Migrating from AMC to JMS

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Preface

This document provides a comparative analysis of Advanced Management Console (AMC) and Java Management Service (JMS) products. It is intended for AMC administrators who are considering upgrading from AMC to JMS. Apart from comparative analysis, this document highlights the advantages of JMS and the process to start upgrading to JMS.

Audience

This document is intended for existing AMC system administrators who are responsible for managing the Java installations and applications on server and desktop environments in their enterprise. Readers are expected to know the process for distributing software to computers in their enterprise and to be familiar with Java and Oracle Cloud Infrastructure.

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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Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Related Documents

- JMS User Guide

- Advanced Management Console Installation and Configuration Guide
- Advanced Management Console User Guide
- Java Management Service API
- Live labs: Manage Java Runtimes, Applications and Managed Instances Inventory with Java Management Service

Conventions

The following text conventions are used in this document:

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

1 Introduction

Advanced Management Console (AMC) and Java Management Service (JMS) empower system administrators with secure, remote access to manage Java-based services and applications, and allow for centralized control of the Java environment. These tools can monitor Oracle Java runtimes like Java Development Kit (JDK), Java Runtime Environment (JRE), and GraalVM.

AMC, developed for on-premise deployments, provides effective Java application management for system administrators. However, AMC requires dedicated hardware and expertise for maintenance of the database and WebLogic server, making it suitable for enterprises with dedicated IT departments. JMS is integrated with Oracle Cloud Infrastructure (OCI), and can track Java usage across diverse environments; spanning OCI instances, on-premise desktops, laptops, servers, and third-party cloud services. JMS, therefore, allows for more rapid evolution and frees system administrators from the complexities of having to manage dedicated infrastructure. This makes JMS the preferred solution for enterprises to manage Java workloads within distributed environments.

This guide provides the information for AMC customers looking to upgrade to the more modern JMS. It not only covers the similarities between these tools but also highlights the additional capabilities that JMS offers to system administrators. The guide will equip you with insights for setting up and using JMS seamlessly, enabling you access to features designed for modern, distributed environments.

> **Note:**
>
> With the advancement of Java Management Service (JMS), and its enhanced capabilities and simplified model, Oracle is announcing users of the Advanced Management Console (AMC) feature should migrate to JMS by the end of 2024. Read more in our blog post at The Future of Java Management: Migrating from Advanced Management Console to Java Management Service.

2

Benefits of Migrating to Java Management Service

Java Management Service (JMS) is a reporting and management infrastructure integrated with Oracle Cloud Infrastructure Platform services to observe and manage your use of Java SE (on-premise or in the Cloud).

As the stewards of Java, Oracle uniquely leverages its expertise to help enterprises gain critical insights into Java application behavior, compliance, and performance through JMS. These insights empower system administrators to:

- ***Optimize workloads across the enterprise***: Use insights from JMS to optimize your workloads across various Java deployments, spanning desktops, servers, and cloud environments.
- ***Safeguard Java SE investments***: Protect your Java SE investments by identifying outdated Java installations, unauthorized applications, and Java runtime and application mismatches.

See About Java Management Service to understand more about JMS.

Additional Features in JMS

While both AMC and JMS utilize Java Usage Tracker and Agents to report and monitor Java usage, JMS stands out by offering a host of advanced features, elevating the capabilities of system administrators.

JMS administrators can unlock the full potential of JMS in diverse deployment scenarios, spanning across desktops, servers, or cloud environments covered by an Oracle Java SE subscription, Java SE Desktop subscription, or when running on an Oracle Cloud Infrastructure service that grants access to the underlying operating system. These administrators can:

- Scan for Java Libraries using Advanced Usage Tracking to identify and report potential vulnerabilities (CVE) associated with 3rd party Java libraries used by applications
- Optimize Java workload performance with JVM tuning recommendations from Performance Analysis
- Evaluate the effort and feasibility of migrating Java applications to newer JDK versions with Java Migration Analysis
- Assess the impact of Oracle JRE and JDK Cryptographic Roadmap changes on their applications using Crypto Event Analysis
- Scan for Java Servers using Advanced Usage Tracking to analyze the usage and deployment of Java services in the application servers
- Run JDK Flight Recorder to gather application insights
- Download and Install a Java Runtime using Java Runtime Lifecycle Management operations
- Remove a Java Runtime using Java Runtime Lifecycle Management operations

- Configure JDK Java Post-Installation Actions

Enhanced Operational Efficiency with JMS

Some of the advantages of moving to JMS include:

- ***Infrastructure Maintenance Eliminated***: Unlike the on-premise deployment of AMC, JMS operates seamlessly within the cloud. This eliminates the need for separate infrastructure maintenance, thereby reducing complexity and operational overhead.
- ***Immediate Access to New Functionality***: As a cloud service, JMS allows administrators to access new functionality as soon as they become available. This eliminates the need for manual intervention after each release to access new functionality.
- ***Minimal Downtime***: Transitioning to JMS ensures minimal downtime during upgrades and maintenance activities. This uninterrupted availability enhances user experience and operational continuity.
- ***Flexibility and Scalability***: Cloud-based JMS offers inherent flexibility and scalability, allowing you to adapt to changing business needs without the constraints of on-premise infrastructure. This elasticity ensures optimal resource utilization.
- ***Additional Capabilities***: JMS provides advanced features that empower administrators with enhanced insights, performance optimization, and proactive analysis for Java workloads.
- ***Continuous Oracle Enhancements***: Oracle's commitment to JMS ensures that additional features and capabilities will be introduced over time. This keeps your environment aligned with evolving best practices and technological advancements.
- ***Leverage other OCI Services***: The upgrade to JMS not only optimizes your Java management practices but also positions you to harness the potential of other OCI services.

3
Comparative Analysis of AMC and JMS

While exploring the landscape of Java management solutions, it's essential to recognize that both Advanced Management Console (AMC) and Java Management Service (JMS) are distinct products utilizing unique technologies. This section provides a focused exploration of crucial components, spotlighting their individual implementations and considerations within AMC and JMS.

Table 3-1 Comparative Analysis of AMC and JMS

Components	AMC	JMS
Licensing	AMC is available as part of Java SE Subscription and Java SE Advanced, and requires a commercial license for use in production.	Basic JMS features, which includes the Java discovery and usage tracking capabilities available through Java Usage Tracker and file scanning are available for all Java users. Advanced features are to be enabled only on desktops, servers, or cloud deployments covered by an Oracle Java SE Universal Subscription, a legacy Oracle Java SE Subscription, a legacy Java SE Desktop Subscription, or when running on an Oracle Cloud Infrastructure service that permits access to the underlying operating system.
Prerequisites	AMC is a Java Enterprise Edition (Java EE) application, packaged as an Enterprise Archive (EAR) file. To use AMC, the user must maintain WebLogic server and OracleDB or a MySQL database. AMC is deployed in an on-premise environment and requires a WebLogic Domain configured with an Admin Server and Managed Servers or Cluster. See Software Prerequisites and System Requirements for more details.	JMS is a native Oracle Cloud Infrastructure (OCI) service that monitors Java deployments on OCI instances and instances running in customer data centers. Hence, you need to setup OCI to start using JMS. See: Setting Up Oracle Cloud Infrastructure for Java Management Service

Table 3-1 (Cont.) Comparative Analysis of AMC and JMS

Components	AMC	JMS
Distributing and Installing agents	1. Download platform specific Agent Binaries 2. Installer Configuration: - Extract the binary, update the user details optionally in `AMCUser.properties` file 3. Distribution of Agent Binaries to Agent instances: - Rely on a common mount point, ftp location, and third party operation automation tools like `ansible` for agent installation in every desktop machine 4. Installation: - Native executable is available in `AMCAgent/bin/` location - The `AMCAgent` is registered as native OS Service	***OCI workloads***: Agent comes pre-installed and users have to enable JMS plug-in. ***Other workloads***: Follow these steps: 1. Download management agent software 2. Distribution of Agent Binaries to Agent instances: - Rely on a common mount point, ftp location, and third party operation automation tools like `ansible` for agent installation in every machine 3. Installing management agent and Deploying JMS plug-ins : • Using Installation Script • Manual Installation - Native executable is available; however the installation is dependent on JDK 8 - The `mgmt_service` is registered as native OS Service
Configuring agents	Using AMC web user interface, you can configure the agent properties. You can set the agent intervals and the frequency at which agent updates are initiated or retried. This frequency can affect the load on servers and the network. See Agent Settings.	In JMS, you can modify the agent settings for a fleet. Management agents scan their host to determine Java runtime installations and report usage. See Modify Agent Settings.
Grouping instances	AMC enables enterprise administrators to define desktop groups and associate desktops with one or more groups based on desktop properties. Existing desktop groups are available as filters in the Desktops tab. See Desktop Groups.	Java Management Service (JMS) provides you with multiple views of your Java deployments. You can group these deployments into fleets managed by JMS. See Fleet Management.

Table 3-1 (Cont.) Comparative Analysis of AMC and JMS

Components	AMC	JMS
Viewing reports	Desktops Reports: • Generating Reports for Desktops • Views for Desktops • Filter Criteria for Desktops • Export Data • Desktop Properties • Views for Desktop Groups Java Usage Reports: • Generating Reports for Java Usage • Views for Java Usage • Filter Criteria for Java Usage Information	JMS provides the data in various views, such as Metrics and in Tabular form. Reports are available for all the resources: • Fleet Metrics • Managed Instance Details • Java Runtime Details • Application Details • Java Server Details • Java Library Details • Work Request Details • Crypto Analysis Reports • Migration Analysis Reports • Performance Analysis Reports
Exporting reports	**Exporting Java Usage Reports** You can export the data from the Java usage reports that are generated by AMC to an external file.	**Configure Data Export Settings** You can export JMS fleet data to a CSV file, which will be uploaded to an object storage location of your choice. This feature facilitates analysis and collaboration with administrators who might not have direct access to OCI or JMS.
Advanced operations	**Java Usage** Using Java Usage Tracker, AMC provides complete information about the Java applications that are run in their enterprise, the JRE versions that are used to run them, and how many browser-based applets are in use within the enterprise.	**Java Usage** Using Java Usage Tracker, JMS provides complete information about Java usage in the selected fleet, including Metrics, Installation, and details on the Applications and Managed instances that are running on the Java runtime.
	Java Runtime Environment Management You can install, uninstall, and manage Java Runtime from managed desktops.	**Java Runtime Lifecycle Management** You can perform Lifecycle Management operations such as Install a Java Runtime and Remove a Java Runtime.
	Desktop Management AMC provides complete information on Java technology, computers running outdated Java versions, Java runtime versions, and deployment rule sets active in the enterprise. AMC also enables administrators to push deployment rule sets to managed computers.	**Fleet Management** JMS provides complete information on Java runtimes, applications, managed instances, and Java servers running in a particular fleet.

Table 3-1 (Cont.) Comparative Analysis of AMC and JMS

Components	AMC	JMS
	Java Runtime Scanning Java runtime scanning is used to detect Java runtimes on managed computers. You can include or exclude specific folders from Java runtime scanning and tracking.	**File Scanning** File scanning is used to detect Java runtimes that aren't captured by Java usage tracker or Attach API. OpenJDK binaries will be detected by JMS through file scanning. You can include or exclude specific file system paths from scanning.
	Creation of Deployment Rule Sets AMC enables administrators to create and edit deployment rule sets (DRS).	**Creation of Deployment Rule Sets** JMS doesn't provide the capability of creating deployment rule sets. These rule sets are XML files contained in a signed JAR file, and they can be created without the need for a specialized tool.
	Distribution of Deployment Rule Sets AMC enables administrators to distribute deployment rule sets, which provide control over the browser-based Java applications running on their desktops.	**Distribution of Deployment Rule Sets** JMS enables administrators to upload DRS file to a fleet. The file is validated before it is uploaded. Once uploaded, it can be distributed to the Managed Instances part of the fleet.

In addition, JMS provides advanced features that help you to gain additional insights into Java workloads in the enterprise. See Additional Features in JMS.

4
Start Your Upgrade

Prepare for Upgrade

Before upgrading to JMS, ensure you have a foundational understanding of certain key concepts, especially those related to Oracle Cloud Infrastructure (OCI) and JMS:

- Oracle Cloud basics: Familiarize yourself with the fundamental concepts and practices associated with Oracle Cloud. Understanding the core principles of cloud computing and OCI will provide the necessary context for your adoption of JMS within Oracle Cloud.
- JMS Key Concepts and Terminology: Gain insight into the core concepts and terminology specific to Java Management Service (JMS). Familiarity with JMS terminology and functionality will ease your adoption and enable you to effectively harness its capabilities.

In addition to these concepts, there are practical tasks to complete before transitioning from AMC to JMS:

- Stop AMC Agents: As both AMC and JMS depend on the Java Usage Tracker, you must stop the operation of AMC agents on all desktops. This step is necessary to prevent any conflicts and ensure the proper reporting of Java usage by JMS agents.
- Save AMC Reports: AMC reports are incompatible with JMS. They cannot be migrated due to differences in data formats and the additional fields captured by JMS. As JMS will only have data from the date its agents were installed, it is recommended to save AMC usage reports separately for reference and historical analysis.

While JMS itself does not require any dedicated hardware and the associated maintenance costs, it does rely on Oracle Cloud Infrastructure Monitoring, Logging, and Object Storage Services. For detailed information on the associated costs, refer to the service descriptions provided in Oracle Cloud Services Contracts.

These key details will play a pivotal role in evaluating the suitability of JMS for your organization and equip you with the tools necessary to confidently embark on your journey with JMS and harness its capabilities to their fullest potential.

Getting Started

Now that you have a good understanding of JMS features, the following steps will help you get started:

1. Create an OCI account if you don't already have one. You can get started for free by registering at https://cloud.oracle.com/free.
2. Gain hands-on experience with JMS using Livelabs or follow the instructions in the JMS user guide to manage Java runtimes, applications, and managed instances inventory with Java Management Service.

If you are a Java SE Subscription customer, you can reach out to Oracle Support to start using JMS. The support team is equipped to assess your requirements and AMC deployments, and provide a tailored onboarding plan for you.