

The Members with Multiple Descriptions report tests for rows where the same member has more than one description. In the sample data, there are two examples of this error.

**Data Validation For Analytic Workspace DIM\_VALIDATION**

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members
  - Distinct Members And Descriptions
  - Duplicate Members Across Levels
  - Rows With Null Members
  - Members With Null Descriptions
  - Members With Multiple Descriptions**
  - Descriptions With Multiple Members
  - Members With Multiple Parents
  - Descriptions With Multiple Parent Descriptions

Data Validation Summary Information

Report: Members with Multiple Descriptions

Last Time Validation Run: FEBRUARY 14, 2011 10:18:19 AM

Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Members With Multiple Descriptions
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	0
✓	CHANNEL_DV	CLASSES	CLASS	2	0
✓	CHANNEL_DV	CLASSES	TYPE	3	0
✓	CHANNEL_DV	CLASSES	CHANNEL	4	0
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	0
⚠	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	3
✓	CUSTOMER_DV	COUNTRIES	CITY	3	0
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	0
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	0
⚠	PRODUCT_DV	STANDARD	CATEGORY	3	1
✓	PRODUCT_DV	STANDARD	TYPE	4	0
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	0
✓	PRODUCT_DV	STANDARD	ITEM	6	0
✓	TIME_DV	CALENDAR	YEAR	1	0
✓	TIME_DV	CALENDAR	QUARTER	2	0
✓	TIME_DV	CALENDAR	MONTH	3	0
✓	TIME_DV	CALENDAR	DAY	4	0

View Log... Commit Rollback Close

*Members as the STATE\_PROVINCE and CATEGORY levels have members with more than one description.*

At the State level there are multiple descriptions for members CALIFORNIA, NEW\_YORK and VIRGINIA. Notice that the full state name (e.g., California) occurs much more frequently than the abbreviated name (e.g. CA).

**Details for Members with Multiple Descriptions At Level STATE\_PROVINCE (2) In CUSTOMER\_DV.COUNTRIES**

Source Dimension Table: DIM\_VALID.CUSTOMER\_DV\_TEST

Find:

Member (STATE_PROVINCE_ID)	Description (STATE_PROVINCE_N...	Occurrences	Percent Occurrences
CALIFORNIA	CA	1	0.26
CALIFORNIA	California	388	99.74
NEW_YORK	NY	1	0.34
NEW_YORK	New York	290	99.66
VIRGINIA	VA	1	6.67
VIRGINIA	Virginia	14	93.33

☒ Update Dimension Table

Data Correction Method:

☒ Set Description to Most Common Description

☐ Set Description to Selected Description (SET STATE\_PROVINCE\_NAME = 'CA' WHERE STATE\_PROVINCE\_ID = 'CALIFORNIA')

```

MERGE INTO DIM_VALID.CUSTOMER_DV_TEST a USING
(SELECT DISTINCT STATE_PROVINCE_ID,
first_value(STATE_PROVINCE_NAME)
OVER (PARTITION BY STATE_PROVINCE_ID) AS STATE_PROVINCE_NAME
FROM
(SELECT STATE_PROVINCE_ID, STATE_PROVINCE_NAME, COUNT (*) COUNT

```

In this case setting the descriptions to the most common description would be a reasonable way to correct the problem.

1. Choose the Members with Multiple Descriptions report.
2. Choose the STATE\_PROVINCE level.
3. Press the Drill to Details button.
4. Choose the Update Dimension Table checkbox.
5. Choose the Set Description to Most Common Description option.
6. Choose Apply.
7. Choose the Close button. Validation reports for this dimension will automatically run.

Note: resolving this problem also resolves the unequal numbers of members and descriptions for the STATE\_PROVINCE level.

The Category level in the PRODUCT\_DV dimension has one member with multiple descriptions. In this case, it is not apparent from the number of occurrences which description is correct.



**Details for Members with Multiple Descriptions At Level CATEGORY (3) In PRODUCT\_DV.STANDARD**

Source Dimension Table: DIM\_VALID.PRODUCT\_DV\_TEST

Find:

Member (CATEGORY_ID)	Description (CATEGORY_DESC)	Occurrences	Percent Occurrences
CAMARAS AND ACC	Cameras / Accessories	30	53.57
CAMARAS AND ACC	Cameras and Accessories	26	46.43

☒ Update Dimension Table

Data Correction Method:

☐ Set Description to Most Common Description

☒ Set Description to Selected Description (SET CATEGORY\_DESC = 'Cameras and Accessories' WHERE CATEGORY\_ID = 'CAMARAS A...')

UPDATE DIM\_VALID.PRODUCT\_DV\_TEST SET CATEGORY\_DESC = 'Cameras and Accessories'  
WHERE CATEGORY\_ID = 'CAMARAS AND ACC'

*Each description for member CAMERAS AND ACC appear in about the same number of rows.*

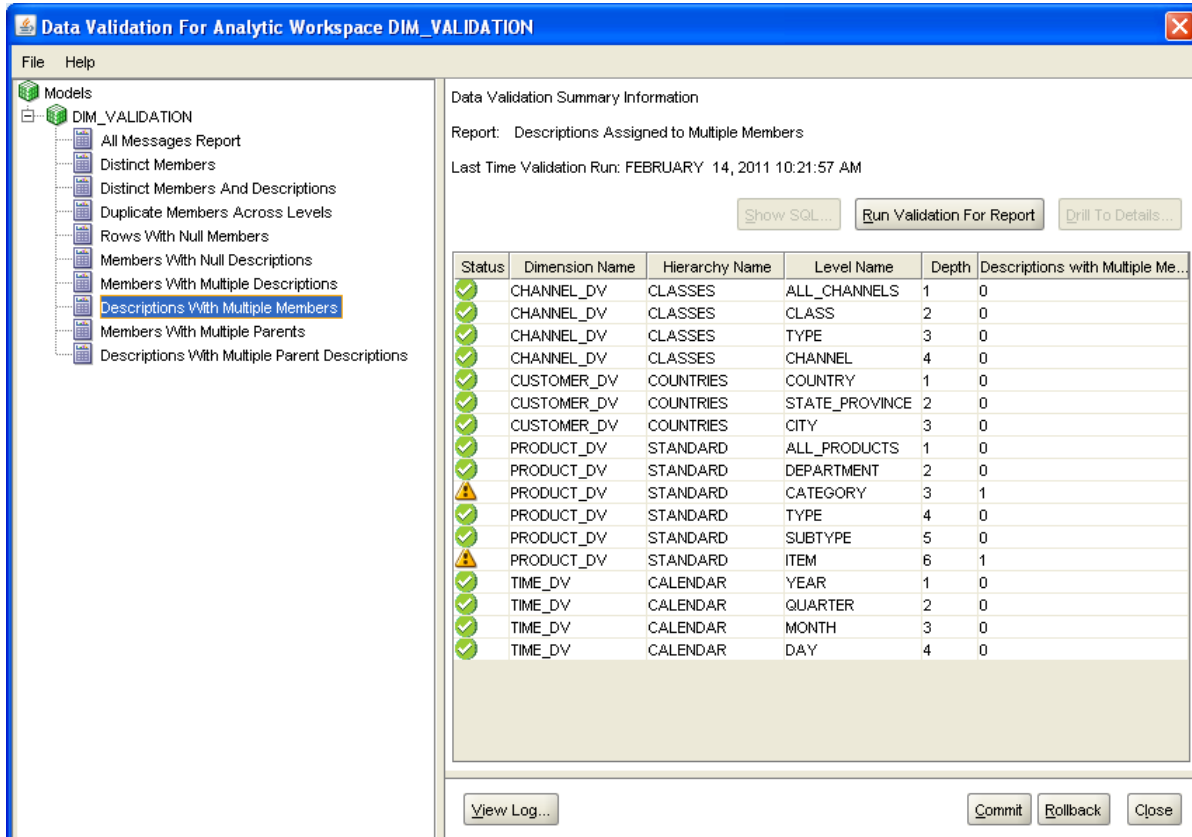
To correct this problem, choose the description Cameras and Accessories and make that the description for member CAMERAS AND ACC.

1. Choose the Members with Multiple Descriptions report.
2. Choose the CATEGORY level.
3. Press the Drill to Details button.
4. Choose the Update Dimension Table checkbox.
5. Select the description 'Cameras and Accessories'.
6. Choose Set Description to Selected Description.
7. Choose Apply.
8. Choose the Close button. Validation reports for this dimension will automatically run.

Resolving this problem also resolves the problem of unequal numbers of members and descriptions for the Subtype level.

## Descriptions with Multiple Members Report

The Descriptions with Multiple Members Report tests for descriptions that are used with more than one member. There are two examples of this type of error.



Data Validation For Analytic Workspace DIM\_VALIDATION

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members
  - Distinct Members And Descriptions
  - Duplicate Members Across Levels
  - Rows With Null Members
  - Members With Null Descriptions
  - Members With Multiple Descriptions
  - Descriptions With Multiple Members**
  - Members With Multiple Parents
  - Descriptions With Multiple Parent Descriptions

Data Validation Summary Information

Report: Descriptions Assigned to Multiple Members

Last Time Validation Run: FEBRUARY 14, 2011 10:21:57 AM

Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Descriptions with Multiple Me...
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	0
✓	CHANNEL_DV	CLASSES	CLASS	2	0
✓	CHANNEL_DV	CLASSES	TYPE	3	0
✓	CHANNEL_DV	CLASSES	CHANNEL	4	0
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	0
✓	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	0
✓	CUSTOMER_DV	COUNTRIES	CITY	3	0
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	0
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	0
⚠	PRODUCT_DV	STANDARD	CATEGORY	3	1
✓	PRODUCT_DV	STANDARD	TYPE	4	0
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	0
⚠	PRODUCT_DV	STANDARD	ITEM	6	1
✓	TIME_DV	CALENDAR	YEAR	1	0
✓	TIME_DV	CALENDAR	QUARTER	2	0
✓	TIME_DV	CALENDAR	MONTH	3	0
✓	TIME_DV	CALENDAR	DAY	4	0

View Log... Commit Rollback Close

The CATEGORY and ITEM levels contain descriptions that are used with more than one member.

In the Category level of the PRODUCT\_DV dimension, there are two members associated with the description "Total Personal Computers".

Details for Descriptions With Multiple Members At Level CATEGORY (3) In PRODUCT\_DV.STANDARD

Source Dimension Table: DIM\_VALID.PRODUCT\_DV\_TEST

Find:

Description (CATEGORY_DE...	Member (CATEGORY_ID)	Parent Description (DE...	Occurrences	Percent Occurrences
Total Personal Computers	TOTAL PCS	Computers	194	99.49
Total Personal Computers	TOTAL PCs	Computers	1	0.51

☒ Update Dimension Table

Data Correction Method:

☐ Concatenate Description with Member  
☐ Concatenate Description with Parent Description  
☒ Set Member to Most Common Member

Separator:

```

MERGE INTO DIM_VALID.PRODUCT_DV_TEST a USING
(
  SELECT DISTINCT FIRST_VALUE(CATEGORY_DESC)
  OVER (PARTITION BY CATEGORY_DESC,
  FIRST_VALUE(CATEGORY_ID)
  
```

*The member TOTAL PCS occurs more often than TOTAL PCs.*

In this case it would appear that members “TOTAL PCS” and “TOTAL PCs” are equivalent and that “TOTAL PCs” is an error. This can be corrected by setting the member to the most common member.

1. Choose the Descriptions with Multiple Members report.
2. Choose the CATEGORY level.
3. Press the Drill to Details button.
4. Choose the Update Dimension Table checkbox.
5. Select the Set Member to Most Common Member option.
6. Choose Apply.
7. Choose the Close button. Validation reports for this dimension will automatically run.

Resolving this problem also resolves the problem of unequal numbers of members and descriptions for the Category level.

At the ITEM level, there are two members that share the description “Alicante Powerlite 1700c XGA 1024x768 2200 lumens Projector”.

**Details for Descriptions With Multiple Members At Level ITEM (6) In PRODUCT\_DV.STANDARD**

Source Dimension Table: DIM\_VALID.PRODUCT\_DV\_TEST

Find:

Description (ITEM_DESC)	Member (ITEM_ID)	Parent Description (SUBTYPE_...)	Occurrences	Percent Occurrences
Alicante Powerlite 1700c XGA 1024x768 2200 lumens Projector	6052	Projector	1	50
Alicante Powerlite 1700c XGA 1024x768 2200 lumens Projector	6054	Projector	1	50

☒ Update Dimension Table

Data Correction Method:

☒ Concatenate Description with Member

☐ Concatenate Description with Parent Description

☐ Set Member to Most Common Member

Separator:

```
UPDATE DIM_VALID.PRODUCT_DV_TEST
SET ITEM_DESC = ITEM_DESC || '-' || TO_CHAR(ITEM_ID)
WHERE ITEM_DESC
IN (SELECT ITEM_DESC FROM
```

*It is unclear which member the description Alicante Powerlite 1700c XGA 1024x768 2200 lumens Projector applies to.*

If the members 6052 and 6054 are two different Items, it is not clear which member the description applies to. One way of quickly solving this problem in the dimension table is to concatenate the member to the description and make the description unique.

1. Choose the Descriptions with Multiple Members report.
2. Choose the ITEM level.
3. Press the Drill to Details button.
4. Choose the Update Dimension Table checkbox.
5. Select the Concatenate Description with Member option.
6. Choose Apply.
7. Choose the Close button. Validation reports for this dimension will automatically run.

## ***Members with Multiple Parents Report***

The Members with Multiple Parents report tests for cases where a member has more than one parent member. In the sample, levels City and Quarter show errors with multiple parents.

**Data Validation For Analytic Workspace DIM\_VALIDATION**

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members
  - Distinct Members And Descriptions
  - Duplicate Members Across Levels
  - Rows With Null Members
  - Members With Null Descriptions
  - Members With Multiple Descriptions
  - Descriptions With Multiple Members
  - Members With Multiple Parents**
  - Descriptions With Multiple Parent Descriptions

Data Validation Summary Information

Report: Members Assigned to Multiple Parents

Last Time Validation Run: FEBRUARY 14, 2011 10:29:39 AM

Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Members With Multiple Parents
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	0
✓	CHANNEL_DV	CLASSES	CLASS	2	0
✓	CHANNEL_DV	CLASSES	TYPE	3	0
✓	CHANNEL_DV	CLASSES	CHANNEL	4	0
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	0
✓	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	0
✗	CUSTOMER_DV	COUNTRIES	CITY	3	69
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	0
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	0
✓	PRODUCT_DV	STANDARD	CATEGORY	3	0
✓	PRODUCT_DV	STANDARD	TYPE	4	0
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	0
✓	PRODUCT_DV	STANDARD	ITEM	6	0
✓	TIME_DV	CALENDAR	YEAR	1	0
✗	TIME_DV	CALENDAR	QUARTER	2	4
✓	TIME_DV	CALENDAR	MONTH	3	0
✓	TIME_DV	CALENDAR	DAY	4	0

View Log... Commit Rollback Close

*CITY and QUARTER levels have members with more than one parent member.*

Quarter member values are not qualified by Year, so a value such as Q1 will have multiple parent members for each year.

**Details for Members with Multiple Parents At Level QUARTER (2) In TIME\_DV.CALENDAR**

Source Dimension Table: DIM\_VALID.TIME\_DV\_TEST

Find:

Member (QUARTER_ID)	Parent (YEAR_ID)	Description (QUARTER_DESC)	Parent_Description (YEAR_DESC)	Occurrences	Percent Occurrences
Q1	2008	Q1	2008	91	20.18
Q1	2010	Q1	2010	90	19.96
Q1	2007	Q1	2007	90	19.96
Q1	2006	Q1	2006	90	19.96
Q1	2009	Q1	2009	90	19.96
Q2	2007	Q2	2007	91	20
Q2	2006	Q2	2006	91	20
Q2	2010	Q2	2010	91	20
Q2	2009	Q2	2009	91	20
Q2	2008	Q2	2008	91	20
Q3	2006	Q3	2006	92	20
Q3	2010	Q3	2010	92	20
Q3	2007	Q3	2007	92	20
Q3	2009	Q3	2009	92	20
Q3	2008	Q3	2008	92	20
Q4	2008	Q4	2008	92	20.04
Q4	2007	Q4	2007	92	20.04

☐ Update Dimension Table

Data Correction Method:

☒ Update Parent Member with Most Common Parent

☐ Update Parent Member with Selected Parent (SET YEAR\_ID = '2008' WHERE QUARTER\_ID = 'Q1')

☐ Concatenate Member and Parent

Separator:

```

MERGE INTO DIM_VALID.TIME_DV_TEST a USING
(SELECT DISTINCT QUARTER_ID,
first_value(YEAR_ID)
OVER (PARTITION BY QUARTER_ID) AS YEAR_ID,
first_value(YEAR_DESC)
OVER (PARTITION BY QUARTER_ID) AS YEAR_DESC
FROM
(SELECT QUARTER_ID, YEAR_ID, YEAR_DESC, COUNT(*) COUNT
FROM DIM_VALID.TIME_DV_TEST
WHERE QUARTER_ID IN

```

*Details for Quarter level in Member with Multiple Parents report.*

Quarter level members can up corrected by concatenating the Quarter members with the Year members. This will create unique members such as "Q1-2010". The QUARTER\_ID column in the TIME\_DV\_TEST table has a width of only 2 characters, so the column must be modified to accommodate larger values. This is accomplished with the following SQL command in SQL Plus (or another tool where SQL statements can be executed).

1. In SQL Plus:
  - a. ALTER TABLE time\_dv\_test MODIFY (quarter\_id VARCHAR2(15));
2. In the Data Validation Plug-in:
  - a. Choose the Members with Multiple Parents report.
  - b. Choose the QUARTER level.

- c. Press the Drill to Details button.
- d. Choose the Update Dimension Table checkbox.
- e. Select the Concatenate Member and Parent option.
- f. Change the separate from ',' (comma) to '-' (dash).
- g. Choose Apply.
- h. Choose the Close button. Validation reports for this dimension will automatically run.

Notice that there is now a multiple parent error on the MONTH level when there was no error before. Before QUARTER level members were concatenated with Year level members, MONTH level members were unique to Quarters. For example JAN, FEB and MAR were unique to Q1. Now member JAN has parents Q1-2006, Q1-2007, Q1-2008, Q1-2009 and Q1-2010.

**Details for Members with Multiple Parents At Level MONTH (3) In TIME\_DV.CALENDAR**

Source Dimension Table: DIM\_VALID.TIME\_DV\_TEST

Find:

Member (MONTH_ID)	Parent (QUARTER_ID)	Description (MONTH_DESC)	Parent_Description (QUARTER...	Occurrences	Percent Occurrences
APR	Q2-2006	April	Q2	30	20
APR	Q2-2009	April	Q2	30	20
APR	Q2-2007	April	Q2	30	20
APR	Q2-2010	April	Q2	30	20
APR	Q2-2008	April	Q2	30	20
AUG	Q3-2010	August	Q3	31	20
AUG	Q3-2006	August	Q3	31	20
AUG	Q3-2007	August	Q3	31	20
AUG	Q3-2008	August	Q3	31	20
AUG	Q3-2009	August	Q3	31	20
DEC	Q4-2008	December	Q4	31	20.13
DEC	Q4-2007	December	Q4	31	20.13
DEC	Q4-2006	December	Q4	31	20.13
DEC	Q4-2009	December	Q4	31	20.13

☐ Update Dimension Table

Data Correction Method:

☒ Update Parent Member with Most Common Parent

☐ Update Parent Member with Selected Parent (SET QUARTER\_ID = 'Q2-2006' WHERE MONTH\_ID = 'APR')

☐ Concatenate Member and Parent

Separator:

```

MERGE INTO DIM_VALID.TIME_DV_TEST a USING
(SELECT DISTINCT MONTH_ID,
first_value(QUARTER_ID)
OVER (PARTITION BY MONTH_ID) AS QUARTER_ID,
first_value(QUARTER_DESC)
OVER (PARTITION BY MONTH_ID) AS QUARTER_DESC
FROM
(SELECT MONTH_ID, QUARTER_ID, QUARTER_DESC, COUNT (*) COUNT
FROM DIM_VALID.TIME_DV_TEST

```

*Months with multiple parent members.*

This error could be corrected by concatenating MONTH level members with parent members, creating members such as APR-Q2-2010. Most often, business users would prefer months in the format MONTH-YEAR (for example, APR-2010).

Because the Data Validation plug-in does not provide a tool to concatenate MONTH with YEAR, this correction must be done in a tool such as SQL Plus by executing SQL statements. All uncommitted transactions in the Data Validation session must be committed before updating any of the dimension tables in a different session.

1. In the Data Validation plug-in:
  - a. Choose the Commit button (bottom right of the main Data Validation dialog).
2. In SQL Plus, run the following commands:
  - a. `ALTER TABLE time_dv_test MODIFY (month_id VARCHAR2(15));`
  - b. `UPDATE time_dv_test SET month_id = month_id || '-' || year_id;`
  - c. `COMMIT;`
3. In the Data Validation plug-in:
  - a. Re-run all data validation reports for the TIME\_DV dimension.

Again select the Members with Multiple Parents report. The CITY level also has members with multiple parents. In this case, cities are not qualified by state or province. Many cities exist in multiple states, so cities must be made unique to a state. This can be done by concatenating CITY level members with STATE\_PROVINCE level members.



**Details for Members with Multiple Parents At Level CITY (3) In CUSTOMER.COUNTRIES**

Source Dimension Table: DIM\_VALID.CUSTOMER\_DV\_TEST

Find:

Member (CITY_ID)	Parent (STATE_PROVIN...	Description (CITY_NAME)	Parent_Description (STA...	Occurrences	Percent Occurrences
ACTON	MASSACHUSETTS	Acton	Massachusetts	1	50
ACTON	CALIFORNIA	Acton	California	1	50
ANTIOCH	CALIFORNIA	Antioch	California	1	50
ANTIOCH	ILLINOIS	Antioch	Illinois	1	50
ARLINGTON	TEXAS	Arlington	Texas	1	50
ARLINGTON	MASSACHUSETTS	Arlington	Massachusetts	1	50
BARRINGTON	ILLINOIS	Barrington	Illinois	1	50
BARRINGTON	MASSACHUSETTS	Barrington	Massachusetts	1	50
BEDFORD	MASSACHUSETTS	Bedford	Massachusetts	1	50
BEDFORD	NEW YORK	Bedford	New York	1	50

☐ Update Dimension Table

Data Correction Method:

☒ Update Parent Member with Most Common Parent

☐ Update Parent Member with Selected Parent (SET STATE\_PROVINCE\_ID = 'MASSACHUSETTS' WHERE CITY\_ID = 'ACTON')

☐ Concatenate Member and Parent

Separator:

```

MERGE INTO DIM_VALID.CUSTOMER_DV_TEST a USING
(SELECT DISTINCT CITY_ID,
first_value(STATE_PROVINCE_ID)
OVER (PARTITION BY CITY_ID AS STATE_PROVINCE_ID,
first_value(STATE_PROVINCE_NAME)
OVER (PARTITION BY CITY_ID AS STATE_PROVINCE_NAME

```

*There are many cities that are not unique to states, causing members with multiple parents.*

As has been seen with MONTH and QUARTER levels in the TIME\_DV dimension, it is possible that the concatenation of two columns can create a value that is too large for the existing column. Before updating the CITY level members, check the maximum width of the concatenated new members and compare it with width of the CITY\_ID column in the CUSTOMER\_DV\_TEST table.

1. In SQL Plus, run the following command:

a. `SELECT MAX(LENGTH(city_id || ' ' || state_province_id)) FROM customer_dv_test;`

The CUSTOMER\_DV\_TEST.CITY\_ID column is defined with a width of 120 which is more than enough to accommodate the concatenation of CITY\_ID and STATE\_PROVINCE\_ID.

2. In the Data Validation Plug-in

- Choose the Members with Multiple Parents report.
- Choose the CITY level.
- Press the Drill to Details button.

- d. Choose the Update Dimension Table checkbox.
- e. Select the Concatenate Member and Parent option.
- f. Choose Apply.
- g. Choose the Close button. Validation reports for this dimension will automatically run.

Note that 145 rows have been updated. Only those CITY level members that have multiple parents are updated. CITY level members that do not have multiple parents are not updated.

## ***Descriptions with Multiple Parent Descriptions Report***

The Descriptions with Multiple Parents Descriptions report tests for cases where a description has more than one parent description. In the sample data, the CITY and QUARTER levels both have descriptions with multiple parent descriptions.

**Data Validation For Analytic Workspace DIM\_VALIDATION**

File Help

Models

- DIM\_VALIDATION
  - All Messages Report
  - Distinct Members
  - Distinct Members And Descriptions
  - Duplicate Members Across Levels
  - Rows With Null Members
  - Members With Null Descriptions
  - Members With Multiple Descriptions
  - Descriptions With Multiple Members
  - Descriptions With Multiple Parent Descriptions**

Data Validation Summary Information

Report: Descriptions with Multiple Parent Descriptions

Last Time Validation Run: FEBRUARY 14, 2011 10:39:10 AM

Show SQL... Run Validation For Report Drill To Details...

Status	Dimension Name	Hierarchy Name	Level Name	Depth	Descriptions With Multiple Pa...
✓	CHANNEL_DV	CLASSES	ALL_CHANNELS	1	0
✓	CHANNEL_DV	CLASSES	CLASS	2	0
✓	CHANNEL_DV	CLASSES	TYPE	3	0
✓	CHANNEL_DV	CLASSES	CHANNEL	4	0
✓	CUSTOMER_DV	COUNTRIES	COUNTRY	1	0
✓	CUSTOMER_DV	COUNTRIES	STATE_PROVINCE	2	0
⚠	CUSTOMER_DV	COUNTRIES	CITY	3	69
✓	PRODUCT_DV	STANDARD	ALL_PRODUCTS	1	0
✓	PRODUCT_DV	STANDARD	DEPARTMENT	2	0
✓	PRODUCT_DV	STANDARD	CATEGORY	3	0
✓	PRODUCT_DV	STANDARD	TYPE	4	0
✓	PRODUCT_DV	STANDARD	SUBTYPE	5	0
✓	PRODUCT_DV	STANDARD	ITEM	6	0
✓	TIME_DV	CALENDAR	YEAR	1	0
⚠	TIME_DV	CALENDAR	QUARTER	2	4
✓	TIME_DV	CALENDAR	MONTH	3	0
✓	TIME_DV	CALENDAR	DAY	4	0

View Log... Commit Rollback Close

*CITY and QUARTER levels have descriptions with multiple parent descriptions.*

Quarter descriptions are not qualified by Year, so a description such as Q1 will have parent descriptions for each year.

**Details for Descriptions with Multiple Parent Descriptions At Level QUARTER (2) In TIME\_DV.CALENDAR**

Source Dimension Table: DIM\_VALID.TIME\_DV\_TEST

Find:

Description ( QUARTER_...)	Parent Description (YEA...	Member (QUARTER_ID)	Parent (YEAR_ID)	Occurrences	Percent Occurrences
Q1	2008	Q1-2008	2008	91	20.18
Q1	2010	Q1-2010	2010	90	19.96
Q1	2007	Q1-2007	2007	90	19.96
Q1	2006	Q1-2006	2006	90	19.96
Q1	2009	Q1-2009	2009	90	19.96
Q2	2010	Q2-2010	2010	91	20
Q2	2007	Q2-2007	2007	91	20
Q2	2009	Q2-2009	2009	91	20
Q2	2006	Q2-2006	2006	91	20
Q2	2008	Q2-2008	2008	91	20
Q3	2008	Q3-2008	2008	92	20
Q3	2007	Q3-2007	2007	92	20
Q3	2010	Q3-2010	2010	92	20

☒ Update Dimension Table

Data Correction Method:

☐ Update Parent Description with Most Common Parent Description

☐ Update Parent Description with Selected Parent Description (SET YEAR\_DESC = '2008' WHERE QUARTER\_DESC = 'Q1')

☒ Concatenate Description with Parent Description

Separator:

```

ALTER TABLE DIM_VALID.TIME_DV_TEST MODIFY(QUARTER_DESC VARCHAR2(18))
UPDATE DIM_VALID.TIME_DV_TEST
SET QUARTER_DESC = QUARTER_DESC || ' ' || YEAR_DESC
WHERE QUARTER_DESC IN
(SELECT QUARTER_DESC FROM
(SELECT QUARTER_DESC, COUNT(*) FROM
(SELECT DISTINCT QUARTER_DESC, YEAR_DESC
FROM DIM_VALID.TIME_DV_TEST

```

*Details for Quarter level in Descriptions with Multiple Parent Descriptions report.*

Quarter level descriptions can be corrected by concatenating the Quarter descriptions with the Year members to create descriptions such as Q1-2010. The QUARTER\_ID column in the TIME\_DV\_TEST table has a width of only 2 characters, so the column must be modified to accommodate larger values. This is accomplished with the following SQL command in SQL Plus (or another tool where SQL statements can be executed).

1. In SQL Plus, run the following command:
  - a. ALTER TABLE time\_dv\_test MODIFY (quarter\_id VARCHAR2(20));
2. In the Data Validation Plug-in
  - a. Choose the Descriptions with Multiple Parent Descriptions report.
  - b. Choose the QUARTER level.

- c. Press the Drill to Details button.
- d. Choose the Update Dimension Table checkbox.
- e. Select the Concatenate Description and Parent Description option.
- f. Change the separate from ',' (comma) to '-' (dash).
- g. Choose Apply.
- h. Choose the Close button. Validation reports for this dimension will automatically run.

Notice that there is now a multiple parent description error on the Month level when there was not an error before. Before Quarter level descriptions were concatenated with Year level descriptions, Month level descriptions were unique to Quarters. For example JAN, FEB and MAR were unique to Q1. Now January has parents Q1-2006, Q1-2007, Q1-2008, Q1-2009 and Q1-2010.

Details for Descriptions with Multiple Parent Descriptions At Level MONTH (3) In TIME\_DV.CALENDAR

Source Dimension Table: DIM\_VALID.TIME\_DV\_TEST

Find:

Description ( MONTH_ID)	Parent Description (Q...)	Member (MONTH_ID)	Parent (QUARTER_ID)	Occurrences	Percent Occurrences
April	Q2-2010	APR-2010	Q2-2010	30	20
April	Q2-2007	APR-2007	Q2-2007	30	20
April	Q2-2006	APR-2006	Q2-2006	30	20
April	Q2-2009	APR-2009	Q2-2009	30	20
April	Q2-2008	APR-2008	Q2-2008	30	20
August	Q3-2010	AUG-2010	Q3-2010	31	20
August	Q3-2007	AUG-2007	Q3-2007	31	20
August	Q3-2006	AUG-2006	Q3-2006	31	20
August	Q3-2009	AUG-2009	Q3-2009	31	20

☐ Update Dimension Table

Data Correction Method:

☒ Update Parent Description with Most Common Parent Description

☐ Update Parent Description with Selected Parent Description (SET QUARTER\_DESC = 'Q2-2010' WHERE MONTH\_DESC = 'April')

☐ Concatenate Description with Parent Description

Separator:

```

MERGE INTO DIM_VALID.TIME_DV_TEST a USING
(SELECT DISTINCT MONTH_DESC,
first_value(QUARTER_DESC)
OVER (PARTITION BY MONTH_DESC) AS QUARTER_DESC
FROM
(SELECT MONTH_DESC, QUARTER_DESC, COUNT(*) COUNT

```

*Months with multiple parent descriptions.*

This error could be corrected by concatenating Month level descriptions with parent descriptions, creating members such as April-Q2-2010. Most often, business users would prefer months in the format MONTH-YEAR (for example, April 2010).

Because the Data Validation plug-in does not provide a tool to concatenate month with year, this correction must be done in a tool such as SQL Plus by executing SQL statements. All uncommitted transactions in the Data Validation session must be committed first before updating any of the dimension tables in a different session.

1. In the Data Validation plug-in:
  - a. Choose the Commit button (bottom right of the main Data Validation dialog).
2. In SQL Plus, run the following commands:
  - a. `ALTER TABLE time_dv_test MODIFY (month_desc VARCHAR2(20));`
  - b. `UPDATE time_dv_test SET month_desc = month_desc || ' ' || year_desc;`
  - c. `COMMIT;`
3. In the Data Validation plug-in:
  - a. Re-run all data validation reports for the TIME\_DV dimension

Again select the Descriptions with Multiple Parent Descriptions report. The CITY level also has descriptions with multiple parent descriptions. In this case, cities are not qualified by state or province. Many cities exist in multiple states, so cities must be made unique to a state. This can be done by concatenating CITY level members with STATE level members.

**Details for Descriptions with Multiple Parent Descriptions At Level CITY (3) In CUSTOMER\_DV.COUNTRIES**

Source Dimension Table: DIM\_VALID.CUSTOMER\_DV\_TEST

Find:

Description (CITY_NAME)	Parent Description (STATE_PROVINCE_NAME)	Member (CITY_ID)	Parent (STATE_PROVINCE_NAME)	Occurrences	Percent Occurrences
Acton	Massachusetts	ACTON, MASSACHUSETTS	MASSACHUSETTS	1	50
Acton	California	ACTON, CALIFORNIA	CALIFORNIA	1	50
Antioch	California	ANTIOCH, CALIFORNIA	CALIFORNIA	1	50
Antioch	Illinois	ANTIOCH, ILLINOIS	ILLINOIS	1	50
Arlington	Massachusetts	ARLINGTON, MASSACHUSETTS	MASSACHUSETTS	1	50
Arlington	Texas	ARLINGTON, TEXAS	TEXAS	1	50
Barrington	Massachusetts	BARRINGTON, MASSACHUSETTS	MASSACHUSETTS	1	50
Barrington	Illinois	BARRINGTON, ILLINOIS	ILLINOIS	1	50
Bedford	New York	BEDFORD, NEW YORK	NEW YORK	1	50
Bedford	Massachusetts	BEDFORD, MASSACHUSETTS	MASSACHUSETTS	1	50
Belmont	Massachusetts	BELMONT, MASSACHUSETTS	MASSACHUSETTS	1	50

☒ Update Dimension Table

Data Correction Method:

☐ Update Parent Description with Most Common Parent Description  
☐ Update Parent Description with Selected Parent Description (SET STATE\_PROVINCE\_NAME = 'Massachusetts' WHERE CITY\_NAME = 'Acton')  
☒ Concatenate Description with Parent Description

Separator:

```

UPDATE DIM_VALID.CUSTOMER_DV_TEST
SET CITY_NAME = CITY_NAME || ' ' || STATE_PROVINCE_NAME
WHERE CITY_NAME IN
(SELECT CITY_NAME FROM
(SELECT CITY_NAME, COUNT(*) FROM
(SELECT DISTINCT CITY_NAME, STATE_PROVINCE_NAME
FROM DIM_VALID.CUSTOMER_DV_TEST

```

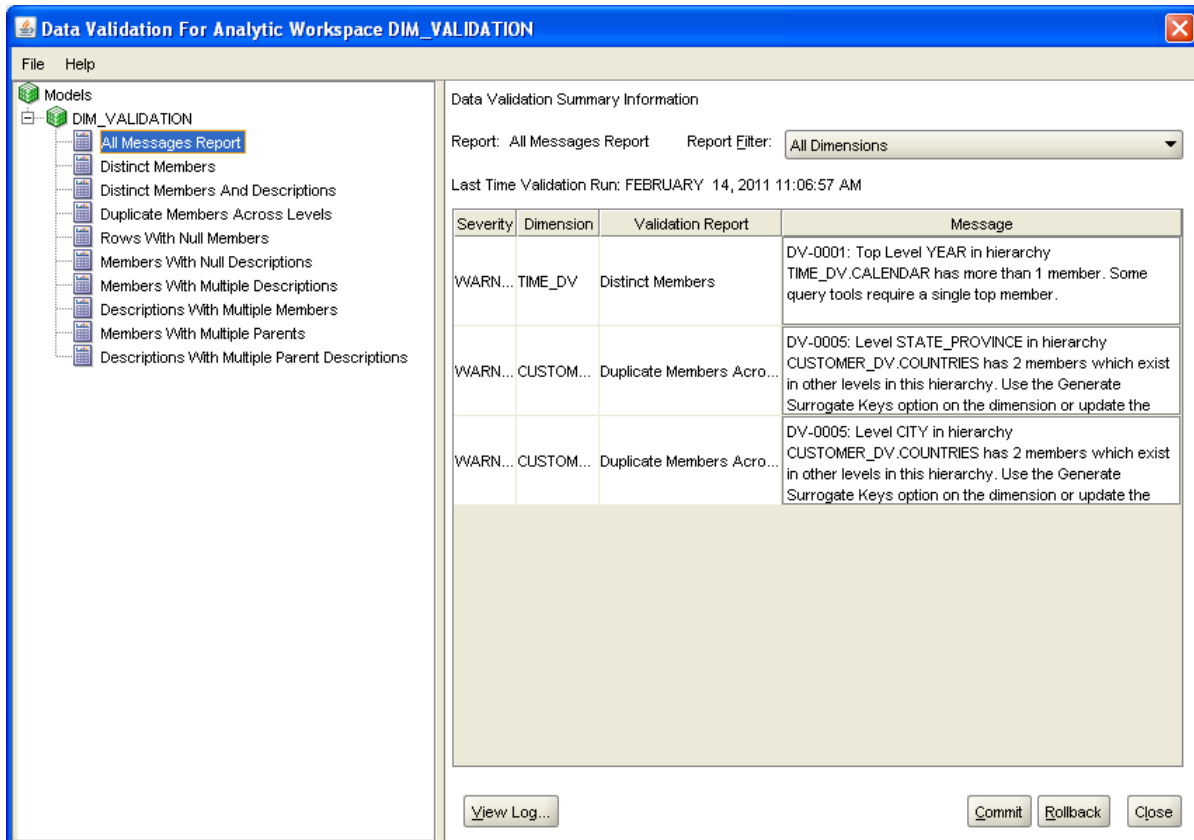
*There are many city descriptions that are not unique to states, causing descriptions with multiple parent descriptions.*

Update CITY level descriptions:

1. Choose the Descriptions with Multiple Parent Descriptions report.
2. Choose the CITY level.
3. Press the Drill to Details button.
4. Choose the Update Dimension Table checkbox.
5. Select the Concatenate Descriptions and Parent Description option.
6. Choose Apply.
7. Choose the Close button. Validation reports for this dimension will automatically run.

## All Messages Report

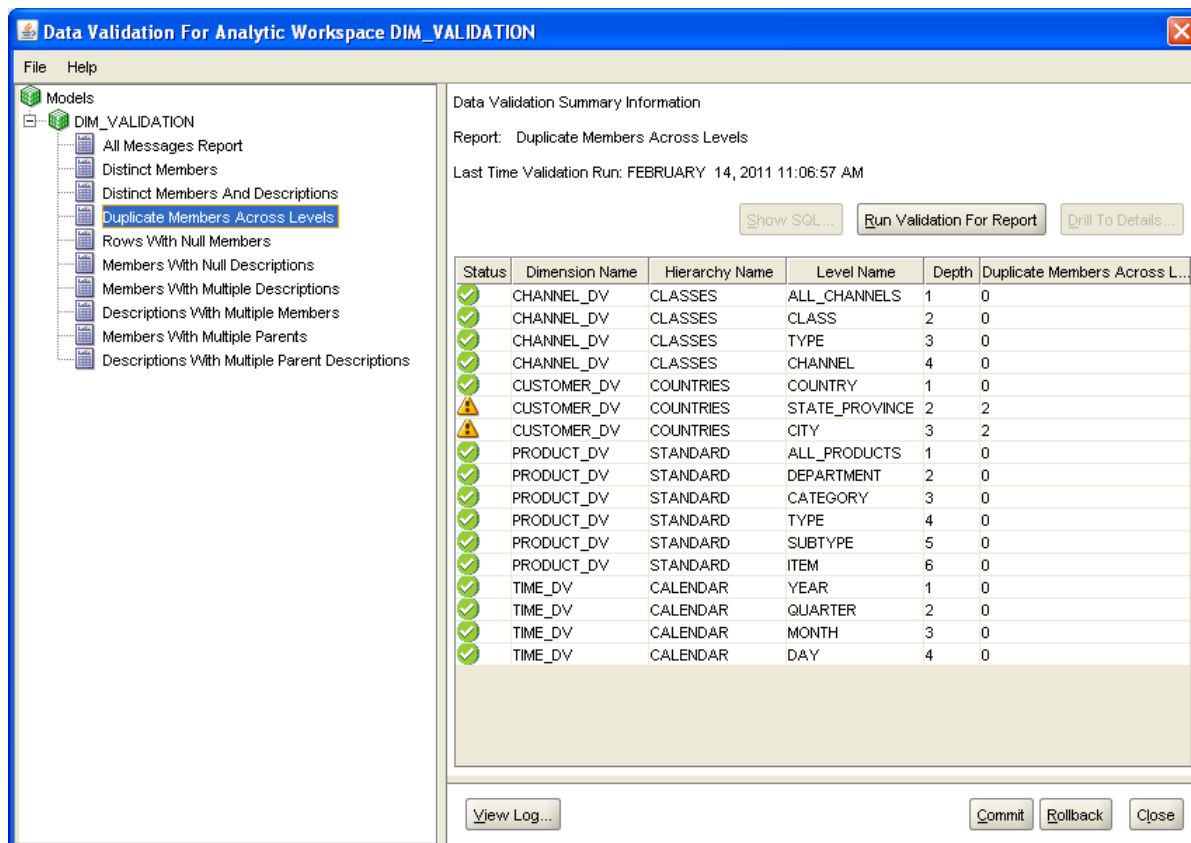
At this point, there are only three problems remaining. The All Message Report describes a warning where there is more than one top member in the TIME\_DV dimension. Because the All Times member is mapped to a literal value in the analytic workspace, this message can be disregarded. That leaves two duplicate members across levels warnings.



Three warnings remain in the All Messages report.

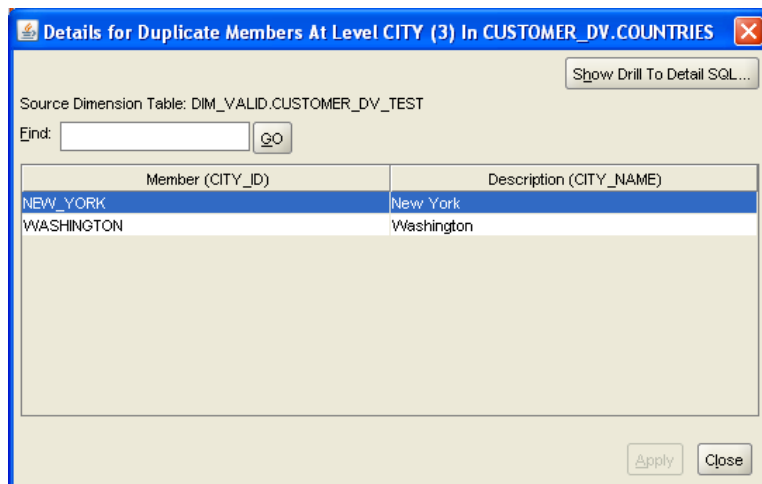
## Duplicate Members Across Levels Report

In the Duplicate Members Across Levels report it can be seen that there are duplicate members in the CITY and STATE\_PROVINCE levels.



*Duplicate members exist in the CITY and STATE\_PROVINCE levels.*

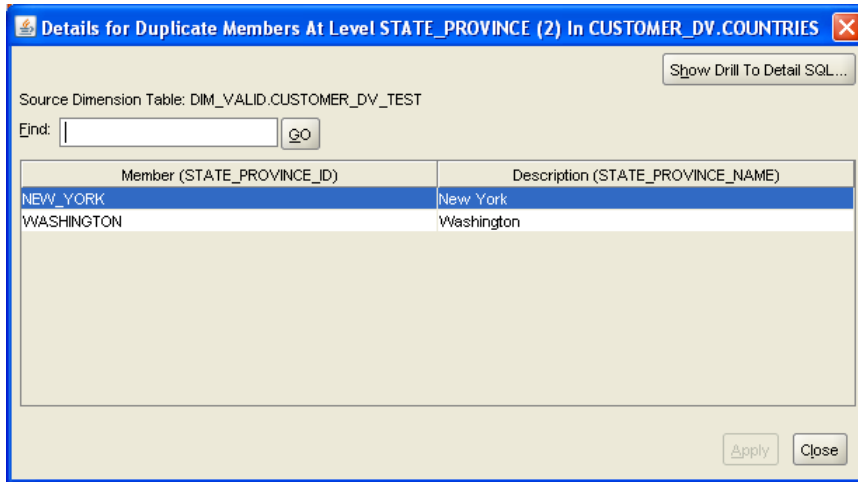
Drilling to details of the CITY level reveals that members NEW\_YORK and WASHINGTON exist in other levels.



*NEW\_YORK and WASHINGTON exist at levels other than CITY.*



The STATE\_PROVINCE level also has duplicate members.



*NEW\_YORK and WASHINGTON also exist at the STATE\_PROVINCE level.*

Members NEW\_YORK and WASHINGTON exist at both the CITY and STATE\_PROVINCE levels. View the STATE\_PROVINCE members for the NEW\_YORK and WASHINGTON members at the city level. This will help determine an appropriate solution.

1. In the Data Validation plug-in:
  - a. Choose the Commit button (bottom right of the main Data Validation dialog).
2. In SQL Plus, run the following SELECT statement:

```
SELECT city_id,  
       state_province_id  
FROM customer_dv_test  
WHERE city_id IN ('NEW_YORK', 'WASHINGTON');
```

```
CITY_ID      STATE_PROVINCE_ID  
-----  
WASHINGTON  MICHIGAN  
NEW_YORK     NEW_YORK
```

There are different solutions that could solve this problem.

- Using OLAP's surrogate key option will make the members unique to levels by prefixing the level name to the member when the member is loaded into the dimension (in AWM, this is set in the dimensions Implementation Details tab). When this option is used, the level name prefix is applied to every member. Setting this option does not affect data in the dimension table, so it will not eliminate the errors displayed in the Data Validation plug in.

- Manually append the level name to WASHINGTON and NEW\_YORK. E.g., WASHINGTON (CITY) and NEW\_YORK (CITY).

```
UPDATE customer_dv_test
SET city_id = city_ID || 'CITY'
WHERE city_id IN ('NEW_YORK', 'WASHINGTON');
```

- Concatenate CITY\_ID and STATE\_PROVINCE\_ID for NEW\_YORK and WASHINGTON. E.g., NEW\_YORK, NEW\_YORK and WASHINGTON, MICHIGAN.

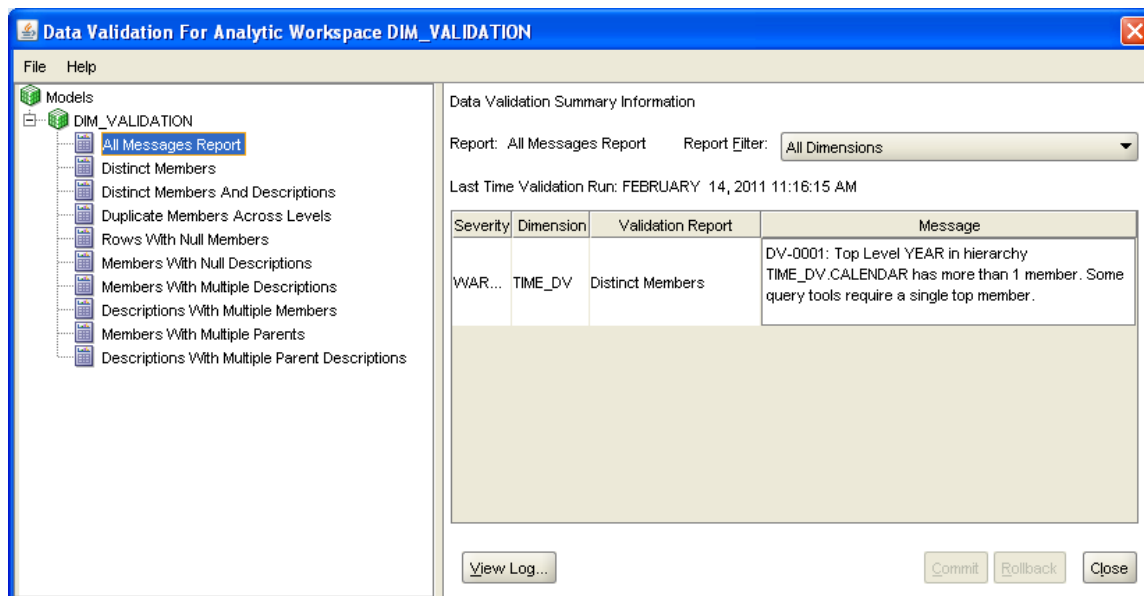
```
UPDATE customer_dv_test
SET city_id = city_id || ', ' || STATE_PROVINCE_ID
WHERE city_id IN ('NEW_YORK', 'WASHINGTON');
```

Choose either of the options that update the dimension table.

1. In SQL Plus, run the following commands:
  - a. Run either of the above UPDATE commands
  - b. COMMIT;
2. In the Dimension Validation plug-in:
  - a. Re-Run dimension validation reports for all dimensions.

### ***All Messages Report***

Returning to the All Messages Report shows that all errors and warnings, except for the warning that the top level in time has more than one member, have been eliminated. (Again, because the top level of time is mapped to a constant which will create a single top member this is not a concern.)



*All important errors and warnings have been eliminated.*