

Oracle® Life Sciences Data Hub

Installation Guide



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Preface

This preface contains the following sections:

- [Documentation accessibility](#)
- [Diversity and Inclusion](#)
- [Related resources](#)
- [Access to Oracle Support](#)

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>.

Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Related resources

All documentation and other supporting materials are available on the [Oracle Help Center](#).

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.

1

Before You Begin

If you are upgrading from a previous release, you may only need to check for the most recent information, assemble the software, and upgrade to 3.0.

This section includes the following topics:

- [Check for the Most Recent Information](#)
- [Get Your Company ID from Oracle](#)
- [Assemble the Software](#)
- [Assemble the Documentation](#)

1.1 Check for the Most Recent Information

It is critical that you check that you have the most current information before you begin the installation process.

- **Latest Release Notes.** Check for the most recent version of the Release Notes on My Oracle Support with article ID 2617887.1.
- **Known Installation and Configuration Issues.** For up-to-date information, see My Oracle Support article 2617887.1.
- **Latest Critical Patch Updates and Technology Stack Updates.** Check My Oracle Support article 180430.1, *Oracle Health Sciences Applications Supported Technology Stack*, for the latest quarterly Oracle Critical Patch Update (CPU) certified with Oracle LSH, and apply it. This patch includes security fixes and should always be up to date.
- **Installation Verification.** After you have installed Oracle LSH, see My Oracle Support article 1063225.1, *Oracle Life Sciences Data Hub Installation Verification Test* (also called the "smoke test") to verify that all basic features are functioning properly.
- Check the **Oracle LSH Product Information Page** on My Oracle Support for the latest information; see article ID 1318219.1

1.2 Get Your Company ID from Oracle

When you install Oracle LSH, you need to enter a parameter value for the company ID. The company ID serves as part of the primary key for all the Oracle LSH objects you define in this instance of Oracle LSH. If your company ever merges with another company and your Oracle LSH data and metadata are merged with the data of another company, the company ID distinguishes the objects created in each original company and prevents duplicate object primary keys.

To ensure that you have a unique number relative to other Oracle LSH customers, Oracle recommends that you use a number assigned to you by Oracle. Company IDs are tracked in an Oracle bug that is not publicly viewable. Contact Oracle Support or ask your consultant to reserve a range of ten numbers for your company. You can use these numbers for:

- Your company ID. If you have multiple instances of Oracle LSH, Oracle recommends using a different company ID for each instance.
- The tech type ID of any adapters your company may create.

1.3 Assemble the Software

Use the technology stack product versions mentioned in this document. Even if newer versions of the technology stack products become available, they may not be compatible with Oracle LSH.

- [Get the Oracle Life Sciences Warehouse 3.0 Media Pack](#)
- [Download Software to a Staging Area](#)

1.3.1 Get the Oracle Life Sciences Warehouse 3.0 Media Pack

Oracle LSH, Oracle Health Sciences Data Management Workbench, and their technology stacks are contained on the **Oracle Health Sciences Data Management Workbench 3.0** media pack for various platforms.

To receive a physical media pack with all the required DVDs, contact Oracle Support. To expedite your request, you can call Oracle Support directly or open a Service Request (SR) selecting problem category: **Version Update Request**.

To download the media pack from eDelivery:

1. Go to Oracle Software Delivery Cloud, <http://edelivery.oracle.com>, click **Sign In**, and log in with your user ID.
2. Select **Download Package** from the **All Categories** drop-down list (or leave All Categories selected). Enter **Oracle Health Sciences Data Management Workbench** in the Search field and click **Search**.
3. Select **DLP: Oracle Health Sciences Data Management Workbench 3.0.0.0.0** and click **Add to Cart**.
4. Click **Checkout**. You see a list of the selected software:
 - Oracle Health Sciences Data Management Workbench 3.0.0.0.0 (Oracle Standard Terms and Conditions)
 - Oracle Life Sciences Data Hub 3.0.0.0.0
 - Oracle Health Sciences Data Management Workbench 3.0.0.0.0
5. From the Platform drop-down list, select the appropriate operating system.
6. Click **Continue**.
7. Review the Terms and Restrictions and select **I accept the terms in the license agreement** to continue. (Click **Print** from the top-right corner of the screen to print the agreement.) Click **Continue**. You see a list of zipped files for the Oracle Life Sciences Data Hub <your operating system> 3.0 release and Oracle Health Sciences Data Management Workbench <your operating system> 3.0 release:
 - Oracle Life Sciences Data Hub 3.0.0 (V988589-01.zip)
 - Oracle Health Sciences Data Management Workbench 3.0.0 (V986465-01.zip)
 - Oracle Thesaurus Management System 5.3.1 (V988638-01.zip)

8. Leave the list of zipped files selected to download the package of Oracle Health Sciences Data Management Workbench 3.0.0.0.0 files or only select the files you need.
9. Click **Download**. Then browse to the location where you want to save the Oracle executable.
10. Double-click the Oracle executable (Oracle_SSN_DLM_02251701.exe). Leave the default destination or click **Browse** to select another one. Click **Next**. Oracle downloads the zipped files.
11. Move the zipped files to a staging area and unzip them. The full release contains a software folder for Oracle DMW (**p30798416_30000_Generic.zip**), Oracle LSH (**p6114439_R12_GENERIC.zip**, **p17269917_R12_GENERIC.zip**, **p31136807_R12_GENERIC.zip**) and Oracle TMS (**p30717198_53100_Generic.zip**).
12. See [Download Software to a Staging Area](#) for details on downloading the software.

1.3.2 Download Software to a Staging Area

Creating a staging area is recommended, but not required.

To set up the staging area successfully, create a directory for each disk in the media pack and then download and expand all the files that comprise a single disk in the media pack to the same location.

See the spreadsheet on the documentation disk for a list of patches and their location on the media pack.

To download patches from My Oracle Support, go to <https://support.oracle.com>.



Note:

See My Oracle Support article 1138053.1, *Oracle Life Sciences Data Hub and Oracle Clinical Development Analytics Known Install and Configuration Issues* for the latest information.

Table 1-1 Software to Download for Oracle LSH and Oracle DMW

Disk or Patch Name	Source	ID Number
Oracle E-Business Suite Release 12.1.1 <i>operating_system</i> x86-64 Rapid Install: Databases, Tools, APPL_TOP, and documentation	Media pack	15 disks
Oracle Applications DBA 12.1.3 Product Release Update Pack	My Oracle Support	9239089
Oracle E-Business Suite 12.1.3 Release Update Pack	My Oracle Support	9239090
Oracle Database 19c for Linux	Media Pack	V982063-01
Oracle Thesaurus Management System 5.3.1	Media Pack	30717198
Oracle LSH Splicer patch for Applications R12	Media Pack	6114439
Oracle Life Sciences Data Hub 3.0	Media Pack	31136807
Oracle Life Sciences Data Hub 3.0 online help	Media Pack	18551089
Oracle E-Business Suite SDK patch	Media Pack	17269917
NOT ABLE TO ADD HTTPS URL TO FAVORITES LINK IN 12.1.2. HTTP IS PRE-PENDED TO URL	My Oracle Support	11781531

Table 1-1 (Cont.) Software to Download for Oracle LSH and Oracle DMW

Disk or Patch Name	Source	ID Number
FND_NO_DATABASE_CONNECTION	My Oracle Support	11832737
API TO PREVALIDATE EBS USERS for Oracle LSH (This patch is only required if you perform a full install of Oracle LSH 3.0 [not an upgrade to 3.0 from a previous version].)	My Oracle Support	19357286
FND PRODUCT INSTALLATION IS NOT EXECUTING FOR GHR, OTL, IREC PRODUCTS (This patch is only required if you perform a full install of Oracle LSH 3.0 [not an upgrade to 3.0 from a previous version].)	My Oracle Support	16263414
Oracle Database 19c (19.8); for a list of patches required, see My Oracle Support article 1058763.1.	My Oracle Support	1058763.1

If you use Oracle Health Sciences Data Management Workbench, download the following software to a separate application server. For system requirements, see the *Oracle Health Sciences Data Management Workbench Installation Guide*.

Table 1-2 Software to Download for Oracle DMW

Disk or Patch Name	Source	ID Number
Oracle WebLogic Server 12.2.1.4 and Coherence for Linux x86	Media Pack	p26269885_122130_Generic.zip
ADF patch	My Oracle Support	22488867
Oracle Health Sciences Data Management Workbench 3.0	Media Pack	30560848

1.4 Assemble the Documentation

Installing Oracle LSH is a complex process because it includes installing, upgrading, and patching a number of other products. This book guides you through the process, but refers you to the documentation for other products along the way.

Oracle recommends that you gather all the documentation you will need and read it before you begin the process of installing Oracle LSH.

- [Books](#)
- [My Oracle Support Articles](#)

1.4.1 Books

The books you need to install the technology stack are included in the media pack.

You can also find PDF and HTML copies online; see [Documentation accessibility](#).

In addition to this guide, you need:

- *Oracle Life Sciences Data Hub System Administrator's Guide Release 3.0*
- *Oracle Thesaurus Management System Installation Guide Release 5.3.1*
- *Oracle E-Business Suite Release 12.1.1 Documentation Library* which includes:
 - *Oracle E-Business Suite Maintenance Utilities*

- *Oracle E-Business Suite Maintenance Procedures*
- *Oracle E-Business Suite Patching Procedures*
- *Oracle E-Business Suite System Administrator's Guide - Configuration*
- *Oracle E-Business Suite System Administrator's Guide - Maintenance*
- *Oracle E-Business Suite System Administrator's Guide - Security*
- *Oracle® Applications Upgrade Guide Release 11i to 12.1.1*
- *Oracle E-Business Suite Installation Guide: Using Rapid Install Release 12*
- *Oracle Business Intelligence Publisher Installation Guide Release 10.1.3.4*

In addition, if you plan to integrate Oracle LSH with any of the systems listed in [Integrating Other Systems](#), you need the installation guide and user documentation for those systems.

The rest of the Oracle LSH user documentation is also included. However, you should check [Oracle Help Center](#) for the most current versions.

1.4.2 My Oracle Support Articles

The My Oracle Support Web site contains links to the most recent patches and updates for Oracle products. This section lists all the My Oracle Support articles listed in subsequent sections of this guide so that you can copy all of them to one place. See [Documentation accessibility](#).

- [System Requirements and Technology](#)
- [Installing Oracle Applications and Oracle Database](#)
- [Installing Oracle Life Sciences Data Hub](#)
- [Upgrading to Oracle Life Sciences Data Hub Release 3.0](#)
- [Other Documents Related to Oracle Life Sciences Data Hub](#)

1.4.2.1 System Requirements and Technology

[System Requirements and Technology Stack](#) references the following My Oracle Support articles:

- 180430.1, *Oracle Life Sciences Applications Supported Technology Stacks*

1.4.2.2 Installing Oracle Applications and Oracle Database

[Installing and Patching Oracle Applications and Oracle Database](#) references the following My Oracle Support articles:

- 1138053.1, *Oracle Life Sciences Data Hub and Oracle Clinical Development Analytics Known Install and Configuration Issues*
- 2580629.1, *Interoperability Notes: Oracle E-Business Suite Release 12.1 with Oracle Database 19c*
- 2530680.1, *Using Oracle 19c RAC Multitenant (Single PDB) with Oracle E-Business Suite Release 12.1 (for an Oracle RAC environment)*
- 387859.1, *Using AutoConfig to Manage System Configurations in Oracle E-Business Suite Release 12*

- 2560690.1, *Cloning Oracle E-Business Suite Release 12.1 with Multitenant Database using Rapid Clone*
- 403537.1, *Secure Configuration Guide for Oracle E-Business Suite Release 12*

1.4.2.3 Installing Oracle Life Sciences Data Hub

[Installing Oracle Life Sciences Data Hub](#) references the following My Oracle Support articles:

- 387859.1, *Using AutoConfig to Manage System Configurations in Oracle E-Business Suite Release 12*
- 727208.1, *AuditTrail Update Tables fails on View AP_SYSTEM_PARAMETERS_ALL_AC1*
- 164871.1, *Configuring the Workflow Notification Mailer in Oracle Applications Manager 11i*

1.4.2.4 Upgrading to Oracle Life Sciences Data Hub Release 3.0

[Upgrading to Oracle Life Sciences Data Hub Release 3.0](#) references the following My Oracle Support article:

- 1054417.1, *Patch 6678700 Worker Fails On Applying MSDODPCODE.sql With ORA-33292 Insufficient Permissions To Access Analytic Workspace APPS.ODPCODE; ORA-33262: Analytic workspace ODPCODE does not exist.*
- 1314218.1, *ORA-37002: Oracle OLAP failed to initialize while applying patch 6678700*
- 2580629.1, *Interoperability Notes: Oracle E-Business Suite Release 12.1 with Oracle Database 19c*
- 2530680.1, *Using Oracle 19c RAC Multitenant (Single PDB) with Oracle E-Business Suite Release 12.1 (for an Oracle RAC environment)*
- 1333659.1, *Applying The Patch 6678700 Worker 1 Failed: File Cskbcac.Ldt. ERRORS: ORA-20000: Oracle Text error: DRG-50857: oracle error in textindexmethods.ODCIIndexUpdate, DRG-13201: KOREAN_LEXER is desupported*
- 1281478.1, *Script Czhist.Sql Fails During Application Of Patch 6678700*
- 1083981.1, *Script Pechktsk.Sql fails with, ORA-00979: Not A Group By Expression when applying Patch 6678700 or Patch 3500000*
- 1322144.1, *Error - ORA-54015 : biv_b_age_h_sum_mv.xdf Fails with Duplicate Column Expression was Specified*
- 1284055.1, *12.1.1 Upgrade Fails on Fem_bal_nacc_hier_l2_mv.xdf with Oracle 11.2.0.2 Database*
- 1106795.1, *adapctl.sh: exiting with status 150*

1.4.2.5 Other Documents Related to Oracle Life Sciences Data Hub

The following related documents are available on My Oracle Support. See [Documentation accessibility](#).

- *Oracle Life Science Data Hub (LSH) Summary of Patches Available (1376925.1)*

- *Oracle Life Sciences Data Hub 2.1.3, 2.1.4, 2.2, 2.2.1, 2.3, 2.3.1 and 2.4 Installation Verification Tests (1063225.1)*
- *Guide to Using Oracle VM Templates in an Oracle Life Sciences Data Hub 2.2 Installation (1450700.1)*
- *Oracle Life Sciences Data Hub 2.2 Data Guard Support (1342251.1)*
- *Oracle Life Sciences Data Hub Release 2.2 Performance Behavior and System Recommendations (1369871.1)*

2

System Requirements and Technology Stack

If you install Oracle LSH for the first time or upgrade to a new version after December 31, 2010 and are using Oracle Enterprise Manager (OEM) 10.2.0.4 or 10.2.0.5 with Oracle LSH, apply OEM patch 8350262.

For further information, see My Oracle Support article number 1217493.1.

This section contains the following topics:

- [System Requirements](#)
- [Technology Stack](#)
- [Integrated External Systems](#)
- [Character Encoding Settings](#)

2.1 System Requirements

This section includes some general requirements for your Oracle Life Sciences Data Hub installation. For requirements on other products you need to install, see the documentation that came with them.

The general requirements topics include:

- [Operating Systems](#)
- [Hardware](#)

2.1.1 Operating Systems

To get the most current information on the Oracle LSH technology stack, see My Oracle Support article 180430.1, *Oracle Life Sciences Applications Supported Technology Stacks*.

This section includes the following topics:

- [Database Tier](#)
- [Application Tier](#)
- [Clients](#)

2.1.1.1 Database Tier

The Oracle LSH database tier can be installed on the following platforms:

- Linux x86-64 (64-Bit)
 - Oracle Enterprise Linux 7.4 or later
 - Red Hat Enterprise AS/ES 5
 - Red Hat Enterprise AS/ES 6
- AIX 6.1 (64-Bit)

- Oracle Solaris 10 on SPARC (64-Bit)
- Oracle Solaris 11 on SPARC (64-Bit)

2.1.1.2 Application Tier

You can install the Oracle LSH application tier on the following platforms:

- Linux x86-64 (64-Bit)
 - Oracle Enterprise Linux 6 or later, and 7.4 or later
 - Red Hat Enterprise AS/ES 5
 - Red Hat Enterprise AS/ES 6
- HP Itanium 11i v3 (11.31) (64-bit)
- AIX 6.1 (64-Bit)
- Oracle Solaris 10 on SPARC (64-Bit)
- Oracle Solaris 11 on SPARC (64-Bit)

2.1.1.3 Clients

Oracle LSH supports the following combinations of browsers on Windows operating systems:

- Chrome: 81.0.4044.138 Official Build (64 bit)
- Firefox: 68.8.0 ESR (32 bit and 64 bit)
- Edge Chromium: 81.0.416.68 Official Build (64 bit)

For **Oracle JRE**, Oracle LSH supports the same versions as Oracle E-Business Suite 12.1.3. To get the latest information:

1. Go to My Oracle Support at <https://support.oracle.com> and sign in.
2. Click the **Certifications** tab.
3. In the Search area, enter Oracle E-Business Suite for Product and 12.1.3 for Release, and click **Search**.
4. In the Search Results page, expand **Management and Development Tools**.
5. Check the Oracle JRE versions displayed and click the link to see more.

2.1.2 Hardware

Oracle Applications 12.1.3 and Oracle Database 19c (19.8) can be installed on the same or different servers.

In addition, you need one computer running on Windows for use in installing Oracle Thesaurus Management System (Oracle TMS). You will not need this computer for Oracle LSH after installing Oracle TMS except to install any Oracle TMS patches that may be required in the future. See [Installing the Oracle TMS Database Tier](#). You need at least one Windows computer if you plan to use Oracle Business Intelligence Enterprise Edition to define Business Areas and create data visualizations (Oracle Business Intelligence Enterprise Edition Answers); see [Integrating Oracle Business Intelligence Enterprise Editions \(OBIEE\) for Visualizations](#). You can use the same

Windows computer for Oracle Business Intelligence Enterprise Edition and Oracle Thesaurus Management System.

 **Note:**

Oracle LSH does not support a Windows server for SAS.

In an installation where the application and database tiers are installed on different computers, those computers are typically connected by a local area network (LAN), while the application-tier computer is connected to clients in a wide area network (WAN).

Using Real Application Clusters (RAC) to install the database over several nodes is optional.

Oracle LSH uses Oracle XML Publisher (which is bundled with Oracle Applications) to generate PDF-format Report Sets. If you plan to use this feature and if your Report Sets are very large, you may want to dedicate one node to Oracle XML Publisher processing.

For system hardware requirements see the documentation for each component; see [Assemble the Documentation](#).

In addition:

- The TCP/IP network connection to the server should be at least at 1 GB.
- Be sure to allow for growth in database storage capacity.
- Oracle recommends installing a test environment as similar as possible to the production environment, including all operating system and other patches and updates.

2.2 Technology Stack

To get the most current information on the Oracle LSH technology stack, see My Oracle Support article 180430.1. At the time of publication of this document, the required technology stack for Oracle LSH consists of the following products:

- **Oracle Applications 12.1.3** and required patches. See [Install Oracle Applications 12.1.1](#).

 **Note:**

Oracle Life Sciences Data Hub has been tested ONLY on Release 12.1.3 of Oracle Applications. Do not install more recent releases unless explicitly instructed to do so by an Oracle Life Sciences Data Hub note or alert on My Oracle Support.

- **Java Development Kit (JDK) 1.8.0_211** is required for the Oracle LSH Distributed Processing Server.
- **Oracle Database 19c (19.8)**
- **XML DB**, which is included with the 19.8 database, is required for Oracle LSH.
- **Oracle Thesaurus Management System 5.3.1 Database Tier** is used internally for the Oracle LSH classification system.

- **Oracle Reports 10.1.2.3.0** is required for Oracle LSH Programs of type Oracle Reports. It is bundled with Oracle Applications 12.1.1.
- A **zip utility** and **Java Development Kit (JDK) 1.8.0_211** are required for the Oracle LSH Distributed Processing Server.
- **WinZip** or **7-Zip** is required on clients used by Oracle LSH developers who launch integrated development environments (IDEs) such as SAS or the Oracle BI Administration Tool on their PC. Neither of these utilities is included on the media pack.
For WinZip, use Pro 11.2 SR-1, WinZip 8.1, or any other WinZip version that includes WZUNZIP.exe.

2.3 Integrated External Systems

Oracle LSH includes adapters to support integration with the following external systems.

- **Oracle Clinical 4.6 or Oracle Clinical 4.5.1 or 4.5.3 with patch 4.5.1.14 or its successor 4.5.1.75**, applied. Both patches are compatible with 4.5.3 and 4.5.1
- **SAS 9.1.3, SAS 9.2, SAS 9.3** Optional and licensed separately.
- **Oracle Business Intelligence Enterprise Edition (OBIEE) 12.2.1.4** can be used to create OBIEE visualizations of Oracle LSH data. Optional and licensed separately. The OBIEE Presentation Server, OBIEE Server, and the OBIEE Administrator's Tool are required if you are using Oracle Business Intelligence Enterprise Edition. The latter two run on Windows only.

2.4 Character Encoding Settings

The data loaded into Oracle Life Sciences Data Hub (Oracle LSH) may originate in many systems, and these systems may use different encodings for special characters, including characters used in languages other than English. Special characters encoded in a coding system other than the one used by Oracle LSH may not be stored or displayed correctly in Oracle LSH.

If your data includes special characters, follow the steps in the sections listed here to adjust the many settings that determine the encoding used by various processes.

Make changes only after carefully analyzing the potential impact on your own data.

- Set the database character set when installing Oracle Applications; see [Oracle LSH UTF8 Requirements](#).
- Leave `NLS_LENGTH_SEMANTICS` set to its default value, which is `BYTE`. To use character semantics, which is required, see the next point.
- Set the LHS profile **Use Character Semantics for Workarea Installation** to **Yes**. See the chapter on setting profile values in the *Oracle Life Sciences Data Hub System Administrator's Guide* for information.

Note:

This setting is required for Oracle LSH and Oracle Health Sciences Data Management Workbench (Oracle DMW).

- Set environment variables on each computer where you install the Oracle LSH Distributed Processing (DP) Server; see [Set NLS_LANG to UTF8](#).
- Add a JVM argument to the DP Server Start script; see [Edit the DP Server Start Script](#).
- If you are running SAS programs from Oracle LSH, see [Start SAS in UTF8 Mode](#).
- Definers who have a SAS or Oracle client such as SQL Developer or SQL*Plus installed as a development environment on their PC should follow instructions in [Set the NLS_LANG Environment Variable to UTF8](#).

3

Installing and Patching Oracle Applications and Oracle Database

This section includes the following topics:

- [Install Oracle Applications 12.1.1](#)
- [Upgrade Oracle Applications to R12.1.3 and Apply Patches](#)
- [Upgrade to Oracle Database 11.2.0.4](#)
- [Change Default Password Settings](#)
- [Increase JVM Memory](#)
- [Secure the Oracle Applications Installation](#)
- [Clone the Environment \(Optional\)](#)
- [Upgrade to Oracle Database 19c \(19.8\)](#)

3.1 Install Oracle Applications 12.1.1

To install Oracle Applications 12.1.1, use *Oracle E-Business Suite Installation Guide: Using Rapid Install Release 12 (12.1.1)* (Part E12842-04)).



Note:

Oracle LSH has been tested **ONLY** on Release 12.1.3 of Oracle Applications. If more recent releases have become available, do **NOT** install them unless explicitly instructed to do so by an Oracle LSH-specific note or alert on My Oracle Support.

- [Oracle LSH UTF8 Requirements](#)

3.1.1 Oracle LSH UTF8 Requirements

Oracle LSH has the following character set-related required settings:

- **Database character set=UTF8.** Oracle Applications Rapid Install prompts you for the database character set. **You MUST set this value to UTF8. A value of UTF8 is REQUIRED. This is the ONLY opportunity you have to set this value, and you CANNOT change it later.**
- **NLS_CHARACTERSET=UTF8.** When you set the database character set to UTF8 during Oracle Applications Rapid Install, it automatically sets NLS_CHARACTERSET to UTF8 as well, which is correct.
- **NLS_LENGTH_SEMANTICS=BYTE.** The default value for NLS_LENGTH_SEMANTICS is BYTE. **Do not change this value.** To use character semantics, set the LHS profile Use

Character Semantics for Workarea Installation to **Yes**. See the chapter on setting profile values in the *Oracle Life Sciences Data Hub System Administrator's Guide* for information.

3.2 Upgrade Oracle Applications to R12.1.3 and Apply Patches

- [Install Patches Using Autopatch](#)
- [Download and Install the Software Development Kit for Java](#)

3.2.1 Install Patches Using Autopatch

Install the following patches using Autopatch to upgrade from R12.1.1 to R12.1.3:

- 9239089 Oracle Applications DBA 12.1.3 Product Release Update Pack
- 9239090 Oracle E-Business Suite 12.1.3 Release Update Pack
- 10222869 Oracle Applications Framework patch
- 12661509 for compatibility with Internet Explorer 8.
- 11781531, NOT ABLE TO ADD HTTPS URL TO FAVORITES LINK IN 12.1.2. HTTP IS PRE-PENDED TO URL
- 11832737, which is a forward port of patch 9908921 to Oracle Applications 12.1.3 fixing the intermittent FND_NO_DATABASE_CONNECTION error observed in the new home page.
- 19357286 - API TO PREVALIDATE EBS USERS for Oracle LSH (This patch is only required if you perform a full install of Oracle LSH 3.0 [not an upgrade to 3.0 from a previous version].)
- 16263414 - FND PRODUCT INSTALLATION IS NOT EXECUTING FOR GHR, OTL, IREC PRODUCTS (This patch is only required if you perform a full install of Oracle LSH 3.0 [not an upgrade to 3.0 from a previous version].)

3.2.2 Download and Install the Software Development Kit for Java

The E-Business Suite Software Development Kit for Java ships as patch 17269917 (p17269917_R12_GENERIC.zip) on the Oracle Health Sciences Data Management Workbench 3.0.0 media pack.

The .zip file contains:

- The Oracle E-Business Suite SDK for Java file, **fnnext.jar**
- README.txt
- Javadoc for Oracle E-Business Suite SDK for Java
- An Apache Ant XML file named **txkEbsSdkConfig.xml**

 **Note:**

You only need to perform these steps if you use Oracle DMW with Oracle LSH.

1. Extract fndext.jar.
2. Copy the extracted fndext.jar file and the txkEbsSdkConfig.xml file to a directory such as /home/user1/ebssdk on the WebLogic server.
3. Copy the Javadoc to any appropriate location for convenient reference.

 **Note:**

- Check My Oracle Support article 1138053.1, *Oracle Life Sciences Data Hub and Oracle Clinical Development Analytics Known Install and Configuration Issues* to see if any other patches have become required. **Do not apply additional patches** unless they have been tested with Oracle LSH and listed in article 1138053.1.
- Oracle recommends taking a full backup at this point.

3.3 Upgrade to Oracle Database 11.2.0.4

To use Oracle LSH, you must use Oracle Database 19c.

If you have an existing Oracle Database, you must upgrade to Oracle Database 11.2.0.4 and perform the remaining tasks in this chapter before you can upgrade to Oracle Database 19.8 as described in [Upgrade to Oracle Database 19c \(19.8\)](#).

The Oracle Database 11.2.0.4 software is available as patch 13390677. (Oracle Applications Release 12.1.1 includes Oracle Database 11.1.0.7.)

 **Note:**

- If a new Oracle Database patch set for 11gR2 is released in future, the article number 1058763.1 may be used for the new release. If the article applies to a newer release, it should display the new article number for the 11.2.0.4 Interoperability note. **Do not install newer Oracle Database patch sets unless explicitly instructed by an Oracle LSH-specific note or alert on My Oracle Support.**
- Be sure to install the Oracle Examples, which are included in the media pack and include Oracle Text. Oracle Text is required by Oracle Thesaurus Management System for the Oracle LSH classification system.
- Oracle recommends taking a full backup after the upgrade.
- To install a RAC database, refer to note 823587.1, *Using Oracle 11g Release 2 Real Application Clusters with Oracle E-Business Suite Release 12*.

If you need to upgrade to Oracle Database 11.2.0.4 before upgrading to Oracle Database 19.8, follow My Oracle Support document 1058763.1, *Interoperability Notes EBS 12.0 and 12.1 with Database 11gR2*. Then see the following sections in this chapter.

3.4 Change Default Password Settings

Oracle Database includes new default password-related settings.

- Edit `init.ora` to turn off case-sensitive database logon as follows:
`sec_case_sensitive_logon=false`
- To prevent database password expiration, log in to SQL*Plus as a superuser and enter:

```
ALTER PROFILE DEFAULT LIMIT PASSWORD_LIFE_TIME UNLIMITED;
```

3.5 Increase JVM Memory

Oracle recommends a minimum Java Virtual Machine (JVM) setting of 2048M instead of the default size of 512M.

You must make this change through Oracle Applications Manager. If you do it manually, your changes will be lost when you run AutoConfig.

To increase this setting, do the following:

1. Open your web browser.
2. Enter the eBusiness Suite SSWA (Self-Service Web Application) URL as follows:
`http://<host name>.<domain name>:<HTTP port>/OA_HTML/AppsLogin`
For example:
`http://host_0066.example.com:8000/OA_HTML/AppsLogin`
The Applications Login screen appears.
3. Log in as sysadmin.
An E-Business Suite screen opens.
4. Click **System Administration** in the left-hand column under Navigator. The system refreshes the page and adds a column of links on the right.
5. Under **Oracle Applications Manager** in the Navigator pane, click **Dashboard**. The Applications Dashboard screen opens.
6. Click **Sitemap** to go to the Sitemap tab.
7. Under **System Configuration**, click **AutoConfig**. The AutoConfig screen opens.
8. Under **Context Files**, click the **Edit Parameters** icon for the Application Tier. The Context File Parameters screen opens.
9. From the **Search** drop-down list, select **OA_VAR**.
10. In the field next to the **Search** drop-down list, enter the parameter name `s_oacore_jvm_start_options` and click **Go**.
11. In the Value field for `s_jvm_options`, change the value from:

```
-Xmx512M -Xms128M -XX:MaxPermSize=128M -XX:NewRatio=2 -XX:+PrintGCTimeStamps  
-XX:+UseTLAB
```

to:

```
-Xmx2048M -Xms128M -XX:MaxPermSize=128M -XX:NewRatio=2 -XX:+PrintGCTimeStamps  
-XX:+UseTLAB
```

Note the changed value is in **bold** above.

12. Run AutoConfig. See My Oracle Support article 387859.1, *Using AutoConfig to Manage System Configurations in Oracle E-Business Suite Release 12*.
13. Stop and start the Apache server for the new value to take effect.

3.6 Secure the Oracle Applications Installation

Follow instructions in My Oracle Support article 403537.1, *Secure Configuration Guide for Oracle E-Business Suite Release 12* to set up Oracle Applications securely.

3.7 Clone the Environment (Optional)

If you plan to create another Oracle LSH environment on the same platform, you can clone your installation at this point. You cannot clone it after you have installed TMS or iAD. Refer to My Oracle Support article 2560690.1, *Cloning Oracle E-Business Suite Release 12.1 with Multitenant Database using Rapid Clone*.

3.8 Upgrade to Oracle Database 19c (19.8)

To use Oracle LSH, you must use Oracle Database 19c. You can upgrade to Oracle Database 19c from Oracle Database 11.2.0.4 or perform a full installation.

Note:

For details on upgrading your Oracle Database to 11.2.0.4 before upgrading to 19c, follow the procedures in My Oracle Support document 1058763.1, *Interoperability Notes EBS 12.0 and 12.1 with Database 11gR2*.

Before you proceed with upgrading or installing Oracle Database 19c, remove the residual Oracle Warehouse Builder (OWB) management objects:

1. Download Oracle LSH 3.0 Patch 31136807.
2. Unzip patch 31136807 (DO NOT APPLY PATCH).
3. Go to `PATCH_Folder/31136807/cdr/patch/115/sql`.
4. Connect to the database as APPS user and run the `cdrdropmgmt.sql` script. You see the following message:
This script will drop all the residual MGMT\$ objects created by OWB To continue, press upper-case Y and Return key. Press any other key to abort:
5. Enter `Y`.

Here is a sample of the type of output you see:

```
***** WITHIN THE DROP MANAGEMENT OBJECTS SCRIPT
*****
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_CHECKDBAPRIVS
DROP TABLE CDR_W4D_1054C9F.MGMT$REORG_CHECKPOINT
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_COPYDATA
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_DELETEJOBTABLEENTRY
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_DROPDBLINKS
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_ERROREXIT
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_ERROREXITORAERROR
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_MOVELONG
DROP FUNCTION CDR_W4D_1054C9F.MGMT$REORG_MOVELONGCOMMAND
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_SENDMSG
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_SETSTEP
DROP PROCEDURE CDR_W4D_1054C9F.MGMT$REORG_SETUPJOBTABLE
***** DONE WITH THE DROP MANAGEMENT OBJECTS SCRIPT
*****
```

6. If you use the Oracle LSH Workflow feature, you need to reinstall the existing Oracle LSH workflows as described in [Reinstall Existing Oracle LSH Workflows](#). Otherwise, skip that procedure.

Once you complete the previous tasks in this chapter, see one of the following documents on My Oracle Support to upgrade or install Oracle Database 19c.

- For an Oracle RAC environment: Document 2530680.1, *Using Oracle 19c RAC Multitenant (Single PDB) with Oracle E-Business Suite Release 12.1*

 **Note:**

Once you reach "Section 4: Install Oracle Database 19c RAC Software on Grid Infrastructure 19c" in the My Oracle Support document, stop after step 9 (after you apply the patches in section 1, step 8: "Apply additional 19c RDBMS patches" of My Oracle Support Knowledge Document 2580629.1, *Interoperability Notes: Oracle E-Business Suite Release 12.1 with Oracle Database 19c*). Before you perform step 10, install the following patches:

- Patch 31143870. See "Bug 31321089 : PATCH OF 31143870 ON DATABASE RU 19.6.0.0.0 FOR LINUX X86-64 [226]" on My Oracle Support for details.
 - Patch 30955442. See "Bug 31318599 : PATCH OF 30955442 ON OCW RU 19.6.0.0.0 FOR LINUX X86-64 [226]" on My Oracle Support for details.
- For a non-RAC environment: Document 2580629.1, *Interoperability Notes: Oracle E-Business Suite Release 12.1 with Oracle Database 19c*
 - When your database is on OCI Exadata (ExaCS): Document 2617850.1, *Upgrading Oracle Database 11g to Oracle Database 19c for Oracle E-Business Suite Release 12.1 on OCI Exadata DB Systems*.

Once you upgrade the database, perform the post-upgrade tasks.

- [Perform Oracle Database 19c Post-Upgrade Tasks](#)

3.8.1 Perform Oracle Database 19c Post-Upgrade Tasks

After you upgrade the Oracle Database to 19c, perform the following tasks.

- [Apply Patches for Oracle Database 19c](#)
- [Update PDB GLOBAL_NAME to Uppercase](#)
- [Unset optimizer_features_enable](#)
- [Set FILESYSTEMIO_OPTIONS to SETALL](#)
- [Check job_queue_processes](#)
- [Set Parameter Values](#)
- [Create New Indexes](#)
- [Set the PL/SQL Service Instances Value](#)
- [Gather Statistics](#)
- [Compile Invalid Objects](#)
- [Restart and Enable the Job Queue](#)

3.8.1.1 Apply Patches for Oracle Database 19c

Verify if the following patches are applied on Oracle Database 19c. If there is any patch that has not been applied already, apply it on Oracle Database 19c (19.8).

- Patch 30241807: Fixes the DROP and REVOKE privilege issue. See "Patch 30241807: SELF DEADLOCK FROM DROP USER" on My Oracle Support for details.
- Patch 30937410: Fixes blocked sessions issue. See "Patch 30937410: SESSIONS BLOCKED WAITING FOR GC WAITS FOR A LONG TIME" on My Oracle Support for details.
- Patch 31142377: Fixes concatenation of null CLOB issue. See "Patch 31142377: CONCATENATION OF A NULL CLOB WITH NON-NULL DATA YIELDS WRONG RESULTS WHEN DEST. LOB IS PART OF THE CONCATENATION" on My Oracle Support for details.
- Patch 31142749: Provides OPatch support for RAC environments. See the Readme that came with the patch and document ID 244241.1, *Rolling Patch - OPatch Support for RAC*, on My Oracle Support.
- Patch 29252510: Fixes performance issue using SQL*Loader in EBR environments. See "Patch 29252510: ZACN-ESS JOB - PERFORMANCE ISSUE USING SQL*LOADER IN EBR ENVIRONMENTS" on My Oracle Support for details.
- Patch 30392987: Fixes performance issue. See "Patch 29252510: EXECUTE IMMEDIATE WITH AUDITING HAS A LARGE PERFORMANCE IMPACT" on My Oracle Support for details.
- Patch 30233934: Fixes issues with flashback query in PDB failures, incorrect rows returned, and canceling running queries. See "Patch 30233934: QUERY FROM DBA_IND_STATISTICS RUNS SLOW ON RAC" on My Oracle Support for details.

3.8.1.2 Update PDB GLOBAL_NAME to Uppercase

To support Oracle Thesaurus Management 5.3.1, update the PDB GLOBAL_NAME in Oracle Database 19c to uppercase.

1. Log in to Oracle Database 19c.
2. Enter:

```
alter session set container="<PDB NAME>"
```

For example: `alter session set container="lsw3qa5"`

3. Enter the customer-created pluggable database (PDB) name and domain in uppercase letters:

```
update GLOBAL_NAME set GLOBAL_NAME='<PDBNAME.DOMAIN>'
```

For example: `update GLOBAL_NAME set GLOBAL_NAME='LSW3QA5.US.ABC.COM'`

Caution:

Do not use spaces or special characters (for example, *, &, @, %) in the global name or you cannot connect to or recover the database.

3.8.1.3 Unset optimizer_features_enable

To unset optimizer_features_enable:

1. Log in to Oracle Database 19c.
2. Unset optimizer_features_enable.
3. Restart the database.

3.8.1.4 Set FILESYSTEMIO_OPTIONS to SETALL

In an environment without Oracle Exadata Database systems and Oracle Automatic Storage Management (ASM), you see performance issues if you do not set the FILESYSTEMIO_OPTIONS to SETALL.

1. Log in to Oracle Database 19c.
2. Check that FILESYSTEMIO_OPTIONS is set to SETALL. If not, set it to SETALL. For more details, see Document 396009.1, *Database Initialization Parameters for Oracle E-Business Suite Release 12*, on My Oracle Support.

3.8.1.5 Check job_queue_processes

1. Log in to Oracle Database 19c.
2. Make sure job_queue_processes set to the recommended value of 1000 at the multitenant container database (CDB) and customer-created pluggable database (PDB) levels. If not, change it.

3.8.1.6 Set Parameter Values

1. Log in to Oracle Database 19c.
2. Set the following values:
 - CLOB Changes = ALTER SYSTEM SET EVENT='44951 TRACE NAME CONTEXT FOREVER, LEVEL 1024' scope=spfile;

 **Note:**

Take a backup of earlier events and then append this event (if not already set) in the existing list of events, if any.

- DB CACHE SIZE = 48 GB (at the CDB and PDB levels)
- JAVA_POOL_SIZE = at least 2 GB

 **Note:**

DMW 3.0 and later uses Java DB memory with job/install engine architecture.

- SGA MAX SIZE = 100 GB
- USE_LARGE_PAGES = ONLY
- audit_trial: Check that this parameter uses the same value you used for Oracle Database 11g
- Set container_data as CURRENT_DICTIONARY
- db_16k_cache_size = 16 GB
- db_keep_cache_size = 12 GB
- open_cursors = 1000 (at the CDB and PDB levels)
- open_links = 50
- open_links_per_instance = 500
- _optimizer_dmdir_usage_control = 0
- _optimizer_gather_stats_on_conventional_dml = FALSE
- _optimizer_use_stats_on_conventional_dml = FALSE
- pga_aggregate_target = 30 GB (at the CDB and PDB levels)
- parallel_max_servers = 64
- pga_aggregate_limit = 60 GB
- processes = 5000
- _column_tracking_level = 1
- _sql_plan_directive_mgmt_control = 0
- shared_pool_size = 12 GB (at the CDB and PDB levels)

- Add `SQLNET.ALLOWED_LOGON_VERSION_SERVER=10:` and `SQLNET.ALLOWED_LOGON_VERSION_CLIENT=10` in `SQLNET.ORA` of grid home in all RAC Nodes
- Add `SQLNET.INBOUND_CONNECTION_TIMEOUT=300` in `SQLNET.ORA` of grid home and `PDB $TNS_ADMIN` in all RAC Nodes (source the PDB environment file from `ORACLE_HOME`)
- Remove the encryption parameter. For details, see *Use of Oracle Database Native Network Encryption with DMW* (Document ID 2783451.1) on My Oracle Support.

3.8.1.7 Create New Indexes

1. Log in to Oracle Database 19c as the SYS user at the container database (CDB) and pluggable database (PDB).
2. Search for the following indexes:
 - `i_type3` on `type$(rootoid)`
 - `i_type4` on `type$(supertoid)`
3. If you cannot locate the indexes in step 2, create them by entering this command:

```
create index i_type3 on type$(rootoid)
/

create index i_type4 on type$(supertoid)
/
```

3.8.1.8 Set the PL/SQL Service Instances Value

1. Log in to Oracle Database 19c.
2. Set the PL/SQL Service instances value used in the Oracle LSH FORM user interface to 700. None of the service instance configurations should exceed 700.

3.8.1.9 Gather Statistics

Gather statistics for Oracle LSH and Oracle DMW as described in *Gathering Schema Statistics for DMW and LSH*, document ID 2220975.1, on My Oracle Support.

3.8.1.10 Compile Invalid Objects

Compile all invalid objects at the multitenant container database (CDB) and customer-created pluggable database (PDB) levels.

3.8.1.11 Restart and Enable the Job Queue

Still logged in as apps:

1. Stop and disable the Job Queue:

```
begin  
cdr_exe_job_queues.stop_processing_queues;  
end;  
/
```

2. Start and enable the job queue:

```
begin  
cdr_exe_job_queues.start_jobq_process_enabled;  
end;  
/
```


4

Installing the Oracle TMS Database Tier

The Oracle Life Sciences Data Hub (Oracle LSH) uses the Oracle Thesaurus Management System (TMS) 5.3.1 database tier internally for its classification system. If you are a new customer, see the Release 5.3.1 *Oracle Thesaurus Management System Installation Guide* at <https://docs.oracle.com/health-sciences/tms-531/install/toc>.

Users who will run Oracle LSH APIs that insert, delete, or modify Oracle LSH classification hierarchies and terms (LSH Classification Admin tasks) need security access for their Oracle LSH database account to the Oracle Thesaurus Management System (TMS) instance that is installed as part of Oracle LSH. See "Creating Database Accounts" in the *Oracle Life Sciences Data Hub System Administrator's Guide* for further information.

 **Note:**

If you have installed RAC and you have Load Balancing and Failover enabled, the database connection may change from one node to another on the server side. To avoid this problem, shut down all but one database node for the duration of the TMS installation.

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Installing Oracle Life Sciences Data Hub

`$APPL_TOP`, `$CDR_TOP`, and `$JAVA_TOP` are all on the middle tier. The Distributed Processing (DP) Server Home directory is located on the DP Server. These may all be physically located on the same computer or they may be located on different computers, depending on your installation.

These instructions include copying files from one of these directories to another. Remember that you need to use FTP if they are on different computers.

Note:

During its initial development, the Oracle Life Sciences Data Hub (Oracle LSH) was known as CDR. Therefore many Oracle LSH-related directories, files, scripts, parameters, and so on are named CDR or contain the string `cdr`. Please think of CDR as a synonym for Oracle LSH as you go through the installation process.

This section includes the following topics:

- [Apply the Oracle Life Sciences Data Hub AD Splicer Patch](#)
- [Grant Execute Privileges to the APPS Schema](#)
- [Install Oracle LSH 3.0](#)
- [Apply Patch 32199023](#)
- [Install Online Help](#)
- [Install the CdrRuntime.jar File](#)
- [Check Non-Default Service](#)
- [Set CDR_DB_SERVICE_NAME](#)
- [Set CDR_SCAN_HOST_NAME](#)
- [Set CDR_SCAN_PORT_NUM](#)
- [Run the Health Check Scripts](#)
- [Create System Administrator and Security Administrator Users](#)
- [Set Profile Values for Load Balancing and Service Name](#)
- [Run the Post-Installation Programs](#)
- [Gather Statistics on Schemas](#)
- [Schedule the Context Index Refresh Program](#)
- [Start Journaling Internal Tables](#)
- [Increase Memory Available for MetaData Reports](#)
- [Grant Security Rights to Seeded Adapters](#)

- [Create CDR_USER Role](#)
- [Set Up the Notification Mailer](#)
- [Set Up the Distributed Processing Server](#)
- [Set Up Client Computers](#)
- [Install and Configure Java Web Start in Oracle E-Business Suite](#)
- [Register Scheduler Job Events to Scheduler Queue](#)
- [Mark the OWBSYS Job as Broken](#)

5.1 Apply the Oracle Life Sciences Data Hub AD Splicer Patch

Because Oracle LSH is off-cycle from the rest of Oracle Applications, you must use the Applications DBA AD Splicer. You must apply the AD Splicer patch for Oracle LSH, patch number **6114439**, which is on the Oracle LSH media pack, before you apply the Oracle LSH patch.

Follow instructions in the readme file on how to splice Oracle LSH into your Oracle Applications instance **using the AD Splicer**.

Note:

The readme file currently contains contradictory information about how to apply the patch, saying first to use the AD Splicer and not Autopatch, and later saying to apply the driver using Autopatch. **Use only the AD Splicer.** Do not apply the unified driver using Autopatch as it says at the end.

For information on the AD Splicer utility, see the section on the AD Splicer in *Oracle E-Business Suite Maintenance Utilities* (E13676-03). This document is on the media pack.

5.2 Grant Execute Privileges to the APPS Schema

In SQL*Plus, grant privileges to the apps schema as follows:

```
grant execute any procedure to apps;
```

5.3 Install Oracle LSH 3.0

You must install the Oracle Life Sciences Data Hub 3.0 as a patch to Oracle Applications using AutoPatch. The patch, number **31136807**, is on the media pack.

1. Unzip the patch to \$APPL_TOP/patches.
2. Go to <PATCH_TOP>/cdr/patch/115/sql.

3. Edit the `dme24indexupdatescript.sql` file to replace the existing code with the following:

```
REM $Header: dme24indexupdatescript.sql 120.1 2013/10/24 19:49:53
anathale noship $
REM dbdrv: sql ~PROD ~PATH ~FILE none none none sqlplus &phase=tab+2 \
REM dbdrv: checkfile(115.55=120.11):~PROD:~PATH:~FILE &un_fnd &un_apps

SET VERIFY OFF;
WHENEVER SQLERROR EXIT FAILURE ROLLBACK;
WHENEVER OSERROR EXIT FAILURE ROLLBACK;

DECLARE
BEGIN
    NULL;

EXCEPTION WHEN OTHERS THEN
    -- Raise exception if any error occurs, l_ErrorAt gives the object name
    where the execution failed.
    RAISE_APPLICATION_ERROR(-20010,'Error in partition table script at : ' ||
l_ErrorAt || '. Error: '||SQLERRM);
END;
/

COMMIT;
EXIT;
```

4. Apply the patch 31136807 using `adpatch`.

5.4 Apply Patch 32199023

When you upgrade from Oracle LSH release 2.5.3 to release 3.0, the upgraded application contains an invalid package that causes the job execution to fail. In order to prevent the job execution to fail, you must apply the patch 32199023.

1. Download the patch 32199023 from [My Oracle Support](#). For the password to download the patch, contact Health Sciences Support.
2. Unzip the patch zip file.
3. Follow instructions in the readme file to apply the patch.

5.5 Install Online Help

For full installations of Oracle LSH (not an upgrade), install online Help patch **18551089** (available on the media pack) to access online Help topics from HTML versions of the following Oracle LSH guides:

- *Oracle Life Sciences Data Hub System Administrator's Guide*
- *Oracle Life Sciences Data Hub Implementation Guide*
- *Oracle Life Sciences Data Hub Application Developer's Guide*
- *Oracle Life Sciences Data Hub User's Guide*

Install the patch using AutoPatch. See [Install Patches Using Autopatch](#) for details.

5.6 Install the CdrRuntime.jar File

Install CdrRuntime.jar as described in the following steps:

1. On the Oracle LSH server, navigate to the \$CDR_TOP/jar folder. It contains the CdrRuntime.zip file.
2. Copy the CdrRuntime.zip file to the Oracle Database server in any temporary location. Then enter this command to unzip the file and extract CdrRuntime.jar:

```
unzip CdrRuntime.zip
```

3. Run these commands to load the java files to the database. First this command:

```
dropjava -force -thin -user apps/  
apps@"(DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=<DB hostname>)  
(PORT=<DB port number>))(CONNECT_DATA=(SERVICE_NAME=<DB service  
name>)))" CdrRuntime.jar
```

Then this command:

```
loadjava -force -thin -user apps/  
apps@"(DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=<DB host name>)  
(PORT=<DB port number>))(CONNECT_DATA=(SERVICE_NAME=<DB service  
name>)))" CdrRuntime.jar
```

4. Run this query to return a set of alter java commands that should be run to compile invalid classes:

```
SELECT  
  
'alter java class ''  
|| object_name  
|| '' compile;'  
  
FROM  
  
dba_objects  
  
WHERE  
  
object_type = 'JAVA CLASS'  
and object_name LIKE '%cdr%'  
  
AND status = 'INVALID';
```

5. Connect to the database as APPS and run the statements returned by the above query.
6. Rerun the query and confirm that it does not return any rows.

 **Note:**

If the query returns rows, execute the statements returned again. Repeat this process until the SQL does not return any rows.

5.7 Check Non-Default Service

1. Log in to Oracle Database 19c as sysadmin user.
2. Execute this query to find all the service names with LONG:

```
select NAME, NETWORK_NAME, CON_NAME, CLB_GOAL
from gv$active_services
where CLB_GOAL='LONG';
```

3. Check that the non-default service name is not the same as the pdb / cdb name or any sys service name.

5.8 Set CDR_DB_SERVICE_NAME

1. Log in to Oracle E-Business Suite as sysadmin user.
2. Expand the **System Administrator Responsibility** folder in the left panel.
3. Expand **Profile** and then select **System**.
4. Open the forms and search for CDR_DB_SERVICE_NAME.
5. At the site Level, enter: ebs_PDB name identified in the [Check Non-Default Service](#) section.
6. Save the form.

5.9 Set CDR_SCAN_HOST_NAME

Set CDR_SCAN_HOST_NAME to the database scan name used in the Oracle LSH FORM user interface. (You can get this from the remote_listener parameters.)

You only need to perform these steps if you use a RAC configuration.

1. Log in to Oracle E-Business Suite as sysadmin user.
2. Expand the **System Administrator Responsibility** folder in the left panel.
3. Expand **Profile** and then select **System**.
4. Open the forms and search for CDR_SCAN_HOST_NAME.
5. At the site Level, enter: SCAN NAME
6. Save the form.

5.10 Set CDR_SCAN_PORT_NUM

Set CDR_SCAN_PORT_NUM to the database scan listener port number used in the Oracle LSH FORM user interface. (You can get this from the remote_listener parameters.)

You only need to perform these steps if you use a RAC configuration.

1. Log in to Oracle E-Business Suite as sysadmin user.
2. Expand the **System Administrator Responsibility** folder in the left panel.
3. Expand **Profile** and then select **System**.

4. Open the forms and search for CDR_SCAN_PORT_NUM.
5. At the site Level, enter: SCAN Port Number
6. Save the form.

5.11 Run the Health Check Scripts

Run the Health Check scripts for Oracle LSH and Oracle DMW as described in My Oracle Support Article 2733714.1 (<https://support.oracle.com>).

5.12 Create System Administrator and Security Administrator Users

For full installations of Oracle LSH (not an upgrade), you must create Oracle LSH user accounts for one or more users and give them the roles required to perform Oracle LSH setup tasks:

- The **LSH System Administrator** can run the post-installation job and define service locations and services in the LSH user interface. (See [Run the Post-Installation Programs](#) and [Define Service Locations and Services](#) for details.)
- The **LSH Security Administrator** assigns other special security administrator roles (Adapter Security Administrator, Classification Administrator, Data Blind Administrator, Bootstrap Administrator, User Group Administrator) to other users and sets up the object security system (defines object subtypes, roles, and user groups).

The *Oracle Life Sciences Data Hub System Administrator's Guide* includes instructions for these and other security-related tasks. The *Oracle Life Sciences Data Hub System Implementation Guide* includes information on designing an object security system for your organization.

- [Log on as sysadmin](#)
- [Create a User Account for the Administrator](#)
- [Assign a Role](#)

5.12.1 Log on as sysadmin

To log on, do the following:

1. Open your web browser.
2. Enter the eBusiness Suite SSWA (Self-Service Web Application) URL as follows:

`http://<host name>.<domain name>:<HTTP port>/OA_HTML/AppsLogin`

For example:

`http://appshost.your_company.com:8000/OA_HTML/AppsLogin`

The Applications Login screen appears.

3. Log in as sysadmin.
An E-Business Suite screen opens.

5.12.2 Create a User Account for the Administrator

You must create a user account for each person to whom you want to assign the LSH Security Administrator or LSH System Administrator role. Oracle LSH uses the standard Oracle Applications UMX interface for creating user accounts.

Note:

For complete information, see the *Oracle Applications System Administrator's Guide—Security*, Oracle Part Number B13923-02. The book is included on the media pack.

You can see it online from the Oracle Technology Network at <http://www.oracle.com/technology/index.html>.

1. Select **User Management** by clicking on it in the Navigator (near the bottom of the list on the left). New links appear in the second column, including **Users**.
2. Click **Users** under User Management. The User Maintenance screen appears.
3. From the **Register** drop-down list, select **External Organization Contact** and click **Go**. The Register Business Contact screen appears.
4. Enter values in the following fields:
 - **Email Address.** Enter the user's email address. Oracle LSH uses this address for corresponding with the user.
 - **Name Fields.** Type the name of the user in the fields. The First Name and the Last Name are mandatory. Prefix, Middle Name and Suffix are optional.
 - **Organization.** If you have a multi-organizational setup, enter or search for the Organization the user belongs to.
 - **Phone Number.** The telephone contact details for the user.
 - **Extension.** The extension of the provided telephone number of the user.
 - **Account Information.** Select **Generate Automatically** for Oracle LSH to generate and email the password. Or select **Enter Manually** and type and confirm the password.
5. Click **Submit**. The Confirmation screen appears.
6. Click **OK**. Oracle LSH creates the user account and returns to the User Management screen.

5.12.3 Assign a Role

Assign administrator roles as follows:

- **LSH System Admin.** You must assign the LSH System Admin role to at least one user.
- **LSH Setup Admin.** You must assign the LSH Setup Admin responsibility to at least one user.
- **LSH Adapter Security Admin.** You must assign the LSH Adapter Security Admin role to at least one user.

- **LSH Data Security Admin.** This role allows a user to create all the objects required by the Oracle LSH object security system: object subtypes, object roles, and user groups.
- **LSH Function Security Admin.** This role allows a user to create user accounts and assign functional roles to them. Functional roles control which parts of the Oracle LSH user interface a user can view or allow special privileges.
- **LSH Security Administrator.** This role is a combination of the LSH Data Security and Functional Security Admin roles.

**Note:**

For further information on Oracle LSH security and security roles, see the *Oracle Life Sciences Data Hub System Administrator's Guide*.

To assign a functional role to a user:

1. Go to the User Maintenance screen.
If you are already in the User Management tab, click the Users subtab.
Or log in as sysadmin, click the **User Management** responsibility in the navigator, click **Users**, and click the Users subtab.
2. Search for the user to whom you want to assign roles. The system displays the search results in the lower portion of the screen.
3. Click the Update icon corresponding to the user. The Update User screen appears.
4. Click **Assign Roles**. The Search and Select screen appears.
5. Search for all Oracle LSH predefined roles by selecting Search By **Roles and Responsibilities**, entering `LSH%`, and clicking **Go**. The system displays all the predefined Oracle LSH functional roles in the lower part of the screen.
6. Select each role you want to assign by checking its box. See [Assign a Role](#) for further information.
7. Click **Select**. The system displays additional fields. Enter values as follows:
 - **Justification.** You must enter text in this field. Describe the reason this person needs this role.
 - **Active From.** The system automatically enters the current date. If you prefer to have the user's privileges begin at a later date, you can select the date you want by clicking the calendar icon.
 - **Active To.** Leave this field blank to avoid having the user's privileges automatically expire on the date you specify. When the user leaves the company or changes roles, you can enter an expiration date here. If you want to set an end date for the user's privileges associated with this role, use the calendar icon to specify the end date.
8. Click **Apply**. The system assigns the role(s) you specified plus any necessary base roles to the user.

5.13 Set Profile Values for Load Balancing and Service Name

If you use an Oracle Real Application Clusters (RAC) environment, you need to set two system profile values to load balance jobs between different nodes on the RAC machine during installation and execution. If you do not use an Oracle RAC environment, you can leave the load balancing profile values empty (default).

You also need to set one system profile value for the service name of the Transparent Network Substrate (TNS) definition for the database if it differs from the name of the PDB. Otherwise, you can leave this value empty (default).

To use the load balancing feature on an Oracle RAC machine, set the following profile values:

- **CDR_SCAN_HOST_NAME.** Enter the scan server host name.
- **CDR_SCAN_PORT_NUM.** Enter the scan server port number.

To define the database service name (if required), set the following profile value:

- **CDR_DB_SERVICE_NAME.** Enter the service name of the TNS definition for the database (if different than the PDB name).

5.14 Run the Post-Installation Programs

You must run the Oracle LSH LOB Loader and post-installation concurrent programs.

Note:

If you are using RAC, shut down all but one database node before running the post-installation programs. If you leave more than one node up, the jobs may run successfully but you may get errors.

- [Log On to Oracle Applications](#)
- [Load the Adapter Files](#)
- [Set the Tech Type Value](#)
- [Run the Post-Installation Program](#)

5.14.1 Log On to Oracle Applications

To run the jobs, you must log on to Oracle Applications as an Oracle LSH user with the following roles:

- LSH Setup Admin
 - LSH Adapter Security Admin
1. Open your Web browser.
 2. Enter the eBusiness Suite SSWA (Self-Service Web Application) URL as follows:

`http://<host name>.<domain name>:<HTTP port>/oa_servlets/AppsLogin`

For example:

`http://appshost.your_company.com:8000/oa_servlets/AppsLogin`

The Applications Login screen appears.

3. Log in as a user with LSH Setup Admin and LSH Adapter Security Admin privileges. An Oracle LSH page opens. Click **Home** from the links on the top right corner of the page to reach the Oracle Applications Home Page.
4. Select the **LSH Setup Admin** Responsibility by clicking on it. **Lookups** appears in the second column.
5. Click **Lookups**. (If necessary, click **Grant This Session** or **Grant Always**.) The Oracle Life Sciences Data Hub Lookups window opens.
6. From the **View** menu, select **Requests**.

5.14.2 Load the Adapter Files

Oracle LSH includes predefined adapters that control the interaction between Oracle LSH and other systems. The Oracle LSH LOB Loader concurrent program finds all the adapter SQL files and loads them into a table in Oracle LSH.

To run the Oracle LSH LOB Loader:

1. Follow steps in [Log On to Oracle Applications](#).
2. Click **Submit a New Request**. The Submit a New Request window opens.
3. Select **Single Request** and click **OK**. The Submit Request window opens.
4. Click the gray LOV button on the right of the **Name** field. The Reports List of Values opens.
5. Select **LSH LOB Loader Concurrent Program** and click **OK**.
6. Click **Submit**. A window pops up with the job ID and asks if you want to submit another request.
7. Click **No**.

To monitor the concurrent program's progress:

1. Click **Find**.
2. Click **Refresh Data** periodically to update the execution phase and status displayed on screen.

When the status is Complete you can view the log file by clicking the **View Log** button.

 **Note:**

- Always check the log file because the phase may be Complete and the status Normal, but the program may not have successfully completed all its tasks.
- If you see this message in the log file: "ORA-20001: APP-FND-02901: You do not have access privilege to any operating unit. Please check if your profile option MO: Security Profile includes any operating unit or the profile option MO: Operating Unit is set. has been detected in MO_GLOBAL.INIT," see this article on [My Oracle Support](#): *ORA-20001: APP-FND-02901 Errors Running Collections or Plan in 12.2 OR in Trying to View Request Log from Legacy Collections Self Service In R12.0/12.1* (article 981828.1).

5.14.3 Set the Tech Type Value

In a fresh installation of Oracle LSH, you need to set the Tech Type value as described below. These steps are not required in an upgrade.

1. Log in to SQL*Plus as **apps**.
2. Run the following SQL statement:

```
select CDR_Tech_Types_ID_Seq.nextval from dual;
```

5.14.4 Run the Post-Installation Program

 **Note:**

Read this whole section before you do this step. You must be very careful to **SET ALL PARAMETERS CORRECTLY**. You cannot change some of them after you run the job.

The Oracle LSH post-installation program takes parameter values you enter to configure your Oracle LSH instance and creates accounts and objects that Oracle LSH uses internally. Read this whole section before you do this step. You must be very careful to **SET ALL PARAMETERS CORRECTLY**. You cannot change some of them after you run the job.

The parameters:

- Set the Oracle LSH context from the parameter values you enter (listed below).
- Create required FND Oracle Applications profiles for the company ID and owning location you specify.
- Create the Oracle LSH instance domain. This is the parent defined object that contains all the Oracle LSH Domains and other defined objects in your Oracle LSH instance.
- Load the predefined Oracle LSH object subtypes.
- Create internal adapters, defined objects that store required Parameters and other elements used by Execution Setups and Oracle LSH Workflows. Oracle LSH uses these adapters as a template in creating required elements of these defined objects.

- Enable the job queue. (To start the queue, see the chapter "Stopping and Starting Services and Queues" of the *Oracle Life Sciences Data Hub System Administrator's Guide*.)
- Configure a PL/SQL service and three service instances for internal Oracle LSH use. For information on services, see "Setting Up Services" in the *Oracle Life Sciences Data Hub System Administrator's Guide*.
- Deploy standard process flows to enable the Notifications feature of LSH Workflows.

In addition to the adapter files loaded by the LOB Loader, Oracle LSH's adapters are composed of metadata elements that are Oracle LSH definitional objects. The post-installation job creates and installs these objects as follows:

- For each adapter, the job creates an Adapter Domain, an Adapter Area within the Adapter Domain, and an Adapter Work Area within the Adapter Area. In the case of Oracle Clinical the job creates a single Adapter Domain containing an Adapter Area and Adapter Work Area for each of the specialized Oracle Clinical adapters.
- The job creates a Program and related object definitions in each adapter's Adapter Area and object instances in its Work Area. The job adds the adapter SQL files loaded by the Oracle LSH LOB Loader job to the Source Code definition.
- The job installs each Adapter Work Area, creating a schema dedicated to each adapter. You must assign user groups to each Adapter Area. See "Setting Up Security for Adapters" in the *Oracle Life Sciences Data Hub System Administrator's Guide*. Users in the user groups assigned to an Adapter Area can create and run Load Sets, Data Marts, Programs, or Business Areas based on that adapter.



Note:

If you run the Oracle LSH post-installation job more than once, the job upgrades the adapters.

Run the Job: To run the Oracle LSH post-installation concurrent process:

1. Click **Submit a New Request** under one of the following circumstances:
 - in the Requests window you used to monitor the Oracle LSH LOB Loader concurrent process
 - after following the steps in [Log On to Oracle Applications](#)
2. Select **Single Request** and click **OK**. The Submit Request window opens.
3. Click the gray LOV button on the right of the **Name** field. The Reports List of Values opens.
4. Select **LSH: Post Installation Program** and click **OK**. The Parameters pop-up window appears.
5. Enter values for the following Parameters:

 **Note:**

Carefully set the following parameters. You cannot change the values for some of the parameters after you run the job. For details on values you can change, see [Change a Post-Installation Job Parameter Value](#).

- **Company ID.** The company ID serves as part of the primary key for all the Oracle LSH objects you define in this instance of Oracle LSH. If your company ever merges with another company and your Oracle LSH data and metadata are merged with the other company's, the company ID distinguishes the objects created in each original company and helps prevent duplicate object primary keys.

In order to ensure that you have a unique number relative to other Oracle LSH customers, Oracle recommends that you use a number assigned to you by Oracle; see [Get Your Company ID from Oracle](#) . If you are installing multiple Oracle LSH instances, use a different Company ID for each one.

 **Note:**

Be sure to enter the correct company ID. Oracle LSH uses the company ID in the internal ID for every defined object in Oracle LSH. Changing the ID requires manually removing the data in internal tables for all objects created with the original ID.

- **Owning Location.** Enter the name of your Oracle Applications instance.
 - **Object Sequence Start Value.** Enter a single digit. The system will end all object IDs with this digit to further distinguish objects created in this Oracle LSH instance.
 - **Object Sequence Start Value.** Leave blank. The system will end all object IDs with the number 1.
 - **Database Host Name.** Enter the machine name of the database server instance.
 - **Database Port Number.** Enter the port number of the database server instance.
6. Click **Submit**. A window pops up with the job ID and asks if you want to submit another request.
 7. Note the job ID and click **No**.

Monitor the Process: To monitor the concurrent process's progress:

1. Click **Find**. Use the job ID to search for the process.
2. Click **Refresh Data** periodically to update the execution phase and status displayed on screen.
3. When the phase is Complete, click the **View Log**.

 **Note:**

Always check the log file, because the phase may be Complete and the status Normal and yet the process may not have successfully completed all its tasks.

Check the log file to make sure it did the following:

- Set the company ID
- Set the owning location
- Recreated the `cdr_object_id_seq` with the start value you provided
- Inserted one record each in the `cdr_namings` and `cdr_naming_versions` tables for the instance domain

 **Note:**

The job does the above only the first time it runs.

- Set the profile to check if the post-installation has been run for this site.
- [Change a Post-Installation Job Parameter Value](#)

5.14.4.1 Change a Post-Installation Job Parameter Value

To create an adapter, the post-installation job creates objects—including a Work Area and Program—inside an Adapter Area in an Adapter Domain, and installs the Work Area. These objects are created using the post-installation job parameters values that you entered when you ran the job.

 **Note:**

If you change the values of some of these parameters after running the job, it may cause problems. The problems vary depending on which parameter you change, and are given for each parameter listed in this topic.

However, you can call the function `FND_PROFILE.SAVE` in SQL*Plus to change most parameters. This function takes the following parameters. You must enter single quotes around each value.

- **x_name** is the profile name
- **x_value** is the profile value that you want to set
- **x_level_name** is the name of the level at which the value should be set

 **Note:**

You must set each value at the Site level. To do this, enter 'Site' for the function parameter `x_level_name` each time you call the function.

To call `FND_PROFILE.SAVE`:

1. Log in to SQL*Plus as apps.
2. At the SQL prompt, enter:

```
begin
FND_PROFILE.SAVE ('x_name' 'x_value' 'x_level_name');
end;
/
```

You need a line calling FND_PROFILE.SAVE for each post-installation job parameter you need to change. The function parameter values required to change each post-installation parameter are included below. When you are ready to commit the changes, enter:

```
commit;
```

The details for each post-installation job parameter are:

- **Object ID Sequence.** You cannot change this value.
- **DB Host Name.** If the Oracle LSH database moves to a different machine or the name of the current machine changes, you can call FND_PROFILE.SAVE to change the name. However, changing this value will result in subsequent adapter Work Area installations and upgrades failing when you upgrade to a new version of Oracle LSH. Provide the following function parameter values:

```
FND_PROFILE.SAVE('CDR_DBHOST_NAME', 'New_Host_Name', 'SITE');
```

- **DB Port Number.** If the DB port number changes, you can call FND_PROFILE.SAVE to change it. However, changing this value will result in subsequent adapter Work Area installations and upgrades failing when you upgrade to a new version of Oracle LSH. Provide the following function parameter values:

```
FND_PROFILE.SAVE('CDR_DBPORT_NUM', 'New_Port_Number', 'SITE');
```

- **Owning Location.** There are currently no restrictions in changing this parameter value. Provide the following function parameter values:

```
FND_PROFILE.SAVE('OWNING_LOCATION', 'New_Owning_Location', 'SITE');
```

- **Company ID.** Never change the company ID. The company ID is part of the unique key for every object in Oracle LSH, including the adapter objects that were created by running the post-installation job. Changing this value could lead to the system not working in many places, including job execution, the user interface not listing submitted jobs, and more.

5.15 Gather Statistics on Schemas

For details on gathering statistics on schemas (CDR and APPS), see article 2220975.1 on [My Oracle Support](#).

5.16 Schedule the Context Index Refresh Program

The Oracle LSH Context Index Refresh Program refreshes context server indexes in Oracle LSH and TMS. You must set it up to run regularly so that user-entered metadata is continuously updated and available for use in Oracle LSH.

To schedule the Context Index Refresh Program:

1. Click the **Submit a New Request** button either:
 - in the Requests window you used to monitor the Oracle LSH Post-Installation Program
 - after following steps under [Log On to Oracle Applications](#)

2. Select **Single Request** and click **OK**. The Submit Request window opens.
3. Click the gray LOV button on the right of the **Name** field. The Reports List of Values opens.
4. Select **LSH Context Index Refresh Program** and click **OK**.
5. Click **Schedule**. The Schedule pop-up opens.
6. In the Run the Job section, select **Periodically**. Additional fields appear.
7. Schedule the job to run every two minutes by typing the number **2** in the blank field and selecting **Minutes** from the drop-down list in the Run Every line.
8. Click **OK**. A warning message appears stating that selecting a schedule without an end date will result in the request's being resubmitted until cancelled.
9. Click **OK**. The Submit Request screen appears.
10. Click **Submit**.

5.17 Start Journaling Internal Tables

Oracle keeps an audit trail of all data changes in some of its internal metadata tables in shadow journaling tables. However, you must explicitly turn this feature on. Journaling tables help to satisfy regulatory requirements.

- [Set AuditTrail:Activate Profile to Yes](#)
- [Define the Audit Installation](#)
- [Prevent Error](#)
- [Run the Audit Trail Update Tables Concurrent Program](#)

5.17.1 Set AuditTrail:Activate Profile to Yes

Set the **AuditTrail:Activate** profile to Yes at the Oracle LSH Application level.

1. Log on as sysadmin; see [Log on as sysadmin](#) for details.
2. Click the **System Administrator** responsibility link. A new column of links appears.
3. Under **Profile** in the right-hand column, click **System**.
If you receive a message asking if you want to install an applet, do so.
The **Find System Profile Values** window appears.
4. In the Display section, uncheck **Site** and check **Application**.
5. In the **Application** field, enter %life% to bring up Oracle Life Sciences Data Hub.
6. In the **Profile** field, enter AuditTrail:Activate in the **Profile** text box at the bottom of the window.
7. Click **Find**. The system returns you to the **System Profile Values** window with AuditTrail:Activate displayed in the **Profile Option Name** column and Oracle Life Sciences Data Hub displayed in the **Application** column.
8. Select Yes as the value for the column **Application** and click the **Save** icon or save from the File menu (File > Save).

5.17.2 Define the Audit Installation

To start journaling, do the following:

1. Log on as sysadmin; see [Log on as sysadmin](#) for details.
2. Click the **System Administrator** responsibility link. A new column of links appears.
3. In the new column of links, scroll down to **Security: Audit Trail**. In this section, click **Install**.

If you receive a message asking if you want to install an applet, do so.

The **Audit Installations** window appears.

4. Click the Search icon (flashlight/torch) in the toolbar. The **Find Audit Installations** pop-up appears.

Note:

If the icon is inactive, the wrong window is in focus. If necessary, retrieve the **Audit Installations** window:

- a. In the **Navigator - System Administrator** window, **Functions** tab, expand the **Security** node.
- b. Expand the **Audit Trail** node.
- c. Click **Install**. The **Audit Installations** window appears.

Then click the Search icon in the toolbar.

5. Click in the **Oracle Username** field to display the ellipsis (...), then click the ellipsis to display the list of values. Find and select `CDR`.
6. Click **Find**. The system returns you to the **Audit Installation** window with `CDR` displayed in the **Oracle Username** column
7. Select the **Audit Enabled** checkbox and click **Save**.

5.17.3 Prevent Error

For the most current information, see My Oracle Support article 727208.1, *AuditTrail Update Tables fails on View AP_SYSTEM_PARAMETERS_ALL_AC1*.

To follow Step 1 in the article, do the following:

1. Log in to Oracle LSH as sysadmin.
2. Navigate to **System Administrator**, then **Security**, then **Audit Trail**, and then **Groups**.
3. Confirm anything necessary to get the application to run and a form appears.
4. Press F11.
5. In the Audit Group line enter `SQLAP.AP_SYSTEM_PARAMETERS_ALL` and press Ctrl+F11. The Audit Group `SQLAP.AP_SYSTEM_PARAMETERS_ALL` appears.
6. Proceed with Step 2 in the MOS article.

Step 2 in the article is:

1. Set the Group state to "Disable - Purge Table" for AP_SYSTEM_PARAMETERS_ALL. This option Disable - Purge Table Drops the auditing triggers and views and deletes all data from the shadow table.
2. Be sure to Save before exiting.

Step 3 in the article is [Run the Audit Trail Update Tables Concurrent Program](#).

5.17.4 Run the Audit Trail Update Tables Concurrent Program

After you have defined CDR as the audit installation, run the Audit Trail Concurrent Program to enable auditing.

1. From the **View** menu, select **Requests**. The **Find Requests** pop-up appears.
2. Click **Submit a New Request**. The **Submit a New Request** pop-up appears.
3. Select **Single Request** and click **OK**. The **Submit Request** pop-up appears.
4. From the **Name** drop-down list, select **AuditTrail Update Tables** and click **OK**. The system returns you to the **Submit Request** window with **AuditTrail Update Tables** displayed in the **Name** field.
5. Click **Submit**. A window pops up with the Request ID and asks if you want to submit another request.
6. Make a note of the Request ID and click **No**.

Monitor the Job: To monitor the job's progress:

1. Click **Find** and use the Request ID to search for the job.
2. Click **Refresh Data** periodically to update the execution phase and status of the job displayed on screen.
3. When the phase is Complete, click the **View Log**. Always check the log file.

The log file contains a record of queries to update the FND tables, creating shadow tables, giving grants, creating triggers and procedures. At the end it should say: `Concurrent Request completed successfully` or, if the job did not complete successfully, an error message giving the reason for the failure.

5.18 Increase Memory Available for MetaData Reports

To allow predefined Oracle LSH metadata reports to run, you must change the Options setting for each of the concurrent programs that runs a set of reports. In addition, you may want to change the Priorities setting to the highest possible setting for the quickest display of the reports. The short names of the concurrent programs, with the type of reports they run, are:

- CDR_MDATA_DEFN_CP (Definitions reports)
- CDR_MDATA_INST_CP (Instances reports)
- CDR_MDATA_LIBR_CP (Library reports)
- CDR_MDATA_SECU_CP (Security reports)
- CDR_MDATA_WA_CP (Work Area reports)

See the *Oracle Life Sciences Data Hub System Administrator's Guide* chapter on System Reports for information on the reports.

To change the setting, do the following for each set of reports:

1. Log on as sysadmin; see [Log on as sysadmin](#) for details.
2. Click the **System Administrator** responsibility link. A new column of links appears.
3. In the new column of links, scroll down to **Concurrent: Program**. In this section, click **Define**.
If you receive a pop-message asking if you want to install an applet, do so.
The **Concurrent Programs** window appears.
4. Press the F11 key to enter Query mode.
5. In the **Short Name** field, enter the short name of one of the sets of metadata reports (see list above). For example, enter: CDR_MDATA_DEFN_CP
6. Press Ctrl+F11 to enter the query. The system populates all the fields with the current information for that set of reports.
7. In the **Options** field, enter: -Xmx512M
8. (Optional) In the **Priority** field, enter: 1
1 is the highest possible setting and 100 is the lowest possible setting.
9. From the **File** menu, select **Save**.
10. Repeat the procedure until you have changed the settings for all metadata report sets.

5.19 Grant Security Rights to Seeded Adapters

In order to ensure that seeded adapters have the security rights they need to call APIs, do the following:

1. Make sure that no LSH session is up and running.
2. Log in to SQL*Plus as apps.
3. Run \$CDR_TOP/patch/115/sql/cdradaptergrants.sql

5.20 Create CDR_USER Role

Create the CDR_USER role using the following script:

1. Log in to SQL*Plus as apps.
2. Run \$CDR_TOP/patch/115/sql/cdrcreatecdruserrole.sql

5.21 Set Up the Notification Mailer

To enable Oracle LSH to send Notifications to users' email address (as well as their Oracle LSH My Home page) you must set up an email account for the purpose of handling Notification responses and configure the Notification Mailer in the Oracle Workflow user interface. Follow instructions in My Oracle Support article 164871.1, *Configuring the Workflow Notification Mailer in Oracle Applications Manager 11i*.

For information on the Notification Mailer, see the *Oracle Applications System Administrator's Guide - Maintenance*, Release 11i.

5.22 Set Up the Distributed Processing Server

The Distributed Processing (DP) Server is the mechanism Oracle LSH uses to communicate with the external processing engines that run some Oracle LSH jobs.

Install the DP Server on each computer where you have installed an external processing engine (such as SAS) and where you have installed XML Publisher. If you install multiple external processing engines on the same computer, you can install the DP Server once on that computer.

For information about the DP Server, see "Setting Up Services" in the *Oracle Life Sciences Data Hub System Administrator's Guide*. For information on integrating particular external systems with Oracle LSH, see [Integrating Other Systems](#).



Note:

For Oracle DMW, the DP Server is required for File Watcher, for loading SAS and text data files. SAS files require the SAS processing engine and text files require the SQL*Loader, which is installed with Oracle Database.

Setting up the DP Server includes the following steps. You must do them in the following order:

- [Create the Distributed Processing Server User Account](#)
- [Install the Distributed Processing Server](#)
- [Secure Distributed Processing Server Files](#)
- [Set NLS_LANG to UTF8](#)
- [Copy and Edit Files](#)
- [Define Service Locations and Services](#)
- [Start the DP Server](#)
- [Start the Message Queue](#)

5.22.1 Create the Distributed Processing Server User Account

You must run a script to create the Distributed Processing (DP) Server database account `cdr_dpserver` and set its password. Use this account to start the DP Server.

 **Note:**

When you start the DP Server on each service location, you need this password. You should change the default password for use within your company.

To change a password:

1. Log in to SQL*Plus.
2. Enter the following:

```
alter user old_password identified by new_password
```

To run the script:

1. Go to \$CDR_TOP/patch/115/sql
2. Log in to SQL*Plus as apps
3. Run the script:

```
cdrcreatedpserveruser.sql
```

At the prompt, enter the password you want to use for the cdr_dpserver account.

4. Exit from SQL*Plus.

5.22.2 Install the Distributed Processing Server

On each computer where you have installed one or more processing engines for use with Oracle LSH, do the following to install the Oracle LSH Distributed Processing (DP) Server:

1. Create a home directory for the DP Server. It can be located anywhere on the computer where the DP Server resides. Oracle recommends naming it `DPServer_Home`.
2. In the DP Server Home directory, create two subdirectories: **lib** and **log**.

The lib directory will hold the jar files the DP Server uses. The log directory will hold DP Server log files. Each time you start the DP Server it creates one log file. The DP Server adds log information to that log file each time it runs a job.

3. Change to the lib directory.
4. Copy **DPServer.zip** from \$CDR_TOP/jar to the lib directory.
5. Using GNU zip or another utility, unzip **DPServer.zip** into the lib directory. The DPServer.zip file contains the following files:
 - **DPServer.jar**
 - **fileWatcherServer.jar**
 - **xmlparserv2.zip**
 - **xmlparserv2-904.zip**
6. Using SFTP, copy the following files from the \$ORACLE_HOME/rdbms/jlib directory on the database server computer to the lib directory.
 - **jmscommon.jar**
 - **aqapi.jar**

7. Using SFTP, copy the following files from the \$ORACLE_HOME/jlib directory on the database server computer to the lib directory:
 - **jta.jar**
 - **orai18n-mapping.jar**
8. Using SFTP, copy **ojdbc8.jar** from \$ORACLE_HOME/jdbc/lib directory on the database server computer to the lib directory.
9. Using SFTP, copy **ucp.jar** from \$ORACLE_HOME/ucp/lib directory on the database server computer to the lib directory.
10. Change directories to the DP Server Home directory.
11. Create a working directory with a meaningful name for each service that will run on this machine. For example, if you will run SAS jobs on this computer, create a directory such as SASWORK. If you will also run Oracle Reports jobs on this computer, create another directory with a name like REPWORK.

Each time one of these engines runs a job, the DP Server creates a directory containing the files required for the job and gives the directory the job ID as a name. When you define services in the Oracle LSH user interface, specify that you want the DP Server to create these job directories in the working directories you have created. For more details, see [Define Service Locations and Services](#).

12. Set the TNS alias in the tnsnames.ora file to the global_name of the database server. This is required because the DP server runs jobs, such as SAS programs, that connect to the database server using the global_name.
13. On the DP Server machine, create a symbolic link from the location where SAS is installed to user home:

```
ln -s SAS_executable_path/sas_u8 DP_Server_Home_path/sas
```

14. Ensure that JDK 1.8.0_211 is installed on each DP Server machine.

Note:

If you need to set up the DP Server outside the firewall, make sure the computer outside the firewall can connect to the database server inside the firewall. To do this, change a firewall setting to allow external access to the TNS listener port on the database server.

5.22.3 Secure Distributed Processing Server Files

The DP Server log files in the log directory may contain information that is sensitive to your organization. Oracle recommends granting full access to this directory only to the Oracle database user running the DP Server process and any other external processing engine user.

5.22.4 Set NLS_LANG to UTF8

On each Server where you install the DP Server, set the computer's NLS_LANG environment variable to UTF8.

- [Windows](#)

- [UNIX](#)

5.22.4.1 Windows

Check and set your NLS_LANG environment variable:

1. Right-click the **My Computer** icon on your desktop, then click **Properties**.
2. Click the **Advanced** tab, then click **Environment Variables**.
3. In **User Variables** and **System Variables**, check if there is a variable named NLS_LANG.
4. If there is an NLS_LANG variable, highlight it and click **Edit**.
5. Set the variable value to UTF8; for example: AMERICAN_AMERICA.UTF8

If you do not have the NLS_LANG environment variable, change your registry settings:

1. Click **Start**, then **Run**.
2. In the Run window, enter `regedit` and click **OK**.
3. Locate one of the following registry key entries:
 - HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE
 - HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\HOME x
where x is the unique number identifying the Oracle home
4. Add a new key named NLS_LANG with a value including UTF8; for example:

```
NLS_LANG=AMERICAN_AMERICA.UTF8
```

5.22.4.2 UNIX

Do the following:

1. Check the environment variable NLS_LANG:

```
echo $NLS_LANG
```

2. Set the environment variable NLS_LANG to UTF8; for example:

```
% setenv NLS_LANG American_America.UTF8
```

5.22.5 Copy and Edit Files

This section contains the following topics:

- [Copy DP Server Files](#)
- [Edit the DP Server Start Script](#)
- [Make Scripts Executable](#)
- [Copy RTF Template Files for XML Publisher](#)
- [Copy, Edit, and Grant Permissions to Execution Command Files for Processing Engines](#)

5.22.5.1 Copy DP Server Files

1. Go to the DP Server home directory you created when you installed the DP Server code.

2. Copy the following files from \$CDR_TOP/admin/template to the DP Server home directory:
 - **cdr_apps_dpserver.sh** (or `cdr_apps_dpserver.cmd` for running Windows services such as OBIEE)
 - **checkJSapps.sh**
 - **stopJSapps.sh**
 - **killproc.sh**

 **Note:**

Do not copy **killproc.sh** if the DP server is running on a Windows computer, for example, running the Oracle Business Intelligence Enterprise Edition server.

5.22.5.2 Edit the DP Server Start Script

You must add local values to **cdr_apps_dpserver.sh** (or **cdr_apps_dpserver.cmd** on Windows) before you can start the DP Server.

1. Log in as the owner of the DP Server Home Directory.
2. Go to the DP Server home directory.
3. Edit `cdr_apps_dpserver.sh` (or `cdr_apps_dpserver.cmd`). Enter the actual value for each of the following:
 - **\$DPSEVER_HOME**. Enter the full path for the DP Server home on this computer.
 - **SVC**. Enter the Service Location Name (not a Service name) that you defined or will define in the Service Location subtab for the Service Location that corresponds to this computer. (For more details, see [Define Service Locations and Services](#).) The name is case-sensitive. For example:

```
SVC=SERVICE_LOCATION_NAME
```

 **Note:**

On Windows you must enter this value at runtime.

- **JDK Location (JDK_LOC)**. Enter the full path to the JDK 1.8 executable.
For example:

```
JDK_LOC=$ORACLE_HOME/jdk/bin
```
- **JVM Arguments**. Add the following line immediately after the Java command (`COMMANDLINE=java`), which follows the RAC flag setting:

```
-DFile.encoding=UTF8 -Duser.language=en -Duser.country=US
```

You can accept the default values for all other variables. Some values must be set at runtime. See [Start the DP Server](#) for details.

5.22.5.3 Make Scripts Executable

Make all the scripts executable with the following command:

```
chmod 755 *.sh
```

5.22.5.4 Copy RTF Template Files for XML Publisher

The following steps are required only on the computer where you are running XML Publisher:

1. In the DP Server home directory, create a directory called **cdrtemplates**.
2. Copy the following files from `$CDR_TOP/patch/115/publisher/templates` to the new **cdrtemplates** directory:
 - `cdr_output_summ_cs.rtf`
 - `lsh-title-page.rtf`
 - `lsh-toc-template.rtf`
 - `lsh-pagenum.rtf`
 - `lsh-template.rtf`
 - `lsh-blank-page.pdf`

5.22.5.5 Copy, Edit, and Grant Permissions to Execution Command Files for Processing Engines

Do the following on each computer where you have installed a processing engine:

1. From `$CDR_TOP/admin/template`, copy the sample execution command script for each processing engine installed on the computer. You can copy the scripts directly into the DP Server Home directory or create a subdirectory for them.

 **Note:**

Keep a record of the absolute location of these scripts. You will need it when you define a service location for the computer. See [Define Service Locations and Services](#) for details.

The scripts include:

- **cdrzip.sh** and **cdrunzip.sh** for Text Data Marts
- **sasNormal.sh** for SAS Programs
- **oraexp.sh** for Oracle Export Data Marts
- **orareprunner.sh** for Oracle Reports Programs
- **txtNormal.sh** for Text Load Sets
- **xmlprunner.sh** for post-processing Report Sets
- **xmlpreprunner.sh** for the Oracle LSH system reports and for cover sheets for outputs

- **obieinstall.cmd** for Oracle Business Intelligence Business Areas—required only on the BI Server
 - **obieedeploy.cmd** for Oracle Business Intelligence Business Areas— required only on the BI Server
2. Edit each script with information specific to the computer, for example:
 - Oracle SID
 - Location of the technology server
 - Location of Oracle setup script `coraenv`
 - Paths

Ensure that environment variables are accessible to the DP server. For example, if the script refers to the variable `$ORACLE_HOME`, either define the variable or provide the full path in the script.

 **Note:**

If you run SAS programs, add instructions to `sasNormal.sh` to start SAS in UTF8 mode. (See [Start SAS in UTF8 Mode](#) for details.) In addition, include the DP Server Home path in the environment variable as shown:

```
PATH=$ORACLE_HOME/bin:$ORACLE_HOME/lib32: DP_Server_Home_Path:$PATH
export PATH
```

3. Make all the scripts executable on the UNIX system with the following command:


```
chmod 755 *.sh
```

5.22.6 Define Service Locations and Services

You must define Service Locations and Services in the Oracle LSH user interface for each computer where the Oracle LSH Distributed Processing (DP) Server will run. You define one service location for each computer, and at least one service for each engine or development environment that you want to run on that computer.

To define service locations and services you must have a user account with the LSH System Admin role assigned to it. See [Create System Administrator and Security Administrator Users](#) for details.

To log into Oracle LSH, do the following:

1. Open your web browser.
2. Enter the eBusiness Suite SSWA (Self-Service Web Application) URL as follows:

```
http://<host name>.<domain name>:<HTTP port>/oa_servlets/AppsLogin
```

For example:

```
http://appshost.your_company.com:8000/oa_servlets/AppsLogin
```

The Applications Login screen appears.

3. Enter the username and password associated with the LSH System Admin responsibility and click **Login**.

4. Under Navigator, click **Life Sciences Data Hub**. The system displays the list of Oracle LSH user interface locations to which you have access.
5. Click **Service Location**. The Service Location screen opens.

To define service locations and services in the Oracle LSH user interface, follow the instructions in "Setting Up Services" in the *Oracle Life Sciences Data Hub System Administrator's Guide*.

 **Note:**

For Oracle DMW, you need one or two Service Locations. You need two services; **Text for SQL*Loader** and **SAS**. The two services can be on the same Service Location if it has access to both SQL*Loader and the SAS processing engine as well as the folders you will create to put data files into for loading into Oracle DMW. You can put text and SAS files in different locations.

5.22.7 Start the DP Server

To start the DP Server, do the following:

1. Log on as the owner of the DP Server Home Directory.
2. Run the script by entering the following command for UNIX. Information on the parameters is given below.

```
./cdr_apps_dpserver.sh ORACLE_SID DB_HOST DB_PORT RAC_TNS RAC_FLAG
FW_ENABLED FW_FREQ FW_POLL
```

or for Windows:

```
c:> cdr_apps_dpserver.cmd ORACLE_SID DB_HOST DB_PORT RAC_TNS RAC_FLAG
FW_ENABLED FW_FREQ FW_POLL
```

where:

- *ORACLE_SID* is the Oracle SID of the database

 **Note:**

The Oracle SID is case-sensitive.

- *DB_HOST* is the name of the computer where the Oracle_SID resides.
- *DB_PORT* is the SQL*Net Listener port for the Oracle_SID.
- *RAC_TNS* is the JDBC connection string of the database server.
- *RAC_FLAG* indicates whether you are using an Oracle RAC (Real Application Cluster) database installation. Set to *RAC* if you have a RAC installation. Set to *NO-RAC* if you do not.

The *RAC_FLAG* setting determines which input parameter values the script uses when starting the DP Server.

 **Note:**

At the time of publication, Release 3.0 is not certified with RAC.

- If `RAC_FLAG` is set to `RAC`, the script uses only the value for `RAC_TNS`.
- If `RAC_FLAG` is set to `NO-RAC`, the script uses the values for `ORACLE_SID`, `DB_HOST`, and `DB_PORT`.

In either case, it does not matter what value you enter for the unused parameters.

- `FW_ENABLED` Set to **Yes** to start the File Watcher service or **No** if you are not using Oracle DMW.
- `FW_FREQ` (Applies only to Oracle DMW customers.) Refresh frequency in seconds. This value specifies the minimum interval between requests to the database to check if there is a new set of Watcher Configurations. This value cannot be set lower than 60 seconds. A high setting will result in a delay between the user's addition or adjustment of a Watcher Configuration in Oracle DMW and the changes' taking effect in file detection behavior.
- `FW_POLL` (Applies only to Oracle DMW customers.) Polling frequency in seconds. The polling frequency represents the minimum interval at which a File Watcher Service may run to detect if there are any files in the watched location that should be loaded into Oracle DMW. The minimum value permitted is 60 seconds.

NO-RAC Example when `RAC_FLAG` is set to `NO-RAC`:

```
./cdr_apps_dpserver.sh LSHDB adxxxsdb.example.com 20502 NA NO-RAC NO 0 0
```

where:

- `LSHDB` is the Oracle SID
- `adxxxsdb.example.com` is the host
- `20502` is the port
- You may enter `NA` (Not Applicable) or any other value for `RAC_TNS`.
- `NO-RAC` is the setting for `RAC_FLAG`
- `NO` indicates that File Watcher is not enabled; Oracle DMW is not being used.
- `0` FileWatcher Refresh Frequency, since File Watcher is not enabled
- `0` FileWatcher Polling Frequency, since File Watcher is not enabled

RAC Example when `RAC_FLAG` is set to `RAC`:

```
./cdr_apps_dpserver.sh NA NA NA
'jdbc:oracle:thin:@(DESCRIPTION=(LOAD_BALANCE=YES)(FAILOVER=YES)
(ADDRESS_LIST=(ADDRESS=(PROTOCOL=tcp)(HOST=AP1RAC.example.com)(PORT=1521))
(ADDRESS=(PROTOCOL=tcp)(HOST=AP2RAC.example.com)(PORT=1521)))
(CONNECT_DATA=(SERVICE_NAME=CDRXXX)))' RAC NO 0 0
```

where:

- You may enter `NA` (Not Applicable) or any other value for `ORACLE_SID`.
- You may enter `NA` (Not Applicable) or any other value for `DB_PORT`.

- You may enter NA (Not Applicable) or any other value for DB_HOST.
 - 'jdbc:oracle:thin:@(DESCRIPTION=(LOAD_BALANCE=YES)(FAILOVER=YES)(ADDRESS_LIST=(ADDRESS=(PROTOCOL=tcp)(HOST=AP1RAC.example.com)(PORT=1521))(ADDRESS=(PROTOCOL=tcp)(HOST=AP3RAC.example.com)(PORT=1521))))(CONNECT_DATA=(SERVICE_NAME=CDRXXX))' is the JDBC connection string of the database server
 - RAC is the setting for RAC_FLAG
 - NO indicates that File Watcher is not enabled; Oracle DMW is not being used.
 - 0 FileWatcher Refresh Frequency, since File Watcher is not enabled
 - 0 FileWatcher Polling Frequency, since File Watcher is not enabled
3. The script prompts you for a password. Enter the password for the cdr_dpserver user.

**Note:**

Do not change the value of DB_USER.

5.22.8 Start the Message Queue

1. Log in to SQL*Plus as **apps**.
2. Make sure the queue is stopped. View the log:

```
select MESSAGE from cdr_msg_queues_log order by log_message_id;
```

If the most recent statement is the following, the queue is stopped.

```
End Procedure cdr_exe_msg_submission.process_queues()
```

If not, stop the queue:

```
begin cdr_exe_msg_queues_admin.stop_processing_queues; end; /
```

Wait until you see the "End Procedure" statement in the log.

3. After the queue is stopped, start and enable the queue:

```
begin
cdr_exe_msg_queues_admin.start_processing_queues;
cdr_exe_msg_queues_admin.enable_job_processing_queue;
end;
/
```

4. Check that the queue is started and enabled:

```
select MESSAGE from cdr_msg_queues_log order by log_message_id;
```

The output should contain the following statements (there may be Submission statements after these):

```
Begin Procedure cdr_exe_msg_submission.process_queues()  
dequeued from control Q: _MSGCONTROL_ENABLE
```

5.23 Set Up Client Computers

There are two types of client setups depending on the role of the Oracle LSH user:

- [Consumers and Administrators](#)
- [Application Developers](#)

For information on supported operating systems and browsers for the client, see My Oracle Support article 180430.1, *Oracle Life Sciences Applications Supported Technology Stacks*.

- [Consumers and Administrators](#)
- [Application Developers](#)

5.23.1 Consumers and Administrators

Oracle LSH Consumers, who retrieve information in the form of reports and visualizations, and Oracle LSH Administrators, who perform administrative tasks within Oracle LSH, require the following on their personal computers:

- A Web browser (one of those supported by Oracle Applications)
- Java Virtual Machine (JVM)

Consumers require JVM if they are using Oracle Discoverer Plus to create data visualizations.

Administrators require either JInitiator or JVM to use any of the Oracle Forms screens related to security, to run the post-installation jobs or to set up user accounts or functional roles.

The first time a user opens one of the Oracle Forms screens, the user is prompted to download and install JVM if it is not already installed.



Note:

If you are currently using JInitiator, you can continue to do so.

5.23.2 Application Developers

An Oracle LSH Application Developer (also called a Definer) writes source code on his or her personal computer in an integrated development environment (IDE) and then uploads the source code file to Oracle LSH.

An Oracle LSH Definer client requires:

- A Web browser (one of those supported by Oracle Applications)

- Java Virtual Machine (JVM)
- A Zip utility: 7-Zip or WinZip Pro 11.2 SR-1, WinZip 8.1, or any other WinZip version that includes the WZUNZIP.exe
- Oracle LSH client plug-in (see [Install the Client Plug-In](#))
- NLS_LANG environment variable set to UTF8 (see [Set NLS_LANG to UTF8](#))
- One or more IDE clients (see [Set Up Development Environments](#))

This section contains the following topics:

- [Install the Client Plug-In](#)
- [Set NLS_LANG to UTF8](#)
- [Set Up Development Environments](#)

5.23.2.1 Install the Client Plug-In

Oracle LSH files contained in **CdrClientInstall.zip** handle the integration of the IDEs with Oracle LSH.

System Administrator Tasks

To prepare these files for installation by developers, do the following:

1. Download **CdrClientInstall.zip** from \$CDR_TOP/plugin/sas.
2. Unzip **CdrClientInstall.zip**. One of the files unzipped is **cdrconfig.xml**.
3. (Optional) Edit **cdrconfig.xml** to add a directory path for each IDE developers may use, including the IDEs mentioned in [Integrating Other Systems](#). and any other IDEs that your company is using with Oracle LSH, either by buying a third party adapter or developing your own adapter.

If you are using 7-Zip instead of WinZip, follow instructions in Section 5.17.2.1.3, "Enabling Using 7-Zip".

4. Write the unzipped contents of **CdrClientInstall.zip** to a CD-ROM.
5. Give the CD-ROM to each Oracle LSH Definer who will use an IDE, with instructions for where to install the IDE software so that the directory paths you entered in **cdrconfig.xml** are correct.

Note:

Alternatively, do not edit **cdrconfig.xml** before writing it to the CD-ROM and tell each Definer to edit his or her own copy.

Definer Task

On each Definer's personal computer, load the CD-ROM that contains the unzipped files. InstallShield automatically runs **setup.exe**, which loads **cdrconfig.xml** and **cdrclient.exe** to a location the Definer specifies on his or her local computer. The default location is *ProgramFilesDir\oracle\cdr* where *ProgramFilesDir* is the registry entry for the value name ProgramFilesDir. If the specified location does not exist, the InstallShield creates it.

In addition, it sets the location for the CDR Work directory. By default this location is %USERPROFILE%/Application Data/CDR. Oracle recommends using this setting if you are

installing the client IDE on a server for access by multiple users. It creates a separate work space for each user so they do not overwrite each other's files.

Enabling Using 7-Zip

If you want to use 7-Zip instead of WinZip, do one of the following:

- [Edit cdrconfig.xml to Use 7-Zip If WinZip Is Not Installed](#)
- [Create a .bat File and Edit cdrconfig.xml](#)
- [Edit cdrconfig.xml When 7-Zip is the Only Option](#)

Edit cdrconfig.xml to Use 7-Zip If WinZip Is Not Installed

Add the following code:

```
REM -----
REM wzunzip
REM -----
if exist "%ProgramFiles%\WinZip\wzunzip.exe"
"%ProgramFiles%\WinZip\wzunzip.exe" -yo %1 %2 %3
if not exist "%ProgramFiles%\WinZip\wzunzip.exe" goto 7zip
goto end

:7zip
REM -----
REM 7-zip
REM -----
if exist "%ProgramFiles%\7-Zip\7z.exe" "%ProgramFiles%\7-Zip\7z.exe" x -y
%3
if not exist "%ProgramFiles%\7-Zip\7z.exe" goto errormsg
goto end

:errormsg
msg "%username%" Either wzunzip nor 7z could be found. No Launch possible.

goto end

:end
```

Create a .bat File and Edit cdrconfig.xml

1. Create a file called wzunzip.bat with the following contents:

```
"C:\Program Files\7-Zip\7z" x %3
```

2. Add the path to the wzunzip.bat to the CDRCONFIG.xml file.

Edit cdrconfig.xml When 7-Zip is the Only Option

Change this line in CDRCONFIG file:

```
<USER_DEFINE NAME="WINZIPEXE" VALUE="&quot;C:\Program Files\
WinZip\wzunzip.exe&quot;" />
```

to:

```
<USER_DEFINE NAME="WINZIPEXE" VALUE="&quot;C:\Program Files\ 7-
Zip\7z.exe&quot;" />
```

5.23.2.2 Set NLS_LANG to UTF8

Check and set your NLS_LANG environment variable:

1. Right-click the **My Computer** icon on your desktop, then click **Properties**.
2. Click the **Advanced** tab, then click **Environment Variables**.
3. In **User Variables** and **System Variables**, check if there is a variable named NLS_LANG.
4. If there is an NLS_LANG variable, highlight it and click **Edit**.
5. Set the variable value to UTF8; for example: AMERICAN_AMERICA.UTF8

If you do not have the NLS_LANG environment variable, change your registry settings:

1. Click **Start**, then **Run**.
2. In the Run window, enter `regedit` and click **OK**.
3. Locate one of the following registry key entries:
 - HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE
 - HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\HOME x
where x is the unique number identifying the Oracle home
4. Add a new key named NLS_LANG with a value including UTF8; for example:
`NLS_LANG=AMERICAN_AMERICA.UTF8`

5.23.2.3 Set Up Development Environments

Oracle LSH supports several integrated development environments (IDEs). For information on configuring these for use with Oracle LSH, see:

- [Set Up SAS as an Integrated Development Environment](#)
- [Integrating Oracle SQL Developer or Oracle SQL*Plus with the Oracle Life Sciences Data Hub](#)

For information on setting up the Oracle BI Administration Tool, see the *Oracle Life Sciences Data Hub System Administrator's Guide*.

5.24 Install and Configure Java Web Start in Oracle E-Business Suite

For information on installing and configuring Java Web Start in Oracle E-Business Suite, see *Using Java Web Start with Oracle E-Business Suite*, article 2188898.1, on [My Oracle Support](#).

 **Note:**

You must also use Oracle Java Development Kit (JDK) 1.7.0_211 and Oracle Java Runtime Environment (JRE) 1.8.0_201. For more information, see Oracle JDK 7 Update 211 Patch 28916517 and Oracle JRE 8 Update 201 Patch 28916330 on [My Oracle Support](#).

5.25 Register Scheduler Job Events to Scheduler Queue

Oracle LSH uses Oracle Scheduler to perform job operations based on execution mode. If any unexpected events occur in the database that cause the Oracle Scheduler job to stop abruptly or fail, the associated job triggered in Oracle LSH needs to get marked as failed too. The following steps describe how to run the script to ensure this occurs:

1. Navigate to the `$CDR_TOP/patch/115/sql` directory on the Oracle LSH MT machine.
2. Log in to the 19c database as SYS user.
3. Run the `cdrschprivs.sql` script. You see the following message:

```
This script grants the required privilege for scheduler event
subscription. This script needs to be executed using SYS user. To
continue, press Y and Return key. Press any other key to abort:
```

4. Enter `y`.

Here is a sample of the type of output you see:

```
Apps user is registered for event queue subscription.
Added LSH subscriber to scheduler event queue.
Enabled LSH subscriber access to scheduler queue.
Registered LSH subscriber to scheduler event queue.
```

5.26 Mark the OWBSYS Job as Broken

1. Query for the OWBSYS jobs running on Oracle Database 19c:

```
select job,broken from dba_jobs where schema_user='OWBSYS'
and broken='N' ;
```

It returns the DBMS job with the OWBSYS user.
2. For each of the DBMS job returned in the previous step, execute the following:

```
begin
dbms_job.broken(job,true);
commit;
end;
/
```

Where, *job* is the DBMS job returned in step 1.

6

Integrating Other Systems

The Oracle Life Sciences Data Hub (Oracle LSH) supports integration with other systems as sources of data, as means of visualizing and reporting on Oracle LSH data, and as processing engines for transforming Oracle LSH data. Oracle LSH handles integration with such systems with adapters custom made for each external system. Adapters for the systems included in this chapter are included with Oracle LSH.

You must install the adapters and grant them security privileges. These tasks are covered in [Load the Adapter Files](#) and [Grant Security Rights to Seeded Adapters](#).

Each external system you choose to integrate with Oracle LSH requires installation and some additional setup, described here. The exception is Oracle Reports, which is installed as part of Oracle Applications and requires no further setup.

For information on supported versions of these products, see [Integrated External Systems](#) or for the most current information, see My Oracle Support article 180430.1, *Oracle Life Sciences Applications Supported Technology Stacks*.

This section contains the following topics:

- [Integrating Oracle Clinical with the Oracle Life Sciences Data Hub](#)
- [Integrating SAS with the Oracle Life Sciences Data Hub](#)
- [Integrating Oracle SQL Developer or Oracle SQL*Plus with the Oracle Life Sciences Data Hub](#)
- [Integrating Oracle Business Intelligence Enterprise Editions \(OBIEE\) for Visualizations](#)

6.1 Integrating Oracle Clinical with the Oracle Life Sciences Data Hub

Oracle LSH 3.0 is compatible with **Oracle Clinical 5.2.1** applied.

Oracle LSH includes a set of adapters custom-designed for the purpose of loading data and metadata from Oracle Clinical into Oracle LSH.

To load data and metadata from Oracle Clinical into Oracle LSH you must do the following:

1. In the Oracle LSH user interface, define a remote location and connection to each Oracle Clinical location from which you want to load data. See "Registering Locations and Connections" in the *Oracle Life Sciences Data Hub System Administrator's Guide* for further information.
2. Define, check in, install, and run one or more Oracle Clinical Load Sets in Oracle LSH. See "Defining Load Sets" in the *Oracle Life Sciences Data Hub Application Developer's Guide* for further information.

You can also use APIs to create Load Sets. These packages are documented in the *Oracle Life Sciences Data Hub Application Programming Interface Guide*.

6.2 Integrating SAS with the Oracle Life Sciences Data Hub

Oracle LSH is designed for close integration with SAS at several levels. You can load SAS data set files into Oracle LSH, use SAS as an integrated development environment to create Oracle LSH Programs with SAS source code, and use the SAS engine to run these Programs on Oracle LSH data.

Oracle LSH supports integration with SAS 9.4.



Note:

Oracle Life Sciences Data Hub does not support a SAS Windows server.

This section includes the following topics:

- [SAS Compatibility](#)
- [Set Up SAS Job Execution](#)
- [Set Up Loading Data from SAS](#)
- [Set Up SAS as an Integrated Development Environment](#)

6.2.1 SAS Compatibility

SAS with connectivity to Oracle LSH requires an Oracle 19 c library. Oracle recommends that the Oracle 19 c Client reside on the same server computer as the SAS installation.

To install Oracle LSH and SAS as a processing engine on the same computer:

1. Create a 19 c Oracle Home by installing the Oracle Client 19 c.
2. Install SAS.
3. Set the UNIX environment variable LD_LIBRARY_PATH to the 19c \$ORACLE_HOME/lib.

6.2.2 Set Up SAS Job Execution

To enable running SAS jobs from Oracle LSH, you must integrate the SAS server with Oracle LSH and start the server in UTF8 mode. This section contains the following topics:

- [Integrate the SAS Server with Oracle LSH](#)
- [Start SAS in UTF8 Mode](#)

6.2.2.1 Integrate the SAS Server with Oracle LSH

Do each of the following:

1. Install SAS Access to Oracle on the SAS server.

2. Install the Oracle LSH Distributed Processing (DP) Server on the computer where the SAS server is installed. See [Set Up the Distributed Processing Server](#).
3. Define a service location in Oracle LSH for the computer where the SAS server is installed. See "Defining Service Locations" in the *Oracle Life Sciences Data Hub System Administrator's Guide* for instructions.
4. Define one or more services for the service location. See "Defining Service Locations" in the *Oracle Life Sciences Data Hub System Administrator's Guide* for instructions.

6.2.2.2 Start SAS in UTF8 Mode

To help ensure that Oracle LSH stores and displays special characters in your data correctly, start SAS in UTF8 mode by editing the DP Server execution command file `sasNormal.sh`, which you copied and edited in [Copy, Edit, and Grant Permissions to Execution Command Files for Processing Engines](#).

If you are using SAS 9.4, add lines to `sasNormal.sh` as in the following examples:

- In UNIX:

```
sas -encoding UTF8
```

- In Windows, specify the version of SAS you are using. For example, for SAS 9.4:

```
C:\Program Files\SAS\SASFoundation\9.4\sas.exe" -CONFIG C:\Program  
Files\SAS\SASFoundation\9.4\nls\u8\SASV9.CFG"
```

 **Note:**

Do not include line breaks in your command. (The page width forces the line to break in the example shown.)

6.2.3 Set Up Loading Data from SAS

Oracle LSH includes an adapter custom-designed for the purpose of loading data from SAS database into Oracle LSH.

To enable loading data from SAS into Oracle LSH you must do the following:

1. Complete all steps listed in [Set Up SAS Job Execution](#).
2. Make sure that the LOB Loader Oracle LSH post-installation job has been run; this job creates the SAS adapter. This is a required step in the installation of Oracle LSH; see [Load the Adapter Files](#).
3. Make sure that you have followed instructions in [Grant Security Rights to Seeded Adapters](#).
4. Assign at least one user group to the SAS adapter. See "Setting Up Adapters to External Systems" in the *Oracle Life Sciences Data Hub System Administrator's Guide*.

6.2.4 Set Up SAS as an Integrated Development Environment

To use SAS as an integrated development environment (IDE) each Definer must do the following on his or her local PC:

- Install SAS in the location specified by the system administrator.
- Install the Oracle LSH client plug-in by inserting the CD-ROM supplied by the system administrator (see [Install the Client Plug-In](#)).

InstallShield runs **cdrclient.exe**, which loads **cdrconfig.xml** and **cdrclient.exe** either to the default location or to a location the Definer specifies on his or her local computer; see [Set Up Client Computers](#).

- Ensure that **cdrconfig.xml** has the correct directory path for the SAS executable.
- Set the user preference for the SAS connection mode (details below). Instructions are in the "SAS Connection Type" section of the Getting Started chapter of the *Oracle Life Sciences Data Hub User's Guide*.
- Install any software required to support the preferred connection mode (details below).
- Set the NLS_LANG environment variable or registry settings to support UTF8 character encoding; see [Set the NLS_LANG Environment Variable to UTF8](#).

SAS Connection Modes: SAS can work as an integrated development environment (IDE) in different ways. Each user must set a preference for the way he or she wants to work. Oracle LSH supports the following connection modes:

- **Connected Mode.** The Definer has the SAS client installed on his or her personal computer. When he or she launches SAS as an IDE from an Oracle LSH Program, Oracle LSH downloads views based on the source Table Descriptors defined in the Program. The Definer works locally on the SAS client, using the views to read current data in Oracle LSH. The Definer's SAS program can write to local SAS data sets. When the SAS program is ready, the Definer goes into the Oracle LSH Program and uploads the SAS source code as an Oracle LSH Source Code file.

The client must use the SAS Access to Oracle tool to connect to Oracle LSH.

- **SAS Connected Mode with Work Area Data.** This mode is the same as Connected mode except that it connects to the Work Area schema in the database. From SAS, the user can browse views of current data in all Table instances in the Work Area, not just the Table instances linked to Table Descriptors of the Program.

The client must use the SAS Access to Oracle tool to connect to Oracle LSH.

- **Disconnected Mode.** The Definer has the SAS client installed on his or her personal computer. When the Definer launches SAS as an IDE, Oracle LSH uses the Distributed Processing Server to download the current data in the Table instances mapped to source Table Descriptors in the Program into the Definer's local SAS environment, creating data sets with the same structure as the Oracle LSH Table Descriptors. The Definer's SAS program can read from and write to local SAS data sets. When the SAS program is ready, the Definer goes into the Oracle LSH Program and uploads the SAS source code as an Oracle LSH Source Code file.

No connection other than a network is required to the Oracle LSH Distributed Processing Server.

6.3 Integrating Oracle SQL Developer or Oracle SQL*Plus with the Oracle Life Sciences Data Hub

To use Oracle SQL Developer or SQL*Plus as an IDE for Oracle LSH PL/SQL Programs, each Definer must do the following on his or her local PC:

- Install Oracle SQL Developer or SQL*Plus in the location specified by the system administrator.
- Install the Oracle LSH client plug-in by inserting the CD-ROM supplied by the system administrator. (See [Install the Client Plug-In](#) for details.)
- Ensure that **cdrconfig.xml** has the correct directory path for the Oracle SQL Developer (or SQL*Plus) executable.

Note:

If the Definer has both Oracle SQL Developer and SQL*Plus installed on the local computer, he or she can switch between the two IDEs by changing the executable directory path in **cdrconfig.xml**.

- Start Oracle SQL Developer or SQL*Plus and create a connection to the Oracle LSH database. The username and password for this connection must be those of an Oracle LSH database user account.
- Follow the steps in [Set the NLS_LANG Environment Variable to UTF8](#).
- Install Winzip Pro 11.2 SR-1, Winzip 8.1, or any other Winzip that includes the WZUNZIP.exe

This section contains the following topic:

- [Set the NLS_LANG Environment Variable to UTF8](#)

6.3.1 Set the NLS_LANG Environment Variable to UTF8

To set an Oracle client application like SQL*Plus to use the right encoding, you must set the environment variables on the client machine to UTF8. The required settings vary, depending on the operating system.

- [Windows](#)
- [UNIX](#)

6.3.1.1 Windows

Check and set your NLS_LANG environment variable:

1. Right-click the **My Computer** icon on your desktop, then click **Properties**.
2. Click the **Advanced** tab, then click **Environment Variables**.
3. In **User Variables** and **System Variables**, check if there is a variable named NLS_LANG.
4. If there is an NLS_LANG variable, highlight it and click **Edit**.

5. Set the variable value to UTF8; for example: `AMERICAN_AMERICA.UTF8`

If you do not have the `NLS_LANG` environment variable, change your registry settings:

1. Click **Start**, then **Run**.
2. In the Run window, enter `regedit` and click **OK**.
3. Locate one of the following registry key entries:
 - `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE`
 - `HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\HOMEx`
where *x* is the unique number identifying the Oracle home
4. Add a new key named `NLS_LANG` with a value including UTF8; for example:

```
NLS_LANG=AMERICAN_AMERICA.UTF8
```

6.3.1.2 UNIX

Do the following:

1. Check the environment variable `NLS_LANG`:
`echo $NLS_LANG`
2. Set the environment variable `NLS_LANG` to UTF8; for example:

```
% setenv NLS_LANG American_America.UTF8
```

6.4 Integrating Oracle Business Intelligence Enterprise Editions (OBIEE) for Visualizations

You can create Oracle LSH Business Areas of type Oracle Business Intelligence Enterprise Edition to make data available to visualizations in OBIEE Answers. Definers can install the Administrator's Tool on their PC to develop more complex OBIEE Repository (.rpd) files to support more complex data visualizations. Users can then launch the Oracle Business Intelligence Dashboard through Oracle LSH or through a URL to see data visualizations.



Note:

Additional configuration is required. See the chapter on Oracle Business Intelligence visualizations in the *Oracle Life Sciences Data Hub System Administrator's Guide*.

Oracle LSH supports OBIEE 12.2.1.4 for visualizations. You must install the Distributed Processing (DP) Server on each machine where the Oracle BI server is installed.

- [Install Oracle Business Intelligence Enterprise Edition 12.2.1.4 for Visualizations](#)

6.4.1 Install Oracle Business Intelligence Enterprise Edition 12.2.1.4 for Visualizations

Install Oracle Business Intelligence Enterprise Edition to support visualizations as described in the following topics:

- [Install Oracle Business Intelligence Enterprise Edition](#)
- [Disable Oracle Business Intelligence Enterprise Edition 12c Enterprise Manager SSO authentication](#)
- [Start the WebLogic Server](#)
- [Install the Oracle LSH DP Server](#)
- [Deploy Repository File](#)
- [Set Up Oracle Business Intelligence Enterprise Edition Visualizations](#)

6.4.1.1 Install Oracle Business Intelligence Enterprise Edition

Install Oracle Business Intelligence Enterprise Edition 12.2.1.4 using *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence 12c Release 12.2.1.3 (E83388-01)*.



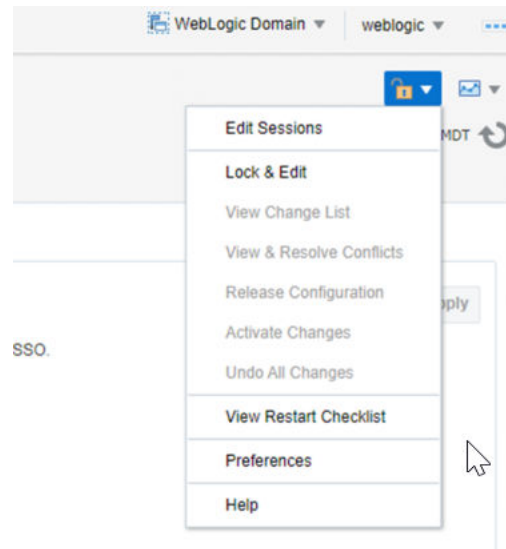
Note:

As noted in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence 12c Release 12.2.1.3*, you need to install Oracle Fusion Middleware Repository Creation Utility 12c (12.2.1.3) before installing Oracle Business Intelligence Enterprise Edition 12c.

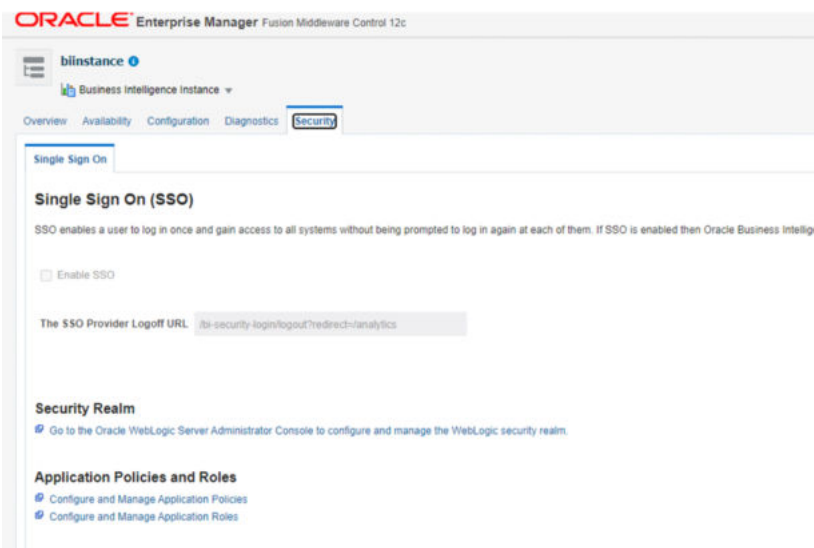
6.4.1.2 Disable Oracle Business Intelligence Enterprise Edition 12c Enterprise Manager SSO authentication

With Oracle Business Intelligence Enterprise Edition 12c, SSO authentication is enabled by default. For Oracle LSH users to access Analytics, disable the SSO authentication as described in the following procedure.

1. Log in to Oracle Business Intelligence Enterprise Edition 12c Enterprise Manager using as a WebLogic user.
2. From the Target navigation menu on left side of the screen, click **biinstance** under the Business intelligence folder.
3. Click the **Security** tab of Business Intelligence instance. Then click **Lock & Edit** from the **Active Edit Session** menu on the right side of the screen as shown:



4. Disable SSO by clearing the **Enable SSO** checkbox as shown. Then click **Activate Changes** from the **Active Edit Session** drop-down menu to apply the changes in Business Intelligence server.



5. Restart the WebLogic server to activate the changes as described in [Start the WebLogic Server](#).

6.4.1.3 Start the WebLogic Server

If the URL for either Oracle Enterprise Manager or the WebLogic Administration Console is not working, the WebLogic Server may be down. To start it:

1. On the Business Intelligence server computer, traverse to `<bi_home>\user_projects\domains\bi\bitools\bin` directory.
2. Do one of the following:
 - To start the WebLogic server and Business Intelligence server, execute the **start.cmd** script.

- To stop the WebLogic server and Business Intelligence server, execute the **stop.cmd** script. If you need to restart it, execute the **start.cmd** once the stop command completes successfully.

6.4.1.4 Install the Oracle LSH DP Server

You must install the Oracle LSH DP Server on the same machine; see [Set Up the Distributed Processing Server](#).

- [Copy and Edit Execution Command Scripts](#)

6.4.1.4.1 Copy and Edit Execution Command Scripts

The `obieedeploy.cmd` and `obieeinstall.cmd` command script files should be modified for Oracle Business Intelligence Enterprise Edition 12c integration. The templates for these command scripts are available under `$cdr/admin/template`. Copy the Oracle LSH versions of `obieedeploy.cmd` and `obieeinstall.cmd` from `$cdr/admin/templates` to the Oracle LSH Distributed Processing Server location and referred to in the Execution Command under the Oracle Business Intelligence Enterprise Edition Install and Deploy service configured in Oracle LSH under the Oracle Business Intelligence Enterprise Edition Service Location.

Edit **obieeinstall.cmd** by configuring the following environment variables based on their values applicable for the local Oracle Business Intelligence Enterprise Edition environment.

- `set PATH=%PATH%;C:\bi_home\bi\bifoundation\server\bin`
- `set ORACLE_BI_APPLICATION=coreapplication`
- `set ORACLE_BI_INSTANCE=C:\bi_home`
- `set COMPONENT_NAME=coreapplication_obis1`
- `set COMPONENT_TYPE=OracleServerComponent`
- `set ORACLE_INSTANCE=C:\bi_home`
- `set DOMAIN_HOME=C:\bi_home\user_projects\domains\bi`

Edit **obieedeploy.cmd** by setting the `RPD_DIR` environment variable that indicates the Local Folder path where the Oracle LSH RPD will be copied during the Oracle Business Intelligence Enterprise Edition BA install from Oracle LSH. Similar to Oracle Business Intelligence Enterprise Edition 11g, in Oracle Business Intelligence Enterprise Edition 12c integration, this folder should point to any local folder path on the Business Intelligence server machine's file system.

- `set RPD_DIR=C:\RPD`

6.4.1.5 Deploy Repository File

In Oracle LSH 3.0 (similar to Oracle Business Intelligence Enterprise Edition 11g), the RPD corresponding to the Oracle Business Intelligence Enterprise Edition BA is just copied on to a local folder on the Oracle Business Intelligence server machine. The RPD folder path is defined in the `obieedeploy.cmd`. The RPD copied in the RPD folder is required to be deployed manually. Unlike Oracle Business Intelligence Enterprise Edition 11g, the Business Intelligence server services need not be restarted manually through Oracle Enterprise Manager. In Oracle Business Intelligence Enterprise Edition 12c, RPD need to be uploaded through command line tool.

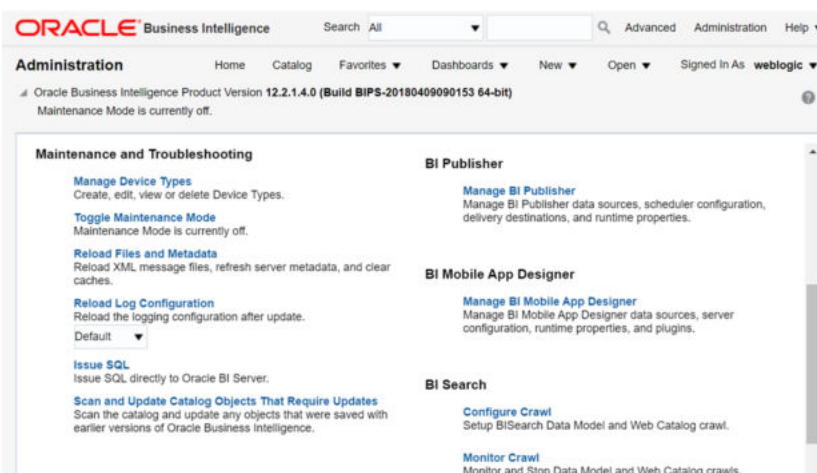
1. Run this command to upload the Oracle LSH RPD to the Oracle Business Intelligence Enterprise Edition 12c Business Intelligence server:

```
%ORACLE_BI_INSTANCE%
\user_projects\domains\bi\bitools\bin\datamodel.cmd uploadrpd -I <RPD
filename> -W <RPD_Password> -SI <Service Instance> -U <Weblogic User>
-P <Weblogic User Password>
```

For example:

```
datamodel.cmd uploadrpd -I
C:\LSH_DP_SERVER\RPD\dmw30ut12c_win2016.rpd -W Password1 -SI
ssi -U weblogic -P Password2
```

2. After you upload the RPD file to the Oracle Business Intelligence server, log in to the Business Intelligence server Analytics page as a WebLogic user.
3. Click **Administration** from the right side of the screen. In Administration page, click **Reload Files and Metadata** to refresh the uploaded RPD file in the Oracle Business Intelligence server for further analytics use.



6.4.1.6 Set Up Oracle Business Intelligence Enterprise Edition Visualizations

See Chapter 11, "Setting Up Oracle Business Intelligence Visualizations" in the *Oracle Life Sciences Data Hub System Administrator's Guide*, for instructions.

7

Upgrading to Oracle Life Sciences Data Hub Release 3.0

This section includes the following topics:

- [Supported Upgrade Path](#)
- [Run the Start Maintenance Script](#)
- [Stop Server Processes](#)
- [Back Up the Oracle E-Business Suite Database](#)
- [Upgrade to Oracle Database 19c](#)
- [Upgrade the Thesaurus Management System Database \(TMS\) to Release 5.3.1](#)
- [Oracle Business Intelligence Enterprise Edition 12c](#)
- [Upgrade to Oracle Life Sciences Data Hub 3.0](#)
- [Set Profile Values for Load Balancing and Service Name](#)
- [Upgrade the Distributed Processing Server User Account](#)
- [Upgrade the Distributed Processing Server](#)
- [Perform the Remaining Post-Installation Tasks](#)
- [Set the Profile Value for DMW_SEND_BATCHSIZE](#)
- [Set the Required Profile Values for Sending Discrepancies to External Systems](#)
- [Register Scheduler Job Events to Scheduler Queue](#)
- [Mark the OWBSYS Job as Broken](#)
- [Run the Stop Maintenance Script](#)
- [Start Server Processes](#)
- [Run the Health Check Scripts](#)

7.1 Supported Upgrade Path

Upgrading to Oracle Life Sciences Data Hub (Oracle LSH) 3.0 is supported from Oracle LSH Release 2.4.8.x, 2.4.9.x, or 2.5.x.

For details on upgrading to Oracle LSH 2.4 to 2.4.8.x, 2.4.9.x, or 2.5.x before upgrading to Oracle LSH 3.0, see one of the following My Oracle Support documents:

- Document 2383498.1, *Oracle Life Sciences Data Hub 2.4.8 Release Notes*
- Document 2429893.1, *Oracle Life Sciences Data Hub and Oracle Health Sciences Data Management Workbench 2.4.9 Release Notes*
- Document 2652574.1, *Oracle Life Sciences Data Hub and Oracle Health Sciences Data Management Workbench 2.5.1 Release Notes*

7.2 Run the Start Maintenance Script

Before you upgrade any of the software, follow the steps in this procedure to start the maintenance activity.

To run the Start Maintenance script:

1. Download or copy the maintenance start script file from the Oracle LSH application server (EBS Middle Tier server) `$CDR_TOP/patch/115/sql/cdrmaintstart.sql` to the database server's `ORACLE_HOME` location or any other preferred location.
2. From the database server, log in to SQL*Plus (not SQL Developer) as the APPS database user.
3. Enter this command to execute the script:

```
SQL> @cdrmaintstart.sql
```
4. Check the log file.

The log file validates the success of the Start Maintenance process and provides a maintenance ID. For example, it lists messages to show what it found up and running and what it stopped (such as the message queue and job queue).

7.3 Stop Server Processes

This step is required for all upgrade paths.

Before you begin the upgrade, stop the following servers:

- Oracle Life Sciences Data Hub (Oracle LSH) Distributed Processing (DP) Server. (See [Start the DP Server](#) for details.)
- Application Server

7.4 Back Up the Oracle E-Business Suite Database

Oracle recommends that you make a cold backup of the Oracle E-Business Suite database in case you encounter problems during the upgrade process. You can use the backup to restore the database (if necessary).



Note:

Shut down the database using the `NORMAL` option to ensure you can use the backup to restore the database. Do not use the `IMMEDIATE` or `ABORT` option to shut down the database.

7.5 Upgrade to Oracle Database 19c

To use Oracle LSH, you must use Oracle Database 19c (19.8).

If you use Oracle LSH 2.4.8, 2.4.9, or 2.5.1, you should already use Oracle Database 11.2.0.4. You can upgrade to Oracle Database 19c from Oracle Database 11.2.0.4.

 **Note:**

If you need to upgrade to Oracle Database 11.2.0.4 before upgrading to Oracle Database 19.8, follow the procedures in My Oracle Support document 1058763.1, *Interoperability Notes EBS 12.0 and 12.1 with Database 11gR2*. The Oracle Database 11.2.0.4 software is available as patch 13390677. (Oracle Applications Release 12.1.1 includes Oracle Database 11.1.0.7.)

To upgrade to Oracle Database 19c, see [Upgrade to Oracle Database 19c \(19.8\)](#).

7.6 Upgrade the Thesaurus Management System Database (TMS) to Release 5.3.1

Upgrade the Oracle TMS database components required to support the Oracle LSH classification system. To upgrade to TMS 5.3.1:

1. Upgrade the TMS Database Server Code on a Windows computer as described in *Oracle Thesaurus Management System Release 5.3.1 Installation Guide*, which is on the media pack. For more details, see <https://docs.oracle.com/health-sciences/tms-531/install/toc.htm>.
2. Upgrade the TMS Database to 5.3.1 as described in *Oracle Thesaurus Management System Release 5.3 Installation Guide*, which is on the media pack. For more details, see section 6.5, "Upgrade a TMS Database," at <https://docs.oracle.com/health-sciences/tms-531/install/upgrade.htm#TMSIG636>.

7.7 Oracle Business Intelligence Enterprise Edition 12c

To support Oracle Business Intelligence Enterprise Edition Business Areas and data visualizations, Oracle LSH is compatible with Oracle Business Intelligence Enterprise Edition 12c; see [Integrated External Systems](#) for the exact versions.

You can use Oracle Business Intelligence Enterprise Edition 12c for data visualizations. You must install the DP Server on each machine where the Oracle Business Intelligence Server is installed.

Oracle Business Intelligence Enterprise Edition 11g to 12c is an out-of-place migration, meaning a setup of OBIEE 12.2.1.4 is needed followed by upgrade steps as documented in the [Fusion Middleware Upgrading Oracle Business Intelligence](#) guide.

- [Install the Software](#)
- [Copy and Edit Revised Execution Command Scripts](#)
- [Starting the WebLogic Server](#)

7.7.1 Install the Software

To upgrade, you must install Oracle Business Intelligence Enterprise Edition 12c. You can use the same Windows computer for Oracle Business Intelligence Enterprise Edition and Oracle Thesaurus Management System. See [Hardware](#) and [Install Oracle Business Intelligence Enterprise Edition](#) for details.

7.7.2 Copy and Edit Revised Execution Command Scripts

You must copy and edit the revised execution command scripts to upgrade to Oracle LSH 3.0. See [Copy and Edit Execution Command Scripts](#) for details.

7.7.3 Starting the WebLogic Server

If the URL for either Oracle Enterprise Manager or the WebLogic Administration Console is not working, the WebLogic Server may be down. For details on starting (or stopping) it, see [Start the WebLogic Server](#).

7.8 Upgrade to Oracle Life Sciences Data Hub 3.0

These steps are required for all upgrade paths.

- [Database Tier Preinstallation Steps](#)
- [Install Oracle Life Sciences Data Hub 3.0](#)
- [Reinstall Existing Oracle LSH Workflows](#)
- [Change Your FND_Validation_Level Profile](#)
- [Check Non-Default Service](#)
- [Turn off EXE DEBUG](#)
- [Set CDR_DB_SERVICE_NAME](#)
- [Set CDR_SCAN_HOST_NAME](#)
- [Set CDR_SCAN_PORT_NUM](#)

7.8.1 Database Tier Preinstallation Steps

This section contains the following topics:

- [Abort the Long-Running Jobs](#)
- [Cancel the Sessions Holding Locks on Application Objects](#)
- [Disconnect Blocking Sessions](#)

7.8.1.1 Abort the Long-Running Jobs

1. Log in to SQL*Plus as **apps**.
2. Run the following query to find the long running jobs:

```
select * from cdr_jobs where job_status_rc like '%EXECUTING%';
```

3. Log in to the Oracle LSH application.
4. Navigate to **Life Sciences Data Hub > Job Execution**.
5. Search for the job using the job ID and cancel it.

7.8.1.2 Cancel the Sessions Holding Locks on Application Objects

1. Run the following query:

```
SELECT 'alter system kill session' || '''' || sid || ',' || serial# || '''' || '
immediate;' from v$$session where sid in ( select session_id FROM
sys.dba_ddl_locks
WHERE (name like 'CDR_%' or name like 'DME_%') );
```

2. Run the alter statement to cancel the active sessions.

7.8.1.3 Disconnect Blocking Sessions

Before you upgrade, check for and stop any current database sessions.

1. If WebLogic Server is running, stop it. See *Oracle® Fusion Middleware Administering Server Startup and Shutdown for Oracle WebLogic Server (12.2.1.3)* at <https://docs.oracle.com/middleware/12213/wls/START/>.

Log files for the AdminServer and the DMWServer are located in:

```
middleware_home/user_projects/domains/DMWDomain/servers/AdminServer/logs
```

and

```
middleware_home/user_projects/domains/DMWDomain/servers/DMWServer/logs
```

2. Log in to SQL*Plus as **apps**.
3. Run the following query to find current sessions:

```
SELECT 'USER: ' || s.username || ' SID: ' || s.sid || ' SERIAL #: ' || s.SERIAL#
"USER
HOLDING LOCK", s.inst_id
FROM gv$lock l
,dba_objects o
,gv$session s
WHERE l.id1 = o.object_id
AND s.sid = l.sid
AND o.owner = 'CDR'
AND o.object_name = 'DME_DISC_WORKTABLIST';
```

This query returns the user, SID, serial number, and instance ID of each current session.

4. Disconnect each current session, passing in the SID and serial number:

```
alter system disconnect session 'SID, serial_number' IMMEDIATE
```

7.8.2 Install Oracle Life Sciences Data Hub 3.0

Note:

You do not need to install the Oracle LSH online Help or create the system administrator when upgrading Oracle LSH. You only need to complete those tasks for a full installation.

Follow the instructions in the [Install Oracle LSH 3.0](#).

7.8.3 Reinstall Existing Oracle LSH Workflows

After you install Oracle LSH and stop OWB Services, you must reinstall any existing workflows using the `cdrupgworkflows.sql` script. The following procedure includes details to run the script and reinstall the workflows in different ways depending on how you want to do it. For example, you can reinstall the existing Oracle LSH workflows under all application areas or under a set of application areas. Or, you can reinstall a single workflow instance in a particular work area.

Note:

If you did not use the Oracle LSH Workflow feature in past releases, you can skip this procedure.

1. On the Oracle LSH server, navigate to the `$CDR_TOP/patch/115/sql`. Then copy the **`cdrupgworkflows.sql`** file for the Oracle Database server.
2. Log in to the Oracle Database as APPS.
3. Run the **`cdrupgworkflows.sql`** script you copied from the Oracle LSH server. You see the following message:

```
Enter application area names as a comma-delimited list (ex. AA1,AA2)
or enter ALL for all application areas. Do not enter anything if you
want to re-install a single workflow instance The list should not
exceed 240 characters.
```

```
Application Area Names:
```

4. At the **Application Area Names** prompt, enter the application area name. You see the following message:

```
Do you want to reinstall the Workflows even if they have been
reinstalled already in 3.0 ? Enter YES or NO
```

5. Enter **NO** unless you want to reinstall the workflows again. (To reinstall them again, enter **YES**.) You see the run date and name of the application area you chose. For example:

```
Run Date = 18-MAY-2020 05:07:39
Application Area Names = "DK_AA"
```

You also see:

This script will re install the workflow instances in the specified application areas To continue, press upper-case Y and Return key. Press any other key to abort:

6. Enter Y to continue.

Here is a sample of the type of output you see:

```
***** WITHIN WORKFLOW UPGRADE SCRIPT
*****
piWfInstID=
piForceInstall=YES
piAANames =DK_AA
Processing each Application area
-----
Upgrading Workflows in Application Area -DK_DOMAIN>DK_AA(Application Area
OBJ ID -22770300)
Checking the WF -DK_DOMAIN > DK_AA > WA1>wfl(WF_INST_OBJ_ID = 22770307,
WF_INST_OBJ_VER =2
,Installed version =1 OWF Desc = LSH3.0)
This workflow is installed as per the 3.0 implementation. But user has
requested a re install
Upgraded the Workflow. New OWF Name =CKKXWOBWupgrade status S
-----
Done with processing all the application areas

*****
```

7.8.4 Change Your FND_Validation_Level Profile

Change the setting of the FND_Validation_Level profile. In previous releases a setting of NONE was required, but now a setting of ERROR is required.

1. Open your Oracle LSH URL.
2. Log on with the system administrator account. An E-Business Suite screen opens.
3. In the Main Menu pane, expand the System Administrator (not System Administration) node, then Profile, and then click System.

A new browser screen opens with several windows open and the Find System Profile Values window on top.

4. In the **Profile** field, enter FND_Validation_Level.
5. Click **Find**.
6. In the **Site** column, use the drop-down list to set the value to **Error**.
7. In the File menu, select **Save and Proceed**. The system displays a message that the transaction is complete.
8. Click **OK**. The transaction message pop-up disappears.
9. Click the **X** in the upper right corner of the System Profile Values window to close the window.

7.8.5 Check Non-Default Service

1. Log in to Oracle Database 19c as sysadmin user.
2. Execute this query to find all the service names with LONG:

```
select NAME, NETWORK_NAME, CON_NAME, CLB_GOAL
from gv$active_services
where CLB_GOAL='LONG';
```

3. Check that the non-default service name is not the same as the pdb / cdb name or any sys service name.

7.8.6 Turn off EXE DEBUG

1. Log in to Oracle Database 19c.
2. Enter:

```
SQL> select FND_PROFILE.VALUE_SPECIFIC('LSH:ENABLE_DEBUGGING') from
dual;
FND_PROFILE.VALUE_SPECIFIC('LSH:ENABLE_DEBUGGING')
```

```
-----
$YESNO$NO
SQL> select FND_PROFILE.VALUE_SPECIFIC('DMW:USER_DEBUGGING') from
dual;
FND_PROFILE.VALUE_SPECIFIC('DMW:USER_DEBUGGING')
```

Note:

After you install Oracle DMW, you sign in and navigate to the Administration page and click the Tracing & Logging tab to see that you disabled logging and tracing in Active Sessions.

7.8.7 Set CDR_DB_SERVICE_NAME

1. Log in to Oracle E-Business Suite as sysadmin user.
2. Expand the **System Administrator Responsibility** folder in the left panel.
3. Expand **Profile** and then select **System**.
4. Open the forms and search for CDR_DB_SERVICE_NAME.
5. At the site Level, enter: ebs_PDB name identified in the [Check Non-Default Service](#) section.
6. Save the form.

7.8.8 Set CDR_SCAN_HOST_NAME

Set CDR_SCAN_HOST_NAME to the database scan name used in the Oracle LSH FORM user interface. (You can get this from the remote_listener parameters.)

You only need to perform these steps if you use a RAC configuration.

1. Log in to Oracle E-Business Suite as sysadmin user.
2. Expand the **System Administrator Responsibility** folder in the left panel.
3. Expand **Profile** and then select **System**.
4. Open the forms and search for CDR_SCAN_HOST_NAME.
5. At the site Level, enter: SCAN_NAME
6. Save the form.

7.8.9 Set CDR_SCAN_PORT_NUM

Set CDR_SCAN_PORT_NUM to the database scan listener port number used in the Oracle LSH FORM user interface. (You can get this from the remote_listener parameters.)

You only need to perform these steps if you use a RAC configuration.

1. Log in to Oracle E-Business Suite as sysadmin user.
2. Expand the **System Administrator Responsibility** folder in the left panel.
3. Expand **Profile** and then select **System**.
4. Open the forms and search for CDR_SCAN_PORT_NUM.
5. At the site Level, enter: SCAN Port Number
6. Save the form.

7.9 Set Profile Values for Load Balancing and Service Name

If you use an Oracle Real Application Clusters (RAC) environment, you need to set two system profile values to load balance jobs between different nodes on the RAC machine during installation and execution. If you do not use an Oracle RAC environment, you can leave the load balancing profile values empty (default).

You also need to set one system profile value for the service name of the Transparent Network Substrate (TNS) definition for the database if it differs from the name of the PDB. Otherwise, you can leave this value empty (default).

To use the load balancing feature on an Oracle RAC machine, set the following profile values:

- **CDR_SCAN_HOST_NAME.** Enter the scan server host name.
- **CDR_SCAN_PORT_NUM.** Enter the scan server port number.

To define the database service name (if required), set the following profile value:

- **CDR_DB_SERVICE_NAME.** Enter the service name of the TNS definition for the database (if different than the PDB name).

7.10 Upgrade the Distributed Processing Server User Account

You must run a script to upgrade the Distributed Processing (DP) Server database account `cdr_dpserver` with additional privileges required for Oracle DMW File Watcher. This is required even if you are not using Oracle DMW. You need to use this account to start the DP Server.

To run the script:

1. Go to `$CDR_TOP/patch/115/sql`
2. Log in to SQL*Plus as apps
3. Run the script:

```
cdrcreatedpserveruser.sql
```

At the prompt, enter the password you want to use for the `cdr_dpserver` account.

4. Exit from SQL*Plus.

7.11 Upgrade the Distributed Processing Server

Oracle LSH DP Server requires JDK 8. Install JDK 8 and upgrade the Oracle LSH DP Server on every computer where it resides as described in the following steps:

1. Locate the `lib` directory in the DP Server Home directory on each computer where the DP Server resides.
2. Copy **DPServer.zip** from `$CDR_TOP/jar` to the `lib` directory.
3. Using GNU zip or another utility, unzip **DPServer.zip** into the `lib` directory. The `DPServer.zip` file contains the following files:
 - **DPServer.jar**
 - **fileWatcherServer.jar**
 - **xmlparserv2.zip**
 - **xmlparserv2-904.zip**
4. Using SFTP, copy the following files from the `$ORACLE_HOME/rdbms/jlib` directory on the database server computer to the `lib` directory:
 - **jmscommon.jar**
 - **aqapi.jar**
5. Using SFTP, copy the following files from the `$ORACLE_HOME/jlib` directory on the database server computer to the `lib` directory:
 - **jta.jar**
 - **orai18n-mapping.jar**
6. Using SFTP, copy **ojdbc8.jar** from `$ORACLE_HOME/jdbc/lib` directory on the database server computer to the `lib` directory.
7. Using SFTP, copy **ucp.jar** from `$ORACLE_HOME/ucp/lib` directory on the database server computer to the `lib` directory.

8. On each computer where you install the DP Server, set the NLS_LANG environment variable to UTF8.
9. Save a backup of your current copy of cdr_apps_dpserver.sh as a reference. Then copy the new version of the file from \$CDR_TOP/admin/template to the DP Server home directory. The new version of the file refers to the jar file with a different name than the one used in the previous version.
10. Edit the new version of cdr_apps_dpserver.sh to set the location variables required, using your backup copy as a reference:
 - \$DPSEVER_HOME
 - SVC
 - JDK_LOC: Set the JDK 1.8 Path
 - JVM

 **Note:**

For more information, see [Edit the DP Server Start Script](#).

7.12 Perform the Remaining Post-Installation Tasks

These steps are required for all upgrade paths.

Follow the instructions in the following sections:

- [Run the Post-Installation Programs](#)
- [Grant Security Rights to Seeded Adapters](#)
- If you are installing Oracle LSH for use with Oracle DMW, follow instructions in [Run the Audit Trail Update Tables Concurrent Program](#).

7.13 Set the Profile Value for DMW_SEND_BATCHSIZE

1. In LSH, log in to Oracle Applications Profile Forms. See the *Oracle Life Sciences Data Hub Administrator's Guide* for details.
2. In the **Profile** field, search for DMW_SEND_BATCHSIZE, and click **Find**.
3. In the **Site** column, enter a value of **10**.
4. In the **File** menu, select **Save and Proceed**.
5. Click **OK**, and close the window.

7.14 Set the Required Profile Values for Sending Discrepancies to External Systems

The profiles arrive set to the default values shown in this table.

Table 7-1 Profile Default Values

Profile Option Name	Minimum Value	Maximum Value	Default Value	Allowed Set of Values
DMW_SEND_BATCHSIZE	1	200	10	All values from 1 to 200
DMW_RESEND_ONE_WAIT_IN_MINS	1	4320	30	1 & (5 to 60 , in multiples of 5), (90 to 4320, in multiples of 30)
DMW_RESEND_TWO_WAIT_IN_MINS	1	4320	240	1 & (5 to 60 , in multiples of 5), (90 to 4320, in multiples of 30)
DMW_RESEND_STUCK_WAIT_IN_MINS	120	4320	120	Starting with 120 with interval of 30 minutes
DMW_SEND_MAX_THREADS	1	30	20	All values from 1 to 30
DMW_WS_REQUEST_TIMEOUT (Applicable only for sending discrepancies to InForm external system)	2100	3600	2100 (in secs)	Starting with 2100 with interval of 10 seconds
DMW_WS_CONNECT_TIMEOUT (Applicable only for sending discrepancies to InForm external system)	300	600	300 (in secs)	300 to 450 (in multiple of 5 secs), followed by all values 451-600

See the following topic if you want to change any of the defaults:

- [Change the Value of the Profile Options](#)

7.14.1 Change the Value of the Profile Options

See these steps to change the default values of the profile options. For more details, see [Set the Required Profile Values for Sending Discrepancies to External Systems](#).

1. In LSH, log in to Oracle Applications Profile Forms. See the *Oracle Life Sciences Data Hub Administrator's Guide* for details.
2. In the **Profile** field, search for the profile value your want to change and click **Find**. You can choose any of the following:
 - DMW_SEND_BATCHSIZE
 - DMW_RESEND_ONE_WAIT_IN_MINS
 - DMW_RESEND_TWO_WAIT_IN_MINS
 - DMW_RESEND_STUCK_WAIT_IN_MINS
 - DMW_SEND_MAX_THREADS

- DMW_WS_REQUEST_TIMEOUT
 - DMW_WS_CONNECT_TIMEOUT
3. In the **Site** column, select a value within the appropriate range.
 4. In the **File** menu, select **Save and Proceed**.
 5. Click **OK** and close the window.

7.15 Register Scheduler Job Events to Scheduler Queue

Oracle LSH uses Oracle Scheduler to perform job operations based on execution mode. If any unexpected events occur in the database that cause the Oracle Scheduler job to stop abruptly or fail, the associated job triggered in Oracle LSH needs to get marked as failed too. The following steps describe how to run the script to ensure this occurs:

1. Navigate to the \$CDR_TOP/patch/115/sql directory on the Oracle LSH MT machine.
2. Log in to the 19c database as SYS user.
3. Run the **cdrschprivs.sql** script. You see the following message:

```
This script grants the required privilege for scheduler event subscription.  
This script needs to be executed using SYS user. To continue, press Y and  
Return key. Press any other key to abort:
```

4. Enter **Y**.

Here is a sample of the type of output you see:

```
Apps user is registered for event queue subscription.  
Added LSH subscriber to scheduler event queue.  
Enabled LSH subscriber access to scheduler queue.  
Registered LSH subscriber to scheduler event queue.
```

7.16 Mark the OWBSYS Job as Broken

1. Query for the OWBSYS jobs running on Oracle Database 19c:

```
select job,broken from dba_jobs where schema_user='OWBSYS' and  
broken='N' ;
```

It returns the DBMS job with the OWBSYS user.
2. For each of the DBMS job returned in the previous step, execute the following:

```
begin  
dbms_job.broken(job,true);  
commit;  
end;  
/
```

Where, *job* is the DBMS job returned in step 1.

7.17 Run the Stop Maintenance Script

After you upgrade the software, follow the steps in this procedure to stop the maintenance activity.

To run the Stop Maintenance script:

1. Download or copy the maintenance start script file from the Oracle LSH application server (EBS Middle Tier server) `$CDR_TOP/patch/115/sql/cdrmaintstop.sql` to the database server's ORACLE_HOME location or any other preferred location.
2. From the database server, log in to SQL*Plus (not SQL Developer) as the APPS database user.
3. Enter this command to execute the script:

```
SQL> @cdrmaintstop.sql
```
4. Check the log file.

The log file validates the success of the Stop Maintenance process and provides a maintenance ID. For example, it lists the job report (ID, user name, job duration, job type), Distributed Processing (DP) server report (location, description, and machine), and service details. If you notice that any errors with stopping the maintenance script, contact Oracle Support.

7.18 Start Server Processes

This step is required for all upgrade paths.

Start the following servers:

- Application Server
- Oracle LSH Distributed Processing (DP) Server (For more details, see [Start the DP Server.](#))

7.19 Run the Health Check Scripts

Run the Health Check scripts for Oracle LSH and Oracle DMW as described in My Oracle Support Article 2733714.1 (<https://support.oracle.com>).

8

What's Next

After you have finished all the installation tasks outlined in this book, you must do the following tasks before you can begin to use the Oracle Life Sciences Data Hub (Oracle LSH):



Note:

Oracle Health Sciences Data Management Warehouse customers can skip this section and proceed to the *Oracle Health Sciences Data Management Warehouse Installation Guide*.

- Define Oracle LSH Distributed Processing (DP) Server service locations and services to integrate Oracle LSH with its processing engines and IDEs. See "Setting Up Services" in the *Oracle Life Sciences Data Hub System Administrator's Guide*.
- Design an object security system, classification system, and organizational structure for your implementation of Oracle LSH. See "Designing a Security System," "Designing a Classification System," and "Designing an Organizational Structure" in the *Oracle Life Sciences Data Hub Implementation Guide*.
- Set up the security system, see "Setting Up the Security System" in the *Oracle Health Sciences Data Management Workbench and Life Sciences Data Hub Security Guide*.
- Set up the classification system and organizational domains. See "Setting Up the Classification System" in the *Oracle Life Sciences Data Hub System Administrator's Guide* and "Applications User Interface" in *Oracle Life Sciences Data Hub Application Developer's Guide*.
- Define remote locations to integrate Oracle LSH with Oracle-based source data systems. See "Registering Locations and Connections" in the *Oracle Life Sciences Data Hub System Administrator's Guide*.
- If you plan to use OBIEE for visualizations or Oracle BIP for reports, do the additional setup required for each system. See the *Oracle Life Sciences Data Hub System Administrator's Guide* for information.

9

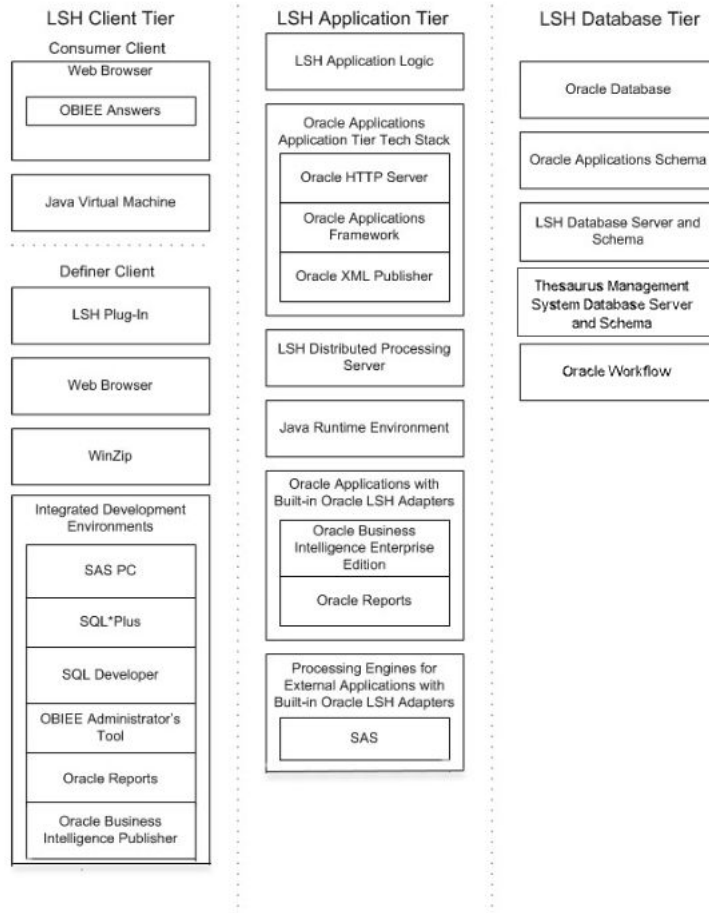
Change Record

- June 2021: Fourth version of the guide. In this version:
 - Updated the Oracle Enterprise Linux versions in the [Application Tier](#) section.
 - Added information to remove the encryption parameter in the [Set Parameter Values](#) section.
 - Added instructions to edit the `dme24indexupdatescript.sql` file in the [Install Oracle LSH 3.0](#) section.
- February 2021: Third version of the guide. In this version:
 - Added the [Mark the OWBSYS Job as Broken](#) section under the [Installing Oracle Life Sciences Data Hub](#) chapter.
 - Added the [Mark the OWBSYS Job as Broken](#) section under the [Upgrading to Oracle Life Sciences Data Hub Release 3.0](#) chapter.
 - Moved instructions to remove the residual Oracle Warehouse Builder (OWB) management objects from the [Upgrade to Oracle Life Sciences Data Hub 3.0](#) section to the [Upgrade to Oracle Database 19c \(19.8\)](#) section.
- December 2020: Second version of the guide. In this version:
 - Added text in the [Apply Patches for Oracle Database 19c](#) section for the user to verify if all required patches are applied on Oracle Database 19c.
 - Updated the file name `cdrupworkflows.sql` to `cdrupgworkflows.sql` in the [Reinstall Existing Oracle LSH Workflows](#) section.
 - Updated the service name `CD_DB_SERVICE_NAME` to `CDR_DB_SERVICE_NAME` in the [Set CDR_DB_SERVICE_NAME](#) section.
 - Removed section 3.4 Edit `listener_ifile.ora`.
 - Added a reference to document ID 2617850.1 that contains upgrade instructions for the database on OCI Exadata (ExaCS) in the [Upgrade to Oracle Database 19c \(19.8\)](#) section.
 - In [Set Parameter Values](#):
 - * Updated values of `Add SQLNET.ALLOWED_LOGON_VERSION_SERVER` and `SQLNET.ALLOWED_LOGON_VERSION_CLIENT` to 10.
 - * Added the parameter `SQLNET.INBOUND_CONNECTION_TIMEOUT=300`
- August 2020: First version of the guide.

A

Architecture Overview

The following figure shows the logical Oracle Life Sciences Data Hub architecture described in this section.



This section contains the following topics:

- [Client Tier](#)
- [Application Tier](#)
- [Database Tier](#)
- [Adapters to External Systems](#)

A.1 Client Tier

There are two ways to set up a client, depending on the type of user:

Consumers and Administrators: Oracle Life Sciences Data Hub (Oracle LSH) Consumers, who retrieve information in the form of reports and visualizations, and Oracle LSH Administrators, who perform administrative tasks within Oracle LSH, require the following on their personal computers:

- A Web browser
- Java Virtual Machine (JVM)

Administrators require either JInitiator or JVM to use any of the Oracle Forms screens related to security, to run the post-installation jobs, and to set up user accounts and functional roles.

Definers: A full-service client for users who create (define) the programs that operate on Oracle LSH data and generate reports requires additional software:

- Oracle LSH plug-in for launching Integrated Development Environments (IDEs)
- WinZip
- Web browser
- In addition, Definers need one or more IDE clients. These may include: SAS PC, SQL*Plus, SQL Developer, Oracle BI Administration Tool, Oracle Reports, and Oracle Business Intelligence Publisher.

A.2 Application Tier

In addition to standard Oracle Applications components, the Oracle Life Sciences Data Hub application tier includes the following:

Oracle LSH Application Server: The Oracle LSH Application Server renders the user interface using the Oracle Applications Framework and handles the communication between the user interface and the database using the Java Runtime Environment.

Oracle LSH Distributed Processing (DP) Server: The Oracle LSH DP Server handles the communication between Oracle LSH and the external processing systems required to support the IDEs.

Processing Systems

XML Publisher is required for internal Oracle LSH processing. The other systems are required only if you are developing Oracle LSH Programs in those technologies:

- **Oracle XML Publisher** is used by Oracle LSH to run system reports. Oracle LSH also uses XML Publisher to create Report Sets as a single PDF output with a unified table of contents and custom templates.
- **Oracle Reports** executes user-developed Oracle Reports Programs.
- **Oracle Business Intelligence Publisher** executes user-developed Oracle BIP Programs.
- **SAS** executes user-developed SAS Programs.
- **Oracle Discoverer Plus.** Accessed by Consumer clients through a Web browser, this application generates data visualizations based on user-developed Oracle LSH Discoverer Business Areas.

A.3 Database Tier

The Oracle Life Sciences Data Hub database tier includes the following:

- **Oracle Enterprise Edition RDBMS.** All of the Oracle LSH database tier components use the Oracle Enterprise Edition database server and database.
- **Oracle Applications Schema.** The Oracle Applications Schema is the schema installed as part of the Oracle Applications installation.
- **Oracle Workflow.** Oracle LSH uses Oracle Workflow to allow users to create and execute Workflow programs. Oracle Workflow is installed with Oracle Applications.
- **Oracle Thesaurus Management System (TMS).** Oracle LSH uses the TMS database tier internally to run its classification system, which is a required part of Oracle LSH functionality.

Oracle Enterprise Edition RDBMS

All of the Oracle LSH database tier components use the Oracle Enterprise Edition database server and database.

Oracle Applications Schema

The Oracle Applications Schema is the schema installed as part of the Oracle Applications installation. It contains the Oracle LSH schema.

Oracle LSH Database Server and Schema

These include the Oracle LSH business logic in PL/SQL packages, internal Oracle LSH tables and views, security, adapters, and APIs; as well as Oracle LSH user-developed metadata tables and packages.

Oracle Workflow

Oracle LSH uses Oracle Workflow to allow users to create and execute Oracle LSH Workflow Programs. Oracle Workflow is installed with Oracle Applications.

Oracle Thesaurus Management System (TMS)

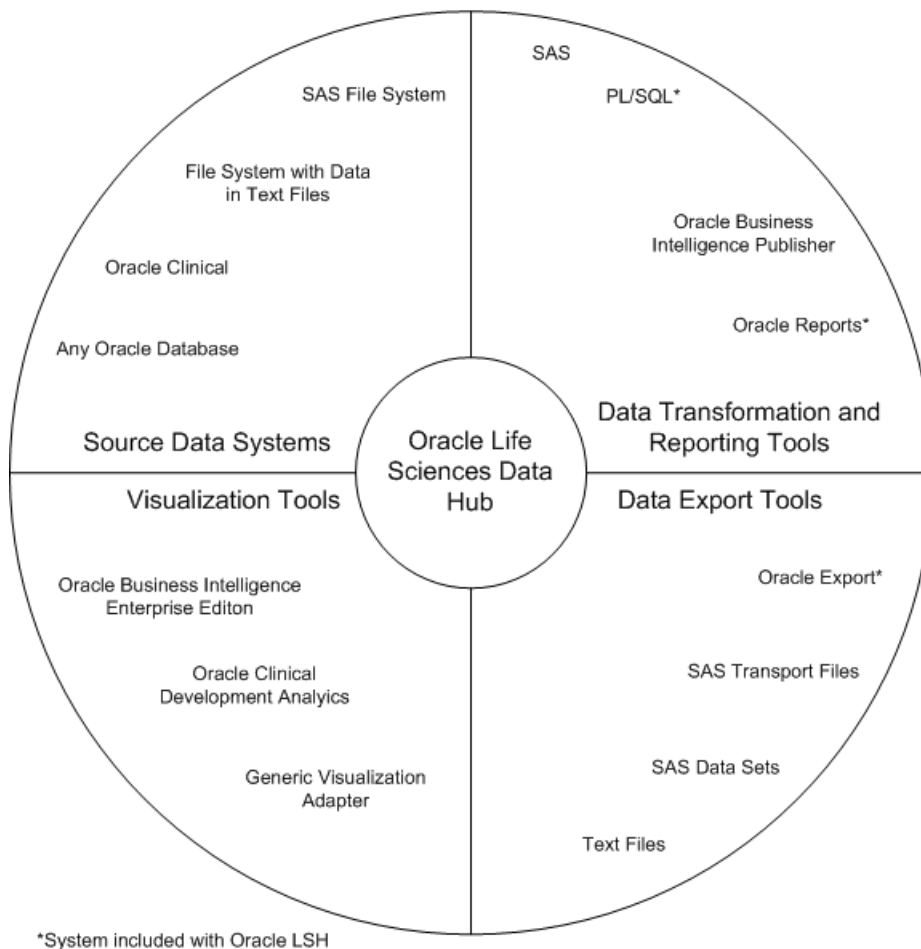
The Oracle LSH classification system is based on TMS.

A.4 Adapters to External Systems

Oracle Life Sciences Data Hub (Oracle LSH) is intended for integration with other systems for a variety of purposes. Each external system integrated with Oracle LSH requires an adapter to handle whatever communication and exchange is required, depending on the purpose of the integration and the technical specifications of the external system. Oracle LSH is shipped with built-in adapters for loading data into Oracle LSH from other systems, for developing and executing programs operating on Oracle LSH data, and for exporting data out of Oracle LSH.

[#GUID-F406D70F-BB51-42EE-B6DF-5AA0452F42C2/CBHGAICE](#) shows the adapters that are included with Oracle LSH. Adapters to other systems may be available from third parties.

Oracle Life Sciences Data Hub Built-In Adapters



This section contains the following topics:

- [Source Data Systems](#)
- [Data Transformation and Reporting Tools](#)
- [Visualization Tools](#)
- [Data Export Tools](#)

A.4.1 Source Data Systems

Oracle Life Sciences Data Hub (Oracle LSH) includes adapters to external systems that you can use to load data into Oracle LSH:

- **SAS.** The SAS adapter allows you to load SAS data sets into Oracle LSH.
- **Text.** The Text adapter allows you to load text files from any system into Oracle LSH.
- **Oracle Databases.** The general Oracle Databases adapter allows you to load data from any Oracle database into Oracle LSH.

- **Oracle Clinical.** The Oracle Clinical adapter family includes eight specialized adapters for loading the following data and metadata from Oracle Clinical:
 - Data Extract SAS Views
 - Data Extract Oracle Views
 - Global Library
 - Labs
 - Study Data
 - Study Design and Definition
 - Stable Interface Tables
 - Randomization

A.4.2 Data Transformation and Reporting Tools

Oracle LSH includes adapters to set up the following systems as integrated development environments (IDEs) for developing and generating programs:

- SAS
- PL/SQL
- Oracle Reports
- Oracle Business Intelligence Publisher

A.4.3 Visualization Tools

Oracle LSH includes adapters to allow the following systems to display visualizations of Oracle LSH data:

- Oracle Discoverer
- Oracle Business Intelligence Enterprise Edition (OBIEE) Answers
- Oracle Clinical Development Analytics—to view visualizations in OBIEE Answers of Oracle Clinical data in Oracle LSH
- Generic Visualization Adapter—to integrate other visualization tools

A.4.4 Data Export Tools

Oracle LSH includes adapters to allow exporting Oracle LSH data:

- Oracle Export
- SAS—Transport Files and Data Sets
- Text Files