Monitoring Oracle Solaris

Oracle: Solaris Monitoring PowerPack version 101

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Chapter 1

Introduction

Overview

This manual describes how to monitor Oracle Solaris devices in SL1 using the Dynamic Applications in the *Oracle: Solaris Monitoring* PowerPack.

The following sections provide an overview of 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 Run Book 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

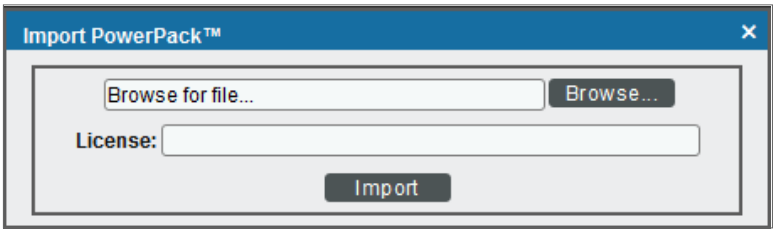
Installing the Oracle: Solaris Monitoring PowerPack

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 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.)

To download and install a PowerPack:

1. Download the PowerPack from the ScienceLogic Support Site at https://support.sciencelogic.com/s/powerpacks.
2. Go to the PowerPack Manager page (System > Manage > PowerPacks).
3. In the PowerPack Manager page, click the [Actions] button, then select *Import PowerPack*. The Import PowerPack dialog box appears:



4. Click the [Browse] button and navigate to the PowerPack file.
5. When the PowerPack Installer modal appears, click the [Install] button to install the PowerPack.

NOTE: If you exit the PowerPack Installer modal without installing the imported PowerPack, the imported PowerPack will not appear in the PowerPack Manager 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 Oracle Solaris devices for monitoring by SL1 using the *Oracle: Solaris Monitoring* PowerPack:

This chapter covers the following topics:

Supported Operating Systems

Version 5.11 of Solaris is supported by the PowerPack. Older versions of Solaris will work if the commands in this document will work with that version.

Prerequisites

To configure the SL1 system to monitor Oracle Solaris devices using the *Oracle: Solaris Monitoring* PowerPack, you must have the following information about your devices:

- IP addresses/hostnames of the devices you want to monitor.
- A service account with the appropriate privileges:
    - Username/Password, OR
    - SSH private keys
- Port 22 (default SSH port) open from the SL1 Data Collector to the end device. Custom ports are supported if they are specified in the credential.

NOTE: If you are already using an older version of the Solaris Community PowerPack, this pack will not upgrade the existing community PowerPack to this version.

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	uname -a
	Memory size (MB)	sudo /usr/sbin/prtconf | head -3 | grep "Memory"
	System Capability (bit)	isainfo -b
	OS Level	uname -r
	OS Version	uname -r | sed 's/\./ /g' | awk '{ if (NF>=2)print "SunOS "$1"."$2; else print "SunOS "$1}'
Oracle: Solaris CPU Utilization	Logical CPU Utilization %	sar -u 1 3
Oracle: Solaris ICDA Cache	Filesystem	df -k
	Processes	ps -elf -o pid,s,osz,user,time,args
	Uptime	uptime

Oracle: Solaris Memory Stats	Memory Size	sudo /usr/sbin/prtconf | head -3 | grep "Memory"
	Free Physical Memory	vmstat 1 1
	Available Paging Memory	sudo /usr/sbin/swap -s
	Used Paging Memory	sudo /usr/sbin/swap -s
Oracle: Solaris System Configuration	Application Architecture	showrev
	Domain	showrev
	Hardware Provider	showrev
	Host ID	showrev
	Host Name	showrev
	Kernel Architecture	showrev
	CPU Model	kstat -m cpu_info
	CPU Name	kstat -m cpu_info
	CPU type	kstat -m cpu_info
	Number of Virtual Processors	kstat -m cpu_info
	Number of Cores	kstat -m cpu_info
	Processor Speed (MHz)	kstat -m cpu_info
	Total Physical Processors	kstat -m cpu_info
	Kernel Version	uname -a
	Machine	uname -a
	Release	uname -a

Solars: Uptime & Load Average	CPU Core Count	
	Load average 1 min	uptime
	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 sudo permission for accounts to use these commands. "showrev" command is working only in Solaris version 10.

The following table lists internal collection Dynamic Applications (ICDA) in the PowerPack:

Dynamic Application	Metrics	Solaris Command(s) Used
Oracle: Solaris IC Detail	System Uptime	uptime
Oracle: Solaris IC Filesystem Inventory	Filesystem	df -k
Oracle: Solaris IC Filesystem Performance		
Oracle: Solaris Process Inventory	Processes	ps -elf -o pid,s,osz,user,time,args
Oracle: Solaris Process 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	df -k
Oracle: Solaris Memory Stats (Enhancements)	Free Physical Memory Free Swap Memory Memory Size Total Swap Memory ZFS Cache	vmstat 1 1 sudo /usr/sbin/swap sudo /usr/sbin/prtconf sudo /usr/sbin/swap echo ::memstat | sudo /usr/bin/mdb -k

NOTE: The "Oracle: Solaris IC Filesystem Inventory" and "Oracle: Solaris IC Filesystem Performance" Dynamic Applications collect all necessary data. In the case that additional collections or alerts need to be defined, the "Oracle: Solaris Filesystem" Dynamic Application can be utilized.

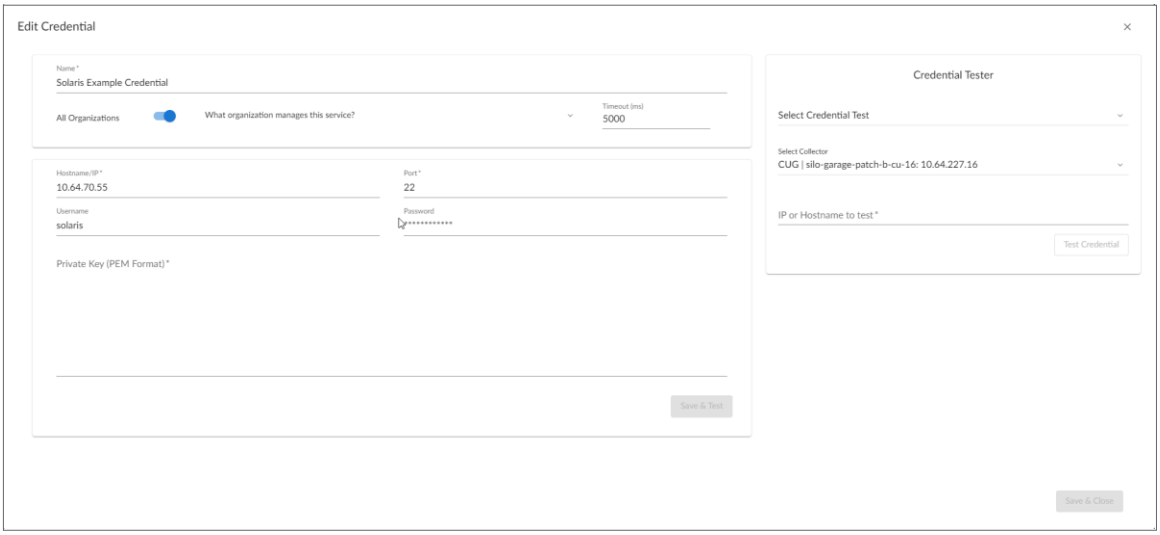
Creating an SSH/Key Credential for Oracle Solaris

To configure SL1 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.

NOTE: If you are using an SL1 system prior to version 11.1.0, the new user interface does not include the *Duplicate* option for sample credential(s). ScienceLogic recommends that you use *the classic user interface and the Save As button* to create new credentials from sample credentials. This will prevent you from overwriting the sample credential(s).

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*. Name of 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 *What organization manages this service?* drop-down field to align the credential with those specific organizations. This field is required.

- *Timeout (ms)*. Time, in milliseconds, after which SL1 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. SL1 will replace the variable with the IP address of the current device (device that is currently using the credential).
  - You can include the variable %N in this field. SL1 will replace the variable with hostname of the current device (device that is currently using the credential). If SL1 cannot determine the hostname, SL1 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 (PEM Format)*. Type or paste the SSH private key that you want SL1 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 (PEM Format)* field is only required in the current SL1 user interface. The *Private Key (PEM Format)* field is not required if you are using the classic SL1 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, SL1 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.

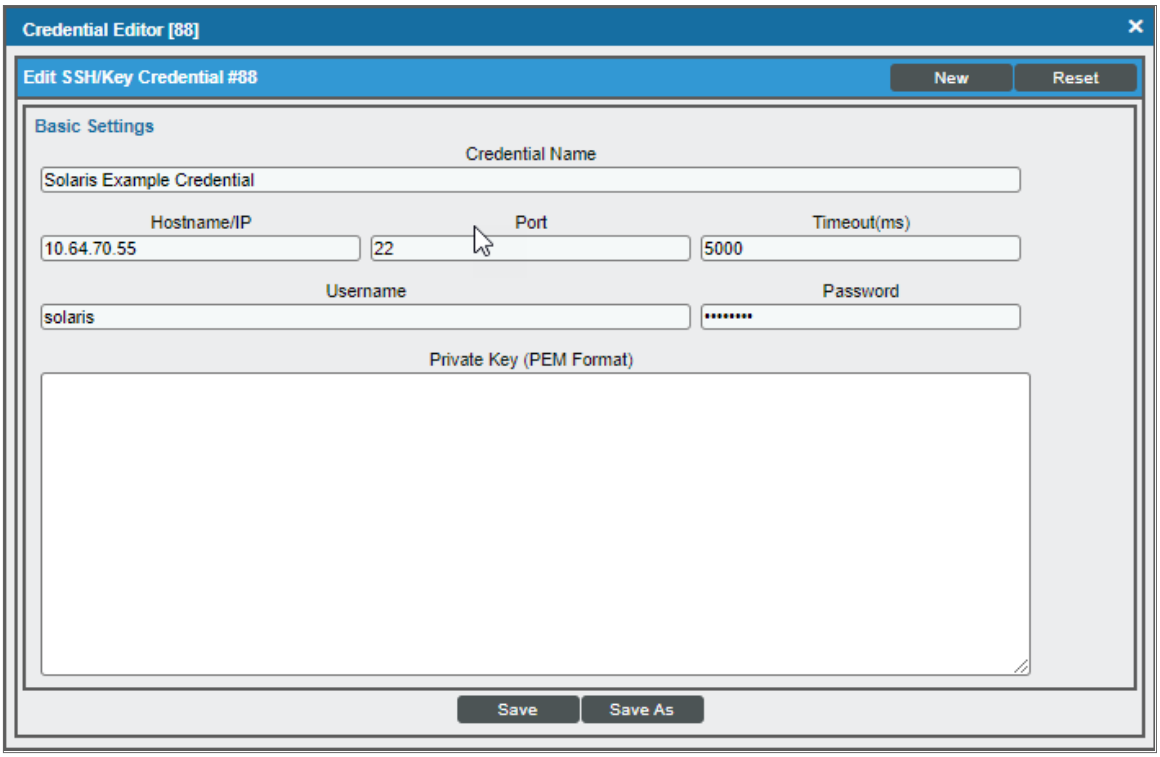
4. Click [Save & Close].

Creating an SSH/Key Credential for Oracle Solaris in the SL1 Classic User Interface

To configure SL1 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:

1. Collect the information you need to create each credential (usually username and password).
2. Go to the Credential Management page (System > Manage > Credentials).
3. In the Credential Management page, located the "Solaris Example Credential" and click its wrench icon ( ). The Credential Editor appears:



4. In the Credential Editor, supply values in the following fields:
   - *Credential Name*. Type a name for the credential.
   - *Hostname/IP*. Type the hostname or IP address of theOracle Solaris device you want to monitor. Alternatively, you can use the following variables:
     - You can include the variable %D in this field. SL1 will replace the variable with the IP address of the current device (device that is currently using the credential).
     - You can include the variable %N in this field. SL1 will replace the variable with hostname of the current device (device that is currently using the credential). If SL1 cannot determine the hostname, SL1 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.

   - *Timeout (ms)*. Time, in milliseconds, after which SL1 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. (Optional if using a PEM key.)
- *Private Key (PEM Format)*. Type or paste the SSH private key that you want SL1 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, SL1 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.

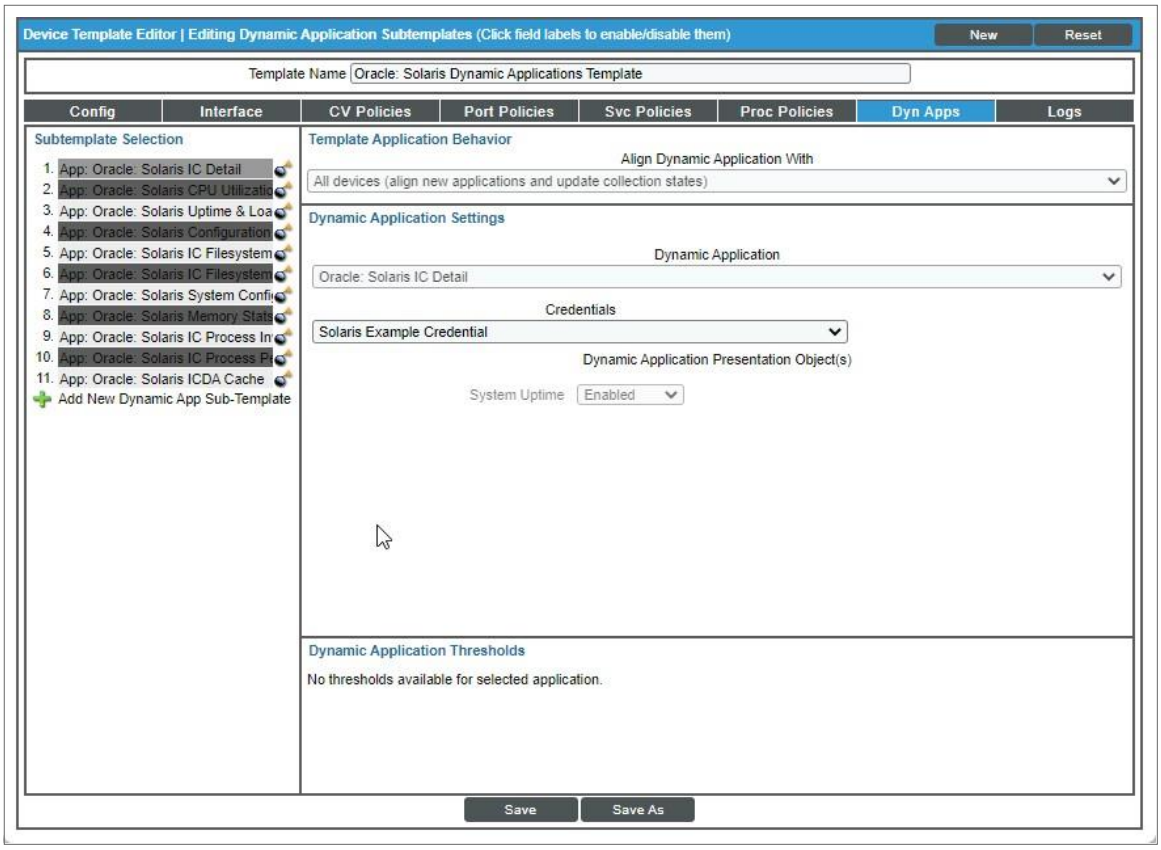
5. Click the [Save As] button to save the new SSH/Key credential.

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 SL1 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, as it will save over the "Oracle: Solaris Dynamic Applications Template", which you may 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 SL1 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 the [Save] button.

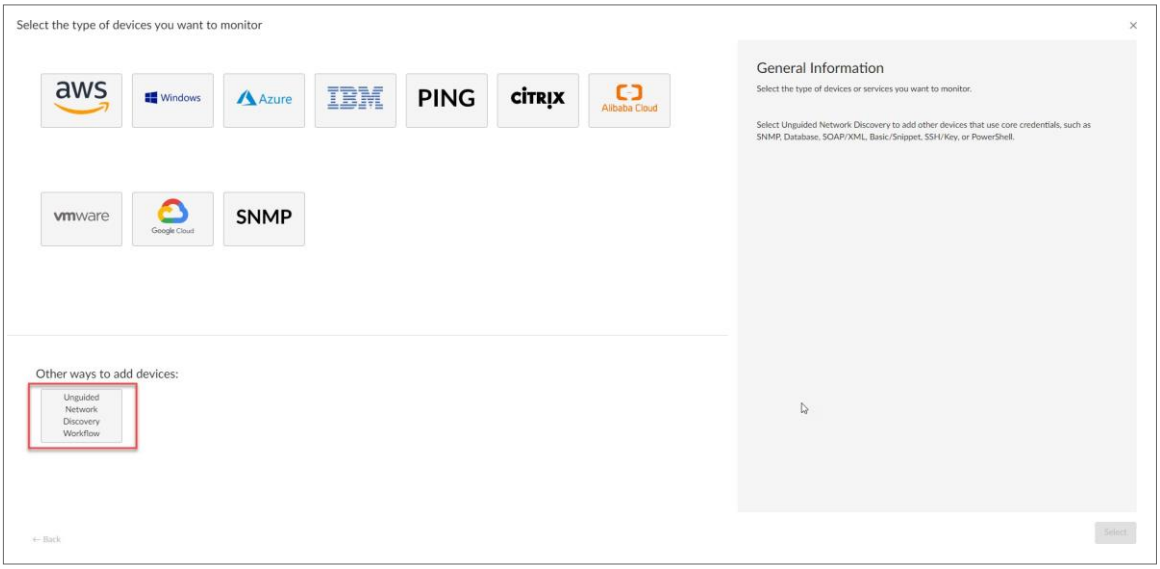
To disable "Dynamic Discovery" from the device template:

1. In the Configuration Templates page (Devices > Templates), 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 the [Save] button.

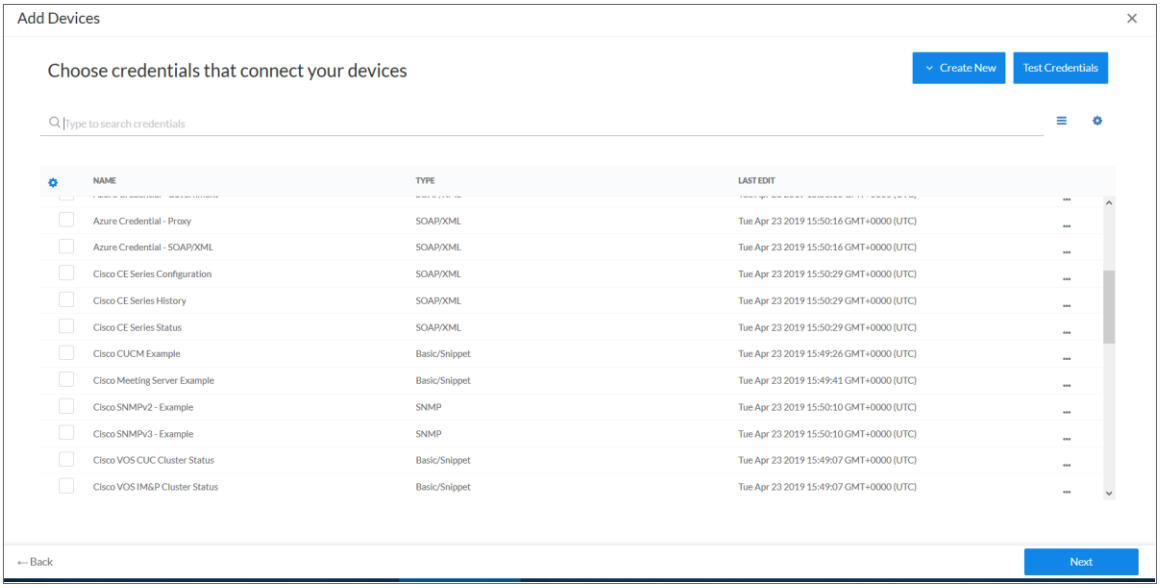
Discovering Oracle Solaris Devices

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. On the Credentials page, 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. 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.

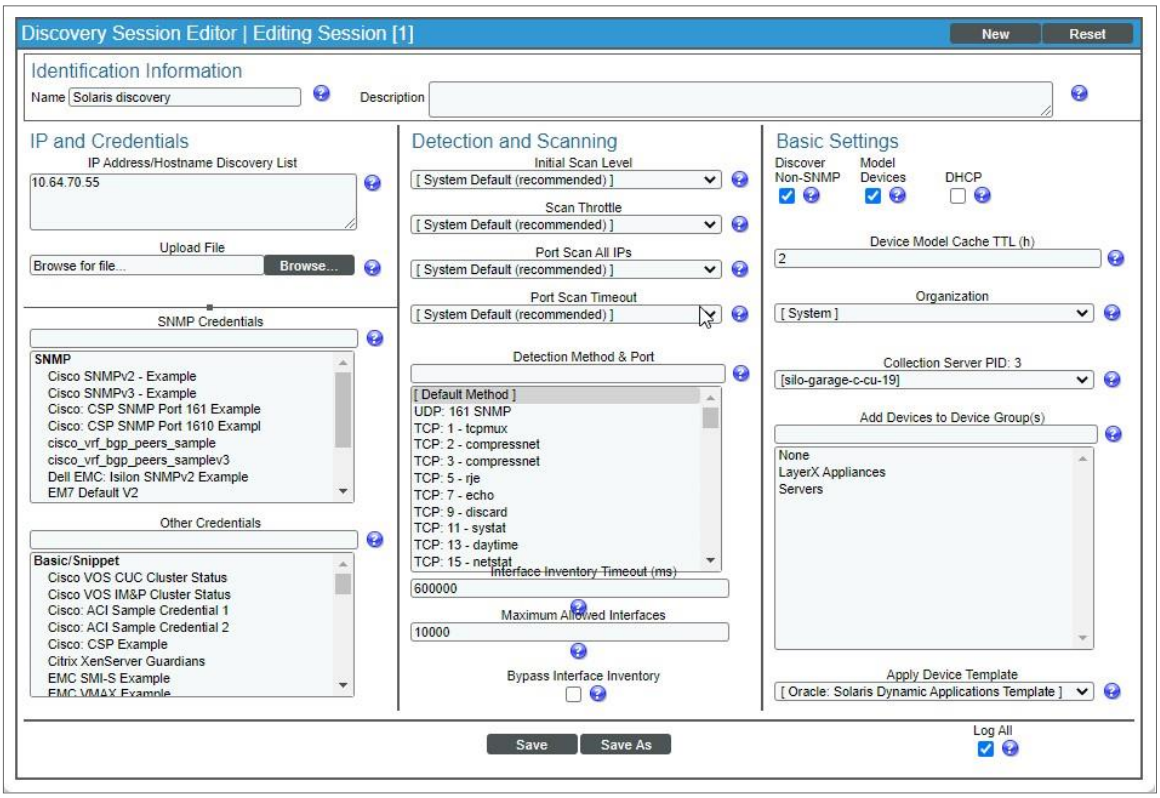
- *Apply Device Template*. Select the device template that you created for Solaris.

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 Devices in the SL1 ClassicUser Interface

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

1. Go to the Discovery Control Panel page (System > Manage > Classic Discovery).
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.

Changing the Collection Commands for Memory Utilization

Some Oracle Solaris administrators prefer to calculate memory utilization using the `mdb` command. SL1 administrators can chose to use the approach that best fits their use case.

There are two memory utilization Dynamic Applications in the PowerPack:

- Oracle: Solaris Memory Stats
- Oracle: Solaris Memory Stats (Enhancements)

The "Oracle: Solaris Memory Stats (Enhancements)" Dynamic Applications is disabled by default and cannot be aligned using the device template. To enable the "Oracle: Solaris Memory Stats (Enhancements)" Dynamic Application:

1. Ensure that the user has the proper privileges to run the `mdb` command.

2. Go to the Dynamic Applications Manager page (System > Manage > Dynamic Applications).

3. Locate the "Oracle: Solaris Memory Stats (Enhancements)" Dynamic Application and click its wrench icon.

4. In the Operational State dropdown field, select Enabled. Click [Save].

5. The "Oracle: Solaris Memory Stats (Enhancements)" Dynamic Application can now be manually aligned to individual devices.

NOTE: The Dynamic Application Oracle: Solaris Memory Stats (Enhancements) is in disabled state.

WARNING: Enabling both "Oracle: Solaris Memory Stats" and "Oracle: Solaris Memory Stats (Enhancements)" Dynamic Applications will result in duplicate memory alerts.

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