Java Platform, Standard Edition Advanced Management Console Installation and Configuration Guide





Java Platform, Standard Edition Advanced Management Console Installation and Configuration Guide, 2.10

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Preface

This guide provides information about supported browser platforms and components required for installing and configuring the Advanced Management Console on machines running on Linux, Microsoft Windows, and OS X operating systems.

The Advanced Management Console is available to enterprise customers within My Oracle Support.



The Advanced Management Console requires a commercial license for use in production. For information about commercial features and how to enable them, see Oracle Java SE Advanced & Suite Products.

Audience

This document is intended for system administrators who are responsible for managing the Java desktop environment in their enterprise. The readers are expected to have some knowledge of browser platforms, Oracle WebLogic Server, and databases.

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Related Documents

- Information about using the Advanced Management Console is available in the Advanced Management Console User's Guide.
- Information about Java Platform, Standard Edition (Java SE) 8
- Information about the Deployment Rule Set feature is available at Deployment Rule Set in the Java Platform, Standard Edition Deployment Guide.



Information about the Java Usage Tracker is available at Java Usage Tracker

Conventions

The following text conventions are used in this document:

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



1

What's New in Advanced Management Console

This release of the Advanced Management Console is primarily a bug fix release. See What's New In Advanced Management Console for descriptions of changes and new features in this and other releases of the Advanced Management Console.



2

Plan for Advanced Management Console Installation

The Plan for Advanced Management Console Installation describes the Advanced Management Console core components, software requirements, and installation steps.

Read about software requirements and various components of Advanced Management Console described in this section before you begin installation.



This release of the Advanced Management Console is primarily a bug fix release. For additional information about Advanced Management Console releases, see the Advanced Management Console Release Notes.

The Plan for Advanced Management Console Installation contains the following sections:

- About Advanced Management Console
- Software Prerequisites and System Requirements for Advanced Management Console Components
- Installing and Configuring Advanced Management Console
- Migrating Advanced Management Console to the Latest Version

About Advanced Management Console

The Advanced Management Console provides system administrators with insight into the Java applications that their users run and the versions of the Java Runtime Environment (JRE) that are used in their enterprise.

The Advanced Management Console is packaged as an Enterprise Archive (EAR) file. This file contains the Advanced Management Console components, such as the Advanced Management Console server, agent, and browser-based user interface. You must provide the WebLogic Server, database, and a JRE for Advanced Management Console to use.

The Figure 2-1 shows Advanced Management Console architecture, components, data flow, and the installation sequence. The core components of the Advanced Management Console are Advanced Management Console server and Advanced Management Console agent.



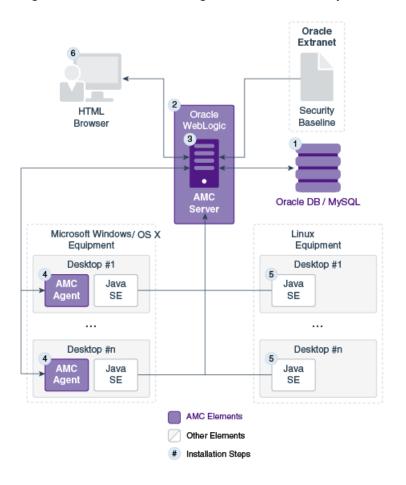


Figure 2-1 Advanced Management Console Components and Installation Steps

The following topics describe the core components and other elements of Advanced Management Console:

- Advanced Management Console Server
- Advanced Management Console Agent
- Administration and Monitoring

Advanced Management Console Server

The Advanced Management Console server uses MySQL or Oracle database to store its internal data and periodically downloads the Java Security Baseline from Oracle extranet. The Advanced Management Console server collects the Java Usage Tracking records of the Java SE runtime on Windows, OS X, and Linux desktops.

The Advanced Management Console server is a Java Platform Enterprise Edition (Java EE) application that must be deployed in Oracle WebLogic Server as shown in Figure 2-1.

Advanced Management Console Agent

The Advanced Management Console (AMC) agent is another core component, which is deployed on Microsoft Windows and OS X desktops.

The agent automatically enables Java Usage Tracker on installed Java SE runtime. The agent periodically reports data (operating system family, version, and installed Java Runtime Environments) to the Advanced Management Console server. The agent downloads and applies deployment rule set to the installed Java Runtime Environments (JREs). It automatically enables Java Usage Tracker on installed JREs.



CPU, memory, disc space, and network capacity requirements are all negligible for the AMC agent provided the appropriate OS and Java version are used.

The Advanced Management Console agent is supported on desktops running on Windows and OS X operating systems and not on Linux as shown in Figure 2-1. You need to manually configure the Java Usage Tracker as there is no Advanced Management Console agent on Linux desktops.

Administration and Monitoring

The Advanced Management Console includes a browser-based user interface for monitoring and administration.

This interface provides the following:

- Access to collect Java Usage Tracker data
- Enables to create and deploy deployment rule sets
- Monitors and configures the Advanced Management Console

Software Prerequisites and System Requirements for Advanced Management Console Components

Check the system requirements before setting up the Advanced Management Console to be sure that it runs in your environment.

Component	Requirements	Supported Platform
Advanced Management Console Server	 Software: Oracle WebLogic Server 12.1.3 or 12.2.1 Java Runtime Environment (JRE) 8u31 or later; use of the latest Java security update is recommended. Minimum hardware configuration: Processor = 3 Ghz CPU Memory = 8 GB available, and at least 4GB for WebLogic Disk Space = 10 GB 	 Oracle Linux 7 (x64) Ubuntu Linux 14 (x64) SUSE Linux Enterprise Server 12 (x64) Windows 7 (x64) Windows 8.x (x64) Windows Server 2012 R2 (x64) Windows 10 Red Hat Enterprise Linux 7 (x64)



Component	Requirements Supported Platform	
Advanced Management Console Database	One of the following databases: Oracle Database 12c Oracle Database 11g MySQL 5.6 MySQL 5.7 The minimum memory is 12 GB for dedicated Oracle server for 120 K desktops, and 16 GB if the Oracle server is co-existent with the WebLogic server. Ensure that you have at least 20 GB free storage space for the Oracle Database. The data in the database keeps growing over with time, so, ensure to maintain the database regularly.	 Oracle Linux 7 (x64) Ubuntu Linux 14 (x64) SUSE Linux Enterprise Server 12 (x64) Windows 7 (x64) Windows 8 (x64) Windows Server 2012 R2 (x64) Windows 10 Red Hat Enterprise Linux 7 (x64)
Advanced Management Console Agent	JRE 8u131	 Windows Vista (x86) Windows 7 (x64, x86) Windows 8.x (x64, x86) Windows 10 OS X (10.9, 10.10, and 10.11)
Advanced Management Console UI	 One of the following browsers, depending on your platform: Internet Explorer 11 (on all Windows platforms, Compatibility View is not supported) Firefox (all supported platforms) Safari (OS X) Chrome (Windows platforms only) To run the Java Web Start applications that Advanced Management Console starts, Java Runtime Environment (JRE) 8u131 or later is required; use of the latest Java security update is recommended. If you use a 32-bit browser on a 64-bit system, then a 32-bit JRE is required. 	 Windows Vista (x86) Windows 7 (x64, x86) Windows 8.x (x64, x86) Windows 10 OS X (10.9, 10.10, and 10.11) Oracle Linux 7 (x64) Ubuntu Linux 14 (x64) SUSE Linux Enterprise Server 12 (x64) Red Hat Enterprise Linux 7 (x64)



It's recommended to consider upgrading the Advanced Management Console database to Oracle 12c and WebLogic server to WebLogic Server 12c R2. See the Advanced Management Console downloads page.

The Advanced Management Console uses data collected by Java Usage Tracker. Data cannot be collected for JRE versions that don't contain Java Usage Tracker. Java Usage Tracker is available in the following JRE versions:

- 1.4.2_35 and later
- 5.0u33 and later
- 6u25 and later
- 7 and later
- 8 and later



Installing and Configuring Advanced Management Console

The Advanced Management Console installation and configuration consists of the following steps. Complete each step in the process before proceeding to the next step.

1. Oracle Database Installation and Configuration for Advanced Management Console,

MySQL Database Installation and Configuration for Advanced Management Console. or

Installing and Configuring the Oracle Database on Linux

- 2. Oracle WebLogic Server Configuration for Advanced Management Console
- 3. Advanced Management Console Server Deployment and Initialization
- 4. Advanced Management Console Agent Installation and Configuration
- 5. Java Usage Tracker Setup for Advanced Management Console
- 6. Browser Setup for Advanced Management Console

Migrating Advanced Management Console to the Latest Version

The existing users of Advanced Management Console can update to the latest available version of the Advanced Management Console server, database, and agent. The migration process involves both manual and automatic steps.

Advanced Management Console Migration describes the migration process.



MySQL Database Installation and Configuration for Advanced Management Console

The database for the Advanced Management Console provides data storage to host all the data. The database stores information about MSI files and applications, deployment rules, and deployment rule sets. The database also stores information about agents, Java Runtime Environment (JRE) statistics, and Java Installer configurations.

The Advanced Management Console is also supported on Oracle Database.

This topic contains the following sections that describe software requirements and MySQL installation and configuration for the Advanced Management Console:

- Software Requirements for MySQL Database
- Installing MySQL Database for Advanced Management Console
- Creating a User and Configuring MySQL on Windows

Software Requirements for MySQL Database

To use MySQL database with Advanced Management Console, download and install a version of MySQL Server mentioned in Software Prerequisites and System Requirements for Advanced Management Console Components.

Installing MySQL Database for Advanced Management Console

This topic contains the following sections that describe MySQL installation and configuration setup instructions for Advanced Management Console on different platforms:

- Installing MySQL Database on Windows
- Installing and Configuring MySQL on Linux

Installing MySQL Database on Windows

To install MySQL database:

- Install the MySQL database server only and select Server Machine as the configuration type.
- 2. Select the option to run MySQL as a service.
- 3. Launch the MySQL Command-Line Client. To launch the client, enter the following command in a Command Prompt window: mysql -u root -p .

The $\mbox{-p}$ option is needed only if a root password is defined for MySQL. Enter the password when prompted.

MySQL is installed and you can begin to configure your database.

Installing and Configuring MySQL on Linux

The following are example instructions to install and configure MySQL database for the Oracle Linux distribution of Linux operating system:

1. Install the MySQL database server package.

You can use the Yum tool to install MySQL on Oracle Linux: sudo yum install mysql-community-server.

2. Start the MySQL service:

```
sudo service mysql start
```

3. Launch the MySQL Command-Line Client:

```
mysql -u root -p
```

The $\mbox{-p}$ option is needed only if a root password is defined for MySQL. Enter the password when prompted.

4. Create a user (for example, amc2) and a strong password:

```
mysql> create user 'amc2' identified by 'amc2';
```

To restrict the access to a machine (for example, to localhost for a user) create the user as follows:

```
mysql> create user 'amc2'@'localhost' identified by 'amc2';
```

5. Create the database (for example, amc2) and grant all access to the user, for example, amc2 as follows:

```
mysql> create database amc2;
mysql> grant all on amc2.* to 'amc2';
```

6. Configure your MySQL installation to handle large BLOB entries, such as MSI binaries. To handle BLOB entries, edit the my.cnf file.

You can find the my.cnf file in one of the following locations:

- /etc/my.cnf
- /etc/mysql/my.cnf
- \$MYSQL_HOME/my.cnf
- [datadir]/my.cnf
- 7. Set the options max_allowed_packet and innodb_log_file-size in the [mysqld] section to the values shown:

```
[mysqld]
max_allowed_packet=120M
innodb_log_file_size=768M
```

The MySQL database user credentials provided in this topic are examples. The Advanced Management Console doesn't need to know your MySQL database user credentials. MySQL database user credentials are only required to configure the DataSource connection in the application server.



Creating a User and Configuring MySQL on Windows

After you've installed MySQL, you can create a user and configure your database. To create a user and configure MySQLon Windows:

1. Create the user (for example, amc2) and a strong password:

```
mysql> create user 'amc2' identified by 'amc2';
```

To restrict access to a machine (for example, to localhost for a user) create the user as follows:

```
mysql> create user 'amc2'@'localhost' identified by 'amc2';
```

Create the database (for example, amc2) and grant all access to the user (for example, amc2 user):

```
mysql> create database amc2;
mysql> grant all on amc2.* to 'amc2';
```

3. Configure your MySQL installation to handle large BLOB entries, such as MSI binaries. To handle BLOB entries, edit the MySQL Option Files.

MySQL is a Windows Service, so it can be started or stopped from the Windows Service administrator page. Any updates to the my.ini MySQL option file must be done by the administrator.

To edit the my.ini file:

 Open the my.ini file in an editor. You must edit the file with administrator privileges.

By default, on MySQL 5.6, the option file is located at %PROGRAMDATA%\MySQL \MySQL Server 5.6\my.ini.



As of MySQL 5.7.18, my-default.cnf is no longer included in or installed by distribution packages. See Server Configuration Defaults in MySQL Reference Manual.

b. Set the options max_allowed_packet and innodb_log_file_size in my.ini in the [mysqld] section to the values shown:

```
[mysqld]
max_allowed_packet=120M
innodb log file size=768M
```

c. Restart the MySQL service to apply changes.

The MySQL database user credentials provided in this topic are examples. The Advanced Management Console doesn't need to know your MySQL database user credentials. MySQL database user credentials are only required to configure the DataSource connection in the application server.



4

Oracle Database Installation and Configuration for Advanced Management Console

The database for Advanced Management Console provides data storage to host all the data.

The database stores information about MSI files, applications, deployment rules, and deployment rule sets. The database also stores information about agents, Java Runtime Environment (JRE) statistics, and Java Installer configurations. This chapter contains the following sections that describe software requirements for the Oracle Database as well as installation and configuration procedures:

- Software Requirements for Oracle Database
- Installing Oracle Database on Windows
- Configuring Oracle Database on Windows
- Installing and Configuring the Oracle Database on Linux

Software Requirements for Oracle Database

To use Oracle Database with Advanced Management Console, download and install a supported version of the Oracle database from Oracle Database Software Downloads.

Installing Oracle Database on Windows



To install Oracle 11g database, see Oracle 11g Documentation.

This topic describes installation steps for Oracle Database 12c.

To install Oracle database for Windows operating system:

- 1. Go to Oracle Database Software Downloads in your browser.
- 2. Download the 64-bit .zip file. Select the.zip file and right click to select **Extract**All. Extract both the .zip files to the same folder.
 - Don't extract the archive using unzip command, which may result in an unsuccessful run of the setup.exe.
- 3. Run the setup.exe and select the installation options according to your database and Windows user requirements.
- 4. In the **Specify Database Identifiers** screen of the installation process, enter the Global database name (for example, amc2) and the Oracle system identifier, SID

(for example, amc2). Don't select the check box for the option **Create as Container database**. The Install button gets enabled.

5. Click **Install** to install the product.

Oracle Database is installed on Windows.

6. Start the SQL Plus application. From the command-line, enter the command SQLPLUS to start SQL Plus.

From Windows Start, click Programs, Oracle-OraHomeName, Application Development, and SQL Plus.

Configuring Oracle Database on Windows

After installing Oracle database for Advanced Management Console on Windows, you need to configure it.

To configure Oracle database on Windows:

- 1. Log in to SQL*Plus application with sys as sysdba and the password you opt during the installation process in the Schema Password step.
- 2. Create the user (for example, amc2) and grant access to the database (for example, amc2). The database name is the one that you set inInstalling Oracle Database on Windows.

```
SQL> CREATE USER amc2 IDENTIFIED BY amc2

DEFAULT TABLESPACE users

QUOTA UNLIMITED ON users PASSWORD EXPIRE;

SQL> CREATE ROLE amc2_role;

SQL> GRANT CREATE SESSION, CREATE TABLE, CREATE SEQUENCE, CREATE VIEW, CREATE TRIGGER to amc2_role;

SQL> GRANT amc2_role TO amc2;
```

Configure your Oracle database QUOTA to UNLIMITED to ensure that enough database storage is available to support large BLOB entries, such as MSI binaries. If you encounter an issue with the SQL Create User statement, then log out of SQL*Plus application and repeat step 1 and step 2.

3. After you successfully create the user, exit the SQL*Plus application and log back into SQL*Plus as user (for example, amc2). You are prompted to set up the password. Set up a strong password.

The Oracle Database user credentials provided in this topic are examples. The Advanced Management Console doesn't need to know your database user credentials. Oracle database user credentials are only required to configure the DataSource connection in the application server.

Installing and Configuring the Oracle Database on Linux

The configuration requires root authority, so make sure that you can get root authority before you begin to install and configure the Oracle database. However, do not start the installer as root user.

To install and configure the Oracle database on Linux:

- 1. Connect to the server by using SSH or VNC, as appropriate.
- Unzip your database installer.



3. In your shell, run the <code>ulimit -s 10240</code> command . This is the setting for maximum stack size limitation, which is required for the database installation. In addition, edit the <code>/etc/security/limits.conf</code> file to set the following <code>nofile</code>, <code>nproc</code>, <code>stack</code>, and <code>memlock</code> values for database user deployment:

```
deployment
             soft
                    nofile
                               1024
deployment
             hard
                    nofile
                               65536
deployment
             soft
                              16384
                    nproc
                              16384
deployment
             hard
                    nproc
deployment
             soft
                    stack
                              10240
deployment
             hard
                    stack
                              32768
deployment
             hard
                    memlock
                                134217728
deployment
             soft
                    memlock
                                134217728
```

4. Validate that /etc/pam.d/login contains the following line:

```
session include system-auth
```

.

```
# echo 'session include system-auth' >> /etc/pam.d/login
```

If /etc/pam.d/login doesn't it, then add the following line:

5. Validate that /etc/pam.d/system-auth contains the following line:

```
session required pam_limits.so
```

If /etc/pam.d/system-auth doesn't it, then add the following line:

```
# echo `session required pam_limits.so' >> /etc/pam.d/system-auth
```

6. Log in as the database software owner and validate the following shell limits:

```
-bash-4.2$ ulimit -Sn
1024

-bash-4.2$ ulimit -Hn
65536

-bash-4.2$ ulimit -Su
16384

-bash-4.2$ ulimit -Hu
16384

-bash-4.2$ ulimit -Hs
32768

-bash-4.2$
```

7. Change to the directory where your database installer is unzipped and start the Install wizard by running the ./runInstaller command. Provide the required

information and then click **Next**. Use the default selection in this wizard and then click **Next**.

- 8. On the Select System Class page, select **Desktop class** and click **Next**.
- 9. On the Typical Installation page, perform the following:
 - a. Specify the install location information.
 - b. Verify that the Global database name is orcl and then click **Next**.
- 10. On the Create Inventory page, set the product inventory location and click **Next**.
- 11. In the Install wizard, click **OK**.

A summary of the prerequisite checks is displayed. Click **Install** to start the database installation. Ensure that you run the scripts during the installation.

12. Follow the instructions in the wizard and run the scripts.

The ENV scripts are copied to /usr/local/bin. You can change the path if you want to.

- 13. Click **OK** in the Installation wizard to continue with the installation.
- **14.** When installation is completed, click **Close** to close the wizard, and then run the cat/etc/oratab command to check the installation information.
- **15.** Run the scripts under scratch/deployment/app/oraInventory. If you did not use the default Oracle base location during installation, then change it accordingly.
- **16.** Switch to the database file location and create an amc2 directory for PDB.
- Using sqlplus, connect to the database as sysdba and enter the following command to create PDB:

CREATE PLUGGABLE DATABASE amc2 ADMIN USER amc2 identified by "amc2" DEFAULT TABLESPACE USERS DATAFILE '/scratch/deployment/app/deployment/oradata/orc1/amc2/ users01.dbf' SIZE 250M AUTOEXTEND ON FILE_NAME_CONVERT=('/scratch/deployment/app/deployment/oradata/orc1/pdbseed/', '/scratch/deployment/app/deployment/oradata/ orc1/amc2/');

18. Change the database session to AMC2 and make sure that AMC2 is open:

```
alter session set container=amc2;
alter pluggable database amc2 open;
```

a. Configure and set the authority for user AMC2.

The following is the command to grant authority to amc2:

```
grant CREATE SESSION, CREATE TABLE, CREATE SEQUENCE, CREATE VIEW to amc2;
```

The following is the command to set the quota:

```
alter user amc2 quota unlimited on users;
```

- **b.** Save the state of AMC2.
- **19.** Stop the listener and exit sqlplus.

To stop the listener, use the following command:

```
$ORACLE_HOME/bin/lsnrctl stop
```

.



20. Make sure the listener port in the configuration file is set to 1521.

You can edit the configuration file <code>\$ORACLE_HOME/network/admin/listener.ora</code> as follows:

21. Edit the TNS configuration file, <code>\$ORACLE_HOME/network/admin/</code>

tnsnames.ora:

```
LISTENER_AMC2 =
    (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1521))

ORCL =
    (DESCRIPTION =
          (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1521))
          (CONNECT_DATA =
                (SERVER = DEDICATED)
                (SERVICE_NAME = orcl)
          )
    )

AMC2 =
    (DESCRIPTION =
          (ADDRESS = (PROTOCOL = TCP)(HOST = your_host_name)(PORT = 1521))
          (CONNECT_DATA =
                (SERVER = DEDICATED)
                (SERVICE_NAME = amc2)
          )
}
```

22. After setting the two configuration files correctly, start the listener again by entering the following command:

```
$ORACLE_HOME/bin/lsnrctl start
```

23. Make sure that the database listener is running by using the following command:

```
$ORACLE_HOME/bin/lsnrctl services
```

If you are a database administrator, then use ORAchk to check for the Oracle database:

Download ORAchk from MOS.



MOS is available at https://support.oracle.com.

- 2. Copy orachk.zip on SRVDB and extract it.
- 3. Run ./orachk as a root user to check the Oracle database and generate HTML report. This creates a zip file of the report that contains an HTML file. The report includes any issues that were found along with links to MOS notes or documentation to fix the issues.



5

Oracle WebLogic Server Configuration for Advanced Management Console

The WebLogic Server instance provides web services to communicate with the agents and the data source to access the database. It also provides a user interface (UI) to configure the Advanced Management Console and the Java Usage Tracker parser as Advanced Management Console server components.

The Oracle WebLogic Server Configuration for Advanced Management Console topic contains the following sections that describe software requirements for installing and configuring Oracle WebLogic Server for Advanced Management Console:

- Software Requirements for Oracle WebLogic Server
- Installing WebLogic Server
- Configuring WebLogic Server with Databases
- Deploying JAX-RS 2.0 to WebLogic Server Deployment Libraries
- Setting Up WebLogic Server JTA
- Setting Up Java Heap Size and Proxy Servers
- Trusted HTTPS Certificate
- Setting Up WebLogic Server Mail Notification
- Securing WebLogic Server Configuration

Software Requirements for Oracle WebLogic Server

The Advanced Management Console requires Oracle WebLogic Server and Java SE Development Kit 8 Downloads.

If you're using Oracle WebLogic Server for only the Advanced Management Console, then in Oracle WebLogic Server Installers for Development, go to Oracle WebLogic Server 12.1.3 or later, such as WebLogic Server 12.2.1, and then select **Zip distribution for Mac OS X, Windows, and Linux** option. If you have a license for Oracle WebLogic Server, then you can download Oracle WebLogic Server 12.2.1 from the Oracle Software Delivery.

Installing WebLogic Server

There are different ways of installing Oracle WebLogic Server. Oracle WebLogic Server Installation Example provides an example of installing, creating a domain, creating an Administration Server, and creating a Managed Server for Oracle WebLogic Server.



Configuring WebLogic Server with Databases

This topic contains the following sections that describe how to configure Oracle WebLogic Server with databases and deploy the JDBC server:

- Configuring WebLogic Server with MySQL Database
- Configuring WebLogic Server with the Oracle Database

Configuring WebLogic Server with MySQL Database

You can configure Oracle WebLogic Server with MySQL database to provide services to access and modify user data. The database is accessed using JDBC.

To configure WebLogic Server with the database:

- 1. Open the Oracle WebLogic Server Administration Console in a browser.
 - If the SSL listen port is configured in the WebLogic Server instance, then go to https://wls-hostname:port/console. For example:

```
https://localhost:7001/console
```

• If the SSL listen port is not configured in WebLogic Server, then go to http://wls-hostname:port/console. For example:

```
http://localhost:7001/console
```

- 2. From the **Domain Structure** block in the left panel, select **Domain**, **Services** and then select **Data Sources**.
- Create a new Generic Data Source. Set the data source name (for example, amc2 mysq1).
- 4. Set the JNDI Name to amc2/db/mysq1. This is the critical value for the Advanced Management Console to locate the data source object.
- 5. Select the database type as MySQL.
- **6.** Select the database driver as MySQL's Driver (Type 4) Versions:using com.mysql.jdbc.Driver.
- In the Transaction Options section, ensure that the Supports Global
 Transactions check box is not selected. Advanced Management Console doesn't support global transactions.
- 8. Set the database name to your MySQL database name you created when performing procedures in MySQL Database Installation and Configuration for Advanced Management Console.
- 9. Set the database host-name and port to:
 - The host name where Oracle Database resides.
 - Leave port as the default or change it to the database port if it is different.
- 10. Set the database user name and password for your MySQL database (for example, user name as amc2 and a strong password). The MySQL database user name and password are the values you configured when performing procedures in MySQL Database Installation and Configuration for Advanced Management Console.



11. In the **Properties** text box, add the following lines to enable Unicode for this JDBC connection:

useUnicode=yes
characterEncoding=UTF-8

- **12.** On the **Select Targets** page, select the check box for **AdminServer** or the server where you want to deploy the Advanced Management Console server.
- 13. Click Finish to save the changes.
- **14.** In **Data Sources**, click the data source that you just created.
- 15. Click the Connection Pool tab.
- 16. Set Maximum Capacity to 50.
- 17. Click Save to save the changes.

The Advanced Management Console doesn't need to know your database user credentials. MySQL database user credentials are only required to configure the data source connection in the application server; therefore, the **JNDI Name** mentioned in step 4 is critical for the setup.

When the WebLogic Server is configured with the database, deploy the JDBC data source for the database to connect to WebLogic Server.

Configuring WebLogic Server with the Oracle Database

You can configure Oracle WebLogic Server with the Oracle database to provide services to access and modify user data. The database is accessed by using JDBC.

To configure WebLogic Server with the Oracle Database:

- 1. Open the Oracle WebLogic Server Administration Console in a browser.
 - If the SSL listen port is configured in the WebLogic Server instance, then go to https://wls-hostname:port/console. For example:

```
https://localhost:7001/console
```

• If the SSL listen port is not configured in WebLogic Server, then go to http://wls-hostname:port/console. For example:

```
http://localhost:7001/console
```

- From the Domain Structure block in the left panel, select Domain Services, and then select Data Sources.
- Create a new Generic Data Source. Set the data source name. For example, amc2 oracle.
- 4. Set the JNDI Name to amc2/db/oracle if the database is Oracle 12c. If the database is Oracle 11g, then set the JNDI Name to amc2/db/oracle11.
 - This is the critical value for Advanced Management Console to locate the Data Source object.
- 5. Select the database type as Oracle.
- **6.** Select the database driver as Oracle's Driver (Thin) for Instance Connections, and Versions as Any.



- In the Transaction Options section, ensure that the Supports Global
 Transactions check box is not selected. Advanced Management Console doesn't support global transactions.
- 8. Set the database name to the Oracle Database name created when performing the procedures in Oracle Database Installation and Configuration for Advanced Management Console.
- **9.** Set the database host-name and port to:
 - The host name where Oracle Database resides.
 - Leave port as the default or change it to the database port if it is different.
- 10. Set the database user name and password for your Oracle Database.

The Oracle database user name and password are the values that you configured when performing the procedures in Oracle Database Installation and Configuration for Advanced Management Console. For example, a user name of amc2 with a strong password.

11. Change the URL so that it contains a backslash (/) instead of a colon (:) after port. For example:

```
jdbc:oracle:thin:@oracledb-hostname:port/amc2
```

12. In the **Properties** text box, add the following lines to enable Unicode for this JDBC connection:

```
user=amc2
useUnicode=yes
characterEncoding=UTF-8
```

- 13. Click Next.
- **14.** On the **Select Targets** page, select the check box for **AdminServer** or the server where you want to deploy the Advanced Management Console server.
- 15. Click Finish to save the changes.
- **16.** In **Data Sources**, click the data source that you just created.
- 17. Click the Connection Pool tab.
- 18. Set Maximum Capacity to 50.
- 19. Click **Save** to save the changes.

The Advanced Management Console doesn't need to know your Oracle Database user credentials. The Oracle Database user credentials are only required to configure the Data Source connection in the application server. The **JNDI Name** mentioned in step 4 is critical for the setup.

After WebLogic Server is configured with the database, deploy the JDBC data source for the database to connect to WebLogic Server.



Deploying JAX-RS 2.0 to WebLogic Server Deployment Libraries

If the Advanced Management Console needs to use JAX-RS 2.0 RESTful Management API for Web Services, then you must deploy the <code>jax-rs-2.0.war</code> file to WebLogic Server deployment libraries.

To deploy the file from the WebLogic Server Administration Console:

- 1. Log in to the WebLogic Server Administration console.
- 2. From the **Domain Structure** block in the left panel, select **Deployments**.
- 3. Click the Install button.
- **4.** For a Windows operating system, enter the path <code>%MW_HOME%\wlserver\common \deployable-libraries.</code>

For a Linux operating system, enter the path <code>\$MW_HOME/wlserver/common/deployable-libraries</code>.

- 5. Select jax-rs-2.0.war.
- Accept the default values for all the rest of the settings and then click Next, Next, Next, and Finish.
- 7. Check in the **Deployments** section for a new entry Name=jax-rs(2.0) and Type=Library.
- 8. From the Deployments list, click <code>jax-rs(2.X.X)</code>, then click the **Targets** tab, and select the box next to your Administrative Server or the server where you want to deploy the Advanced Management Console, and click **Save**.

Setting Up WebLogic Server JTA

Errors in WebLogic Server may occur if the Java transaction timeout interval is not set to a long enough value for the database access. You need WebLogic Server administrator credentials to define the timeout interval using the Java Transaction API (JTA).

To define the Java Transaction API (JTA) configuration for the WebLogic Server domain time out to 300 seconds:

- 1. Log in to the WebLogic Server Admin console.
- From the Domain Structure block in the left panel, go to Services and select JTA from services.
- 3. Click the **Configurations** tab and then click the subtab **JTA**.
- **4.** On the Java Transaction API (JTA) page, enter the **Timeout Seconds** value as 300.

Setting Up Java Heap Size and Proxy Servers

If direct access to the Internet from the server is not available, then you should set up the proxy server for the WebLogic Server. The Advanced Management Console



requires access to Java Security Baselines. Internet access is also required to introspect JNLP files if they're outside of the corporate network. For example, when you launch a JNLP application from Oracle Tutorials, in order to display the information correctly, the Advanced Management Console needs to download the JNLP file as well as the referenced jars.

To set up the Java Heap Size and proxy servers:

- 1. Log in to the WebLogic Server Administration Console.
- 2. From the Administration Console, go to **Environment**, select **Servers**, and then select the **Managed Server**.
- 3. Click the **Configuration** tab, and then click the **Server Start** sub tab.
- 4. Add the following VM options to the Arguments text field, which includes heap size and proxy settings (both HTTPS and HTTP proxy settings).
 - -Xmx4G
 - -Dhttps.proxyHost=host_name -Dhttps.proxyPort=proxy_port
 - -Dhttp.proxyHost=host_name -Dhttp.proxyPort=proxy_port
 - -Dhttp.nonProxyHosts=server_hostname | server_IP

Note:

You need to adjust the Java Heap Size as recommended. Oracle recommends 4 GB heap size or higher. The <code>-xmx4g</code> option changes the maximum heap size to 4 GB. A 32-bit JVM cannot be started with 4GB heap size, therefore it is recommended to use a 64-bit JVM. If the Advanced Management Console detects low Java heap size, then the corresponding warning message is displayed in the login screen.

Trusted HTTPS Certificate

The Advanced Management Console uses HTTPS only for communication between the Advanced Management Console server and clients (agent, web UI, Deployment Rule Set tool, and Java installer configuration). The HTTPS setup for Advanced Management Console requires a valid HTTPS certificate, trusted by the client-side Java Runtime Environment (JRE).

Ensure that a valid HTTP certificate is available and that the Oracle WebLogic Server Identity Keystore is set up with it. See Configuring Keystores in the Oracle Fusion Middleware Administering Security for Oracle WebLogic Server 12.1.3 guide.



You can use self-signed certificates only for demonstrations and not in production systems.



Setting Up WebLogic Server Mail Notification

The Advanced Management Console server optionally sends an email notification to managed desktop users who register agents with their credentials. The Advanced Management Console server uses JavaMail APIs built into the Oracle WebLogic Server to act as a medium between the Advanced Management Console and the actual SMTP mail server. The WebLogic Server must be configured to use a specific mail server.

To configure WebLogic Server for mail notification setup in the WebLogic Server console:

- 1. Log in to the WebLogic Server Administration Console.
- 2. From the domain structure block, select **Services** and **Mail Sessions**.
- 3. Click **New** and complete the form.

Complete the form with the following details:

- 1. Name: Provide an arbitrary name.
- JNDI Name: Provide the JNDI name as amc2/mail. This is a critical value for the mail server setup.
- 3. Provide your session user name and password.
- 4. Set up the JavaMail properties.

```
mail.transport.protocol=smtp
mail.smtp.ssl.enable=true
mail.smtp.auth=true
mail.smtp.host=<your email host name>
```

- To trace SMTP sessions, set mail.debug=true.
- Click Next and then select the server that Advanced Management Console is deployed on.
- 7. Click Finish.

In the Advanced Management Console user interface, the **Settings** sub tab of the Configuration tab has a check box to enable or disable WebLogic Server mail notifications. If no JNDI name is found, then this check box is disabled and you cannot enable WebLogic Server mail notifications.

Securing WebLogic Server Configuration

You can use the Java Security Manager in WebLogic Server to provide protection for resources running in a Java Virtual Machine (JVM), and to improve the Advanced Management Console security.



6

Advanced Management Console Server Deployment and Initialization

You can use an HTML browser and the Advanced Management Console User Interface (UI) for deploying the Advanced Management Console to Oracle WebLogic Server and initializing the product.

This topic contains the following sections that describe the Advanced Management Console server deployment to WebLogic Server and the initialization process using the Advanced Management Console UI:

- Deploying Advanced Management Console to WebLogic Server
- Initializing Advanced Management Console

Deploying Advanced Management Console to WebLogic Server

The Advanced Management Console server is packaged as a J2EE Enterprise Archive (EAR) (JavaAMC-2_7.ear). This file contains the Advanced Management Console components, such as the Advanced Management Console server, agent, and browser-based user interface.

Ensure that the Advanced Management Console server is deployed to an existing Oracle WebLogic Server instance as listed in Software Requirements for Oracle WebLogic Server.

Follow this example to deploy the Advanced Management Console server to Oracle WebLogic Server:

- **1.** Enter https://wls-hostname:port/console in the browser, where the wls-hostname and port are the DNS name and listen port of the Administration Server.
- 2. Authenticate using your administrator credentials.
- 3. Select the **Deployments** option from the **Domain Structure** panel.
- 4. In the right panel, click Install.
- 5. In the navigation panel, locate JavaAMC-2_7.ear file and check it in.
- Click Next and select the server that the Advanced Management Console is getting deployed on. Then, click Next and again Next.
- 7. Click Finish.
- 8. Start the Advanced Management Console
 - a. In the Deployments table, go to the Control tab and select the check box for the Advanced Management Console application.
 - b. Click Start and select Servicing All Requests.



A message is displayed that indicates that a start request was sent. When the **State** column for the Advanced Management Console application shows Active, then the application is available to anyone with access to the server.

For alternate deployment methods, see the Installing the Oracle WebLogic Server and Coherence Software in the Fusion Middleware Installing and Configuring Oracle WebLogic Server and Coherence guide.

Initializing Advanced Management Console

Initialize Advanced Management Console after you deploy the Advanced Management Console server to Oracle WebLogic Server. The initialization process is an interactive process using a web browser and Advanced Management Console web UI.

The Advanced Management Console server initialization web page is not protected and can be accessed by any user.



When the Advanced Management Console is initialized in an Oracle WebLogic Server cluster, the host name and port in the initialization wizard must match the load balancer, and not any of the back-end servers.

To initialize the Advanced Management Console server:

- 1. Enter https://wls-hostname:port/amcwebui in the browser, where wls-hostname and port are the DNS name and the listen port number of your WebLogic server instance (the default port is 7002). A Welcome screen is displayed, which is the first screen in the initialization process after deployment to WebLogic Server.
 - In case of errors, see Troubleshooting Tricks.
- 2. Click Next on the Welcome screen to set up the data source. On this page, the Advanced Management Console reports that it has detected the data source, amc2/db/mysql Or amc2/db/oracle configured in your Oracle WebLogic Server.
- 3. Click Next to set up the Advanced Management Console server host name. The host name specified here is the DNS name that desktops use to connect to the Advanced Management Consoleserver. Do not use localhost as the host name. If Oracle WebLogic Server is hosted on a machine with multiple DNS names, then ensure that the name specified on the page enables *Desktops* to reach Oracle WebLogic Server.
- 4. Click Next to set up the Advanced Management Console server Java usage port number. Set up a dedicated free port number for collecting Java Usage data sent by a Java Virtual Machine.
- 5. Click Next to set up the administrator credentials, such as e-mail and a password to access Advanced Management Console. The administrator has access to all features of Advanced Management Console Console, as shown in the following figure:



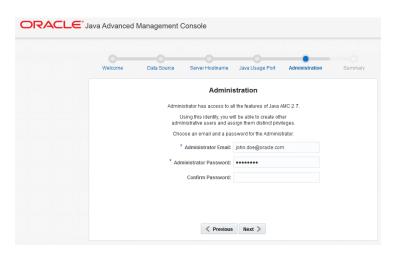


Figure 6-1 Advanced Management Console — Administration Screen

6. Click **Next** to see the summary details of all the Advanced Management Console credentials. At this step, the MySQL or Oracle database is automatically initialized by the Advanced Management Console.

If the automatic database initialization fails, you see the Initialization Failure window shown in Advanced Management Console Initialization — Database Initialization Screen. You can manually initialize the MySQL or Oracle database from this window:

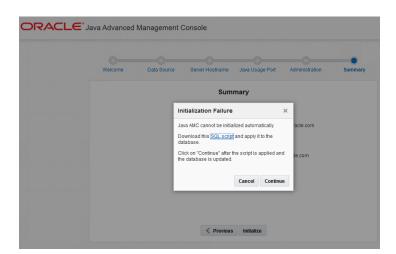
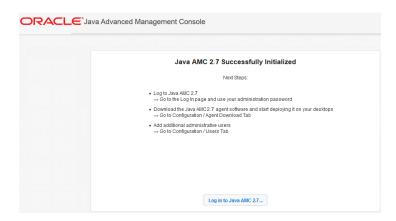


Figure 6-2 Advanced Management Console Initialization — Database Initialization

- a. Click the **SQL** script link to download a SQL script. The SQL script is saved as follows: <code>amc_mysql_update.sql</code> for MySQL database or <code>amc_oracledb_initialization.sql</code> for Oracle database. Connect to your Advanced Management Console database to apply it.
- b. Click Continue after applying the SQL script on your database. Or, click Cancel to cancel the manual database update.
- 7. Finally, click **Initialize** to initialize the Advanced Management Console server. Advanced Management Console Successfully Initialized screen is displayed with

instructions on the next steps to log in to Advanced Management Console as shown in Advanced Management Console Initialization — Next Steps screen.

Figure 6-3 Advanced Management Console Initialization — Next Steps



Note:

Once the Advanced Management Console has been initialized, you can modify the host name and/or port in the **Configuration** tab. If the Advanced Management Console has been initialized on the WebLogic Server cluster, then ensure that these are values of the load balancer. See Modifying Advanced Management Console Server Host Name.



7

Advanced Management Console Agent Installation and Configuration

The Advanced Management Console agent runs as a native service with the operating systems (Windows as well as OS X) on a client desktop. The agent finds all the installed Java Runtime Environments (JREs), and then enables and automatically configures Java Usage Tracker. In an enterprise network, the agent enables the Java Usage Tracker on agent-managed desktops. At system startup, the agent reports the data on the Advanced Management Console client. The agent periodically reports data (operating system family, version, and installed JREs) to the Advanced Management Console server. The agent downloads and applies the Deployment Rule Set to the installed JREs. It automatically enables the Java Usage Tracker on installed JREs on Windows as well as OS X operating systems.

This topic contains the following sections that describe the Advanced Management Console agent, agent bundle, agent installation, and agent distribution:

- About Advanced Management Console Agent
- Advanced Management Console Agent Bundle
- Installing Advanced Management Console Agent
- Advanced Management Console Agent Logging
- Unstalling Advanced Management Console Agent
- Distributing Advanced Management Console Agent

About Advanced Management Console Agent

The Advanced Management Console agent is a background service.

The Advanced Management Console agent performs the following tasks:

- Identifies all the installed JREs on the desktop and reports the resulting list to the Advanced Management Console server.
- Enables Java Usage Tracker for each JRE in which Java Usage Tracker is available.
- Downloads deployment rule sets from the Advanced Management Console server and installs them on each JRE.

As the Advanced Management Console agent is not supported on Linux desktops, these desktops require additional manual Java Usage Tracker configurations. See Software Prerequisites and System Requirements for Advanced Management Console Components for the JRE versions that contain Java Usage Trackers.

The Advanced Management Console server and all its components use different protocols to communicate.

Advanced Management Console Agent Bundle

The Advanced Management Console agent bundle is specific to the Advanced Management Console server that it has been downloaded from. This agent bundle does not work with another Advanced Management Console server.

The Advanced Management Console agent is bundled as a .zip file. The bundle file is configured with the following details: Application server URL and Application server certificate chain. You can download the agent bundle from the Advanced Management Console server through the Advanced Management Console User Interface (UI). The bundle installs the agent on the desktop that must be managed by the Advanced Management Console server.

Installing Advanced Management Console Agent

The Advanced Management Console agent installation requires administrator privileges and should be performed by a system administrator.

This topic contains the following sections:

- Configuring the Agent Proxy and the Agent Intervals
- Installing Advanced Management Console Agent on Windows
- Installing Advanced Management Console Agent on OS X

Configuring the Agent Proxy and the Agent Intervals

The agent proxy server is included in the bundle. If the bundle is already downloaded and the proxy is changed later, the bundle will not contain the proxy settings.

To configure the agent proxy and the agent intervals:

- Enter https://server:port/amcwebui in the browser and log in to the Advanced Management Console UI by using administrator credentials to initialize the Advanced Management Console. See Initializing Advanced Management Console.
- 2. Configure the agent proxy server host and port.



Step 2 must be completed before the agent bundle is downloaded. If a proxy server is required to access the AMC Server, then the agent would not be able to reach the server to register without this information.

- a. In the Advanced Management Console UI, click the **Configuration** tab.
- b. Click Agents Download.
- c. Click Edit to display the Configure AMC Agent Proxy Settings dialog.
- d. Enter the following details for the agent to connect to the Advanced Management Console server:



- Agent Proxy Host Name: Specify a proxy server host name.
- Agent Proxy Port: Specify a proxy server port number.
- e. Click Save.
- **3.** Configure the agent intervals.

Note:

If you increase the agent intervals, then the system load is reduced. When the agent intervals are increased, the communication of the agent with the Advanced Management Console server automatically decreases, which reduces the system load.

- a. Click the Configuration tab.
- b. Click Agent Settings.
- c. Click **Edit** to make the fields editable.
- **d.** Edit any of the following values. You can either edit all of them or just the ones that you want to:

JUT Processing Interval

Interval for the agents to report Java Usage Tracker records to the server

Check Command Interval

Interval to check if the server has any commands for the agent

Standard JRE Scan Interval

Interval to scan Java Runtime Environment (JRE) in the standard location (For example, on Windows it is C:\Program Files\Java) and report to server

Application JRE Scan Interval

Interval to scan JRE under the application location (For example, on Windows it is C:\Program Files) and report to server

LocalStorage JRE Scan Interval

Interval to scan JREs in the entire local storage system (not targeting any particular directory) and report to server

Agent Auto Update

Enable or disable the agent auto update

Agent Log File Max Size (Kb)

Maximum agent log file size in Kb

Number of Agent Log Files

Maximum agent log file number during agent log rotation

Randomize Interval

Enable or disable randomize interval

e. Click Save.



Installing Advanced Management Console Agent on Windows

Ensure that the Advanced Management Console server is running and can be accessed by the desktop before you install the Advanced Management Console agent on a desktop.

To install the agent on Windows:

1. Configure the agent proxy and the agent intervals. See Configuring the Agent Proxy and the Agent Intervals.

The agent proxy server is included in the bundle. If you change the proxy server settings, you will need to download the agent bundle again and distribute the updated bundle.

2. On the Advanced Management Console UI, click the **Configuration** tab and select **Agents Download**.



When you select **Agents Download**, you might need to wait for the MD5 values to finish computing. If the bundle isn't already generated, it takes a short time to build it. Once it's shown, the bundle is ready to download.

3. Click the link agent-bundle-win32.zip and save the bundle.

Note:

When you download an agent bundle, the Advanced Management Console inserts parameters, such as the application server URL and the application server certificate chain into the bundle. This restricts the agent bundle to a specific instance of the Advanced Management Console server at any given time. If you modify the URL or the certificate, then you must download the agent bundle from https://server:port/amcwebui.

4. Open the Windows File Explorer, select the .zip file, and right click to choose Extract All.

Don't use the Cygwin utility to extract the agent bundle. The Cygwin extract utility gives improper file permissions that prevents the agent from starting.

- 5. Move the AMC_Agent directory to a location, for example, C:\Program Files (x86)\Oracle\Java AMC\ (or a directory of your choice, for example, C:\AMC_Agent). In the following steps, C:\AMC_Agent represents %AMC_DIR%, where the Advanced Management Console agent gets installed. Ensure that the contents of the folder can be accessed by privileged users only.
- 6. Starting with Advanced Management Console 2.2, this is an optional step. Copy %AMC_DIR%\conf\AMCUser.properties.template to %AMC_DIR%\conf\AMCUser.properties and configure the three information values with the user's actual credentials.



7. Open a Windows command prompt with administrator privileges. Run %AMC_DIR% \bin\AMCAgent.exe -install.

The agent is registered with the Advanced Management Console server for the provided user credentials.



Ensure that the Advanced Management Console server is running and that the desktop can connect to the server. Beginning with Advanced Management Console 2.4, if the server is down or cannot be reached, then the agent service tries to register itself with the server once each hour after the first failure. The next time the agent service is started, it tries again to connect to the server.

- 8. Select the **Control Panel**, **Administrative Tools** and then select **Services**. Check that the agent service is up and running.
- If the agent service doesn't start, some log messages may also be available in Windows Event Viewer. Select Control Panel, Administrative Tools, and Event Viewer to view the logs.
- 10. Log in to Advanced Management Console web UI again. Go to the **Desktops** page and check that the desktop is now registered with the Advanced Management Console server (using the desktop owner registered email). The desktop owner now appears as Owner in the Advanced Management Console UI.



The Advanced Management Console supports the agent on Windows 32-bit and 64-bit operating systems only. The agent-bundle-win32.zip bundle works for both 32-bit and 64-bit Windows operating systems.

Installing Advanced Management Console Agent on OS X

You can use the bin/AMCAgent . sh script file to install and uninstall the Advanced Management Console on the OS X operating system. The Advanced Management Console is a launched daemon that you can start, stop, or restart by using the launchetl command.

To install the Advanced Management Console on the OS X operating system:

- 1. Configure the Agent Proxy and the Agent Intervals. See Configuring the Agent Proxy and the Agent Intervals.
 - The agent proxy server is included in the bundle. If you change proxy server settings, you will need to download agent bundle again and distribute the updated bundle.
- 2. On the Advanced Management Console UI, click the **Configuration** tab and select **Agents Download**.



Note:

When you select **Agents Download**, you might need to wait for the MD5 values to finish computing. If the bundle isn't already generated, it takes a short time to build it. Once it's shown, the bundle is ready to download.

- 3. Click the link agent-bundle-macosx.zip and save the bundle.
- 4. Open the Finder, select the .zip file, right click to select **Open With** and then click **Archive Utility** to unzip all the files. You can also double click the .zip file to open the Archive Utility to unzip the files into the current folder.

The script file doesn't have permissions to execute. Use the chmod command to manually set the execute permissions.

5. Execute the AMCAgent.sh script from the command prompt using the command:

```
sudo ${AMC_DIR}/bin/AMCAgent.sh -install
```

6. Log in to Advanced Management Console web UI again. Go to the **Desktops** page and check that the desktop is now registered with the Advanced Management Console server (using the desktop owner registered email). The desktop owner now appears as Owner in the Advanced Management Console UI.

After the installation, the script copies the agent binaries to /Library/Application Support/Oracle/Java_AMC directory, the .plist file to /Library/LaunchDaemons/, and starts the daemon.

Advanced Management Console Agent Logging

The Advanced Management Console agent utilizes the Java logger to log information about tasks performed by the agent as well as any errors that are encountered.

In Windows, the log files are available in the <code>%PROGRAMDATA%\Oracle\Java_AMC</code> directory. In an OS X environment, the logs are available in the <code>/Library/Application Support/Oracle/Java_AMC</code> directory. The logs are rotated according to a policy. Beginning with Advanced Management Console 2.7, the maximum size of the log files and the number of files are configurable through <code>AMCAgent.properties</code>. By default, the rotation uses three log files with a maximum size of 64K. This means that when the first log file grows to a size of 64K, logs are directed to the second log file. When the third log becomes full, the log rotates back to the first file, overwriting any existing contents there. See <code>Configuring the Agent Proxy and the Agent Intervals</code> for procedures you can use to edit logging parameters.

Unstalling Advanced Management Console Agent

This topic contains the following sections that describe how to uninstall Advanced Management Console Agent:

- Uninstalling the Advanced Management Console Agent on Windows
- Uninstalling the Advanced Management Console Agent on OS X
- Unregistering Desktops with the Advanced Management Console User Interface



Uninstalling the Advanced Management Console Agent on Windows

On Windows, you can run the -remove command to uninstall the Advanced Management Console agents and remove all Java Usage Tracker Properties files on the Advanced Management Console server.

To uninstall the Advanced Management Console agent:

- 1. Open the Windows command prompt with administrator privileges.
- 2. Run %AMC_DIR%\bin\AMCAgent.exe -remove to uninstall the agent.

AMC_DIR is the directory where the Advanced Management Console agent is installed. The agent attempts to unregister itself on the Advanced Management Console Server before uninstalling. After the agent is unregistered on the server, all Java Usage Tracker configuration files (usagetracker.properties) on the desktop are also removed.

If the Advanced Management Console Server is not reachable, this could cause the uninstallation to stall or fail. In this case, <code>%AMC_DIR%\bin\AMCAgent.exe</code> - forceremove can be used to force the agent to uninstall without unregistering first.

Run the AMCAgent.exe -forceremove command in the following scenarios:

- If %AMC_DIR%\bin\AMCAgent.exe -remove fails to uninstall agent service, then run the %AMC_DIR%\bin\AMCAgent.exe -forceremove command to force uninstall the agent.
- If the agent was never successfully registered on the server, then execute AMCAgent.exe -forceremove command to uninstall the agent. The AMCAgent.exe -remove doesn't work in such a scenario.

After the agent is unregistered on the server, all Java Usage Tracker configuration files (usagetracker.properties) on the desktop are also removed.

Uninstalling the Advanced Management Console Agent on OS X

On OS X, you can the -remove command to uninstall the Advanced Management Console agents and remove all Java Usage Tracker Properties files on the Advanced Management Console server.

To uninstall the agent:

Execute the command:

```
sudo ${AMC_DIR}/bin/AMCAgent.sh -remove
```

The agent attempts to unregister itself on the Advanced Management Console Server before uninstalling. After the agent is unregistered on the server, all Java Usage Tracker configuration files (usagetracker.properties) on the desktop are also removed.

If the Advanced Management Console Server is not reachable, this could cause the uninstallation to stall or fail. In this case, you can use the $\frac{\Delta MC_DIR}{\sin AMCAgent.sh}$ -forceremove command to force the agent to uninstall without unregistering first.

You need to run the AMCAgent.sh -forceremove command in the following scenarios:



- If using the \${AMC_DIR}/bin/AMCAgent.sh -remove command fails to uninstall the agent service, then run the \${AMC_DIR}/bin/AMCAgent.sh -forceremove command to force uninstall the agent.
- If the agent was never successfully registered on the server, then you need to execute AMCAgent.sh -forceremove command to uninstall the agent. The AMCAgent.sh -forceremove doesn't work in such a scenario.

After the agent is uninstalled, the agent is unregistered on the server, all Java Usage Tracker configuration files usagetracker.properties on the desktop are removed. The script stops the daemon and deletes the.plist file from the following directories:

- /Library/LaunchDaemons/
- /Library/Application Support/Oracle/Java_AMC

Unregistering Desktops with the Advanced Management Console User Interface

After running -remove to uninstall the Advanced Management Console agents on Windows and OS X, you can use the Advanced Management Console to remove any desktops that cannot contact the Advanced Management Console server.

To remove desktops that cannot contact the Advanced Management Console server:

- 1. In the Advanced Management Console UI, click the **Desktop** tab.
- Ensure Desktop is selected in the Display drop-down list and the Table icon is selected.
- 3. In the Desktop table, select the check boxes adjacent to the desktops to select the desktops that you want to unregister.
- Click Other Actions and select Unregister Desktop(s).
 The Unregister Desktops confirmation dialog box is displayed.
- **5.** Click **Confirm** to unregister the desktop.

The selected desktop(s) are unregistered on the server.

Distributing Advanced Management Console Agent

Distribution of the Advanced Management Console agent bundle is not handled by Advanced Management Console.

You can download the Advanced Management Console agent bundle from the Advanced Management Console web UI. A Software Management System, such as Microsoft SCCM, can be used to distribute the agent bundle to desktops in your enterprise.

The Software Management System that you use must provide customized options to support Advanced Management Console secure agent distribution. This system must handle the following operations using administrator privileges:

- Extraction of the agent bundle as described in Installing Advanced Management Console Agent on Windows. Incorrect extraction may cause improper file permissions that prevents agent from starting.
- Configuration of the bundle based on the desktop owner's user credentials.



Installation of the agent using the install command.

After the agent is distributed, each desktop that receives the agent is registered with the Advanced Management Console server using the user credentials that were configured for the desktop. The agent also automatically configures Java Usage Tracker and associates the Java Usage Tracker records with the user credentials that were configured for the desktop. The agent then periodically reports data, such as operating system family and version, and installed JREs to the Advanced Management Console server.

To view the desktops that are registered with the Advanced Management Console server, log in to the Advanced Management Console web UI and click the **Desktops** tab.



8

Java Usage Tracker Setup for Advanced Management Console

You can set up the Java Usage Tracker for the Advanced Management Console on Windows, OS X, and Linux operating systems. The Advanced Management Console agent automatically enables Usage Tracker on agent-managed Windows and OS X desktops, whereas Advanced Management Console requires manual configuration of Java Usage Tracker on machines running on Linux operating system. This topic contains the following sections describe the Java Usage Tracker configuration for the Advanced Management Console on Windows, OS X, and Linux operating systems:

- Setting Up Java Usage Tracker on Windows and OS X Desktops
- Setting up Java Usage Tracker on Linux Desktops

Setting Up Java Usage Tracker on Windows and OS X Desktops

The Advanced Management Console agent automatically configures Java Usage Tracker on agent-managed desktops running Windows 7, Windows 8, Windows 8.1 (both 32-bit and 64-bit), Windows 10, and OS X operating systems.

Starting from Advanced Management Console version 2.5, agents configure Java Usage Tracker to report records to Advanced Management Console agents instead of sending them directly to the Advanced Management Console server over the User Datagram Protocol (UDP). Agents then re-send the records to the Advanced Management Console server over https. The Java Usage Tracker ensures that every JRE located on the desktop sends its Java usage data to the Advanced Management Console server.



When Advanced Management Console is running in a cluster, the agent communicates with the load balancer and the UDP listener for the Java Usage Tracker records may not be supported.

Setting up Java Usage Tracker on Linux Desktops

The Advanced Management Console agent is not supported on Linux desktops. The Linux desktops require manual configuration of Java Usage Tracker.

To download and configure the Java Usage Tracker for the Advanced Management Console on Linux desktops:

- **1.** Enter https://wls-hostname:port/amcwebui in the browser, where wls-hostname and port are the DNS name and listen port number of Oracle WebLogic Server.
- Log in to the Advanced Management Console UI using your administrator credentials.
- 3. Click the **Configuration** tab and then click the **Settings** sub tab.
- 4. Click **Download usagetracker.properties file** to download the file.
- **5.** Enable Java Usage Tracker by copying this usagetracker.properties file to {JRE_HOME}/lib/management for each JRE installed on the desktop.

The downloaded usagetracker.properties file has the Java Usage Tracker parameters (port number, separators) required by the Advanced Management Console. If you prefer to create the usagetracker.properties file yourself, then specify the parameters displayed in the Advanced Management Console **Settings** tab.



The Advanced Management Console doesn't incorporate data from the com.oracle.usagetracker.additionalProperties Setting of the usagetracker.properties file.



9

Browser Setup for Advanced Management Console

You need to ensure the operating systems and browser version compatibility for the Advanced Management Console. You also need a browser set up and the Advanced Management Console user interface for monitoring and administering the server.

The Browser Setup for the Advanced Management Console topic contains the following sections that describe compatibility and browser set up for the Advanced Management Console:

- Advanced Management Console Browser Supported Versions
- Browser Setup for the Advanced Management Console User Interface (UI)

Advanced Management Console Browser Supported Versions

The Advanced Management Console user interface is provided through a browser.

If you use Internet Explorer as your supported browser as listed in Software Prerequisites and System Requirements for Advanced Management Console Components, then ensure that **Display Intranet Sites in Compatibility View** is not selected in Compatibility View Settings.

Browser Setup for the Advanced Management Console User Interface (UI)

The Advanced Management Console provides a web user interface (UI) to connect to the server

See step 6 of Figure 2-1. The Advanced Management Console UI enables the user to monitor and administer the server.

Some commands in the Advanced Management Console start Java Web Start applications by using the JRE versions listed in Software Prerequisites and System Requirements for Advanced Management Console Components are needed to run these applications.

The commands in the **Installers** tab use Java Web Start applications, which also run on Windows operating systems.

10

Advanced Management Console Migration

The migration of the Advanced Management Console to the latest available version involves redeploying the latest Enterprise Archive (EAR) file over the previous Advanced Management Console version within the WebLogic Server Administrator Console. The migration process is facilitated by an update wizard, where the Advanced Management Console server updates the database either manually or automatically. The Advanced Management Console agent is then updated to the latest version to be consistent with the redeployed Advanced Management Console server.

Note:

As a best practice, always ensure to take a back up or a snapshot of the existing database before you continue with the upgrade process. If there is no back up, then you can't go back and try to upgrade subsequently, in case an error occurs at any point.

During the migration process, the Advanced Management Console server stops processing requests from the agent, processing Java Usage Tracker records, and updating security baseline records.

This topic contains the following sections that describe the Advanced Management Console server upgrade to the latest version, the Advanced Management Console database update, and the Advanced Management Console agent update:

- Uploading a New Version of Advanced Management Console Server
- Updating the Advanced Management Console Database
- Updating the Advanced Management Console Agent

Note

Ensure to always clear browser cache, after the Advanced Management Console is updated to a new version.

Uploading a New Version of Advanced Management Console Server

The Advanced Management Console migration process begins with redeploying the latest Enterprise Archive (EAR) file over the previous Advanced Management Console version within the WebLogic Server administration console. You need WebLogic Server administrator credentials to perform this migration task.

To upload the Advanced Management Console over the previous version:

- 1. Enter https://wls-hostname:/port/console in a web browser, where wls-hostname and port are the DNS name and SSL listen port number of the Administration Server.
- 2. Authenticate using your administrator credentials.
- 3. Select the **Deployments** option from the **Domain Structure** panel.
- In the right panel, select the check box for the Advanced Management Console application.
- 5. Click Update.
- 6. In the navigation panel, locate the EAR file for the latest version of the Advanced Management Console file and check it in. For example, the EAR file for the 2.7 version is JavaAMC-2_7.ear.
- 7. Click Next. Use the default values.
- 8. Click Finish.
- 9. Restart the WebLogic Server after Advanced Management Console is deployed.

Updating the Advanced Management Console Database

After you have uploaded a new version of the Advanced Management Console EAR file, for example, JavaAMC-2_7.ear to WebLogic Server, the Advanced Management Console administrator must update the Advanced Management Console database.



You need not update the database if there are no changes to the database between the previous and the later Advanced Management Console versions.

To update the database, load the /amcwebui and check whether or not the Advanced Management Console Database Update screen (update wizard) is displayed. If the screen is not displayed, then no changes are required, and the Advanced Management Console is fully operational. If the screen is displayed, then it guides you to perform database updates.

The database can be updated either manually or automatically using administrator credentials. If no database updates are required from the current Advanced Management Console version to the latest one, then the update wizard is not displayed and you do not need to explicitly perform any task. Follow these topics to update the Advanced Management Console:

- Automatic Update of the Database
- Manual Update of the Database
- Configuring WebLogic Server with Databases

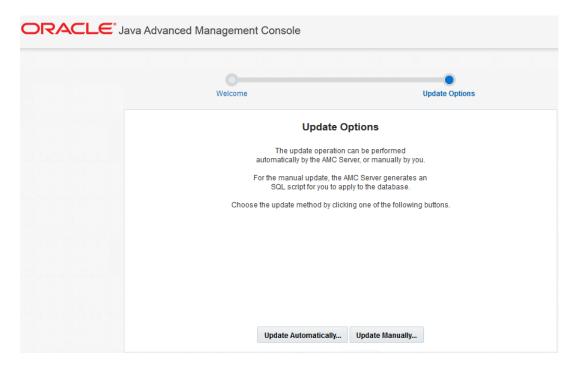
Automatic Update of the Database

To do an automatic update of the Advanced Management Console database:



- 1. Enter https://wls-hostname:port/console in a web browser where wls-hostname and port are the DNS name and the SSL listen port the WebLogic server instance (the default port is 7002) to start the WebLogic Server Administration Console. A Welcome screen is displayed that indicates a database update.
- Click Next on the Welcome screen to choose between automatic or manual database update as shown in Advanced Management Console Database Update — Welcome Screen.

Figure 10-1 Advanced Management Console Database Update — Welcome Screen



- 3. Click **Update Automatically** for the Advanced Management Console server to update the database for you.
- Click **Update** to complete the process. Or, click **Cancel** to cancel the automatic database update.

When the update is completed, a screen is displayed indicating that the Advanced Management Console database is successfully updated.

Manual Update of the Database

To do a manual update of the Advanced Management Console database:

- Enter https://wls-hostname:port/console in a browser where wls-hostname and port are the DNS name and the SSL listen port the WebLogic server instance (the default port is 7002) to start the WebLogic Server Administration Console. A Welcome screen is displayed that indicates a database update.
- Click Next on the Welcome screen to select between an automatic or manual database update.
- Click Update Manually to update the database using a SQL script.



4. Click the SQL script link to download the SQL script.

The SQL script is saved as amc_mysql_update.sql. Connect to Advanced Management Console database to apply it.

5. Click **Continue** after applying the SQL script on your database. Or, click **Cancel** to cancel the manual database update.

After the update is completed, a message is displayed to indicate that the Advanced Management Console database is successfully updated.

Updating the Advanced Management Console Agent

After you have updated the database, update the Advanced Management Console agent to the latest release to be consistent with the redeployed Advanced Management Console server. If you want to update the agent from Advanced Management Console 2.0 to a later Advanced Management Console release, then you must manually update the agent.



If you want to update from Advanced Management Console 2.1 release to a later Advanced Management Console release, then the Advanced Management Console agent automatically updates itself to the agent that is specific to the Advanced Management Console later release.

To manually update the Advanced Management Console agent:

1. Don't remove the old agent. At the Windows command prompt, enter sc stop "AMC Agent" to stop the agent service.

You need administrator privileges for this command to work.

- 2. Remove everything from <existing amc agent root directory>/ versions but <existing amc agent version> folder (such as, AMC-2.4-b12 for 2.4 agent).
- Download the latest agent bundle from the server after you have updated the server to the latest release of the Advanced Management Console, and then use this bundle to install the latest release of the Advanced Management Console agent.

You can extract the <code>.zip</code> file for the new agent to the folder of the previous version or to a new folder. Either option works.

If Advanced Management Console 2.0 agent is updated to a later Advanced Management Console release and <code>%programData%\Oracle\Java_AMC_2</code> folder is preserved, then the previous agent settings are picked up by the new agent automatically. If the folder is removed, then the new agent registers on the server.



Note:

Starting with the Advanced Management Console 2.1, the agent settings are not stored in the <code>%ProgramData%</code>\ folder, but in the <code>%AMC_DIR%</code> folder. The updates from the Advanced Management Console to a later Advanced Management Console release are automatically done by agents and their user settings are preserved. However, if either the previous or the latest release folders are removed, and you manually install a new agent, then the settings from the previous agent do not get picked up.

- 4. From the new agent bundle, copy the versions/<new amc agent version> directory (such as, versions/AMC-2.7-b30) into %AMC_DIR%/versions.
 - You should now have the following: versions/<existing amc agent version> (such as versions/AMC-2.4-b12) and versions/<new amc agent version> (such as, versions/AMC-2.7-b30).
- 5. Edit the AMC_Agent/conf/AMCAgent.properties file and set the version equal to <new amc agent version> (such as, AMC-2.7-b30). Add the randomizeInterval property to the properties file and set it to TRUE.
- 6. At the Windows command prompt, enter sc start "AMC Agent" to restart the AMCAgent service.

You need administrator privileges for this command to work.



A

Oracle WebLogic Server Installation Example

There are different ways of installing Oracle WebLogic Server. This topic contains an example to install Oracle WebLogic Server.

This topic contains the following sections that describe software requirements and WebLogic Server installation and configuration:

- Installing WebLogic Server
- Setting Up the Environment for WebLogic Server
- Creating a WebLogic Server Domain
- Starting a WebLogic Server Administration Server
- Creating and Configuring a WebLogic Server Managed Server
- Configuring the Corporate LDAP Server
- Configuring LDAP Security Server in WebLogic Server

Installing WebLogic Server

The Advanced Management Console requires Java SE Development Kit 8 Downloads, update 65 or later, and WebLogic Server supported versions, such as 12.1.3 or 12.2.1. See Software Prerequisites and System Requirements for Advanced Management Console Components.



The version of WebLogic Server as mentioned in Installing the Oracle WebLogic Server in the Oracle Fusion Middleware Installing and Configuring Oracle WebLogic Server and Coherence guide may not be the default one. Ensure to download the correct version.



Setting Up the Environment for WebLogic Server

The Advanced Management Console server initialization web page is not protected and can be accessed by any user.



This section is based on using Oracle WebLogic Server version 12.1.3. Other versions may need different configurations. In the future releases of the Advanced Management Console, there aren't any plans to continue supporting Oracle WebLogic Server 12.1.3.

To set up the required environment variables for WebLogic Server version 12.1.3:

- **1.** Define the environment variable, JAVA_HOME, and set it to JDK 8, for example, C: \java\jdk1.8.0_121.
- 2. For a Windows operating system, run configure.cmd from the extracted WebLogic Server folder, which is MW_HOME.
 - For a Linux operating system, run configure.sh from the extracted WebLogic Server folder, which is MW_HOME.
- When prompted to create a new domain, select N. You need to create the domain folder later.

Note:

This section is based on using Oracle WebLogic Server version 12.2.1. Other versions may need different configurations.

To set up the required environment variables for WebLogic Server version 12.2.1:

- 1. Define the environment variable, JAVA_HOME, and set it to JDK 8.
 - For example, C:\Java\jdk1.8.0_131.
- 2. Run the command, java -jar extracted_jar_file from the Command Prompt (Admin).

For example,

java -jar fmw_12.2.1.3.0_wls_quick.jar

Creating a WebLogic Server Domain

To create a WebLogic Server domain:

1. Define JAVA_HOME. See Setting Up the Environment for WebLogic Server.



- 2. For a Windows operating system, run the config.cmd file from the WebLogic Server installed directory, %MW_HOME%\oracle_common\common\bin\config.cmd.
 - For a Linux operating system, run the config.sh file from the WebLogic Server installed directory, %MW_HOME%/oracle_common/common/bin/config.sh.
- 3. Ensure that **Create a New Domain** is selected, and then select the folder for the new domain. The default folder is <code>%MW_HOME%\user_projects\domains\base_domain</code>. The domain name is <code>base_domain</code>, which can be changed.
- Click Next.
- 5. In the Templates step, select **Create Domain Using Product Templates**, and then select the Basic WebLogic Server Domain template. Click **Next**.
- In the Administrator Account step, configure the administrative manager admin account. Click Next.
- 7. In the Domain Mode and JDK step, click the domain mode option as **Production** and specify the JDK if it is different from the bootstrap JDK. Click **Next**.
- In the Advanced Configuration step, do not select any of the check boxes for Administration Server, Node Manager, and Managed Servers, Clusters, and Coherence. Click Next.
- 9. For all the **Views** in Deployment, Application, and Service screens, **do not** change the default folder options.
- 10. Click Create to create the domain.
- 11. When the Domain Created Successfully message is displayed, select Next.
- In the Configuration Success step, click the check box for Start Admin Server to start the server. Click Finish.

In the Advanced Management Console documentation, the directory %MW_HOME% \user_projects\domains\domain1 represents DOMAIN_HOME.

Starting a WebLogic Server Administration Server

To log in to the WebLogic Server administration server:

- For a Windows operating system, start the administration server with %DOMAIN_HOME %\startWebLogic.cmd.
 - For a Linux operating system, start the administration server with <code>%DOMAIN_HOME%/startWebLogic.sh</code>.
- 2. If the SSL port is configured for the WebLogic Sever Administration Server, then in the browser, go to the default URL https://localhost:7002/console. Otherwise, in the browser, go to the default URL http://localhost:7001/console.
- 3. Use your administrative credentials to log in to the server.

Creating and Configuring a WebLogic Server Managed Server

Domains include a special Oracle WebLogic Server instance called the Administration Server, which is the central point from which you configure and manage



all resources in the domain. Typically, you configure a domain to include additional Oracle WebLogic Server instances called Managed Servers.

Follow this example method to create a Managed Server for the WebLogic Server:

- Define the environment variable, JAVA_HOME. See Setting Up the Environment for WebLogic Server.
- 2. For a Windows operating system, run %DOMAIN_HOME%\bin\setDomainEnv.cmd, which is required to set the environment.
 - For a Linux operating system, run %DOMAIN_HOME%/bin/setDomainEnv.sh, which is required to set the environment.
- 3. For a Windows operating system, start the node manager with <code>%DOMAIN_HOME%bin \startNodeManager.cmd</code>. If the node manager does not start, then edit <code>%DOMAIN_HOME% \nodemanager.properties</code> and Set <code>NativeVersionEnabled=false</code>.
 - For a Linux operating system, start the node manager with <code>%DOMAIN_HOME%/bin/startNodeManager.sh</code>. If the node manager does not start, then edit <code>%DOMAIN_HOME%/nodemanager/nodemanager.properties</code> and Set <code>NativeVersionEnabled=false</code>.
- 4. Start the administrative server and log in to the server as described in Starting a WebLogic Server Administration Server.
- 5. From the **Domain Structure** block in the left panel, go to **Environment** and select **Machines**. Create a new machine. Enter any unique name in the **Name** field and then enter the host name (for example, localhost) and server listen port that matches the node manager settings. Click **Finish** to create the machine.
- 6. From the Domain Structure block in the left panel, go to Environment and select Servers. Create a new server. Enter any unique name in the Name field and then enter the host name and server listen port. Ensure that the new server listen port must be unique from the existing Administration Server listen port. Click Finish to create the server.
- 7. From the **Domain Structure** block in the left panel, go to **Environment** and select **Servers**. Click the server you created in step 6. In the **Configuration** tab associate this server to the new machine you created in step 5.
- 8. Click the **Control** tab and then click the check box for the associated server and machine. Then click **Start** to start the server.
- 9. In the browser, go to https://hostname:port and verify that the server is running. The Advanced Management Console uses HTTPS only for communication between the Advanced Management Console server and clients. See Trusted HTTPS Certificate.

Configuring the Corporate LDAP Server

Groups in the corporate LDAP server are used to access AMC.

The following groups should be created in the corporate LDAP server:

- cn=groups
 - cn=AMCAdminGroup
 - cn=AMCDRSGroup
 - cn=AMCJICGroup



cn=AMCReportsGroup

Any user who needs access to AMC (with LDAP integration) should be assigned to at least one or all of the roles listed above. After this is completed, you may have to follow the instructions provided in Configuring LDAP Security Server in WebLogic Server to complete the LDAP integration process.

Configuring LDAP Security Server in WebLogic Server

You can configure your Oracle WebLogic server to connect to Lightweight Directory Access Protocol (LDAP) server, so that the Advanced Management Console can communicate with the WebLogic Server, without having to connect to the LDAP

This topic contains sample instructions to configure the LDAP security provider in the WebLogic server, so that the WebLogic server gets connected to the LDAP server. The type of LDAP being configured in this example is OpenLDAP. This means OpenLDAP (external provider) server runs on localhost or on a remote server. If a different type of LDAP server is used, then there are chances of these instructions varying.

To configure WebLogic server to connect to the LDAP server:

- 1. Add a new security provider in the WebLogic server:
 - a. Log in to WebLogic server admin console.
 - b. Click **Domain**, and select **Security realms**, and then **myrealm**.
 - c. Click Providers tab and then select New.
 - d. Enter a name for the new provider, for example, LDAP.
 - Set Provider Type to LDAPAuthenticator.
 - f. Click Save.

A Provider is created.

- 2. Configure the provider:
 - a. Select the Provider that you just created.
 - b. Click Provider Specific tab.
 - c. Enter the following details in the following sections:

Note that these are sample values only. You need to enter these values, based on the values configured on the LDAP server. Therefore, these values vary based on how the LDAP is set up.

- Connection section:
 - Host: localhost
 - Port: <portnumber>
 - Principal: cn=admin,dc=oracle,dc=com
 - Credential: welcome0
- Users section:
 - User Base DN: cn=users,ou=amc,dc=oracle,dc=com



Note:

This value is based on the configuration of the LDAP server. You can set other values for the **User Base DN** field based on the LDAP server configuration.

- All Users Filter: (objectclass=person)
- User Name Attribute: uidUser Object Class: person
- Groups section:
 - Group Base DB: cn=groups,ou=amc,dc=oracle,dc=com



This value is based on the configuration of the LDAP server. You can set other values for the **User Base DN** field based on the LDAP server configuration.

- All Groups Filter: (objectclass=groupOfNames)
- Group From Name Filter: (&(cn=%g)(objectclass=groupOfNames))
- Static Groups section:
 - Static Group Name Attribute: cn
 - Static Group Object Class: groupOfNames
 - Static member DN attribute: member
 - Static Group DNs from Member DN Filter: (&(member=%M) (objectclass=groupOfNames))
- 3. Click Save.
- 4. Restart the Admin server as well as all the managed servers.
- 5. Login to the Advanced Management Console UI, and click the User sub tab in the Configuration tab and ensure that the Enable Container based authentication checkbox is selected. By default, you aren't authenticated by the external LDAP server. If you want to enable the LDAP authenticatation, then you need to enable it by selecting the checkbox.



B

Security Compliance for Advanced Management Console

The security recommendations help in improving the processes of installing, configuring, and deploying of the Advanced Management Console server and its components.

All the security recommendations are applicable to Windows, OS X, and Linux operating systems. The following sections list the recommendations for each component of the Advanced Management Console:

- Security Recommendations for Advanced Management Console Server
- Security Recommendations for Advanced Management Console WebLogic Server
- Security Recommendations for Advanced Management Console Agent
- Security Recommendations for Advanced Management Console Databases: MySQL or Oracle

Security Recommendations for Advanced Management Console Server

Follow these security recommendations for the Advanced Management Console server installation, configuration, and deployment:

- Protocol: The Advanced Management Console uses HTTPS for communication between the Advanced Management Console server and clients (agent, web UI, Deployment Rule Set tool, and Java installer configuration).
- Server deployment protection: The Advanced Management Console server deployment and initialization web page is not protected and does not require a password to set up. Therefore, the initialization page can be accessed by any user. Administrators should restrict access to the server or lock the server behind a firewall until initialization is complete.
- Java Usage Tracker communication protection: The Advanced Management Console should be run behind a firewall, which should be supported by the administrators. Administrators need to run the agent and server communication within the same intranet segment behind the firewall. The Advanced Management Console agents send Java Usage Tracker data to the server over https.

Security Recommendations for Advanced Management Console WebLogic Server

Follow these security recommendations for the Advanced Management Console WebLogic Server installation, configuration, and deployment:

- Java Security Manager: Consider enabling the Java Security Manager in WebLogic Server to provide protection for resources running in a Java Virtual Machine (JVM) and to improve the Advanced Management Console security. See Java Security Manager.
- WebLogic Server logs: Advanced Management Console leverages WebLogic Server logs to report all the security errors and warnings. Check the WebLogic Server domain logs for any reported errors.

Security Recommendations for Advanced Management Console Agent

Follow these security recommendations for the Advanced Management Console agent installation, configuration, and deployment:

- Secure file permissions: The Advanced Management Console doesn't restrict
 the locations where system administrators can install the agents in a Windows
 environment. However, agents should be installed in a protected location, such as
 Program Files (x86), where regular users cannot make changes. In addition,
 system administrators should ensure that all installed files have secure
 permissions.
- Agent logs: Check the Advanced Management Console agent service logs for reported logins, events, and errors located in the following Windows directory: %PROGRAMDATA%\Oracle\Java_AMC\agent.log. In an OS X environment, locate the agent logs here:/Library/Application Support/Oracle/Java_AMC/agent.log.0.

Security Recommendations for Advanced Management Console Databases: MySQL or Oracle

Follow these security recommendations for Advanced Management Console installation, configuration, and deployment of Oracle database or MySQL database:

- **Secure database setup**: This installation guide does not provide details about secure database configuration and database security management.
- **User credentials**: The user credentials provided for MySQL or Oracle databases in the sections are examples. Oracle highly recommends that you use a different name and strong password for production use.



C

Troubleshooting Tricks

This topic contains a few known issues in the Advanced Management Console and how to troubleshoot them.

This topic contains the following sections:

- · Agent: Tips and Tricks
- Server: Tips and Tricks
- Important Directory Locations (In a Windows Environment)
- Important Directory Locations (In an OS X Environment)

Agent

Tips and Tricks to Ensure that the Advanced Management Console Agent Runs Efficiently:

- 1. Verify that the Advanced Management Console agent is running.
 - a. From the Windows Control Panel, open **Services**, locate AMC Agent and verify whether it's running. If not, right click the **AMC Agent** and select **Start**.
- 2. Verify that the Advanced Management Console agent is communicating. Do the following to verify:
 - a. Open C:\ProgramData\Oracle\Java_AMC\agent.log.0.
 - **b.** Check the log file to validate that the agent does not have any communication errors to the server. For example:

```
2016-06-14 14:54:19 Communication: sending com.oracle.amc.agent.client.GetCommandMessage@1c00735 2016-06-14 14:54:19 Communication: exception: java.net.UnknownHostException: <amc-server-host>
16-06-14 14:54:19 com.oracle.amc.agent.task.GetCommandTask: got communication error; rescheduling try #1
```

c. Check the log file to validate that the Agent is posting Java Runtime Environment (JRE) installs to the server and that the server is delivering updates to the Agent (for example, (DRS)). To initiate the agent to communicate with the server, right click the AMC Agent in the Services dialog box of the Windows Control Panel, and select Restart.



Note:

Starting Advanced Management Console 2.7, the updated Native Launcher has changed the number of times the agent restarts as well as the delay between each retries. For example, if you retry 3 times, reset on the 4th time, and wait for an hour, then it goes back to the 3 retries again. The interval between the 3 retries is 30 seconds. However, agents that have been updated from an older release version of Advanced Management Console don't reflect this behavior.

- **3.** Verify that the desktop hosting the agent shows up in the **Desktops** tab of the Advanced Management Console.
- 4. Verify that Advanced Management Console Server has pushed a Deployment Rule Set (DRS). Do the following to let the Advanced Management Console update DeploymentRuleSet.jar.
 - a. Check the status of DRS pushing command to the desktop in the Status tab of the Advanced Management Console.
 - b. Check the agent log in C:\ProgramData\Oracle\Java_AMC \agent.log.0 for messages relating to DRS upload.
 - c. From the Java Control Panel, open the Security Tab, and click View the Active Deployment Rule Set to ensure that the most current version of the rules are shown.
 - d. If the rules are not updated, then check C:\Windows\Sun\Java \Deployment to locate a DeploymentRuleSet.tmp file. If you see DeploymentRuleSet.tmp in this location, then ensure that all applets and Java Web Start applications are terminated. Restart the AMC Agent service from the Services dialog box of the Windows Control Panel.

Once the agent is restarted, ensure that the <code>DeploymentRuleSet.tmp</code> file is no longer available and the <code>DeploymentRuleSet.jar</code> is updated to the latest version.

- 5. Verify DRS processing:
 - a. Set the deployment logging properties in the <USER_DIR>\AppData \LocalLow\Sun\Deployment\deployment.properties as follows:

```
deployment.trace=true
deployment.trace.level=ALL
```

- b. Check the log files in <USER_DIR>\AppData\LocalLow\Sun\Deployment \log. (Verify both plugin* and javaws* trace files.) Usually, there are two paired trace files produced for an application. One is the log message for the Main plugin Java Version and the other is the trace file for the Java Version defined from the Deployment Rule.
- Locate the word ruleset in the log file to debug the ruleset processing and find all the ruleset logging.
 - i. Verify that the Deployment Rule can be read by the plugin. If there is a certificate error, then ensure that the deployment.properties file is available in the following location: C:\Windows\Sun\Java\Deployment. Also, ensure that the deployment.properties contains the following property: deployment.user.security.trusted.cacerts=C:\\Windows\Sun\Java



- \Deployment\\drscacerts. The Advanced Management Console agent should automatically update this file.
- ii. If only one trace file is produced and you expected more, there is an issue with the browser bits compared to the Java versions installed. For example, the browser is a 32 bit, but only a 64 bit Java is installed. Look for the word Exception in the log file.
- 6. Verify Internet Explorer (IE) and Java Bits: IE 11 32 bit and 64 bit is the same application in Windows. To swap between 32 bit and 64 bit, in the Advanced Options tab of the Internet Options dialog box, select the Enable Enhanced Protection Mode* for 64 bit, and ensure that the check box is not selected for 32 bit.

In Internet Options of IE 11, you can set it as follows:

- a. Go to the Control Panel and open the Action Center. Click Change User Account Control Settings and verify that the slider is not set to Never notify. If User Account Control is set to Never notify, then the Enhanced Protected Mode can't be enabled.
- In the Security tab of Internet Options, verify that the Enable Protected Mode check box is selected.
- In the Advanced tab of Internet Options, verify that Enable Enhanced Protection Mode* is enabled.
- 7. Reinstall the agent: When you want to re-install Advanced Management Console agent, either keep its \conf folder intact or run AMCAgent -remove. This also saves you from hitting the agent registration limit from the same IP address.

Server

Tips and Tricks to Ensure that the Advanced Management Console Server Runs Efficiently:

- 1. You may encounter error messages, such as 404, HTTP_NOT_FOUND while initializing the Advanced Management Console:
 - If you get error messages, such as, Connection refused or Cannot connect to
 the server while trying to load /amcwebui in the browsers, then the WebLogic
 server where Advanced Management Console is deployed to is either not
 started, or is unreachable.
 - If you get a warning message indicating that the page or the server is not trusted by the host, then it means that an unknown SSL certificate is used by the WebLogic Server.
 - If an HTTP Page Not Found (404) error is displayed, then it means that one of the following can be the issue:
 - WebLogic Server is started, but Advanced Management Console is not installed.
 - WebLogic Server is started and Advanced Management Console is installed (deployed), but the Advanced Management Console is not targeted to the correct managed server.
 - If the Advanced Management Console server has been already initialized, but loading /amcwebui still shows the initialization wizard, then there may be a broken database connection. Verify that you can connect to the database from



- the Advanced Management Console server and that the data source is configured correctly (check whether or not the user credentials are valid), and then restart the Advanced Management Console or the Managed Server, where the Advanced Management Console is deployed to.
- If the WebLogic Server is started and the Advanced Management Console is installed, but the dependencies, such as the Data Source or JAX-RS 2.0 library are not deployed to the managed servers, then /amcwebui fails to be loaded and an HTTP Page Not Found (404) error is displayed.
- If you deploy the Advanced Management Console on an unsupported version of the Oracle WebLogic server, then the page gets redirected to the initialization page when loading /amcwebui and a Datasource Cannot be Found error message gets displayed when you continue to initialize the Advanced Management Console manually.
- 2. Ensure the following: agent desktops should get registered with the Advanced Management Console and also the Java Usage Tracker records should get registered with the Advanced Management Console. If not, check the WebLogic Server log in the following location: <WebLogicHome>\user_projects \domains\base_domain\servers\AMCServer\logs\AMCServer.log.
- 3. If you have an Out of Memory (OOM) exception, then you need to increase the Java Heap Space. By default the WebLogic Server uses 512 m. Set this to at least 4 GB. Set USER MEM_ARGS=-Xmx4q before you invoke setDomainEnv.cmd.
- Certificate issues can occur if system proxy is not defined. To define proxy servers:
 - a. If connection to Internet requires proxy server, then set the following properties: http.proxyHost, http.proxyPort, http.nonProxyHosts, https.proxyHost, https.proxyPort. See Setting Up Java Heap Size and Proxy Servers.
- 5. At times, there is a very slow network connection to the server and some Advanced Management Console threads can be marked as Stuck by the Oracle WebLogic Server. For example, if you download an agent bundle from the Advanced Management Console UI, it can take more than 10 minutes. It can take a long time, if agents download JREs to install as well.
 - As a workaround to this issue, you need to configure the WebLogic Server to
 use a greater timeout than (default) 600s, in case you see a lot of threads
 marked as Stuck. To configure the timeout, in the WebLogic Administration
 Console, go to the Server, expand Configuration, and then select Overload,
 and then update Max Stuck Thread Time to a greater value.

Important Directory Locations (In a Windows Environment)

The following is a list of important directory locations:

- C:\Windows\Sun\Java\Deployment\: If you want to use self-signed certificates, then ensure that the following files are available in the C:\Windows \Sun\Java\Deployment\ location:
 - deployment.properties:

The content of this file is as follows:

#Updated by AMC #Fri Aug 19 08:15:55 EDT 2016
deployment.user.security.trusted.cacerts=C\:\\windows\\Sun\\Java\\Deployment\\\drscacerts



- drscacerts: The Keystore pointed to in the deployment.properties file containing the self-signed certificate.
- If you have a signing certificate from a certificate authority, then it's sufficient if you have the DeploymentRuleSet.jar file in your Windows directory, for example, C:\Windows\Sun\Java\Deployment\DeploymentRuleSet.jar.
- C:\Users\user\AppData\LocalLow\Sun\Java\Deployment\: The client log files and the deployment.properties file are located in this directory. You can capture additional information by adding the following properties to the deployment.properties file:

```
deployment.trace=true
deployment.trace.level=all
```

 \$JRE_HOME%\lib\management\usagetracker.properties: To troubleshoot the Java Usage Tracker, add the following in the usagetracker.properties file:

```
com.oracle.usagetracker.logToFile = ${user.home}/.java_usagetracker
com.oracle.usagetracker.verbose = true
```

If you still find issues, then add the properties to $C:\Pr$ Files\Java\conf.

 %ProgramData%\Oracle\Java_AMC\: The Advanced Management Console log conversations with the Advanced Management Console server are available here. The content of the log file is as follows:

%AMC_HOME%\Middleware\Oracle_Home\user_projects\domains\base_domain\servers \AdminServer\logs\{base_domain.log and AdminServer.log} %AMC_HOME%\Middleware\Oracle_Home\user_projects\domains\base_domain\servers\AMC-Server\logs\AMC-Server.log

Important Directory Locations (In an OS X Environment)

The following is a list of important directory locations:

- /Library/Application Support/Oracle/Java: The Desktop-wide Java settings, such as the Java Usage Tracker configuration file (usagetracker.properties) are stored here. The Deployment rule set is in Deployment/<sub-folder>.
- /Library/Application Support/Oracle/Java_AMC: This is the Advanced Management Console agent folder that also contains log files apart from other folders.
- ~/Library/Application Support/Oracle/Java/Deployment: This is the user-specific-deployment home directory. Settings from the Java Control Panel are stored for each user in this folder.
- /Library/Internet Plug-Ins/JavaAppletPlugin.plugin: This folder contains the system-wide JREs that are used to run Java applets in browsers. In an OS X environment, typically, there maybe just one JRE installed.



D

Installing Advanced Management Console in a Clustered Environment — An Example

This section describes an example to install the Advanced Management Console on a Linux platform. You can deploy the Advanced Management Console in a WebLogic cluster environment to improve the performance. Multiple Managed servers running on different hosts, which are managed by the WebLogic cluster can work together to serve all requests in a round-robin mode.

This appendix contains the following:

- Installing and Configuring WebLogic Server
- Configuring Machines and Server (SRV1) on a WebLogic Server Console
- Creating Domain Pack
- Configuring a Second Machine in Cluster (SRV2)
- Configuring Load Balancer
- Deploying Java Advanced Management Console Application
- Installing and Configuring Oracle Database
- Configuring Data Source in WebLogic Server

The following is an overview of the process followed when installing the Advanced Management Console in a clustered environment:

- Ensure that all machines are available.
- 2. Ensure that you can login with shell access and you have root credentials.
- 3. Install setup on the first server, for example SRV1.
- 4. Install setup on the 2nd server, for example, SRV2.
- 5. Install setup on the database server (SRVDB).
- 6. Deploy the Advanced Management Console application. You need to have the WebLogic Admin server running on SRV1 to access console and Node managers running on SRV1 and SRV2.
- 7. Install the Advanced Management Console agents using SCCM or manual steps.

Installing and Configuring WebLogic Server

You need to install the WebLogic server on each host on which, the target managed server is running. A domain needs to be created on the first host.

To install the Advanced Management Console in a WebLogic cluster, you need at least 4 machines – 2 of which are required for setting up the WebLogic servers and one machine for setting up the database. The load balancer is shared across multiple setups.

To install WebLogic server and create a domain:

- 1. See Installing WebLogic Server.
- 2. Create and configure a WebLogic server domain.

Configuring Machines and Server (SRV1) on a WebLogic Server Console

To configure the WebLogic server, you need to configure the required machines and servers on the WebLogic server console.

This topic mainly details how to create first machine in the cluster (SRV1). To configure machines and servers on a WebLogic server console:

1. Edit the nodemanager properties to start the Node manager on DNS name instead of localhost. In this guide, \${MW_HOME} represents the WebLogic Server home directory.

```
[deployment@SRV1 nodemanager]$ pwd
${MW_HOME}/user_project/domains/base_domain/nodemanager
[deployment@SRV1 nodemanager]$ vi nodemanager.properties
Set ListenAddress=SRV1.yourdomain.com
```

2. Start the WebLogic console:

```
[deployment@SRV1 bin]$ pwd
${MW_HOME}/user_projects/domains/base_domain/bin
[deployment@SRV1 bin]$ nohup ./startWebLogic.sh &
[1] 7820
[deployment@SRV1 bin]$
```

3. Start the Node Manager:

```
[deployment@SRV1 bin]$ pwd
${MW_HOME}/bin
[deployment@SRV1 bin]$ nohup ./startNodeManager.sh &
[2] 7991
[deployment@SRV1 bin]$
```

- **4.** Login to the WebLogic console with the WebLogic administration user: http://SRV1.yourdomain.com:7001/console/login/LoginForm.jsp.
- 5. Click **Environment** and click **Machines** from the left panel.
- Click New and enter SRV1 DNS name and select Unix from the drop-down list, and then click Next.
- 7. Enter SRV1 DNS name and click Finish.
- 8. Similarly, repeat step 6 and 7 to create machine for SRV2.
- 9. Navigate to **Environment** and then click **Servers** from the left panel.
- 10. Click New and enter server details, with the listen address as DNS name and a port number. Make sure to select Yes, create a new cluster...., and then click Next.
- 11. Name new cluster, for example, cluster-0 and click Finish.
- **12.** Click the server name and associate this server with SRV1 and enable SSL and click **Save**.
- **13.** Configure server for SRV2 following steps 9 through 12. Make sure to associate this server with existing cluster you created earlier.



- **14.** Click on servers again and configure a heap size by navigating to **Server Start** from configuration page.
- 15. Click **Services** and then click **JTA** from the left panel.
- Update the Timeout Seconds and then click Save. See Setting Up WebLogic Server JTA.

Creating Domain Pack

To create a domain pack, in SRV1, update as follows:

```
[deployment@SRV1 Oracle_Home]$ java -version
java version "1.8.0_121"
Java(TM) SE Runtime Environment (build 1.8.0_121-b13)
Java HotSpot(TM) 64-Bit Server VM (build 25.121-b13, mixed mode)
[deployment@SRV1 ] $ export PATH=${MW_HOME}/oracle_common/common/bin:$PATH
[deployment@SRV1 ] $ export DOMAIN=$ {MW_HOME}
[deployment@SRV1 ] pack.sh -managed=true -domain=$DOMAIN -template=/tmp/
template.jar -template_name="/tmp/template_name"
<< read domain from ${MW_HOME}
 succeed: read domain from ${MW_HOME}
<< set config option Managed to "true"
 succeed: set config option Managed to "true"
<< write template to "/tmp/template.jar"
>> succeed: write template to "/tmp/template.jar"
<< close template
 succeed: close template
[deployment@SRV1 base_domain]$
```

Configuring a Second Machine in Cluster (SRV2)

To configure a second machine:

- Install the WebLogic server. See Installing WebLogic Server. Click Cancel when asked to create domain.
- 2. Check if the pack was created by using **Create Domain Pack**.
- 3. Copy the pack file from SRV1 to SRV2.

```
[deployment@SRV2 base_domain]$ scp /tmp/template.jar deployment@SRV2:/tmp/.
```

4. Unpack the domain by ssh onto SRV2:

```
[deployment@SRV2 Oracle_Home]$ java -version
java version "1.8.0_121"
Java(TM) SE Runtime Environment (build 1.8.0_121-b13)
Java HotSpot(TM) 64-Bit Server VM (build 25.121-b13, mixed mode)
[deployment@SRV2 Oracle_Home]$ export DOMAIN=${MW_HOME}
[deployment@SRV2 Oracle_Home]$ unpack.sh -domain=$DOMAIN -template=/tmp/template.jar
<< read template from "/tmp/template.jar"
   succeed: read template from "/tmp/template.jar"
   succeed: read template from "/tmp/template.jar"
   succeed: set config option DomainName to "base_domain"
   succeed: set config option DomainName to "base_domain"
   validateConfig "KeyStorePasswords"
   succeed: validateConfig "KeyStorePasswords"
<< write Domain to ${MW_HOME}</pre>
```



```
<< close template
  succeed: close template
[deployment@SRV2 Oracle Home]$</pre>
```

5. Start the Node Manager on SRV2:

```
[deployment@SRV2 bin]$ pwd
${MW_HOME}/bin
[deployment@SRV2 bin]$ nohup ./startManagedWebLogic.sh second_server_name
admin_url &
[1] 10632
[deployment@SRV2jb bin]$
```



You may have to set up a boot.properties file with the username and password for the <code>admin_url</code>.

Configuring Load Balancer

A load balancer sits in front of the backend WebLogic servers. Any load balancer can be used. As the load balancer is a transfer station for each packet between the clients and the backend servers, it could be a single point bottleneck. Therefore a hardware load balancer is highly recommended.

Deploying Java Advanced Management Console Application

To deploy the application:

- Check if you have completed installation and configuration steps for SRV1 and SRV2.
- 2. Check if the WebLogic Server is started on SRV1. If not, then you need to start it.
- 3. Login to WebLogic console on SRV1.
- Click Deployments from the left panel.
- 5. Click Install and Install jax-rs-2.0.war from WebLogic deployment libraries. Click Next and then Next.
- 6. In the Deployment targets page, select **All servers in the cluster** to deploy this library for all servers and then click **Next**.
- 7. Click **Next** and **Finish** on next screens to accept defaults.
- 8. To deploy the Advanced Management Console application, click **Deployments** from the left panel.
- Click Install and select JavaAMC deployment package. Click Next and then Next.
- **10.** In the Deployment Targets page, select **All servers in the cluster** to deploy this library for all servers and click **Next**.
- 11. Click Next and Finish.
- 12. Click **Deployments** from left panel to make sure deployment is done.



Installing and Configuring Oracle Database

Before you begin to install and configure the Oracle database, make sure you can get root authority as the configuration requires root authority.

See Configuring Oracle Database on Linux.

Configuring Data Source in WebLogic Server

To Configure Data Source in WebLogic server, see Configuring WebLogic Server with Oracle Database.



The data source needs to be deployed on the cluster instead of the single WebLogic server.

