

Oracle® Transportation Management

Administration Guide

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Oracle Transportation Management Administration Guide, Release 5.5

Part No. B28768-09

Oracle welcomes your comments and suggestions on the quality and usefulness of this publication. Your input is an important part of the information used for revision.

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Preface

This manual is for administrator's who are responsible for installing and managing the Oracle Transportation Management system at your site. This manual provides step-by-step installation instructions for installing all Oracle Transportation Management software components. This manual does not cover the installation of any operating system that is required to run Oracle Transportation Management such as Linux or Windows Server. It is assumed that your IT staff will handle the installation and configuration of this software.

Change History

Date	Document Revision	Summary of Changes
6/10/08	-07	Added Change History table. Updated "Migrate GC3 5.0 Database to 5.5" section. Updated hardware requirements for all platforms Updated patch requirements for WebSphere Updated supported translations matrix Updated suggested/required database parameter settings Updated information on how NOT to uninstall Oracle Transportation Management

Date	Document Revision	Summary of Changes
8/10/09	-08	<p>Made the following edits:</p> <ul style="list-style-type: none"> • Corrected "exec aa_referesh_job.p_create_job" to be "exec aa_refresh_job.p_create_job". • Revised steps 13-14 in the "Post-Installation Setup" section of the Installing Fusion Transportation Intelligence chapter. • Added the "Post-Installation OBI EE Instructions" section to the Advanced Configuration chapter. • Moved "Reset Sequence" and "Setup Security Roles" sections after dbpatch_55.sql in the "Installing Oracle Transportation Management on the Database Server" section to resolve BUG 8767514. • Changed "Software Requirements" sections to reflect new WebLogic version (8.1 SP6) • Changed "Software Requirements" sections to reflect new WebSphere fixpack requirement (FP33) • Linux Software Requirements - added 32-bit clarification • "Installing Oracle on the Database Server" - removed obsolete patch reference • "Migrate the New Database" - added warning • "Applying Consolidated Updates" - added note about applying latest RU first. • Changing Passwords for OAS systems - fixed 'guest' password instructions • Added: "Installing Multiple Oracle Transportation Management Instances on the Same Machine" • "Scalability Configuration" - removed, referred to Oracle Transportation Management Application Scalability Guide. <p>Added sections:</p> <ul style="list-style-type: none"> • "Migrate Historical Database (HD)" – under the "Preparing Oracle Transportation Management Database for Transportation Intelligence" section. • "Mandatory Oracle Transportation Management User Role (VPD Profile) Configuration" – under the "Installing Fusion Transportation Intelligence" chapter.
9/23/09	-09	<p>After CU6 the following changes were made:</p> <p>For the aa_webserver property you must now use "http" or "https" in the path.</p>

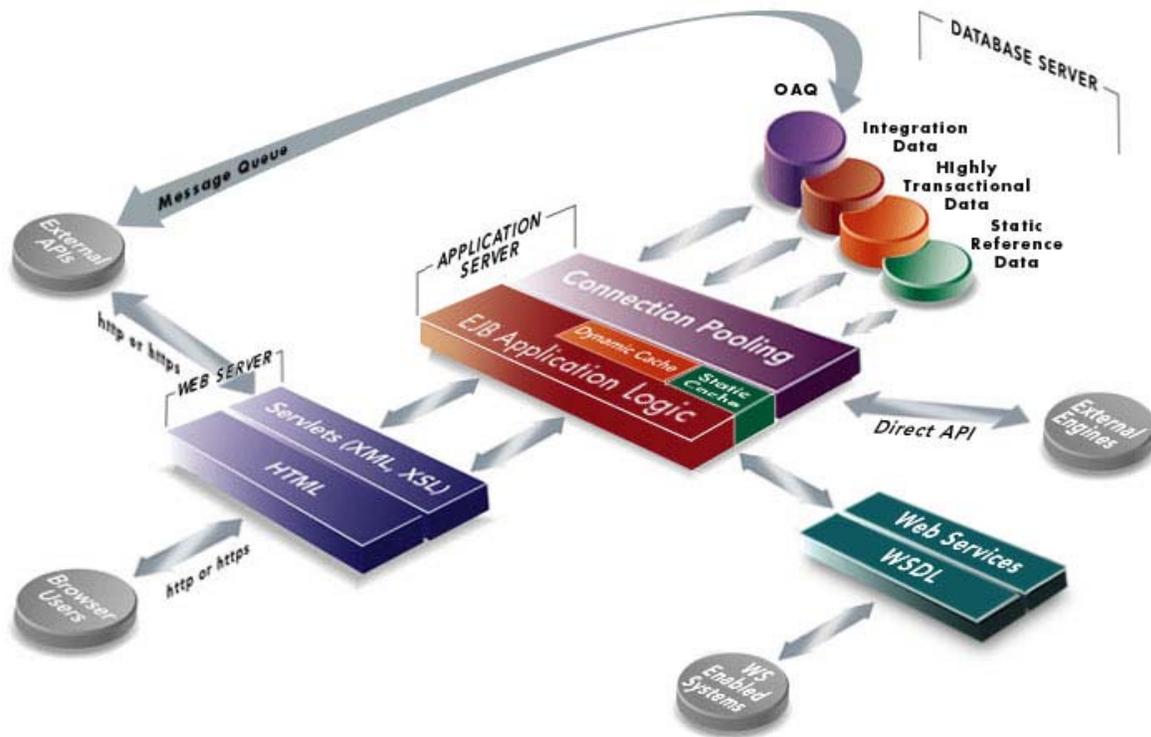
1. Architecture Overview

Oracle Transportation Management is built for interactive environments that leverage the Internet as an information backbone to capture reference data such as updates to carriers, carrier rates, shipping schedules, locations, ports, and other logistics sources. The underlying architecture is a unique multi-enterprise data model with n-tier web and application servers, partitioned database server, native XML language, extensible style sheets, advanced data security, and optimal caching.

Oracle Transportation Management is highly distributed and collaborative. It is written in Java and uses Enterprise Java Beans, XML, HTML, and XSL technologies. The design is based on a thin HTML client/fat application architecture so that applications are easily deployable and accessible by multiple enterprises. It supports comprehensive integration via XML APIs to all of the application logic.

Server Overview

The following illustration describes the overall architecture of the Oracle Transportation Management environment.



Each server is designed to perform specific functions that are briefly described in the following sections. From a user's perspective, all that you need to use to access Oracle Transportation Management is a standard Web browser such as Internet Explorer or Mozilla Firefox.

Web Server

The Web server controls the Oracle Transportation Management user interface and communicates with the Application server to initiate the appropriate application logic. The Oracle Transportation

Management user interface is delivered to the user in HTML format and viewed using a browser such as Internet Explorer or Mozilla Firefox.

The Oracle Transportation Management Web server uses the Apache Web server and the Tomcat Java servlet engine to manage the user interface and communications with the Application server.

Application Server

The Application Server controls the application logic and communicates that logic between the Web server and the Database. The Application server runs Oracle Application Server software from Oracle (all supported platforms), WebLogic Server software from BEA Systems (all supported platforms) or WebSphere Application Server from IBM (AIX and Linux only) to manage system-level details and operates at the center of the Oracle Transportation Management multi-tier architecture. In this architecture, business logic is executed in the application server, rather than in client applications. The resulting "thin" client, allows the client to manage the presentation layer, the application server to manage the business logic, and the back-end data services to manage the data.

Database Server

The Database server is the central repository for all the data entered in Oracle Transportation Management. The Database server communicates with the Application server to deliver the appropriate data to the user based on the Oracle Transportation Management application logic. The Database server also communicates with the Integration server to handle the import and export of Oracle Transportation Management data with other systems.

Oracle Transportation Management supports the following databases:

- Oracle 10g Release 2 (any supported platform)

As of Oracle Transportation Management 5.5 CU4, Oracle Transportation Management now supports Oracle 11g on any supported platform.

Integration Server

The Integration server is responsible for:

- Accepting Oracle Transportation Management XML from an Enterprise Application Integration (EAI) solution.
- Persisting XML transmission to a staging table.
- Accepting requests from the Oracle Transportation Management Application server to build Oracle Transportation Management XML from staged data.
- Sending Oracle Transportation Management XML to an EAI solution.

The EAI solution is used as a secure data pipeline and data transformation engine and is responsible for:

- Sending and receiving EDI flat files to and from an EDI Van.
- Transforming EDI flat files to Oracle Transportation Management XML.
- Login Security (communication is permitted only from registered IP addresses).
- Encryption Security (using https).
- Guaranteed delivery (only if a partner server is on the remote side).

The Integration server's job is to safely store XML transmissions and transform the XML transmission into internal tables. The Oracle Transportation Management Application server is responsible for

initiating jobs that move data to and from staging tables and notifies the Application server when new data has arrived in the staging table. The Application server must notify the Integration server when it has moved new data to the staging table.

The Integration server does not perform data validation. Data validation occurs when data is transferred from the staging table to the Application server tables. The staging table does not enforce referential integrity or constraints.

The Integration server and the Application server communicate to the Application server using EJB Session Bean calls. When an integration event occurs, the Integration server notifies the Application server using a session bean call. When the application service needs to communicate with the outside world, it does so directly, using an integration solution that provides a method to build transmissions and forward them to the EAI solution.

2. Installation Requirements

Windows 2000/2003 Server Installation Requirements

It is HIGHLY recommended that you make available personnel who are familiar with the installation and configuration of Windows based applications. It is also recommended that you have an administrator familiar with the creation and support of Oracle Database instances. A Network Administrator may be necessary at times, especially during the configuration of systems that will be accessed through firewalls, VPN, etc.

You must be logged in as Administrator or someone with Administrative privileges to install Oracle Transportation Management successfully.

Note: Sections that are specific to the type of Application Server being used are marked with **[OAS]**, or **[WebLogic]**.

Minimum Hardware Requirements

Note: this section only details the minimum hardware required to run the base Oracle Transportation Management application. It does not take into account additional Oracle Transportation Management components or third party components and it is not a configuration for high volume or complex implementations. To determine the correct configuration for your production, test and development environments you should work with your hardware and/or implementation consultants.

Web User

You must have any computer capable of running one of the supported browsers (see the Oracle Transportation Management Technical Architecture document for a list of supported browsers). Many factors will affect the performance experience of the end-user, including: CPU type & speed; operating system version; available memory; hard drive speed; network card speed and network bandwidth between the browser and the web server.

Test and Development Server

- Combined Web & App: 2 x 3.0 GHz dual-core Xeon CPU, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Production Servers

- Web Server: 2 x 2.4 GHz quad-core Xeon CPU w/ 4 MB cache, 4 GB RAM, 40 GB disk
- Application Server: 2 x 2.4 GHz quad-core Xeon CPU w/ 4 MB cache, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Software Requirements for Oracle Transportation Management Server Configurations

- Windows 2000 Server with Service Pack 4 or
- Windows 2003 Server with Service Pack 1
- Internet Explorer 6.0 SP1 or Mozilla Firefox 1.5.x (for client)

Note: Popup Blockers may prevent your browser from working correctly with Oracle Transportation Management. If you experience any problems, try disabling them before contacting Technical Support.

Note: For users wishing to view the results generated by the Load Configuration feature, a VRML plug-in for their Web Browser is needed. Oracle Transportation Management has been tested with the Cortona plug-in for Internet Explorer, available at: <http://www.parallelgraphics.com/products/cortona/>.

- Adobe Acrobat 6.0 (for client)
- Oracle 10g Release 2 (10.2.0.3.0) Enterprise Edition (or the latest version of 11g)
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 with an Advantage (non-clustered) License
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (optional)
- Integration Server - EAI solution (optional)

The following software is distributed with Oracle Transportation Management:

- **[OAS]** Oracle Application Server 10.1.3.0 + patches
- Apache Web Server 2.0.55
- Tomcat Java Servlet Server 5.5.16
- OpenSSL 0.9.8a
- JRockit JDK 1.4.2
- Python 2.4.2
- Java Service Wrapper 3.1.2
- zlib 1.2.3

The Oracle Transportation Management software is distributed on CD or via download from standard Oracle channels.

Preparing to Install Oracle Transportation Management

Oracle Transportation Management requires the following software:

- Windows 2000 Server with Service Pack 4 or Windows 2003 Server with Service Pack 1
- Internet Explorer 6.0 SP1 with Java Plugin 1.4.2 or later

Note: Popup Blockers may prevent your browser from working correctly with Oracle Transportation Management. If you experience any problems, try disabling them before contacting Technical Support.

- Oracle 10gR2 (10.2.0.3.0) client (or the latest client version of 11g) [optional on Web server – required on Application server]
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 [Application server only]
- Oracle 10gR2 (10.2.0.3.0) DB Server (or the latest version of 11g) [DB server only]
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services [Report server only]
- Oracle Transportation Management software

Before you begin the installation process, ensure that the following is already complete:

- Windows 2000 Server with Service Pack 4 or Windows 2003 Server with Service Pack 1.

- The “Server” service under the “Network” Control Panel (Start Menu -> Settings -> Control Panel) is set to “Maximize Throughput for Network Applications”.
- Virtual memory is set to 1.5 to 2 times the amount of physical memory in the system. Also, within the “Server” control panel (Performance) set the “Performance boost for the foreground application” to NONE.
- All Oracle Transportation Management servers are time-synced using a process like NTP. This is critical to the proper operation and troubleshooting of an Oracle Transportation Management instance.
- Oracle 10gR2 (10.2.0.3.0) client (Administrator install) has been installed and configured to connect to your database.

Installing Oracle Application Server (OAS) on the Application Server [OAS]

The necessary files will be installed as part of the Oracle Transportation Management installation; no further work is needed.

Installing WebLogic on the Application Server [WebLogic]

WebLogic Server is an application server; a runtime environment that provides infrastructure services such as database access, transaction coordinator, and component framework for distributed applications. WebLogic Server also provides administrative features such as configurable security, management and application deployment tools.

You must purchase WebLogic Server, version 8.1 (with Service Pack 6) from Beas Systems, Inc. Once you have the *appropriate license*, you can download the executables from the Beas website.

1. Run server814_win32.exe or platform814_win32.exe to install WebLogic.
2. Accept the license agreement.
3. Enter d:\product\bea as the BEA Home.
4. Choose Typical Installation.
5. Install WebLogic into d:\product\bea\weblogic81
6. Install your WebLogic license by following the directions supplied by BEA.

Important Note: You must remove a file from the WebLogic installation because of a code conflict between it and the latest JDBC drivers that Oracle Transportation Management ships with. The simplest and safest way to do this is to rename the file. The file in question is:

```
<weblogic_install_path>\server\lib\ojdbc14.jar
```

rename it to be something like:

```
<weblogic_install_path>\server\lib\ojdbc14.jar.bak
```

where <weblogic_install_path> is whatever value was used in step 5 above.

Installing Oracle on the Database Server

Please refer to the standard 10g Oracle DB Installation Guide.

Installing Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services on the Report Server

The system requirements and installation steps (along with explanations of each) for the Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (hereafter referred to as Oracle AS 10gR2 FR) installation are documented within either the web-based or Adobe Acrobat PDF files on Disk

1 of the Oracle AS 10gR2 FR installation CD package. Please read the requirements and installation instructions fully before installing the Oracle AS 10gR2 FR Software.

The instructions listed below should be used in conjunction with those supplied by Oracle, as there are certain sections within the AS that are not utilized by Oracle Transportation Management at this time. Please refer to the Oracle documentation, as they are far more complete and contain in-depth explanations of all installation options.

Follow these steps to install Oracle AS 10gR2 FR software.

1. Insert Disk1 of the Oracle AS 10gR2 FR install package.
2. Click iSetup.exe.
3. Ensure your system passes the Installation Requirements Check.
4. Review the Welcome screen and click Next.
5. At the Destination Oracle Home and Oracle Home Name Screen, enter the Oracle Home "Name" (i.e. FR_HOME, AS_HOME, etc.) and the path to the new Oracle Home (i.e. d:\product\oracle\reports10g).
Note: Do NOT install the Oracle AS 10gR2 FR software to an existing Oracle Home! This would cause any existing Oracle products, including databases, to become inoperable.
6. Click Next.
7. Choose your language (usually English).
8. Specify an Instance Name (unique identifier for the Reports instance – usually a hostname), and ias_admin password. The ias_admin password will be used to manage the Oracle Reports Server.
9. Enter the FQDN of an SMTP mail relay server.
10. Click Install on the Summary screen.
11. Monitor the installation process.
12. Write down the Oracle HTTP Server URL (usually http://<servername>:7777) and Oracle Enterprise Manager Application Server Control URL (usually http://<servername>:1810. The OEM AS URL is used to stop and start the Oracle Reports Server.
13. Click Exit when the installation process completes.
Note: The Oracle Reports service may stop whenever a user logs out of the Windows server. Due to this limitation, the Windows console must stay continuously logged in (You may LOCK the console for security reasons).

Installing Oracle Transportation Management

Follow the instructions in the **Installing Oracle Transportation Management** chapter to finish your Oracle Transportation Management installation. You must be logged in as Administrator or someone with Administrative privileges to install Oracle Transportation Management successfully.

Solaris Installation Requirements

It is HIGHLY recommended that you make available personnel who are familiar with the installation and configuration of UNIX based applications. Also, it is recommended that you have an administrator familiar with the creation and support of Oracle Database instances. A Network Administrator may be necessary at times, especially during the configuration of systems that will be accessed through firewalls, VPN, etc.

You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

Note: Sections that are specific to the type of Application Server being used are marked with **[OAS]**, or **[WebLogic]**.

Minimum Hardware Requirements

Note: this section only details the minimum hardware required to run the base Oracle Transportation Management application. It does not take into account additional Oracle Transportation Management components or third party components and it is not a configuration for high volume or complex implementations. To determine the correct configuration for your production, test and development environments you should work with your hardware and/or implementation consultants.

Web User

You must have any computer capable of running one of the supported browsers (see the Oracle Transportation Management Technical Architecture document for a list of supported browsers). Many factors will affect the performance experience of the end-user, including: CPU type & speed; operating system version; available memory; hard drive speed; network card speed and network bandwidth between the browser and the web server.

Test and Development Server

- Combined Web & App: 2 x 1.5 GHz UltraSparcIIIi CPU, 4 GB RAM, 40 GB disk space

Note: For the Report and Database servers, please see the documentation associated with those products.

Production Servers

- Web Server: 2 x 1.6 GHz UltraSparcIIIi CPU, 4 GB RAM, 40 GB disk space
- Application Server: 2 x 1.6 GHz UltraSparcIIIi CPU, 4 GB RAM, 40 GB disk space

Note: For the Report and Database servers, please see the documentation associated with those products.

Software Requirements

- Solaris 9 or 10 with the latest Recommended Patches
- Solaris patches for the JDK 1.4.2
- Internet Explorer 6.0 SP1 or Mozilla Firefox 1.5.x (for client)

Note: Popup Blockers may prevent your browser from working correctly with Oracle Transportation Management. If you experience any problems, try disabling them before contacting Technical Support.

For users wishing to view the results generated by the Load Configuration feature, a VRML plug-in for their Web Browser is needed. Oracle Transportation Management has been tested with the Cortona plug-in for Internet Explorer, available at: <http://www.parallelgraphics.com/products/cortona/>.

- Adobe Acrobat 6.0 (for client)
- Oracle 10g Release 2 (10.2.0.3.0) Enterprise Edition (or the latest version of 11g)
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 with an Advantage (non-clustered) License

- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (optional)
- Integration Server - EAI solution (optional)

The following software is distributed with Oracle Transportation Management:

- **[OAS]** Oracle Application Server 10.1.3.0 + patches
- Apache Web Server 2.0.55
- Tomcat Java Servlet Server 5.5.16
- OpenSSL 0.9.8a
- Sun JDK 1.4.2
- Python 2.4.2
- Java Service Wrapper 3.1.2
- zlib 1.2.3

The Oracle Transportation Management software is distributed on CD or via download from standard Oracle channels.

Preparing to Install Oracle Transportation Management

Oracle Transportation Management requires the following software:

- Solaris 9 or 10 with latest Sun Recommended Patch Bundle
- SUNWzlib or GNU zlib package
- Oracle 10gR2 (10.2.0.3.0) Client (or the latest version of 11g) [optional for Web server – required for Application server]
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 [Application server only]
- Oracle 10gR2 (10.2.0.3.0) DB Server (or the latest version of 11g) [DB server only]
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services [Report server only]
- Oracle Transportation Management Application software

Before you begin the installation process, ensure that the following is complete:

- Solaris 9 or 10 has been installed on your server.
- The size of the swap space on your server is equal to or greater than the amount of memory it contains.
- All Oracle Transportation Management servers are time-synced using a process like NTP. This is critical to the proper operation and troubleshooting of an Oracle Transportation Management instance.
- Oracle 10gR2 (10.2.0.3.0) Client (Administrator install) has been installed and configured to connect to your database.

Pre-Install Setup

Ensure that Solaris 9 or 10 and all of the latest patches are installed. The latest Solaris recommended patch bundle could be downloaded from Sun at:

<http://sunsolve.sun.com>

After the latest Sun Recommended patches are installed, you need to install the latest patches to support the Sun JDK 1.4.2. The latest patch bundles are available at:

<http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/J2SE>

Note: It is CRITICAL that the latest patch bundle is installed on your server. Without these patches the Java JVM may not run or may be very unstable.

Once the Solaris (9 or 10) operating system is installed, you need to modify kernel parameters to ensure that Solaris works properly with the application server.

1. Edit the /etc/system file and add the following lines at the end of the file:

```
set rlim_fd_max=8192
set rlim_fd_cur=8192
set tcp:tcp_conn_hash_size=32768
set shmsys:shminfo_shmmax 4294967295
set autoup 900
set tune_t_fsflushr 1
```

2. The following kernel parameters may improve your server's performance. Your system administrator should evaluate each of the settings below and add the appropriate settings to your /etc/system file:

```
set maxpgio=25468
set slowscan=500
set ncsiz=5000
set ufs_ninode=10000
```

3. Update additional kernel parameters as needed for the Database Server. This is covered in the Oracle DB installation documentation.
4. Restart the server.
5. Install the latest SUNWzlib or GNU zlib packages.

Creating the Oracle Transportation Management User

You must add a group and user on the Application server called 'otm'.

1. Start the Admin tool.
2. Add a group called 'otm'.
3. Add a user called 'otm' and set a password for the otm user.
4. Assign the otm user to the otm group.

Installing Oracle Application Server (OAS) on the Application Server [OAS]

The necessary files will be installed as part of the Oracle Transportation Management installation; no further work is needed.

Installing WebLogic on the Application Server [WebLogic]

WebLogic Server is an application server; a runtime environment that provides infrastructure services such as database access, transaction coordinator, and component framework for distributed applications. WebLogic Server also provides administrative features such as configurable security, management and application deployment tools.

You must purchase WebLogic Server, version 8.1 (with Service Pack 6) from Beas Systems, Inc. Once you have the appropriate license you can download the appropriate executables from the Beas website.

We recommend that you run this installer from the server console.

1. Launch server814_solaris.bin or platform814_solaris.bin to install WebLogic.

2. Accept the license agreement.
3. Enter /opt/bea as the BEA Home.
4. Choose "Typical Installation"
5. Install WebLogic into /opt/bea/weblogic81
6. Install your License file using the directions provided by BEA.

Important Note: You must remove a file from the WebLogic installation because of a code conflict between it and the latest JDBC drivers that Oracle Transportation Management ships with. The simplest and safest way to do this is to rename the file. The file in question is:

```
<weblogic_install_path>/server/lib/odbc14.jar
```

rename it to be something like:

```
<weblogic_install_path>/server/lib/odbc14.jar.bak
```

where <weblogic_install_path> is whatever value was used in step 5 above.

Installing Oracle on the Database Server

Please refer to the standard 10g Oracle DB Installation Guide.

Installing Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services on the Report Server

The system requirements and installation steps (along with explanations of each) for the Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (hereafter referred to as Oracle AS 10gR2 FR) installation are documented within either the web-based or Adobe Acrobat PDF files on Disk 1 of the Oracle AS 10gR2 FR installation CD package. Please read the requirements and installation instructions fully before installing the Oracle AS 10gR2 FR Software.

The instructions listed below should be used in conjunction with those supplied by Oracle, as there are certain sections within the AS that are not utilized by Oracle Transportation Management at this time. Please refer to the Oracle documentation, as they are far more complete and contain in-depth explanations of all installation options.

1. Create an oracle user and assign it to the DBA group. The installer should be run as this user.
2. Insert Disk1 of the Oracle AS 10gR2 FR install package.
3. Run runInstaller.
4. Ensure your system passes the Installation Requirements Check.
5. Review the Welcome screen and click Next.
6. At the Destination Oracle Home and Oracle Home Name Screen, please enter in the Oracle Home "Name" (i.e. FR_HOME, AS_HOME, etc.) and the path to the new Oracle Home (i.e. /u01/app/oracle/product/reports10gR2).
Note: Do NOT install the Oracle AS 10gR2 FR software to an existing Oracle Home! This may cause any existing Oracle products (including databases) to become inoperable.
7. Click Next after entering Oracle Home name and path.
8. Enter the oracle user's group (usually dba).
9. Choose your language (usually English).
10. Specify an Instance Name (unique identifier for the Reports instance – usually a hostname), and ias_admin password. The ias_admin password will be used to manage the Oracle Reports server.

11. Enter the FQDN of an SMTP mail relay server.
12. Click Install on the Summary screen.
13. Monitor the installation process.
14. Write down the Oracle HTTP Server URL (usually `http://<servername>:7777`) and Oracle Enterprise Manager Application Server Control URL (usually `http://<servername>:1810`). The OEM AS url is used to stop and start the Oracle Reports Server.
15. Click Exit after the installation process completes.

Installing Oracle Transportation Management

Follow the instructions in the **Installing Oracle Transportation Management** chapter to finish your Oracle Transportation Management installation. You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

AIX Installation Requirements

It is HIGHLY recommended that you make available personnel who are familiar with the installation and configuration of UNIX based applications. Also, it is recommended that you have an administrator familiar with the creation and support of Oracle Database instances. A Network Administrator may be necessary at times, especially during the configuration of systems that will be accessed through firewalls, VPN, etc.

You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

Note: Sections that are specific to the type of Application Server being used are marked with **[OAS]**, **[WebLogic]** or **[WebSphere]**.

Minimum Hardware Requirements

Note: this section only details the minimum hardware required to run the base Oracle Transportation Management application. It does not take into account additional Oracle Transportation Management components or third party components and it is not a configuration for high volume or complex implementations. To determine the correct configuration for your production, test and development environments you should work with your hardware and/or implementation consultants.

Web User

You must have any computer capable of running one of the supported browsers (see the Oracle Transportation Management Technical Architecture document for a list of supported browsers). Many factors will affect the performance experience of the end-user, including: CPU type & speed; operating system version; available memory; hard drive speed; network card speed and network bandwidth between the browser and the web server.

Test and Development Server

- Combined Web & App: 2 x 1.9 GHz Power5+ CPU, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Production Servers

- Web Server: 2 x 2.1 GHz Power5+ CPU, 4 GB RAM, 40 GB disk
- Application Server: 2 x 2.1 GHz Power5+ CPU, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Software Requirements

- AIX 5.3 with the latest Recommended Patches
- AIX patches for the JDK 1.4.2
- Internet Explorer 6.0 SP1 or Mozilla Firefox 1.5.x (for client)

Note: Popup Blockers may prevent your browser from working correctly with Oracle Transportation Management. If you experience any problems, try disabling them before contacting Technical Support.

Note: For users wishing to view the results generated by the Load Configuration feature, a VRML plug-in for their Web Browser is needed. Oracle Transportation Management has been tested with the Cortona plug-in for Internet Explorer, available at: <http://www.parallelgraphics.com/products/cortona/>.

- Adobe Acrobat 6.0 (for client)
- Oracle 10g Release 2 (10.2.0.3.0) Enterprise Edition (or the latest version of 11g)
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 with an Advantage (non-clustered) License
- **[WebSphere]** WebSphere Application Server 6.0
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (optional)
- Integration Server - EAI solution (optional)

The following software is distributed with Oracle Transportation Management:

- **[OAS]** Oracle Application Server 10.1.3.0 + patches
- Apache Web Server 2.0.55
- Tomcat Java Servlet Server 5.5.16
- OpenSSL 0.9.8a
- IBM JDK 1.4.2
- Python 2.4.2
- Java Service Wrapper 3.1.2
- zlib 1.2.3

The Oracle Transportation Management software is distributed on CD or via download from standard Oracle channels.

Preparing to Install Oracle Transportation Management

Oracle Transportation Management requires the following software:

- AIX 5.3 with latest IBM Recommended Patch Bundle
- Oracle 10gR2 (10.2.0.3.0) Client (or the latest version of 11g) [optional for Web server – required for Application server]
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 [Application server only]

- **[WebSphere]** WebSphere Advanced Server 6.0 with the following patches (applied in the following order) [Application server only]:
 - 6.0-WS-WAS-AixPPC32-RP0000002.tar
 - 6.0.2-WS-WAS-AixPPC32-FP0000007.tar
 - 6.0.2-WS-WASJavaSDK-AixPPC32-FP00000033.pak
- **[WebSphere]** WebSphere Application Client 6.0 [Web-only installs]
 - Installer for this can be found in the AppClient directory of the main WAS install
- Oracle 10gR2 (10.2.0.3.0) DB Server (or the latest version of 11g) [DB server only]
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services [Report server only]
- Oracle Transportation Management Application software

Before you begin the installation process, ensure that the following is complete:

- AIX 5.3 has been installed on your server.
- The size of the swap space on your server is equal to or greater than the amount of memory it contains.
- All Oracle Transportation Management servers are time-synced using a process like NTP. This is critical to the proper operation and troubleshooting of an Oracle Transportation Management instance.
- Oracle 10gR2 (10.2.0.3.0) Client (Administrator install) has been installed and configured to connect to your database.

Pre-Install Setup

Ensure that AIX 5.3 and all of the latest patches are installed. The latest AIX recommended patch bundle could be downloaded from IBM at:

<https://techsupport.services.ibm.com/server/fixes/>

After the latest IBM Recommended patches are installed, you need to install the latest patches to support the IBM JDK 1.4.2. The latest patch bundles are available at:

<https://techsupport.services.ibm.com/server/fixes/>

Note: It is CRITICAL that the latest patch bundle is installed on your server. Without these patches the Java JVM may not run or may be very unstable.

Once the AIX operating system is installed, you need to modify kernel parameters to ensure that AIX works properly with the application server.

1. Edit the /etc/security/limits file and change the following parameters:


```

      fsize = -1
      core = -1
      cpu = -1
      data = -1
      rss = -1
      stack = -1
      nofiles = -1
      
```
2. Update additional kernel parameters as needed for the Database Server. This is covered in the Oracle DB installation documentation.
3. Restart the server.

Creating the Oracle Transportation Management user

You must add a group and user on the Application server called 'otm'.

1. Start SMIT.
2. Add a group called 'otm'.
3. Add a user called 'otm' and set a password for the otm user.
4. Assign the otm user to the otm group.

Installing Oracle Application Server (OAS) on the Application Server [OAS]

The necessary files will be installed as part of the Oracle Transportation Management installation; no further work is needed.

Installing WebLogic on the Application Server [WebLogic]

WebLogic Server is an application server; a runtime environment that provides infrastructure services such as database access, transaction coordinator, and component framework for distributed applications. WebLogic Server also provides administrative features such as configurable security, management and application deployment tools, and clustering to promote high availability and scalability.

You must purchase WebLogic Server, version 8.1 (with Service Pack 6) from Beas Systems, Inc. Once you have the appropriate license you can download the appropriate executables from the Beas website.

We recommend that you run this installer from the server console.

1. Launch server814_aix.bin or platform814_aix.bin to install WebLogic.
2. Accept the license agreement.
3. Enter /opt/bea as the BEA Home.
4. Choose "Typical Installation"
5. Install WebLogic into /opt/bea/weblogic81
6. Install your License file using the directions provided by BEA.

Important Note: You must remove a file from the WebLogic installation because of a code conflict between it and the latest JDBC drivers that Oracle Transportation Management ships with. The simplest and safest way to do this is to rename the file. The file in question is:

```
<weblogic_install_path>/server/lib/odbc14.jar
```

rename it to be something like:

```
<weblogic_install_path>/server/lib/odbc14.jar.bak
```

where <weblogic_install_path> is whatever value was used in step 5 above.

Installing WebSphere on the Application Server [WebSphere]

WebSphere is an application server; a runtime environment that provides infrastructure services such as database access, transaction coordinator, and component framework for distributed applications. WebSphere also provides administrative features such as configurable security, management and application deployment tools, and clustering to promote high availability and scalability.

You must purchase WebSphere version 6.0 from IBM. Once you have the appropriate license you can download the appropriate executables from the IBM website.

You must run this installer from an X display.

1. Uncompress and untar the was.6000.base.aix.tar.gz file
2. Launch WAS/install
3. Accept the license agreement.
4. Install WebSphere into /opt/IBM/WebSphere/AppServer6
5. Install your License file using the directions provided by IBM
6. Once base installation is complete, install the .tar patches one by one:
 - a. Uncompress the patch in the directory where WebSphere was installed to (e.g. /opt/IBM/WebSphere/AppServer6); it will create a directory called 'updateinstaller'
 - b. Run the update script, e.g. /opt/IBM/WebSphere/AppServer6/updateinstaller/update
 - c. Follow the onscreen directions
 - d. When it's finished, run it again. Repeat until it tells you that there is nothing further to install.
 - e. Remove the contents of the updateinstaller/maintenance directory
 - f. Repeat with next .tar patch
7. Once the .tar patches are installed, install the .pak patches one by one:
 - a. copy the .pak file into the updateinstaller/maintenance directory (e.g. /opt/IBM/WebSphere/AppServer6/updateinstaller/maintenance)
 - b. Run the update script, e.g. /opt/IBM/WebSphere/AppServer6/updateinstaller/update
 - c. Follow the onscreen directions
 - d. When it's finished, run it again. Repeat until it tells you that there is nothing further to install.
 - e. Remove the contents of the updateinstaller/maintenance directory
 - f. Repeat with next .pak patch

Installing WebSphere AppClient on the Web Server [WebSphere]

This only needs to be done for web-only servers. Servers where the Oracle Transportation Management web & application pieces reside together should skip this step.

You must run this installer from an X display.

1. Uncompress and untar the was.6000.base.aix.tar.gz file
2. Copy the AppClient directory to the target machine
3. Run AppClient/install
4. Accept the license agreement.
5. Install WebSphere into /opt/IBM/WebSphere/AppClient6
6. Install your License file using the directions provided by IBM

Installing Oracle on the Database Server

Please refer to the standard 10g Oracle DB Installation Guide.

Installing Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services on the Report Server

The system requirements and installation steps (along with explanations of each) for the Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (hereafter referred to as Oracle AS 10gR2 FR) installation are documented within either the web-based or Adobe Acrobat PDF files on Disk

1 of the Oracle AS 10gR2 FR installation CD package. Please read the requirements and installation instructions fully before installing the Oracle AS 10gR2 FR Software.

The instructions listed below should be used in conjunction with those supplied by Oracle, as there are certain sections within the AS that are not utilized by Oracle Transportation Management at this time. Please refer to the Oracle documentation, as they are far more complete and contain in-depth explanations of all installation options.

1. Create an oracle user and assign it to the DBA group. The installer should be run as this user.
2. Insert Disk1 of the Oracle AS 10gR2 FR install package.
3. Run runInstaller.
4. Ensure your system passes the Installation Requirements Check.
5. Review the Welcome screen and click Next.
6. At the Destination Oracle Home and Oracle Home Name Screen, please enter in the Oracle Home "Name" (i.e. FR_HOME, AS_HOME, etc.) and the path to the new Oracle Home (i.e. /u01/app/oracle/product/reports10g).
Note: Do NOT install the Oracle AS 10gR2 FR software to an existing Oracle Home! This may cause any existing Oracle products (including databases) to become inoperable.
7. Click Next after entering Oracle Home name and path.
8. Enter the oracle user's group (usually dba).
9. Choose your language (usually English).
10. Specify an Instance Name (unique identifier for the Reports instance – usually a hostname), and ias_admin password. The ias_admin password will be used to manage the Oracle Reports server.
11. Enter the FQDN of an SMTP mail relay server.
12. Click Install on the Summary screen.
13. Monitor the installation process.
14. Write down the Oracle HTTP Server URL (usually `http://<servername>:7777`) and Oracle Enterprise Manager Application Server Control URL (usually `http://<servername>:1810`). The OEM AS url is used to stop and start the Oracle Reports Server.
15. Click Exit after the installation process completes.

Installing Oracle Transportation Management

Follow the instructions in the **Installing Oracle Transportation Management** chapter to finish your Oracle Transportation Management installation. You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

HP-UX Installation Requirements

It is HIGHLY recommended that you make available personnel who are familiar with the installation and configuration of UNIX based applications. Also, it is recommended that you have an administrator familiar with the creation and support of Oracle Database instances. A Network Administrator may be necessary at times, especially during the configuration of systems that will be accessed through firewalls, VPN, etc.

You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

Note: Sections that are specific to the type of Application Server being used are marked with [OAS], or [WebLogic].

Minimum Hardware Requirements

Note: this section only details the minimum hardware required to run the base Oracle Transportation Management application. It does not take into account additional Oracle Transportation Management components or third party components and it is not a configuration for high volume or complex implementations. To determine the correct configuration for your production, test and development environments you should work with your hardware and/or implementation consultants.

Web User

You must have any computer capable of running one of the supported browsers (see the Oracle Transportation Management Technical Architecture document for a list of supported browsers). Many factors will affect the performance experience of the end-user, including: CPU type & speed; operating system version; available memory; hard drive speed; network card speed and network bandwidth between the browser and the web server.

Test and Development Server

- Combined Web & App: 2 x 1.4 GHz dual-core Itanium CPU, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Production Servers

- Web Server: 2 x 1.6 GHz dual-core Itanium CPU, 4 GB RAM, 40 GB disk
- Application Server: 2 x 1.6 GHz dual-core Itanium CPU, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Software Requirements

- HP-UX 11iv2 with the latest Recommended Patches
- HP-UX patches for the JDK 1.4.2
- HP-UX JDK 1.4.2_08
- Internet Explorer 6.0 SP1 or Mozilla Firefox 1.5.x (for client)

Note: Popup Blockers may prevent your browser from working correctly with Oracle Transportation Management. If you experience any problems, try disabling them before contacting Technical Support.

Note: For users wishing to view the results generated by the Load Configuration feature, a VRML plug-in for their Web Browser is needed. Oracle Transportation Management has been tested with the Cortona plug-in for Internet Explorer, available at: <http://www.parallelgraphics.com/products/cortona/>.

Note: Oracle Transportation Management 5.5 is certified with the 32 bit version only for HP-UX 11i v2.

- Adobe Acrobat 6.0 (for client)
- Oracle 10g Release 2 (10.2.0.3.0) Enterprise Edition (or the latest version of 11g)

- **[WebLogic]** WebLogic 8.1 with Service Pack 6 with an Advantage (non-clustered) License
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (optional)
- Integration Server - EAI solution (optional)

The following software is distributed with Oracle Transportation Management:

- **[OAS]** Oracle Application Server 10.1.3.0 + patches
- Apache Web Server 2.0.55
- Tomcat Java Servlet Server 5.5.16
- OpenSSL 0.9.8a
- HP JDK 1.4.2
- Python 2.4.2
- Java Service Wrapper 3.1.2
- zlib 1.2.3

The Oracle Transportation Management software is distributed on CD or via download from standard Oracle channels.

Preparing to Install Oracle Transportation Management

Oracle Transportation Management requires the following software:

- HP-UX 11iv2 with latest HP Recommended Patch Bundle
- Oracle 10gR2 (10.2.0.3.0) Client (or the latest version of 11g) [optional for Web server – required for Application server]
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 [Application server only]
- Oracle 10gR2 (10.2.0.3.0) DB Server (or the latest version of 11g) [DB server only]
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services [Report server only]
- Oracle Transportation Management Application software

Before you begin the installation process, ensure that the following is complete:

- HP-UX 11iv2 has been installed on your server.
- The size of the swap space on your server is equal to or greater than the amount of memory it contains.
- All Oracle Transportation Management servers are time-synced using a process like NTP. This is critical to the proper operation and troubleshooting of an Oracle Transportation Management instance.
- Oracle 10gR2 (10.2.0.3.0) Client (Administrator install) has been installed and configured to connect to your database.
- The HP-UX JDK 1.4.2_08 has been installed. This is required so that specific libraries get installed on your system. This package is available from HP's web site:
<http://www.hp.com/products1/unix/java/>

Pre-Install Setup

Ensure that HP-UX 11iv2 and all of the latest patches are installed. The latest HP-UX recommended patch bundle could be downloaded from HP at:

http://www.software.hp.com/SUPPORT_PLUS/

After the latest HP Recommended patches are installed, you need to install the latest patches to support the HP JDK 1.4.2. The latest patch bundles are available at <http://www.hp.com/products1/unix/java/patches/index.html>.

Note: It is CRITICAL that the latest patch bundle is installed on your server. Without these patches, the Java JVM may not run or may be very unstable.

Once the HP-UX operating system is installed, you need to modify kernel parameters to ensure that HP-UX works properly with Oracle Transportation Management.

1. Use SAM to update the following kernel parameters. These are minimum settings and may be higher:

```
maxusers=400
max_threads_proc=<maxusers>*3
maxfiles=8192
maxfiles_lim=8192
ncallout=2*(( (nproc*7)/4)+16)*2)
nkthread=2*<max_thread_proc>
nfile=(2*<nproc>)+1000
nproc=( <maxusers>*5)+64
```

2. Update additional kernel parameters as needed for the Database Server. This is covered in the Oracle installation documentation.
3. Restart the server.

Creating the Oracle Transportation Management User

You must add a group and user on the Application server called 'otm'.

1. Start SAM.
2. Add a group called 'otm'.
3. Add a user called 'otm' and set a password for the otm user.
4. Assign the otm user to the otm group.

Installing Oracle Application Server (OAS) on the Application Server [OAS]

The necessary files will be installed as part of the Oracle Transportation Management installation; no further work is needed.

Installing WebLogic on the Application Server [WebLogic]

WebLogic Server is an application server; a runtime environment that provides infrastructure services such as database access, transaction coordinator, and component framework for distributed applications. WebLogic Server also provides administrative features such as configurable security, management and application deployment tools, and clustering to promote high availability and scalability.

You must purchase WebLogic Server, version 8.1 (with Service Pack 6) from Beas Systems, Inc. Once you have the appropriate license you can download the appropriate executables from the Beas website.

We recommend that you run this installer from the server console.

1. Launch server814_hpux.bin or platform814_hpux.bin to install WebLogic.
2. Accept the license agreement.
3. Enter /opt/bea as the BEA Home.
4. Choose "Typical Installation"

5. Install WebLogic into /opt/bea/weblogic81
6. Install your License file using the directions provided by BEA.

Important Note: You must remove a file from the WebLogic installation because of a code conflict between it and the latest JDBC drivers that Oracle Transportation Management ships with. The simplest and safest way to do this is to rename the file. The file in question is:

```
<weblogic_install_path>/server/lib/odbc14.jar
```

rename it to be something like:

```
<weblogic_install_path>/server/lib/odbc14.jar.bak
```

where <weblogic_install_path> is whatever value was used in step 5 above.

Installing Oracle on the Database Server

Please refer to the standard 10g Oracle DB Installation Guide.

Installing Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services on the Report Server

The system requirements and installation steps (along with explanations of each) for the Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (hereafter referred to as Oracle AS 10gR2 FR) installation are documented within either the web-based or Adobe Acrobat PDF files on Disk 1 of the Oracle AS 10gR2 FR installation CD package. Please read the requirements and installation instructions fully before installing the Oracle AS 10gR2 FR Software.

The instructions listed below should be used in conjunction with those supplied by Oracle, as there are certain sections within the AS that are not utilized by Oracle Transportation Management at this time. Please refer to the Oracle documentation, as they are far more complete and contain in-depth explanations of all installation options.

1. Create an oracle user and assign it to the DBA group. The installer should be run as this user.
2. Insert Disk1 of the Oracle AS 10gR2 FR install package.
3. Run runInstaller.
4. Ensure your system passes the Installation Requirements Check.
5. Review the Welcome screen and click Next.
6. At the Destination Oracle Home and Oracle Home Name Screen, please enter in the Oracle Home "Name" (i.e. FR_HOME, AS_HOME, etc.) and the path to the new Oracle Home (i.e. /u01/app/oracle/product/reports10g).
Note: Do NOT install the Oracle AS 10gR2 FR software to an existing Oracle Home! This may cause any existing Oracle products (including databases) to become inoperable.
7. Click Next after entering Oracle Home name and path.
8. Enter the oracle user's group (usually dba).
9. Choose your language (usually English).
10. Specify an Instance Name (unique identifier for the Reports instance – usually a hostname), and ias_admin password. The ias_admin password will be used to manage the Oracle Reports server.
11. Enter the FQDN of an SMTP mail relay server.
12. Click Install on the Summary screen.
13. Monitor the installation process.

14. Write down the Oracle HTTP Server URL (usually `http://<servername>:7777`) and Oracle Enterprise Manager Application Server Control URL (usually `http://<servername>:1810`). The OEM AS url is used to stop and start the Oracle Reports Server.
15. Click Exit after the installation process completes.

Installing Oracle Transportation Management

Follow the instructions in the **Installing Oracle Transportation Management** chapter to finish your Oracle Transportation Management installation. You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

Oracle Enterprise Linux Installation Requirements

It is HIGHLY recommended that you make available personnel who are familiar with the installation and configuration of UNIX based applications. Also, it is recommended that you have an administrator familiar with the creation and support of Oracle Database instances. A Network Administrator may be necessary at times, especially during the configuration of systems that will be accessed through firewalls, VPN, etc.

You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

Note: Sections that are specific to the type of Application Server being used are marked with **[OAS]**, **[WebLogic]** or **[WebSphere]**.

Red Hat Linux

Red Hat AS/ES 4 is also a supported platform, but Oracle Transportation Management has not been certified on it. In this manual, wherever Oracle Enterprise Linux 4 Update 4 is referenced, simply replace it with Red Hat AS/ES 4 Update 5. Any Red Hat-only instructions will be clearly marked as such.

Minimum Hardware Requirements

Note: this section only details the minimum hardware required to run the base Oracle Transportation Management application. It does not take into account additional Oracle Transportation Management components or third party components and it is not a configuration for high volume or complex implementations. To determine the correct configuration for your production, test and development environments you should work with your hardware and/or implementation consultants.

Web User

You must have any computer capable of running one of the supported browsers (see the Oracle Transportation Management Technical Architecture document for a list of supported browsers). Many factors will affect the performance experience of the end-user, including: CPU type & speed; operating system version; available memory; hard drive speed; network card speed and network bandwidth between the browser and the web server.

Test and Development Server

- Combined Web & App: 2 x 3.0 GHz dual-core Xeon CPU, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Production Servers

- Web Server: 2 x 2.4 GHz quad-core Xeon CPU w/ 4 MB cache, 4 GB RAM, 40 GB disk
- Application Server: 2 x 2.4 GHz quad-core Xeon CPU w/ 4 MB cache, 4 GB RAM, 40 GB disk

Note: For the Report and Database servers, please see the documentation associated with those products.

Software Requirements

- Oracle Enterprise Linux (OEL) 4 Update 4 with the latest Recommended Patches
Note: Although a 64-bit OS can be used, OTM is a 32-bit application. Therefore, the 32-bit versions of some supporting libraries may be necessary to install on a 64-bit OEL machine. The following list of such libraries that some clients have had an issue with in the past is meant to be an example list, and is not exhaustive: openssl, compat-libstdc++, gdbm, db4.
- Internet Explorer 6.0 SP1 or Mozilla Firefox 1.5.x (for client)
Note: Popup Blockers may prevent your browser from working correctly with Oracle Transportation Management. If you experience any problems, try disabling them before contacting Technical Support.

Note: For users wishing to view the results generated by the Load Configuration feature, a VRML plug-in for their Web Browser is needed. Oracle Transportation Management has been tested with the Cortona plug-in for Internet Explorer, available at: <http://www.parallelgraphics.com/products/cortona/>.
- Adobe Acrobat 6.0 (for client)
- Oracle 10g Release 2 (10.2.0.3.0) Enterprise Edition (or the latest version of 11g)
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 with an Advantage (non-clustered) License
- **[WebSphere]** WebSphere Advanced Server 6.0
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (optional)
- Integration Server - EAI solution (optional)

The following software is distributed with Oracle Transportation Management:

- **[OAS]** Oracle Application Server 10.1.3.0 + patches
- Apache Web Server 2.0.55
- Tomcat Java Servlet Server 5.5.16
- OpenSSL 0.9.8a
- JRockit JDK 1.4.2
- Python 2.4.2
- Java Service Wrapper 3.1.2
- zlib 1.2.3

The Oracle Transportation Management software is distributed on CD or via download from standard Oracle channels.

Preparing to Install Oracle Transportation Management

Oracle Transportation Management requires the following software:

- Oracle Enterprise Linux 4 Update 4 with latest Oracle recommended patch bundle

- Oracle 10gR2 (10.2.0.3.0) Client (or the latest version of 11g) [optional for Web server – required for Application server]
- **[WebLogic]** WebLogic 8.1 with Service Pack 6 [Application server only]
- **[WebSphere]** WebSphere Advanced Server 6.0 with the following patches (applied in the following order) [Application server only]:
 - 6.0-WS-WAS-LinuxX32-RP0000002.tar.gz
 - 6.0.2-WS-WAS-LinuxX32-FP0000007.tar.gz
 - 6.0.2-WS-WASJavaSDK-LinuxX32-FP00000033.pak
- **[WebSphere]** WebSphere Application Client 6.0 [Web-only installs]
 - Installer for this can be found in the AppClient directory of the main WAS install
- Oracle 10gR2 (10.2.0.3.0) DB Server (or the latest version of 11g) [DB server only]
- Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services [Report server only]
- Oracle Transportation Management Application software

Before you begin the installation process, ensure that the following is complete:

- Oracle Enterprise Linux 4 Update 4 has been installed on your server.
- The size of the swap space on your server is equal to or greater than the amount of memory it contains.
- All Oracle Transportation Management servers are time-synced using a process like NTP. This is critical to the proper operation and troubleshooting of an Oracle Transportation Management instance.
- Oracle 10gR2 (10.2.0.3.0) Client (Administrator install) has been installed and configured to connect to your database.

Pre-Install Setup

Ensure that Oracle Enterprise Linux 4 Update 4 and all of the latest patches are installed. The latest Oracle recommended patch bundle can be downloaded from Oracle at:

<http://www.oracle.com/technology/tech/linux/index.html>

Once the Oracle Enterprise Linux 4 Update 4 operating system is installed, you need to modify kernel parameters to ensure that the OS works properly with the application server.

1. Update kernel parameters as needed for the Database Server. This is covered in the Oracle DB installation documentation.
2. Restart the server.

The following parameters may improve your server's performance. Your system administrator should evaluate each of the settings below and implement them as necessary:

<none>

3. Improve file system performance by mounting them with the "noatime" parameter in /etc/fstab.

Creating the Oracle Transportation Management User

You must add a group and user on the Application server called 'otm'.

1. Start the User Manager tool.
2. Add a group called 'otm'.
3. Add a user called 'otm' and set a password for the otm user.

4. Assign the otm user to the otm group.

Installing Oracle Application Server (OAS) on the Application Server [OAS]

The necessary files will be installed as part of the Oracle Transportation Management installation; no further work is needed.

Installing WebLogic on the Application Server [WebLogic]

WebLogic Server is an application server; a runtime environment that provides infrastructure services such as database access, transaction coordinator, and component framework for distributed applications. WebLogic Server also provides administrative features such as configurable security, management and application deployment tools, and clustering to promote high availability and scalability.

You must purchase WebLogic Server, version 8.1 (with Service Pack 6) from Bea Systems, Inc. Once you have the appropriate license you can download the appropriate executables from the Bea website.

We recommend that you run this installer from the server console.

1. Launch server814_linux.bin or platform814_linux.bin to install WebLogic.
2. Accept the license agreement.
3. Enter /opt/bea as the BEA Home.
4. Choose "Typical Installation"
5. Install WebLogic into /opt/bea/weblogic81
6. Install your License file using the directions provided by BEA.

Important Note: You must remove a file from the WebLogic installation because of a code conflict between it and the latest JDBC drivers that Oracle Transportation Management ships with. The simplest and safest way to do this is to rename the file. The file in question is:

```
<weblogic_install_path>/server/lib/odbc14.jar
```

rename it to be something like:

```
<weblogic_install_path>/server/lib/odbc14.jar.bak
```

where <weblogic_install_path> is whatever value was used in step 5 above.

Installing WebSphere on the Application Server [WebSphere]

WebSphere is an application server; a runtime environment that provides infrastructure services such as database access, transaction coordinator, and component framework for distributed applications. WebSphere also provides administrative features such as configurable security, management and application deployment tools, and clustering to promote high availability and scalability.

You must purchase WebSphere version 6.0 from IBM. Once you have the appropriate license you can download the appropriate executables from the Bea website.

You must run this installer from an X display.

1. Uncompress and untar the was.6000.base.linux.tar.gz file
2. Launch WAS/install
3. Accept the license agreement.

4. It may complain about the OS not being supported. If you are running Red Hat AS 4.x you may ignore this warning.
5. Install WebSphere into /opt/IBM/WebSphere/AppServer6
6. Install your License file using the directions provided by IBM
7. Once base installation is complete, install the .tar.gz patches one by one:
 - a. Uncompress the patch in the directory where WebSphere was installed to (e.g. /opt/IBM/WebSphere/AppServer6); it will create a directory called 'updateinstaller'
 - b. Run the update script, e.g. /opt/IBM/WebSphere/AppServer6/updateinstaller/update
 - c. Follow the onscreen directions
 - d. When it's finished, run it again. Repeat until it tells you that there is nothing further to install.
 - e. Remove the contents of the updateinstaller/maintenance directory
 - f. Repeat with next .tar patch
8. Once the .tar.gz patches are installed, install the .pak patches one by one:
 - a. copy the .pak file into the updateinstaller/maintenance directory (e.g. /opt/IBM/WebSphere/AppServer6/updateinstaller/maintenance)
 - b. Run the update script, e.g. /opt/IBM/WebSphere/AppServer6/updateinstaller/update
 - c. Follow the onscreen directions
 - d. When it's finished, run it again. Repeat until it tells you that there is nothing further to install.
 - e. Remove the contents of the updateinstaller/maintenance directory
 - f. Repeat with next .pak patch

Installing WebSphere AppClient on the Web Server [WebSphere]

This only needs to be done for web-only servers. Servers where the Oracle Transportation Management web & application pieces reside together should skip this step.

You must run this installer from an X display.

1. Uncompress and untar the was.6000.base.linux.tar.gz file
2. Copy the AppClient directory to the target machine
3. Run AppClient/install
4. Accept the license agreement.
5. Install WebSphere into /opt/IBM/WebSphere/AppClient6
6. Install your License file using the directions provided by IBM

Installing Oracle on the Database Server

Please refer to the standard 10g Oracle DB Installation Guide.

Installing Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services on the Report Server

The system requirements and installation steps (along with explanations of each) for the Oracle Application Server 10gR2 (10.1.2.0.2) Forms and Reports Services (hereafter referred to as Oracle AS 10gR2 FR) installation are documented within either the web-based or Adobe Acrobat PDF files on Disk 1 of the Oracle AS 10gR2 FR installation CD package. Please read the requirements and installation instructions fully before installing the Oracle AS 10gR2 FR Software.

The instructions listed below should be used in conjunction with those supplied by Oracle, as there are certain sections within the AS that are not utilized by Oracle Transportation Management at this time. Please refer to the Oracle documentation, as they are far more complete and contain in-depth explanations of all installation options.

1. Create an oracle user and assign it to the DBA group. The installer should be run as this user.
2. Insert Disk1 of the Oracle AS 10gR2 FR install package.
3. Run runInstaller.
4. Ensure your system passes the Installation Requirements Check.
5. Review the Welcome screen and click Next.
6. At the Destination Oracle Home and Oracle Home Name Screen, please enter in the Oracle Home "Name" (i.e. FR_HOME, AS_HOME, etc.) and the path to the new Oracle Home (i.e. /u01/app/oracle/product/reports10g).
Note: Do NOT install the Oracle AS 10gR2 FR software to an existing Oracle Home! This may cause any existing Oracle products (including databases) to become inoperable.
7. Click Next after entering Oracle Home name and path.
8. Enter the oracle user's group (usually dba).
9. Choose your language (usually English).
10. Specify an Instance Name (unique identifier for the Reports instance – usually a hostname), and ias_admin password. The ias_admin password will be used to manage the Oracle Reports server.
11. Enter the FQDN of an SMTP mail relay server.
12. Click Install on the Summary screen.
13. Monitor the installation process.
14. Write down the Oracle HTTP Server URL (usually http://<servername>:7777) and Oracle Enterprise Manager Application Server Control URL (usually http://<servername>:1810. The OEM AS url is used to stop and start the Oracle Reports Server.
15. Click Exit after the installation process completes.

Installing Oracle Transportation Management

Follow the instructions in the **Installing Oracle Transportation Management** chapter to finish your Oracle Transportation Management installation. You must run the installer as a non-root user, though root access will be required to run a script during the installation. The user that runs the installer must have full rights to the installation directory.

3. Installing Oracle Transportation Management

It is HIGHLY recommended that you make available personnel who are familiar with the installation and configuration of Windows or UNIX based applications (depending on operating system you are installing on.) Also, we recommend that, in the case of the Oracle Database, that you have on hand an administrator familiar with the creation and support of Oracle Database instances. A Network Administrator may be necessary at times – especially during the configuration of systems that will be accessed through firewalls, VPN, etc.

Note: Sections that are specific to the type of Application Server being used are marked with **[OAS]**, **[WebLogic]** or **[WebSphere]**. Similarly, operating system-specific sections are marked with **[AIX]**, **[Linux]**, etc.

Important Note Regarding Third Party Software

Oracle Transportation Management uses several third-party components to run the basic system. Many of these are shipped with the product, but several are not, including some that are required to even start Oracle Transportation Management's servers. **Please read the ReadMe.txt file included with the product documentation, in the same location that you found this Administration Guide.** This file is also shown at the end of the install process.

Recommended Installation Steps

Oracle Transportation Management can be installed in various configurations to provide scalability for production instances, or to provide for consolidation of system resources for test/development instances.

Production instances of Oracle Transportation Management would normally run each application layer (Web/Application/Database/Reports) on separate physical servers. For instance, we would see the following configuration:

- Server One: Oracle Database instance
- Server Two: Oracle Transportation Management Application server (OAS/WebLogic/WebSphere)
- Server Three: Oracle Transportation Management Web server (Apache/Tomcat)
- Server Four: Oracle Application server (Reports – Optional)

The instructions that follow assume that you are installing a production instance of Oracle Transportation Management where the various applications reside on separate physical servers. If you want to install a test or development instance of Oracle Transportation Management, please see the **Installing Oracle Transportation Management on a Single Server** section.

Test instances can be consolidated on to one, two, three or more servers – depending on the hardware availability within your organization. Commonly, we will see the following configuration for Test instances:

- Server One: Oracle database instance AND Oracle Application Server (Reports).
- Server Two: Oracle Transportation Management Application Server (OAS/WebLogic/WebSphere) AND Oracle Transportation Management Web Server (Apache/Tomcat).

If the Test server has enough resources (Memory/CPU), it is possible to run everything on a single system. This should ONLY be done for test instances and is NOT recommended for any Production level use. Please contact Technical Support if you have any questions.

Before installing your Oracle Transportation Management instance, you may decide to mount certain high-growth directories on separate partitions, to keep them from filling up your primary partition. In order to do this, just create the Oracle Transportation Management installation directory and mounted partitions before installation. Some recommended directories are:

- `<otm_install_path>/logs/` (Web and App Servers): This is the directory that all logs are created under (including user-created logs) and it can grow very quickly.
- `<otm_install_path>/temp/upload/` (Web Server): This is the directory that uploaded files get placed in prior to processing. The growth will vary based on your product usage.
- `<otm_install_path>/rptapache/htdocs/` (Report Server): This is the directory that scheduled reports will get placed into. The growth will vary based on your product usage.

Note: If you are upgrading an existing Oracle Transportation Management installation to Oracle Transportation Management 5.5, please take a moment to read about the following changes (first implemented in GC3 5.0):

- The startup scripts and procedure has changed. Please read the *Starting and Stopping the Oracle Transportation Management Servers* section of the chapter **"Starting Oracle Transportation Management after Installation Is Complete"** for more details.
- The console output for java processes no longer goes to the nohup.out files. Instead it goes to the console.log files under `<otm_install_path>/logs/tomcat` and `<otm_install_path>/logs/weblogic` directories. These log files automatically rotate and are no longer overwritten at startup.
- The default password for the system user has changed to CHANGEME. This is required for logging into the WebLogic console. If your password is different, you can either update it or update the Tomcat and Weblogic configuration files as described in the Changing Passwords section of **Advanced Configuration** chapter.

Installing Oracle Transportation Management on a Single Server

You can install Oracle Transportation Management on a single server for testing and development purposes.

- Run the install program and select "Web and Application" servers to install both on the same server.
- Install all required software for the Application and Web Servers as described previously.

or

- Run the install program and select Web, Application, and Report Servers to install all three (Oracle Reports must be installed on this same physical server) on the same server and follow all the prompts.
- Install the Oracle Database as described in this chapter.

Installing Oracle Transportation Management on the Application Server

The Oracle Transportation Management Install Program requires a graphical interface on Win32. On UNIX, we recommend that you run this installer from the server console, or from an X-Windows session. Please contact your UNIX Administrator for more information about launching GUI based UNIX applications. Also, you must set the "DISPLAY" environment variable if again, if you haven't already done so. Alternatively, UNIX users can install in console mode, as described below.

Note: Paths shown in this section will be in UNIX format (Ex. `/opt/gc3`) but should be in Windows format for Win32 installs (Ex. `D:/gc3` or `D:\gc3`). All directions are generic across all operating systems and any differences will be noted.

Note: All instructions apply regardless of which Application Server you are using, unless otherwise noted.

1. Run the installer to start the installation
 - a. UNIX: `otmv553_<platform>.bin`
 - b. Win32: `otmv553_win32.exe`

Note: Oracle Transportation Management also supports CONSOLE MODE installation on Linux/UNIX platforms only. This allows you to install Oracle Transportation Management when a GUI console is not available or practical. Run the following commands to launch the installer in this mode:

```
$ stty erase ^H
$ ./otmv553_<platform>.bin -i console
```

Note: On UNIX/Linux systems, the Installer extracts to `/tmp`, and you will receive an error if there is not sufficient room there for the Installer to extract itself. If you need to change this directory you must set the `IATEMPDIR` environment variable:

```
$ export IATEMPDIR=/some/other/temp/directory
$ ./otmv553_<platform>.bin
```

2. Read the installation notice and click Next.
3. Read the Third Party Software notice and click Next.
4. Choose the installation directory (e.g. `/opt/otm` or `/opt/otm55` to denote version). If you are installing more than one Oracle Transportation Management instance on a server, each instance should be installed into a different directory.
5. Choose which Application Server you will be using: Oracle Application Server (OAS), WebLogic or WebSphere.
 - a. For Linux a choice is presented between OAS, WebLogic & WebSphere
 - b. For AIX a choice is presented between WebLogic & WebSphere
 - c. For all other platforms a choice is presented between OAS & WebLogic
6. Choose App Server to install the Application Server only and click Next.
7. Read the instructions for filling out the required data and click Next.
8. General Settings:
 - a. Enter the Web Server External Fully Qualified Domain Name (e.g. `otmweb.oracle.com`). This would work if 'otmweb' is the server name and `oracle.com` is the domain name. If your site were accessed through a load-balancer or NAT device, this would be the external URL (outside your network). If not, then this would be the FQDN of your web server from within your network.
 - b. Enter the Web Server External Port (usually 80). If your site were accessed through a load-balancer or NAT device, this is the external port. If not, then this is the port on your web server.
 - c. Enter the Web Server Fully Qualified Domain Name. This may or may not be the same as the Web Server External FQDN. Please contact your Network Administrator if you have any questions about this.
 - d. Enter the Web Server Port (usually 80).
 - e. Enter the Fully Qualified Domain Name of your Application Server, which is the name of your server and the domain name (e.g. `otmapp.oracle.com`).
 - f. click Next
9. General Settings (continued)
 - a. Enter the App. Server Port (OAS: 23791, WebLogic: 7001, WebSphere: 2809).

- b. Enter the Database Server Fully Qualified Domain Name that is the name of your Database Server and the domain name (e.g. otmdb.oracle.com).
 - c. Enter the Database Server Port. This is usually 1521.
 - d. Enter the Database Connect String. This is the DB connect string as setup in your tnsnames.ora file under the Oracle client installation. Contact your Oracle Administrator for this information.
 - e. Enter the Database SID name.
 - f. click Next
10. General Settings (continued)
- a. Enter Oracle Home Path where you installed the Oracle client (/u01/app/oracle/product/1020, for instance)
 - b. Enter the URL Prefix, if your web server is running behind a reverse-proxy or SSO solution. Otherwise, you can accept the default.
 - c. click Next
11. App Server Settings
- a. Enter the App. Server IP Address.
 - i. **[OAS]** Oracle Transportation Management does not currently support running more than one Oracle Application Server instance of Oracle Transportation Management on a single box.
 - ii. **[WebLogic]** WebLogic will be bound to this IP address specifically. If you are installing more than one Oracle Transportation Management instance on a server, each instance should be bound to a different IP address. Please contact your Network or UNIX Administrators for more information on creating virtual IP addresses within a server.
 - iii. **[WebSphere]** Oracle Transportation Management does not currently support running more than one WebSphere instance of Oracle Transportation Management on a single box.
 - b. **[WebLogic only]** Enter the App Server SNMP Port (usually 7161).
 - c. **[WebLogic & WebSphere only]** Enter the Application Server Home directory, which is the directory you specified when installing WebLogic/WebSphere. (e.g. /opt/bea or /opt/IBM/WebSphere/AppServer6)
 - d. **[WebLogic only]** Enter the WebLogic Server Path, which is the directory that you installed WebLogic into and is underneath the BEA home directory. (e.g. /opt/bea/weblogic81)
 - e. Enter the Application Server memory in megabytes, which is the amount of system memory that WebLogic/WebSphere uses. This default is 1025MB, but may be higher depending on your configuration.

Note: If this value is lower than 1025MB, the Application server may not start. Also – please take into consideration whether the server will be used for Test/Development or Production, and what system resources are available.

- f. click Next
12. **[WebSphere or AIX only]** App Server Settings (continued)
- a. Enter the number of logical CPUs in the server. This is used to set a JVM performance parameter.
13. App Server Settings (continued)
- a. Enter the Oracle Transportation Management App Server Init Script / Service name (e.g. otmapp553). If installing more than one Oracle Transportation Management instance on a server, this should be unique for each one.

- b. Enter SMTP Server Fully Qualified Domain Name. This server name is necessary to send email notifications from within Oracle Transportation Management. Please contact your Network Administrator for this information.
 - c. Enter the Default Reply-To Email Address that all email notifications will appear to come from. This should map to a real mailbox and will allow you to check for bounced messages or delivery failures.
 - d. click Next
14. **[UNIX Only]** UNIX Settings
- a. Enter the user name that the Oracle Transportation Management programs will run under (e.g. otm or otm55).
 - b. Enter the group name that the Oracle Transportation Management programs will run under (e.g. otm or otm55).
 - c. click Next
15. Choose whether or not to migrate custom settings from a previous Oracle Transportation Management installation (3.7 or later). If you answer yes, you'll need to choose the directory where your old glog.properties file is located. Click Next.
16. Choose the optional components with which Oracle Transportation Management will integrate. Depending on what you choose, the installer may prompt for additional configuration information.
- a. **[Console Install Only]** Enter all components that you wish to integrate with using a comma-separated list (no spaces).
17. If you are integrating with Oracle Reports server, enter the following:
- a. Fully Qualified Domain Name of the Oracle Reports server.
 - b. Port that Apache using on the Oracle Report server (usually 81)
 - c. Directory that Oracle Transportation Management was (or will be) installed into on the Report Server (e.g. /opt/otm).
 - d. TNSNAMES entry of the Oracle Reports Server.
 - e. click Next
18. Select whether or not to integrate your Reports Server with a Replicated Operational Database (ROD), then click Next
19. **[ROD only]** Replicated Operational Database
- a. Fully Qualified Domain Name of the ROD Server
 - b. Port that Oracle is using on the ROD server (usually 1521)
 - c. Connect String for the ROD database
 - d. SID of the ROD database
 - e. click Next
20. If you are integrating with Fusion Transportation Intelligence (FTI), enter the following:
- a. Fully Qualified Domain Name of the FTI server.
 - b. Port number of the FTI server.
 - c. click Next
21. If you are integrating with FAXMaker or RightFax, enter the following:
- a. Phone number that faxes will seem to originate from.
 - b. Email address that the fax server polls.
 - c. click Next
22. If you are integrating with SMC RateWare server, enter the following:
- a. SMC RateWare Fully Qualified Domain Name

- b. SMC RateWare Server Port (usually 23700)
 - c. click Next
- 23. If you are integrating with PCMiller WorldWide, enter the following:
 - a. Fully Qualified Domain Name of the PCMiller WorldWide
 - b. PCMiller WorldWide port (usually 8145)
 - c. click Next
- 24. If you are integrating with Rand McNally IntelliRoute Server, enter the following:
 - a. IP address of the Rand McNally IntelliRoute Server
 - b. Rand McNally IntelliRoute Server port (usually 1998).
 - c. IntelliRoute user name setup during the IntelliRoute server installation (e.g. otm).
 - d. IntelliRoute password setup during the IntelliRoute server installation.
 - e. IntelliRoute location setup during the IntelliRoute server installation.
 - f. click Next
- 25. If you are integrating with Rand McNally MileMaker Server, enter the following:
 - a. Enter the Fully Qualified Domain Name of the MileMaker server
 - b. Enter the MileMaker server port (usually 1031).
 - c. click Next
- 26. If you are integrating with PTV's Map & Guide server, enter the following:
 - a. Fully Qualified Domain Name of the Map & Guide server
 - b. Map & Guide server port (usually 2000)
 - c. click Next
- 27. Please review the summary before continuing and click Next when ready to proceed. The file copy process may take some time— please be patient. Once the files are copied, the installation program prompts you to begin configuring Oracle Transportation Management. This step takes a few minutes (typically one to five minutes).
- 28. **[UNIX Only]** The installer will prompt you to log in as root and run the root.sh script. This must be completed for a successful installation.
- 29. ***There are additional libraries that are required in order for Oracle Transportation Management to work properly. Please view the README.TXT file for information on where to obtain and install these additional libraries.***
- 30. **[Win32 Only]** When finished, you must restart your entire server before attempting to start Oracle Transportation Management.
- 31. Apply the latest Oracle Transportation Management consolidated update before starting up your server. Contact Technical Support for information and assistance.

IMPORTANT NOTE FOR WebSphere ONLY

After installing Oracle Transportation Management, you **must** deploy the application properly within WebSphere. To do that, please do the following:

1. Login to the Application server as 'root'
2. Execute the following commands, initially as root, then as the user that Oracle Transportation Management runs as. In all cases:
 - a. <otm_install_path> is the name of the directory where Oracle Transportation Management was installed to
 - b. <otm_user> is the account that Oracle Transportation Management runs as
 - c. <ws_pwd> - password for 'system' WebSphere user (default: CHANGEME)

3. Undeploy the application (Note: you **must** do this, even if it's the first install of Oracle Transportation Management on this server). After each step, ensure that there are no errors:

```
# cd <otm_install_path>/websphere/profiles/default/bin
# ulimit -n 8096
# su <otm_user>
$ ./wsadmin.sh server1 -username system -password <ws_pwd> -conntype
NONE -f undeployGC3SS.jacl
$ ./wsadmin.sh server1 -username system -password <ws_pwd> -conntype
NONE -f undeployGC3.jacl
```

After each JAACL script is run, there should be a message indicating that the application was successfully uninstalled. It is safe to ignore the following error:

```
websphere/profiles/default/bin/setupCmdLine.sh: line 35: ulimit:
open files: cannot modify limit: Operation not permitted
```

4. Deploy the application. After each step, ensure that there are no errors:

```
# cd <otm_install_path>/websphere/profiles/default/bin
# ulimit -n 8096
# su <otm_user>
$ ./wsadmin.sh server1 -username system -password <ws_pwd> -conntype
NONE -javaoption -Xms512m -javaoption -Xmx512m -f deployGC3SS.jacl
$ ./wsadmin.sh server1 -username system -password <ws_pwd> -conntype
NONE -javaoption -Xms512m -javaoption -Xmx512m -f deployGC3.jacl
```

After each JAACL script is run, there should be a message indicating that the application was successfully installed. It is safe to ignore the following error:

```
websphere/profiles/default/bin/setupCmdLine.sh: line 35: ulimit:
open files: cannot modify limit: Operation not permitted
```

There are two shell scripts available to use to help automate this task. They are located in: <otm_install_path>/websphere and are named "undeployOTM.sh" and "deployOTM.sh".

Startup Scripts (UNIX Only)

The startup scripts are copied to /etc/rc.local on AIX, /sbin/init.d on HP-UX, and /etc/init.d on Linux and Solaris. The default names are shown below, but may differ, depending on what names you specified in the installer.

- otmapp55 (Oracle Transportation Management Application Server)

Property Files on the Oracle Transportation Management Application Server

- glog.properties (<otm_install_path>/glog/config)

WebLogic only

- config.xml.template (<otm_install_path>/weblogic/config/gc3domain)
- weblogic.sh / weblogic.bat (<otm_install_path>/weblogic/config/gc3domain)
- weblogic.conf (<otm_install_path>/weblogic/config/gc3domain)

Log Files on the Oracle Transportation Management Application Server

- glog.app.log (<otm_install_path>/logs) – automatically rotates

Oracle Application Server (OAS) only

- console.log (<otm_install_path>/logs/oas) – does not rotate

WebLogic only

- weblogic.log (<otm_install_path>/logs/weblogic) – automatically rotates
- wl-domain.log (<otm_install_path>/logs/weblogic) – automatically rotates
- console.log (<otm_install_path>/logs/weblogic) – automatically rotates

WebSphere only

- console_out.log (<otm_install_path>/logs/websphere) – automatically rotates
- console_err.log (<otm_install_path>/logs/websphere) – automatically rotates

Installing Oracle Transportation Management on the Web Server

The Oracle Transportation Management Install Program requires a graphical interface on Win32. On UNIX, we recommend that you run this installer from the server console, or from an X-Windows session. Please contact your UNIX Administrator for more information about launching GUI based UNIX applications. Also, you must set the "DISPLAY" environment variable if you haven't already done so. Alternatively, UNIX users can install in console mode, as described below.

1. **[WebLogic only]** Create a directory to store the additional jar files needed by Oracle Transportation Management.
 - a. We recommend /tmp/addjars and will use that for the purpose of these instructions.
 - b. Copy the following files from the WebLogic server/lib directory on the Oracle Transportation Management Application server (e.g. /opt/bean/weblogic81/server/lib) to /tmp/addjars on your Web server:
 - i. weblogic.jar
 - ii. webservices.jar
 - iii. xmlx.jar
2. Run the installer to start the installation
 - a. UNIX: otmv553_<platform>.bin
 - b. Win32: otmv553_win32.exe

Note: Oracle Transportation Management also supports CONSOLE MODE installation on Linux/UNIX platforms only. This allows you to install Oracle Transportation Management when a GUI console is not available or practical. Run the following commands to launch the installer in this mode:

```
$ stty erase ^H
$ ./otmv553_<platform>.bin -i console
```

Note: On UNIX/Linux systems, the Installer extracts to /tmp, and you will receive an error if there is not sufficient room there for the Installer to extract itself. If you need to change this directory you must set the IATEMPDIR environment variable:

```
$ export IATEMPDIR=/some/other/temp/directory
$ ./otmv553_<platform>.bin
```

3. Read the installation notice and click Next.
4. Read the Third Party Software notice and click Next.
5. Choose the installation directory (e.g. /opt/otm or /opt/otm553 to denote version). If you are installing more than one Oracle Transportation Management instance on a server, each instance should be installed into a different directory.
6. Choose which Application Server you will be using: Oracle Application Server (OAS), WebLogic or WebSphere.

- a. For Linux a choice is presented between OAS, WebLogic & WebSphere
 - b. For AIX a choice is presented between WebLogic & WebSphere
 - c. For all other platforms a choice is presented between OAS & WebLogic
7. Choose "Web Server" to install the Web Server only and click Next.
 8. Read the instructions for filling out the required data and click Next
 9. General Settings
 - a. Enter the Web Server External Fully Qualified Domain Name (e.g. otmweb.oracle.com). This would work if 'otmweb' is the server name and 'oracle.com' is the domain name. If your site were accessed through a load-balancer or NAT device, this would be the external URL (outside your network). If not, then this would be the URL to your web server from within your network.
 - b. Enter the Web Server External Port (usually 80). If your site was accessed through a load-balancer or NAT device, this is the external port. If not, then this is the port on your web server.
 - c. Enter the Fully Qualified Domain Name of your Web Server. This may or may not be the same as the Web Server External URL. Please contact your Network Administrator if you have any concerns about this.
 - d. Enter the Web Server Port (usually 80).
 - e. Enter the Fully Qualified Domain Name of your Application Server, which is the name of your server and the domain name (e.g. otmapp.oracle.com).
 - f. click Next
 10. General Settings (continued)
 - a. Enter the App. Server Port (OAS: 23791, WebLogic: 7001, WebSphere: 2809).
 - b. Enter the Database Server Fully Qualified Domain Name that is the name of your Database Server and the domain name (e.g. otmdb.oracle.com).
 - c. Enter the Database Server Port. This is usually 1521.
 - d. Enter the Database Connect String. This is the DB connect string as setup in your tnsnames.ora file under the Oracle client installation. Contact your Oracle Administrator for this information.
 - e. Enter the Database SID name.
 - f. click Next
 11. General Settings (continued)
 - a. Enter Oracle Home Path where you installed the Oracle client (/u01/app/oracle/product/1020, for instance) and click "Next".
 - b. Enter the URL Prefix, if your web server is running behind a reverse-proxy or SSO solution. Otherwise, you can accept the default.
 - c. click Next
 12. Web Server Settings
 - a. Enter the Web Server IP Address. Apache will be bound to this IP address. If you are installing more than one Oracle Transportation Management instance on a server, each instance should be bound to a different IP address. Please contact your Network or UNIX Administrators for more information on creating virtual IP addresses within a server.
 - b. Enter the Web Server SSL Port (usually 443).
 - c. Enter the Oracle Transportation Management Web Server Service/Init Script name (e.g. otmweb55). If installing more than one Oracle Transportation Management instance on a server, this should be unique for each one. This script will be created under /etc/init.d (UNIX only).
 - d. Enter the Tomcat Data Port (usually 8009).

- e. Enter the Tomcat Shutdown Port (usually 8007).
Note: This port must be unique for every Oracle Transportation Management instance on a physical server, since it binds to 127.0.0.1.
 - f. click Next
13. Web Server Settings (continued)
- a. Enter the Tomcat Memory in Megabytes. This is the amount of system memory that Tomcat will use. This is 1025Mb by default, but may be higher or lower, depending on your configuration.
Note: If this value is lower than 1025MB, Tomcat may not start. Also, please be sure to note whether this server will be used for Test/Development or Production, and what system resources it has available.
 - b. **[WebLogic only]** Enter the path to your "addjars" directory (e.g. /tmp/addjars). This is the directory where you placed the extra jar files that Oracle Transportation Management requires. During the installation, they are copied from this directory to the appropriate installation directories.
 - c. click Next
14. **[WebSphere or AIX only]** Web Server Settings (continued)
- a. Enter the number of logical CPUs in the server. This is used to set a JVM performance parameter.
15. **[WebSphere only]** Web Server Settings (continued)
- a. Enter the WebSphere Client Home directory, which is the directory you specified when installing WebSphere Client. (e.g. /opt/IBM/WebSphere/AppClient)
16. **[UNIX Only]** UNIX Settings
- a. Enter the user name that the Oracle Transportation Management programs will run under (e.g. otm or otm55).
 - b. Enter the group name that the Oracle Transportation Management programs will run under (e.g. otm or otm55).
 - c. click Next
17. Choose whether or not to migrate custom settings from a previous Oracle Transportation Management installation (3.7 or later). If you answer yes, you'll need to choose the directory where your old glog.properties file is located. Click Next.
18. Choose the optional components with which Oracle Transportation Management will integrate. Depending on what you choose, the installer will prompt for the appropriate configuration information.
- a. **[Console Install Only]** Enter all components that you wish to integrate with using a comma-separated list (no spaces).
19. If you are integrating with Oracle Reports server, enter the following:
- a. Fully Qualified Domain Name of the Oracle Reports server.
 - b. Port that Apache using on the Oracle Report server (usually 81)
 - c. Directory that Oracle Transportation Management was (or will be) installed into on the Report Server (e.g. /opt/gc3).
 - d. TNSNAMES entry of the Oracle Reports Server.
 - e. click Next
20. Select whether or not to integrate your Reports Server with a Replicated Operational Database (ROD), then click Next
21. **[ROD only]** Replicated Operational Database
- a. Fully Qualified Domain Name of the ROD Server

- b. Port that Oracle is using on the ROD server (usually 1521)
 - c. Connect String for the ROD database
 - d. SID of the ROD database
 - e. click Next
22. Review the summary and click next when ready to proceed. The file copy process may take a while and may appear to hang – please be patient. Once the files are copied, the Install Program prompts you to begin configuring Oracle Transportation Management. Click next when you are ready to proceed. This step takes a few minutes (typically one to five minutes).
 23. **[UNIX Only]** The installer will prompt you to log in as root and run the root.sh script. This must be completed for a successful installation.
 24. ***There are additional libraries that are required in order for Oracle Transportation Management to work properly. Please view the README.TXT file for information on where to obtain and install these additional libraries.***
 25. **[Win32 Only]** When finished, you must restart your entire server before attempting to start Oracle Transportation Management.
 26. Apply the latest Oracle Transportation Management consolidated update before starting your server. Contact Technical Support if you need assistance.

Startup Scripts (UNIX Only)

The startup scripts are copied to /etc/rc.local on AIX, /sbin/init.d on HP-UX, and /etc/init.d on Linux and Solaris. The default names are shown below, but may differ, depending on what names you specified in the installer.

- otmweb55 (Oracle Transportation Management Web Server)

Property Files on the Oracle Transportation Management Web Server

- glog.properties (<otm_install_path>/glog/config)
- httpd.conf (<otm_install_path>/apache/conf)
- mod_jk.conf (<otm_install_path>/apache/conf)
- tomcat.sh / tomcat.bat (/gc3/tomcat/bin)
- tomcat.conf (/gc3/tomcat/bin)
- server.xml (/gc3/tomcat/conf)

Log Files on the Oracle Transportation Management Web Server

- glog.web.log (<otm_install_path>/logs) – automatically rotates
- access.log (<otm_install_path>/logs/apache) – may grow quickly
- error.log (<otm_install_path>/logs/apache)
- mod_jk.log (<otm_install_path>/logs/apache)
- ssl.log (<otm_install_path>/logs/apache)
- console.log (<otm_install_path>/logs/tomcat) – automatically rotates

Python on 64-bit systems (UNIX only)

If you are using the 64-bit Oracle client on the Web Server with Python, you will need to make the following changes:

1. Install the 32-bit Oracle DB client libraries
2. **[OAS]** Change the Library Path to point to these libraries (on AIX the environment variable is named LD_LIBRARY_PATH; on HP-UX the environment variable is named SHLIB_PATH; on all other UNIX platforms it is named LD_LIBRARY_PATH)

- a. Edit the line in <otm_install_path>/tomcat/bin/tomcat.conf as follows, renumbering all other lines in this sequence:


```
wrapper.java.library.path.2=%ORACLE_HOME%/lib32
```
 - b. Edit the line in <otm_install_path>/tomcat/bin/tomcat.sh as follows:


```
LD_LIBRARY_PATH=$ORACLE_HOME/lib32:$ORACLE_HOME/lib:$
LD_LIBRARY_PATH; export LD_LIBRARY_PATH
```

 where LD_LIBRARY_PATH is the correct variable name for your OS.
 - c. Add a line in <otm_install_path>/oas/bin/oc4j after the definition of PYTHON_HOME and PYTHON_PATH, as follows:


```
LD_LIBRARY_PATH=$DASH_HOME/lib:$ORACLE_HOME/lib32:$ORACLE_HOME
/lib:$ LD_LIBRARY_PATH; export LD_LIBRARY_PATH
```

 where LD_LIBRARY_PATH is the correct variable name for your OS.
 - d. To use Python from the console, you will need to make these changes to your <otm_install_path>/install/gc3env.sh file as follows:


```
LD_LIBRARY_PATH=$ORACLE_HOME/lib32:$LD_LIBRARY_PATH; export
LD_LIBRARY_PATH
```

 where LD_LIBRARY_PATH is the correct variable name for your OS.
3. **[WebLogic]** Change the Library Path to point to these libraries (on AIX the environment variable is named LIBPATH; on HP-UX the environment variable is named SHLIB_PATH; on all other UNIX platforms it is named LD_LIBRARY_PATH)
- a. Add the line in <otm_install_path>/tomcat/bin/tomcat.conf as follows, renumbering all other lines in this sequence:


```
wrapper.java.library.path.2=%ORACLE_HOME%/lib32
```
 - b. Edit the line in <otm_install_path>/weblogic/config/gc3domain/weblogic.conf as follows, renumbering all other lines in this sequence:


```
wrapper.java.library.path.2=%ORACLE_HOME%/lib32
```
 - c. To use Python from the console, you will need to make these changes to your <otm_install_path>/install/gc3env.sh file as follows:


```
LIBPATH=$ORACLE_HOME/lib32:$LIBPATH; export LIBPATH
```

 where LIBPATH is the correct variable name for your OS.
4. **[WebSphere]** Change the Library Path to point to these libraries (on AIX the environment variable is named LIBPATH; on HP-UX the environment variable is named SHLIB_PATH; on all other UNIX platforms it is named LD_LIBRARY_PATH)
- a. Edit the line in <otm_install_path>/tomcat/bin/tomcat.conf as follows, renumbering all other lines in this sequence:


```
wrapper.java.library.path.2=%ORACLE_HOME%/lib32
```
 - b. Edit the line in <otm_install_path>/tomcat/bin/tomcat.sh as follows:


```
LIBPATH=$ORACLE_HOME/lib32:$ORACLE_HOME/lib:$ LIBPATH; export
LIBPATH
```

 where LIBPATH is the correct variable name for your OS.
 - c. Add a line in <otm_install_path>/websphere/profiles/default/bin/setupCmdLine.sh after the definition of PYTHON_HOME and PYTHON_PATH, as follows:


```
LIBPATH=$DASH_HOME/lib:$ORACLE_HOME/lib32:$ORACLE_HOME/lib:$
LIBPATH; export LIBPATH
```

 where LIBPATH is the correct variable name for your OS.

- d. To use Python from the console, you will need to make these changes to your <otm_install_path>/install/gc3env.sh file as follows:

```
LIBPATH=$ORACLE_HOME/lib32:$LIBPATH; export LIBPATH
```

where LIBPATH is the correct variable name for your OS.

Installing Oracle Transportation Management on the Reports Server

The Oracle Transportation Management Install Program requires a graphical interface on Windows. On UNIX, we recommend that you run this installer from the server console, or from an X-Windows session. Please contact your UNIX Administrator for more information about launching GUI based UNIX applications. Also, you must set the DISPLAY environment variable if again, if you haven't already done so. Alternatively, UNIX users can install in console mode, as described below.

5. Run the installer to start the installation
 - a. UNIX: otmv553_<platform>.bin
 - b. Win32: otmv553_win32.exe

Note: Oracle Transportation Management also supports CONSOLE MODE installation on Linux/UNIX platforms only. This allows you to install Oracle Transportation Management when a GUI console is not available or practical. Run the following commands to launch the installer in this mode:

```
$ stty erase ^H
$ ./otmv553_<platform>.bin -i console
```

Note: On UNIX/Linux systems, the Installer extracts to /tmp, and you will receive an error if there is not sufficient room there for the Installer to extract itself. If you need to change this directory you must set the IATEMPDIR environment variable:

```
$ export IATEMPDIR=/some/other/temp/directory
$ ./otmv553_<platform>.bin
```

6. Read the installation notice and click Next.
7. Read the Third Party Software notice and click Next.
8. Choose the installation directory (e.g. /opt/otm or /opt/otm55 to denote version). If you are installing more than one Oracle Transportation Management instance on a server, each instance should be installed into a different directory.
9. Choose which Application Server you will be using: Oracle Application Server (OAS), WebLogic or WebSphere.
 - a. For Linux a choice is presented between OAS, WebLogic & WebSphere
 - b. For AIX a choice is presented between WebLogic & WebSphere
 - c. For all other platforms a choice is presented between OAS & WebLogic
10. Choose Rpt Server to install the Reports Server only and click Next.
11. Read the instructions for filling out the required data and click Next.
12. General Settings
 - a. Enter the Web Server External Fully Qualified Domain Name (e.g. otmweb.oracle.com). This would work if 'otmweb' is the server name and 'oracle.com' is the domain name. If your site were accessed through a load-balancer or NAT device, this would be the external URL (outside your network). If not, then this would be the URL to your web server from within your network.
 - b. Enter the Web Server External Port (usually 80). If your site was accessed through a load-balancer or NAT device, this is the external port. If not, then this is the port on your web server.

- c. Enter the Fully Qualified Domain Name of your Web Server. This may or may not be the same as the Web Server External URL. Please contact your Network Administrator if you have any concerns about this.
 - d. Enter the Web Server Port (usually 80).
 - e. Enter the Fully Qualified Domain Name of your Application Server, which is the name of your server and the domain name (e.g. otmapp.oracle.com).
 - f. click Next
13. General Settings (continued)
- a. Enter the App. Server Port (OAS: 23791, WebLogic: 7001, WebSphere: 2809).
 - b. Enter the Database Server Fully Qualified Domain Name that is the name of your Database Server and the domain name (e.g. otmdb.oracle.com).
 - c. Enter the Database Server Port. This is usually 1521.
 - d. Enter the Database Connect String. This is the DB connect string as setup in your tnsnames.ora file under the Oracle client installation. Contact your Oracle Administrator for this information.
 - e. Enter the Database SID name.
 - f. click Next
14. General Settings (continued)
- a. Enter Oracle Home Path where you installed the Oracle client (/u01/app/oracle/product/1020, for instance).
 - b. Enter the URL Prefix, if your web server is running behind a reverse-proxy or SSO solution. Otherwise, you can accept the default.
 - c. click Next
15. Report Server Settings
- a. Enter the Oracle Transportation Management Web Server IP Address.
 - b. Enter the Oracle Transportation Management Application Server IP Address.
 - c. Enter the Oracle Transportation Management Report Server FQDN. (ex. otmrpt.oracle.com)
 - d. Enter the Report Server IP Address. Apache and Tomcat on the Report Server will be bound to this IP address. If you are installing more than one Oracle Transportation Management instance on a server, each one should be bound to a different IP address. Please contact your Network or UNIX Administrators for more information on creating virtual IP addresses within a server.
 - e. Enter the Report Server Apache Port (usually 81).
 - f. click Next
16. Report Server Settings (continued)
- a. Enter the Oracle Transportation Management Report Server Web Server Service/Init Script name (e.g. otmrptweb55). If installing more than one Oracle Transportation Management instance on a server, this should be unique for each one.
 - b. Enter the Oracle Reports Connect String.
 - c. Enter the ORACLE_HOME path of Oracle Reports (e.g. /u01/app/oracle/product/reports10g).
 - d. click Next
17. **[UNIX only]** UNIX Settings
- a. Enter the user name that the Oracle Transportation Management programs will run under (e.g. otm or otm55).
 - b. Enter the group name that the Oracle Transportation Management programs will run under (e.g. otm or otm55).

18. Select whether or not to integrate your Reports Server with a Replicated Operational Database (ROD), then click Next
19. **[ROD only]** Replicated Operational Database
 - a. Fully Qualified Domain Name of the ROD Server
 - b. Port that Oracle is using on the ROD server (usually 1521)
 - c. Connect String for the ROD database
 - d. SID of the ROD database
 - e. click Next
20. Review the summary before continuing and click Next when ready to proceed. The file copy process may take a while and may appear to hang – please be patient. Once the files are copied, the Install Program prompts you to begin configuring Oracle Transportation Management. Click next when you are ready to proceed. This step takes a few minutes (typically one to five minutes).
21. **[UNIX Only]** The installer will prompt you to log in as root and run the root.sh script. This must be completed for a successful installation.
22. **[Win32 Only]** When finished, you must restart your entire server before attempting to start Oracle Transportation Management.
23. Apply the latest Oracle Transportation Management consolidated update before starting up your server. Contact Technical Support if you need assistance.
24. Copy all of the files from <otm_install_path>/glog/reports/10g to <oracle_reports_home>/reports/templates. Overwrite all existing files.

Note: You will need to do this step after applying each Oracle Transportation Management patch, in order to ensure the files under <oracle_reports_home>/reports/templates are up to date.
25. It is now necessary to make configuration changes in support of the Oracle Transportation Management / Oracle Reports installation.
26. Edit the TNSNAMES.ORA file on the Reports Server. Add a TNS entry that points to the same Oracle database instance as the Oracle Transportation Management installation.
27. Go to the Oracle Reports HOME directory. Change to the reports/conf/ directory and edit the rep_<REPORTS_SERVERNAME>.conf file. This is an XML file. Make the following changes:
 - Change the “engine id” property as follows:

```
<engine id="rwEng" class="oracle.reports.engine.EngineImpl" initEngine="10"
maxEngine="20" minEngine="10" engLife="50" maxIdle="30" callbackTimeOut="90000">
```
 - Modify the “SourceDir” property

```
<property name="sourceDir" value="<otm_install_path>/glog/reports"/>
```
28. Edit or create the cgicmd.dat file on the Reports Server (under reports10g/reports/conf). The file should look like the following. Keep in mind that the format of this file is important and spaces and blank lines should be just as they are below. Replace <db_connect_string> with the connect string for your Oracle Transportation Management database, as configured in your TNSNAMES.ORA file.


```
all=: %*
hide_pass_key: userid=glogdba/glogdba@<db_connect_string> %*
```

Note: Everything from hide_pass_key to %* should be on one line.
29. When the configuration is complete, log into the Oracle Enterprise Manager (usually http://<servername>:1810). The username is “ias_admin” and the password was defined during installation. Click on “Reports Server: rep_<servername>”. Then click on “Restart” to restart your Oracle Reports server.

30. If the Oracle Enterprise Manager is not running, you can start it by logging into your server as the oracle user, changing into the <ORACLE_FR_HOME>/bin directory, and running:
emctl start iasconsole

31. In order to test your Oracle Reports installation, use a web browser to hit the following URLs:

- http://<servername>:7777/reports/rwservlet/help
This will display the help page
- http://<servername>:7777/repdemo/runrepIAS.html
Run the test.rdf report. Enter the Connect String of your Oracle Transportation Management DB and click "Run Report"

When prompted, enter the User name "glogdba", password "glogdba" and the Connect String of your Oracle Transportation Management DB in the Database field. Click "Submit".

If the test report runs successfully, your configuration is correct.

32. If you encounter problems with Oracle Transportation Management communicating with Oracle Reports, first double check your tnsnames.ora file and ensure that the entries for your Oracle Reports instance and Oracle DB instance are correct. You can utilize the "sqlplus" and "tnsping" utilities within Oracle AS 10gR2 FR to test these connections.

Startup Scripts (UNIX Only)

The startup scripts are copied to /etc/rc.local on AIX, /sbin/init.d on HP-UX, and /etc/init.d on Linux and Solaris. The default names are shown below, but may differ, depending on what names you specified in the installer.

- otmrptweb55 (Oracle Transportation Management Reports Web Server)

Property Files on the Oracle Transportation Management Reports Server

- glog.properties (<otm_install_path>/glog/config)
- httpd.conf (<otm_install_path>/rptapache/conf)
- cgicmd.dat (/u01/app/oracle/product/reports/conf)
- rep_<REPORTS_HOST>.conf (/u01/app/oracle/product/reports10g/reports/conf)

Log Files on the Oracle Transportation Management Reports Server

- access.log (<otm_install_path>/logs/rptapache) – may grow quickly
- error.log (<otm_install_path>/logs/rptapache)
- rwservlet.log (/u01/app/oracle/product/reports10g/reports/logs/rep-<REPORTS_HOST>)

Installing Oracle Transportation Management on the Database Server

You should have your Database Administrator install the Oracle database and fine-tune it for performance. Once Oracle is installed, follow these steps to complete the process.

These steps outline the procedures to set up an Oracle database for Oracle Transportation Management. It requires that Oracle database server 10gR2 be installed, including "Oracle Database 10g Product" from 10g companion CD. It also requires the database server be patched to 10.2.0.3.0 and an Oracle database be created. Please note that the Oracle Transportation Management database scripts are located under <otm_install_path>/glog/oracle/script8 on the Oracle Transportation Management Application server.

Requirements

Oracle Version: 10.2.0.3.0 Enterprise Edition
Oracle Options: Jserver, JAccelerator, Partitioning (optional/strongly recommended)
Oracle Instance Character Set: UTF8

Initial Parameters

The following initial parameters should be set:

```
O7_DICTIONARY_ACCESSIBILITY = true  
Open_cursors = 200 (or greater)
```

Please refer to the init.ora file in <otm_install_path>/glog/oracle/script8 for recommendations on other parameters.

Create Tablespaces

The following tablespaces are required to be created first. As the database grows, more datafiles should be added to accommodate the application. For performance purposes, all tablespaces should be on different physical disks (if available) or on RAID 0+1 storage.

Required Tablespaces for Oracle Transportation Management database

For a partitioned database, required tablespaces and initial file sizes are listed below:

Tablespace	Initial File Size
ARCHIVE	500 MB
DATA	1500 MB
INDX	3000 MB
REPORT	300 MB
REPORTINDX	300 MB
BPL_DAY1	50 MB
BPL_DAY2	50 MB
BPL_DAY3	50 MB
BPL_DAY4	50 MB
BPL_DAY5	50 MB
BPL_DAY6	50 MB
BPL_DAY7	50 MB
PART_1	100 MB
PART_2	100 MB
PART_3	100 MB
PART_4	100 MB
LOB1	300 MB

Tablespace	Initial File Size
LOB2	300 MB
LOB3	300 MB
LOB4	300 MB
LOB5	100 MB
LOB6	100 MB
LOB7	100 MB
TEMP	1 GB

For a non-partitioned database, required tablespaces and initial file sizes are listed below:

Tablespace	Initial File Size
ARCHIVE	500 MB
DATA	1500 MB
INDX	3000 MB
REPORT	300 MB
REPORTINDX	300 MB
LOB1	300 MB
LOB2	300 MB
LOB3	300 MB
LOB4	300 MB
LOB5	100 MB
LOB6	100 MB
LOB7	100 MB
TEMP	1 GB

These tablespaces should be created first. A database administrator can write a script to create the tablespaces or use the provided procedure, which is described below. We recommend all Oracle Transportation Management tablespaces are locally managed with automatic segment space management.

The sizes specified above are minimal for the successful installation of Oracle Transportation Management database. LOB tablespaces are used to hold LOB objects, which are usually very space consuming. If the database is being used immediately with integrations we recommend double the

size of these tablespaces at the creation time. We also recommend giving 20% - 50% more space to the other tablespaces.

Using Provided Procedure to Create Tablespaces

We provide a SQL script, `create_gc3_tablespaces.sql`, to create all tablespaces of Oracle Transportation Management database. When you run this script, you are prompted for options, which are explained below. All of the tablespaces are locally managed with uniform size set as 5MB for LOB tablespaces and 1MB for the others. Only one datafile is created for each tablespace. The datafiles of all tablespaces are created in the same directory that you specify. If you want to create dictionary-managed tablespaces, and/or create tablespaces in different file systems/directories, you should run the script with Execute Now option set to N. This way the process will generate create tablespaces statements in a log file. You can modify the statements and run them later manually.

This script creates LOB tablespaces with 16 KB block size. This is the recommended block size for optimal performance. In order to create a tablespace with 16 KB block size, you should have the following `init.ora` parameter set if your database standard block size is not 16 KB. Change the cache size as needed for your database.

```
db_16k_cache_size = 104857600 # 100MB for 16k block buffers
```

- To run the script, log in to the database as user SYS or any other user with CREATE TABLESPACE privilege and run script:

```
create_gc3_tablespaces.sql.
```

Create Tablespace Options

- ROD database (Y/N)

The primary Oracle Transportation Management database is OLTP type and also referred to OLTP. A secondary database referred as ROD (replicated operational database) is also an option. Oracle Transportation Management requires different tablespaces in this ROD database; therefore, if you are setting up an ROD database, enter Y. Otherwise enter N.

- Partition Option (Y/N)

In the Oracle Transportation Management OLTP database, most integration tables are partitioned for the purpose of easy maintenance. There are some other tables that are also partitioned. To accommodate the partitioned tables, there are dedicated tablespaces for these partitions. But if your database is not partition-enabled and you are not planning to add the partitioning option of Oracle, you can have the partitioned Oracle Transportation Management tables created without partitioning. In this case, you will not need the partition tablespaces and you should enter N for this option. The default is Y. Your ROD database is not partitioned. So this question is irrelevant if you are creating ROD database tablespaces. Hit ENTER in that case.

- Parameter Default Option (Y/N)

This process sets the following parameters with default values. If you do not want to use these values, you should enter N. The default is Y.

file size: 1GB

maximum file size(if auto extend is on): 2GB

- Parameter Value Option

If you choose N for Parameter Default Option, you can enter values you want for the above parameters. Otherwise, just press Enter.

- Autoextend Option

Enter N if you do not want your datafiles to be autoextended. Default is Y.

- Datafile directory

Enter full path of datafiles directory. The trailing slash (/) for UNIX/Linux or back-slash (\) should be included.

- Executing-Now Option

Enter Y if you want to let the process to create tablespaces for you. Otherwise the process will generate create statements in the log file. Default is N.

Creating Database Roles and Database Users

Various SQL scripts that MUST be run before an attempt is made to start Oracle Transportation Management. You can find them, on the APPLICATION server, under the <otm_install_path>gc3/glog/oracle/script8 directory.

1. In SQL*Plus as the **SYSTEM** user, run:

```
@create_glog_roles.sql
@create_glog_users.sql
```

The database users created have a password that matches their userid.

Import Oracle Transportation Management Database Structure and Public Data

1. Change to the <otm_install_path>/gc3/glog/oracle/export directory on the Oracle Transportation Management Application server.
2. Unzip otmv55_partition.zip or otmv55_nonpartition.zip file.
3. Modify dump file path in imp_otmv55_partition.par/ imp_otmv55_nonpartition.par to make sure it is the location of the dump file (otmv55_partition.dmp or otmv55_nonpartition.dmp).
4. Set environment variable ORACLE_SID to your database SID. If the ORACLE_SID is not set within the system environment you set this within your current command prompt by typing "export ORACLE_SID=<your ORACLE_SID>". You can check that this variable is active by typing "echo \$ORACLE_SID". You should see your ORACLE_SID displayed.
5. Set environment variable NLS_LANG to: <LANGUAGE>_<TERRITORY>.UTF8. Here <LANGUAGE> is used for Oracle messages, day names and month names. <TERRITORY> specifies conventions for default calendar, monetary, numerical format. For example, if in USA, you can set the parameter to AMERICAN_AMERICA.UTF8. For more information on NLS_LANG see the Oracle National Language Support Guide.
6. At command line type: (replace <SYSTEM_PWD> with the password of user SYSTEM and replace <CON_STR> with the database connection string setup in your tnsnames.ora file.)

For partition option, at the command line type:

```
imp parfile=imp_otmv55_partition.par
userid=system/<SYSTEM_PWD>@<CON_STR>
```

For non-partition option, at the command line type:

```
imp parfile=imp_otmv55_nonpartition.par
userid=system/<SYSTEM_PWD>@<CON_STR>
```

7. Check the imp_otmv55.log file. There should not be any errors in the importing table portion. It is safe to ignore the error message *IMP-00041: Warning: object created with compilation warnings*. If there are other IMP- or ORA- errors, please contact Technical Support.
8. **IMPORTANT:** The database structure just imported is the 5.5 GA (General Availability) data structure and therefore must be migrated to the CU6 data structure. Please see instructions in the "Migrate the New Database" section later in this chapter for steps on how to do this.

Running Oracle Transportation Management Scripts

1. Change to the <otm_install_path>/glog/oracle/script8 directory on the Oracle Transportation Management Application server. In SQL*Plus, as user **GLOGOWNER** run:

```
@create_vpd_package.sql  
@glogowner_grants.sql  
@create_public_synonyms.sql  
@create_logon_triggers (enter connection string when prompted)
```
2. In SQL*Plus, as user ARCHIVE run:

```
@archive_grants
```
3. In SQL*Plus, as user **REPORTOWNER** run:

```
@reportowner_grants.sql  
@create_public_synonyms.sql  
@recompile_invalid_objects.sql
```

After running the "recompile_invalid_objects.sql" script, you should see the following on the screen:

```
Invalid objects after Recompile...  
0
```

If the number of invalid objects is not zero, run the recompile_invalid_objects.sql script again. If you still have invalid objects after the second run, copy the script output from the command prompt window, paste into a text file, and forward it on to Technical Support.

4. In SQL*Plus, as user **GLOGOWNER** run:

```
@aq_setup.sql  
@recompile_invalid_objects.sql
```

After running the recompile_invalid_objects.sql script, you should see the following on the screen:

```
Invalid objects after Recompile...  
0
```

If the number of invalid objects is not zero, run the recompile_invalid_objects.sql script again. If you still have invalid objects after the second run, copy the script output from the command prompt window, paste into a text file, and forward it on to Technical Support.

Verify Database Structure

5. In SQL*Plus, as user **GLOGOWNER** run:

```
Select count(*) from all_objects where status='INVALID' and owner in  
( 'GLOGOWNER', 'REPORTOWNER', 'GLOGDEV', 'GLOGLOAD' );
```

The result should be:

```
COUNT(*)  
0
```

6. Run:

```
Select namespace from dba_context where schema = 'GLOGOWNER';
```

The result should be:

```
NAMESPACE  
GL_USER_CTX
```

7. Run:

```

select object_owner, count(*) from dba_policies
where object_owner in ('GLOGOWNER','REPORTOWNER')
group by object_owner;

```

The result should be:

OBJECT_OWNER	COUNT(*)
GLOGOWNER	18552
REPORTOWNER	224

8. Run:

```
@object_count.sql
```

For partitioned database the results should be:

OWNER	OBJECT_TYPE	TOTAL
ARCHIVE	LOB	4
	SEQUENCE	242
	TABLE	242
GLOGDEV	TRIGGER	1
GLOGLOAD	TRIGGER	1
GLOGOWNER	FUNCTION	1
	INDEX	2494
	INDEX PARTITION	39
	JAVA CLASS	10
	JAVA SOURCE	7
	LOB	28
	LOB SUBPARTITION	39
	PACKAGE	66
	PACKAGE BODY	64
	PROCEDURE	1
	QUEUE	3
	SEQUENCE	141
	TABLE	1198

OWNER	OBJECT_TYPE	TOTAL
	TABLE PARTITION	280
	TRIGGER	2693
	TYPE	4
	VIEW	25
REPORTOWNER	INDEX	14
	PACKAGE	9
	PACKAGE BODY	9
	SEQUENCE	1
	TABLE	14
	TRIGGER	15
	VIEW	33

For non-partitioned database the results should be:

OWNER	OBJECT_TYPE	TOTAL
ARCHIVE	LOB	4
	SEQUENCE	242
	TABLE	242
GLOGDEV	TRIGGER	1
GLOGLOAD	TRIGGER	1
GLOGOWNER	FUNCTION	1
	INDEX	2494
	JAVA CLASS	10
	JAVA SOURCE	7
	LOB	28
	PACKAGE	66
	PACKAGE BODY	64
	PROCEDURE	1

OWNER	OBJECT_TYPE	TOTAL
	QUEUE	3
	SEQUENCE	141
	TABLE	1198
	TRIGGER	2693
	TYPE	4
	VIEW	25
REPORTOWNER	INDEX	14
	PACKAGE	9
	PACKAGE BODY	9
	SEQUENCE	1
	TABLE	14
	TRIGGER	15
	VIEW	33

If your results differ from those shown above, gather the log files generated from the import process, and SQL scripts, and forward them on to Technical Support.

Migrate the New Database

You must now migrate the new database to the CU3 structure:

1. Open up a shell (UNIX) or command prompt (Windows) on the APP server.

Important: Ensure that your environment is setup correctly by running:

On UNIX: `$. <otm_install_path>/install/gc3env.sh`

On Win32: `"<otm_install_path>\install\gc3env.cmd"`

Note: Failure to do this will return many `"java.lang.NoClassDefFoundError"` errors and will result in the failure of the database migration to succeed, which in turn will prevent you from starting up the Oracle Transportation Management instance.

2. Change directory to `<otm55_install_path>/glog/oracle/script8`
3. In SQL*Plus as user GLOGOWNER, run:
`@dbpatch_55.sql`
4. Enter the passwords and connection strings when prompted

Check the log files (dbpatch log and update_content log) to ensure they are error free before proceeding to the next step

Reset Sequences

1. In SQL*Plus as the **GLOGOWNER** user, run:
Set serverout on size 1000000
Execute domainman.reset_sequence;

Setup Security Roles

1. Change to the <otm_install_path>/gc3/glog/oracle directory on the Oracle Transportation Management Application server.
2. In SQL*Plus as the **GLOGOWNER** user, run:
@insert_security_roles.sql

Installing the Replicated Operational Database for Reporting and Archiving

A replicated operational database (ROD) is a replicated version of your OLTP database (except for CLOB and LONG columns), on a completely separate database. It is created using Oracle's materialized view technology. The ROD is intended for users who need to run reports or long-running queries. Separating the reporting from the online transaction processing ensures that reports do not adversely affect performance of the OLTP database.

Once you create the new database for storing the ROD, ensure that the database initialization parameters are similar to the OLTP database (such as the character set), and that the dictionary_accessibility is set to true. The ROD does not use partitioning, since LONG and CLOB columns are not copied over.

Creating Materialized View Logs on the OLTP

Log files are needed to capture updates, inserts, and deletes on the OLTP database, so that the ROD database can be refreshed incrementally. Run the following to install the logs onto the OLTP database.

1. If you had our previous ODS system, run the following first as **GLOGOWNER** on the OLTP database. This will remove previous logs. Repeat this step as **REPORTOWNER**. Also, it is recommended to make a backup of the original ROD database, if there is one, since the next steps will completely wipe out the environment. Follow the rest of the steps as described, to recreate your replicated environment.

```
@drop_user_mview_logs
```

2. On the OLTP database as **GLOGOWNER** run the following. It created the logs for both GLOGOWNER and REPORTOWNER.

```
@create_mview_logs
```

Note: You can let this run on the OLTP, and continue to the next steps on the ROD. Just make sure all the logs are created prior to running the create_rod.sql script.

Create Tablespaces

1. To create the tablespaces for the ROD, run the following. It is the same script for creating tablespaces on the OLTP, but enter Y when asked if this is the ROD database. If archiving is going to be stored on the ROD also, enter Y when prompted.

```
@create_gc3_tablespaces
```

Note: the ROD, without archiving, will be smaller than the OLTP, since the ROD is a replica of the OLTP database without the LONG or CLOB columns (key tablespaces for the ROD is DATA and INDX). If archiving is stored on the ROD database, then this will be stored in the ARCHIVE tablespace.

Configure TNS Names on ROD Database Server

1. On the ROD database server, configure your tnsnames.ora file to have an entry for your OLTP database. You will be prompted for the connection ID later when the database link is created.

Create Database Roles and Database Users

1. On the ROD database as user **SYSTEM** run the following. Be very careful as to run this on the ROD database, since this drops and recreates the users:

```
@create_glog_roles.sql  
@create_glog_users.sql
```

The database users created have their passwords the same as their user ID, respectively.

Create Database Links

1. The two databases now need to 'see' each other, so that the ROD can be refreshed from the OLTP, and logging information from the ROD can be written back to the OLTP. Visibility will be accessed through database links. Run the following scripts (you will be immediately reconnected as **GLOGOWNER** on the appropriate database (OLTP or ROD) once you have entered the proper parameters, so who you are initially connected as is not a concern.)

```
@create_dblink_rod_to_oltp.sql
```

2. You should see SUCCESS in the feedback after the creation of each link, as it is tested. If you see an error, then do not continue until this step is successful, as the next steps rely on the links.

Note: If you change the passwords for your databases, rerun the database link creation scripts so that the links use the correct passwords. Otherwise, use of the links will produce an Invalid username/password error.

Initialize the ROD database

1. To populate the ROD, run the following step.

```
@create_rod.sql
```

It will connect as **GLOGOWNER** and create and populate the materialized views. This step will take several hours or days, depending upon the size of your OLTP database and the parallelism number you choose. Once the ROD is initially set up, it will be updated incrementally through the use of the logs.

This will prompt you for:

- the ROD connection string
- The parallelism you want to set for the refresh group. This defaults to null (meaning processing will occur in serial), but you can set it to 1 or higher. This can improve the overall time it takes to refresh the ROD database (read Planning for Parallel Propagation). The higher this setting is, the more data that is processing in parallel. The number you set this to will be limited by the resources of your hardware.

Modify Refresh Time

In the previous step, the materialized views created were grouped into following refresh groups.

```
AA  
SHIPMENT  
OB_ORDER_BASE  
ORDER_RELEASE  
INVOICE
```

S_SHIP_UNIT
INTEGRATION
COMMON_xx

Here xx in COMMON_xx stands for 1, 2, 3, ...

The refresh schedule for the groups has been set as below:

GROUP	INITIAL REFRESH	INTERVAL BETWEEN REFRESHES
AA	SYSDATE + 1	Every 15 minutes
All other groups	SYSDATE + 1	Every one day

If you want to change the refresh interval you can call pkg_refresh.make_refresh_group procedure. This procedure accepts four parameters:

- Group name.
 - Initial time the refresh job should begin
 - defaults to TRUNC(SYSDATE)+1
 - when ROD is initially created, it is set to TRUNC(SYSDATE)+5 so that the refresh does not occur during initial setup (i.e. 5 days from 12am of current day)
 - Interval of time between refresh jobs
 - defaults to 'SYSDATE+1' which means to run the refresh job once a day
- Note:** even the default is once a day for AA group, you should set it to much shorter interval if you have Advance Analysis runs in this ROD database, like every 15 minutes.
- Note that the initial time to run is a date, but the interval is a string.

Examples:

```
EXEC PKG_REFRESH.MAKE_REFRESH_GROUP(P_GROUP_NAME =>'SHIPMENT'); --for SHIPMENT group, uses all defaults, which means set initial refresh time to be 12am the next day, refresh every day, with no parallelism.
```

OR

```
EXEC PKG_REFRESH.MAKE_REFRESH_GROUP(P_GROUP_NAME =>'AA', P_INITIAL_TIME => trunc(sysdate)+2); --for AA group, initially starts refresh 2 days from now at 12am, and refresh once a day (default)
```

OR

```
EXEC PKG_REFRESH.MAKE_REFRESH_GROUP(P_GROUP_NAME =>'AA',P_INITIAL_TIME => trunc(sysdate)+5, p_interval => 'SYSDATE+15/24/60'); -- for AA group, starting 5 days from now at 12am, refreshes every 15 minutes, with a parallelism setting of 3.
```

You can verify the settings by querying the view DBA_REFRESH.

Note: The DBA should check the alert log for any potential errors on a daily basis.

It is recommended to run the refresh during off-peak hours, since reports should not be run while the refresh process is occurring. It does not cause errors, but would cause potential report integrity problems, since some tables might have been refreshed, while others may not have completed.

Replicated Operational Database Maintenance

After an upgrade or patch, the ROD will not automatically be aware of new Oracle Transportation Management tables. You only need to run this when you complete all the upgrades on the OLTP; in other words, if you are upgrading through 2 versions on the OLTP in one weekend, complete those upgrades first, and then upgrade the ROD.

Run the following command to create logs for new tables. It will skip tables that already have a log.

1. On the OLTP database in SQL*Plus, as user **GLOGOWNER** run:
`@create_mview_logs`
2. On the ROD database in SQL*Plus, as **GLOGOWNER** run:
`@pre_dbupdate_rod.sql`

This script checks if any job is running and marks it as broken. If there are running jobs, you should see a statement like "Refresh job 504 is running. Please ask DBA to bounce the database". Once the database is restarted, no jobs will be running, which allows the next step to run much faster. If no refresh job is running, this script will say "No refresh job is running now. Please go ahead to migrate the rod database now".

Please note that all broken jobs will be enabled in step 3 during the execution of `dbupdate_rod.sql`.

3. On the ROD database in SQL*Plus, as **GLOGOWNER** run:
`@dbupdate_rod.sql`

This script will build (or rebuild) the materialized views for any new/modified tables so that materialized views in ROD database are in sync with tables in OTLP database. Please note that script `dbupdate_rod` will not refresh materialized views after they are build/rebuild. Materialized views will be refreshed later by refreshing jobs at their scheduled times.

Rebuilding an Existing Materialized View

If you want the new columns of a particular table to be regenerated, execute the following:

```
EXEC pkg_rod.build_mview('table_name');
```

It will drop and recreate the materialized view, empty. You can wait until the next refresh for it to populate, or you can do the following:

```
EXEC pkg_rod.refresh_one('table_name');
```

If you are recreating several materialized views, you may want to kick off the refresh for all views manually by executing the following:

```
EXEC pkg_rod.refresh_all;
```

Archive Setup

Oracle Transportation Management can store archived orders and shipments on your transactional (OLTP) database, or on the replicated online database (ROD) used for reporting.

If you do not have an ROD set up, but plan to (and want archiving stored there), you can create the separate database and follow the initial ROD steps of:

- Create Tablespaces
- Configure TNSNames

- Create Database Roles and Users

Run the following to create the ARCHIVE user and ARCHIVE tablespace on the database that will store archiving (should be your OLTP or the ROD). This step can be skipped if you already have the archive user. As the user **SYSTEM**, run the following:

```
@create_archive_user.sql
```

If archiving will be stored on the ROD, run the following as **GLOGOWNER** on your OLTP (if you have not already done so as part of ROD installation):

```
@create_dblink_oltp_to_rod.sql
```

Then, on the ROD, run the following as **GLOGOWNER** (if you have not already done so as part of ROD installation):

```
@create_dblink_rod_to_oltp.sql
```

Run the following to set up the archive triggers and tables from the OLTP as **GLOGOWNER**. If the tables already exist from prior versions, this step will ensure they are in sync with the Oracle Transportation Management table structures.

```
@create_archive_objects.sql
```

The upgrades/patches will automatically keep the archive objects in sync as new tables and columns are added.

Moving Archiving from OLTP to ROD

If archiving is already implemented and is stored on the OLTP, you can later move it to the ROD. You will need to

- Export the archive schema
- Login to OTLP database as system and run 'drop user archive cascade'
- Run @create_archive_user.sql on the ROD as glogowner
- Import archive schema onto the ROD database
- Create database links as described below:
 - Login to OTLP as glogowner and run @create_dblink_oltp_to_rod
 - Login to ROD as glogowner and run @create_dblink_rod_to_oltp
- Login to ROD as glogowner and run @create_archive_objects.sql which will recreate the triggers and set up grants.

4. Installing Fusion Transportation Intelligence

Note: It is recommended that a separate database instance be used for Transportation Intelligence. The replicated online database (ROD) instance of Oracle Transportation Management is the ideal database. You may decide to use the Oracle Transportation Management operational instance; however, this may have performance implications. If you choose to use ROD on Oracle Transportation Management operational instance, replace ROD below with operational database.

Preparing Oracle Transportation Management Database for Transportation Intelligence

Operational Database

Log on to the Oracle Transportation Management OLTP database as glogowner. Run the following script from the directory -

```
<otm_install_path>/glog/oracle/script8/advanced_analytics directory.  
load_status_script.sql
```

This script loads the new READY_TO_LOAD status to all shipments, order bases, and order releases in Oracle Transportation Management. This may take time depending on how many business objects are in the database. This also loads the status of NOT_READY_TO_LOAD for these objects.

Create Database Users and Packages

ROD Database

1. Log in to the database as sys.
2. Run the following script from a SQL prompt:

```
<otm_install_path>\glog\oracle\script8\advanced_analytics\create_aa_  
all.sql
```

- Enter your Connection ID to the database when prompted. This will be the SID of either your ROD database or the Optional Operational Database.
- Enter your database system user password when prompted.
- Enter your database glogowner user password when prompted.
- Enter your database reportowner user password when prompted.

Note: Make sure that DATA, INDX and TEMP tablespaces are created. The script does not create these tablespaces. The user should manually create it.

This will create the hdowner user, tables, MViews, packages etc. It also creates a default job that will run every night at 12:00AM and refresh the history tables.

3. Log into the database as hdowner and execute the following command at the sqlplus prompt
exec aa_load_hd.p_load_all_once

This script must be executed manually one time to do a complete refresh.

Note: FTI can also be setup on the Oracle Transportation Management ROD database. ROD should be fully installed and configured within Oracle Transportation Management before attempting to create the FTI users and tables on ROD.

Update ETL Refresh Package (optional)

A default job is created in the earlier step. If you want to change the frequency, delete this job and proceed as follows.

1. Identify the frequency of data load from Oracle Transportation Management operational database/ROD to HD.
2. Log on as hdowner.
3. Execute the AA_REFRESH_JOB. P_CREATE_JOB package.

This package takes four parameters:

- **Start Date** - The date, time when the load starts.
- **Frequency** - DY for daily; n HR for every n hours
- **name of weekday** (SUNDAY, MONDAY etc.) for weekly
- **Start Time** - Start Time
- **What** - The job that gets executed.

For example, to load data every day at 11:00 PM use the following:

```
exec aa_refresh_job.p_create_job('02/07/2005 23:00:00',  
    'DY', NULL, 'aa_load_hd.p_load_all;');
```

Update Snapshot Refresh (optional)

A new refresh process is loaded on the ROD database under glogowner to refresh certain analytics/intelligence tables. These are updated when a user inserts or updates data on the operational database. By default, this refresh is every five minutes.

Data Customizations (optional)

Table AD_TIME is used to define the Time/Calendar for FTI. It uses the normal Oracle Date. If you would like to use a different calendar, change the AD_TIME.CSV, delete the data from AD_TIME table and re-load the AD_TIME.CSV.

Migrate Historical Database (HD)

To migrate the existing Historical database (hdowner schema) from version 5.5.05 to 5.5.06 follow the instructions below:

1. Open up a shell (UNIX) or command prompt (Windows) on the APP server.
Important: Ensure that your environment is setup correctly by running:
On UNIX: ". <otm_install_path>/install/gc3env.sh"
On Win32: "<otm_install_path>\install\gc3env.cmd"
2. Change directory to <otm55_install_path>/glog/oracle/script8/advanced_analytics
3. In SQL*Plus as user HDOWNER, run:
@hd_dbpatch55cu6.sql
4. Enter the passwords and connection strings when prompted.
5. Check the log file (hd_dbpatch55cu6.log) to ensure it is error-free before proceeding to the next step.

Installing OBI EE (Oracle Business Intelligence Enterprise Edition)

Pre-Installation Setup

1. Logon to the server which OBI will be installed on as the "oracle" user.
2. As a prerequisite to OBI you will need to install the Oracle SQLPlus Client for version 9i as outlined earlier in this document.

Note: If you are installing OBI EE on a server running 64-bit Linux be sure the LD_LIBRARY_PATH for the "oracle" user also includes the < Oracle 9i Client Home>/lib32 directory. If the path isn't correct, the following error would be generated later in the OBI EE installation.

```
ibcIntsh.so.9.0: cannot open shared object file: No such file or directory.
```

The same error would be generated if the "oracle" user didn't have permissions to access the <Oracle Home>/lib or /lib32 directory due to OS permission restrictions.

3. Add the tnsnames.ora entry to point to either your ROD database or your OLTP database. Ensure you don't have a sqlnet.ora file in the same director as your tnsnames.ora. The connector's name must be RPTAPP

```
RPTAPP =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = <host name>)(PORT = <port
number>))
    )
    (CONNECT_DATA =
      (SID = <SID Name>)
    )
  )
```

4. Create the directory where you will be installing Oracle Business Intelligence eg. /opt/oraclebi and change ownerships so that oracle:dba owns the directory.
mkdir /opt/oraclebi
5. Install the JRockit JDK 1.5 or above (currently 1.6) into the /opt/oraclebi/jdk directory. The JDK can be downloaded using the following link:

<http://commerce.bea.com/index.jsp>

Note: Previous BEA product releases (including JRockit) and service packs are available to customers with contract support accounts.

6. Copy the file to the /opt/oraclebi directory
7. Change the permissions on the file to 755

```
chmod 755 jrockit-R27.4.0-jdk1.5.0_12-linux-ia32.bin
```

8. Change the owner and group on the file to oracle and dba
chown oracle:dba jrockit-R27.4.0-jdk1.5.0_12-linux-ia32.bin

Note: Be sure the JAVA_HOME for the "oracle" user points to this newly installed jdk

9. Copy the OBI EE installer to a temporary directory on the server and extract the installer using the "cpio" command.

```
cpio -idmv < <filename>
cpio -idmv < biee_linux_x86_redhat_101330_disk1.cpio
```

10. Once the files have been extracted change the owner and group on the newly created directory and all of the sub-directories to the "oracle" user and "dba" group

```
chown -R oracle:dba *****
```

Install OBI EE

1. Run the OBI EE installer
2. When prompted enter the /opt/oraclebi for the Installation Location and /opt/oraclebi/oraclebidata for the Data Location (in lowercase). Select the installation type as basic and proceed to the next step.
3. When prompted select the Setup type as 'Complete' and proceed to the next step.
4. When prompted enter the location of your JDK install /opt/oraclebi/jdk. Create an administrator password and proceed to the next step.

Post-Installation Setup

1. The OBI EE installer does not include a Tomcat installer, so you will need to download tomcat and manually configure some of the setup files
2. Download Tomcat from <http://tomcat.apache.org/download-55.cgi> and download the core binaries for your operating system
 - a. Extract the download into a temporary directory
 - b. Move and rename the directory to [OBI EE]/tomcat
 - c. Edit the [OBI EE]/tomcat/bin/startup.sh and add the Java home to the first line below all of the comments:
 - i. JAVA_HOME=/opt/oraclebi/jdk; export JAVA_HOME
 - d. Edit the [OBI EE]/tomcat/bin/shutdown.sh and add the Java home to the first line below all of the comments:
 - i. JAVA_HOME=/opt/oraclebi/jdk; export JAVA_HOME
3. Edit the [OBI EE]/tomcat/conf/server.xml and replace the entry with the following:

```
<?xml version="1.0" encoding="UTF-8"?>
  <Server port="8005" shutdown="SHUTDOWN">

    <!-- Comment these entries out to disable JMX MBeans support used for
    the administration web
         application -->
    <!--Listener
className="org.apache.catalina.core.AprLifecycleListener" /-->
    <Listener
className="org.apache.catalina.mbeans.ServerLifecycleListener" />
    <Listener
className="org.apache.catalina.mbeans.GlobalResourcesLifecycleListener"
/>
    <!--Listener
className="org.apache.catalina.storeconfig.StoreConfigLifecycleListener
"/-->

    <!-- Global JNDI resources -->
    <GlobalNamingResources>
      <!-- Editable user database that can also be used by
      UserDatabaseRealm to authenticate
           users -->

      <Resource name="UserDatabase" auth="Container"
type="org.apache.catalina.UserDatabase"
```

```

        description="User database that can be updated and saved"

factory="org.apache.catalina.users.MemoryUserDatabaseFactory"
    pathname="conf/tomcat-users.xml" />
</GlobalNamingResources>

<!-- Define the Tomcat Stand-Alone Service -->
<Service name="Catalina">

    <!-- Define an AJP 1.3 Connector on port 8009 -->
    <Connector address=" <URL>" port="8009" enableLookups="false"
        protocol="AJP/1.3" />

    <!-- Define the top level container in our container hierarchy -->
    <Engine name="Catalina" defaultHost="<host name>" jvmRoute="jvml">

        <Realm className="org.apache.catalina.realm.UserDatabaseRealm"
            resourceName="UserDatabase"/>

        <Host name="localhost" appBase="webapps"
            unpackWARs="true" autoDeploy="false"
            xmlValidation="false" xmlNamespaceAware="false">

            <Context path="/analytics" docBase="/opt/oraclebi/web/app"
                privileged="true">

                <Manager
                    className="org.apache.catalina.session.StandardManager" pathname="" />
            </Context>
        </Host>
    </Engine>
</Service>
</Server>

```

Change the IP address to the IP address of the server that OBI has been installed on and the location of the docBase to the location of your [OBI EE]/web/app. You may also need to change the listen port 8009 or the shutdown port 8005 if you are running OBI EE on the same physical server that you have Oracle Transportation Management web server installed. These ports will have already been used by the Oracle Transportation Management Tomcat processes.

4. Oracle Transportation Management installer does not include an Apache please copy the apache folder from your Oracle Transportation Management 5.5 installation over to the [OBI EE] directory.
5. Change directory to [OBI EE]/apache/bin. You will need to modify all files that have the old location of your Apache directory to the new Apache directory. You can determine the files that need to be changed using the "grep" command. For instance, if the directory you copied Apache from was /home/otm55/apache you could use grep to look for all files in the [OBI EE]/apache/bin directory using the following command.

```
grep otm55 *
```

The following files and corresponding entries should be returned.

```

apachectl:HTTPD=' /opt/otm55/apache/bin/httpd -d /opt/otm55/apache '
apachectl:if test -f /opt/otm55/apache/bin/envvars; then
apachectl: . /opt/otm55/apache/bin/envvars
apr-config:prefix="/opt/otm55/apache"
apr-config:exec_prefix="/opt/otm55/apache"
apr-config:datadir="/opt/otm55/apache"
apr-config:includedir="/opt/otm55/apache/include"
apu-config:prefix="/opt/otm55/apache"
apu-config:exec_prefix="/opt/otm55/apache"
apu-config:includedir="/opt/otm55/apache/include"
apxs:my $installbuilddir = "/opt/otm55/apache/build";
envvars:LD_LIBRARY_PATH="/opt/otm55/apache/lib:$LD_LIBRARY_PATH"
envvars-std:LD_LIBRARY_PATH="/opt/otm55/apache/lib:$LD_LIBRARY_PATH"
rotatelogs.sh:cd /opt/otm55/apache/bin

```

6. The first entry that needs to be modified is in the apachectl file. Before it is modified it looked like this:

```
HTTPD=' /opt/otm55/apache/bin/httpd -d /opt/otm55/apache '
```

7. Once it has been modified it should look like this:

```
HTTPD=' /opt/oraclebi/apache/bin/httpd -d /opt/oraclebi/apache '
```

Note: It is recommended to document all of the changes you are making for future troubleshooting of potential configuration issues.

8. Change directory to [OBI EE]/apache/conf.
 - a. Modify the httpd.conf file with the location of your OracleBI directory from the old location to the new [OBI EE] directory

```

ServerRoot "/opt/oraclebi/apache"
PidFile /opt/oraclebi/logs/apache/httpd.pid
ErrorLog /opt/oraclebi/logs/apache/error.log
CustomLog "|/opt/oraclebi/apache/bin/rotatelogs.sh
/opt/oraclebi/logs/apache/access.log
      86400" combined
CustomLog /opt/oraclebi/logs/apache/deflate.log deflate
DocumentRoot /opt/oraclebi/apache/htdocs/
<Directory "/opt/oraclebi/apache/htdocs">
SSLSessionCache dbm:/opt/oraclebi/logs/apache/ssl_scache
SSLMutex file:/opt/oraclebi/logs/apache/ssl_mutex
SSLCertificateFile /opt/oraclebi/apache/conf/ssl.crt/demo.crt
SSLCertificateKeyFile /opt/oraclebi/apache/conf/ssl.key/demo.key
Include /opt/oraclebi/apache/conf/mod_jk.conf
ServerRoot "/opt/otm55/apache"
PidFile /opt/otm55/logs/apache/httpd.pid
ErrorLog /opt/otm55/logs/apache/error.log
CustomLog "|/opt/otm55/apache/bin/rotatelogs.sh
/opt/otm55/logs/apache/access.log 86400"
      combined
CustomLog /opt/otm55/logs/apache/deflate.log deflate

ServerRoot "/opt/oraclebi/apache"

```

If you are copying the apache directory to another server you will also need to update the following entries in the httpd.conf to point to the server where the files are being copied to.

- b. Change the Listen IP addresses from the old IP to the IP of the OracleBI server. Also note you will need to change the ports since it will need to match what you use for your `glog.properties` on the Oracle Transportation Management web server.

If you are installing the OBI app on a separate server than your Oracle Transportation Management Webserver you will not need to change the ports being used.

Change the user and group that will be running the apache service.

If you are not using the default ports you will need to change the `<VirtualHost *:80>` and `<VirtualHost *:443>` to `<VirtualHost *:8081>` and `<VirtualHost *:8443>`

- c. Modify the `workers.properties` file with the location of your OracleBI directory from the old location to the new [OBI EE] directory. Also change the port and IP to be the same as what you entered for your `server.xml` file for Tomcat
9. Modify the `mod_jk.conf` file with location of your OracleBI directory from the old location to the new [OBI EE] directory. Change the `JkMount` from `JkMount /GC3/* ajp13` to `JkMount /analytics/* ajp13`
 10. Make a directory called `[OBI EE]/logs/apache`.
 11. Copy `<otm_install_path>/fti/advanced_analytics.rpd` to the `[OBI EE]/Oracle BI/server/repository` directory.
 12. Open `NQSConfig.ini` from `[OBI EE]/Oracle BI/server/config` directory
 - a. Comment the lines which say `Star=`
 - b. Add a new line.
 - c. `Star = advanced_analytics.rpd, DEFAULT;`
 13. Backup the existing `[OBI EE]/OracleBIData/web/catalog/aa` folder (if any) by renaming it to `"aa_bk_<Time Stamp>`. This backup will ensure that your custom Webcat changes will not be overwritten by the new FTI installation.
 14. Copy `<otm_install_path>/fti/aa_webcat.zip` to `[OBI EE]/OracleBIData/web/catalog` directory
 15. Unzip the `aa_webcat.zip` file in `[OBI EE]/OracleBIData/web/catalog` directory.
 16. Open `instanceconfig.xml` under `[OBI EE]/OracleBIData/web/config` directory. Change the line with `<CatalogPath>` to point to the `aa` directory.

From `<CatalogPath>/opt/oraclebi/oraclebidata/web/catalog/paint</CatalogPath>`
 To `<CatalogPath>/opt/oraclebi/oraclebidata/web/catalog/aa</CatalogPath>`

17. Also add the following lines to the section of the file above the

```

</ServerInstance>
</WebConfig>
<CredentialStore>
  <CredentialStorage type="file" path="<OracleBIData>/web/config/
credentialstore.xml"
    passphrase="another_secret"/>
</CredentialStore>
<Auth>
  <SSO enabled="true">
    <ParamList>
      <Param name="IMPERSONATE" source="serverVariable"
        nameInSource="REMOTE_USER"/>
    </ParamList>
    <LogoffUrl>http://<OTM-WEBSERVER></LogoffUrl>
    <LogonUrl>http:// <OTM-WEBSERVER></</LogonUrl>
  </SSO>
</Auth>

```

18. For the logo, add the file: <otm_install_path>/fti/portallogo.gif. The location of the file is: [OBI EE]/Oracle BI/web/app/res/s_oracle10/portal.
19. Add the following to: [OBI EE]/OracleBIData/web/config/instanceconfig.xml:


```
<CredentialStore>
<CredentialStorage type="file" path="<OracleBIData>/web/config/
credentialstore.xml" passphrase="another_secret"/>
</CredentialStore>
<Auth>
<SSO enabled="true">
<ParamList>
<Param name="IMPERSONATE"
source="serverVariable"
nameInSource="REMOTE_USER"/>
</ParamList>
<LogoffUrl>http://<OTM-WEBSEVER></LogoffUrl>
<LogonUrl>http:// <OTM-WEBSEVER></</LogonUrl>
</SSO>
</Auth>
```
20. Change the credentialstore.xml:
 - a. Open a command prompt window or command shell on the machine where Oracle BI Presentation Services has been installed.
 - b. Navigate to the directory [OBI EE]/Oracle BI/web/bin on Windows or [OBI EE]/Oracle BI /web/bin on Linux or UNIX. This is the location for the CryptoTools utility.
 - c. **For Linux systems***Setup the environment by running the following scripts
 - ./OracleBI_HOME/setup/user.sh
 - ./OracleBI_HOME/setup/sa-init.sh
 - d. Execute the CryptoTools utility to add the impersonator user credentials to the Oracle BI Presentation Services Credential Store: `cryptotools credstore -add -infile <OracleBIData>/web/config/credentialstore.xml`
 - Credential Alias: impersonation
 - Username: Impersonator
 - Password: secret
 - Do you want to encrypt the password? y/n (y):
 - Passphrase for encryption: another_secret
 - Do you want to write the passphrase to the xml? y/n (n):
 - File [OBI EE]/Oracle BIData/web/config/credentialstore.xml" exists. Do you want to overwrite it? y/n (y):
21. Navigate to the directory [OBI EE]/Oracle BI\server\bin and execute the schconfig script in 10.1.3.3 the directory is [OBI EE]/server/Bin

```
Copyright (c) 1997-2006 Oracle Corporation, All rights reserved
***** Delivers Configuration Menu *****

1 - Configure Scheduler
2 - Configure Mail
3 - Configure iBots
4 - Configure Workflow
5 - Configure Java Extension
0 - Quit

Enter 1 and press enter
```

***** Scheduler Configuration *****

- 1 - Database
- 2 - General
- 3 - Advanced
- 0 - Quit

Enter 1 and press enter

***** Scheduler Database Configuration *****

- 1 - Database Type : Oracle 10g R2
- 2 - Call Interface : OCI 10g
- 3 - Data Source Name :
- 4 - User Name :
- 5 - Password : *****
- 6 - Timeout (Minutes) : 60
- 7 - Maximum Connections : 5
- 8 - Bulk Fetch Buffer Size (bytes) : 33792
- 9 - Database Table for Jobs : S_NQ_JOB
- 10 - Database Table for Instances : S_NQ_INSTANCE
- 11 - Database Table for Parameters : S_NQ_JOB_PARAM
- 12 - Database Table for Messages : S_NQ_ERR_MSG
- 13 - DEFAULT VALUES
- 0 - Quit

Enter 1 and press enter

***** Database Type *****

- 01 - Oracle 8i
- 02 - Oracle 9i
- 03 - Oracle 10g R1
- 04 - Oracle 10g R2
- 05 - DB2 OS/390 V7
- 06 - DB2 OS/390 V8
- 07 - DB2 UDB V7
- 08 - DB2 UDB V8

Enter 02 and press enter - in 10.1.3.3 you should select 3

***** Scheduler Database Configuration *****

- 1 - Database Type : Oracle 9i
- 2 - Call Interface : OCI 8i/9i
- 3 - Data Source Name :
- 4 - User Name :
- 5 - Password : *****
- 6 - Timeout (Minutes) : 60
- 7 - Maximum Connections : 5
- 8 - Bulk Fetch Buffer Size (bytes) : 33792
- 9 - Database Table for Jobs : S_NQ_JOB
- 10 - Database Table for Instances : S_NQ_INSTANCE
- 11 - Database Table for Parameters : S_NQ_JOB_PARAM
- 12 - Database Table for Messages : S_NQ_ERR_MSG
- 13 - DEFAULT VALUES
- 0 - Quit

Select 3 and press enter

Enter RPTAPP for your datasource and press enter

***** Scheduler Database Configuration *****

```
1 - Database Type           : Oracle 9i
2 - Call Interface         : OCI 8i/9i
3 - Data Source Name      : RPTAPP
4 - User Name             :
5 - Password              : *****
6 - Timeout (Minutes)     : 60
7 - Maximum Connections   : 5
8 - Bulk Fetch Buffer Size (bytes) : 33792
9 - Database Table for Jobs : S_NQ_JOB
10 - Database Table for Instances : S_NQ_INSTANCE
11 - Database Table for Parameters : S_NQ_JOB_PARAM
12 - Database Table for Messages : S_NQ_ERR_MSG
13 - DEFAULT VALUES
0 - Quit
```

Enter 4 and press enter.

Enter hdowner for the username and press enter

***** Scheduler Database Configuration *****

```
1 - Database Type           : Oracle 9i
2 - Call Interface         : OCI 8i/9i
3 - Data Source Name      : RPTAPP
4 - User Name             : hdowner
5 - Password              : *****
6 - Timeout (Minutes)     : 60
7 - Maximum Connections   : 5
8 - Bulk Fetch Buffer Size (bytes) : 33792
9 - Database Table for Jobs : S_NQ_JOB
10 - Database Table for Instances : S_NQ_INSTANCE
11 - Database Table for Parameters : S_NQ_JOB_PARAM
12 - Database Table for Messages : S_NQ_ERR_MSG
13 - DEFAULT VALUES
0 - Quit
```

Enter 5 and press enter

Enter hdowner as your password and hdowner again to confirm the password

***** Scheduler Database Configuration *****

```
1 - Database Type           : Oracle 9i
2 - Call Interface         : OCI 8i/9i
3 - Data Source Name      : RPTAPP
4 - User Name             : hdowner
5 - Password              : *****
6 - Timeout (Minutes)     : 60
7 - Maximum Connections   : 5
8 - Bulk Fetch Buffer Size (bytes) : 33792
9 - Database Table for Jobs : S_NQ_JOB
10 - Database Table for Instances : S_NQ_INSTANCE
11 - Database Table for Parameters : S_NQ_JOB_PARAM
12 - Database Table for Messages : S_NQ_ERR_MSG
13 - DEFAULT VALUES
```

```

0 - Quit
Enter 0 and press enter, answer yes when prompted to save.

***** Scheduler Configuration *****

1 - Database
2 - General
3 - Advanced
0 - Quit

Select 0 and press enter

***** Delivers Configuration Menu *****

1 - Configure Scheduler
2 - Configure Mail
3 - Configure iBots
4 - Configure Workflow
5 - Configure Java Extension
0 - Quit

Select 0 and press enter

```

22. Overwrite palette.cxml in [OBI EE]\OracleBI\web\app\res\s_oracle10\chartsupport with <otm_install_path>/fti/palette.cxml.
23. From the [OBI EE]/Oracle BI/server/Schema directory login to the database as hdowner/hdowner@rptapp.
24. Run the **@SAJOBS.Oracle.sql** and then exit sqlplus
25. Create a new System DSN under ODBC connections.
 - a. Name the DSN as rptapp
 - b. Point it to the ROD database
 - c. Use hdowner and its password
26. Restart the OBI EE services.

Oracle Transportation Management (FTI) Properties

The following will be set if you chose to integrate with FTI during the Oracle Transportation Management installation. If not, you will need to set them manually in the <otm_install_path>/glog/config/glog.properties file:

```

## Fusion Transportation Intelligence (formerly Advanced Analytics) -
optional
#aa_webserver=http://otmfti.us.oracle.com:8081
#ALLOW_ADVANCED_ANALYTICS=true

```

1. Remove the “#” symbol and enter the correct URL and PORT for the FTI Server

```

## Fusion Transportation Intelligence (formerly Advanced Analytics) -
optional
aa_webserver=http://otm-sp55rpt.us.oracle.com:80
ALLOW_ADVANCED_ANALYTICS=true

```

If there are any other entries besides the two above, delete them and copy the entries as they are above. You need to either enter http or https depending on what protocol is used for the FTI web server. Note that since Oracle Transportation Management does not pass through the URL on an internal DNS name, you will need to open a firewall IP and port so that Oracle Transportation

Management can call the external FQDN. After the changes are made, you will need to restart the Oracle Transportation Management web server.

Enabling FTI agents in Oracle Transportation Management

1. Log on to Oracle Transportation Management as DBA.ADMIN. Activate the following agents. Business Process Automation → Agents and Milestones → Automation Agent. Change the event if necessary.
 - o LOAD_ORDER_BASE_TO_HD (Default Event: Order base created)
 - o LOAD_ORDER_RELEASE_TO_HD (Default Event: Order on shipment tendered)
 - o LOAD_SHIPMENT_TO_HD (Default Event: Shipment tendered)
2. Identify the Transportation Intelligence users. Assign appropriate Transportation Intelligence Role to each user.

Note: Make sure that the aa_load_hd.p_load_all_once is manually run once after the FTI install. This will do a complete load of the data.

Linux Tasks

1. Add the following to ./OracleBI_HOME/setup/user.sh

```
ORACLE_HOME=/u01/app/oracle/product/920; export ORACLE_HOME
LD_LIBRARY_PATH=/u01/app/oracle/product/920/lib:$LD_LIBRARY_PATH;
export LD_LIBRARY_PATH
TNS_ADMIN=$ORACLE_HOME/network/admin; export TNS_ADMIN
PATH=$ORACLE_HOME/bin:$PATH; export PATH
```
2. In the tnsnames.ora file add the following:

```
RPTAPP =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = "DB_FQDN")(PORT = "DB_PORT"))
    )
    (CONNECT_DATA =
      (SID = "DB_SID")
    )
  )
```

Note: If you get the following error, your tnsnames.ora file is not properly configured:

- o [nQSError: 43059] Init block 'GET_WEBSERVER': Dynamic refresh of repository scope variables has failed.
 - o [nQSError: 17001] Oracle Error code: 12154, message: ORA-12154: TNS: could not resolve service name at OCI call OCILogon.
 - o [nQSError: 17014] Could not connect to Oracle database.
3. To set up scheduler

```
cd /opt/OracleBI/server/Bin/
. /opt/OracleBI/setup/user.sh
. /opt/OracleBI/setup/sa-init.sh
./schconfig
```
 4. Follow prompts to setup DB connection / user / password
 5. To start the server run:

```
/opt/OracleBI/setup/run-sa.sh
```

Verify there are no errors by running: `tail -f /opt/OBIEE/OracleBI/server/Log/NQServer.log`

```
/opt/OracleBI/setup/run-saw.sh
```

Verify there are no errors by running: `tail -f /opt/OBIEE/OracleBIData/web/log/sawlog0.log`

```
/opt/OracleBI/setup/run-sch.sh
```

Verify there are no errors by running: `tail -f /opt/OBIEE/OracleBI/server/Log/NQScheduler.log`

The following error message may be displayed in the NQserver.log file on startup of OBIEE when using the 64 bit Oracle 9i client:

```
"Could not open libclntsh.so.9.1 no such file or directory."
```

If you receive this message, please verify that the file does not exist in the `$ORACLE_HOME/lib32`. If the file does not exist, create this file linked to the `libclntsh.so` file that is in the `$ORACLE_HOME/lib32` directory.

6. Install apache and Tomcat with the following context in the server.xml

```
<Context path="/analytics" docBase="/opt/OracleBI/web/app"
  privileged="true">
  <Manager className="org.apache.catalina.session.StandardManager"
    pathname="" />
</Context>
```

Mandatory Oracle Transportation Management User Role (VPD Profile) Configuration

FTI offers additional external predicates in version 5.5.06. These are now available under the following standard VPD Profiles shipped with the OTM application -

- **FTI_Default**: This VPD Profile is applicable for all FTI users who are not service providers in Oracle Transportation Management. This includes all the external predicates available in the existing 'Default' Oracle Transportation Management VPD profile and the new external predicates specific to the FTI solution's historical database tables.
- **SERVPROV**: This VPD Profile is applicable for all FTI users who are also service providers in Oracle Transportation Management. This includes all the external predicates available in the existing 'SERVPROV' OTM VPD profile and the new external predicates specific to the FTI solution's historical database tables.

As a result, customers are now requested to mandatorily re-configure the user role for all their FTI users to include either the `FTI_Default` or `SERVPROV` VPD Profiles as applicable.

Performing this manual step is mandatory to ensure the proper operational behavior of the FTI application.

Alternatively, if you are using a customized VPD profile in Oracle Transportation Management, you are mandated to manually include your additional external predicates over the `FTI_Default` or `SERVPROV` VPD profiles as applicable.

5. Installing Optional Components

These components include:

- Installing GFI FAXmaker for Networks/SMTP 8.1
- Installing PCMiller WorldWide
- Installing Rand McNally IntelliRoute Server
- Installing SMC RateWare Server
- Installing Python on a Client PC

Installing FAXmaker for Fax Notifications

FAXmaker is an email-to-fax gateway that allows Oracle Transportation Management to send out fax notifications. Oracle Transportation Management sends an email via SMTP to a specific POP3 mailbox. FAXmaker checks this mailbox at regular intervals and converts the emails within to fax transmissions, if all security requirements are satisfied.

1. Install FAXmaker for Networks/SMTP 8.1 from GFI on a Windows server and configure it to work with your modem(s). Refer to the FAXmaker documentation for details.
2. Test the modem to ensure that it gets a dial tone and can access an outside line.
3. Create a POP3 mailbox within your mail server that can be accessed by the FAXmaker server. The mailbox name should be identical to the email address for outgoing fax notifications that you entered during the Oracle Transportation Management application server install. Test this POP3 account using any email client that supports POP3. Please contact your System Administrators for more information as they will have greater insight into the makeup of your SMTP mail services.
4. Copy the Oracle Transportation Management fax template file (<otm_install_path>\install\FAXmaker\G-Log.rtf or <otm_install_path>/install/FAXmaker/G-Log.rtf) to FAX maker's coveragepage directory (e.g. C:\Program Files\FAXmaker\Coverage\).

Start FAXmaker Configuration MMC Console

1. Start the Fax Server Configuration application.
2. Select "Lines" tab, ensure that your modem is configured to send faxes ONLY! Do not configure the modem to allow faxes to be received!
3. Under the "Coverpages" tab, set G-Log.rtf as the default coverpage and set your paper size to letter.
4. Under the "Dialing" tab, setup any special dialing requirements (such as dialing 7 to get an outside line).
5. Click OK to save this information.
6. Click on "User Configuration" tab.
7. Add a new user. The username and email address should be identical to the email address from which email notifications will come that you entered when you installed the Oracle Transportation Management application server. This allows emails that originate from this email address to be converted and faxed out. If an email is received from an email address that does not have an account, FAXmaker will bounce it.
8. Select the new user and click on the Coverpages tab.
9. Click Add, enter Oracle Transportation Management for the name and select G-Log.rtf as the cover page file. Then click OK. At the bottom of this window, check the Cover-page box.
10. Click on Setup and then Email2Fax Gateway configuration.
 - Check Enable E-mail2Fax Gateway.

- Enter your SMTP server and port (usually 25).
- Enter the Sender email address (the email address for outgoing fax notifications that you entered when installing the Oracle Transportation Management application server).
- Enter your POP3 server (usually the same as the SMTP server) and port (usually 110).
- Enter the mailbox account, password, and login method. This is the POP3 mailbox that you created a few steps ago.

11. Click OK to save this information.

12. Restart your FAXmaker services so the new configuration takes effect.

Refer to the FAXmaker documentation for any troubleshooting assistance or contact GFI directly.

If desired, FAXmaker can also be configured to convert PDF attachments to text faxes by following these steps:

13. Ensure that the latest version of Adobe Acrobat Reader is installed on the FAXmaker server.

14. After installation, run Acrobat Reader to get rid of any messages displayed the first time the program is run.

15. Open the FAXmaker Configuration program and select Fax server configuration then open Document Conversion.

16. Enter PDF in the Extension field and click Add.

17. Click OK and close out of the FAXmaker Configuration program.

18. Restart your FAXmaker services so the new configuration takes effect.

19. The configuration of Oracle Transportation Management is handled by the following properties in the App server glog.properties file (<otm_install_path>/glog/config/glog.properties):

```
# FaxMaker Settings - optional
glog.workflow.notify.faxmaker.email=fax@company.com
```

Installing RightFax for Fax Notifications

RightFax is an email-to-fax gateway that allows Oracle Transportation Management to send out fax notifications. The Oracle Transportation Management application sends an email via SMTP to a specific POP3 mailbox. RightFax checks this mailbox at regular intervals and converts the emails within to fax transmissions, if all security requirements are satisfied.

1. Install RightFax 8.5 from Captaris on a Windows 2000 server and configure it to work with your modem(s). Refer to the RightFax documentation for details.

2. Test the modem to ensure that it gets a dial tone and can access an outside line.

3. Create a POP3 mailbox within your mail server that can be accessed by the FAXmaker server. The mailbox name should be identical to the email address for outgoing fax notifications that you entered during the Oracle Transportation Management application server install. Test this POP3 account using any email client that supports POP3. Please contact your System Administrators for more information as they will have greater insight into the makeup of your SMTP mail services.

4. Install RightFax according to the vendor's installation guide and configure it to poll the POP3 mailbox created above.

5. The configuration of Oracle Transportation Management is handled by the following properties in the App server glog.properties file:

```
# RightFax Settings - optional
glog.fax.defaultHandler.routingMode=to
glog.fax.defaultHandler.routingPicture=/name={lastName},{firstName}/
fax={rawPhone}/
glog.fax.email=fax@company.com
```

Fax Generation in Oracle Transportation Management

Fax generation is controlled via a plug-and-play interface, FaxHandler. Classes that implement this interface support the following two methods:

```
public MailAddress getAddress();  
// returns the mail address for fax generation  
  
public void handle(MailEvent event, FaxTopic faxTopic);  
// modifies our standard text e-mail to conform to outgoing fax  
// specifications.
```

The fax handler is specified via the property `glog.fax.handler=<fax handler class name>`

Oracle Transportation Management supplies a standard fax handler, `glog.server.workflow.notify.DefaultFaxHandler`, to support most fax generation software. This handler embeds routing information into one of the following 3 mail components:

- message body
- subject line
- to alias (i.e. the last name of the to party)

The embedding is accomplished with a picture string describing the modified format of the above component. You can specify original information from the text email to use in the modified component including:

- firstName
- lastName
- company
- phone
- rawPhone (punctuation or space)
- message
- subject

Replacements are represented by one of these identifiers surrounded by parenthesis; for example, `{firstName}`. Newline characters are preserved. To transform an email message body to one supporting FAXMaker, the picture string would be:

```
::{firstName},{company},{lastName},,{rawPhone}\n{message}
```

The following properties control the default fax handler:

```
glog.fax.defaultHandler.routingMode=<message|body|to> (default:  
message)  
glog.fax.defaultHandler.routingPicture=<picture string>  
(default:  
::{firstName},{company},{lastName},,{rawPhone}\n{message})
```

For RightFax, the properties default to:

```
glog.fax.defaultHandler.routingMode=to  
glog.fax.defaultHandler.routingPicture=/name={lastName},  
{firstName}/fax={rawPhone}/  
glog.fax.email=fax@company.com
```

For FAXMaker, they default to:

```
glog.fax.defaultHandler.routingMode=message
glog.fax.defaultHandler.routingPicture=::{firstName},{company},{lastName},, {rawPhone}\n{message}
glog.fax.email=fax@company.com
```

Installing PCMiler

The following software is required:

- PCMiler WorldWide v14, v15, v16.1, v17, v18, v19 or v20.1 with the following modules:
- Optional: PCMiler Canada Postal Codes

Install the PCMiler WorldWide as described in your PCMiler user's manual. Install the PCMiler Canada Postal Codes, if desired.

PCMiler WorldWide runs as a console application, which may not be viable for production environments. You may be able to use a tool such as svrany.exe from the Windows Resource Kit (<http://www.microsoft.com>) or FireDaemon (<http://www.firedaemon.com>) to run it as a service. However, if PCMiler WorldWide runs as a service; you should ensure that this is set to automatically start.

You can setup Oracle Transportation Management to integrate with PCMiler during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use PCMiler. To modify an existing Oracle Transportation Management installation, you need to edit the glog.properties file on the Oracle Transportation Management Application server. This file is usually under <otm_install_path>\glog\config on Windows or <otm_install_path>/glog/config on UNIX. Uncomment and modify the following lines:

```
#pcmiler.host=pcmiler.company.com
#pcmiler.port=8145
```

If your PCMiler WorldWide running on port 8145 on a server named linus.brown.com, your lines would look like:

```
pcmiler.host=linus.brown.com
pcmiler.port=8145
```

Once this change has been made, restart your Oracle Transportation Management instance.

Installing Rand McNally IntelliRoute

The following software is required:

- Rand McNally IntelliRoute with TrueTrack – Win32 Java 12/01/2004

Install the Rand McNally IntelliRoute Server as described in your IntelliRoute user's manual. You will also need to create a user (e.g. otm), password, and location for the Oracle Transportation Management Application to use. These activities are described in the IntelliRoute user's manual.

The IntelliRoute Server runs as a console application and cannot be run as a service.

Once the server is installed, you need to install the IntelliRoute Java API onto the Oracle Transportation Management Application Server as described in your IntelliRoute user's manual.

You can setup Oracle Transportation Management to integrate with IntelliRoute during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use IntelliRoute. To modify an existing Oracle Transportation Management installation, you need to edit the glog.properties file on the Oracle Transportation Management Application server.

This file is usually under <otm_install_path>\glog\config on Windows or <otm_install_path>/glog/config on UNIX. Uncomment and modify the following lines:

```
#intelliroute.host=192.168.101.101
#intelliroute.port=1998
#intelliroute.user=otm
#intelliroute.password=changeme
#intelliroute.location=company
```

If your IntelliRoute server running on port 1998 on a server named otmir.oracle.com, with a user named otm, with the password changeme, and a location named company1, your lines would look like:

```
intelliroute.host=192.168.101.101
intelliroute.port=1998
intelliroute.user=otm
intelliroute.password=changeme
intelliroute.location=company1
```

Once this change has been made, restart your Oracle Transportation Management instance.

Installing Rand McNally MileMaker

The following software is required.

- Rand McNally MileMaker Server v17 or v18

Install the MileMaker Server as described in your user's manual.

You can setup Oracle Transportation Management to integrate with MileMaker during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use MileMaker. To modify an existing Oracle Transportation Management installation, you need to edit the glog.properties file on the Oracle Transportation Management Application server. This file is usually under <otm_install_path>\glog\config on Windows or <otm_install_path>/glog/config on UNIX. Uncomment and modify the following lines:

```
#milemaker.host=milemaker.company.com
#milemaker.port=1031
```

If your MileMaker server running on port 1031 on a server named linus.brown.com, your lines would look like:

```
milemaker.host=linus.brown.com
milemaker.port=1031
```

Once this change has been made, restart your Oracle Transportation Management instance.

Installing SMC RateWare

The following software is required:

- SMC RateWare Server 1.2.330
- Appropriate CZAR tariffs

Install the SMC RateWare server and load the CZAR tariffs as described in your RateWare user's manual.

You can setup Oracle Transportation Management to integrate with RateWare during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use RateWare. To modify an existing Oracle Transportation Management installation, you need to edit the `glog.properties` file on the Oracle Transportation Management Application server. This file is usually under `<otm_install_path>\glog\config` on Windows or `<otm_install_path>/glog/config` on UNIX. Uncomment and modify the following lines:

```
#glog.RatingEngine.Rateware.URL=rateware.company.com
#glog.RatingEngine.Rateware.Port=23700
```

If your RateWare server is running on port 23700 on a server named `linus.brown.com`, your lines would look like:

```
glog.RatingEngine.Rateware.URL=linus.brown.com
glog.RatingEngine.Rateware.Port=23700
```

Once this change has been made, you will need to restart your Oracle Transportation Management instance.

Installing Python on a Client PC

This is a prerequisite to using the `ClientUtil.py` for exporting/importing from a remote Oracle Transportation Management instance, or for using `sql2xml.py` or `xml2sql.py` for exporting/importing from a database for which you have `sql*net` access.

Installing Python

1. Copy the contents of the `<otm_install_path>/utils/integration/python` directory to a path on your local PC. (for example: `d:\product\otmpython`)
2. Within this directory, you will find and extract the `python-for-gc3v55.zip` file into a path on your local PC. It will automatically create a `python` directory that contains all of the python executables and libraries. (Ex. `d:\products\python`)
3. Set your `PYTHONPATH` environment variables. You can set `pythonpath` permanently in your environment using `Settings->Control Panel->System->Environment`
4. Set `PYHOME=d:\products\python`
5. Set `GC3_PYTHON=d:\products\otmpython`
6. Set `PYTHON_PATH=$PYTHON_HOME\lib\python2.4:$PYTHON_HOME\lib\python2.4\site-packages:$PYTHON_HOME\lib\python2.4\site-packages_xmlplus:$GLOG_HOME\utils\integration\python`
7. You are now ready to use the Oracle Transportation Management client-side python scripts.

Python International Character Set Configuration

The `site.py` file under `$pyhome/lib` must be modified to change `encoding = ascii` to `encoding = utf-8`.

Failure to make the above change will cause international characters to be garbled.

6. Starting Oracle Transportation Management after Installation Is Complete

Starting and Stopping the Oracle Transportation Management Servers

Starting the Windows Server

8. Start the Oracle database.
9. Start Oracle Reports – if necessary.
 - On the Reports Server, start the Oracle Transportation Management Report Web service (e.g. otmrptweb)
10. Start the Tomcat service (e.g. named otmtomcat) on the Oracle Transportation Management Web Server.
11. Start the Apache service on the Oracle Transportation Management Web server (e.g. otmapache).
12. **[OAS]** Start the OAS Service (e.g. otmapp).
 - It can take several minutes for OAS to fully start up, depending on your server. To check OAS, you can monitor the <otm_install_path>\logs\oas\console.log file. When OAS is fully initialized, you will see the lines:

```
INFO | jvm 1 | 2007/11/28 05:56:05 | 07/11/28 05:56:05 -- OTM
Startup: initServlet
INFO | jvm 1 | 2007/11/28 05:56:05 | 07/11/28 05:56:05 -- OTM
Startup: activateThread
INFO | jvm 1 | 2007/11/28 05:56:05 | 07/11/28 05:56:05 -- OTM
Startup: loading startup classes
INFO | jvm 1 | 2007/11/28 05:56:08 | 07/11/28 05:56:08 Oracle
Containers for J2EE 10g (10.1.3.3.0) initialized
```

Note: The first time OAS is started, it will automatically deploy the Oracle Transportation Management application. This can take anywhere from 15-45 minutes, depending on the speed of your system. There is, unfortunately, no direct indication of when this process is finished. You can infer that it has completed by checking the highest numbered directory in:

```
<otm_install_path>\oas\j2ee\home\application-deployments\GC3App
(e.g. gc3deploy66)
```

If there is a single jar file in that directory called deployment-cache.jar, and there are no class files there, then the process has completed.

13. **[WebLogic]** Start the WebLogic Service (e.g. otmapp).
 - It can take several minutes for WebLogic to fully start up, depending on your server. To check WebLogic, you can monitor the <otm_install_path>\logs\weblogic\console.log file. When WebLogic is fully initialized, you will see the lines:

```
INFO | jvm 1 | 2005/03/29 08:12:11 | <Mar 29, 2005 8:12:11 AM
EST> <Notice> <WebLogicServer> <BEA-000355> <Thread
"ListenThread.Default" listening on port 7001, ip address
192.168.2.2>
INFO | jvm 1 | 2005/03/29 08:12:11 | <Mar 29, 2005 8:12:11 AM
EST> <Notice> <WebLogicServer> <BEA-000329> <Started WebLogic Admin
Server "otm-box1" for domain "gc3domain" running in Production Mode>
INFO | jvm 1 | 2005/03/29 08:12:11 | <Mar 29, 2005 8:12:11 AM
EST> <Notice> <WebLogicServer> <BEA-000360> <Server started in
RUNNING mode>
```

14. To check to see if everything has started up, point to `http://<web server name>` in your web browser and log in.

Note: While the application server is starting up, the web server will respond to all requests with a '503 (Service Unavailable)'. This will go away once the application server has fully started up.

Starting the UNIX Server

1. Start the Oracle database.
2. Start the Oracle Reports – if necessary.
 - On the Reports Server, start the Oracle Transportation Management Rpt Web daemon (e.g. `/etc/init.d/otm rptweb start`)
3. Start the Oracle Transportation Management Web daemon (e.g. `/etc/init.d/otmweb start`) on the Oracle Transportation Management Web Server.
 - This will start both Apache and Tomcat
4. **[OAS]** Start the Oracle Transportation Management App daemon (e.g. `/etc/init.d/otmapp start`) on the Oracle Transportation Management Application Server.
 - It can take several minutes for OAS to fully start up, depending on your server. To check WebLogic, you can monitor the `<otm_install_path>/logs/oas/console.log` file. When OAS is fully initialized, you will see the lines:

```
INFO | jvm 1 | 2007/11/28 05:56:05 | 07/11/28 05:56:05 -- OTM
Startup: initServlet
INFO | jvm 1 | 2007/11/28 05:56:05 | 07/11/28 05:56:05 -- OTM
Startup: activateThread
INFO | jvm 1 | 2007/11/28 05:56:05 | 07/11/28 05:56:05 -- OTM
Startup: loading startup classes
INFO | jvm 1 | 2007/11/28 05:56:08 | 07/11/28 05:56:08 Oracle
Containers for J2EE 10g (10.1.3.3.0) initialized
```

Note: The first time OAS is started up, it will automatically deploy the Oracle Transportation Management application. This can take anywhere from 15-45 minutes, depending on the speed of your system. There is, unfortunately, no direct indication of when this process is finished. You can infer that it has completed by checking the highest numbered directory in:

`<otm_install_path>/oas/j2ee/home/application-deployments/GC3App` (e.g. `gc3deploy66`)

If there is a single jar file in that directory called `deployment-cache.jar`, and there are no class files there, then the process has completed.

5. **[WebLogic]** Start the Oracle Transportation Management App daemon (e.g. `/etc/init.d/otmapp start`) on the Oracle Transportation Management Application Server.
 - It can take several minutes for WebLogic to fully start up, depending on your server. To check WebLogic, you can monitor the `<otm_install_path>/logs/weblogic/console.log` file. When WebLogic is fully initialized, you will see the lines:

```
INFO | jvm 1 | 2005/03/29 08:12:11 | <Mar 29, 2005 8:12:11 AM
EST> <Notice> <WebLogicServer> <BEA-000355> <Thread
"ListenThread.Default" listening on port 7001, ip address
192.168.2.2>
INFO | jvm 1 | 2005/03/29 08:12:11 | <Mar 29, 2005 8:12:11 AM
EST> <Notice> <WebLogicServer> <BEA-000329> <Started WebLogic Admin
Server "otm-box1" for domain "gc3domain" running in Production Mode>
```

INFO | jvm 1 | 2005/03/29 08:12:11 | <Mar 29, 2005 8:12:11 AM EST> <Notice>
<WebLogicServer> <BEA-000360> <Server started in RUNNING mode>

6. **[WebSphere]** Start the Oracle Transportation Management App daemon (e.g. /etc/init.d/otmapp start) on the Oracle Transportation Management Application Server.
 - It can take several minutes for WebSphere to fully start up, depending on your server. To check WebSphere, you can monitor the <otm_install_path>/logs/websphere/console_out.log file. When WebSphere is fully initialized, you will see the lines:

```
[8/4/06 10:00:16:809 EDT] 0000000a WsServerImpl A WSVR0001I:
Server server1 open for e-business

[8/4/06 10:02:45:720 EDT] 00000041 SystemOut O End startup, GC3 is ready
```
7. To check to see if everything has started up, point to http://<web server name> in your web browser and log in.
Note: While the application server is starting up, the web server will respond to all requests with a '503 (Service Unavailable)' error message. This will go away once the application server has fully started up.

Stopping the Windows Server

1. Stop the Apache service (e.g. otmapache) on the Oracle Transportation Management Web Server.
2. Stop the Tomcat service (e.g. otmtomcat) on the Oracle Transportation Management Web Server.
3. Stop the Oracle Transportation Management App service (e.g. otmapp) on the Oracle Transportation Management Application server.
4. On the Reports Server, stop the Oracle Transportation Management Rpt Web service (e.g. named otmrptweb) – if necessary.
5. On the Reports server, stop Oracle Reports – if necessary.
6. Stop the Oracle database, if necessary.
7. If you are going to restart Oracle Transportation Management, wait one minute between stopping and restarting the servers. This gives WebLogic the time it needs to fully shut down.

Stopping the UNIX Server

1. Stop the Oracle Transportation Management Web daemon (e.g. /etc/init.d/otmweb stop) on the Oracle Transportation Management Web Server.
2. Stop the Oracle Transportation Management App daemon (e.g. /etc/init.d/otmapp stop) on the Oracle Transportation Management Application server.
3. On the Reports Server, stop the Oracle Transportation Management Rpt Web daemon (e.g. /etc/init.d/otmrptweb stop) – if necessary.
4. On the Reports server, stop Oracle Reports – if necessary.
5. Stop the Oracle database, if necessary.
6. If you are going to restart Oracle Transportation Management, wait one minute between stopping and restarting the servers. This gives WebLogic the time it needs to fully shut down.

Creating Domains

An Oracle Transportation Management domain is a unique name that typically identifies a company. The purpose of a domain is to provide the ability to keep company data separate and secure from other company data in a shared, web-based environment. For example, if you are using Oracle Transportation Management in an environment where many companies may be using the same Oracle

Transportation Management installation, the domain allows you to isolate data in Oracle Transportation Management for each company. Therefore, many users from different companies can work in the same Oracle Transportation Management installation (or website) and use data that is private and specific to their company.

Data that is considered sharable is stored in a domain called PUBLIC, allowing access to users regardless of their company. The data that is used for the Ask Oracle Transportation Management wizards is considered public since it is not proprietary to any one company.

GUEST and SERVPROV Domains

The GUEST and SERVPROV are automatically created when you install Oracle Transportation Management. These domains are used as follows:

- **GUEST** – This is a sample domain that you can use to get started using Oracle Transportation Management and experiment with all of the software functionality and data.
- **SERVPROV** – This is a special domain for use with service providers. Special logic is built into Oracle Transportation Management to provide security for service providers that access Oracle Transportation Management for web tendering. This is the domain that must be used for all service providers.
- **PUBLIC** – This domains stores public data that can be accessed by all other domains.

If you are using Oracle Transportation Management in an Oracle On-Demand hosted environment where many customers are using the same Oracle Transportation Management instance, you need to provide On-Demand staff with the appropriate domain name to maintain data confidentiality and security for your company. Oracle can create the domain for you on the hosted site.

Note: Do NOT delete any of the default domains that are shipped with Oracle Transportation Management.

If you have installed Oracle Transportation Management at your own site, use the following procedures to create a domain.

1. Start Oracle Transportation Management and login with an ADMIN ID and password.
2. Choose Security Services > Domain Manager.
3. Click Add Domain.
4. Type a domain name and click Submit Inquiry to create the new domain. Domain names must abide by the rules for an Oracle database.

A default user called <domain name>.ADMIN is automatically created with Admin Level security. As the administrator of the new domain, you should log into the new domain and change the password for the default user. Choose the Manage User option in the User Manager once you log into the domain to change the password.

Note: When you change the password of the .ADMIN user, you should log out and log back in before you try to perform any User Management function.

You can also use the other User Management options to add users, set security levels, and so on.

Note: Always change the default passwords after a new domain has been created.

For additional help and product instructions, please use the online help in Oracle Transportation Management.

You can also access the help system from any browser. With your Oracle Transportation Management server is up and running, open up the following URL:

http://<webserver_name>/html/help/webhelp/en/gc3help.htm

Note: Replace <webserver_name> with the name of your Oracle Transportation Management Web server.

Applying a Model

This is an optional step. If you can find a prepared model that matches what you need to do with Oracle Transportation Management, it can help you implement Oracle Transportation Management a lot faster.

Available Models

1. Go to the URL of your new Oracle Transportation Management server.
2. Enter a User Name of BLUEPRINT.ADMIN.
3. Enter a Password of CHANGEME.
4. Click Login.
5. Click Configuration and Administration -> Blueprint -> Import Model
6. Select an Import Type of Insert.
7. Select an Import Location of Import from Files.

Oracle Transportation Management displays the available models under the Model to Import heading.

Model	Fits your company if you mainly...
Domestic Truckload	Send orders to Oracle Transportation Management as order releases Work with domestic orders Plan your order releases into TL or LTL shipments (buy shipments only) Tender those shipments to service providers

Overview

A model is a set of CSV files that contains:

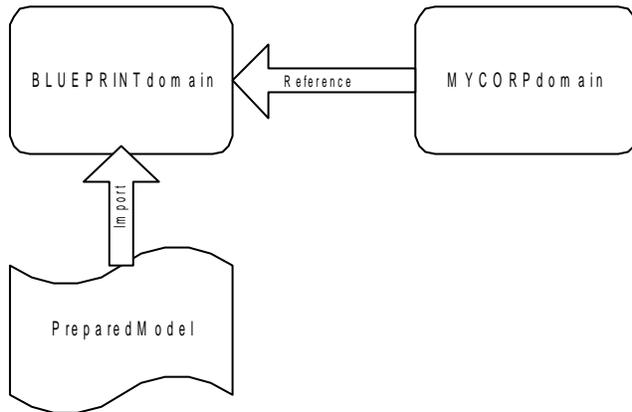
- User Roles
- Menus
- Manager Layouts and Screen Sets
- Saved Queries
- Workspace

This data provides you with menus, screens, and fields specifically needed for the scenario you selected.

To apply a model:

- You import the CSV files into the existing domain BLUEPRINT.
- Change any data, if needed, in the BLUEPRINT domain.
- Create a domain for your company.

- Associate your domain with the BLUEPRINT domain.
- Add users to your domain.



Import Blueprint Model

1. Go to the URL of your new Oracle Transportation Management server.
2. Enter a User Name of BLUEPRINT.ADMIN.
3. Enter a Password of CHANGEME.
4. Click Login.
5. Click Configuration and Administration -> Blueprint -> Import Model.
6. Select an Import Type of Insert.
7. Select an Import Location of Import from Files.
8. Select a Model to Import. If only one model exists, Oracle Transportation Management automatically select that one. (DOMESTIC TRUCKLOAD)
9. Click Ok.

Oracle Transportation Management imports the CSV files associated with the model you chose.

Note for advanced users: If you have access to two simultaneous Oracle Transportation Management servers, you can create your own blueprint domain on one server and import that domain into a second Oracle Transportation Management server. If that is the case, select an Import Location of Import from Remote Host. You can also re-apply your own blueprint domain with an Import Type of Update. Make sure your blueprint domain only refers to data accessible on both servers.

10. Log out.
11. Log back in as BLUEPRINT.ADMIN.
12. Verify that you are happy with the configuration. You can modify the menus, finder sets, etc. to suit your needs.

Create Your Company Domain

1. Log in as DBA.ADMIN.
2. Click Configuration and Administration -> Domain Management -> Add Domain.
3. Enter a Domain Name. For example MYCORP.

4. Click Add Domain.

Wait until Oracle Transportation Management displays a confirmation page.

5. Log out.

Let Your Company Domain Use the Imported Settings

1. Log in as BLUEPRINT.ADMIN.
2. Click Configuration and Administration -> Blueprint -> Associate Domain.
3. Select a Domain Name of MYCORP.
4. Click Ok.
5. Log out.
6. Log back in as MYCORP.ADMIN.

Oracle Transportation Management displays both the menu OTM_PLANNER and OTM_ADMIN. At this point, Oracle Transportation Management has:

- Set the role of all users with a role of ADMIN to the BLUEPRINT.OTM_ADMIN role.
- Set the role of all users with a role of DEFAULT to the BLUEPRINT.OTM_PLANNER role.

Create a new user

1. As MYCORP.ADMIN, click Configuration and Administration -> User Management -> Add User.
2. Enter a User Name of for example PLANNER.
3. Enter a Password and retype it in Retype Password.
4. Click Finished.
5. Log out.
6. Log back in as MYCORP.PLANNER.

Oracle Transportation Management displays only the OTM_PLANNER menu.

7. Database Migration

Upgrading from Version 3.7 to 4.0

Note: If you are migrating from a version prior to 3.7, refer to the GC3 4.5 Administration Manual.

Any new Oracle Transportation Management installation should be tested in a controlled environment before migrating your production database. This ensures that any potential problems or incompatibilities don't affect your production Oracle Transportation Management instance(s).

Note: If you are migrating from a version earlier than 3.7, you must complete each previous version's migration instructions. You cannot skip any migration steps. Please go through all upgrade steps to 3.7 prior to starting the 3.7 to 4.0 migration.

IMPORTANT! GC3 4.0 relies on Oracle 9i, so this upgrade *must* occur prior to the upgrade of Oracle Transportation Management. If the Oracle upgrade needs to be run at a separate time due to time constraints, then we recommend upgrading to Oracle 9i first, and then upgrading to Oracle Transportation Management version 4.0 during back-to-back weekends.

Follow the installation instructions and install the new 4.0 Oracle Transportation Management components into new directories. Once this is complete, you should compare your old glog.properties file with the new glog.properties file and migrate any customized settings. Finally, copy any customer-specific glog.properties files to the new Oracle Transportation Management instance and ensure that the new glog.properties file references these files. Customer specific properties files usually follow the format glog.<company_name>.properties.

The following topics outline the procedures for migrating a GC3 3.7 database to 4.0. The structure of the database to be migrated should be consistent with the GC3 3.7 database specification; otherwise, the migration will fail.

To complete these procedures you need the following DB passwords:

- system password
- glogowner password
- reportowner password

In addition, you will be creating tablespaces for LOB columns. For this step, you will need to know the directory in which the datafiles will exist and a default initial size for the LOB tablespaces.

Before you begin the migration, shutdown all processes running against the database and shutdown the Oracle Transportation Management application. Always create a full backup of the database before beginning any Oracle Transportation Management migration.

Apply GC3 3.7 Service Releases

You must apply the latest GC3 3.7 Service Release before you continue with the 4.0 migration. You must also install the latest Oracle Transportation Management Service Release to your GC3 4.0 installation to ensure that any known migration issues have been patched and resolved.

1. Log in as **GLOGOWNER** and run **dbpatch_37.sql** (which resides in the 3.7 directory, (<otm37_install_path>/glog/oracle/script8/).

Note: Do not continue with the upgrade until the dbpatch log is completely clean. Contact Technical Support if you have any questions or concerns.

Important: Ensure that your environment is setup correctly by running:

On UNIX: ". <otm_install_path>/install/gc3env.sh"

On Win32: "<otm_install_path>\install\gc3env.cmd"

Updating GLOGOWNER Grants

1. Go to the script8 directory for 4.0 (<otm40_install_path>/glog/oracle/script8).
2. Log on as **SYSTEM**.
3. Run 40_mig_grants.sql, which directly grants GLOGOWNER the ability to create and drop public synonyms (versus through a role).

Adding Tablespaces for LOB columns

1. As the SYSTEM user, run create_lob_tablespace.sql. You are prompted for the directory in which to store the datafiles and the initial size for the tablespaces.

Updating the Structure

1. Run @dbupdate_40.sql to update the database with all the new tables and columns.
2. Enter the glogowner password, reportowner password, and database connection when prompted.
3. After the process has run, verify in the dbupdate_40_<dbsid>_<timestamp>.log file (located in the same directory as source) that there are no errors. If the solution to the error is apparent, then you can fix the problem and then rerun the dbupdate_40 process again, without harm. Contact Technical Support if the problem is not resolvable, and send the entire log file (along with any other logs you have from the day) to our Technical Support team. Do not continue until the dbupdate_40 log is clean.

Updating Data Content

1. Update the PUBLIC data by running update_content. This process is run at the host command line, rather than from within SQL*Plus. Two command scripts have been provided; the script you use is dependent on your operating system:
UNIX shell script:
./update_content.sh <otm_install_path>/glog/config dbaglogowner dbareportowner V40
OR
DOS command script:
update_content <otm_install_path>\glog\config dbaglogowner dbareportowner V40
2. Review the log file called update_content_v40_<timestamp>.log for errors (located in the same directory as the SQL script). Search for errors beginning with "ORA-" or "<Error>" within the log file.

This procedure migrates the data content into the table structures for the latest enhancements.

3. In SQL*Plus, as user **GLOGOWNER** run:
@dbmigrate_40.sql.
4. Enter the password and database connect string when prompted.
Note: The script might run for several hours depending on the amount of data to be processed.
5. After the process has run, verify in the dbmigrate_40_<dbsid>_<timestamp>.log file (located in the same directory as the SQL script) that there are no errors.

6. If an error occurs during a migration patch, the database changes roll back. It will however, commit changes once a whole migration patch has been successfully applied, and it will not try to migrate the data associated with that patch again. If an error occurs partway through the process, then you can fix the problem and rerun the process without harm. If you cannot resolve the error yourself, contact Technical Support.

Reset DB Sequences

1. In SQL*Plus, as user **SYS** run:
`exec domainman.reset_sequences.sql`
2. Go to the <otm_install_path>\glog\oracle\script8 directory on the Oracle Transportation Management Application server. In SQL*Plus, as user **SYS** run:
@analyze_tables.sql
Running this script will enable you to take advantage of the latest indexes. The script might run for several hours.
3. Go to the <otm_install_path>\glog\oracle directory on the Oracle Transportation Management Application server. In SQL*Plus, as user **GLOGOWNER** run:
@insert_security_roles.sql

The remaining topics are not critical to the upgrade but provide helpful information.

Reviewing Obsolete Tables and Columns

When a table or column becomes obsolete during an upgrade, the table/column is renamed with `XX<version object became obsolete>_<original name of table/column>`.

To generate SQL for dropping obsolete objects, run `@gen_obsolete_objects.sql` as **GLOGOWNER**.

Note: it will not include objects that just became obsolete in the current version, as a safety precaution. This script will generate an SQL script called `drop_obsolete_objects.sql`, which you can review and run at a convenient time.

Verifying Saved Queries

After the upgrade, some of your site's saved queries may no longer be valid due to changes in table structure. Run the following to verify the saved queries:

```
@validate_saved_query.sql
```

If there are invalid saved queries, you can decide what to do with them (remove the records or modify them to correct the syntax). Contact Technical Support if you need assistance.

Upgrading from Version 4.0 to 4.5

Any new Oracle Transportation Management installation should be tested in a controlled environment before migrating your production database. This ensures that any potential problems or incompatibilities don't affect your production Oracle Transportation Management instance(s).

Note: If you are migrating from a version earlier than 4.0, you must complete each previous version's migration instructions. You cannot skip any migration steps. Please go through all upgrade steps to 4.0 prior to starting the 4.0 to 4.5 migration.

Follow the installation instructions and install the new GC3 4.5 components into new directories. Once this is complete, you should compare your old `glog.properties` file with the new `glog.properties` file and migrate any customized settings. Finally, copy any customer-specific `glog.properties` files to the new Oracle Transportation Management instance and ensure that the new `glog.properties` file references these files. Customer specific properties files usually follow the format `glog.<company_name>.properties`.

The following topics outline the procedures for migrating a GC3 4.0 database to 4.5. The structure of the database to be migrated should be consistent with the GC3 4.0 database specification; otherwise, the migration will fail.

Apply GC3 4.0 Service Releases

You must apply the latest GC3 4.0 Service Release before you continue with the 4.5 migration. You must also install the latest Oracle Transportation Management Consolidated update to your GC3 4.5 installation to ensure that any known migration issues have been patched and resolved.

1. Log in as **GLOGOWNER** and run `dbpatch_40.sql` (which resides in the 4.0 directory, (`<otm40_install_path>/glog/oracle/script8/`)).

Note: Do not continue with the upgrade until the `dbpatch` log is completely clean. Contact Technical Support if you have any questions or concerns.

Important: Ensure that your environment is setup correctly by running:

On UNIX: `“. <otm_install_path>/install/gc3env.sh”`

On Win32: `“<otm_install_path>\install\gc3env.cmd”`

Implementing 4.5 components within 4.0 (optional)

To reduce migration time, we have provided scripts that add new 4.5 tables and columns (and in some cases populate) to a 4.0 environment. We recommend testing the overall timeframe of the migration without the `preupdate/premigrate` steps. If you determine downtime is too long, then you can use these scripts to reduce downtime.

Since these steps can be performed while 4.0 is running, the overall downtime of the 4.5 migration is reduced. However, this script should be run during off-peak hours, when heavy data loads are not running. You can also choose to run this script while the system is down in the 4.0 environment. If you plan to run these scripts, it is recommended to run these steps in the weekend prior to the 4.5 upgrade.

1. As **GLOGOWNER**, run:
`@preupdate_45.sql`

If the pre-update script cannot obtain access to a table for a new column, you may see a *resource busy* message within the `preupdate_45` log file. You can either rerun pre-update at another time once the table is available (which will only apply the failed procedure(s)), or wait until migration downtime. The step for running `dbupdate_45.sql` will automatically attempt to add the column at that time.

The `ss_status_history` and `order_release` tables have new columns that need to be populated as part of the migration. By running the following, three database triggers will be created to maintain the data within the 4.0 environment. Immediately following the creation of the triggers, the fields will be populated. These triggers will remain in place until your database has been fully upgraded to 4.5.

2. As **GLOGOWNER**, run:
`@premigrate_45.sql`

If your site chooses not to run these scripts in the 4.0 environment, the `dbupdate_45` and `dbmigrate` scripts will automatically add these changes that were not implemented during the `preupdate/premigrate` phase. The rest of the steps are all mandatory, and will be performed as part of the downtime 4.5 migration.

Updating GLOGOWNER Grants

1. Go to the script8 directory for 4.5 (<otm45_install_path>/glog/oracle/script8).
2. Log on as SYSTEM.
3. Run 45_mig_grants.sql.

Updating the Structure

1. Run **@dbupdate_45.sql** to update the database with all the new tables and columns.
2. Enter the glogowner password, reportowner password, and database connection when prompted.
3. After the process has run, verify in the dbupdate_45_<dbsid>_<timestamp>.log file (located in the same directory as source) that there are no errors. If the solution to the error is apparent, then you can fix the problem and then rerun the dbupdate_45 process again, without harm (you may also want to rerun to see if it automatically resolves your problem). Contact Technical Support if the problem is not resolvable, and send the *entire* log file (along with any other logs you have from the day) to our Technical Support team. Do not continue until the dbupdate_45 log is clean.

Updating Data Content

1. Update the PUBLIC data by running update_content. This process is run at the host command line, rather than from within SQL*Plus. Two command scripts have been provided; the script you use is dependent on your operating system:
UNIX shell script:
./update_content.sh <otm_install_path>/glog/config V45
or
DOS command script:
update_content <otm_install_path>\glog\config V45
2. Review the log file called update_content_v45_<timestamp>.log for errors (located in the same directory as the SQL script). Search for errors beginning with "ORA-" or "<Error>" within the log file.

This procedure migrates the data content into the table structures for the latest enhancements.

3. In SQL*Plus, as user **GLOGOWNER** run: @dbmigrate_45.sql.
4. Enter the password and database connect string when prompted.
Note: The script might run for several hours depending on the amount of data to be processed.
5. After the process has run, verify in the dbmigrate_45_<dbsid>_<timestamp>.log file (located in the same directory as the SQL script) that there are no errors.
6. If an error occurs during a migration patch, the database changes roll back. It will, however, commit changes once a whole migration patch has been successfully applied, and it will not try to migrate the data associated with that patch again. If an error occurs partway through the process, then you can fix the problem and rerun the process without harm. If you cannot resolve the error yourself, contact Technical Support.
7. Go to the <otm_install_path>\glog\oracle\script8 directory on the Oracle Transportation Management Application server. In SQL*Plus, as user **SYS** run:
@gather_table_stats.sql
Running this script will enable you to take advantage of the latest indexes. The script might run for several hours.
8. Go to the <otm_install_path>\glog\oracle directory on the Oracle Transportation Management Application server. In SQL*Plus, as user **GLOGOWNER** run:
@insert_security_roles.sql

The remaining topics are not critical to the upgrade but provide helpful information.

Migrating Audit Trail Information (optional)

Audit trail information has been redesigned in 4.5. Oracle Transportation Management provides an optional migration script that can be run if your site would like to keep its historical audit trail information. This can be run while 4.5 is up-and-running.

You will be prompted for the date range for the auditing information you would like to keep. The smaller the date range, the quicker the process will finish. You can run this process multiple times, if you would like to process sets of small ranges during off-peak hours, rather than processing all records at once.

1. As GLOGOWNER, run @45mig_audit_trail.sql

Reviewing Obsolete Tables and Columns

When a table or column becomes obsolete during an upgrade, the table/column is renamed with XX<version object became obsolete>_<original name of table/column>.

To generate SQL for dropping obsolete objects, run @gen_obsolete_objects.sql as GLOGOWNER.

Note: This will not include objects that just became obsolete in the current version, as a safety precaution. This script will generate a SQL script called drop_obsolete_objects.sql, which you can review and run at a convenient time.

Verifying Saved Queries

After the upgrade, some of your saved queries may no longer be valid due to changes in table structure.

1. Run the following to verify the saved queries:

```
@validate_saved_query.sql
```

If there are invalid saved queries, you can decide what to do with them (remove the records or modify them to correct the syntax).

ROD Maintenance for Upgrades

After the 4.0 to 4.5 upgrade, the ROD will not automatically be aware of new or changed Oracle Transportation Management tables. If structural changes occurred, the automatic refresh process will fail until the following steps have been completed.

Run the following command to create logs for new tables. It will skip tables that already have a log.

1. On the OLTP database in SQL*Plus, as user GLOGOWNER run:

```
@create_mview_logs
```

2. On the ROD database in SQL*Plus, as GLOGOWNER run:

```
@create_logon_triggers.sql
```

3. On the ROD database in SQL*Plus, as GLOGOWNER run:

```
@dbupdate_rod.sql
```

This will first identify broken views caused by columns becoming obsolete. It will then build (or rebuild) the materialized views for any new/modified tables.

Note: this will not automatically add columns that were added during an upgrade. This is because the materialized view would need to be recreated from scratch again, and you may not even need those new columns. Therefore, views should only need to be completely refreshed when a column has been removed, or modified in a way that Oracle needs a new copy of the data. Once the views are set, it refreshes the views and builds any new indexes.

Upgrading from Version 4.5 to 5.0

Any new Oracle Transportation Management installation should be tested in a controlled environment before migrating your production database. This ensures that any potential problems or incompatibilities don't affect your production Oracle Transportation Management instance(s).

Note: If you are migrating from a version earlier than 4.5, you must complete each previous version's migration instructions. You cannot skip any migration steps. Please go through all upgrade steps to 4.5 prior to starting the 4.5 to 5.0 migration.

The following topics outline the procedures for migrating a GC3 4.5 database to 5.0. The structure of the database to be migrated should be consistent with the GC3 4.5 database specification; otherwise, the migration will fail.

Apply GC3 4.5 Service Releases

Important: Ensure that your environment is setup correctly by running:

On UNIX: ". <otm_install_path>/install/gc3env.sh"
On Win32: "<otm_install_path>\install\gc3env.cmd"

You must apply GC3 4.5 Service Release dated February 2005 (SR-02.05) or later before you continue with the 5.0 migration. You must also install the latest Oracle Transportation Management Service Release to your GC3 5.0 installation to ensure that any known migration issues have been patched and resolved.

1. Log in as **GLOGOWNER** and run dbpatch_45.sql (which resides in the 4.5 directory, (<otm45_install_path>/glog/oracle/script8/).

Note: Do not continue with the upgrade until the dbpatch log is completely clean. Contact Technical Support if you have any questions or concerns.

Migrate GC3 4.5 Database to 5.0

GC3 5.0 had an interim release called 5.0 LA. To migrate a 4.5 database to 5.0 GA, you must first migrate 5.0 LA. The following steps will guide you through the process.

Migrate to 5.0 LA: Updating the Structure

1. On the app server change to directory <otm50_install_path>/glog/oracle/script8LA.
2. SQL*Plus log in as **GLOGOWNER**
3. Run @dbupdate_50a.sql to update the database with all the new tables and columns to 5.0LA.
4. Enter the glogowner password, reportowner password, archive password, and database connection when prompted.

5. After the process has run, verify in the dbupdate_50a_<dbsid>_<timestamp>.log file (located in the same directory as source) that there are no errors. If the solution to the error is apparent, then you can fix the problem and then rerun the dbupdate_50a.sql process again, without harm (you may also want to rerun to see if it automatically resolves your problem). Contact Technical Support if the problem is not resolvable, and send the entire log file (along with any other logs you have from the day) to our Technical Support team. Do not continue until the dbupdate_50a log is clean.

Migrate to 5.0 LA: Updating Data Content

1. Update the PUBLIC data by running update_content. This process is run at the host command line rather than from within SQL*Plus. Two command scripts are provided and the script you use is dependent on your operating system:
UNIX shell script:

```
./update_content.sh <otm_install_path>/glog/config V50A
```

or

DOS command script:

2. update_content <otm_install_path>\glog\config V50A
3. Review the log file called update_content_v50A_<timestamp>.log for errors (located in the same directory as the SQL script). Look for errors by searching key words like "ORA-", "Caught exception", "SP2-", or "<Error>" within the log file.
4. Load the Procurement PUBLIC data by running update_procure_content. This process is run at the host command line, rather than from within SQL*Plus. Two command scripts have been provided; the script you use is dependent on your operating system:

UNIX shell script:

```
./update_procure_content.sh <otm_install_path>/glog/config V50A
```

or

DOS command script:

```
update_procure_content <otm_install_path>\glog\config V50A
```

5. Review the log file called update_procure_content_v50A_<timestamp>.log for errors (located in the same directory as the SQL script). Look for errors by searching key words like "ORA-", "Caught exception", "SP2-", within the log file.

Migrate to 5.0 LA: Data Migration

1. In SQL*Plus as GLOGOWNER, run:
@dbmigrate_50a.sql.
2. Enter the password and database connect string when prompted.
Note: The script might run for several hours depending on the amount of data to process.
3. After the process has run, verify in the dbmigrate_50a_<dbsid>_<timestamp>.log file (located in the same directory as the SQL script) that there are no errors.

If an error occurs during a migration patch, the database changes roll back. It will however, commit changes once a whole migration patch has been successfully applied, and it will not try to migrate the data associated with that patch again. If an error occurs partway through the process, then you can fix the problem and rerun the process without harm. If you cannot resolve the error yourself, contact Technical Support.

Migrate to 5.0 LA: Apply 5.0 LA Patch

1. In SQL*Plus as user GLOGOWNER, run:
@dbpatch_50a.sql
2. Enter the passwords and connection strings when prompted.
3. Check the log files (dbpatch log and update_content log) to ensure they are error free before proceeding to the next step.

Migrate to 5.0 GA: Updating the Structure

1. On the Application server change to directory
<otm50_install_path>/glog/oracle/script8.
2. In SQL*Plus as **GLOGOWNER**, run
@dbupdate_50b.sql to update the database with all the new 5.0 tables and columns.
3. Enter the glogowner password, reportowner password, and database connection when prompted.

After the process has run, verify in the dbupdate_50b_<dbsid>_<timestamp>.log file (located in the same directory as source) that there are no errors. If the solution to the error is apparent, then you can fix the problem and rerun the dbupdate_50b.sql process again, without harm (you may also want to rerun to see if it automatically resolves your problem). Contact Technical Support if the problem is not resolvable, and send the *entire* log file (along with any other logs you have from the day) to our Technical Support team. Do not continue until the dbupdate_50b log is clean.

Migrate to 5.0 GA: Updating Data Content

The GC3 5.0 database includes Procurement structures and data contents even you have not purchased the Procurement component license. The database structure has been loaded in the previous step, while the content is loaded below after normal Oracle Transportation Management content loading

1. Update the Oracle Transportation Management PUBLIC data by running update_content. This process is run at the host command line, rather than from within SQL*Plus. Two command scripts have been provided; the script you use is dependent on your operating system:

UNIX shell script:

```
./update_content.sh <otm_install_path>/glog/config V50B
```

or

DOS command script:

```
update_content <otm_install_path>\glog\config V50B
```

2. Review the log file called update_content_v50B_<timestamp>.log for errors (located in the same directory as the SQL script). Look for errors by searching key words like "ORA-", "Caught exception", "SP2-", or "<Error>" within the log file.

3. Load the Procurement PUBLIC data by running update_procure_content. This process is run at the host command line, rather than from within SQL*Plus. Two command scripts have been provided; the script you use is dependent on your operating system:

UNIX shell script:

```
./update_procure_content.sh <otm_install_path>/glog/config V50B
```

or

DOS command script:

```
update_procure_content <otm_install_path>\glog\config V50B
```

4. Review the log file called update_procure_content_v50B_<timestamp>.log for errors (located in the same directory as the SQL script). Look for errors by searching key words like "ORA-", "Caught exception", "SP2-", within the log file.

Migrate to 5.0 GA: Data Migration

1. In SQL*Plus as GLOGOWNER, run:
@dbmigrate_50b.sql.
2. Enter the password and database connect string when prompted.
Note: The script might run for several hours depending on the amount of data to process.
3. After the process has run, verify in the dbmigrate_50b_<dbsid>_<timestamp>.log file (located in the same directory as the SQL script) that there are no errors.

If an error occurs during a migration patch, the database changes roll back. It will however, commit changes once a whole migration patch has been successfully applied, and it will not try to migrate the data associated with that patch again. If an error occurs partway through the process, then you can fix the problem and rerun the process without harm. If you cannot resolve the error yourself, contact Technical Support.

Run Security Role Script

1. Go to the <otm_install_path>\glog\oracle directory on the Oracle Transportation Management Application server. In SQL*Plus as **GLOGOWNER**, run:
@insert_security_roles.sql

Analyze the Database

1. Oracle Transportation Management databases should be fully analyzed after the 5.0 migration. Oracle Transportation Management provides following analyze script. But of course a DBA can use their own analyze process.
@gather_table_stats.sql

The remaining steps are not critical to the upgrade but provide helpful information.

Reviewing Obsolete Tables and Columns

When a table or column becomes obsolete during an upgrade, the table/column is renamed with XX<version object became obsolete>_<original name of table/column>.

1. To generate SQL for dropping obsolete objects, run: @gen_obsolete_objects.sql as **GLOGOWNER**.

Note: This will not include objects that just became obsolete in the current version, as a safety precaution. This script will generate a SQL script called drop_obsolete_objects.sql, which you can review and run at a convenient time.

Verifying Saved Queries

After the upgrade, some of your saved queries may no longer be valid due to changes in table structure.

1. Run the following to verify the saved queries:

```
@validate_saved_query.sql
```

If there are invalid saved queries, you can decide what to do with them (remove the records or modify them to correct the syntax).

ROD Maintenance for Upgrades

After the 4.5 to 5.0 migration, the ROD will not automatically be aware of new or changed Oracle Transportation Management tables. If structural changes occurred, the automatic refresh process will fail until the following steps have been completed.

Run the following command to create logs for new tables. It will skip tables that already have a log.

1. On the OLTP database in SQL*Plus as **GLOGOWNER**, run:

```
@create_mview_logs
```

2. On the ROD database in SQL*Plus as **GLOGOWNER**, run:

```
@dbupdate_rod.sql
```

This will first identify broken views caused by obsolete columns. It will then build (or rebuild) the materialized views for any new/modified tables.

Note: This will not automatically add columns that were added during an upgrade. This is because the materialized view would need to be recreated from scratch again, and you may not even need those new columns. Therefore, views should only need to be completely refreshed when a column has been removed, or modified in a way that Oracle needs a new copy of the data. Once the views are set, it refreshes the views and builds any new indexes.

Upgrading from Version 5.0 to 5.5

Any new Oracle Transportation Management installation should be tested in a controlled environment before migrating your production database. This ensures that any potential problems or incompatibilities don't affect your production Oracle Transportation Management instance(s).

Note: If you are migrating from a version earlier than 5.0 you must complete each previous version's migration instructions. You cannot skip any migration steps. Please go through all upgrade steps to 5.0 prior to starting the 5.0 to 5.5 migration.

The structure of the database to be migrated should be consistent with the GC3 5.0 database specification otherwise, the migration will fail.

Custom Help

If you have written custom documentation for Oracle Transportation Management, you can link it to the Oracle Transportation Management help. A file exists for you to customize. You must know some elementary HTML in order to edit the file. By editing the HTML of the file `general/custom_help.htm`, you can add links to any documents that you have written to supplement Oracle Transportation Management's documentation. Alternatively, you can replace that topic with one of the same name that you have created.

Note: If you choose to edit that topic and add your own documentation or links to your own documentation, be careful not to overwrite the file when you upgrade your software.

If you install a consolidated update, that help file will be overwritten when the new help is installed. To avoid overwriting your edited help topic, make a backup of the file before upgrading. Then, replace the newly installed file with the one from your backup.

Apply GC3 5.0 Service Releases

Important: Ensure that your environment is setup correctly by running:

- On UNIX: “. <otm_install_path>/install/gc3env.sh”
- On Win32: “<otm_install_path>\install\gc3env.cmd”

You must also install the latest GC3 5.0 Service Release to your GC3 5.0 installation and apply the Service Release script to your 5.0 database to ensure that any known migration issues have been patched and resolved.

1. Log in as **GLOGOWNER** and run dbpatch_50b.sql (which resides in the 5.0 directory, (<otm50_install_path>/glog/oracle/script8/).

Note: Do not continue with the upgrade until the dbpatch log is completely clean. Contact Technical Support if you have any questions or concerns.

Migrate GC3 5.0 Database to 5.5

Updating the Structure

If 5.5 CUs are available, you should install the latest CU before running below database migration steps. This is important as bugs, if any, in the database migration scripts would get fixed in the Service Releases. Therefore, you will not run into any known issues.

1. On the app server, change to directory <otm55_install_path>/glog/oracle/script8.
2. SQL*Plus log in as **GLOGOWNER**
3. Run @dbupdate_55.sql to update the database with all the new tables and columns to 5.5.
4. Enter the glogowner password, reportowner password, archive password, and database connection when prompted.
5. After the process has run, verify in the dbupdate_55_<dbsid>_<timestamp>.log file (located in the same directory as source) that there are no errors. If the solution to the error is apparent, then you can fix the problem and then rerun the dbupdate_55.sql process again, without harm (you may also want to rerun to see if it automatically resolves your problem). Contact Technical Support if the problem is not resolvable, and send the entire log file (along with any other logs you have from the day) to our Technical Support team. **Do not continue until the dbupdate_55 log is clean.**

Updating Data Content

6. Update the PUBLIC data by running update_content. This process is run at the host command line rather than from within SQL*Plus. Two command scripts are provided and the script you use is dependent on your operating system:
UNIX shell script:

```
./update_content.sh <otm_install_path>/glog/config V55
```

or

Windows command line script:

```
update_content <otm_install_path>\glog\config V55
```

7. Review the log file called update_content_v55_<timestamp>.log for errors (located in the same directory as the SQL script). Look for errors by searching key words like "ORA-", "Caught exception", "SP2-", or "<Error>" within the log file. **Do not continue until the update_content log is clean.**

Data Migration

8. In SQL*Plus as **GLOGOWNER**, run:
@dbmigrate_55.sql.
9. Enter the password and database connection string when prompted.
10. After the process has run, verify in the dbmigrate_55_<dbsid>_<timestamp>.log file (located in the same directory as the SQL script) that there are no errors.

If an error occurs during a migration patch, the database changes roll back. It will however, commit changes once a whole migration patch has been successfully applied, and it will not try to migrate the data associated with that patch again. If an error occurs partway through the process, then you can fix the problem and rerun the process without harm. If you cannot resolve the error yourself, contact Technical Support.

Apply 5.5 Consolidated Update

If the 5.5 Consolidated Update is available, apply the latest CU to the database.

11. In SQL*Plus as user **GLOGOWNER**, run:
@dbpatch_55.sql
12. Enter the passwords and connection strings when prompted.
13. Check the log files (dbpatch log and update_content log) to ensure they are error free before proceeding to the next step.

Run Security Role Script

14. Go to the <otm_install_path>\glog\oracle directory on the Oracle Transportation Management Application server. In SQL*Plus as **GLOGOWNER**, run:
@insert_security_roles.sql
15. Shutdown your database and then restart it.

Analyze the Database

16. Oracle Transportation Management database should be fully analyzed after the 5.5 migration.
Oracle Transportation Management provides following analyze script.
17. **@gather_table_stats.sql**

The remaining steps are not critical to the upgrade but provide helpful information.

Reviewing Obsolete Tables and Columns

When a table or column becomes obsolete during an upgrade, the table/column is renamed with `XX<version object became obsolete>_<original name of table/column>`.

18. To generate SQL for dropping obsolete objects, run: `@gen_obsolete_objects.sql` as **GLOGOWNER**.

Note: This will not include objects that just became obsolete in the current version, as a safety precaution. This script will generate a SQL script called `drop_obsolete_objects.sql`, which you can review and run at a convenient time. **Do not run `drop_obsolete_objects.sql` script right after the database migration to prevent accidental dropping newly obsolete objects.**

Verifying Saved Queries

After the upgrade, some of your saved queries may no longer be valid due to changes in table structure.

19. Run the following to verify the saved queries:

```
@validate_saved_query.sql
```

If there are invalid saved queries, you can decide what to do with them (remove the records or modify them to correct the syntax).

ROD Maintenance for Upgrades

After the 5.0 to 5.5 migration, the ROD will not automatically be aware of new or changed Oracle Transportation Management tables. If structural changes occurred, the automatic refresh process will fail until the following steps have been completed.

Run the following command to create logs for new tables. It will skip tables that already have a log.

20. On the OLTP database in SQL*Plus as **GLOGOWNER**, run:

```
@create_mview_logs
```

21. On the ROD database in SQL*Plus as **GLOGOWNER**, run:

```
@dbupdate_rod.sql
```

This will first identify broken views caused by obsolete columns. It will then build (or rebuild) the materialized views for any new/modified tables.

Note: This will not automatically add columns that were added during an upgrade. This is because the materialized view would need to be recreated from scratch again, and you may not even need those new columns. Therefore, views should only need to be completely refreshed when a column has been removed, or modified in a way that Oracle needs a new copy of the data. Once the views are set, it refreshes the views and builds any new indexes.

8. Advanced Configuration

Note: Default paths are used below and may differ from your configuration.

Note: Whenever you edit the Oracle Transportation Management property files, only edit the `glog.properties` file. Any changes that you make override the settings in other `glog.*.properties` files.

Applying Consolidated Updates

Oracle provides Oracle Transportation Management consolidated updates on a regular basis. These consolidated updates include installation instructions and may require updates on any or all of the Oracle Transportation Management servers. Oracle Transportation Management consolidated updates are cumulative, so you get all previous fixes by installing the latest release. The typical consolidated update installation takes between 45 – 90 minutes (depending on backup time and time to run SQL scripts against database) and involves a restart of the Oracle Transportation Management servers. We recommend that, under Production circumstances, that you allocate 2 – 2.5 hours for the entire procedure.

Note: Please check the release notes for the consolidated update, which need to be followed in conjunction with this guide.

To determine which consolidated update level your server is at, do the following:

1. Log into your Oracle Transportation Management instance using a web browser.
2. Click  to display the software version and consolidated update version. If your consolidated update version shows GA then you are running the initial Oracle Transportation Management release with no release.

Each consolidated update contains specific installation instructions. The consolidated update installations on UNIX only can be run in console mode (no XServer required). To run the consolidated update installer in this mode, run the installer as follows:

```
./otmv55-P<consolidated update_number>_<platform>.bin -i console
```

Note: Unless specifically stated otherwise, you must apply the latest available Roll-up patch (RU) of the current version of Oracle Transportation Management before applying the consolidated update.

Branding

Oracle Transportation Management consolidated updates typically include updated web files (XSL, html, jpg, gif, JS, etc.) to fix specific reported problems and to provide minor enhancements requested by customers.

Since each Oracle Transportation Management consolidated update includes a list of updated files, you should apply the consolidated update to your test site, re-brand the updated files and then test everything. Once it has passed your testing, you should apply the consolidated update, and your new branded files to your production site. This procedure ensures that you have all of the fixes included in the latest consolidated update and that your branding is not broken on your production site.

Oracle Transportation Management now supports branding by domain. You should brand into the following path, which eliminates the problem of overwriting branding when Oracle Transportation Management consolidated updates are installed.

```
<otm_install_path>/apache/htdocs/xsl/branded subdirectory
```

Contact Technical Support group to receive patch notifications or to download the latest Oracle Transportation Management patch.

See the Oracle Transportation Management Branding Guide for detailed information on branding.

Post-Installation OBI EE Instructions

1. Your custom FTI Webcat contents available under the [OBI EE]/OracleBIData/web/catalog/aa_bk_<Time Stamp> folder (manually backed-up by you) will have to be manually incorporated into the new Webcat contents available under the [OBI EE]/OracleBIData/web/catalog/aa folder. Completing this manual task will allow you to host the new Webcat contents as well as your old Custom contents.

Changing Logging Options

After any of these settings are changed, you should restart the Oracle Transportation Management instance as described in the chapter **Starting Oracle Transportation Management after Installation Is Complete** for the changes to take effect.

Oracle Transportation Management

To modify the Oracle Transportation Management logging options, you need to log into your Oracle Transportation Management instance as the DBA.ADMIN user. Then Navigate through the following menus: Data Management > Power Data > General > Log Files. Click Search to show all available log files. For complete details, please see the online help.

Apache

To modify your Apache log settings, you need to edit the configuration file, httpd.conf. This file is usually under <otm_install_path>\apache\conf on Windows or <otm_install_path>/apache/conf on UNIX. Refer to your Apache documentation or <http://httpd.apache.org> for more information.

Tomcat

To modify your Tomcat log settings, you need to edit the configuration file, server.xml. This file is usually under <otm_install_path>\tomcat\conf on Windows or <otm_install_path>/tomcat/conf on UNIX. Refer to your Apache documentation or <http://jakarta.apache.org/tomcat> for more information.

Oracle Application Server (OAS)

There are no user-configurable settings for these log files.

WebLogic

To modify your WebLogic log settings, you need to use the WebLogic console. Open a web browser and go to http://<appserver_name>:7001/console where <appserver_name> is the FQDN of your Oracle Transportation Management Application server. You need to login as system, with the password you setup when installing WebLogic. Refer to your WebLogic documentation or <http://e-docs.bea.com/wls/docs81/index.html>.

WebSphere

To modify your WebSphere log settings, you need to use the WebSphere console. Open a web browser and go to https://<appserver_name>:9043/ibm/console where <appserver_name> is the FQDN of

your Oracle Transportation Management Application server. You need to login as system, with the password you setup when installing WebSphere. Refer to your WebSphere documentation or <http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp>.

Changing Database Pool Size

As your server load varies, you may need to change the number of connections in the database pool. This may increase the performance of your Oracle Transportation Management instance. To determine if you have a database connection bottleneck, follow the instructions provided under the section **Monitoring Performance**.

After making any database pool changes, you may need to stop and restart Oracle Transportation Management, as described in the chapter **Starting Oracle Transportation Management after Installation Is Complete**. Also, before you change your pool size, consult a qualified Oracle DBA and ensure that your database can handle the new number of connections. If you set your pool connections higher than your database can support, Oracle Transportation Management will not be able to startup and function correctly. The instructions below describe how to make these changes.

1. Log into your Oracle Transportation Management system (http://<otm_webserver_name>) as the user DBA.ADMIN.
2. In the left frame expand Configuration and Administration>System Administration>Data Source Manager.
3. Select search.
4. Select the desired database pool.
5. You can now edit the initial capacity, maximum capacity, and capacity increment. If resources permit, you should set the initial and maximum capacity to the same value and save some overhead involved with expanding and shrinking the database pool.

Changing Memory Settings

As your server load varies, you may need to change the amount of memory that is allocated to the Oracle Transportation Management instance. You can change the amount of memory allocated to both Tomcat and OAS/WebLogic/WebSphere.

Tomcat is the Java servlet server that Oracle Transportation Management uses. Increasing the amount of memory that it can utilize allows more Oracle Transportation Management concurrent users and improves the speed of some integration tasks.

OAS/WebLogic/WebSphere is the application server that Oracle Transportation Management runs within. Increasing the amount of memory that it has improves performance of business logic functions.

After making any memory changes, you need to stop and restart Oracle Transportation Management, as described starting on page in the chapter **Starting Oracle Transportation Management after Installation Is Complete**. The instructions below describe how to make these changes.

UNIX and Win32

To change the amount of memory that Tomcat uses, edit `<otm_install_path>/tomcat/bin/tomcat.conf` and modify the following lines:

```
wrapper.java.additional.x=-Xms[TOMCAT_MEMORY]m  
wrapper.java.additional.x=-Xmx[TOMCAT_MEMORY]m
```

[TOMCAT_MEMORY] will be some integer value that represents the amount of memory (in megabytes) to use. For instance, if you changed this to 1.6GB, the line would read:

```
wrapper.java.additional.x=-Xms1600m
wrapper.java.additional.y=-Xmx1600m
```

You can also change the amount of memory that OAS uses by editing `<otm_install_path>/oas/bin/oc4j.conf`:

```
wrapper.java.additional.x=-Xms[OAS_MEMORY]m
wrapper.java.additional.y=-Xmx[OAS_MEMORY]m
```

If you change this value to 1.6GB, it would look like:

```
wrapper.java.additional.x=-Xms1600m
wrapper.java.additional.y=-Xmx1600m
```

You can also change the amount of memory that WebLogic uses by editing `<otm_install_path>/weblogic/config/gc3domain/weblogic.conf`:

```
wrapper.java.additional.x=-Xms[WEBLOGIC_MEMORY]m
wrapper.java.additional.y=-Xmx[WEBLOGIC_MEMORY]m
```

If you change this value to 1.6GB, it would look like:

```
wrapper.java.additional.x=-Xms1600m
wrapper.java.additional.y=-Xmx1600m
```

Under WebSphere, this change would be made to the file `<otm_install_path>/websphere/profiles/default/config/cells/___APP_SERVER___Node01Cell/nodes/___APP_SERVER___Node01/perftuners.xml` (where `___APP_SERVER___` is your application server's host name):

```
<param name="MaxMX">[APP_JVM_MEMORY]</param>
```

If you change this value to 1.60GB, it would look like:

```
<param name="MaxMX">1600</param>
```

In all cases, restart your Oracle Transportation Management instance to make these changes take effect.

Changing Notification Settings

The Oracle Transportation Management server sends out a variety of notifications to users. Changing these settings involves modifying the `glog.properties` file on your Oracle Transportation Management Application server as described below.

```
glog.mail.smtp.host=smtp.company.com
```

This setting defines the SMTP server that Oracle Transportation Management uses when sending email and fax notifications.

```
glog.workflow.notify.advisor.email=OTMAdvisor@company.com
```

This setting defines the email address that email and fax notifications will appear to come from. This email address should be valid and this email box should be monitored, so that bounced emails and delivery failures are caught. FAXmaker will also send fax success/failure responses to this email address.

```
glog.workflow.notify.advisor.fax=800-555-1212
```

This setting defines the fax number that fax notifications appear to come from.

`glog.workflow.notify.FAXmaker.email=fax@company.com`

This setting defines the e-mail address of the fax server. The fax server should monitor the corresponding mailbox and convert the incoming emails to faxes.

Changing Passwords

The following lists out all of the default users created as part of a standard Oracle Transportation Management installation, their default passwords, and how they can to be changed.

Oracle Transportation Management Users

Default Users

A new Oracle Transportation Management installation has the following users created:

User ID	Default Password	Notes
DBA.ADMIN	CHANGEME	May not be deleted.
DBA.DEFAULT	CHANGEME	
SERVPROV.ADMIN	CHANGEME	May not be deleted.
SERVPROV.DEFAULT	CHANGEME	
GUEST.ADMIN	CHANGEME	May not be deleted.
GUEST.DEFAULT	CHANGEME	
GLOG.ADMIN	CHANGEME	
GLOG.DEFAULT	CHANGEME	
STAGE.ADMIN	CHANGEME	
STAGE.DEFAULT	CHANGEME	
EBS.ADMIN	CHANGEME	
EBS.DEFAULT	CHANGEME	
E1.ADMIN	CHANGEME	
E1.DEFAULT	CHANGEME	
BLUEPRINT.ADMIN	CHANGEME	
BLUEPRINT.DEFAULT	CHANGEME	
system	CHANGEME	Change via the Application Server Users process below. May not be deleted.

User ID	Default Password	Notes
guest	CHANGEME	[OAS] Change via the Application Server Users process below. May not be deleted.
ebs	ebs	
e1	e1	
blueprint	blueprint	
glog	glog	
glogdev	CHANGEME	

Unless otherwise noted above, passwords for Oracle Transportation Management users can be changed using the Oracle Transportation Management User Manager; refer to the online help for details.

Resetting Passwords

Passwords in the Oracle Transportation Management database are encrypted and are not presented as clear-text. If you lose a password for a user and need to reset it, you can log in as an Admin user for that domain and reset their password using the User Manager.

If the Admin user password is lost, or if you want to reset more than one password, you can do the following:

1. Login to the application server machine as the Oracle Transportation Management user
2. Setup your environment by running `<otm_install_path>/install/gc3env.sh` on UNIX or `<otm_install_path>/install/gc3env.cmd` on Windows.
3. `cd` to `<otm_install_path>/oracle/script8`
4. Run `update_password.sh` on UNIX or `update_password.cmd` on Windows with the following parameters:
 - `update_password.sh <glog_properties_path> <user> <password> <ifPasswords>`
 - `glog_properties_path`: directory where `glog.properties` is, e.g. `<otm_install_path>/glog/config`
 - `user`: one or more users separated by commas, or 'all', e.g. `GUEST.ADMIN,SERVPROV.ADMIN`
 - `password`: the new password
 - `ifPasswords`: one or more passwords to match against separated by commas, or 'all'

For example:

```
$ ./update_password.sh /opt/otm-554/glog/config GUEST.ADMIN
foobar all
```

will change GUEST.ADMIN's password to 'foobar' regardless as to what it is currently set to.

```
$ ./update_password.sh /opt/otm-554/glog/config all foobar
CHANGEME,DEFAULT
```

will change ALL passwords to 'foobar', but only if they are currently set to 'CHANGEME' or 'DEFAULT'

Note: When running this procedure for all users, the application server's 'system' user password is changed as well. If you had previously changed this, you will need to change it back or change it as noted under the section *Application Server Users* below. **[OAS]** This also applies to the 'guest' user.

Note: The changes will not take effect until the instance is restarted.

Application Server Users

Default Users

Each type of application server has one or more users that are utilized in running Oracle Transportation Management, and each user has a separate set of instructions to be used if you want to change the password. None of these users may be deleted unless otherwise noted.

Oracle Application Server (OAS)

The following OAS users are created:

User ID	Default Password	Notes
oc4jadmin	CHANGEME	Used to stop the application server and to access the console. May not be deleted.

Use the following steps when changing the oc4jadmin password:

1. Ensure that Oracle Transportation Management is up and running
2. Log in to the OAS console (http://<app_server_fqdn>:8888/em)
3. Click "Setup" in the upper right corner
4. Enter the current password, and the new password twice, then select "Apply"
5. On the application server, edit the file `<otm_install_path>/oas/bin/oc4j.conf`; at the top of the file is a line that looks like this:
6. `set .OAS_PW=CHANGEME`
7. Change it to the value of the new password.
8. Restart Oracle Transportation Management

In addition, the following Oracle Transportation Management users are used to communicate between the tiers:

User ID	Default Password	Notes
system	CHANGEME	May not be deleted.
guest	CHANGEME	May not be deleted.

In order to change the 'system' user's password, do the following:

1. Login to Oracle Transportation Management as DBA.ADMIN and use the Oracle Transportation Management User Manager to change the password for the 'system' user; refer to the online help for details.

2. Login to the application server machine as the Oracle Transportation Management user
3. Setup your environment by running `<otm_install_path>/install/gc3env.sh` on UNIX or `<otm_install_path>/install/gc3env.cmd` on Windows.
4. Run the following command:
5. `java glog.util.appclass.Base64Encoding <new_password>`
6. This will return the encoded value for your new password
7. On the Oracle Transportation Management web server(s) edit the file `<otm_install_path>/tomcat/bin/tomcat.conf`; search for the string `'-DGC3EncodedPassword='` and change the value of this to the results of the previous step.
8. Restart Oracle Transportation Management

In order to change the 'guest' user's password, do the following:

1. Login to the application server machine as the Oracle Transportation Management user
2. Setup your environment by running `<otm_install_path>/install/gc3env.sh` on UNIX or `<otm_install_path>/install/gc3env.cmd` on Windows.
3. Change directories to the `<otm_install_path>/glog/oracle/script8` directory.
4. Run the following command:
 Unix/Linux: `./update_password.sh ../../config guest <new_password>`
 Windows: `.\update_password.sh ../../\config guest <new_password>`
5. Run the command: `java glog.util.appclass.Base64Encoding <new_password>`
6. This will return the encoded value for your new password
7. On the Oracle Transportation Management web server(s) edit the file `<otm_install_path>/tomcat/bin/tomcat.conf`; search for the block of code starting with `'wrapper.java.additional.1'` and add an additional line with the following:
`wrapper.java.additional.##=-DGuestEncodedPassword=<encoded_password>`
 where `##` is the next sequential number in the block and `'<encoded password>'` is the value from the previous step.
8. Restart Oracle Transportation Management

WebLogic

WebLogic creates no new users on its own, relying on the users Oracle Transportation Management creates:

User ID	Default Password	Notes
system	CHANGEME	Used to start & stop the application as well as manage the WebLogic console. May not be deleted.

In order to change the 'system' user's password, do the following:

1. Login to Oracle Transportation Management as DBA.ADMIN and use the Oracle Transportation Management User Manager to change the password for the 'system' user; refer to the online help for details.

2. On the application server, edit the file `<otm_install_path>/weblogic/config/gc3domain/weblogic.conf`; at the top of the file is a line that looks like this:
3. `set .WL_PW=CHANGEME`
4. Change it to the value of the new password.
5. Login to the application server machine as the Oracle Transportation Management user
6. Setup your environment by running `<otm_install_path>/install/gc3env.sh` on UNIX or `<otm_install_path>/install/gc3env.cmd` on Windows.
7. Run the following command:
`java glog.util.appclass.Base64Encoding <new_password>`
8. This will return the encoded value for your new password
9. On the Oracle Transportation Management web server(s) edit the file `<otm_install_path>/tomcat/bin/tomcat.conf`; search for the string `'-DGC3EncodedPassword='` and change the value of this to the results of the previous step.
10. Restart Oracle Transportation Management

WebSphere

WebSphere creates no new users on its own, relying on the users Oracle Transportation Management creates:

User ID	Default Password	Notes
system	CHANGEME	Used to start & stop the application as well as manage the WebSphere console. May not be deleted.

In order to change the 'system' user's password, do the following:

1. Login to Oracle Transportation Management as DBA.ADMIN and use the Oracle Transportation Management User Manager to change the password for the 'system' user; refer to the online help for details.
2. On the application server, edit the following files, replacing the old password with the new password:
 - a. `<otm_install_path>/websphere/profiles/default/bin/deployGC3.jacl`
 - b. `<otm_install_path>/websphere/profiles/default/bin/deployGC3SS.jacl`
 - c. `<otm_install_path>/websphere/profiles/default/bin/undeployGC3.jacl`
 - d. `<otm_install_path>/websphere/profiles/default/bin/undeployGC3SS.jacl`
 - e. `<otm_install_path>/websphere/profiles/default/config/cells/___APP_SERVER___Node01 Cell/nodes/___APP_SERVER___Node01/servers/server1/server.xml` (where `___APP_SERVER___` is your application server's host name)
 - f. look on the "`<jvmEntries`" line near the bottom of the file.
 - g. `<otm_install_path>/websphere/profiles/default/config/cells/___APP_SERVER___Node01 Cell/ security.xml` (where `___APP_SERVER___` is your application server's host name)
 - i. login to your APP server machine as the Oracle Transportation Management user

- ii. `cd $WAS_INSTALL_DIR/lib` (where `$WAS_INSTALL_DIR` is the directory where you installed the WebSphere Application Server, e.g. `/opt/IBM/WebSphere/AppServer6`)
 - iii. Type the following, all on one line, where "secret" is your new password; make note of the output, specifically the stuff between the quotes (e.g. `encoded password == "{xor}LDo8LTor"`):

```
../java/bin/java -cp
securityimpl.jar:iwsorb.jar::ras.jar:wsexception.jar:bootstrap.jar:emf.jar:ffdc.jar
com.ibm.ws.security.util.PasswordEncoder secret
```
 - iv. look for the "`<authDataEntries`" line in the `security.xml` file that has "`alias="system"`"
 - v. replace the old "`password="{xor}HBceERgaEho=""`" with the newly encrypted secret "`password="{xor}LDo8LTor ""`"
3. Login to the application server machine as the Oracle Transportation Management user
 4. Setup your environment by running `<otm_install_path>/install/gc3env.sh` on UNIX or `<otm_install_path>/install/gc3env.cmd` on Windows.
 5. Run the following command:

```
java glog.util.appclass.Base64Encoding <new_password>
```
 6. This will return the encoded value for your new password
 7. On the Oracle Transportation Management web server(s) edit the file `<otm_install_path>/tomcat/bin/tomcat.conf`; search for the string '`-DGC3EncodedPassword='` and change the value of this to the results of the previous step.
 8. Restart Oracle Transportation Management

Oracle Database Users

Database User ID	Default Password	Notes
archive	archive	This user owns the <code>_DMP</code> tables used for archiving the data. May not be deleted.
glogdba	glogdba	This user has access to functions and packages owned by <code>glogowner</code> & <code>reportowner</code> , but does not itself own any tables, views, functions or packages. It must call the <code>vpd.set_user</code> stored procedure to set user context to view data. May not be deleted.
glogowner	glogowner	This user owns Oracle Transportation Management tables, views, functions & packages, can create or alter data structures within the database and can manipulate data. May not be deleted.
glogdev	glogdev	This user has complete access to the data. There is no need to call the <code>vpd</code> package to set user context when logged in as <code>glogdev</code> ; does not own any tables, views, functions or packages. May not be deleted.
glogload	glogload	Used for loading data into <code>glogowner</code> and <code>reportowner</code> schemas. May not be deleted.
reportowner	reportowner	This user owns the tables, views, functions and packages required for reporting, and can read the data. May not be deleted.

Database User ID	Default Password	Notes
globalreportuser	globalreportuser	This user has read access to all the data in GC3. It is mainly used for XSQL reporting. May not be deleted.

If you wish to change the passwords for these users, follow these steps:

1. Using SQL*Plus, log into the Oracle Transportation Management database as sys or system.
2. Run the following for each user that you wish to change:

```
alter user <user_name> identified by <new password>
```

Some users have additional steps that need to be taken:

glogdba

1. Edit the <otm_install_path>/glog/config/glog.properties file on each Oracle Transportation Management Web and App server and replace the value of "glog.database.password" with the new glogdba password.
2. **[OAS]** Edit the file <otm_install_path>/oas/j2ee/home/config/data-sources.xml and replace the password on all lines containing "user="glogdba""
3. **[WebLogic]** Edit the file <otm_install_path>/weblogic/config/gc3domain/config.xml.template and replace the password on the line containing "user=glogdba"
4. **[WebSphere]** Edit the file <otm_install_path>/websphere/profiles/default/config/cells/___APP_SERVER___Node01Cell/security.xml (where ___APP_SERVER___ is your application server's host name)
 - a. login to your APP server machine as the Oracle Transportation Management user
 - b. cd \$WAS_INSTALL_DIR/lib (where \$WAS_INSTALL_DIR is the directory where you installed the WebSphere Application Server, e.g. /opt/IBM/WebSphere/AppServer6)
 - c. Type the following, all on one line, where "secret" is your new password; make note of the output, specifically the stuff between the quotes (e.g. encoded password == "{xor}LDo8LTor"):

```
../java/bin/java -cp securityimpl.jar:iwsorb.jar::ras.jar:wsexception.jar:bootstrap.jar:emf.jar:ffdc.jar com.ibm.ws.security.util.PasswordEncoder secret
```
 - d. look for the "<authDataEntries" line in the security.xml file that has "alias="glogdba""
 - e. replace the old "password="{xor}HBceERgaEho="" with the newly encrypted secret "password="{xor}LDo8LTor ""
5. Restart Oracle Transportation Management.

glogload

1. Edit the <otm_install_path>/glog/config/glog.properties file on each Oracle Transportation Management Web and App server and replace the value of "glog.database.load.password" with the new glogload password.

globalreportuser

1. Edit the <otm_install_path>/glog/config/XSQLConfig.xml file on each Oracle Transportation Management Web server and replace the value of "<password>globalreportuser</password>" with the new globalreportuser password.

Cleartext Passwords

The following files have cleartext passwords in them. Proper OS-specific measures should be taken to ensure that only privileged users have read-access to these files:

- <otm_install_path>/glog/config/glog.properties
- <otm_install_path>/glog/config/XSQLConfig.xml
- **[OAS]** <otm_install_path>/oas/bin/oc4j.conf
- **[OAS]** <otm_install_path>/oas/j2ee/home/config/data-sources.xml
- **[WebLogic]** <otm_install_path>/weblogic/config/gc3domain/weblogic.conf
- **[WebLogic]** <otm_install_path>/weblogic/config/gc3domain/config.xml.template
- **[WebSphere]** <otm_install_path>/websphere/profiles/default/bin/deployGC3.jacl
- **[WebSphere]** <otm_install_path>/websphere/profiles/default/bin/deployGC3SS.jacl
- **[WebSphere]** <otm_install_path>/websphere/profiles/default/bin/undeployGC3.jacl
- **[WebSphere]** <otm_install_path>/websphere/profiles/default/bin/undeployGC3SS.jacl

In addition, the following two files have passwords that can be easily decrypted:

- **[WebSphere]**
<otm_install_path>/websphere/profiles/default/config/cells/__APP_SERVER__Node01Cell/nodes/__APP_SERVER__Node01/servers/server1/server.xml (where __APP_SERVER__ is your application server's host name)
- **[WebSphere]**
<otm_install_path>/websphere/profiles/default/config/cells/__APP_SERVER__Node01Cell/security.xml (where __APP_SERVER__ is your application server's host name)

Configuring Oracle Transportation Management to use a Different Database

At some point, you may need to point your Oracle Transportation Management instance to another database for testing, development, or fail-over purposes. Follow the directions below to configure Oracle Transportation Management to use this new database. It is assumed that the new Oracle Transportation Management database has already been created and populated with data using the database installation directions earlier in this manual. The database should also be at the same patch level as your Oracle Transportation Management instance to prevent any incompatibility problems.

1. Shutdown your Oracle Transportation Management Web and Application servers as described earlier in this guide.
2. Edit the file <otm_install_path>/glog/config/glog.properties and change the following properties. This should be done on each Oracle Transportation Management Web and Application server.

```
dbserver=<db_server_fqdn>
glog.database.sid=<oracle_sid>
glog.database.connectstring=<oracle_connectstring>
```

3. **[OAS]** Edit the file <otm_install_path>/oas/j2ee/home/config/data-sources.xml and change the following line:

```
<connection-factory factory-
class="oracle.jdbc.pool.OracleDataSource" password="glogdba"
url="jdbc:oracle:thin:@[DB_FQDN]:[DB_PORT]:[DB_SID]"
user="glogdba" />
```

4. **[WebLogic]** Edit the file `<otm_install_path>/weblogic/config/gc3domain/config.xml.template` and change the following property under `JDBCConnectionPool`.
`URL=jdbc:oracle:thin:@<db_server_fqdn>:1521:<oracle_sid>`
5. **[WebSphere]** Edit the file `<otm_install_path>/websphere/profiles/default/config/cells/___APP_SERVER___Node01Cell/nodes/___APP_SERVER___Node01/resources.xml` (where `___APP_SERVER___` is your application server's host name) and change the following line under `resources.jdbc:JDBCProvider`:

```
<resourceProperties xmi:id="J2EEResourceProperty_1141837349928"
name="URL" type="java.lang.String"
value="jdbc:oracle:thin:@[DB_FQDN]:[DB_PORT]:[DB_SID]"
description="This is a required property. The URL indicating the
database from which the Data Source will obtain connections, such as
'jdbc:oracle:thin:@localhost:1521:sample' for thin driver and
'jdbc:oracle:oci8:@sample' for thick driver." required="true"/>
```

NOTE: only change the values `[DB_FQDN]:[DB_PORT]:[DB_SID]`
6. Restart your Oracle Transportation Management Web and Application servers as described earlier in this guide.
7. On an Oracle Transportation Management Reports server, edit `cgicmd.dat` (under your Oracle AS 10gR2 FR installation) and update the connect string.
8. You may also need to edit your `tnsnames.ora` files on each Oracle Transportation Management Web, App, and Reports server. Oracle Reports may need to be re-configure to point at the new database.

Creating and Installing SSL Certificates

Oracle Transportation Management is delivered with demonstration SSL certificates for Apache (using `mod_ssl` and `OpenSSL`) and the application server. To run these servers in a production environment, you should replace these with your own real certificates, verified by a known Certificate Authority, such as Verisign, Thawte, etc. In a high-traffic SSL environment, you should use hardware SSL accelerators as they simplify certificate management, increase SSL performance, and greatly reduce the load on your servers. Hardware solutions are available from F5, Intel, and others.

Apache

1. Open a command prompt and change into `<otm_install_path>/apache/openssl/bin`, where `<otm_install_path>` is where you installed the Oracle Transportation Management software (**Win32**: change into `<otm_install_path>\apache\bin` instead).
2. Create a RSA private key for your Apache server (it will be Triple-DES encrypted and PEM formatted).
`openssl genrsa -des3 -out server.key 1024`
3. Enter your PEM pass phrase. This will be a password that you create. Make a backup copy of the `server.key` and remember your pass phrase (you will need it). You can see the details of the RSA private key with this command:
`openssl rsa -noout -text -in server.key`
4. You can also create a decrypted PEM version of the RSA private key with this command:
`openssl rsa -in server.key -out server.key.unsecure`
5. Create a Certificate Signing Request (CSR) with the server RSA private key (output will be in PEM formatted):
`openssl req -new -key server.key -out server.csr -config openssl.cnf`
6. Please answer all of the questions to the best of your ability, especially the common name (your company's domain name).

7. You can view the details of your CSR via this command:

```
openssl req -noout -text -in server.csr
```
8. You now have to send this Certificate Signing Request (CSR) to a Certifying Authority (CA) for signing. The result is then a real Certificate, which can be used for Apache. You now need to transfer the CSR to a commercial CA like Verisign or Thawte. Usually you will need to post the CSR into a web form, pay for the signing, and await the signed Certificate that you then store into a server.crt file.
9. When you receive the file back from the Certifying Authority you will copy this file into `<otm_install_path>/apache/conf/ssl.crt`. Also copy server.key from `<otm_install_path>/apache/openssl/bin` to `<otm_install_path>/apache/conf/ssl.key`. The server.key file was created earlier.
10. Now you have two files: server.key and server.crt. These files can be used now. Edit your apache configuration file `<otm_install_path>/apache/conf/httpd.conf`. Scroll to almost to the end of the file and you will see two lines:

```
SSLCertificateFile conf/ssl.crt/demo.cert
SSLCertificateKeyFile conf/ssl.key/demo.key
```
11. Replace demo.cert with the file name server.crt and replace demo.key with the file name server.key. Make sure that you put the file names at the end of the path. Notice server.crt is for SSLCertificateFile and server.key is for SSLCertificateKeyFile.

The Server.csr file is no longer needed.

12. Restart Apache for these new settings to take effect.

Enable mod_deflate

Oracle Transportation Management can use mod_deflate under Apache to compress outbound html content. This reduces bandwidth consumption and increases performance over slow network links. If you wish to enable this feature, do the following:

1. Edit the `<otm_install_path>/apache/conf/httpd.conf` file on each Oracle Transportation Management Web server and uncomment the following lines in the mod_deflate section.

```
#      SetOutputFilter DEFLATE
#      SetInputFilter DEFLATE
```

Enabling Automatic Web UI Login

Oracle Transportation Management can remember a user's login ID and password and auto-fill these fields. This feature stores the hashed login ID and password in a cookie within the end-user's web browser. This feature may present a security concern if enabled.

To enable, do the following:

1. Edit the `<otm_install_path>/glog/config/glog.properties` file on your Web servers and add the following property:

```
glog.webserver.login.remember=true
```
2. Restart Oracle Transportation Management for this to take effect. The "Remember Me" checkbox will now appear on the login screen and browser-based users can selectively enable this feature for their login.

Enabling Reverse-Proxy Support

Oracle Transportation Management supports some reverse-proxy solutions. The reverse-proxy is expected to identify sites based on a URL-prefix (such as /otm) and then strip that prefix off before

forwarding the URL to Oracle Transportation Management. Every link that Oracle Transportation Management sends to the browsers will contain the defined URL-prefix.

To enable reverse-proxy support, do the following:

1. Edit the `<otm_install_path>/glog/config/glog.properties` file on your Web and Application servers and modify the line to include the desired URL-prefix (ex. `/otm`):
`glog.webserver.urlprefix=`
2. Edit the `index.htm` file under `<otm_install_path>/apache/htdocs`. The following line needs to contain the URL-prefix:
`<META http-equiv="refresh" content="0; URL=/servlets/glog.webserver.servlet.umd.Login"/>`
 - For example, if your URL-prefix is `/otm`, it would look like:
`<META http-equiv="refresh" content="0; URL=/otm/servlets/glog.webserver.servlet.umd.Login"/>`
3. Ensure that the `glog.webserver.URL` setting in your `glog.properties` files points to your reverse-proxy server, rather than the individual web server(s).
4. Restart Oracle Transportation Management to enable these changes. Oracle Transportation Management can now be accessed through the reverse-proxy, but may not be accessible directly. This is a limitation due to adjusting links to work with the reverse-proxy.

Enabling Single Sign On (SSO) Support

Oracle Transportation Management supports SSO, where a central application (the SSO provider) authenticates users and then passes the login information to Oracle Transportation Management, therefore bypassing the normal Oracle Transportation Management login process. *The burden of authentication then falls to the SSO provider -- Oracle Transportation Management will not provide any.*

For SSO access to Oracle Transportation Management, the invoking code needs to pass in the following parameter as part of the HTTP request:

```
appuid=/GUEST.ADMIN/
```

where `/GUEST.ADMIN/` is the user's GUID. This can also be passed in as part of the HTTP header (see below to control this behavior). By default, the logic checks the header first and then the request.

There are several properties that control SSO. They must be set in the `glog.properties` file on the Web Server:

- `glog.security.sso=true` -- is SSO allowed or not? It is false by default
- `glog.security.sso.appUidName=appuid` -- to change the name of the UID field
- `glog.webserver.initial_page=url` -- used if a redirect is not provided as part of the request. `url` can either be an Oracle Transportation Management servlet or a fully qualified URL:
 - `$glog.webserver.urlprefix$$glog.webserver.context$glog.webserver.util.FrameGC3Servlet`
 - `http://some.domain.com/some_page.html`
- `glog.security.sso.appUidLocation=X` -- where X is one of the following:
 - 1 (default) -- check HTTP header & then request parameter for the user name
 - 2 -- check request parameter only
 - 3 -- check HTTP header only

Installing Multiple Oracle Transportation Management Instances on the Same Machine

Installing multiple Oracle Transportation Management instances on the same physical or logical machine is supported. However, it is only supported when using virtual IP addresses. Any other solution is not supported.

Installing Multiple Web Servers

Multiple Web servers can be utilized to increase the performance of Oracle Transportation Management. Generally, with more web servers you can maintain more simultaneous user connections into the Oracle Transportation Management server's web interface. You may also see increased performance in integration, since incoming integration files are posted to a servlet on the Web server and are passed back to the Application server. We recommend using a hardware load-balancer to spread the incoming requests among multiple Web servers. Hardware solutions are available from many vendors including Alteon, Cisco, F5, and others.

Installing Translations

Under UNIX systems:

1. Log in as the Oracle Transportation Management user
2. Change the directory to <otm_install_path>/glog/oracle/script8
3. Run the following command: `install_lang.sh <lang id> [<country id>]`

Under Windows:

1. Log in as the Oracle Transportation Management user
2. Start → Run... → cmd
3. Change the directory to <otm_install_path>/glog/oracle/script8
4. Run the following command: `install_lang.sh <lang id> [<country id>]`

where valid <lang id> and <country id> values are:

Language	Language ID	Country ID
Chinese (Simplified)	zh	CN
Chinese (Traditional)	zh	TW
French (Canadian)	fr	CA
French (European)	fr	
German	de	
Italian	it	
Japanese	ja	

Language	Language ID	Country ID
Korean	ko	
Portuguese (Brazilian)	pt	BR
Russian	ru	
Spanish (European)	es	
Spanish (Latin American)	es	MX

To have Notifications translated, the following property will need to be set in the `<otm_install_path>/glog/config/glog.properties` file:

```
glog.notify.localizeStylesheet=true
```

Modifying the Session Timeout

The default session timeout for the Oracle Transportation Management Web Server is 30 minutes. If you leave Oracle Transportation Management idle for 30 minutes, your session will timeout and you will need to log in again. For some Oracle Transportation Management installations, you may want to increase this timeout. Please note that increasing the session timeout will increase the load on your Web server and may decrease the number of simultaneous users that can access the system. We don't recommend setting this above 60 minutes.

To change this setting, edit the `web.xml` files on your Oracle Transportation Management Web Server. These files are located on your web server(s): `<otm_install_path>/tomcat/conf/web.xml` and `<otm_install_path>/glog/gc3webapp/WEB-INF/web.xml`. Edit the following line in each file:

```
<session-timeout>30</session-timeout>
```

Change the setting from 30 to your desired timeout period, in minutes. Restart the Oracle Transportation Management Instance as described in the chapter **Starting Oracle Transportation Management after Installation Is Complete**.

Monitoring Performance

Windows

On Windows, you can monitor system performance using the Task Manager or Performance Monitor. You should monitor general trends, such as CPU usage, memory usage, and memory swapping (out to virtual memory).

The Apache service starts up multiple instances of Apache to handle incoming requests. Each of these will show up as "Apache.exe", and can be monitored for performance statistics using general Windows Server tools.

The Tomcat service starts up one Java JVM and shows up as "java.exe". Unfortunately this can be hard to find if you have multiple JVMs running on the same machine. Usually you can identify Tomcat by the amount of memory it is using, as normal Tomcat instances use large amounts of memory (typically 512MB to 2GB). You can monitor the performance statistics of Tomcat using general Windows Server tools.

The Weblogic service starts up one Java JVM, but shows up as `beasvc.exe`, because of WebLogic's special service runner. You can monitor the performance statistics of WebLogic using general Windows Server tools. You can also get detailed performance statistics from the WebLogic console. Follow these steps:

1. Log into the WebLogic console (`http://<appserver_name>:7001/console`) as the user system.
2. In the left frame, expand `gc3domain -> Servers`.
3. Select the Oracle Transportation Management server.
4. In the main frame, select the Monitoring tab.
5. Then select the Performance tab.
6. This screen shows you the following:
 - Request Throughput – The rate at which requests are processed. The higher the better.
 - Requests Waiting – The number of requests waiting to process. The lower the better.
 - Memory Usage – The amount of memory utilized by WebLogic. Keep in mind that this shows you how much memory WebLogic is using, within the memory allocated to the JVM. The amount of memory reported by your operating system will be higher, since the JVM reserves all of the memory that it has been configured to allocate, regardless of whether WebLogic is using it all or not. This was set during the Oracle Transportation Management installation. To get a true memory reading, you should force a garbage collection.
 - Force Garbage Collection – This will force the JVM to free up all unused memory. This should be run in order to get a true memory reading from the main performance screen. Keep in mind that forcing a garbage collection will slow the server down and shouldn't be forced continually. The JVM usually manages garbage collections automatically as the server runs.
7. To monitor database connections, expand `Services > JDBC > Connection Pools`.
8. Select `dbaPool`.
9. Select the Monitoring tab and Monitor all instances of `dbaPool`.
10. This page shows you the initial, maximum, and high number of db connections. You should monitor whether the high number is at or near the maximum number of connections. If so, you should consider increasing the database connections in the `dbaPool`.

UNIX

On UNIX, you can monitor system performance using the `ps`, `top`, or `sar`. You should monitor general trends, such as CPU usage, memory usage, and memory swapping (out to virtual memory). All processes for Oracle Transportation Management should run under the user setup during the installation process. This can be helpful for identifying the processes.

The Apache service starts up multiple instances of Apache to handle incoming requests. Each of these will show up as `"httpd"`, and can be monitored for performance statistics using general UNIX tools.

Oracle Application Server (OAS)

The Tomcat service starts up one Java JVM and shows up as `"<path>/ java -server -Xms512m -"`. Unfortunately this can be hard to find if you have multiple JVMs running on the same machine. Usually you can identify Tomcat by the amount of memory it is using, as normal Tomcat instances use large amounts of memory (typically 768MB to 2GB). You can monitor the performance statistics of Tomcat using general UNIX tools.

The OAS service starts up one Java JVM and shows up as `"<path>/ java -server -XX:MaxPerm"` (differs slightly from the Tomcat instance). Unfortunately this can be hard to find if you have multiple JVMs running on the same machine. Usually you can identify OAS by the amount of memory it is using, as normal OAS instances use large amounts of memory (typically 512MB to 2GB). You can

monitor the performance statistics of OAS using general UNIX tools. You can also get detailed performance statistics from the OAS console (on the Performance tab).

WebLogic

The Tomcat service starts up one Java JVM and shows up as "`<path>/ java -server -Xms512m -`". Unfortunately this can be hard to find if you have multiple JVMs running on the same machine. Usually you can identify Tomcat by the amount of memory it is using, as normal Tomcat instances use large amounts of memory (typically 768MB to 2GB). You can monitor the performance statistics of Tomcat using general UNIX tools.

The WebLogic service starts up one Java JVM and shows up as "`<path>/ java -server -XX:MaxPer`" (differs slightly from the Tomcat instance). Unfortunately this can be hard to find if you have multiple JVMs running on the same machine. Usually you can identify WebLogic by the amount of memory it is using, as normal WebLogic instances use large amounts of memory (typically 512MB to 2GB). You can monitor the performance statistics of WebLogic using general UNIX tools. You can also get detailed performance statistics from the WebLogic console. Follow the steps under the **Monitoring Performance** - *Windows* section.

WebSphere

The Tomcat service starts up one Java JVM and shows up as "`<path>/ java -Xlp -Xms512m -`". Unfortunately this can be hard to find if you have multiple JVMs running on the same machine. Usually you can identify Tomcat by the amount of memory it is using, as normal Tomcat instances use large amounts of memory (typically 768MB to 2GB). You can monitor the performance statistics of Tomcat using general UNIX tools.

The WebSphere service starts up one Java JVM and shows up as "`<path>/ java -Xbootclasspath/p:`". Unfortunately this can be hard to find if you have multiple JVMs running on the same machine. Usually you can identify WebSphere by the amount of memory it is using, as normal WebSphere instances use large amounts of memory (typically 512MB to 2GB). You can monitor the performance statistics of WebSphere using general UNIX tools. You can also get detailed performance statistics from the WebSphere console.

Purging Excess Reports from the REPORT_LOG Table

Purge Process for UNIX

1. Logon to the UNIX machine on which the Report server is installed.
2. Run the shell script
`purgeRepLog.sh`

The script prompts for the nine parameters that are listed later in this section. Based on the parameters passed, the script deletes the records from the database and deletes the PDF files.

Note: The USERID used to logon to the UNIX machine should have delete permissions on the PDF files created by the report server.

Purge Process for Windows

1. Logon to the Windows machine on which the Report server is installed.
2. Run the batch file `purgeRepLog.bat` with the parameters that are list later in this section (in the order specified).

Based on the parameters passed, the script deletes the records from the database and deletes the PDF files.

Parameters

These parameters should be passed to the procedure in the order listed below:

- **Start Date** – this is the starting date from which the records are to be purged. % can be used to imply all dates. Default value is NULL. The format for the field is DD-MON-YYYY.
- **End Date** – this date is to date till which the records are to be purged. % can be used to imply all dates. Default value is NULL. The format for the field is DD-MON-YYYY.
- **Domain Name** – Domain name for which the records and files are to be purged. % indicates all domains. Default value is NULL
- **GL User** – GL User ID for which the records and files are to be purged. '%' can be used to indicate all users. Default value is NULL
- **Report GID** – the Report GID for which the records and files are to be purged. % indicates all the Report GIDs. Default value is NULL
- **Job Number** – the Job Number for which the records and files are to be purged. % indicates all the job numbers. Default value is NULL
- **DB User Name** – the database user name
- **DB Password** – the database password
- **Connect string** – the database SID or the connect string. Default value is the value of the environment variable \$ORACLE_SID.

Diagnose Purging Problems for Shipments and Orders

Most likely, the reason for your problem is one of the following:

- Oracle init parameters are not set up.
- Pkg_purge package has become invalid after an Oracle Transportation Management patch.
- Purging job is not scheduled.

The shipment order purge was developed for database archive purposes. The data is purged from the glogowner schema and archived in the archive schema. During purging, there is a dependency between shipments and orders. Shipments should be purged before orders. After purging the shipments, the application also purges the corresponding ship units, batch grids, and ship groups. Corresponding means that only a shipment or order release about to be purged can reference them, no other shipments or order releases may reference them.

You can purge either in SQL*Plus or in Oracle Transportation Management. The purge is a two step process:

1. The GIDs from shipment, order, or ship unit that meet the selection criteria are moved into the table job_queue.
2. The Oracle background process wakes up at certain time intervals and deletes the objects. The default interval is 30 minutes.

As mentioned earlier, only ship units, batch grids, and ship groups referenced by a shipment or order release about to be purged are purged. Ship units, batch grids, and ship groups not referenced by a shipment or order release about to be purged stay in the database. This is to avoid Oracle Transportation Management application errors. For example we do not want the following to happen:

- You have just created a ship unit and you are going to use it to build a shipment.
- At that moment the purge job starts and removes the ship unit.

Setup

The shipment, order, or ship unit purge should have been set up during the Oracle Transportation Management database installation. If not, the following steps help you set up the purge:

1. Add two parameters in init.ora

```
job_queue_interval    integer 60
job_queue_processes   integer 4
```
2. Shutdown your database and then restart it.
3. @pkg_shipment_purge.sql to compile pkg_purge package in SQL*Plus
4. pkg_purge.install to schedule a job.

Diagnose Problems

Before you conclude that your purge did not work, you should diagnose your problem.

1. Log in as DBA in SQL plus.
2. Find out if your Oracle database is ready to run background job:

```
sql>show parameters job
```

NAME	TYPE	VALUE
-----	----	-----
job_queue_interval	integer	60
job_queue_processes	integer	4

3. If either value is 0, you should:
add these two parameters to the init.ora file or directly set the values:

```
sql>alter system set job_queue_interval=60
sql>alter system set job_queue_processes=4
```

4. Find out if the purge job is scheduled:

```
sqlplus>select job from user_jobs
        JOB
        ---
         1
```

5. If the value is not 1, you should schedule the job by executing either one of the following commands:

```
sqlplus> execute pkg_purge.install(a number)
```

This job will be executed as the user who submits it.

or

```
sqlplus> execute pkg_purge.dbinstall(a number)
```

This job will be executed as DBA.

The number represents a number of 30 minute periods. For example, 1 represents 30 minutes between job executions and 3 represents 90 minutes between job executions.

The pkg_purge package could become invalid after having patched Oracle Transportation Management. In that case, you can just re-schedule the job.

6. Monitor the progress:

```
sqlplus>select count(1) from job_queue
```

The count should decrease quickly, by hundreds of records. A typical speed is 4000-5000 business records per hour.

7. Look in the i_log table for any error messages as well as start and end times of the purge.

Troubleshoot with SQLServlet

After you have submitted your shipment order purge job in the process manager within Oracle Transportation Management, you should receive an email. The script moves all GIDs to the job_queue table. After 30 minutes (or whatever job interval you have chosen), you should notice that the total number of rows in the job_queue table has decreased. If not, the following question and answer section helps you to diagnose the problem. These answers assume that you can use the SQLServlet.

Question: How do I know when my purging will start?

Answer: Submit the following: `"select last_date, next_date from dba_jobs where job = 1"`. The time under the heading of next_date tells you when the next purge should be started.

Question: I submit `"select last_date, next_date from dba_jobs where job = 1"`, but no record is returned for the query.

Answer: This means that the purge job is not scheduled. To schedule the purging job, you can submit `"begin pkg_purge.install; end;"`.

Question: It is passed the time specified in the next_date column in the previous query. However, the total number of rows in the job_queue table is still unchanged. Why?

Answer: One possibility is that the pkg_purge package has become invalid after you have patched Oracle Transportation Management. You can reschedule the job by submitting `"begin pkg_purge.install; end;"`.

Question: I rescheduled the job. However, the total number of rows in the job_queue table is still unchanged. Why?

Answer: Most likely, the two Oracle init parameters are not set. You should ask your DBA to check the two parameters.

Question: All of my GIDs are removed from the job queue table. However, my shipments or orders are still not deleted or only partially deleted. How can I find out what is wrong?

Answer: All of the error messages are logged in the I_log table. You can submit `"select * from i_log where written_by = 'PKG_PURGE'"` to help you diagnose the problem.

Question: I view the error log. There are some fk violation related error messages. Does this mean that the purging program cannot delete parent records when a child record references them?

Answer: No, the purging program is implemented with cascade delete functionalities. It would delete the referenced children before deleting their parent. However, this may be a security problem. For example, the parent and child data might exist in different domains and the user trying to purge does not have read and write privileges to the domain containing the child data.

Question: I want to purge but some parent and child data exist in different domains. What should I do?

Answer: You have two options: The first is to grant read and write privileges from the child domain to parent domain. You may not like this option because you have to do a lot of granting. The other option

is to schedule the purge job with DBA privileges by submitting `"begin pkg_purge.dba_install; end;"`.

Question: How do I change the job interval?

Answer: The default job interval is 30 minutes during Oracle Transportation Management database installation or patching. However, you are only allowed to change the interval in increments of 30 minutes by calling the stored procedure with a number in the parameter. For example, if you would prefer the job to run every 12 hours, then you submit `"begin pkg_purge.dba_install(24); end;"`. The parameter 24 is calculated from 30 minutes x 24=12 hours.

Question: The database already has a scheduled purging job. What would happen to that job if I submit `"begin pkg_purge.dba_install;"`?

Answer: You would not do any harm. Your new job would replace the previously scheduled job. If a previously scheduled job was running, Oracle would let it finish.

Question: After I'm done entering all the criteria in UI and I get an email, I really want to physically purge data immediately. How can I do this?

Answer: You can take advantage of the way Oracle schedules a job. When Oracle schedules a job, it executes the job right away. After that, the job is only executed at the time interval specified.

Question: How do I remove ship units, batch grids, and ship groups that are not referenced by any children?

Answer: You submit `"begin pkg_purge.scavenge_all; end;"`.

Manually Purging Transmissions from the Database

Manually purging is an alternative to truncating the partitioned tables. Learn more about the scheduled jobs that truncate partitioned tables later in the chapter. Truncating data is much faster than purging, but purging allows you to more exactly specify what data to purge.

Transmission_purge deletes data associated with xml blobs used for integrating Oracle Transportation Management with external systems. In general, the xml blobs are temporary, so there is no downside the getting rid of them.

Your DBA or System Administrator should set up a nightly or weekly background job to run purges as described below.

Manually Purge Transmissions

To purge the transmission tables:

1. Log into sql*plus as **glogowner**. (`glogowner/{password}@{tnsname}`)
2. `sql>exec domainman.transmission_purge(<age_in days>, <where clause>, <total minutes>, <keep status clob flag>, <batch size>);`

The transmission purge process accepts the following arguments:

Age in days (required): the age of the transmissions that you want to purge.

If you have no idea of how many transmissions you have that are older than 30 days (for example), you can do the following query:

```
sql> select count(*) from i_transmission where sysdate-create_date >
30;
```

Where clause (optional): Value should be 'domainman.no_status_purge' or be left null. Use 'domainman.no_status_purge' if you want to keep transmissions that are associated with shipment events (IE_SHIPMENT_STATUS) or tender collaboration records (TENDER_COLLABORATION), regardless of age. Otherwise, null ignores whether the transmission has shipment events/tender collaboration records or not.

Total Minutes (defaults to 60): The maximum number of minutes you would like the total purge process to take. After processing a set of rows, the procedure will check the total time. If it exceeds the inputted time, the process will wrap up the existing task, and stop. This is helpful if you have a tight time schedule in which you can perform this task.

Keep status clob flag (defaults to TRUE): If the where clause is set to 'domainman.no_status_purge' the process will examine this flag (otherwise this flag is ignored). When the flag is set to TRUE, no clobs are nulled out. When the flag is set to FALSE, the CLOB column in I_TRANSACTION table are nulled out only for following rows:

- Whose insert_date are older than specified age
- They have associated shipment events, which means these transactions have related records in IE_SHIPMENTSTATUS table.

Note that transactions with no related records in IE_SHIPMENTSTATUS table, but with related records in TENDER_COLLABORATION table, will *not* have the CLOB column nulled out.

Batch size (default 5000): Limits the number of transmission records that should be processed at a time. The smaller your rollback segment, the lower this number should be set. If you get a rollback segment error, rerun the process with a lower batch size specified.

The transmission purge process delete records from the following tables:

```
I_TRANSMISSION
I_TRANSACTION
I_LOG
IE_INROUTE_SERVPROV
IE_MARKS
IE_SHIPMENTSTATUS
IE_SHIPMENT_REFNUM
IE_SS_EQUIPMENT
IE_SS_REMARK
IE_SS_STOP
IE_SS_S_EQUIPMENT
IE_S_SHIP_UNIT
IE_S_SHIP_UNIT_LINE
IE_SHIP_GROUP_REFNUM
IT_SHIPMENT_REFNUM
IT_TENDER_RESPONSE
TENDER_COLLABORATION
SERVPROV_TENDER_COMMENT
SERVPROV_TENDER_REFNUM
TENDER_COLLABORATION_STATUS
I_LOG_DETAIL
```

Examples:

```
exec domainman.transmission_purge(90);
```

deletes all transmission records (for above tables) that are older than 90 days, regardless of whether they are associated with shipment events or tenders. The process would run for 60 minutes (since this is default), and would process 5000 records at a time (default).

```
exec domainman.transmission_purge(60, domainman.no_status_purge,
120, FALSE, 2000);
```

would delete all transmission records older than 60 days that do not have associated shipment events or tenders. For those transmission records that are older than 60 days, but have associated events or tenders, the process will null out the CLOBs, in order to save space. The process will run for 2 hours, and will process 2000 records at a time.

Note: Transmission_purge is an expensive operation. It should be run during off-peak hours.

Manually Purge Problem Records

If you also want to purge the PROBLEM table:

1. Log into SQL*Plus as **glogowner**. (glogowner/{password}@{tnsname})
2. sql> exec partit.purge_partit_tables(90); to purge all database records in this table older than 90 days.

Partitioned Tables

Because Oracle Transportation Management contains several integration and logging tables that can become quite large very quickly, these tables have been partitioned to allow for quick purges of older data. By partitioning the tables, a particular partition (segment) can be truncated, instead of records being individually deleted, which is inefficient for large amounts of data.

Range Partitioning

Here is an example of partitioning, or segmenting, a table where a certain year and month drive the partition the data should be placed in. This is an example of partitioning by range:

Range	Partition
Jan-Mar 2001	sales_q1
Apr-Jun 2001	sales_q2
Jul-Sep 2001	sales_q3
Oct-Dec 2001	sales_q4

```
CREATE TABLE sales
( invoice_no NUMBER,
  sale_year INT NOT NULL,
  sale_month INT NOT NULL)
PARTITION BY RANGE (sale_year, sale_month)
( PARTITION sales_q1 VALUES LESS THAN (2001, 04)
  TABLESPACE data,
  PARTITION sales_q2 VALUES LESS THAN (2001, 07)
  TABLESPACE data,
  PARTITION sales_q3 VALUES LESS THAN (2001, 10)
  TABLESPACE data,
  PARTITION sales_q4 VALUES LESS THAN (2002, 01)
```

TABLESPACE data);

Oracle Transportation Management Partitioned Tables

Oracle Transportation Management database has groups of partitioned tables. Most of them are range partitioned. However, the ranges are not hard-coded. Instead, a partition_key column has been added to each partitioned table, which is populated with a trigger. The value of the calculated key determines into which partition the data should be placed, based upon the INSERT_DATE. This adds to flexibility in how the tables are segmented.

For integration related partitioned tables, each table has been defined as a quarterly, a monthly, or a weekly table. The frequency to which the table has been associated drives how the partitions are populated, and also the frequency of the purge. Each of these tables has four partitions (except for I_transaction and I_transmission, which have eight to differentiate between inbound and outbound transmissions).

Quarterly	Monthly	Weekly
	EXPLANATION	I_TRANSACTION (outbound)
	GL_LOGIN_HISTORY	I_TRANSMISSION (outbound)
	IE_INROUTE_SERVPROV	
	IE_MARKS	
	IE_SHIPMENTSTATUS	
	IE_SHIPMENT_REFNUM	
	IE_SHIP_GROUP_REFNUM	
	IE_SS_EQUIPMENT	
	IE_SS_REMARK	
	IE_SS_STOP	
	IE_SS_S_EQUIPMENT	
	IE_S_SHIP_UNIT	
	IE_S_SHIP_UNIT_LINE	
	I_LOG	
	I_LOG_DETAIL	
	I_TRANSACTION_DETAIL	
	PROBLEM	
	I_TRANSACTION (inbound)	
	I_TRANSMISSION (inbound)	

Here is how it works:

If the table is defined as quarterly, then one quarter will go into each partition. In other words,

Quarter	Partition
Jan-Mar	partition 1
Apr-Jun	partition 2
Jul-Sep	partition 3
Oct-Dec	partition 4

If the table is monthly, then the data is segmented as follows:

Month	Partition
Jan	partition 1
Feb	partition 2
Mar	partition 3
Apr	partition 4
May	partition 1
June	partition 2
...	

If the table is weekly, then the data is divided as follows:

Week	Partition
Jan 1 –7	partition 1
Jan 8-14	partition 2
Jan 15- 21	partition 3
Jan 22-28	partition 4
Jan 29-Feb 4	partition 1
Feb 5–11	partition 2
...	

Every table reuses its partitions, because the intention is that before the end of the cycle, the oldest partition is purged in preparation for the new cycle. In other words, for a monthly table, on April 30th, partition 1 should be purged to remove January's data, which will then be used for May.

Truncate Jobs for Partitioned Tables

In order to make truncating the partitioned tables as seamless as possible, a script is provided that submits an Oracle job to automatically purge the oldest partition, on the last day of the cycle. These jobs should be submitted as a final step in any migration, logged in as **GLOGOWNER**.

1. Enter SET SERVEROUTPUT ON to be able to see feedback.
2. Run Exec partit.submit_job('WW');
3. Run Exec partit.submit_job('MM');
4. Run Exec partit.submit_job('Q');

These jobs are set to run at 1 AM on the last day of the cycle by default.

Schedule Jobs at a Different Time

You can specify a different time if you would like, as an optional second parameter. For example, the following command will have the job run at 2:30am. You can resubmit these jobs whenever you need to change the runtime, since it will auto-delete the previous job, and create it again with the new time.

```
SQL> exec partit.submit_job('WW','02:30');
Job 1164 has been submitted.
It will run next on 13-MAY-2002 02:30
```

Remove Jobs

If you need to remove the job, you can execute the partit.remove_job procedure:

```
SQL> EXEC PARTIT.REMOVE_JOB('WW');
PL/SQL procedure successfully completed.
```

Since the job is submitted as a standard Oracle job, you may want to read Oracle documentation about Oracle jobs, and the DBMS_JOB package that we utilize in our procedures.

If you need to manually run the purge, you can do so by running purge_partitioned_tables.sql logged in as GLOGOWNER. You will be prompted for the frequency. You may want to run this script if you are not automating the purge, or if it fails and you would like to run it manually. For example, it can look like this:

```
SQL> @purge_partitioned_tables
```

This routine will truncate the oldest partition for each table that has been identified to be purged at the inputted frequency. The valid values are 'Q' for quarterly, 'MM' for monthly, or 'WW' for weekly, or 'D' for daily. By purging the old data, it can prepare room for the next week, month, or quarter.

```
Please enter a frequency (Q, MM, WW, D): MM
```

```
Purging partition 2...
Purged partition 2 for table GL_LOGIN_HISTORY
Purged partition 2 for table IE_INROUTE_SERVPROV
Purged partition 2 for table IE_MARKS
Purged partition 2 for table IE_SHIPMENTSTATUS
Purged partition 2 for table IE_SHIPMENT_REFNUM
Purged partition 2 for table IE_SHIP_GROUP_REFNUM
```

```

Purged partition 2 for table IE_SS_EQUIPMENT
Purged partition 2 for table IE_SS_REMARK
Purged partition 2 for table IE_SS_STOP
Purged partition 2 for table IE_SS_S_EQUIPMENT
Purged partition 2 for table IE_S_SHIP_UNIT
Purged partition 2 for table IE_S_SHIP_UNIT_LINE
Purged partition 2 for table I_LOG_DETAIL
Purged partition 2 for table I_LOG
Purged partition 2 for table I_LOG_DETAIL
Purged partition 2 for table I_TRANSACTION_DETAIL
Purged partition 2 for table PROBLEM

Purged inbound i_transaction records
Purged inbound i_transmission records

```

PL/SQL procedure successfully completed.

Default Units of Measure

By default, Oracle Transportation Management uses U.S. units of measure when saving data to the database. To change what units of measure Oracle Transportation Management uses, follow these steps.

1. Run the following SQL statement to find out what the current storage default is for each UOM:

```

select TYPE,UOM_CODE,UOM_RANK,IS_STORAGE_DEFAULT from UOM where
IS_STORAGE_DEFAULT = 'Y'

```

The current typical layout of the UOM table for an Oracle Transportation Management instance is as follows:

This layout shows that for this particular Oracle Transportation Management installation, the default

The screenshot shows a TOAD SQL window with the following query and results:

```

select TYPE,UOM_CODE,UOM_RANK,IS_STORAGE_DEFAULT from UOM where IS_STORAGE_DEFAULT = 'Y'

```

TYPE	UOM_CODE	UOM_RANK	IS_STORAGE_DEFAULT
LENGTH	FT	3	Y
DISTANCE	MI	2	Y
VOLUME	CUFT	5	Y
WEIGHT	LB	1	Y
TEMPERATURE	F	1	Y
DURATION	S	1	Y
SPEED	MPH	2	Y

storage UOM for length is FT, for distance Miles...etc...

Note: If you use a default currency other than USD you will need to remove that currency record from UOM table after each consolidated update is installed.

2. Run the following SQL statement to change the default storage in your system for any UOM. (This example changes the default UOM for LENGTH from current FT to M = meters):

```
UPDATE UOM SET IS_STORAGE_DEFAULT = 'Y' WHERE UOM_CODE = 'M'
```

- You will also need to remove the 'Y' flag on the current length default of FT.

```
UPDATE UOM SET IS_STORAGE_DEFAULT = 'N' WHERE UOM_CODE = 'FT'
```

The above is an example for length but the same SQL can be used to change the defaults for DISTANCE, SPEED, TEMPERATURE, VOLUME, and WEIGHT.

Changing Currency Settings

By default, Oracle Transportation Management uses US Dollars when saving costs to the database. Also by default, Oracle Transportation Management triangulates all currency conversions through US Dollars.

This example illustrates how Oracle Transportation Management stores a shipment cost record with the currency storage default set to two different currencies:

Total actual cost of shipment is 1000 JPY. If Oracle Transportation Management's currency storage default is USD (current default in all Oracle Transportation Management installations), Oracle Transportation Management stores this cost as follows:

Total_actual-cost	Total-actual-cost_currency_GI D	Total_Actual_cost_base
1000	JPY	7.76

If instead Oracle Transportation Management's currency storage default is GBP:

Total_actual-cost	Total-actual-cost_currency_GI D	Total_Actual_cost_base
1000	JPY	5.31

In the first instance, the rate of 7.76 represents the USD value of 1000 JPY converted at the current rate in Oracle Transportation Management (128.77) while in the second instance, the rate of 5.31 represents the GBP value of 1000 JPY converted at the current JPY/GBP rate in the system (188.08).

When to Change Currency Storage Default

There are two scenarios where you would like to change your currency storage default: either you only use one currency other than USD or you use multiple currencies but not USD.

Rates in One Single Currency

In this case, you only need to set your currency storage default to the currency you use. For example, Oracle Transportation Management stores a 100 GBP shipment cost as 100 in both the total cost and the total cost base fields so no currency conversion is needed.

- Run the following insert statement (example using GBP as new storage default) as the DBA user:

```
INSERT INTO UOM (TYPE, UOM_CODE, UOM_SHORT_DESCRIPTION,
UOM_LONG_DESCRIPTION, UOM_RANK, IS_STORAGE_DEFAULT,
IS_DISPLAY_DEFAULT, DOMAIN_NAME) VALUES ('CURRENCY', 'GBP', 'UK
POUND', 'UK POUND', 1, 'Y', 'Y', 'DBA')
```

Rates in Several Currencies

In this case, you need to:

1. Decide what the currency storage default is for your Oracle Transportation Management installation.
2. Set your currency storage default by running the following insert statement (example using GBP as new storage default) as the DBA user:

```
INSERT INTO UOM (TYPE, UOM_CODE, UOM_SHORT_DESCRIPTION,  
UOM_LONG_DESCRIPTION, UOM_RANK, IS_STORAGE_DEFAULT,  
IS_DISPLAY_DEFAULT, DOMAIN_NAME) VALUES ('CURRENCY', 'GBP', 'UK  
POUND', 'UK POUND', 1, 'Y', 'Y', 'DBA')
```

Oracle Transportation Management still needs currency rates to convert between the currencies you use. You can download rates from the IMF website. (This populates the DEFAULT rate in the CURRENCY_EXCHANGE_RATE table.) The problem is that all rates from the IMF are against USD. You have two alternatives to using USD centric IMF rates:

- Write an API that uses another source than the IMF to bring in exchange rates stated against your currency storage default.

or

Update the rates you need manually or use a CSV process while again entering your needed rates against your preferred currency. You can do this nightly, monthly or in any other frequency.

- In the property file glog.properties, set glog.currency.base to your currency storage default (e.g. EUR). This makes Oracle Transportation Management triangulate through the currency of your choice.

This means that Oracle Transportation Management will have all DEFAULT rates stated against your base currency and triangulates using your base currency.

Accounting for Missing Time Zones

The UTC pl/sql package depends on java running in Oracle to do time zone conversions. Some time zones are not accounted for in the java.util.TimeZone class. The solution to this problem involves a new (and optional) "missing_time_zone" table, which has the following structure:

Column	Value
TIME_ZONE_GID	NOT NULL VARCHAR2(128)
ALT_TIME_ZONE_GID	NOT NULL VARCHAR2(128)
ADJ_FACTOR	NOT NULL NUMBER

So for example, if you had a location that specified a time zone of "FOO", and you wanted "FOO" to be treated the same as "America/New_York", you would specify a missing_time_zone record of:

```
time_zone_gid = 'FOO'  
alt_time_zone_gid = 'America/New_York'  
adj_factor = 0
```

The adj_factor is added to the time_zone_offset. So if the time_zone_offset for America/New_York was -5, and you wanted 'FOO' to have an offset of -4, you could set the adj_factor to 1.

Some of the missing Australian time zones are accounted for in the java code itself. The defaults established in the code for the Australian time zones can be overridden via the missing_time_zone table.

International Characters in SQL*Plus Windows

This application supports multiple languages. However, you can only display characters for one language at a time. The following needs to be done to properly configure this application to work in another language:

1. Specify NLS_LANG as a system or environment variable on your client. The NLS_LANG parameter has three components: language, territory and charset. Examples of NLS_LANG settings are:

```
NLS_LANG = AMERICAN_AMERICA.WE8ISO8859P1  
NLS_LANG = JAPANESE_JAPAN.JA16EUC
```

For more information on NLS_LANG see the Oracle National Language Support Guide.

Important: the character set part of your NLS_LANG setting needs to correspond to your client application character set. For example, in an English Windows environment, the usual character set of GUI applications is the operating system code page 1252, which corresponds to the Oracle character set WE8MSWIN1252. Therefore you would set your NLS_LANG to something like AMERICAN_AMERICA.WE8MSWIN1252. An incorrect NLS_LANG setting in this case would be AMERICAN_AMERICA.WE8ISO8859P15.

2. If characters still do not display properly, then you should switch to a font that contains support for the characters you need. You can find more information on how to do this from Oracle. For example, http://otn.oracle.com/docs/tech/sql_plus/content.html.

Note: To find out which font supports the characters/script you need to use the Character Map utility on Windows Server.

Sorting

Proper sorting in languages other than English can currently not be done via the Oracle Transportation Management web interface. However, language-sensitive sorting of Oracle Transportation Management data is possible when you have direct access to the Oracle Transportation Management database with applications such as Toad and SQL*Plus by setting the desired sort order as an ALTER SESSION parameter. For example, by issuing the command ALTER SESSION SET NLS_SORT = 'SWEDISH'; the sort order for the current session will be changed to Swedish.

Scalability Configuration

See the separate Oracle Transportation Management Application Scalability Guide for instructions on how to configure Oracle Transportation Management's scalability feature.

BPEL Integration

BPEL Flows

Oracle Transportation Management provides BPEL integrations with EBS. These flows can be found in <otm_install_path>/utils/integration/bpel/flows. Each flow should have a README.TXT file in the zip file with further instructions. There are several other flows that ship with the other Oracle products. Refer to the respective product documentation for the details for those flows.

Oracle Transportation Management Properties Files for EBS Integration through BPEL

If integrating with EBS through BPEL Process Manager, you need to include/uncomment the `ebs.properties` file in the `glog.properties` file on the Oracle Transportation Management Web and Application servers. These files are usually under `<otm_install_path>\glog\config` on Windows or `<otm_install_path>/glog/config` on UNIX. In the `glog.properties` file, you would uncomment the following:

```
#!include ebs.properties
```

Your line would look like this:

```
!include ebs.properties
```

Once this change has been made, restart your Oracle Transportation Management instance.

Oracle Transportation Management Properties Files for BPEL Integration

If integrating with the BPEL Process Manager, but not necessarily integration with EBS, you will need to enable a property in the `glog.properties` file on the Oracle Transportation Management Web and Application servers. These files are usually under `<otm_install_path>\glog\config` on Windows or `<otm_install_path>/glog/config` on UNIX. In the `glog.properties` file, add the following:

```
glog.integration.enableParserInServlets=true
```

Once this change has been made, restart your Oracle Transportation Management instance.

Integration To BPEL

As of the Oracle Transportation Management 5.5 CU2 release, the recommended method for sending data from Oracle Transportation Management to a BPEL server is via Web Services that are configured in the External System Manager in the Oracle Transportation Management UI. Refer to the online help for details.

9. LDAP

LDAP stands for the Lightweight Directory Access Protocol. It is important to remember that LDAP is in essence a protocol – a common language that various directory products can speak in order to communicate with users and applications -- and other directories. The TCP/IP-based LDAP protocol contains messages allowing an LDAP client (an application or user) to connect to, search, add to, delete from, and modify an LDAP server (the directory).

Overview

LDAP clients connect to an LDAP server as a user in the directory (sometimes called binding to the directory). The LDAP server may choose from a number of authentication protocols (see below) to validate the identity of the connecting user. Once connected, the LDAP user can search or modify the directory (if permission has been granted to perform these operations). In our case, Oracle Transportation Management is the LDAP client. A customer's LDAP directory is the server.

LDAP represents names in a standard format – the Distinguished Name, or DN (see below for more detail on DNs). This format contains name attributes like organization, country, organization unit, etc... Moreover, these attributes are arranged hierarchically. So, there can be multiple organizational units within an organization, and multiple organizations within a country. The directory is searched and organized hierarchically.

Each name is associated with one or more directory objects. These directory objects contain attributes that can be used for authentication, for populating databases, for applications, or any other number of uses.

Because of the focus on clients, the LDAP community also defined standards for the string representation of DNs (RFC 1779), search filters (RFC 1960), and attribute syntaxes (RFC 1778), for a C language-based API (RFC 1823), and for the format of URLs for accessing LDAP services (RFC 1959).

LDAP Schema

A directory schema specifies, among other things, the types of objects that a directory may have and the mandatory and optional attributes that each type of object may have. LDAP (version 3) defines a schema (RFC 2252 and RFC 2256) based on the X.500 standard. The schema includes common objects found in networks, such as countries, localities, organizations, users/persons, groups, and devices. It also defines a way for a client application to access the server's schema so that it can find out the types of objects and attributes that a particular server supports.

The LDAP schema has become one of the basic ways that different LDAP directories can interoperate. Corporations use the schema to store user, profile, organization, contact, and location information. Oracle Transportation Management relies on the username (and for local authentication, password) attributes. Currently, Oracle Transportation Management requires that the username be part of the distinguished name, and requires that the "gluser" attribute be added to each user object.

LDAP in Oracle Transportation Management

LDAP is used by Oracle Transportation Management to allow users to log into Oracle Transportation Management using standardized LDAP names, instead of, or in addition to Oracle Transportation Management usernames. Oracle Transportation Management allows authentication to be performed by a remote LDAP server -- a more secure, more centralized approach. Corporate users can securely log onto Oracle Transportation Management with the LDAP login names that they are used to and use everyday.

Oracle Transportation Management allows the LDAP users to be mapped to Oracle Transportation Management users in the LDAP directory itself. This way, Oracle Transportation Management permits a single Oracle Transportation Management user to be mapped to multiple LDAP users. This allows a generic Oracle Transportation Management user such as "GUEST" (GUEST may have primarily read-only access to limited information) to a large group of users, without giving the password to all of these users. LDAP allows Oracle Transportation Management user, security, and policy information to be centralized in one place – the LDAP directory.

In addition, Oracle Transportation Management contains multiple directory support (see NameSpaces below). This allows multiple LDAP directories to be consulted to find names. For instance, a Logistics company may wish to authenticate Shippers with a local LDAP directory, and Service Providers with an external LDAP directory. In addition, NameSpaces allow the same directory to be looked up using (for instance) different authentication protocols, or different branches of the same directory tree.

Oracle Transportation Management allows you to choose which directory is consulted upon login. Alternatively, a default search order can be configured, so that multiple directories can be looked up in turn to authenticate a login.

Limitations

Oracle Transportation Management does not support group authentication, group membership testing, or distribution lists. It simply supports username authentication upon login. Oracle Transportation Management does not support the use of user profile attributes from LDAP such as language, time zone, e-mail addresses or any other user preferences. All user parameters are controlled within Oracle Transportation Management – the gluser attribute provides the linkage between an LDAP user and an Oracle Transportation Management user. The LDAP directory itself must be modified to contain the mapping (this in itself could be considered a limitation).

Oracle Transportation Management does not use the LDAP directory to store contact information, e-mail addresses, location information, or other centrally maintained pieces of information vital to large corporations using our product.

LDAP Server

Oracle Transportation Management does not contain an LDAP server. Many customers already have a corporate LDAP Server, and one of the major goals of this feature is to allow corporations to centralize user and security information -- not having it scattered in many different places. Oracle Transportation Management can be configured to talk to an LDAP Server by defining a NameSpace.

Single Sign-on Support

With LDAP, Oracle Transportation Management supports the ability to have users login to Oracle Transportation Management using LDAP usernames that they are familiar with. Sometimes, third party packages allow user to log into the package once. Thereafter, that person will not have to log in to each individual application that may be accessed subsequently. LDAP, as a technology, is often used in the implementation of Single Sign-on solutions.

Definitions

NameSpace

A NameSpace is where information about an LDAP directory is stored in Oracle Transportation Management. It is an Oracle Transportation Management term, and not an "LDAP term". It contains information such as the branch of the naming hierarchy to search for users, the URL of the LDAP server, the authentication methods to be employed, and the protocol version to use. A user logging in can choose which NameSpace to use for authentication, or use the default. In the default case, Oracle

Transportation Management allows multiple directories to be looked up one by one until successful authentication has taken place.

Distinguished Name

A Distinguished Name (or DN) is the standard format for naming within LDAP directories. Quite simply, a distinguished name is an ordered list of naming attributes. These attributes are often syntactically organized into a single string such as "cn=John Doe, ou=Marketing, o=Oracle, c=US" (see RFC 1779). This name consists of Common Name, Organizational Unit, Organization, and Country attributes. The directory uses these attributes to arrange objects in the directory hierarchically. So, there can be multiple organizational units within an organization, and multiple organizations within a country. This way, different branches of the LDAP "tree" can be searched independently. For instance, one might want to search only names within the organization "Oracle".

Oracle Transportation Management requires that the user ID field be part of the Distinguished Name (at least externally to an LDAP client). It also requires that each LDAP user object to be authenticated with Oracle Transportation Management be populated with the GLUSER attribute. The GLUSER attribute should not be part of the Distinguished Name.

A fully qualified DN identifies the name of an object within an LDAP directory. A relative DN identifies a branch of the naming tree, but does not necessarily address a schema object.

LDAP Authentication Protocol

An LDAP Authentication Protocol is used between an LDAP client and LDAP server to authenticate a user within the directory. Oracle Transportation Management supports simple authentication (clear text username & password), and some other authentication protocols (such as CRAM-MD5). Oracle Transportation Management also supports using no authentication at all (although this is somewhat pointless). These protocols can be used in both local and external authentication (see below).

LDAP Encryption Protocol (SSL)

Oracle Transportation Management allows encryption between the Oracle Transportation Management application server and the LDAP server. This insures that password information flowing between the LDAP server and Oracle Transportation Management is not intercepted. Oracle Transportation Management uses SSL (Secure Socket Layer) to provide this encryption. SSL is a generic transport layer encryption/authentication solution. The LDAP directory server must support SSL in order to use this feature. Although SSL can in theory be used for authentication as well, SSL is used by Oracle Transportation Management to encrypt the communication between Oracle Transportation Management and the LDAP server.

LDAP Authentication Method

Oracle Transportation Management uses two major methods of authentication. Local authentication involves searching for a name object in the directory and extracting some attributes. These attributes are in turn used to authenticate the name. Most commonly, the password attribute is used to validate entries. It's called local authentication because the validation is performed "locally" (by the client). The client logs into the LDAP directory as a sort of super-user (called the Principal). The principal user is used to look up all other users in the directory.

Oracle Transportation Management can also authenticate users by attempting to directly connect to the directory as the user in question, instead of connecting as a Principal user and then performing a lookup. This allows the LDAP directory to perform the authentication at the LDAP server. It's called External authentication, because the authentication is performed externally to the LDAP client. This method insures that sensitive authentication information (such as certificates or passwords) never leaves the LDAP server. In the LDAP world, this method of authentication is often called "binding" to the server.

LDAP Protocol Version

LDAP is a TCP/IP based protocol, and this protocol has two major revisions still in use. Version 2 contains most of the basic LDAP functionality. RFC 1777 defines what is now called version 2 of the LDAP (or LDAP v2). The LDAP v3 (RFC 2251) protocol is designed to address some of the limitations of LDAP v2 in the areas of internationalization, authentication, referral, and deployment. It also allows new features to be added to the protocol without also requiring changes to the protocol itself.

LDAP Directories

Organizing LDAP Directories For Oracle Transportation Management

Oracle Transportation Management requires that the user ID field be part of the Distinguished Name (at least externally to an LDAP client). It also requires that each LDAP user object to be authenticated with Oracle Transportation Management be populated with the GLUSER attribute. The GLUSER attribute should not be part of the Distinguished Name.

Each NameSpace contains a User DN field. This contains a relative DN that identifies the branch of the LDAP tree to search for users. Oracle Transportation Management searches this branch, and this branch only – meaning no “sub-branches are searched. If you wish to search for sub-branches, you must define each sub-branch as a NameSpace, and use the default search order to search for them one-by-one (see NameSpaces above).

Many directories enforce trueness to the schema defined for a particular object. This means that the object’s schema must be modified to contain the attribute GLUser in order to have that attribute be successfully added. Sometimes, this schema checking can be turned off in the directory. Another alternative is to use an attribute that already exists in the schema (but is not populated). You can change the NameSpace configuration to define the attribute where the GLUser information is contained, so that Oracle Transportation Management knows where to get the Oracle Transportation Management User mapping.

LDAP and the Oracle Transportation Management Login

If you have any doubt, choose Default. This most likely will be set up by the Oracle Transportation Management Administrator to serve most needs. The GC3 NameSpace allows logging in via the Oracle Transportation Management username and password (see below). The other choices represent LDAP directories that have been configured to work with Oracle Transportation Management.

The Oracle Transportation Management administrator has the ability to configure which directories are consulted when the Default option is chosen. In fact, when this option is chosen, the administrator has the ability to configure an ordered list of directories to search. Usually, this results in a successful authentication.

The GC3 NameSpace is a special NameSpace that identifies the Oracle Transportation Management realm itself (the usernames and passwords stored directly within Oracle Transportation Management). When you search the GC3 NameSpace, you are performing a search local to the Oracle Transportation Management product.

Configuring LDAP NameSpaces

The `glog.ldap.properties` file is read by the webserver when the first user logs in. It is never read again. You can bounce the Tomcat Instance (if you know how to do this) if you need to reload the properties. The Application Server will automatically adjust.

The following is a sample property file containing one NameSpace:

```

ldap.searchOrder=GC3, CorpDir
ldap.namespace.name=CorpDir
ldap.namespace.CorpDir.authProtocol=simple
ldap.namespace.CorpDir.ldapUrl=ldap://localhost:389
ldap.namespace.CorpDir.principal=otmdev
ldap.namespace.CorpDir.credential=CHANGEME
ldap.namespace.CorpDir.userDN=o=Oracle, c=US
ldap.namespace.CorpDir.userNameAttribute=uid
ldap.namespace.CorpDir.glUserAttribute=gluser
ldap.namespace.CorpDir.userAuthentication=local
ldap.namespace.CorpDir.credentialAttribute=password

```

The search order parameter is global to all NameSpaces. The namespace.name parameter must precede the other NameSpace parameters. Other NameSpaces can be added below.

NameSpace Attributes

Here is a list of the attributes that comprise a NameSpace.

Attribute	Description	Valid Values
authProtocol	The Authentication Protocol to employ.	None simple (default) CRAM-MD5 (v3 external authentication only) DIGEST-MD5 (v3 external authentication only).
Name	Name Of the LDAP namespace – used in user interface display. Required	String (example: CompanyDir) Only alpha-numeric and underscores are allowed.
LdapUrl	URL of the LDAP server. Required	String (example: ldap://somehost: 389)
Principal	User to log in as on LDAP server. Required if authentication=local	Distinguished Name (example: Uid=foo)
Credential	LDAP principal password. Required if authentication=local.	String

Attribute	Description	Valid Values
UserDN	Distinguished name of all users to be searched – the branch of the tree to search. Always specify the most “specific” attributes first – for example, supply Organizational Unit (ou) before Organization (o), which should be supplied before Country (c), etc... Required.	Distinguished Name (example: ou=people, o=acme.com,, c=US)
userNameAttribute	Name of the User ID attribute in the LDAP directory. Required.	String (default: uid)
glUserAttribute	Name of the GLUSER attribute in the LDAP directory. Required.	String (example: gluser)
userAuthentication	Type of authentication employed for this namespace.	Local = authentication based on downloaded attributes. external = an LDAP bind as the user in question (default)
credentialAttribute	Name of the password attribute in the LDAP directory. Required if authentication=local.	String (example: userpassword)
SSL	Connect to directory using SSL (true or false).	true false (default)
version	The version of the LDAP protocol (2 or 3).	2 (default) 3
ctxFactory	JNDI Service Provider to use.	String (default: com.sun.jndi.ldap.LdapCtxFactory)

The Distinguished Name is an ordered list of attributes, and the attributes must be listed by the most specific attribute first. For instance, OrganizationalUnit is more specific than Organization, but less specific than an individual user within that OrganizationalUnit. Similarly, a domain component attribute of Oracle is more specific than dc=com. When you specify a DN, you are really specifying a path from the node you are interested in up to the root of the directory tree.

Common Questions

Why can't I connect using local authentication, even though the password attribute is present?

There are a number of reasons why this could happen. The password attribute may not be visible to Oracle Transportation Management, even though it may be visible to other clients. The password could be encrypted – you might want to try changing the authenticationProtocol attribute. It is possible that the directory entry is not readable by the Principal being used.

Why does authentication fail for entries not directly below the UserDN in the directory tree?

This is a limitation of the LDAP client – the benefit is rapid lookups. However, many commercial directories allow entries to be indexed and placed in a single branch. In addition, the NameSpaces feature can be configured to allow multiple branches to be searched.

I am using local authentication and my principal user uses an encrypted password, but my users use simple authentication. How do I get authentication to work?

You cannot have the Principal using a different encryption algorithm than the individual users. If you really need this, you can use external authentication and bypass the special authentication for the Principal altogether.

If you have two user groups that use different authentication mechanisms, you can set up two NameSpaces that point to the same directory, but use different authentication methods. Then, set the default search order parameter (see above) to search the two namespaces.

10. Database Administration

The contents of this chapter represent our recommendations rather than requirements. When making any changes to an Oracle Transportation Management database, the DBA should always consider the size and the activity pattern of the database, the hardware configurations, and business requirements.

Initial Setup of Oracle Database

Initial Parameters

Oracle Transportation Management provides a sample init.ora file with recommended values of some key parameters. These values may need to be adjusted according to available physical memory on the database server. As rule of thumb, the System Global Area (SGA), or the shared memory of a database, should always be allocated in the physical memory for fast data access. If SGA is too large and swapped to disk paging will occur. Paging usually overweighs the advantage of having a large SGA. We recommend the following values for some of initial parameters.

```
DB_BLOCK_SIZE
8192 (or at least 4096)
```

```
DB_CACHE_SIZE
209715200 (200 MB)
```

```
DB_16K_CACHE_SIZE
104857600 (100 MB)
```

```
SHARED_POOL_SIZE
125829120 (120 MB)
```

```
SHARED_SERVERS
0
```

```
LOG_BUFFER
163840 (160 KB)
```

```
SORT_AREA_SIZE
1048576 (1 MB)
```

```
SORT_AREA_RETAINED_SIZE
1048576 (1 MB)
```

This parameter is ignored if PGA_AGGREGATE_TARGET is set

```
OPEN_CURSORS
200
```

```
JOB_QUEUE_PROCESS
4(This is mandatory since Oracle Transportation Management database
uses scheduled jobs).
```

```
LOG_CHECKPOINT_INTERVAL
Do not set this parameter if FAST_START_MTTR_TARGET is set. Otherwise
set it to 0 or infinity.
```

```
OPTIMIZER_MODE
CHOOSE
```

Oracle Transportation Management database uses cost based optimizer.
Setting to CHOOSE will let Oracle use CBO when there are statistics.

OPTIMIZER_INDEX_COST_ADJ

50

Setting this parameter to encourage optimizer to favor NESTED LOOP over HASH JOIN.

OPTIMIZER_INDEX_CACHING

50

Setting this parameter to encourage optimizer to favor NESTED LOOP over HASH JOIN.

STATISTICS_LEVEL

ALL

Collect row source execution statistics and timed operating system statistics.

PGA_AGGREGATE_TARGET

209715200 (200 MB)

This is the target of memory usage of work area and other data structure control information for server process. When this parameter is set, automatic memory management is turned on. Oracle suggests for initial setting this parameter can be set to 0.16* total memory that this database can use. If you set this parameter, you should keep watching PGA usage and adjust it accordingly. Don't set it too small. It will affect query performance if too small. If you don't set it, default is unset with a value shown as 0.

WORKAREA_SIZE_POLICY

AUTO If PGA_AGGREGATE_TARGET is set.

MANUAL If PGA_AGGREGATE_TARGET is not set.

You should really just leave this parameter to take default. The default value depends on PGA_AGGREGATE_TARGET setting. It is not good idea to set this parameter to MANUAL when PGA_AGGREGATE_TARGET is set, or vise versa.

query_rewrite_enabled

true

For using function based index.

query_rewrite_integrity

trusted

For using function based index.

PROCESSES

(For initial connections of 100 in Weblogic/WebSphere configuration)

O7_DICTIONARY_ACCESSIBILITY

TRUE

This is required.

optimizer_features_enable

11.1.0.6.1

This parameter is needed for Oracle 11g only and is mandatory.

optimizer_distinct_elimination=false

This parameter is needed for Oracle 11g only and is mandatory.

Using Locally Managed Tablespaces

Oracle recommends using locally managed tablespaces for all of Oracle Transportation Management tablespaces, including SYSTEM tablespace. Locally managed tablespaces can improve performance by eliminating some recursive operations during space allocation.

Initial Redo Log Files

It is recommended to have three, four, or five redo log groups. Each group should have at least two members. We recommend that the initial size of the redo log files be 10 – 20 MB. Once the database is in normal operation, especially for a production database, the DBA should monitor the log switch frequency. If log switch occurs too often; for example, less than 10 minutes, the size of redo log files should be increased.

Initial Setting of Undo

Historically Oracle has used rollback segments to manage undo. Space management for these rollback segments has proved to be quite complex. In 9i and later, Oracle provides UNDO tablespace, another way to manage undoes, UNDO_MANAGEMENT=AUTO. Using this method DBAs do not have to deal with the complexities of managing rollback segment space and can exert control over how long undo is retained before being overwritten. This is the recommended method for Oracle Transportation Management.

If you decide using manual UNDO management you should set up your rollback segments following the guideline below. Rollback segments should be designed adequately to reduce contention and prevent “snapshot too old” errors. Most of the transactions of an Oracle Transportation Management database are small and of OLTP type. The number of rollback segments is determined by the number of concurrent transactions in the database. For initial settings, the number of rollback segment should be set to at least four. Each rollback segments also should have equal size of INITIAL and NEXT extents with MINEXTENTS equals to ten. The INITIAL and NEXT extent size can be set to 2 MB. The DBA should periodically monitor the rollback segment usage and adjust setting or add new segments, if needed.

Initial Setup of Oracle Transportation Management Database

There are several schema owners/users and database roles that need to be created in the database. Running create_glog_roles.sql and create_glog_users.sql will get these roles and users created. These two scripts should be run by user SYS because there are EXECUTION privileges on SYS’s objects to be granted to Oracle Transportation Management database users. Most of Oracle Transportation Management database objects are under schema GLOGOWNER. Oracle Transportation Management database object types include, but not limited to:

```
TABLE
TABLE PARTITION
INDEX
INDEX PARTITION
LOB
LOB SUBPARTITION
SEQUENCE
TRIGGER
VIEW
PACKAGE
PACKAGE BODY
PROCEDURE
FUNCTION
JAVA CLASS
JAVA SOURCE
```

QUEUE
TYPE

Each Oracle Transportation Management application table has a primary key. There are many foreign keys in Oracle Transportation Management database to guarantee data integrity. Certain database maintenance work such as import may cause foreign keys "NOT VALIDATED". The DBA should make sure the status of the foreign keys are "ENABLED" and "VALIDATED".

Each application table also has a footprint trigger that populates footprint columns of the table. All of the triggers should be "ENABLED".

Analyzing Tables/Gathering Statistics

The Oracle Transportation Management database performs best when Optimizer statistics are gathered using scripts provided by Oracle Transportation Management. Oracle Transportation Management scripts gathers statistics by performing full compute for all the objects including indexes, columns with histograms, partitions etc.

Oracle also has automatic statistics gathering job GATHER_STATS_JOB, which is enabled by default when a database is created, or when a database is upgraded from an earlier database release. This job gathers statistics on all objects in the database that have missing statistics or stale statistics (stale - the underlying object has been modified significantly, i.e. more than 10% of the rows). The Scheduler runs this job during a maintenance window (by default, 10pm to 6am). This automatic job gathers statistics by estimate and not in as much detail as the Oracle Transportation Management job. Over time, it tends to override detailed statistics gathered by the Oracle Transportation Management job for fast growing tables, hence automatic job should be replaced by Oracle Transportation Management statistics job.

Below are the steps to verify that statistics are gathered by the Oracle Transportation Management statistics job.

1. In SQL*Plus, as user **GLOGOWNER**, run:

```
select min(last_analyzed) from user_tables;
```

If it returns a date older than two weeks then Oracle Transportation Management statistics job is not running since that day or it is not scheduled. In that case, schedule a weekly job using any job scheduler, and have it run <otm_install_dir>/oracle/script8/gather_table_stats.sql during a low-activity period or off-peak hours.

Note: gather_table_stats.sql also runs gather_column_histograms.sql, so both should be in same directory.

2. Disable Oracle's automatic job. In SQL*Plus, as user **SYS** (or any DBA account), run:

```
SELECT enabled FROM DBA_SCHEDULER_JOBS WHERE JOB_NAME =  
'GATHER_STATS_JOB' ;
```

If the result is "TRUE" then run the command below listed to disable it:

```
BEGIN  
DBMS_SCHEDULER.DISABLE( 'GATHER_STATS_JOB' ) ;  
END ;  
/
```

This will ensure Oracle Transportation Management database has up to date statistics with full compute on all objects.

Copy Database Data

When moving from initial implementation to production, or duplicate production to development, there are needs to copy the whole database or part of Oracle Transportation Management data between production and development/test environment. Depending on the purpose and requirement, copying an Oracle Transportation Management database/data can be achieved using different methods. It is recommended that Technical Support be consulted to decide the best way of moving data.

Copy Database Files

An Oracle database can be cloned by copying datafiles and other configuration files to the destination environment (usually another server). Procedures of this method can be found from Oracle DB support/document.

Features/Limitations:

- Simple and straightforward. There is no need to pre-create an Oracle database in the destination machine.
- Fast. The total time needed is governed by physically transferring datafiles from source machine to destination machine.
- Whole database copy. If there are data in the source database that the client does not want to copy to the destination database, then data cleaning process should be carried out in the destination database after the copy.
- Source and destination servers must be the same platform, same operating system and same Oracle version between.
- Requires DBA skills.
- Requires down time in the source database if there is no hot-backup.

Oracle Export/Import Utility

Using the Oracle export/import method, the entire Oracle Transportation Management database structures can be copied from one database to another. To successfully copy an Oracle Transportation Management database, following guidelines are recommended:

3. Create all Oracle Transportation Management used tablespaces first in the target database.
4. Check if all of Oracle Transportation Management required init.ora parameters are properly set in the target database.
5. Oracle Transportation Management database roles and schema users should be created in the target database before the import. This should be done by running Oracle Transportation Management supplied SQL scripts as described below.

Log in to the target database as user **SYSTEM**.

```
@create_glog_roles.sql .          -- Make sure no errors
@create_glog_users.sql  -- Make sure no errors
```

6. Perform export on the source database. The easiest way is to do a FULL export. But if for any reason you do not want a FULL export, you can do a schema export. Oracle supplies a schema export parameter file (exp_GC3.par), where it lists all schemas Oracle Transportation Management application needs.
7. Perform import on the source database. You can do a FULL import if the export was a FULL export. Alternatively you can do a schema import. Oracle supplies a schema import parameter file (imp_GC3.par), where it lists all schemas Oracle Transportation Management application needs.

8. After the import finished successfully, there are post-import SQL scripts to be run in the target database. The steps to run these scripts are described in the *Installing Oracle Transportation Management on the Database Server* section. It is important to follow the instructions to run the scripts. Ensure you log in to the database as right users when running the scripts.

Features/Limitations:

- Can be used between different platforms and different operating systems.
- Oracle version in the destination environment must be equal or higher than that of source environment.
- Need to pre-create an Oracle database in the destination environment.
- Whole Oracle Transportation Management database copy. If there are data in the source database that the client does not want to be copied to the destination database, then data cleaning process should be carried out in the destination database after the import.
- May take a long time to finish depending on the size of the database.

Domain Copy

Oracle Transportation Management provides utilities to copy domains between Oracle Transportation Management databases. There are two approaches to copy domains. The first one uses a PL/SQL procedure to generate INSERT statements with domain data to be copied from the source database. The insert statements can be run in the target database. The second approach uses Oracle TABLE mode export/import with WHERE clause to move domain data between source and destination databases. Please refer to the Oracle Transportation Management document titled "Data Management Guide" for details of this method.

Features/Limitations:

- Can be used between different platforms and different operating systems.
- Oracle version in the target environment must be equal or higher than that in the source environment if using export/import approach.
- Requires pre-creating an Oracle database and installing an Oracle Transportation Management database in the target environment.
- Oracle Transportation Management table structures must be identical between the source and target database.
- Can just move one or more domain data between the databases.

Pinning Large Object in Memory

This section is for a production database and an experienced DBA.

Oracle requires space in the System Global Area (SGA) for stored packages and functions. If SGA space is fragmented, there may not be enough space to load a package or function. Oracle recommends pre-allocating space in the SGA shared pool for frequently used packages, procedures and functions. Pinning objects in the shared pool can improve database performance, if it is done correctly. For large packages, when pinned they do not need to be loaded and parsed from the database again and again. Pinning large package also helps to avoid ORA-04031 error (unable to allocate xxx bytes of shared memory).

It is recommended that, in an Oracle Transportation Management production database, following objects be pinned in the SGA:

Package :

```
VPD
PARTIT
PKG_PURGE
RRL
USER_EXIT_HELPER
RPT_GENERAL
```

Database Space Monitoring

A DBA should periodically monitor Oracle Transportation Management database(s) space usage. There are several tables containing a column with data type of CLOB. These columns can have great amount of data. Some of the CLOB tables can be loaded quite often. One example is I_TRANSMISSION and I_TRANSACTION table. These tables contain transmission/transaction's XMLs. If there are inbound /outbound transmissions in and out of system frequently, the disk space usage of these two tables can grow very quickly.

Scheduled Jobs

Oracle Transportation Management database uses Oracle scheduled job to perform certain activities inside the database. Some of the jobs are set up automatically after the database is installed. The others are optional and can be implemented by a DBA. An Oracle Transportation Management database DBA should monitor these jobs regularly.

Real Application Clusters (RAC)

Oracle Transportation Management may be used in conjunction with RAC by making the following changes to the <otm_install_path>/glog/config/glog.properties file.

Comment out the lines starting with the following by putting a # at the front of the line:

```
dbserver=
glog.database.sid=
glog.database.connectstring=
glog.database.port=
```

Add the following lines right after the above section. Any text in **bold** needs to be supplied with a valid value (each block of code is actually one single line -- there should be no line breaks):

```
glog.database.dbaOnly.t2client.connectionURL=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(LOAD_BALANCE=ON)(ADDRESS=(PROTOCOL=TCP)(HOST=DB_FQDN_HOST_1_NAME)(PORT=DB_PORT))(ADDRESS=(PROTOCOL=TCP)(HOST=DB_FQDN_HOST_2_NAME)(PORT=DB_PORT)))(CONNECT_DATA=(service_name=SERVICE_NAME)))
```

```
glog.database.dbathin.t2client.connectionURL=$glog.database.dbaOnly.t2client.connectionURL$
```

```
glog.database.DBA.t2client.connectionURL=$glog.database.dbaOnly.t2client.connectionURL$
```

```
glog.database.DBADirect.t2client.connectionURL=$glog.database.dbaOnly.t2client.connectionURL$
```

```
glog.database.migration.t2client.connectionURL=$glog.database.dbaOnly.t2client.connectionURL$
```

```
glog.database.dbathin.t2client.connectionURL=$glog.database.dbaOnly.t2client.connectionURL$
```

```
glog.database.dbalogowner.t2client.connectionURL=$glog.database.dbaOnl  
y.t2client.connectionURL$
```

```
glog.database.dbareportowner.t2client.connectionURL=$glog.database.dbaO  
nly.t2client.connectionURL$
```

11. Appendix A - Recommended Resources

For most of these products, many resources are available which may be better than those listed below. These resources are provided for your reference and are not endorsed by Oracle, Inc.

Oracle Transportation Management

The online help for Oracle Transportation Management can be accessed once you have installed and started your Oracle Transportation Management instance. The URL is:

`http://<webserver_name>/html/help/webhelp/en/gc3_help.htm`

Where <webserver_name> is the FQDN of your Oracle Transportation Management Web Server.

Apache

The online documentation for Apache can be found at the following URL:

<http://httpd.apache.org/docs>

We also recommend the following books:

- Professional Apache by Peter Wainwright – ISBN: 1861003021
- Apache Server Bible by Mohammed J. Kabir – ISBN: 0764532189

OpenSSL

The online documentation for OpenSSL can be found at the following URL:

<http://www.openssl.org.org/docs>

Python

The online documentation for Python can be found under the following URL:

<http://www.python.org/doc>

Network Performance

We recommend the following book:

Network Troubleshooting Tools (O'Reilly) by Joseph D. Sloan – ISBN 059600186X

Tomcat

The online documentation for Tomcat can be found under the following URL:

<http://jakarta.apache.org/tomcat/tomcat-5.5-doc>

Oracle Application Server (OAS)

The online documentation for OAS can be found under the following URL:

http://download-west.oracle.com/docs/cd/B25221_04/index.htm

WebLogic

The online documentation for WebLogic can be found under the following URL:

<http://e-docs.bea.com/wls/docs81>

WebSphere

The online documentation for WebSphere can be found under the following URL:

<http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp>

Java Service Wrapper

The online documentation for JSW can be found under the following URL:

<http://wrapper.tanukisoftware.org/doc/english/introduction.html>

12. Appendix B – Troubleshooting Known Issues

Installation

There are known problems with Windows X server Terminal Emulators and InstallAnywhere on Solaris. InstallAnywhere is the installation program used by both WebLogic and Oracle Transportation Management.

Symptoms: Installer started from Windows via remote X session appears to fail immediately - or in debug mode, displays an error containing the sting "An unexpected exception has been detected in native code outside the VM" and will leave a core dump in your current directory.

Resolution: Install from the Server console (recommended) or log out of your X session, reset your X server and log back in.

Starting Oracle Transportation Management

After installing Oracle Transportation Management on Windows Server, make sure that you reboot your server before you start Oracle Transportation Management. There are environment settings that will not take effect until the server is rebooted.

Symptoms: Apache won't startup correctly. You get an error stating Cannot load apache/modules/mod_ssl.so into server: (126) The specified module could not be found. This error occurs when openssl.exe is not in the path.

Resolution: Restart your server before starting Oracle Transportation Management.

After installing Oracle Transportation Management on Solaris, make sure that you log out of your session before you start Oracle Transportation Management. There are environment settings that will not take affect until you log out and log back in.

Symptoms: Apache, Tomcat, or OAS/WebLogic/WebSphere will not startup correctly.

Resolution: Log out of your server and then log back in before starting Oracle Transportation Management. When Oracle Transportation Management starts, Tomcat opens a connection with OAS/WebLogic/WebSphere to cache certain information (UOM fields, dropdown boxes, etc). If OAS/WebLogic/WebSphere has not fully started before Tomcat is started, this information is not cached and certain fields will remain blank.

Symptoms: Oracle Transportation Management has been started but some fields and drop-down boxes are not populated as they should be.

Resolution: Restart Oracle Transportation Management.

503 (Service Unavailable) Errors

While the application server is starting up, the web server will respond to all requests with a '503 (Service Unavailable)' error message. This will go away once the application server has fully started up. See section 6 - **Starting Oracle Transportation Management after Installation Is Complete** for more information.

Uninstalling Oracle Transportation Management

Oracle Transportation Management must be manually uninstalled; there is no automated uninstall option (prior to Oracle Transportation Management 5.5 CU5 there was an uninstall option available on

some platforms, but it did not work). Follow the directions below to completely remove Oracle Transportation Management from your system.

1. If running on Windows, remove the Oracle Transportation Management services. The default names for these services are otmapache, otmtomcat, and otmweblogic. The srvinstw.exe utility from the Windows Resource Kit can help you remove these services.
2. Remove the Oracle Transportation Management installation directory and all of its contents (e.g. d:\gc3 on Windows and /opt/gc3 on UNIX).
3. If running on UNIX, remove the Oracle Transportation Management init scripts. These scripts are installed under /etc/init.d and their default names are otmweb and otmapp.
4. Modify your PATH and CLASSPATH environmental variables and change them back to their original state.

Browsers

Symptoms: Your browser displays stale or incorrect data while using Oracle Transportation Management.

Resolution: Configure your browser to "Check for newer versions of stored pages: Every visit to the page". This will ensure that your browser displays the correct data and not cached pages. Depending on your browser, this option is usually under the "Cache" or "Temporary Internet files" section of the "Options" or "Preferences" window.