ScienceLogic

Monitoring IBM WebSphere Application Servers

IBM: WebSphere Application Server PowerPack version 101

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Chapter 1

Introduction

Overview

This manual describes how to monitor IBM WebSphere Application Servers with performance monitoring infrastructure (PMI) in SL1 using the *IBM: WebSphere Application Server* PowerPack.

The following sections provide an overview of IBM WebSphere Application Servers and the *IBM: WebSphere Application Server* PowerPack:

This chapter covers the following topics:

What is IBM WebSphere Application Server? 3

What Does the IBM: WebSphere Application Server PowerPack Monitor? 4

Installing the IBM: WebSphere Application Server PowerPack 4

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What is IBM WebSphere Application Server?

The IBM WebSphere Application Server is a Java server runtime environment for enterprise applications. WebSphere supports microservices and standards-based programming models.

What Does the IBM: WebSphere Application Server PowerPack Monitor?

To monitor IBM WebSphere Application Servers using SL1, you must install the *IBM: WebSphere Application Server* PowerPack. This PowerPack enables you to discover, model, and collect data about IBM WebSphere application servers.

The *IBM: WebSphere Application Server* PowerPack includes:

- Dynamic Applications to discover, model, and monitor performance metrics and collect configuration data for IBM WebSphere Application Servers
- Event Policies that are triggered when IBM WebSphere Application Servers meet certain status criteria
- An Example Credential that you can use to connect to IBM WebSphere Application Servers
- Run Book Actions and Run Book Automation policies for classifying the root device and aligning the "IBM: WebSphere System Stats" Dynamic Application to the WebSphere node agent
- Device Classes for each of the IBM WebSphere components that the *IBM: WebSphere Application Server* PowerPack can monitor
- A Device Dashboard that you can use to view information about IBM WebSphere Application Server components

Installing the IBM: WebSphere Application Server PowerPack

Before completing the steps in this manual, you must import and install the latest version of the *IBM: WebSphere Application Server* PowerPack.

TIP: By default, installing a new version of a PowerPack overwrites all content from a previous version of that PowerPack that has already been installed on the target system. You can use the ***Enable Selective PowerPack Field Protection*** setting in the **Behavior Settings** page (System > Settings > Behavior) to prevent new PowerPacks from overwriting local changes for some commonly customized fields. (For more information, see the ***System Administration*** manual.)

IMPORTANT: The minimum required MySQL version is 5.6.0.

To download and install the PowerPack:

1. Search for and download the PowerPack from the **PowerPacks** page (Product Downloads > PowerPacks & SyncPacks) at the ScienceLogic Support Site.
2. In SL1, go to the **PowerPacks** page (System > Manage > PowerPacks).
3. Click the **[Actions]** button and choose *Import PowerPack*. The **Import PowerPack** dialog box appears.

4. Click **[Browse]** and navigate to the PowerPack file from step 1.
5. Select the PowerPack file and click **[Import]**. The **PowerPack Installer** modal displays a list of the PowerPack contents.
6. Click **[Install]**. The PowerPack is added to the **PowerPacks** page.

> **NOTE:** If you exit the **PowerPack Installer** modal without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPacks** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal. This page appears when you click the **[Actions]** menu and select *Install PowerPack*.

Chapter 2

Configuration and Discovery

Overview

The following sections describe how to configure and discover IBM WebSphere Application Servers for monitoring by SL1 using the *IBM: WebSphere Application Server* PowerPack:

This chapter covers the following topics:

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Prerequisites for Monitoring IBM WebSphere Application Servers

To configure the SL1 system to monitor IBM WebSphere Application Servers using the *IBM: WebSphere Application Server* PowerPack, you must first set up the following:

- ***Performance Monitoring Architecture (PMI)***. PMI is the monitoring structure for the WebSphere Application Server. The performance data provided by the WebSphere PMI helps to monitor and tune the application server performance. To set up PMI, follow the steps here: https://www.ibm.com/support/knowledgecenter/en/SSEQTP_8.5.5/com.ibm.websphere.base.doc/ae/tprf_pmi_encoll.html

NOTE: When configuring PMI, it is recommended that you set the status to "All" for each of the application servers you want to monitor.

NOTE: If PMI is disabled on any server, SL1 will continue to show statistics on that server. If the user does not want to see the statistics on the server on which PMI was disabled, they can recursively disable them. SL1 will eventually move that server to ***Vanished Devices*** and purge it based on the settings that the user has chosen.

- ***PerfServlet***. ScienceLogic will use the WebSphere credential that you create to access PMI output through the PerfServlet appication. To install PerfServlet, follow the steps here: https://www.ibm.com/support/knowledgecenter/en/SSEQTP_8.5.5/com.ibm.websphere.base.doc/ae/tprf_devprfservlet.html

    - After installing, ensure that PerfServlet is mapped to all the WebSphere application servers that you want to monitor
    - To configure the WebSphere credential and access the PerfServlet application, you will need the hostname, default http(s) transport port, and credentials.

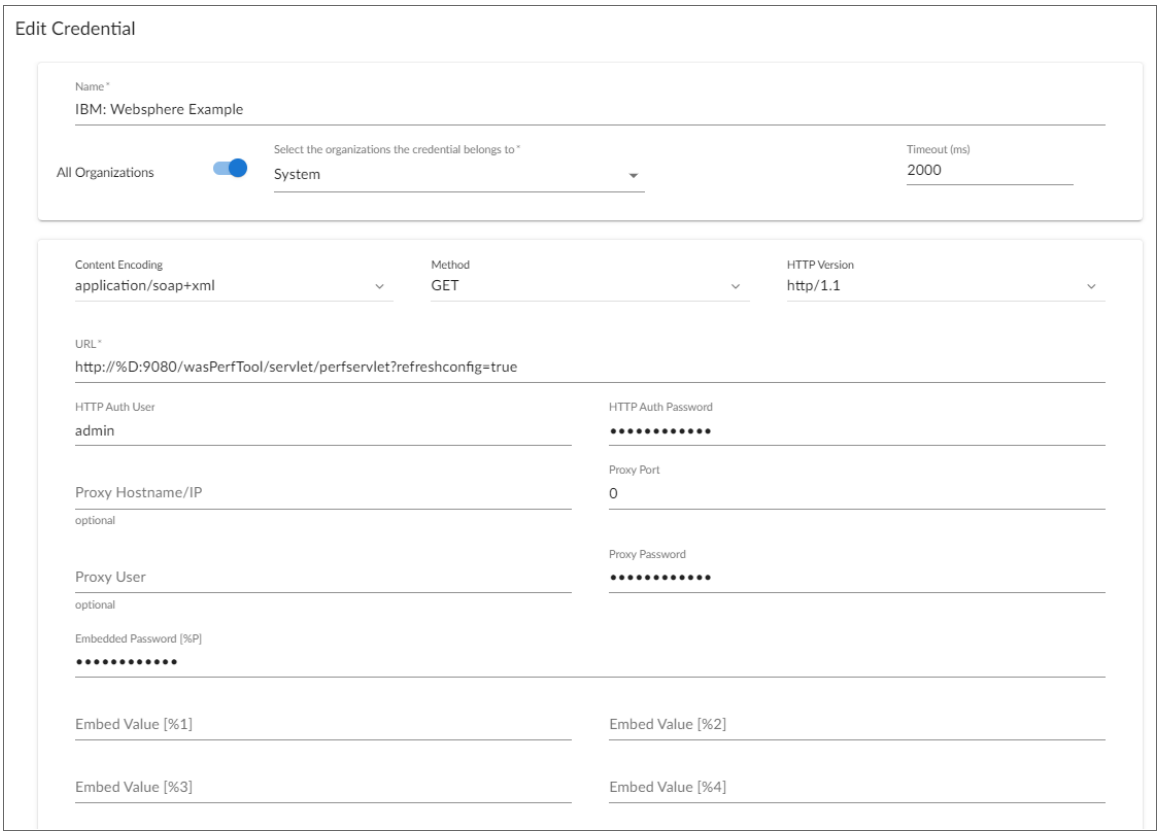
Creating a SOAP/XML Credential for IBM WebSphere Application Servers

To use the Dynamic Applications in the *IBM: WebSphere Application Server* PowerPack, you must first define a SOAP/XML credential in SL1. This credential allows SL1 to connect with an IBM: WebSphere Application Server.

The PowerPack includes a sample credential you can use as a template for creating SOAP/XML credentials.

To configure a SOAP/XML credential to access an IBM WebSphere Application Server:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the **IBM: WebSphere Example** sample credential, click its **[Actions]** icon (⋯) and select ***Duplicate***. A copy of the credential appears.
3. Click the **[Actions]** icon (⋯) for the "IBM: WebSphere Example copy" credential copy and select ***Edit***. The **Edit Credential** modal page appears.



4. Enter values in the following fields:
    - ***Name***. Type a name for the IBM WebSphere credential.
    - ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***Select the organizations the credential belongs to*** drop-down field to align the credential with those specific organizations.
    - ***URL***. The default value in this field is "http (s)://%D:<port>/wasPerfTool/servlet/perfservlet?refreshconfig=true" where %D is the hostname. The port number is determined from the information provided when setting up the PerfServlet.
    - ***HTTP Auth User***. Type the username for a user with access to the PerfServlet application.
    - ***HTTP Auth Password***. Type the password for the PerfServlet account username.
5. Click **[Save & Close]**.
6. In the confirmation message, click **[OK]**.

Creating a SOAP/XML Credential for IBM WebSphere Application Servers in the SL1 Classic User Interface

To configure SL1 to monitor IBM WebSphere Application Servers, you must first create a SOAP/XML credential. This credential allows the Dynamic Applications in the *IBM: WebSphere Application Server* PowerPack to connect with an IBM WebSphere Application Server.

The PowerPack includes an example SOAP/XML credential that you can edit for your own use.

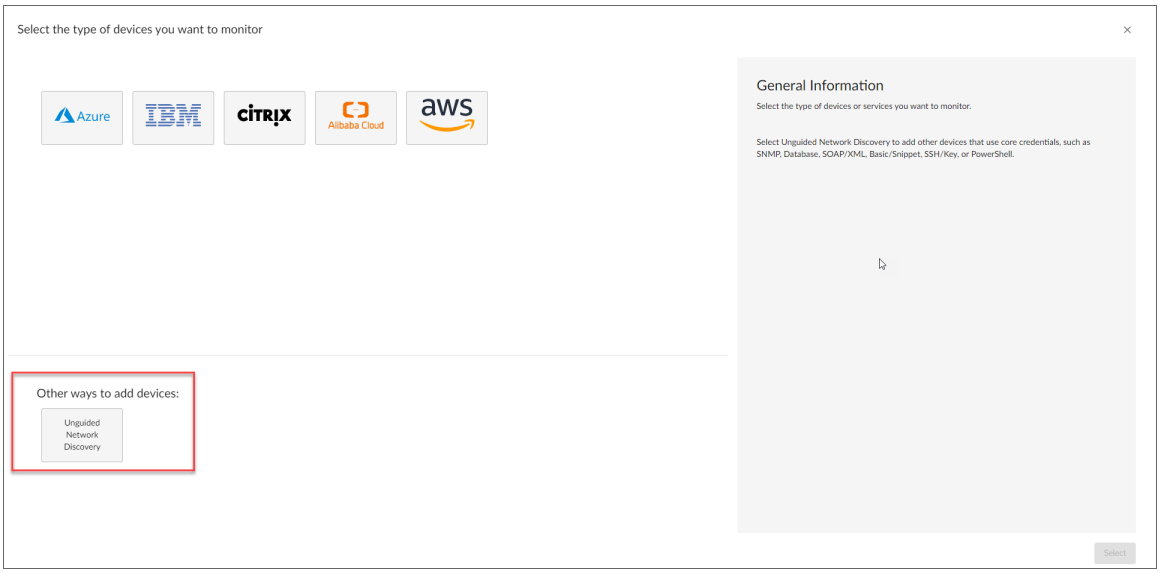
To configure a SOAP/XML credential to access an IBM WebSphere Application Server:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Locate the **IBM: WebSphere Example** credential, then click its wrench icon (). The **Edit SOAP/XML Credential** modal page appears.
3. Complete the following fields:
    - ***Profile Name***. Type a name for the IBM WebSphere credential.
    - ***URL***. The default value in this field is "http (s)://%D:<port>/wasPerfTool/servlet/perfservlet?refreshconfig=true" where %D is the hostname. The port number is determined from the information provided when setting up the PerfServlet.
    - ***HTTP Auth User***. Type the username for a user with access to the PerfServlet application.
    - ***HTTP Auth Password***. Type the password for the PerfServlet account username.
4. Click the **[Save As]** button.

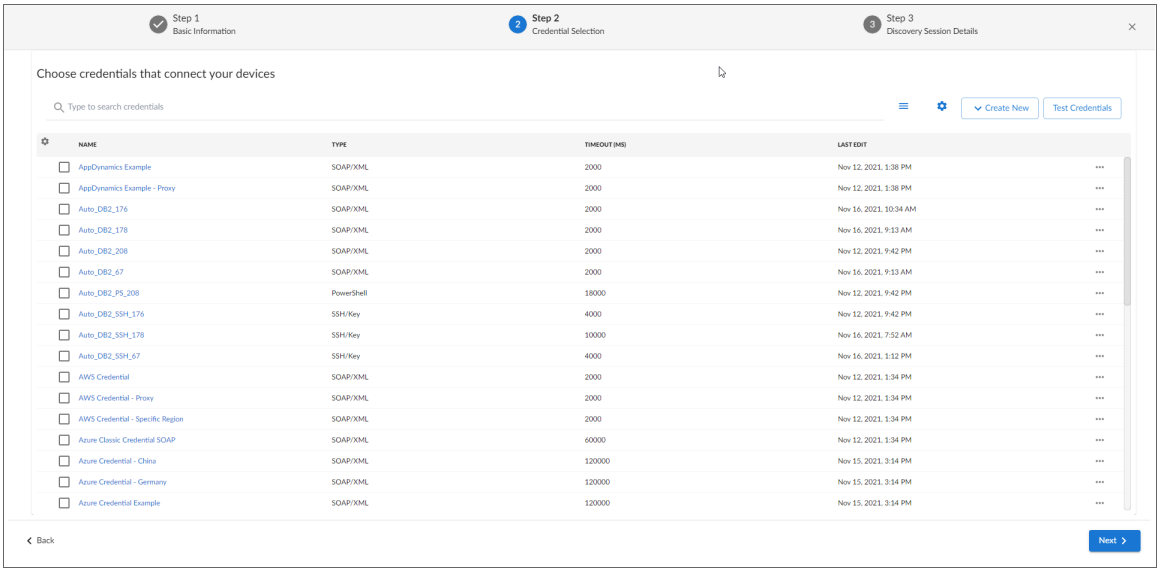
Discovering IBM WebSphere Component Devices

To discover an IBM: WebSphere Application Server:

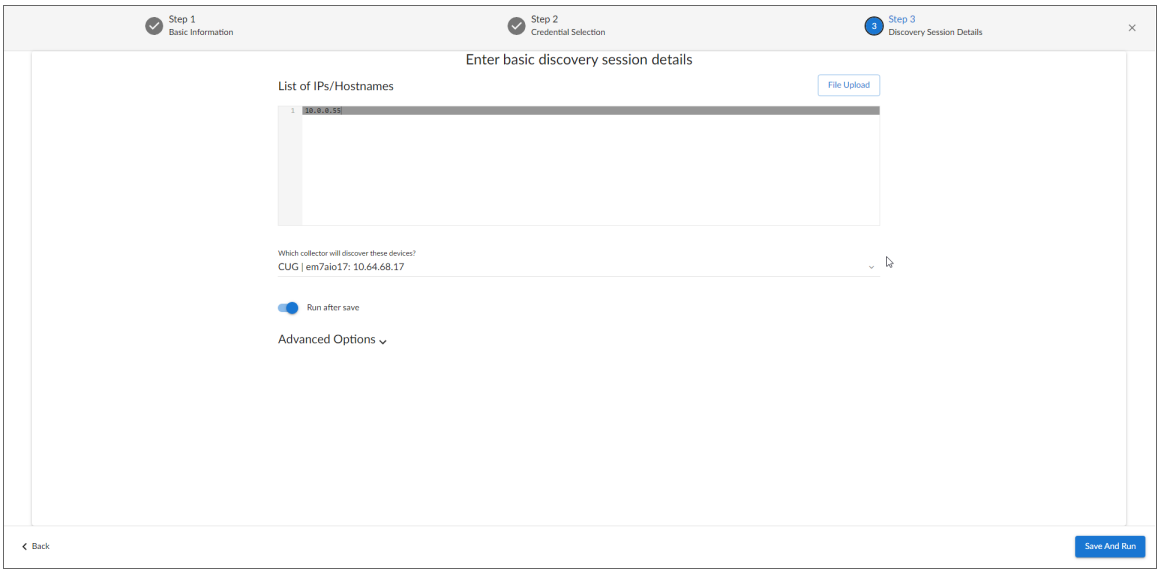
1. On the **Devices** page () or the **Discovery Sessions** page (Devices > Discovery Sessions), click the **[Add Devices]** button. The **Select** page appears:



2. Click the **[Unguided Network Discovery]** button. Additional information about the requirements for discovery appears in the **General Information** pane to the right.
3. Click **[Select]**. The **Add Devices** page appears.
4. Complete the following fields:
    - ***Name***. Type a unique name for this discovery session. This name is displayed in the list of discovery sessions on the **[Discovery Sessions]** tab.
    - ***Description***. Optional. Type a short description of the discovery session. You can use the text in this description to search for the discovery session on the **[Discovery Sessions]** tab.
    - ***Select the organization to add discovered devices to***. Select the name of the organization to which you want to add the discovered devices
5. Click **[Next]**. The **Credentials** page of the **Add Devices** wizard appears:



6. On the **Credentials** page, select the *SOAP/XML credential that you created for* IBM: WebSphere Application Server.
7. Click **[Next]**. The **Discovery Session Details** page of the **Add Devices** wizard appears:



8. Complete the following fields:
   - ***List of IPs/Hostnames***. Type the IP address(es) for the IBM: WebSphere Application Server device(s) you want to discover.
   - ***Which collector will monitor these devices?***. Required. Select an existing collector to monitor the discovered devices.
   - ***Run after save***. Select this option to run this discovery session as soon as you save the session.
9. In the **Advanced options** section, click the down arrow icon ( ) to complete the following fields:
   - ***Discover Non-SNMP***. Enable this setting.
10. Click **[Save and Run]** if you enabled the Run after save setting, or **[Save and Close]** to save the discovery session. The **Discovery Sessions** page (Devices > Discovery Sessions) displays the new discovery session.
11. If you selected the **Run after save** option on this page, the discovery session runs, and the **Discovery Logs** page displays any relevant log messages. If the discovery session locates and adds any devices, the **Discovery Logs** page includes a link to the **Device Investigator** page for the discovered device.

Discovering IBM WebSphere Component Devices in the SL1 Classic User Interface

To discover an IBM WebSphere Application Server:

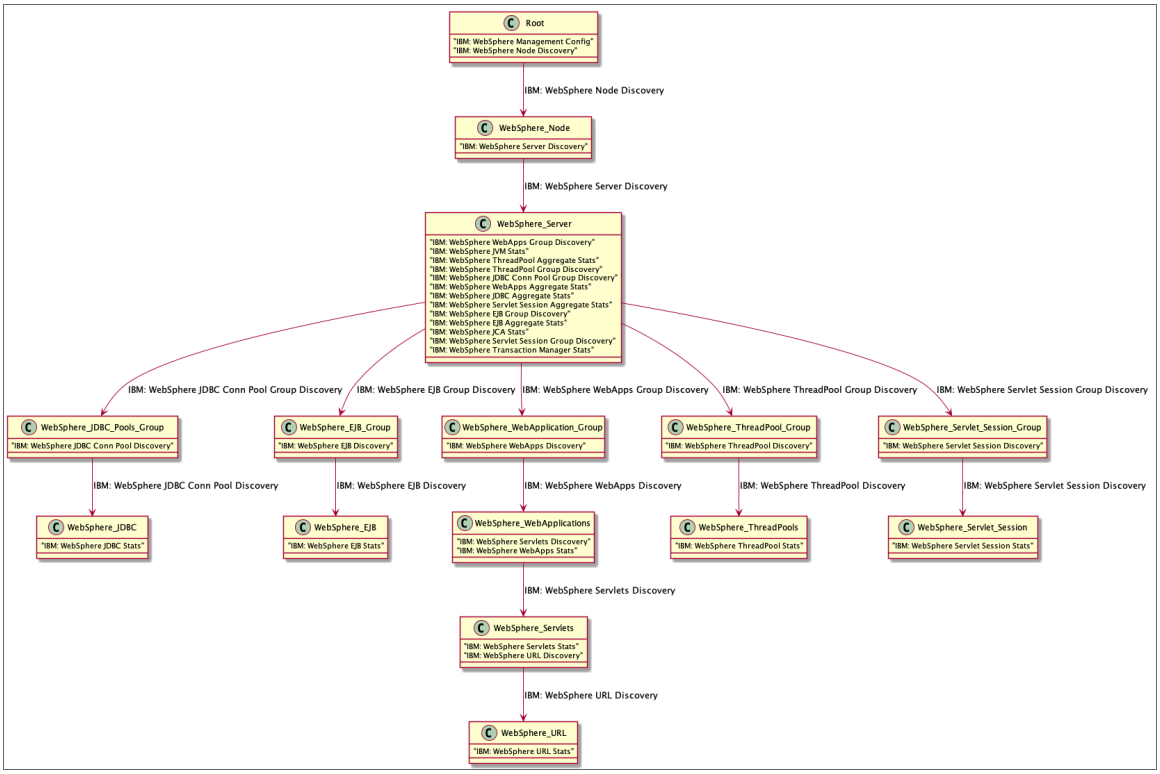
1. Go to the **Discovery Control Panel** page (System > Manage > Classic Discovery).
2. In the **Discovery Control Panel**, click the **[Create]** button. The **Discovery Session Editor** page appears.
3. In the **Discovery Session Editor** page, complete the following fields:
   - ***Name***. Type a name for the discovery session.
   - ***IP Address/Hostname Discovery List***. Type the IP address for the WebSphere Application Server.

- ***Other Credentials***. Select the SOAP/XML credential you created for the WebSphere Application Server.
- ***Discover Non-SNMP***. Select this checkbox.
- ***Model Devices***. Select this checkbox.

4. Optionally, you can enter values in the other fields on this page. For more information about the other fields on this page, see the ***Discovery & Credentials*** manual.
5. Click the **[Save]** button to save the discovery session and then close the **Discovery Session Editor** window.
6. The discovery session you created appears at the top of the **Discovery Control Panel** page. Click its lightning-bolt icon ( ) to run the discovery session.
7. The **Discovery Session** window appears. When the cluster root device(s) are discovered, click the device icon ( ) to view the **Device Properties** page for each device.

Verifying Discovery and Dynamic Application Alignment

During discovery, SL1 will discover the root device, then the WebSphere Node which will in turn discover the server. All applicable Dynamic Applications will be aligned to each component.



To verify that SL1 has automatically aligned the correct Dynamic Applications during discovery:

1. After the discovery session has completed, go to the **Devices** page and find the device(s) you discovered. When you have located the device, click on it.

2. Click the **[Collections]** tab.
3. All applicable Dynamic Applications for the WebSphere devices are automatically aligned during discovery.

> **NOTE:** It can take several minutes after the discovery session has completed for Dynamic Applications to appear in the **Dynamic Application Collections** page.

You should see the following Dynamic Applications aligned to the WebSphere Management Device:

- IBM: WebSphere Management Config
- IBM: WebSphere Node Discovery

You should see the following Dynamic Application aligned to the WebSphere node:

- IBM: WebSphere Server Discovery

For all other server types, you should see the following Dynamic Application aligned to the WebSphere server:

- IBM: WebSphere EJB Aggregate Stats
- IBM: WebSphere EJB Group Discovery
- IBM: WebSphere JCA Stats
- IBM: WebSphere JDBC Aggregate Stats
- IBM: WebSphere JDBC Conn Pool Group Discovery
- IBM: WebSphere JVM Stats
- IBM: WebSphere Servlet Session Aggregate Stats
- IBM: WebSphere Servlet Session Group Discovery
- IBM: WebSphere System Stats
- IBM: WebSphere ThreadPool Aggregate Stats
- IBM: WebSphere ThreadPool Group Discovery
- IBM: WebSphere Transaction Manager Stats
- IBM: WebSphere WebApps Aggregate Stats
- IBM: WebSphere WebApps Group Discovery

> **NOTE:** The "IBM: WebSphere System Stats" Dynamic Application will only align to servers of type "nodeagent" on managed nodes to collect data. If you have a system that does not have a "nodeagent" server, you will have to manually align the "IBM: WebSphere System Stats" Dynamic Application.

IBM WebSphere Base Installation

The WebSphere PowerPack typically supports only a Network Deployment of WebSphere. However, by following the process below, you can configure your account to support a server with multiple instances of WebSphere

Base. You will need to create a virtual device for each port, create credentials for each instance, align the virtual device to the appropriate Dynamic Applications, and verify that the Dynamic Applications are aligned to the the correct credentials.

NOTE: You will need to repeat the process below for each instance you want to discover.

Creating a Virtual Device

You must create a virtual device that represents the WebSphere Base service. A virtual device is a user-defined container that represents a device or service that cannot be discovered by SL1. You can use the virtual device to store information gathered by policies or Dynamic Applications.

To create a virtual device that represents your WebSphere Base service:

1. Go to the **Device Manager** page (Registry > Devices > Device Manager).
2. Click the **[Actions]** button and select *Create Virtual Device* from the menu. The **Virtual Device** modal page appears.
3. Complete the following fields:
    - ***Device Name***. Type a unique name for the device. (For example: IBM-Web-virtual_port_1234)
    - ***Organization***. Select the organization for this device. The organization you associate with the device limits the users that will be able to view and edit the device. Typically, only members of the organization will be able to view and edit the device.
    - ***Device Class***. Select Virtual Device | Soap-XML Transactions.
    - ***Collector***. Select the collector group that will monitor the device.
4. Click **[Add]** to create the virtual device.

Creating a SOAP/XML Credential for IBM WebSphere Base

To align the virtual device with the appropriate Dynamic Applications, you must first define SOAP/XML credentials in SL1. These credentials will allow SL1 to communicate with the Virtual Device.

To configure a SOAP/XML credential for IBM WebSphere:

1. Go to the **Credentials** page (Manage > Credentials).
2. Click **Create New** and then **Create SOAP/XML Credential**.
3. Enter values in the following fields:
    - ***Name***. Type a new name for the credential.
    - ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***Select the organizations the credential belongs to*** drop-down field to align the credential with those specific organizations.
    - ***URL***. Type the URL for the IBM: WebSphere Application Server account controller. (For example: "http(s)://%D:1234/wasPerfTool/servlet/perfservlet?refreshconfig=true")

- ***HTTP Auth User***. Type the username for a user with access to the PerfServlet application.
- ***HTTP Auth Password***. Type the password for the PerfServlet account username.

4. Click **[Save & Close]**.
5. In the confirmation message, click **[OK]**.
6. Repeat this process for each different instance with unique names for each.

Alignment and Verification

To manually align the appropriate Dynamic Applications:

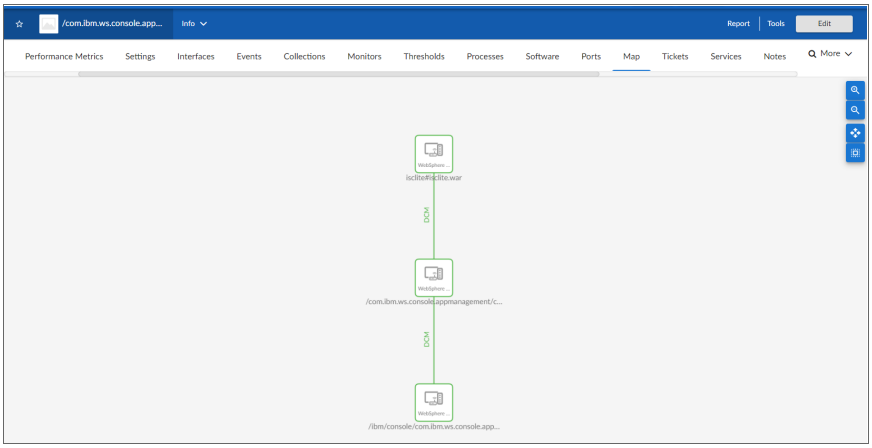
1. Go to the **Devices** page.
2. Locate the virtual device created above and click on it.
3. From the **Device Investigator** page, click the **[Collections]** tab.
4. Click the **Edit** button.
5. Click **Align Dynamic Application**.
6. In the window that appears, click **Choose Dynamic Application**.
7. Search for and select **IBM: WebSphere Management Config**. Then click **Select**.
8. Uncheck the box next to **Use Device SNMP Credential** and click **Choose Credential**.
9. Search for and select the credential created above. Then click **Select**.
10. Click **Align Dynamic Application**.
11. Repeat this process with the **IBM: WebSphere Node Discovery** Dynamic Application.

Viewing IBM WebSphere Component Devices

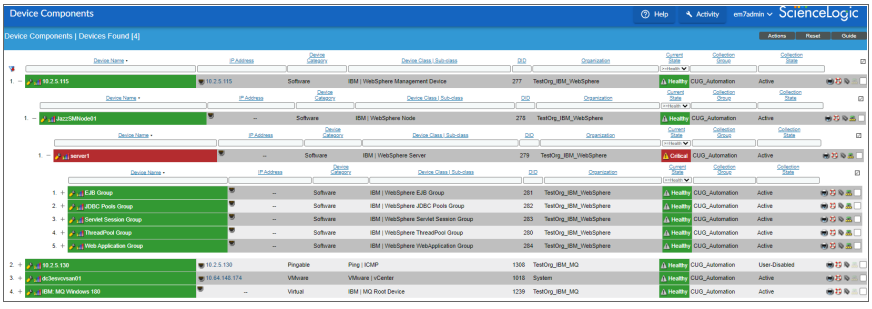
When SL1 performs collection for your IBM: WebSphere Application Server account, SL1 will create component devices that represent each device and align other Dynamic Applications to those component devices. Some of the Dynamic Applications aligned to the component devices will also be used to create additional component devices. All component devices appear in the **Devices** page just like devices discovered using the ScienceLogic discovery process.

In addition to the **Devices** page, you can view the IBM: WebSphere Application Server and all other component devices in the following places in the user interface:

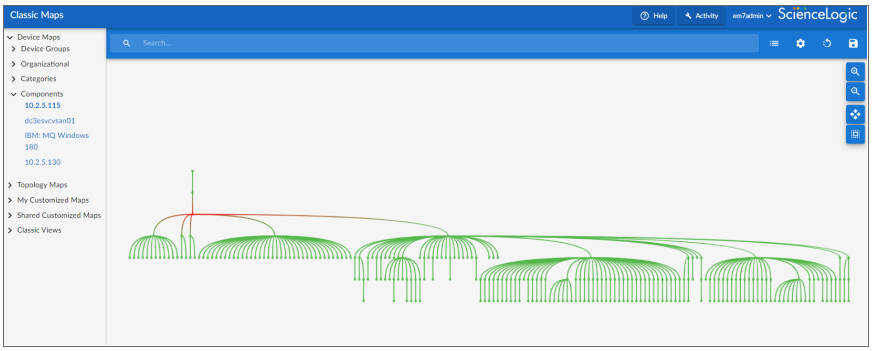
- The **Device Investigator** Map page (click **Map** in the **Device Investigator** page) displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the listed devices reloads the page to make the selected device the primary device.



- The **Device Components** page (Devices > Device Components) displays a list of all root devices and component devices discovered by SL1 in an indented view, so you can easily view the hierarchy and relationships between child devices, parent devices, and root devices. To view the component devices associated with an IBM: WebSphere Application Server, find the IBM: WebSphere Application Server root device and click its plus icon (+):



- The **Component Map** page (Classic Maps > Device Maps > Components) allows you to view devices by root node and view the relationships between root nodes, parent components, and child components in a map. This makes it easy to visualize and manage root nodes and their components. SL1 automatically updates the **Component Map** as new component devices are discovered. The platform also updates each map with the latest status and event information. To view the map for an IBM: WebSphere Application Server, go to the **Component Map** page and select the map from the list in the left NavBar. To learn more about the **Component Map** page, see the ***Maps*** manual.



Chapter 3

IBM WebSphere Application Server Dashboards

Overview

The following section describes the device dashboard that is included in the *IBM: WebSphere Application Server* PowerPack:

This chapter covers the following topics:

IBM WebSphere Device Dashboard *18*

IBM WebSphere Device Dashboard

The *IBM: WebSphere Application Server* PowerPack includes a device dashboard that provides summary information for WebSphere application servers.

IBM: WebSphere Server Performance

The IBM: WebSphere Server Performance device dashboard displays the following information:

- Tickets and Events
- IBM: WebSphere JCA Stats Free Pool Size
- IBM: WebSphere ICA Stats Wait Time
- IBM: WebSphere Transaction Manager Stats Committed Count
- IBM: WebSphere JVM Stats Free Memory
- Waiting Thread Count
- Active Count

- Process CPU Usage
- IBM: WebSphere JCA Stats Use Time
- IBM: WebSphere Transaction Manager Stats Rolled Back Count
- IBM: WebSphere JVM Stats Used Memory

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