

Oracle® Transportation Management

Administration Guide

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Oracle Transportation Management Administration Guide, Release 6.0

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Preface

This manual is for administrators 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
3/31/09	-01	Initial release.
5/5/2009	-02	<p>Modified "Installing Oracle Transportation Management on the Database Server" and "Migrate Oracle Transportation Management 5.5 Database to 6.0" sections to resolve BUG 8411738.</p> <p>In the Pre-Installation Setup section of "Install OBI EE", made changes related to changing the version of the Oracle client to be used for 6.0 FTI to 10g. Also made changes related to this in the section configuring the FTI services under Database Type.</p> <p>Added the "Converting Order Releases to a Multi-tier Structure" section to explain converting order releases to the multi-tier 6.0 format.</p>
7/28/2009	-03	<p>Modified section "Upgrading from Version 5.5 to 6.0" to provide detailed information about two separate migration paths available for 5.5. to 6.0 migration.</p> <p>Added information about "Length Semantics" in the "Installing Oracle Transportation Management on the Database Server" section.</p>

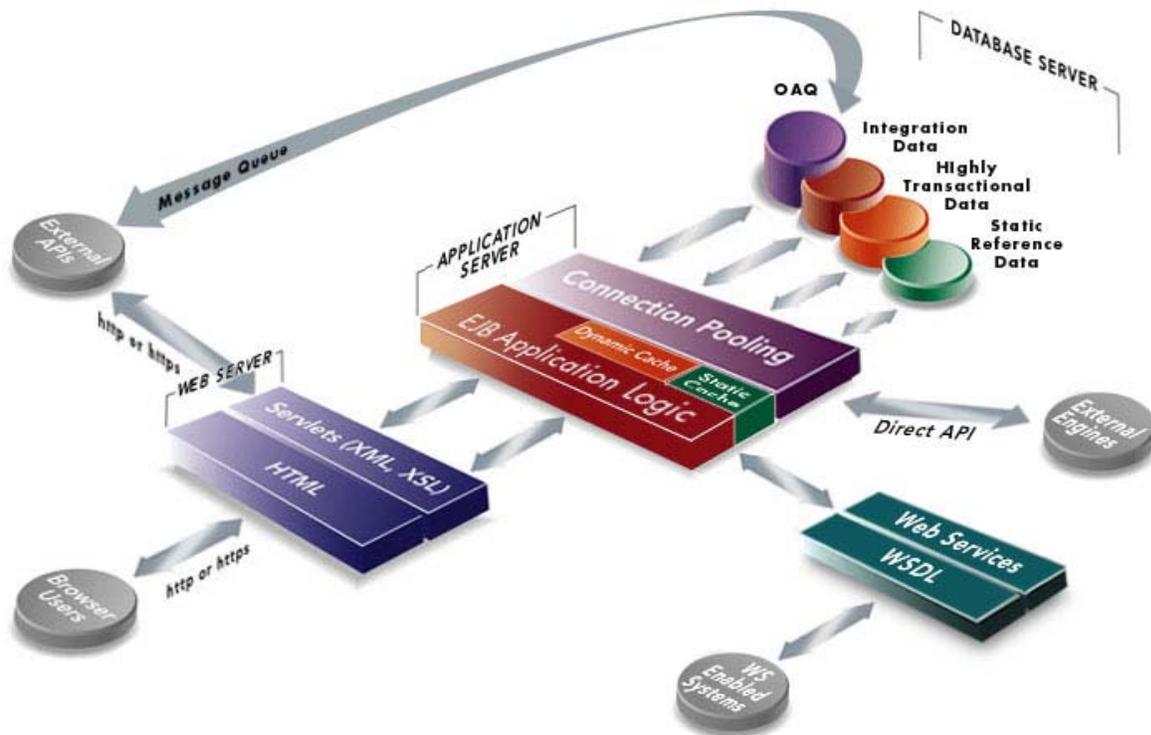
1. Architecture Overview

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. Each Oracle Transportation Management web server instance can now act as a "reports" server, using Oracle's BI Publisher product.

Application Server

The Application Server controls the application logic and communicates that logic between the Web server and the Database. The Application server runs WebLogic Server software from Oracle Corporation (all supported platforms except HP-UX IA64), Oracle Application Server software from Oracle Corporation (all supported platforms) or WebSphere Application Server from IBM (AIX 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.

Note: WebSphere Application Server has not yet been certified with Oracle Transportation Management 6.0; there is no ETA on when this will be completed.

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 11g (11.1.0.7 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 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.

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/>.

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 Database server, please see the documentation associated with that product.

Production Servers

- Web Server: 2 x 2.5 GHz quad-core Xeon CPU w/ 2x6 MB cache, 4 GB RAM, 80 GB disk
- Application Server: 2 x 2.5 GHz quad-core Xeon CPU w/ 2x6 MB cache, 8 GB RAM, 80 GB disk

Note: For the Database server, please see the documentation associated with that product.

Software Requirements for Oracle Transportation Management Server Configurations

- 64-bit Windows Server 2003 R2 Enterprise x64 Edition with Service Pack 2, OR
- 64-bit Windows Server 2003 Standard Edition with Service Pack 2
- Oracle 11g Release 1 (11.1.0.7) Enterprise Edition
- **[WebLogic]** WebLogic 9.2 MP3
- 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 2.2.9
- Tomcat Java Servlet Server 6.0.18
- OpenSSL 0.9.8h
- 64-bit JRockit JDK 1.5.0_14-b03
- Python 2.4.2

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

Preparing to Install Oracle Transportation Management

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

- A compatible operating system is installed (see above).
- 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 server machines are time-synced using a process like NTP. This is critical to the proper operation and troubleshooting of an Oracle Transportation Management instance.
- Oracle 11gR1 (11.1.0.7) 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]

Install WebLogic Server version 9.2 MP3 as per the accompanying documentation. Note the BEA Home directory (e.g. D:\product\bea) and the WL Home directory (e.g. D:\product\bea\weblogic92).

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 similar to:

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

where <weblogic_install_path> is the value of WL Home noted above.

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 Guide 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.

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/>.

Test and Development Server

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

Note: For the Database server, please see the documentation associated with that product.

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 database server, please see the documentation associated with that product.

Software Requirements

- 64-bit Solaris 10 with the latest recommended patches
- Solaris patches for JDK 1.5.0_17
- Oracle 11g Release 1 (11.1.0.7) Enterprise Edition
- **[WebLogic]** WebLogic 9.2 MP3
- 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 2.2.9
- Tomcat Java Servlet Server 6.0.18
- OpenSSL 0.9.8h
- 64-bit Sun JDK 1.5.0_17
- Python 2.5.2

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

- Preparing to Install Oracle Transportation Management

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

- A compatible operating system is installed (see above) along with any patch bundles recommended by the OS vendor.
- 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 11gR1 (11.1.0.7) Client (Administrator install) has been installed and configured to connect to your database.

Pre-Install Setup

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

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]

Install WebLogic Server version 9.2 MP3 as per the accompanying documentation. Note the BEA Home directory (e.g. /opt/bea) and the WL Home directory (e.g. /opt/bea/weblogic92).

Important Note: You must remove a file from the WebLogic installation because of a code conflict between it and the latest JDBC drivers with which Oracle Transportation Management ships. 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 the value of WL Home noted above.

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.

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.

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/>.

Test and Development Server

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

Note: For the Database server, please see the documentation associated with that product.

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 Database server, please see the documentation associated with that product.

Software Requirements

- 64-bit AIX 6.1 with the latest Recommended Patches
- AIX patches for JDK 1.5.0 SR9
- Oracle 11g Release 1 (11.1.0.7) Enterprise Edition
- **[WebLogic]** WebLogic 9.2 MP3

- **[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-FP00000023.pak

Note: The WebSphere Application Server has not yet been certified with Oracle Transportation Management 6.0; there is no ETA on when this will be completed.

- **[WebSphere]** WebSphere Application Client 6.0 [Web-only installs]
 - Installer for this can be found in the AppClient directory of the main WAS install
- 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 2.2.9
- Tomcat Java Servlet Server 6.0.18
- OpenSSL 0.9.8h
- 64-bit IBM JDK 1.5.0 SR9
- Python 2.5.2

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

Preparing to Install Oracle Transportation Management

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

- A compatible operating system is installed (see above) along with any patch bundles recommended by the OS vendor
- 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 11gR1 (11.1.0.7) Client (Administrator install) has been installed and configured to connect to your database.

Pre-Install Setup

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]

Install WebLogic Server version 9.2 MP3 as per the accompanying documentation. Note the BEA Home directory (e.g. /opt/BEA) and the WL Home directory (e.g. /opt/BEA/weblogic92).

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 the value of WL Home noted above.

Installing WebSphere on the Application Server [WebSphere]

Note: WebSphere Application Server has not yet been certified with Oracle Transportation Management 6.0; there is no ETA on when this will be completed.

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]

Note: WebSphere Application Server has not yet been certified with Oracle Transportation Management 6.0; there is no ETA on when this will be completed.

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 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.

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.

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/>.

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 Database server, please see the documentation associated with that product.

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 Database server, please see the documentation associated with that product.

Software Requirements

- 64-bit HP-UX 11iv3 with the latest Recommended Patches
- 64-bit HP JDK 1.5.0.15
- HP-UX patches for the JDK
- Oracle 11g Release 1 (11.1.0.7) Enterprise Edition
- 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 2.2.9
- Tomcat Java Servlet Server 6.0.18
- OpenSSL 0.9.8h
- 64-bit HP JDK 1.5.0.15

- Python 2.5.2

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

Preparing to Install Oracle Transportation Management

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

- A compatible operating system is installed (see above) along with any patch bundles recommended by the OS vendor.
- 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 11gR1 (11.1.0.7) Client (Administrator install) has been installed and configured to connect to your database.
- The HP 1.5.0.15 JDK has been installed. This is required so that specific libraries get installed on your system. This package is available directly from HP's web site.
<http://www.hp.com/products1/unix/java/>

Pre-Install Setup

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]

Install WebLogic Server version 9.2 MP3 as per the accompanying documentation. Please note the BEA Home directory (e.g. /app/bea) and the WL Home directory (e.g. /app/bea/weblogic92).

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 the value of WL Home noted above.

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.

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]** or **[WebLogic]**.

Red Hat Linux

Red Hat AS/ES 5 is also a supported platform, but Oracle Transportation Management has not been certified on it. In this manual, wherever Oracle Enterprise Linux Server release 5.1 is referenced, simply replace it with Red Hat AS/ES 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.

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/>.

Test and Development Server

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

Note: For the Database server, please see the documentation associated with that product.

Production Servers

- Web Server: 2 x 2.5 GHz quad-core Xeon CPU w/ 2x6 MB cache, 4 GB RAM, 80 GB disk
- Application Server: 2 x 2.5 GHz quad-core Xeon CPU w/ 2x6 MB cache, 8 GB RAM, 80 GB disk

Note: For the Database server, please see the documentation associated with that product.

Software Requirements

- 64-bit Oracle Enterprise Linux (OEL) Server 5.1 with the latest Recommended Patches
- Oracle 11g Release 1 (11.1.0.7) Enterprise Edition
- **[WebLogic]** WebLogic 9.2 MP3
- 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 2.2.9
- Tomcat Java Servlet Server 6.0.18
- OpenSSL 0.9.8h
- 64-bit JRockit JDK 1.5.0_14-b03
- Python 2.5.2

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

Preparing to Install Oracle Transportation Management

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

- A compatible operating system is installed (see above) along with any patch bundles recommended by the OS vendor.
- 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 11gR1 (11.1.0.7) Client (Administrator install) has been installed and configured to connect to your database.

Pre-Install Setup

Once the Oracle Enterprise Linux Server release 5.1 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]

Install WebLogic Server version 9.2 MP3 as per the accompanying documentation. Note the BEA Home directory (e.g. /opt/bean) and the WL Home directory (e.g. /opt/bean/weblogic92).

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 the value of WL Home noted above.

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.

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.

Explanation of Application Layers

Oracle Transportation Management is made up of many components that can be grouped into the following "layers":

- Database Layer - where the data actually resides
- Application Layer - where the application logic runs (one of: WebLogic, OAS or WebSphere)
- Web Layer - the UI that users interact with (Tomcat & Apache)
- BI Publisher Layer - where reports are generated; this is just a normal Oracle Transportation Management Web instance that the client designates as being used for generating reports in addition to, or instead of, handling normal user traffic
- Fusion Transportation Intelligence Layer - where OBIEE is run
- Integration Layer - where incoming XML data is handled; this is just a normal Oracle Transportation Management Web instance that the client designates as being used for handling integration in addition to, or instead of, handling normal user traffic; please see the Oracle Transportation Management Integration Guide and the Oracle Transportation Management Data Management Guide for alternatives to using Web-layer integration

Whether or not an Oracle Transportation Management Web instance is handling user traffic is as simple as whether or not users know to access the instance. If an instance is to be used for BI Publisher only, then users should not be told of the Web server's existence and a load balancer should not include it in the list of available servers. The Oracle Transportation Management Application instance, though, would know about the instance and would be configured to use it as the BI Publisher instance. Similarly, to set up a separate Integration Web server, your upstream processes simply need to know where to send data to and your users should not be directed to use it.

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 will normally run each of the above application layers on separate physical servers. For instance, we would see the following configuration:

- Server One: Database layer
- Server Two: Application Layer
- Server Three: Web layer
- Server Four: Integration layer
- Server Five: BI Publisher layer
- Server Six: FTI layer

The instructions that follow assume that you are installing a production instance of Oracle Transportation Management where the various layers reside on separate physical servers. If you want to install a test or development instance of Oracle Transportation Management, please see the Error! Reference source not found. section.

Test instances can be consolidated onto fewer servers, depending on the hardware availability within your organization. Commonly, we will see the following configuration for Test instances:

- Server One: Database, BI Publisher and FTI layers
- Server Two: Web, Application and Integration layers

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 Consulting if you have any questions.

Finally, the Oracle Transportation Management installer on a UNIX system requires that you run from an X-Windows session or that it be run in console mode. Please contact your UNIX Administrator for more information about launching GUI based UNIX applications. Console mode installs are described below.

Installing Oracle Transportation Management on the Application Server

Note: Paths shown in this section will be in UNIX format (Ex. /opt/gc3) but should be in Windows format for Windows installs (Ex. D:/gc3 or D:\gc3). All directions are generic across all operating systems unless explicitly noted. Similarly, all instructions apply regardless of which Application Server you are using, unless otherwise noted.

1. Run the installer to start the installation
 - a. UNIX: `otmv600_<platform>.bin`
 - b. Windows: `otmv600_win64.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
$ ./otmv600_<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
$ ./otmv600_<platform>.bin
```

2. Read the installation notice and click **Next**.

3. Carefully read the Third Party Software notice and click **Next**.
4. Choose the installation directory (e.g. /opt/otm or /opt/otm600 to denote version). If you are installing more than one Oracle Transportation Management instance on a server, each instance must be installed into a different directory.
5. Choose which Application Server you will be using: WebLogic , Oracle Application Server (OAS) or WebSphere.
 - a. For Linux, Solaris & Windows a choice is presented between WebLogic & OAS
 - b. For AIX a choice is presented between WebLogic, OAS & WebSphere.
 Note: WebSphere Application Server has not yet been certified with Oracle Transportation Management 6.0; there is no ETA on when this will be completed.
 - c. For HP-UX the only choice currently is OAS.
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 Service Name. Contact your Oracle Administrator for this information.
 - f. click Next
10. General Settings (continued)
 - a. Enter Oracle Home Path where you installed the Oracle client (/u01/app/oracle/product/11, 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: WebLogic-Specific
 - a. **[WebLogic only]** Enter the App Server SNMP Port (usually 7161).

- b. **[WebLogic only]** Enter the BEA Home Path (e.g. /opt/bea)
12. App Server Settings
- a. Enter the App. Server IP Address.
 - i. **[WebLogic] or [OAS]** The application server will be bound to this IP address specifically. If you are installing more than one Oracle Transportation Management instance on a server, each instance must 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.
 - ii. **[WebSphere]** Oracle Transportation Management does not currently support running more than one WebSphere instance of Oracle Transportation Management on a single box.
 - b. Enter the Application Server Path, which is the directory that you installed the Application server software into (e.g. /opt/bea/weblogic92 or /opt/IBM/WebSphere/AppServer6)
 - c. Enter the Application Server memory in megabytes, which is the amount of system memory that the Application Server memory uses. This default is 1600MB, but may be higher depending on your configuration.

Note: If this value is lower than 1600MB, 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.

- d. click Next
13. **[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.
14. App Server Settings (continued)
- a. Enter the Oracle Transportation Management App Server Init Script / Service name (e.g. otmapp600). If installing more than one Oracle Transportation Management instance on a single server, this must 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 must map to a real mailbox and will allow you to check for bounced messages or delivery failures.
 - d. click Next
15. **[UNIX Only]** UNIX Settings
- a. Enter the user name that the Oracle Transportation Management programs will run under (e.g. otm or otm60).
 - b. Enter the group name that the Oracle Transportation Management programs will run under (e.g. otm or otm60).
 - c. click Next
16. 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.
17. 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).

18. If you are integrating with Oracle BI Publisher server, enter the following:
 - a. Fully Qualified Domain Name of the Oracle BI Publisher server.
 - b. The web port of the BI Publisher server.
 - c. Click **Next**.
 - d. Select whether or not to integrate your BI Publisher 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. Service Name of the ROD database
 - e. Click **Next**.
20. If you are integrating with a locally host MapViewer instance, enter the following:
 - a. Fully Qualified Domain Name of the MapViewer server
 - b. Service Name of the locally hosted MapViewer
 - c. Base Map name for the locally hosted MapViewer
 - d. Click **Next**.
21. 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**
22. 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**.
23. 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. Indicate whether or not you are running SMC RateWare Version 1.2.325 (or later) or SMC Carrier Connect
 - d. Click **Next**.
24. If you are integrating with PCMiller WorldWide, enter the following:
 - a. Fully Qualified Domain Name of the PCMiller WorldWide server
 - b. PCMiller WorldWide port (usually 8145)
 - c. click Next
25. If you are integrating with PCMiller Rail, enter the following:
 - a. Fully Qualified Domain Name of the PCMiller Rail server
 - b. PCMiller WorldWide port (usually 2001)
 - c. Click **Next**.
26. 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**.
27. 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**.
 28. 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**.
 29. If you are integrating with Kewill's FlagShip server, enter the following:
 - a. Fully Qualified Domain Name of the Kewill FlagShip server
 - b. FlagShip server port (usually 1200)
 - c. Enter the Oracle Transportation Management Location Refnum Qualifier GID used to cross-reference with the Kewill data
 - d. Click **Next**.
 30. Please review the summary before continuing and click **Next** when ready to proceed. The file copy process may take some time— please be patient.
 31. 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).
 32. **[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.

Note: 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.
 33. **[Windows Only]** When finished, you must restart your entire server before attempting to start Oracle Transportation Management.
 34. 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.

- otmapp60 (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.fresh (<otm_install_path>/weblogic/domains/otm/config)
- weblogic.sh / weblogic.bat (<otm_install_path>/weblogic)
- weblogic.conf (<otm_install_path>/weblogic)

Log Files on the Oracle Transportation Management Application Server

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

Oracle Application Server (OAS) only

- console.log.0 (<otm_install_path>/logs/oas) – does not rotate
- shutdown.log.0 (<otm_install_path>/logs/weblogic) – automatically rotates
- startup.out (<otm_install_path>/logs/weblogic) – overwritten on each restart

WebLogic only

- console.log.0 (<otm_install_path>/logs/weblogic) – automatically rotates
- shutdown.log.0 (<otm_install_path>/logs/weblogic) – automatically rotates
- startup.out (<otm_install_path>/logs/weblogic) – overwritten on each restart
- weblogic.log (<otm_install_path>/logs/weblogic) – grows over time

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

Note: Paths shown in this section will be in UNIX format (Ex. /opt/gc3) but should be in Windows format for Windows installs (Ex. D:/gc3 or D:\gc3). All directions are generic across all operating systems unless explicitly noted. Similarly, all instructions apply regardless of which Application Server you are using, unless otherwise noted.

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/bea/weblogic92/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: otmv600_<platform>.bin
 - b. Windows: otmv600_win64.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
$ ./otmv600_<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
$ ./otmv600_<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/otm600 to denote version). If you are installing more than one Oracle Transportation Management instance on a server, each instance must be installed into a different directory.
6. Choose which Application Server you will be using: WebLogic , Oracle Application Server (OAS) or WebSphere.
 - a. For Linux, Solaris & Windows a choice is presented between WebLogic & OAS
 - b. For AIX a choice is presented between WebLogic, OAS & WebSphere

Note: WebSphere Application Server has not yet been certified with Oracle Transportation Management 6.0; there is no ETA on when this will be completed.

- c. For HP-UX the only choice currently is OAS.
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 Service Name.
 - f. click Next
11. General Settings (continued)
 - a. Enter Oracle Home Path where you installed the Oracle client (/u01/app/oracle/product/11, 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 must 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. otmweb60). If installing more than one Oracle Transportation Management instance on a server, this must 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 1600Mb by default, but may be higher or lower, depending on your configuration.
Note: If this value is lower than 1600MB, 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. **[Windows only]** Web Server Settings (continued)
- a. Enter the Oracle Transportation Management Tomcat Server Service name (e.g. otmtomcat60). If installing more than one Oracle Transportation Management instance on a server, this must be unique for each one.
16. **[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)
17. **[UNIX Only]** UNIX Settings
- a. Enter the user name that the Oracle Transportation Management programs will run under (e.g. otm or otm60).
 - b. Enter the group name that the Oracle Transportation Management programs will run under (e.g. otm or otm60).
 - c. click Next
18. 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.
19. 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).
20. If you are integrating with Oracle BI Publisher server, enter the following:
- a. Fully Qualified Domain Name of the Oracle BI Publisher server.
 - b. The web port of the BI Publisher server
 - c. Click **Next**.
 - d. Select whether or not to integrate your BI Publisher 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. Service Name of the ROD database
 - e. Click **Next**.
22. If you are integrating with a locally host MapViewer instance, enter the following:
 - a. Fully Qualified Domain Name of the MapViewer server
 - b. Service Name of the locally hosted MapViewer
 - c. Base Map name for the locally hosted MapViewer
 - d. Click **Next**.
23. 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**.
24. 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).
25. **[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.

Note: 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.
26. **[Windows Only]** When finished, you must restart your entire server before attempting to start Oracle Transportation Management.
27. 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.

- otmweb60 (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

- access.log (<otm_install_path>/logs/apache) – may grow quickly
- console.log.0 (<otm_install_path>/logs/tomcat) – automatically rotates

- error.log (<otm_install_path>/logs/apache) – will grow over time
- glog.web.log (<otm_install_path>/logs) – automatically rotates
- mod_jk.log (<otm_install_path>/logs/apache) – will grow over time
- shutdown.log.0 (<otm_install_path>/logs/weblogic) – automatically rotates
- startup.out (<otm_install_path>/logs/weblogic) – overwritten on each restart
- ssl.log (<otm_install_path>/logs/apache) – will grow over time

Installing Oracle Transportation Management on a Single Server

You can install Oracle Transportation Management on a single server for testing and development purposes. You can install them as separate instances, in which case you simply run the above steps multiple times on the same server, once for each new instance. You can also install a combined Web and Application instance at once. Follow the directions for **Installing Oracle Transportation Management on the Application Server** but choose “Web & App Server” on the “Choose Install Type” screen.

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 11g be installed, including “Oracle Database 11g Product” from 11g companion CD. It also requires the database server be patched to 11.1.0.7.0 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: 11.1.0.7.0 Enterprise Edition
 Oracle Options: Jserver, JAccelerator, Partitioning (optional/strongly recommended)
 Oracle Instance Character Set: UTF8

Length Semantics

It is highly recommended that the database for Oracle Transportation Management uses character semantics instead of byte semantics to support multi-byte character encoding scheme. Oracle Transportation Management installations on multi-byte character languages such as Chinese and Japanese must use character semantics. The NLS_LENGTH_SEMANTICS initialization parameter determines whether a new character datatype column uses byte for character semantics. The default value of the parameter is BYTE.

You need to change the column length semantics before you install the Oracle Transportation Management database because it is difficult to change the semantics after database has been populated. For further information about NLS_LENGTH_SEMANTICS, please refer to Oracle Database Globalization Support Guide.

Add the following initial database parameter before starting the Oracle Transportation Management schema installation:

```
NLS_LENGTH_SEMANTICS=CHAR
```

Initial Parameters

The following initial parameters must be set:

```
07_DICTIONARY_ACCESSIBILITY = true
Open_cursors = 1000 (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
PART_5	100 MB
LOB1	300 MB
LOB2	300 MB

Tablespace	Initial File Size
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.

Create Oracle Transportation Management Database Structure and Public Data

These steps will create Database Users, Structure and load public data. The create_all.sql script will create following users on the database.

- ARCHIVE
- GLOGDBA
- GLOGOWNER
- GLOGDEV
- GLOGLOAD
- REPORTOWNER
- GLOBALREPORTUSER

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

1. Set environment variable ORACLE_SID to your database SID. If the ORACLE_SID is not set within the system environment, you must 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.
2. 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.
3. Change to the <otm_install_path>/glog/oracle/script8 directory on the Oracle Transportation Management Application server. In SQL*Plus, as user SYSTEM run:
@create_all.sql
4. Enter connection, password, partition, machine type and property file location information when prompted.
5. After the process has run, verify in the create_all_<dbsid>_<timestamp>.log file (located in the same directory as source) that there are no errors. Contact Technical Support if you find any errors like "ORA-" or "Package Body created with compilation errors".
6. Also review the log file called import_content_<dbsid>_<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. Contact Technical Support if you find any errors.
7. In SQL*Plus, as user **GLOGOWNER** run:
@aq_setup.sql
8. In SQL*Plus, as user **GLOGOWNER** run:
@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 to Technical Support.

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.
In SQL*Plus as the GLOGOWNER user, run:
`@insert_security_roles.sql`

Verify Database Structure

1. Change to the `<otm_install_path>/gc3/glog/oracle/script8` directory on the Oracle Transportation Management Application server.
In SQL*Plus, as user **GLOGOWNER** run:
`Select count(*) from all_objects where status='INVALID' and owner in ('GLOGOWNER', 'REPORTOWNER', 'GLOGDEV', 'GLOGLOAD') and Object_name not like 'BIN$%';`

The result should be:

```
COUNT(*)
0
```

2. Run:
`Select namespace from dba_context where schema = 'GLOGOWNER';`

The result should be:

```
NAMESPACE
GL_USER_CTX
```

3. 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	11596
REPORTOWNER	130

4. Run:
`@object_count.sql`

For partitioned database the results should be:

OWNER	OBJECT_TYPE	TOTAL
ARCHIVE	LOB	4
	SEQUENCE	334
	TABLE	334
GLOGDEV	TRIGGER	1
GLOGLOAD	TRIGGER	1
GLOGOWNER	FUNCTION	7152
	INDEX	2940
	INDEX PARTITION	52
	JAVA CLASS	10
	JAVA SOURCE	7
	LOB	36
	LOB PARTITION	40
	PACKAGE	66
	PACKAGE BODY	64
	QUEUE	3
	SEQUENCE	186
	TABLE	1440
	TABLE PARTITION	373
	TRIGGER	3283
	TYPE	4
	VIEW	26
REPORTOWNER	INDEX	14
	PACKAGE	74
	PACKAGE BODY	74

OWNER	OBJECT_TYPE	TOTAL
	SEQUENCE	1
	TABLE	14
	TRIGGER	15
	VIEW	33

For non-partitioned database the results should be:

OWNER	OBJECT_TYPE	TOTAL
ARCHIVE	LOB	4
	SEQUENCE	334
	TABLE	334
GLOGDEV	TRIGGER	1
GLOGLOAD	TRIGGER	1
GLOGOWNER	FUNCTION	7152
	INDEX	2940
	INDEX PARTITION	52
	JAVA CLASS	10
	JAVA SOURCE	7
	LOB	36
	PACKAGE	66
	PACKAGE BODY	64
	QUEUE	3
	SEQUENCE	186
	TABLE	1440
	TRIGGER	3283
	TYPE	4
	VIEW	26

OWNER	OBJECT_TYPE	TOTAL
REPORTOWNER	INDEX	14
	PACKAGE	74
	PACKAGE BODY	74
	SEQUENCE	1
	TABLE	14
	TRIGGER	15
	VIEW	33

If your results differ from those shown above, contact Technical Support.

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

3. 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

4. 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

5. 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

6. 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_dbblink_rod_to_oltp.sql
```

7. 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

8. 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: 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 two 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. 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

Initially, archiving gets implemented on the OLTP database, you can move it to the ROD database. You will need the following to move archiving from OLTP to ROD database.

- 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. A replicated online database (ROD) instance of Oracle Transportation Management is the ideal 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.
- 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 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.

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 10g.
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 10g Client Home>/lib32 directory. If the path isn't correct, the following type of error would be generated later in the OBI EE installation.

```
libclntsh.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 connetor'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 < bieee_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. Copy <otm_install_path>/fti/aa_webcat.zip to [OBI EE]/OracleBIData/web/catalog directory.

14. Unzip the aa_webcat.zip file in [OBI EE]/OracleBIData/web/catalog directory.
15. 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>
```

16. 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-WEBSEVER></LogoffUrl>
    <LogonUrl>http:// <OTM-WEBSEVER></</LogonUrl>
  </SSO>
</Auth>
```

17. 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.

18. 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>
<Prompts>
<MaxDropDownValues>1500</MaxDropDownValues>
</Prompts>
</Auth>
```

19. 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):

20. 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 04 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

21. Overwrite palette.xml in [OBI EE]\OracleBI\web/app/res/s_oracle10/chartsupport with <otm_install_path>/fti/palette.xml.
22. From the [OBI EE]/Oracle BI/server/Schema directory login to the database as hdowner/hdowner@rptapp.
23. Run the **@SAJOBS.Oracle.sql** and then exit sqlplus
24. 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
25. 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=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=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. Be sure NOT to include the `http://` as it will be added by the Oracle Transportation Management 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`

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>

```

5. Configuring Optional Components

These components include:

- Locally hosted Oracle MapViewer server
- Custom External Rating and Distance Engines
- GFI FAXmaker for Networks/SMTP 8.1
- RightFax
- PCMiller WorldWide & PCMiller Rail
- Rand McNally IntelliRoute Server
- SMC RateWare Server
- Kewill FlagShip Server
- Python on a Client PC

Configuring Oracle Transportation Management for a Locally Hosted Oracle MapViewer

You can setup Oracle Transportation Management to integrate with a locally hosted MapViewer server during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use a locally hosted MapViewer server. 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 the `<otm_install_path>/glog/config` directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

```
# Locally-hosted MapViewer server
glog.map.baseurl=otmmapviewer.company.com
glog.map.service_name=otm_world
glog.map.basemap=otm_world.world_sample
```

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

Configuring Custom External Rating and Distance Engines

This section has been broken out into its own document. Please see the **External Programming Interface Guide** for more information.

Configuring 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 must 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 the FAXmaker software according to the vendor's instructions.
5. 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 coverage directory (e.g. `C:\Program Files\FAXmaker\Coverpage\`).
6. Please note the following:
 - a. Ensure that your modem is configured to send faxes ONLY; do not configure the modem to allow faxes to be received
 - b. Ensure that G-Log.rtf is the default coverage and set the paper size to letter
 - c. Ensure that any special dialing requirements (such as dialing 7 to get an outside line) are set according to the vendor's documentation
 - d. The username and email address of the user you add to FAXmaker must 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.
7. Refer to the FAXmaker documentation for any troubleshooting assistance or contact GFI directly.

You can setup Oracle Transportation Management to integrate with FAXmaker during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use FAXmaker. 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 the `<otm_install_path>/glog/config` directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

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

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

Configuring 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 must 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.

You can setup Oracle Transportation Management to integrate with RightFax during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use RightFax. 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 the `<otm_install_path>/glog/config` directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

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

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

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},{lastNam
e},,{rawPhone}\n{message}
glog.fax.email=fax@company.com
```

Configuring PCMiller WorldWide or PCMiller Rail

Install the PCMiller product as described in your PCMiller user's manual. Install the PCMiller Canada Postal Codes, if desired (PCMiller WorldWide only).

You can setup Oracle Transportation Management to integrate with PCMiller during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use PCMiller. 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 the `<otm_install_path>/glog/config` directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

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

Uncomment and modify the following lines for PCMiller Rail:

```
pcmiler.rail.host=pcmilerrail.company.com
pcmiler.rail.port=2001
```

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

Configuring Rand McNally IntelliRoute

Note: Due to lack of support for 64-bit JDK, IntelliRoute is not currently supported as of the time of this writing. Please contact Rand McNally for an ETA on when it will be available.

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. 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 FAXmaker during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use FAXmaker. 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 the `<otm_install_path>/glog/config` directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

```
intelliroute.host=otmir.company.com
intelliroute.port=1998
intelliroute.user=otm
intelliroute.password=changeme
intelliroute.location=company1
```

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

Configuring Rand McNally MileMaker

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

You can setup Oracle Transportation Management to integrate with FAXmaker during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use FAXmaker. 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 the `<otm_install_path>/glog/config` directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

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

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

Configuring SMC RateWare

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 FAXmaker during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing installation to use FAXmaker. 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 the `<otm_install_path>/glog/config` directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

```
glog.RatingEngine.Rateware.URL=otmsmc.company.com
glog.RatingEngine.Rateware.port=23700
```

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

Configuring Kewill FlagShip

Install the Kewill FlagShip server as described in your FlagShip user's manual.

You can setup Oracle Transportation Management to integrate with Kewill FlagShip during the initial Oracle Transportation Management installation (as described earlier), or you can modify an existing

installation to use Kewill FlagShip. 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 the <otm_install_path>/glog/config directory. Uncomment and modify the following lines and set the values on the right as appropriate (see the relevant section of the Oracle Transportation Management installation above for details on what each field's value should be):

```
glog.RatingEngine.Kewill.URL=otmkewill.company.com
glog.RatingEngine.Kewill.port=1200
glog.RatingEngine.Kewill.RefnumQual=KEWILL_CUST_NUM
```

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

Configuring 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.

1. Download Python 2.5 from the Python website (<http://www.python.org/>) and install it according to their install instructions.
2. Set the following environment variables according to the instructions for your OS (e.g. under Windows you would go to Start → Settings → Control Panel → System → Environment), where \$PYTHON_INSTALL_DIR is the directory where Python was installed to (e.g. D:\product\python):

```
PYTHON_HOME=$PYTHON_INSTALL_DIR
PYTHON_LIB=$PYTHON_HOME/lib/python2.5
PYTHONPATH=$PYTHON_LIB:$PYTHON_LIB/site-packages:$PYTHON_LIB/site-
packages/_xmlplus:$GLOG_HOME/utils/integration/python
```

You are now ready to use the Oracle Transportation Management client-side python scripts. Please refer to the Oracle Transportation Management Integration Guide and Oracle Transportation Management Data Management Guide for more information.

Python International Character Set Configuration

The site.py file under \$PYTHON_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 and Stopping the Oracle Transportation Management Servers

Starting Oracle Transportation Management Servers

To start Oracle Transportation Management, please do the following:

1. Start the Oracle Transportation Management database, including any listeners
2. Start the Oracle Transportation Management web server
 - a. On Windows:
 - i. Start the Tomcat service (e.g. otmtomcat)
 - ii. Start the Apache service (e.g. otmapache).
 - b. On Unix systems:
 - i. Start the Oracle Transportation Management web daemon (e.g. `/etc/init.d/otmweb60 start`)
3. Start the Oracle Transportation Management application server
 - a. On Windows:
 - i. Start the Application service (e.g. otmapp)
 - b. On Unix systems:
 - i. Start the Oracle Transportation Management app server daemon (e.g. `/etc/init.d/otmapp60 start`)
 - c. It can take several minutes for the application server to fully start up, depending on your hardware
 - d. **[OAS]** You can monitor the `<otm_install_path>/logs/oas/console.log.0` file to determine when OAS has been fully initialized. Look for lines similar to the following:

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

- e. **[OAS] 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.

- f. **[WebLogic]** You can monitor the `<otm_install_path>/logs/oas/console.log.0` file to determine when OAS has been fully initialized. Look for lines similar to the following:

```
INFO | 2009/03/09 23:26:12 | <Mar 9, 2009 11:26:12 PM EDT> <Notice>
<Server> <BEA-002613> <Channel "Default" is now listening on
10.143.205.28:7001 for protocols iiop, t3, ldap, http.>
```

```
INFO | 2009/03/09 23:26:12 | <Mar 9, 2009 11:26:12 PM EDT> <Notice>
<WebLogicServer> <BEA-000329> <Started WebLogic Admin Server "gc3-
otm-qa-60-wl" for domain "Otmv600" running in Production Mode>
INFO | 2009/03/09 23:26:12 | <Mar 9, 2009 11:26:12 PM EDT> <Notice>
<WebLogicServer> <BEA-000365> <Server state changed to RUNNING>
INFO | 2009/03/09 23:26:12 | <Mar 9, 2009 11:26:12 PM EDT> <Notice>
<WebLogicServer> <BEA-000360> <Server started in RUNNING mode>
INFO | 2009/03/09 23:26:26 | -- OTM Event: serverReadyc
```

- g. **[WebSphere]** You can monitor the
<otm_install_path>/logs/websphere/console_out.log file to determine when
WebSphere has been fully initialized. Look for lines similar to the following:

```
[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
```

4. 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 Oracle Transportation Management Servers

To start Oracle Transportation Management, please do the following:

1. Stop the web server
 - a. On Windows:
 - i. Stop the Apache service (e.g. otmapache)
 - ii. Stop the Tomcat service (e.g. otmtomcat)
 - b. On Unix systems:
 - i. Stop the Oracle Transportation Management web daemon (e.g. `/etc/init.d/otmweb60 stop`)
2. Stop the application server
 - a. On Windows:
 - b. Stop the App service (e.g. otmapp)
 - i. Stop the Oracle Transportation Management application daemon (e.g. `/etc/init.d/otmapp60 stop`)
3. Stop the Oracle database, if necessary.

If you are going to restart Oracle Transportation Management, wait one minute between stopping and restarting the servers. This gives the application server the time it needs to fully shut down.

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 Windows: "<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.

1. In SQL*Plus, as user GLOGOWNER run:
@dbmigrate_40.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 be processed.
3. 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.

4. 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 Windows: `“<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 Windows: "<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

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 V50A
```

or

DOS command script:

- 7.

```
update_content <otm_install_path>\glog\config V50A
```

8. 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.
9. 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
```

10. 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

11. In SQL*Plus as GLOGOWNER, run:
@dbmigrate_50a.sql.
12. 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.
13. 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>.

2. 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.

3. 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.

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

```
@create_mview_logs
```

5. 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 Oracle Transportation Management 5.5 Consolidated Updates

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

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

6. 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.

7. On the app server, change to directory <otm55_install_path>/glog/oracle/script8.
8. SQL*Plus log in as **GLOGOWNER**
9. Run @dbupdate_55.sql to update the database with all the new tables and columns to 5.5.
10. Enter the glogowner password, reportowner password, archive password, and database connection when prompted.
11. 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

12. 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
```

13. 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

14. In SQL*Plus as **GLOGOWNER**, run:
@dbmigrate_55.sql.
15. Enter the password and database connection string when prompted.
16. After the process has run, verify in the dbmigrate_55_<dbid>_<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.

17. In SQL*Plus as user **GLOGOWNER**, run:
@dbpatch_55.sql
18. Enter the passwords and connection strings when prompted.
19. 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

20. 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
21. Shutdown your database and then restart it.

Analyze the Database

22. Oracle Transportation Management database should be fully analyzed after the 5.5 migration.
Oracle Transportation Management provides following analyze script.
23. **@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>`.

24. 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.

25. 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.

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

```
@create_mview_logs
```

27. 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 5.5 to 6.0

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 5.5 you must complete each previous version's migration instructions. You cannot skip any migration steps. Please go through all upgrade steps to 5.5 prior to starting the 5.5 to 6.0 migration.

The structure of the database to be migrated should be consistent with the Oracle Transportation Management 5.5 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.

There are two distinct migration paths available for upgrade from 5.5 to 6.0.

1. Upgrade from version 5.5 CU5 to 6.0
Oracle Transportation Management installations running version prior to 5.5 CU5 or earlier can upgrade to version 6.0. Follow the instructions in section "**Upgrading from Version 5.5 CU5 to 6.0**".
2. Upgrade from version 5.5 CU6 to 6.1
Oracle Transportation Management installations running on the version 5.5 CU6 cannot upgrade to version 6.0. These installations will be able to upgrade to version 6.1 after release of version 6.1.

Upgrading from Version 5.5 CU5 to 6.0

Apply Oracle Transportation Management 5.5 CU5 Consolidated Updates

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

- On UNIX: `./ <otm_install_path>/install/gc3env.sh`
- On Windows: `"<otm_install_path>\install\gc3env.cmd"`

You must install the latest Oracle Transportation Management 5.5 CU5 Consolidated Update to your Oracle Transportation Management 5.5 installation and apply the Consolidated Update script to your 5.5 database to ensure that any known migration issues have been patched and resolved.

Important: Do not install 5.5 CU6 before upgrading to 6.0.

1. Log in as **GLOGOWNER** and run `dbpatch_55.sql` (which resides in the 5.5 directory, `<otm55_install_path>/glog/oracle/script8/`).

Note: Do not continue with the upgrade until the `dbpatch_55` log is completely clean. Contact Technical Support if you have any questions or concerns.

You must also apply all of the Roll Up (RU) patches available for the Latest Consolidated Update (CU) to ensure that any known migration issues have been patched and resolved.

Migrate Oracle Transportation Management 5.5 CU5 Database to 6.0

You must install the latest Consolidated Update available for Rel 5.5 before running below database migration steps. Also, you must install all of the Roll Up (RU) patches available for the latest CU. This is important as bugs, if any, in the database migration scripts would get fixed in the Consolidated Update and its associated Roll Up patches. Therefore, you will not run into any known issues.

FTI Data Cleanup Utility

Migration of the Oracle Transportation Management FTI solution from the version 5.5 CU5 to 6.0 will involve automatic clean-up of unsupported data in the TARGET_TYPE, TARGET_VALUE & E_KPI_TARGET_VALUE_TYPE tables. To learn the exact data that is cleaned up by the migration script, the `aa_user_entered_cleanup.sql` SQL script is provided. You should run this script before updating structure of the OLTP database to the Oracle Transportation Management 6.0 version. Perform following steps to run this utility script.

1. On the app server, change to directory `<otm60_install_path>/glog/oracle/script8`.
2. In SQL*Plus log in as **GLOGOWNER** and run `@ aa_user_entered_cleanup.sql`. Data will be spooled into `e_kpi*.csv` files.

Updating the Structure

1. On the app server, change to directory `<otm60_install_path>/glog/oracle/script8`.
2. In SQL*Plus log in as **GLOGOWNER**
3. Run `@dbupdate_60.sql` to update the database with all the new tables and columns to 6.0.
4. Enter the glogowner password, reportowner password, archive password, and database connection when prompted.
5. After the process has run, verify in the `dbupdate_60_<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_60.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.

Note: Do not continue until the `dbupdate_60` 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 are provided and the script you use is dependent on your operating system:
UNIX shell script:

```
./update_content.sh <otm_install_path>/glog/config
```

or

Windows command line script:

```
update_content.cmd <otm_install_path>\glog\config
```

2. Review the log file called `update_content_<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.

Note: Do not continue until the `update_content` log is clean.

Data Migration

1. In SQL*Plus as **GLOGOWNER**, run:
`@dbmigrate_60.sql`.
2. Enter the password and database connection string when prompted.
3. After the process has run, verify in the `dbmigrate_60_<dbid>_<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.

4. Shutdown your database and then restart it.

Analyze the Database

5. Oracle Transportation Management database should be fully analyzed after the 6.0 migration. Oracle Transportation Management provides following analyze script:
 - `@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. **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.

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 5.5 to 6.0 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.

Fusion Transportation Intelligence database Upgrade

1. After ROD database upgrade, change to directory

```
<otm60_install_path>/glog/oracle/script8/advanced_analytics.
```
2. SQL*Plus log in as **HOWNER**
3. Run

```
@aa_dbupdate_60.sql
```

 to update the database with all the new tables and columns to 6.0.
4. Enter the howner password, glogowner password, database connection for ROD database, and glogowner password and database connection for OLTP database when prompted.

After the process has run, verify in the

```
aa_dbupdate_60_<dbid>_<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

```
aa_dbupdate_60.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

```
aa_dbupdate_60
```

 log is clean.**

Converting Order Releases to a Multi-tier Structure

Order releases that were planned prior to 6.0 must be converted into multi-tier database structures before they can be further processed by Oracle Transportation Management in 6.0. The primary purpose of conversion is to create order movements and separate shipment ship units from shipment to shipment in order to support the development of more complex planning and execution processes in Oracle Transportation Management.

A new field was added to the ORDER_RELEASE table and is used to indicate if an order is converted or not. The OTM_VERSION is set to NULL for unconverted orders. When an order is converted, the OTM_VERSION is set to '6.0'. If you try to invoke any action on an unconverted order in 6.0, directly on the order, such as unassigned order, or indirectly on any shipment related to the order, such as split/merge shipments or change stop times, you will get a warning and the action will be aborted.

The conversion is a java process and it can be run interleaving with other Oracle Transportation Management processes. However, we recommend it be run right after the standard 6.0 migration process especially for orders that need to be further processed in Oracle Transportation Management. Orders are not necessarily converted all at once, but they need to be converted before they are used. For better management and performance, you should consider converting orders for a short period of time, such as a quarter year's orders or a half-year's orders, at one time. Old orders that are no longer used will not need to be converted or can be converted at a later time.

Conversion process can be invoked at any time, but due to the performance impact, we recommend it to be run after normal business hours.

Convert Order Releases

1. Log in as DBA.ADMIN.
2. Turn on conversion-related logs. There are three log IDs related to conversion: SSUConversion, SSUConversionDetails and SSUConversionSummary. When you are testing out the conversion process with a small number of orders, you can turn on all three. However, when you convert a large number of orders, we recommend only turn on SSUConversionSummary due to performance concerns.
3. Navigate to Order Management > Process Management > Convert Order Releases.
4. Create or use an existing saved query to select orders you intend to convert.
5. Enter a batch size for converting. Currently, the default size is 500. However, based on our testing experience, a batch size between 100 and 200 gives the best performance.
6. Monitor your log file to see if there are any failed batches during conversion. Orders in failed batches will be re-attempted one by one once all batches are done and most likely they will be converted successfully at this time. You only need to contact Oracle technical support for further evaluation if any order failed to convert during the second attempt.

Upgrade from version 5.5 CU6 to 6.1

Oracle Transportation Management installations running on the version 5.5 CU6 cannot upgrade to version 6.0. These installations will be able to upgrade to version 6.1.

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 to any other files will be overwritten every time an update is applied.

Applying Consolidated Updates

Note: An upgrade path from 5.5 CU6 to 6.0 is not planned at this time.

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 the Info button () 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: All consolidated updates should be thoroughly tested on a test instance prior to being applied on a production instance.

Note: Unless explicitly stated otherwise in the CU Installer update instructions, you must upgrade to the latest RU of the current CU before upgrading to any newer CU.

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.

Changing Logging Options

After any of the following settings are changed, you should restart the Oracle Transportation Management instance as described in the chapter **Starting and Stopping the Oracle Transportation Management Servers** 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://egeneration.beasys.com/wls/docs92/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 [Error! Reference source not found.](#). 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 is 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 [Error! Reference source not found.](#). The instructions below describe how to make these changes.

UNIX and Windows

To change the amount of memory that Tomcat uses, edit `<otm_install_path>/tomcat/bin/tomcat.conf` and modify the following lines:

```
jvm.arg=-Xms[ TOMCAT_MEMORY ]m  
jvm.arg=-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 2.2GB, the line would read:

```
jvm.arg=-Xms2200m  
jvm.arg=-Xmx2200m
```

[OAS] To change the amount of memory that OAS uses edit <otm_install_path>/oas/bin/oc4j.conf:

```
jvm.arg=-Xms[OAS_MEMORY]m
jvm.arg=-Xmx[OAS_MEMORY]m
```

If you change this value to 2.2GB, it would look like:

```
jvm.arg=-Xms2200m
jvm.arg=-Xmx2200m
```

[WebLogic] To change the amount of memory that WebLogic uses edit <otm_install_path>/weblogic/weblogic.conf:

```
jvm.arg=-Xms[WEBLOGIC_MEMORY]m
jvm.arg=-Xmx[WEBLOGIC_MEMORY]m
```

If you change this value to 2.2GB, it would look like:

```
jvm.arg=-Xms2200m
jvm.arg=-Xmx2200m
```

[WebSphere] 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 2.20GB, it would look like:

```
<param name="MaxMX">2200</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.
guest	CHANGEME	[OAS] Change via the Application Server Users process below. May not be deleted.
ebs	ebs	

User ID	Default Password	Notes
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/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/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.

- The changes will not take effect until Oracle Transportation Management 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:

- Ensure that Oracle Transportation Management is up and running
- Log in to the OAS console (http://<app_server_fqdn>:8888/em)
- Click "Setup" in the upper right corner
- Enter the current password, and the new password twice, then select "Apply"
- 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:
 - `var.OAS_PW=CHANGEME`
 - Change it to the value of the new password.
 - 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' or 'guest' password, executing the following steps:

- Ensure that Oracle Transportation Management Application and Web servers are down.
- Login to the application server machine as the Oracle Transportation Management user.
- Setup your environment by running `<otm_install_path>/install/gc3env.sh` on UNIX or `<otm_install_path>\install\gc3env.cmd` on Windows.
- `cd` to `<otm_install_path>/oracle/script8`
- Run `update_password.sh` on UNIX or `update_password.cmd` on Windows with the following parameters:

- `update_password.sh <glog_properties_path> <user> <password>`
 - o `glog_properties_path`: directory where `glog.properties` is, e.g. `<otm_install_path>/glog/config`
 - o `user`: `system` or `guest`
 - o `password`: the new password
6. Run the following command:
 - `java glog.util.appclass.Base64Encoding <new_password>`
 - 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`
 - a. **[system]** search for the string `'-DGC3EncodedPassword='` and change the value of this to the results of the previous step.
 - b. **[guest]** search for the string `'-DGuestEncodedPassword='` and change the value of this to the results of 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. Ensure that Oracle Transportation Management Application and Web servers are down.
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>`
 - o `glog_properties_path`: directory where `glog.properties` is, e.g. `<otm_install_path>/glog/config`
 - o `user`: `system` or `guest`
 - o `password`: the new password
5. **[system]** On the application server, edit the file `<otm_install_path>/weblogic/weblogic.conf`
 - a. search for the string `'var.WL_PW=CHANGEME'` and change the value of this to the new password
6. Run the following command:
 - `java glog.util.appclass.Base64Encoding <new_password>`
 - 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`

- a. **[system]** search for the string '-DGC3EncodedPassword=' and change the value of this to the results of the previous step.
 - b. **[guest]** search for the string '-DGuestEncodedPassword=' and change the value of this to the results of the previous step.
8. 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:
 - a. `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.
globalreportuser	globalreportuser	This user has read access to all the data in Oracle Transportation Management. 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/domains/otm/config/config.xml.fresh 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 and App 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/weblogic.conf
- **[WebLogic]** <otm_install_path>/weblogic/domains/otm/config/config.xml.fresh
- **[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___Node01
Cell/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___Node01
Cell/ 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/domains/otm/config/config.xml.fresh` 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___Node01
Cell/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]`

- Restart your Oracle Transportation Management Web and Application servers as described earlier in this guide.
- You may also need to edit your tnsnames.ora files on each Oracle Transportation Management server.

Creating and Installing SSL Certificates

Oracle Transportation Management is delivered with demonstration SSL certificates for Apache (using mod_ssl and OpenSSL) and WebLogic. 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

- 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 (**Windows**: change into `<otm_install_path>\apache\bin` instead).
- 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
```
- 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
```
- 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
```
- 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
```
- Please answer all of the questions to the best of your ability, especially the common name (your company's domain name).
- You can view the details of your CSR via this command:

```
openssl req -noout -text -in server.csr
```
- 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.
- 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.
- 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.

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 GID. 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 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	
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 Error! Reference source not found..

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 (1.6 GB or higher). 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 Otmv600 → Environment → Servers.
3. Select the Oracle Transportation Management server (e.g. gc3-otm-machinename-60-wl)
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.

Tomcat

The Tomcat service starts up one Java JVM and shows up as "<path>/ java -server -Xms1600m -". 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 (1.6GB or more). You can monitor the performance statistics of Tomcat using general UNIX tools.

Oracle Application Server (OAS)

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 (1.6 GB or more). 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 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 (1.6 GB or more). 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 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 (1.6 GB or more). 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.

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>, <total_minutes>, <batch size>);`

Note: The old procedure transmission purge "domainman.transmission_purge(<age_in days>, <where clause>,<totalminutes>,<keep status clob flag>, <batch size>);" is deprecated (still workable).

Tender collaboration records (TENDER_COLLABORATION), which have their own partition, are not able to be purged or truncated with this procedure. They can be purged with associated shipments if the parameter PURGE_TENDER_TRANSACTION=TRUE or manually purged with sql command "exec domainman.orphan_tender_purge(<total_minutes>,<batch size>);"

Transmissions with shipment events (IE_SHIPMENT_STATUS) are purged just like other elements.

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;
```

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.

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 deletes 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 except tender. The process would run for 60 minutes (since this is default), and would process 5000 records at a time (default).

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 the TOAD interface with a SQL query window. The query is: `select TYPE,UOM_CODE,UOM_RANK,IS_STORAGE_DEFAULT from UOM where IS_STORAGE_DEFAULT = 'Y'`. The results are displayed in a table with the following data:

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'

```

3. 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_GID	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_GID	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.

1. 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

This section has been broken out into its own document. Please see the *Application Scalability Guide* for further information.

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.

Recurring Processes

There are recurring processes in Oracle Transportation Management that are scheduled to run automatically at regular intervals. Several of these are configured and turned on out-of-the-box in a fresh installation or upgrade. Please consult the online help to determine what these processes are, to help understand what they do and to learn how to change their frequency interval or disable them altogether.

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_16K_CACHE-SIZE
104857600 (100 MB)
```

```
SHARED_SERVERS
0
```

This parameter is ignored if PGA_AGGREGATE_TARGET is set

```
OPEN_CURSORS
1000
SESSION_CACHED_CURSORS
100
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.

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:

1. Create all Oracle Transportation Management used tablespaces first in the target database.
2. Check if all of Oracle Transportation Management required init.ora parameters are properly set in the target database.
3. 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
```

4. 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.
5. 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.
6. 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.dbaglogowner.t2client.connectionURL=$glog.database.dbaOnly.t2client.connectionURL$
```

```
glog.database.dbareportowner.t2client.connectionURL=$glog.database.dbaOnly.t2client.connectionURL$
```


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>

OpenSSL

The online documentation for OpenSSL can be found at the following URL:

<http://www.openssl.org/docs/>

Python

The online documentation for Python can be found under the following URL:

<http://www.python.org/doc>

Tomcat

The online documentation for Tomcat can be found under the following URL:

<http://tomcat.apache.org/tomcat-6.0-doc/index.html>

Oracle Application Server (OAS)

The online documentation for OAS can be found under the following URL:

http://download.oracle.com/docs/cd/B25221_04/index.htm

WebLogic

The online documentation for WebLogic can be found under the following URL:

<http://egeneration.beasys.com/wls/docs92/index.html>

WebSphere

The online documentation for WebSphere can be found under the following URL:

<http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp>

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 **Error! Reference source not found.** - Error! Reference source not found. for more information.

Uninstalling Oracle Transportation Management

Oracle Transportation Management must be manually uninstalled; there is no automated uninstall option. 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.