Oracle® Transportation Management

Installation Guide

Release 6.5.2

Part No. F60668-01

November 2022

ORACLE®

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Oracle® Transportation Management Installation Guide, Release 6.5.2

Part No. F60668-01

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Preface

This document contains information regarding the installation of the following products: Oracle Transportation Management, Global Trade Management, and Transportation Intelligence. This manual does not cover the installation of the operating system, any other Oracle components (e.g. the Oracle database or Oracle HTTP Server) or any third-party components (e.g. a third-party rating engine).

1. Installation Requirements

All software and hardware requirements are listed in the [Oracle Transportation Management Technical Architecture Guide](#).

> **Note**: If you are migrating from a version earlier than 6.4.3 you must complete each previous version's migration instructions. You cannot skip any migration steps. Please go through all upgrade steps to 6.4.3, as described in the 6.4.3 documentation, prior to starting the 6.4.3 to 6.5.1 migration.

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 may be required to start the application (see the Oracle Transportation Management Security Guide for more info on Privileged Ports). The user that runs the installer must have full rights to the installation directory.

Red Hat Linux

Red Hat AS/ES 7 is also a supported platform, but OTM has not been certified on it. In this guide, wherever Oracle Enterprise Linux Server release 7 is referenced, simply replace it with Red Hat AS/ES 7. 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 OTM application. It does not take into account additional OTM 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 a 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 OTM. If you experience any problems, try disabling them before contacting Technical Support.

> **Note:** If you want to view the results generated by the Load Configuration feature, a VRML plug-in for your Web Browser is needed. OTM has been tested with the Cortona plug-in for Internet Explorer, available at: https://www.cortona3d.com/en/viewers.

Mid-Tier Server

- Latest multi-core Intel processors with 32 GB RAM and 120 GB disk.

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

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Software Requirements

All software and hardware requirements are listed in the [Oracle Transportation Management Technical Architecture Guide](#).

- 64-bit Oracle Enterprise Linux Server with the latest recommended patches
- Oracle Database Enterprise Edition
  - a standard installation is required
- Oracle Fusion Middleware Infrastructure
  - Select the Fusion Middleware Infrastructure for the installation type.
- Oracle Fusion Middleware HTTP Server
  - Install into the same directory you installed Oracle Fusion Middleware Infrastructure.
  - Select Co-located HTTP Server as the installation type
- Integration Server - EAI solution (optional)

The following additional software is distributed with OTM:

- 64-bit Sun JDK 1.8.x

Preparing to Install OTM

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 OTM servers are time-synced using a process like NTP. This is critical to the proper operation and troubleshooting of an OTM instance.
- Oracle 19c or higher Database Client (Administrator install) has been installed and configured to connect to your database.
- WebLogic Clustering database is installed and repositories created; see Creating the WebLogic Metadata Repository.

Pre-Install Setup

Update kernel parameters as needed for the Database Client. This is covered in the Oracle Database installation documentation. Restart the server.

Installing Oracle Fusion Middleware prerequisite software on the Mid-Tier Server

Install Oracle Fusion Middleware Infrastructure as per its documentation, using a 1.8.x JDK. Note the BEA Home directory (e.g. `/u01/product/bea`) and the WL Home directory (e.g. `/u01/product/bea/wlserver`).

> **Note:** The user that OTM runs as must have read access to the WebLogic install directory and all of its sub-directories.

Install Oracle Fusion Middleware HTTP Server as per its documentation, making sure to select the "Collocated HTTP Server" option. Note the BEA Home directory (e.g. `/u01/product/bea`) and the Oracle HTTP Server Home directory (e.g. `/u01/product/bea/ohs`).

> **Note:** The user that OTM runs as must have read access to the Oracle HTTP Server install directory and all of its sub-directories.

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Installing OTM

Follow the instructions in the **Installing OTM** chapter to finish your OTM installation.

Post-Install Setup

After installing OTM you need to download and install the Commons Net 3.6 library.

1. Go to http://commons.apache.org/proper/commons-net/ and download Commons Net 3.6 in the archives under binaries.
2. Extract the contents of the .tar.gz file.
3. Copy the `commons-net-3.6.jar` file to the copy it to the `<otm_install_dir>/glog/gc3webapp.ear/APP-INF/lib/3rdparty` directory.

2. Installing OTM

It is HIGHLY recommended that you make available personnel who are familiar with the installation and configuration of 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 below that contain operating system-specific options are marked with **[AIX]**, **[Linux]**, etc.

Multiple Products, Single Installer

The Oracle Transportation Management installer can be used to install many different products, depending on what software you have licensed. These products can be broken into the following broad family groups: Oracle Transportation Management and Global Trade Management. All of these product families, and the products under them, share a single installer binary and you will be prompted to tell the installer which product you will be installing. Unless specifically noted, all options below pertain to all products.

> **Note:** Sections below that contain product-specific options are marked with **[OTM]**, **[GTM],** or some combination thereof.

Because of the universal nature of the installer, file names, directory names, window titles and the like may only reference a single product (i.e. Oracle Transportation Management) however they will apply to all products unless otherwise indicated.

Explanation of Application Layers

Any given instance of Oracle Transportation Management or Global Trade Management is made up of many sub-components that can be grouped into the following "layers":

- Database layer: where the data actually resides
- Mid-Tier Layer:
    - o Web Server layer: the OHS component servicing client HTTP requests.
    - o Application Server layer: the WebLogic instance hosting both our UI, via the servlet engine, and backend, via J2EE.

    Note: Starting with OTM 6.4.3 and above, the Application and UI layer have been integrated into a single App server layer.

    Note: Starting with OTM 6.4.0, a WebLogic Clustering database is required for the Web layer. For security reasons it is highly recommended that this database be separate from the database where the product data resides. Please see the Oracle Transportation Management Security Guide for more information.

- Fusion Transportation Intelligence: where Oracle Analytics Server (OAS) and Oracle Data Integrator (ODI) run
- Integration layer: where incoming XML data is handled
    - o This is just a normal web instance that you designate 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.

o Whether or not a given web instance is handling user traffic is as simple as whether or not users know to access the instance. In order 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 Configurations

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

Oracle Transportation Management/Global Trade Management

Production instances of any Oracle Transportation Management or Global Trade Management will normally run each of the above component layers on separate servers. For instance, we would see the following configuration:

- Server One: Database layer
- Server Two: Mid-Tier layer (including the WebLogic Clustering database)
- Server Three: Integration layer
- Server Four: Oracle Fusion Transportation Intelligence layer

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 and Oracle Transportation Intelligence (TI) layers
- Server Two: Mid-Tier 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.

Upgrading From a Previous Version

After configurations have been migrated the database needs to be migrated. Please refer to the Oracle Transportation Management Migration Guide for further details.

When migrating from 6.4.2 or above, it is critical that the wallet be copied so that it is available to the installer and follow the directions in the "Specifying a Wallet Home" directions for when there is existing wallet.

Creating the WebLogic Metadata Repository

OTM requires access to a WebLogic Metadata Repository using MetaData Services (MDS) on the Web Server layer. The MDS repository is a database that stores metadata information for Oracle Fusion Middleware components, in this case Oracle HTTP Server (OHS), and needs to be seeded with specific schemas using the Oracle Fusion Middleware Metadata Repository Creation Utility (RCU). The requirements for the database along with instructions on how to run the RCU program can be found in the WebLogic documentation.

1. When the RCU program is run, select "System Load and Product Load" on the "Create Repository" step.
2. On the "Select Components" screen, select "Oracle AS Repository Components" and "Create New Prefix".

3. Make note of the prefix supplied along with all the schema names and passwords supplied.

Specifying a Wallet Home

As of release 6.4.2, OTM stores all external passwords in two secure wallets:

- a reserved wallet, "wallet.shared", holding passwords critical to OTM component communication. This includes database and WebLogic passwords needed for the Mid-Tier server to startup correctly.
- a user wallet, "wallet.otm", holding passwords needed by external systems, report systems, content management systems and web services.

To ensure passwords are synchronized across all Mid-Tier servers, these servers need to access a single, shared wallet home. In addition, this access must be read/write for all Mid-Tier systems running OTM to function properly.

- UNIX systems can use Network File Sharing (NFS) where each server mounts the shared wallet home to a local path. This path is then specified during installation as the wallet home.

For new installations, the installer creates an empty reserved and user wallet. It populates the reserved wallet with passwords specified during the installation process. When installing optional components, passwords are staged in the Property Set screen. This screen delegates password storage to the wallets.

For customers migrating existing wallets, the wallets should be copied into the wallet home prior to running the installation. The installer updates passwords in the reserved wallet as needed; passwords in user wallet are respected. This is critical as references in various tables like EXTERNAL_SYSTEM refer to entries in the user wallet.

Installer Interface Options

Depending on the operating system, OTM can be installed using one of three options: GUI, Console, and Silent.

Note: The GUI and Console installation options are no longer supported.

GUI Interface (Not Supported)

Console Interface (Not Supported)

Silent Installer

A file is prepared ahead of time answering all of the questions that the installer would normally ask. The installer will read it in when it executes and then run completely hands-free. To use the silent installer option, run the installer executable with two options, one to select the silent interface and one to specify the response file to use:

```
$ ./otmv652_linux.bin -i silent -f installer.properties
```

Installing with the Silent Installer

Before installing OTM with the silent option, you must locate, rename, and edit the response file. It is called `example.installer.properties` and is located in the same directory as the installer executable itself.

---

1. Make a copy of `example.installer.properties` and save it to a new name (e.g. `installer.properties`).

2. Edit the new file and fill in the answers as appropriate for your environment. All values are documented in the file itself. Note that some sections are only for certain platforms; all should be clearly marked.

3. Run the installer executable from the command line with the following options:

    ```
    $ ./otmv652_linux.bin –i silent –f installer.properties
    ```

    `installer.properties` is the name of the file that you edited in the previous step.

    Note: On 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
    $ ./otmv652_linux.bin –i silent –f installer.properties
    ```

4. Once the installer has finished (up to 30 minutes, depending on your operating system and hardware) you should see the message:

    ```
    Installation Complete.
    ```

    Check the bottom of the installation log file, `Oracle_OTM_v6.5.2_GA_InstallLog.log`, for any errors or warnings (this file should be located in the directory that OTM was installed to). If there are any errors, please correct them (they should be self explanatory). If you find that you need help, please have the log file handy, along with the Exit Code (found in the log file), before contacting Oracle Support. If you do not get the "Installation Complete." message or cannot find the log file, look for a file of the same name in your home directory (i.e. `$HOME/Oracle_OTM_v6.5.2_GA_InstallLog.log`).

5. Please refer to the sections at the end of Installing Interactive on the Mid-Tier Server for further post-install activities that need to be done before you can start up the application.

    Note: The silent installer response file contains sensitive information that should be safeguarded appropriately.

Installing Interactively (Not Supported)

Note: All directions are generic across all operating systems unless explicitly noted.

1. Start the installer in GUI or console mode, as directed in the section above.

    Note: On 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
    $ ./otmv652_linux.bin –i console
    ```

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

    Note: Console and GUI installations will have different prompts to continue. GUI installs will have a "**Next**" button, where console installations will ask you to "**Hit enter to continue**." Please take the appropriate actions for the remaining steps.

2. Choose the installation directory (e.g. `/opt/otm` or `/opt/otm652` to denote version). If you are installing more than one OTM instance on a server, each instance must be installed into a different directory.

3. Read the instructions for filling out the required data and click **Next**.

4. BEA Home

    a. Enter the full path of the base BEA install directory (e.g. `/u01/product/bea`).

    b. Enter the full path of the base WebLogic install directory (e.g. `/u01/product/bea/wlserver`). This is usually under the BEA install directory.

    c. Click **Next**.

5. Wallet Information

    a. Answer YES or NO to whether a wallet directory exists from a previous 6.4.3 or 6.5.1 installation.

6. Wallet Directory

    a. Enter the directory where the wallet should be created. Please see Specifying a Wallet Home section above.

7. OTM Web/App User and Group

    a. Enter the name of the user to be used for Web <-> App communication (e.g. OtmAppUser). This user is an internal user, and is not one that can log into an interactive session in OTM. This must match the value entered during the OTM App Server installation.

    b. Enter the group name for the user (e.g. OTMApp). This must match the value entered during the OTM App Server installation.

    c. Click **Next**.

8. OTM Internal URL Protocol

    a. Enter the Web Server Server Internal URL Protocol (DEFAULT: https). This would be the protocol used by the internal web server. By default the https option is configured.

9. OTM External URL Protocol

    a. Enter the Web Server External URL Protocol (DEFAULT: https). If your site were accessed through a load-balancer or NAT device, this would be the protocol used in the external URL (outside your network). If not, then this would be the protocol used by the internal web server. By default the https option is configured.

    Note: For https installations a valid certificate and keystore will need to be configured and information supplied in later steps. Also, when creating the OHS wallet via the orapki utility the "-compat_v12" option should be used to enable the creation of a Java keystore from the OHS wallet.

10. General Settings

    a. Enter the Web Server External Fully Qualified Domain Name (e.g. otm.oracle.com). This would work if 'otm' 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. Please contact your Network Administrator if you have any questions about this.

    b. Enter the Web Server External Port. If your site is accessed through a load-balancer or NAT device, this is the external port. If not, then this is the port of your web server (in which case see the note below for more information on what this value should be).

    c. Click **Next**.

11. General Settings (continued)

    a. Enter the Web Server Fully Qualified Domain Name. This may or may not be the same as the Mid-Tier Server External FQDN.

b. Enter the Web Server Port. This will be the port that Oracle HTTP Server (OHS) is listening on, and will be used by end-users. This should be a number greater than 1024 (see the "Admin Privileges" section of the Oracle Transportation Management Security Guide).

c. Click **Next**.

12. General Settings (continued)

a. 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).

b. Enter the Database Server Port. This is usually 1521.

c. 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.

d. Enter the Database Service Name. This may or may not be the same as the Connect String; contact your Oracle Administrator for this information.

e. Enter Oracle Home Path where you installed the Oracle client

f. Click **Next**.

13. General Settings (continued)

a. Enter SMTP Server Fully Qualified Domain Name. This server name is necessary to send email notifications from within OTM. Please contact your Network Administrator for this information.

b. 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.

c. Click **Next**.

14. Mid-Tier Server WebLogic Domain Settings

a. Enter the Mid-Tier server's WebLogic domain name. Please see WebLogic documentation for valid values. This name must be unique for the WebLogic installation.

b. Enter the Mid-Tier server's WebLogic Server Port. This must be a unique port for the IP address it's bound to.

c. Enter the Mid-Tier server's WebLogic SSL Server Port. This must be a unique port for the IP address it's bound to.

d. Enter the Mid-Tier server's WebLogic Node Manager Port. This must be a unique port for the IP address it's bound to.

e. Click **Next**.

15. MDS Repository Settings

a. Enter the Database Server Fully Qualified Domain Name for the database housing the MDS repository.

b. Enter the Database Server Port for the database housing the MDS repository. This is usually 1521.

c. Enter the Database Service Name for the database housing the MDS repository; contact your Oracle Administrator for this information.

d. Enter the Repostiory Prefix to be used for this install. This must be unique within the database.

e. Click **Next**.

16. MDS Database Settings (continued)

a. Enter the Username for the MDS STB Schema. This usually includes the repository prefix and must be unique within the database.

b. Enter the Username for the MDS OPSS Schema. This usually includes the repository prefix and must be unique within the database.

c. Enter the Username for the MDS IAU Viewer Schema. This usually includes the repository prefix and must be unique within the database.

d. Enter the Username for the MDS IAU Append Schema. This usually includes the repository prefix and must be unique within the database.

e. Enter the Username for the MDS MDS Schema. This usually includes the repository prefix and must be unique within the database.

f. Click **Next**.

17. Mid-Tier Web Server Settings

a. Enter the Mid-Tier Web Server SSL Port (usually 4444).

b. Enter the Mid-Tier Server Host Name. For security reasons, it is recommended to use 'localhost', so that only the WebLogic process can access it.

c. Enter the Mid-Tier Server IP Address. Apache will be bound to this IP address. If you are installing more than one OTM 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.

d. Enter the Servlet Container Memory in Megabytes. This is the amount of system memory that the WebLogic Servlet Container will use. This is 4096MB by default, but may be higher or lower, depending on your configuration.

Note: If this value is lower than 4096MB, WebLogic 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.

e. Enter the Mid-Tier Server Launcher Port. This is 32000 by default. The Launcher binds to localhost (127.0.0.1).

f. Click **Next**.

18. Mid-Tier Web Server Settings (continued)

a. Enter the OHS Component Name that you would like to use. This value must be unique within the WebLogic Domain Name.

b. Enter the OHS Port. This is for the default OHS page, and is usually 7777.

Note: This cannot be the same port used for Mid-Tier Web Server Port.

c. Enter the OHS SSL Port. This is for the default OHS page, and is usually 4443.

d. Enter the OHS Admin Port. This must be a unique port for the IP address it's bound to, and is usually 9999.

e. Click **Next**.

19. HTTPS Settings

a. Enter Identity KeyStore File Location for Mid-Tier Server. This will be the full path to the Identity Keystore file.

b. Enter Trust KeyStore File Location for Mid-Tier Server. This will be the full path to the trust Keystore file.

c. Enter the Private Key Alias for Mid-Tier Server.

d. Enter the OHS Wallet Directory location

20. Mid-Tier WebLogic Admin Password

a. Enter the Web tier WebLogic password for the 'weblogic' user. See the Oracle Transportation Management Security Guide for more information regarding the password requirements.

b. Click **Next**.

21. App-to-Web Authentication Password

a. Enter the password for authenticating App-to-Web communication. This is the same as the OTM App User password. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

22. Guest Password

a. Enter the guest user's user password. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

23. GLOGDBA Database User Password

a. Enter the password for the database user 'glogdba'. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

24. GLOGLOAD Database User Password

a. Enter the password for the database user 'glogload'. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

25. ARCHIVE_C_USER Database User Password

a. Enter the password for the database user 'ARCHIVE_C_USERS'. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**

26. MDS STB Schema Password

a. Enter the MDS STB Schema user password. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

27. MDS OPSS Schema Password

a. Enter the MDS OPSS Schema user password. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

28. MDS IAU Viewer Password

a. Enter the MDS IAU Viewer Schema user password. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

29. MDS IAU Append Password

a. Enter the MDS IAU Append Schema user password. See the Oracle Transportation Management Security Guide for more information.

b. Click **Next**.

30. MDS Schema User Password

a. Enter the MDS Schema user password. See the Oracle Transportation Management Security Guide for more information.

Click **Next**.

31. Identity KeyStore Password for Web Server

a. Enter the Identity KeyStore Password used when creating the keystore.

32. Trust Keystore Password for App Server

a. Enter the Trust Keystore Password used when creating the keystore.

33. Private Key Password for Web Server

a. Enter the private KeyStore Password used when creating the keystore.

34. **[UNIX Only]** UNIX Settings
    a. Enter the user name that the OTM programs will run under (e.g. otm or otm65).
    b. Enter the group name that the OTM programs will run under (e.g. otm or otm65).
    c. Click **Next**.

    Note: The installer will try to verify the user and group names that you enter against the `/etc/passwd` and `/etc/group` files. If the installer cannot verify these names (e.g. you mistyped them or you use something like LDAP or NIS to manage users and groups on this server), you will be prompted to correct them or validate that they are correct and continue with the installation. Similarly, the installer will use the `/etc/passwd` file to look up the home directory of the user you entered; if it cannot determine what the home directory is or cannot locate the actual directory, you will be prompted to correct it or verify that it is accurate and continue the installation.

35. **[UNIX Only]** UNIX Settings (continued)
    a. Enter the home directory of the user specified previously.
    b. Click **Next**.
36. Migration Custom Properties
    a. Choose whether or not to migrate configured settings from a previous OTM installation (6.4.3 or later). If you answer yes, you'll need to choose the directory where your old glog.properties file is located.
    b. Click **Next**.
37. Work Bench Migration
    a. Choose whether or not you will like to perform a workbench migration from another instance. Please see the OTM migration guide for further details.

If the Installation of OTM Mid-Tier Server Fails

If the installation of the OTM Mid-Tier server fails at any point there is currently no option to recover without reinstallation. You will need to stop all running services, remove the failed installation and restart the installation procedures.

1. If running, stop the server's WebLogic instance and the OHS component.
    a. You may be able to use the web server scripts (e.g `/opt/otm/install/webserver/glogweb-wl stop`).
    b. You may need to manually kill these processes.
2. If running, stop the Node Manager that is automatically started as part of the installation process
    a. Run the stopNodeManager.sh script located in the web server's WebLogic domain bin directory (e.g. `/u01/product/bea/user_projects/domains/otm/bin`).
3. Remove the installation directory (e.g. `/opt/otm`) and the web server's WebLogic domain (e.g. `/u01/product/bea/user_projects/domains/otm`)
4. If present, delete the entry for the failed WebLogic domain from the domain-registry.xml file (e.g. `/u01/product/bea/domain-registry.xml`).
5. Remove and recreate the MDS schema by using the RCU utility.

Startup Scripts (UNIX Only)

A generic startup script is provided for your use:

```
$OTM/install/webserver/glogweb-wl
```

This can be used as-is or modified however you'd like to meet your organization's specific needs. It is recommended that you make a copy of script before making any changes, so that the original is always available for comparison. Note that this script is capable of being used in most `/etc/init.d`-type automatic startup environments.

> **Note:** In OTM 6.5.2, there is a single script (glogweb-wl) to start all of OTM as the Web and Application server are a single Mid-Tier installation.

Installing More Than One Instance of OTM on a Single Server

Oracle does not support installing more than one version of OTM onto a single server (or virtual server) unless each instance is bound to a different IP address. This can be accomplished by having separate network cards, each with their own IP address, or using virtual IP addresses. Please contact your System Administration team for the configuration and maintenance of this.

Configuration and Log Files

Information on the various configuration files and logging options has been move to the Oracle Transportation Management Security Guide.

Starting & Stopping OTM Servers

Please see the section "Starting & Stopping Oracle Transportation Management Servers" in the Administration Guide.

3. Installing OTM 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 OTM. It requires that Oracle Database Server 19c or higher be installed and be patched with the latest patch updates (PSU) and an Oracle database be created. Please note that the OTM database scripts are located under <otm_install_path>/glog/oracle/script8 on the OTM Application server.

Requirements

All software and hardware requirements are listed in the [Oracle Transportation Management Technical Architecture Guide](#).

Oracle Options: Jserver, JAccelerator, Partitioning Oracle Instance Character Set: UTF8 (NLS_CHARACTERSET AL32UTF8)

> **Note**: It is recommended to have the latest PSU patch on top of the 19c or higher database.

Initial Parameters

The following initial parameters must be set:

```
Open_cursors = 3000 (or greater)
Processes = 3000
```

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 OTM Database

Table 3-1: Required Tablespaces for OTM Database

Tablespace	Initial File Size
ARCH_C_TBS	1 GB
ARCH_C_LOB_TBS	1 GB
DATA	10 GB
INDX	10 GB
REPORT	1 GB

Tablespace	Initial File Size
REPORTINDX	1 GB
BPL_DAY1	1 GB
BPL_DAY2	1 GB
BPL_DAY3	1 GB
BPL_DAY4	1 GB
BPL_DAY5	1 GB
BPL_DAY6	1 GB
BPL_DAY7	1 GB
PART_1	1 GB
PART_2	1 GB
PART_3	1 GB
PART_4	1 GB
MSG_PART_TBS1	1 GB
LOB1	1 GB
LOB2	1 GB
LOB3	1 GB
LOB4	1 GB
LOB5	1 GB
LOB6	1 GB
LOB7	1 GB
MSG_LOB_TBS1	1 GB
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 OTM tablespaces are locally managed with automatic segment space management.

The sizes specified above are minimal for the successful installation of the OTM 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 the OTM database. This script can be run interactively, or by providing command line arguments. When you run this script interactively, 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 and run script:

```
create_gc3_tablespaces.sql.
```

Create Tablespace Options

- 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: 100MB
maximum file size(if auto extend is on): 10GB

- 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 (/) 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 Tablespaces, Non-interactive Mode

The options described above define the calling arguments for the create_gc3_tablespaces.sql script. The script is run within the sqlplus environment. Run this script from the sqlplus command line by providing suitable values for each of the parameters. The parameters are positional and listed again here:

- Default Option Flag (Y/N)
- Initial File Size - Use appropriate suffix to define units (eg. 100M, 1G)
- Maximum File Size – As above, use appropriate suffix (eg. 5G)
- Autoextend Option – (Y/N)
- Data file Directory
- Execute-Now Option (Y/N)

A sample Execution to avoid prompts:

```
sql> @create_gc3_tablespaces.sql N 100M 10G Y "/u02/oradata/OTM" Y
```

Create OTM Database Structure and Public Data

These steps create application users, database users, database schema objects and load seed data.

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>.<CHARCTERSET>`. Here `<LANGUAGE>` is used for Oracle messages, sorting order, day names, and month names. `<TERRITORY>` specifies conventions for default dates, calendar, monetary, and numerical format. For example, if in USA, you can set the parameter to `AMERICAN_AMERICA.AL32UTF8`. Characterset AL32UTF8 is required for Oracle Transportation Management. 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 OTM application server.

4. Create database users by running create_glog_users.sql script, which can be run interactively or non-interactively. This script creates following database users:

ARCHIVE_C

ARCHIVE_C_USER

GLOGDBA

GLOGOWNER

GLOGLOAD

REPORTOWNER

GLOBALREPORTUSER

DIR_XML_USER

GLOGOAQ

> **Note**: Oracle Advanced Queueing (OAQ) is no longer supported and will be removed in an upcoming release.

> **Note**: Passwords for GLOGDBA, GLOGLOAD, and ARCHIVE_C_USER must match the passwords entered while installing the application server in section "Installing OTM".

5. For interactive mode: In SQL*Plus, as user SYS run:

```
@create_glog_users.sql
```

The script will prompt for eleven arguments. The arguments, in order, are provided here:
   o Database Connection ID (must match tnsnames entry)

- DBA User – A database user account, other than SYS with privileges to create users (eg. SYSTEM)
- DBA user password
- SYS user password
- ARCHIVE_C user password
- GLOGDBA user password
- GLOGOWNER user password
- GLOGLOAD user password
- REPORTOWNER user password
- GLOBALREPORTUSER user password
- DIR_XML_USER user password
- ARCHIVE_C_USER user password
- GLOGOAQ user password

Note: Oracle Advanced Queueing (OAQ) is no longer supported and will be removed in an upcoming release.

To Run in Non-interactive Mode

Running in non-interactive mode is accomplished by adding the eleven arguments above as parameter values when executing the script.

> **Note**: Passwords for GLOGDBA, GLOGLOAD, and ARCHIVE_C_USER must match the passwords entered while installing application server in section "INSTALLING OTM".

A sample execution is shown below:

```
@create_glog_users.sql OTMDB SYSTEM systempw syspw archivecpw glogdbapw
glogownerpw glogloadpw reportownerpw globalreportuserpw dirxmluserpw
archive_c_userpw glogoaquserpw
```

Create database schemas by running create_all script. This process is run at the host command line. Two command scripts are provided and the script you use is dependent on your operating system.

Note: For 19c DB onwards follow the below steps.

In order to avoid previously reported issues with installing OTM on 19c it is recommended to install the latest Database PSU patch available. This may require the installation of patches for OJVM, OPatch and the Database PSU.

Installing the latest PSU will help avoid these known issues when installing OTM 6.5.2 on older versions of the 19c database.

"ORA-42804: The query could disclose rows protected by select VPD policy." Errors when running the create_all.sh.

"ORA-01652: unable to extend temp segment by 128 in tablespace" Errors when running the create_all.sh.

1. Run this script:

```
UNIX shell script:

./create_all.sh
```

2. Enter database connection ID, SYS user password, DBA user name (other than SYS user) which has privilege to create database users, DBA user password, property file directory location, and password for GLOGOWNER and REPORTOWNER, GLOGOAQ, ARCHIVE_C users. This step also create below listed application users, enter password for each of these users when prompted.

   Note: Passwords for "otmSystem" and "guest" users must match the passwords entered while installing application server in section **"INSTALLING OTM"**

   Note: Oracle Advanced Queueing (OAQ) is no longer supported and will be removed in an upcoming release.

   o otmSystem
   o guest
   o DBA.ADMIN
   o SERVPROV.ADMIN
   o GUEST.ADMIN
   o EBS.ADMIN
   o E1.ADMIN
   o FA.ADMIN

To Run in Non-interactive Mode

Running in non-interactive mode is accomplished by adding the sixteen arguments when executing the script in the order as specified below.

   Note: Oracle Advanced Queueing (OAQ) is no longer supported and will be removed in an upcoming release.

```
./create_all.sh <Database TNS id> <SYSDBA password>
<DBA user name (other than SYS user)who has privileges to create users (like
SYSTEM)>
<Password for DBA user> <Property file path> <GLOGOWNER password>
<REPORTOWNER password>
<Application user "otmSystem" password (password must match with "otmSystem"
user password used during application installation)>
<Application user "guest" password (password must match with "guest" user
password used during application installation)>
<Application user DBA.ADMIN password>
<Application user SERVPROV.ADMIN password>
<Application user GUEST.ADMIN password>
<Application user EBS.ADMIN password>
<Application user E1.ADMIN password>
<Application user FA.ADMIN password>
<Database user GLOGOAQ password>
<Database user ARCHIVE_C password>
```

Sample command:

```
./create_all.sh otmdb syspw system systempw ../../config glogownerpw
reportownerpw appotmSystempw appguestpw dbaadminpw servprovadminpw
guestadminpw ebsadminpw e1adminpw faadminpw glogoaqpw archive_c_pw
```

3. 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".

4. Also review the log files called `import_content_<dbsid>_<timestamp>.log` and `update_password_<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.

    Note: This process loads java objects into the database. Ignore the following errors generated during load java process.

```
errors   : source DbUTCDate
       Note: DbUTCDate uses or overrides a deprecated API.
       Note: Recompile with -Xlint:deprecation for details.

errors   : source DbLocalTimestamp
       Note: DbLocalTimestamp uses unchecked or unsafe operations.
       Note: Recompile with -Xlint:unchecked for details.

errors   : source PasswordEncrypter
       Note: PasswordEncrypter uses unchecked or unsafe operations.
       Note: Recompile with -Xlint:unchecked for details.

errors   : source AutoCombine
       Note: AutoCombine uses unchecked or unsafe operations.
       Note: Recompile with -Xlint:unchecked for details.
```

If Oracle Advanced Queue integration will be used to process inbound messages please refer to the Integration Guide for the required configuration details. These steps can be executed now or at any time later.

> **Note**: Oracle Advanced Queueing (OAQ) is no longer supported and will be removed in an upcoming release.

4. Installing Oracle Transportation Intelligence (TI)

OTM delivers the Oracle Transportation Intelligence (TI) solution which includes the following components. For more details about these components and Oracle TI, see the Oracle Transportation Intelligence Reference Guide.

- Oracle Transportation Intelligence Extract Transform & Load (ETL): Pre-packaged ETL process deployed on an Oracle Data Integrator (ODI) instance
- Oracle Transportation Intelligence Historical Database (HD): The analytics database for the Oracle Transportation Intelligence application
- Oracle Transportation Intelligence Metadata: Delivered as advanced_analytics.bar file

The steps required for installing and configuring Oracle TI installation are detailed in this chapter.

> **Note:** Prerequisites for installing Oracle TI are that you have experience with installing Oracle databases, OTM administration, OAS administration, ODI administration, and experience with Oracle ETL.

> **Note:** If you are installing Global Trade Intelligence or GTI, please see the next section, Installing Global Trade Intelligence (GTI). Although the installation of GTI is basically the same as TI, there are some small differences.

> **Note:** OTM and TI must be installed on the same server to support logout synchronization between the products.

Installing Oracle TI Historical Database (HD)

Preparing OTM Database for TI

Operational Database

Run the `load_status_script.sql` file. The script loads the READY_TO_LOAD status type with a status value of NOT_READY_TO_LOAD to all shipments, order bases, and order releases in OTM. This may take time depending on how many business objects are in the database.

To run the script, complete the following:

1. Log in to the OTM OLTP database as glogowner.
2. In SQL*Plus, as user GLOGOWNER, run the following script:

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

Replicated Operational Database (ROD) Considerations

The deployment architecture of Oracle TI supports the following deployment choices for customers:

- Load Historical Database using ROD

  In this deployment, a ROD (that maintains a snapshot of the OTM OLTP database) is used. The Oracle TI ETL jobs will connect to the ROD to load the Historical Database thereby de-coupling the OTM OLTP database from the ETL process. **Note**: OTM no longer provides the **materialized views** out of the box to create and refresh the ROD, you can use the tool of your choice to schedule and manage the ROD.

- Load Historical Database using OLTP (Online Transaction Processing Database).

  In this deployment, the Oracle TI ETL jobs will connect directly to the OTM OLTP database to load the Historical Database adding to additional database workload on the OTM OLTP database.

It is strongly recommended that you use a ROD to achieve performance gains and to efficiently balance the load on the OTM OLTP database.

Historical Database (HD) Considerations

The Historical Database (HD) schema can be created on a separate database beginning with OTM 6.2. This schema can also share the ROD or the OLTP database.

Creating Historical Database (HD), Users, and Packages

The `create_aa_all.sql` calls the CSV load utility. This utility obtains the details of an Oracle TI database from the property files and property sets. Before invoking the SQL script,

1. Set the following properties in the **CUSTOM** property set:

Table 4-1

Key	Value	Description
glog.database.fti.password		Oracle TI database password

2. Also set the following properties in the **glog.properties file**:

Table 4-2

Key	Value	Description
glog.database.fti.dbserver	ftihost.mycompany.com	Fully qualified domain name of the Oracle TI database
glog.database.fti.port	1521	Port that Oracle is using on the Oracle TI database server
glog.database.fti.sid		Oracle TI database service name

See the **Custom Properties** section of the Administration Guide for more information.

Creating TI Tablespaces

TI requires two tablespaces: DATA and INDX. You should execute the `create_aa_tablespaces.sql` script to create the tablespaces required for the HD.

1. On the database (as per your deployment architecture discussed above) where you want to install Oracle TI, log into SQL*Plus as user SYS and run the following script from advanced_analytics directory:

   ```
   <otm_install_path>/glog/oracle/script8/advanced_analytics/create_aa_tablespa
   ces.sql
   ```

2. `The script` asks `a series of questions:`

    a. Review the default parameters listed and select **Y** to use the default or **N** to change them.

    b. Enter the **file size**.

        You can use K or M. Press ENTER to use the TI default.

    c. Please enter **maximum file size**.

        It must greater than (file_size + 250M). Press ENTER if you use TI/GTI default.

    d. Enter **Y** or **N** to set auto extend on for data files.

        The default is Y.

    e. Enter the **directory where you want the data files to be locate**d including trailing "/" or "\".

    f. Enter **Y** or **N** to create tablespaces now.

        The default is N.

Creating TI Database Users

1. Log into the database (as per your deployment architecture discussed above) where you want to install Oracle TI.

   TI database users can be created either interactively or non-interactively by running create_aa_users.sql script. This script creates following users.

   - o HDOWNER
   - o FTIODIMASTER
   - o FTIODIWORK
   - o FTIODISTAGE

<u>To create TI Database Users Interactively:</u>

1. Using SQL*Plus, as user SYS, run the following script from the directory:

   ```
   <otm_install_path>/glog/oracle/script8/advanced_analytics/create_aa_users.sq
   l
   ```

   Note: Password for HDOWNER must match the password entered while installing application server in section "INSTALLING OTM".

   The script will prompt for eight arguments. The arguments, in order are provided here:

   1. TI Database Connection ID (must match tnsnames entry): *<db_sid>*

       a. DBA User: A database user account, other than SYS with privileges to create users (eg. SYSTEM)

       b. DBA user password

       c. SYS user password

       d. HDOWNER user password

       e. FTIODIMASTER user password

       f. FTIODIWORK user password

       g. FTIODISTAGE user password

> **Note**: Password for HDOWNER must match the password entered while installing application server in section "INSTALLING OTM".

> Make note of the new passwords you enter for the Oracle Database Intelligence database users FTIODIMASTER, FTIODIWORK and FTIODISTAGE. You will need these in the ODI deployment steps for TI in the subsequent sections.

1. As above, run the create_aa_users.sql script and provide the arguments defined.

    A sample execution is:

    ```
    @create_aa_users.sql FTIDB SYSTEM systempw syspw hdownerpw ftiodimasterpw
    ftiodiworkpw ftiodistagepw
    ```

Creating TI Database Structure and Public Data

1. Log into the database (as per your deployment architecture discussed above) where you want to install Oracle TI.
2. Using SQL*Plus, as user SYS, run the following script from the directory:
    `<otm_install_path>/glog/oracle/script8/advanced_analytics/create_aa_all.sql`
    a. Enter your **Connection ID** to the Oracle TI Historical Database (HD) when prompted.

    This is specified in the `glog.database.fti.sid` property.

    b. Enter the **password** for the **HDOWNER** user of your TI database.
        This is the HDOWNER user password of your TI database. See the `glog.database.fti.password` property.
    c. Enter the **SYS user password** for the TI database to login as SYSDBA.
    d. Enter **connection string** to the OLTP database when prompted.

    The OLTP database is your OTM database.

    e. Enter the **GLOGOWNER user password** of your OLTP database.

    The OLTP database is your OTM database.

    f. Enter **path** of directory where glog.properties file is located.
3. After the process has run, there should be four log files generated.
    a. create_aa_all.log
    b. csvone_aa_W_LOCALIZED_STRING_G.log
    c. user_sdo_cached_maps.log
    d. imp_w_province_g.log
4. Contact Technical Support if you find any errors like "ORA-" or "Package Body created with compilation errors". Also verify that the `csvone_aa_W_LOCALIZED_STRING_G.log` file does not have any errors like "ORA-", "Caught exception","SP2-", or "<Error>".

    The `user_sdo_cached_maps.log` file should show that one row was successfully loaded and zero rows had errors. If the process creates the file `user_sdo_cached_maps.bad` then there may be error during data upload. The `imp_w_province_g.log` file should not have any errors like "ORA-" or "IMP-". Contact Technical Support if you find any other errors.

Installing Oracle Data Integrator (ODI)

Certain files required for Oracle Data Integrator installations are available under `<otm_install_path>/fti`. If Oracle Data Integrator is installed on a different server than OTM, please copy these files to a folder where the installing user has write permissions.

> **Note:** The minimum settings required for installing Oracle Data Integrator for Oracle TI are listed below. Refer to the Oracle Data Integrator Installation Manual for detailed instructions on how to install Oracle Data Integrator.

> **Note:** Installing the ODI agent in the database tier provides better performance than installing it in the application tier.

> **Prerequisites**: JDK version 1.8 installed.

Install Oracle Fusion Middleware Infrastructure

Refer to https://docs.oracle.com/en/middleware/fusion-middleware/12.2.1.4/oding/index.html for installing Oracle Fusion Middle Infrastructure.

1. Launch the installation program by invoking the `java -jar` from the JDK directory on your system as shown in the examples below:

    a. On UNIX operating systems:

    ```
    /home/Oracle/Java/jdk1.8.0_341/bin/java -jar
    fmw_12.2.1.4.0_infrastructure.jar
    ```

    > **Note:** Be sure to replace JDK file location in these examples with the actual JDK location on your system.

2. On the Welcome screen of the Oracle Fusion Middleware Infrastructure installation wizard, click **Next >**.
3. On the Installation Location screen, specify the location of your Oracle home directory.
4. Click **Next >**.
5. On the Installation Type screen, select **Fusion Middleware Infrastructure**.
6. Click **Next >**.
7. On the Prerequisite Checks: verify that your system meets the minimum necessary requirements.

    If you get warning or error message, please following instructions in message.
8. Click **Next >**.
9. On Installation Summary screen, verify the installation options you selected.
10. Click **Install >**.
11. You see an Installation Progress screen which allows you to see the progress of the installation.
12. On the Installation Complete screen, review the information on this screen and click Finish to complete the installation.

Installing Oracle Data Integrator for TI and GTI

Refer to https://docs.oracle.com/en/middleware/fusion-middleware/12.2.1.4/oding/index.html for installing Oracle Data Integrator.

---

1. Launch the installation program by invoking the `java -jar` from the JDK directory on your system, as shown in the examples below:

    o On UNIX operating systems:

    ```
    /home/Oracle/Java/jdk1.8.0_341/bin/java -jar fmw_12.2.1.4.0_odi.jar
    ```

    Note: Be sure to replace JDK location in these examples with the actual JDK location on your system.

2. On the Welcome screen installation wizard, click **Next >**.

3. On the Installation Location screen, specify the **location of your Oracle home directory**.

    Note: Specify same oracle home location as middleware infrastructure oracle home.

4. On the Installation Type screen, select installation type of **Enterprise Installation**.

5. Click **Next >**.

6. On the Prerequisite Checks screen **verify that your system meets the minimum necessary requirements**.

    Note: If there are any warnings or error messages, refer to the ODI installation documentation referenced above.

7. Click **Next >**.

8. On the Specify Security Updates screen, choose how you want to be notified about security issues:

    a. If you want to be notified about security issues through email, enter your email address in the Email field.

    b. If you want to be notified about security issues through My Oracle Support, select the My Oracle Support option. Enter your email address in the Email field and enter your My Oracle Support Password.

    c. If you do not want to be notified about security issues, clear the check box and leave all fields empty.

    You will see the following message: "My Oracle Support Username/E-mail address not specified".

    d. Click **Yes** to continue.

9. Click **Next >**.

10. On the Installation Summary screen, **verify the installation options** you selected.

11. Click **Install >**.

12. Use the Installation Progress screen to view the progress of the installation.

    The Installation Complete screen appears when the installation is complete.

13. **Review the information** on the Installation Complete screen and click **Finish** to dismiss the installer.

Configuring ODI for Oracle TI/GTI ETL

Creating a New Oracle Data Integrator Repository Login

Next, you create a login to connect to the Oracle Data Integrator repository.

1. Open ODI Studio:

a. **In Linux, run** `<ODI_HOME>/odi/studio/odi.sh`

Note: As soon as you open ODI Studio for the first time, you are prompted for the JDK Home which needs to be set.

2. Open the New Gallery by choosing **File > New**.

3. In the New Gallery window, in the Categories tree, select **ODI**.

4. From the Items list, select **Create a New ODI Repository Login**.

5. Click **OK**.

The Repository Connection Information Screen opens.

6. In the **Oracle Data Integrator Connection** section enter the following:

   a. **Login name**: A generic alias (for example: DEVREP)

   b. **User**: SUPERVISOR (use capitals)

   c. **Password**: Refer to the ODI Installation Guide for the ODI SUPERVISOR user password and enter that here. (Default value is SUNOPSIS.)

7. In the Database Connection (Master Repository) section enter the following:

   a. **User**: *ftiodimaster*

   b. **Password**: Enter the *password* for *ftiodimaster user*.

   (This is the password for the ftiodimaster user that you entered when you ran the `create_aa_all.sql` script.)

   c. **Drivers List**: Choose *Oracle JDBC Driver*

   d. **URL (standard server configuration only):** Enter the complete JDBC URL for the master repository data server.

   For example: `jdbc:oracle:thin:@<FTI DB SERVER NAME>:<FTI DB PORT>:<FTI DB SID>`

   See the following properties for these settings: glog.database.fti.dbserver, glog.database.fti.port and `glog.database.fti.sid`.

   e. **URL (RAC configuration only)**: Enter the RAC SCAN listener address and the service name as part of the URL as follows:

   For example: `jdbc:oracle:thin:@<RAC SCAN LISTENER ADDRESS>:<PORT NUMBER>/<RAC DB SERVICE NAME>`

   Note: Don't click on Test Connection button to test the connection; because the master repository is not yet created.

8. `In` the **Work Repository** section, enter the following:

   a. Select the Master Repository Only option.

   b. Click **OK**.

   c. Select **Yes** to make this the default login.

   d. Click **OK** again.

9. You get an alert regarding the Security wallet, asking whether you want to store the passwords.

   Select the option **Store passwords without secure wallet**.

Creating the Master Repository and Importing the Artifacts Next, you create the tables and automatically import the definitions for the new ODI master repository. Due to performance, it is

recommended that you have separate TI ODI repositories instead of incorporating them along with other ODI applications.

- The user completing this procedure must have write access to the folder that contains the `FTI_ETL_TOPOLOGY.zip`, `FTI_ETL_SECURITY.zip`, and `FTI_ETL_WORK.zip` files.
- These files are available under `<otm_install_path>/fti`
- If Oracle Data Integrator is installed on a different server, please copy these files to a folder where the installing user has write permissions.

To create the master repository and import the artifacts, complete the following:

10. Open ODI Studio:
    a. In Linux, run `<ODI_HOME>/odi/studio/odi.sh`
11. Select **File > New** to open a new gallery.
12. In the New Gallery window, in the Categories tree, select **ODI**.
13. From the Items list, select **Create a New Master Repository**.
14. Click **OK**.
15. In the **Database Connection** section, complete the following:
    a. **Technology**: From the list, choose *Oracle*.
    b. **JDBC Driver**: Keep the default *oracle.jdbc.OracleDriver*
    c. **JDBC URL**: Enter the *analytics databse URL*.
    d. **User**: enter *ftiodimaster*
    e. **Password**: enter *ftiodimaster password*
    Note: You must connect as SYSDBA so enter "sys as SYSDBA".

    f. **DBA User***:<System User>*
    g. **DBA Password**: *<System User Password>*
    h. Click **Next**.
    i. Enter *SUPERVISOR password* and confirm the password.
    j. Click **Finish**.
16. Click **Finish** to begin master repository creation.

    This process may take up to 10 minutes.
17. Select the **Topology** tab.
18. Click *Connect to Repository*.
19. Enter the following:
    a. **Login Name**: Choose the *login name you created*.
    b. **User**: Enter *SUPERVISOR*
    c. **Password**: Enter *SUPERVISOR's password*.
    d. Click **OK**.
20. On the Topology tab, select **Import > Import Topology**.
21. Click **OK**.
22. Select an **Import Mode** of *Synonym Mode Insert Update*.
23. Select **Import from Zip file**.
24. Browse to and select *FTI_ETL_TOPOLOGY.zip* and click **OK**.
25. On the Security tab, select **Import > Import Security Settings**.
26. Click **OK**.

27. Select an **Import Mode** of *Synonym Mode Insert Update*.

28. Select **Import from Zip file**.

29. Browse to and select *FTI_ETL_SECURITY.zip* and click **OK**.

30. Validate the JDBC URLs for source and target databases by completing the following for each schema listed below:

    o **ORACLE_FTI**: (QA or PROD or UAT) Environment's historical database hdowner schema mapped to global context. Enter the JDBC URL of the TI production/QA/UAT database which contains the HDOWNER schema.

       See the following properties for these settings: glog.database.fti.dbserver, glog.database.fti.port and glog.database.fti.sid.

    o **ORACLE_OTM**: (QA or PROD or UAT) Environment's OTM glogowner schema mapped to global context.

       This is the JDBC URL for your OTM server.

    o **ORACLE_GTM**: (QA or PROD or UAT) Environment's OTM glogowner schema mapped to global context.

       This is the JDBC URL for your OTM server.

    o **Note:** If you do not have a development environment, you do not need to specify these URLs.

    o **ORACLE_FTI_DEV**: Development environment's historical database hdowner schema mapped to development context.

    o **ORACLE_OTM_DEV**: Development environment's OTM glogowner schema mapped to development context.

    o **ORACLE_GTM_DEV**: Development environment's OTM glogowner schema mapped to development context.

       Note: If the target database is a RAC, make sure to use the SCAN listener and service name in the URL.

31. To validate the URLs, complete the following for each schema listed above:

    a. Click on the **Connect To Repository...** link.

    b. In the Login Name list, choose the **ODI repository login**.

    c. Click **OK**.

    d. Click on **Topology** tab.

    e. Go to the **Physical Architecture pane** and expand **Technologies > Oracle**.

    f. Double-click the **schema name** (for example, ORACLE_FTI).

    g. Click the **JDBC** tab.

    h. Enter the corresponding JDBC URL for each schema.

       The JDBC URL should be in the form of `jdbc:oracle:thin:@<DB SERVER>:<DB PORT>:<DB SID>`. See the explanations in step 9 above to determine what URL to use for each schema.

32. Next, for each schema listed above make sure connection to the data server is set up correctly as follows:

    a. Click **Definition** tab.

    b. In the Connection section, for the **ORACLE_FTI** and **ORACLE_FTI_DEV** schemas, enter the following:

       i. **User**: *ftiodistage*.

   ii. **Password**: *<password for the ftiodistage user>*.

   This is the password for the ftiodistage user that you entered when you ran the `create_aa_all.sql` script.

 c. In the Connection section for the **ORACLE_OTM** and **ORACLE_OTM_DEV** schemas, enter the following:

   i. **User**: *glogdba*

   ii. **Password**: *<password for the glogdba user>*

   Refer to your OTM administrator for this information.

 d. In the Connection section for the **ORACLE_GTM** and **ORACLE_GTM_DEV** schemas, enter the following:

   i. **User**: *glogdba*

   ii. **Password**: *<password for the glogdba user>*

   Refer to your OTM administrator for this information.

   iii.

33. Click the **Save All** button.

Troubleshooting

If you see a development context error when importing FTI_ETL_TOPOLOGY.zip, try completing the following:

1. Go to Topology > Physical Architecture > Contexts.
2. Rename the Development context to Development1
3. Try the import again.

Creating the Work Repository

To create a work repository, complete the following:

1. In the Topology Navigator, go to the **Repositories** panel.
2. Right-click the **Work Repositories node** and select **New Work Repository**.
3. In the Create Work Repository wizard, specify the **Oracle Data Integrator work repository connection details** as follows:

 a. **Technology**: Choose *Oracle*.

  The default is Oracle.

 b. **JDBC Driver**: oracle.jdbc.OracleDriver

 c. **JDBC URL (standard server configuration only)**: The complete path of the data server to host the work repository.

  For example: `jdbc:oracle:thin:@<TI DB SERVER>:<TI DB PORT>:<TI DB SID>`

 d. **JDBC URL (RAC configuration only)**: Enter the RAC SCAN listener address and the service name as part of the URL as follows:

  For example: `jdbc:oracle:thin:@<RAC SCAN LISTENER ADDRESS>:<PORT NUMBER>/<RAC DB SERVICE NAME>`

 e. **User**: *ftiodiwork*

   f. **Password**: Enter the *password for ftiodiwork user*.

    (This is the password for the ftiodiwork user that you entered when you ran the `create_aa_all.sql` script.

 4. Click **Test Connection** to check the connection is working.

 5. Click **Next >**.

 6. Specify the Oracle Data Integrator work repository details:

   a. **Name**: Give a *unique name* to your work repository (for example: FTI_WORK). Try to have only letters or numbers. Don't use special characters and spaces in between the words.

   b. **Password**: leave blank

   c. **Work Repository Type**: Choose *Development* from the list.

  Note: It is recommended that you select a Work Repository Type of Development since this type allows you to make changes to the work repository in the future. If you select a work repository type of Production, then you will not be able to edit the work repository.

 7. Click **Finish**.

  The Create Login dialog box opens.

 8. Click **No**.

Importing the Work Repository

To import the work repository, complete the following:

 1. If you connected to the master repository only, disconnect by clicking: **ODI > Disconnect <Login name >.**

 2. On the Designer tab, click **Connect to Repository…**

 3. On the Oracle Data Integrator Login screen, click the **pencil icon** to edit the Login Name.

 4. On the Repository Connection Information screen in the Work Repository section, select the **Work Repository** option.

 5. Search for and select the **name** that you entered in the previous section, Creating the Work Repository.

 6. Click **OK** on the Repository Connection Information screen.

 7. Click **OK** on the Oracle Data Integrator Login screen.

 8. Connect to the work repository.

 9. From **Designer** tab, click the **Connect Navigator** icon, then select **Import > Import the Work Repository**.

 10. Click **OK**.

 11. Specify an **Import Mode** of *Synonym Mode INSERT_UPDATE*.

 12. Select the **Import From a Zip File** check box.

 13. Choose `FTI_ETL_WORK.zip.`

  This file is located in `<otm_install_path>/fti/etl/odi/`.

  If OTM is on a different server, then chose the location where you copied this file on the ODI server.

 14. Click **OK** to import the work repository.

  This process may take up to 40 minutes. Do not close or kill the process.

   4-11

> **Note:** During this process you may get a dialog box saying that the ID <object ID> does not exist. Click **OK** to create it.

Troubleshooting

If you see an error importing the Work Repository FTI_ETL_WORK.zip file, try completing the following:

1. Make a backup of the FTI_ETL_WORK.zip file.
2. Extract the FTI_ETL_WORK.zip file.
3. In the FTI_ETL_WORK folder, the MAP_Copy_of_INCR_W_GTM_ITEM_F.xml file.
4. Now, in the FTI_ETL_WORK folder, select all the XML files, zip them up as FTI_ETL_WORK.zip.

   Note: Zip the XML files only, and not the FTI_ETL_WORK folder.

5. Import this newly created FTI_ETL_WORK.zip into ODI.

Starting the Oracle Data Integrator J2EE Agent

Creating J2EE Agent Repositories

Refer to https://docs.oracle.com/en/middleware/fusion-middleware/12.2.1.4/oding/creating-master-and-work-repository-schemas.html#GUID-25AC5AEE-D46D-4E4B-8835-4C1FE32207CC to create schemas. Note that you already created the ODI master and ODI work schemas and only need following additional schemas.

- Audit Services(<PREFIX>_IAU)
- Audit Services Append(<PREFIX>_IAU_APPEND)
- Audit Services Viewer (<PREFIX>_IAU_VIEWER)
- Oracle Platform Security Services(<PREFIX>_OPSS)
- Service Table(<PREFIX_STB>)

Starting the RCU

1. Go to the `ORACLE_HOME/oracle_common/bin` directory and start the Repository Creation Utility (RCU) as follows:
   a. Set the JAVA_HOME environment variable to your JDK location.
      i. On UNIX operating systems: `setenv JAVA_HOME /home/Oracle/Java/<JDK_18_HOME>`
   b. Start RCU as follow:
      i. Open a command prompt and enter the following:
         1. cd <Oracle_Home>/oracle_common/bin
         2. On UNIX operating systems: `./rcu`

Navigating the RCU Screens to Create the Schema

1. On the Introducing RCU screen, click **Next>**.
2. On the Create Repository screen, select **System Load and Product Load Concurrently**.
3. Click **Next**.
4. On the Providing Database Connection Details screen, provide the **database connection details** for RCU to connect to your database.
5. Click **Next**.

6. Click **OK** on the dialog window confirming that connection to the database was successful.

7. On the Select Components screen, select **Create a new prefix**.

    a. Specify a new prefix.

       Note: You must make a note of the new prefix you choose to enter here; you will need this later on during the domain creation process.

    b. Select the **Oracle Data Integrator schema**. This will also select the required supporting Common Schemas.

       The prefix is used to logically group these schemas together for use in this domain only; you must create a unique set of schemas for each domain as schema sharing across domains is not supported.

    c. Deselect **Master and Work Repository** as you do not need them.

       Note: These were created so do not create them again!

    d. Deselect the **Oracle Data Integrator schema** before continuing. This will ensure that only the Master and Work Repository option is deselected, while the Common Schemas still remain selected.

    e. Click **Next**.

    f. Click **OK** on the window confirming that prerequisite checking for schema creation was successful.

8. On the Specifying Schema Passwords screen, specify how you want to set the schema passwords on your database.

9. **Specify** and **confirm** your passwords.

10. On the Setting Custom Variables screen, you do not need to specify any custom variables. Just click **Next >** to continue the schema creation.

11. Navigate through the remainder of the RCU screens to complete schema creation.

12. In the completion screen, click **Create**.

13. When you reach the Completion Summary screen, click **Close** to dismiss the RCU.

Configuring the WebLogic Domain for the Java EE Agent

Refer to https://docs.oracle.com/en/middleware/fusion-middleware/12.2.1.4/oding/configuring-domain-java-ee-agent.html#GUID-3F74BFAB-99E9-4060-86E8-F70A8352A701 to configure weblogic domain for the Java EE Agent.

This section provides instructions for creating a WebLogic domain for your Java EE agent using the configuration wizard. The following topics are covered in this section:

Starting the Configuration Wizard

1. To begin domain configuration, navigate to the ORACLE_HOME/oracle_common/common/bin directory and start the WebLogic Server Configuration Wizard.

    a. On UNIX operating systems:
```
./config.sh
```

Navigating the Configuration Wizard Screens to Configure the Domain

1. Selecting the Domain Type and Domain Home Location:

    a. On the Configuration Type screen, select **Create a New Domain**.

    b. In the Domain Location field, specify your **Domain home directory**.

    c. Click **Next**.

2. Selecting the Configuration Templates:

    a. On the Templates screen, make sure **Create Domain Using Product Templates** is selected.

    b. Select the following templates:

- Oracle Enterprise Manager Plugin for ODI - 12.2.1.4.0[em]
- Oracle Data Integrator - Agent - 12.2.1.4.0[odi]
- Oracle Data Integrator - Console - 12.2.1.4.0[odi]
- Oracle Integrator – JRF Async web services
- Oracle data Integrator – REST service

    Note: Above selection will automatically select dependent jars.

    c. Click **Next**.

3. Selecting the Application Home Location:

    a. On the Application Location screen, select the **location where you want to store your applications** associated with your domain. This location is also referred to as the Application home directory.

    b. Click **Next**.

4. Configuring the Administrator Account:

    a. On the Administrator Account screen, specify the **user name** and **password** for the **default WebLogic Administrator** account for the domain.

    b. Click **Next**.

Note: It is recommended that you make a note of the user name and password specified on this screen; you will need these credentials later to boot and connect to the domain's Administration Server.

5. Specifying the Domain Mode and JDK:

    a. Select **Production** or **Development** as needed, in the Domain Mode field.

    b. Select the **Oracle HotSpot JDK** in the JDK field.

    c. Click **Next**.

6. Specifying the Datasource Configuration Type:

    a. Select **RCU Data** to activate the fields on this screen.

    The **RCU Data** option instructs the Configuration Wizard to connect to the database and Service Table (STB) schema to automatically retrieve schema information for the schemas needed to configure the domain.

    b. Click **Get RCU Configuration** when you are finished specifying the database connection information.

    Note: Choose Manual Configuration on this screen, you will have to manually fill in the parameters for your schema on the JDBC Component Schema screen.

    Note: For master and work repositories you must use ftiodimaster/ftiodiwork as these were created previously by the install script. The rest of the schemas are created in Create J2EE Agent Repositories section by the RCU.

    c. Click **Next**.

7. Specifying JDBC Component Schema Information:

    a. Verify that the values on the JDBC Component Schema screen are correct for all schemas. If you selected **RCU Data** on the previous screen, the schema table should already be populated appropriately.

b. Click **Next**.

8. Testing the JDBC Connections:

   a. Use the JDBC Component Schema Test screen to test the datasource connections you have just configured.

      A green check mark in the Status column indicates a successful test. If you encounter any issues, see the error message in the Connection Result Log section of the screen, fix the problem, then try to test the connection again.

   b. Click **Next**.

9. Specifying Supervisor Credentials:

   Use the Credentials screen to create the following two keys:

   a. A key for the Supervisor user already exists. Modify the credential as follows:

      i. Specify **SUPERVISOR (all CAPS)** as the user name. This is the default name initially assigned to the Supervisor account and cannot be changed unless you create a new Supervisor account.

      ii. The password must be the same password specified on the Custom Variables screen in RCU during schema creation.

   b. Create a second credential (only if needed for your implementation) as follows:

      i. Click the **Plus sign (+)** icon to add a new credential.

      ii. In the Key Name field, enter the **name of this domain as the key**.

      iii. In the Username and Password fields, provide the **Administrator user's user name and password**.

      iv. Select **oracle.odi.credmap** as the store name.

   c. Click **Next**.

10. Selecting Advanced Configuration:

    a. To complete domain configuration for the topology, select the following options on the Advanced Configuration screen:

       - **Administration Server**
         This is required to properly configure the listen address of the Administration Server.

       - **Node Manager**
         This is required to configure Node Manager.

       - **Topology**
         This is required to configure the Oracle Data Integrator Managed Server.

    b. Click **Next**.

11. Configuring the Administration Server Listen Address:

    a. On the Administration Server screen, select the drop-down list next to Listen Address and select the **IP address on the host** where the Administration Server will reside.

    b. Do not use "All Local Addresses."

    c. Do not specify any server groups for the Administration Server.

    d. Click **Next**.

12. Configuring Node Manager:

    The Node Manager screen can be used to select the type of Node Manager you want to configure, along with the Node Manager credentials.

    a. Select **Per Domain** as the Node Manager type.

    b. Specify the Node Manager credentials.

      c.   Click **Next**.

13.   Configuring Managed Servers:

On the Managed Servers screen, a new Managed Server named **ODI_server1** is created:

      a.   In the Listen Address drop-down list, select the **IP address of the host on which the Managed Server will reside**.

      b.   Do not use "All Local Addresses".

      c.   In the Server Groups drop-down list, select **JRF-MAN-SVR**; if there are other Groups selected, leave them as is. This server group ensures that the Oracle JRF services are targeted to the Managed Servers you are creating.

      d.   If needed, change the name of the managed server, but note down the name of the managed server as it will be needed while starting the servers for the agent.

          Server groups target Fusion Middleware applications and services to one or more servers by mapping defined application service groups to each defined server group. A given application service group may be mapped to multiple server groups if needed. Any application services that are mapped to a given server group are automatically targeted to all servers that are assigned to that group.

          These server names and will be referenced throughout this document; if you choose different names be sure to replace them as needed.

      e.   Click **Next**.

14.   Configuring a Cluster:

Use the Clusters screen to create a new cluster:

      a.   Click the **Add** button.

      b.   Specify **ODI_cluster1**in the Cluster Name field.

      c.   Leave the Cluster Address field **blank**.

          By default, server instances in a cluster communicate with one another using unicast. If you want to change your cluster communications to use multicast, refer to "Communications In a Cluster" in *Administering Clusters for Oracle WebLogic Server*.

      d.   Click **Next**.

15.   Configuring Server Templates:

      a.   No change is needed on this screen.

      b.   Click **Next**.

16.   Configuring Dynamic servers:

      a.   No change is needed on this screen.

      b.   Click **Next**.

17.   Assigning the Managed Server to the Cluster

Use the Assign Servers to Clusters screen to assign **ODI_server1** to the new cluster **ODI_cluster1**:

      a.   In the Clusters pane, select the cluster to which you want to assign the servers; in this case, **ODI_cluster1**.

      b.   In the Servers pane, assign **ODI_server1** to **ODI_cluster1** by doing one of the following:

          i.   Click once on **ODI_server1** to select it.

          ii.   Then click on the right arrow to move it beneath the selected cluster (**ODI_cluster1**) in the Clusters pane.

   iii. Double-click on **ODI_server1** to move it beneath the selected cluster (**ODI_cluster1**) in the clusters pane.

  c. Click **Next**.

18. Configuring Coherence Clusters:

  a. Use the Coherence Clusters screen to configure the Coherence cluster that is automatically added to the domain.

  b. Leave the **default port number** as the Coherence cluster listen port.

  c. Click **Next**.

19. Creating a New Machine:

Use the Machines screen to create a new machine in the domain. A machine is required in order for the Node Manager to be able to start and stop the servers.

  a. Click the **Add** button to create a new machine.

  b. Specify **ODI_machine1** in the Name field.

  c. In the Node Manager Listen Address field, select the **IP address of the machine where the Managed Servers are being configured**.

   You must select a specific interface and not "localhost." This allows Coherence cluster addresses to be dynamically calculated.

  d. Verify the port in the Node Manager Listen Port field.

  e. Click **Next**.

20. Assigning Servers to Machines:

Use the Assign Servers to Machines screen to assign the Administration Server and Managed Server to the new machine you just created:

  a. In the Machines pane, select the machine to which you want to assign the servers; in this case, **ODI_machine1**.

  b. In the Servers pane, assign **AdminServer** to **ODI_machine1** by doing one of the following:

   i. Click once on **AdminServer** to select it.

   ii. Then click on the right arrow to move it beneath the selected machine (**ODI_machine1**) in the Machines pane.

   iii. Double-click on **AdminServer** to move it beneath the selected machine (**ODI_machine1**) in the Machines pane.

  c. Repeat to assign ODI_server1 to ODI_machine1.

  d. Click **Next**.

21. Configuring Virtual Targets:

  a. No change is needed on this screen.

  b. Click **Next**.

22. Configuring Partitions:

  a. No change is needed on this screen.

  b. Click **Next**.

23. Reviewing Your Configuration Specifications and Configuring the Domain:

The Configuration Summary screen contains the detailed configuration information for the domain you are about to create. Review the details of each item on the screen and verify that the information is correct.

  a. You can go back to any previous screen if you need to make any changes, either by using the **Back** button or by selecting the screen in the navigation pane.

b.　Domain creation will not begin until you click **Create**.
24.　Writing Down Your Domain Home and Administration Server URL:

　　The Configuration Success screen will show the Domain home location and URL of the Administration Server you just configured.
　　　　a.　You must make a note of both items as you will need them to start the servers in your domain.
　　　　b.　Click **Finish** to dismiss the configuration wizard.

Note for Windows:

- Set the environment variable MW_HOME for middleware home, if not set.

　　For example, `MW_HOME=C:\ODI\ODI_Home`.

Note for Linux:

Set the MW_HOME variable to the appropriate path depending on shell.

```
setenv MW_HOME  /opt/ODI/ODI_Home (csh)
export MW_HOME=/opt/ODI/ODI_HOME(bash)
```

MW_HOME value should be set for all future sessions.

```
echo 'setenv MW_HOME  /opt/ODI/ODI_Home (csh) ' >>~/.tcshrc(for csh)
```

Please note that this command will be different for different shells.

Creating a Java EE Agent in the Master Repository Using ODI Studio

Starting the Oracle Data Integrator Agent

To start the Oracle Data Integrator agent, complete the following:

1.　In ODI Studio, go to the **Topology Tab > Physical Architecture**.
2.　Expand **Agents**.
3.　Double click on **OracleDIAgent**.
4.　Enter **Host** and **Port** save it.
　　Note: Host is machine name/IP Address of machine where you installed ODI Weblogic.

　　Note: If ODI is installed with OAS or OTM on the same server, then run the following command before starting the ODI services:

```
unset CLASSPATH
```

Starting the Node Manager

1.　Go to the `<ODI_HOME>/user_projects/domains/<odi_domain>/bin` directory.
2.　On UNIX operating systems, start the Node Manager as shown below, using nohup and nm.out as an example output file:

```
nohup ./startNodeManager.sh > nm.out &
```

Creating the boot.properties File for the AdminServer

1. Go to the
   `<ODI_HOME>/user_projects/domains/<odi_domain>/servers/AdminServer/security`
   directory. If the directory does not exist, create it.

2. Create a file called boot.properties with the following information:

   ```
   username=<ODI Admin user>
   password=<ODI Admin user password>
   ```

   Note: When you restart the instance, if successful, these values will be
   encrypted as follows.

   ```
   password={AES256}<Encrypted ODI Admin user password>
   username={AES256}<Encrypted ODI Admin user>
   ```

Starting the Administration Server

1. To start the Administration Server, go to the DOMAIN_HOME/bin directory.

2. On UNIX operating systems, start the Node Manager as shown below, using nohup as an
   example output file:

   ```
   nohup ./startWebLogic.sh >CONSOLELOG.OUT &
   ```

Creating the boot.properties File for the ODI_server1

1. Go to the
   `<ODI_HOME>/user_projects/domains/<odi_domain>/servers/ODI_server1/security`
   directory. If the directory does not exist, create it.

2. Create a file called boot.properties with the following information:

   ```
   username=<ODI Admin user>
   password=<ODI Admin user password>
   ```

   Note: When you restart the instance, if successful, these values will be
   encrypted as follows.

   ```
   password={AES256}<Encrypted ODI Admin user password>
   username={AES256}<Encrypted ODI Admin user>
   ```

Starting the Managed Server

1. To start the Managed Server, go to the DOMAIN_HOME/bin directory.

2. On UNIX operating systems, start the Node Manager as shown below, using nohup and as an
   example output file:

   ```
   nohup ./startManagedWebLogic.sh <ODI_server1> <weblogichost>:<port>
   >MANAGEDSERVERLOG.OUT &
   ```

Installing Oracle Analytics Server (OAS)

For detailed installation steps of OAS on your preferred operating system, please refer to the
corresponding OAS installation documentation.

Oracle TI/GTI are officially certified only for OAS deployed using WebLogic. If you need to use a web application server of your choice, then please refer the OAS documentation for the compatibility of OAS on your choice of web application server and for detailed deployment instructions.

> **Note:** All ODI users and repository names for GTI will start with "fti" and all OTM glog properties also contain "fti". This is not a mistake since GTI is part of TI.

Installing OTM and TI/GTI on Single Server

OTM and Oracle TI/GTI can be installed on the same server by following these guidelines. Skip this section if you choose to have OTM and TI/GTI on different machines.

The server machine must be a multi-homed system (two hostnames/IP addresses) which means a single server with two network cards.

- Primary hostname: should contain the OAS install
- Secondary hostname: should contain the OTM install

Guidelines for Installing OTM and TI/GTI on Single Server

1. OTM should be brought down to unblock the default WebLogic Admin port (9500).

Install OAS per the OAS installation instructions.

> **Note:** By default OAS uses the primary hostname and default port (9500) for installation.

2. Stop OAS per the OAS installation instructions.
3. Restart the server.
4. Start OTM.
5. Restart OAS per the OAS installation instructions.

Creating Repository Schema Using the Repository Creation Utility

For OAS 6.4, schemas are created during the configuration step using Configuration Assistant.

Refer to Fusion Middleware Creating Schemas with the Repository Creation Utility document for more details.

Installing OAS

The version of OAS recommended for 6.5.2 TI/GTI is OAS 6.4.

Installing OAS involves three major steps:

1. Installing the latest Fusion Middleware Infrastructure
2. Installing OAS binaries
3. Configuring OAS

Installing Fusion Middleware Infrastructure

Refer to "Installing and Configuring the Oracle Fusion Middleware Infrastructure 12c" for more information. You only need to install the infrastructure. Configuration is not needed at this point.

Installing OAS Binaries

Refer to "[Installing Oracle Analytics Server](#)".

Configuring Oracle Analytics Server

Refer to "[Configuring Oracle Analytics Server](#)".

> **Note:** When creating the OAS repository be sure and select Oracle Business Intelligence.

Configuring OAS for Oracle TI/GTI

> **Note**: All ODI users and repository names for GTI will start with "fti" and all OTM glog properties also contain "fti". This is not a mistake since GTI is part of TI.

Once you successfully installed OAS, complete this section to deploy the Oracle TI/GTI components (metadata & reports). This section also contains details on the various other configurations required in the OAS and OTM applications to complete the Oracle TI deployment. Please perform the configuration steps in the following sequence:

1. Creating RPTAPP and OLTP Database Connections
2. Deploying Metadata to OAS
3. Downloading the RPD for editing
4. Configuring TI Metadata Repository
5. Deploying TI/GTI Metadata Repository to
6. Creating WebLogic Groups to map to OTM business intelligence roles

Creating RPTAPP and OLTP Database Connections

On the OAS server, create two new database connections with the name RPTAPP and OLTP:

- RPTAPP should connect to the Oracle TI historical database.
- OLTP should connect to OTM database.

To do this, complete the following:

1. Copy the tnsnames.ora and sqlnet.ora files from the `<OAS INSTALL PATH>/bi/modules/oracle.bi.servicelcm/oracledb` directory to the `<OAS_INSTALL_PATH>/user_projects/domains/bi/bidata/components/core/serviceinstances/ssi/oracledb/`.

   Note: You will need to create the `/serviceinstances/ssi/oracledb/` directories to copy files into.

2. Go to the `<OAS_INSTALL_PATH>/user_projects/domains/<OASDomainName>/bidata/components/core/serviceinstances/ssi/oracledb` directory and edit the tnsnames.ora file.

   Add the following entries for the tnsnames.ora file. Be sure and maintain the same formatting shown below.
   ```
   RPTAPP =
     (DESCRIPTION =
   ```

```
    (ADDRESS = (PROTOCOL = TCP)(HOST = <TI/GTI DB Host>)(PORT = <TI/GTI DB
Port>))
    (CONNECT_DATA = (SERVER = DEDICATED) (SERVICE_NAME = <TI/GTI DB Service
Name>))
     )

OLTP =
 (DESCRIPTION =
   (ADDRESS = (PROTOCOL = TCP)(HOST = <OTM OLTP DB Host>)(PORT = <OTM OLTP
Port>))
    (CONNECT_DATA = (SERVER = DEDICATED) (SERVICE_NAME = <OTM OLTP DB Service
Name>))
     )
```

3. For a standard database connection, update the following entries to correspond with your TI configuration:

    a. Under RPTAPP, set the following:

        i. (HOST =<TI/GTI DB Host>) should be the TI DB server name.

        ii. (SERVICE_NAME = <TI/GTI DB Service Name>) should be the TI/GTI DB Service Name.

        iii. (PORT = <TI/GTI DB Port>) should be the TI DB Port.

    b. Under OLTP, set the following:

        i. (HOST =<OTM OLTP DB Host>) should be the OTM DB server name as determined during the OTM install.

        ii. (SERVICE_NAME = <OTM OLTP DB Service Name>) should be the OTM DB Service Name as determined during the OTM install.

        iii. (PORT = <OTM OLTP Port>) should be the OTM DB Port as determined during the OTM install.

4. For a RAC database connection set the RPTAPP as shown below:

```
RPTAPP =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST = <RAC SCAN LISTENER ADDRESS>)(PORT = <SCAN
LISTENER PORT NUMBER>))
(CONNECT_DATA = (SERVER = DEDICATED)(SERVICE_NAME = <RAC SERVICE NAME>))
)
```

    a. Under RPTAPP, set the following:

        i. `(HOST =<RAC SCAN LISTENER ADDRESS>)` should be the RAC SCAN listener address.

        ii. `(PORT = <SCAN LISTENER PORT NUMBER>)` should be the RAC SCAN listener port number.

        iii. `(SERVICE_NAME = <RAC DB SERVICE NAME>)` should be service name of the RAC database server.

    b. Set the OLTP up as detailed for a standard database connection.

When OAS loads the Oracle Transportation Intelligence metadata, it will connect to the HD and OLTP databases using the RPTAPP and OTLP tnsname entries only.

Deploying Metadata to OAS

Deployment in OAS is entirely via command line. The advanced_analytics.bar file shipped with TI contains the RPD, Catalog, and security metadata bundled into bar file. The following steps can be used to deploy them:

1. Navigate to <OAS_INTSTALL_PATH>/user_projects/domains/<OASDomainName>/bitools/bin.
2. Copy the .bar file to the server where OAS is installed.
3. Use the following command to import the BAR file into the new OAS 12C instance:
    a. ./importarchive.sh ssi <tempDir>/advanced_analytics.bar
        encryptionpassword=transportationintelligence1
    b. The parameters used above in order are as follows:
        i. SERVICE INSTANCE – ssi by default
        ii. BAR FILE LOCATION
        iii. PASSWORD – transportationintelligence1 is shipped by default

Downloading the RPD for Editing

The RPD needs to be downloaded for changing the schema passwords in the connection details. Please use the following steps to download the RPD:

1. Navigate to <OAS_INSTALL_PATH>user_projects/domains/<OASDomainName>/bitools/bin.
2. `./datamodel.sh downloadrpd -O advanced_analytics.rpd -SI ssi -U weblogic -P <weblogic password>`
3. The downloadrpd parameter denotes that the RPD is being downloaded.
4. –SI denotes services instance and –U, -P parameters require the weblogic username and password set at the time of configuration.

Once executed, the command will prompt for the RPD password. **This password can be any password that is desired. Please make a note of this password as it will be needed while deploying this RPD back into the system.**

Configuring TI Metadata Repository

Before redeploying the TI/GTI repository file, you must configure it to connect to the TI/GTI historical database and the OTM OLTP database.

> **Note**: This must be a Windows system since the OAS Administration tool is only available for Windows.

To configure these connections, complete the following:

1. Using OAS Administration Tool, open the **advanced_analytics.rpd** in offline mode.
2. In Physical Layer, expand each database definition and in each connection pool specify the following:
    a. HDOWNER database user's password where HDOWNER user is set
    b. GLOGDBA database user's password where GLOGDBA user is set
3. Save the RPD.
4. Select **No** when prompted for Global Consistency.

Deploying TI/GTI Metadata Repository to OAS

Deploying the RPD is entirely via command line. Once the RPD is downloaded and the connection details set, the following steps can be used for deployment:

1. FTP copy your RPD to the OAS server.
2. **Navigate to** `<OAS INSTALL PATH>/user_projects/domains/<OASDomainName>/bitools/bin.`

3. In the command line, give `./datamodel.sh uploadrpd -I advanced_analytics.rpd -SI ssi -U weblogic -P <weblogic password>`.

4. The datamodel.sh command is used to upload the rpd.

5. The **uploadrpd** parameter denotes that the RPD is being uploaded to the system.

6. The name of the RPDis given for the –I parameter.

7. The default service instance name is 'ssi' which is given for the –SI parameter.

8. –U and –P require the weblogic username and password to be specified (set at the time of configuration).

9. While executing the command, it asks for the RPD password. The default password for the shipped RPD is 'transportationintelligence1'. If changed by the customer, please use the changed password.

10. Once the command is successful, the system will be ready and no restart is needed.

With this step, you have completed all the configuration steps in OAS.

> **Note:** To test if TI is successfully configured, browse to the following URL:
> `http://<oasserver>:9505/analytics`

Creating WebLogic Groups to Map to OTM Business Intelligence Roles

You need to create WebLogic groups to match with the roles mapped in the Enterprise Manager console. C create these groups in OAS WebLogic console as follows

1. Log into WebLogic console via the following URL:

    `http://<OAS HOST NAME>:9500/console` and log in as **weblogic** user.

2. Go to Security Realms > myrealm > User and Groups.

3. Click on the Groups tab.

4. Click on new and create the following groups:
    - o BIAuthors
    - o BIAdministrators
    - o BIConsumers
    - o KPIMANAGER
    - o LSP HOST
    - o LSP CUSTOMER
    - o SERVPROV
    - o NO ACCESS

Providing Access for Data Visualization

To provide access to Data Visualization, the following Application permission must be giving to the respective roles:

- BIAdministrator requires permission to va.admin and actio.admin
- BIConsumer requires permission to va.interactor and actio.operator
- BIAuthor requires permission to va.author and actio.author

5. Navigate to `<OAS_HOME>/user_projects/domains/bi/bitools/bin`.

6. Run the following commands:

    a. `./grantPermissionSetsToBIRole.sh -r BIAdministrator -p va.admin`

    b. `./grantPermissionSetsToBIRole.sh -r BIAdministrator -p actio.admin`

    c. `./grantPermissionSetsToBIRole.sh -r BIConsumer -p va.interactor`

    d. `./grantPermissionSetsToBIRole.sh -r BIConsumer -p actio.operator`

    e. `./grantPermissionSetsToBIRole.sh -r BIAuthor -p va.author`

    f. `./grantPermissionSetsToBIRole.sh -r BIAuthor -p actio.author`

Setting Single Sign-on Logoff URL

1. Log into WebLogic console via the following URL
   `http://<OAS HOST NAME>:9500/em` and log in as **weblogic** user.
2. Click on **bi** target navigation and select **Business Intelligence > biinstance**.
3. Click the **Security** tab.
4. Click the **Lock** icon and select *Lock & Edit*.
5. If necessary, click the **Enable SSO** check box. It should be selected by default.
6. Change the "**The SSO Provider Logoff URL**" to `/bi-security-login/logout?redirect=/analytics`.
7. Click **Apply**.
8. Click the **Lock** icon.
9. Select **Activate Changes**.
10. Restart **OAS**.

Enabling Write Back in OAS and TI/GTI

To allow TI/GTI users to enter values for targets directly into TI dashboards and reports, you must enable the write back functionality in OAS and TI/GTI. To do this, you must complete two main steps:

- Copy the write back templates provided with the TI install to your OAS installation.
- Edit the instanceconfig.xml file to enable write backs.

Copying the Write Back Templates

To achieve write back capability from dashboards, write back templates are required. These templates are XML files which contain physical SQL queries that interact with the write back reports and allow users to enter values into the database directly. TI ships with three write back template files:

- update_targets.xml
- insert_targets.xml
- delete_targets.xml

Each template is required for a specific aspect of the write back feature as indicated by the name of the templates. To copy these templates, complete the following:

1. Copy the files `update_targets.xml`, `insert_targets.xml`, and `delete_targets.xml` available in the OTM directory below:

   `<otm_install_path>/fti/`

   to the following OAS directory:

<OAS_INSTALL_PATH>/user_projects/domains/bi/bidata/components/OBIPS/custommessage
s

Note: In certain cases the custommessages folder may not exist in which case it has to be created manually and the files copied to it.

Editing the instanceconfig.xml File

Next, you need to edit the instanceconfig.xml file to enable the write back functionality in OAS.

1. Modify the `instanceconfig.xml` as follows:
    a. Open the file:
        ```
        <OAS_INSTALL_PATH>/user_projects/domains/bi/config/fmwconfig/biconfig/OBI
        PS/instanceconfig.xml
        ```
    b. You should see the following.
        ```
        <?xml version="1.0" encoding="UTF-8"?>
        <WebConfig xmlns="oracle.bi.presentation.services/config/v1.1">
            <ServerInstance/>
        </WebConfig>
        ```

2. Replace `<ServerInstance/>` with the following.
    ```
     <ServerInstance>
        <Views>
            <Pivot>

  <DefaultRowsDisplayedInDelivery>75</DefaultRowsDisplayedInDelivery>

  <DefaultRowsDisplayedInDownload>2500</DefaultRowsDisplayedInDownload>
                <DisableAutoPreview>false</DisableAutoPreview>
            </Pivot>
            <Table>

  <DefaultRowsDisplayedInDelivery>75</DefaultRowsDisplayedInDelivery>

  <DefaultRowsDisplayedInDownload>2500</DefaultRowsDisplayedInDownload>
            </Table>
        </Views>
        <Catalog>
            <UpgradeAndExit>false</UpgradeAndExit>
            <EnableMultiTenancy>false</EnableMultiTenancy>
        </Catalog>
        <!-- TODO - many of the following entries need removing once OBIPS uses
the Endpoint API -->
        <Security>
        <ContentSecurityPolicy>
                <Enable>false</Enable>
        </ContentSecurityPolicy>
        <EnableSavingContentWithHTML>true</EnableSavingContentWithHTML>
        </Security>
        <ODBC>
            <ResultRowLimit>65000</ResultRowLimit>
        </ODBC>
        <LightWriteback>true</LightWriteback>
    </ServerInstance>
    ```

3. Save the changes to the `instanceconfig.xml` file.

4. Restart **OAS.**

Enabling Maps in OAS and TI

Editing the Mapviewer config XML File

1. Log in to the MapViewer console at `http://<OAS Host name>:9505/mapviewer` as the weblogic user.

2. Click the **Configuration** link at the top of the screen.

3. Under **Predefined Data** sources, enter the following:

```
<map_data_source name="obiee_maps"
jdbc_host="<analytics_host_url> "
jdbc_sid="<sid>"
jdbc_port="<port>"
jdbc_user="hdowner"
jdbc_password="!<hdowner password>"
jdbc_mode="thin"
number_of_mappers="3"
allow_jdbc_theme_based_foi="false"
editable="false"
/>
```

> **Note:**
>
> a. You must prefix the password with an exclamation mark (!). This will encrypt the password.
>
> b. Retain the data source name of obiee_maps as TI is configured to use that name by default.

4. Change datasource name in the `<mds_config>` tag to obiee_maps:

```
<data_source name="obiee_maps">
        <allow_predefined_themes>true</allow_predefined_themes>
        <allow_dynamic_themes>true</allow_dynamic_themes>
    </data_source>
```

5. Click on **Save** and **Restart** for the configuration to take effect.

Configuring OTM for Oracle TI/GTI

OTM Properties

After successfully installing and configuring ODI and OAS, append the following properties to the **CUSTOM** property set:

Table 4-3

Key	Value	Description
aa_webserver	http://myfti.my.com:\<port\>	Specify the complete URL of the OAS along with the port number. If setting up reverse proxy server (the recommended approach), specify the HTTP Server here. See Configuring the OTM HTTP Server's Proxy Settings for more details. Be sure to include the http:// or https:// as applicable. As OTM does not pass through the URL on an internal DNS name, you will need to open a firewall IP and port so that OTM can call the external fully qualified domain name (FQDN). After the changes are made, you will need to restart the OTM web server.
ALLOW_ADVANCED_ANALYTICS	**True**	Enables/disables the Transportation Intelligence (TI) option in OTM.
isAllowedGTIAnalytics	**true**	Enables/Disables the Global Trade Intelligence (GTI) option in Oracle Transportation Management
glog.database.fti.password		Oracle TI database password
glog.security. userSession.enabled	**false**	To enable navigation from Oracle Transportation Management to Transportation Intelligence without an external single sign on (SSO) solution, set this property to "true" on the Oracle Transportation Management web server. The default is false. See the Oracle Transportation Management Security Guide for complete details about enabling single sign on.
glog.odi.agent.server		Host name of the server running the ODI agent

Key	Value	Description
glog.odi.agent.port		Port number of the server running the ODI agent
glog.odi.password	<SUPERVISOR password>	Password of the ODI login user. Refer to the ODI installation documentation for more information on this password.
glog.odi.work.repository.code	**FTI_WORK**	Specify the name of the TI work repository deployed in the ODI server. You set this up earlier in the installation process. Note: glog.odi.work.repository.code is the Work Repository Name that you specified while creating the work repository.
glog.odi.email.from.address	ftiadmin@yourdomain.com	Specify from e-mail address to send ETL results.

Note these properties can be set in the **Custom Properties** section of the **glog.properties** file. See the **Custom Properties** section of the Administration Guide for more information.

Also set the following properties in the **glog.properties** file:

Table 4-4

Key	Value	Description
glog.database.fti.dbserver	ftihost.mycompany.com	Fully qualified domain name of the Oracle TI database
glog.database.fti.port	1521	Port that Oracle is using on the Oracle TI database server
glog.database.fti.sid		Oracle TI database service name
glog.obiee.user	weblogic	The OAS weblogic admin user name (defaults to user profile for obieeWeblogicAdmin).
glog.obiee.port	<OAS Admin Port>	The port name of the OAS server (defaults to 9500).
glog.obiee.host	<OAS.MYCOMPANY.COM>	The host name of the OAS server (defaults to $glog.bip.externalFarm.host$).

Key	Value	Description
glog.obiee.serverURL		The full URL for OAS JMX calls (defaults to t3://$glog.obiee.host$:$glog.obiee.port$).
glog.obiee.password		The OAS WebLogic admin password (defaults to user profile for obieeWeblogicAdmin).

Installing Other Languages for Oracle TI/GTI

The translated file for TI metadata and reports are available as part of an update that needs to be installed as explained in the following sections.

Installing Other Languages for Oracle TI/GTI Metadata

Once you have downloaded the update containing the TI/GTI metadata files for other languages, follow the procedure below to install them.

> **Note:** The other languages content for Oracle TI/GTI metadata will be shipped as csv files with the names `w_localized_string_g_<lang id>.csv` available under the directoy `<otm_install_path>/glog/oracle/script8/content_advanced_analytics`

1. On the OTM server, go to the directory `<otm_install_path>/glog/oracle/script8`.
2. Load other languages for the Oracle TI metadata data by running `update_content_aa`. 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:
   a. UNIX shell script run:

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

3. Review the log file called `update_content_<db sid>_<timestamp>.log` for errors.

   This file is 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.

Installing Other Languages for Oracle TI/GTI Reports

Once you have downloaded the update containing the TI/GTI report files for other languages, follow the procedure below to install them.

> **Note:** The other languages content for Oracle TI/GTI reports will be shipped as XML files available in language-specific folders under the directory `<otm_install_path>/glog/oracle/script8/content_advanced_analytics`.

1. On the OTM server, go to the directory `<otm_install_path>/glog/oracle/script8/content_advanced_analytics`
2. Copy the following folders containing the other languages translation XMLs for Oracle TI/GTI reports:

- o l_de
- o l_en
- o l_es
- o l_es-mx
- o l_fr
- o l_fr-ca
- o l_it
- o l_ja
- o l_ko
- o l_pl
- o l_pt-br
- o l_ru
- o l_tr
- o l_zh-cn
- o l_zh-tw
- o l_th
- o (note: The Thai translations will not be available as a post-release patch)
3. On the OAS server, stop the OAS services.
4. On the OAS server, place the copied folders (in Step 2) to the following directory:

```
{'BIDOMAIN_HOME'}/bidata/service_instances/ssi/metadata/content/msgdb/l_xx
```

Note: The 'xx' in the folder of l_xx may be any language listed above. For example for French, the folder should be l_fr. If this folder does not exist, you should create one as shown below:
```
{'BIDOMAIN_HOME'}/bidata/service_instances/ssi/metadata/content/msgdb/l_fr
```

5. On the OAS server, start the OAS services.

After successfully installing the languages for Oracle TI/GTI, use the Language preference under the User Preferences in OTM to specify the users preferred language.

5. Installing Global Trade Intelligence (GTI)

OTM delivers the Oracle Global Trade Intelligence (GTI) solution which includes the following components.

- Oracle Trade Intelligence Extract Transform & Load (ETL): Pre-packaged ETL process deployed on an Oracle Data Integrator (ODI) instance
- Oracle Global Trade Intelligence Historical Database (HD): The analytics database for the Oracle Global Trade Intelligence applications
- Oracle Global Trade Intelligence Metadata: Delivered as advanced_analytics.rpd file

For more details about these components and Oracle GTI, see the Oracle Global Trade Intelligence Reference Guide.

> **Important Note:** Many script names, file names, repository names, and user names used during the installation and created by the installation contain the word FTI. This is correct since GTI was designed as a part of FTI.

> **Note:** Prerequisites for installing Oracle GTI are that you have experience with installing Oracle databases, OTM/GTM administration, OBI EE administration, ODI administration, and experience with Oracle ETL.

Installing Oracle GTI Historical Database (HD)

Replicated Operational Database (ROD) Considerations

The deployment architecture of Oracle GTI supports the following deployment choices for customers:

- Load Historical Database using ROD

  In this deployment, a ROD (that maintains a snapshot of the OTM OLTP database) is used. The Oracle TI/GTI ETL jobs will connect to the ROD to load the Historical Database thereby de-coupling the OTM OLTP database from the ETL process.
- Load Historical Database using OLTP (Online Transaction Processing Database).

  In this deployment, the Oracle TI/GTI ETL jobs will connect directly to the OTM OLTP database to load the Historical Database adding to additional database workload on the OTM OLTP database.

It is strongly recommended that you use a ROD to achieve performance gains and to efficiently balance the load on the OTM OLTP database.

Historical Database (HD) Considerations

The Historical Database (HD) schema can be created on a separate database. This schema can also share the ROD or the OLTP database.

Creating Historical Database (HD), Users, and Packages

> **Note:** All users for GTI will start with "fti" and all OTM properties also contain "fti". This is not a mistake since GTI is part of TI.

For details on creating the HD, users and packages, see "Creating Historical Database (HD), Users, and Packages" in the section "Installing Oracle Transportation Intelligence (TI)".

For details on installing and configuring ODI, see "Installing Oracle Data Integrator (ODI), Installing Oracle Data Integrator for TI and GTI, "Configuring ODI for Oracle TI/GTI ETL" in the section "Installing Oracle Transportation Intelligence (TI)".

Updating the GTI Prompts with New Variables

Finally, you need to change the GTI prompts which have the older variables CURRENT_MONTH, CURRENT_WEEK, CURRENT_QUARTER, and CURRENT_YEAR to use the new prompts of CURRENT_MONTH_FTI, CURRENT_WEEK_FTI, CURRENT_QUARTER_FTI, and CURRENT_YEAR_FTI as defined in the RPD.

1. Open OAS Analytics using the URL `http://<OAS_host>:<port>/analytics`.
2. Navigate to **Catalog > Shared Folders > GTI Dashboard Prompts**.
3. Edit the following dashboard prompts and change the default variables given there to the TI specific variables of CURRENT_MONTH_FTI, CURRENT_WEEK_FTI, CURRENT_QUARTER_FTI, and CURRENT_YEAR_FTI.
   a. /shared/GTI Dashboard Prompts/Export_GTI Period Prompt
   b. /shared/GTI Dashboard Prompts/Import_GTI Period Prompt

Creating New TI/GTI Reports

It is recommended that you create any new TI/GTI reports by opening the Ad Hoc Query link (Global Trade Intelligence > Ad Hoc Query) in a new window. This will allow all OAS features to work properly.

The other recommendation is to set up a reverse proxy in OTM/GTM HTTP Server for OAS WebLogic server as follows.

Configuring the OTM/GTM HTTP Server's Proxy Settings:

1. Open OTM/GTM HTTP Server's `mod_wl_ohs.conf` file.
2. Insert the following proxy request information into the configuration file:

```
ProxyRequest Off
<Proxy*>
  Order deny,allow
  Allow from all
</Proxy*>
Location/Oracle BI EE subdirectory
  ProxyPass http://location of Oracle BI EE server/
     Oracle BI EE subdirectory
  ProxyPassReverse http://location of Oracle BI EE server/
     Oracle BI EE subdirectory
/Location
```

3. Save and close the configuration file.
4. Test the configuration by using a fully-qualified name to log into Oracle's OAS through Oracle HTTP Server.

6. Database Administration

The contents of this chapter represent our recommendations rather than requirements. When making any changes to an OTM 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

OTM 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

   DB_16K_CACHE_SIZE = 104857600 (at least 100 MB)

   SHARED_SERVERS = 0

   JOB_QUEUE_PROCESS = 4
   (This is mandatory minimum value since OTM 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.

   processes = 3000

   # This number affect the number of connections to the database.
   OPEN_CURSORS = 3000

   SESSION_CACHED_CURSORS = 100

   MEMORY_TARGET = 8G
   # MEMORY_TARGET specifies the Oracle system-wide usable memory. The database
   tunes memory to the MEMORY_TARGET value, reducing or enlarging the SGA and PGA
   as needed.

   cursor_sharing = FORCE
   # Allows the creation of a new cursor if sharing an existing cursor, or if the
   cursor plan is not optimal.

   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 = TYPICAL

   query_rewrite_enabled = true
   For using function based index.

   query_rewrite_integrity = trusted
   For using function based index.
```

Using Locally Managed Tablespaces

Oracle Database recommends using locally managed tablespaces for all of OTM 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 Database has used rollback segments to manage undo. Space management for these rollback segments has proved to be quite complex. In 9i and later, the Oracle Database 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 OTM.

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 OTM 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 OTM Database

There are several schema owners/users and database roles that need to be created in the database. Running create_glog_users.sql will get these roles and users created. Most of OTM database objects are under schema GLOGOWNER. OTM 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 OTM application table has a primary key. There are many foreign keys in OTM 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

It is very important that the OTM database tables are analyzed properly. Please refer to the section of the Administration Guide titled "Analyzing Tables/Gathering Statistics" for more details.

Real Application Clusters (RAC)

OTM may be used in conjunction with Oracle Real Application Clusters. Please refer to the section titled "Real Application Clusters (RAC)" in the Administration Guide for more details on how to do that.

7. Integrating with Oracle E-Business Suite Financials

For information see My Oracle Support document 1546441.1: How to Integrate Oracle Transportation Management with Oracle E-Business Suite Financials.

For a complete list of My Oracle Support documents dealing with OTM-EBS integrations, see 1546042.1: Integrating Oracle E-Business Suite with Oracle Transportation Management.

8. Appendix: General Properties

See the "Advanced Configuration: Custom Properties" chapter in the Administration Guide for instructions on how to manage reserved properties.

Table 8-1

Property	Reserved	Description
glog.database.ftioci.TNSName	Yes	Specify the Transportation Intelligence/Global Trade Intelligence database DB connection string: jdbc:oracle:thin:@$ glog.database.fti.dbserver$:$glog.database.fti.port$
glog.database.ftioci.database	Yes	Specify the database SID for the Transportation Intelligence/Global Trade Intelligence server.
glog.database.ftioci.dbserver	Yes	Specify the fully qualified domain name of the Oracle Transportation Intelligence/Global Trade Intelligence database server (this will contain the HDOWNER database schema).
glog.database.ftioci.gluser	Yes	Specify the Transportation Intelligence/Global Trade Intelligence gluser of DBA.ADMIN.
glog.database.ftioci.password	Yes	Specify the password of the HDOWNER user in the Transportation Intelligence/Global Trade Intelligence database.
glog.database.ftioci.schema	Yes	Specify the name of the schema hosting the Transportation Intelligence/Global Trade Intelligence database. This should typically be HDOWNER unless a different schema name is used. Example: HDOWNER
glog.database.ftioci.server	Yes	Specify the Oracle Transportation Intelligence/Global Trade Intelligence database SID name.
glog.database.ftioci.t2client.connectionURL	Yes	Specify the Transportation Intelligence/Global Trade Intelligence database connection string: jdbc:oracle:thin:@$glog.database.fti.dbserver$:$glog.database.fti.port$
glog.database.ftioci.t2client.databaseURL	Yes	$glog.database.fti.t2client.databaseURL$/$glog.database.fti.server$
glog.database.ftioci.t2client.driverClassName	Yes	Specify the JDBC driver name. For example, oracle.jdbc.driver.OracleDriver

Property	Reserved	Description
glog.database.ftioci.user	Yes	Oracle Transportation Intelligence/Global Trade Intelligence database user name. An example and the default is HDOWNER.
glog.database.ftithin.TNSName	Yes	Specify the Oracle Transportation Intelligence/Global Trade Intelligence database connection string: jdbc:oracle:thin:@$ glog.database.fti.dbserver$:$glog.database.fti.port$
glog.database.ftithin.database	Yes	Specify the database SID for the Transportation Intelligence/Global Trade Intelligence server.
glog.database.ftithin.dbserver	Yes	Specify the fully qualified domain name of the Oracle Transportation Intelligence/Global Trade Intelligence database server (this will contain the HDOWNER database schema).
glog.database.ftithin.gluser	Yes	Specify the Transportation Intelligence/Global Trade Intelligence gluser of DBA.ADMIN.
glog.database.ftithin.schema	Yes	Specify the name of the schema hosting the Transportation Intelligence/Global Trade Intelligence database. This should typically be HDOWNER unless a different schema name is used. Example: HDOWNER
glog.database.ftithin.server	Yes	Specify the Oracle Transportation Intelligence/Global Trade Intelligence database SID name.
glog.database.ftithin.t2client.connectionURL	Yes	Specify the Transportation Intelligence/Global Trade Intelligence database connection string: jdbc:oracle:thin:@$glog.database.fti.dbserver$:$glog.database.fti.port$
glog.database.ftithin.t2client.databaseURL	Yes	$glog.database.fti.t2client.databaseURL$/$glog.database.fti.server$
glog.database.ftithin.t2client.driverClassName	Yes	Specify the JDBC driver name. For example, oracle.jdbc.driver.OracleDriver
glog.database.ftithin.user	Yes	Oracle Transportation Intelligence/Global Trade Intelligence database user name. An example and the default is HDOWNER.
gtm.dutyTax.externalSystem.requestXSL	Yes	This property identifies the XSL to convert GTM's outbound integration XML format.

Property	Reserved	Description
gtm.dutyTax.externalSystem.responseXSL	Yes	This property identifies the XSL to convert Descartes' response XML format to GTM's inbound integration XML format.
gtm.lcs.transportModeImage.AIR	Yes	This property is used to map AIR mode with the AIR image shipped with GTM.
gtm.lcs.transportModeImage.OCEAN	Yes	This property is used to map OCEAN mode with the OCEAN image shipped with GTM.
gtm.lcs.transportModeImage.VESSEL-CO	Yes	This property is used to map VESSEL-CO mode with the OCEAN image shipped with GTM.