Java SE

Advanced Management Console User's Guide

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Preface

This guide provides information about using Advanced Management Console (AMC) to create deployment rules and rule sets, and monitor the Java applications that are run in your enterprise.

Audience

This document is intended for system administrators who are responsible for managing the Java desktop environment in their enterprise. The reader is expected to have some knowledge of the Deployment Rule Set feature.

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.

Access to Oracle Support

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Related Documents

Information about Java Platform, Standard Edition is available at http://docs.oracle.com/javase/8.

Information about the Deployment Rule Set feature is available at http://docs.oracle.com/javase/8/docs/technotes/guides/deploy/deployment_rules.html.

Information about Java Usage Tracker is available at http://docs.oracle.com/javacomponents/usage-tracker/overview/index.html.

Conventions

The following text conventions are used in this document:

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

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About Advanced Management Console

This topic provides an overview of Advanced Management Console. Use this tool to view information about the Java applets and Java Web Start applications running in your enterprise, and create deployment rules and rule sets to manage the execution of these applications.

Advanced Management Console is available to enterprise customers as part of Oracle Java SE Advanced. See the "Deployment Rule Set" chapter in the Java Platform, Standard Edition Deployment Guide to get an understanding of what a deployment rule set is and how it is used.

This topic includes the following sections:

- "Overview"
- "Advanced Management Console Components"
- "Viewing Application Usage Information"
- "Managing Application Usage"

Overview

A deployment rule set is used in an enterprise for the following purposes:

- Enable users to run Java applets and Java Web Start applications without seeing the security prompts that request permission to allow an application to run.
- Enable administrators to automatically block applications that the enterprise does not want users to run.
- Force the use of a specific JRE to run applications.

To help administrators create the rules needed for their enterprise, Advanced Management Console collects information about the applications being run, and provides a UI for creating the rules and rule sets needed. Rules can be created using the information about the applications being run. This method automatically generates any additional rules that are needed for multiple JAR files or extensions used by an application.

General rules that match multiple applications or applications that have not yet been identified as running in the enterprise can also be created. This method requires that you also create rules for any other JAR files or extensions that applications might use.

Advanced Management Console Components

Advanced Management Console has the following components:

- AMC UI

  This component shows the information about applications running in the enterprise, and is used to manage rules and rule sets. In a typical installation, the AMC UI is run on one or more machines and connects to a remote AMC Collector.

- AMC Collector

  This component collects the information about applications running in the enterprise from Java Usage Tracker. The AMC Collector is typically run on a central server where it can receive application information over the network from the machines where the applications are being run.

- AMC Database

  This component stores all of the data used by Advanced Management Console. The AMC Database is located on the server with the AMC Collector.

For information about setting up Advanced Management Console, see Chapter 2, "Install and Configure Advanced Management Console."

Viewing Application Usage Information

A primary benefit of Advanced Management Console is the ability to learn what applications are being run in the enterprise and what JREs are being used. Additional information, such as the location of the application, vendor, permission level, number of JAR files and extensions, and number of times the application has been run is also provided. Information from Java Usage Tracker is collected by the AMC Collector and shown in the AMC UI.

Deployment rules can be created directly from this information. The AMC UI can also be used to determine what rules and rule sets an application matches.

See Chapter 3, "Application Usage Information" for more information.

Managing Application Usage

A deployment rule set is used to manage the Java applets and Java Web Start applications that are run in an enterprise, and the JREs that are used to run them. A rule set contains the rules that are used to determine if an application is allowed to run without security prompts, if the application is automatically blocked, or if default processing is used.

Administrators need to create the rules and the rule sets needed for their enterprise. Advanced Management Console provides a UI to make this task easier.

Managing Rules

Rules are the building blocks for rule sets. When an application is run, the information about the application is compared to the criteria in the rules. When a match is found, the action that is set for the rule determines the action taken for the application. The application title, location, and certificate hash value are used to match an application to a rule.

The AMC UI enables you to create, edit, and delete rules, add rules to rule sets, and identify the applications that match a rule. The validity of each rule is checked as the rule is created to ensure that it meets the requirements of the Deployment Rule Set feature.

See Chapter 4, "Manage Rules" for more information.

Managing Rule Sets

A rule set contains the rules that are used to determine the action taken for applications that are run in an enterprise. Applications are matched against the rules in the rule set and the first rule matched is used.

The AMC UI enables you to create, edit, and delete rules sets, and identify the applications that are matched by the rules in a rule set. You can also import existing rule sets. Multiple rule sets can be managed in Advanced Management Console, which enables you to create rule sets for specific purposes, or customize rule sets for the different groups in your enterprise. When a rule set is ready for use, it can be exported to create the `DeploymentRuleSet.jar` file that is installed on the machines where applications are run.

See Chapter 5, "Manage Rule Sets" for more information.

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Install and Configure Advanced Management Console

This topic describes how to install and configure Advanced Management Console (AMC). How to set up Java Usage Tracker to gather information on applications that are run in your enterprise is also described.

This topic contains the following sections:

- "Install Advanced Management Console"
- "Start and Stop Advanced Management Console"
- "Configure Advanced Management Console"
- "Set Up Java Usage Tracker"

Install Advanced Management Console

Advanced Management Console is available as part of Oracle Java SE Advanced, see Java SE Products for information. You can download Advanced Management Console from the Java Advanced Management Console Downloads page.

Advanced Management Console is supported on the following platforms:

- Windows 7
- Windows 8
- OS X 10.8
- OS X 10.9

A single instance of Advanced Management Console is all that is needed on a central server that is used to collect the usage information for applications being run in your enterprise. You can also install additional instances to provide administrators with convenient access to the AMC UI for creating rules and rule sets. Download the installer package to each machine that you will use.

> **Tip:** To avoid conflicting changes, have only one administrator at a time work with the AMC UI.

To install Advanced Management Console, run the installer package that you downloaded. On Windows, an MSI file is provided, and the tool is installed in the `%PROGRAMFILES%\JavaAMC` directory. On OS X, a DMG file is provided, and the tool is installed in the `Applications` folder.

The following items are included with Advanced Management Console:

- JRE - Version used to run Advanced Management console. You do not need to install a JRE separately.

- Database -JavaDB is included for the AMC Database. You do not need to install a database separately.

Start and Stop Advanced Management Console

On Windows, the installation process creates a desktop shortcut for Advanced Management Console labeled JavaAMC. JavaAMC is also added to the Start menu. On OS X, an entry for JavaAMC is added to the `Applications` folder. Double-click the JavAMC icon to show the UI.

The first time the tool is started, the run mode defaults to Basic, and the AMC UI and AMC Collector are started and stopped together and run in the same process. You can change the relationship between the AMC UI and AMC Collector by setting the run mode, as described in Choose the Run Mode.

Start and Stop the AMC UI

For all run modes, use the JavaAMC icon to start the AMC UI. On Windows, this icon is available on the desktop and in the Start menu. On OS X, this icon is available in the `Applications` folder.

If the run mode is set to run the AMC UI and AMC Collector separately, then you are prompted to enter the password for the server.

To stop the AMC UI, close the Java Advanced Management Console window.

Start and Stop the AMC Collector

If the run mode is set to run the AMC Collector and the AMC UI together, starting and stopping the AMC UI also starts and stops the AMC Collector. See Start and Stop the AMC UI.

If the run mode is set to run the AMC Collector and the AMC UI independently, use the `runCollector` command to start the AMC Collector. Run the command on the machine where you want the AMC Collector to run. This command is available in the following locations:

- Windows: `%PROGRAMFILES%\JavaAMC\app\bin\runCollector.cmd`

- OS X: `/Applications/JavaAMC.app/Contents/Java/bin/runCollector.sh`

To stop the collector, kill the JavaAMC process.

Configure Advanced Management Console

Advanced Management Console provides different ways of connecting the AMC UI to the AMC Collector, options for configuring the AMC Collector, and the ability to use a proxy for network connections. Advanced Management Console can also be set up to sign the rule set when it is exported.

Use the **Settings** option in the **File** menu to set up Advanced Management Console for your environment.

> **Note:** Advanced Management Console must be configured locally. If you are running instances of the Advanced Management Console on multiple machines, the AMC UI must be run on each machine to configure the tool.

Choose the Run Mode

The run mode determines the relationship between the AMC UI and the AMC Collector.

To set the run mode, follow these steps:

1. From the **File** menu, select **Settings**, then select **System Settings**.

    The System Settings window is shown.

2. In the System Settings window, select the **Run Mode** tab, if it is not showing.

3. Select the mode for the AMC UI on the machine on which you are running.

    The following options are available:

    ■   Run the AMC console and server together

        In this mode, the AMC UI and AMC Collector run locally in the same process and are started and stopped together. This is Basic mode, which is the default mode.

    ■   Run the console separately from the AMC server

        In this mode, the AMC UI and AMC Collector run locally, but are started and stopped independently. This mode enables you to run the AMC Collector without requiring the AMC UI to be active.

        If this mode is selected, you must define the password for the AMC Collector that is running on this machine. The next time that the AMC UI is started on this machine, you are prompted to enter the password. Users who start the AMC UI on another machine and connect to the AMC Collector on this machine are also prompted for this password.

    ■   Connect the console to a remote AMC server

        In this mode, the AMC UI and AMC Collector run on different machines. This mode enables you to run the AMC Collector on a central server and run the UI on a different machine. For example, an administrator can run the UI on a local machine and connect to the AMC Collector on the central server.

        If this mode is selected, you must provide the host name and port number for the remote server in the **Remote Database URL** field, and the path to the database in the **Remote Database Path** field. Use 1527 for the port number. The next time that the UI is started on the local machine, you are prompted to enter the password for the AMC Collector that is running on the remote server.

        > **Tip:** If the option that you want to select is disabled, select **Run the AMC console and server together**, then click **Apply**. This action enables all options.

    If you plan to have the AMC Collector running on a central server and the AMC UI connecting to that server from a different machine, first configure the instance of Advanced Management Console on the central server. Set the run mode to run

the console separately from the AMC server and set the password. Remote users cannot connect to the AMC Collector if it is running together with the AMC UI.

After you configure the server instance, configure the instance on the machine where the UI will run. Set the run mode to connect the console to a remote AMC server, and provide the host name, port number (1527), and path for the central server.

4. Click **OK** to save your changes and close the System Settings window.

   Click **Apply** if you want to save your changes leave the System Settings window open.

5. Restart the AMC UI for the changes to take effect.

Configure the AMC Collector

The AMC Collector gathers the information from Java Usage Tracker and stores it in the AMC database. The port number used by the AMC Collector to collect the information from Usage Tracker, and symbols used in the data can be configured.

To configure the AMC Collector, follow these steps:

1. From the **File** menu, select **Settings**, then select **System Settings**.

   The System Settings window is shown.

2. In the System Settings window, select the **AMC Collector** tab.

3. Set the port number used to collect the data.

   The default is 19870. This port number must match the port number set in the configuration file for Java Usage Tracker. See Set Up Java Usage Tracker.

4. Define the special characters used in the Java Usage Tracker data.

   The default separator is a comma (,), the default quote is a double-quote ("), and the default inner quote is a single quote ('). The strings provided must match the strings set in the configuration file for Java Usage Tracker. The strings can be more than one character long. See Set Up Java Usage Tracker.

   Note: The ability to define the quote and inner quote characters is available beginning with the JDK 8u20 release.

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5. Click **OK** to save your changes and close the System Settings window.

   Click **Apply** if you want to save your changes and leave the System Settings window open.

6. Restart the collector for the changes to take effect.

Configure the AMC Collector in the instance of Advanced Management Console that is running on the machine where the AMC Collector is run.

Set HTTP Proxy Settings for Network Access

If your enterprise uses a proxy server, you can configure Advanced Management Console to use this proxy server any time it accesses the network.

To configure network access, follow these steps:

1. From the **File** menu, select **Settings**, then select **System Settings**.

The System Settings window is shown.

2. In the System Settings window, select the **Network** tab.

3. Enter the proxy information in the Proxy Host and Proxy Port fields.

4. Click **OK** to save your changes and close the System Settings window.

   Click **Apply** if you want to save your changes and leave the System Settings window open.

5. Restart the UI for the changes to take effect.

Set the proxy settings for Advanced Management Console on each machine where it is running.

Configure JAR Signing

The rule set that is distributed to users must be a signed JAR file. You can set up Advanced Management Console to create the JAR file and sign it when you export a rule set. If you do not configure JAR signing, you can export the rule set as an XML file and create and sign the rule set JAR file manually.

To configure JAR signing, follow these steps:

1. From the **File** menu, select **Settings**, then select **JAR Signing Settings**.

   The JAR Signing Settings window is shown.

2. Provide the following information:

   - Keystore Location

     Enter or browse to the location of the keystore that contains the certificate for signing the rule set.

   - Keystore Password

     Enter the password for the keystore.

   - PrivateKey Alias

     Enter the alias for the certificate to use for signing the rule set.

   - PrivateKey Password

     Enter the password for accessing the certificate.

     Note: Passwords are not stored by Advanced Management Console. They are used only to check that the keystore and PrivateKey are valid. If the option to sign a rule set is selected when a rule set is exported, you are prompted for the passwords.

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3. Click **OK** to save your changes and close the JAR Signing Settings window.

Configure JAR signing for Advanced Management Console on each machine that is used to export rule sets.

Set Up Java Usage Tracker

Java Usage Tracker is a tool that is available with the Java Runtime Environment (JRE). This tool logs information about the applications that are run and the JREs that are used on the machine where Usage Tracker is enabled.

To enable Usage Tracker, create a file named `usagetracker.properties`. Add the following property to the file:

```
com.oracle.usagetracker.logToUDP = hostname:port
```

Set the value for the `com.oracle.usagetracker.logToUDP` property to the host name of the machine where the AMC Collector is running and the port number on which the AMC Collector is listening. The port number must match the port number set for the AMC Collector in the AMC UI, which defaults to 19870. See Configure the AMC Collector.

Additional properties can be added to the file. See Java Usage Tracker Overview. The characters set for the separator (`com.oracle.usagetracker.separator`), quote (`com.oracle.usagetracker.quote`), or inner quote (`com.oracle.usagetracker.innerquote`) properties must match the characters set for the AMC Collector in the AMC UI. See Configure the AMC Collector.

> **Note:** The ability to define the quote and inner quote characters is available beginning with the JDK 8u20 release.

On each machine from which you want to collect data, place the `usagetracker.properties` file in the following location, depending on your platform:

- On Windows, place the file in the *<JRE directory>*/`lib/management` directory for each JRE on the system.

- On OS X, place the file in the `lib/management` directory under the directory used by the Java Plug-in, for example, `/Library/Internet Plug-Ins/JavaAppletPlugin.plugin/Contents/Home/lib/management`.

3

Application Usage Information

This topic describes the information that Advanced Management Console stores for applications that are run in the enterprise.

This topic contains the following sections:

- "View the Application Information"
- "Configure the Apps View"
- "Inspect Application Details"
- "Search for Applications"

View the Application Information

When enabled, Java Usage Tracker sends the information that it collects to the AMC Collector in a User Datagram Protocol (UDP) packet. This information is shown in the Apps view in the AMC UI.

To view the information that has been collected, start the AMC UI. See Start and Stop the AMC UI.

From the Home view, click either **Apps** or **View Java usage across your enterprise** to show the Apps view. Table 3–1 describes the information that is shown for each application.

Table 3–1   Collected Application Information

Data	Description
ID	Internal identifier used by Advanced Management Console.
URL	Location of the web page or JNLP file that was used to start an application.
Title	Title of the application, if available.
Vendor	Name of the vendor that provided the application, if available.
Description	Description of the application, if available.
Code base	Base URL of the applet, which is the directory that contains the classes for the application.
Java version	Version of the JRE that was used to run the application.
Security	Level of permissions with which the application ran, for example, Sandbox or All permissions.
Type	Type of application, for example, applet.
JARs	Number of JAR files that are included with the application.

Table 3–1 (Cont.) Collected Application Information

Data	Description
Extensions	Number of extensions that are used by the application.
Runs	Number of times that the application has been run.

Configure the Apps View

By default, all of the information described in Table 3–1 is shown in the Apps table. You can configure this view to show only the information that you want to see.

The right-most column heading is a plus sign (+). Click the plus sign to show a list of the column headings. Headings that are currently shown in the table are identified with a check mark. Headings without a check mark are not currently shown in the table. To hide a column that is currently shown, or show a column that is currently hidden, click the heading in the list.

Rearrange columns by dragging the column heading to a different location. To change the size of the column, click the separator after the column heading and drag it to the desired size.

Inspect Application Details

More details about an application are available. To view this information, select an application in the Apps table and click **Inspect**. The Application Details window is shown with the information described in Table 3–2.

Table 3–2 Application Details

Data	Description
URL	Location of the web page or JNLP file that was used to start an application.
Title	Title of the application, if available.
Vendor	Name of the vendor that provided the application, if available.
Description	Description of the application, of available.
Code	Main class used to launch the application.
Security	Level of permissions with which the application ran, for example, Sandbox or All permissions.
JAR List	Information about each JAR included with the application: ■ Name of the JAR file ■ Trust level for the JAR, for example, signed or unsigned. ■ Information about the signer of the JAR, if signed. ■ Hash value for the JAR Click the title to expand the information for this field.
JNLP Extensions	Information about the extensions that are used: ■ Name of the extension. ■ URL from which the extension is loaded. Click the title to expand the information for this field.

Table 3–2   (Cont.) Application Details

Data	Description
JRE version and run count	Number of times the application was run, and the number of unique devices on which the application was run. This information is shown for each JRE that was used to run the application.
	Click the title to expand the information for this field.

Search for Applications

A search field is available to help you find the information for specific applications. Enter a search term in the search field. The view is automatically updated to show you the applications that match the term.

You can choose the columns in the Apps table that you want included in the search. Click **filter** to show the list of columns. Columns that are currently searched are identified with a check mark. Columns without a check mark are not currently searched. To exclude a column that is currently included, or include a column that is currently excluded, click the heading in the list.

> **Tip:**   You can search on a column even if that column is hidden in the Apps view. If you see unexpected results, it is possible that the search term matched information in a column that is hidden.

4

Manage Rules

This topic explains the purpose of deployment rules, and describes how to create, update, and delete rules using Advanced Management Console.

This topic includes the following sections:

- "Deployment Rules Overview"
- "Create a Rule"
- "Edit a Rule"
- "Analyze Application-to-Rule Relationships"
- "Delete a Rule"

Deployment Rules Overview

The Deployment Rule Set feature is a deployment feature for enterprises that manage their Java desktop environment directly. A deployment rule set enables enterprises to continue using legacy business applications in an environment of ever-tightening application security policies, and control the version of the JRE that is used for specific applications.

Deployment rule sets contain deployment rules, which are used in the deployment process to determine if an application is allowed to run, if an application is automatically blocked, or if default processing is used. Applications are compared to the rules based on criteria such as location, title, and certificate used to sign the application. Rules are compared in the order in which they appear in the rule set. The first rule that an application matches determines the action taken for that application. See Deployment Rule Set in the Java Platform, Standard Edition Deployment Guide for information about rules and rule sets.

The Rules view of the AMC UI shows the rules and rule sets that are defined. To view the existing rules and add new rules, start the AMC UI. See Start and Stop the AMC UI.

From the Home view, click either **Rules** or **View and manage rules and rule sets** to show the Rules view. The following table describes the information that is shown in the Rules table for each rule. Some of the columns might be hidden in the current view.

Table 4–1   Information for Deployment Rules

Data	Description
(blank)	Indicator for extensions. If this column contains a triangle symbol, then additional rules were created for the extensions used by the application from which this rule was created. Click the triangle to show or hide the additional rules.
ID	Internal identifier used by Advanced Management Console.
URL	Source of applications that match this rule. For applications that use JNLP, this is the location of the JNLP file. For applications embedded in a web page, this is the location of the web page.
Name	Name of the rule. This name is not part of the exported rule set.
Title	Title of the application that matches this rule.
Algorithm	Algorithm used to generate the hash value for the certificate that was used to sign the application. The default security hash algorithm is SHA-256.
Hash value	Hash value for the certificate that was used to sign the application that matches this rule.
Action	Action taken for applications that match this rule. Valid actions are run, block, default, and force-run. Default indicates that default processing is used to determine if the application is allowed to run or is blocked. Force-run indicates that the application is run with the JRE version that is specified in the rule, regardless of what version the application requests..
Run version	Version of the JRE that is requested for running the application that matches this rule. This version must satisfy the version criteria set by the application, if any. To override the version set by the application, use the force-run action.
Message	Message shown to the user when the application is blocked. Messages can be provided for multiple locales. If no message is provided, a default message is used.

Configure the Rules View

You can configure this view to show only the information that you want to see.

The right-most column heading is a plus sign (+). Click the plus sign to show a list of the column headings. Headings that are currently shown in the table are identified with a check mark. Headings without a check mark are not currently shown in the table. To hide a column that is currently shown, or show a column that is currently hidden, click the heading in the list.

Rearrange columns by dragging the column heading to a different location. To change the size of the column, click the separator after the column heading and drag it to the desired size.

Search for Rules

A search field is available to help you find specific rules. Enter a search term in the search field. The view is automatically updated to show you the rules that match the term.

You can choose the columns in the Rules table that you want included in the search. Click **filter** to show the list of columns. Columns that are currently searched are identified with a check mark. Columns without a check mark are not currently

searched. To exclude a column that is currently included, or include a column that is currently excluded, click the heading in the list.

> **Tip:** You can search on a column even if that column is hidden in the Rules view. If you see unexpected results, it is possible that the search term matched information in a column that is hidden.

Create a Rule

Rules can be created from both the Apps view and the Rules view. If you create a rule from the Apps view, you can take advantage of the information from the AMC Collector to automatically fill in some of the fields for the rule. This method is an easy way to create a rule that matches a specific application. For complex applications with JNLP extensions, this method automatically generates any additional rules that are needed.

From either the Apps view or the Rules view, you can create a rule without fields pre-filled, called an empty rule or a rule from scratch. This method can be used to create a rule for an application not recorded by the AMC Collector, or if you want to create a generic rule that matches multiple applications.

Each rule contains the following information:

Name
Name given the rule. This name is required for identification purposes within Advanced Management Console. The name is not exported with the rule set.

Title
Title of the application. If no title is provided, all applications are considered a match to the title field. If a title is provided and Rule Action is set to either `default` or `run`, information must be provided for Location, Certificate, or both.

Location
URL for the source of the application. If no URL is provided, all applications are considered a match to the URL field. For applications that use JNLP, this is the location of the JNLP file. For applications embedded in a web page, this is the location of the web page.

Certificate
Hash value for the certificate and algorithm used to create the hash value.

Rule Action
Action taken for any application that matches the rule. Select one of the following options:

- default - Use default processing to determine if the application is allowed to run.
- block - Always block the application.
- run - Allow the application to run. If this option is selected, Title, Location, or Hash Value must be specified. They cannot all be blank. If this option is selected, you must also specify a JRE version.
- force-run - Override the JRE requested by the application, if any, and run the application with the JRE specified in the rule. If this option is selected, you must also specify a JRE version.

Version

JRE version to use to run the application. This field is enabled only if the Rule Action is set to `run` or `force-run`.

The version specified for the rule must match the version specified by the application, otherwise, the application is blocked. The versions do not need to be an exact match, for example, 1.7+ and 1.8* are considered a match. Choose one of the following options and provide the version to use:

- SECURE - Any secure version. This option matches the secure version from any API level.

- SECURE + API level - A secure version from the API level selected from the list. Select **Or Later** to allow versions newer than the selected version to be used. For example, SECURE-1.7 matches any secure version from the 1.7 release, SECURE-1.7+ matches any secure version from the 1.7 release and later releases.

- API level - Any version from the API level selected from the list. Select **Or Later** to allow versions newer than the selected version to be used. For example, 1.7* matches any version of the 1.7 release, 1.7+ matches any version of the 1.7 release and later releases.

- Product - The specific version entered. Select **Or Later** to allow versions newer than the selected version to be used. For example, 1.8.0_05 matches only the 1.8.0_ 05 release, 1.8.0_05+ matches the 1.8.0_05 release and later releases.

- Latest available JRE - The latest version that is available on the user's system.

Message

Message shown to the user when an application is blocked. This field is enabled only if Rule Action is set to `block`. To add a message, right click in the message table and select **Add Message**. A new row is added to the table.

In the Locale column, type the locale for the message and press the Enter key. In the Message column, enter the message to show the user and press the Enter key. If the Locale field is set to `<default>`, then the message is used when no message is provided for the user's locale.

If multiple messages are provided, all messages are compared with the user's locale in the order shown. If more than one message matches the locale, the last message matched is used. To reorder the messages in the table, delete and re-enter the messages as needed.

Create a Rule from Application Information

To create a rule from application information, follow these steps:

1. In the AMC UI, click **Apps** to go to the Apps view.

2. Select an application.

3. Click **New Rule**.

   The Create Rule window is shown. Information about the application is used to fill in many of the fields.

4. Provide a name for the rule, and provide information for the remaining fields.

   See Create a Rule for a description of the fields and their requirements.

5. To edit any of the fields that were automatically filled in, click **Manual Rule** to enable these fields.

6. Click **Create** to save the rule.

   Notification that the rule was created is shown briefly. The notification contains a link to the new rule in the Rules table in the Rules view.

Create a Rule from Scratch

To create a rule that is not based on application information from the AMC Collector, follow these steps:

1. In the AMC UI, open the Create Rule window.

   Use one of the following methods:

   - From the Apps view, click **Empty Rule.**

   - From the Rules view, click the New Rule icon that is above the Rules table.

2. Fill in the information for the rule that you want to create.

   See Create a Rule for a description of the fields and their requirements.

3. Click **Create** to save the rule.

   > **Note:** If an application has multiple JAR files or extensions, you might need to create additional rules to ensure that the application is handled as expected.

Edit a Rule

To edit a rule, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. In the Rules table, select the rule that you want to edit.

   > **Tip:** If a rule has rules for extensions, editing the rule also changes the rules for the extensions.

3. Click the Edit Rule icon.

   The Edit Rule window is shown.

4. Make the changes that you want to make.

   See Create a Rule for a description of the fields and their requirements.

5. Click **Edit** to save the changes.

Analyze Application-to-Rule Relationships

From the Apps view, you can identify the rules that match a specific application. Viewing rule relationships enables you to verify that you have a rule defined to provide the desired action for an application.

To determine which rules match an application, follow these steps:

1. In the AMC UI, click **Apps** to go to the Apps view.

2. In the Apps table, select an application.

3. Click **Relationships**.

The Application Relationships window is shown. The left panel shows the application that you selected, and the JAR file and extensions for that application. The right panel shows the rule sets that contain rules that match the application, if any.

4. Click **Rules**.

    Rules that match the application are shown in the right panel. Rules that allow the application to run are highlighted in green and preceded by a check mark ( ). Rules that block the application from running are highlighted in red and preceded by a circle with a line through the middle ( ). Rules that use default processing to determine if the application is allowed to run are highlighted in yellow and preceded by a down arrow ( ).

5. Click **Close** when you are done.

Delete a Rule

To delete a rule, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. In the Rules table, select one or more rules that you want to delete.

3. Click the Delete Rule icon.

    The Delete Rule window is shown.

4. Verify that only rules that you want to delete are shown.

5. Click **Delete** to delete the rules.

> **Note:** When a rule is deleted, it is removed from all of the rule sets that contained that rule.

5

Manage Rule Sets

This topic explains the purpose of deployment rule sets, and describes how to create, update, and delete rule sets using Advanced Management Console.

This topic includes the following sections:

- "Deployment Rule Sets Overview"
- "Add a Rule Set"
- "Edit a Rule Set"
- "Analyze Application-to-Rule-Set Relationships"
- "Delete a Rule Set"
- "Export a Rule Set"

Deployment Rule Sets Overview

The Deployment Rule Set feature is a deployment feature for enterprises that manage their Java desktop environment directly. A deployment rule set enables enterprises to continue using legacy business applications in an environment of ever-tightening application security policies, and control the version of the JRE that is used for specific applications. See Deployment Rule Set in the Java Platform, Standard Edition Deployment Guide for information about rule sets.

The Rules view of the AMC UI shows the rule sets that are defined. To view the existing rule sets and add new rule sets, start the AMC UI. See Start and Stop the AMC UI.

From the Home view, click either **Rules** or **View and manage rules and rule sets** to show the Rules view. Table 5–1 describes the information that is shown in the Rule Sets table for each rule set.

Table 5–1   Information for Deployment Rule Sets

Data	Description
Rule Set	Name of the rule set. This name is not part of the exported rule set. Use the triangle symbol or double-click the rule set name to show and hide the names of the rules that are in the rule set.
Rules	Number of rules in the rule set.

You can define as many rule sets as you want, however, only one rule set can be active on a user's system. That rule set must be a signed JAR file named

`DeploymentRuleSet.jar`. The Export feature of Advanced Management Console enables you to create this file for distribution to your users.

Add a Rule Set

Rule sets can be added to Advanced Management Console using the following methods:

- Import an Existing Rule Set
- Create a Rule Set

Import an Existing Rule Set

If you have an existing rule set, you can import it into Advanced Management Console and use the AMC UI to manage the rule set.

To import a rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. Click the Import Rule Set icon above the Rule Sets table.

3. Enter or browse to the location of the file that you want to import.

   You can import a `DeploymentRuleSet.jar` file or `ruleset.xml` file.

4. Enter a name for the rule set.

   This name is used by Advanced Management Console to manage the rule set. The name is not included when a rule set is exported.

5. Click **Import** to import the rule set.

   The rule set is added to the Rule Sets table, and the rules included in the rule set are added to the Rules table. Expand the rule set to see the rules that were imported. The names for the rules default to the name of the rule set followed by a rule number. To change the name of a rule, edit the rule. See Edit a Rule.

Create a Rule Set

Only one rule set can be active on a user's system, however, you can have more than one rule set in Advanced Management Console. You might create rule sets for different purposes, such as providing a customized rule set for each department in your enterprise. Working with multiple rule sets also enables you to try out different combinations of rules.

To create a rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. In the Rules table, select the rules that you want to include in the rule set.

   If no rules are selected, an empty rule set is created.

3. Click the New Rule Set icon above the Rule Sets table.

   The New Rule Set window is shown.

4. Enter a name for the rule set.

5. Select **Add Selected Rules from the Rules Table**, to populate the rule set with the selected rules.

   If this option is not selected, an empty rule set is created.

6. Click **Create** to create the rule set.

    The rule set is added to the Rule Sets table. If you added rules when you created the rule set, you can expand the rule set to see the rules.

Edit a Rule Set

After a rule set is created, you can add more rules, and delete rules that are not needed. You can also reorder the rules. The order of the rules in the rule set is important, because the action taken for an application is determined by the first rule that the application matches.

Add Rules to a Rule Set

To add rules to a rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. Select one or more rules in the Rules table.

3. Use one of the following methods to add the selected rules to a rule set:

    ■   Use the mouse to drag the selected rules from the Rules table to the target rule set in the Rule Sets table.

    ■   Click the Add Selected Rules to Rule Set icon above the Rule Sets table. In the Add Rules to Rule Set window, select one or more target rule sets, and click **Add**.

    ■   In the Rule Sets table, select a rule in a rule set. Use the mouse to drag the rule to a different rule set. The rule is added to the target rule set and also remains in the source rule set.

Reorder Rules in a Rule Set

The order of the rules in a rule set matters. The first rule to match an application is used to determine the action for that application. For best results, place rules with the most restrictive matching criteria ahead of rules with less restrictive matching criteria.

To reorder rules in a rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. Expand the rule set in which you want to reorder the rules.

3. Use the mouse to drag each rule to the desired position in the rule set.

Remove Rules from a Rule Set

To remove rules from a rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. Expand the rule sets from which you want to delete the rules.

    Rules can be removed from more than one rule set.

3. Select the rules that you want to remove.

4. Click the Delete Selected Items icon above the Rule Sets table.

    The Remove Rules from Rule Set window is shown.

5. Verify that only the rules that you want to remove are shown.

6. Click **Delete** to remove the rules.

The selected rules are removed from the rule set, but remain in the Rules table for future use. To remove a rule from all of the rule sets in which it appears, see Delete a Rule.

Analyze Application-to-Rule-Set Relationships

The AMC UI enables you to analyze rule sets to determine which applications are matched and the action taken for each matched application. Information from the AMC Collector is used to determine the relationships. The relationships between a rule set and applications that are not in the Apps table cannot be determined by Advanced Management Console.

Two methods are available for viewing application-to-rule-set relationships:

- View Relationships from the Apps View
- View Relationships from the Rules View

View Relationships from the Apps View

From the Apps view, you can identify the rule sets that contain rules that match a specific application. Viewing relationships from the Apps view enables you to check if your rule set provides the desired action for an application.

To view the relationships for a specific application, follow these steps:

1. In the AMC UI, click **Apps** to go to the Apps view.

2. Select an application from the Apps table.

3. Click **Relationships**.

The Application Relationships window is shown. The right panel shows the application and its JAR files and extensions. The left panel shows the rule sets that contain rules that match the application, if any. Rule sets that allow the application to run are highlighted in green. Rule sets that block the application from running are highlighted in red. Rule sets that use default processing to determine if the application is allowed to run are highlighted in yellow.

4. Expand a rule set to see the specific rule that the application matches.

The rule that matches the application is highlighted in the same color used for the rule set.

5. Click **Close** when you are done.

View Relationships from the Rules View

From the Rules view, you can identify the applications that match the rules in a specific rule set. Viewing relationships from the Rules view enables you to check your rule set against known applications to ensure that the desired actions are taken.

To view the relationships for a specific rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. In the Rule Sets table, select a rule set.

3. Click the Rule Set Relationships icon above the Rule Sets table.

The Rule Set Relationships window is shown. The right panel shows the rule set and its rules. The left panel shows the applications that the rule set matches. The applications are highlighted to show what action is taken for the application. The Action column also indicates the action that is taken.

Applications that are allowed to run are highlighted in green, and the Action column contains a check mark ( ). A check mark underlined with a dashed line ( ) indicates that the application runs with the JRE that is specified by the rule. Applications that are blocked are highlighted in red, and the Action column contains a circle with a line through the middle ( ). Applications that use default processing are highlighted in yellow, and the Action column contains a down arrow ( ).

4. Select a rule in the rule set to see which applications match the rule.

    Only the applications that are highlighted match the rule. If no applications are highlighted, then no applications are matched by that rule.

5. Click **Close** when you are done.

Delete a Rule Set

To delete a rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. In the Rule Sets table, select one or more rule sets that you want to delete.

3. Click the Delete Selected Items icon above the Rule Sets table.

    The Delete Rule Set window is shown.

4. Verify that the table shows only the rule sets that you want to delete.

5. Click **Delete** to remove the rule sets.

Export a Rule Set

When you have a rule set ready for production, export that rule set to create the file that is installed for users.

To export a rule set, follow these steps:

1. In the AMC UI, click **Rules** to go to the Rules view.

2. In the Rule Sets table, select a rule set to export.

3. Click the Export Rule Set icon above the Rule Sets table.

    The Export Rule Set window is shown.

4. Provide the following information:

    ■   Output Directory - Enter or browse to the location where you want to put the exported file.

    ■   DRS Version - Select the DRS version for the rule set. Rules might contain information that is not supported in earlier versions of DRS. Choose **Auto** to have the version set automatically based on the rules in the rule set.

    ■   Sign Rule Set - Select this option to sign the rule set as part of the export process. If selected, provide the Keystore Password and PrivateKey Password for the certificate that you want to use to sign the rule set. This option is enabled only if JAR signing is configured. See Configure JAR Signing for

information

Tip: If you have a corporate code signing group or service that signs artifacts for you, do not select this option.

5. Click Export to export the rule set.

If you chose to sign the rule set and the signing process completed successfully, the `DeploymentRuleSet.jar` file is created in the output directory specified. This file is ready to be distributed to your users.

If you did not choose to sign the rule set, or signing failed, the `ruleset.xml` file is created in the output directory specified. You must create and sign the `DeploymentRuleSet.jar` file manually, or create the JAR file and have your corporate code signing group or service sign it.