Oracle® Thesaurus Management System

Installation Guide

Release 5.0.1

E37007-02

December 2013

This guide describes how to install, configure, and upgrade Oracle Thesaurus Management System. It has been updated to include information on installing the database tier on Windows.

ORACLE®

Oracle Thesaurus Management System Installation Guide, Release 5.0.1

E37007-02

Contents

Preface

This guide describes how to install Oracle Thesaurus Management System (TMS) Release both as an initial installation and as an upgrade from a previous release.

This preface contains the following topics:

Audience

The audience for this installation guide is database administrators (DBAs) and system administrators. Installing TMS requires the skills listed below. If you want assistance with your installation, engage Oracle Consulting.

Database Administrators

Installing TMS requires a level of knowledge equivalent to having mastered the material in the Oracle Architecture and Administration course for DBAs. You must be able to read and edit SQL*Plus scripts, run SQL scripts, and review logs for Oracle errors. For ongoing administration, additional training as a DBA is essential.

System Administrators

Installing and maintaining a TMS network requires expertise in the following skill areas:

- UNIX operating systems
  - Creating and managing user accounts and groups
  - Installing Oracle database software and patches
  - Identifying space on a file system for Oracle database tablespaces
  - Setting and using environment variables
- Microsoft Windows operating systems
  - Creating and managing user accounts and groups
  - Installing Oracle software

- Managing settings through the Control Panel and Administrative Tools
- Managing network printers
- Creating services

Documentation Accessibility

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

Access to Oracle Support

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

Finding Information and Patches on My Oracle Support

Your source for the latest information about Oracle Thesaurus Management System is Oracle Support's self-service Web site My Oracle Support (formerly MetaLink).

Before you install and use Oracle Thesaurus Management System, always visit the My Oracle Support Web site for the latest information, including alerts, White Papers, installation verification (smoke) tests, bulletins, and patches.

Creating a My Oracle Support Account

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

To register for My Oracle Support:

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

Signing In to My Oracle Support

To sign in to My Oracle Support:

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

Finding Information on My Oracle Support

There are many ways to find information on My Oracle Support.

Searching by Article ID

The fastest way to search for information, including alerts, White Papers, installation verification (smoke) tests, and bulletins is by the article ID number, if you know it.

To search by article ID:

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

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

Searching by Product and Topic

You can use the following My Oracle Support tools to browse and search the knowledge base:

- Product Focus — On the Knowledge page under Select Product, type part of the product name and the system immediately filters the product list by the letters you have typed. (You do not need to type "Oracle.") Select the product you want from the filtered list and then use other search or browse tools to find the information you need.
- Advanced Search — You can specify one or more search criteria, such as source, exact phrase, and related product, to find information. This option is available from the **Advanced** link on almost all pages.

Finding Patches on My Oracle Support

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

To locate and download a patch:

1. Sign in to My Oracle Support at https://support.oracle.com.
2. Click the **Patches & Updates** tab. The Patches & Updates page opens and displays the Patch Search region. You have the following options:
   - In the **Patch ID or Number** field, enter the number of the patch you want. (This number is the same as the primary bug number fixed by the patch.) This option is useful if you already know the patch number.
   - To find a patch by product name, release, and platform, click the **Product or Family** link to enter one or more search criteria.
3. Click **Search** to execute your query. The Patch Search Results page opens.
4. Click the patch ID number. The system displays details about the patch. In addition, you can view the Read Me file before downloading the patch.
5. Click **Download.** Follow the instructions on the screen to download, save, and install the patch files.

Finding Oracle Documentation

The Oracle Web site contains links to all Oracle user and reference documentation. You can view or download a single document or an entire product library.

Finding Oracle Health Sciences Documentation

To get user documentation for Oracle Health Sciences applications, go to the Oracle Health Sciences documentation page at:

http://www.oracle.com/technetwork/documentation/hsgbu-clinical-407519.html

> **Note:** Always check the Oracle Health Sciences Documentation page to ensure you have the latest updates to the documentation.

Finding Other Oracle Documentation

To get user documentation for other Oracle products:

1. Go to the following Web page:

   http://www.oracle.com/technology/documentation/index.html

   Alternatively, you can go to http://www.oracle.com, point to the Support tab, and then click **Documentation.**
2. Scroll to the product you need and click the link.
3. Click the link for the documentation you need.

Related Documents

This section lists the documents in the Oracle Thesaurus Management System documentation set, followed by their part number. The most recent version of each guide is posted on the Oracle Web site; see "Finding Oracle Health Sciences Documentation" on page x.

- *Oracle Thesaurus Management System Installation Guide* (Part E18826)
- *Oracle Thesaurus Management System User's Guide* (Part E18827)

The release notes and the release content document are also posted in the Oracle Health Sciences documentation library.

In addition, Oracle Thesaurus Management System customers can request a copy of the *Oracle Thesaurus Management System Technical Reference Manual* from Oracle Support.

Conventions

The following text conventions are used in this document:

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

1

Preparing to Install Oracle Thesaurus Management System

This chapter includes the following topics:

OPA and OLSA Internal Names

The Oracle Thesaurus Management System (TMS) product is now part of the Oracle Health Sciences Global Business Unit (HSGBU). TMS was formerly part of the Oracle Life Sciences Applications (OLSA) and the Oracle Pharmaceutical Applications (OPA) organizations. During the installation you will see references to OLSA and OPA in the software (such as in directory names, file names, and screen text) that have not been changed.

1.1 Installation and User Documentation

Be aware of these additional resources.

1.1.1 My Oracle Support Articles

Visit the My Oracle Support website for the most up-to-date installation information, including alerts, release notes, bulletins, White Papers, and patches; see "Finding Information and Patches on My Oracle Support" on page viii.

The My Oracle Support website includes these important installation topics:

- *Oracle Thesaurus Management System 5.0.1 Release Notes* (Article ID 1590927.1)
- *OLSA Known Installation and Configuration Issues* (Article ID 1572864.1)

- *Oracle Clinical, Oracle Clinical Remote Data Capture, and Oracle Thesaurus Management System Security Configuration Guide* available with the user documentation.
- *Oracle Life Sciences Applications Supported Technology Stacks* (Article ID 180430.1)
- *Creating Scripts to Automatically Start the Admin and Managed Servers for RDC Onsite andTMS* (Article ID 1587068.1)
- *Oracle Thesaurus Management System Patches* (Article ID 132626.1)
- TMS Product Product Information Center page (Article ID 1343408.1): Check here for new notes and White Papers, including the performance White Paper and the Installation Verification Test, which are not available at the time of publication of this document.

1.1.2 User Documentation

The most current TMS user documentation is located on oracle.com at:

http://www.oracle.com/technetwork/documentation/hsgbu-clinical-407519.html

TMS user documentation includes:

- *Oracle Thesaurus Management System Installation Guide*
- *Oracle Thesaurus Management System User's Guide*
- *Oracle Clinical, Oracle Clinical Remote Data Capture, and Oracle Thesaurus Management System Security Configuration Guide*

All the above guides have been updated for Release 5.0.1.

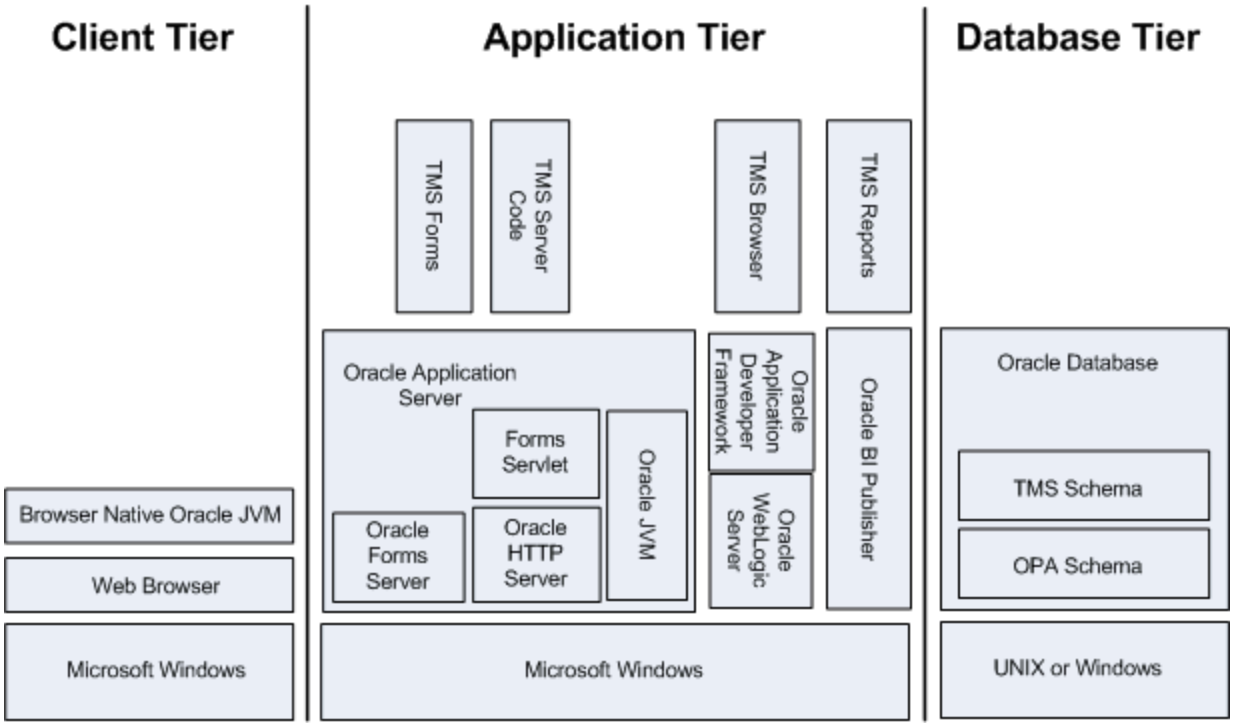
In addition, Oracle Thesaurus Management System customers can request a copy of the *Oracle Thesaurus Management System Technical Reference Manual* from Oracle Support. The Release 5.0 version of this document also applies to Release 5.0.1.

1.2 Architecture

The architecture for TMS consists of three tiers: the database tier, the application tier, and the client tier.

Figure 1–1 illustrates the architecture and technology stack for TMS.

Figure 1–1 TMS Architecture and Technology Stack



The **database tier** in a TMS environment includes the Oracle Database 11.2.0.4 software and the TMS database(s). In past releases, the database tier was called the back end.

The **application tier** includes:

- **TMS Forms Server** — The Forms Server performs all forms processing, communicates the display changes to the client, and calls forms to query, update, select, and delete data from the database.
- **TMS Server Code**— The Server Code consists of scripts used to create TMS databases.
- **TMS Reports Server** — The Reports Server runs most batch reports, schedules all jobs, and creates PDF output for reports. Most TMS reports interface with the TMS Reports Server.
- **TMS Browser** — The TMS Browser runs in a browser and does not required a plug-in. It allows users to browse dictionary terms and, if fully integrated with a clinical data system like Oracle Clinical, source terms and associated external system information.

The **client tier** communicate users' keystrokes and mouse movements to the application tier. It requires a browser and Browser Native Oracle JVM.

Figure 1–2 Oracle Thesaurus Management System Network Topology

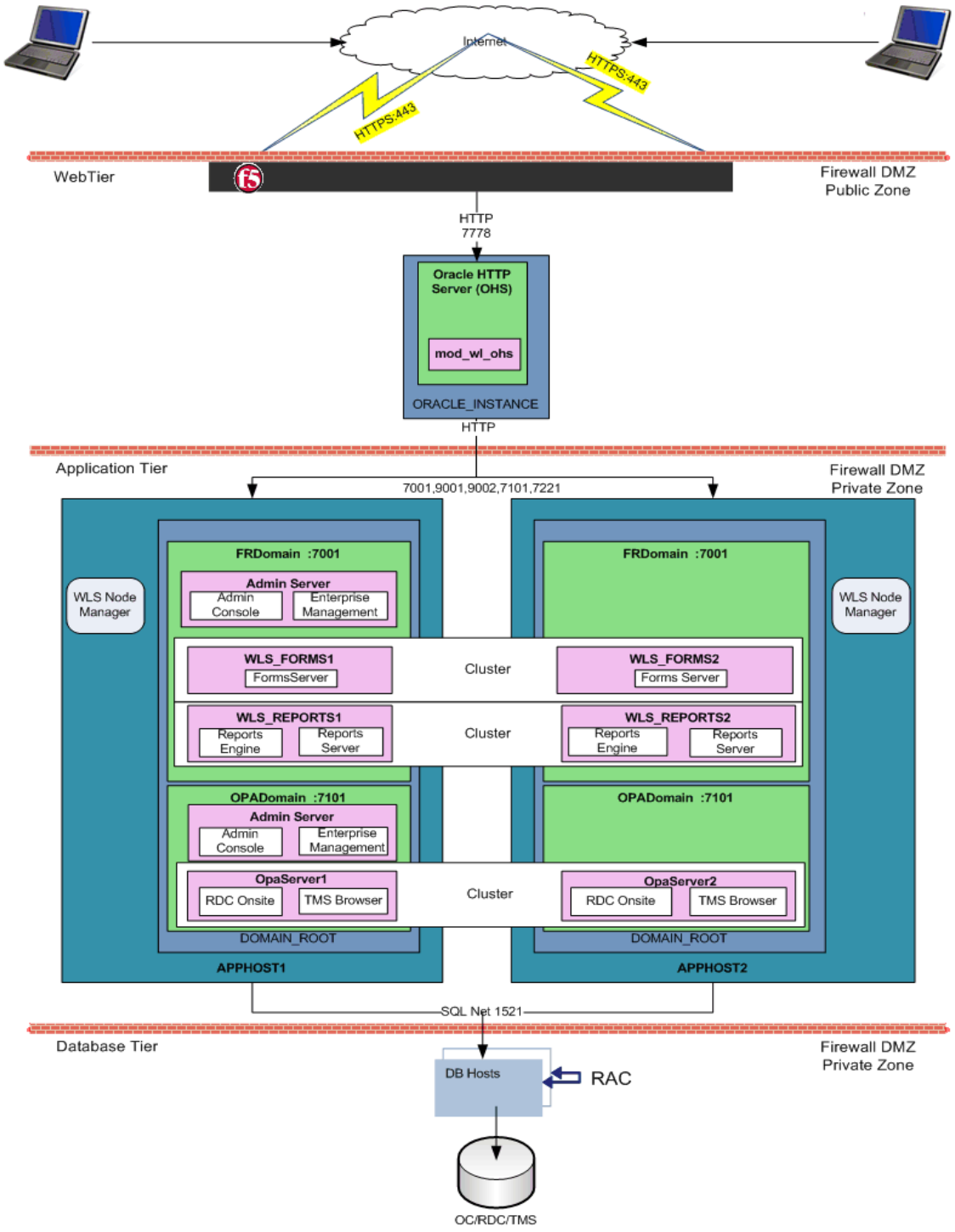


Figure 1–2 shows how the Oracle Thesaurus Management System components and technology stack are related and provides an example of how the product can be installed. The left side of the Application Tier—APPHOST1—is a standard installation, while the whole—with APPHOST2—shows a multi-node middle tier installation using Oracle Clusterware.

In the **client tier**, end users' browsers communicate via HTTPS with the Oracle HTTP Server (OHS), which is located inside a firewall. When users log in, OHS detects the

product they logged in to and consults formsweb.cfg to connect them to the appropriate application tier service.

The **application tier** comprises Oracle Application Server and Oracle WebLogic Server. The integrated tier has two domains:

- **FRDomain** includes the Oracle Forms runtime service and Forms Server, and the Oracle Reports Server and engine, which run Oracle Clinical forms and reports and the RDC Administration application. It also includes the WebLogic Server Admin Server and Oracle Enterprise Manager.

  The Oracle Application Server domain must be named FRDomain and must use port number 7001.

- **OPADomain** includes the WebLogic Server Administration Console, WebLogic Server Java, and OpaServer1, which are required to run the TMS HTML Browser and TMS reports. It also contains the database connections. Note that when you install the Oracle Enterprise Manager in the FRDomain, it serves for monitoring the OPADomain as well.

  The TMS Installer automatically creates the OPADomain. OPADomain must use port number 7101.

  You can distribute the application tier over multiple nodes in a network using Oracle Clusterware. The Admin Server is required only on the primary node.

  The WebLogic Server Node Manager exists outside the domains on the host. The Oracle Thesaurus Management System Installer automatically stops the Node Manager before each Java deployment and starts the Node Manager afterward so you do not need to do that.

  The **database tier** includes Oracle Database with Oracle Thesaurus Management System. The diagram shows a distributed installation integrated with Oracle Clinical using Oracle Real Application Clusters (RAC); this is one example of how it can be installed.

1.3 Technology Stack

The following tables list technology stack requirements for the database tier, the application tier, and the client tier:

- Table 1–1, " Oracle Thesaurus Management System Database Tier"
- Table 1–2, " Oracle Thesaurus Management System Application Tier Technology Stack"
- Table 1–3, " Oracle Thesaurus Management System Client Tier Technology Stack"

The sections following the tables provide additional information about requirements.

- Section 1.3.1, "Planning a TMS Database Installation"
- Section 1.3.2, "Planning a TMS Application Tier Installation"
- Section 1.3.3, "Planning a TMS Client Installation"

For updates to the technology stack, see *Oracle Life Sciences Applications Supported Technology Stacks* (Article ID 180430.1) on My Oracle Support; see Section , "Finding Information on My Oracle Support".

Table 1–1 Oracle Thesaurus Management System Database Tier

Component	Supported Version
Operating System	Oracle Linux 6.2 with Unbreakable Enterprise Kernel (UEK) 6.32 ; (US English) Oracle Solaris SPARC 10 and 11; 64-bit architecture (US English) Windows Server 2008 Release 2, Service Pack 1; 64-bit architecture (US English)
Oracle Database	11g Release 2 (11.2.0.4) Enterprise Edition 64-bit
Compiler	For Oracle Linux x86-64: GNU GCC-4.4.6 For Oracle Solaris SPARC 10 and 11: CC-5.11

Table 1–2 Oracle Thesaurus Management System Application Tier Technology Stack

Component	Supported Version
Operating System	Microsoft Windows Server 2008; Release 2; Service Pack 1; 64-bit architecture
Oracle Application Server	Oracle Application Server 11g Release 2 (11.1.2.1)
Oracle WebLogic Server	Oracle WebLogic Server 11g R1 (10.3.6)
Oracle ADF	Oracle Applicaton Developer's Framework 11g R2 (11.1.2.4)

Table 1–3 Oracle Thesaurus Management System Client Tier Technology Stack

Component	Supported Version
Operating Systems	Microsoft Windows XP; Service Pack 1, 2, or 3; 32-bit architecture (US English) Microsoft Windows Vista; Service Pack 1; 32-bit architecture (US English) Microsoft Windows 7; Service Pack 1; 32-bit or 64-bit architecture (US English) Microsoft Windows Server 2008; Release 2; Service Pack 1; 64-bit architecture (US English)
Mobile Operating Systems	iOS 5, 6, and 7—iPad and iMac 10.7.5—for the TMS Browser only
Supported Browsers	Microsoft Internet Explorer versions depend on the operating system: ■ Microsoft Windows XP: Internet Explorer 8 ■ Microsoft Windows Vista: Internet Explorer 8 ■ Microsoft Windows 7: Internet Explorer 8 or 9 ■ Microsoft Windows Server 2008: Internet Explorer 8 or 9 ■ Microsoft Windows 8: Internet Explorer 10 Safari 6.0.2 on iOS 5, 6, and 7 for TMS Browser only
Adobe Reader	Releases 8*x*, 9.*x*, 10.*x* (US English) Required for viewing reports
Oracle Java Runtime Environment (JRE)	Java SE 7 Update *45* (Standard Edition, Version 1.7.0.45)

1.3.1 Planning a TMS Database Installation

This section describes the hardware and software requirements for the TMS database tier.

1.3.1.1 Character Set Requirements

For information about the guidelines and requirements for character sets, see Section 1.7, "Choosing a Character Set."

1.3.1.2 Critical Patch Update

You must obtain the latest Critical Patch Update (CPU) approved by Oracle Health Sciences from My Oracle Support and install it on each database and application tier server computer; see Section 1.8, "Applying Oracle Critical Patch Updates".

1.3.1.3 Database Tier Operating System Requirements

See Table 1–1, " Oracle Thesaurus Management System Database Tier" for basic information.

To verify that your system fits the requirements listed in Table 1–1, " Oracle Thesaurus Management System Database Tier" do the following in UNIX or Windows:

To verify the operating system details, enter the following command:

UNIX To verify UNIX operating system details, enter the following command:

```
uname -a
```

In addition, to verify the update version for Linux, enter the following command:

```
cat /etc/issue
```

Windows To verify Windows operating system details, navigate to the Control Panel, then System and Security, then System.

1.3.1.4 Database Tier System Requirements

For database tier system requirements, see the *Oracle Database 11g Release 2 (11.2) Installation Guide* for your respective operating system.

1.3.1.5 Oracle Database Requirement: Oracle Text Option

Choose to install the Oracle Database Text Option. It is required for TMS. Oracle Database includes the Oracle Text Option, but note that installing and using it requires purchasing a separate license.

1.3.2 Planning a TMS Application Tier Installation

See Table 1–2, " Oracle Thesaurus Management System Application Tier Technology Stack" for basic information.

The application tier includes the Forms Server and Reports Server components as well as WebLogic Server.

1.3.2.1 Character Set Requirements

For information about the guidelines and requirements for character sets, see Section 1.7, "Choosing a Character Set"

1.3.2.2 Critical Patch Update

You must obtain the latest Critical Patch Update (CPU) approved by Oracle Health Sciences from My Oracle Support and install it on each database and application tier server computer; see Section 1.8, "Applying Oracle Critical Patch Updates".

1.3.2.3 Permanent IP Address

Each server computer must have a permanent IP address.

1.3.2.4 Installing TMS with Oracle Clinical

For installing and integrating Oracle Thesaurus Management System (TMS) with Oracle Clinical, you can install TMS and Oracle Clinical on the same application tier or on different application tiers. To integrate Oracle Clinical and TMS, both products must be installed on the same database.

Oracle recommends installing Oracle Clinical before TMS.

If you install both products on the same application server, do not install the TMS Reports Server.

1.3.3 Planning a TMS Client Installation

In addition to the software noted in Table 1–3, " Oracle Thesaurus Management System Client Tier Technology Stack", a client requires an intranet or internet connection. In addition, see Section 8.8, "Setting Up Client Computers."

1.4 Downloading and Extracting the Software

You must download software from the Oracle Clinical 5.0.1 and Oracle Thesaurus Management System 5.0.1 media pack and from My Oracle Support. You must download third-party software from third-party websites.

1.4.1 Creating Staging Areas

Oracle recommends creating one staging area on the database server and another on the application server. In each staging area, create one directory for each media pack disk, patch, or other software unit that needs to be downloaded to that server, as shown in Table 1–4, " Software to Download to Database Server Staging Area" and Table 1–5, " Software to Download to Application Server Staging Area".

Give each directory a logical name such as the media pack disk or patch name (not part or patch number) to make instructions later in this guide easier to follow.

1.4.1.1 Database Server Staging Area

Table 1–4, " Software to Download to Database Server Staging Area" shows which software to download to the database server staging area.

Table 1–4 Software to Download to Database Server Staging Area

Disk or Patch Name	Source	ID Number
Oracle Thesaurus Management System 5.0.1.0.0 Documentation	Media pack	V42143-01
Oracle Thesaurus Management System 5.0.1.0.0	Media pack	V41360-01
Oracle Database 11.2.0.4—Patch 13390677 contains the entire Oracle Database 11.2.0.4, including Examples, packaged in the following .zip files: ▪ Oracle Database (includes Oracle Database and Oracle RAC) ->p13390677_112040_platform_1of7.zip ; p13390677_112040_*platform*_2of7.zip ▪ Oracle Grid Infrastructure (includes Oracle ASM, Oracle Clusterware, and Oracle Restart) ->p13390677_112040_*platform*_3of7.zip ▪ Oracle Database Client -> p13390677_112040_*platform*_4of7.zip ▪ Oracle Gateways -> p13390677_112040_*platform*_5of7.zip ▪ Oracle Examples -> p13390677_112040_*platform*_6of7.zip ▪ Deinstall -> p13390677_112040_*platform*_7of7.zip	My Oracle Support	Patch 13390677

1.4.1.2 Application Server Staging Area

Table 1–5, " Software to Download to Application Server Staging Area" shows which software to download to the application server staging area.

Table 1–5 Software to Download to Application Server Staging Area

Disk or Patch Name	Source	ID Number
Oracle Thesaurus Management System 5.0.1.0.0 Documentation	Media pack	V42143-01
Oracle Thesaurus Management System 5.0.1.0.0	Media pack	V41360-01
Oracle WebLogic Server 11gR1 (10.3.6) Generic and Coherence	Media pack	V29856-01
Oracle Application Development Runtime 11g Patch Set 5 (11.1.1.6) (also known as Application Developer's Framework or ADF)	Media pack	V29673-01
JDeveloper patch for ADF 11.1.2.4	My Oracle Support	16546129
WebCenter Composer patch for ADF 11.1.2.4	My Oracle Support	16546157
Oracle Forms and Reports 11gR2 (11.1.2.1.0) for Microsoft Windows x64 (64-bit)	Media pack	V35703-01
Oracle Java Development Kit 1.6.0_65, also known as JDK 6 Update 65; see Section 1.4.4, "Downloading Oracle Java Development Kit."	My Oracle Support	Patch 16457117
Java Runtime Environment (JRE) 1.7.0.45; see Section 1.4.5, "Downloading the Java Runtime Environment."	www.oracle.com	
Adobe Reader	`http://www.adobe.com/`	

1.4.2 Downloading and Extracting the Oracle Clinical 5.0.1 Media Pack

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

To download the software:

1. Go to http://edelivery.oracle.com and log on.
2. From the **Select a Product Pack** drop-down list, select **Health Sciences**.
3. From the **Platform** drop-down list, select the appropriate operating system.
4. Click **Go**.
5. Select **Oracle Clinical 5.0.1 and Oracle Thesaurus Management System 5.0.1 Media Pack for *Your_Operating_System*** and click **Continue**.
6. Download each disk into the appropriate directory in the appropriate staging area as shown in Table 1–4, " Software to Download to Database Server Staging Area". Each download consists of a single file named *part_number*.zip.
7. Extract each *part_number*.zip file into a meaningfully named directory.
8. For the Oracle Thesaurus Management System software, extract application_server.zip.

1.4.3 Downloading and Extracting Patches from My Oracle Support

To download a patch from My Oracle Support:

1. Go to My Oracle Support at https://support.oracle.com and sign in.
2. Click the Patches & Updates tab, then enter the patch number in the **Patch Name or Number is** field and click **Search**.
3. Click the link for your operating system and download the patch file to the appropriate directory in the staging area.
4. Extract the .zip file.

1.4.4 Downloading Oracle Java Development Kit

To download and install JDK 1.6.0_65:

1. Go to My Oracle Support at https://support.oracle.com and sign in.
2. In the Search Knowledge Base field in the upper right, enter: 1439822.1

   A page appears with a list of documents.
3. Click the link *All Java SE Downloads on MOS* [Article ID 1439822.1].
4. Scroll down to the list of JDK versions to **Oracle JDK 6 Update 65** (Patch ID 17046855).

   Note: Check My Oracle Support article 180430.1 to see if a more recent versions are supported; see "Finding Information on My Oracle Support" on page viii.
5. Click the patch number link.
6. Select Microsoft Windows x64 (64-bit) and click **ReadMe** to read the release notes and **Download** to download the patch.

Installation instructions are in Section 4.3, "Installing Oracle Java Development Kit."

1.4.5 Downloading the Java Runtime Environment

TMS requires that Java Standard Edition (SE) Runtime Environment (JRE) 1.7.0.45—also known as JRE 7 Update 45—exists on the user's computer.

The Launch page is configured to prompt users to install JRE if it does not exist on their computer. To make this work, you need to download JRE into the *OPA_HOME*\html directory and rename it; see Section 8.4, "Making the Java Runtime Environment Available for Download."

To download the latest version of the JRE and then position the software so your users can install it directly from the Downloads page:

1. On the application server, go to the following Oracle Web site:

   `http://www.oracle.com/technetwork/java/javase/downloads/index.html`

2. Click the **Download** button for JRE.
3. Select the **Windows x86 Offline** version.

   Note: This is the version for 32-bit browsers (not operating systems). The default browser for Windows machines is 32-bit, but Windows machines also come with a 64-bit version. If you want to support the 64-bit version, you must either customize your Launch page to point to sunjpi64.exe or instruct users with 64-bit browsers to download the 64-bit version of JRE from the link in Step 1.

4. Download it to the staging area in a recognizably named directory.

1.4.6 Downloading Adobe Reader

Adobe Reader is required on the Reports Server and on client computers. Download it from `http://www.adobe.com`. At this time no particular version is required.

1.5 Using the Silent Installer

You can run any of the Oracle Universal Installers—including the Oracle Thesaurus Management System Installers—in silent mode. This may be useful to promote uniform installations in many sites or on many computers.

TMS ships with .rsp (response) files that include the parameter prompts and sample parameter values for each component. They are located on the media pack under Disk1\stage\responses and include:

- tms_frontend.rsp
- tms_db_install.rsp
- tms_db_upgrade.rsp

1. Open the file in a text editor and enter values directly
2. Run the file.

   In UNIX:

   ```
   ./runInstaller -responseFile response_file_name
   ```

   In Windows:

   ```
   setup.exe -responseFile response_file_name
   ```

3. When you run the file at each location, edit the local parameters as required.

Alternatively, you can run the Installer once, entering values manually, and record the process to create a response file.

Run the file.

In UNIX:

```
./runInstaller -record -destinationFile response_file_name
```

In Windows:

```
setup -record -destinationFile response_file_name
```

For more information see OUI documentation at:

- http://docs.oracle.com/cd/E18790_01/doc/em.112/e12255/oui3_response_files.htm
- http://docs.oracle.com/cd/E11882_01/install.112/e24321/app_nonint.htm#CIHEGBII

1.6 Reviewing the Installation Log Files

During the installation of an Oracle Health Sciences component, the Oracle Universal Installer generates the following log file:

```
installActions.log
```

This log file records the actions of the Installer — such as loading information from the CD to the Application or Database Server — and is useful for diagnosing problems with the Installer. You should include the log file if you report any problems that occur when installing an Oracle Health Sciences component.

On a Windows installation, the log files are located at:

```
\Oracle\Inventory\logs
```

For example:

```
C:\Program Files\Oracle\Inventory\logs
```

On a UNIX installation, the log files are located at:

```
$ORACLE_BASE/oraInventory/logs
```

For example:

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

The current log file is installActions.log. All previous log generations have a timestamp appended to the name. For example:

```
installActions2013-04-30_11-22-52AM.log
```

1.7 Choosing a Character Set

Oracle Health Sciences supports certain character sets for each product or each combination of integrated products.

For TMS, Oracle strongly recommends that you use the UTF8 character set (default). TMS supports UTF8, US7ASCII, WE8ISO8859P1, or any single byte character set.

TMS uses the NLS_LANG environment variable to control the **language, territory**, and **character set** used for database connections. The NLS_LANG variable concatenates the three components as LANGUAGE_TERRITORY.CHARSET.

The default installation configures the TMS application to use the following character set AMERICAN_AMERICA.UTF8.

You must set the CHARSET component of the NLS_LANG variable to match the character set of the database.

You must use the **same character set on the database tier and the application tier**. If you select US7ASCII for the database tier and AL32UTF8 or UTF8 for the application tier, TMS stores some special characters incorrectly in the database.

1.8 Applying Oracle Critical Patch Updates

Every quarter, Oracle provides Critical Patch Updates (CPUs) to address security vulnerabilities. These patches are cumulative: each one contains all the fixes contained in the previous patch.

Check My Oracle Support article ID 121863.1, *Oracle Health Sciences Supported Technology Stacks*, for the latest CPU patch tested with Oracle Health Sciences applications, with a link to the separate article about each one. Install these patches on every computer with an Oracle Home.

1.9 Applying the Latest TMS Patch Set

Check My Oracle Support article *Oracle Thesaurus Management System Patches* (Article ID 132626.1) for the latest patch set and apply it. See the patch set release notes for more information.

2

Installing Oracle Database on UNIX

This chapter includes the following topics:

- Section 2.1, "Performing Prerequisite Tasks for Installing Oracle Database"
- Section 2.2, "Installing Oracle Database"

If you are upgrading to Release 5.0.1, see Chapter 7. For database tier system requirements, see the *Oracle Database 11g Release 2 (11.2) Installation Guide* for your operating system.

Critical Patch Updates See Section 1.8, "Applying Oracle Critical Patch Updates."

2.1 Performing Prerequisite Tasks for Installing Oracle Database

To ensure that your platform meets the minimum requirements for installing Oracle Database, you must perform the following preparatory tasks:

- Create Owners, Groups, and Mount Points
- Configure Kernel Resources and Adjust Operating System Environment
- Install Latest Operating System Patches

2.1.1 Create Owners, Groups, and Mount Points

To create the software owner, required groups, and mount points:

1. Create the software owner and groups:
   - Create a UNIX user to own the Oracle software. Typically, the user name is **oracle**.
   - Create two groups: one is the Oracle Inventory group; the other is the operating system DBA group. Typically, the group names are **oinstall** and **dba,** respectively.
2. Create mount points owned by the oracle user:
   - Create a software mount point of at least 10 GB.
   - Create mount points to hold the database files, control files, and log files, respectively.
3. Test permissions. Ensure that the oracle user can write to the new mount points and all subdirectories.

2.1.2 Configure Kernel Resources and Adjust Operating System Environment

The performance of Oracle Database relies on proper tuning of operating system parameters. In addition, if you are creating several Oracle instances, you might have to increase the amount of shared memory and semaphores on the system by setting kernel parameters.

For details, see the "Configure Kernel Parameters" section of the *Oracle Database 11g Release 2 Installation Guide* for your operating system.

2.1.3 Install Latest Operating System Patches

Download and install the latest operating system patches required for Oracle, if necessary. Review the latest platform-specific install bulletins for Oracle Database 11.2.0.4.

2.2 Installing Oracle Database

This section includes the following topics:

- Install Oracle Database 11.2.0.4 Enterprise Edition
- Install Oracle Database Examples

2.2.1 Install Oracle Database 11.2.0.4 Enterprise Edition

To install Oracle Database 11.2.0.4:

1. Locate the Oracle Database software in the staging area on the database server where you downloaded it; see Section 1.4, "Downloading and Extracting the Software."

   It is shipped as patch 13390677. This patch contains the entire Oracle Database product.

2. Install Oracle Database 11.2.0.4. For instructions see the patch readme file and *Oracle Database 11g Release 2 (11.2) Installation Guide* for your operating system at `http://www.oracle.com/pls/db112/portal.portal_db?selected=11&frame=`

3. Choose to install the Enterprise Edition.

2.2.2 Install Oracle Database Examples

Oracle Database Examples includes the following items:

- Oracle JDBC Development Drivers (required)
- Oracle Database Examples (required)
- Oracle Product Demonstrations (optional)

> **Note:** You do not need to install any of the sample schemas. They are not required for either Oracle Clinical or Oracle Thesaurus Management System. You can add them later if you change your mind.

To install Oracle Database Examples:

1. Extract p13390677_112040_*platform*_6of7.zip in the `examples` directory.

2. Start Oracle Universal Installer from the `examples` directory and install Oracle Database Examples.
3. Accept all the default values during the installation.

For more information about installing software and various Oracle product demonstrations from the Oracle Database Examples media, see the *Oracle Database Examples Installation Guide* at http://docs.oracle.com/cd/E11882_01/install.112/e24501.pdf.

3

Installing Oracle Database on Windows

This chapter describes how to set up a new Oracle Database Server on a Windows computer.

- Section 3.1, "Install Oracle Database 11.2.0.4 Enterprise Edition"
- Section 3.2, "Install Oracle Database Examples"

If you are upgrading to Release 5.0.1, see Chapter 7. For database tier system requirements, see the *Oracle Database 11g Release 2 (11.2) Installation Guide* for your operating system.

Critical Patch Updates See Section 1.8, "Applying Oracle Critical Patch Updates."

3.1 Install Oracle Database 11.2.0.4 Enterprise Edition

To install Oracle Database 11.2.0.4:

1. Locate the Oracle Database software in the staging area on the database server where you downloaded it; see Section 1.4, "Downloading and Extracting the Software."

   It is shipped as patch 13390677. This patch contains the entire Oracle Database product.

2. Install Oracle Database 11.2.0.4. For instructions see the patch readme file and *Oracle Database 11g Release 2 (11.2) Installation Guide* for your operating system at `http://www.oracle.com/pls/db112/portal.portal_db?selected=11&frame=`

3. Choose to install the Enterprise Edition.

3.2 Install Oracle Database Examples

Oracle Database Examples includes the following items:

- Oracle JDBC Development Drivers (required)
- Oracle Database Examples (required)
- Oracle Product Demonstrations (optional)

> **Note:** You do not need to install any of the sample schemas. They are not required for either Oracle Clinical or Oracle Thesaurus Management System. You can add them later if you change your mind.

To install Oracle Database Examples:

1. Extract p13390677_112040_*platform*_6of7.zip in the `examples` directory.
2. Start Oracle Universal Installer from the `examples` directory and install Oracle Database Examples.
3. Accept all the default values during the installation.

For more information about installing software and various Oracle product demonstrations from the Oracle Database Examples media, see the *Oracle Database Examples Installation Guide* at http://docs.oracle.com/cd/E11882_01/install.112/e24501.pdf.

4

Installing and Configuring the Application Tier

For Oracle Thesaurus Management System 5.0.1, the Application Tier technology includes:

- Oracle Application Server 11*g*R1 , which includes the Oracle Forms Server and the Oracle Reports Server. Both are required for TMS.
- WebLogic Server 11*g*R1 (10.3.6) and Oracle Application Developer Framework 11*g* R1. These are required for the TMS HTML Browser.

Critical Patch Updates See Section 1.8, "Applying Oracle Critical Patch Updates"

This chapter includes the following topics:

4.1 Before You Start

Do the following.

4.1.1 Identify a Single Account to Perform All Application Tier Installation Tasks

You must install all application tier components using the same user account. The account must have administrator privileges on the server computer.

4.1.2 Getting a CA Certificate for HTTPS

To support HTTPS, you need to request a certificate from a Certificate Authority (CA) vendor such as Thawte, Entrust, or Verisign, and then import the certificate into the Oracle Wallet for the Oracle Application Server.

In the last step in Section 4.6.1.1, "Creating an Oracle Wallet and Generating a Certificate Request" you generate an encoded plain text certificate request file that you can email to the CA vendor. The vendor will sign the file and send you a Trusted Certificate and a User Certificate.

Allow some time for the certificates to be issued.

4.2 Installing Adobe Reader

Adobe Reader is required for TMS. Download it from adobe.com. At this time no particular version is required.

You can do this step at any time during the installation process.

4.3 Installing Oracle Java Development Kit

To download and install JDK:

1. If you have not already done so, follow instructions in Section 1.4.4, "Downloading Oracle Java Development Kit."
2. Follow instructions in the release notes to apply the patch. By default, the download directory is C:\Program Files\java\jdk*version*. "Program Files" includes a space, which can cause problems. Oracle recommends specifying a directory with no spaces in the name, and also reducing the directory name to at most 8 characters; for example, C:\app\java\jdk*version*.

   Make a note of the directory in which you install JDK; you will need it when you install WebLogic Server.

4.4 Installing and Configuring Oracle WebLogic Server

Instructions in this section should be complete. However, additional information is in the WebLogic 10.3.6 following instructions in *Oracle® Fusion Middleware Installation Guide for Oracle WebLogic Server 11g Release 1 (10.3.6)*, which you can find on the media pack or at `http://docs.oracle.com/cd/E23943_01/doc.1111/e14142/overview.htm`, or download the PDF from here: `http://docs.oracle.com/cd/E23943_01/web.1111/e13708/toc.htm`.

The complete documentation set for Oracle WebLogic Server 10.3.6 is available at: `http://docs.oracle.com/cd/E23943_01/wls.htm`.

1. In the staging area where you downloaded the media pack (see Section 1.4, "Downloading and Extracting the Software") locate the Oracle WebLogic Server 11gR1 (10.3.6) Generic and Coherence directory where you extracted the WebLogic Server .zip file.
2. Log in as the user you selected in Section 4.1.1, "Identify a Single Account to Perform All Application Tier Installation Tasks".
3. Install Oracle WebLogic Server using a Generic Package installer—This type of installer is a .jar file; wls1036_generic.jar. Double-click on the .jar file to open the Installer.

You can accept most default values, with the exceptions noted below.

Note: You can change the default value of the middleware home directory, which is C:\Oracle\Middleware, but you must NOT change the default values for any of its subdirectories, including:

- wlserver_10.3
- common
- FR_HOME

Security Updates

Specify whether you want to register the product installation with My Oracle Support. By registering, Oracle Support emails you immediately of any security updates that are specific to your installation. Follow instructions on screen to register or to reject the option.

Note: At the time of publication of this document, there seems to be a bug in the WLS installer that makes it difficult to deselect this option.

Also note that even if you accept this option you should check My Oracle Support for quarterly Oracle Critical Patch Update (CPU) security patches certified for use with Oracle Thesaurus Management System; see Section 1.8, "Applying Oracle Critical Patch Updates".

Choose the "Custom" Install Type

Select a "Custom" installation type rather than the default value, "Typical." This is required in order to create a Node Manager.

JDK Selection

Browse to the Oracle Java Development Kit (JDK) 1.6.0_65 (JDK 6) that you installed in the previous section.

Include the Node Manager

Be sure to install the Oracle WebLogic Node Manager in the **Install Windows Service** screen. The Node Manager is used to monitor, start, and stop server instances in a WebLogic domain.

Note: Continue to click **Next** until you are finished. After the Installation Summary the processing may take a few minutes. You can safely ignore the Quick Start screen.

4.5 Installing and Configuring Oracle Application Server

Install Oracle Applications Server as indicated below.

4.5.1 Install Oracle Application Server 11gR2 (11.1.2.1)

Oracle Application Server 11.1.2.1 provides Oracle Forms, Oracle Reports, and Oracle HTTP Server (OHS).

To install Oracle Application Server 11.1.2.1:

1. Restart the computer.
2. Log in as the user you selected in Section 4.1.1, "Identify a Single Account to Perform All Application Tier Installation Tasks".
3. Stop the WebLogic Node Manager:
   a. Close the command shell in which the Node Manager is running.
   b. If any DOS windows are open that are running the node manager, close them.
   c. Go to the Windows Control Panel, then Services, and turn off the Oracle WebLogic Node Manager service.

      For further information on the Node Manager, see the *Oracle® Fusion Middleware Node Manager Administrator's Guide for Oracle WebLogic Server 11g Release 1 (10.3.6)* at `http://docs.oracle.com/cd/E23943_01/web.1111/e13740/toc.htm`.
4. In the staging area where you downloaded the media pack—see Section 1.4, "Downloading and Extracting the Software"—locate the directory where you downloaded Oracle Forms and Reports 11g R2 (11.1.2.1.0) for Microsoft Windows x64 (64-bit) and extract the .zip file if you have not already done so.
5. Double-click setup.exe, which is located in the Disk1 directory.
6. Follow the instructions on the installation screens as the Oracle Universal Installer guides you through the installation. You can accept most defaults except as noted below:

SKIP Software Updates

Select **Skip Software Updates** instead of the default value, Search My Oracle Support for Updates. TMS may not be certified with these updates.

Domain Name MUST Be FRDomain

In the **Select Domain** window, the default name for the domain created by the Installer is **`ClassicDomain`**. You **must** rename it to **`FRDomain`** or RDC Onsite installation will fail.

In the same screen, enter and confirm a password for WebLogic Server.

Oracle Instance MUST Be asinst_1

When prompted for the Oracle Instance, accept the default value: *Middleware_Home*\asinst_1.

Specify Security Updates

Specify whether you want to register the product installation with My Oracle Support. By registering, Oracle Support emails you immediately of any security updates that are specific to your installation. Follow instructions on screen to register or to reject the option.

Note that even if you accept this option you should check My Oracle Support for quarterly Oracle Critical Patch Update (CPU) security patches certified for use with TMS; see Section 1.8, "Applying Oracle Critical Patch Updates".

Port

For greater security, you may want to customize the port. Auto Port Configuration is the default setting.

Proxy

For greater security, you may want to use a proxy. No proxy is the default setting.

Do NOT Use Application Identity Store

Uncheck the Use Application Identity Store check box at the top of the screen; TMS does not use OID (Oracle Identity).

4.5.2 Edit setDomainEnv.cmd

This step is required to run reports from RDC Onsite and TMS. Without changing this setting an error appears: "Remote JDBC disabled."

1. Open setDomainEnv.cmd in a text editor. The file is located in folder:

   drive:*middleware_home*\user_projects\domains\FRDomain\bin\setDomainEnv.cmd

   By default *middleware_home* is c:\oracle\middleware.

2. Replace the following line:

   ```
   -Dweblogic.jdbc.remoteEnabled=false
   ```

   with the following to change the setting from false to true:

   ```
   -Dweblogic.jdbc.remoteEnabled=true
   ```

4.5.3 Create ORACLE_INSTANCE Environment Variable

Create the ORACLE_INSTANCE environment variable and define it as the Oracle Application Server Home:

1. From the Control Panel, select **System**, then **Advanced System Settings**.
2. Create a system variable named `ORACLE_INSTANCE` and set its value to your Oracle Instance Home; for example `C:\oracle\middleware\asinst_1`.

4.6 Enabling SSL Between a Browser and Oracle HTTP Server

Create the following SSL (HTTP Secure Socket Layer) configuration: from users' browsers, HTTPS to Oracle HTTP Server (Web proxy), then HTTP to Oracle WebLogic Server.

Follow instructions in **one** of the following sections:

- Section 4.6.1, "Enabling SSL Between a Browser and Oracle HTTP Server Using a Certificate Authority"
- Section 4.6.2, "Enabling SSL Between a Browser and Oracle HTTP Server With Self Signing"—This may be useful if you want to set up HTTPS with a demo certificate for internal testing purposes.

4.6.1 Enabling SSL Between a Browser and Oracle HTTP Server Using a Certificate Authority

The following basic steps are required:

- Section 4.6.1.1, "Creating an Oracle Wallet and Generating a Certificate Request"
- Section 4.6.1.2, "Obtain Trusted Certificate and User Certificate from Certificate Authority"

- Section 4.6.1.3, "Importing the User Certificate and Trusted Certificate to OWM"
- Section 4.6.1.4, "Edit the Oracle HTTP Server Configuration File"

Oracle HTTP Server uses a utility called Oracle Wallet Manager (OWM) to manage certificates on the server. An Oracle Wallet is a container that stores your credentials, such as certificates, trusted certificates, certificate requests, and private keys.

The TMS Installer automatically enables traffic from Oracle HTTP Server to Oracle WebLogic Server.

Note: Do all steps in this section with the same user account you have used in the previous steps in this chapter. You must have administrator privileges on the machine.

Note: If you have not set the Oracle Instance variable as instructed in Section 4.5.3, "Create ORACLE_INSTANCE Environment Variable", do so now.

4.6.1.1 Creating an Oracle Wallet and Generating a Certificate Request

To create an Oracle Wallet:

1. Log in to Oracle HTTP Server as the user that installed Oracle Application Server.
2. Start Oracle Wallet Manager. From the Start menu, navigate to Oracle Classic 11g, then Integrated Management Tools, then Wallet Manager.
3. In Oracle Wallet Manager, from the Wallet menu, click New.

   A dialog asks if you want to create a default directory.
4. Click **No**. Your account probably does not have privileges to do this. For TMS the Wallet will be in the directory where the Installer created the default certificate and Wallet.
5. Enter and confirm a password that conforms to the rules listed in the dialog. This password will be required every time you open the Wallet.

   Leave the Wallet Type set to Standard and click **OK**.
6. A new dialog opens, asking if you want to create a certificate request. Click **Yes**.
7. In the Create Certificate Request dialog, enter values in the following fields:
   - **Common Name**: Enter *host.your_company_domain*.

     Note: The Common Name must match the Server Name directory that is specified in the primary configuration file (httpd.conf), which is created during Oracle HTTP Server installation in C:\app\oracle\middleware\asinst_1\config\OHS\ohs1.

     The rest of the fields do not affect SSL functionality.

   - **Organizational Unit**: Your unit within your company.
   - **Organization**: Your company.
   - **Locality or City**, **State or Province**, and **Country**

- **Key Size**: 2048 (bits)

  Note: Most providers encourage 2048-bit keys on all certificates.

- **DN**: OHS generates this value from the values you entered.

Click **OK**. The system displays a confirmation that a certificate request has been created. Click **OK**.

8. Go to the directory where the Wallet has been created:

   oracle_instance_home\config\OHS\ohs1\keystores\default

9. In the keystores directory, create a new directory with a meaningful name such as your organizational unit:

   oracle_instance_home\config\OHS\ohs1\key_stores*your_unit*

10. In the navigation tree on the left, select **Certificate: [Requested]** and then select **Export Certificate Request** from the Operations menu.
11. Navigate to the new directory you created and enter a name for a file to be created; for example, *server_name*.csr. Click **Save**.
12. Select **Save As** from the Wallet menu, navigate to the new directory, and click **OK**. The wallet file is always named **ewallet.p12**.

    The system displays a confirmation message along the bottom of the screen that a certificate request has been exported successfully.

    The new directory now contains the certificate request file as well as the wallet file.

4.6.1.2 Obtain Trusted Certificate and User Certificate from Certificate Authority

Obtain the certificates from the Certificate Authority as described in Section 4.1.2, "Getting a CA Certificate for HTTPS". Depending on the Certificate Authority, you will need to send either the certificate request file generated in the previous section or you will need to copy and paste the text in that file.

4.6.1.3 Importing the User Certificate and Trusted Certificate to OWM

After you have received the User Certificate and Trusted Certificate from a CA vendor:

1. Log in to Oracle HTTP Server as the admin user that owns OHS processes.
2. Start Oracle Wallet Manager. From the Start menu, navigate to Oracle Classic 11g, then Integrated Management Tools, then Wallet Manager.
3. In Oracle Wallet Manager, select **Open** from the Wallet menu.

   A dialog asks if you want to create a default directory.

4. Click **Yes**.
5. Navigate to the directory where you saved the Wallet file and click **OK**.
6. Enter the Wallet password that you created.
7. From the Operations menu, select **Import Trusted Certificate**.
8. In the dialog, select the option **Select a file that contains the certificate** and click **OK**.
9. Navigate to the trusted certificate and click **OK**.

The system displays a confirmation message along the bottom of the screen that the trusted certificate has been imported successfully.

10. In the navigation tree on the left, select **Certificate: [Requested]** and then select **Import User Certificate** from the Operations menu.
11. Navigate to the signed certificate and click **OK**.

    The system displays a confirmation message along the bottom of the screen that a certificate has been imported successfully.
12. In the Wallet menu, select **Auto Login**, then **Exit**.

4.6.1.4 Edit the Oracle HTTP Server Configuration File

Make the following two changes in the OHS configuration file, ssl.conf.

4.6.1.4.1 Add the New Wallet Location and Specify Port WebLogic Server installation creates a default, unsigned SSL wallet file for OHS. Its location is specified in the configuration file (ssl.conf) loaded at startup from the *oracle_instance_home*\config\OHS\ohs1 directory.

1. Make a backup copy of ssl.conf, which is located at:

   ```
   oracle_instance_home\config\OHS\ohs1
   ```
2. Open ssl.conf in a text editor.
3. Find the string `#Path to the wallet` and comment out the default location that follows it.
4. Add the path to the directory you created:

   ```
   oracle_instance_home\config\OHS\ohs1\your_unit
   ```
5. By default, the port for SSL is 8890, which means allURLs need to include `:8890`. You can change the value to `443` in which case the URLs do not need to include any port. To change the port to 443, change the following lines:

   ```
   Listen 8890
   <VirtualHost *:8890>
   ```

   to:

   ```
   Listen 443
   <VirtualHost *:443>
   ```
6. Stop and start Oracle HTTP Server using Oracle Process Manager Notification Server (OPMN) to load the configuration change:

   ```
   oracle_instance_home>\bin\opmnctl restartproc process-type=OHS
   ```

   The OPMN opmnctl executable for the instance is located in ORACLE INSTANCE\bin directory.
7. Test that you can connect from a browser to your virtual host in HTTPS URL:

   https://*host.your_company_domain:port*

4.6.1.4.2 Make OHS Compatible with Internet Explorer 9 and 10

While you have the ssl.conf file open, make the following additional change to make the application compatible with Internet Explorer 9 and 10.

OHS always returns HTTP 1.0 to Internet Explorer (IE) user-agents which causes RDC Onsite Data Entry windows to fail to open in an IE 9 or 10 browser. It appears this configuration is outdated and should be commented out to work properly in IE 9 and 10.

Comment out or remove the following lines:

```
BrowserMatch ".*MSIE.*" \
nokeepalive ssl-unclean-shutdown \
downgrade-1.0 force-response-1.0
```

4.6.1.4.3 Add Security Settings

While you have the ssl.conf file open, make the following additional change to avoid weak ciphers and protocols for SSL (HTPS):

Add the following lines:

```
SSLProtocol -ALL +SSLv3 +TLSv1
SSLCipherSuite
ALL:!aNULL:!ADH:!eNULL:!LOW:!EXP:!NULL:RC4+RSA:+HIGH:+MEDIUM:!SSLv2:!EXPORT
```

4.6.2 Enabling SSL Between a Browser and Oracle HTTP Server With Self Signing

If you want to set up HTTPS with a demo certificate for internal testing purposes then follow this section.

1. Log in to Oracle HTTP Server as the user that installed Oracle Application Server.
2. Start Oracle Wallet Manager. From the Start menu, navigate to Oracle Classic 11g, then Integrated Management Tools, then Wallet Manager.
3. In Oracle Wallet Manager, from the Wallet menu, click New.

   A dialog asks if you want to create a default directory.
4. Click **No**. Your account probably does not have privileges to do this. For TMS the Wallet will be in the directory where the Installer created the default certificate and Wallet.
5. Enter and confirm a password that conforms to the rules listed in the dialog. This password will be required every time you open the Wallet.

   Leave the Wallet Type set to Standard and click **OK**.
6. A new dialog opens, asking if you want to create a certificate request. Click **No**.
7. Do Save As to save the empty password-protected Wallet to a meaningful location like: oracle_instance_home\config\OHS\ohs1\keystores\oc .
8. Open a DOS window.
9. Navigate to: C:\Oracle\Middleware\oracle_common\bin .
10. Create and set the JAVA_HOME environment variable; for example:

    set JAVA_HOME=c:\app\java\jdk16065
11. Run following orapki command for the Wallet created above:

    ```
    c:\Oracle\Middleware\oracle_common\bin>orapki wallet add -wallet
    full-path_to_the_location_of_the_Wallet_after_step_7 -dn
    "CN=hostname.domain, OU=Department, O=Company, L=City, ST=State/Province,
    C=Country"
    ```

```
-keysize 2048 -self_signed -validity 2190 -pwd password
```

> **Note:** Double quotes where specified above are **required**.
>
> Validity is hardcoded above to 2190 days, which is six years. You can change this value as required.

12. Start Oracle Wallet Manager. From the Start menu, navigate to Oracle Classic 11g, then Integrated Management Tools, then Wallet Manager.
13. In the Wallet Manager, open the TMS Wallet. The self-signed certificate should be displayed with a status of READY.
14. In the Wallet menu, select **Auto Login**.
15. Save and exit.
16. To complete the setup, follow these instructions:
    a. Section 4.6.1.4, "Edit the Oracle HTTP Server Configuration File"
    b. Section 4.6.1.4.2, "Make OHS Compatible with Internet Explorer 9 and 10"
    c. Section 4.6.1.4.3, "Add Security Settings"

> **Note:** Since this is a demo certificate and is not from a recognized certificate authority, the browser will display a certificate warning. To prevent this, you can import the certificate into the browser and store it as a trusted publisher and trusted root CA, then restart the browser.

For more information, see *How To Generate A Wallet Containing A Self Signed Certificate Using ORAPKI in Oracle Application Server and Fusion Middleware* on My Oracle Support (Article ID 560982.1).

4.7 Installing Oracle Application Developer FrameWork and Applying Patches

Install Oracle Application Developer Framework (ADF, also known as Oracle Application Developer) and apply required patches.

4.7.1 Install Oracle Application Developer Framework (ADF)

Install Oracle Application Developer 11*g* R1 (11.1.1.6), also known as ADF, which is included in the media pack.

Additional information is included in the *Oracle® Fusion Middleware Installation Guide for Application Developer 11g Release 1 (11.1.1.6.0)*, which you can find on the media pack or at `http://docs.oracle.com/cd/E23943_01/doc.1111/e14827/toc.htm`.

1. In the staging area where you downloaded the media pack (see Section 1.4, "Downloading and Extracting the Software") locate the directory where you extracted the ADF .zip file from the Oracle Application Development Runtime 11g Patch Set 5 (11.1.1.6.0) disk.
2. Log in as the user you selected in Section 4.1.1, "Identify a Single Account to Perform All Application Tier Installation Tasks".

3. In a DOS cmd window, navigate to the above directory.
4. Execute the following command:

   setup -jreLoc *drive:\location_where_you_installed_jdk1.6.0_65*

   for example:

   ```
   setup -jreLoc C:\Java\jdk1.6.0_65
   ```

   However, if you installed JDK in the default location, C:\Program Files\Java\jdk1.6.0_65, this command may not work because of the space between "Program" and "Files." The following command works for the same location:

   ```
   setup -jreLoc C:\Progra~1\Java\jdk1.6.0_65
   ```

   Tip: ADF's setup.exe file does not run if you double-click it. You must use the above command.

4.7.2 Upgrade ADF

Upgrade ADF to the latest patch set that is certified with Oracle Thesaurus Management System. See *Oracle Thesaurus Management System Patches* (Doc ID 132626.1), for the latest information.

To upgrade ADF, apply two patches, a JDeveloper patch and a WebCenter Composer patch, and enter an upgrade command. For ADF 11.1.2.4 the patch numbers are:

- 16546129—JDeveloper patch
- 16546157—WebCenter Composer patch

Note: Oracle supports only English OS language settings for the application tier.

Additional information is in the patch readme files. However, because there are no WebCenter components explicitly installed, you cannot follow the patch readme instructions completely.

1. Restart the server.
2. Locate the patch files in the staging area where you downloaded them in Section 1.4, "Downloading and Extracting the Software."
3. Go to the Windows Control Panel, then Services, then stop all Oracle services (Oracle Process Manager, Oracle Node Manager).
4. Set the Oracle Home and path:

   ```
   set ORACLE_HOME= your_ORACLE_COMMON_home
   ```

   ```
   set path=%oracle_home%\bin;%oracle_home%;%oracle_home%\opatch;%path%
   ```

   Note: The readme for the WebCenter patch directs you to set ORACLE_HOME to Oracle_WC1—the WebCenter install directory. However, if there are no WebCenter components explicitly installed, set ORACLE_HOME to oracle_common as above.

5. Navigate to one patch directory. For example, for ADF 11.1.2.4:

   ```
   cd c:\downloads\p16546129_111160_Generic\16546129
   ```

6. Enter

   ```
   opatch apply
   ```

7. Navigate to the other patch directory. For example, for ADF 11.1.2.4:

   ```
   cd c:\downloads\p16546157_111160_Generic\16546157
   ```

8. Enter

   ```
   opatch apply
   ```

9. If you have started any WebLogic services, including the Administration and Managed Servers, close them now:
   - If any DOS windows are open that are running the node manager, close them.
   - Go to the Windows Control Panel, then Services, and turn off the Oracle WebLogic Node Manager service.

10. From the DOS command line, navigate to *middleware_home*\oracle_common\common\bin and execute the following commands:

    ```
    setWlstEnv.cmd
    wlst.cmd
    ```

    Then, in the WebLogic Server Scripting Tool shell, enter the following commands:

    ```
    upgradeADF('middleware_home/user_projects/domains/frdomain')
    exit()
    ```

    Note: Be sure to use forward slashes (/) in the path.

    In the WLS Scripting Tool shell you can type `help()` to get information on available commands.

4.8 Modifying the tnsnames.ora File

The tnsnames.ora file must have an entry for each database that matches the database's Oracle SID. There is a tnsnames.ora file in at least two locations in the installation. Oracle recommends maintaining a master file and copying it to each location whenever you add a database.

The tnsnames.ora locations on each application server are:

- On each database server at: *oracle_home*\network\admin
- On each application server at: *middleware_home*\asinst_1\config

4.9 Testing Connectivity to Databases for Forms and Reports Servers

For Forms-based TMS to work properly, the TMS database must be able to communicate with the application servers. Establish that SQL*Net connections can be created to connect the application server to all databases.

4.9.1 Test the Connection from the Application Servers to the Database

For TMS and RDC applications to work properly, the TMS Database must be able to communicate with the application servers.

To ensure that you can connect to the database from each application server:

1. Open a Microsoft DOS command window.

2. Use SQL*Plus to verify that you can connect to the database:

   ```
   sqlplus system/password@dbname
   ```

4.9.2 Troubleshoot Network Connection Issues

If the system returns a connection error, you must resolve this problem before continuing with the installation of TMS.

Possible causes of errors include:

- The computer is not physically connected to the network.
- One of the databases does not exist.
- The network protocol software is not loaded on the computer. Try a remote login to check.
- The database or SQL*Net listener process is not started on the server.
- An incorrect connect string, user ID, or password was entered.
- The tnsnames.ora file is not present in the correct directory or does not contain the correct entries.

4.10 Restart the Computer

To ensure that all configuration changes for the Oracle Application Server are initialized, restart the computer before you continue with the next task in the installation process.

5

Creating a TMS Database

Your Oracle Database and TMS Server installations must be complete before you install the TMS database.

Single TMS Database or Master Database in a Distributed Environment If you plan to use only one TMS database, or if you are using replication to distribute data among multiple databases, do the following on the single or master database:

- Section 5.1, "Restart Computer and Stop All Servers and Services"
- Section 5.2, "Installing the TMS Database Server Code"
- Section 5.3, "Review Database Requirements and Recommendations (All Databases)"
- Section 5.4, "Install TMS Database Objects (All Databases)"
- Section 5.5, "Create a TMS Administrator User Account (All Databases)"
- Section 5.6, "Register Databases Integrated with Oracle Clinical" (This step is required only if you are integrating TMS with Oracle Clinical.)
- Section 5.7, "Load Dictionaries (Single or Master Database)"
- Section 5.8, "Complete Distributed Environment Setup" (This step is required only in a distributed environment.)

Local (Slave) Databases If you are installing multiple databases in a distributed environment, perform the steps in the following sections on each local (slave) database:

- Section 5.1, "Restart Computer and Stop All Servers and Services"
- Section 5.3, "Review Database Requirements and Recommendations (All Databases)"
- Section 5.4, "Install TMS Database Objects (All Databases)"
- Section 5.5, "Create a TMS Administrator User Account (All Databases)"
- Section 5.8, "Complete Distributed Environment Setup" This section includes tasks to be done on both the master and slave databases.

5.1 Restart Computer and Stop All Servers and Services

Restart the computer and then stop all servers and services:

1. Restart the computer.

2. In the Windows Services control panel, find Oracle Node Manager service and stop it.
3. From the Windows Start menu, go to All Programs, then Oracle Classic_asinst_1, then:
   - Forms Services, then Stop WLS_FORMS
   - Reports Services, the Stop WLS_REPORTS
   - Stop Admin Server: **NOTE**: This is required if you are installing the Front End and the Server (database server code), but if you are installing the Report Server the Admin Server must be **running**.

5.2 Installing the TMS Database Server Code

TMS database server code must be installed on Windows on the same computer as the TMS Front End. You must install the server first, then create one or more databases, and then install the Front End.

5.2.1 Gather Required Information

The Installer has only one screen, for OPA Home Directory. By default, it is C:\opapps50.

5.2.2 Start the TMS Server Installer

To install the TMS Server:

1. Log in as a user with system administrator privileges.
2. In the staging area, locate the directory where you downloaded and extracted Oracle Thesaurus Management System (see Section 1.4, "Downloading and Extracting the Software").
3. Run the following file:

   ```
   Disk1\install\setup.exe
   ```

   The Installer opens to the Welcome screen.

   Note: See Section 1.5, "Using the Silent Installer" for instructions for running the Installer as a file with pre-entered parameter values.

   Note: Although there is a button for deinstalling products on the Welcome screen, Oracle does not support using the Installer to deinstall Oracle Thesaurus Management System.

4. In the Select a Product to Install page, select **Oracle Thesaurus Management System Server**.

5.2.3 Attend to the TMS Database Server Code Installation Screens

The Installer guides you through the installation and configuration of the TMS database server.

5.3 Review Database Requirements and Recommendations (All Databases)

A TMS database can be installed on Windows or UNIX. You must install the TMS database server (always on Windows) before installing a TMS database.

Before you install the TMS database component, review the following requirements and recommendations — such as SID names, tablespace sizes, memory management, and initialization parameters — for each TMS database you plan to install.

Note: Repeat these requirements for each new database you create.

5.3.1 Start with a New Database Instance

Oracle recommends that you set up a new database instance so that neither TMS nor its installation process interferes with other applications. However, you can install TMS on an existing database instance.

5.3.2 Use Lowercase SID Name with Oracle Clinical

If you are integrating your TMS environment with Oracle Clinical, ensure that the SID name uses lowercase letters only. SIDs with uppercase letters cause conflicts in the Oracle Clinical Data Extract module.

5.3.3 Check Required Tablespaces

Table 5–1 lists the tablespaces, along with their minimum size, required for TMS. Make sure the database contains these tablespaces. The best practice is to create them with the *Autoextend On* option, to avoid running out of space.

In addition, you may need to increase the minimum sizes for your installation.

Table 5–1 Required Tablespaces and Sizes

Tablespace	Minimum Size
SYSTEM	900 MB
TEMP	100 MB
UNDOTBS1	700 MB
USERS	500 MB
SYSAUX	600 MB

5.3.4 Use the Database Configuration Assistant

To create a new database, use the Oracle Database Configuration Assistant. For instructions about the Database Configuration Assistant, see the Oracle Database 11.2.0.4 documentation, including online help and the *Oracle Database Installation Guide 11g Release 2 (11.2)* for the appropriate operating system.

Note:

- Use the Custom Database installation option.
- The following parameters are not listed under All Initialization Parameters. Click **Show Advanced Parameters** to set the following parameters as described in Section 5.3.7, "Set Initialization Parameters":

  - Db_cache_size
  - Db_files
  - Java_pool_size
  - Job_queue_process
  - Large_pool_size
- The Custom installation option allows access to the Database Storage screen, where you can expand the Tablespaces folder in the tree on the left side of the screen and edit the following tablespaces as required; see Section 5.3.3, "Check Required Tablespaces"

5.3.5 Select Required Components

When you create a TMS database, select the following mandatory components:

- Oracle Text
- Oracle JVM
- Oracle XML DB

5.3.6 Use Automatic Memory Management

Oracle recommends that you use Oracle Database 11.2.0.4's Automatic Memory Management feature for a new or an upgraded TMS database.

5.3.7 Set Initialization Parameters

Table 5–2 lists the required and recommended initialization parameters in the init.ora file for TMS. For those parameters that accept a value from within a range, the values in the table are minimum values.

Tip: Table 5–2 arranges the parameters in alphabetical order. In the Database Configuration Assistant, you can select the Parameter column to sequence the parameters in the same order.

Note: If you make any changes to the initialization parameters, be sure to stop and restart the database in order to acquire the new parameter settings.

Table 5–2 Required and Recommended Initialization Values in the init.ora File

Parameter	Value	Comments
COMPATIBLE	11.2.0.4	Specifies the release with which the Oracle server must maintain compatibility.
DB_BLOCK_SIZE	16384 bytes	You cannot change this value after you create the database.
DB_CACHE_SIZE	150 MB	Recommended value for 50 to 60 concurrent users. Adjust this value according to your organization's needs.
DB_DOMAIN	*company*.com	Make this value the same as your company domain name.
DB_FILES	200	Oracle adds needed space to the control files up to the number specified in the DB_FILES parameter.

Table 5–2 (Cont.) Required and Recommended Initialization Values in the init.ora File

Parameter	Value	Comments
EVENT	31151 trace name context forever, level 0x100	Required for HTML generation. NOTE: Do not include the EVENT parameter when you create the database. Once the database is created, you can add the EVENT parameter to the init.ora file.
JAVA_POOL_SIZE	50 MB	Recommended value for 50 to 60 concurrent users. You can change the value of this parameter after installation.
JOB_QUEUE_PROCESSES	10	Developer-specific parameter. You can change the value of this parameter after installation.
LARGE_POOL_SIZE	50 MB	Recommended value for 50 to 60 concurrent users.
MEMORY_MAX_TARGET	1000 MB (minimum)	Adjust this value according to your organization's needs.
MEMORY_TARGET	1000 MB (minimum)	Adjust this value according to your organization's needs.
NLS_DATE_FORMAT	*DD-MON-RRRR* (default value)	Determines the format in which client applications running on the Windows server transfer date information to and from the database. The format must specify the year as RRRR.
NLS_LENGTH_ SEMANTICS	BYTE	The CHAR value for this parameter is not supported.
OPEN_CURSORS	800 or greater	You can change the value of this parameter after installation.
OPTIMIZER_FEATURES_ ENABLE	11.2.0.4	Acts as an umbrella for enabling a series of optimizer features based on an Oracle release number. TMS uses the optimizing features of Oracle11g.
OPTIMIZER_MODE	CHOOSE	If you run TMS's statistics-gathering scripts, the CHOOSE value sets Oracle9*i*'s Optimizer to apply the execution plan that best minimizes response time. See the *Oracle Concepts Guide* and the *Oracle Tuning Guide* for more information. (CHOOSE is the default value when you specify 11.2.0.4 as the value of OPTIMIZER_FEATURES_ENABLE.)
PGA_AGGREGATE_ TARGET	200 MB	Recommended value for 50 to 60 concurrent users. You can change the value of this parameter after installation.
REMOTE_LOGIN_ PASSWORDFILE	EXCLUSIVE	The database must be set up to use password file authentication.
REMOTE_OS_AUTHENT	FALSE	NOTE: Do not include the REMOTE_OS_AUTHENT parameter **when you create the database**. After the database is created, you can add the REMOTE_OS_AUTHENT parameter to the init.ora file. REMOTE_OS_AUTHENT is an obsolete parameter. When you start up a database that has this setting, TMS displays the following warning: `ORA-32004: obsolete and/or deprecated parameter(s) specified. ORACLE instance started.` You can safely ignore this warning.
SEC_CASE_SENSITIVE_ LOGON	FALSE	Lets you enter passwords without case sensitivity.
SESSIONS	500 or greater	You can change the value of this parameter after installation.
SGA_MAX_SIZE	600 MB (minimum)	Recommended value for 50 to 60 concurrent users. Adjust this value according to your organization's needs.
SGA_TARGET	600 MB (minimum)	Recommended value for 50 to 60 concurrent users. Adjust this value according to your organization's needs.

Table 5–2 (Cont.) Required and Recommended Initialization Values in the init.ora File

Parameter	Value	Comments
SHARED_POOL_SIZE	150 MB (minimum)	Recommended value for 50 to 60 concurrent users. You can change the value of this parameter after installation.
UNDO_MANAGEMENT	AUTO	Specifies which undo space management mode the system uses. When set to AUTO, the instance starts in Automatic Undo Management (AUM) mode.

UTL_FILE_DIR	*opa_home*\ xmltemp	Specifies each directory you access.
		If this environment is exclusively an Oracle Thesaurus Management System environment, you do not have to set this parameter.
		However, if you share this environment with Oracle Clinical or Oracle Adverse Event Reporting System (AERS), you must specify entries to support Oracle Clinical PDF layout generation and Oracle AERS.
		In a Windows environment, samples of the valid syntax are as follows:
		`UTL_FILE_DIR=c:\e2b\import`
		`UTL_FILE_DIR=c:\opapps\xmltemp`
		In a UNIX environment, UTL_FILE_DIR requires an entry with two specified paths: one with and one without a trailing slash. Add these lines before any other UTL_FILE_DIR entries:
		`UTL_FILE_DIR=/usr/opapps/oc/xmltemp/`
		`UTL_FILE_DIR=/usr/opapps/oc/xmltemp`

5.3.8 Modify the tnsnames.ora File

The tnsnames.ora file must have an entry for each database that matches the database's Oracle SID. There is a tnsnames.ora file in at least two locations in the installation. Oracle recommends maintaining a master file and copying it to each location whenever you add a database.

The tnsnames.ora locations are:

- On each database server at: *oracle_home*\network\admin

  or the location configured for your database

- On each application server at: *drive*:\Oracle\Middleware\asinst_1\config

5.4 Install TMS Database Objects (All Databases)

This section describes how to add TMS database objects to each Oracle database that you will use for TMS.

5.4.1 Unlock Accounts Before Installing the TMS Database

The Installer prompts you for passwords to several system accounts. In Oracle Database, some accounts are locked. Before you run the Installer, check these accounts. Unlock them if necessary. You will need to set their passwords when you run the Installer.

Make sure the following accounts are unlocked: SYSTEM, CTXSYS, XDB, and SYS.

When you have finished installing the database, relock any accounts that were locked except for SYSTEM and SYS, which should not be locked.

5.4.2 Gather Required Information

Before you start the installer, be sure you have the information it prompts for; see Section 5.4.5, "Attend to the TMS Database Installer Screens".

5.4.3 Stop PSUB Process (If Integrated with Oracle Clinical)

If your TMS installation is integrated with Oracle Clinical, you must stop the PSUB process before upgrading the database. See the *Oracle Clinical Administrator's Guide* for instructions.

5.4.4 Start the Installer

To install a TMS database:

1. Log in as a user with system administrator privileges.
2. In the staging area, locate the directory where you downloaded and extracted Oracle Thesaurus Management System (see Section 1.4, "Downloading and Extracting the Software").
3. Run the following file:

   ```
   Disk1\install\setup.exe
   ```

   The Installer opens to the Welcome screen.

   Note: See Section 1.5, "Using the Silent Installer" for instructions for running the Installer as a file with pre-entered parameter values.

   Note: Although there is a button for deinstalling products on the Welcome screen, Oracle does not support using the Installer to deinstall Oracle Thesaurus Management System.

4. In the Select a Product to Install page, select **TMS Database Install**.

5.4.5 Attend to the TMS Database Installer Screens

The Installer guides you through the database installation.

1. Product to install: **TMS Database Install**.
2. What type of installation do you want?
   - Select **Master** if you are planning to use only one database or if you have a distributed environment (using data replication) and this is the master database.
   - Select **Slave** only if you have a distributed environment and this is a slave,or local, database.
3. Home Details: The full path to the Oracle Forms/Reports Home location on your application server; by default:

   C:\app\oracle\Middleware\Oracle_FRHome1
4. TMS Server Code Home Directory: The system detects the location and enters the value for you. By default, it is C:\opapps50\tms.
5. Database Connect String: Enter the database name. It must be a valid TNS entry in your tnsnames.ora file; see Section 5.3.8, "Modify the tnsnames.ora File".
6. NLS Settings: Enter the NLS settings for the database; see Section 1.7, "Choosing a Character Set". Oracle strongly recommends that you use UTF8. The default values are:

- American_America.UTF8
- DD-MON_RRRR

7. Directory for data tablespace data files: Enter the path to the directory on the database server where the data tablespace datafiles for the application should be created during the installation. The Installer does not validate the value and you must use the following syntax, including a trailing slash, depending on your operating system; for example:
   - UNIX: /u01/oradata/*dbname*/
   - Windows: *drive*:\oradata*dbname*\
8. Directory for index tablespace data files: Enter the path to the directory on the database server where the index tablespace datafiles for the application should be created during the installation. The Installer does not validate the value and you must use the following syntax, including a trailing slash, depending on your operating system; for example:
   - UNIX: /u01/oradata/*dbname*/
   - Windows: *drive*:\oradata*dbname*\
9. Enter and confirm passwords for the following accounts:
   - SYS
   - SYSTEM
   - CTXSYS
   - OPA
   - RXC
   - TMS
   - TDX
   - BC4J_INTERNAL
   - OPS$TMSBROWSER
10. Ignore tablespace creation errors:
    - Select **Yes** if the database already has the TMS tablespaces created.
    - Select **No** if the TMS tablespaces do not exist.
11. The Installer gives you information that you should make a note of.
12. When you are ready, install.

5.4.6 Check the Database Log File

For each database installation you perform, the Installer creates the following log file in the INSTALL directory:

`tmsinst_database_name.log`

Always check the log file for status, messages, and errors.

5.5 Create a TMS Administrator User Account (All Databases)

This section describes creating an administrator-level TMS user, which is defined as a user with the OPA_ADMIN role. Users with this role have access to the Define Users window in TMS, which enables them to create additional users in the database.

> **Note:** If the user already has an TMS OPS$ user account in the same database, you only need to grant the user the OPA_ADMIN role (see Step 4 only).

To create a new Oracle account for a user:

1. Connect to SQL*Plus as system and run the following script:

   OPA_HOME\tms\install\tmsadduser.sql

2. Enter a user ID.
3. Enter a password for this user. Do not use the identified externally clause; explicitly assign a password.
4. Grant the user the OPA_ADMIN role:

   ```
   grant OPA_ADMIN to user_id
   ```

5.6 Register Databases Integrated with Oracle Clinical

If you are installing TMS in the same database as Oracle Clinical , register the single or master database by running the TMS Installer.

> **Note:** Run TMS database registration on slave databases only **after** you have followed instructions in Section 5.8.6, "Setting Up and Starting Symmetric Replication" as directed in Section 5.8.7, "Register Slave Databases Integrated with Oracle Clinical."

5.6.1 Gather Required Information

Before you start the installer, be sure you have the information it prompts for; see Section 5.6.3, "Attend to the TMS Database Registration Screens".

5.6.2 Start the Installer

To register your TMS database for use with Oracle Clinical :

1. Log in as a user with system administrator privileges.
2. In the staging area, locate the directory where you downloaded and extracted Oracle Thesaurus Management System (see Section 1.4, "Downloading and Extracting the Software").
3. Run the following file:

   ```
   Disk1\install\setup.exe
   ```

   The Installer opens to the Welcome screen.

> **Note:** See Section 1.5, "Using the Silent Installer" for instructions for running the Installer as a file with pre-entered parameter values.

Note: Although there is a button for deinstalling products on the Welcome screen, Oracle does not support using the Installer to deinstall Oracle Thesaurus Management System.

4. In the Select a Product to Install page, select **Oracle Thesaurus Management System Front End**.

5.6.3 Attend to the TMS Database Registration Screens

The Installer guides you through registering a TMS database.

1. Product to install: **TMS Database Registration**.
2. Home Details: The full path to the Oracle Forms/Reports Home location on your application server; by default:

   C:\app\oracle\Middleware\Oracle_FRHome1
3. TMS Server Code Home Directory: The system detects the location and enters the value for you. By default, it is C:\opapps50\tms\501.
4. Enter and confirm passwords for the following accounts:
   - SYS
   - TMS
   - RXC
5. Global name: Enter the global name of the TMS database; for example:

   database_name.domain

   To find out the global name, log in to SQL*Plus and enter:

   select * from global_name
6. Enter the global name of the Oracle Clinical database. A SQL*Net TNS alias mustexist with the same name.
7. The Installer gives you information that you should make a note of.
8. When you are ready, install.

5.7 Load Dictionaries (Single or Master Database)

See the *Oracle Thesaurus Management System User's Guide* for information about loading dictionaries.

If you are installing TMS with AERS in a distributed environment, you must load the AERS-TMS dictionaries onto the master database before creating an export file and importing it to the slave databases.

You can load dictionaries at any time. However, if you are installing TMS in a distributed environment, even without AERS, you may want to load dictionaries now so as to avoid doing another export/import later.

5.8 Complete Distributed Environment Setup

This section applies only if you are setting up a distributed environment. It includes the following topics:

5.8.1 Export Data from the Master Database

If you are installing a distributed environment, you must create an export file of the master database, which you then import into the slave database.

To export data from the master database:

1. Log in to the master database server.
2. Set up a physical directory as follows:
   a. Create a new directory. For example: /u01/app/dmp.
   b. Grant read and write permission to the Oracle database.
   c. Verify that the tmsrepexp.dmp file does not exist in the directory. The Data Pump export will fail with an error if the tmsrepexp.dmp file already exists.
3. Create directory object on the master database:
   a. Connect to the master database as the SYS user:

      ```
      sqlplus sys/password as sysdba
      ```

   b. Create a directory object called TMS_REP_DIR and then map it to the physical directory you created in the previous step.

      ```
      CREATE OR REPLACE DIRECTORY TMS_REP_DIR AS 'PHYSICAL_DIR_ON_
      MASTER';
      ```

      For example:

      ```
      CREATE OR REPLACE DIRECTORY TMS_REP_DIR AS '/u01/app/dmp';
      ```

   c. Grant directory privilege to TMS:

      ```
      GRANT READ, WRITE ON DIRECTORY TMS_REP_DIR TO TMS;
      ```

4. Place tms.par in your working directory.
5. Point local variables to the database.
6. Invoke the Data Pump Export utility:

   ```
   expdp tms/password PARFILE=tms.par
   ```

   By default, the Data Pump Export utility creates a log file named export.log. Note that you can use the LOGFILE parameter to customize the name of the log file. For example:

   ```
   expdp tms/password PARFILE=tms.par LOGFILE=my_export.log
   ```

7. Verify that the tmsrepexp.dmp file and an export log file are created in the physical directory you created in Step 2.
8. Open the export log file and verify that no errors occurred.

5.8.2 Import Data to the Slave Database

At every slave database, import the export file from the master database.

To import data to the slave database:

1. Log in to the slave database server.
2. Set up a physical directory as follows:
   a. Create a new directory. For example: /u01/app/dmp.
   b. Grant read and write permission to the Oracle database.
   c. Transfer the tmsrepexp.dmp file from the master database server to this directory.
3. Create a directory object on the slave database:
   a. Connect to the slave database as the SYS user:

      ```
      sqlplus sys/password as sysdba
      ```

   b. Create a directory object called TMS_REP_DIR and then map it to the physical directory you created in the previous step.

      ```
      CREATE OR REPLACE DIRECTORY TMS_REP_DIR AS 'PHYSICAL_DIR_ON_
      MASTER';
      ```

      For example:

      ```
      CREATE OR REPLACE DIRECTORY TMS_REP_DIR AS '/u01/app/dmp';
      ```

   c. Grant directory privileges to TMS:

      ```
      GRANT READ, WRITE ON DIRECTORY TMS_REP_DIR TO TMS;
      ```

4. Point local variables to the database.
5. Invoke the Data Pump Import utility:

   ```
   impdp tms/password CONTENT=ALL DIRECTORY=TMS_REP_DIR
   DUMPFILE=tmsrepexp.dmp TABLE_EXISTS_ACTION=SKIP
   ```

   By default, the Data Pump Import utility creates a log file named import.log. Note that you can use the LOGFILE parameter to customize the name of the log file. For example:

   ```
   impdp tms/password CONTENT=ALL DIRECTORY=TMS_REP_DIR
   DUMPFILE=tmsrepexp.dmp TABLE_EXISTS_ACTION=SKIP
   LOGFILE=my_export.log
   ```

6. Open the import log file and verify that no errors occurred.

5.8.3 Clean Up after Export and Import

To clean database objects and log files after you export and import data:

1. Drop directory object as SYS user:

   ```
   REVOKE READ, WRITE ON DIRECTORY TMS_REP_DIR FROM tms;
   DROP DIRECTORY TMS_REP_DIR;
   ```

2. Delete the dump and log files from the physical directory.
3. Complete this procedure on each master database and each slave database.

For additional information about Oracle Data Pump, see the *Oracle Database Utilities* 11g Release 2 (11.2) documentation.

5.8.4 Complete the Creation of the Slave Database

On the TMS application server for each slave database, set the local variable and run the TMSUPGSLAVE.SQL script. This script generates a log file in the install directory called tmsupgslave_*database_name*.log.

> **Note:** Despite the "UPG" in its name, TMSUPGSLAVE.SQL is the correct script for initial TMS slave database installations.

To set the local variable and run TMSUPGSLAVE.SQL, enter:

```
set LOCAL=database_name

cd OPA_HOME\tms\install

sqlplus system/password

start tmsupgslave.sql
```

5.8.5 Configure DSI Import

If you plan to use disconnected system integration (DSI), enter following commands:

```
set LOCAL=databasename
sqlplus tms/password
exec tms_dsi_xml_schema.InstallSchemas;
```

5.8.6 Setting Up and Starting Symmetric Replication

This section describes how to set up symmetric replication for the first time (for new installations), and how to resume it (for upgrades). The steps required depend on your installation configuration.

- If you do not plan to use TMS in a distributed environment, skip this section.
- If you are creating a new installation, perform all the steps in this section.
- If you are upgrading, proceed to Section 5.8.6.2, "Start Replication on the Master Database."

If you choose to utilize symmetric replication, refer to the Oracle database manual that describes symmetric replication in detail. The instructions in this section provide the minimal list of the required tasks.

If you are establishing a distributed environment, you should enable symmetric replication for every TMS database.

Database Link and Privileges Changes

TMS users who use TMS for omission management and all users who perform replication must have a TMS database user account on *either* the master or local databases. In previous versions, TMS required that such users have accounts on both the master and local instances, but this is no longer necessary.

Integrated Installation

If you plan to integrate TMS with Oracle Clinical in a replicated environment, you must delete the Oracle Clinical RXA_READ public database link. Make sure you suspend Oracle Clinical replication, and then delete the RXA_READ link.

TMS creates its own public database link that does not contain connection information such as user ID and password. Oracle Clinical replication will use the TMS public link instead of RXA_READ.

5.8.6.1 Preliminary Steps to Start Replication

To start replication following an initial installation of Release 4.6.2 (that is, you are not upgrading from a previous TMS release), complete the steps described in the following sections:

- Section 5.8.6.1.1, "Check the initdbname.ora File"
- Section 5.8.6.1.2, "Run the opasrc01.sql Script"
- Section 5.8.6.1.3, "Run the opasrc02.sql Script"

5.8.6.1.1 Check the init*dbname*.ora File

For every database in your TMS installation, check that the init*dbname*.ora file contains the following specifications:

- JOB_QUEUE_PROCESSES — At least 1
- GLOBAL_NAMES — TRUE

5.8.6.1.2 Run the opasrc01.sql Script

The opasrc01.sql script sets up common symmetric replication components for one database. You run this script once for each database in your installation.

To run the opasrc01.sql script:

1. Connect to the database as the `SYSTEM` user.
2. Run opasrc01.sql:

   `@OPA_HOME/tms/install/opasrc01`

3. Respond to the prompts as follows:
   a. **Enter the name for local database:** Enter the name of the database to which you are connected.
   b. **Enter the name for remote database:** Press Enter. This script does not require the name of the remote instance.
4. Repeat these steps for every database in your TMS installation.

5.8.6.1.3 Run the opasrc02.sql Script

The opasrc02.sql script sets up common symmetric replication components. You run this script from each database location for each database location. For example, if you have three databases — A, B, and C — you must run the script six times: A for B, B for A, A for C, C for A, B for C, and C for B.

You do not have to run this replication script when you add a new database to a replicated TMS installation that is integrated with Oracle Clinical.

To run the opasrc02.sql script:

1. Connect to one of the databases as the `SYSTEM` user.
2. Run opasrc02.sql:

   `@OPA_HOME/tms/install/opasrc02`

3. Respond to the prompts as follows:
   a. **Enter the name for local database:** Enter the name of the database to which you are connected.

b. **Enter the name for remote database:** Enter the name of the remote database for which you want to create linkage.

c. **Enter password:** Enter the passwords for the SYSTEM and REPSYS schema on the local database, and the REPSYS schema on the remote database.

You may ignore errors indicating that database links already exist.

4. Repeat from each database location for each database location. Each time you run the script, enter the database to which you are connected at the "local database" prompt and the remote database at the "remote database" prompt.

5.8.6.2 Start Replication on the Master Database

This section describes how to start replication on the master instance in a distributed environment. Complete this procedure when you are starting replication for the first time after an initial installation and when you are starting symmetric replication after upgrading to TMS 4.6.2.

To start replication on the master database:

1. Connect to the master site as the `REPSYS` user.
2. Create the master replication group, generate support, and resume symmetric replication activity on the master site:

```
start tmsmsrdefine
start tmsmsrgeneratesupport
start tmsmsrresumeactivity
```

3. Connect as the `TMS` user.
4. Create the materialized view logs on the master site:

```
start tmsmsrmvlog
```

5.8.6.3 Start Replication on Each Slave Instance

This section describes how to start replication on a slave instance in a distributed environment. Complete this procedure on each slave instance when you are starting replication for the first time after an initial installation and when you are starting replication after the upgrade to TMS 4.6.2.

For setting up multiple slave instances, suspend the master replication group for setting up slave 2, and later resume the replication activity for both Oracle Clinical (if suspended) and TMS.

To start replication on a slave instance in a distributed environment:

1. On each Materialized View Site (slave site), connect to SQL*Plus as the `REPSYS` user and create the materialized view group:

```
start tmsssrdefine
```

When the system prompts for the master database, enter *`master_site`*.

2. On each slave site, connect as the `TMS` user and create the materialized views:

```
start tmsssrcmv
```

When the system prompts for the master database, enter *`master_site`*.

3. On each Materialized View Site (slave site), connect as the `REPSYS` user and add the materialized views to the Materialized View and Refresh Groups:

```
start tmsssrmvrep
start tmsssrmvref
```

4. On each Materialized View Site (slave site), connect as the `SYSTEM` user and compile all invalid:

   ```
   start compile_all_invalid
   ```

5. On each Materialized View Site (slave site), connect as the `REPSYS` user and refresh the Materialized View Group:

   ```
   exec dbms_refresh.refresh('TMS');
   ```

6. On each Materialized View Site (slave site), connect as the `TMS` user and run the following script to complete TMS processing:

   ```
   start tmsscomplete
   ```

   - If you are completing an initial installation, this script populates the TMS_DEF_INSTANCES table.
   - If you are upgrading your installation, this script reports for which X_areas you need to run batch validation (or its equivalent). See Example 5–1, "Results of tmsscomplete Script" for more details.

Example 5–1 Results of tmsscomplete Script

For Oracle Clinical (System=OCL) Source Data, run batch validation for the following X_Areas. For non-Oracle Clinical Source Data, run the equivalent of Oracle Clinical's batch validation for the following X_areas

SYSTEM	X_AREA
ES1	0
ES2	1
OCL	101
OCL	102

Based on these sample results, you need to run batch validation for the studies with a CLINICAL_STUDY_ID of 101 and 102, and the equivalent of batch validation for external systems ES1 and ES2.

5.8.7 Register Slave Databases Integrated with Oracle Clinical

This step is required only if you are integrating TMS with Oracle Clinical. Follow instructions in Section 5.6, "Register Databases Integrated with Oracle Clinical."

6

Installing Oracle Thesaurus Management System Application Components

The Oracle Thesaurus Management System Front End includes:

- The Oracle Thesaurus Management System Forms Server, which is required for the primary Oracle Thesaurus Management System application
- The TMS Browser, the online help, and the OPA OC4J instance

In addition, you must install the TMS Server code and database objects before you install the Front End.

This section contains the following topics:

6.1 Restart Computer and Stop All Servers and Services

Restart the computer and then stop all servers and services:

1. Restart the computer.
2. In the Windows Services control panel, find Oracle Node Manager service and stop it.
3. From the Windows Start menu, go to All Programs, then Oracle Classic_asinst_1, then:
   - Forms Services, then Stop WLS_FORMS
   - Reports Services, the Stop WLS_REPORTS
   - Stop Admin Server: **NOTE**: This is required if you are installing the Front End and the Server (database server code), but if you are installing the Report Server the Admin Server must be **running**.

6.2 Installing the TMS Front End

The TMS Report Server must be installed on the same machine as the TMS Front End and requires that the WebLogic FRDomain Admin Server be running during installation, whereas the TMS Front End and Server installation processes require that the Admin Server be stopped. So although the TMS Installer gives you the option to install all three at once you should not use that option.

6.2.1 Gather Required Information

Before you start the installer, be sure you have the information it prompts for; see Section 6.2.3, "Attend to the TMS Front End Installer Screens".

6.2.2 Start the Installer

To install the TMS Front End:

1. Log in as a user with system administrator privileges.
2. In the staging area, locate the directory where you downloaded and extracted Oracle Thesaurus Management System (see Section 1.4, "Downloading and Extracting the Software").
3. Run the following file:

   ```
   Disk1\install\setup.exe
   ```

   The Installer opens to the Welcome screen.

Note: See Section 1.5, "Using the Silent Installer" for instructions for running the Installer as a file with pre-entered parameter values.

Note: Although there is a button for deinstalling products on the Welcome screen, Oracle does not support using the Installer to deinstall Oracle Thesaurus Management System.

6.2.3 Attend to the TMS Front End Installer Screens

The Installer guides you through the installation and configuration of the TMS Front End.

1. Product to install: **Oracle Thesaurus Management System Front End**.
2. Home Details: There are two drop-downs, Oracle Home Name and Directory. Use the Directory drop-down to select the Oracle Home that corresponds to the Oracle Forms and Reports home, similar to C:\oracle\middleware\Oracle_FRHome1.

   When you select the directory, the Home value changes automatically.
3. Available Product Components: Select **Oracle Thesaurus Management System Front End 5.0.1.0.*x***.

Note: Although the Installer gives you the option install the TMS Server (database server code) at the same time, do not select this option. You must install the TMS Server first, then the database objects, and then the Front End.

Do not choose to install the Report Server at the same time. Its installation process requires that the WebLogic FRDomain Admin Server be running, while the Front End and TMS Server installation processes require that the Admin Server be stopped.

4. Select OPA Home directory: By default, it is C:\opapps50
5. If the Installer detects that you have already installed 5.0 or 5.0.1 and created the OPADomain, the Installer asks if you want to overwrite OPADomain or not.
   - **Overwrite it if** your previous installation failed or only partially completed; for example, the TMS Browser URL does not work.
   - **Do not overwrite if** you have created it successfully, and especially if you have done customizations such as setting up clusters or multiple databases, do not overwrite OPADomain.
6. Oracle HTTPS Server (OHS) SSL Listener Port number. You may have set this to 443 per the instructions in the previous chapter.

   Oracle HTTP Server (OHS) Non-SSL Listener Port number.

   Tip: To find these two port numbers:

   1. Open an MS DOS window,
   2. Enter `opmnctl status -l`

   To check, go to the URL https://*host:port* with each port.

7. Enter the passwords for:
   - WebLogic Server (the password you created when installing WebLogic Server)
   - OPA Proxy (bc4j_internal)
   - TMS Proxy (ops$tmsbrowser)
8. Database details:
   - Database server:

     server_name.your_company.com
   - Database instance: *database_name*
   - Port number
9. Summary: The Summary screen provides information about the global settings, languages, space requirements, and products for this installation.

   Review the installation details to verify that they are correct. To revisit earlier installation screens and make changes, click **Back.**

   When you are ready to continue, click **Install.**

6.3 Installing the TMS Reports Server

This section describes installing and configuring a Reports Server. The TMS Reports Server runs on Oracle Application Server 11*g* Release 1 Forms and Reports Services. It schedules batch jobs such as synchronization.

You must install the TMS Front End before installing the TMS Report Server.

Note: If you have already installed the Oracle Clinical Reports Server on this machine, you do not need to install the TMS Reports Server. If you try to install both and use the same name, installation of the second Reports Server fails. It is not needed so you can ignore this error message.

6.3.1 Start the WebLogic FRDomain Admin Server

Start the WebLogic FRDomain Admin Server is running. Do one of the following.

- Go to the **Start** menu, then **All Programs**, then **Oracle Classic asinst_1**, then **Start Admin Server**.
- Go to the **Start** menu, then **All Programs**, then **Oracle Weblogic**, then **User Projects**, then **FRDomain**, then **Start Admin Server Weblogic Server Domain**.

6.3.2 Gather Required Information

Before you start the Installer, be sure you have the information it prompts for; most of the information is the same as in Section 6.2.3, "Attend to the TMS Front End Installer Screens". In addition, you need to provide a name for the TMS Report Server that is unique across your installation.

6.3.3 Start the TMS Report Server Installer

To install the TMS Report Server:

1. Log in as a user with system administrator privileges.
2. In the staging area, locate the directory where you downloaded and extracted Oracle Thesaurus Management System (see Section 1.4, "Downloading and Extracting the Software").
3. Run the following file:

   ```
   Disk1\install\setup.exe
   ```

   The Installer opens to the Welcome screen.

   Note: See Section 1.5, "Using the Silent Installer" for instructions for running the Installer as a file with pre-entered parameter values.

   Note: Although there is a button for deinstalling products on the Welcome screen, Oracle does not support using the Installer to deinstall Oracle Thesaurus Management System.

   ---

4. In the Select a Product to Install page, select **Oracle Thesaurus Management System Report Server**.

6.3.4 Attend to the TMS Reports Server Installation Screens

The Installer guides you through the installation and configuration of the TMS Reports Server.

1. See Section 6.2.3, "Attend to the TMS Front End Installer Screens". Some of the same information is required for the Report Server.
2. Report Server name. Enter a unique name across your installation.
3. Summary: The Summary screen provides information about the global settings, languages, space requirements, and products for this installation.

   Review the installation details to verify that they are correct. To revisit earlier installation screens and make changes, click **Back.**

   When you are ready to continue, click **Install.**

6.4 Verifying the Application Tier Installation

Verify that these URLs work and you can log into the application:

- Forms-based TMS—https://*host*/opa50/launch.htm
- TMS HTML Browser—https://*host*/tmsadfsrnd/faces/Login

6.5 Setting Up Automatic Startup of Servers and Services

It is possible to configure any Windows service to restart itself upon failure. These are standard options available when configuring a Windows service in the context of Windows Services Manager.

However, it is important to understand that Windows Services Manager only monitors the service's JVM process. If the JVM process fails (shuts down), then Windows Services Manager will attempt to restart it. But there are some scenarios where the WebLogic Admin Server or Managed Server may go into an unhealthy or failed state while the JVM is still running. The Windows Service Manager will not know to restart the process in these cases, whereas if the Admin Server and Managed Server had been started using the WebLogic Node Manager, Node Manager would recognize such a state and restart the process.

Oracle recommends starting Node Manager with a Windows service and then starting the Admin Server and Managed Servers with Node Manager to take advantage of this monitoring feature.

See My Oracle Support article 1587068.1 for details on setting up Autostart.

6.6 Starting Servers Manually

You can also start the required servers manually using the instructions in this section. These instructions are provided for your information; you do not need to do them now.

For information about these servers and the server architecture, see the topology diagram.

6.6.1 Starting the FRDomain Admin Server

The Oracle FRDomain Admin Server is located on the WebLogic Server domain that must be named FRDomain and must use port number 7001. You must start the Admin

Server before you can start either the Oracle Forms Server or the Oracle Reports Server.

To start the Admin Server, do one of the following:

- Go to the **Start** menu, then **All Programs**, then **Oracle Classic asinst_1**, then **Start Admin Server**.
- Go to the **Start** menu, then **All Programs**, then **Oracle Weblogic**, then **User Projects**, then **FRDomain**, then **Start Admin Server Weblogic Server Domain**.

> **Note:** You cannot start it from the Admin Console because if the server is not running, the FRDomain Admin Console is not available.

6.6.2 Starting the Forms Server

The Oracle Forms Server is located on the WebLogic Server domain that must be named FRDomain and must use port number 7001. You must start the FRDomain Admin Server before the Forms Server.

To start the Forms Server, do either:

- **Start**, then **All Programs**, then **Oracle Classic asinst_1**, then **Forms**, then **Start WLS_FORMS**.
- Use the Admin Console at https://*host*/console.

6.6.3 Starting the Reports Server

The Oracle Reports Server is located on the WebLogic Server domain that must be named FRDomain and must use port number 7001. You must start the FRDomain Admin Server before the Reports Server.

To start the Reports Server, do either:

- **Start**, then **All Programs**, then **Oracle Classic asinst_1**, then **Reports**, then **Start WLS_REPORTS**.
- Use the Admin Console at https://*host*/console.

6.6.4 Starting the OPADomain Admin Server

The Oracle OPADomain Admin Server is located on the WebLogic Server domain that the Installer names OPADomain, and which must use port number 7101. You must start the Admin Server before you can start the OpaServer1.

To start the OPADomain Admin Server, go to the **Start** menu, then **All Programs**, then **Oracle WebLogic Server**, then **User Projects**, then **OPADomain**, then **Start Admin Server**.

> **Note:** You cannot start from the Admin Console because if the server is not running, the OPADomain Admin Console is not available.

6.6.5 Starting the OpaServer1 Server

The OpaServer1 Server is located on the WebLogic Server domain named OPADomain, which must use port number 7101. The OpaServer1 Server runs on Oracle ADF and supports the TMS Browser and TMS reports. It also contains the database connections.

You must start the OPADomain Admin Server before the OpaServer1 Server.

To start the OpaServer1 Server, use the Admin Console at either:

- http://*host*:7101/console
- https://*host*/opaconsole (if configured)

6.7 Stopping Servers

You can stop each server either in the appropriate WLS Admin Console or from the Windows **Start** menu. These instructions are provided for your information; you do not need to do them now.

6.7.1 Stopping the Forms Server

The Oracle Forms Server is located on the WebLogic Server domain that must be named FRDomain and must use port number 7001.

To stop the Forms Server, do either:

- **Start**, then **All Programs**, then **Oracle Classic asinst_1**, then **Forms**, then **Stop WLS_FORMS**.
- Use the Admin Console at https://*host*/console.

> **Note:** The Admin Console is available only if the Admin Server is running.

6.7.2 Stopping the Reports Server

The Oracle Reports Server is located on the WebLogic Server domain that must be named FRDomain and must use port number 7001.

To stop the Reports Server, do either:

- **Start**, then **All Programs**, then **Oracle Classic asinst_1**, then **Reports**, then **Stop WLS_REPORTS**.
- Use the Admin Console at https://*host*/console.

> **Note:** The Admin Console is available only if the Admin Server is running.

6.7.3 Stopping the FRDomain Admin Server

The Oracle FRDomain Admin Server is located on the WebLogic Server domain that must be named FRDomain and must use port number 7001.

To stop the Admin Server, do either:

- **Start**, then **All Programs**, then **Oracle Classic asinst_1**, then **Stop Admin Server**.
- Use the Admin Console at https://*host*/console.

6.7.4 Stopping the OPADomain Admin Server

The Oracle OPADomain Admin Server is located on the WebLogic Server domain that the Installer names OPADomain, and which must use port number 7101.

To stop the Admin Server, do either:

- **Start**, then **All Programs**, then **Oracle WebLogic Server**, then **User Projects**, then **OPADomain**, then **Stop Admin Server**.
- Use the OPADomain Admin Console at https://*host*/opaconsole or

  https://*host*:7101/opaconsole

6.7.5 Stopping the OpaServer1 Server

The OpaServer1 Server is located on the WebLogic Server domain named OPADomain, which must use port number 7101.

To stop the OpaServer1 Server, use the Admin Console at either:

- http://*host*:7101/console
- https://*host*/opaconsole (if configured)

> **Note:** The Admin Console is available only if the Admin Server is running.

7

Upgrading Oracle Thesaurus Management System to Release 5.0.1

This chapter describes the recommended approach to upgrading an existing Oracle Thesaurus Management System installation to Release 5.0.1.

Be sure you are using the latest documentation:

- Check My Oracle Support Article ID 1572864.1 for any known installation issues; see "Finding Information on My Oracle Support" on page viii.
- Check the Health Sciences Clinical documentation page at `http://www.oracle.com/technetwork/documentation/hsgbu-clinical-407519.html` to be sure you have the latest version of this guide.
- Check My Oracle Support Article ID 1590927.1 for the latest release of the *Oracle Thesaurus Management System 5.0.1 Release Notes*

Review Chapter 1, "Preparing to Install Oracle Thesaurus Management System" for system requirements and planning information.

This chapter includes the following topics:

7.1 Upgrade to Release 4.6.2 If Necessary

If you are currently using a release prior to Release 4.6.2, you must first upgrade Oracle Database, the TMS Database Server and TMS databases to Release 4.6.2.

Note: **You do NOT need to install the 4.6.2 application tier** because the technology stack is new in Release 5.0.x and you must do a fresh install of the whole application tier.

---

1. Open a Service Request (SR) on My Oracle Support at https://support.oracle.com to download the Release 4.6.2 media, which are no longer publicly available.
2. Download the most recent version of the 4.6.2 *Installation Guide* from http://www.oracle.com/technetwork/documentation/hsgbu-clinical-407519.html.
3. Read Chapter 1 of the Release 4.6.2 and Release 5.0.1 versions of the *Oracle Thesaurus Management System Installation Guide* to plan your installation.
4. In the upgrade chapter of the Release 4.6.2 *Oracle Thesaurus Management System Installation Guide* follow all database-related sections that apply to your installation.

Note: **Do NOT** follow Section 6.3, "Upgrading the Application Tier."

Note: Where the TMS 4.6.2 installation guide mentions patch 4.6.0.32, it should say 4.6.0.31. The information is correct except for the patch number.

---

5. Follow the instructions below.

7.2 Upgrade to Oracle Database 11.2.0.4

You must upgrade Oracle Database to 11.2.0.4.

7.2.1 Upgrade Oracle Database in UNIX

To upgrade on UNIX, follow these instructions:

1. Section 2.2.1, "Install Oracle Database 11.2.0.4 Enterprise Edition"
2. Section 2.2.2, "Install Oracle Database Examples"

7.2.2 Upgrade Oracle Database in UNIX

To upgrade on Windows, follow these instructions:

1. Section 3.1, "Install Oracle Database 11.2.0.4 Enterprise Edition"
2. Section 3.2, "Install Oracle Database Examples"

7.3 Install the TMS Database Server Code

Follow instructions in Section 5.2, "Installing the TMS Database Server Code".

7.4 Upgrade a Single or Master TMS Database

Follow the instructions in this section when you are upgrading a single TMS database or, if you have a distributed environment, to upgrade the master TMS database. You must perform the tasks described in previous sections first.

Note: Even if you have Oracle Clinical integrated with TMS, re-registering databases is not required during an upgrade.

To upgrade the TMS databases, complete the following tasks:

- Section 7.4.1, "Suspend Symmetric Replication (Distributed Environment Only)"
- Section 7.4.2, "Upgrade the Database to Oracle Database 11.2.0.4"
- Section 7.4.3, "Gather Required Information"
- Section 7.4.4, "Stop PSUB Process (If Integrated with Oracle Clinical)"
- Section 7.4.5, "Start the Installer"
- Section 7.4.6, "Attend to the TMS Database Upgrade Installer Screens"
- Section 7.4.7, "Check Installation Log for Errors"
- Section 7.4.8, "Configure DSI Import"
- Section 7.4.9, "Load Dictionaries"
- Section 7.4.10, "Create an Export File (Distributed Environments Only)"

7.4.1 Suspend Symmetric Replication (Distributed Environment Only)

If you are running in a distributed environment, suspend symmetric replication and drop the replication group before you patch the Oracle Database 11*g* or the TMS databases by following the instructions in this section. Ensure that you use the suspend scripts that are in your TMS server code area.

Table 7–1 Symmetric Replication Suspend Scripts and Instructions

Run Script	Where?	For Where?	Parameters	Purpose and Comments
tmsmupgsrsuspend.sql	Master instance	Master instance	None	Purpose: Suspends replication activity for all sites. Comment: Wait until the dba_repgroup view has a status of QUIESCED on the master instance and all slave instances.
tmsmupgsrdrop.sql	Master instance	Master instance	None	Purpose: Drops replication group for all sites. Comment: Wait until the dba_repcatlog view is empty on the master instance and on all slave instances.

To suspend replication:

1. Log in to the server using an account with system administrator privileges.
2. Open a MS-DOS command window.
3. Change to the *OPA_HOME* directory where the install scripts are located, for example:

   ```
   cd c:\opapps50\tms\install
   ```

4. Set the local name for your master site:

   ```
   set local=Master_Site
   ```

Note: Ensure that you explicitly set the local name so that the system does not use the Oracle **local** registry variable by mistake. For this reason, it is best to run the upgrade scripts from the Command window, rather than from SQL*Plus.

5. Issue these commands:

```
sqlplus repsys/password
start tmsmupgsrsuspend
```

6. Unschedule the push operation from each slave site to the master site and from the master to each slave. Unschedule as many jobs as necessary to ensure that no scheduled push jobs remain.

   Connect to each site as REPSYS and issue this command:

```
exec dbms_defer_sys.unschedule_push('remote_site');
```

7. Connect as REPSYS at each slave site and run the following script. On each updateable snapshot site (slave site), this script drops the TMS Snapshot Replication and Refresh Groups.

```
start tmsssrdrop
```

8. Connect as TMS at each slave site and run the following script. This step drops the TMS replicated tables on all sites.

```
start tmsssrdroptables
```

9. Connect as TMS at the master site and run the following script, which drops the TMS Snapshot Logs at the master site.

```
start tmsmsrdropmvlog
```

10. Connect as REPSYS on the master site and issue the following command, which drops the TMS Master Replication Group.

```
start tmsmupgsrdrop
```

Note: You must follow steps in Section 7.4 to upgrade the master database before proceeding to the next step.

7.4.2 Upgrade the Database to Oracle Database 11.2.0.4

Upgrade the database to 11.2.0.4 following instructions in the patch readme file and *Oracle Database 11g Release 2 (11.2) Installation Guide* for your operating system at http://www.oracle.com/pls/db112/portal.portal_db?selected=11&frame=

7.4.3 Gather Required Information

Before you start the installer, be sure you have the information it prompts for; see Section 7.4.6, "Attend to the TMS Database Upgrade Installer Screens".

7.4.4 Stop PSUB Process (If Integrated with Oracle Clinical)

If your TMS installation is integrated with TMS, you must stop the PSUB process before upgrading the database. See the *TMS Administrator's Guide* for instructions.

7.4.5 Start the Installer

To upgrade a TMS database:

1. Log in as a user with system administrator privileges.
2. In the staging area, locate the directory where you downloaded and extracted Oracle Thesaurus Management System (see Section 1.4, "Downloading and Extracting the Software").
3. Run the following file:

   ```
   Disk1\install\setup.exe
   ```

   The Installer opens to the Welcome screen.

   Note: See Section 1.5, "Using the Silent Installer" for instructions for running the Installer as a file with pre-entered parameter values.

   Note: Although there is a button for deinstalling products on the Welcome screen, Oracle does not support using the Installer to deinstall Oracle Thesaurus Management System.

4. In the Select a Product to Install page, select **TMS Database Upgrade**.

7.4.6 Attend to the TMS Database Upgrade Installer Screens

The Installer guides you through the database upgrade.

1. Product to install: **TMS Database Upgrade**.
2. What type of installation do you want?
   - Select **Master** if you are planning to use only one database or if you have a distributed environment (using data replication) and this is the master database.
   - Select **Slave** only if you have a distributed environment and this is a slave,or local, database.
3. Home Details: The full path to the Oracle Forms/Reports Home location on your application server; by default:

   C:\app\oracle\Middleware\Oracle_FRHome1
4. TMS Server Code Home Directory: The system detects the location and enters the value for you. By default, it is C:\opapps50\tms.
5. Database Connect String: Enter the database name. It must be a valid TNS entry in your tnsnames.ora file.
6. NLS Settings: Enter the NLS settings for the database; see Section 1.7, "Choosing a Character Set". Oracle strongly recommends that you use UTF8. The default values are:

- American_America.UTF8
- DD-MON_RRRR

7. Directory for data tablespace data files: Enter the path to the directory on the database server where the data tablespace datafiles for the application should be created during the installation. The Installer does not validate the value and you must use the following syntax, including a trailing slash, depending on your operating system; for example:
   - UNIX: /u01/oradata/*dbname*/
   - Windows: *drive*:\oradata*dbname*\
8. Enter and confirm passwords for the following accounts:
   - SYS
   - SYSTEM
   - CTXSYS
   - OPA
   - TMS
   - RXC
9. Ignore tablespace creation errors:
   - Select **Yes** if the database already has the TMS tablespaces created.
   - Select **No** if the TMS tablespaces do not exist.
10. The Installer gives you information that you should make a note of.
11. When you are ready, install.

7.4.7 Check Installation Log for Errors

When you upgrade from TMS 4.6.1 to TMS 4.6.2, the installation log file may report the following error:

```
".....
Connected.
BEGIN tms_dsi_xml_schema.InstallSchemas; END

*
ERROR at line 1:
ORA-02303: cannot drop or replace a type with type or table dependents
ORA-06512: at "XDB.DBMS_XMLSCHEMA_INT", line 3
ORA-06512: at "XDB.DBMS_XMLSCHEMA", line 14
ORA-06512: at "TMS.TMS_DSI_XML_SCHEMA", line 35
ORA-06512: at line 1

finished TMSUPG
TMS will now attempt to validate any invalidate objects...
...."
```

This error occurs because the tmsupg.sql upgrade script executes tms_dsi_xml_schema.InstallSchemas before attempting to validate any invalid objects. Execution of tms_dsi_xml_schema.InstallSchemas fails if the database has invalid objects.

If this error occurs, you need to:

1. Run compile invalid until all database objects have been made valid.

2. Run tms_dsi_xml_schema.InstallSchemas manually. See Section 7.4.8, "Configure DSI Import" for details.

7.4.8 Configure DSI Import

If you plan to use disconnected system integration (DSI), enter following commands:

```
set LOCAL=databasename
sqlplus tms/password
exec tms_dsi_xml_schema.InstallSchemas;
```

7.4.9 Load Dictionaries

If you need to upgrade any dictionaries or load new dictionaries and are installing a distributed environment, this is a good time to do it since you have suspended replication and will next do an export/import. However, you can load dictionaries at any time.

If you are installing TMS with AERS in a distributed environment, you must load the AERS-TMS dictionaries onto the master database before creating an export file and importing it to the slave databases.

See the *Oracle Thesaurus Management System User's Guide* for information about loading dictionaries.

7.4.10 Create an Export File (Distributed Environments Only)

If you are upgrading a distributed environment, follow instructions in Section 5.8.1, "Export Data from the Master Database."

7.5 Upgrade Slave TMS Databases (Distributed Environments Only)

Follow the instructions in this section to upgrade existing TMS 4.6.2 slave databases to Release 5.0.1 in a distributed environment.

- Section 7.5.1, "Upgrade Slave Databases"
- Section 7.5.2, "Configure DSI Import"
- Section 7.5.3, "Start Symmetric Replication"

7.5.1 Upgrade Slave Databases

To upgrade each slave instance to TMS Release 4.6.2:

1. Start the Oracle Universal Installer on the TMS application server. (See Section 7.4, "Upgrade a Single or Master TMS Database" for details.) Choose the Slave Installation type from the Product Installer screen.
2. Import data from the master instance. Perform this task on the database server. At every slave database, import the export file you created in the previous task .

   See Section 5.8.2, "Import Data to the Slave Database" for more information.

Note: You must first create an export file of the master database; see Section 5.8.1, "Export Data from the Master Database."

---

3. On the TMS application server, set the LOCAL variable and run the tmsupgslave.sql script by entering the following commands in a MS-DOS window:

```
cd OPA_HOME\tms\install
sqlplus system/password
start tmsupgslave.sql
```

The script generates a log file in the install directory named tmsupgslave_*database_name*.log.

Note: When upgrading a slave database to Release 5.0.1, the following types of errors occur in the tmsupg_*database_name*.sql log file:

```
Warning: Package created with compilation errors. (and appended
PLSQL errors with line numbers)
Warning: Package Body created with compilation errors. (and
appended PLSQL errors with line numbers) ORA-00942: table or view
does not exist
ORA-01775: looping chain of synonyms
ORA-04063: view "TMS.view_name" has errors
```

As long as there are no errors in the log file, tmsupgslave_*database_name*.sql, and there are no invalid OPA/TMS objects in the database after the ugprade, the upgrade can be considered successful and these errors can be ignored.

7.5.2 Configure DSI Import

If you plan to use disconnected system integration (DSI), enter following commands:

```
set LOCAL=databasename
sqlplus tms/password
exec tms_dsi_xml_schema.InstallSchemas;
```

7.5.3 Start Symmetric Replication

Start replication, following instructions in Section 5.8.6.2, "Start Replication on the Master Database" and Section 5.8.6.3, "Start Replication on Each Slave Instance."

7.6 Upgrade Cloned Databases

If you have cloned a database, access the following document on My Oracle Support:

Cloning Oracle Clinical and TMS 4.6.x Databases
Article ID: 883213.1

Be sure to follow all the instructions in the document, including running the tmschown.sql script, the opachown.sql script, and if you are using Oracle Clinical with TMS, the chown.sql script, *before* doing the upgrade.

7.7 Run Scripts to Gather Schema Statistics for the 11g Optimizer

After upgrading to TMS 5.0.1 and setting initialization parameter **optimizer_features_enable** to 11.2.0.4 (see Section 5.3.7, "Set Initialization Parameters"), you must gather

statistics required for the Oracle 11g Optimizer to be effective for accounts used internally by TMS.

Failure to execute these scripts can negatively impact performance.

Scripts opastats.sql and tmsstats.sql, are available for this purpose. If your database contains large amounts of data, the scripts may take a long time to run. You may want to edit the scripts; for information on opastat.sql and tmsstats.sql parameters see the following documentation of the DBMS_STATS package that they call: http://docs.oracle.com/cd/B19306_01/appdev.102/b14258/d_stats.htm#i1036456.

tmsstats.sql Since TMS already has a procedure, AnalyzeTable in tmspb_user_analyze.sql, that runs as part of every activation job, you may prefer to edit it if required and call it from tmsstats.sql to keep the two synchronized.

The tmsstats.sql script prompts for the password of the account it processes: TMS.

To change how TMS analyzes tables and ensure that tmsstats and AnalyzeTable remain in synch:

1. Modify the Analyze procedure in tmspb_user_analyze.sql.
2. Edit tmsstats.sql to call tms_user_analyze.AnalyzeTable. Replace the section that analyzes tables with:

   ```
   exec tms_user_analyze.AnalyzeTables
   ```

3. Run tmsstats.sql.

opastats.sql captures new statistics in the OPA application account used by TMS. It is also used by Oracle Clinical and RDC Onsite.

7.8 Install the Application Tier Technology Stack

Install and configure the required application tier technology stack. Follow instructions in Chapter 4, "Installing and Configuring the Application Tier."

7.9 Install the TMS Front End and Reports Server

Install the TMS front end following instructions in Chapter 6, "Installing Oracle Thesaurus Management System Application Components" to install the TMS Front End and Reports Server.

8

Post-Installation Steps for the New Installation or Upgrade

This chapter includes the following topics:

8.1 Patch TMS

Check My Oracle Support Article ID 132626.1, *Oracle Thesaurus Management System Patches*, for information about patch sets and patches. See "Finding Information and Patches on My Oracle Support" on page viii.

8.2 Test the TMS Forms Server

Confirm that you can start TMS from this Forms Server before you set up each TMS client.

To test the deployment:

1. Open a browser.
2. Connect to the Oracle Health Sciences URL to start TMS.

   The URL has the following syntax:

   `http://computer_name.domain/opa50/launch.htm`
3. Click the **Launch** hyperlink, which initiates the download of the Java Virtual Machine (JVM).

8.3 Configure WebLogic Server Data Sources

When you run the TMS Installer, it sets up a connection, or data source, for OPA and another for the TMS Browser from the WebLogic Server to the database that you specify in the Installer screens.

Confirm that the OPA data source exists in the WebLogic Server Administration Console and then enter its JNDI name in the REPORT_CONFIG local reference codelist.

8.3.1 Confirm the OPA Data Source Value in WebLogic Server Admin Console

To check this:

1. Log in to the WebLogic Server Administration Console at:

   `http://host:port/console/login/LoginForm.jsp`

2. Navigate to **Services** under Domain Structure, then **Data Sources**.
3. Confirm that a data source with JNDI name: `jdbc/opadatabase_nameDS` exists.

8.3.2 Set REPORT_CONFIG Reference Codelist Value

Update local reference codelist REPORT_CONFIG with the data source JNDI name:

1. Log in to TMS.

   `http://computer_name.host/opa50/launch.htm`

2. Navigate to Definition, then Local Reference Codelists.
3. Query for the REPORT_CONFIG codelist:
   a. Press F7.
   b. Enter REPORT_CONFIG in the Name field.
   c. Press F8. The system displays the short value JDBC_DATA_SRC.
4. Enter the JNDI name value `jdbc/opadatabase_nameDS` as the long value.
5. Save.

8.3.3 Add Data Source (Required Only If Using Multiple Databases)

When you run the TMS Installer, it sets up a data source connection for OPA and the TMS HTML Browser from the WebLogic Server to the database you specify in the Installer screens.

If you plan to use more than one database, you must create an OPA and a TMS Browser data source for each additional database. The OPA data source is used to run TMS reports.

Complete instructions are in the *Oracle Thesaurus Management System User's Guide* chapter on Administration.

8.4 Making the Java Runtime Environment Available for Download

Oracle Thesaurus Management System requires that the Java Runtime Environment (JRE) exists on the user's computer.

The TMS Launch page is configured to prompt users to install JRE if it does not exist on their computer. To make this work, you need to download JRE into the *OPA_HOME*\html directory and rename it.

> **Note:** If you have already installed Oracle Clinical on the same machine, you do not need to do this again.

To download the latest version of the JRE and then position the software so your users can install it directly from the Downloads page:

1. If you have not already done so, download the software ffollowing instructions in Section 1.4.5, "Downloading the Java Runtime Environment."
2. Copy the downloaded file from the staging area to *OPA_HOME*\html.
3. Rename the file sunjpi.exe.

If your users need to have both JRE 6 and 7 installed to support different versions of Oracle Thesaurus Management System, check My Oracle Support article 1570682.1 for guidance; see "Finding Information on My Oracle Support" on page viii.

8.5 Create a Link to TMS HTML Browser

You need to construct a link for users to access the TMS HTML Browser. You can add it to the TMS launch page or to your own users' home page. You can add links for more than one database if needed, and you can enable automatic login if you want to.

For instructions, see the administration chapter of the *Oracle Thesaurus Management System User's Guide*.

8.6 Configure the Document Repository

The Document Repository enables TMS users to search and customize a set of documents and, if Oracle Clinical is installed, patient data as well.

If you plan to use the Document Repository in the HTML Browser, follow instructions in the administration chapter of the *Oracle Thesaurus Management System User's Guide*.

8.7 Define and Load Dictionaries

See the *Oracle Thesaurus Management System User's Guide* for information about defining TMS dictionaries in the user interface and loading dictionary data.

For sample load scripts, download the following document from My Oracle Support:

Title: *Sample Maintenance Scripts for MedDRA, MedDRA Primary Path, MedDRA SMQ, WHO-Drug, and SNOMED*

Article ID: 258975.1

> **Note:** If you are upgrading an existing TMS installation, you do not need to redefine and reload the dictionaries you are already using.

8.8 Setting Up Client Computers

This section includes the following topics:

8.8.1 Configuring Personal Firewall

If the client computer has a personal firewall, you must either disable it or configure it for the TMS Browser to function correctly. See your firewall documentation or ask your system administrator for assistance.

8.8.2 Using Safari on an iPad

On an iPad, which is supported for the TMS Browser, some functionality available on a personal computer using a mouse is not available, including:

- Right-click and double-click options.
- Selecting multiple records using Ctrl+click

8.8.3 Setting Internet Options for Microsoft Internet Explorer

Users who use the TMS Browser or TMS reports should change their Internet Explorer settings as follows.

8.8.3.1 Setting Document Mode to Quirks (the Default Setting)

Internet Explorer 8 and above include a set of tools that enable Web site developers to prototype and test Web sites they develop, including the Document Mode setting.

A user can change the Document Mode setting such that RDC Onsite does not work properly. It is not anticipated that RDC Onsite users will change the Document Mode setting, as it is targeted at Web developers.

Ensure that the Document Mode is set to Quirks Mode (Page Default):

1. Launch Internet Explorer.
2. Open the Tools menu, and then select **Developer Tools.**
3. Set the Document Mode to **Quirks Mode (Page Default).**

8.8.3.2 Disabling Cookies

Before a user runs TMS reports, he or she must disable cookies on their computer:

1. In the IE Tools menu, go to Internet Options.
2. Click the Privacy tab, then Settings.
3. Move the slider to the top to block all cookies.
4. Click **OK**, then **OK** again.

8.8.3.3 Allowing More Connections

By default, Internet Explorer allows only two connections at a time to the same server. However, TMS Browser users may want to have more. If so, they can follow instructions from Microsoft at `http://support.microsoft.com/kb/282402#fixit4me`.

The problem description is about being unable to download only two files at a time, but the fixes described work for this issue as well.

8.8.3.4 Turning Off Compatibility View

The TMS Browser does not support the Compatibility View available on Internet Explorer 8 and above. If the setting is enabled in in the browser, when a user tries to access the TMS Browser, he or she sees the following message: "The current compatibility setting is not supported." There are several places to turn off Compatibility View:

- In the IE Tools menu, toggle between turning Compatibility View on an off by clicking Compatibility View.
- The above setting is overridden by those found in the Tools menu under Compatibility View Settings. Uncheck both: **Display intranet sites in Compatibility View** and **Display all websites in Compatibility View**
- The Compatibility View icon:

  appears in the address bar when it is turned on for the current website. Click the icon to turn it off.

8.8.3.5 Set Up for Proxy Usage on Fully Qualified Application Tier Names

You must configure your client proxy settings if one of the following conditions is true for your installation:

- You connect to the application tier with its fully qualified name (*server_name.domain_name*).
- You use proxies.

To configure your client proxy settings:

1. Start Internet Explorer.
2. Open the **Tools** menu, and then select **Internet Options.**
3. Click the **Connections** tab.
4. Click **LAN settings** to open the Local Area Network (LAN) Settings dialog box.
5. Select **Use a proxy server for your LAN,** and then click **Advanced.**
6. Define the **Exceptions** at the bottom of the panel.

   In the **Do not use proxy server for addresses beginning with** field, use the following format to enter the fully qualified name of each application server:

   server_name.domain_name

   For example, if the server name is sys63 and the domain name is mycompany.com, then you enter:

   ```
   sys63.mycompany.com
   ```

   If you are connecting to more than one application server, enter the fully qualified name of each server. Use the semicolon (;) to separate your entries.

8.8.4 Download the Java Virtual Machine to Client Computers

To download the Java Virtual Machine (JVM) onto each client computer:

1. Open a browser.
2. Connect to the Oracle Health Sciences URL.

   The URL includes the path variable you specified in Section 8.2, "Test the TMS Forms Server."

   The first time you open TMS, the system prompts you to download JVM. This download is required. It is also available from a link on the Launch page.

8.8.5 Logging In

TMS To log in to Forms-based Oracle Thesaurus Management System, use the following URL:

https://*computer_name.domain*/opa50/launch.htm

TMS Browser To log in to the TMS Browser, use the following URL:

https://*computer_name.domain*/tmsadf/faces/Login?setUpDone=Y

Note: See the chapter on administration in the *Oracle Thesaurus Management System User's Guide* for information about customizing the URL to support automatic login and multiple databases.
