

Java Platform, Standard Edition

Advanced Management Console Installation and Configuration
Guide

2.6

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The Advanced Management Console Installation and Configuration Guide describes the steps to install and configure the Advanced Management Console.

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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](#).

Note:

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.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

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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 Platform, Standard Edition Usage Tracker Overview](#).

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.
<i>italic</i>	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.

What's New in Advanced Management Console

New features that are provided in the following releases of Advanced Management Console are listed in the following topics:

- [Advanced Management Console 2.6](#)
- [Advanced Management Console 2.5](#)
- [Advanced Management Console 2.4](#)
- [Advanced Management Console 2.3](#)
- [Advanced Management Console 2.2](#)
- [Advanced Management Console 2.1](#)

Advanced Management Console 2.6

The Advanced Management Console 2.6 is primarily a bug fix release.

Advanced Management Console 2.5

The following new features are introduced in Advanced Management Console 2.5:

- Java Usage Tracker in Advanced Management Console agents
- Java Runtime Environment (JRE) management on OS X
- Displaying Application Names has been simplified
- The following additional information about Java applications is shown:
 - Hostname and IP address
 - JRE paths

Advanced Management Console 2.4

The following changes are made in Advanced Management Console 2.4:

- Support added for the following:
 - Agent support on Mac OS X for usage tracking and Deployment Rule Sets
 - MySQL 5.7
 - WebLogic 12.2.1

- JREs can be installed and removed on managed desktops.
- Self-signed certificates for `DeploymentRuleSet.jar` files are supported.
- Advanced Management Console agents can be unregistered from the Advanced Management Console server.
- Deployment rule sets management is a part of the Advanced Management Console user interface (UI) and not a separate application.
- Status tab shows all the Java Usage Tracker records which are rejected by the Advanced Management Console.

Advanced Management Console 2.3

The following changes are made in Advanced Management Console 2.3:

- Advanced Management Console agents are bundled with JRE 8u91 (was 8u71 in 2.2).
- The Advanced Management Console agent logging mechanism is improved.
- Automatic scripts are provided for Oracle WebLogic Server that create a new WebLogic domain and configure it to host Advanced Management Console.

Advanced Management Console 2.2

The following changes are made in Advanced Management Console 2.2:

- The depersonalized managed endpoints feature is added: With this feature, user information, such as e-mail, first name, or last name, becomes optional when the Advanced Management Console agent registers itself on the application server. When the agent registers itself, the agent installation is a seamless process and you do not have to configure the `AMCUser.properties` file before installation.
- Automatic deployment rules are enhanced to cover various applications, and to make created rules more targeted.

Advanced Management Console 2.1

The following changes are made in Advanced Management Console 2.1:

- Support is added for Oracle Database as the Advanced Management Console database.
- Migration is possible from Advanced Management Console 2.0 to Advanced Management Console 2.1.
- Support is provided for customization of JDK 7 enterprise MSI files. The customization support of JDK 7 enterprise files is provided on Java 7u95.
- Export of desktop data and Java usage data as HTML or CSV files is now possible.
- Support is added for the following features of Deployment Rule Set 1.2:
 - Rules based on checksums
 - Customized messages for run rules and default rules

- Customer data that is added to the Java Usage Tracker record when an application that matches the rule is run.

Plan for Advanced Management Console Installation

The Plan for Advanced Management Console Installation topic describes the Advanced Management Console 2.6 core components, software requirements, and installation steps. Read about software requirements and various components of Advanced Management Console before you begin installation.

For the latest information about Advanced Management Console installation and configuration, see the [Advanced Management Console Release Notes](#).

The Plan for Advanced Management Console Installation topic contain the following sections:

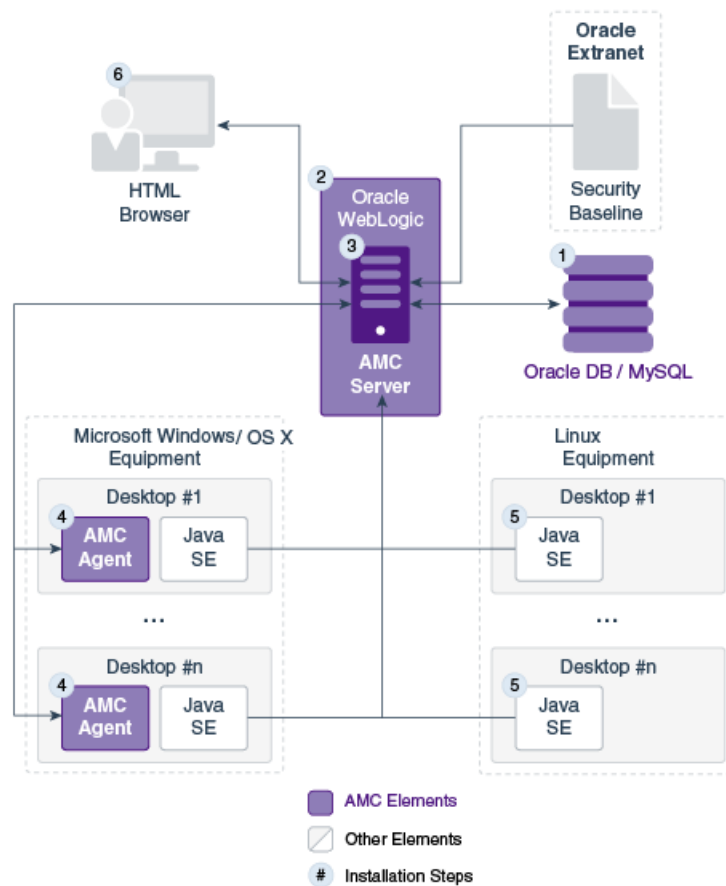
- [About Advanced Management Console](#)
- [Software Prerequisites and System Requirements for Advanced Management Console Components](#)
- [Installing and Configuring Advanced Management Console](#)
- [Migrating Advanced Management Console to the Latest Version](#)

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 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.

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.

The following table identifies the required software and supported platforms for the Advanced Management Console:

Component	Requirements	Supported Platform
Advanced Management Console Server	Software: <ul style="list-style-type: none"> • 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 based on 10,000 desktops launching an average of one application per hour: <ul style="list-style-type: none"> • Processor = 3 Ghz CPU • Memory = 8 GB available • Disk Space = 10 GB 	<ul style="list-style-type: none"> • 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)
Advanced Management Console Database	One of the following databases: <ul style="list-style-type: none"> • Oracle Database 12c • Oracle Database 11g • MySQL 5.6 • MySQL 5.7 	<ul style="list-style-type: none"> • 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)

Component	Requirements	Supported Platform
Advanced Management Console Agent	JRE 8u111	<ul style="list-style-type: none"> 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	<p>One of the following browsers, depending on your platform:</p> <ul style="list-style-type: none"> Internet Explorer 11 (on all Windows platforms, Compatibility View is not supported) Firefox (all supported platforms) Safari (OS X) Chrome (Windows platforms only) <p>To run the Java Web Start applications that Advanced Management Console starts, Java Runtime Environment (JRE) 8u111 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.</p>	<ul style="list-style-type: none"> 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)

The Advanced Management Console uses data collected by Java Usage Tracker. Data cannot be collected for JRE versions that do not 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. [Installing and Configuring Oracle Database for Advanced Management Console](#)
or
[MySQL Database Installation and Configuration for Advanced Management Console](#)
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 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:

1. 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 `-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 `-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=100M
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 User and Configuring MySQL on Windows

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

To create and configure MySQL on 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';
```

2. 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:

- a. 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`.

Note: The Advanced Management Console supports both MySQL 5.6 and MySQL 5.7. Oracle recommends that you use the latest update of MySQL 5.6 or 5.7.

- 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=100M
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.

Installing and Configuring Oracle Database 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.

The Installing and Configuring Oracle Database for Advanced Management Console topic contains the following sections that describe software requirements and Oracle Database installation and configuration:

- [Software Requirements for Oracle Database](#)
- [Installing Oracle Database on Windows](#)
- [Configuring Oracle Database for Advanced Management Console](#)

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

Note: 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 for Advanced Management Console

You need to install and configure Oracle database for Advanced Management Console.

To configure Oracle database for Windows operating system:

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 you chose in step 3 of [Installing 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 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.

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 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 `https://wls-hostname:port/console`, for example, `https://localhost:7001/console`.
2. From the **Domain Structure** block in the left panel, select **Domain**, **Services** and then select **Data Sources**.
3. Create a new Generic Data Source. Set the data source name (for example, `amc2mysql`).
4. Set the JNDI name to `amc2/db/mysql`. This is the critical value for the Advanced Management Console to locate the DataSource 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`.
7. In the **Transaction Options** section, ensure that you don't select the **Supports Global Transactions** check box, as Advanced Management Console doesn't support global transactions.
8. Set the database name to your MySQL database name, which you created in [Installing MySQL Database for Advanced Management Console](#).
9. Set the database *host-name* and *port* to the host name where MySQL database resides, for example, `localhost`. Leave the port as 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 during [Installing MySQL Database 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. Click **Finish** to save the changes.
13. In the Data Sources table, click the data source that you just created.
14. Click the **Connection Pool** tab.
15. Set **Maximum Capacity** to 50.
16. Select the servers where this data source gets deployed to. To select the server, click the **Configuration** tab and select the DataSource name, `amc2_mysql` according to your database.
17. Click the **Targets** tab and select the check box for `AdminServer` or the server where you want to deploy the Advanced Management Console server.
18. 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 DataSource connection in the application server; therefore, the JNDI name mentioned in step 4 is critical for the setup.

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

Configuring WebLogic Server with Oracle Database

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

To configure WebLogic Server with 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 `https://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**.
3. Create a new Generic Data Source. Set the data source name, for example, `amc2_oracle`.
4. Set the JNDI name to `amc2/db/oracle` (in case of Oracle 12c database). 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 DataSource 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**.

7. In the **Transaction Options** section, ensure that you don't select the **Supports Global Transactions** check box, as Advanced Management Console doesn't support global transactions.
8. Set the database name to the Oracle Database name, which you created in [Configuring Oracle Database for Advanced Management Console](#).
9. Set the database *host-name* and *port* to the host name where Oracle Database resides. Leave the port as default or change it to the database port if it is different.
10. Set the database user name and password for your Oracle Database (for example, user name as `amc2` and a strong password). This Oracle database user name and password are the values you configured during [Configuring Oracle Database for Advanced Management Console](#).
11. In the **Properties** text box, add the lines below to enable Unicode for this JDBC connection:

`user=amc2`
`useUnicode=yes`
`characterEncoding=UTF-8`
12. Click **Next**.
13. Select the servers where this data source gets deployed to. To select the server, click the **Configuration** tab and select the DataSource name, `amc2_oracle` according to your database.
14. Click the **Targets** tab and 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.

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 DataSource connection in the application server; therefore, the JNDI name mentioned in step 4 is critical for the setup.

When WebLogic Server is configured with the database, then 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 `jax-rs-2.0.war` 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 `%MW_HOME%\wlserver\common\deployable-libraries`.

For a Linux operating system, enter the path `$MW_HOME/wlserver/common/deployable-libraries`.

5. Select `jax-rs-2.0.war`.
6. 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 `jax-rs(2.x.x)`, 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.
2. 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, select **Environment Servers**, and then select **Managed Server**.
3. Click the **Configuration** tab, and click the sub tab **Server Start**.
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 `-Xmx4G` option changes the maximum heap size to 4G. 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](#).

Note:

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.
2. 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>
```

5. To trace SMTP sessions, set `mail.debug=true`.
6. 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.

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_6.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_6.ear` file and check it in.
6. 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, 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.

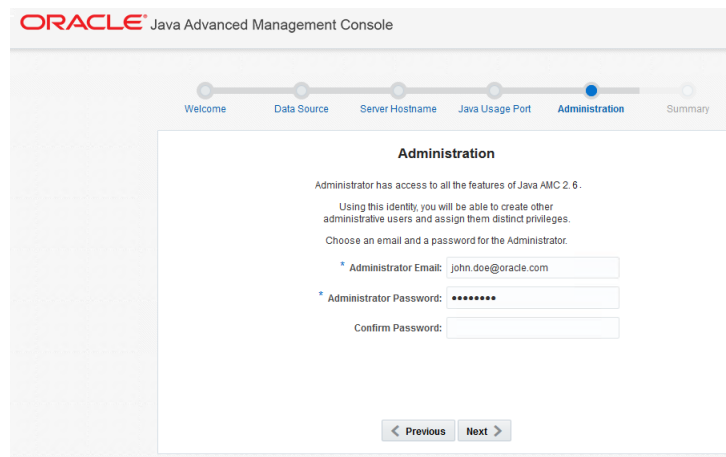
To initialize the Advanced Management Console server:

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:

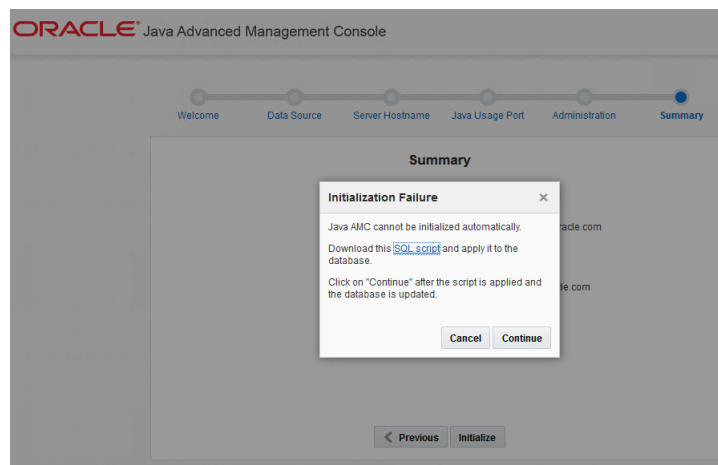
Figure 6-1 Advanced Management Console — Administration Screen



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.

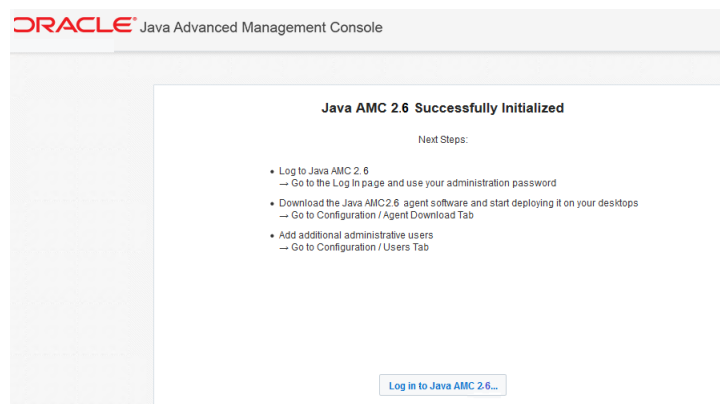
If the automatic database initialization fails, you see the Initialization Failure window shown in [Advanced Management Console Initialization — Database Initialization Screen](#). You can manually initialize the MySQL or Oracle database from this window:

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: `amc_mysql_update.sql` for MySQL database or `amc_oracledb_initialization.sql` 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*



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](#)
- [Uninstalling 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. 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:

- [Installing Advanced Management Console Agent on Windows](#)
- [Installing the Advanced Management Console Agent on OS X](#)

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. Log in to the desktop computer with administrator privileges.
2. Enter `https://server:port/amcwebui` in the browser. Log in to Advanced Management Console UI using administrator credentials to [initialize the Advanced Management Console](#).
3. On the Advanced Management Console UI, click the **Configuration** tab and select **Agents Download**.
4. 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`.

5. 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.

6. 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.

7. 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.
8. 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.

Note:

Ensure that the Advanced Management Console server is running and that the desktop can connect to the server. If the server is down or cannot be reached, then the agent service (starting Advanced Management Console 2.4), retries to register itself to server every one hour after first failure. The next time the agent service is started, it tries again to connect to the server.

9. Select the **Control Panel, Administrative Tools** and then select **Services**. Check that the agent service is up and running.
10. 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.
11. 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.

Note:

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 the Advanced Management Console Agent on OS X

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

1. Log in to the desktop computer with administrator privileges.
2. Enter `https://server:port/amcwebui` in the browser. Log in to Advanced Management Console UI using administrator credentials to [initialize the Advanced Management Console](#).

3. On the Advanced Management Console UI, click the **Configuration** tab and select **Agents Download**.
4. Click the link `agent-bundle-macosx.zip` and save the bundle.
5. 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.

6. Execute the `AMCAgent.sh` script from the command prompt using the `sudo $ {AMC_DIR}/bin/AMCAgent.sh -install` command.

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 `%PROGRAMDATA%\Oracle\Java_AMC` directory. On an OS X environment, the logs are available in the `/Library/Application Support/Oracle/Java_AMC` directory. The logs are rotated according to a policy, and are not configurable. The rotation uses 3 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.

Uninstalling Advanced Management Console Agent

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

- [Uninstalling Advanced Management Console Agent on Windows](#)
- [Uninstalling the Advanced Management Console Agent on OS X](#)
- [Unregistering Advanced Management Console Agents and Usage Tracker Properties](#)

Uninstalling Advanced Management Console Agent on Windows

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

If %AMC_DIR%\bin\AMCAgent.exe -remove fails to uninstall agent service, then you can run the %AMC_DIR%\bin\AMCAgent.exe -forceremove command to force uninstall the agent.

Uninstalling the Advanced Management Console Agent on OS X

To uninstall the agent, execute the `sudo ${AMC_DIR}/bin/AMCAgent.sh -remove` command.

After the agent is uninstalled, the script stops the daemon, deletes the .plist file from the following directories: /Library/LaunchDaemons/ and /Library/Application Support/Oracle/Java_AMC.

Unregistering Advanced Management Console Agents and Usage Tracker Properties

You can unregister the Advanced Management Console agents and remove all Java Usage Tracker Properties files on the Advanced Management Console server in a Windows as well as on an OS X environment.

To unregister the agents, in Windows, run `bin\AMCAgent.exe -remove` as an administrator. On an OS X environment, run `bin/AMCAgent.sh -remove` as a root.

Optionally, if you want to use the Advanced Management Console UI to unregister, then do the following:

1. In the Advanced Management Console UI, click the **Desktop** tab.
2. Ensure the following: **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.
4. 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) get unregistered on the server. After the agent gets uninstalled, the agent removes all the Java Usage Tracker configuration files on the desktop.

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.

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 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.

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.
2. Log in to the desktop 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.

Note: The Advanced Management Console doesn't incorporate data from the `com.oracle.usagetracker.additionalProperties` setting of the `usagetracker.properties` file.

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.

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.
4. 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 2.6 version is `JavaAMC-2_6.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_6.ear` to WebLogic Server, the Advanced Management Console administrator must update the Advanced Management Console database.

Note: 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:

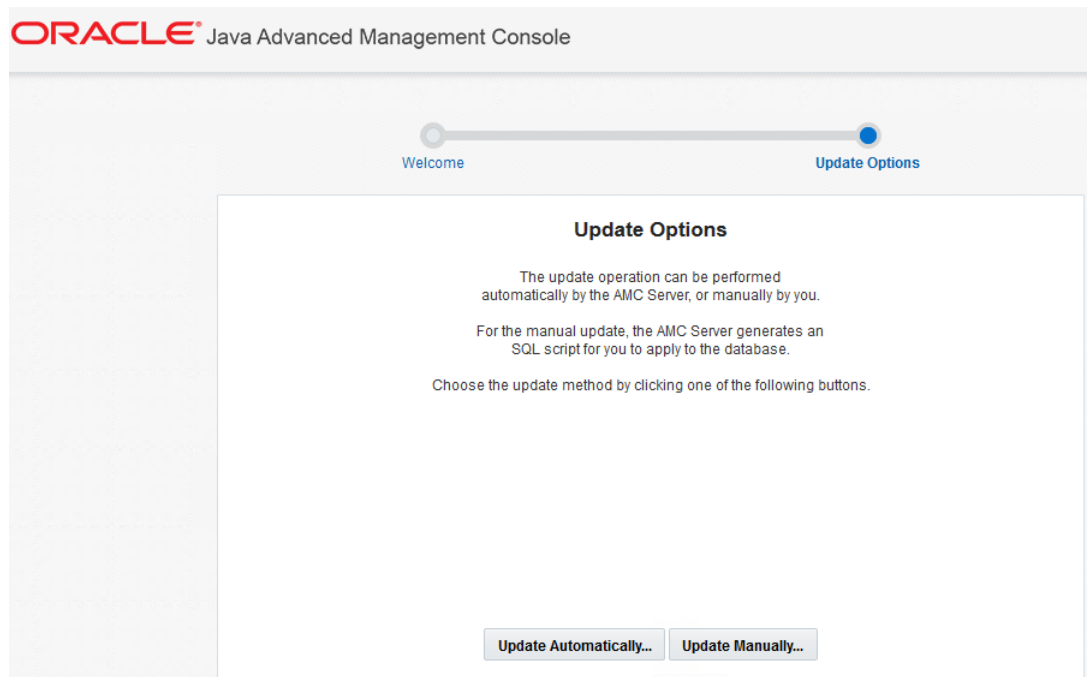
- [Automatic Update of the Database](#)
- [Manual Update of the Database](#)
- [Configuring WebLogic Server with Databases](#)

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.
2. 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.
4. 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:

1. 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.
2. Click **Next** on the Welcome screen to select between an automatic or manual database update.
3. 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, such as 2.2, 2.3, 2.4, 2.5, or 2.6 then you must manually update the agent.

Note: If you want to update from Advanced Management Console 2.1 release to a later Advanced Management Console release, such as 2.2, 2.3, 2.4, 2.5, or 2.6, 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. Stop the agent service.
2. Run `%AMC_DIR%\bin\AMCAgent.exe -remove` to uninstall the current version of Advanced Management Console agent.
3. 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 .zip 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, such as 2.2, 2.3, 2.4, 2.5, or 2.6 and `%programData%\Oracle\Java_AMC_2` 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 `%ProgramData%` folder, but in the `%AMC_DIR%` folder. The updates from Advanced Management Console to a later Advanced Management Console release, such as 2.2, 2.3, 2.4, 2.5, or 2.6 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.

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](#)

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](#).

Note: The version of WebLogic Server as mentioned in [Installing and Configuring Oracle WebLogic Server](#) in the *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.

Note: This topic is based on Oracle WebLogic Server version 12.1.3. Other versions may need different configurations.

To set up the required environment variables for WebLogic Server:

1. Define the environment variable, `JAVA_HOME`, and set it to JDK 8, for example, `C:\java\jdk1.8.0_91`. The latest available Java version is 8u91.
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`.

3. When prompted to create a new domain, select **N**. You need to create the domain folder later.

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 `%MW_HOME%\user_projects\domains\base_domain`. The domain name is `base_domain`, which can be changed.
4. Click **Next**.
5. In the Templates step, select **Create Domain Using Product Templates**, and then select the Basic WebLogic Server Domain template. Click **Next**.
6. 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**.
8. 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**.
12. 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:

1. For a Windows operating system, start the administration server with `%DOMAIN_HOME%\startWebLogic.cmd`.

For a Linux operating system, start the administration server with `%DOMAIN_HOME%/startWebLogic.sh`.

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:

1. 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 `%DOMAIN_HOME%\bin\startNodeManager.cmd`. If the node manager does not start, then edit `%DOMAIN_HOME%\nodemanager\nodemanager.properties` and set `NativeVersionEnabled=false`.

For a Linux operating system, start the node manager with `%DOMAIN_HOME%/bin/startNodeManager.sh`. If the node manager does not start, then edit `%DOMAIN_HOME%/nodemanager/nodemanager.properties` and set `NativeVersionEnabled=false`.

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](#).

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 on 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. On 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.

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 \(On a Windows Environment\)](#)
- [Important Directory Locations \(On an OS X Environment\)](#)

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)).

Note: 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**.

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 DeploymentRuleSet. 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 DeploymentRuleSet.tmp file is no longer available and the DeploymentRuleSet.jar 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.
 - c. Locate the word ruleset in the log file to debug the ruleset processing and find all the ruleset logging.
 - i. Verify that the DeploymentRule 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.
 - b. In the **Security** tab of Internet Options, verify that the **Enable Protected Mode** check box is selected.
 - c. 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=-Xmx4g before you invoke setDomainEnv.cmd.
 4. 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 (On 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:\Program 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 (On 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. On an OS X environment, typically, there maybe just one JRE installed.

