

Oracle Health Insurance Data Marts

Administrator Reference

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CHANGE HISTORY

| Release | Version | Changes |
|-------------|---------|--|
| 10.12.2.0.0 | 9.29 | <ul style="list-style-type: none"> Added change history paragraph. Added description for Oracle Business Intelligence translations external file (WBX_OBIEE_TRANSLATIONS.csv) Added description for configuring generic structure of claim properties Added description how to configure DWH_OHI_BI.rpd connection pools. |
| 10.12.3.0.0 | 9.30 | <ul style="list-style-type: none"> Added new fact table DWH_ONDERHANDEN_WERK (Work in Progress Claims) Replaced generic role OZG_ROL_SELECT by secure role OBD_SELECT_ROLE. |
| 10.13.1.0.0 | 9.31 | <ul style="list-style-type: none"> Added Exadata Support, Migrating OWB from single instance to multi node RAC, added OBI_SELECT_USER Added new batch Correct monitorcode (ZRGO005S) |
| 10.13.2.0.0 | 9.32 | <ul style="list-style-type: none"> Added description for generic dimension properties (DIM_EIGENSCHAPPEN.dat) Added new parameter P_MAX_DCE_VERSCHIL; a threshold that is taken into account when performing crosschecks for claims. Added details for the Members check (three different reference dates) Added new description for setting 'Policies to date' Corrected examples for dynamic claim properties Added Default Secure Install and Enable Security Audit |
| 10.13.2.1.0 | 9.33 | <ul style="list-style-type: none"> Added new fact table DWH_OPENSTAANDE_VORDERINGEN (Open Receivables) Added new batch Load Open Receivables (ZRGO006S) |
| 10.13.3.0.0 | 9.34 | <ul style="list-style-type: none"> Updated batch ZRGO005S for new purpose (Update external codings for claims) |
| 10.13.3.3.0 | 9.34.1 | <ul style="list-style-type: none"> Added new fact table DWH_DECL_PRESTATIE_DETAILS (Claim Details) |
| 10.14.1.0.0 | 9.35 | <ul style="list-style-type: none"> Added new fact tables DWH_OPENSTAANDE_VERPLICHTINGEN (Open Payables), DWH_VERPLICHTINGEN (Payables) and DWH_VORDERINGEN (Receivables) |
| 10.14.1.3.0 | 9.36 | <ul style="list-style-type: none"> Added new batch Load Open Policies (ZRGO020S) |
| 10.15.1.0.0 | 9.37 | <ul style="list-style-type: none"> Moved documentation of ZRGOE01S, ZRGOS01S, ZRGOD01S, ZRGO003S, ZRGO004S, ZRGO005S, ZRGO006S, ZRGO009S, ZRGO020S, ZRGO021S and ZRGO022S to OLH of OHI Back Office. |
| 10.15.1.1.0 | 9.38 | <ul style="list-style-type: none"> Changed paragraph 'SETTING UP ORACLE HEALTH INSURANCE DATA MARTS ENVIRONMENT' due to migration to RDBMS 12.1.0.2 (theme M-4064). |
| 10.15.3.0.0 | 9.39 | <ul style="list-style-type: none"> Added a note in the Oracle Warehouse Builder Software section about OBDXMLPS.sql and root.sh |
| 10.16.1.0.0 | 9.40 | <ul style="list-style-type: none"> Added Appendix H: Virtual Private Database |
| 10.16.2.0.0 | 9.41 | <ul style="list-style-type: none"> Changed version number, no changes. |
| 10.17.1.0.0 | 9.41 | <ul style="list-style-type: none"> No changes. |
| 10.17.2.0.0 | 9.42 | <ul style="list-style-type: none"> Updated Appendix D: OWB 11gR2 post-cloning process for OHI Data Marts. Reduced the number of manual steps involved in performing the OWB post-cloning process |
| 10.18.1.0.0 | 9.43 | <ul style="list-style-type: none"> Removed obsolete OWB references and removed the following sections: <ul style="list-style-type: none"> Installation of Oracle Warehouse Builder (OWB) Repository Cleaning up OWB Audit data OWB Runtime service Appendix B: Use of WBX_LAADRUN_ERRORS_VW and WBX_MAPPING_VW views Appendix D: OWB 11gR2 post-cloning process for OHI Data Marts Appendix E: Migrating OWB from single instance to multi node RAC |
| 10.18.1.3.0 | 9.44 | <ul style="list-style-type: none"> Updated 'Configuration of generic structure for claim properties' to include information on how to make generic claim properties available within the OBIEE repository. |
| 10.18.2.0.0 | 9.45 | <ul style="list-style-type: none"> Changed part number on title page. |
| 10.18.2.2.0 | 9.46 | <ul style="list-style-type: none"> M-5568: Added the WBX_CTR_DRIEHOEKSCONTROLE_VW view |
| 10.19.1.0.0 | 9.47 | <ul style="list-style-type: none"> M-5668: Database Vault implementatie voor Data Marts. Added capital to describe the Database Vault installation and setup. |
| 10.19.1.0.0 | 9.48 | <ul style="list-style-type: none"> Changed part number on title page. |
| 10.19.2.0.0 | 9.49 | <ul style="list-style-type: none"> Changed part number on title page |
| 10.20.1.0.0 | 9.50 | <ul style="list-style-type: none"> Changed part number on title page |
| 10.20.3.0.0 | 9.51 | <ul style="list-style-type: none"> Removed LEEFTIJD_CATEGORIEEN.dat and POSTCODE_VERRIJKINGEN.dat. |
| 10.20.6.0.0 | 9.52 | <ul style="list-style-type: none"> M-6241: Database Vault implementation for Data Marts enhanced. Reference to CTA13508 added. M-6235: Improve error-handling Data Marts ETL batches |
| 10.20.8.0.0 | 9.53 | <ul style="list-style-type: none"> Grants on OBD_SELECT_USER changes: 'select on dba_tables' and 'select on dba_tab_statistics' added, 'select on sys.v_\$database' removed. |
| 10.21.1.0.0 | 9.54 | <ul style="list-style-type: none"> New part number and copyright year, no changes. |

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INTRODUCTION

The purpose of this document is to give an overview of the architecture of Oracle Health Insurance Data Marts, as well as information on installation and management.

This document may be used as both a training material and a reference material. It is assumed that the reader has a basic knowledge of the Oracle tools being used.

With this document the Oracle Health Insurance Data Marts administrator should be able to install and maintain the Data Warehouse.

IMPORTANT DOCUMENTATION

The documentation below is important for the activities of the functional administrator. These describe the design of Oracle Health Insurance Data Marts and contain information that is (potentially) required for installation and management.

1. Standard product manuals from Oracle DBMS and Oracle Business Intelligence Enterprise Edition (OBI EE). Documentation on these Oracle products can be found on the Oracle support website (<http://support.oracle.com>)
2. CTA13508.doc: Oracle Health Insurance Installation, Configuration and DBA Manual
3. CTA13535.doc: Oracle Health Insurance Security Aspects

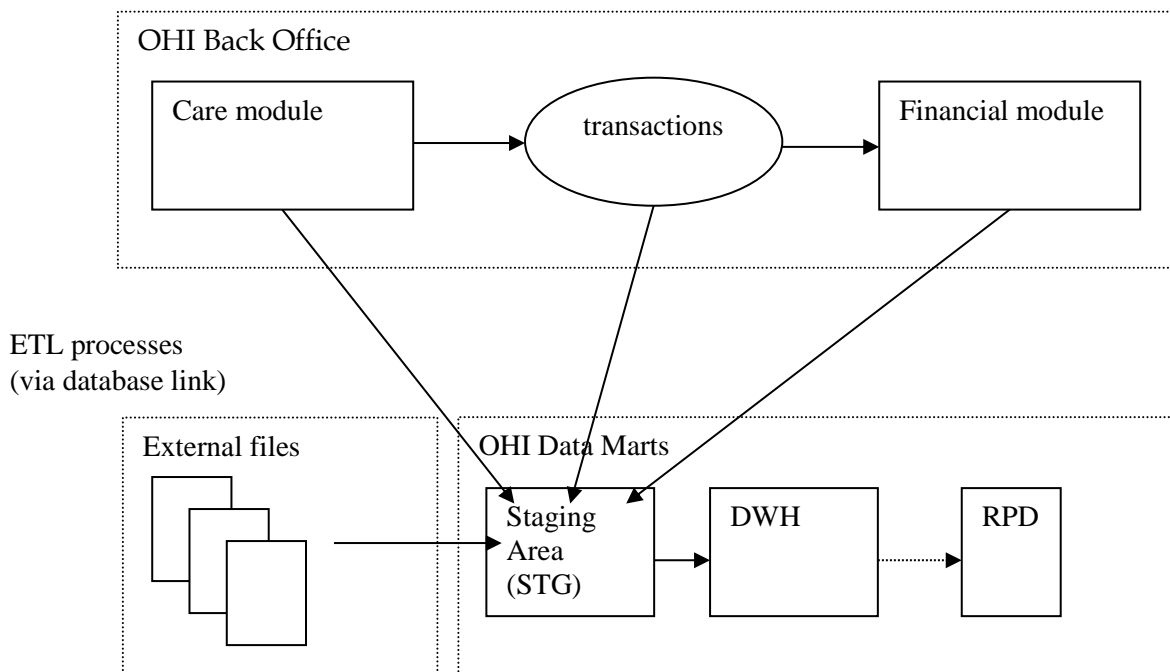
SOFTWARE USED



Oracle Health Insurance Certification on MOS (logon to MOS, choose tab 'Certifications', specify product name 'Oracle Health Insurance Data Marts' and the relevant versions)

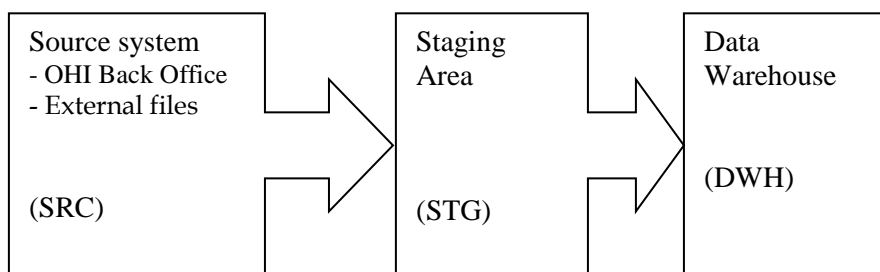
OVERVIEW

The architecture of Oracle Health Insurance Data Marts broadly looks like this:



Oracle Health Insurance Data Marts makes use of three data areas. These data areas have a logical mutual connection. Their goal is to supply the data from the sources in a verified manner for reading in, checking and publishing.

The figure below shows the mutual relationships between the various data areas:



Data from the source system is always moved through the system in the following way:

1. 'Raw' data is loaded into the staging area.
2. Validated data is moved from the staging area to the Data Warehouse. There, the data is stored optimally for querying purposes and brought into alignment with the previously-loaded data.

PART I - INSTALLATION

INTRODUCTION

Various components make up Oracle Health Insurance Data Marts. This chapter contains a short description of each.

The set-up and installation of these components is dealt with in the following paragraphs.

SETTING UP ORACLE HEALTH INSURANCE DATA MARTS ENVIRONMENT

OS set-up

Oracle Health Insurance Data Marts runs on a database server. The load run of Oracle Health Insurance Data Marts requires that there is an application server on which the OHI Back Office application is installed. Oracle Health Insurance Data Marts makes use of OHI Back Office functionality including, for example, the batch scheduler for starting and scheduling the load run.

For set-up of the application and database server environment, including set-up of the environmental variables and directory structure, see:



Oracle Health Insurance Installation, Configuration and DBA Manual (chapter 3)

Software installation

Database

Oracle Health Insurance Data Marts must be installed in a dedicated database. It is not permitted to install Oracle Health Insurance Data Marts in the same database as OHI Back Office, as Oracle Health Insurance Data Marts is a Data Warehouse and OHI Back Office is an OLTP system. Different user settings are used in each database.

Please note that the JServer option must also be installed in the database (and the *java_pool_size* parameter is filled in in "init.ora"). This is a requirement to be able to install the OWB Runtime environment.

For more details regarding the installation of the database software, see:



Oracle Health Insurance Installation, Configuration and DBA Manual (chapter 2)

Oracle Warehouse Builder

As of database release Oracle 12cR2 OWB is no longer supported. Accordingly, from Oracle Health Insurance release 10.18.1.0 onwards an OWB Runtime environment is no necessary to execute the Oracle Health Insurance Data Marts ETL process.

Creation of an Oracle Health Insurance Data Marts database

A pluggable database needs to be created first before Oracle Health Insurance Data Marts can be installed.

Parameters

The following database parameters must be set to the specified values:

| | | |
|-----------------------------|-------------------------------|--------------------------------|
| DB_BLOCK_SIZE | = 16384 or DB_BLOCK_SIZE=8192 | |
| NLS_SORT | = BINARY | # For performance reasons |
| OPTIMIZER_MODE | = ALL_ROWS | # For performance reasons |
| STAR_TRANSFORMATION_ENABLED | = TRUE | # For performance reasons |
| STATISTICS_LEVEL | = TYPICAL | # For self-tuning capabilities |

```
UNDO_MANAGEMENT          = AUTO          # Automatic Undo
WORKAREA_SIZE_POLICY     = AUTO          # Automatic SQL Execution Memory Management
```

The following parameters are influenced by the environment variables as used by the process of the connecting session. When they are not set or specified the database instance values apply. Below example values are shown for a Dutch environment.

```
NLS_LANGUAGE             = DUTCH          # Choose the appropriate language
NLS_NUMERIC_CHARACTERS  = ",." ***      # personal choice
NLS_TERRITORY            = "THE NETHERLANDS"
```

*** = this setting cannot be changed once the application is used

The following database parameters must be set to the specified values at a *minimum*. When a *maximum* value applies, this is specified:

```
DML_LOCKS                = 500
OPEN_CURSORS             = 500
SESSION_CACHED_CURSORS  = 500
PROCESSES                = 200
JOB_QUEUE_PROCESSES     = 10
```

As well as the parameters above, there is also a parameter that is extremely important for parallel processing during both the loading process and for queries by end-users:

```
PARALLEL_MAX_SERVERS=number
```

If this setting is left out of the init.ora, it will be set to a very high value by default. It is therefore highly advisable to set a value for this parameter. However, the correct value for this parameter depends on the system (speed of I/O, number and speed of CPUs, among other things).

Unfortunately, there is no hard and fast rule. More details on setting these parameters can be found on Oracle Support under note 280939.1 "Checklist for Performance Problems with Parallel Execution". The manual 'Oracle Database Data Warehousing Guide' describes how the execution of parallel statements works. To find out whether parallel statements have actually been executed serially due to a lack of parallel servers, the following statement, for example, can be used:

```
select * from gv$sysstat where name like 'Parallel operation%';
```



Note 1: In the production environment it is *not* permitted to have activated the database events, unless explicitly requested by Oracle Health Insurance Development or Oracle Support Services.



Note 2: If user settings that have not been recommended or prescribed are used in the Database or Application Server, the customer may be asked to reset these user settings if problems arise that may be connected.

The underlying reason for this is to avoid unnecessary instability risks. Use in custom applications also requires special consideration.



Tip 1: Oracle Health Insurance recommends the use of *Oracle Resource Management*. See paragraph 8.4.2 of CTA13508.doc: Oracle Health Insurance Installation, Configuration and DBA Manual.

Tablespaces

The tablespaces below must be created for data and indexes:

| Tablespace |
|------------|
| STG_STAD |
| STG_STAI |
| STG_DYND |
| STG_DYNI |

| Tablespace |
|------------------|
| DWH_STAD |
| DWH_STAI |
| DWH_DYND |
| DWH_DYNI |
| OZG_DIM_SYS_TAB |
| OZG_DIM_SYS_IND |
| OZG_FACT_SYS_TAB |
| OZG_FACT_SYS_IND |
| OZG_LOG_TAB |
| OZG_LOG_IND |

The created tablespaces must comply with the following requirements:

1. Locally Managed
2. System managed extent allocation
3. Automatic Segment Space Management
4. 8K or 16K blocksize



Note 3: Oracle Health Insurance requires the use of a *default temporary* tablespace for temporary segments.

Database users

The following users should be created in the Oracle Health Insurance Data Marts database:

| User | ID | Description |
|--|----------|--|
| Oracle Health Insurance Data Marts owner | OBD_OWNS | This is the owner of the Oracle Health Insurance Data Marts objects. This user must be created using the Oracle Health Insurance Data Marts installation software with USERS as data/index tablespace |
| Batch User | BATCH | This is the user with which the Batch Scheduler scripts that are requested in the OHI Back Office application are executed. This user does not own any objects and therefore does not need its own separate tablespace. The user should be 'externally identified' so that the loading process can be started remotely from the OHI Back Office application server. This user is created by the Oracle Health Insurance Data Marts installation software. (see 'Oracle Health Insurance Security Aspects' document on iProjects Files for security of the BATCH account) |



Note: From Oracle database release 12cR2 & Oracle Health Insurance release 10.18.1.0 onwards, the OWBSYS and OHI_BI_WS_OWNS users are no longer required.

The following user should be created in the OHI Back Office database:

| User | ID | Description |
|-----------------------------|-----------------|--|
| Select user for extractions | OBD_SELECT_USER | This is the user that performs the selections on the OHI Back Office database. This user should be assigned the following privileges: CREATE SESSION OBD_SELECT_ROLE SELECT ON DBA_TABLES SELECT ON DBA_TAB_STATISTICS |

Database link

A database link should be created from the Oracle Health Insurance Data Marts database to the OHI Back Office database with the name SRC_OPENZORG. The link should be created in the following way (under user OBD_OWNS) in the Oracle Health Insurance Data Marts database:

```
create database link SRC_OPENZORG
connect to OBD_SELECT_USER
identified by [password]
using '[servicename]'
;
```



Note: After a database has been cloned, create or change the private database link SRC_OPENZORG (as OBD_OWN) to the correct Back Office source. The account OBD_SELECT_USER should be used as the CONNECT TO user:

```
create database link SRC_OPENZORG
connect to OBD_SELECT_USER
using '<OHI Back Office Service Name>';
```

Database directories

For several external tables, the following database directories need to be created under the OBD_OWN schema:

| Directory | Value | Description |
|-----------|---------------------|---|
| OBD_INPUT | Value of \$OZG_BASE | This is the location of the source files that are used for the external tables |
| OBD_LOG | /tmp | This is the location for the log, discard and bad files of the external tables. |

Example:

```
if $OZG_BASE = /ozg/app/oracle/product/Zorg/oton
```

```
create or replace directory OBD_INPUT
as '/ozg/app/oracle/product/Zorg/oton';
```



Note: After a database has been cloned, correct the OBD_INPUT directory object in the database (login SYS as SYSDBA).

```
SQL> drop directory obd_input;
Directory dropped.
SQL> create directory obd_input as
'/ozg/app/oracle/product/Zorg/oacc';
Directory created.
SQL> grant read, write on directory obd_input to public;
Grant succeeded.
```

Default Secure Install

To avoid default passwords, and as general good security practice it is recommended to change your passwords on a regular basis. This section describes how to change your passwords for the various accounts within the OHIBI environment.

The database user OBD_OWN is the database user that owns the Data Marts in the OHIBI database. The OBD_OWN password is used on the application server to log on to OHIBI. The password is also used in Oracle Warehouse Builder locations, therefore a change in the OBD_OWN requires multiple actions.

1. Connect to SQLplus as dba user and change the **OBD_OWN** password using:
SQL> alter user **OBD_OWN** identified by <PASSWORD>;
2. Log on to the application server
ssh batch@<hostname>
3. Set the environment:
. ozg_init.env DB1202

4. Navigate to your wallet
cd network/admin/special
5. To list all wallet entries:
mkstore -wrl . -listCredential
6. Modify the credentials:
mkstore -wrl . -modifyCredential <ENVIRONMENT_NAME>_INSTALL OBD_OWN
<PASSWORD>
7. Check the connection string with:
sqlplus /@<ENVIRONMENT_NAME>_INSTALL

Create a Default Password Policy

It is mandatory to have a password policy that conforms to these rules:

- Password length must be at least 8 characters
- Passwords must expire after 180 days
- After 10 failed login attempts, login must be suspended for 5 minutes.

Below is an example password policy function that may be used.

```
--
-- Security Profile
--
CREATE OR REPLACE
  FUNCTION ohibi_pass_validation(
    username      VARCHAR2,
    password      VARCHAR2,
    old_password  VARCHAR2)
  RETURN BOOLEAN
AS
BEGIN
  IF LENGTH(password) < 8 THEN
    RETURN FALSE;
  ELSE
    RETURN TRUE;
  END IF;
END;
/
create PROFILE ohibi_profile LIMIT
FAILED_LOGIN_ATTEMPTS 3 -- Account locked after 3 failed logins.  PASSWORD_LOCK_TIME
(1 / 24 / 60) * 5      -- Number of days account is locked for. UNLIMITED required
explicit unlock by DBA.  PASSWORD_LIFE_TIME 180      -- Password expires after 180
days.  PASSWORD_GRACE_TIME 3      -- Grace period for password expiration.
PASSWORD_REUSE_TIME 120 -- Number of days until a specific password can be reused.
UNLIMITED means never.
PASSWORD_REUSE_MAX 10  -- The number of changes required before a password can be
reused. UNLIMITED means never.
PASSWORD_VERIFY_FUNCTION ohibi_pass_validation;
/
```

All OHI Data Marts accounts should use this profile.

Enable Security Audit

To be able to track who tried to logon to the OHIBI database it is mandatory to have auditing enabled for this. Make sure your audit_trail is set to DB and then as DBA run the following statement:

```
SQL> audit create session whenever not successful;
```

General instructions

For instructions relating to active management of Oracle Health Insurance Data Marts, see:



Oracle Health Insurance Installation, Configuration and DBA Manual
(chapter 8)

GENERATION AND INSTALLATION OF ORACLE HEALTH INSURANCE DATA MARTS OBJECTS

Installation

Release

Installation of Oracle Health Insurance Data Marts (patch) releases is described in the OHI Back Office Release Installation Manual and is performed on the application server.



ORACLE HEALTH INSURANCE Installation of releases

Because Oracle Health Insurance Data Marts is dependent on OHI Back Office as source environment, the patch level of both must be the same (this can differ at interim patch level if the patches between are only Oracle Health Insurance Data Marts patches or only OHI Back Office patches).

In addition, when installing patches the OHI Back Office environment must always be patched first, and then the Oracle Health Insurance Data Marts environment, otherwise packages may be invalidated during installation.

System parameters

In OHI Back Office a window is supplied 'Data Marts Parameter Values' (ZRGO032F). All Data Mart parameter values can be adjusted here.

These parameters are customer-specific and the value of a number of these parameters **must** be adjusted here **before** Oracle Health Insurance Data Marts can be loaded. A further number may also be adjusted if desired.

The parameters that **must** be adjusted to ensure correct operation of the loading process:

| Parameter | Description |
|-----------|---|
| FINMOD | Indication (J/N [Yes/No]) of whether the financial module of OHI Back Office is used to load financial transactions. The default value is J [meaning yes], which means that Oracle Health Insurance Data Marts assumes that the financial data can be retrieved from OHI Back Office. |

| Parameter | Description |
|-----------|---|
| EOZNLS | <p>The value that is given for this parameter depends on the NLS language setting. This determines, among other things, how a number is displayed. We distinguish between two different styles of notation. The following values indicate each style for the EOZNLS parameter.</p> <p>1) Decimals separated by a comma Thousands separated by a period</p> <p>e.g.: 1.000.000,001 This style is used in the DUTCH NLS Language, among others.</p> <p>Value for EOZNLS: nls_numeric_characters = ','</p> <p>This is the default value for the parameter.</p> <p>2) Thousands separated by a comma Decimals separated by a period</p> <p>e.g.: 1,000,000.001 This style is used in the AMERICAN NLS Language, among others.</p> <p>Value for EOZNLS: nls_numeric_characters = ','</p> |

Query for the parameter (e.q. FINMOD):

The screenshot shows a software interface titled "Data Marts parameterwaarden". It features a table with the following columns: "No.", "Parameter", "Group", "Group Type", "M", and "Data Type". The table is currently empty. Below the table, there is a "Hint Text" field containing the text "FINMOD%". At the bottom of the window, there is a section titled "Parameter Values" which contains a table with three columns: "Value", "Start Date", and "End Date". This table is also empty.

And change the value of the parameter:

| No. | Parameter | Group | Group Type | M | Data Type |
|-----|-----------------------------------|----------------|------------------|--------------------------|--------------|
| 74 | Wordt OHI BO Financieel gebruikt? | OHI Data Marts | System parameter | <input type="checkbox"/> | Alphanumeric |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |
| | | | | <input type="checkbox"/> | |

Hint Text: FINMOD - Indicatie of de module financieel van OHI Back Office wordt gebruikt (J/N)

| Value | Start Date | End Date |
|-------|------------|----------|
| J | | |
| | | |
| | | |
| | | |

There are a few parameters that are not mandatory for the correct operation of the load run, but are required for functional population, namely:

| Parameter | Description |
|-----------|---------------------------------|
| DCTYP1 | First type of third-party code |
| DCTYP2 | Second type of third-party code |
| DCTYP3 | Third type of third-party code |
| DCTYP4 | Fourth type of third-party code |
| DCTYP5 | Fifth type of third-party code |

This shows the third-party codes that should be loaded in the members dimension as alternative identifying codes. The values that should be entered here are the codes of the 'code type' as shown in the 'Code' window in the relation management subsystem of OHI Back Office. The default value is empty.

The other parameters concern descriptions of unknown values, for example, that **can** be adjusted if desired. In case of a non-Dutch environment it is advisable to change the value for the parameter 'LOGLNG' from the value 'NL' to 'EN', this will ensure that information displayed in logging files will be in English.

In addition, several date system parameters have been added to the table DWH_SYS_PARAMETERS (which are not in the window) that are used to determine from which date several fact tables should be loaded.

| Parameter | Description |
|-----------|--|
| DCEVDM | Date from for load run of Claim fact. |
| PREVDM | Date from for load run of Premiums fact. |
| VZEVDM | Date from for load run of Members fact. |
| ZVNVDM | Date from for load run of Care authorizations fact. |
| OHVWDM | Date from for load run of Work in Progress Claim fact. |

These dates have an initial value of '01-01-1980', which means that this is the date from for the listing of data when loading for the first time. If there is older data that also needs to be loaded, then the relevant date must be adjusted once in the table.

Finally, there is the parameter INDDCA that specifies whether the aggregation of claims in table DWH_DECLARATIES_AGG should be performed. This parameter should be set manually to 'J' [meaning yes] or 'N' [meaning no].

External files

Three external data files are defined within Oracle Health Insurance Data Marts. This relates to the following files:

- **WBX_OBIEE_TRANSLATIONS.csv**
File with translations for Oracle Data Marts

| | |
|-----------------------|-----------------|
| METADATA_OBJECT | VARCHAR2 (4000) |
| SESSION_VARIABLE (PK) | VARCHAR2 (4000) |
| NEDERLANDS | VARCHAR2 (4000) |
| ENGELS | VARCHAR2 (4000) |
| SPAANS | VARCHAR2 (4000) |

Templates of these files can be retrieved from iProjects Files (NL Oracle Health Insurance Public - OHI Releases (all products) - Release 2011.01 - Templates - Data Marts).

The files should be placed in the \$OZG_BASE directory of the relevant Oracle Health Insurance Data Marts environment on the database server. This is a manual process.

The content of these files can be changed except for the key fields (**PK**).

When adjusting the files, spaces should be used and not tabs. To check that any changes have been made correctly and that the files have been placed in the correct location, select queries can be performed on the external tables that are populated by the files.

WBX_OBIEE_TRANSLATIONS.csv is used for Oracle Data Marts. The translation for all metadata is described here. The default language is set to English (LANG_ID = 'en') which means that in WBX_OBIEE_TRANSLATIONS.csv there should always be a translation for the English language. To limit the languages to be used in Oracle Data Marts set the AllowedLanguages parameter in instanceconfig.xml (e.g. <AllowedLanguages>en,nl</AllowedLanguages> as per documentation *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition, Localizing Oracle Business Intelligence*). When no language has been chosen yet, the language defaults to the browser language. To adjust the language as per login, modify the url (eg http://Server_Name:port_number/analytics/saw.dll?Dashboard&Lang=nl). Once new translations are made available by modifying the WBX_OBIEE_TRANSLATIONS.csv file, the Oracle Business Intelligence server needs to be restarted.

SET-UP OF ORACLE BUSINESS INTELLIGENCE ENTERPRISE EDITION ENVIRONMENT

Oracle Business Intelligence Enterprise Edition (OBI EE) is the best reporting tool to use.

Software installation

For installation of OBI EE, reference is made to the installation documentation of this product.

For reports, end users can make use of the presentation layer of OBI EE. Reports can be made with Oracle BI Answers and these can then be shared using the Oracle BI Interactive Dashboard component.

For the right versions of the software, see:



Certifications matrix 10.13.1.0

Oracle Business Intelligence Customizations

Customization of OBI is supported, to support your company style. This includes but is not limited to logo, background color and font color, basically all HTML customization may be made. For detailed instructions on Customizing Oracle Business Intelligence see the White Paper.

([HTTP://WWW.ORACLE.COM/TECHNETWORK/MIDDLEWARE/BI/CUSTOMIZING-ORACLE-BI-EE-11G-176387.PDF](http://www.oracle.com/technetwork/middleware/bi/customizing-oracle-bi-ee-11g-176387.pdf))

Creating a NON- PRIVILEGED user: OBI_SELECT_USER

Based on the principle of “the least privileged” a user should be created with minimal privileges.

The process of creating such a user consists of creating a database user and granting privileges to that user. The privileges needed are `obd_rol_select`, which contains only select privileges on the warehouse tables. The create session privilege is required to be able to logon to the database. Access to the directory `obd_input` is required for accessing the translations stored in an external table.

This is done in SQLPlus, instructions as per below.

Log on to the OHIBI database and create the `OBI_SELECT_USER`

```
SQLPlus> create user obi_select_user identified by <password>;
SQLPlus> grant obd_rol_select to obi_select_user;
SQLPlus> grant create_session to obi_select_user;
SQLPlus> grant read on directory obd_input to obi_select_user;
```

When VPD policies are enabled privacy, sensitive data will be masked (see [VPD Policies](#) for which tables/columns data will be masked).

Installation of Oracle Health Insurance Data Marts Repository (RPD)

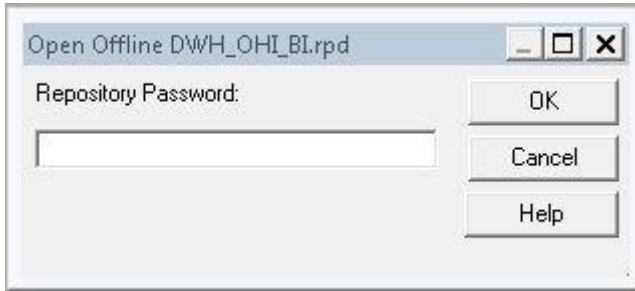
Oracle supplies an OBI EE repository as part of OHI Data Marts. This repository makes the OHI Data Marts database accessible. The repository can be installed on the Oracle BI Server.

This repository includes a subject area for each star schema as well as an over-arching subject area in which the entire data model has been made accessible.

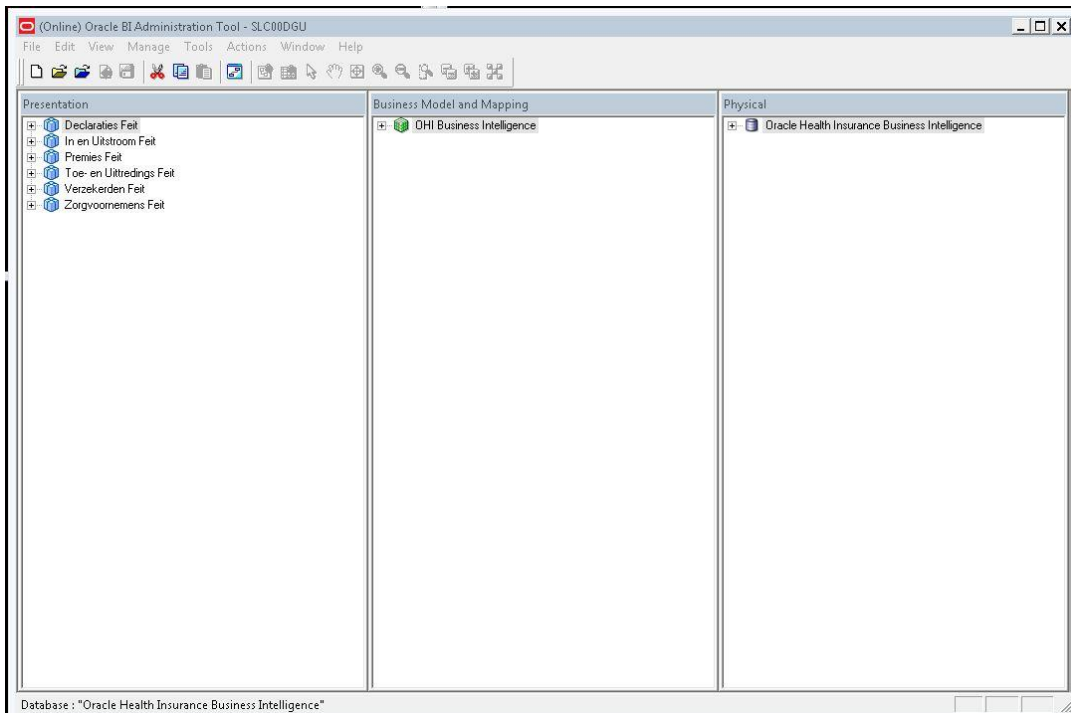
Before being able to use the `DWH_OHI_BI.rpd` file in your OBIEE environment, you will have to configure 3 connection pools using the Oracle BI Administration Tool.

Please follow the steps below to configure the 3 connection pools.

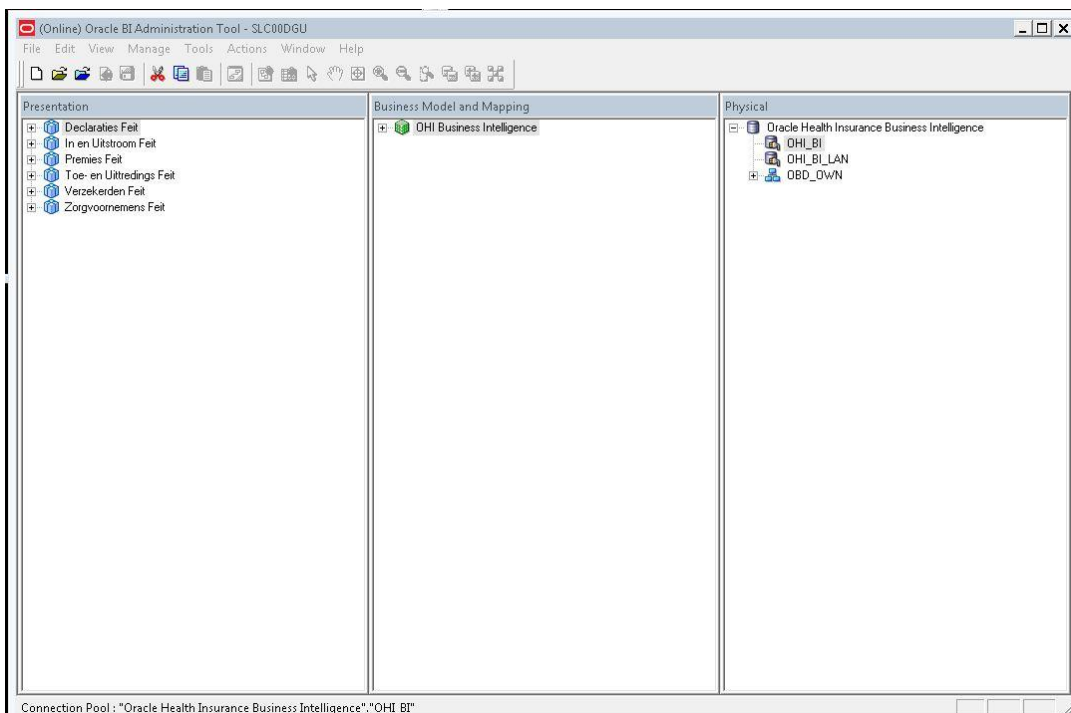
Open the DWH_OHI_BI.rpd offline using the Oracle BI Administration Tool:



Enter adm1n1strator as the initial password.



Open the Oracle Health Insurance Data Marts node in the Physical layer.



Open the OHI_BI connection pool by double clicking OHI_BI.

The screenshot shows the 'Connection Pool - OHI_BI' dialog box with the following configuration:

- Name:** OHI_BI
- Call interface:** OCI 10g/11g
- Maximum connections:** 10
- Require fully qualified table names
- Data source name:** orc
- Shared logon
 - User name:** obi_select_user
 - Password:** [masked]
- Enable connection pooling
 - Timeout:** 5 (minutes)
- Use multithreaded connections
- Parameters supported
- Isolation level:** Default
- Description:** [empty text area]

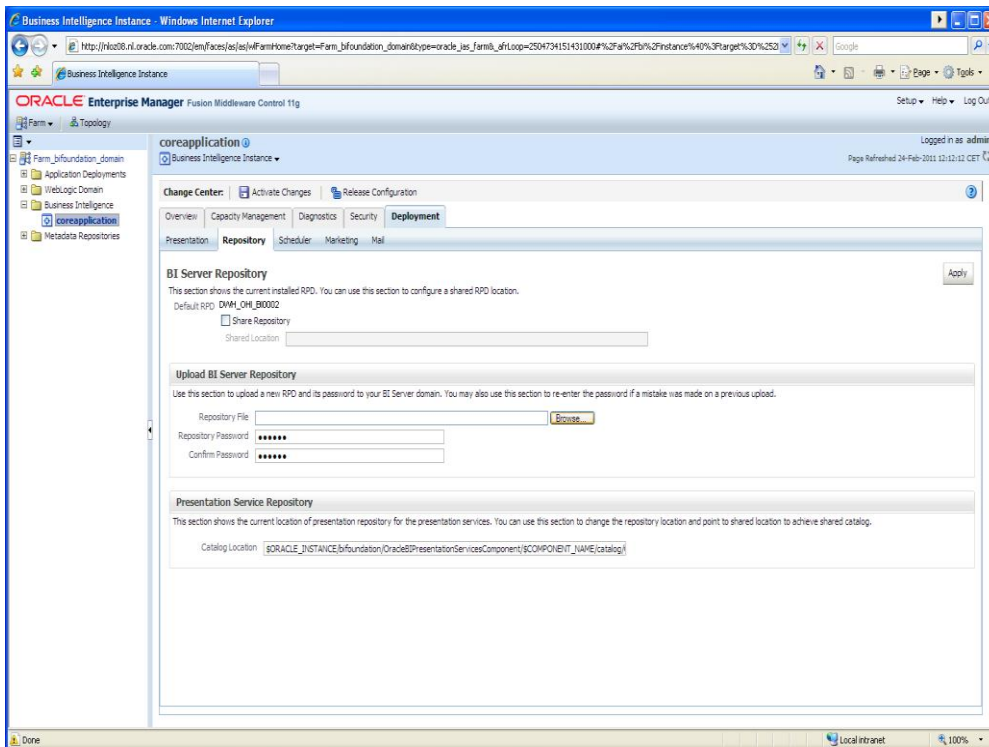
Change the data source name to your OHI Data Marts database.

The Connection pool OHI_BI_LAN is the connection pool used by translations of the repository to enable usage of OBI in your native language. This is not the same connection pool as OHI_BI because the translation table may be stored on a different server as opposed to where the Data Marts reside. To configure the connection pool for OHI_BI_LAN, execute the above steps for the OHI_BI_LAN connection pool.

The connection pool for Usage Tracking is by default the repository used by OBI and should be a different Oracle schema as the Data Marts. With security in mind this would also typically be a different database as the database where the Data Marts reside. To configure the connection pool for Usage Tracking please execute the above steps for the OHI_BI_USAGE_TRACKING connection pool, and use the credentials of the OBI repository.

Save the DWH_OHI_BI.rpd.

After this you can import the DWH_OHI_BI.rpd in your OBI EE server environment using the Oracle Enterprise Manager (Fusion Middleware Control 11g) shown below.



In this window, under the heading "Upload BI Server Repository", choose the new DWH_OHI_BI.rpd file and enter the password. Enter the new password again for verification. The new repository will be imported and receives a new sequence number.

Note: this will cause any changes made to the repository to be removed.

Configure Usage Tracking

To configure usage tracking see the documentation in "Oracle® Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition", chapter 9 "Managing Usage Tracking".

As a reference below values are an example of Direct Insertion in

`$ORACLE_INSTANCE/config/OracleBIServerComponent/coreapplication_obis1/NQSConfig.INI`

`DIRECT_INSERT = YES;`

`PHYSICAL_TABLE_NAME = "Oracle Health Insurance Data`

`Marts"."OBI_BIPLATFORM"."S_NQ_ACCT";`

`CONNECTION_POOL = "Oracle Health Insurance Data Marts"."OHI_BI_USAGE_TRACKING";`

`SUMMARY_STATISTICS_LOGGING = YES;`

`SUMMARY_ADVISOR_TABLE_NAME = "Oracle Health Insurance Data`

`Marts"."OBI_BIPLATFORM"."S_NQ_SUMMARY_ADVISOR";`

Upgrading Oracle Business Intelligence repository

To upgrade the OBIEE repository, the procedure used, is referred to as a “Full Merge with a Common Parent with Binary Repositories”. The documentation may be found in “[Oracle Fusion Middleware Metadata Repository Builder’s Guide for Oracle Business Intelligence Enterprise Edition](#)”.

Definitions used in this topology:

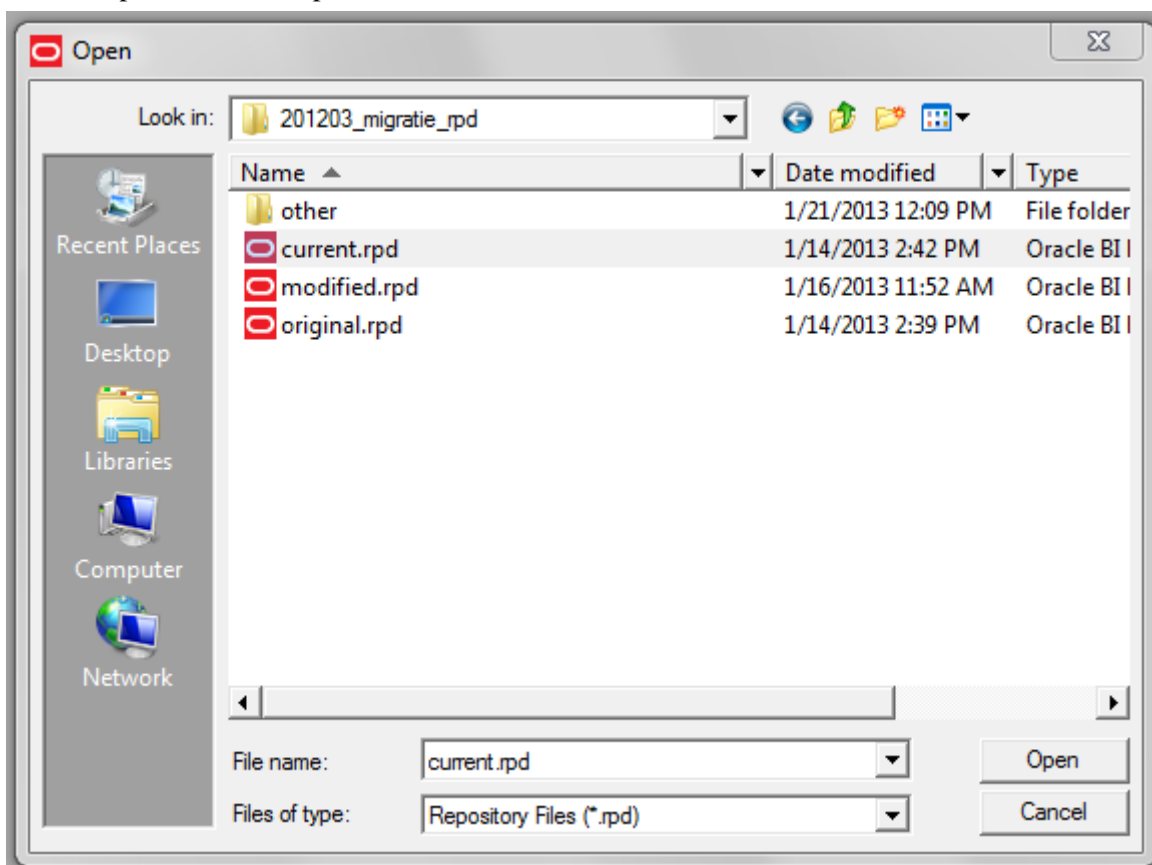
- **Original RPD:** The rpd of the release which is migrated from.
(This is the version provided in the previous release of OHI Data Marts and is unmodified by the Health Insurer, for instance of version 2012.03.01, in the example original.rpd)
- **Modified RPD:** The rpd of the release which is migrated to.
(This is the version provided in the new release of OHI Data Marts and is unmodified by the Health Insurer, for instance of version 10.13.1.0.0, in the example modified.rpd)
- **Current RPD:** The rpd of the release of the customer where is migrated to
(This is the client version modified i.e. the version of the Health Insurer of the current release for instance 2012.03.01, in the example current.rpd).

In short, the above-mentioned procedure needs to be followed.

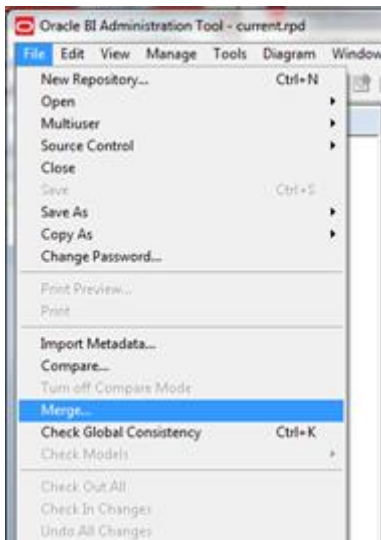
First Download and Install the Oracle Business Intelligence Developer Client Tools Installer. To download the correct version, please consult the certification matrix

(From OHI BI release 10.13.1.0.0 and further the required version for the Client tool is 11.1.1.6.5).

1. Open the current.rpd.



2. File Merge



3. Tick equalize during merge
4. Open original and merge rpd
5. Type the passwords for original and modified repositories.
6. Save merged repository as: DWH_OHI_BI.rpd

Merge Type: Full Repository Merge Patch Repository Merge

Original Master Repository:

Repository Password:

Modified Repository:

Repository Password:

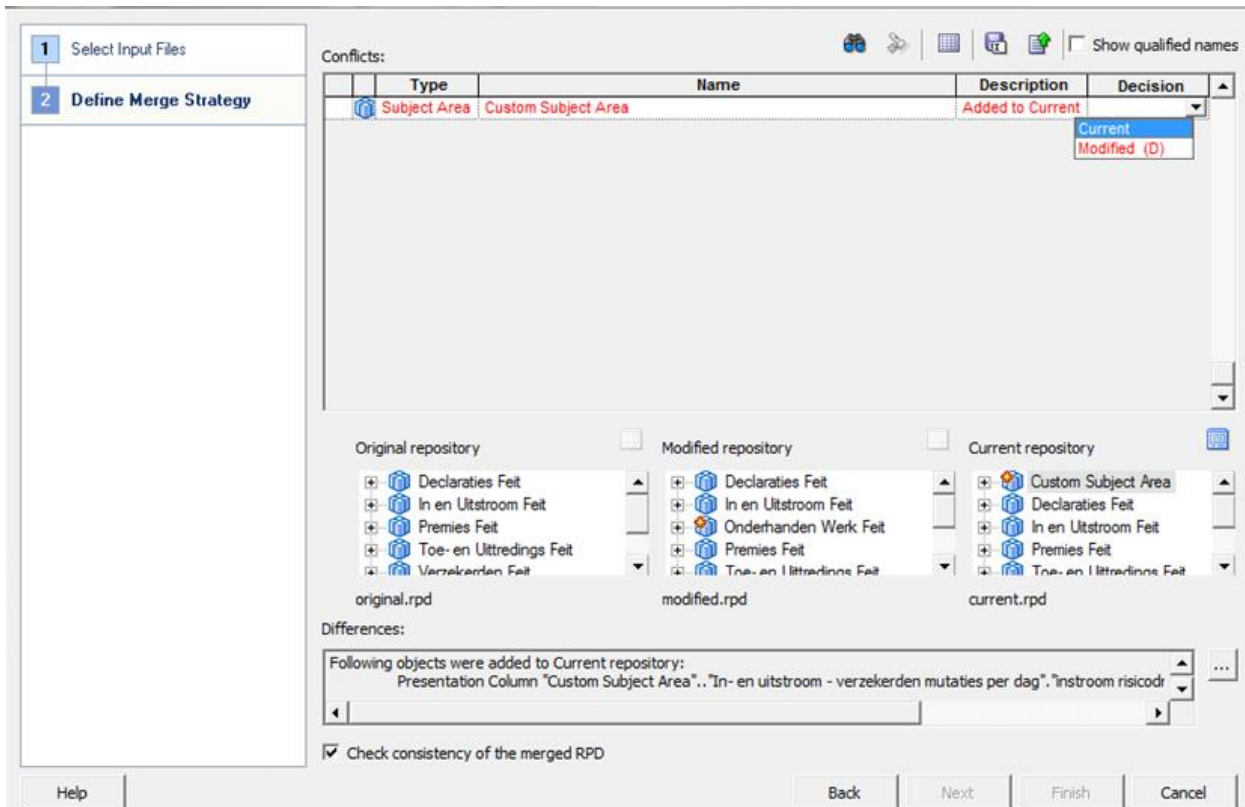
Current Repository:

Save Merged Repository as:

Repository Password:

Equalize during merge

7. Define Merge strategy:
Tick Check Consistency of the merged RPD.

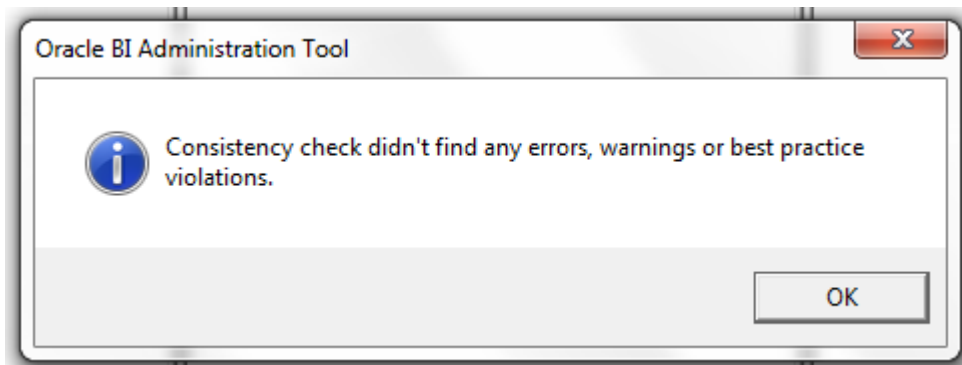


-- choose current to keep the changes in Current repository (Health Insurer RPD)

-- choose modified to keep the change In Modified repository (Oracle RPD) the (D) stands for delete, because this when choosing this it will actually remove the Custom Subject Area.

In the example current is chosen, to keep the Custom Subject Area in the newly to be generated PRD.

8. Review the results of the Consistency Check, and make sure there are no consistency errors.



9. Check the connection details of the connection pools; while merging the two repositories the connection details will be overwritten.
10. Upload the newly created rpd DWH_OHI_BI.rpd to the OBIEE repository see "Upload BI Server Repository".

PART II - APPLICATION MANAGEMENT

INTRODUCTION

This chapter describes aspects of both the technical and functional application management of Oracle Health Insurance Data Marts.

FUNCTIONAL MANAGEMENT

Logging and validation

Validation of the Oracle Health Insurance Data Marts load runs is an important part of the functional/technical management.

Currently, the log information concerning the run load runs can be found in multiple locations. **It is therefore not sufficient just to check the status of the script request in the batch scheduler.** It may be that the status of the script after running the load run is 'Complete', but that errors have in fact occurred. Therefore, the administrator should check the sources of log information described below.

Logging of loading

The following views are present in the obd_own schema to request information on the results of the load run:

WBX_LAADRUNS_VW

This view gives a complete overview of all load runs that have taken place. The following is shown for each load run:

| Column | Description |
|-------------------------------|---|
| LAADRUN_ID | Unique generated key |
| RELEASE_NR | Oracle Health Insurance Data Marts release number |
| SAV_ID_EXT | ID of script request ZRG0E01S. |
| SAV_ID_STG | ID of script request ZRG0S01S. |
| SAV_ID_DWH | ID of script request ZRG0D01S. |
| DECLARATIES_GELADEN | Indication (J/N [meaning Y/N]) of whether the claims fact is loaded in this run. |
| VERZEKERDEN_GELADEN | Indication (J/N [meaning Y/N]) of whether the policies fact is loaded in this run. |
| PREMIES_GELADEN | Indication (J/N [meaning Y/N]) of whether the premiums fact is loaded in this run. |
| TOE_EN_UITTREDINGEN_GELADEN | Indication (J/N [meaning Y/N]) of whether the In- and Out-fluxs fact is loaded in this run. |
| ZORGVOORNEMENS_GELADEN | Indication (J/N [meaning Y/N]) of whether the care authorizations fact is loaded in this run. |
| ABONNEMENTSHONORARIUM_GELADEN | Indication (J/N [meaning Y/N]) of whether the per capita agreement fact is loaded in this run. |
| VERBINTENISSEN_GELADEN | Indication (J/N [meaning Y/N]) of whether the provider relationships fact is loaded in this run. |
| ONDERHANDEN_WERK_GELADEN | Indication (J/N [meaning Y/N]) of whether the work in progress fact is loaded in this run. |
| ZORG_INKOOP_GELADEN | Indication (J/N [meaning Y/N]) of whether the procurement agreement fact is loaded in this run. |
| FINANCIEL_GELADEN | Indication (J/N [meaning Y/N]) of whether the financial fact is loaded in this run. |
| DATUM_EXTRACTIE | Date of extraction of the source data |
| LAADPERIODE_DECLARATIES | Date used for this load as date to for selection of the source data for claims |
| LAADPERIODE_VERZEKERDEN | Date used for this load as date to for selection of the source data for policies. |
| LAADPERIODE_PREMIES | Date used for this load as date to for selection of the source data for premiums. |
| LAADPERIODE_ZORGVOORNEMENS | Date used for this load as date to for selection of the source data for care authorizations. |
| LAADPERIODE_VERBINTENISSEN | Date used for this load as date from for selection of the source data for provider relationships. |

| Column | Description |
|------------------------------|---|
| LAADPERIODE_ONDERHANDEN_WERK | Date used for this load as date to for selection of the source data for work in progress. |
| LAADPERIODE_FINANCIEEL | Date used for this load as date to for selection of the source data for financials. |
| CONTROLE UITGEVOERD | Is the loaded data checked? |
| DOORLOOPTIJD_EXTRACTIE | Run time of the extraction phase |
| DOORLOOPTIJD_TRANFORMATIE | Run time of the transformation phase |
| DOORLOOPTIJD_LADEN | Run time of the load phase |
| DOORLOOPTIJD_TOTAAL | Total run time of the extraction + transformation + load phase |
| LAADRUN_ID | Unique generated key |
| RELEASE_NR | Oracle Health Insurance Data Marts release number |

WBX MAPPING VW

In this view all mappings are shown that are run during a load run. The following information is available:

| Column | Description |
|------------------------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| FASE | Phase in which the load run is found |
| MAPPING_NAAM | Name of the mapping |
| MAPPING_GESTART | Time when the mapping was started |
| AANTAL_VERWERKTE_RIJEN | Number of processed rows |
| AANTAL_FOUTEN | Number of errors arisen |
| AANTAL_MINUTEN | Number of minutes the mapping took |

WBX LAADRUN ERRORS VW

In this view all errors are shown that have occurred during a load run. This concerns the technical error message that may arise during a mapping. The following information is available:

| Column | Description |
|---------------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| FASE | Phase in which the load run is found |
| MAPPING_NAAM | Name of the mapping |
| TIJDSTIP_FOUT | Time when the error occurred |
| FOUT_MELDING | Which error occurred |

WBX logging

Additional logging is recorded in the the tables WBX_LOG_EVENTS and WBX_LOG_MESSAGES (master – detail).

In WBX_LOG_EVENTS the following log data is saved:

| Column | Comments |
|-----------------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| AUDIT_ID | Audit ID of the load run, refers to the ID of the table stg_sys_audit. |
| SCRIPTNAAM | The code of the script request from the OHI Back Office batch scheduler |
| STARTTIJD | Start time of the script request |
| EINDTIJD | End time of the script request |
| GELADEN_SCHEMAS | The star schemas that have been loaded with this script request |
| EINDSTATUS | Final status of the script request (Start, Error, Complete) |

In WBX_LOG_MESSAGES the following log data is saved:

| Column | Comments |
|----------------|---|
| WB_RT_AUDIT_ID | The OWB runtime audit ID (only for mappings generated by OWB) |
| SAV_ID | The ID of the script request, the FK column to WBX_LOG_EVENTS. |
| OBJECT_NAAM | The name of the object (package, procedure, ...) which is being logged. |
| OPMERKINGEN | Potential remarks (step numbers in the case of partitioning) |
| STARTTIJD | Start time of the object |
| EINDTIJD | End time of the object |

| Column | Comments |
|---------------|-------------------------------------|
| NUM_SELECTED | Number of selected rows |
| NUM_INSERTED | Number of inserted rows |
| NUM_UPDATED | Number of updated rows |
| NUM_DELETED | Number of deleted rows |
| NUM_ERRORS | Number of errors occurred |
| NUM_DISCARDED | Number of ignored rows |
| NUM_MERGED | Number of merged rows |
| MAP_SQLERR | SQL-error code (ORA-XXX) |
| MAP_SQLERRD | Time on which the error occurred |
| MAP_SQLERRM | SQL-error message |
| MAP_SQLERRS | Stacktrace of the SQL-error message |
| MAP_SQLERRB | Backtrace of the SQL-error message |

Results of the compatibility checks

The views below provide detailed information on the compatibility checks performed between OHI Back Office and Oracle Health Insurance Data Marts.

WBX_CTR_DECL_DETAILS_VW

This view shows the results of the compatibility checks performed on the claim transaction details.

| Column | Description |
|---------------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DCR_NR | Claim number |
| VOLGNR | Sequence number of the claim line |
| DATUM_ACCOORD | The date on which the claim line was approved |
| DER_ID | The OHI Back Office ID of this version of the claim line |
| FFL_ID | Reference to the financial transaction detail from which this general ledger entry originated |
| SFL_CODE | Financial transaction detail type |
| SOORT_BEDRAG | The amount type of the columns below |

WBX_CTR_DECL_BOEKINGEN_VW

This view shows the results of the compatibility checks performed on the claim postings.

| Column | Description |
|----------------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| PAKKET | The product offered by the coverage |
| VEL_ID | Identification of the journal entry |
| FFL_ID | Reference to the financial transaction detail from which this general ledger entry originated |
| GRG_NR | General ledger account number |
| GBF_NR | General ledger unit number |
| RBK_NR | Category number |
| DATUM_IMPORT | Date imported of the liability |
| DATUM_ONTSTAAN | Creation date of the liability |
| SOORT_BEDRAG | The amount type of the columns below |
| BEDRAG_BO | Total amount of the claim in Oracle Back Office |
| BEDRAG_DM | Total amount of the claim in Oracle Health Insurance Data Marts |

WBX_CTR_DECLARATIES_VW

This view shows the results of compatibility checks performed on the claim fact.

| Column | Description |
|--------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |

| Column | Description |
|---------------|---|
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DCR_NR | Claim number |
| VOLGNR | Sequence number of the claim line |
| DATUM_ACCOORD | The date on which the claim line was approved |
| PAKKET | The product offered by the coverage |
| VEL_ID | Identification of the journal entry |
| GRG_NR | General ledger account number |
| GBF_NR | General ledger unit number |
| RUK_NR | Category number |
| DATUM_IMPORT | Date imported of the liability |
| RISICODRAGER | The relationship number of the insurance company bearing the risk |
| BETAALMAAND | The month in which the payment took place |
| SOORT_BEDRAG | The amount type of the columns below |
| BEDRAG_BO | Total amount of the claim in Oracle Back Office |
| BEDRAG_BI | Total amount of the claim in Oracle Health Insurance Data Marts |

WBX_CTR_DECL_PRESTATIE_DTLS_VW

This view shows the results of compatibility checks performed on the claim fact.

| Column | Description |
|---------------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DCR_NR | Claim number |
| VOLGNR | Sequence number of the claim line |
| DATUM_ACCOORD | The date on which the claim line was approved |
| SOORT | The number type of the columns below |
| AANTAL_BO | Total number of performed activities/time spent in Oracle Back Office |
| AANTAL_DM | Total number of performed activities/time spent in Oracle Health Insurance Data Marts |

WBX_CTR_PREMIES_VW

This view shows the results of the compatibility check on the premium fact.

| Column | Description |
|-------------------|--|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DATUM_VA | Start date of the check period |
| DATUM_TM | End date of the check period |
| PTL_ID | The unique ID of the premium time line in OHI Back Office |
| REL_NR | The party number of the member |
| DATUM_PROLONGATIE | The month for which the renewal was performed |
| RISICODRAGER | The number of risk bearer |
| PAKKET | The code of the product |
| DEKKINGSMAAND | The month for which the coverage applies |
| SOORT_BEDRAG | Description of the check amount |
| BEDRAG_BO | The monthly amount of the premium including potential discounts and surcharges in OHI Back Office |
| BEDRAG_BI | The monthly amount of the premium including potential discounts and surcharges in Oracle Health Insurance Data Marts |

WBX_CTR_VERZEKERDEN_VW

This view shows the results of the compatibility check on the policies fact. For all branded product combinations of a member it is checked that this is present in both OHI Back Office and Oracle Health Insurance Data Marts.

| Column | Description |
|-------------------------------|---|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| PEILDATUM | End date of the check period |
| CLI_REL_NR | The member which is a member of the policy |
| MERK_CODE | A unique identifying code for the brand |
| PAKKET_CODE | The product that is offered |
| PREMIE_CONSTRUCTIE_CODE | The premium structure that is offered in the product |
| DEKKING_CONSTRUCTIE_CODE | The unique code of the coverage structure unit |
| EIGEN_RISICO_CONSTRUCTIE_CODE | The unique code of the yearly deductible structure unit |
| EIGEN_RISICO_HOOGTE_CODE | The code by which the yearly deductible level is identified |
| ZORGPLICHT_CODE | The code of the contracted care |
| AANTAL_BI | Number of memberships in Oracle Health Insurance Data Marts |
| AANTAL_BO | Number of memberships in OHI Back Office |

WBX_CTR_ONDERHANDEN_WERK_VW

This view shows the results of the compatibility checks on the Work in Progress Claims fact.

| Column | Description |
|--------------|--|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DATUM_VA | Start date of the check period |
| DATUM_TM | End date of the check period |
| DCR_NR | Claim number |
| VOLGNR | Sequence number of the claim line |
| SOORT_BEDRAG | Description of the check amount |
| BEDRAG_BO | Number or amount of the Work in Progress Claim in OHI Back Office |
| BEDRAG_BI | Number or amount of the Work in Progress Claim in Oracle Health Insurance Data Marts |

WBX_CTR_ZORG_VOORNEMENS_VW

This view shows the results of the compatibility checks on the care authorizations fact.

| Column | Description |
|--------------|--|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DATUM_VA | Start date of the check period |
| DATUM_TM | End date of the check period |
| ZVN_NR | Care authorization identification number |
| VOLGNR | Sequence number of the period within the care authorization |
| SOORT_BEDRAG | Description of the check amount |
| BEDRAG_BO | Number or amount of the care authorization in OHI Back Office |
| BEDRAG_BI | Number or amount of the care authorization in Oracle Health Insurance Data Marts |

WBX_CTR_DRIEHOEKSCONTROLE_VW

This view shows the results of the 'driehoekscontrole' on Claims, Financial Transactions and Grand Ledger Journal Entries.

| Column | Description |
|--------------------------|--|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DATUM_VA | Start date of the check period |
| DATUM_TM | End date of the check period |
| FFL_ID | Unique ID of the Financial Transaction record. Referencing to the FVS_FINANCIEEL_FEIT_REGELS table |
| DATUM_FFL_ONTSTAAN | Creation date of the Financial Transaction record |
| BEDRAG_FINANCIEEL_FEIT | The amount of the Financial Transaction |
| DDL_ID | Unique ID of the Claims record. Referencing to the DWH_DECLARATIE_DETAILS table |
| DATUM_DDL_GELADEN | Date on which the Claims record was loaded to the DWH_DECLARATIE_DETAILS table |
| BEDRAG_DECLARATIE_DETAIL | The amount associated with the Claims record |
| GBS_ID | Unique ID of the Grand Ledger Journal Entry record. Referencing to the FVS#GROOTBOEK_REGEL_DETAILS table |
| DATUM_GBS_GELADEN | Date on which the Grand Ledger Journal Entry record was loaded to the FVS#GROOTBOEK_REGEL_DETAILS table |
| BEDRAG_GROOTBOEKREGEL | The amount associated with the Grand Ledger Journal Entry record |
| AANTAL_VERSCHILLEN | Amount of differences |
| FFL_VS_DDL_OK | Indicator for differences between Financial Transactions and Claims |
| FFL_VS_GBS_OK | Indicator for differences between Financial Transactions and Grand Ledger Journal Entries |
| DDL_VS_GBS_OK | Indicator for differences between Claims and Grand Ledger Journal Entries |

WBX_CTR_FINANCIEEL_VW

This view shows the results of the compatibility checks on the financial fact.

| Column | Description |
|-------------------|--|
| SAV_ID | The ID of the script request from the OHI Back Office batch scheduler |
| CTR_ID | Identification of the check result |
| CODE | Code of the check |
| OMSCHRIJVING | Description of the check |
| DATUM_VA | Start date of the check period |
| DATUM_TM | End date of the check period |
| FACTUURGATEGORIE | Financial category |
| DATUM_AFGEHANDELD | Date completed |
| SOORT_BEDRAG | Description of the checked amount |
| BEDRAG_BO | Amount of the payable/receivable in OHI Back Office |
| BEDRAG_BI | Amount of the payable/receivable in Oracle Health Insurance Data Marts |

Logging load scripts

The output of the scripts started through the OHI Back Office application is saved in .out files. These files show how the load run ran, including run times and potential errors. These scripts can be found on the OHI Back Office application server under \$OZG_BASE/out/<user>.

<user>: user used to log in to the batch scheduler to start the load run.

Authorization

User access

It is recommended to create a separate account for each user of Oracle Health Insurance Data Marts. This is particularly convenient from a security standpoint.

This account must be created in the Oracle Health Insurance Data Marts database. CREATE SESSION rights must be assigned to the account at database level, as well as the database role OBD_ROL_SELECT. The database role OBD_ROL_SELECT has select rights on all relevant DWH tables and views.

Creating an account in the database and assigning the correct rights/roles can be done in many ways, for example with the following statement in SQL*Plus:

```
create user username identified by password;  
grant create session to username;  
grant obd_rol_select to username;
```

External tables

The Oracle Health Insurance Data Marts load run makes use of external tables. These are files on the server that are treated as tables by the database. These external tables reside on the Oracle Health Insurance Data Marts database server in the directory referred to by the Unix variable \$OZG_ADMIN. The input and output (log and bad files) end up in the directory referred to by the Unix variable \$TMP.

Because the database for the external tables must have a reference to these directories, these directory objects are created in the Oracle Health Insurance Data Marts database.

These files contain data that can be adjusted by the functional administrator, after which these adjustments are made to the Data Warehouse in the next load run.

Configuration of generic structure for claim properties

Introduction

It is possible to register a set of claim properties in OHI Back Office, which can be used for a specific claim type (depending on the type of procedure). When a claim property is required for use in OHI Data Marts it can be added by means of window 'Claim Flex Fields' (ZRGO030F).

Before functionality was used to add the claim property into a generic structure, claim properties were fixed attributes in the data warehouse (fixed properties which were not configurable).

Examples

Example 1

Move claim properties that are already present in the old fixed structure to the generic structure.

The following claim properties of the procedure claim group 'Tandheelkunde' are available as fixed columns in OHI Data Marts:

| Claim Property | BI table | BI column |
|--------------------------|------------------------------|---------------------------|
| Aand. prestatiecodelijst | DWH_DECLARATIE_EIGENSCHAPPEN | AAND_PRESTATIECODELIJST |
| Gebitselement | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_GEBITSELEMENT |
| Vlakcode | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE |
| Machtigingsnummer | DWH_DECLARATIE_EIGENSCHAPPEN | MACHTIGINGSNUMMER |
| Patientnummer | DWH_DECLARATIE_EIGENSCHAPPEN | PATIENTNUMMER |
| Prestatiecode | DWH_DECLARATIE_EIGENSCHAPPEN | PRESTATIECODE |
| Soort prestatie | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_PRESTATIE |
| Specialisme | DWH_DECLARATIE_EIGENSCHAPPEN | SPEC_VOORSCHRIJVER |

In this example these attributes are moved into generic claim property columns.

To load these claim properties into the generic structure, the mapping to the generic structure must be added. The claim properties can be loaded into the following generic attributes:

| Claim Property | Table | Generic Attribute |
|--------------------------|------------------------------|----------------------|
| Aand. prestatiecodelijst | DWH_DECLARATIE_EIGENSCHAPPEN | NUMBER_EIGENSCHAP_01 |
| Gebitselement | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_01 |
| Vlakcode | DWH_EWE_GENERIEK | CHAR_EIGENSCHAP_01 |
| Machtigingsnummer | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_01 |
| Patientnummer | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_02 |
| Prestatiecode | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_03 |
| Soort prestatie | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_02 |
| Specialisme | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_04 |

In this case the window 'Claims Flex Fields' (ZRGO030F) should look like this:

| Selectiegerichtte eigenschappen | | | | Data Marts Specifiek | | Data Marts Generiek | |
|---------------------------------|------------------------------|--------------|--------|------------------------------|----------------------------|------------------------------|----------------------|
| Nr. | Eigenschap | Type gegeven | Lengte | Tabel | Kolom | Tabel | Kolom |
| 1 | DCL_TND GEBITSELEMENT | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_GEBITSELEMENT | | |
| 2 | DCL_TND VLAKKEN | Alfanumeriek | 11 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | | |
| 3 | PATIENTNUMMER | Alfanumeriek | 17 | DWH_DECLARATIE_EIGENSCHAPPEN | PATIENTNUMMER | | |
| 4 | AANGEVRAAGD | | | | | DWH_DECLARATIE_EIGENSCHAPPEN | NUMBER_EIGENSCHAP_06 |
| 4 | MACHTIGINGSNUMMER | Alfanumeriek | 15 | DWH_DECLARATIE_EIGENSCHAPPEN | MACHTIGINGSNUMMER | | |
| 5 | BEGINDATUM ZRGVERLENING | Datum | 20 | | | DWH_DECLARATIE_EIGENSCHAPPEN | DATE_EIGENSCHAP_04 |
| 5 | INDICATIE BOVEN/ONDER TAND | Numeriek | 1 | DWH_EWE_TANDHEELKUNDE | TAE_IND_B_O_TANDHEELKUNDE | | |
| 6 | DCL_TND_VLAK_CODE | Alfanumeriek | 6 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | DWH_EWE_GENERIEK | CHAR_EIGENSCHAP_07 |
| 7 | AAND_PRESTATIECODELUST | Numeriek | 3 | DWH_DECLARATIE_EIGENSCHAPPEN | AAND_PRESTATIECODELUST | | |
| 8 | PRESTATIECODE | Alfanumeriek | 14 | DWH_DECLARATIE_EIGENSCHAPPEN | PRESTATIECODE | | |
| 9 | VOORSCHRIJVER | | | DWH_DECLARATIE_DETAILS | ZRE_REL_NR_VOORSCHRIJVER | | |
| 10 | SPECIALISME | Alfanumeriek | 5 | DWH_DECLARATIE_EIGENSCHAPPEN | SPEC_VOORSCHRIJVER | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_07 |
| 11 | SOORT BUZONDERE TANDHEEL | Numeriek | 3 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_BUZ_TANDH | | |
| 12 | SOORT PRESTATIE | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_PRESTATIE | | |
| 13 | LAND | Alfanumeriek | 2 | | | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_01 |
| 13 | UZOVI | Numeriek | 4 | DWH_EWE_AWBZ | AWE_UZOVI | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_01 |
| 14 | BTW-PERCENTAGE DECLARATIE | Numeriek | 4 | DWH_EWE_DBC_ZORGPROD | DZP_BTW_PERC_DECLARATIEBEI | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_02 |
| 15 | INDICATIE BUZONDERE TANDHEEL | Alfanumeriek | 1 | | | | |
| 16 | TARIEF PRESTATIE (INCL. BTW) | Numeriek | 10 | | | | |

In this window:

- 'Omschrijving' contains the procedure claim group as it is defined in OHI Back Office; in this case this is 'TANDHEELKUNDE'.
- 'Data Marts Specifiek, Tabel' contains the location of the old fixed structure. In this example a few properties are part of DWH_DECLARATIE_EIGENSCHAPPEN and several others are part of DWH_DECLARATIE_DETAILS and DWH_EWE_TANDHEELKUNDE.
- 'Data Marts Specifiek, Column' contains the column name in the old structure.

The next two columns provide the mapping to the new generic structure.

- 'Data Marts Generiek, Tabel' contains the table where the claim property should be loaded.
- The column 'Data Marts Generiek, Column' contains the attribute where the claim property is loaded.

The value of 'Omschrijving' is loaded into DWH_DECLARATIE_DETAILS, DWH_DECLARATIE_EIGENSCHAPPEN (column `dwh_declaratie_details.gebruikgroep / dwh_declaratie_eigenschappen.gebruikgroep`). The combination of the generic column and the column `dwh_declaratie_details.gebruikgroep, dwh_declaratie_eigenschappen` determines the functional meaning of the column.

In the above example, the column `dwh_declaratie_eigenschappen.char_eigenschap_07` for `DWH_DECLARATIE_DETAILS.SPEC_VOORSCHRIJVER` with `gebruikgroep` is equal to 'TANDHEELKUNDE'. And it contains the claim property `SPECIALISME`.

Example 2:

A new claim property 'INDICATIE_BIJZONDERE_TANDHEELKUNDE' is introduced in OHI Back Office for procedure claim group 'TANDHEELKUNDE', this claim property should be added to OHI Data Marts. The claim property can have two values in OHI Back Office: 'Y' or 'N'.

To add this claim property, in the window 'Claim Flex Fields' (ZRGO030F) the new property must be altered and a column should be chosen where the claim property 'INDICATIE_BIJZONDERE_TANDHEELKUNDE' is loaded into OHI Data Marts.

The first thing to decide is whether this property should be loaded into the dimension table (DWH_EWE_GENERIEK), or into the fact table (DWH_DECLARATIE_EIGENSCHAPPEN). When a claim property does not have many different values, it is recommended to save it in the dimension table for storage optimization. In this case there are only two possible values ('Y' or 'N'); therefore, this property should be added to the dimension table DWH_EWE_GENERIEK.

The property is a character so we should map it to a character-typed attribute, which is not yet in use. For example, DWH_EWE_GENERIEK.CHAR_EIGENSCHAP_06. This should be changed in window 'Claim Flex Fields' (ZRGO030F):

| Declaratie eigenschappen | | | | | | | |
|--------------------------------|------------------------------|--------------|---------------------|-------------------------|----------------------------|---------------------|----------------------|
| Omschrijving | | | Type verzekering | | Soort gebruik | | |
| TANDHEELKUNDE | | | Zorgverzekeringswet | | Declaratie | | |
| Selectiegerichte eigenschappen | | | | Data Marts Specifiek | | Data Marts Generiek | |
| Nr. | Eigenschap | Type gegeven | Lengte | Tabel | Kolom | Tabel | Kolom |
| 1 | DCL_TND GEBITSELEMENT | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_GEBITSELEMENT | | |
| 2 | DCL_TND VLAKKEN | Alfanumeriek | 11 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | | |
| 3 | PATIENTNUMMER | Alfanumeriek | 17 | DWH_DECLARATIE_EIGENSCH | PATIENTNUMMER | | |
| 4 | AANGEVRAAGD | | | | | DWH_DECLARATIE_EIGE | NUMBER_EIGENSCHAP_06 |
| 4 | MACHTIGINGSNUMMER | Alfanumeriek | 15 | DWH_DECLARATIE_EIGENSCH | MACHTIGINGSNUMMER | | |
| 5 | BEGINDATUM ZRGVERLENING | Datum | 20 | | | DWH_DECLARATIE_EIGE | DATE_EIGENSCHAP_04 |
| 5 | INDICATIE BOVEN/ONDER TAND | Numeriek | 1 | DWH_EWE_TANDHEELKUNDE | TAE_IND_B_O_TANDHEELKUNDE | | |
| 6 | DCL_TND_VLAK_CODE | Alfanumeriek | 6 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | DWH_EWE_GENERIEK | CHAR_EIGENSCHAP_07 |
| 7 | AAND_PRESTATIECODELUST | Numeriek | 3 | DWH_DECLARATIE_EIGENSCH | AAND_PRESTATIECODELUST | | |
| 8 | PRESTATIECODE | Alfanumeriek | 14 | DWH_DECLARATIE_EIGENSCH | PRESTATIECODE | | |
| 9 | VOORSCHRIJVER | | | DWH_DECLARATIE_DETAILS | ZRE_REL_NR_VOORSCHRIJVER | | |
| 10 | SPECIALISME | Alfanumeriek | 5 | DWH_DECLARATIE_EIGENSCH | SPEC_VOORSCHRIJVER | DWH_DECLARATIE_EIGE | CHAR_EIGENSCHAP_07 |
| 11 | SOORT BUZONDERE TANDHEEL | Numeriek | 3 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_BUZ_TANDH | | |
| 12 | SOORT PRESTATIE | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_PRESTATIE | | |
| 13 | LAND | Alfanumeriek | 2 | | | DWH_DECLARATIE_EIGE | CHAR_EIGENSCHAP_01 |
| 13 | UZOVI | Numeriek | 4 | DWH_EWE_AWBZ | AWE_UZOVI | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_01 |
| 14 | BTW-PERCENTAGE DECLARATI | Numeriek | 4 | DWH_EWE_DBC_ZORGPROD | DZP_BTW_PERC_DECLARATIEBEI | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_02 |
| 15 | INDICATE BUZONDERE TANDHEE | Alfanumeriek | 1 | | | | |
| 16 | TARIEF PRESTATIE (INCL. BTW) | Numeriek | 10 | 2 | | | |

| Declaratie eigenschappen | | | | | | | |
|--------------------------------|------------------------------|--------------|---------------------|-------------------------|----------------------------|---------------------|----------------------|
| Omschrijving | | | Type verzekering | | Soort gebruik | | |
| TANDHEELKUNDE | | | Zorgverzekeringswet | | Declaratie | | |
| Selectiegerichte eigenschappen | | | | Data Marts Specifiek | | Data Marts Generiek | |
| Nr. | Eigenschap | Type gegeven | Lengte | Tabel | Kolom | Tabel | Kolom |
| 1 | DCL_TND GEBITSELEMENT | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_GEBITSELEMENT | | |
| 2 | DCL_TND VLAKKEN | Alfanumeriek | 11 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | | |
| 3 | PATIENTNUMMER | Alfanumeriek | 17 | DWH_DECLARATIE_EIGENSCH | PATIENTNUMMER | | |
| 4 | AANGEVRAAGD | | | | | DWH_DECLARATIE_EIGE | NUMBER_EIGENSCHAP_06 |
| 4 | MACHTIGINGSNUMMER | Alfanumeriek | 15 | DWH_DECLARATIE_EIGENSCH | MACHTIGINGSNUMMER | | |
| 5 | BEGINDATUM ZRGVERLENING | Datum | 20 | | | DWH_DECLARATIE_EIGE | DATE_EIGENSCHAP_04 |
| 5 | INDICATIE BOVEN/ONDER TAND | Numeriek | 1 | DWH_EWE_TANDHEELKUNDE | TAE_IND_B_O_TANDHEELKUNDE | | |
| 6 | DCL_TND_VLAK_CODE | Alfanumeriek | 6 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | DWH_EWE_GENERIEK | CHAR_EIGENSCHAP_07 |
| 7 | AAND_PRESTATIECODELUST | Numeriek | 3 | DWH_DECLARATIE_EIGENSCH | AAND_PRESTATIECODELUST | | |
| 8 | PRESTATIECODE | Alfanumeriek | 14 | DWH_DECLARATIE_EIGENSCH | PRESTATIECODE | | |
| 9 | VOORSCHRIJVER | | | DWH_DECLARATIE_DETAILS | ZRE_REL_NR_VOORSCHRIJVER | | |
| 10 | SPECIALISME | Alfanumeriek | 5 | DWH_DECLARATIE_EIGENSCH | SPEC_VOORSCHRIJVER | DWH_DECLARATIE_EIGE | CHAR_EIGENSCHAP_07 |
| 11 | SOORT BUZONDERE TANDHEEL | Numeriek | 3 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_BUZ_TANDH | | |
| 12 | SOORT PRESTATIE | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_PRESTATIE | | |
| 13 | LAND | Alfanumeriek | 2 | | | DWH_DECLARATIE_EIGE | CHAR_EIGENSCHAP_01 |
| 13 | UZOVI | Numeriek | 4 | DWH_EWE_AWBZ | AWE_UZOVI | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_01 |
| 14 | BTW-PERCENTAGE DECLARATI | Numeriek | 4 | DWH_EWE_DBC_ZORGPROD | DZP_BTW_PERC_DECLARATIEBEI | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_02 |
| 15 | INDICATE BUZONDERE TANDHEE | Alfanumeriek | 1 | | | DWH_EWE_GENERIEK | CHAR_EIGENSCHAP_06 |
| 16 | TARIEF PRESTATIE (INCL. BTW) | Numeriek | 10 | 2 | | | |

The complete window will now look as follows:

Note that the columns 'Tabel' and 'Kolom' of 'Data Marts Specifiek' are not set up for INDICATIE_BIJZONDERE_TANDHEELKUNDE, this is because this claim property does not exist in the old fixed structure (claim property is added after release 2012.01).

In the situation where both fixed and generic structures are set up, the new records are only loaded in the generic structure; this is due to storage optimization. An exception to this are claim properties that are used for dimension keys, these claim properties are also loaded in the old structure if a definition is available for the generic structure.

Example 3:

Claim property 'MACHTIGINGSNUMMER' for Procedure Claim Group 'TANDHEELKUNDE' should not be loaded in the generic structure but only in the old fixed structure (table: DWH_DECLARATIE_EIGENSCHAPPEN, attribute: MACHTIGINGSNUMMER).

In this example, the old fixed attribute for 'MACHTIGINGSNUMMER' should be used. The claim property must not be mapped to a generic attribute. Once a property is mapped to a generic attribute, this can not be undone!

| Selectiegerichte eigenschappen | | | | Data Marts Specifiek | | Data Marts Generiek | |
|--------------------------------|-----------------------------------|--------------|--------|------------------------------|----------------------------|------------------------------|----------------------|
| Nr. | Eigenschap | Type gegeven | Lengte | Tabel | Kolom | Tabel | Kolom |
| 1 | DCL_TND GEBITSELEMENT | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_GEBITSELEMENT | | |
| 2 | DCL_TND VLAKKEN | Alfanumeriek | 11 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | | |
| 3 | PATIENTNUMMER | Alfanumeriek | 17 | DWH_DECLARATIE_EIGENSCHAPPEN | PATIENTNUMMER | | |
| 4 | MACHTIGINGSNUMMER | Alfanumeriek | 15 | DWH_DECLARATIE_EIGENSCHAPPEN | MACHTIGINGSNUMMER | | |
| 5 | BEGINDATUM ZRGVERLENING | Datum | 20 | | | DWH_DECLARATIE_EIGENSCHAPPEN | DATE_EIGENSCHAP_04 |
| 6 | INDICATIE BOVENONDER TAND | Numeriek | 1 | DWH_EWE_TANDHEELKUNDE | TAE_IND_B_O_TANDHEELKUNDE | | |
| 7 | DCL_TND_VLAK_CODE | Alfanumeriek | 6 | DWH_EWE_TANDHEELKUNDE | TAE_DCL_TND_VLAK_CODE | DWH_EWE_GENERIEK | CHAR_EIGENSCHAP_07 |
| 8 | AAND_PRESTATIECODELUST | Numeriek | 3 | DWH_DECLARATIE_EIGENSCHAPPEN | AAND_PRESTATIECODELUST | | |
| 9 | PRESTATIECODE | Alfanumeriek | 14 | DWH_DECLARATIE_EIGENSCHAPPEN | PRESTATIECODE | | |
| 10 | VOORSCHRUFVER | | | DWH_DECLARATIE_DETAILS | ZRE_REL_NR_VOORSCHRUFVER | | |
| 11 | SPECIALISME | Alfanumeriek | 5 | DWH_DECLARATIE_EIGENSCHAPPEN | SPEC_VOORSCHRUFVER | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_07 |
| 12 | SOORT BUZONDERE TANDHEELKUNDE | Numeriek | 3 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_BUZ_TANDH | | |
| 13 | SOORT PRESTATIE | Numeriek | 2 | DWH_EWE_TANDHEELKUNDE | TAE_SOORT_PRESTATIE | | |
| 14 | LAND | Alfanumeriek | 2 | | | DWH_DECLARATIE_EIGENSCHAPPEN | CHAR_EIGENSCHAP_01 |
| 15 | UZOV1 | Numeriek | 4 | DWH_EWE_AWBZ | AWE_UZOV1 | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_01 |
| 16 | BTW-PERCENTAGE DECLARATIE | Numeriek | 4 | DWH_EWE_DBC_ZORGPROD | DZP_BTW_PERC_DECLARATIEBEI | DWH_EWE_GENERIEK | NUMBER_EIGENSCHAP_02 |
| 17 | INDICATIE BUZONDERE TANDHEELKUNDE | Alfanumeriek | 1 | | | DWH_EWE_GENERIEK | CHAR_EIGENSCHAP_06 |
| 18 | TARIEF PRESTATIE (INCL. BTW) | Numeriek | 10 | | | | |

Note that only 'Tabel' and 'Kolom' of 'Data Marts Specifiek' are set up for MACHTIGINGSNUMMER. Also note that this is only relevant for claim properties that were already available in the old fixed structure in OHI Data Marts.

When to place a claim property in a dimension table

There are two places where a claim property can be added in OHI Data Marts: fact table DWH_DECLARATIE_EIGENSCHAPPEN and dimension table DWH_EWE_GENERIEK.

It is important to make a good decision where to place a claim property in the generic structure. A claim property should be placed in DWH_DECLARATIE_EIGENSCHAPPEN if there are many different potential values for the claim property. For instance, the claim property PATIENTNUMMER contains the patient number, this is different for every patient and therefore there are many potential values in OHI Back

Office for this claim property. Because of this it should be placed in DWH_DECLARATIE_EIGENSCHAPPEN. If this is placed in DWH_EWE_GENERIEK, the dimension will be very large. A new dimension record will be created for almost every fact record, which results in very insufficient storage optimization.

It can be generally stated that when a claim property has more than a few dozen different values, that it should be placed in the fact table.

Generate views to create a functional overlay over the generic structure

It is possible to generate a view per Procedure Claim Group that contains a fixed set of DWH_DECLARATIE_EIGENSCHAPPEN attributes and a dynamic created set of claim properties. In DWH_DECLARATIE_EIGENSCHAPPEN and DWH_EWE_GENERIEK there is a generic naming convention (e.g. CHAR_EIGENSCHAP_01) for claim properties. With the view generator it is possible to create a view that contains all claim properties of a Procedure Claim Group, the attributes will obtain the functional name of the claim property instead of the generic name. The view can be used to represent the data with column names that have a functional meaning.

The view can be generated with a procedure that is available in the package WBX_VIEW_GENERATOR. The procedure is called WBX_VIEW_GENERATOR.GENERATE_DECLARATIE_VIEW. This procedure must be executed under the OBD_OW schema on the OHI Data Marts database. It is mandatory to give a value for the parameter 'P_GEBRUIKSGROEP'. This parameter should contain the exact name of the Procedure Claim Group. For example, the view for the Procedure Claim Group 'TANDHEELKUNDE' can be generated with the following statement:

```
exec wbx_view_generator.generate_declaratie_view('TANDHEELKUNDE');
```

This will generate a view named DWH_DCE_TANDHEELKUNDE_VW that can subsequently be used to integrate information into the reporting environment.

Add claim properties from generic structure to OBI EE repository

This paragraph describes how to add generically mapped claim properties to the OBI EE repository business model.

All generic claim property attributes are already added to the physical and business model layer of the OBI EE repository.

How a claim property attribute can be added to the presentation layer in OBI EE is described in the following example:

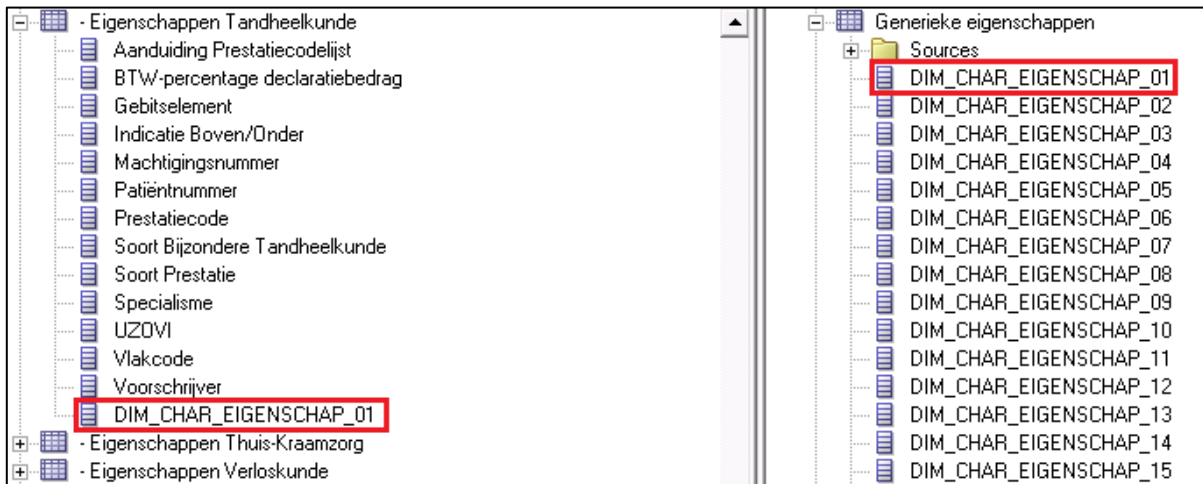
In Procedure Claim Group 'Tandheelkunde' the claim property 'EXAMPLE123' is added. This column is mapped to 'CHAR_EIGENSCHAP_01' in DWH_EWE_GENERIEK. The claim property 'EXAMPLE123' should be added to the presentation table 'Eigenschappen Tandheelkunde' and should be named 'Example 123'.



Note 1: Attributes sourced from DWH_EWE_GENERIEK are prefixed with 'DIM_' within the Logical Table 'Generieke eigenschappen', while attributes sourced from DWH_DECLARATIE_EIGENSCHAPPEN and DWH_DECLARATIES are prefixed with 'FACT_'.

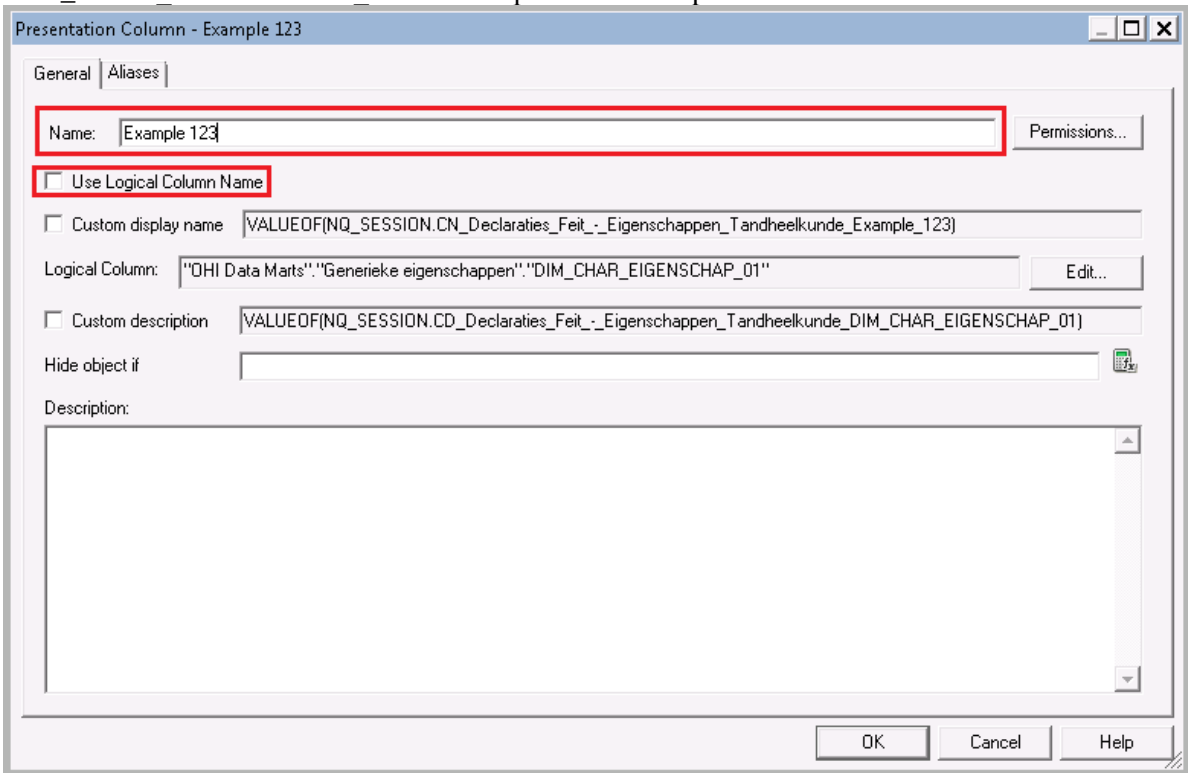
1. Add the generic column to the presentation model

Drag the attribute 'DIM_CHAR_EIGENSCHAP_01' from the Logical Table 'Generieke eigenschappen' to the Presentation Table '- Eigenschappen Tandheelkunde'. This should result in the following situation



2. **Provide a functional description for the Presentation attribute**

Uncheck the checkbox 'Use Logical Column Name' and change the property 'Name' of DIM_CHAR_EIGENSCHAP_01 to 'Example 123' in the presentation table



Check in the changes, save the repository and the claim property will now be available for end-users.

Configuration of generic structure for dimension properties

Introduction

It is possible to register a set of dimension properties in OHI Back Office. When a dimension property is required for use in OHI Data Marts it can be added by window 'Other Flex Fields' (ZRGO031F).

Examples

Example

A new dimension property 'GROEPCODE' is introduced in OHI Back Office for group contracts, this dimension property should be added to OHI Data Marts.

To add this dimension property, the window 'Other Flex Fields' (ZRGO031F) should be used. Query on 'DWH_COLLECTIEVE_CONTRACTEN' in field 'DM-tabel'. The new property must be added and a column should be defined where the dimension property 'GROEPCODE' is loaded into OHI Data Marts.

The property is a character and will be mapped to column CHAR_EIGENSCHAP_01 in table DWH_COLLECTIEVE_CONTRACTEN. The following line should be altered:

| DM-tabel | Kolom | BO-tabel | Eigenschap | Type gegeven | Lengte | Datum ingang |
|----------------------|----------------------|----------------------|----------------------------|--------------|--------|--------------|
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_01 | VER_COLLECTIEVE_CONT | GROEPCODE | Alf numeriek | 30 | 01-01-2015 |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_02 | VER_COLLECTIEVE_CONT | CHAR_02 | Alf numeriek | 30 | 01-01-2015 |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_03 | VER_COLLECTIEVE_CONT | CHAR_03 | Alf numeriek | 30 | 01-01-2015 |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_04 | VER_COLLECTIEVE_CONT | CHAR_04 | Alf numeriek | 30 | 01-01-2015 |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_05 | VER_COLLECTIEVE_CONT | CHAR_05 | Alf numeriek | 30 | 01-01-2015 |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_06 | VER_COLLECTIEVE_CONT | Z555 SPECIALISME ASSISTENT | Alf numeriek | 5 | 01-01-2014 |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_07 | | | | | |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_08 | | | | | |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_09 | | | | | |
| DWH_COLLECTIEVE_CONT | CHAR_EIGENSCHAP_10 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_01 | VER_COLLECTIEVE_CONT | BEGINDATUM PRESTATIE | Datum | 10 | 01-01-2001 |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_02 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_03 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_04 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_05 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_06 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_07 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_08 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_09 | | | | | |
| DWH_COLLECTIEVE_CONT | DATE_EIGENSCHAP_10 | | | | | |
| DWH_COLLECTIEVE_CONT | NUMBER_EIGENSCHAP_01 | VER_COLLECTIEVE_CONT | AANDUIDING DIAGNOSECODELU | Numeriek | 3 | 01-01-2014 |
| DWH_COLLECTIEVE_CONT | NUMBER_EIGENSCHAP_02 | | | | | |

Generate views to create a functional overlay over the generic structure

It is possible to generate a view per dimension that contains all attributes of the dimension. For the generic dimension properties there is a generic naming convention (e.g. CHAR_EIGENSCHAP_01). With the view generator it is possible to create a view that contains all dimension properties, the attributes will obtain the functional name of the dimension property (as defined in 'Other Flex Fields' (ZRGO031F)) instead of the generic name. The view can be used to represent the data with column names that have a functional meaning.

The view can be generated with a procedure that is available in the package WBX_VIEW_GENERATOR. The procedure is called WBX_VIEW_GENERATOR.GENERATE_DIMENSIE_VIEW. This procedure must be executed under the OBD_OWN schema on the OHI Data Marts database. It is mandatory to give a value for the parameter 'P_DIMENSIE_TABEL'. This parameter should contain the exact name of the dimension table. For example, the view for the group contract dimension 'DWH_COLLECTIEVE_CONTRACTEN' can be generated with the following statement:

```
exec wbx_view_generator.generate_dimensie_view('DWH_COLLECTIEVE_CONTRACTEN');
```

This view can subsequently be used to integrate information into the reporting environment.

Add dimension properties from generic structure to OBI EE repository

This paragraph describes how to add generically mapped dimension properties to the OBI EE repository business model.

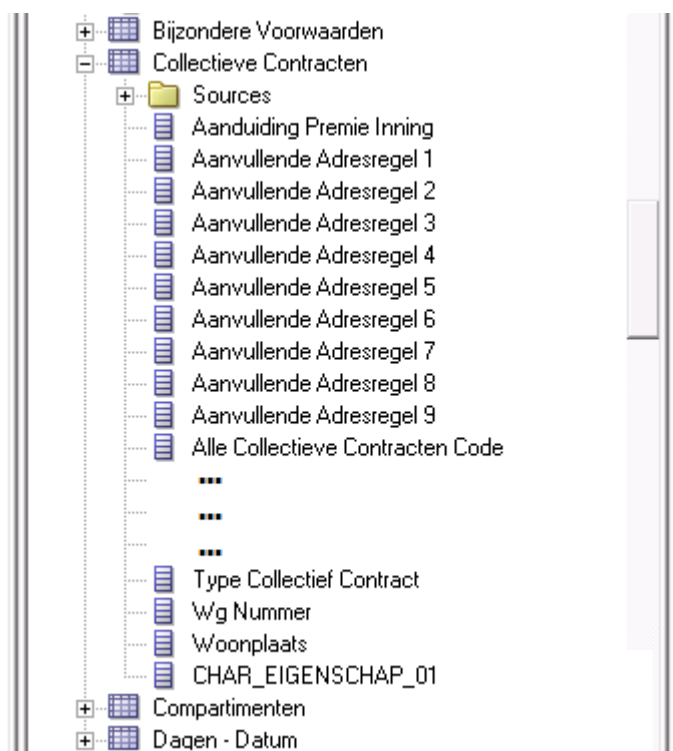
All generic dimension property attributes are already added to the physical layer of the OBI EE repository.

How a dimension property attribute can be added to the business model layer and presentation layer in OBI EE is described in the following example:

In the Group Contract dimension the property 'GROEPCODE' is added. This column is mapped to 'CHAR_EIGENSCHAP_01' in DWH_COLLECTIEVE_CONTRACTEN. The dimension property 'GROEPCODE' should be added to the logical table 'Collectieve Contracten' and should be named 'Groep Code'.

1. Add the generic column to the business model

Drag the attribute 'CHAR_EIGENSCHAP_01' from the Physical Table Source 'DWH_COLLECTIEVE_CONTRACTEN' to the Logical Table 'Collectieve Contracten'. Once this has been done, CHAR_EIGENSCHAP_01 is added to the logical table, represented as follows:



2. Name the column to the functional meaning

Change the name of CHAR_EIGENSCHAP_01 to 'Groep Code' in the logical table

3. Add the new attribute to the presentation layer

Add 'Groep Code' to the Presentation table 'Collectieve Contracten'

Check in the changes, save the repository and the claim property will now be available for end-users.

PART III - TECHNICAL MANAGEMENT

NEW RELEASES OF ORACLE HEALTH INSURANCE DATA MARTS

When new releases of Oracle Health Insurance Data Marts are brought out new versions of this documentation will also be supplied via iProjects files.

The Oracle Health Insurance installation menu OHIPATCH must be used for the installation of new Oracle Health Insurance Data Marts releases or patches. For operation of the installation menu: see document 'PCM02101.pdf' (Oracle Health Insurance Installation of Releases).

REORGANIZATION OF TABLES

It is recommended to regularly (depending on the load frequency, e.g. once per quarter/half year) reorganize the Data Warehouse facts tables and indexes on facts tables.

For the partitioned facts tables:

- DWH_AFGeweZEN_DeCLARATIES
- DWH_DeCL_PReSTATIE_DeTAILS
- DWH_DeCLARATIES
- DWH_DeCLARATIES_AGG
- DWH_DeCLARATIE_BoEKINGEN
- DWH_DeCLARATIE_Bron_KoLOMMEN
- DWH_DeCLARATIE_DeTAILS
- DWH_DeCLARATIE_EIGENSCHAPPEN
- DWH_DeELNAME_MuTATIES
- DWH_ONDERHANDEN_WERK
- DWH_PReMIES
- DWH_VeRBINTENISSEN
- DWH_VeRPLICHTINGEN
- DWH_VeRZEKERDEN
- DWH_VORDeRINGEN
- DWH_ZORg_VOORNEMENS

this can be done using:

- ALTER TABLE [table name] MOVE PARTITION [partition name]
- ALTER INDEX [index name] REBUILD PARTITION [partition name]

For the non-partitioned facts table:

- DWH_OPENSTAANDE_VeRPLICHTINGEN
- DWH_OPENSTAANDE_VORDeRINGEN
- DWH_TOE_UITtREDINGEN

this can be done using:

- ALTER TABLE [table name] MOVE
- ALTER INDEX [index name] REBUILD

COMPRESSION OF PARTITIONED FACT TABLES

As of Oracle Health Insurance Data Marts version 2011.03 it is possible to compress the partitioned tables. By compressing large fact tables, a large amount of disk space can be saved.

Step '850 - Partition/compress tables' in OHIPATCH.pl is available for this. This choice is the same for OHI Back Office and Oracle Health Insurance Data Marts, however the following submenu choices are only shown for Oracle Health Insurance Data Marts.

```
INFO : =====
INFO : = Redefine a table:                =
INFO : = O - Compress Advanced           =
INFO : = Q - Compress for Query (Exadata only) =
INFO : = A - Compress for Archive (Exadata only) =
INFO : = U - Uncompress (revert compression) =
INFO : =====
INFO : Which table redefinition would you like to execute (A, A, Q, U)?
```

If one of the compress actions (O, Q or A) is chosen, then you see a list of tables that can be compressed. By typing in the table name the choice is confirmed and the (sub)partitions of the table are compressed, including local partitioned indexes. For large fact tables this may take a long time. After compression, all local partitioned indexes are no longer usable and must be rebuilt. Option '870 - Rebuild unusable indexes' in OHIPATCH.pl is available for this. Rebuilding these 'unusable' indexes can also take a long time if the indexes concern large facts tables.

If 'U'ncompress (revert compression) is chosen, then you see a list of tables that can be uncompressed. The rest of the procedure is the same as for compressing tables. After uncompressing tables, the local partitioned tables must also be rebuilt.



Note: Ensure that there is enough disk space available for compression and uncompression.

PART IV – SET-UP OF DATABASE VAULT FOR DATA MARTS

ATTENTION: This functionality is still under construction and not yet available for general use.

Starting with OHI Back Office release 10.20.6.0.0 an OHI Back Office specific implementation of Oracle Database Vault is expected to be supported in combination with an implementation for OHI Data Marts.

Oracle Database Vault is a licensed option with the Oracle Database Enterprise Edition to implement more restrictive access to database objects and especially implement an additional protection for the data stored in these objects.

For more details see CTA13508.doc: Oracle Health Insurance Installation, Configuration and DBA Manual, Chapter 9: Installing and Configuring Oracle Database Vault for OHI Back Office.

PART V - APPENDICES

APPENDIX A: CLONING ORACLE HEALTH INSURANCE DATA MARTS ENVIRONMENTS

From a management standpoint, it is sometimes necessary to make a copy of an Oracle Health Insurance Data Marts environment and place it in another environment, for example to make a production environment available on a test environment.

An Oracle Health Insurance Data Marts environment consists the Oracle Health Insurance Data Marts schema OBD_OWN.

Seeing as environment-specific information is stored in the repository, several things must be done after the transfer to adjust this connection information for the new environment to ensure that everything continues to work correctly.

This environment-specific information includes:

- Connection information for the repository
- Connection information relating to the registered locations

APPENDIX B: EXADATA USAGE

When migrating to Exadata bear in mind the following migration path.

1. Please refer to chapter C: “*Converting to Oracle RAC and Oracle Rac One Node from Single Instance Oracle Database.*”, “*Oracle Real Application Clusters Installation Guide 11g Release 2.*”.
2. Please refer to chapter 8: “*Performing Oracle ASM Data Migration with RMAN*”, “*Oracle Automatic Storage Management Administrator’s Guide.*”.
3. Make sure the DB link SRC_OPENZORG.WORLD point to the correct Open Zorg environment.
4. Grant permissions as per administrator reference on the Data Marts Database.

```
sqlplus system/password@BO
grant create session to obd_select_user;
grant alter session to obd_select_user;
grant ozg_rol_select to obd_select_user;
grant select, insert, delete on ozg_owner.gcb#obd_declaraties to obd_select_user;
grant execute on ozg_owner.alg_tab_pck to obd_select_user;
grant execute on ozg_owner.fin_fpm_vars_pck to obd_select_user;
grant select on dba_tables to obd_select_user;
grant select on dba_tab_statistics to obd_select_user;
grant execute on ozg_owner.gcb_odr_pck to obd_select_user;
```

5. Make sure the following patchset is installed on the Exadata Database Machine: 16568042
Note 1: that this patchset is installed in 2012.01, however if the physical machine changes, the software of new and old machines need to be identical.
Note 2: please note that no SQL statements of the patch need to be applied: they should be already applied in 2012.01 (ie only run Opatch apply)
6. Make sure java and xmldb are installed.
7. Gather schema statistics for OBD_OWN.
8. Make sure the tnsnames.ora entries on application server are pointing to the correct environment for Data Marts as well as Back Office.
9. Recompile schema OBD_OWN, after which make sure no invalid objects are found in schema OBD_OWN:

```
begin
  dbms_utility.compile_schema( schema => user , compile_all =>TRUE, reuse_settings =>TRUE);
end;

select count(*) from user_objects where status != 'VALID';
```

10. Create wallet entries on Application server for 3 users, and display mkstore is similar to below on the application server.

```
mkstore -wrl . -listCredential
<db> batch
<db>_batch batch
<db>_install obd_own
```

Also make sure there is a tnsnames entry for

```
<db>
<db>_batch
<db>_install
```

To check for multi instance rac node (setup 1, non preferred setup):

```
mkstore -wrl . -listCredential
oton1 batch
oton1_batch batch
oton1_install obd_own
```

where oton1 is the service_name which is used for extraction

```
sqlplus /@oton1
sqlplus /@oton1_batch
sqlplus /@oton1_install
should all be able to connect
```

To check for multi instance rac node (setup 2, preferred setup) or single instance:

```
mkstore -wrl . -listCredential
oton batch
oton_batch batch
oton_install obd_own
```

where oton is the service_name which is used for extraction

```
sqlplus /@oton
sqlplus /@oton_batch
sqlplus /@oton_install
should all be able to connect
```

11. Make sure the input files of the External tables, are in the OBD_INPUT location, if not place them in OBD_INPUT directory and make sure oracle has read, write permissions on that directory.
12. Make sure there is a batch scheduler running on the application server.



Note: For **Multi node Rac:** To transfer the service to another node:

```
srvctl modify service -d db_unique_name -s service_name -i old_instance_name -t
new_instance_name [-f]
```

also please note that you might need a batch scheduler on the other node, and tnsnames entry on the second node of the first service to be able to connect to the relocated service.



Note: For Exadata: the use of a IORM plan is highly recommendable, so is setting the limit clause for a consistent performance experience see MOS "Configuring Exadata I/O Resource Manager for Common Scenarios [ID 1363188.1]"

The database parameter `parallel_degree_policy = auto` takes care of maximum utilization of resources. Resource Management is about maximum consumption of resources and acquiring the maximum resources. If there are for instance 2 databases A and B, and the total available resources is 100. Then maximum utilization of resources for A means utilizing 100 of that resources; but for B then there are no resources left.

The manual distribution of resource, for instance A can consume 80% of the resources and B 20% of the resources, is an example of IOResource Management, and should make sure B can also acquire their maximum of resources of 20%.

In ideal situation IOResources Management is assigned and utilized to a maximum.

Therefore, an IOResource Management Plan is recommended to prevent a case where patching an OHIBI installation takes significant amount of time, since for example all resources are taken by A, acquiring resources failed.

When statements run in parallel but they could in potential have a higher degree of parallelism, maximum utilization of resources failed.

The first situation is more concerning than the latter, therefore an IOResourceManagement plan is highly recommended. Setting the `parallel_degree_policy = auto` is optional, but only supported for the ETL user `OBD_OWN` and not for the `OBD_SELECT_USER`, and should be implemented with an after-logout trigger as shown below. Reason for this is that statement queuing will occur.

```
create or replace trigger trg_parallel_etl after logon on database
begin
  if user = 'OBD_OWN'
  then
    execute immediate 'alter session set parallel_degree_policy=AUTO';
    execute immediate 'alter session enable parallel dml';
  end if;
end;
/
```

For DOP to work properly IO Calibration is needed. This can be achieved by executing the one time only process `DBMS_RESOURCE_MANAGER.CALIBRATE_IO`, failure to do so would lead to the message in the explain plan:

"automatic DOP: skipped because of IO calibrate statistics are missing"

The example below is derived from the documentation:

http://docs.oracle.com/cd/E11882_01/appdev.112/e10577/d_resmgr.htm#CJGHGFEA

Example of using I/O Calibration procedure

```
SET SERVEROUTPUT ON
DECLARE
  lat INTEGER;
  iops INTEGER;
  mbps INTEGER;
BEGIN
  -- DBMS_RESOURCE_MANAGER.CALIBRATE_IO (<DISKS>, <MAX_LATENCY>, iops, mbps, lat);
  DBMS_RESOURCE_MANAGER.CALIBRATE_IO (2, 10, iops, mbps, lat);
  DBMS_OUTPUT.PUT_LINE ('max_iops = ' || iops);
  DBMS_OUTPUT.PUT_LINE ('latency = ' || lat);
  DBMS_OUTPUT.PUT_LINE ('max_mbps = ' || mbps);
end;
/
```

While running

APPENDIX C: ACTIVE DATA GUARD

OHI Data Marts supports an environment within which Active Data Guard is being used. OHI Data Marts has been tested and certified against a physical standby database in read-only mode.

The process of creating a Physical Standby database is described in detail in chapter “3 Creating a Physical Standby Database” of the document “Oracle® Data Guard Concepts and Administration, 11g Release 2 (11.2)”, part number E41134-02.

More information on managing Archive Redo Logs can be read in chapter 13 “Managing Archived Redo Logs” of the document “Oracle® Database Administrator's Guide, 11g Release 2 (11.2)”, part number E25494-04.

APPENDIX D: ORACLE ACCESS MANAGER / ORACLE IDENTITY MANAGER

Oracle Business Intelligence Enterprise Edition (OBIEE) is supported in combination with Oracle Access Manager and Oracle Identity Manager. For the supported version for each of the products please review the certification matrix available on the page 'Oracle Fusion Middleware Supported System Configurations' (<http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-certification-100350.html>).

To setup OBIEE in combination with Oracle Access Manager 11g please review the Oracle Student Learning Installation and Deployment Guide, part number E20664-04. This guide provides detailed information on the installation and configuration of Oracle Access Manager 11g, as well as information on how to setup OAM as the SSO solution for OBIEE.

For detailed information on the Oracle Identity Management Suite, please review the document Oracle Fusion Middleware Integration Overview for Oracle Identity Management Suite 11g Release 1 (11.1.1), part number E15477-03.

APPENDIX E: VIRTUAL PRIVATE DATABASE

Introduction

To make use of the feature Virtual Private Database (VPD) for masking privacy sensitive information one can specify Authorization Rules within OHI Back Office using the 'Authorization Rule'-form (ZRG7093F). These roles can be assigned to users/groups.

Role:

| Process | Brand | Description | Q | BrandBroker Univ. Univ. | Grp. Broker Univ. Empty | Grp. Empty |
|---------|-------|-------------|--------------------------|---|--|--------------------------|
| | | | <input type="checkbox"/> | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> |

Brokers | Group Contracts | **Relations**

| Relation | Description |
|------------|-------------|
| 1453003100 | |
| 1524241200 | |
| 1524526800 | |
| 1647434100 | |
| 1791224500 | |
| | |

These rules are used within both OHI Back Office and OHI Data Marts to mask privacy sensitive information.

When logging into OBIEE the user-account used for OBIEE will be used to determine the authorization as is defined in OHI Back Office for the same user.

OBIEE Users

Within Weblogic Console users are to be defined with the exact same user name as they have been defined within OHI Back Office. These user need to belong at minimum to the group 'BIconsumers'.

See '[Introduction to Security in Oracle Business Intelligence](#)' for more information the Oracle Business Intelligence security model.

When a user logs in to the OBIEE environment a procedure is called to identify the functional user (i.e. the username used to log into OBIEE). This user will then be used to evaluate the authorization rules against.

When there is a need to also apply VPD outside of the OBIEE (i.e. for users directly connecting to the database themselves using a database account) a LOGON trigger should be defined to ensure that the VPD policies also know for what user the authorization rules should be evaluated. The following is an example for a LOGON trigger.

```

create or replace trigger dwh_vpd_init_user
after logon
on database
enable
declare
  l_vpd_user stg_gebruiker_rollen.fun_oracle_user%type;
begin
  l_vpd_user := dwh_vpd_pck.set_user( USER );
end;
/

```

Make sure the user has been granted the OBD_ROL_SELECT and has not been granted 'exempt access policy'.

Refreshing Authorizationrules

To be able to make use of VPD within the OHI Data Marts environment the authorization rules batch 'ZRGO023S' (Refreshing Authorizationrules) needs to be executed. This batch load information about the authorization rules defined within OHI Back Office into the OHI Data Marts environment. This batch can also to be scheduled using the menu options 'Data Marts' → 'Refreshing Authorizationrules'.

VPD Policies

For the following OHI Data Marts tables/columns VPD policies are defined

| Data Marts table | Privacy sensitive columns |
|----------------------------|--|
| DWH_ADRESSEN | ADS_AANVULLENDE_ADRESREGEL_1, ADS_AANVULLENDE_ADRESREGEL_2, ADS_AANVULLENDE_ADRESREGEL_3, ADS_AANVULLENDE_ADRESREGEL_4, ADS_AANVULLENDE_ADRESREGEL_5, ADS_AANVULLENDE_ADRESREGEL_6, ADS_AANVULLENDE_ADRESREGEL_7, ADS_AANVULLENDE_ADRESREGEL_8, ADS_AANVULLENDE_ADRESREGEL_9, ADS_HUISNUMMER, ADS_HUIS_NR, ADS_HUIS_NR_TOEVOEGING, ADS_LAND_CODE, ADS_LAND_OMSCHRIJVING, ADS_POSTCODE, ADS_POSTCODE_LETTER, ADS_POSTCODE_NR, ADS_STRAATNAAM, ADS_WOONPLAATS |
| DWH_COLLECTIEVE_CONTRACTEN | CCT_AANVULLENDE_ADRESREGEL, CCT_AANVULLENDE_ADRESREGEL_2, CCT_AANVULLENDE_ADRESREGEL_3, CCT_AANVULLENDE_ADRESREGEL_4, CCT_AANVULLENDE_ADRESREGEL_5, CCT_AANVULLENDE_ADRESREGEL_6, CCT_AANVULLENDE_ADRESREGEL_7, CCT_AANVULLENDE_ADRESREGEL_8, CCT_AANVULLENDE_ADRESREGEL_9, CCT_HUISNUMMER, CCT_HUIS_NR, CCT_HUIS_NR_TOEVOEGING, CCT_LAND_CODE, CCT_LAND_OMSCHRIJVING, CCT_NAAM, CCT_OMSCHRIJVING, CCT_POSTCODE, CCT_POSTCODE_LETTER, CCT_POSTCODE_NR, CCT_STRAATNAAM, CCT_WOONPLAATS |
| DWH_CREDITEUREN | CDR_AANVULLENDE_ADRESREGEL, CDR_AANVULLENDE_ADRESREGEL_2, CDR_AANVULLENDE_ADRESREGEL_3, CDR_AANVULLENDE_ADRESREGEL_4, CDR_AANVULLENDE_ADRESREGEL_5, CDR_AANVULLENDE_ADRESREGEL_6, CDR_AANVULLENDE_ADRESREGEL_7, CDR_AANVULLENDE_ADRESREGEL_8, CDR_AANVULLENDE_ADRESREGEL_9, CDR_HUISNUMMER, CDR_HUIS_NR, CDR_HUIS_NR_TOEVOEGING, CDR_LAND_CODE, CDR_LAND_OMSCHRIJVING, CDR_NAAM, CDR_OMSCHRIJVING, CDR_POSTCODE, CDR_POSTCODE_LETTER, CDR_POSTCODE_NR, CDR_P_AANVULLENDE_ADRESREGEL, CDR_P_AANVULLENDE_ADRESREGEL_2, CDR_P_AANVULLENDE_ADRESREGEL_3, CDR_P_AANVULLENDE_ADRESREGEL_4, CDR_P_AANVULLENDE_ADRESREGEL_5, CDR_P_AANVULLENDE_ADRESREGEL_6, CDR_P_AANVULLENDE_ADRESREGEL_7, CDR_P_AANVULLENDE_ADRESREGEL_8, CDR_P_AANVULLENDE_ADRESREGEL_9, CDR_P_HUISNUMMER, CDR_P_HUIS_NR, CDR_P_HUIS_NR_TOEVOEGING, CDR_P_LAND_CODE, CDR_P_LAND_OMSCHRIJVING, CDR_P_POSTCODE, CDR_P_POSTCODE_LETTER, CDR_P_POSTCODE_NR, CDR_P_STRAATNAAM, CDR_P_WOONPLAATS, CDR_STRAATNAAM, CDR_WOONPLAATS |

| Data Marts table | Privacy sensitive columns |
|--------------------|---|
| DWH_DEBITEUREN | DBR_AANVULLENDE_ADRESREGEL, DBR_AANVULLENDE_ADRESREGEL_2, DBR_AANVULLENDE_ADRESREGEL_3, DBR_AANVULLENDE_ADRESREGEL_4, DBR_AANVULLENDE_ADRESREGEL_5, DBR_AANVULLENDE_ADRESREGEL_6, DBR_AANVULLENDE_ADRESREGEL_7, DBR_AANVULLENDE_ADRESREGEL_8, DBR_AANVULLENDE_ADRESREGEL_9, DBR_HUISNUMMER, DBR_HUIS_NR, DBR_HUIS_NR_TOEVOEGING, DBR_LAND_CODE, DBR_LAND_OMSCHRIJVING, DBR_NAAM, DBR_OMSCHRIJVING, DBR_POSTCODE, DBR_POSTCODE_LETTER, DBR_POSTCODE_NR, DBR_P_AANVULLENDE_ADRESREGEL, DBR_P_AANVULLENDE_ADRESREGEL_2, DBR_P_AANVULLENDE_ADRESREGEL_3, DBR_P_AANVULLENDE_ADRESREGEL_4, DBR_P_AANVULLENDE_ADRESREGEL_5, DBR_P_AANVULLENDE_ADRESREGEL_6, DBR_P_AANVULLENDE_ADRESREGEL_7, DBR_P_AANVULLENDE_ADRESREGEL_8, DBR_P_AANVULLENDE_ADRESREGEL_9, DBR_P_HUISNUMMER, DBR_P_HUIS_NR, DBR_P_HUIS_NR_TOEVOEGING, DBR_P_LAND_CODE, DBR_P_LAND_OMSCHRIJVING, DBR_P_POSTCODE, DBR_P_POSTCODE_LETTER, DBR_P_POSTCODE_NR, DBR_P_STRAATNAAM, DBR_P_WOONPLAATS, DBR_STRAATNAAM, DBR_WOONPLAATS |
| DWH_DECLARANTEN | DCT_AANVULLENDE_ADRESREGEL, DCT_AANVULLENDE_ADRESREGEL_2, DCT_AANVULLENDE_ADRESREGEL_3, DCT_AANVULLENDE_ADRESREGEL_4, DCT_AANVULLENDE_ADRESREGEL_5, DCT_AANVULLENDE_ADRESREGEL_6, DCT_AANVULLENDE_ADRESREGEL_7, DCT_AANVULLENDE_ADRESREGEL_8, DCT_AANVULLENDE_ADRESREGEL_9, DCT_HUISNUMMER, DCT_HUIS_NR, DCT_HUIS_NR_TOEVOEGING, DCT_IND_UNIVERSEEL, DCT_LAND_CODE, DCT_LAND_OMSCHRIJVING, DCT_OMSCHRIJVING, DCT_POSTCODE, DCT_POSTCODE_LETTER, DCT_POSTCODE_NR, DCT_P_AANVULLENDE_ADRESREGEL, DCT_P_AANVULLENDE_ADRESREGEL_2, DCT_P_AANVULLENDE_ADRESREGEL_3, DCT_P_AANVULLENDE_ADRESREGEL_4, DCT_P_AANVULLENDE_ADRESREGEL_5, DCT_P_AANVULLENDE_ADRESREGEL_6, DCT_P_AANVULLENDE_ADRESREGEL_7, DCT_P_AANVULLENDE_ADRESREGEL_8, DCT_P_AANVULLENDE_ADRESREGEL_9, DCT_P_HUISNUMMER, DCT_P_HUIS_NR, DCT_P_HUIS_NR_TOEVOEGING, DCT_P_LAND_CODE, DCT_P_LAND_OMSCHRIJVING, DCT_P_POSTCODE, DCT_P_POSTCODE_LETTER, DCT_P_POSTCODE_NR, DCT_P_STRAATNAAM, DCT_P_WOONPLAATS, DCT_STRAATNAAM, DCT_WOONPLAATS |
| DWH_DECLARATIES | AW_BSN_GEINDICEERDE_CLIENT, AW_BSN_PARTNER, AW_BSN_VERZEKERDE, AW_RELATIECODERING, HUISNUMMER, LANDCODE_BRON, PATIENTNUMMER, POSTCODE_BRON, POSTCODE_LETTER_BRON, POSTCODE_NR_BRON, REKENINGGEGEVEN, RT_LANDCODE, WOONPLAATS_BRON |
| DWH_PREMIES | LAN_CODE_BRON, POSTCODE_BRON, POSTCODE_LETTER_BRON, POSTCODE_NR_BRON, WOONPLAATS_BRON |
| DWH_TUSSENPERSONEN | TUP_AANVULLENDE_ADRESREGEL, TUP_AANVULLENDE_ADRESREGEL_2, TUP_AANVULLENDE_ADRESREGEL_3, TUP_AANVULLENDE_ADRESREGEL_4, TUP_AANVULLENDE_ADRESREGEL_5, TUP_AANVULLENDE_ADRESREGEL_6, TUP_AANVULLENDE_ADRESREGEL_7, TUP_AANVULLENDE_ADRESREGEL_8, TUP_AANVULLENDE_ADRESREGEL_9, TUP_HUISNUMMER, TUP_HUIS_NR, TUP_HUIS_NR_TOEVOEGING, TUP_IND_ABZ_BERICHT, TUP_LAND_CODE, TUP_LAND_OMSCHRIJVING, TUP_OMSCHRIJVING, TUP_POSTCODE, TUP_POSTCODE_LETTER, TUP_POSTCODE_NR, TUP_STRAATNAAM, TUP_WOONPLAATS |
| DWH_VERZEKERDEN | EXCASSOREKENING_DECLARATIES, HOEDANIGHEID, HUISNUMMER, INCASSOREKENING_DECLARATIES, LAN_CODE_BRON, PCE_LETTER_BRON, POSTCODE_BRON, REKENINGGEGEVEN, WOONPLAATS_BRON, WIZ_GROEP_CODE |
| DWH_ZORG_CLIEN TEN | ZCL_AANVULLENDE_ADRESREGEL, ZCL_AANVULLENDE_ADRESREGEL_2, ZCL_AANVULLENDE_ADRESREGEL_3, ZCL_AANVULLENDE_ADRESREGEL_4, ZCL_AANVULLENDE_ADRESREGEL_5, ZCL_AANVULLENDE_ADRESREGEL_6, ZCL_AANVULLENDE_ADRESREGEL_7, ZCL_AANVULLENDE_ADRESREGEL_8, ZCL_AANVULLENDE_ADRESREGEL_9, ZCL_ACHTERNAAM, ZCL_A_NUMMER, ZCL_EMAIL_ADRES, ZCL_HUISNUMMER, ZCL_HUIS_NR, ZCL_HUIS_NR_TOEVOEGING, ZCL_LAND_CODE, ZCL_LAND_OMSCHRIJVING, ZCL_NAAM_NAAMAANDUIDING, ZCL_NAT_CODE, ZCL_NAT_OMS, ZCL_PAR_ACHTERNAAM, ZCL_PAR_VOORVOEGSEL, ZCL_POSTCODE, ZCL_POSTCODE_LETTER, ZCL_POSTCODE_NR, ZCL_P_AANVULLENDE_ADRESREGEL, ZCL_P_AANVULLENDE_ADRESREGEL_2, ZCL_P_AANVULLENDE_ADRESREGEL_3, ZCL_P_AANVULLENDE_ADRESREGEL_4, ZCL_P_AANVULLENDE_ADRESREGEL_5, ZCL_P_AANVULLENDE_ADRESREGEL_6, ZCL_P_AANVULLENDE_ADRESREGEL_7, ZCL_P_AANVULLENDE_ADRESREGEL_8, ZCL_P_AANVULLENDE_ADRESREGEL_9, ZCL_P_HUISNUMMER, ZCL_P_HUIS_NR, ZCL_P_HUIS_NR_TOEVOEGING, ZCL_P_LAND_CODE, ZCL_P_LAND_OMSCHRIJVING, ZCL_P_POSTCODE, ZCL_P_POSTCODE_LETTER, ZCL_P_POSTCODE_NR, ZCL_P_STRAATNAAM, ZCL_P_WOONPLAATS, ZCL_SOFI_NR, ZCL_STRAATNAAM, ZCL_TELEFOON_NR, ZCL_TITULATUUR, ZCL_VOORLETTERS, ZCL_VOORNAMEN, ZCL_VOORVOEGSELS, ZCL_WOONPLAATS, ZCL_ZCT_DERDEN_CODERING_1, ZCL_ZCT_DERDEN_CODERING_2, ZCL_ZCT_DERDEN_CODERING_3, ZCL_ZCT_DERDEN_CODERING_4, ZCL_ZCT_DERDEN_CODERING_5 |

| Data Marts table | Privacy sensitive columns |
|---------------------|--|
| DWH_ZORG_RELATIES | KOE_CODE, KOE_OMSCHRIJVING, ZRE_AANVULLENDE_ADRESREGEL, ZRE_AANVULLENDE_ADRESREGEL_2, ZRE_AANVULLENDE_ADRESREGEL_3, ZRE_AANVULLENDE_ADRESREGEL_4, ZRE_AANVULLENDE_ADRESREGEL_5, ZRE_AANVULLENDE_ADRESREGEL_6, ZRE_AANVULLENDE_ADRESREGEL_7, ZRE_AANVULLENDE_ADRESREGEL_8, ZRE_AANVULLENDE_ADRESREGEL_9, ZRE_CTG_NR, ZRE_EXTERN_KENMERK, ZRE_HAGRO_OMSCHRIJVING, ZRE_HUISNUMMER, ZRE_HUIS_NR, ZRE_HUIS_NR_TOEVOEGING, ZRE_LAND_CODE, ZRE_LAND_OMSCHRIJVING, ZRE_POSTCODE, ZRE_POSTCODE_LETTER, ZRE_POSTCODE_NR, ZRE_P_AANVULLENDE_ADRESREGEL, ZRE_P_AANVULLENDE_ADRESREGEL_2, ZRE_P_AANVULLENDE_ADRESREGEL_3, ZRE_P_AANVULLENDE_ADRESREGEL_4, ZRE_P_AANVULLENDE_ADRESREGEL_5, ZRE_P_AANVULLENDE_ADRESREGEL_6, ZRE_P_AANVULLENDE_ADRESREGEL_7, ZRE_P_AANVULLENDE_ADRESREGEL_8, ZRE_P_AANVULLENDE_ADRESREGEL_9, ZRE_P_HUISNUMMER, ZRE_P_HUIS_NR, ZRE_P_HUIS_NR_TOEVOEGING, ZRE_P_LAND_CODE, ZRE_P_LAND_OMSCHRIJVING, ZRE_P_POSTCODE, ZRE_P_POSTCODE_LETTER, ZRE_P_POSTCODE_NR, ZRE_P_STRAATNAAM, ZRE_P_WOONPLAATS, ZRE_REL_OMSCHRIJVING, ZRE_STRAATNAAM, ZRE_WOONPLAATS, ZRE_ZCL_CODE, ZRE_ZCL_OMSCHRIJVING, ZRE_ZKR_CODE |
| DWH_ZORG_WERKGEVERS | WGR_AANVULLENDE_ADRESREGEL, WGR_AANVULLENDE_ADRESREGEL_2, WGR_AANVULLENDE_ADRESREGEL_3, WGR_AANVULLENDE_ADRESREGEL_4, WGR_AANVULLENDE_ADRESREGEL_5, WGR_AANVULLENDE_ADRESREGEL_6, WGR_AANVULLENDE_ADRESREGEL_7, WGR_AANVULLENDE_ADRESREGEL_8, WGR_AANVULLENDE_ADRESREGEL_9, WGR_HUISNUMMER, WGR_HUIS_NR, WGR_HUIS_NR_TOEVOEGING, WGR_LAND_CODE, WGR_LAND_OMSCHRIJVING, WGR_OMSCHRIJVING, WGR_POSTCODE, WGR_POSTCODE_LETTER, WGR_POSTCODE_NR, WGR_STRAATNAAM, WGR_TELEFOON_NR, WGR_WOONPLAATS |

Using step 880 (Enable/disable VPD) of OHIPATCH.pl the VPD policies can be enabled (Policy group 'OHI_RELATIONS', policy 'REL_ANONIEM').

Adding custom policies

If there is a need to add additional VPD policies that are not offered within OHI Data Marts, one could create additional policies keeping in mind the following rules

- Do not add custom policies to the policy group 'OHI_RELATIONS' and/or policy name 'REL_ANONIEM'. These are used and reserved for OHI Data Marts
- Custom policies should not negatively impact performance
- Custom policies are only allowed to mask columns and should never remove entire rows (i.e. always specify what columns should be masked with the table or tables for which the custom policy is defined using the `sec_relevant_cols` option). Hiding/removing rows will result in incomplete data when reporting on OHI Data Marts.
- Only SELECT policies are allowed
- Do not apply masking on columns that are most likely to be used within predicates (i.e. foreign key relation columns)

Example of adding a custom policy for DWH_MERKEN

In this example a custom policy is created for the dimension DWH_MERKEN within which data for the columns AOR_OMSCHRIJVING, MRK_OMSCHRIJVING, AGB_OMSCHRIJVING and ZVR_NAAM will be masked (for all users) when data related to 'FINPR', 'PRE' or 'ZFWCD' is selected.

Please consult the Oracle Database Security Guide for additional information on the topic 'Using Oracle Virtual Private Database to Control Data Access' at

<https://docs.oracle.com/database/121/DBSEG/vpd.htm#DBSEG007>.

Creating new policy group (CUSTOM_VPD_GROUP)

```
begin
  dbms_ols.enable_grouped_policy
  ( object_name => 'DWH_MERKEN'
  , group_name  => 'CUSTOM_VPD_GROUP'
  , policy_name => 'CUSTOM_VPD_POLICY'
  , enable     => true
  );
end;
/
```

Creating new policy (CUSTOM_VPD_POLICY) within policy group

The following statement creates a SELECT policy for the table DWH_MERKEN for which data for the columns AOR_OMSCHRIJVING, MRK_OMSCHRIJVING, AGB_OMSCHRIJVING and ZVR_NAAM is to be masked.

The PL/SQL package/function DWH_CUSTOM_VPD_PCK.ADD_PREDICATE_SEL is specified as the function which generates the predicate for this policy.

```
begin
  dbms_ols.add_grouped_policy
  ( object_name          => 'DWH_MERKEN'
  , policy_group        => 'CUSTOM_VPD_GROUP'
  , policy_name         => 'CUSTOM_VPD_POLICY'
  , policy_function     => 'DWH_CUSTOM_VPD_PCK.ADD_PREDICATE_SEL'
  , statement_types    => 'SELECT'
  , enable              => false
  , sec_relevant_cols  =>
'AOR_OMSCHRIJVING,MRK_OMSCHRIJVING,AGB_OMSCHRIJVING,ZVR_NAAM'
  , sec_relevant_cols_opt => dbms_ols.ALL_ROWS
  );
end;
/
```

PL/SQL package

The PL/SQL package that is linked to the VPD policy will be executed for every row/column returned from a query that (in this example) uses the table DWH_MERKEN, by calling the function add_predicate_sel.

The function add_predicate_sel first checks for which table it is being called, this way this package can be used for more than just the DWH_MERKEN table, but could also be used for other tables containing information related to DWH_MERKEN. If this function returns condition which evaluates to **False** access is granted and the data will be masked.

The function check_mrk performs the actual check whether or not access is allowed.

```
create or replace package dwh_custom_vpd_pck
is

  function add_predicate_sel
  ( pi_schema_name in varchar2
  , pi_object_name in varchar2
  ) return varchar2
  ;

end dwh_custom_vpd_pck;
/
```

```

create or replace package body dwh_custom_vpd_pck
is

    function check_mrk
    ( pi_mrk_code in dwh_merken.mrk_code%type
    ) return varchar2
    is
        l_retval varchar2(1) := 'N'; -- By default no access
    begin
        if pi_mrk_code in ('FINPR', 'PRE', 'ZFWCD')
        then
            l_retval := 'J'; -- Allow access
        end if;
        return l_retval;
    end;

    function add_predicate_sel
    ( pi_schema_name in varchar2
    , pi_object_name in varchar2
    ) return varchar2
    is
        l_retval    varchar2(4000) := ' 1=1 ';
        l_tablename varchar2(60);
    begin
        l_tablename := upper(pi_object_name);
        if l_tablename = 'DWH_MERKEN'
        then
            l_retval := ' (dwh_custom_vpd_pck.check_mrk(MRK_CODE) = ''J'' ) ';
        end if;
        return l_retval;
    end add_predicate_sel;

end dwh_custom_vpd_pck;
/

```

Ensure that the role OBD_ROL_SELECT has been granted execute privileges on the package DWH_CUSTOM_VPD_PCK and a public synonym has been created.

```

grant execute on obd_own.dwh_custom_vpd_pck to OBD_ROL_SELECT;
create public synonym dwh_custom_vpd_pck for obd_own.dwh_custom_vpd_pck;

```

Enabling the policy

By default, when adding a policy the policy is not enabled. Using the following statement, the policy on DWH_MERKEN is activated.

```

begin
    dbms_ols.enable_grouped_policy
    ( object_name => 'DWH_MERKEN'
    , group_name  => 'CUSTOM_VPD_GROUP'
    , policy_name => 'CUSTOM_VPD_POLICY'
    , enable      => true
    );
end;
/

```

For this moment on any query on DWH_MERKEN each for within DWH_MERKEN will be evaluated and data will be masked accordingly.