



Monitoring Oracle Solaris

Oracle: Solaris Monitoring PowerPack version 104

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Chapter

1

Introduction to Monitoring Oracle Solaris Devices

Overview

This manual describes how to monitor Oracle Solaris devices in Skylar One using the Dynamic Applications in the "Oracle: Solaris Monitoring" PowerPack.

This chapter covers the following topics:

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What Does the Oracle: Solaris Monitoring PowerPack Monitor?

The "Oracle: Solaris Monitoring" PowerPack includes:

- Dynamic Applications to collect configuration and performance data about Oracle Solaris systems
- Device classes for each of the Oracle devices monitored
- A device template for aligning Oracle Solaris Dynamic Applications
- A run book automation policy and action for classifying Oracle Solaris devices
- A sample credential for discovering Oracle Solaris devices
- Event policies and corresponding alerts that are triggered when Oracle Solaris devices meet certain status criteria

Installing the Oracle: Solaris Monitoring PowerPack

Before completing the steps in this manual, you must import and install the latest version of the "Oracle: Solaris Monitoring" PowerPack.

TIP: By default, installing a new version of a PowerPack overwrites all content in 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 the new version of the PowerPack from overwriting local changes for some commonly customized fields.

NOTE: For details on upgrading Skylar One, see the relevant [Skylar One Platform Release Notes](#).

To download and install the PowerPack:

1. Search for and download the PowerPack from the **PowerPacks** page at the [ScienceLogic Support Center](#) (Skylar One > PowerPacks, login required).
2. In Skylar One, go to the **PowerPacks** page (System > Manage > PowerPacks).
3. Click the actions icon 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 on the **PowerPacks** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal. This modal appears when you click the **[Actions]** menu and select *Install PowerPack*.

Chapter

2

Configuration and Discovery for Oracle Solaris Devices

Overview

This section describes how to configure and discover Oracle Solaris devices for monitoring by Skylar One using the "Oracle: Solaris Monitoring" PowerPack.

This chapter covers the following topics:

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Supported Operating Systems

The "Oracle: Solaris Monitoring" PowerPack supports Solaris version 11 (SunOS 5.11). Older Solaris versions will work if they support the commands in this document.

Prerequisites

To configure your Skylar One system to monitor Oracle Solaris devices using the "Oracle: Solaris Monitoring" PowerPack, you must have the following:

- The IP addresses/hostnames of the devices you want to monitor.
- A service account with the appropriate privileges:
 - Username and password, OR
 - Username and SSH private keys
- Port 22 (the default SSH port) open from the Skylar One Data Collector to the end device. Custom ports are supported if they are specified in the credential.

NOTE: Versions 100 and 101 of the "Oracle: Solaris Monitoring" PowerPack had "Community" support status, while versions 102 and later have "General Availability" support status. Upgrading to version 102 or later will not upgrade the "Community" versions of the PowerPack.

Configuring Oracle Solaris Devices to Collect Data

The following tables list the collection objects included in Oracle Solaris Dynamic Applications and the Solaris commands used by each of those collection objects. You can use these commands to grant or restrict access to certain data types in your Solaris user account that you will use to monitor your devices.

Dynamic Application	Collection Object(s)	Solaris Command(s) Used
Oracle: Solaris Configuration Discovery	System OS Name	<code>uname -a</code>
	Memory size (MB)	<code>sudo /usr/sbin/prtconf head -3 grep "Memory"</code>
	System Capability (bit)	<code>isainfo -b</code>
	OS Level	<code>uname -r</code>
	OS Version	<code>uname -r sed 's/\./ /g' awk '{ if (NF>=2)print "SunOS "\$1"."\$2; else print "SunOS "\$1}'</code>

Dynamic Application	Collection Object(s)	Solaris Command(s) Used
Oracle: Solaris CPU Utilization	Logical CPU Utilization %	<code>sar -u 1 3</code>
Oracle: Solaris ICDA Cache	Filesystem	<code>df -k</code>
	Processes	<code>ps -elf -o pid,s,osz,user,time,args</code>
	Services	<code>svcs -aHo state,fmri</code>
	Uptime	<code>uptime</code>
Oracle: Solaris Memory Stats	Memory Size	<code>sudo /usr/sbin/prtconf head -3 grep "Memory"</code>
	Free Physical Memory	<code>vmstat 1 1</code>
	Available Paging Memory	<code>sudo /usr/sbin/swap -s</code>
	Used Paging Memory	<code>sudo /usr/sbin/swap -s</code>

Dynamic Application	Collection Object(s)	Solaris Command(s) Used
Oracle: Solaris System Configuration	Application Architecture	<code>uname -p</code>
	Domain	<code>domainname</code>
	Hardware Provider	<code>showrev</code>
	Host ID	<code>hostid</code>
	Host Name	<code>hostname</code>
	Kernel Architecture	<code>uname -m</code>
	CPU Model	<code>kstat -m cpu_info</code>
	CPU Name	<code>kstat -m cpu_info</code>
	CPU type	<code>kstat -m cpu_info</code>
	Number of Virtual Processors	<code>kstat -m cpu_info</code>
	Number of Cores	<code>kstat -m cpu_info</code>
	Processor Speed (MHz)	<code>kstat -m cpu_info</code>
	Total Physical Processors	<code>kstat -m cpu_info</code>
	Kernel Version	<code>uname -a</code>
	Machine	<code>uname -a</code>
	Release	<code>uname -a</code>
Oracle: Solaris Uptime & Load Average	CPU Core Count	<code>uname -X</code>
	Load average 1 min	<code>uptime</code>
	Load average 5 min	
	Load average 15 min	
	Total Uptime Minutes	

NOTE: All Solaris commands listed in this table can be executed with a standard Solaris user account except the `swap -s` and `prtconf` commands. You will need to grant passwordless `sudo` permissions for accounts to use these commands. For example, add this command in the `/etc/sudoers` file: `username ALL=(ALL) NOPASSWD: <command>`.

NOTE: The `Showrev` command works only for version 10 of Solaris.

The following table lists internal collection Dynamic Applications (ICDA) in the PowerPack. The "Oracle: Solaris ICDA Cache" Dynamic Application acts as a cache producer for these Dynamic Applications:

Dynamic Application	Metrics	Solaris Command(s) Used
Oracle: Solaris IC Detail	System Uptime	<code>uptime</code>
Oracle: Solaris IC Filesystem Inventory	Filesystem	<code>df -k</code>
Oracle: Solaris IC Filesystem Performance		
Oracle: Solaris IC Process Inventory	Processes	<code>ps -elf -o pid,s,osz,user,time,args</code>
Oracle: Solaris IC Process Performance		
Oracle: Solaris IC Service Inventory	Service State	<code>svcs -aHo state,_fmri</code>
Oracle: Solaris IC Service Performance		

The following Dynamic Application is disabled by default and not included as part of the "Oracle: Solaris Dynamic Applications Template" device template. This Dynamic Application can be enabled as needed by manually adding it to your devices or the device template:

Dynamic Application	Metrics	Solaris Command(s) Used
Oracle: Solaris Filesystem	Filesystem	<code>df -k</code>

NOTE: The "Oracle: Solaris IC Filesystem Inventory" and "Oracle: Solaris IC Filesystem Performance" Dynamic Applications collect data for use in the standard, internal, file system collections. If you want to define additional alerts or collection objects, you should do so in the "Oracle: Solaris Filesystem" Dynamic Application.

NOTE: The "Oracle: Solaris IC Service Inventory" and "Oracle: Solaris IC Service Performance" Dynamic Applications report each Service Management Facility (SMF) service as running or not running, based on its SMF state:

- **Running.** `online`, `legacy_run`, and `degraded`.
- **Not running.** `offline`, `disabled`, `maintenance`, `uninitialized`, and `incomplete`.

You can use Skylar One service monitoring policies to generate events from the collected service state data.

Creating an SSH/Key Credential for Oracle Solaris

To configure Skylar One to monitor Oracle Solaris devices using SSH, you must first create an SSH/Key credential. This credential allows the Dynamic Applications in the "Oracle: Solaris Monitoring" PowerPack to connect with an Oracle Solaris device.

To create an SSH/Key credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the "Solaris Example Credential" and click on it. The **Edit Credential** modal page appears:

3. Supply values in the following fields:
 - **Name.** Type a new name for the credential. Can be any combination of alphanumeric characters, up to 64 characters. This field is required.
 - **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. This field is required.
 - **Timeout (ms).** Time, in milliseconds, after which Skylar One will stop trying to communicate with the device from which you want to retrieve data.
 - **Hostname/IP.** Type the hostname or IP address of the Oracle Solaris device you want to monitor. Alternatively, you can use the following variables:

- You can include the variable **%D** in this field. Skylar One will replace the variable with the IP address of the device that is currently using the credential.
- You can include the variable **%N** in this field. Skylar One will replace the variable with hostname of the device that is currently using the credential. If Skylar One cannot determine the hostname, Skylar One will replace the variable with the primary, management IP address for the current device.
- **Port.** Port number associated with the data you want to retrieve. This field is required.

NOTE: The default TCP port for SSH servers is 22.

- **Username.** Username for an SSH or user account on the device to be monitored.
- **Password.** Password for an SSH user account on the device to be monitored.
- **Private Key.** Type or paste the SSH private key that you want Skylar One to use, in PEM format.

NOTE: The private key must include the lines "BEGIN RSA PRIVATE KEY" and "END RSA PRIVATE KEY", as well as all preceding and following dashes on those lines.

NOTE: The **Private Key** field is required only in the default Skylar One user interface (AP2). The **Private Key** field is not required if you are using the classic Skylar One user interface to define a credential.

NOTE: The private key can have a maximum of 64 characters per line. Therefore, you cannot use keys in the OpenSSH format, because that format uses 70 characters per line. When you attempt to save the credential, Skylar One validates that the private key entered is in the correct format. You can save the credential only if the private key is correctly formatted.

4. Click **[Save & Close]**.

Creating an SSH/Key Credential for Oracle Solaris in the Skylar One Classic User Interface

To configure Skylar One to monitor Oracle Solaris devices using SSH, you must first create an SSH/Key credential. This credential allows the Dynamic Applications in the "Oracle: Solaris Monitoring" PowerPack to connect with an Oracle Solaris device.

To define an SSH/Key credential in the classic user interface:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. In the **Credential Management** page, locate the "Solaris Example Credential" and click its wrench icon (). The **Credential Editor** modal appears.
3. In the **Credential Editor** modal, supply values in the following fields:
 - **Credential Name**. Type a new name for the credential.
 - **Hostname/IP**. Type the hostname or IP address of the Oracle Solaris device you want to monitor. Alternatively, you can use the following variables:
 - You can include the variable **%D** in this field. Skylar One will replace the variable with the IP address of the device that is currently using the credential.
 - You can include the variable **%N** in this field. Skylar One will replace the variable with hostname of the device that is currently using the credential. If Skylar One cannot determine the hostname, Skylar One will replace the variable with the primary, management IP address for the current device.
 - **Port**. Type the port number associated with the data you want to retrieve. This field is required.

NOTE: The default TCP port for SSH servers is 22.

- **Timeout (ms)**. Time, in milliseconds, after which Skylar One will stop trying to communicate with the authenticating server.
- **Username**. Username for an SSH or user account on the device to be monitored.
- **Password**. Password for an SSH user account on the device to be monitored. (This field is optional if you are using a PEM key.)

- **Private Key (PEM Format).** Type or paste the SSH private key that you want Skylar One to use, in PEM format.

NOTE: The private key must include the lines "BEGIN RSA PRIVATE KEY" and "END RSA PRIVATE KEY", as well as all preceding and following dashes on those lines.

NOTE: The private key can have a maximum of 64 characters per line. Therefore, you cannot use keys in the OpenSSH format, because that format uses 70 characters per line. When you attempt to save the credential, Skylar One will validate that the private key entered is in the correct format. You will be able to save the credential only if the private key is correctly formatted.

NOTE: The PowerPack has been tested with the following ciphers (Host-key algorithms): `ssh-ed25519`, `ecdsa-sha2-nistp521`, `ecdsa-sha2-nistp384`, `ecdsa-sha2-nistp256`, `rsa-sha2-512`, `rsa-sha2-256`. SSH-RSA and SSH-DSS are not supported.

5. Click **[Save As]** to save the new SSH/Key credential.

Configuring the Oracle Solaris Device Template

A **device template** allows you to save a device configuration and apply it to multiple devices. The Dynamic Applications in the "Oracle: Solaris Monitoring" PowerPack do not align automatically. Configuring and applying the "Oracle: Solaris Dynamic Applications Template" device template when you discover your Oracle Solaris device will align the appropriate Dynamic Applications.

To configure the Oracle Solaris device template:

1. Go to the **Configuration Templates** page (Devices > Templates, or Registry > Devices > Templates in the classic user interface).
2. Locate the "Oracle: Solaris Dynamic Applications Template" and click its wrench icon (). The **Device Template Editor** page appears.
3. Click the **[Dyn Apps]** tab. The **Editing Dynamic Application Subtemplates** page appears.
4. Complete the following fields:
 - **Template Name.** Type a new name for the device template.
 - **Credentials.** Select the SSH/Key credential that you created for Oracle Solaris.
5. Click the next Dynamic Application listed in the **Subtemplate Selection** section on the left side of the page and then select the Oracle Solaris SSH/Key credential in the **Credentials** field.
6. Repeat step 5 until the you have selected the Oracle Solaris SSH/Key credential in the **Credentials**

field for all of the Dynamic Applications listed in the **Subtemplate Selection** section.

7. Click **[Save As]**.

CAUTION: Do not click the **[Save]** button. Doing so will save over the "Oracle: Solaris Dynamic Applications Template," which you might need for future use.

Preventing Oracle Solaris Devices from Dynamically Aligning Unwanted Dynamic Applications

As the Dynamic Applications in this PowerPack do not get automatically aligned during discovery, you can choose to disable the "Dynamic Discovery" flag on your Oracle Solaris device to ensure that other Dynamic Applications do not automatically align to your device and cause increased scale on your Skylar One system.

To disable the "Dynamic Discovery" flag from the **Device Investigator**:

1. In the **Devices** page, locate your Oracle Solaris device and click on it.
2. In the **Device Investigator** page, click the **[Settings]** tab.
3. Locate the *Dynamic Discovery* checkbox and deselect it.
4. Click **[Save]**.

To disable "Dynamic Discovery" from the device template:

1. In the **Configuration Templates** page (Devices > Templates, or Registry > Devices > Templates in the classic user interface), locate the "Oracle: Solaris Dynamic Applications Template" and click on its wrench icon (.
2. In the **Device Template Editor**, in the **Device Preferences** pane of the **[Config]** tab, click on *Dynamic Discovery* to enable the option.
3. Deselect the *Dynamic Discovery* checkbox.
4. Click **[Save]**.

Discovering Oracle Solaris Devices

To create and run a discovery session that will discover Oracle Solaris devices, perform the following steps:

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 Workflow]** button. Additional information about the requirements for discovery appears in the **General Information** pane to the right.
3. Click **[Select]**. The **Basic Information** 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 **Credential Selection** page of the **Add Devices** wizard appears.
 6. Locate and select the **SSH/Key credential** you created.
 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 addresses for the Solaris devices you want to monitor, separated by a comma.
 - **Which collector will monitor these devices?** Select an existing collector to monitor the discovered devices. This field is required.
 - **Run after save.** Select this option to run this discovery session as soon as you click **[Save and Close]**.

In the **Advanced options** section, click the down arrow icon (▼) to complete the following fields:

 - **Discover Non-SNMP.** Enable this setting.
 - **Model Devices.** Enable this setting.
 - **Apply Device Template.** Select the device template that you created for Solaris.
 9. Click **[Save and Close]** to save the discovery session. The **Discovery Sessions** page (Devices > Discovery Sessions) displays the new discovery session.
 10. 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 Oracle Solaris Component Devices in the Skylar One Classic User Interface

To create and run a classic discovery session that will discover Oracle Solaris devices, perform the following steps:

1. Go to the **Discovery Control Panel** page (System > Manage > Classic Discovery or System > Manage > Discovery in the classic user interface).
2. Click the **[Create]** button to create a new discovery session. The **Discovery Session Editor** modal page appears.
3. Enter values in the following fields:
 - **IP Address Discovery List.** Type the IP addresses for the Solaris devices you want to monitor, separated by a comma.

- **Other Credentials.** Select the [SSH/Key credential](#) that you created for Solaris.
 - **Discover Non-SNMP.** Select this checkbox.
 - **Model Devices.** Select this checkbox.
 - **Apply Device Template.** Select the device template that you created for Solaris.
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 and then close the **Discovery Session Editor** modal page.
 6. The discovery session you created will appear 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 Solaris device is discovered, click its device icon (🖥️) to view the **Device Properties** page for the Solaris device.

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