

Oracle® Healthcare Data Warehouse Foundation

Secure Installation and Configuration Guide

Release 6.1

E27595-06

August 2016

Copyright © 2012, 2016 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Contents

Preface	v
Audience	v
Documentation Accessibility	v
Finding Information and Patches on My Oracle Support	v
Finding Documentation on Oracle Technology Network	vii
Related Documents	vii
Conventions	viii
1 Overview	
2 General Security Principles	
2.1 Keeping Software Up to Date	2-1
2.2 Keeping Up-to-Date on the Latest Security Information Critical Patch Updates	2-1
2.3 Configuring Strong Passwords on the Database	2-1
2.4 Following the Principle of Least Privilege	2-2
3 Database Security Features	
3.1 About Database Vault	3-1
3.2 About Audit Vault	3-1
3.3 About Tablespace Encryption	3-2
3.4 Secure SQL*NET	3-2
4 Prerequisites	
5 Installing Oracle Healthcare Data Warehouse Foundation	
5.1 HDWF Installation Overview	5-1
5.1.1 Installation Options	5-2
5.1.2 Installation Types	5-2
5.1.3 Installing from Unix or Linux 64-bit Operating System	5-2
5.2 Installation Log Files	5-3
5.3 HDWF Server Installation	5-3
5.3.1 Fresh Installation of HDWF 6.1	5-3
5.3.2 Upgrading HDWF from Version 6.0 to 6.1	5-15
5.4 HDWF Remote Installation	5-24

5.4.1	Fresh Remote Installation of HDWF 6.1.....	5-25
5.4.2	Remote HDWF Upgrade from Version 6.0 to 6.1.....	5-37
5.5	Post Installation Data Migration when Upgrading from HDWF 6.0 to 6.1.....	5-47

6 Troubleshooting

6.1	Seed Data Procedure Parameter	6-1
6.2	Error Logging and Debugging.....	6-1

7 Guidelines for Initial Load and Utility SQL Scripts

7.1	Guidelines for Initial Load.....	7-1
7.2	HDWF Utility SQL Scripts.....	7-2
7.2.1	Exadata Environment Utility Scripts	7-2

Preface

This document describes secure configuration practices for Oracle Healthcare Data Warehouse Foundation (HDWF).

Audience

This document is intended for system administrators, implementation professionals, and consultants.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Finding Information and Patches on My Oracle Support

Your source for the latest information about Oracle Healthcare Analytics Data Integration is Oracle Support's self-service Web site, My Oracle Support (formerly MetaLink).

Before you install and use an Oracle software release, always visit the My Oracle Support Web site for the latest information, including alerts, release notes, documentation, and patches.

Creating a My Oracle Support Account

You must register at My Oracle Support to obtain a user name and password account before you can enter the Web site.

To register for My Oracle Support:

1. Open a Web browser to <http://support.oracle.com>.
2. Click the **Register here** link to create a My Oracle Support account. The registration page opens.
3. Follow the instructions on the registration page.

Signing In to My Oracle Support

To sign in to My Oracle Support:

1. Open a Web browser to <http://support.oracle.com>.
2. Click **Sign In**.
3. Enter your user name and password.
4. Click **Go** to open the My Oracle Support home page.

Searching for Knowledge Articles by ID Number or Text String

The fastest way to search for product documentation, release notes, and white papers is by the article ID number.

To search by the article ID number:

1. Sign in to My Oracle Support at <http://support.oracle.com>.
2. Locate the Search box in the upper right corner of the My Oracle Support page.
3. Click the sources icon to the left of the search box, and then select Article ID from the list.
4. Enter the article ID number in the text box.
5. Click the magnifying glass icon to the right of the search box (or press the Enter key) to execute your search.

The Knowledge page displays the results of your search. If the article is found, click the link to view the abstract, text, attachments, and related products.

In addition to searching by article ID, you can use the following My Oracle Support tools to browse and search the knowledge base:

- **Product Focus** — On the Knowledge page, you can drill into a product area through the Browse Knowledge menu on the left side of the page. In the Browse any Product, By Name field, type in part of the product name, and then select the product from the list. Alternatively, you can click the arrow icon to view the complete list of Oracle products and then select your product. This option lets you focus your browsing and searching on a specific product or set of products.
- **Refine Search** — Once you have results from a search, use the Refine Search options on the right side of the Knowledge page to narrow your search and make the results more relevant.
- **Advanced Search** — You can specify one or more search criteria, such as source, exact phrase, and related product, to find knowledge articles and documentation.

Finding Patches on My Oracle Support

Be sure to check My Oracle Support for the latest patches, if any, for your product. You can search for patches by patch ID or number, or by product or family.

To locate and download a patch:

1. Sign in to My Oracle Support at <http://support.oracle.com>.
2. Click the **Patches & Updates** tab.

The Patches & Updates page opens and displays the Patch Search region. You have the following options:

- In the Patch ID or Number is field, enter the primary bug number of the patch you want. This option is useful if you already know the patch number.

- To find a patch by product name, release, and platform, click the Product or Family link to enter one or more search criteria.
- 3. Click **Search** to execute your query. The Patch Search Results page opens.
- 4. Click the patch ID number. The system displays details about the patch. In addition, you can view the Read Me file before downloading the patch.
- 5. Click **Download**. Follow the instructions on the screen to download, save, and install the patch files.

Finding Documentation on Oracle Technology Network

The Oracle Technology Network Web site contains links to all Oracle user and reference documentation. To find user documentation for Oracle products:

1. Go to the Oracle Technology Network at <http://www.oracle.com/technetwork/index.html> and log in.
2. Mouse over the Support tab, then click the **Documentation** hyperlink. Alternatively, go to Oracle Documentation page at <http://www.oracle.com/technology/documentation/index.html>
3. Navigate to the product you need and click the link.
For example, scroll down to the Applications section and click Oracle Health Sciences Applications.
4. Click the link for the documentation you need.

Related Documents

For more information, see the following documents:

Oracle Healthcare Data Warehouse Foundation

- *Oracle Healthcare Data Warehouse Foundation Release Notes*
- *Oracle Healthcare Data Warehouse Foundation Readme*
- *Oracle Healthcare Data Warehouse Foundation Data Dictionary*
- *Oracle Healthcare Data Warehouse Foundation Glossary*
- *Oracle Healthcare Data Warehouse Foundation Electronic Technical Reference Manual (eTRM)*
- *Oracle Healthcare Data Warehouse Foundation Secure Installation and Configuration Guide (this document)*
- *Oracle Healthcare Data Warehouse Foundation Programmer's Guide*
- *Oracle Healthcare Data Warehouse Foundation Quick Start Guide*
- *Oracle Healthcare Data Warehouse Foundation Seed Data Reference Guide*
- *Oracle Healthcare Data Warehouse Foundation Interface Table Electronic Technical Reference Manual (eTRM)*
- *Oracle Healthcare Data Warehouse Foundation Interface Table Programmer's Guide*

Oracle Healthcare Analytics Data Integration

- *Oracle Healthcare Analytics Data Integration Release Notes*

- *Oracle Healthcare Analytics Data Integration Installation Guide*
- *Oracle Healthcare Analytics Data Integration Security Guide*
- *Oracle Healthcare Analytics Data Integration Administrator's Guide*
- *Oracle Healthcare Analytics Data Integration Programmer's Guide*
- *Oracle Healthcare Analytics Data Integration Rules Catalog*
- *Oracle Healthcare Analytics Data Integration Attribute Level Mappings*
- *Oracle Healthcare Analytics Data Integration Electronic Technical Reference Manual (eTRM)*

Oracle Healthcare Analytics Data Integration Application Toolkit Documentation

- *Oracle Healthcare Analytics Data Integration Release Notes*
- *Oracle Healthcare Analytics Data Integration Application Toolkit Installation Guide*
- *Oracle Healthcare Analytics Data Integration Application Toolkit Security Guide*
- *Oracle Healthcare Analytics Data Integration Application Toolkit Administrator's Guide*
- *Oracle Healthcare Analytics Data Integration Application Toolkit Programmer's Guide*
- *Oracle Healthcare Analytics Data Integration Application Toolkit Electronic Technical Reference Manual (eTRM)*
- *Oracle Healthcare Analytics Data Integration Application Toolkit Programmer's Guide for EHA Self-Service Analytics*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Overview

This document describes secure configuration practices for Oracle HDWF.

Healthcare providers require insight from data that is spread across clinical, financial, administrative, and research systems. Oracle HDWF enables better clinical and business insights by serving as a single repository to deliver an enterprise view of all provider data.

This single, integrated-view data warehouse repository simplifies deployment of analytic applications, yielding the insights required to unlock electronic information. This helps providers:

- identify best practices and develop practice guidelines.
- measure clinical and operational performance against defined metrics.
- improve decision making and prevent mistakes.

Healthcare managers and executives can ultimately leverage information from the data warehouse to identify areas of the enterprise with superior performance, analyze and understand the relevant processes, and spread the knowledge throughout the organization to establish new best practice guidelines.

The HDWF data model is in third normal form (3NF) and stores data elements at the atomic level. It also supports bi-temporal versioning for all data along with functional and system dates and times. It is customizable and extensible, well documented.

General Security Principles

The following principles are fundamental to using any application securely.

2.1 Keeping Software Up to Date

One of the principles of good security practice is to keep all software versions and patches up to date.

2.2 Keeping Up-to-Date on the Latest Security Information Critical Patch Updates

Oracle continually improves its software and documentation. Critical Patch Updates are the primary means of releasing security fixes for Oracle products to customers with valid support contracts. They are released on the Tuesday closest to the 17th day of January, April, July and October. Oracle highly recommends that customers apply these patches as soon as they are released.

2.3 Configuring Strong Passwords on the Database

Although the importance of passwords is well known, the following basic rule of security management is worth repeating:

Ensure all your passwords are strong passwords.

You can strengthen passwords by creating and using password policies for your organization. For guidelines on securing passwords and for additional ways to protect passwords, refer to the Oracle Database Security Guide specific to the database release you are using.

You should modify the following passwords to use your policy-compliant strings:

- Passwords for the database default accounts, such as SYS and SYSTEM.
- Passwords for the database application-specific schema accounts, such as HDM and HDI
- You should not configure a password for the database listener as that enables remote administration. For more information, refer to the section *Removing the Listener Password* of *Oracle® Database Net Services Reference 11g Release 2 (11.2)*.

Refer to the *Oracle 11gR2 Database Security Guide* for more information.

2.4 Following the Principle of Least Privilege

The principle of least privilege states that users should be given the least amount of privilege to perform their jobs. Overly ambitious granting of responsibilities, roles, grants - especially early on in an organization's life cycle when people are few and work needs to be done quickly - often leaves a system wide open for abuse. User privileges should be reviewed periodically to determine relevance to current job responsibilities. Before executing DDL scripts to create HDWF, a database user should be created with the specified limited set of privileges. DBA access should not be given to the user. For complete privileges to be granted to HDWF user, refer to the following section.

Before executing DDL scripts to create HDWF, a database user should be created with the specified limited set of privileges. DBA access should not be given to the user. For complete privileges to be granted to HDWF user, refer to the following section.

Database Security Features

The following principles are fundamental to using any application securely.

3.1 About Database Vault

Oracle Database Vault restricts access to specific areas in an Oracle database from any user, including users who have administrative access. For example, you can restrict administrative access to employee salaries, customer medical records, or other sensitive information. This enables you to apply fine-grained access control to your sensitive data in a variety of ways. It hardens your Oracle Database instance and enforces industry standard best practices in terms of separating duties from traditionally powerful users. Most importantly, it protects your data from super-privileged users but still lets them maintain your Oracle databases.

Oracle Database Vault is an integral component of your enterprise. With Oracle Database Vault, you address the most difficult security problems remaining today: protecting against insider threats, meeting regulatory compliance requirements, and enforcing separation of duty. You configure Oracle Database Vault to manage the security of an individual Oracle Database instance. You can install Oracle Database Vault on standalone Oracle Database installations, in multiple Oracle homes, and in Oracle Real Application Clusters (Oracle RAC) environments.

For frequently asked questions about Oracle Database Vault, visit

http://www.oracle.com/technology/deploy/security/database-security/database-vault/dbv_faq.html.

For Oracle Technology Network (OTN) information specific to Oracle Database Vault, visit

<http://www.oracle.com/technology/deploy/security/database-security/database-vault/index.html>.

Note: Database Vault is a separately licensed feature of the database.

3.2 About Audit Vault

Oracle Audit Vault automates the audit collection, monitoring, and reporting process. It turns audit data into a key security resource for detecting unauthorized activity. Consider using this feature to satisfy compliance regulations such as SOX, PCI, and HIPAA, and to mitigate security risks. Audit Vault is a separately licensed component.

To know more about Oracle Audit Vault, visit

<http://www.oracle.com/technetwork/database/database-technologies/audit-vault-and-database-firewall/index.html>

3.3 About Tablespace Encryption

Transparent Data Encryption is one of the three components of the Oracle Advanced Security option for Oracle Database 11g Release 2 Enterprise Edition. It provides transparent encryption of stored data to support your compliance efforts. Applications do not have to be modified and continues to work seamlessly as before. Data is automatically encrypted when it is written to disk, and automatically decrypted when accessed by the application. Key management is built in to the Tablespace Encryption feature, eliminating the complex task of creating, managing, and securing encryption keys. The Advanced Security Option is a separately licensed component.

To know more about Oracle advance security options, visit

<http://www.oracle.com/technetwork/database/options/advanced-security/index.html>

3.4 Secure SQL*NET

SQL*NET enables both client-server and server-server communications across any network. With SQL*Net, databases and their applications can reside on different computers and communicate as peer applications.

Advanced Security Option or Advanced Network Option can be used for encryption of SQL*Net traffic between the database and application servers. This certification and encrypting of SQL*Net traffic is only relevant for highly secure implementations that require encryption of all network traffic. The application servers and database must be solely contained in a secure data center. Performance must be tested before implementing encryption in a production environment. Organizations with stringent security requirements would benefit from a limited deployment of encryption of all direct SQL*Net traffic from outside the data center. The Advanced Security Option (ASO) is an optional component of the Oracle Database and is an extra cost.

To know more about SQL*NET, visit

http://docs.oracle.com/cd/A57673_01/DOC/net/doc/NWUS233/ch1.htm

Prerequisites

Before installation, make sure that the database instance and tablespace are already created.

1. Install Oracle Database 11g Release 2 (11.2.0.4) instance with a Database Administrator's guidance.
2. Create the HDWF database instance and the location of the data file. Note down the service name and verify the existence of the data file location.
3. Create a temporary tablespace for the HDWF schema and the HDWF Interface schema based on your requirements. If suitable, you can also use the default **temp** tablespace instead of creating a new one.
4. Use only lowercase folder names in all platforms that are to be created and used by the installer.
5. To create an encrypted tablespace during fresh installation of HDWF 6.1, there are certain prerequisite steps to be followed. For information on setting up your environment for tablespace encryption, see *Oracle Database* documentation.
6. If you are installing HDWF 6.1 on a Exadata database machine, see the following sections to familiarize yourself with Exadata documentation:
 - [Chapter 5](#)
 - Exadata Machine in the *Oracle® Healthcare Data Warehouse Foundation Programmer's Guide*.
 - Exadata Implementation in the *Oracle® Healthcare Data Warehouse Foundation Interface Tables Programmer's Guide*.
7. If you are upgrading HDWF 6.0 to 6.1, see [Section 5.5](#), if applicable, for data migration details.

When running the HDWF installer, ensure that:

- The parameters specified to connect to the required database are accurate. You can verify this using the following command:

```
SQL>connect <username>@" (DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)
(HOST=<hostname>) (PORT=<port number>)) (CONNECT_DATA=(SERVICE_
NAME=<service_name>))) "
```

Enter the password when prompted.

Substitute the variables (<variable_name>) with the actual values you have provided during installation using the Oracle Universal Installer (OUI).

If the above command does not generate a connection to the required database, check the parameters you have provided.

-
- There are no trailing and leading spaces when entering parameters in the installer.
 - If you are rerunning the initial install script after a failure, check that you have deleted the tablespace and (or) users that were created as part of the previous unsuccessful installation.
 - Take a backup of both interface tables schema and HDM schema before upgrading from HDWF 6.0.
 - In a fresh installation, check that the data file path provided while creating the tablespace is correct. OUI does not check the path existence.
 - Table compression strategy is decided based on the number of updates in HDWF tables. If the number of updates is high (as a result of versioning in HDWF tables), select the OLTP compression instead of HCC (QUERY HIGH).
 - For a fresh installation of HDWF 6.1 on an Exadata environment, selecting the compression type as HCC (QUERY HIGH) will slow down the first few incremental loads.
 - If the installation fails, view the generated log files. For details on the log files, see [Section 5.2](#).
8. Ensure that you have set the `NLS_LENGTH_SEMANTICS` parameter to either `CHAR` or `BYTE`, based on your requirements.
- For HDWF Globalization Support information, see *Oracle® Database Globalization Support Guide* and set your database character set accordingly.
9. Since the installer script is executed in the SH shell of Linux or Unix, convert the installer execution shell to SH shell.
10. Copy the `oraInst.loc` file from `<ORACLE_HOME>` to the installation directory. Create a new directory named *inventory* in the installation directory. Update `oraInst.loc` to reflect the path of this newly created inventory directory.

Enter the following details in `oraInst.loc`:

```
inventory_loc=< HDWF_HOME >/inventory
```

```
inst_group=dba
```

Note: If `oraInst.loc` file is not found in `ORACLE_HOME`, create a new file named `oraInst.loc`.

Installing Oracle Healthcare Data Warehouse Foundation

This section describes how to install HDWF securely.

Oracle recommends that you capture the following information required to install HDWF before starting the installation. It proves useful for cross-verification during the installation process.

Table 5–1 HDWF Configuration

HDWF Configuration	Value
Type of Install: Fresh or Upgrade (from HDWF 6.0 to HDWF 6.1)	
ORACLE_HOME name and location	
HDWF home (HDWF installation location)	
Database server host name and port number	
HDWF database service name	
System user credentials	
Tablespace encryption	
HDWF tablespace name	
HDWF tablespace initial size (in MB)	
HDWF temporary tablespace name	
HDWF schema user credentials	
HDWF data file location name	
HDWF interface tablespace name	
HDWF interface tablespace initial size (in MB)	
HDWF interface temporary tablespace name	
HDWF interface schema user credentials	
HDWF interface data file location name	
Would you like to overwrite the HDWF Oracle seed data?	
Would you like to overwrite the HDWF interface Oracle seed data?	
Are you installing on Exadata database system?	
Compression Method: HCC or OLTP	

5.1 HDWF Installation Overview

Oracle HDWF installer uses OUI, a user-interface driven installation tool to install HDWF data warehouse.

The media pack from eDelivery contains the HDWF installer for Linux 64-bit OS. Following is the media pack folder structure:

`MEDIA_PACK_LOCATION`

```
/hdwf61
  /software
    /install
      /stage1
```

where `MEDIA_PACK_LOCATION` refers to the location of the HDWF media pack.

The installer acts in two phases:

- In the first phase, the installer collects information that is required for HDWF installation. During this phase, you can move backward and forward through the screens, revising your entries.
- During the second phase, the installer runs the scripts to set up the HDWF 6.1 database according to the information provided in the first phase.

5.1.1 Installation Options

Select one of the following options based on your installation needs:

- Server installation - Select this option if you are running the HDWF installer directly on a database server. See [Section 5.3](#).
- Remote installation - Select this option if you are installing HDWF remotely on a database server by running the installer from a different machine. See [Section 5.4](#).

5.1.2 Installation Types

The installer provides the following installation types:

- Complete - This option performs a new installation of HDWF 6.1. It does not create a new database instance. Instead, it creates a new tablespace and a new schema in this newly created tablespace. While an existing database instance can be used for a new installation of HDWF 6.1, an existing tablespace cannot be used.
- Upgrade - This option upgrades an existing HDWF version 6.0 to 6.1. The upgrade installation uses an existing schema. No new schema is created. The existing data files for interface tables and HDWF tables are used.

5.1.3 Installing from Unix or Linux 64-bit Operating System

1. Extract the contents of the HDWF media pack to your system.
2. Ensure that `ORACLE_HOME`, `ORACLE_SID`, and `PATH` environment variables are setup in your session.
3. Set the X Window display output to the IP address of your local computer. Use the standard format for IP addresses and append `:0` at the end. For example (based on your shell):

```
setenv DISPLAY 198.51.100.89:0
```

```
or export DISPLAY 198.51.100.89:0
```

4. For Linux 64-bit OS, navigate to the `<media_pack_location>/hdwf61/software/install/` folder.

5. Change protections on files to 755:

```
chmod 755 *
```

6. Start the following OUI:

```
./runInstaller -invPtrLoc < HDWF_HOME >/oraInst.loc
```

5.2 Installation Log Files

While installing HDWF, the OUI generates the following log files:

- `installActions<timestamp>.log` - this log file records the action of the installer and can be used to diagnose issues with the installer.
- `oraInstall<timestamp>.out` - this output file records the output of SQL scripts run by the installer.
- `oraInstall<timestamp>.err` - this error file records the errors from the SQL scripts run by the installer.

The log files are time stamped and each installation session creates a new log file.

On a Linux machine, the log files are located at `$ORACLE_BASE/oraInventory/logs`.

For example:

```
/u01/app/oraInventory/logs
```

In addition to the OUI generated log files, HDWF install log files are generated at:

```
/<HDWF_HOME>/oracle.hsgbu.hdwf/oracle/hdwf61/install/logs
```

While reporting any problems that occur during HDWF installation, ensure that you include all the above log files.

5.3 HDWF Server Installation

The installer creates the following directory structure on the server it is run:

```
hdwf_home
```

```
  /oracle.hsgbu.hdwf
```

```
    /oracle
```

```
      /hdwf61
```

```
        /install
```

```
          /scripts (HDWF SQL scripts)
```

```
          /logs (Installation log files)
```

```
          /rpt (Installation report files)
```

`hdwf_home` refers to the root installation directory of the Oracle HDWF product. Create an empty directory for this purpose.

5.3.1 Fresh Installation of HDWF 6.1

For a fresh installation, perform the following steps:

1. The **Welcome** screen appears on running the installer. Click **Next** to continue the installation.

Figure 5–1 Welcome Screen



2. In the **Select Installation Type** screen:

Figure 5–2 Select Installation Type



a. Select **Complete** to perform a fresh installation of HDWF 6.1.

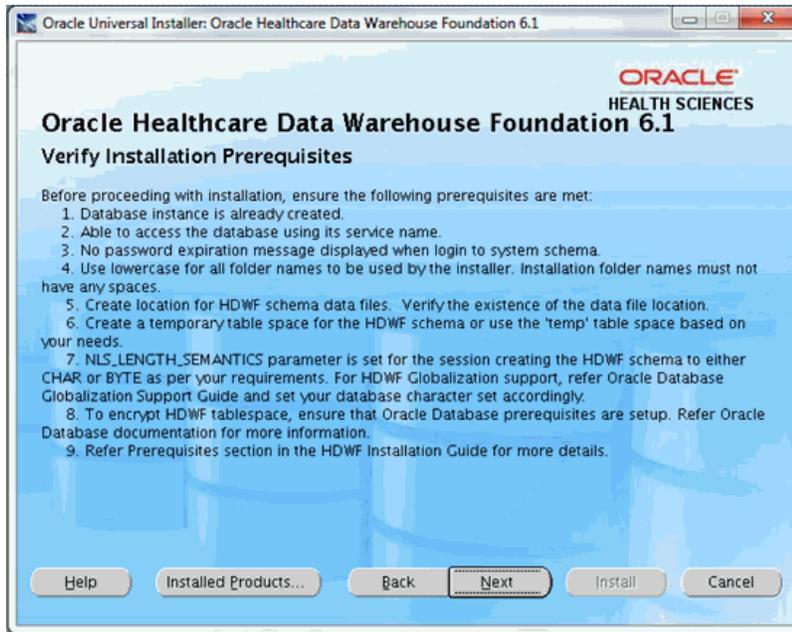
- b. Click **Next**.
3. In the **Specify Home Details** screen:

Figure 5–3 Specify Home Details



- a. Specify the root installation directory of HDWF 6.1.
-
- Note:** Use lowercase for directory names, for all platforms, to be created and used by the installer.
-
- b. Click **Next**.
 4. In the **Verify Installation Prerequisites** screen, verify the prerequisites mentioned before installation, and click **Next**.

Figure 5–4 Verify Installation Prerequisites



5. In the **Oracle Home Configuration** screen:

Figure 5–5 Oracle Home Configuration



- a. Enter the ORACLE_HOME location. This refers to the location of the Oracle database installation on the machine where the installer is run.
 - b. Click Next.
6. In the **HDWF Database Configuration** screen:

Figure 5–6 HDWF Database Configuration



The screenshot shows a window titled "Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1". The main content area has a blue background with the Oracle Health Sciences logo at the top right. The title "Oracle Healthcare Data Warehouse Foundation 6.1" and subtitle "HDWF Database Configuration" are prominently displayed. Below this, the instruction "Enter HDWF database server details." is shown. There are four input fields: "Database server host name:" with the value "aue038svr", "Database server port number:" with the value "1521", "System user password:" with a masked password "*****", and "HDWF database service name:" with the value "aue038dbsvc". At the bottom, there is a note: "HDWF database service name - The service name of the HDWF database instance." and a row of buttons: "Help", "Installed Products...", "Back", "Next", "Install", and "Cancel".

- a. Enter the database server host name where the HDWF schema is created.
 - b. Enter the database server port number.
 - c. Enter database system user password.
 - d. Enter the HDWF database service name.
 - e. Click Next.
7. In the **HDWF Tablespace Encryption Configuration** screen:

Figure 5–7 HDWF Tablespace Encryption Configuration

- a. Encrypting the tablespace requires prerequisites to be set.
If the prerequisites are set for tablespace encryption, click **Yes**, else click **No**.
 - b. Click **Next**.
8. In the **HDWF HDM Tablespace and Schema Configuration** screen:

Figure 5–8 HDWF HDM Tablespace and Schema Configuration

Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1

ORACLE
HEALTH SCIENCES

Oracle Healthcare Data Warehouse Foundation 6.1

HDWF HDM Tablespace and Schema Configuration

Enter HDWF HDM tablespace and schema details.

HDWF HDM tablespace name:

HDWF HDM tablespace initial size (in MB):

HDWF HDM temporary tablespace name:

HDWF HDM schema user:

HDWF HDM schema password:

Note:

1. As a pre-requisite, HDM temporary tablespace have to be created or use 'temp' tablespace.
2. HDM tablespace is created during this installation. Enter a non-existent tablespace name.
3. HDM schema is created during this installation. Enter a non-existent schema name.
4. Tablespace initial size - Determine the initial size based on your needs. For production, 4096MB (4GB) initial size is recommended.

Help Installed Products... Back Next Install Cancel

- Enter the HDWF HDM tablespace name.
- Enter the HDWF HDM tablespace initial size in MB.
- Enter the HDWF HDM temporary tablespace name created as part of the prerequisites.

Note: The installer does not create the temporary tablespace. It should be created as part of the prerequisite steps or the default **temp** tablespace can be used.

- Enter the HDWF HDM schema user name.
 - Enter the HDWF HDM schema user password.
 - Click Next.
9. In the **HDWF HDM Tablespace and Schema Configuration** screen:

Figure 5–9 HDWF HDM Tablespace and Schema Configuration

- a. Enter the location of the HDWF data file in the machine or ASM specific syntax including the trailing slash.

This is the directory on the database server where the data files for the application are created during the installation.

This value is not validated and must be entered in the machine or ASM specific syntax including the trailing slash.

For example,

Unix: /u01/oradata/dbname/

ASM: +DATA_EX02/hashas01/datafile/

Note:

- ASM location must always start with + and should be entered with + as shown above.
 - Failure to enter the trailing slash will not stop the installation. However, the data file name will be prefixed with the folder name.
 - The HDWF data file name will be the name of tablespace entered. For example, if the HDWF tablespace name is hdwf_ts, the data file created by the installer is hdwf_ts.dbf.
-
-

- b. Click Next.

10. In the **HDWF Interface HDI Tablespace and Schema Configuration** screen:

Figure 5–10 HDWF Interface HDI Tablespace and Schema Configuration

Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1

ORACLE
HEALTH SCIENCES

Oracle Healthcare Data Warehouse Foundation 6.1

HDWF Interface HDI Tablespace and Schema Configuration

Enter HDWF Interface HDI tablespace and schema details.

HDWF interface HDI tablespace name:

HDWF interface HDI tablespace initial size (in MB):

HDWF interface HDI temporary tablespace name:

HDWF interface HDI schema user:

HDWF interface HDI schema password:

Note:

1. As a pre-requisite, HDI temporary tablespace have to be created or use 'temp' tablespace.
2. HDI tablespace is created during this installation. Enter a non-existent tablespace name.
3. HDI schema is created during this installation. Enter a non-existent schema name.
4. Tablespace initial size - Determine the initial size based on your needs. For production, 4096MB (4GB) initial size is recommended.

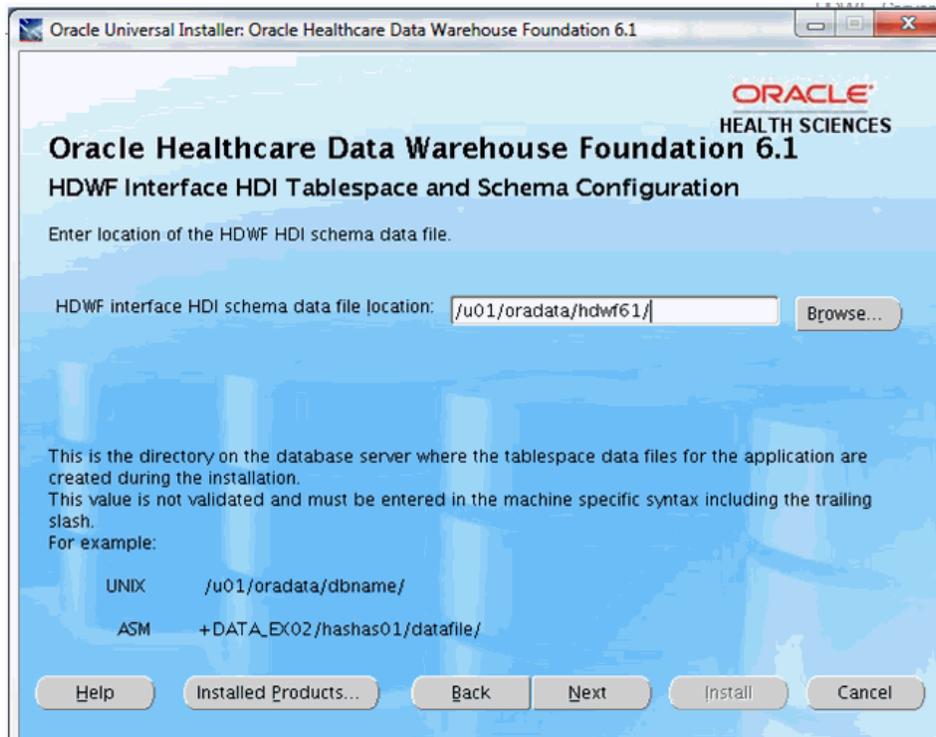
Help Installed Products... Back Next Install Cancel

- Enter the HDWF interface HDI tablespace name.
- Enter the initial size of the HDWF interface HDI tablespace in MB.
- Enter the HDWF temporary HDI tablespace name created as part of the prerequisites.

Note: The installer does not create the temporary tablespace. It should be created as part of the prerequisites.

- Enter the HDWF interface HDI schema user.
- Enter the HDWF interface HDI user password.
- Click **Next**.

11. In the **HDWF Interface HDI Tablespace and Schema Configuration** screen:

Figure 5–11 HDWF Interface Tablespace and Schema Configuration

- a. Enter the location of the HDWF interface data file in the machine or ASM specific syntax including the trailing slash.

This is the directory on the database server where the data files for the application are created during the installation.

This value is not validated and must be entered in the machine or ASM specific syntax including the trailing slash.

For example,

Unix: /u01/oradata/dbname/

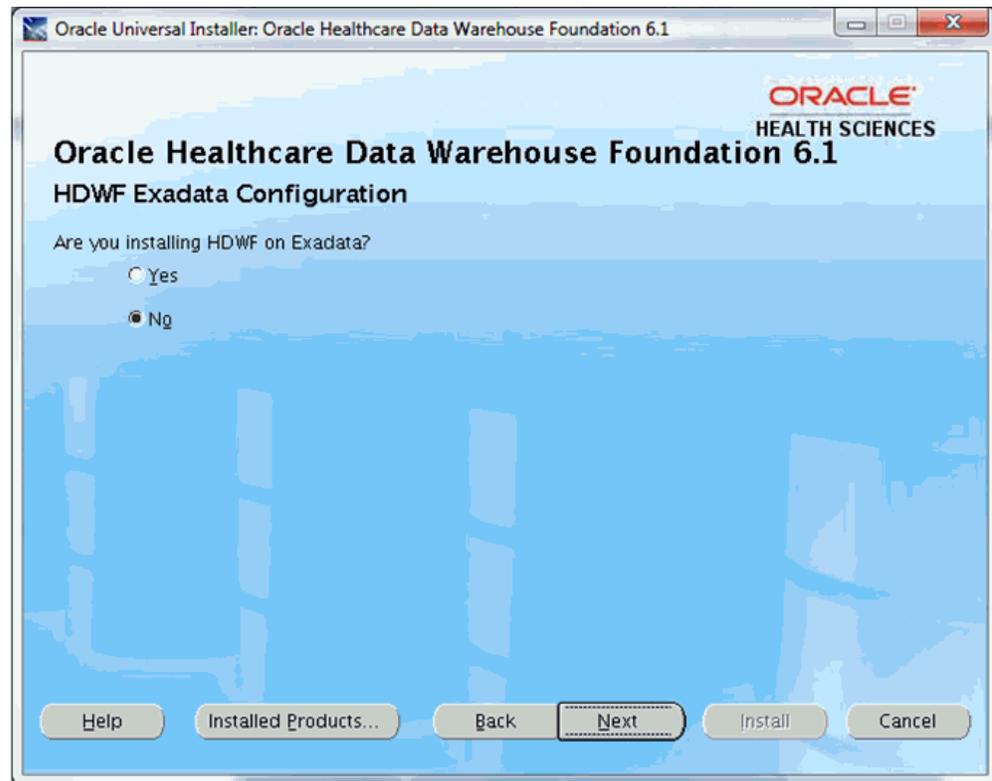
ASM: +DATA_EX02/hashas01/datafile/

Note:

- ASM location must always start with + and should be entered with + as shown above.
 - Failure to enter the trailing slash will not stop the installation. However, the data file name will be prefixed with the folder name.
 - The HDWF data file name is the name of the tablespace entered. For example, if the HDWF tablespace name is hdwf_ts, the data file created by the installer is hdwf_ts.dbf.
-
-

- b. Click Next.

12. In the **HDWF Exadata Configuration** screen:

Figure 5–12 HDWF Exadata Configuration

- a. Select **Yes** if HDWF is installed on Exadata database machine.
Click **Next** and go to step 13.
 - b. Select **No** if HDWF is not installed on Exadata database machine.
Click **Next** and go to step 14.
13. In the **Table Compression Configuration** screen:

Figure 5–13 Table Compression Configuration

- a. Select a table compression mode: **Hybrid Columnar Compression (HCC - Query High)** or **Online Transaction Processing (OLTP)**.
 - b. Click **Next**.
14. In the **Verify Configuration Parameters** screen:
- a. Verify all the configuration parameters listed on this screen before proceeding.
 - b. If required, click **Back** to make changes to your installation settings else click **Next**.
15. Review the information on the **Pre-installation Summary** screen, which displays the global settings, the space requirements, and the product to install.
- a. If required, click **Back** to make changes to your installation settings.
 - b. Click **Install** to continue.
16. The HDWF installation begins and the Install screen is displayed. OUI copies the files to the HDWF home location and runs the HDWF SQL scripts to create the database.

The install screen displays the location of the log file that records the results of the installation activities for this session. Note the location of the log file.

Note: The progress bar does not display the installation progress when the database is created using SQLPlus.

To review the installation progress or monitor the current installation activity, view the log file created at the location displayed on the Install screen.

17. After the installation is complete, the **End of Installation** screen is displayed.

This screen displays:

- **Successfully installed HDWF 6.1**, if the installation is successful.
- Location of the HDWF installer log file: <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\logs\ folder.
- Location of the installation report: <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\rpt\ folder.

Note: Review the installation report and save it in a secure location for future use.

18. Click **Exit** after reviewing the installation information. At the confirmation prompt, click **Yes** to exit the HDWF installer.
19. Review the generated installation log files for errors. For details, see [Section 5.2](#).
20. Contact Oracle support, if necessary, to resolve any errors.

5.3.2 Upgrading HDWF from Version 6.0 to 6.1

For the upgrade installation, perform the following steps:

1. The **Welcome** screen appears on running the installer. Click **Next** to continue the installation.

Figure 5–14 Welcome Screen



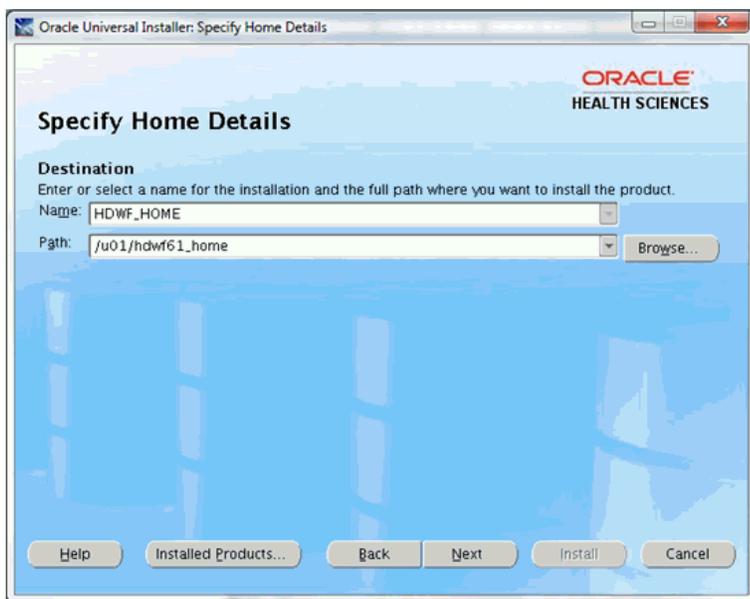
2. In the **Select Installation Type** screen:

Figure 5–15 Select Installation Type



- a. Select **Upgrade** to upgrade HDWF 6.0 to 6.1.
 - b. Click **Next**.
3. In the **Specify Home Details** screen:

Figure 5–16 Specify Home Details

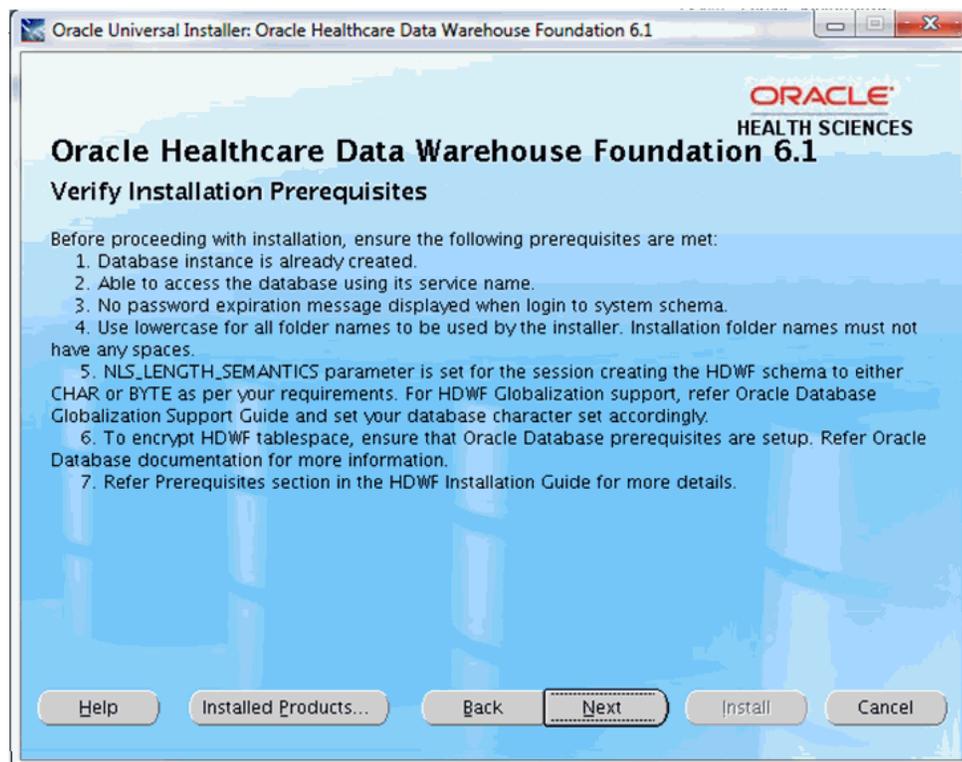


- a. Specify the root installation directory of HDWF 6.1.

Note: Use lowercase for directory names, for all platforms, to be created and used by the installer.

- b. Click **Next**.
4. In the **Verify Installation Prerequisites** screen, verify the prerequisites mentioned before installation, and click **Next**.

Figure 5–17 Installation Prerequisites



5. In the **Oracle Home Configuration** screen:

Figure 5–18 Oracle Home Configuration



- a. Enter the ORACLE_HOME location. This refers to the location of the Oracle database installation on the machine where the installer is run.
 - b. Click Next.
6. In the HDWF Database Configuration screen:

Figure 5–19 HDWF Database Configuration



- a. Enter the database server host name where the HDWF schema exists.

- b. Enter the database server port number.
 - c. Enter the database system user password.
 - d. Enter the HDWF database service name.
 - e. Click **Next**.
7. In the **HDWF HDM Schema Configuration** screen:

Figure 5–20 HDWF HDM Schema Configuration

Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1

ORACLE
HEALTH SCIENCES

Oracle Healthcare Data Warehouse Foundation 6.1
HDWF HDM Schema Configuration

Enter HDWF HDM schema details:

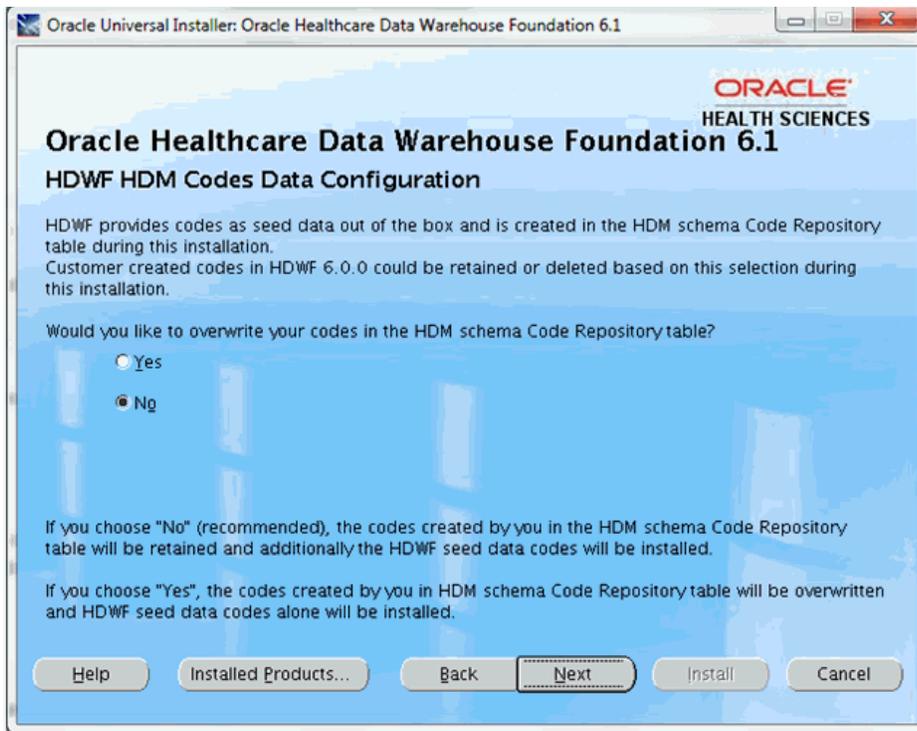
HDWF HDM schema user:

HDWF HDM schema password:

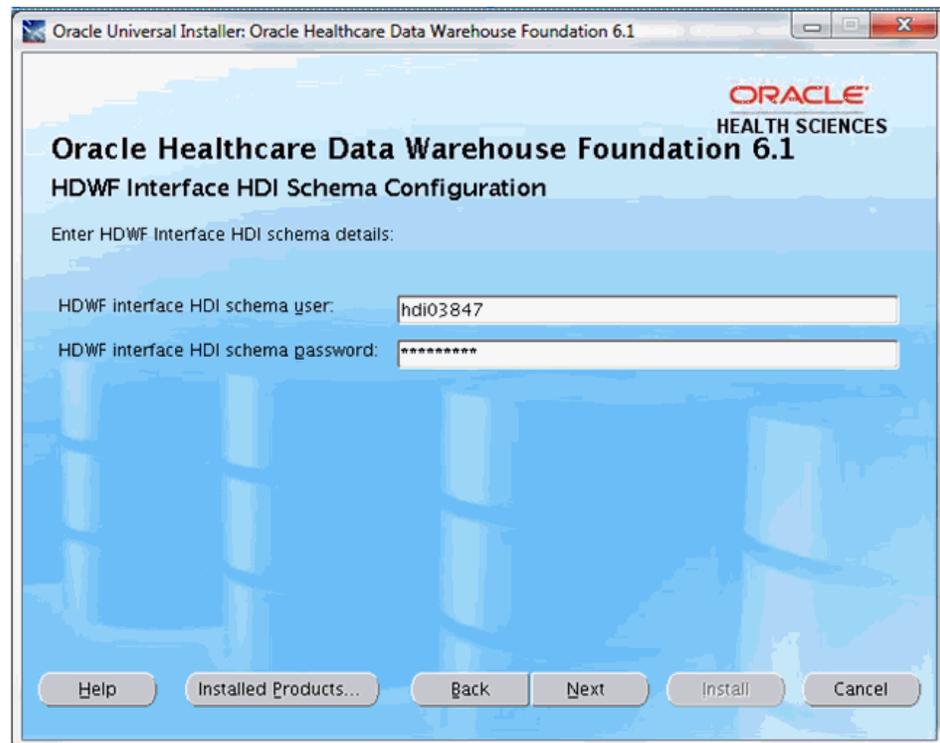
Help Installed Products... Back Next Install Cancel

- a. Enter the HDWF HDM schema user name.
 - b. Enter the HDWF HDM schema user password.
 - c. Click **Next**.
8. In the **HDWF HDM Codes Data Configuration** screen:

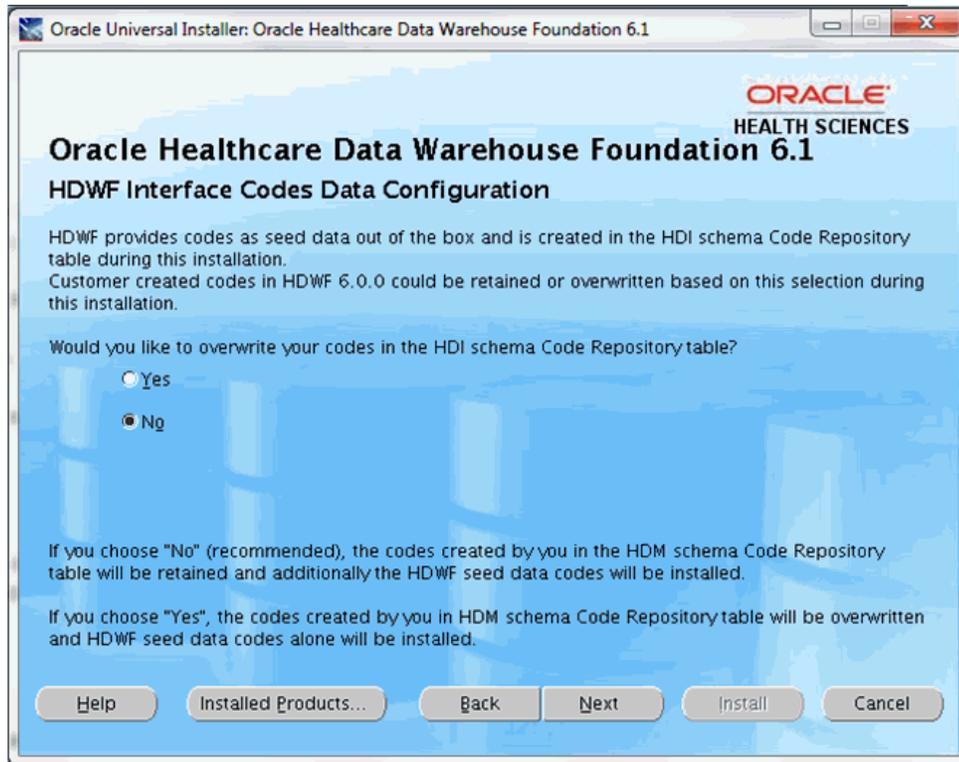
Figure 5–21 HDWF HDM Codes Data Configuration



- a. Overwrite the HDM seed data.
 Select **No** to preserve your seed data in HDM Code Repository tables (recommended).
 Select **Yes** if you want to overwrite your seed data with Oracle's seed data in HDM Code Repository tables.
 - b. Click **Next**.
9. In the **HDWF HDI Interface Schema Configuration** screen:

Figure 5–22 HDWF Interface HDI Schema Configuration

- a. Enter the HDWF interface HDI schema user name.
 - b. Enter the HDWF interface HDI schema user password.
 - c. Click Next.
10. In the **HDWF Interface Codes Data Configuration** screen:

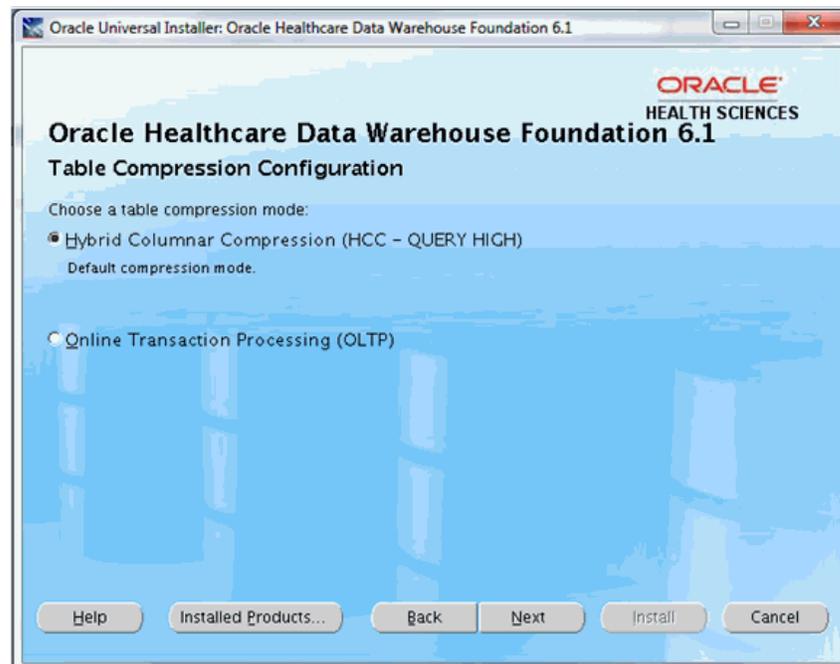
Figure 5–23 HDWF Interface Codes Data Configuration

- a. Overwrite the HDI seed data.
Select **No** to preserve your seed data in HDI Code Repository tables (recommended).
Select **Yes** if you want to overwrite your seed data with Oracle's seed data in HDI Code Repository tables.
 - b. Click **Next**.
11. In the **HDWF Exadata Configuration** screen:

Figure 5–24 HDWF Exadata Configuration

- a. Select **Yes** if HDWF is installed on Exadata database machine.
Click **Next** and go to step 12.
- b. Select **No** if HDWF is not installed on Exadata database machine.
Click **Next** and go to step 13.

12. In the **Table Compression Configuration** screen:

Figure 5–25 Table Compression Configuration

- a. Select a table compression mode: **Hybrid Columnar Compression (HCC - Query High)** or **Online Transaction Processing (OLTP)**.
 - b. Click **Next**.
13. In the **Verify Configuration Parameters** screen:
- a. Verify all the configuration parameters listed on this screen before proceeding.
 - b. If required, click **Back** to make changes to your installation settings.
 - c. Click **Next**.
14. Review the information on the **Pre-installation Summary** screen, which displays the global settings, the space requirements, and the product to install.
- a. If required, click **Back** to make changes to your installation settings.
 - b. Click **Install** to continue.
15. The HDWF installation begins and the Install screen is displayed. OUI copies the files to the HDWF home location and runs the HDWF SQL scripts to create the database.

The install screen displays the location of the log file that records the results of the installation activities for this session. Note the location of the log file.

Note: The progress bar does not display the installation progress when the database is created using SQLPlus.

To review the installation progress or monitor the current installation activity, view the log file created at the location displayed on the Install screen.

16. After the installation is complete, the **End of Installation** screen is displayed.

This screen displays:

- **Successfully Installed HDWF 6.1**, if the installation is successful.
- Location of the HDWF installer log file: <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\logs\ folder.
- Location of the installation report: <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\rpt\ folder.

Note: Review the installation report and save it in a secure location for future use.

17. Click **Exit** after reviewing the installation information.

At the confirmation prompt, click **Yes** to exit the HDWF Installer.

18. Review the generated installation log files for errors. For details, see [Section 5.2](#).
19. Contact Oracle support, if necessary, to resolve any errors.

5.4 HDWF Remote Installation

The HDWF installer can also be used to remotely install HDWF 6.1. For example, the installer can be run from a Linux 64-bit OS and installed on a remote system.

The installer creates the following directory structure on the system where it is run.

```
hdwf_home
  /oracle.hsgbu.hdwf
  /oracle
  /hdwf61
  /install
    /scripts (HDWF SQL scripts)
    /logs (Installation log files)
    /rpt (Installation report files)
```

hdwf_home refers to the root installation directory of the Oracle HDWF product. Create an empty directory for this purpose.

Prerequisites

In addition to the prerequisites mentioned in [Chapter 4](#), the following are also applicable for this installation option.

1. Make sure the following are available on the client machine:
 - Oracle Unix or Linux 64-bit OS
 - Oracle Database 11.2.0.4 client
2. Follow the steps in [Section 5.1.3](#) to set up the installer to run on a Linux 64-bit operating system.

5.4.1 Fresh Remote Installation of HDWF 6.1

Perform the following steps:

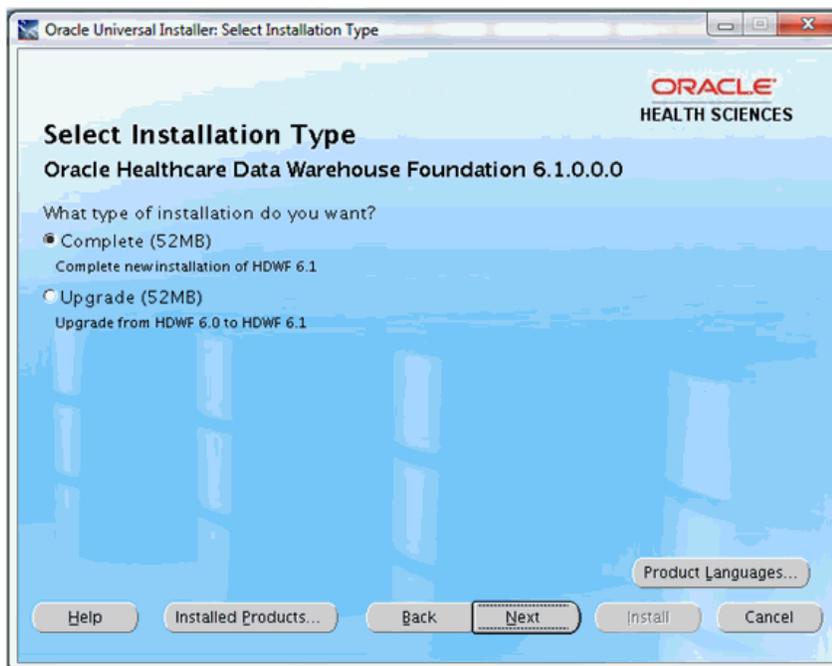
1. The **Welcome** screen appears on running the installer. Click **Next** to continue the installation.

Figure 5–26 Welcome Screen



2. In the **Select Installation Type** screen:

Figure 5–27 Select Installation Type



- a. Select **Complete** to perform a fresh installation of HDWF 6.1.
- b. Click **Next**.

3. In the **Specify Home Details** screen:

Figure 5–28 Specify Home Details

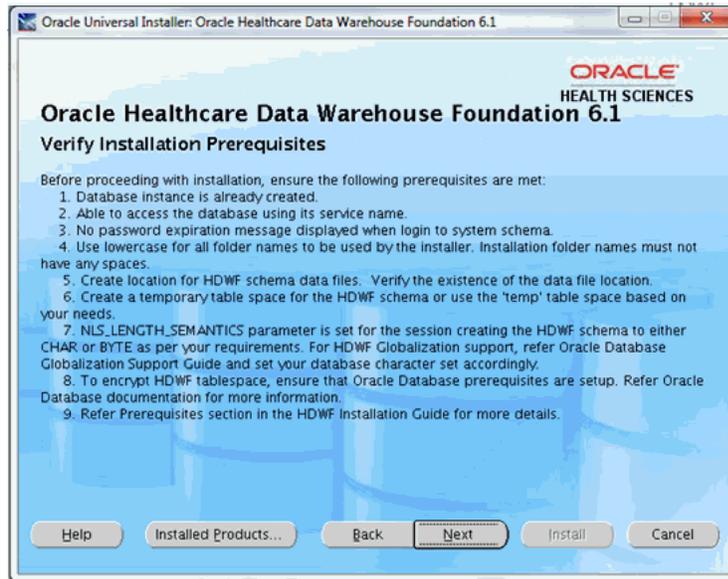


- a. Specify the root installation directory of HDWF 6.1.

Note: Use lowercase for directory names, for all platforms, to be created and used by the installer.

- b. Click **Next**.
4. In the **Verify Installation Prerequisites** screen, verify the prerequisites mentioned before installation, and click **Next**.

Figure 5–29 Verify Installation Prerequisites



5. In the **Oracle Home Configuration** screen:

Figure 5–30 Oracle Home Configuration



- a. Enter the ORACLE_HOME location. This refers to the location of the Oracle database installation on the machine where the installer is run.
 - b. Click Next.
6. In the **HDWF Database Configuration** screen:

Figure 5–31 HDWF Database Configuration

The screenshot shows a window titled "Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1". The window contains the Oracle logo and "HEALTH SCIENCES" text. The main heading is "Oracle Healthcare Data Warehouse Foundation 6.1 HDWF Database Configuration". Below this, it says "Enter HDWF database server details." There are four input fields: "Database server host name:" with the value "aue038svr", "Database server port number:" with the value "1521", "System user password:" with a masked password "*****", and "HDWF database service name:" with the value "aue038dbsvc". At the bottom, there is a note: "HDWF database service name - The service name of the HDWF database instance." and a row of buttons: "Help", "Installed Products...", "Back", "Next", "Install", and "Cancel".

The database details mentioned in this step correspond to the details of the database server (remote machine) where HDWF will be installed.

- a. Enter the database server host name where the HDWF schema will be created.
 - b. Enter the database server port number.
 - c. Enter the database system user password.
 - d. Enter the HDWF database service name.
 - e. Click **Next**.
7. In the **HDWF Tablespace Encryption Configuration** screen:

Figure 5–32 HDWF Tablespace Encryption Configuration

- a. Encrypting the tablespace requires prerequisites to be set.
If the pre-requisites are set for tablespace encryption, select **Yes**, else select **No**.
 - b. Click **Next**.
8. In the **HDWF HDM Tablespace and Schema Configuration** screen:

Figure 5–33 HDWF HDM Tablespace and Schema Configuration

Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1

ORACLE
HEALTH SCIENCES

Oracle Healthcare Data Warehouse Foundation 6.1
HDWF HDM Tablespace and Schema Configuration

Enter HDWF HDM tablespace and schema details.

HDWF HDM tablespace name:

HDWF HDM tablespace initial size (in MB):

HDWF HDM temporary tablespace name:

HDWF HDM schema user:

HDWF HDM schema password:

Note:

1. As a pre-requisite, HDM temporary tablespace have to be created or use 'temp' tablespace.
2. HDM tablespace is created during this installation. Enter a non-existent tablespace name.
3. HDM schema is created during this installation. Enter a non-existent schema name.
4. Tablespace initial size - Determine the initial size based on your needs. For production, 4096MB (4GB) initial size is recommended.

Help Installed Products... Back Next Install Cancel

- Enter the HDWF HDM tablespace name.
- Enter the HDWF HDM tablespace initial size in MB.
- Enter the HDWF HDM temporary tablespace name created as part of prerequisites.

Note: The installer does not create the temporary tablespace. It should be created as part of the prerequisite steps or the default **temp** tablespace can be used.

- Enter the HDWF HDM schema user name.
 - Enter the HDWF HDM schema user password.
 - Click Next.
9. In the **HDWF HDM Tablespace and Schema Configuration** screen:

Figure 5–34 HDWF HDM Tablespace and Schema Configuration



- a. Enter the location of the HDWF data file in the machine or ASM specific syntax including the trailing slash.

This is the directory on the database server where the data files for the application are created during the installation.

This value is not validated and must be entered in the machine or ASM specific syntax including the trailing slash.

For example,

Unix: /u01/oradata/dbname/

ASM: +DATA_EX02/hasas01/datafile/

Note:

- ASM location must always start with + and should be entered with + as shown above.
 - Failure to enter the trailing slash will not stop the installation. However, the data file name will be prefixed with the folder name.
 - The HDWF data file name will be the name of table space entered. For example, if the HDWF tablespace name is hdwf_ts, the data file created by the installer will be hdwf_ts.dbf.
-
-

- b. Click Next.

10. In the **HDWF Interface HDI Tablespace and Schema Configuration** screen:

Figure 5–35 HDWF Interface HDI Tablespace and Schema Configuration

Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1

ORACLE
HEALTH SCIENCES

Oracle Healthcare Data Warehouse Foundation 6.1
HDWF Interface HDI Tablespace and Schema Configuration

Enter HDWF Interface HDI tablespace and schema details.

HDWF interface HDI tablespace name:

HDWF interface HDI tablespace initial size (in MB):

HDWF interface HDI temporary tablespace name:

HDWF interface HDI schema user:

HDWF interface HDI schema password:

Note:

1. As a pre-requisite, HDI temporary tablespace have to be created or use 'temp' tablespace.
2. HDI tablespace is created during this installation. Enter a non-existent tablespace name.
3. HDI schema is created during this installation. Enter a non-existent schema name.
4. Tablespace initial size - Determine the initial size based on your needs. For production, 4096MB (4GB) initial size is recommended.

Help Installed Products... Back Next Install Cancel

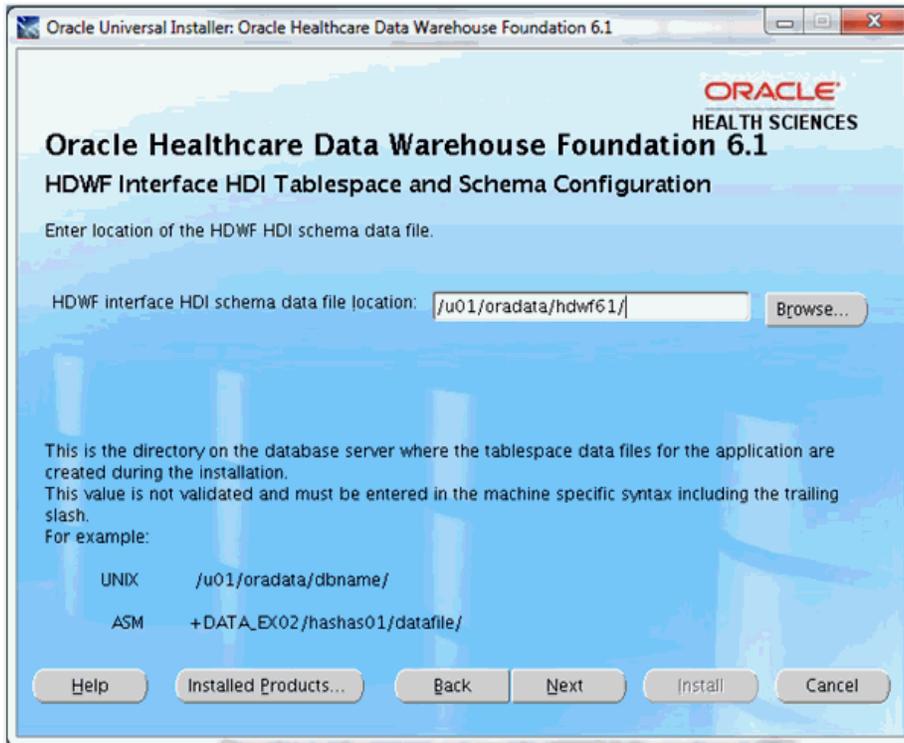
- Enter the HDWF interface HDI tablespace name.
- Enter the initial size of the HDWF interface HDI tablespace in MB.
- Enter the HDWF interface HDI temporary tablespace name created as part of the prerequisites.

Note: The installer does not create the temporary tablespace. It should be created as part of the prerequisites.

- Enter the HDWF interface HDI schema user.
- Enter the HDWF interface HDI user password.
- Click **Next**.

11. In the **HDWF Interface HDI Tablespace and Schema Configuration** screen:

Figure 5–36 HDWF Interface HDI Tablespace and Schema Configuration



- a. Enter the location of the HDWF interface data file in the machine or ASM specific syntax including the trailing slash.

This is the directory on the database server where the data files for the application are created during the installation.

This value is not validated and must be entered in the machine or ASM specific syntax including the trailing slash.

For example,

Unix: /u01/oradata/dbname/

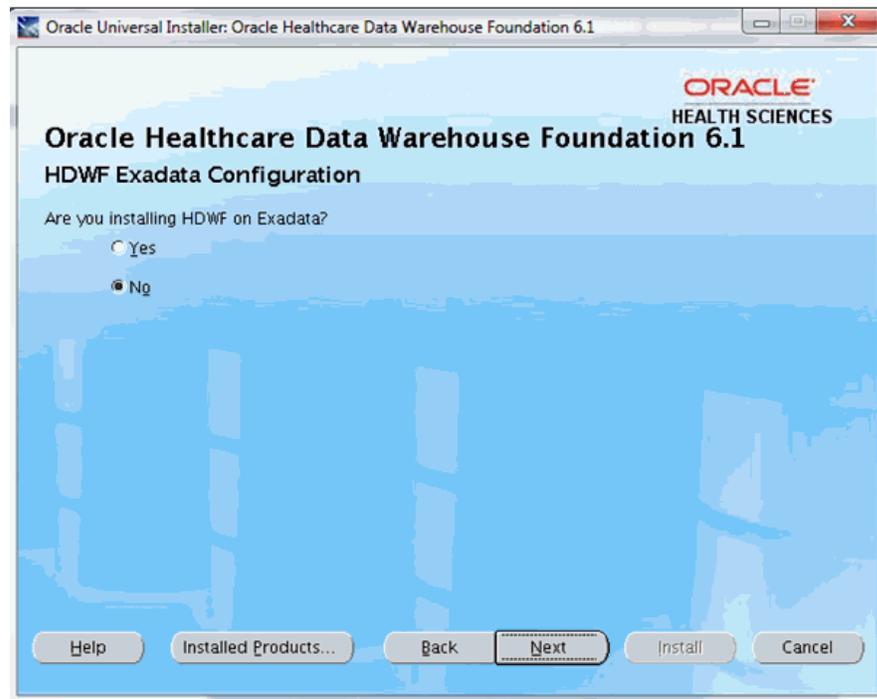
ASM: +DATA_EX02/hasas01/datafile/

Note:

- ASM location must always start with + and should be entered with + as shown above.
 - Failure to enter the trailing slash will not stop the installation. However, the data file name will be prefixed with the folder name.
 - The HDWF data file name will be the name of interface tablespace entered. For example, if the HDWF interface tablespace name is `hdwf_int_ts`, the data file created by the installer is `hdwf_int_ts.dbf`.
-

- b. Click Next.

12. In the **HDWF Exadata Configuration** screen:

Figure 5–37 HDWF Exadata Configuration

- a. Select **Yes** if HDWF is installed on an Exadata database machine.
Click **Next** and go to step 13.
 - b. Select **No** if HDWF is not installed on an Exadata database machine.
Click **Next** and go to step 14.
- 13.** In the **Table Compression Configuration** screen:

Figure 5–38 Table Compression Configuration

- a. Select a table compression mode: **Hybrid Columnar Compression (HCC - Query High)** or **Online Transaction Processing (OLTP)**.
 - b. Click **Next**.
14. In the **Verify Configuration Parameters** screen:
- a. Verify all the configuration parameters listed on this screen before proceeding.
 - b. If required, click **Back** to make changes to your installation settings.
 - c. Click **Next**.
15. Review the information on the **Pre-installation Summary** screen, which displays the global settings, the space requirements, and the product to install.
- a. If required, click **Back** to make changes to your installation settings.
 - b. Click **Install** to continue.
16. The HDWF installation begins and the Install screen is displayed. OUI copies the files to the HDWF home location and runs the HDWF SQL scripts to create the database.

The install screen displays the location of the log file that records the results of the installation activities for this session. Note the location of the log file.

Note: The progress bar does not display the installation progress when the database is created using SQLPlus.

To review the installation progress or monitor the current installation activity, view the log file created at the location displayed on the Install screen.

17. After the installation is complete, the **End of Installation** screen is displayed.

This screen displays:

- **Successfully installed HDWF 6.1**, if the installation is successful.
- Location of the HDWF installer log file - <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\logs\ folder.
- Location of the installation report - <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\rpt\ folder.

Note: Review the installation report and save it in a secure location for future use.

18. Click **Exit** after reviewing the installation information.

At the confirmation prompt, click **Yes** to exit the HDWF Installer.

19. Review the generated installation log files for errors. For details, see [Section 5.2](#).

20. Contact Oracle support, if necessary, to resolve any errors.

5.4.2 Remote HDWF Upgrade from Version 6.0 to 6.1

Perform the following steps:

1. The **Welcome** screen appears on running the installer. Click **Next** to continue the installation.

Figure 5–39 Welcome Screen



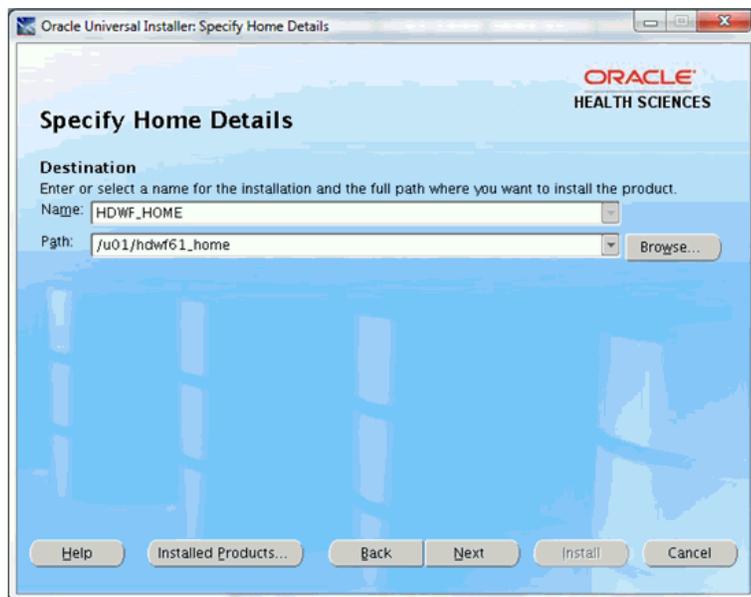
2. In the **Select Installation Type** screen:

Figure 5–40 Select Installation Type



- a. Select **Upgrade** to upgrade from HDWF 6.0 to 6.1.
 - b. Click **Next**.
3. In the **Specify Home Details** screen:

Figure 5–41 Specify Home Details

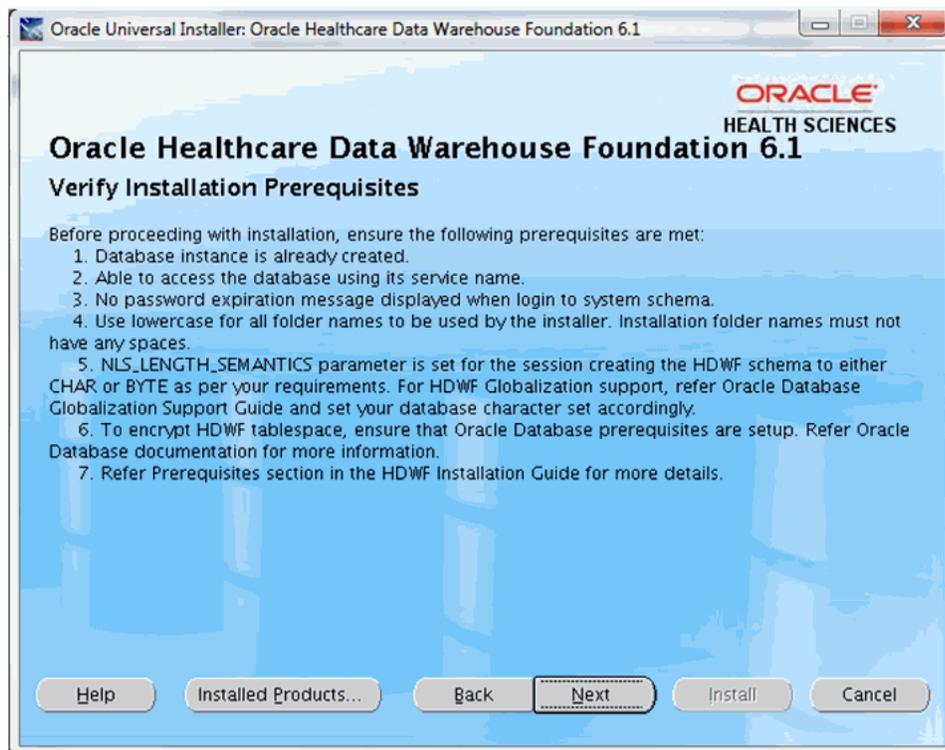


- a. Select the root installation directory of HDWF 6.1.

Note: Use lowercase for directory names, for all platforms, to be created and used by the installer.

- b. Click **Next**.
4. In the **Verify Installation Prerequisites** screen, verify the prerequisites mentioned before installation, and click **Next**.

Figure 5-42 Verify Installation Prerequisites



5. In the **Oracle Home Configuration** screen:

Figure 5–43 Oracle Home Configuration



- a. Enter the ORACLE_HOME location. This refers to the location of the Oracle database installation on the machine where the installer is run.
 - b. Click Next.
6. In the HDWF Database Configuration screen:

Figure 5–44 HDWF Database Configuration



- a. Enter the database server host name where the HDWF Schema will be created. Click **Next**.
 - b. Enter the database server port number.
 - c. Enter database server system user password.
 - d. Enter the HDWF database service name.
 - e. Click **Next**.
7. In the **HDWF HDM Schema Configuration** screen:

Figure 5–45 HDWF HDM Schema Configuration

Oracle Universal Installer: Oracle Healthcare Data Warehouse Foundation 6.1

ORACLE
HEALTH SCIENCES

Oracle Healthcare Data Warehouse Foundation 6.1
HDWF HDM Schema Configuration

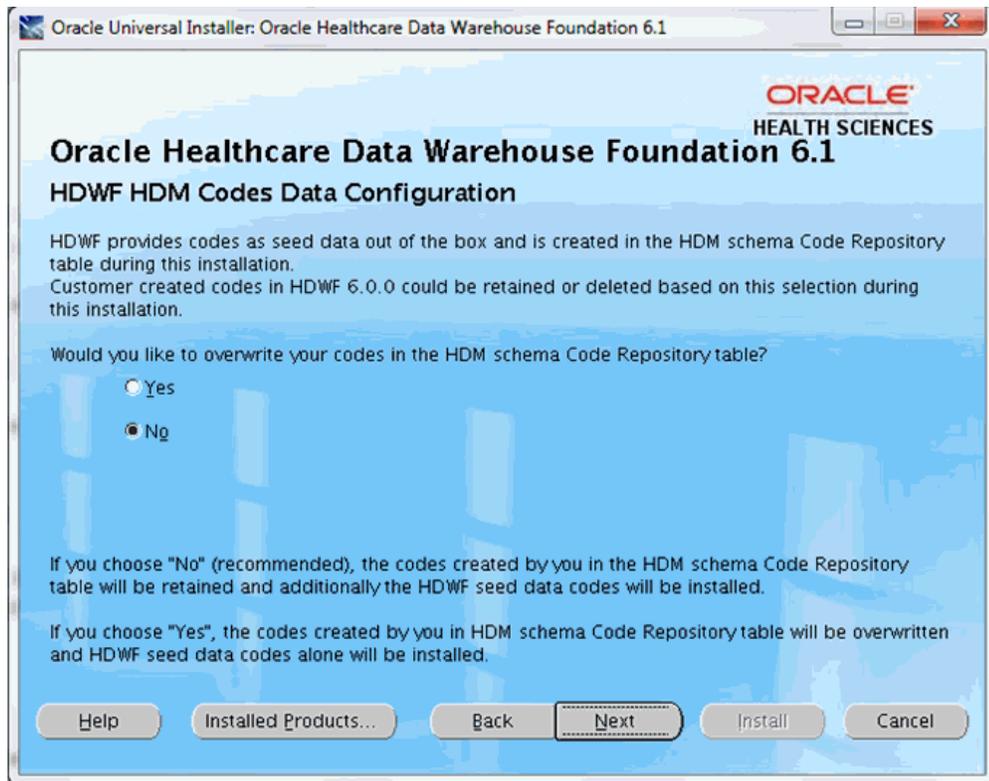
Enter HDWF HDM schema details:

HDWF HDM schema user:

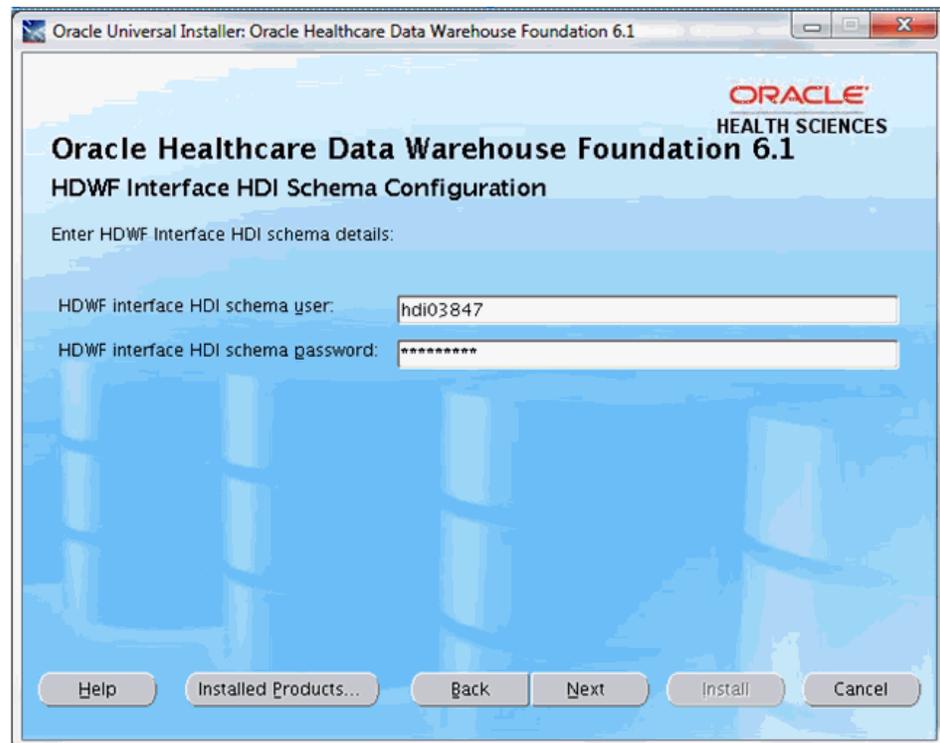
HDWF HDM schema password:

Help Installed Products... Back Next Install Cancel

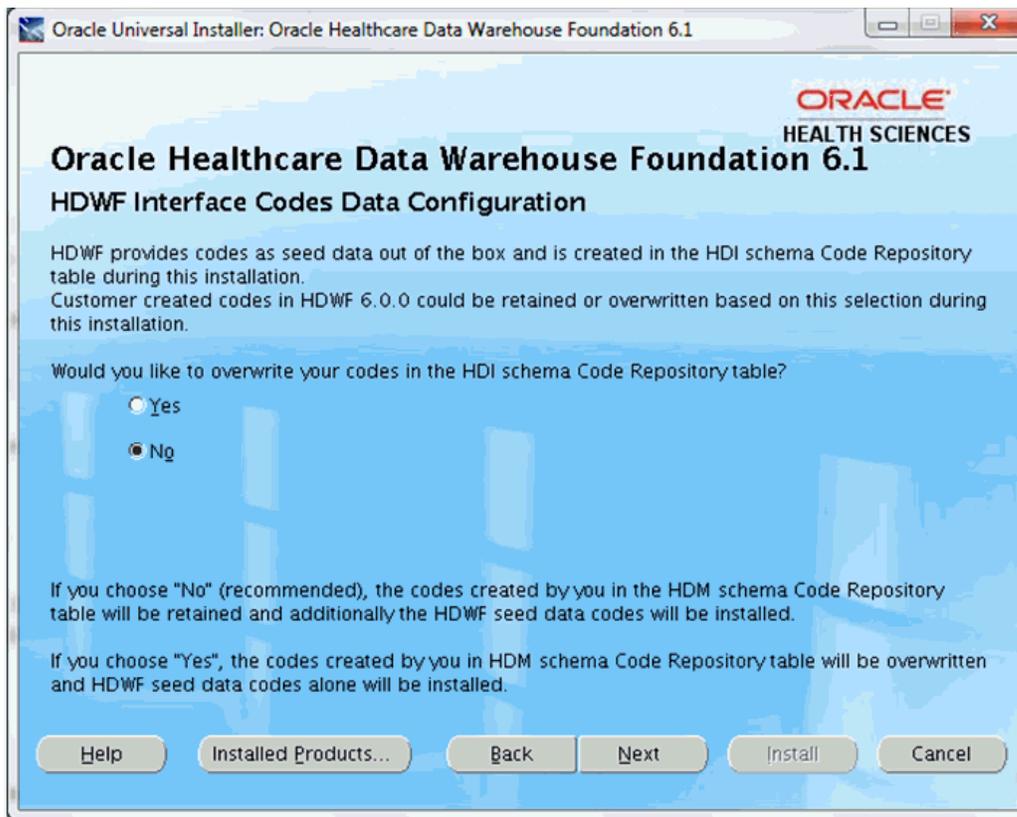
- a. Enter the HDWF HDM schema user name.
 - b. Enter the HDWF HDM schema user password.
 - c. Click **Next**.
8. In the **HDWF HDM Codes Data Configuration** screen:

Figure 5–46 HDWF HDM Codes Data Configuration

- a. Overwrite the HDWF HDM seed data.
Select **No** to preserve your seed data in HDI Code Repository tables (recommended).
Select **Yes** if you want to overwrite your seed data with Oracle's seed data in HDI Code Repository tables.
 - b. Click **Next**.
9. In the **HDWF Interface HDI Schema Configuration** screen:

Figure 5-47 HDWF Interface HDI Schema Configuration

- a. Enter the HDWF interface HDI schema user name.
 - b. Enter the HDWF interface HDI schema user password.
 - c. Click Next.
10. In the **HDWF Interface Codes Data Configuration** screen:

Figure 5–48 HDWF Interface Codes Data Configuration

- a. Overwrite the HDWF Interface HDI seed data.
Select **No** to preserve your seed data in HDI Code Repository tables (recommended).
Select **Yes** if you want to overwrite your seed data with Oracle's seed data in HDI Code Repository tables.
 - b. Click **Next**.
11. In the **HDWF Exadata Configuration** screen:

Figure 5–49 HDWF Exadata Configuration

- a. Select **Yes** if HDWF is installed on Exadata database machine.
Click **Next** and go to step 12.
 - b. Select **No** if HDWF is not installed on Exadata database machine.
Click **Next** and go to step 13.
- 12.** In the **Table Compression Configuration** screen:

Figure 5–50 Table Compression Configuration

- a. Select a table compression mode: **Hybrid Columnar Compression (HCC - Query High)** or **Online Transaction Processing (OLTP)**.
 - b. Click **Next**.
13. In the **Verify Configuration Parameters** screen:
- a. Verify all the configuration parameters listed on this screen before proceeding.
 - b. If required, click **Back** to make changes to your installation settings.
 - c. Click **Next**.
14. Review the information on the **Pre-installation Summary** screen, which displays the global settings, the space requirements, and the product to install.
- a. If required, click **Back** to make changes to your installation settings.
 - b. Click **Install** to continue.
15. The HDWF installation begins and the Install progress screen is displayed. OUI copies the files to the HDWF Home location, and runs the HDWF SQL scripts to create the database.

The install screen displays the location of the log file that records the results of the installation activities for this session. Note the location of the log file.

Note: The progress bar does not display the installation progress when the database is created using SQLPlus.

To review the installation progress or monitor the current installation activity, view the log file created at the location displayed on the Install screen.

16. After the installation is complete, the **End of Installation** screen is displayed.

This screen displays:

- **Successfully installed HDWF 6.1**, if the installation is successful.
- Location of the HDWF installer log file - <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\logs\ folder.
- Location of the installation report - <HDWF_Home>\oracle.hsgbu.hdwf\oracle\hdwf61\install\rpt\ folder.

Note: Review the installation report and save it in a secure location for future use.

17. Click **Exit** after reviewing the installation information.

At the confirmation prompt, click **Yes** to exit the HDWF Installer.

18. Review the generated installation log files for errors. For details, see [Section 5.2](#).

19. Contact Oracle support, if necessary, to resolve any errors.

5.5 Post Installation Data Migration when Upgrading from HDWF 6.0 to 6.1

The following data migration scripts are not executed as a part of the upgrade installation by the HDWF 6.1 OUI installer.

You must review these scripts and execute them after the HDWF upgrade installation is complete.

- `hdwf_interface_migration_ddl_6_1.sql`

This script must be run on the interface tables schema and migrates data from HDI_APPT and HDI_SURGCL_CASE_APPT to HDI_APPT_SVCPRV. It copies the integration ID pattern of the original tables (HDI_APPT. INT_ID, HDI_SURGCL_CASE_APPT. INT_ID) as is in the target table (HDI_APPT_SVCPRV. INT_ID).

- `hdwf_migration_ddl_6_1.sql`

This script must be run on the HDWF Schema and migrates data from HDM_APPT to HDM_APPT_SVCPRV. It copies the integration ID pattern from the source table (HDM_APPT. INTEGRATION_ID) to the target table (HDM_APPT_SVCPRV. INTEGRATION_ID).

You may select any integration ID pattern for new records that will be populated in HDI_APPT_SVCPRV. To version old records that are migrated to HDI_APPT_SVCPRV from HDI_APPT or HDI_SURGCL_CASE_APPT, use the old integration ID pattern in HDI_APPT_SVCPRV.

This section discusses seed data troubleshooting.

6.1 Seed Data Procedure Parameter

Overwrite Flag

The overwrite flag, which is a parameter that is specified when running the seed data procedure can have two possible values Y and N:

- Y - When the seed data procedure is run with the parameter set to Y, it overwrites the existing non-Oracle seed data records in case of conflicts with Oracle provided seed data records. However, non conflicting records remain unaffected. The parameter does not let you selectively overwrite records. Depending on the error type, conflicts or errors can be logged in the error log table.
- N - When the seed data procedure is run with the parameter set to N, conflicts or errors are logged in the error log table which can then be reviewed. Selecting this parameter will not overwrite any customization or addition that you have made to seed data.

For more information on error logging, see [Section 6.2](#).

6.2 Error Logging and Debugging

The errors that occur while populating seed data using seed data load procedures are logged inside the table HDM_X_SEED_DATA_ERR_LOG for HDWF and HDI_X_SEED_DATA_ERR_LOG for HDWF interface table.

The following are the key columns in the error log table (HDM_X_SEED_DATA_ERR_LOG or HDI_X_SEED_DATA_ERR_LOG):

- **ERR_ID** - Unique identifier for a record in the error log table.
- **ERR_TBL_NM** - Specifies the table name for which the error record is logged. For example, for an error in the HDM code repository will have a value HDM_CD_REPOSITORY in this column.
- **ERR_TYP** - Indicates the type of error that is logged. There are five types of errors that can be logged. For the different types of errors, see [Seed Data Error Types](#).
- **ERR_DESC** - A short description of the error.
- **ERR_INT_ID** - Indicates the integration ID of the record for which the error is logged. This column along with the error table name (ERR_TBL_NM) can be used

to debug the error. Integration ID for tables that are populated with seed data have the following pattern:

Table 6–1 Pattern for Integration ID for Tables that are Populated with Seed Data

Table Name	Columns to be Concatenated to Generate the Integration ID
HDM_USER	LOGIN
HDM_CD_SYS	SYS_CD~SYS_VERSION
HDM_CD_REPOSITORY	CD~SYS_CD~SYS_VERSION
HDM_CD_TYP	TYP_CD
HDM_CD_REPOSITORY_CD_TYP	CD~SYS_CD~ SYS_VERSION~ TYP_CD

Seed Data Error Types

The following section describes the different error types that can be logged and the approach to understand and resolve them:

Note: In the following section, Non-EHA user refers to individuals using the application.

- [EHA_WARNING: Code name exists](#)
- [EHA_ERROR: Insert failed: Creation of version failed](#)
- [EHA_ERROR: Update failed](#)
- [EHA_ERROR: Insert failed: Duplicate integration ID](#)
- [PL/SQL_ERROR](#)

Error Type

EHA_WARNING: Code name exists

Error Description

Code name: <CODE NAME> exists. New Oracle seed data record inserted with same code name.

Resolution for HDM

Identification

Search Code Repository for the record having the code name specified in the Error Description.

```
select *from HDM_CD_REPOSITORY WHERE CD_NM=<CODE NAME SPECIFIED IN THE
ERROR STATEMENT>;
```

For example,

```
SQL> select *from HDM_CD_REPOSITORY WHERE CD_NM ='Patient Withdrew';
```

Resolution

After identifying the code name, you can select one of the following options:

- **FORCE UPDATE:** Delete the conflicting seed data record that you have inserted along with the one inserted by the Oracle seed data procedure. Then, run the seed data procedure again with the overwrite flag set to Y.
- **SELECTIVE UPDATE:** Delete the conflicting seed data record inserted by the Oracle seed data procedure and use your own seed data.

- Delete the seed data record that you have inserted which caused the code clash and instead use the Oracle seed data record.

Resolution for HDI

Identification

Search Code Repository for the record having the code name as specified in the error description.

```
select *from HDI_CD_REPOSITORY WHERE CD_NM=<CODE NAME SPECIFIED IN THE ERROR STATEMENT>;
```

For example,

```
SQL> select *from HDI_CD_REPOSITORY WHERE CD_NM ='Patient Withdrew';
```

Resolution

After identifying the code name, you can select one of the following options:

- **FORCE UPDATE:** Delete the conflicting seed data record that you have inserted along with the one inserted by the Oracle seed data procedure. Then, run the seed data procedure again with the overwrite flag set to Y.
- **SELECTIVE UPDATE:** Delete the conflicting seed data record inserted by the Oracle seed data procedure and use your own seed data.
- Delete the seed data record that you have inserted which caused the code clash and instead use the Oracle seed data record.

Error Type

EHA_ERROR: Insert failed: Creation of version failed

Error Description

Non-EHA user has versioned a record. Unable to create a new version of the record.

Resolution for HDM

Identification

Navigate to the table identified in HDM_X_SEED_DATA_ERR_LOG.ERR_TBL_NM and use HDM_X_SEED_DATA_ERR_LOG.ERR_INT_ID to identify the error record.

```
Select *from <HDM_X_SEED_DATA_ERR_LOG.ERR_TBL_NM> WHERE INTEGRATION_ID=<HDM_X_SEED_DATA_ERR_LOG.ERR_INT_ID> AND CURRENT_FLG='Y';
```

For example,

```
SQL> select *from HDM_CD_REPOSITORY where INTEGRATION_ID ='SPCMN_TYP_CD_IVFEHA_CUSTOM_CD_SYS1.0' and CURRENT_FLG='Y';
```

Resolution:

After identifying the code name, you can choose one of the following options:

- **DO NOTHING:** Ignore the Oracle provided seed data.
- Run the procedure with overwrite flag = Y to overwrite all conflicting seed data with Oracle seed data.

Resolution for HDI

Identification

Navigate to the table identified in HDI_X_SEED_DATA_ERR_LOG.ERR_TBL_NM and use HDI_X_SEED_DATA_ERR_LOG.ERR_INT_ID to identify the error record.

```
Select *from <HDI_X_SEED_DATA_ERR_LOG.ERR_TBL_NM> t1 WHERE INT_ID=<HDI_X_SEED_DATA_ERR_LOG.ERR_INT_ID> AND SRC_CHANGED_ON_DT=(select max(SRC_CHANGED_ON_DT) from <HDI_X_SEED_DATA_ERR_LOG.ERR_TBL_NM> t2 where t1.int_id =t2.int_id);
```

For example,

```
SQL> select *from HDI_CD_REPOSITORY cr1 where INT_ID = 'SPCMN_TYP_CD_IVFEHA_CUSTOM_CD_SYS1.0' and SRC_CHANGED_ON_DT =(select max(SRC_CHANGED_ON_DT) from HDI_CD_REPOSITORY cr2 where cr1.int_id =cr2.int_id);
```

Resolution

After identifying the code name, you can choose one of the following options:

- DO NOTHING: Ignore the Oracle provided seed data.
- Run the procedure with overwrite flag = Y to overwrite all conflicting seed data with Oracle seed data.

Error Type

EHA_ERROR: Update failed

Error Description

Non-EHA user has changed the record. Unable to update the record.

Resolution for HDM

Identification

Navigate to the table identified in HDM_X_SEED_DATA_ERR_LOG.ERR_TBL_NM and use HDM_X_SEED_DATA_ERR_LOG.ERR_INT_ID to identify the error record.

```
Select *from <HDM_X_SEED_DATA_ERR_LOG.ERR_TBL_NM> WHERE INTEGRATION_ID=<HDM_X_SEED_DATA_ERR_LOG.ERR_INT_ID> AND CURRENT_FLG='Y';
```

For example,

```
SQL> select *from HDM_CD_REPOSITORY where INTEGRATION_ID = 'SPCMN_TYP_CD_IVFEHA_CUSTOM_CD_SYS1.0' and CURRENT_FLG='Y';
```

Resolution

After identifying the code name, you can choose one of the following options:

- DO NOTHING: Ignore the Oracle provided seed data.
- Run the procedure with overwrite flag = Y to overwrite all conflicting seed data with Oracle seed data.

Resolution for HDI

This error does not occur in HDI as no updates are supported in HDI.

Error Type

EHA_ERROR: Insert failed: Duplicate integration ID

Error Description

Non-EHA user has created a record with the same integration ID. Unable to create a new record.

Resolution for HDM

Identification

Navigate to the table identified in HDM_X_SEED_DATA_ERR_LOG.ERR_TBL_NM and use HDM_X_SEED_DATA_ERR_LOG.ERR_INT_ID to identify the error record.

```
Select *from <HDM_X_SEED_DATA_ERR_LOG.ERR_TBL_NM> WHERE INTEGRATION_ID=<HDM_X_SEED_DATA_ERR_LOG.ERR_INT_ID> AND CURRENT_FLG='Y' ;
```

For example,

```
SQL> select *from HDM_CD_REPOSITORY where INTEGRATION_ID ='SPCMN_TYP_CD_IVFEHA_CUSTOM_CD_SYS1.0' and CURRENT_FLG='Y ';
```

Resolution

To insert Oracle seed data, modify the integration ID of the conflicting record that you have inserted and run the seed data procedure again.

Resolution for HDI

Identification

Navigate to the table identified in HDI_X_SEED_DATA_ERR_LOG.ERR_TBL_NM and use HDI_X_SEED_DATA_ERR_LOG.ERR_INT_ID to identify the error record.

```
Select *from <HDI_X_SEED_DATA_ERR_LOG.ERR_TBL_NM> t1 WHERE INT_ID=<HDI_X_SEED_DATA_ERR_LOG.ERR_INT_ID> AND SRC_CHANGED_ON_DT=(select max(SRC_CHANGED_ON_DT) from <HDI_X_SEED_DATA_ERR_LOG.ERR_TBL_NM> t2 where t1.int_id =t2.int_id) ;
```

For example,

```
SQL> select *from HDI_CD_REPOSITORY cr1 where INT_ID ='SPCMN_TYP_CD_IVFEHA_CUSTOM_CD_SYS1.0' and SRC_CHANGED_ON_DT =(select max(SRC_CHANGED_ON_DT) from HDI_CD_REPOSITORY cr2 where cr1.int_id =cr2.int_id) ;
```

Resolution

To insert Oracle seed data, modify the integration ID of the conflicting record that you have inserted and run the seed data procedure again.

Error Type

PL/SQL_ERROR

Resolution for HDM

Other PL SQL errors that are encountered when inserting seed data.

Resolution for HDI

Other PL SQL errors that are encountered when inserting seed data.

Guidelines for Initial Load and Utility SQL Scripts

7.1 Guidelines for Initial Load

You must use the following guidelines for initial load:

1. Before the initial load, locate the Oracle DDL script `hdwf_fk_index_drop_ddl_6_1.sql` (if you are a HDWF only customer) or `OHADI_FK_INDEX_DROP_DDL.sql` (if you are an OHADI customer) on your Oracle Database 11.2.0.4 and execute it.
2. Gather statistics after initial load as recommended in the *Oracle Performance Tuning Guide*.
3. For Exadata, after initial load in HDWF, execute `hdwf_ddl_6_1_post_initial_exadata.sql`. This reverts `CELL_FLASH_CACHE` to default for a subset of tables that were pinned to flash cache. It also changes compression for all tables that had HCC for Query High to COMPRESS FOR OLTP. For details on pinning, see section 4.5, "Exadata Machine", in the *Oracle Healthcare Data Warehouse Foundation Programmer's Guide*.
4. After HDWF installation, READ ONLY accounts should be created for accessing the HDWF Schema to load EHA applications. Data modification privileges should not be given to the user running *ad-hoc* queries on HDWF.
5. Grant update privileges to the users who load data into the HDWF Schema.
6. Review the *Introducing Database Security for Application Developers* chapter in the *Oracle Database Security Guide* for more information.
7. While loading data into downstream data marts that extract data from the HDM schema:
 - a. Re-create the foreign key indexes using `OHADI_FK_INDEX_CREATE_DDL.sql`.

Note: Since re-creating the foreign key index is resource intensive, Oracle recommends that you run this script during the environment downtime as the ETLs consume more time to load the HDM schema.

- b. Turn on index monitoring and analyze the usage of these foreign key indexes during the ETL from the HDM schema to the data mart.

- c. Analyze the index usage with real data sets that represent your workload and make the indexes that are still not utilized as invisible.
- d. Delete these invisible indexes if they are still not utilized in the ETLs and turn off index monitoring.

Note: Note down the indexes that you delete as you may have to re-create them when you create a new data mart, expand the existing data mart to include other subject areas, or extract data from new HDM tables or columns.

7.2 HDWF Utility SQL Scripts

7.2.1 Exadata Environment Utility Scripts

The following are Exadata environment utility scripts:

- `hdm_hcc_maintenance_6_1_exadata.sql` - You can change the compression for all the partitioned tables from OLTP compression to Hybrid Columnar (Query High - HCC) Compression using this script. For more details, see "Exadata compression maintenance script" in the *Oracle® Healthcare Data Warehouse Foundation Programmer's Guide*.
- `upgd_hdwf_ddl_6_1_post_initial_exadata.sql` - Use this script if you are upgrading from HDWF 6.0 to 6.1 after data is loaded to new tables introduced in HDWF 6.1. This script changes compression for new tables added in HDWF 6.1 that had compression set to HCC for Query High to OLTP compression mode.
- `hdwf_ddl_6_1_post_initial_exadata.sql` - Use this script to revert `CELL_FLASH_CACHE` to default for a subset of tables that were pinned to flash cache. Also, it changes the compression for all tables that had HCC for Query High to COMPRESS FOR OLTP during a fresh installation of HDWF. For more details, see [Section 7.1](#).