

Oracle® Enterprise Manager

IBM WebSphere Application Server Plug-in

User's Guide



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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Preface

This document provides a description about the Oracle system monitoring plug-in for IBM WebSphere Application Server, details on the versions the plug-in supports, prerequisites for installing the plug-in, and step-by-step instructions on how to download, install, verify, and validate the plug-in.

Audience

This guide is intended systems and database administrators tasked with monitoring IBM WebSphere Application Server through Enterprise Manager 24.1.

Documentation Accessibility

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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.

1

IBM WebSphere Application Server Plug-in Overview and Prerequisites

IBM WebSphere Application Server Plug-in Overview and Prerequisites

This chapter describes the system monitoring plug-in for IBM WebSphere Application Server and provides a list of available features. Review the summary of prerequisites required before configuring IBM WebSphere Application Server for monitoring by Oracle Enterprise Manager.

- [IBM WebSphere Application Server Plug-in Overview and Feature Summary](#)
- [Supported Versions](#)
- [IBM WebSphere Application Server Plug-in Prerequisites](#)
- [Downloading the Plug-in](#)
- [Deploying the Plug-in](#)
- [Upgrading the Plug-in](#)
- [Undeploying the Plug-in](#)

IBM WebSphere Application Server Plug-in Overview and Feature Summary

IBM WebSphere Plug-in Overview and Feature Summary

The system monitoring plug-in for IBM WebSphere Application Server extends Oracle Enterprise Manager to add support for managing WebSphere Application Server instances. By deploying the plug-in within your environment, you gain the following management features:

- Monitor IBM WebSphere Application Server instances.
- Gather configuration data and track configuration changes for IBM WebSphere Application Server instances.
- Raise alerts and violations based on thresholds set on monitored metrics and configuration data.
- Provide rich out-of-box reports through Enterprise Manager's Information Publisher reports feature based on the gathered data.
- Support monitoring by a local or remote Agent. Local Agent is an agent that is running on the same host as the IBM WebSphere Application Server server. Remote Agent is an agent running on a host that is different from the host where IBM WebSphere Application Server is running.

Oracle Enterprise Manager Jobs that allow for the following management of IBM WebSphere Application Server:

- Restart AppServer
- Start Application
- Stop Application

Supported Versions

This plug-in supports the following versions of products:

- This plug-in is certified for the latest release of Oracle Enterprise Manager 24.1
- IBM WebSphere Application Server 8.5.5.x and 9.0.5.x

For supported versions, see the Enterprise Manager certification matrix on **My Oracle Support**:

To access the Enterprise Manager certification matrix, follow these steps:

1. Sign in to My Oracle Support:

`http://support.oracle.com`

2. Click the Certifications tab.

3. In the Certification Search, from the Product list, select one of the following:

- Enterprise Manager Base Platform - OMS, to view the certification for OMS.
- Enterprise Manager Base Platform - Agent, to view the certification for Management Agent.

4. From the Release list, select release version, and then click Search.

IBM WebSphere Application Server Plug-in Prerequisites

The following prerequisites must be met before you can deploy the plug-in. Patches are available from My Oracle Support (<https://support.oracle.com>):

- 1. Enterprise Manager (Oracle Management Server and Oracle Management Agent) must be installed.**
- 2. Ensure JMX metrics are able to be collected on WebSphere Application Server. To do this, go to Performance Monitoring Infrastructure (PMI) in your WebSphere Application Server console and ensure your currently monitored statistic set is set to 'All'.**
- 3. Set these environment variables. If you are working on a remote agent, these files will need to be copied over to your remote system:**
 - a. STWS_JAVA_BIN** – This should be the path to the IBM Java bin folder.
 - b. STWS_JMX_CP** – This environment variable needs to have the path to a number of dependencies including: `tools.jar`, `com.ibm.ws.admin.client_9.0.jar`, `com.ibm.ws.ejb.thinclient_9.0.jar`, `com.ibm.ws.orb_9.0.jar`, `was_public.jar` and `management.jar`. Most of these will be found nested in the `AppServer` folder.
 - c. STWS_SAS_PROPS** – Path to your `sas.client.props` file
 - d. STWS_SSL_PROPS** – Path to your `ssl.client.props` file

Example paths for STWS_JMX_CP:

`%WebSphere_Home%\AppServer\java\8.0\lib\tools.jar`

`%WebSphere_Home%\AppServer\runtimes\com.ibm.ws.admin.client_9.0.jar`

`%WebSphere_Home%\AppServer\runtimes\com.ibm.ws.ejb.thinclient_9.0.jar`

`%WebSphere_Home%\AppServer\runtimes\com.ibm.ws.orb_9.0.jar`

```
%WebSphere_Home%\AppServer\dev\was_public.jar  
%WebSphere_Home%\AppServer\lib\webadmin\management.jar
```

Downloading the Plug-in

Download the JBoss EAP Plug-in

You can download plug-ins in online or offline mode. Online mode refers to an environment where you have Internet connectivity, and can download the plug-in directly through Enterprise Manager from My Oracle Support. Offline mode refers to an environment where you do not have Internet connectivity, or where the plug-in is not available from My Oracle Support.

See the [Managing Plug-ins](#) chapter in the Oracle Enterprise Manager Administrator's Guide for details on downloading the plug-in in either mode.

Deploying the Plug-in

Deploying the JBoss EAP Plug-in

You can deploy the plug-in to an Oracle Management Service instance using the Enterprise Manager console, or using the EM Command Line Interface (EMCLI). While the console enables you to deploy one plug-in at a time, the command line interface mode enables you to deploy multiple plug-ins at a time, that can save plug-in deployment time and downtime.

See the *Managing Plug-ins* chapter in the *Oracle Enterprise Manager Administrator's Guide* for instructions on deploying the plug-in.

Upgrading the Plug-in

How to upgrade the IBM WebSphere Application Server plug-in for Enterprise Manager.

The Self Update feature allows you to expand Enterprise Manager's capabilities by updating Enterprise Manager components whenever new or updated features become available. Updated plug-ins are made available via the Enterprise Manager Store, an external site that is periodically checked by Enterprise Manager to obtain information about updates ready for download. See the [Updating](#) chapter in the Oracle Enterprise Manager Administrator's Guide for steps to update the plug-in.

Undeploying the Plug-in

How to undeploy the JBoss EAP Enterprise Manager Plug-in.

See the [Managing Plug-ins](#) chapter in the Oracle Enterprise Manager Administrator's Guide for steps to undeploy the plug-in.

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Discovery of the IBM WebSphere Application Server Target

How to add a IBM WebSphere Application Server target in Enterprise Manager.

This section describes how to add a IBM WebSphere Application Server target to Enterprise Manager.

- [Discovering Targets](#)
- [Adding Targets with EMCLI](#)
- [Verifying and Validating the Plug-in](#)

Discovering Targets

After successfully deploying the plug-in, follow these steps to add the plug-in target to Enterprise Manager for central monitoring and management:

1. Log in to Enterprise Manager.
2. Go to **Setup**, select **Add Target**, and then select **Add Targets Manually**.
3. Select **Target Type** as **IBM WebSphere Application Server**, select a **Monitoring Agent** and then click **Add Manually**.
4. In the Add IBM WebSphere Application Server page, enter the following properties:
 - **Target Name:** Unique target name across all targets, such as `IBM_WebSphere_Application_Server_Hostname`. This is the display name in Enterprise Manager. It represents this SQL Server target across all user interfaces within Enterprise Manager.
 - **IBM WebSphere Application Server Monitoring Credentials**
 - **IBM WebSphere Application Server Username:** The username used to connect via JMX to WebSphere. This is optional and should only be used if you are using authentication.
 - **IBM WebSphere Application Server Password:** The password for the account used to connect via JMX to WebSphere Application Server. This is optional and should only be used if you are using authentication.

Note:

If you wish to use SSL, it must be specified in the `ssl.client.props` and `sas.client.props` files. The plug-in will connect using those settings.

- **Properties**
 - **Service URL:** This is the JMX Service URL to connect to WebSphere Application Server via JMX.

Example: `service:jmx:rmi://<hostname>:<port>/jndi/JMXConnector` Your port will be specified as the `BOOTSTRAP_PORT` in your WebSphere Application Server console.

Adding Targets with EMCLI

How to add IBM WebSphere Application Server targets with Enterprise Manager CLI.

To add IBM WebSphere Application Server targets with EMCLI, use the `add_target` verb, as in the following example:

```
emcli.bat add_target
    -name="WebSphere Application Server Target"
    -type="oracle_websphere"
    -host="HostTargetName"
    -properties="serviceURL+service:jmx:rmi://<hostname>:<port>/jndi/
JMXConnector"
    -subseparator=properties="+"
```

You will need to specify the following options:

- **Target name:** `*-name*`
It must begin with an alphabetic character contain only alphanumeric characters, multibyte characters, a space, -, _, ., :, /, (,) and have a maximum length of 256 characters.
- **Target type:** `*-type*`
Always use "oracle_websphere" (including the quotes).
- **Host name:** `*-host*`
Network name of the machine running the Management Agent that is collecting data for this target instance.
- **Target instance Properties:** `*-properties*`
Name-value pair list of properties for the target instance. The available property names are as follows.

```
serviceURL
JMXUsername
JMXPassword
```

- **Properties separator delimiter:** `*-separator=properties*`
Specify a string delimiter to use between name-value pairs for the value of the `-properties` option. The default separator delimiter is ";".
- **Properties subseparator delimiter:** `*-subseparator=properties*`
Specify a string delimiter to use between name and value in each name-value pair for the value of the `-properties` option. The default subseparator delimiter is ":".

Verifying and Validating the Plug-in

How to verify and validate the IBM WebSphere Application Server plug-in for Enterprise Manager.

After waiting a few minutes for the plug-in to start collecting data, use the following steps to verify and validate that Enterprise Manager is properly monitoring the plug-in target:

1. Click the **WebSphere Application Server target** link from the **All Targets** page.
2. Verify no metric collection errors are reported by clicking **Monitoring** and then **Metric Collection Errors** from the **Target** menu.
3. Ensure that reports can be seen, and no errors are reported by clicking **Information Publisher Reports** in the **Target** menu and viewing reports for the WebSphere Application Server target type.
4. Ensure that configuration data can be seen by clicking **Configuration** and then **Last Collected** in the **Target** menu. If configuration data does not immediately appear, click **Refresh** in the Latest Configuration page.

3

Creating, Editing, and Using Jobs

This chapter describes how to create and edit jobs in Enterprise Manager for IBM WebSphere Application Server.

To create and edit jobs, follow these steps:

1. In Enterprise Manager, click **Enterprise**, then **Job**, and then click **Activity**.
2. On the Job Activity Page, select a job type from the **Create Job** menu and click **Go**. Select one of the following:
 - Restart AppServer
 - Start Application
 - Stop Application
3. In the **General** tab of the Create *<Job Type>* page, provide a name for the job and add the individual targets or one composite target such as a Group.

• **Note:** If you are editing a job, then modify the job name and the selected targets.

4. In the **Parameters** tab of the Create *<Job Type>* page, from the **Options** menu, select an appropriate option to make the job function according when it starts. You can select one of these options as shown below.

Table 3-1 Job Parameters Options

Job Type	Available Options
Restat AppServer	AppServer Name – Name of the application server you wish to restart
Start Application	Application Name – Name of the application you wish to start Server Name – Name of the server that the application is hosted on
Stop Application	Application Name – Name of the application you wish to stop Server Name – Name of the server that the application is hosted on

5. In the **Credentials** tab of the Create *<Job Type>* Job page, select an appropriate option for credentials. You can choose to use the preferred credentials that are already set or override the preferred credentials with new credentials. In either case, you need to provide credentials for the agent host.

To set the preferred credentials, click **Preferences** at the top-right corner of the console. From the left-vertical navigation bar, click **Preferred Credentials**. Enterprise Manager displays the Preferred Credentials page. On this page you can set the preferred credentials.

6. In the **Schedule** tab of the Create *<Job Type>* Job page, schedule the job.
7. In the **Access** tab of the Create *<Job Type>* Job page, define or modify the access you want other users to have to this job.

8. Click **Submit** to create the job.

4

Using the IBM WebSphere Application Server Plug-in Reports

JBoss EAP reports

The IBM WebSphere Application Server Plug-in plug-in includes 5 out-of-the-box reports:

- WebSphere DynaCache
- WebSphere JDBC Provider
- WebSphere Servlets
- WebSphere Session Manager
- WebSphere Thread Pools

Create Reports

To create a new report from one of the out-of-the-box reports by Oracle, follow these steps:

1. From the Enterprise menu, select **Reports**, then **Information Publisher Reports**
2. Scroll down to the WebSphere Application Server Performance section, find the desired report, and click the report title hyperlink.
3. Select the target you want this report to run against and click **Continue**. After clicking **Continue**, the desired report will generate.

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