

## **Oracle Insurance Datamarts for Health**

# **Business Intelligence Administrator Reference**

version 9.25

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# INTRODUCTION

The purpose of this document is to give an overview of the architecture of OHI Business Intelligence, 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 OHI Business Intelligence administrator should be in a position 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 OHI Business Intelligence and contain information that is (potentially) required for installation and management.

1. Standard product manuals from Oracle DBMS, Oracle Warehouse Builder and Oracle Discoverer. Documentation on these Oracle products can be found on the Oracle support website (<http://support.oracle.com>)
2. Certification form 2012.01.0.0000
3. CTA13508.doc: Oracle Health Insurance Installation, Configuration and DBA Manual
4. CTA13535.doc: Oracle Health Insurance Security Aspects

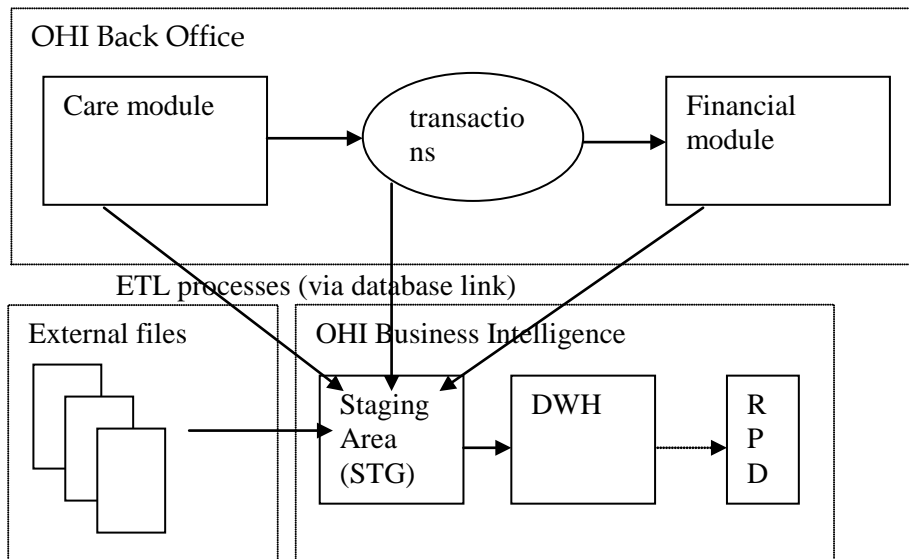
# SOFTWARE USED



Certifications matrix 2012.02.0.0000

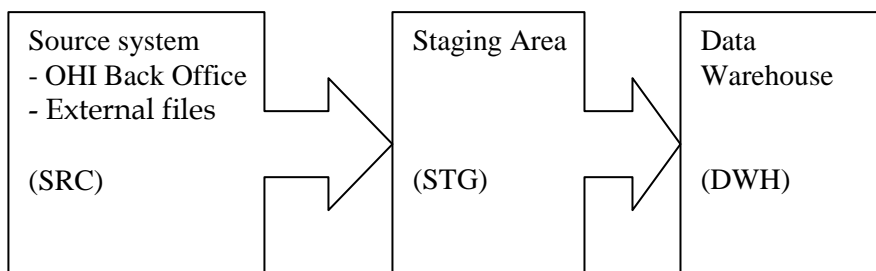
## OVERVIEW

The architecture of OHI Business Intelligence broadly looks like this:



OHI Business Intelligence 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 OHI Business Intelligence. 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 OHI BUSINESS INTELLIGENCE ENVIRONMENT

#### OS set-up

OHI Business Intelligence runs on a database server. The load run of OHI Business Intelligence requires that there is an application server on which the OHI Back Office application is installed. OHI Business Intelligence 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

OHI Business Intelligence must be installed in a dedicated database. It is not permitted to install OHI Business Intelligence in the same database as OHI Back Office, as OHI Business Intelligence 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

An OWB Runtime environment is required in order to be able to execute the OHI Business Intelligence ETL process. As of Oracle 11gR1 the OWB software is installed at the same time as the Oracle 11g software in the Oracle home directory of the database.

OHI Business Intelligence releases and patches are installed from an application server. This application server can be used in 2 configurations. As stated before

1. Configuration with database server and application server on different hosts (separate database and application server)



Because OWB is part of the complete Oracle 11g software installation, it was necessary in release 2010.01.0.0000 through release 2011.01.0000 to perform a full Oracle 11g software installation on both the application server and the database server. As of release 2011.01.0.0000, the installation software of Oracle Health Insurance only uses the OWB software in the 11g Oracle Home on the database server for the installation of OHI Business Intelligence. The installation of OHI Business Intelligence no longer uses the OWB software on the application server. Therefore, installation of the full Oracle 11g software on the application server is no longer necessary.

2. Configuration with database server and application server on same host (combined database and application server)

There are no changes for this configuration compared to previous releases.

For the right version of the OWB software, see:



Certifications matrix 2012.01.0.0000

## Creation of an Oracle OHI Business Intelligence database

A database needs to be created first before OHI Business Intelligence can be installed.

### Parameters

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

```
AQ_TM_PROCESSES=1          #For batch scheduler queue time
monitoring
DB_BLOCK_SIZE=16384
NLS_LANGUAGE=DUTCH         #DUTCH or AMERICAN
NLS_NUMERIC_CHARACTERS=',' #Set to the desired combination
NLS_SORT=BINARY            #For performance reasons
NLS_TERRITORY='THE NETHERLANDS' #THE NETHERLANDS or AMERICA
OPTIMIZER_MODE=ALL_ROWS    #For performance reasons
OS_AUTHENT_PREFIX=""       #For externally ident. Users
PGA_AGGREGATE_TARGET=<value> #Automatic SQL Execution Memory Management
REMOTE_OS_AUTHENT=TRUE     #Permit externally ident. Users
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 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*.

The script `OZGI002S.sql` can be used to set a standard configuration. Set the following database parameter:

```
RESOURCE_MANAGER_PLAN="SYSTEM_PLAN"
```



**Tip 2:** Oracle Health Insurance recommends the use of the `WE8ISO8859P15` character set, which supports the use of the Euro symbol €

This character set can be chosen when creating the database. To change the character set of an existing database, see



Migration of database character set

## Tablespaces

The table spaces below must be created for data and indexes:

Tablespace	Initial	Next
STG_STAD	128 Kb	128 Kb
STG_STAI	128 Kb	128 Kb
STG_DYND	4 Mb	4 Mb
STG_DYNI	4 Mb	4 Mb
DWH_STAD	128 Kb	128 Kb
DWH_STAI	128 Kb	128 Kb
DWH_DYND	4 Mb	4 Mb
DWH_DYNI	4 Mb	4 Mb
OZG_DIM_SYS_TAB	128 Kb	128 Kb
OZG_DIM_SYS_IND	128 Kb	128 Kb
OZG_FACT_SYS_TAB	128 Kb	128 Kb
OZG_FACT_SYS_IND	128 Kb	128 Kb
OZG_LOG_TAB	128 Kb	128 Kb
OZG_LOG_IND	128 Kb	128 Kb
OWBSYS	2048Mb	32 Mb
Tablespace	Initial	Next
STG_STAD	128 Kb	128 Kb
STG_STAI	128 Kb	128 Kb
STG_DYND	4 Mb	4 Mb
STG_DYNI	4 Mb	4 Mb
DWH_STAD	128 Kb	128 Kb
DWH_STAI	128 Kb	128 Kb
DWH_DYND	4 Mb	4 Mb
DWH_DYNI	4 Mb	4 Mb
OZG_DIM_SYS_TAB	128 Kb	128 Kb
OZG_DIM_SYS_IND	128 Kb	128 Kb

Tablespace	Initial	Next
OZG_FACT_SYS_TAB	128 Kb	128 Kb
OZG_FACT_SYS_IND	128 Kb	128 Kb
OZG_LOG_TAB	128 Kb	128 Kb
OZG_LOG_IND	128 Kb	128 Kb
OWBSYS	2048Mb	32 Mb

The created table spaces must comply with the following requirements:

1. Locally Managed
2. System managed extent allocation
3. Automatic Segment Space Management
4. 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 OHI Business Intelligence database:

User	ID	Description
OHI Business Intelligence repository owner	OWBSYS	This is the owner of the OWB repository on the OHI Business Intelligence database server. This user is created during the installation of the OWB 11g software. The data/index tablespace is OWBSYS.
OHI Business Intelligence Workspace owner	OHI_BI_WS_OWN	This is the owner or the workspace in which the OHI Business Intelligence objects have been created and are executed.
OHI Business Intelligence owner	OBD_OWN	This is the owner of the OHI Business Intelligence objects. <b>This user must be created using the OHI Business Intelligence installation software</b> 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 ' <b>externally identified</b> ' so that the loading process can be started remotely from the OHI Back Office application server. <b>This user is created by the OHI Business Intelligence installation software.</b> (see 'Oracle Health Insurance Security Aspects' document on iProjects Files for security of the BATCH account)

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 under which the selections on OHI Back Office are performed. This user should be assigned the following privileges:  create session alter session ozg_rol_select select, insert, delete on ozg_owner.gcb#obd_declaraties execute on ozg_owner.alg_tab_pck execute on ozg_owner.fin_fpm_vars_pck select on v_\$database execute on ozg_owner.gcb_odr_pck

## Database link

A database link should be created from the OHI Business Intelligence database to the OHI Back Office database with the name SRC\_OPENZORG. The link should be created in the following way (under user OBD\_OWN) in the OHI Business Intelligence database:

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

## Database directories

For a number of 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' ;
```

## General instructions

For instructions relating to active management of Oracle OHI Business Intelligence, see:



Oracle Health Insurance Installation, Configuration and DBA Manual  
(chapter 5)

# INSTALLATION OF ORACLE WAREHOUSE BUILDER (OWB) REPOSITORY

## CLIENT INSTALLATION

OHI Business Intelligence was developed with the help of OWB. The metadata relating to the OHI Business Intelligence objects is stored in an OWB (Design) repository. This doesn't play a part in the use of OHI Business Intelligence. A client installation is therefore not necessary.

## SERVER INSTALLATION

### Software

From Oracle Database 11g Release 1, OWB is automatically installed in the same Oracle home as the database. This happens at the same time as the installation of the Oracle database software. As of release 2011.01, the OWB software only has to be present on the database server. (see also Software Installation - Oracle Warehouse Builder)

### Repository

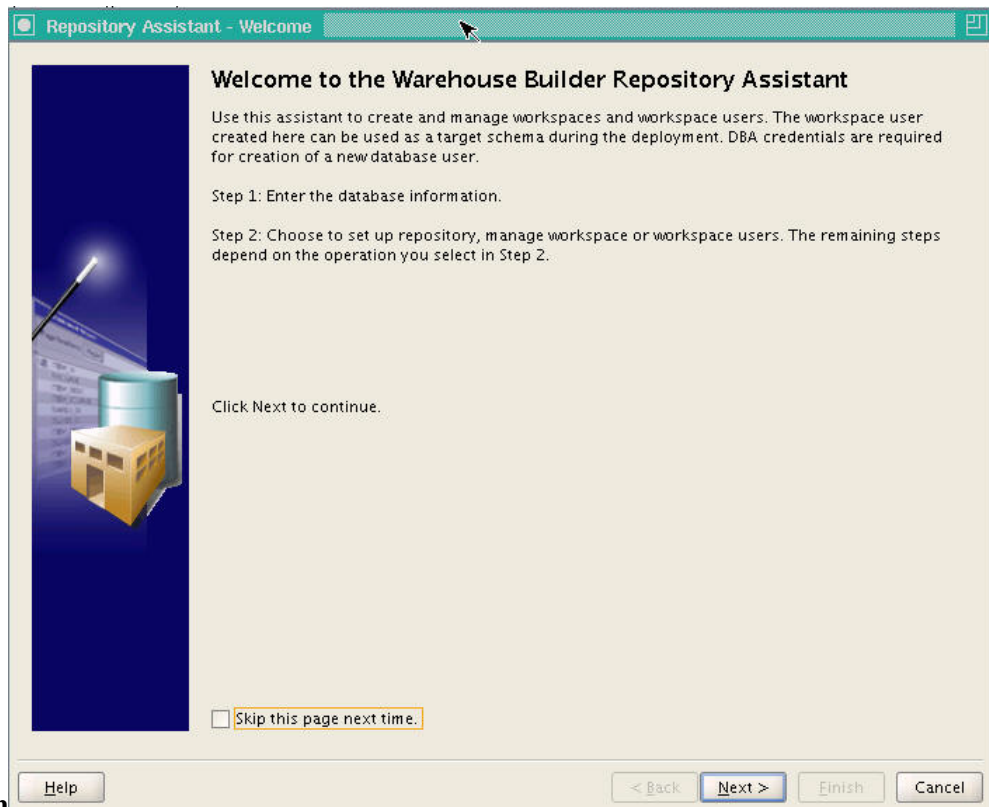
An OWB repository has to be present on the OHI Business Intelligence database server in order to run the mappings generated by OWB. Information is stored in the repository relating to installation and running of mappings.

Installation of an OWB repository is done as follows:

- 1) **.ozg\_init.env** <ohi\_db\_name>
- 2) **.ozg\_init.env DB11G**
- 3) Set read (R) rights for OTHERS on the whole of \$ORACLE\_HOME/owb/bin/unix and explicit execution (X) rights for OTHERS on OMBPlus.sh and setowbenv.sh in the \$ORACLE\_HOME/owb/bin/unix directory.
- 4) **Login to the database with SYS (as SYSDBA)**
- 5) **create tablespace OWBSYS logging**  
    **datafile '<datafiledir>/<datafilename>.dbf'**  
    **size 2048M**  
    **autoextend on**  
    **next 32M**  
    **extent management local;**
- 6) Install the new OWB 11g repository with:  
    **@\$ORACLE\_HOME/owb/UnifiedRepos/cat\_owb.sql OWBSYS**
- 7) Unlock the OWBSYS account and set a password:  
    **alter user OWBSYS account unlock;**  
    **alter user OWBSYS identified by <password>;**  
    **grant restricted session to OWBSYS;**

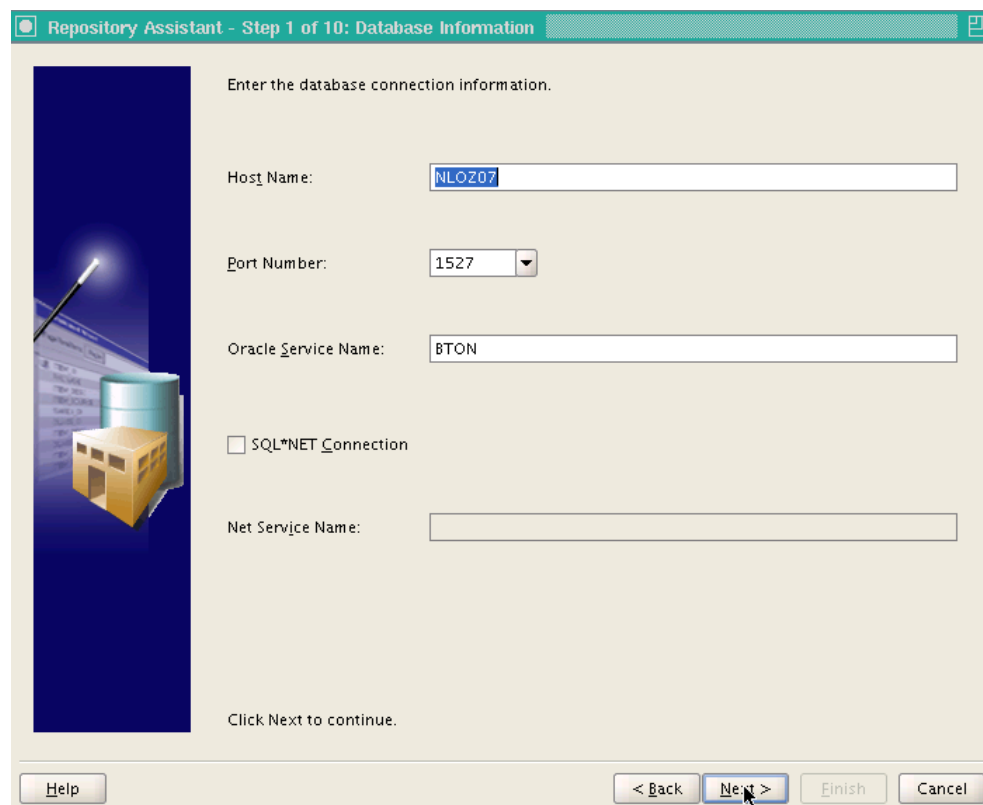
**Exit;**

8) `cd $ORACLE_HOME/owb/bin/unix`



9) `./reposinst.sh`

Click on Next>

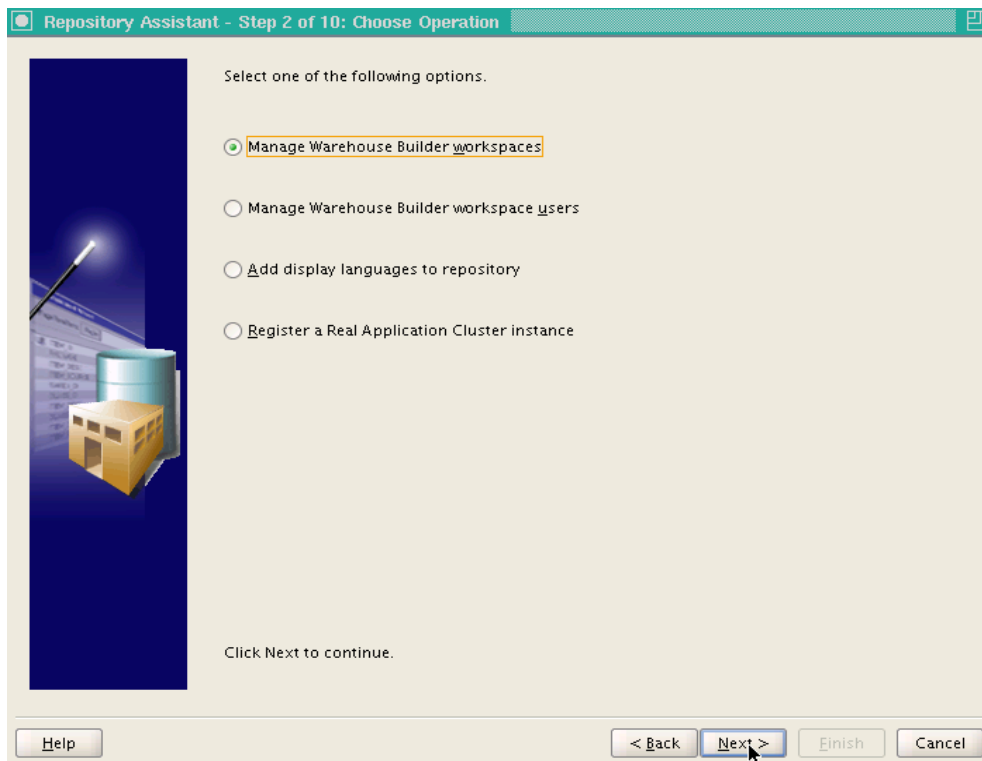


Host Name: Name of the host server

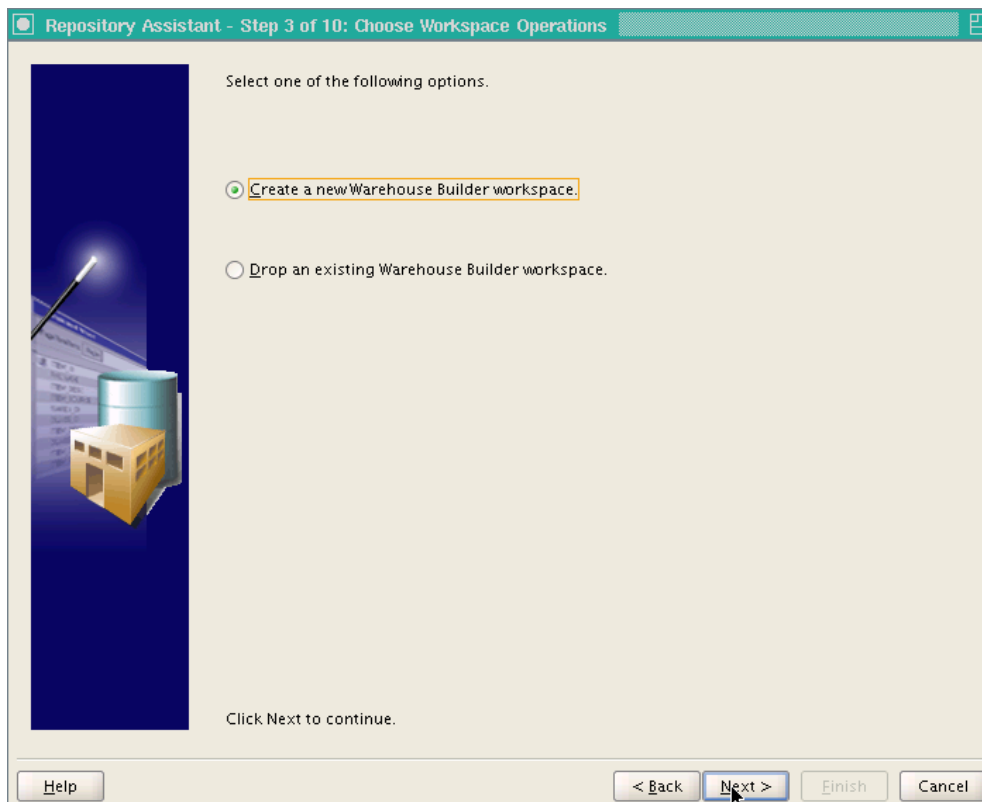
Port Number: Port of the listener for the database

Oracle Service Name: `<ohi_db_name>`

Then click on Next>

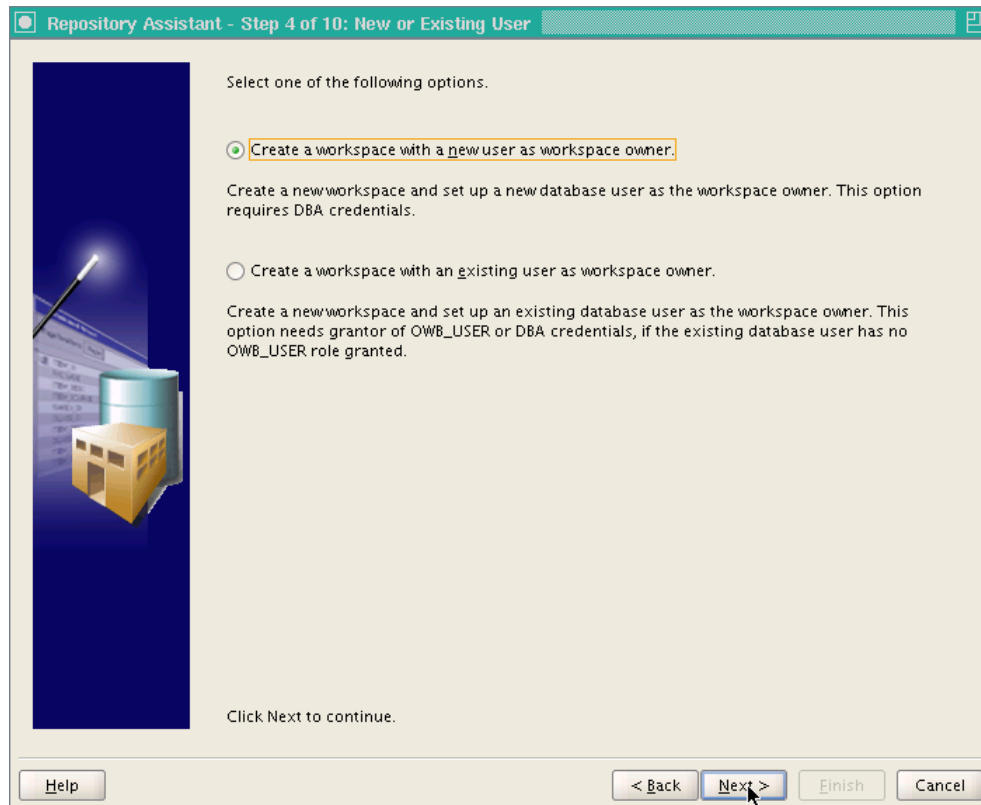


Choose "Manage Warehouse Builder workspaces" and click on Next>



Choose "Create a new Warehouse Builder workspace" and click on Next>





Repository Assistant - Step 4 of 10: New or Existing User

Select one of the following options.

☒ Create a workspace with a new user as workspace owner.

Create a new workspace and set up a new database user as the workspace owner. This option requires DBA credentials.

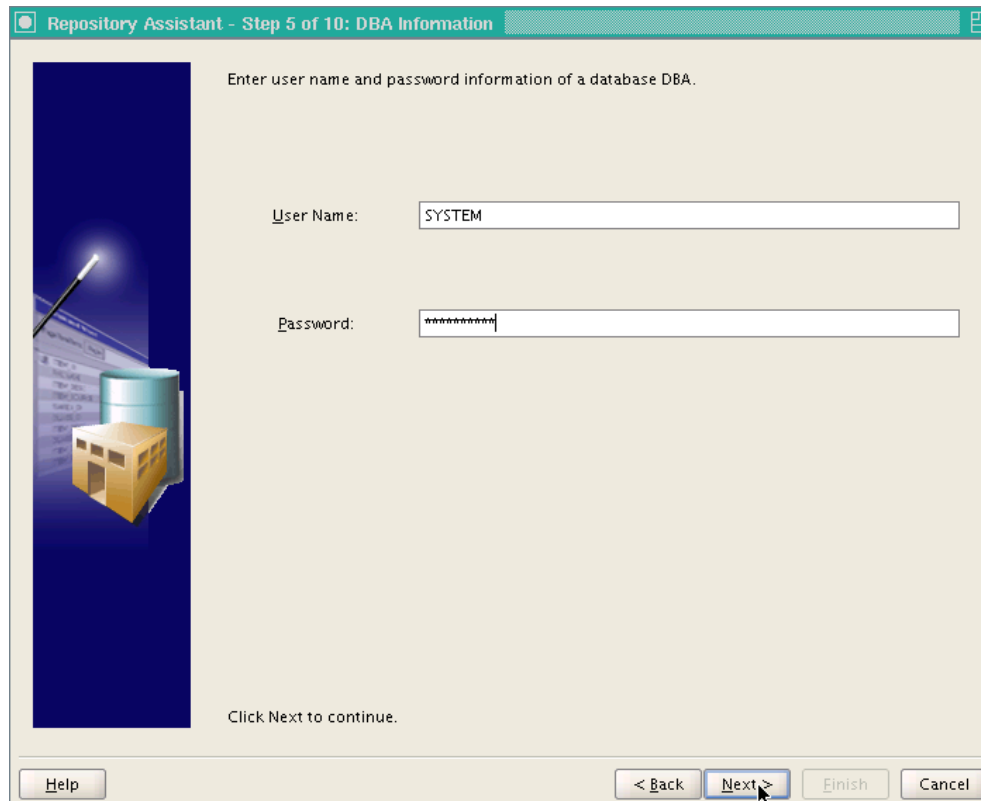
☐ Create a workspace with an existing user as workspace owner.

Create a new workspace and set up an existing database user as the workspace owner. This option needs grantor of OWB\_USER or DBA credentials, if the existing database user has no OWB\_USER role granted.

Click Next to continue.

Help < Back Next > Finish Cancel

Choose "Create a workspace with a new user as workspace owner" and click on Next>



Repository Assistant - Step 5 of 10: DBA Information

Enter user name and password information of a database DBA.

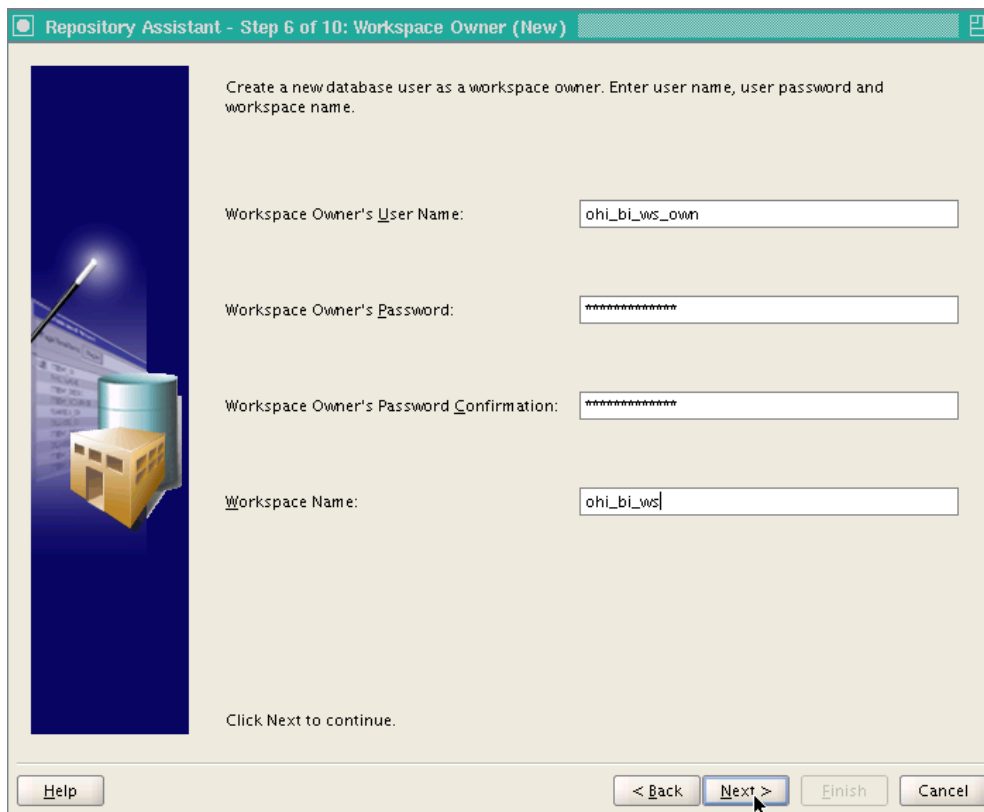
User Name: SYSTEM

Password: \*\*\*\*\*

Click Next to continue.

Help < Back Next > Finish Cancel

Enter the password for the SYSTEM user and click on Next>



Repository Assistant - Step 6 of 10: Workspace Owner (New)

Create a new database user as a workspace owner. Enter user name, user password and workspace name.

Workspace Owner's User Name: ohi\_bi\_ws\_own

Workspace Owner's Password: \*\*\*\*\*

Workspace Owner's Password Confirmation: \*\*\*\*\*

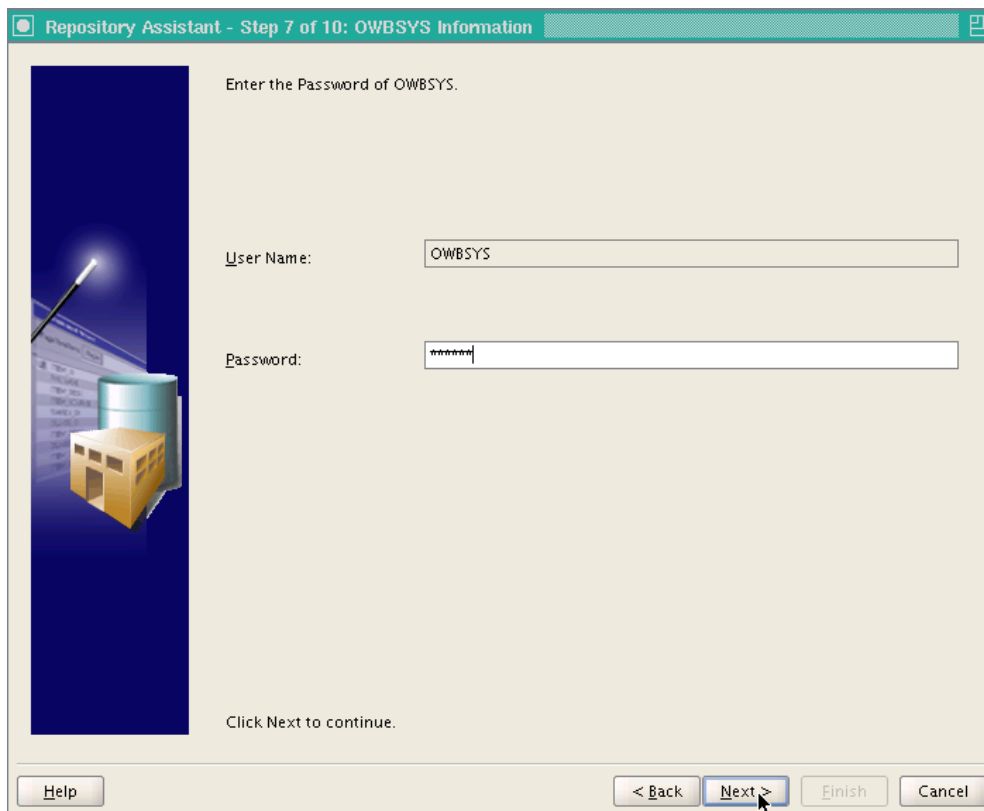
Workspace Name: ohi\_bi\_ws

Click Next to continue.

Help < Back Next > Finish Cancel

Workspace Owner's User Name: ohi\_bi\_ws\_own  
 Workspace Owner's Password: <password>  
 Workspace Owner's Password confirmation: <password>  
 Workspace Name: ohi\_bi\_ws

Click on Next>



Repository Assistant - Step 7 of 10: OWBSYS Information

Enter the Password of OWBSYS.

User Name: OWBSYS

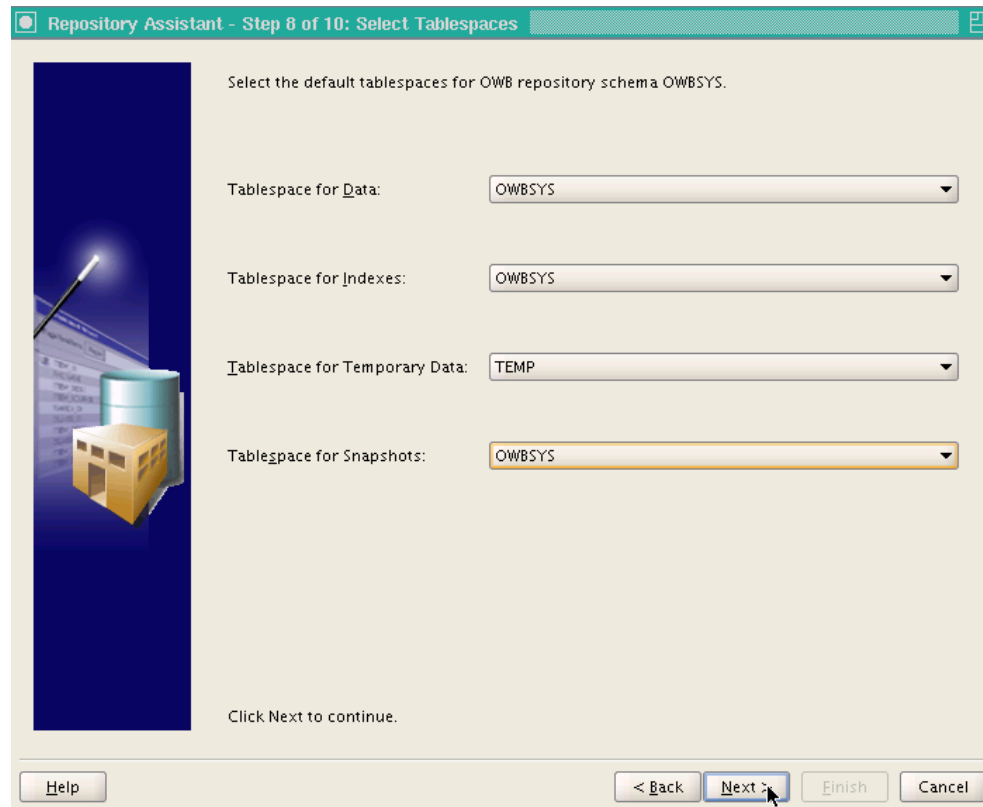
Password: \*\*\*\*\*

Click Next to continue.

Help < Back Next > Finish Cancel

User Name: OWBSYS  
 Password: <password>

Click on Next>



Repository Assistant - Step 8 of 10: Select Tablespaces

Select the default tablespaces for OWB repository schema OWBSYS.

Tablespace for Data: OWBSYS

Tablespace for Indexes: OWBSYS

Tablespace for Temporary Data: TEMP

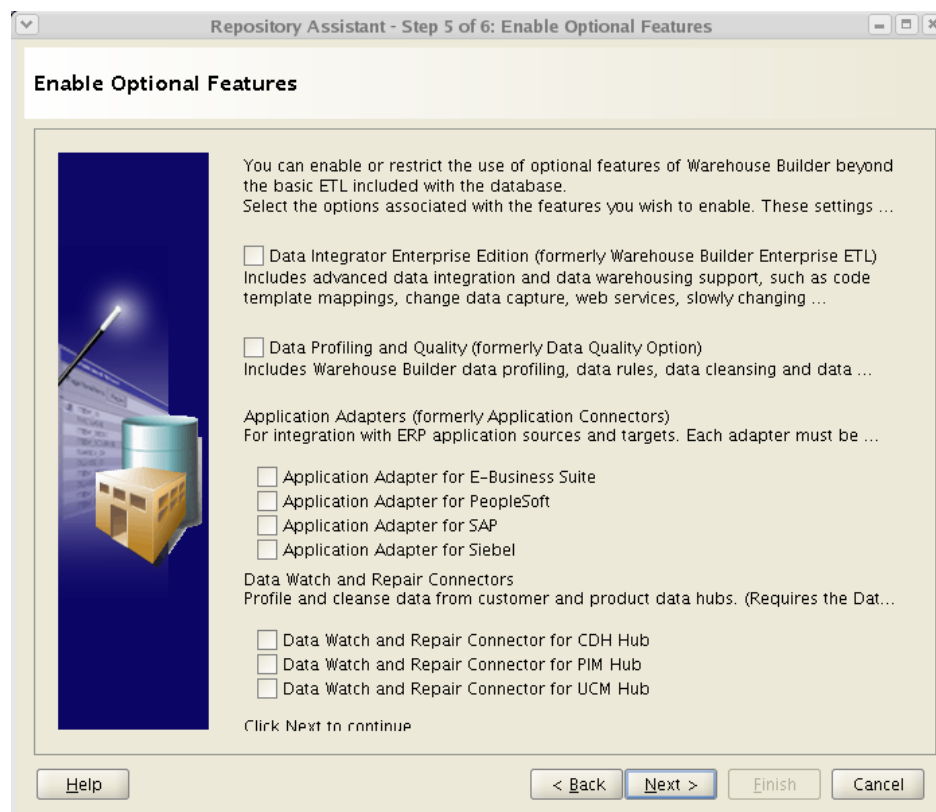
Tablespace for Snapshots: OWBSYS

Click Next to continue.

Help < Back Next > Finish Cancel

Tablespace for Data: OWBSYS  
 Tablespace for Indexes: OWBSYS  
 Tablespace for Temporary Data: TEMP  
 Tablespace for Snapshots: OWBSYS

Click on Next>



Repository Assistant - Step 5 of 6: Enable Optional Features

**Enable Optional Features**

You can enable or restrict the use of optional features of Warehouse Builder beyond the basic ETL included with the database. Select the options associated with the features you wish to enable. These settings ...

☐ Data Integrator Enterprise Edition (formerly Warehouse Builder Enterprise ETL)  
Includes advanced data integration and data warehousing support, such as code template mappings, change data capture, web services, slowly changing ...

☐ Data Profiling and Quality (formerly Data Quality Option)  
Includes Warehouse Builder data profiling, data rules, data cleansing and data ...

Application Adapters (formerly Application Connectors)  
For integration with ERP application sources and targets. Each adapter must be ...

☐ Application Adapter for E-Business Suite  
☐ Application Adapter for PeopleSoft  
☐ Application Adapter for SAP  
☐ Application Adapter for Siebel

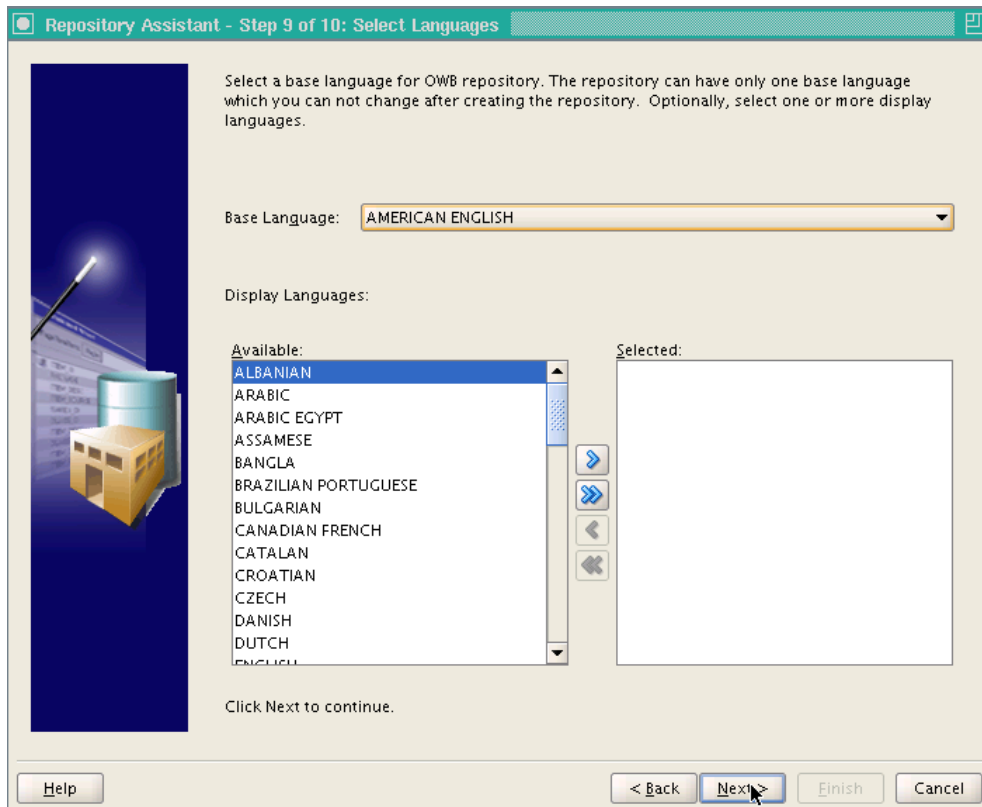
Data Watch and Repair Connectors  
Profile and cleanse data from customer and product data hubs. (Requires the Dat...

☐ Data Watch and Repair Connector for CDH Hub  
☐ Data Watch and Repair Connector for PIM Hub  
☐ Data Watch and Repair Connector for UCM Hub

Click Next to continue

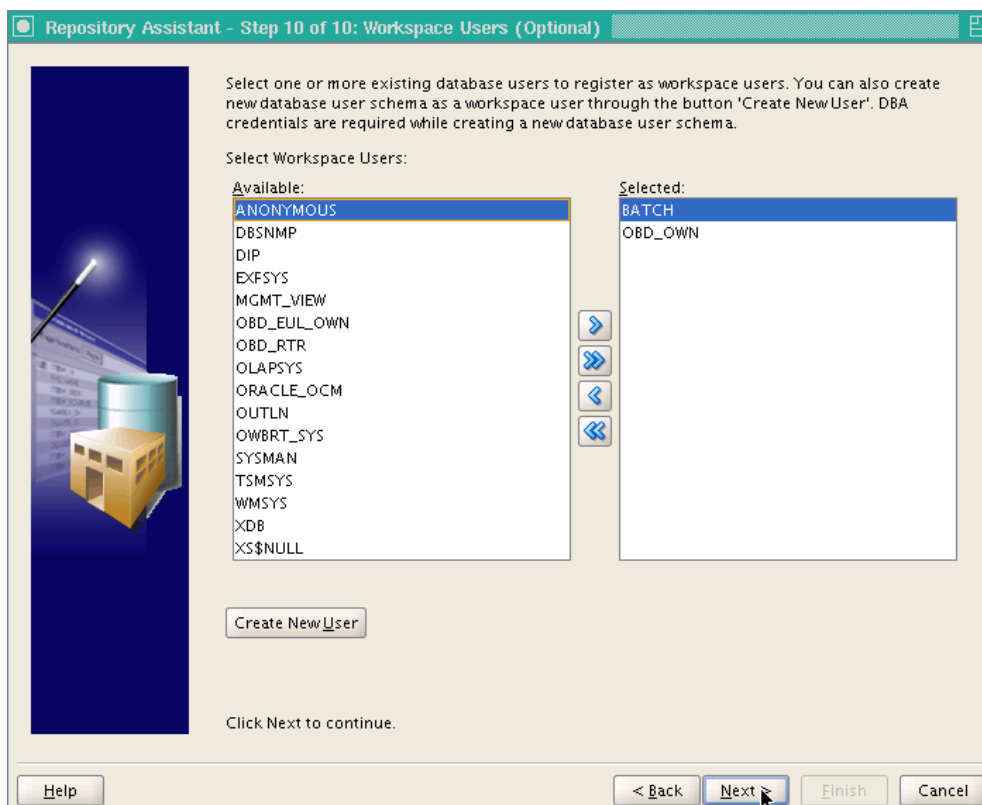
Help < Back Next > Finish Cancel

Deselect all optional features.

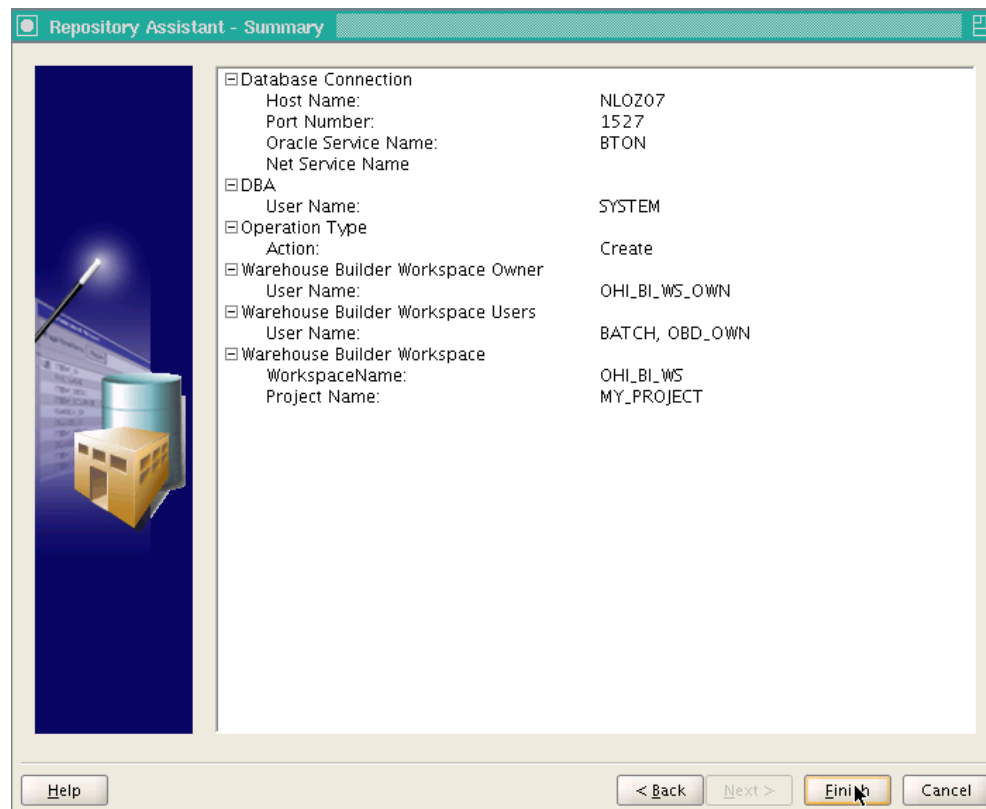


Base Language: AMERICAN ENGLISH

Click on Next>

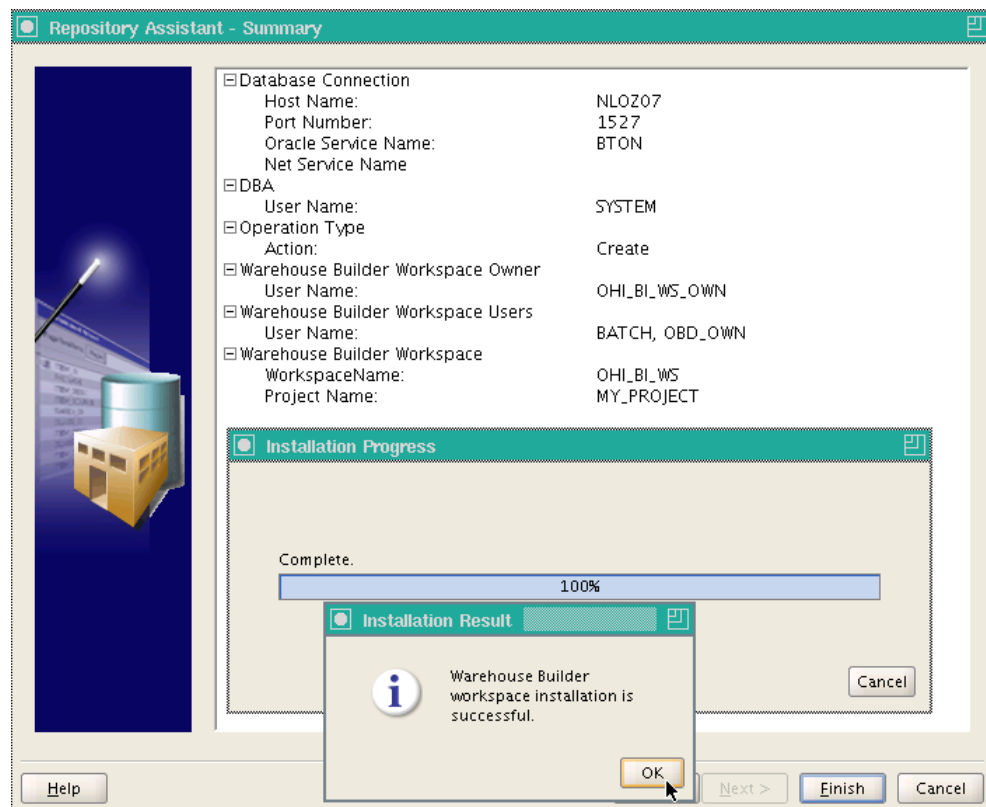


Add the users BATCH and OBD\_OWN as Workspace Users if these already exist. If not, these users will have to be added later using /reposinst.sh. Click on Next>



Check the displayed 'summary'. This should also show that no optional features will be installed. If everything is correct, click on Finish.

The repository with the OHI\_BI\_WS\_OWN workspace is now installed.



Click on OK.

#### 10) sqlplus / as sysdba

- 11) Assign grant from SYS to OHI\_BI\_WS\_OWN.

**grant restricted session to ohi bi ws own;**

- 12) Assign grants from OWBSYS.

**connect OWBSYS/<ww>**

The following grants should be assigned to OHI\_BI\_WS\_OWN.

**grant select on wb\_rt\_service\_nodes to ohi bi ws own;**

If the OBD\_OWN user exists already, the following grants can be assigned. If the OBD\_OWN user does not exist yet, this must be done later.

**grant select on wb\_rt\_audit to obd own;**

**grant select on wb\_rt\_errors to obd own;**

**grant select on wb\_rt\_warehouse\_objects to obd own;**

**grant execute on wb\_workspace\_management to obd own;**

**exit;**

- 13) Extract the files DWH\_M2667\_02.tcl and DWH\_M2667\_02\_LOC.mdl from 2012.01.0.0000.zip (xml directory) and place these in the \$OZG\_BASE/xml directory.
- 14) Navigate to the \$ORACLE\_HOME/owb/bin/unix directory
- 15) ./OMBPlus.sh \$OZG\_BASE/xml/DWH\_M2667\_02.tcl

The installation of the OWB repository is now complete.

# GENERATION AND INSTALLATION OF OHI BUSINESS INTELLIGENCE OBJECTS.

## INSTALLATION

### Release

Installation of OHI Business Intelligence (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 OHI Business Intelligence 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 OHI Business Intelligence 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 OHI Business Intelligence environment, otherwise packages may be invalidated during installation.

### System parameters

One of the supplied files is the SYS\_PARAMETERS.dat file, which must be placed in the \$OZG\_BASE directory of the relevant OHI Business Intelligence environment on the database server. This file contains the control variables for the OHI Business Intelligence loading process. These parameters are customer-specific and the value of a number of these parameters **must** be adjusted in the file **before** OHI Business Intelligence 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 OHI Business Intelligence assumes that the financial data can be retrieved from OHI Back Office.
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>

There are a number of 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 have to 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.

A further 16 parameters can be included in SYS\_PARAMETERS.dat, to also enable population of a number of self-provided flex fields, namely:

Parameter	Description
CCTAE1	The description of the first alphanumeric field of the group contract.
CCTAE2	The description of the second alphanumeric field of the group contract.
CCTAE3	The description of the third alphanumeric field of the group contract.
CCTAE4	The description of the fourth alphanumeric field of the group contract.
CCTAE5	The description of the fifth alphanumeric field of the group contract.
CCTAE6	The description of the sixth alphanumeric field of the group contract.
CCTAE7	The description of the seventh alphanumeric field of the group contract.
CCTAE8	The description of the eighth alphanumeric field of the group contract.
CCTAE9	The description of the ninth alphanumeric field of the group contract.
CCTAE0	The description of the tenth alphanumeric field of the group contract.
CCTDE1	The description of the first date field of the group contract.
CCTDE2	The description of the second date field of the group contract.
CCTDE3	The description of the third date field of the group contract.
CCTNE1	The description of the first numeric field of the group contract.
CCTNE2	The description of the second numeric field of the group contract.
CCTNE3	The description of the third numeric field of the group contract.

This shows the flex fields that should be loaded in the collective contracts dimension. The values that have to be entered here are the descriptions of the flex fields as shown in the 'Flex field' window in the Back Office subsystem of OHI Back Office. The default value is empty.

The group contract flex fields have not yet been added to the Discover End User Layer or the OBIEE RPD. If these fields are desired they have to be added manually to the repository concerned.

A further 16 parameters can be included in SYS\_PARAMETERS.dat, to also enable population of a number of procedure claim group flex fields for the authorization element, namely:

Parameter	Description
VEWAE1	The description of the first alphanumeric field of the care authorization element.
VEWAE2	The description of the second alphanumeric field of the care authorization element.
VEWAE3	The description of the third alphanumeric field of the care authorization element.
VEWAE4	The description of the fourth alphanumeric field of the care authorization element.
VEWAE5	The description of the fifth alphanumeric field of the care authorization element.
VEWAE6	The description of the sixth alphanumeric field of the care authorization element.
VEWAE7	The description of the seventh alphanumeric field of the care authorization element.
VEWAE8	The description of the eighth alphanumeric field of the care authorization element.
VEWAE9	The description of the ninth alphanumeric field of the care authorization element.
VEWAE0	The description of the tenth alphanumeric field of the care authorization element.
VEWDE1	The description of the first date field of the care authorization element.
VEWDE2	The description of the second date field of the care authorization element.
VEWDE3	The description of the third date field of the care authorization element.
VEWNE1	The description of the first numeric field of the care authorization element.
VEWNE2	The description of the second numeric field of the care authorization element.
VEWNE3	The description of the third numeric field of the care authorization element.

This shows the procedure claim group flex fields that should be loaded in the care authorization fact. The values that have to be entered here are the descriptions of the procedure claim group flex fields as shown in the 'Procedure claim group flex field' window in the Back Office subsystem of OHI Back Office. Here,



choose either 'Message' or 'Authorization' as Usage Type. The default value is empty.

Message/authorization

The other parameters concern descriptions of unknown values, for example, that **can** be adjusted if desired.

In addition a number of date system parameters have been added to the table DWH\_SYS\_PARAMETERS (which are not in the file) that are used to determine from which date a number of 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.

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 has to 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 OHI Business Intelligence. This relates to the following files:

- **SYS\_PARAMETERS.dat:**  
File with control variables for the OHI Business Intelligence load run (see previous paragraph).

```
CODE (PK)   VARCHAR2(6)
OMSCHRIJVING VARCHAR2(100)
OMSCHRIJVING_EN VARCHAR2(100)
WAARDE_CHAR VARCHAR2(80)
WAARDE_NUM NUMBER
WAARDE_DATE DATE "DDMMYYYY"
```

- **LEEFTIJD\_CATEGORIEEN.dat:**  
File with a number of age categories, e.g. youth or senior citizen.

```
LEEFTIJD (PK) NUMBER
CAT_VIJF VARCHAR2(30)
CAT_TIEN VARCHAR2(30)
CAT_VIJFTIEN VARCHAR2(30)
CAT_JEUGD VARCHAR2(30)
CAT_PENSIOEN VARCHAR2(30)
CAT_SPECIAAL VARCHAR2(30)
CAT_LOGO VARCHAR2(30)
```

- **POSTCODE\_VERRIJKINGEN.dat:**  
File with geographic data enhancements (e.g. disadvantaged neighborhood or DHV area code).

```
POSTCODE_NR (PK) NUMBER
ACHTERSTANDSWIJK VARCHAR2(1)
ADVISEUR_BUITENDIENST VARCHAR2(50)
VESTIGINGSMANAGER VARCHAR2(50)
RAYONCODE VARCHAR2(50)
CONSUMENTEN_MARKTREGIO VARCHAR2(100)
```

```
DHV_REGIODECODE  VARCHAR2(10)
DHV_REGIO_OMSCHRIJVING VARCHAR2(100)
WGR_REGIODECODE  VARCHAR2(10)
WGR_REGIO_OMSCHRIJVING VARCHAR2(100)
OAD_CODE         VARCHAR2(10)
ZIP_CODE         VARCHAR2(10)
WZV_REGIODECODE  VARCHAR2(10)
WZV_REGIO_OMSCHRIJVING VARCHAR2(100)
```

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

The files SYS\_PARAMETERS.dat and LEEFTIJD\_CATEGORIEEN.dat must be filled for correct operation of the OHI Business Intelligence load run. The file POSTCODE\_VERRIJKINGEN.dat may be left empty.

The files should be placed in the \$OZG\_BASE directory of the relevant OHI Business Intelligence environment on the database server. This is a manual process.

The content of these files can be changed with the exception of 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.

File	Table
LEEFTIJD_CATEGORIEEN.dat	STG_LEEFTIJD_CATEGORIEEN_EXT
POSTCODE_VERRIJKINGEN.dat	STG_POSTCODE_VERRIJKINGEN_EXT
SYS_PARAMETERS.dat	STG_SYS_PARAMETERS_EXT

## 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 2011.01.0.0000

### INSTALLATION OF OBI BUSINESS INTELLIGENCE REPOSITORY (RPD)

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

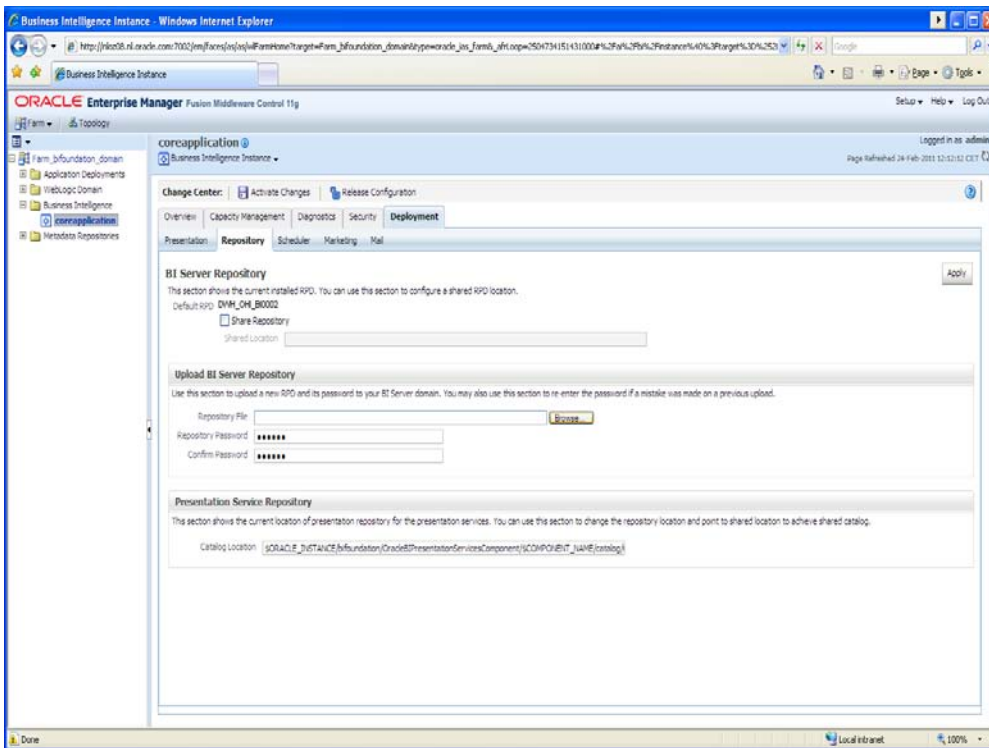
This repository includes a subject area for each star schema as well as an over-arching subject area in which the entire data model has been made accessible.

The repository can be opened using the following log-in details:

Password: adm1n1strator

It is recommended to change the password immediately after installation of this repository.

Installation of a new repository is done using the window in Oracle Enterprise Manager (Fusion Middleware Control 11g) shown below.



In this window, under the heading "Upload BI Server Repository" choose the new DWH\_OH\_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.



## PART II LOADING

### INTRODUCTION

The full load run of OHI Business Intelligence consists of three steps.

1. Population of the OHI Business Intelligence Staging Area (STG) tables from the sources (OHI Back Office and external files) by script ZRGOE01S.
2. Transformation of the data in the OHI Business Intelligence Staging Area (STG) tables via script ZRGOS01S.
3. Population of the OHI Business Intelligence Data Warehouse Area (DWH) tables from the Staging Area using script ZRGOD01S.

The scripts above may **not** be run at the same time because the Data Warehouse section is dependent on the data in the Staging Area. There may well be dependencies specified in the OHI Back Office application so that all scripts can be requested but the next script can only be started once the previous script has terminated (successfully).

In this chapter the load run is described in detail.

### EXTRACTING OHI BACK OFFICE (ZRGOE01S)

The first step is loading of the source data in the Staging Area (STG). The Staging Area is a data area to temporarily store and potentially process data from the OHI Back Office source system that is to be processed.

This data area therefore serves as a temporary buffer for storage of data and is not intended for queries by the end user. There are **no** relations made between the various tables that normally aim to be able to immediately perform a number of trivial integrity checks. These checks already take place in the source system and are therefore not necessary in OHI Business Intelligence.

Starting up this load run happens by calling the script **ZRGOE01S** via the batch scheduler in the OHI Back Office application. The script runs a number of PL/SQL packages (generated by OWB) to populate a number of tables.

This script can be started simply from the OHI Back Office menu by selecting the menu option OHI Business Intelligence → Extract OHI Back Office.

**Submit Batch Request**

Script:

---

**Batch Request**

Number:  Start Time:

Printer:

Processes:

No. of Hours:

Interval:

Optimizer Mode:

Period terminable: ☐ Trace terminable?: ☐

Trace?: ☐ Debug?: ☐

---

**Parameters**

<input checked="" type="checkbox"/>	OHI BI database	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Claims to date	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Premiums to date	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Policies to date	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Care author. to date	<input type="text"/>	<input type="text"/>	<input type="text"/>

---

**Dependencies**

	Depending on			Start Time
<input checked="" type="checkbox"/>	Func	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>

The parameters should be filled as follows.

- Fill in 'OHI BI database' with the alias of the OHI Business Intelligence database (e.g. OACC).

**Note: The script request is executed under the batch user, it is important that the database name is specified as defined in the secure external password store (wallet). This means the db\_connect\_string that is specified for the batch user on the OHI Business Intelligence environment (e.g. oacc\_batch). This db\_connect\_string should be specified as 'OHI BI database' parameter when submitting the ZRG0E01S.**

- Fill in 'Claim to date' with the date up to which the claims should be loaded on the basis of the approval date.  
If this field is left empty then the system date -1 day is used (default).
- Fill in 'Premium to date' with the date up to which the premiums should be loaded on the basis of the date and time of the status change.  
If this field is left empty then the system date -1 day is used (default).
- Fill in 'Policies to date' with the date up to which the Policies should be loaded on the basis of the modification date of the policy modification.  
If this field is left empty then the system date -1 day is used (default).
- Fill in 'Care auth. to date' with the date up to which the Care authorizations should be loaded on the basis of the approval date or date terminated of the care authorization.  
If this field is left empty then the system date -1 day is used (default).
- Fill in 'Data from time dim.' with the date from when the time dimension should be filled. The default value is '01-01-1980'.
- Fill in 'Nr of years of time dim.' with the number of years that should be filled in the time dimension. The default value is 40.
- For 'Claims?', 'Premiums?', 'In- and Out-flux?', 'Policies?' and 'Care authorizations?' enter whether the relevant star schema should be loaded (J) or not (N=default).
- For 'Hospitalization?' enter whether the field ind\_eerste\_opname in dwh\_declaraties should be updated after a load run. The default value is 'N'.

- For 'Perform checks?', enter whether data checks should be carried out when loading the data warehouse.
- For 'Check source?', enter whether the OHI Back Office source tables should be checked for integrity before extraction.
- For 'Suppress errors?', specify whether potential overridable errors from the previous load run (e.g. compatibility checks) can be generated.

Once the parameters have been filled in the script can be submitted to the Batch Scheduler with 'Submit request'.

A number of checks are first carried out before the extraction of data from OHI Back Office is started:

1. Did the last DWH load run (ZRGOD01S) terminate successfully? If this is not the case the extraction is not performed unless the value 'J' [meaning yes] has been entered for the parameter 'Override faults?'.
2. In the event that the claim star schema is loaded, it is checked whether all financial transactions have been duplicated in the OHI Back Office source environment. If this is not the case, the loading of claims is stopped.
3. In the event that the policies star schema is loaded, it is checked whether all policy events in the OHI Back Office source environment have been processed into modifications. If this is not the case, the load run is still started but it may occur that in the compatibility checks the number of members in OHI Business Intelligence deviates from the number in OHI Back Office.
4. If the star schemas are loaded for which a date to can be specified then a check is performed on the specified date to value:
  - If the specified value is empty, the value of the date to parameter is set to the highest date -1 of the data being loaded. The date -1 is necessary because the data of the highest date may be an incomplete day.

For example: if claims are loaded on May 27 and the highest approval date of the claims in OHI Back Office is May 25 then the date to is filled with May 24.

- If a value has been given for the date to parameter, the above check is also performed; in that case the final value is determined by the given or the found value, whichever is lower. However, a day is not subtracted unless the specified date is the same as the system date.

For example: if claims are loaded on May 27, the date specified is May 26 and the highest approval date of the claims in OHI Back Office is May 25, then the date to is set to May 25.

For example: if claims are loaded on May 27, the date specified is May 27 and the highest approval date of the claims in OHI Back Office is May 27, then the date to is set to May 26.

- If the value is before the date to of the previous load run, then the load run is not performed for the fact concerned. This is reported in the extraction process log.
1. The current release of OHI Business Intelligence is checked to see if it matches the current release of OHI Back Office. This check takes place at the patchset level; 2011.03.5, for example. If the releases do not match at the patchset level, it may not be loaded.
  2. If the 'Check source?' value is set to 'J' [meaning yes], it is checked that statistics are present for all tables in OHI Back Offices that serve as a source for the load run and that all integrity rules have been activated and successfully validated. This concerns both the declarative constraints (PK, UK, FK and CHECK constraints, via USER\_CONSTRAINTS) and procedural constraints (CDM Ruleframe via ALG#BUSINESS\_RULES).

If there are tables for which no integrity rules have been activated and successfully validated, then these are excluded. It is recommended to first correct the data in the source system and validate the integrity rules. It is possible to opt to continue loading; this is done by specifying a parameter.

It is checked whether the source tables in OHI Back Office actually have statistics. If no statistics are present, this may lead to inefficient execution scheduling during the extraction due to the fact that in



that case 'dynamic sampling' is used. To avoid this, an error report is issued if there are tables without statistics.

## TRANSFORMING DATA (ZRGOS01S)

The second step is the execution of a number of transformations in the Staging Area (STG). The Staging Area is a data area for temporarily transforming data that may be loaded in the extraction phase to the correct format and potentially processing it.

Starting this step happens by calling the script **ZRGOS01S** via the batch scheduler in the OHI Back Office application. The script runs a number of PL/SQL packages (generated by OWB) to enhance a number of tables with 'calculated' data and transfer the data structure to star schema.

This script can be started simply from the OHI Back Office menu by selecting the menu option OHI Business Intelligence → Transform data.

The screenshot shows the 'Submit Batch Request' dialog box. The 'Script' field is set to 'ZRGOS01S Transform data'. The 'Batch Request' section includes fields for 'Number' (1020573), 'Start Time', 'Interval', 'Optimizer Mode' (set to 'ALL\_ROWS'), 'Period terminable', 'Trace?', 'Trace terminable?', and 'Debug?'. The 'Parameters' section has a table with one row containing 'OHI BI database' and several empty rows. The 'Dependencies' section has a table with one row containing 'Func' and several empty rows.

The name of the OHI BI database in which the transformations should be performed has to be specified as a parameter. Make sure that the OHI BI database name given here is the same as that specified for the batch user in the 'wallet'.

After the transformation step has run, a compatibility check between OHI Back Office and OHI Business Intelligence will be performed. The results of this compatibility check are shown in the log of the ZRGOS01S script. More information on available checks can be found in the chapter **checks**.

## LOADING OHI BUSINESS INTELLIGENCE (ZRGOD1S)

The final step in the process is loading the data from the staging area into the Data Warehouse Tables. The Data Warehouse tables are intended for query and analysis purposes by the end user. The data model is set up as a dimensional model (star schema) and can contain both atomic data and aggregates. This model fits the way in which users approach the data (dimensions and facts).

Starting up the load run happens by calling the script **ZRGOD01S** in the OHI Back Office application. The script runs, among other things, a number of PL/SQL packages (generated by OWB) to populate the tables.

This script can be started simply from the OHI Back Office menu by selecting the menu option OHI Business Intelligence → Load OHI Business Intelligence.

The screenshot shows the 'Submit Batch Request' dialog box. The 'Script' field is set to 'ZRGOD01S Load OHI Business Intelligence'. The 'Batch Request' section includes fields for 'Number' (1020574), 'Start Time', 'Interval', 'Optimizer Mode' (set to 'ALL\_ROWS'), 'Period terminable', 'Trace?', 'Trace terminable?', and 'Debug?'. The 'Parameters' section has a table with columns for 'OHI BI database', 'Suppress errors?', and 'N'. The 'Dependencies' section has a table with columns for 'Depending on' and 'Start Time'.

As well as the name of the OHI BI database it should be specified as a parameter whether potential non-fatal errors arising during the transformation process (namely compatibility checks) may be overridden.

## UNDOING LOAD RUNS (ZRGO004S)

If, after refreshing OHI Business Intelligence, it is discovered that errors have arisen and it is not possible to restore from a backup, the script 'Undo load runs' can be used for a specific star schema to remove one or more load runs from OHI Business Intelligence at the same time. The registration of the date to on which the relevant star schema was refreshed is also restored. After running ZRGO004S the data can be reloaded using the regular load run (ZRGOE01S, ZRGOS01S and ZRGOD01S).

In the event of a software error or conversion, data usually only needs to be removed for one star schema. If, for example, first claims are loaded, then policies, and then claims again and the claims star schema appears to contain errors in the data, it is not desirable that the policies also have to be removed. However it is also possible to remove data for multiple star schemas at once.

With the script ZRGO004S load runs can be removed for the following star schemas:

1. Claims
2. Policies
3. Premiums
4. Care authorizations

**Submit Batch Request**

Script:

**Batch Request**

Number:  Start Time:

Printer:

Processes:  Interval:

No. of Hours:  Optimizer Mode:

Period terminable: ☐ Trace terminable?: ☐

Trace?: ☐ Debug?: ☐

**Parameters**

Database	Parameter	Value
<input checked="" type="checkbox"/> OHI BI database		
<input type="checkbox"/> Claims?	N	
<input type="checkbox"/> Premiums?	N	
<input type="checkbox"/> Policies?	N	
<input type="checkbox"/> Care authorizations?	N	

**Dependencies**

Depending on	Start Time
<input checked="" type="checkbox"/> Func	
<input type="checkbox"/>	
<input type="checkbox"/>	

If the script 'Undo loadruns' is executed while the current loadrun has not yet terminated, the current loadrun is cancelled first.



**Note:** If the script 'Undo load runs' is executed while the current load run has not yet terminated, the load run of ALL star schemas loaded during the current load run is canceled. Regardless of whether the star schemas were loaded correctly and regardless of the supplied script parameters.

### Script parameters

Parameter	Values	Hint	Mandatory?
Database		Name of the OHI Business Intelligence database	Y
Owner	Default OBD_OWN	OBD schema owner	Y
Claims?	'J' 'N'	Undo claims star schema load run(s)?	Y
Premiums?	'J' 'N'	Undo premiums star schema load run(s)?	Y
Policies?	'J' 'N'	Undo policies star schema load run(s)?	Y
Care authorizations?	'J' 'N'	Undo care authorizations star schema load run(s)?	Y
Date	Default empty	Load runs on and after this date are removed. Empty = only remove the most recent load run.	Y

## CHECKS

At the end of each step any errors that may have arisen are printed in the log of the script request concerned.

If the script request parameter 'Perform check?' is set to 'J' [meaning yes] for the extraction process, then data checks are performed during the warehouse load run and after completion. These check whether

particular data in OHI Business Intelligences matches OHI Back Office. These checks are available for the claims (including aggregated claims), premiums, care authorization and policies star schemas. The totals and number of differences in OHI Back Office and OHI Business Intelligence are printed in the log.

It is also possible to perform the star schema checks separately from the load run using script ZRGO003S ("Perform compatibility checks"). Here, the name of the OHI Business Intelligence database needs to be specified as well as for which star schema(s) the check should be run. A period can also be specified for which it must be checked. If this period is not specified then the period read in during the last load run is checked.

The following checks are available:

Star schema	Check	Description
Claims	DCACTL1	Check aggregated claims
Claims	DCECTL1	Check booked amount per date imported, general ledger account and claim number
Claims	DCECTL2	Check booked amount per general ledger unit/account/category/product, date imported and accounting period
Claims	DCECTL3	Check cost price per approval date and claim number
Claims	DCECTL4	Check coverage amount per risk-bearing insurance company
Claims	DCECTL5	Check deductible amounts per claim line
Premiums	PRECTL1	Check gross premium amount per renewal date and member
Premiums	PRECTL2	Check net premium amount per renewal date and member
Premiums	PRECTL3	Check net premium amount per risk-bearing insurance company
Policies	VZECTL1	Check number of members per branded product combination and member
Care authorizations	ZVNCTL1	Check number per procedures per authorization period
Care authorizations	ZVNCTL2	Check amount per procedure per authorization period

Individual checks can be turned on and off using procedures

WBX\_LAADPROCES\_CONTROLES.ZET\_CONTROLE\_AAN and ZET\_CONTROLE\_UIT respectively. If all checks need to be turned on/off, this can be done using the procedures ZET\_ALLE\_CONTROLES\_AAN and ZET\_ALLE\_CONTROLES\_UIT respectively. These procedures must be performed under the OBD\_OWN schema on the OHI Business Intelligence database.

## AUDIT INFORMATION

In OHI Business Intelligence, during the load run audit information is established for the newly read-in records. This means that each loaded record receives a LAADRUN\_ID that refers to a specific record in the audit table (STG\_SYS\_AUDIT). In this audit record, information is recorded about the time of loading and extraction, the code of the source system and the load dates of the various facts of the load run.

This audit data is also transferred to the Data Warehouse in table DWH\_SYS\_AUDIT.

## LOG INFORMATION

OHI Business Intelligence has an internal audit mechanism that keeps log information up to date with mappings generated by OWB (among others: number of records selected, number inserted, updated, number of errors arising and why).

This information can be requested using a few views. These are the views WBX\_LAADRUNS\_VW, WBX\_MAPPING\_VW and WBX\_LAADRUN\_ERRORS\_VW. These views are included in the schema of OBD\_OWN. The view WBX\_LAADRUNS\_VW gives an overview of all load runs that have been performed. For each load run it will be shown which star schemas were loaded, what the run times were,

which period was loaded and whether a compatibility check was performed. The view `WBX_LAADRUN_ERRORS_VW` gives an overview for each script request ID of all mappings that produced an error report during a load run. The view shows which mapping has produced an error message for each script request, at what moment this occurred and what the error message was. The view `WBX_LAADRUNS_VW` gives an overview of all data warehouse mappings that have been run.

As well as this, an additional logging mechanism is implemented, because not all packages run during the load run are generated by OWB and the standard log is therefore not complete.

The tables `WBX_LOG_EVENTS` and `WBX_LOG_MESSAGES` have been added so that log information can also be stored for non-OWB packages.

Furthermore, the output of the Unix load scripts is written to disk in log and out files in `$OZG_BASE/log` or `out/<user>`. In these it is possible to find out whether everything ran successfully.

## RESOLVING ERRORS

If errors have arisen then in most cases the run can be restarted. Loading of the Staging Area can be done as many times as desired, as the Staging tables are made empty for the read in.

[see also Part III Application management]

## CHECKING STATUS REQUEST LOAD SCRIPTS

When the scripts are run the status of the load run can be followed to see if the load run has started, is still running, has finished, or failed.

Log in to the OHI Back Office application. Navigate to 'System' → 'Batch request' to 'Maintain'. For the script name, type the name of the script that is requested and click on 'Perform search request'. The window looks like this:

The screenshot shows the 'Maintain Batch Request' window with the 'Batch Requests' tab selected. It contains a table of batch requests with the following data:

Number	Batch	Status	Outst. Msgs?	Time Started	Time Aborted	Runtime	No. of Subpr.	To Process	Pe Pi
1020568	SYS1124S	Finished	✓	01-03-2012 16:04:49	01-03-2012 16:04:57	8s	0		
1020568	SYS1124S	Failed	✗	01-03-2012 15:52:40			0		
1020547	FIN2105S	Finished	✓	01-03-2012 11:49:46	01-03-2012 11:50:10	24s	2	167	
1020546	FIN2105S	Finished	✓	01-03-2012 11:49:38	01-03-2012 11:50:09	31s	2	229	
1020502	ZRG3012S	Finished	✓	29-02-2012 11:08:20	29-02-2012 11:08:39	19s	1	3	
1020484	SYS1107S	Finished	✓	29-02-2012 09:59:48	29-02-2012 09:59:53	5s	0		
1020483	SYS1107S	Finished	✓	29-02-2012 09:56:27	29-02-2012 09:56:32	5s	0		
1020482	SYS1107S	Finished	✓	29-02-2012 09:50:30	29-02-2012 09:50:38	8s	0		
1020462	ZRG3012S	Finished	✓	29-02-2012 09:31:50	29-02-2012 09:32:07	17s	3	3	
1020451	ZRG4203S	Finished	✓	28-02-2012 17:29:35	28-02-2012 17:29:38	3s	2	1	
1020450	ZRG4203S	Finished	✓	28-02-2012 17:28:56	28-02-2012 17:28:57	1s	0		
1020447	ZRG4203S	Finished	✓	28-02-2012 17:26:45	28-02-2012 17:26:49	4s	2	1	
1020444	ZRG4203S	Finished	✓	28-02-2012 17:18:11	28-02-2012 17:18:53	42s	2	4	

At the bottom of the window, there is a 'Description' field with the value 'Automatic Processing' and a 'Details' field.

## VERIFYING THE LOAD

An important task of the OHI Business Intelligence Administrator is the checking of the load run. That doesn't just mean checking that a process has completed, but also checking that the load run was successful. For example, a process can terminate correctly even though no data is loaded. It is therefore not sufficient just to check that a process has terminated.

**NOTE!!!: If the status of the script in the window above is 'Complete', this does not automatically mean that the script ran successfully. The administrator must perform additional checks to determine if the process ran successfully!**

## PART III APPLICATION MANAGEMENT

### INTRODUCTION

This chapter describes aspects of both the technical and functional application management of OHI Business Intelligence.

### FUNCTIONAL MANAGEMENT

#### Logging and validation

Validation of the OHI Business Intelligence 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
laadrn_id	Unique generated key
release_nr	OHI Business Intelligence 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-flux 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.
abonnementsshonorarium_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.
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.

Column	Description
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.
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	OHI Business Intelligence 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

*These views are also available in the OBI EE repository.*

## **WBX logging**

Since there are also a number of non-OWB packages that run during the load run for which no logging exists in the OWB audit logging described above, two logging tables have been added in which logging is also written for the non-OWB packages.

This concerns 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

## Results of the compatibility checks

The views below provide detailed information on the compatibility checks performed between OHI Back Office and OHI Business Intelligence.

### 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
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_accord	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 OHI Business Intelligence

### 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 OHI Business Intelligence

### 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 OHI Business Intelligence.

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 OHI Business Intelligence
aantal_bo	Number of memberships in OHI Back Office

### 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_yanaf	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 OHI Business Intelligence

These views are also available in the Discoverer End User Layer.

## Logging load scripts

The output of the scripts started through the OHI Back Office application are 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 OHI Business Intelligence. This is particularly convenient from a security standpoint.

This account must be created in the OHI Business Intelligence 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 OHI Business Intelligence 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 OHI Business Intelligence 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 has to have a reference to these directories, these directory objects are created in the OHI Business Intelligence 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.

## TECHNICAL MANAGEMENT

### Cleaning up OWB Audit data

As described earlier, OWB generates audit information while running the OWB mappings. This information is stored in the run time tables of the OHI Business Intelligence repository schema OWBSYS (WB\_RT\_% tables). These tables are located in the OWBSYS tablespace. Every time that it's loaded this tablespace grows.

To avoid this table space becoming too large it is possible to delete (part of) the audit data. A package is available for this in the OWBSYS schema. This is the package **WB\_RT\_API\_PURGE** that contains a number of 'purge' procedures that can remove data in a variety of ways:

purge_execution	All audit data is cleaned
purge_execution (exec_id)	Audit data with rte_id = exec_id is cleaned
purge_execution (start_date, end_date)	All data from the period between the start and end date is cleaned

This audit data forms an important source of information for how a load run has run and for resolving problems. It is therefore important to consider carefully whether the information is genuinely no longer needed before running this procedure.

This data can also be removed using the script purge\_audit\_template.sql in the directory \$ORACLE\_HOME/owb/rtp/sql/.

### New releases of OHI Business Intelligence

When new releases of OHI Business Intelligence are brought out new versions of this documentation will also be supplied via iProjects files.

The Oracle Health Insurance installation menu OZGPATCH must be used for the installation of new OHI Business Intelligence 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\_Declaraties
- DWH\_Declaraties\_Agg
- DWH\_Deelname\_Mutaties
- DWH\_Premies
- DWH\_Verbintenis
- DWH\_Verzekeren
- 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\_TOE\_Uittredingen

this can be done using:

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

## Compression of partitioned fact tables.

As of OHI Business Intelligence 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 OZGPATCH.pl is available for this. This choice is the same for OHI Back Office and OHI Business Intelligence, however the following submenu choices are only shown for OHI Business Intelligence.

```
INFO : =====
INFO : = Redefine a table: =
INFO : = C - Compress tables and indexes =
INFO : = U - Uncompress (revert compression) =
INFO : =====
INFO : Which table redefinition would you like to execute (C, U)?
```

If 'Compress tables and indexes' 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 have to be rebuilt. Option '870 - Rebuild unusable indexes' in OZGPATCH.pl is available for this. Rebuilding these 'unusable' indexes can also take a long time if the indexes concern large fact tables.

If 'Uncompress (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.

## OWB Runtime service

As of OHI Business Intelligence version 2010.01, use is made of OWB11g. As a consequence, as well as the OHI Business Intelligence OBD\_OWN schema, an OWB Runtime repository schema OWBSYS and a workspace owner OHI\_BI\_WS\_OWN are also available for the administration of the installation and execution of OWB mappings (see [Server installation](#)).

To enable performance of this administration, the repository makes use of the OWB Runtime Service. This is a process on the server that is started by the OS user oracle when starting the OHI Business Intelligence database.

There are a number of scripts available relating to the management of this runtime service (in \$ORACLE\_HOME/owb/rtp/swl) and these can be run in SQLPlus under the OWBSYS account:

show_service.sql	This script shows the current status of the service.
start_service.sql	This script starts the service.
stop_service.sql	This script stops the service.
service_doctor.sql	This script can be used to perform a diagnosis of the service if it will not start.
reset_repository.sql	Sets the password of the repository owner
1	(OWBSYS) and initializes a number of repository-specific values.

See the header of these scripts for a more detailed explanation of their use.

## PART IV APPENDICES

### APPENDIX A. CLONING OHI BUSINESS INTELLIGENCE ENVIRONMENTS

From a management standpoint, it is sometimes necessary to make a copy of an OHI Business Intelligence environment and place it in another environment, for example to make a production environment available on a test environment.

An OHI Business Intelligence environment consists of the repository schema OWBSYS, the OWB workspace owner OHI\_BI\_WS\_OWN and the OHI Business Intelligence schema OBD\_OWN.

Seeing as environment-specific information is stored in the repository, a number of things have to 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

For a description of the cloning of an OHI Business Intelligence environment there is a page available on My Oracle Support. See:

How To Update Warehouse Builder After A Database Cloning [ID 434272.1]

This also refers to a Java based tool for correcting the locations used by OHI Business Intelligence:

How To Use The OWB 11.2.0.3 Java Tool oracle.wh.util.locationhelper.LocationTool for Failover [ID 1362745.1]

### APPENDIX B. USE OF WBX\_LAADRUN\_ERRORS\_VW AND WBX\_MAPPINGS\_VW VIEWS.

A number of extra steps are required to use views WBX\_LAADRUN\_ERRORS\_VW and WBX\_MAPPINGS\_VW. This is because, in contrast to older OWB versions, from OWB 11gR2 makes use of workspaces. The WBX\_LAADRUN\_ERRORS\_VW and WBX\_MAPPINGS\_VW views calculate OWB public views in the OWBSYS schema that is subdivided into workspaces. Before the view is calculated it must be specified for which workspace the view should be used. This is done as follows:

Extra grants must be assigned from OWBSYS to OBD\_OWN:

```
grant select on wb_rt_audit to obd_own with grant option;  
grant select on wb_rt_errors to obd_own with grant option;
```

Users who want to calculate the view should be set up as workspace users (of workspace OHI\_BI\_WS) using the OWB Repository assistant (reposinst.sh).

Therefore before the view is used, the following command has to be run:

```
Execute owbsys.wb_workspace_management.set_workspace('OHI_BI_WS','OHI_BI_WS_OWN');
```

This can potentially be solved using a LOGON trigger:

```
create or replace trigger gebruiker_logon_trigger
```

```
    after logon on gebruiker.schema  
begin  
owbsys.wb_workspace_management.set_workspace('OHI_BI_WS','OHI_BI_WS_OWN');  
end;
```

For this, an explicit grant has to first be assigned to 'user' from OWBSYS:

```
grant execute on wb_workspace_management to user;
```

In the example above replace 'user' with the user that wishes to use the named views.