Oracle ® Enterprise Data Quality

Advanced Installation Notes

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Table of Contents

1 Introduction

This document is a installation guide for Oracle Enterprise Data Quality (OEDQ), covering alternative platforms to that provided by the default installer. As well as the operating system, OEDQ requires an application server and a database management system to use as its repository database. These three components form the OEDQ platform.

Throughout this guide, it is assumed that you are fully familiar with the components of the platform that you wish to use. When using an alternative platform, installation of the platform components is a prerequisite to OEDQ installation, and is not the responsibility of Oracle.

2 Minimum hardware requirements

Depending on the tasks that OEDQ is required to perform, it can place heavy demands on the hardware used to run it.

For installation on a standalone desktop or laptop, a recommended **minimum** hardware configuration to begin using OEDQ is:

- 2 GB of memory, although 4 GB is preferred.
- 2 GHz processor
- 50 GB of hard disk space

For working with large datasets, complex processes or multiple users a recommended **minimum** configuration is:

- 8 GB of memory
- 4-processor architecture
- 250 GB of available hard disk space. A reasonable rule of thumb is that OEDQ will need disk space amounting to 10 times the size of the data it is working with.

Note: The above notes do not represent sizing advice for any specific deployment, where it may be appropriate to deploy considerably larger machines, or many machines, depending on

the processing needs placed on the OEDQ system. Please contact your account representative if you require detailed advice about the optimal hardware set and deployment options.

2.1 Virtual hardware

It is possible to install OEDQ on virtualized machines, using a virtualization tool such as VMware. However both the virtual machine and the physical machine it is deployed on must fulfil the minimum hardware requirements.

If load balancing software is used to deploy multiple virtual machines onto a single physical server, care must be taken to ensure that the load balancing software is carefully tuned. OEDQ will generally impose a load similar to an ETL tool or data warehousing software. Between batches, very little load is imposed on the system. When processing a batch of work, OEDQ will rapidly drive hardware to be CPU or IO bound. Unless the virtualized load balancing is correctly configured it is likely to throttle this behavior, resulting in suboptimal performance. Your virtualization software documentation and experts should be consulted to ensure that any load balancing software is correctly configured.

3 Platform Installation

OEDQ requires a platform including the following components:

- An appropriate operating system,
- A Java application server, and
- A database management system containing two schemas.

Unless you are using the Windows installer for OEDQ, installation of the platform components is a prerequisite to installing OEDQ, and is not the responsibility of Oracle, except where you are installing Oracle platform components.

It is expected that any organization which wishes to install and run OEDQ on a custom platform will have the appropriate expertise to install and maintain the selected components using the standard installation instructions.

The following sections provide a guide to the necessary configuration settings for OEDQ installation, and notes on any OEDQ-specific compatibility requirements:

- Operating systems;
- Application servers;
- Database management systems;

3.1 Operating Systems

The following operating systems are certified to support OEDQ version 9:

- Solaris 10 and 11
- Oracle Linux 5 and 6
- Redhat Enterprise Linux 5.1 (UL3+) and 6
- AIX 6.1
- Windows XP, 2003 Server, 2008 Server, and Windows 7

In addition to the standard installation, ensure that the operating system includes Java 1.6.0_10 or later. Java 1.7 is supported. Only the Oracle (Sun) and IBM Java distributions are supported. The Oracle (Sun) distribution of Java is preferred.

3.2 Application Servers

The following application servers have been certified to support OEDQ version 9:

- Apache Tomcat 6.0 or later
- WebLogic 10 or later
- WebSphere 7.0 or later
- Glassfish 3.1 or later

These must be running Java version 1.6 or later. Only the Oracle (Sun) and IBM Java distributions are supported. The Oracle (Sun) distribution is preferred.

This section covers the specific configuration for OEDQ installation of the following application servers:

- Tomcat
- WebLogic
- WebSphere

Note: For all application servers, SSL must be enabled prior to installation. On Weblogic, for example, the domain that EDQ is installed onto must have SSL enabled, and the server that EDQ is deployed into must have the SSL Listen Port enabled.

3.2.1 Tomcat

Consult the separate document Oracle EDQ SSL Configuration for instructions on how to configure SSL for Tomcat. Where required, consult the Tomcat documentation - for example, see http://tomcat.apache.org/tomcat-7.0-doc/ssl-howto.html

Configure your Tomcat installation to:

- Use an appropriate installed version of Java
- Start as a service run by the default Tomcat user, and
- Use an appropriate amount of memory (heap and permgen space) in the JVM

Solaris-specific notes

The following points relate to configuring Tomcat to start as a service:

- Service description files may be available on the OEDQ distribution media.
- Import the security configuration from **/var/svc/manifest/network/dntomcat.xml**
- Add the lines from the file **Platform/solaris/tomcat-postgres/dntomcat.prof_attr.txt** to the **/etc/security/prof_attr** file to reflect the new service.

Setting heap and permgen space

Consult the documentation for the relevant operating system for instructions on how to increase the maximum heap and permgen space the Java Virtual Machine (JVM) is allowed to allocate. For example, the JVM parameter -Xmx1024m specifies a 1GB maximum heap. The value should be set as high as possible within the constraint of the system memory (and allowing sufficient memory for the operating system and other applications). Normally, if the system is 64 bit and has 8GB RAM, the maximum heap space should be set to 5120m or 6144m (5 or 6GB). The parameter –XX:MaxPermSize=128m specifies 128 MB permgen space. This parameter should be set to 128 or 256m unless specifically advised otherwise by Oracle Support.

Linux-specific notes

For Linux RPM installations, set these parameters by editing the system configuration file read by the Tomcat start script (for Tomcat 6 on Linux this will be at /etc/sysconfig/tomcat6). Add the following line:

```
JAVA_OPTS="-Xmx2048m -XX:MaxPermSize=256m"
```

Note that quotes must be used if more than one option is being set.

3.2.2 WebLogic

OEDQ requires no special pre-deployment configuration of WebLogic (except for SSL enablement on both domain and server).

Setting heap and permgen space

To set the server heap and permgen space to suitable values for the OEDQ application, use the following server startup arguments on the server where OEDQ will be deployed:

```
-Xmx1024m –XX:MaxPermSize=128m
```

Note that the values 1024m and 128m are examples. The first parameter (Java heap space) should be set as high as possible within the constraint of the system memory (and allowing sufficient memory for the operating system and other applications). Normally, if the system is 64 bit and has 8GB RAM, the maximum heap space should be set to 5120m or 6144m (5 or 6GB). The second parameter (permgen space) should be set to 128 or 256m unless specifically advised otherwise by Oracle Support.

3.2.3 WebSphere

If running WebSphere version 7.0, ifix level IZ69136 should be applied to the WebSphere installation.

AIX-specific notes

By default, AIX is configured with a number of ulimits. Run the `man ulimit` command for details. Depending on how AIX has been installed and configured you may find that the `wasadmin` user is unable to create files larger than 1 GB. This will restrict your ability to work with large data sets if you are using files to transfer data. In this case, the hard ulimit on file size may need to be removed for the `wasadmin` user.

Setting heap space

To increase the amount of memory that OEDQ can use on WebSphere, navigate to the application server's Java Virtual Machine configuration (in Java and Process Management > Process definition) on the Integrated Solution Console, and set the Maximum heap size to an appropriate value. The value should be set as high as possible within the constraint of the system memory (and allowing sufficient memory for the operating system and other applications). Normally, if the system is 64 bit and has 8GB RAM, the maximum heap space should be set to 5120m or 6144m (5 or 6GB).

Note that as WebSphere uses the IBM JVM (not the Oracle JVM), there is no specific parameter for permgen space.

3.3 Database Management Systems

The following database management systems have been certified to support OEDQ version 9. This section covers the configuration requirements for each of these:

- PostgreSQL 8.2 or later
- Oracle 10g or later

3.3.1 PostgreSQL

PostgreSQL should be installed following the default instructions.

Configure PostgreSQL to:

- Allow a maximum connections of 403 connections by editing the **postgresql.conf** file within the data directory where PostgreSQL is installed (for example **/var/lib/pgsql/data/postgresql.conf**)
- Run as a service that restarts on reboot.

Configure the schema for installation as the OEDQ repository as follows:

- Create two new PostgreSQL users, named `director` and `results`.
- Create a new database called `director` and owned by the `director` user.

- Create a schema within the `director` database, named `director` and owned by the `director` user.
- Create a second schema within the `director` database, named `results` and owned by the `results` user.

Linux-specific notes

Configure PostgreSQL to:

- Use password authentication by editing the **pg_hba.conf** file in the data directory PostgreSQL is installed (for example **/var/lib/pgsql/data/pg_hba.conf**) and changing the `ident sameuser` entries to `md5`.

Solaris-specific notes

Configure PostgreSQL as follows:

- Configure PostgreSQL to run as a service by copying the service description files from the OEDQ distribution media as follows:
    - Copy **Platform/solaris/tomcat-postgres/dnpgsql.xml** to **/var/svc/manifest/application/database**;
    - Copy **Platform/solaris/tomcat-postgres/dnpgsql** to **/lib/svc/method**.
- Import the security configuration by running the following command as root:

```
svccfg import /var/svc/manifest/application/database/dnpgsql.xml
```

- Update the **/etc/security/prof_attr** file to reflect the new service by adding the lines from the file **Platform/solaris/tomcat-postgres/dnpgsql.prof_attr.txt**.
- Add the Oracle Postgres Administration rights to the `dnpgsql` user by adding the following line to the **/etc/user_attr** file:

```
dnpgsql::::profiles=Oracle Postgres Administration;type=normal
```

3.3.2 Oracle

Configure Oracle for installation as the repository for OEDQ as follows:

- Create two Oracle database accounts, both with permissions to create and drop tables and indexes. You can name these as you wish (for example `director` and `results`).
- Grant the `CONNECT` and `RESOURCE` rules to the accounts you have just created.
- Configure each of the Oracle databases to allow up to 200 connections. If you are hosting both the director database and the results database on a single Oracle instance, it is sufficient to permit a total of 400 connections to the instance as a whole.

- You may also need to change the setting of the PROCESSES parameter. The appropriate value for this parameter will depend on your Oracle installation. If you are unsure of the appropriate settings for this parameter, or how the values should be set, please contact your database administrator.
- It is recommended that the Oracle database be configured to use a Unicode character set. This helps ensure that OEDQ will be able to capture and process data in the widest range of character sets.

4 OEDQ Installation

Several steps are required to install the Oracle Enterprise Data Quality server:

- Install the OEDQ Platform (Operating System, Java Application Server and RDBMS system) that the server will use (section 3 "Platform Installation").
- Unpack the configuration files to a location that is accessible to the Java Application Server.
- Deploy the Web Archive file (dndirector.war) to the Java Application Server.
- Using the OEDQ Administration web pages, configure the server to point to the location of the configuration files, and with the connection details of the RDBMS schemas.
- Restart the Web Application Server so that the server can initialize itself with the support files.
- Change the password for the default dnadmin user and store it

This section is concerned with the final five steps in this list.

Once these steps have been completed, a client machine will be able to install and launch client applications via the Launchpad. (This requires Java Web Start and Java 6 or later to be installed on the client.)

Client applications communicate with the server using HTTPS connections to exchange data.

4.1 Unpacking the OEDQ configuration files

- As the user `root`, create a directory to hold the configuration files and a directory to hold the tools files
- Change the ownership of the directories to the user that runs the application server.
- As the user that runs the application server, unzip the **config.zip** file from the OEDQ distribution into the directory you have just created to hold the configuration files

- Then copy across the following files from the OEDQ distribution to the directory you have created to hold the tools files:
    - **dbtools.jar**
    - **injector.jar**
    - **install.jar**
    - **jmxtools.jar**
    - **jshell.jar**
    - **migration.jar**
    - **wsdlizer.jar**

4.2 Deploying Oracle Enterprise Data Quality

The instructions for deploying the OEDQ application vary a little depending on the application server you have installed. This section contains instructions for deploying on:

- Tomcat,
- WebLogic, and
- WebSphere.

Please note that deployment does not complete the installation. The OEDQ administration pages must be used after deployment to complete the installation.

IMPORTANT: For all application servers, SSL must be available on the web server OEDQ is deployed on.

4.2.1 Tomcat

- Copy the **dndirector.war** file from the installation package into the webapps directory.
- Restart the Tomcat service.

Tomcat will detect the **dndirector.war** file and deploy the application.

4.2.2 WebLogic

- Manually expand dndirector.war to a deployment location of your choice before deployment, and ensure that the application will be able to read and write data in this location.
- Deploy the OEDQ web application using the WebLogic administration console.
- During deployment, select the option to make the application available from the location where you expanded dndirector.war.

- After deployment, update the deployment to use the provided deployment plan, to change the way web service authentication is handled. See instructions below.

NOTE: The default SSL certificate created during a WebLogic install may be blocked by Internet Explorer due to its keysize (512 bits) - see Microsoft knowledge base article 2661254. This will prevent the display of the HTTPS web pages required to complete an EDQ install and to administer EDQ after installation. To generate a new certificate that will not be blocked (using an RSA keysize of 1024 or 2048 bits for example), please consult the Weblogic documentation for Configuring Identity and Trust, and especially the section Using the Keytool Utility.

Why a deployment plan is needed

By default, a request to an OEDQ web service requires authentication. The request comes in a normal HTTP POST operation and uses the standard WWW-Authenticate/Authorization response/request headers.

OEDQ support two authentication methods; **Basic** and **Negotiate**.

- **Basic** is the most primitive authentication method; here, the username and password are sent to the server base-64 encoded.
- **Negotiate** works with Kerberos and supports Single Sign-On (SSO); most web service clients will not support Negotiate out of the box because it requires some configuration.

Note that OEDQ client user applications such as Web Service Tester use the existing user credentials when submitting a web service request, and so do not need to do HTTP authentication.

WebLogic looks for a Basic authentication header in an incoming request. If it finds one, it verifies the username and password against its own internal user database. However, since OEDQ authentication (internal or LDAP) does not interact with the application server in any way, this verification always fails and the web service request is rejected with a 401 response code.

Using a Deployment Plan

To overcome this problem, update the installation of OEDQ on Weblogic with a **deployment plan** which changes the web service authentication behavior for the OEDQ application only.

A sample deployment plan that does this is available in the OEDQ distribution at **Platforms/weblogic/weblogic-plan.xml**.

The plan will work with any version of OEDQ. It contains an override for the module 'dndirector' – this assumes that the application has been deployed from a directory called 'dndirector' (the name of the deployment). If OEDQ is deployed from a different directory, the following line in the XML file will need editing to update the module name before use:

```
<module-name>dndirector</module-name>
```

To use the deployment plan:

- Go to the Weblogic Server Administration screen, select the 'dndirector' application and click 'Update'.
- Choose to 'Update in place with deployment plan changes' and browse to where you saved the plan file on the server.
- Click 'Finish' to update the application and restart it.

Alternative workarounds

A number of alternative workarounds for the web service authentication issue on Weblogic are supported. These are not recommended for production systems:

a) Add OEDQ users to the Weblogic Server user realm. This may be reasonable if a single user account is used for request submission.

b) Turn off authentication in OEDQ for web services by adding the following line to the file `director.properties` in the config directory where OEDQ is installed, and restarting the application server:

```
webservices.authentication = none
```

c) Edit a setting in a Weblogic Server configuration file. Find the config.xml file for the domain and add:

```
<enforce-valid-basic-auth-credentials>false</enforce-valid-basic-auth-credentials>
```

before:

```
</security-configuration>
```

Note that this setting affects the entire domain, which may be undesirable if other applications are also deployed in the domain.

4.2.3 WebSphere

Deploy the OEDQ web application by using the WebSphere administration application to deploy the **dndirector.war** contained in the OEDQ distribution.

4.3 Finalizing the installation

The following steps must be followed in order to complete the installation after deployment:

- Go to the URL that OEDQ has been deployed to. If you have used the default instructions in this document, OEDQ will have been deployed to: https://localhost:<*port number*>/dndirector. Note that http requests are automatically rerouted to the https port.
- Enter the location of your configuration directory when prompted to do so. This is the folder that you unzipped the configuration files into.
- Enter the details of your director and results databases when prompted to do so.

- Finally, open your **director.properties** file, which can be found in your configuration directory, and add the property `notification.base`. This property should be set to the URL that OEDQ has been deployed to, so in a default installation the new line will read:

  `notification.base=http://localhost:<port number>/dndirector/`

- Restart your application server.

Oracle Enterprise Data Quality is now fully installed and ready to use. Open the URL for the deployment (http://localhost:<*port number*>/dndirectorby default) to display the Launchpad.

Use the Launchpad administration pages to enable the appropriate feature packs, interface options and the Dashboard, according to the modules you have purchased from Oracle.

4.4 Enabling features

From the Launchpad it is possible to enable and disable OEDQ functionality according to your license agreement with Oracle.

Oracle allows its customers to evaluate any features on a trial basis, but reserves the right to audit any user to ensure that production systems are in compliance with their license agreement.

The feature configuration specifies which sets of processors are activated in an installation, whether or not real-time processing is enabled, and whether or not the Dashboard application is enabled.

If a family of processors is not selected, processors in this family will not be available for you to use. If real-time processing is not enabled, it will not be possible to use OEDQ's Web Service or JMS interfaces. If Dashboard is not enabled, it will not be possible to publish data quality metrics to the Dashboard.

4.5 Changing the password for the default user

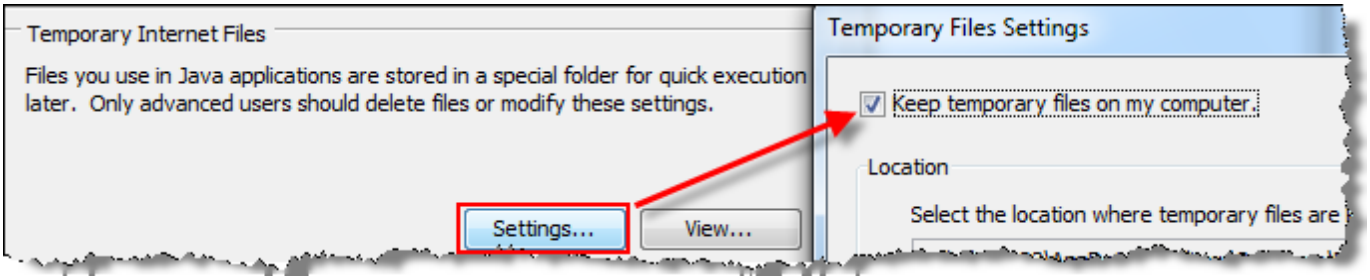
Once the OEDQ installation is complete, you must change the password of the default dnadmin user to ensure the security of the system.

You will be prompted to do this when logging into any client application for the first time, using the user name `dnadmin` and the initial password `dnadmin`.

Please ensure that you do not forget or lose the new password as without it you may lose access to the OEDQ system. You may wish to add further users with rights to add user accounts to ensure that this does not happen.

The OEDQ client applications can now be launched using the default user name `dnadmin` and the password you have specified.

Note: Java caching must be enabled in order to start the OEDQ Java WebStart applications on client machines. This setting is controlled in the Java Control Panel as follows:



5 Upgrading OEDQ

There are a number of steps that must be taken to upgrade an OEDQ installation:

- Update the OEDQ tools directory with the new **.jar** files, as described in section 5.1 "Updating the OEDQ tools directory".
- Run the pre-migration report, if upgrading from a version of OEDQ prior to 8.1.
- Stop the Java Application Server.
- Undeploy the OEDQ web application.
- Upgrade the Director database schema, as described in section 5.3 "Upgrading the Director database schema".
- Update the OEDQ configuration directory with the new configuration files, as described in section 5.4 "Upgrading the OEDQ configuration directory".
- Deploy the new OEDQ web application.
- Restart the Java Application Server.
- Migrate the Case Management data, as described in section 5.5 "Updating Case Management".
- If upgrading from a version of OEDQ prior to 8.1, it is strongly recommended that you enable the security restrictions for external tasks, and migrate all external tasks to use the command area, as described in section 5.6 "Enabling secure external tasks".
- If upgrading an instance of OEDQ running on Tomcat, delete all cached JSP pages first, as described in section 5.7 "Upgrading OEDQ on Tomcat".

5.1 Updating the OEDQ tools directory

By default, the OEDQ **tools** directory is a subdirectory of the **config** directory. The files in the OEDQ **tools** directory must be updated to ensure full compatibility. Copy the following **.jar** files from the distribution into the tools directory of your installation, overwriting the existing copies of the files:

- **dbtools.jar**
- **injector.jar**
- **install.jar**
- **jmxtools.jar**
- **jshell.jar**
- **migration.jar**
- **wsdlizer.jar**

5.2 Pre-migration checks

When upgrading from versions of OEDQ prior to 8.1, you must run the pre-migration script to ensure that the upgrade will be able to migrate the case management configuration correctly. The pre-migration script is part of the OEDQ distribution and is packaged into and executed using **migration.jar**. If any migration issues exist, it will produce a report detailing the problems. Run the pre-migration report by issuing the following command:

```
java –jar migration.jar premigrate [db]
```

where [db] specifies how to connect to the Director database schema. For example this might consist of:

```
<dbtype>:<dbid>@<host>:<port>/<user>/<password>
```

The fields surrounded by <*angle brackets*> in the formula should be substituted with the following values:

- `dbtype` should be set to `pgsql` for Postgres databases, or `oracle` for Oracle databases.
- `dbid` should be set to the database name for Postgres databases or the SID for Oracle databases.
- `host` should be set to the name of the RDBMS host machine.
- `port` is optional. If no value is specified, the default port for the database type is assumed. If the database is running on a non-default port number, the value of the database port number should be specified here.
- `user` should be set to the user ID that OEDQ uses to connect to the director database.
- `password` should be set to the database user's password and defaults to the user name if no password is provided.

The pre-migration report will now run without further input. If any issues are noted in the output from the pre-migration report, they should be addressed before proceeding with the update.

5.3 Upgrading the Director database schema

The OEDQ distribution includes a file, **migration.jar**, which is used to migrate the database schema. If you have performed an installation of Tomcat and Postgres according to the instructions provided in this document, then the schema will be upgraded by issuing the following command:

```
java –jar migration.jar migrate [db]
```

where [db] specifies how to connect to the Director database schema. For example this might consist of:

```
<dbtype>:<dbid>@<host>:<port>/<user>/<password>
```

The fields surrounded by <*angle brackets*> in the formula should be substituted with the following values:

- `dbtype` should be set to `pgsql` for Postgres databases, or `oracle` for Oracle databases.
- `dbid` should be set to the database name for Postgres databases or the SID for Oracle databases.
- `host` should be set to the name of the RDBMS host machine.
- `port` is optional. If no value is specified, the default port for the database type is assumed. If the database is running on a non-default port number, the value of the database port number should be specified here.
- `user` should be set to the user ID that OEDQ uses to connect to the director database.
- `password` should be set to the database user's password and defaults to the user name if no password is provided.

So, for example, to upgrade a PostgreSQL instance on a locally deployed standard Windows installation, the command would be as follows, where [password] is the password to the director database schema:

```
java –jar migration.jar migrate
pgsql:director@localhost:5432/[password]
```

Or, to upgrade an Oracle instance on a locally deployed Oracle database with a SID of 'director' and a user of 'director', the command line would be as follows, where [password] is the password of the 'director' user:

```
java –jar migration.jar migrate
oracle:director@localhost:1521/[password]
```

5.4 Upgrading the OEDQ configuration directory

The configuration directory must be upgraded by unzipping the **config.zip** file over the previous configuration directory without overwriting the existing files, with the exception of

the following:

- \notification\eventlog\jobSummary.txt
- \notification\jobs\default.txt
- \notification\jobs\smtp\default.txt

These files must be replaced with the new versions supplied. If any custom changes have been made to the old files in the existing installation, they must be identified and reapplied to the new files.

> **NOTE:** The configuration directory update should be performed whilst logged in as the user that runs the application server.

5.5 Updating Case Management

To update Case Management as part of a standard product upgrade, you must execute the case management migration via the **migration.jar** file.

To run the case management migration:

- Ensure that your PATH variable includes the location of your Java executable;
- Navigate to the directory containing **migration.jar**. This will be the top level directory of your OEDQ distribution;
- Execute the following command:

```
java -jar migration.jar cm -db
    <dbtype>:<databaseID>@<host>:<port>/<username>/<password>
```

Where:

- *<dbtype>* indicates the type of your director database; either `postgresql` or `oracle`.
- *<databaseID>* indicates the name of your director database.
- *<host>* indicates the host for your director database .
- *<port>* indicates the port for your director database.
- *<username>* is the username of a user with administration rights for your director database;
- *<password>* is the password for user *<username>*.

The migration will now run without further input.

5.6 Enabling secure external tasks

There are a number of steps that must be taken to enable secure external tasks in OEDQ:

- Set the `externaltasks.restricted` property in **director.properties** to `true`;
- The default command area is **config/commandarea**. If you wish to use an alternative directory, you will need to create it.
- If you are not using the default command area, update the `commandarea` property in **director.properties** to point to the directory you wish to use;
- Move all scripts that are called by your external tasks into the command area. Note that if an external processor, such as perl or wscript, is required to execute any of your scripts, the processor must be invoked from within a script or batch file that resides in the command area.
- Update all the external tasks that use those scripts to point to the new location of the scripts.

5.7 Upgrading OEDQ on Tomcat

When upgrading an instance of OEDQ running on Tomcat, Oracle strongly recommends that all cached JSP pages be deleted beforehand.

To do this, delete the contents of the Tomcat **work** directory. An example of the path to this directory is: **C:\Program Files\Datanomic\dnDirector\tomcat\6.0\work**

6 Getting started

The following sections guide you through the steps needed to become familiar with the main components of OEDQ.

6.1 The OEDQ Launchpad

To open the OEDQ Launchpad, point your web browser at:

http://*<server name>*:*<port number>*/dndirector

where *<server name>* is the name of the server onto which you installed OEDQ and *<port number>* is the HTTP or HTTPS port that your application server is running against. For installations using the Windows Installer, the ports will normally be 9002 for HTTP and 9004 for HTTPS, unless these ports were already in use at the time of installation.

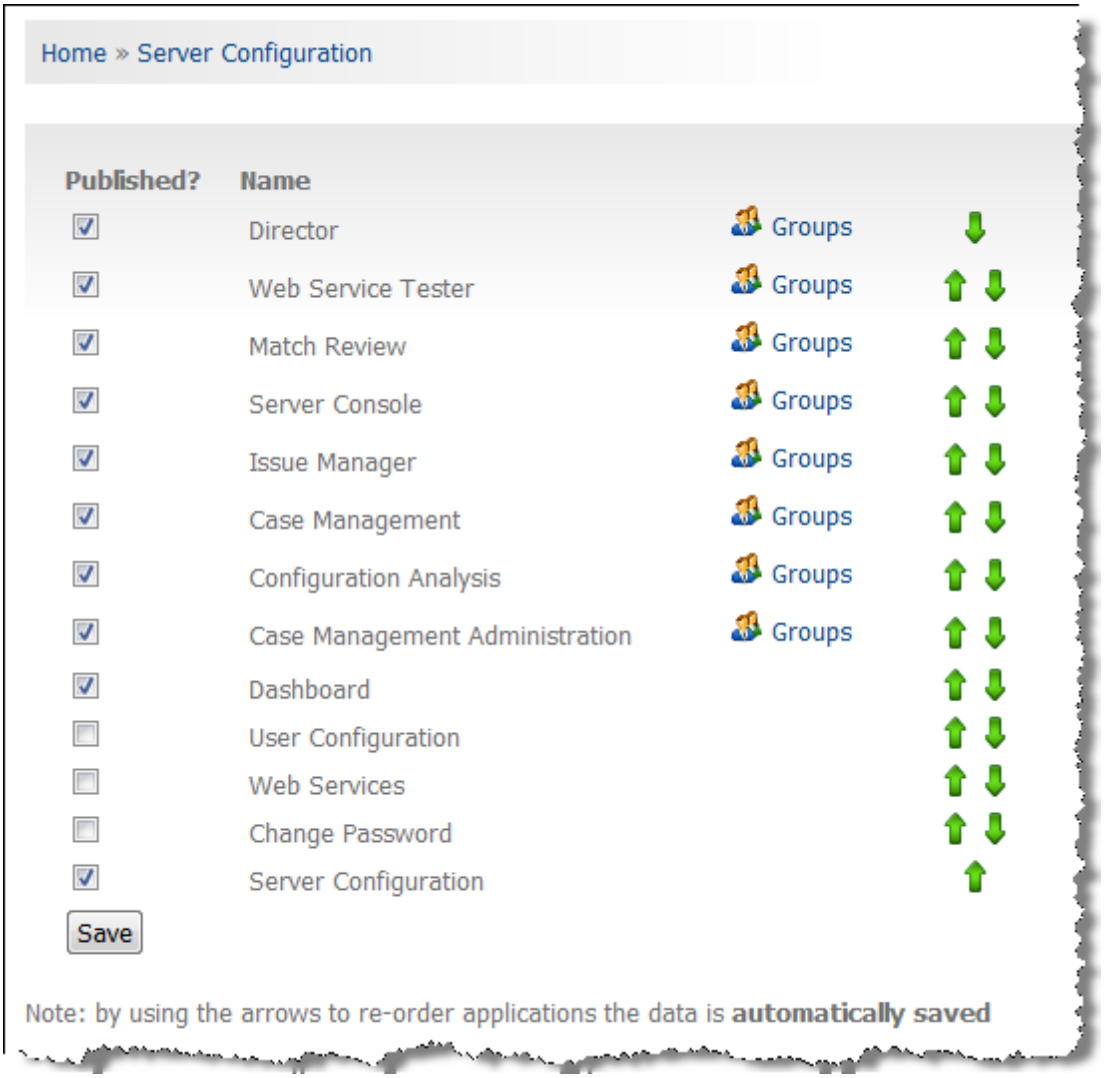
For custom installations (not using the Windows installer), the default port number for most installations is 8080, but be aware that other application servers may vary. Also, if you have deployed the application server to run against a different port, you should use your port number here.

The Launchpad provides access to a number of services related to the OEDQ system as well as an alternative way of starting the client applications. The following services are displayed by default on the Launchpad when OEDQ has just been installed:

 Director	Launch the Director client application. See the Director Client section for details.
 Dashboard	Launch the Dashboard web application. See the Dashboard section for details.
 Match Review	Launch the Match Review application. See the Match Review section for details.
 Web Services	Displays details of the Web Services configured in the OEDQ server.
 User Configuration	Provides a list of OEDQ users and their groups. This web application also allows a sufficiently privileged user to configure OEDQ users, permission groups and password/security rules. An initial installation of the OEDQ server includes one user, called `dnadmin`, with complete rights to the system. It is recommended that a user be created for each person authorized to use a particular OEDQ system and that their role (and hence access permissions) be reflected in the permissions granted to their user account.
 Server Configuration	Allows the following configuration tasks to be achieved after installation: • Configuration directory setup • Feature, interface and dashboard enablement • Repository database configuration
 Change Password	Allows a user to change their password. The user must log in using their own password, then provide and confirm their new password.
 Help Contents	Provides information about how to use OEDQ and a list of the 'processors' that are available (according to the enabled modules) for constructing processes.

Utilities available from the Launchpad

The Launchpad may be customized to remove any of the above applications (for example, where they are not used), to change the order in which the application links appear, and to add any of the other OEDQ applications:



The Applications screen can be accessed by selecting Server Configuration from the Launchpad, then Applications. You will have to log in to an account with the correct privileges to access this screen.

6.2 The Director client

It is not necessary to install OEDQ onto a machine in order to run any of its client applications, including the main configuration application, Director. The Director client is designed to be installed and run remotely via the Launchpad on any machine which has Java Web Start, and Java 6 or later, installed.

Java Web Start

Java Web Start must be installed on the client machine before it can be used to launch the Director client. Java Web Start integrates with the web browser on the client machine and can download, install, run and automatically update the Director client. The

OEDQ distribution includes a Java runtime installer, which includes Java Web Start, in the Third Party Software directory. Alternatively, Java installers can be downloaded from the Oracle Java web site (http://java.sun.com/javase/downloads/index.jsp). The Director client needs Java 6 or later. The Java installation will register Java Web Start with your web browser. Once this is done, the Director client can be installed or started using Java Web Start as outlined below.

Starting the client application

To launch the Director client:

- Open the Launchpad by pointing your web browser at:

http://*<server name>*:*port number*/dndirector

where *<server name>* is the name of the server onto which you installed OEDQ, and the port number is the HTTP or HTTPS port. HTTP requests are automatically redirected to the HTTPS port.

The default port numbers for installations using the OEDQ Windows Installer are 9002 for HTTP and 9004 for HTTPS, though different port numbers may be allocated if either of these ports were in use at the time of installation.

For non-Windows installations, the default HTTP port is normally 8080, but be aware that if you have deployed the application server to run against a different port, you should use your custom port number here.

- Click on the Director icon. You may be prompted to either open or save the JNLP application; choose the Open option.
- After the Director user application has been downloaded onto your machine, you will receive a warning about the security certificate. To run the Director user application you must choose to accept this certificate.
- The installation process will ask you if you wish to create shortcuts for the client application. If you choose Yes, the installer will create a Start Menu shortcut that can be used to start the Director user application independently of the Launchpad.

6.3 Dashboard

The Dashboard user application is installed as part of OEDQ and is a separately enabled module. Dashboard allows ready publication of data quality metrics derived from OEDQ processes designed using Director. Dashboard can be accessed by clicking on the Dashboard button on the Launchpad, as described on page 19.

6.4 The Match Review application

The Match Review application is installed as part of OEDQ. Match Review allows a user to view an overview of the reviews assigned to them and to launch the review application.

Match Review can be accessed by clicking on the Match Review button on the Launchpad, as described on page 19.

6.5 OEDQ documentation

OEDQ is supplied with an extensive set of online documentation, which can be accessed as follows:

Online help

Online help is provided for the following user applications:

- Director
- Server Console
- Case Management
- Configuration Analysis

The online help for each application can be accessed by pressing the F1 key or by clicking on the Help icons within each application.

The Director online help can also be accessed via the Launchpad as described on page 19. The Director online help is the largest set and contains a great deal of information on the system in general.

Project browser context sensitive help

All of the main nodes in the Director project browser, such as projects, snapshots, issues and so on, have integrated links to help pages which explain the terms used and the purposes of the object. This context sensitive help can be accessed by right-clicking on an object in the Project Browser and choosing 'Help' from the context menu, of by left-clicking on the node and pressing F1.

Processor-specific context sensitive help

Each of the supplied data quality processors has associated help documentation, explaining what the processor does, which data types it can handle, its inputs and outputs and examples of how you might use the processor. This help can be accessed by right-clicking on a processor on the canvas and choosing 'Processor Help' from the context menu, or by left-clicking on a processor, either on the canvas or in the tool palette, and pressing F1.

7 Troubleshooting OEDQ

The following list includes some common problems encountered when attempting to install or run OEDQ.

7.1 Director Client works but unable to access online help or OEDQ Launchpad

If you can access the Director Client application but are unable to get to the OEDQ Launchpad or access the online help, please check your browser settings. If your browser is configured to use a proxy server it may be attempting to access the OEDQ Application Server via the proxy. In Internet Explorer, check the Tools > Internet Options menu item, go to the Connections tab and press the LAN Setting button to review the settings.