ScienceLogic

Syslogs and Traps

SL1 version 12.3.0

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Chapter 1

Introduction to Syslogs and Traps

Overview

This manual describes how Syslog and SNMP Trap messages are processed by SL1 appliances that perform Message Collection.

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon (☰).
- To view a page containing all of the menu options, click the Advanced menu icon (•••).

This chapter covers the following topics:

Appliances that Process Syslog and SNMP Trap Messages

In SL1, three types of Appliances can process Syslog and SNMP Trap messages from monitored devices. The following appliances can perform the Message Collection function:

- All-In-One Appliances
- Message Collectors
- Data Collectors

> NOTE: A Data Collector can perform Message Collection only if that Data Collector is in a Collector Group that contains no other Data Collectors

For more information about SL1 appliances functions and architecture, see the ***Architecture*** manual.

For information on how to create a collector group, see the ***System Administration*** manual.

Multi-byte Character Support

SL1 supports inbound syslog and SNMP trap messages that include multi-byte characters. Multi-byte characters can be displayed in the following pages:

- The **Events** page and **Event Console** page (Events > Classic Events, or the Events tab in the classic SL1 user interface) can display multi-byte characters in syslog and SNMP trap event messages.
- The **Device Logs & Messages** page (the **[Logs]** tab on the **Device Investigator**, the **Device Administration** panel, and the **Device Reports** panel) can display multi-byte characters in syslog and SNMP trap log messages.
- The ***Ticket Description*** and ***Ticket Notes*** fields in the **Ticket Editor** page can display BMP characters populated from an event message by an automation action. SMP characters are not supported in these fields.

Multi-byte characters can be included in the following fields and functions:

- Outbound SNMP Trap messages generated by the automation engine can now include an event message that contains multi-byte characters.
- Multi-byte characters can be included in the ***Event Message***, ***First Match***, ***Second Match***, and ***Identifier Pattern*** fields in the **Event Policy Editor** page.
- Multi-byte characters can be included in the ***Varbind OID Pattern*** field in an SNMP Trap Filter (Evnts > SNMP Trap Filters, or Registry > Events > SNMP Trap Filters in the classic SL1 user interface).
- Multi-byte characters can be included in the ***Expression Match*** field in a Redirect Policy (**[Redirects]** tab on the **Device Investigator** and the **Device Administration** panel).

Chapter 2

SNMP Traps

Overview

This chapter describes how SL1 handles SNMP traps.

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon (☰).
- To view a page containing all of the menu options, click the Advanced menu icon (•••).

This chapter covers the following topics:

What Happens When a Message Collector Receives an SNMP Trap

When an appliance that performs Message Collection receives an SNMP Trap, it performs the following:

1. If the trap matches a defined filter, the trap is discarded. See ***Filtering Traps***.
2. Matches the IP address of the sender to an IP address of a device monitored by a collector group that includes the Appliance.

    - If the IP address of the sender does not match an IP address of a device monitored by a collector group that includes the Appliance, the message is discarded and a log message is generated. See ***Traps From Unknown Devices***.

3. Using the MIBs compiled on the SL1 system, translates varbind OIDs to symbolic values.

> **NOTE**: By default, Message Collectors and Data Collectors are not populated with information about all varbind OIDs. The first time a Message Collector or Data Collector attempts to translate a specific varbind OID, that varbind OID will not be translated, but information about that varbind OID will be added to theMessage Collector or Data Collector. All instances of a varbind OID after the first will then be translated correctly. To make SL1 translate the first occurrence of a varbind OID correctly, you can manually run a process that pre-populates Message Collectors and Data Collectors with information about all varbind OIDs. For steps on how to run this process, see the ***Manually Updating Varbind OIDs***.

4. Compares the trap to the defined trap event policies:

    - If the trap does not match an event policy, the trap is logged in the Device Logs for the device that sent the trap. See ***Traps That Do Not Match Event Policies***.
    - If the trap does match an event policy, the Source Host Varbind value for the event policy is evaluated. If the Source Host Varbind value matches a varbind OID in the trap, and the value of the varbind matches an IP address or hostname of a device monitored by a collector group that includes the Message Collector, the event is generated and aligned with the device with that IP address or hostname.
    - If the trap does match an event policy and is not realigned using the Source Host Varbind value, the event is generated and aligned with the device the trap was matched with in step two.

> **NOTE:** By default, the event policy "Trap: Unknown trap received" is enabled. This event policy matches all traps that do not match other event policies.

For more information on Trap events, see the ***Events*** manual.

Traps That Do Not Match Event Policies

If an Appliance that performs Message Collection receives a trap that:

- Is from a device that is monitored by a collector group that includes the Message Collector.
- Does not generate an event.

SL1 will log the receipt of the trap in the device logs for the device. If SL1 includes a compiled MIB that contains OIDs used in the received trap, SL1 will include the symbolic translation of those OIDs in the log message. The Device Log will have the following format:

```
Trap Received | Trap Detail: varbind OID or symbolic translation: varbind
data type: varbind data; (Trap OID: trap OID)
```

NOTE: Device Logs that are not associated with an Event are retrieved from Collection Units at five-minute intervals. It may take up to five minutes for traps that do not match event policies to appear in the Device Logs.

Traps From Unknown Devices

If an Appliance that performs Message Collection receives a trap from an unknown device, a "From unknown device: <*ip-address-of-unknown-device*>, received the following Trap message:" event will be generated. An unknown device is defined as either:

- A device monitored by the SL1 system, but by a collector group that does not include the Appliance.
- A device not monitored by the SL1 system.

The "From unknown device: <*ip-address-of-unknown-device*>, received the following Trap message:" event will appear in the Event Console page associated with the System organization.

For the first trap received from an unknown device, the event will have a Severity value of "Notice". If multiple traps are received from the same unknown device, additional events will be generated at the following thresholds:

- ***10, 25 Traps Received***. Severity value of "Minor".
- ***100 Traps Received, and every 100 traps up to and including 900 Traps Received***. Severity value of "Minor".
- ***1,000 Traps Received, and every 1,000 traps up to and including 9,000 Traps Received***. Severity value of "Minor".
- ***10,000 Traps Received, and every 10,000 traps received thereafter***. Severity value of "Major".

NOTE: The counters for the number of traps received from unknown devices will be reset to zero if the Event Engine on the Appliance that performs Message Collection is restarted, or the Appliance is restarted.

NOTE: The default threshold for incoming traps is set to 25 messages per second to prevent degraded performance.

Filtering Traps

In some situations, you might want to filter or limit the traps that are processed by SL1. SNMP Trap Filters allow you to define policies that filter incoming traps to an Appliance that performs Message Collection. When a trap is filtered, the Appliance that performs Message Collection receives the trap, but does not store the trap, does not act on the trap, and does not pass the trap on to be examined by the ScienceLogic event engine.

You can filter incoming SNMP traps using one, multiple, or all of the following parameters:

- IP or hostname of the host that sent the trap. You can also specify "all hosts"
- Trap OID
- Varbind OID
- Varbind content

So you can:

- Filter all incoming traps from a specific host.
- Filter incoming traps with a specific trap OID from all hosts.
- Filter incoming traps with a specific trap OID and from a specific host.
- Filter traps with a specific trap OID and specific varbind OID from all hosts.
- Filter traps with a specific trap OID and specific varbind OID from a specific host.

To create an SNMP Trap Filter, perform the following steps:

1. Go to the **SNMP Trap Filters** page (Evnts > SNMP Trap Filters, or Registry > Events > SNMP Trap Filters in the classic SL1 user interface.
2. Select the **[Create]** button. The **SNMP Trap Filter** modal page is displayed.
3. In the **SNMP Trap Filter** modal page, supply a value in the following fields:
   - ***Filter State***. Specifies whether the SNMP Trap Filter is currently active. When the SNMP Trap Filter is active, all incoming traps that match the criteria in the filter are dropped, and the Appliance does not act upon them. Choices are "Enabled" or "Disabled".
   - ***Host Filter***. Specifies hosts to filter-on. All incoming traps sent from the specified host(s) that match the other parameters will be dropped by the Message Collector.
     - If you select the checkbox next to the field name, you can enter a host name or an IP address. All incoming traps from the specified host that also match the other parameters will be dropped by the Appliance.
     - If you do not select the checkbox next to the field name, this field will contain the value *All*. In this case, incoming traps from all hosts that also match the other parameters will be dropped by the Appliance.

- ***Trap OID Filter***. Specifies the trap OID to filter on. All incoming traps that are named with the specified OID(s) and match the other parameters will be dropped by SL1.
  - If you select the checkbox next to the field name, you can enter an OID value in standard dotted-decimal notation in this field. All incoming traps that are named with the specified OID that also match the other parameters will be dropped by the Appliance.
  - If you do not select the checkbox next to the field name, this field will contain the value *All*. In this case, all incoming traps named with all OIDs that also match the other parameters will be dropped by the Appliance.
- ***Varbind OID Filter***. A varbind consists of an object, specified by an OID, and its value. In this field, you specify the varbind OID to filter on. All incoming traps that contain the specified varbind OID and also match the other parameters will be dropped by the Appliance.
  - If you select the checkbox next to the field name, you can enter an OID value in standard dotted-decimal notation in this field. All incoming traps that contain that varbind OID and match the other parameters will be dropped by the Appliance.
  - If you do not select the checkbox next to the field name, this field will contain the value *All*. In this case, all incoming traps that contain all OIDs will be dropped by the Appliance.
- ***Varbind OID Pattern***. A varbind consists of an object, specified by an OID, and its value. In this field, you specify a pattern to search for in the varbind value. All incoming traps that contain a varbind value with this pattern and also match the other parameters will be dropped by the Appliance.
  - If you select the checkbox next to the field name, you can enter an alpha-numeric pattern or a RegEx pattern, including multi-byte characters, to search for. All incoming traps that contain a varbind with that value and also match the other parameters will be dropped by the Appliance.
  - If you do not select the checkbox next to the field name, this field will contain the value *All*. In this case, all incoming traps that contain all varbind values that also match the other parameters will be dropped by the Appliance.

4. Select the **[Save]** button to save the new SNMP Trap Filter.
5. The new SNMP Trap Filter should now appear in the **SNMP Trap Filters** page. If the filter is enabled, SL1 will not store or process traps that meet the filter criteria.

To edit an SNMP Trap Filter, perform the following steps:

1. Go to the **SNMP Trap Filters** page (Evnts > SNMP Trap Filters, or Registry > Events > SNMP Trap Filters in the classic SL1 user interface.
2. Find the filter you want to edit and select its wrench icon (🔧). The **SNMP Trap Filter** modal page is displayed.
3. In the **SNMP Trap Filter** modal page, change the values in one or more fields.
4. Select the **[Save]** button to save your changes to the SNMP Trap Filter.

To delete an SNMP Trap Filter, perform the following steps:

1. Go to the **SNMP Trap Filters** page (Evnts > SNMP Trap Filters, or Registry > Events > SNMP Trap Filters in the classic SL1 user interface.
2. Find the filter you want to delete and select its checkbox. To select all checkboxes for all filters, select the checkbox at the top of the page.
3. In the ***Select Action*** drop-down list, select *Delete filter definitions*. Select the **[Go]** button.
4. The selected SNMP Trap Filters will be deleted. SL1 will stop filtering the incoming SNMP traps that were previously filtered with the deleted SNMP Trap Filters.

Global Settings that Affect SNMP Trap Processing

The following global setting affects how SL1 processes SNMP traps:

- ***use_v1trap_envelope_addr***. In environments where Network Address Translation is performed on SNMP v1 trap messages sent to SL1, you can configure SL1 to read the envelope address (the address of the host sending the trap) instead of the agent address (the IP address variable sent as part of the trap). To use the envelope address instead of the agent address for SNMP v1 trap messages, the *use_v1trap_envelope_addr=1* configuration option can be added to the [LOCAL] section of silo.conf on Message Collectors, Data Collectors that perform message collection, and All-In-One Appliances. If *use_v1trap_envelope_addr* is not defined in silo.conf or *use_v1trap_envelope_addr=0* is defined, SL1 will use the agent address for SNMP v1 trap messages.

To add a settings to the silo.conf file on an appliance:

1. Either go to the console of the SL1 appliance or use SSH to access the server.
2. Login as user ***em7admin*** with the password you configured during setup.
3. At the shell prompt, enter the following:

```
sudo visilo
```

4. On a line of its own, add the new entry.
5. Save your changes and exit the file (`:wq`).

System Settings that Affect SNMP Trap Processing

The following system setting affects how SL1 processes SNMP traps:

- ***Ignore trap agent-addr varbind***. If you select this checkbox, SL1 will align the SNMP trap with the forwarder (last hop) instead of searching for the IP address of the originator of the trap.
- ***Enhanced OID Translation***. If selected, ensures that varbind OIDs that use multi-dimensional indexes are translated correctly. The symbolic translation of the known portion of the OID is included in the log message associated with the trap.

NOTE: Enabling the ***Enhanced OID Translation*** option might affect performance on large environments with a large number of traps.

To enable these settings:

1. Go to the **Behavior Settings** page (System > Settings > Behavior).
2. Select the checkbox next to the setting or settings you want to enable.
3. Click **[Save]** to save the settings.

Manually Updating Varbind OIDs

By default, Message Collectors and Data Collectors are not populated with information about all varbind OIDs. The first time a Message Collector or Data Collector attempts to translate a specific varbind OID, that varbind OID will not be translated, but information about that varbind OID will be added to the Message Collector or Data Collector. All instances of a varbind OID after the first will then be translated correctly.

To make SL1 translate the first occurrence of a varbind OID correctly, you can manually run a process that pre-populates Message Collectors and Data Collectors with information about all varbind OIDs. You should run this process after adding new MIBs to SL1.

To manually populates Message Collectors and Data Collectors with information about all varbind OIDs, perform the following steps:

1. Go to the **OID Browser** page (System > Tools > OID Browser).
2. Select the **[Update]** button.

Pushing SNMPv3 Trap Configurations to Your SL1 Appliance

To configure a Message Collector or Data Collector to accept an SNMPv3 trap or inform, SL1 automatically configures the trap configuration file on the Message Collector or Data Collector. SL1 automatically populates the SNMPv3 trap and inform credentials including the engine ID of the recipient, the Message Collector or Data Collector.

To configure an SNMPv3 Trap:

1. Go to the **Credentials** page (Manage > Credentials.
2. Click the **SNMPv3 Trap Configuration Reset** icon (↻).
3. SL1 automatically configures the etc/snmptrapd.con file to receive SNMPv3 traps from all monitored devices.

Pushing SNMPv3 Trap Configurations to Your SL1 Appliance in the Classic User Interface

To configure an SNMPv3 Trap in the classic SL1 user interface:

1. Go to the Credential Management page (System > Manage > Credentials).
2. Click the **Actions** button and then select *Push SNMPv3 Trap Configuration*.

3. A warning message appears: "Warning: This will push the SNMP V3 trap configuration to all collectors and message collectors and restart the snmptrapd service on the appliance. Are you sure you want to submit this?"

4. Click **OK**. SL1 automatically configures the etc/snmptrapd.con file to receive SNMPv3 traps from all monitored devices.

Chapter 3

Syslog Messages

Overview

When an Appliance that performs Message Collection receives a Syslog message, it performs the following:

1. Matches the IP address of the sender to an IP address of a device monitored by a collector group that includes the Appliance.

    - If the IP address of the sender does not match an IP address of a device monitored by a collector group that includes the Appliance, the message is discarded and an event is generated. See ***Syslogs From Unknown Devices***.

2. Compares the syslog to the defined syslog event policies:

    - If the syslog does not match an event policy, the syslog is logged in the Device Logs for the device that sent the syslog. See ***Syslogs That Do Not Match Event Policies***.

    - If the syslog matches an event policy, the event is generated. The generated event is aligned with the device the syslog was matched with in step 1.

For more information on syslog events, see the ***Events*** manual.

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon (☰).
- To view a page containing all of the menu options, click the Advanced menu icon (⋯).

This chapter covers the following topics:

Syslogs That Do Not Match Event Policies

If an Appliance that performs Message Collection receives a syslog that:

- Is from a device that is monitored by a collection group that includes the Appliance.
- Does not generate an event.

SL1 will log the receipt of the syslog in the device logs for the device. The message field for the Device Log will be the same as the syslog message field.

> **NOTE**: Device Logs that are not associated with an Event are retrieved from Collection Units at five-minute intervals. It may take up to five minutes for syslogs that do not match event policies to appear in the Device Logs.

Syslogs From Unknown Devices

If an Appliance the performs Message Collection receives a syslog from an unknown device, a "From unknown device: <*ip-address-of-unknown-device*>, received the following syslog message:" event will be generated. An unknown device is defined as either:

- A device monitored by the SL1 system, but by a collector group that does not include the Appliance.
- A device not monitored by the SL1 system.

The "From unknown device: <*ip-address-of-unknown-device*>, received the following syslog message:" event will appear in the **Event Console** page associated with the System organization.

For the first syslog received from an unknown device, the message will have a Severity value of "Notice". If multiple syslogs are received from different unknown devices, additional events will be generated at the following thresholds:

- ***10, 25 Syslogs Received***. Severity value of "Minor".
- ***100 Syslogs Received, and every 100 syslogs up to and including 900 Syslogs Received***. Severity value of "Minor".
- ***1,000 Syslogs Received, and every 1,000 syslogs up to and including 9,000 Syslogs Received***. Severity value of "Minor".
- ***10,000 Syslogs Received, and every 10,000 syslogs received thereafter***. Severity value of "Major".

> **NOTE:** Multiple messages received from the same unknown device will not increase the event count of syslog messages received or the event severity.

NOTE: The counters for the number of syslogs received from unknown devices will be reset to zero if the Event Engine on an Appliance that performs Message Collection is restarted, or the Appliance is restarted.

NOTE: The default threshold for incoming syslogs is set to 25 messages per second to prevent degraded performance.

Chapter

4

IP Address Conflicts

Overview

This chapter describes how SL1 handles IP address conflicts.

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon (☰).
- To view a page containing all of the menu options, click the Advanced menu icon (•••).

This chapter covers the following topics:

IP Addresses Associated with Devices

There are three types of IP addresses that can be associated with a device:

- ***Admin Primary***. This is the IP address that SL1 used to discover a device, and is used by Data Collectors to communicate with a device. This IP address is always the ***Admin Primary*** address and cannot be demoted to a secondary address.
- ***Primary***. One or more IP addresses that SL1 uses to match incoming syslog an trap messages with a device.
- ***Secondary***. SL1 gathers information about this IP address, but does not use this IP address to communicate with the device or match incoming syslog or trap messages with a device.

SL1 will allow devices with the same admin primary IP address to be monitored; however, devices with the same admin primary IP address must be in separate collector groups. The admin primary IP address is the IP address SL1 uses to monitor a device, and is listed in the ***IP Address*** column on the **Devices** page or the **Device Manager** page (Devices > Classic Devices, or Registry > Devices > Device Manager in the classic SL1 user interface).

A Message Collector can be aligned with multiple collector groups. Because Message Collectors can be included in multiple collection groups, it is possible for the IP address associated with a syslog or trap to match multiple devices.

This chapter describes how a Message Collector reports IP conflicts in this situation.

NOTE: The information in this chapter does not apply to Data Collectors and All-In-One Appliances because Data Collectors and All-In-One Appliances can be in only one Collector Group.

IP Conflict Events

For each Message Collector, daily maintenance compares the IP addresses for all devices monitored by the collector groups that include the Message Collector. If the daily maintenance task finds duplicate admin primary IP addresses, SL1 generates the following event, with a default severity of major:

```
Primary IP address overlap on devices managed by Message Collector:
<appliance-id-of-message-collection-unit> | Collector Groups: <id-of-
collector-groups> | IP Address: <duplicate-ip-address> | Device IDs:
<device-ids-using-ip-address>
```

If the daily maintenance task finds duplicate secondary IP addresses, SL1 generates the following event, with a default severity of minor:

```
Secondary IP address overlap on devices managed by Message Collector:
<appliance-id-of-message-collection-unit> | Collector Groups: <id-of-
collector-groups> | IP Address: <duplicate-ip-address> | Device IDs:
<device-ids-using-ip-address>
```

When a Message Collector is:

- Aligned with multiple collector groups
- Receives a syslog or trap from a primary IP address associated with multiple devices
- The IP address is associated with multiple devices, all of which are are monitored by the same collector group that contains the the Message Collector

SL1 generates the following event, with a default severity of minor:

```
Could not match asynchronous message to a device due to a primary IP
address ambiguity address: <duplicate-ip-address>
```

If a received syslog or trap triggers the address ambiguity event, and the Message Collector is discovered on the system, any events or logs generated by the syslog or trap are aligned with the Message Collector. If a received syslog or trap causes the address ambiguity event to be generated, and the Message Collector is not on the system, any events or logs generated by the syslog or trap are aligned with the System organization.

Resolving IP Conflicts

To prevent syslog and trap messages from aligning with the Message Collector or System organization because of an IP conflict, every device monitored by the same Message Collector must use a unique IP address to send syslog and trap messages. Even if these devices that share an IP address are in different collector groups, if the devices share one or more Message Collectors, the devices should use unique IP addresses to send syslog and trap messages.

By default, SL1 uses only the admin primary IP address to align syslog and trap messages to devices. If the admin primary IP address for a device is not unique, you can configure a secondary IP address for use as a primary IP address for message collection.

NOTE: Configuring a secondary IP address as a primary IP address for message collection will not affect any data collection performed byData Collectors. Data Collectors will always use the admin primary IP address when polling devices.

To configure a secondary IP address for a device as a primary IP address for message collection:

1. Go to the **Device Manager** page (Devices > Classic Devices, or Registry > Devices > Device Manager in the classic SL1 user interface).
2. Select the wrench icon (🔧) for the device you want to configure. The **Device Properties** window will be displayed.

3. To check that SL1 has discovered the secondary IP address that you want to configure as the primary IP address for message collection, select the ***IP Address*** drop down list. If the secondary IP address is not displayed in the list of IP addresses, you can add it manually:

   - Select the plus icon to the right of the ***IP Address*** drop down list. The **Add IP Address** modal window is displayed:
   - Enter the secondary IP address in the ***IP Address*** field.
   - Enter the subnet mask for the secondary IP address in the ***Subnet Mask*** field.
   - Select the **[Save]** button. The **Add IP Address** modal window will close and the message "Unverified IP Added to Device" is displayed.

4. From the **[Actions]** menu, select ***Select Primary IP Addresses***. The **Select Primary IP Addresses** modal window is displayed.
5. Select the checkbox for the secondary IP address you want to configure as a primary IP address. Select the **[Save]** button. The *State* of the selected IP address is now "Primary".

NOTE: You cannot change the state of the admin primary address. If a listed IP address is already in use as an admin primary or primary IP address for another device in the same collector group, you cannot set it as a primary IP address and the checkbox will not be displayed. You can select multiple secondary IP addresses to set as primary addresses.

Chapter

5

Event Policies for Syslogs and Traps

Overview

This chapter describes how to set up Event Policies for events with a source of Syslog and Trap messages.

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon (☰).
- To view a page containing all of the menu options, click the Advanced menu icon (•••).

This chapter covers the following topics:

Creating Event Policies for Syslogs and Traps

SL1 includes pre-defined events for the most commonly encountered conditions on the most common platforms. However, if the pre-defined events do not meet the needs of your organization, you can define new events that better suit your needs.

From the **Event Policies** page, you can define a new event. You can define custom events to meet your business requirements. You can also define events to be triggered by any custom Dynamic Application alerts you have created.

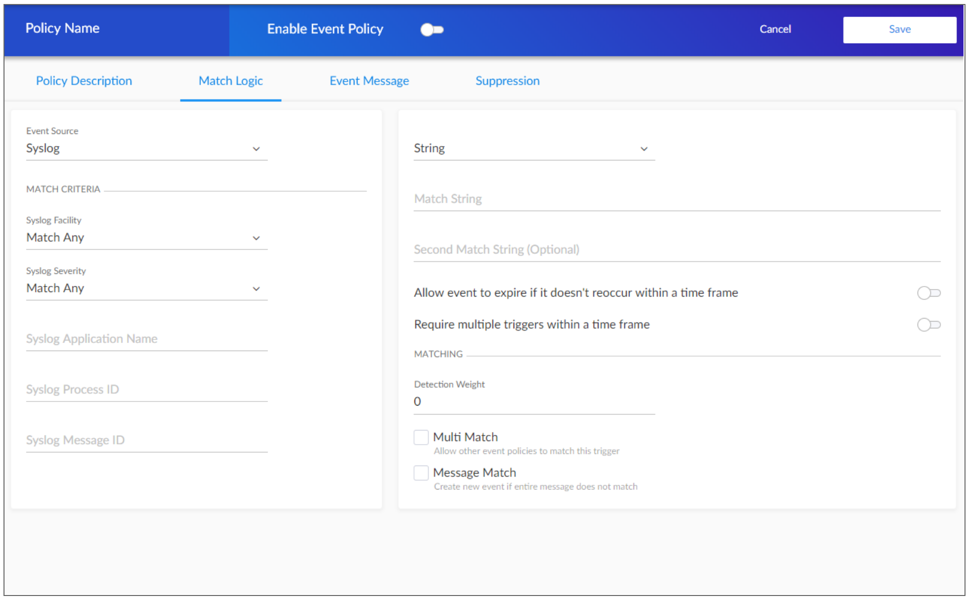
To create an event definition:

1. Go to **Event Policies** page (Events > Event Policies, or Registry > Events > Event Manager in the classic SL1 user interface).
2. Click the **[Create Event Policy]** button. The **Event Policy Editor** page appears.
3. In the **Event Policy Editor** page and set of tabs, you can define a new event. The Event Policy Editor pages contains the following fields and tabs:
   - ***Policy Name***. Enter a name for the event policy.
   - ***Enable Event Policy***. This toggle allows you to enable and disable the event policy.
   - ***Policy Description***. Enter a description of the event policy.
   - ***Match Logic***. Allows you to define pattern-matching for the event.
   - ***Event Message***. Allows you to enter an event message and the severity of the event, as well as event masking.
   - ***Suppression***. Allows you to suppress the event on selected devices and device groups.

IMPORTANT: Enabling a discovered device configured with CDP or LLDP topology in SL1 will cause the device to provide information on its neighbor. This information only identifies that there is a neighbor device, not which is the parent or the child. This may cause the parent-child relationship to switch which requires you to manually reverse the issue within the SL1 user interface. SL1 allows you to manually build parent-child relationships between specific device categories. For more information, see ***Defining Parent and Child Devices.***

The Match Logic Tab

In the **[Match Logic]** tab, you can define or edit the following fields when creating event policies for Syslog or Trap messages:



Event Source
Syslog

MATCH CRITERIA

Syslog Facility
Match Any

Syslog Severity
Match Any

Syslog Application Name

Syslog Process ID

Syslog Message ID

String

Match String

Second Match String (Optional)

Allow event to expire if it doesn't reoccur within a time frame

Require multiple triggers within a time frame

MATCHING

Detection Weight
0

□ Multi Match
Allow other event policies to match this trigger

□ Message Match
Create new event if entire message does not match

- ***Event Source***. Specifies the source for the event. The fields below this field will change based on your selection. When defining an event policy for syslog or trap messages, your options are:
    - *Syslog*. Message is generated by the syslog protocol. Syslogs can be sent by devices and proxy devices such as managers of managers (MoM). A syslog is an unsolicited message from a device to SL1. Syslog is a standard log format supported by most networking and UNIX-based devices and applications. Windows log files can be converted to syslog format using conversion tools. For more information on syslogs, see the section on ***syslog messages***. The following fields will appear:
        - ***Syslog Facility***. Select the facility information used by syslog to match an event message.
        - ***Syslog Severity***. Select the severity information used by syslog to match an event message.
        - ***Syslog Application Name***. Type the application name used by syslog to match an event message.
        - ***Syslog Process ID***. Type the Process ID used by syslog to match an event message.
        - ***Syslog Message ID***. Type the Message ID used by syslog to match an event message.

> **NOTE**: For more information on the syslog fields for events, see http://www.rfc-archive.org/getrfc.php?rfc=5424.

- *Trap*. Message is generated by an SNMP trap. SNMP traps can be sent by devices and proxy devices like MoMs. An SNMP trap is an unsolicited message from a device to SL1. A trap indicates that an emergency condition or a condition that merits immediate attention has occurred on the device. For more information on traps, see the section on ***SNMP traps***. The following options will appear:

  - ***Select Link-Trap***. Click this button to display a list of trap OIDs that are included in the MIB files that have been compiled in SL1. Select one of the listed trap OIDs to associate with the event. The **Link-Trap** window will appear with a list of traps to select from. After you have selected a trap, click the **[Select]** button.

> NOTE: You can use the field at the top of the ***Link-Trap*** field to filter the list of SNMP traps. If you type an alpha-numeric string in the field, the ***Link-Trap*** field will include only traps that match the string.

> NOTE: Before selecting a trap OID, check the **SNMP Trap Filters** page (Evnts > SNMP Trap Filters, or Registry > Events > SNMP Trap Filters in the classic SL1 user interface) to be sure that the trap is not being filtered out. For more information on the **SNMP Trap Filters** page, see the section on ***Filtering Traps***.

  - ***Link-Trap***. Manually enter a custom trap OID as an alternative to selecting a Link-Trap using the **[Select Link-Trap]** button. You can use an asterisk (*) as a wildcard character at the end of the trap OID. If you add the wildcard character to the end of the trap OID, the event policy will match all trap OIDs that start with the specified OID string. This is useful for creating "catch all" event policies.

  - ***Source Host Varbind***. For events with a source of "trap", specifies an OID that is included in the trap. This OID will contain either the IP address or hostname to align with the event. This field allows you to align an event with a device other than the trap's sender. For more information about traps in SL1, see the section on ***SNMP traps***.

    - If a value is specified in this field, SL1 examines the OID specified in this field. If the value stored in the OID matches the primary IP address or hostname of a device in SL1, the resulting event will be aligned with that device.

    - If a value is specified in this field, SL1 examines the OID specified in this field. If the value stored in the OID does not match a primary IP address or hostname of a device in SL1, the resulting event will be aligned with the device that sent the trap.

    - If no value is specified in this field, but the trap includes the default snmpTrapAddress OID, SL1 will examine the value stored in the snmpTrapAddress OID. If the value stored in the default snmpTrapAddress OID matches the primary IP address or hostname of a device in SL1, the resulting event will be aligned with that device.

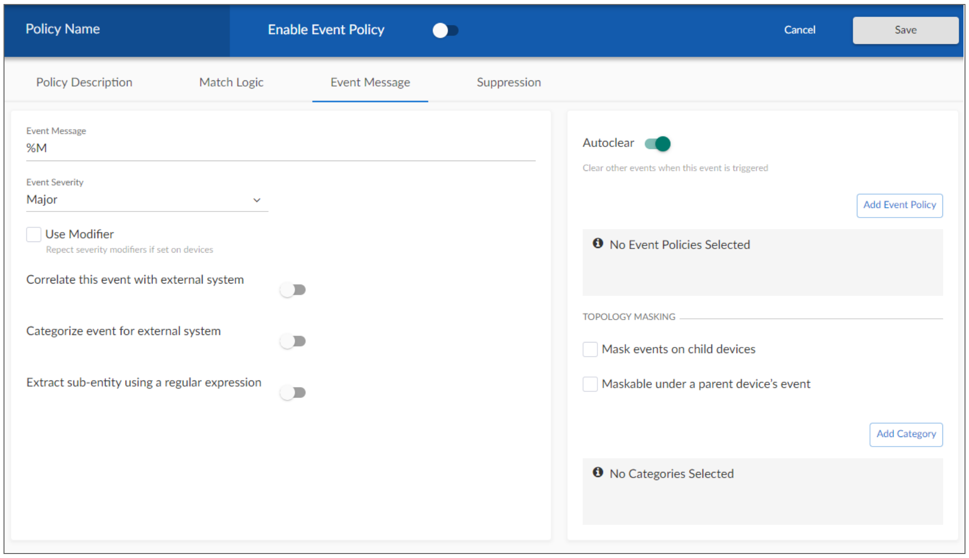
    - If no value is specified in this field and the trap does not include the snmpTrapAddress OID, SL1 will align the resulting event with the device that sent the trap.

After selecting and defining your ***Event Source***, enter values in the fields on the right side of the **Match Logic** tab:

- ***String/Regular Expression***. Use this drop-down to select *String* or *Regular Expression*.
- ***Match String***. A string used to correlate the event with a log message. Can be up to 512 characters in length. To match this event policy, the text of a log message or alert must match the value you enter in this field. Can be any combination of alpha-numeric and multi-byte characters. SL1's expression matching is case-sensitive. This field is required for events generated with a source of Syslog, API, and Email.
- ***Second Match String (Optional)***. A secondary string used to match against the originating log message. Can be up to 512 characters in length. Can be any combination of alpha-numeric and multi-byte characters. To match this event policy, the text of a log message or alert must match the value you enter in this field and the value you entered in the ***Match String*** field. This field is optional.
- ***Allow event to expire if it doesn't reoccur within a time frame***. If toggled on, enter the time in which an active event will be cleared automatically if there is no reoccurrence of the event in the fields that appear. You can enter time in minutes or hours.
- ***Require multiple triggers within a time frame***. If toggled on, enter the number of events and the time in which an event requires multiple triggers to occur in the fields that appear. You can enter time in minutes or hours.
- ***Detection Weight***. If two event definitions are very similar, the weight field specifies the order in which SL1 should match messages against the similar event definitions. The event definition with the lowest weight will be matched first. This field is most useful for events that use expression matching. Options range from 0 (first) - 20 (last).
- ***Multi Match***. By default, SL1 will match a log message or alert to only one event policy. If a log message or alert matches multiple event polices, SL1 will use the ***Detection Weight*** setting to determine which event policy the log message or alert will match. If you select the ***Multi Match*** checkbox in all event policies that can match the same log message or alert, SL1 will generate an event for every event policy that matches that single log message or alert.
- ***Message Match***. If SL1 has generated an event and then a second log message or alert matches the same event policy for the same entity, SL1 will not generate a second event, but will increase the ***count*** value for the original event on the **Events** page and in the **Viewing Events** page. By default, this behavior occurs regardless of whether the two log messages or alerts contain the same message. If you select the ***Message Match*** checkbox, this behavior will occur only if the log messages or alerts contain the same message.

The Event Message Tab

In the **[Event Message]** tab, you can define or edit the following fields:



Event Message
%M

Event Severity
Major

□ Use Modifier
Repect severity modifiers if set on devices

Correlate this event with external system

Categorize event for external system

Extract sub-entity using a regular expression

Autoclear
Clear other events when this event is triggered

No Event Policies Selected

TOPOLOGY MASKING

□ Mask events on child devices

□ Maskable under a parent device's event

No Categories Selected

- ***Event Message***. The message that appears in the **Event Console** page or the **Viewing Events** page when this event occurs. This field defaults to "%M" for new event policies upon creation. The message can be any combination of alphanumeric and multi-byte characters. Variables include the characters "%" (percent) and "|" (bar). You can also use regular expressions and variables that represent text from the original log message to create the ***Event Message***:

  - To include regular expressions in the Event Message:

    Surround the regular expression with %R and %/R. For example:

    %RFilename: .*? %/R

    This example would search for the first instance of the string "Filename: " (Filename-colon-space) followed by any number of any characters up to the line break. The %R indicates the beginning of a regular expression. The %/R indicates the end of a regular expression.

    SL1 will use the regular expression to search the log message and use the matching text in the event message.

    For details on regular expression syntax, see the documentation at http://www.python.org.

NOTE: If an event policy with a source of "Email" or "Trap" includes a poorly formed regular expression in the event message, SL1 will stop evaluating the event after 10 seconds and will generate a system event with a severity of Minor, alerting you to the issue.

- You can also use the following variables in this field:

  - *%I* (capital "eye"). Depending on the context, this variable contains one of the following:

    - For events with a source of "dynamic", this variable contains the index value from SNMP; this index value will be displayed in the Event Message. For Dynamic Applications, %I maps to the raw index that comes back from SNMP. For example, a walk of the MIB at .1.3.6.1.4.1.999.3.2.1 might return the following OIDs, in which case *%I* would return .1.1, .2.1, and .3.1, respectively:

```
1.3.6.1.4.1.999.3.2.1.1.1
```

```
1.3.6.1.4.1.999.3.2.1.2.1,
```

```
1.3.6.1.4.1.999.3.2.1.3.1.
```

    - For events with a source of "syslog" or "trap", this variable contains the value that matches the ***Identifier Pattern*** field in the **[Advanced]** tab.

    - For events with a source of "internal", this variable contains the "yName" (sub-entity name) value that matches the ***Identifier Pattern*** field in the **[Advanced]** tab.

  - *%M*. The full text of the log message that triggered the event will be displayed in ***Event Message*** field.

  - *%V*. Data Value from log file will be displayed in the ***Event Message*** field.

  - *%T*. Threshold value from the log file will be displayed in ***Event Message*** field.

NOTE: Events with a **Source** of *Rules Engine* contain the variable ***%_event_detail_uri***. This variable resolves to the URL of the incident and provides ScienceLogic users with more details about the event.

- ***Event Severity***. Defines the severity of the event. Choices are:

  - *Healthy*. Healthy events indicate that a device or condition has returned to a healthy state. Frequently, a healthy event is generated after a problem has been fixed.

  - *Notice*. Notice events indicate a condition that does not affect service but about which users should be aware.

  - *Minor*. Minor events indicate a condition that does not currently impair service, but the condition needs to be corrected before it becomes more severe.

  - *Major*. Major events indicate a condition that impacts service and requires immediate investigation.

  - *Critical*. Critical events indicate a condition that can seriously impair or curtail service and requires immediate attention (i.e., service or system outages).

- ***Use Modifier***. If selected, when the event is triggered, SL1 will check to see if the interface associated with this event has a custom severity modifier. If so, the event will appear in the **Event Console** with that custom severity modifier applied to the severity in the ***Event Severity*** field. For example, if an interface with an ***Event Severity Adjust*** setting of *Sev -1* triggers an event with an ***Event Severity*** of *Major* and that event has the ***Use Modifier*** checkbox selected, the event will appear in the **Event Console** with a severity of *Minor*.
- ***Correlate this event with external system***. Toggle this on if you want to correlate the event with an external system. Enter the *External ID* in the field that appears when this is turned on.
- ***Categorize event for external system***. Toggle this on if you want to categorize this event for an external system. Enter the *External Category* in the field that appears when this is turned on.
- ***Extract sub-entity using a regular expression***. Toggle this on if you want to extract a sub-entity using a regular expression. Enter values in the following fields that appear when this is turned on:
    - *Identifier pattern*. A regular expression used to extract the name of a sub-entity (like the name of a network interface) from within the log entry. By identifying the sub-entity, SL1 can create a unique event for each sub-entity, instead of a single event for the entire device. For an event to auto-clear another event, both events must have the same sub-entity name. The regular expression can be up to 512 characters in length and can include multi-byte characters.
    - *Result order for multiple sub-entities*. If the ***Identifier Pattern*** field returns multiple results, users can specify which results to use and in which order. Each result is represented by a variable. This field is optional. For example, users could specify "%2:%1" for "Interface %2: Peer %1" where %1 is the first match with identifier pattern and %2 is the second match with identifier pattern.
    - *Y-type to override*. Specifies a sub-entity type (yType). A sub-entity is a hardware component (CPU, disk, interface, etc). The "yType" value is stored as an integer in a database table; each sub-entity type is associated with a unique integer value (e.g. Interfaces = 7). If SL1 knows an interface's "yName" (specified in the ***Identifier Pattern*** field) and the "yType" (specified in the ***Override YType*** field), SL1 can determine the unique "yID" for the interface. The "yID" is stored in the table in which all instances of a specific sub-entity are stored. For example, for "yType" of "interface," the "yID" is a unique numeric ID for a specific interface on a specific device. This "yID" is stored in the table of all discovered interfaces (if_id in master_dev.device_interfaces) and is unique within this table.

NOTE: If you used the previous three fields to associate an event with an interface, then on the **Events** page, the link icon for this event will be for an interface and will lead to a performance report for the specific interface.

NOTE: The %Y variable (yName) and %y variable (yID) can be used in policies associated with events that use the previous three fields. That is, Run Book Action Policies and related Ticket Templates that are triggered by the event can use the %Y variable and the %y variable. For details on Run Book Actions Policies and using Ticket Templates, see the section on *Creating an Action Policy that Creates a New Ticket* in the manual ***Run Book Automation***.

NOTE: For events generated by Dynamic Application alerts, the %Y variable value is pre-populated with a unique index value that is used to ensure that events roll up correctly. If an event policy does not specifically override the %Y variable, this variable will be populated with the "yName" (sub-entity name) value, which is taken from an index value that might not be human-readable.

NOTE: SL1 populates the "yName" (sub-entity name) value in varying ways based on the event source.

For example, for events generated by Dynamic Application alerts, the yName is typically pulled from the event message using the ***Identifier Pattern*** and ***Identifier Format*** that are defined in the event policy.

Meanwhile, for internal events, the yName is determined by the process that creates the alert, based on which element reported the condition. So, for instance, if a filesystem exceeds a particular threshold, the yName is the filesystem identifier.

- ***Autoclear***. If enabled, this field specifies that the current event will clear each selected event. Click the **[Add Event Policy]** button to select one or more events from the list. When the current event occurs, SL1 automatically removes each selected events event from the **Events** page.

  For example, suppose you have a "Device not responding to ping" event. If the next polling session produces the "Device now responding normally to ping " event, the auto-clear feature could automatically clear the original event from the **Events** page.

- ***Topology Masking***.

  - *Mask events on child devices*. If this event occurs on a parent device, SL1 will search all related children devices for masked events.

    - If you have assigned a ***Category*** to this event, SL1 will search all the children devices and mask all events that have been defined as masked and are assigned to the same ***Category***. For more details on event categories, see the section on ***event correlation***.

    - If you have not assigned a ***Category*** to this event, SL1 will search all children devices and mask all events that have been defined as masked and are not assigned to a ***Category***. For more details on event categories, see the section on ***event correlation***.

    - The masked events will not appear on the **Events** page. They will be nested under the parent event.

  - *Maskable under a parent device's event*. This type of event is masked on a child device only when a maskable event occurs on the parent device.

    - If you have assigned a ***Category*** to this event, SL1 will mask this event when it occurs on a child device and an event that has been defined as masked occurs on its parent device. The masked event must have the same ***Category*** as the maskable event. For more details on event categories, see the section on ***event correlation***.

        - If you have not assigned a ***Category*** to this event, when a masked event that is not assigned to a ***Category*** occurs on the parent device SL1 will search all children devices and mask all events that have been defined as maskable and are not assigned to a ***Category***. For more details on event categories, see the section on ***event correlation***.

        - The maskable events will not appear on the **Events** page. They will be nested under the parent event.

    - If both *Mask events on child devices* and *Maskable under a parent device's event* are selected, then if this event occurs on a parent device, it behaves as a masked event. If this event occurs on a child device, it behaves as a maskable event.

- ***Add Category***. When you define a hierarchy between events, you can include a ***Category***. A ***Category*** allows SL1 to more efficiently align masked events with maskable events. When you align an event category to a masked or maskable event, that event will be correlated with only events that are aligned with the same category. An event can be aligned to multiple categories; for event correlation to occur, the masked event and the maskable event must both be aligned with a common category.

  Click the **[Add Category]** button to open the **Available Categories** window and select the categories you want to add. For more details on event categories, see the section on ***event correlation***.

NOTE: If you assign a topology category to an event that is neither suppressing nor suppressible, SL1 does not use the ***Category***. The ***Category*** will have no effect.

    - If you have assigned a ***Category*** to a masked event, SL1 will search all the children devices and suppress all events that have been defined as maskable and are assigned to the same ***Category***.

    - If you have not assigned a ***Category*** to a masked event, when the event occurs on the parent device SL1 will search all children devices and suppress all events that have been defined as maskable and are not assigned to a ***Category***.

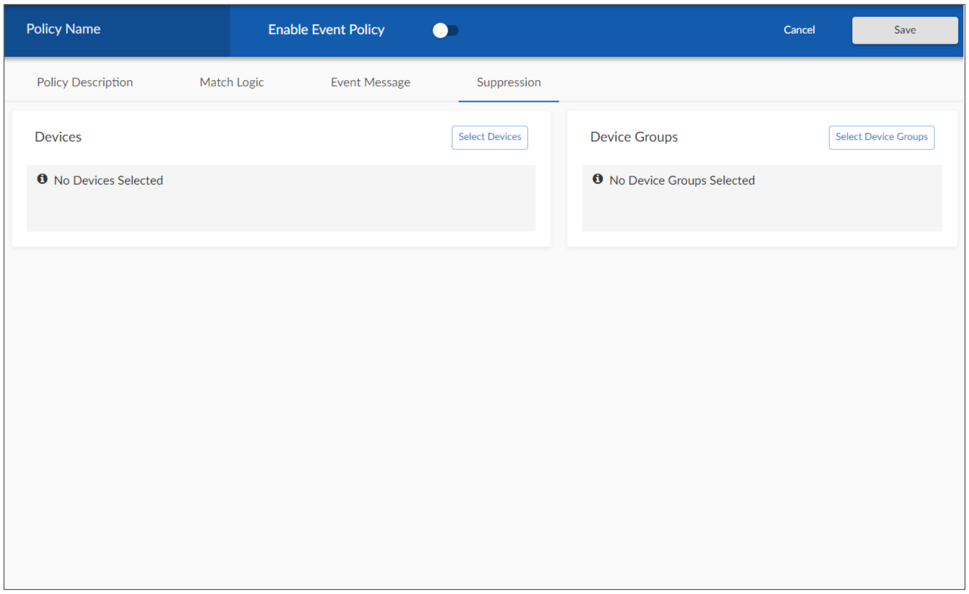
The Suppression Tab

On the **[Suppression]** tab, you can suppress the event on selected devices or all devices in selected device groups. When you suppress an event, you are specifying that, in the future, if this event occurs again on a specific device, the event will not appear on the **Events** tab for the device.

A manually suppressed event is suppressed only for the selected devices and devices in the selected device groups. If the event occurs on another device, the event will appear on the **Events** page.

NOTE: If you want to disable an event for all devices, see the section on ***disabling an event***.

On the **[Suppressions]** tab, you can define or edit the following:



- ***Devices***. Devices on which you can suppress the current event. To suppress the current event on a device , click the **[Select Devices]** button and select one or more devices from the **Available Devices** window. The device(s) should now appear in a list under ***Devices***. To remove a device from the list, click the Close icon (✕) next to the device name in the list.

> NOTE: You can use the box at the top of the ***Available Devices*** field to filter the list of devices. You can enter an alpha-numeric string in the box, and the ***Available Devices*** field will include only devices that match the string.

- ***Device Groups***. Device groups on which you can suppress the current event. To suppress the current event on all devices in a device group, click the**[Select Device Groups]** button and select one or more device groups from the **Available Device Groups** window. The device group(s) should now appear in the list under ***Device Groups***. To remove a device group from the list, click the Close icon (✕) next to the device group in the list. For information on device groups, see the ***Device Groups and Templates*** manual.

> NOTE: You can use the box at the top of the ***Available Device Groups*** field to filter the list of device groups. You can enter an alpha-numeric string in the box, and the ***Available Device Groups*** field will include only device groups that match the string.

> NOTE: Device groups that have *Event/View Suppression* enabled will appear in this field. For information on creating device groups, see the ***Device Groups and Templates*** manual.

Creating a Trap Event Policy in the Classic User Interface

SL1 includes pre-defined events for the most commonly encountered conditions on the most common platforms. However, if the pre-defined events do not meet the needs of your organization, you can define new events that better suit your needs.

From the **Event Policy Manager** page in the classic SL1 user interface, you can define a new event. You can define custom events to meet your business requirements. You can also define events to be triggered by any custom Dynamic Application alerts you have created.

To create an event definition:

1. Go to the **Event Policy Manager** page (Registry > Events > Event Manager).
2. In the **Event Policy Manager** page, click the **[Create]** button. The **Event Policy Editor** page appears.
3. In the **Event Policy Editor** page and set of tabs, you can define a new event. The **Event Policy Editor** page contains three tabs:
   - ***Policy***. Allows you to define basic parameters for the event. This tab is described in the following section.
   - ***Advanced***. Allows you to define pattern-matching for the event and also define event roll-ups and suppressions.
   - ***Suppressions***. Allows you to suppress the event on selected devices. When you suppress an event, you are specifying that, in the future, if this event occurs again on a specific device, the event will not appear in the **Event Console** page or the **Viewing Events** page for the device.
4. Supply values in the following fields:
   - ***Event Source***. Select *Trap*.
   - ***Policy Name***. The name of the event. Can be any combination of alphanumeric characters, up to 48 characters in length.
   - ***Operational State***. Specifies whether event is to be operational or not. Choices are *Enabled* or *Disabled*.

- ***Event Message***. The message that appears in the **Event Console** page or the **Viewing Events** page when this event occurs. Can be any combination of alphanumeric characters. Variables include the characters "%" (percent) and "|" (bar). You can also use regular expressions and variables that represent text from the original log message to create the ***Event Message***:

  - To include regular expressions in the Event Message:

    Surround the regular expression with %R and %/R. For example:

    %RFilename: .*? %/R

    Would search for the first instance of the string "Filename: " (Filename-colon-space) followed by any number of any characters up to the line break. The %R indicates the beginning of a regular expression. The %/R indicates the end of a regular expression.

    SL1 will use the regular expression to search the log message and use the matching text in the event message.

    For details on the regular expression syntax allowed by SL1, see http://www.python.org/doc/howto/.

  - You can also use the following variables in this field:

    - *%I* ("eye").This variable contains the value that matches the ***Identifier Pattern*** field in the **[Advanced]** tab.

    - *%M*. The full text of the log message that triggered the event will be displayed in ***Event Message*** field.

    - *%V*. Data Value from log file will be displayed in the ***Event Message*** field.

    - *%T*. Threshold value from the log file will be displayed in ***Event Message*** field.

- ***Event Severity***. Defines the severity of the event. Choices are:

  - *Healthy*. Healthy Events indicate that a device or condition has returned to a healthy state. Frequently, a healthy event is generated after a problem has been fixed.

  - *Notice*. Notice Events indicate a condition that does not affect service but about which users should be aware.

  - *Minor*. Minor Events indicate a condition that does not currently impair service, but the condition needs to be corrected before it becomes more severe.

  - *Major*. Major Events indicate a condition that is service impacting and requires immediate investigation.

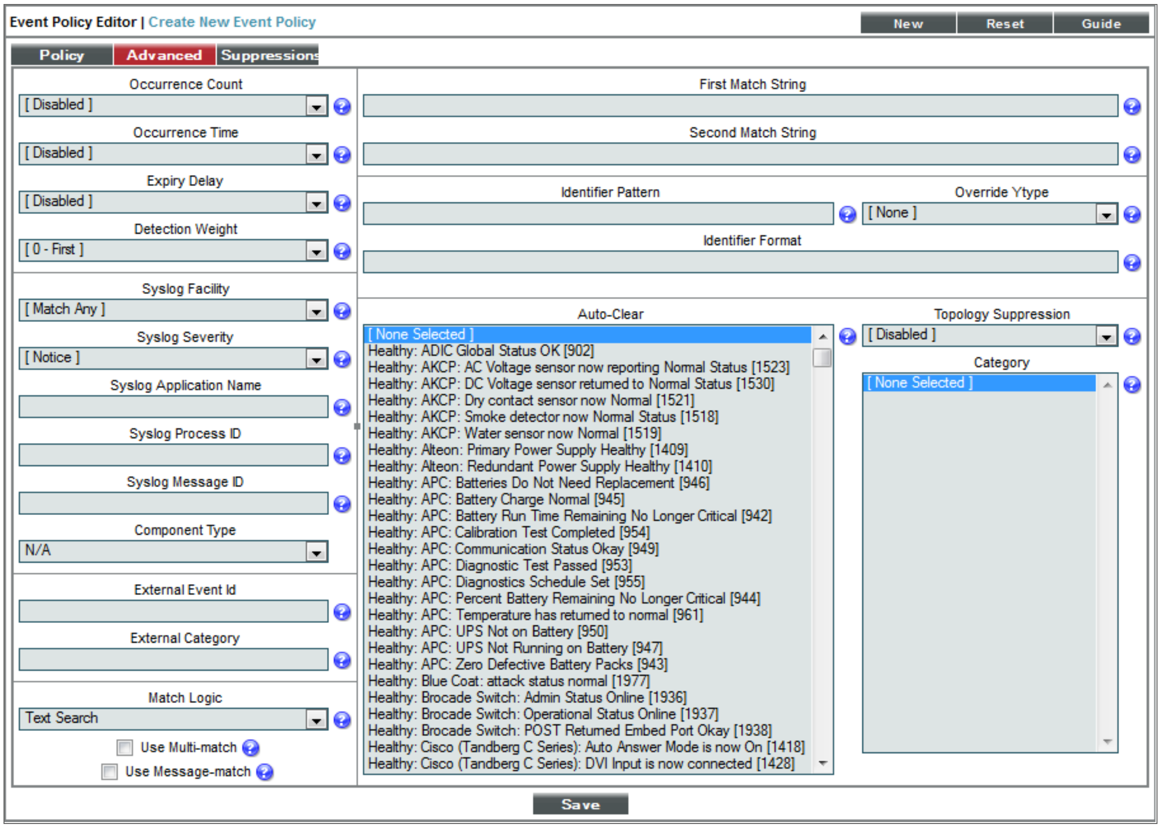
  - *Critical*. Critical Events indicate a condition that can seriously impair or curtail service and require immediate attention (i.e. service or system outages).

- ***Use Modifier***. If selected, when the event is triggered, SL1 will check to see if the interface associated with this event has a custom severity modifier. If so, the event will appear in the **Event Console** with that custom severity modifier applied to the severity in the ***Event Severity*** field. For example, if an interface with an ***Event Severity Adjust*** setting of *Sev -1* triggers an event with an ***Event Severity*** of *Major* and that event has the ***Use Modifier*** checkbox selected, the event will appear in the **Event Console** with a severity of *Minor*.

- ***Policy Description***. Text that explains what the event means and what possible causes are.

Defining Pattern Matching and Advanced Behavior

The **[Advanced]** tab in the **Event Policy Editor** page allows you to define or edit pattern-matching for the trap event and also define event roll-ups and suppressions. In the **[Advanced]** tab, you can define or edit the following fields that pertain to traps:



Occurrence Count: [Disabled]
Occurrence Time: [Disabled]
Expiry Delay: [Disabled]
Detection Weight: [0 - First]
Syslog Facility: [Match Any]
Syslog Severity: [Notice]
Syslog Application Name:
Syslog Process ID:
Syslog Message ID:
Component Type: N/A
External Event Id:
External Category:
Match Logic: Text Search
□ Use Multi-match
□ Use Message-match

First Match String:
Second Match String:
Identifier Pattern:
Override Ytype: [None]
Identifier Format:

Auto-Clear:
[None Selected]
Healthy: ADIC Global Status OK [902]
Healthy: AKCP: AC Voltage sensor now reporting Normal Status [1523]
Healthy: AKCP: DC Voltage sensor returned to Normal Status [1530]
Healthy: AKCP: Dry contact sensor now Normal [1521]
Healthy: AKCP: Smoke detector now Normal Status [1518]
Healthy: AKCP: Water sensor now Normal [1519]
Healthy: Alteon: Primary Power Supply Healthy [1409]
Healthy: Alteon: Redundant Power Supply Healthy [1410]
Healthy: APC: Batteries Do Not Need Replacement [946]
Healthy: APC: Battery Charge Normal [945]
Healthy: APC: Battery Run Time Remaining No Longer Critical [942]
Healthy: APC: Calibration Test Completed [954]
Healthy: APC: Communication Status Okay [949]
Healthy: APC: Diagnostic Test Passed [953]
Healthy: APC: Diagnostics Schedule Set [955]
Healthy: APC: Percent Battery Remaining No Longer Critical [944]
Healthy: APC: Temperature has returned to normal [961]
Healthy: APC: UPS Not on Battery [950]
Healthy: APC: UPS Not Running on Battery [947]
Healthy: APC: Zero Defective Battery Packs [943]
Healthy: Blue Coat: attack status normal [1977]
Healthy: Brocade Switch: Admin Status Online [1936]
Healthy: Brocade Switch: Operational Status Online [1937]
Healthy: Brocade Switch: POST Returned Embed Port Okay [1938]
Healthy: Cisco (Tandberg C Series): Auto Answer Mode is now On [1418]
Healthy: Cisco (Tandberg C Series): DVI Input is now connected [1428]

Topology Suppression: [Disabled]
Category: [None Selected]

- ***Link-Trap***. For events with a source of *Trap*, displays a list of trap OIDs that are included in the MIB files that have been compiled in SL1. You can either select one of the listed trap OIDs to associate with the event or manually enter a custom trap OID. You can use an asterisk (*) as a wildcard character at the end of the trap OID. If you add the wildcard character to the end of the trap OID, the event policy will match all trap OIDs that start with the specified OID string. This is useful for creating "catch all" event policies.

- ***Source Host Varbind***. For events with a source of *Trap*, specifies an OID that is included in the trap. This OID will contain the IP address or hostname to align with the event.

    - If a value is specified in this field, SL1 examines the OID specified in this field. If the value stored in the OID matches the IP address or hostname of a device in SL1, the resulting event will be aligned with that device.

  - If a value is specified in this field, SL1 examines the OID specified in this field. If the value stored in the OID does not match the IP address or hostname of a device in SL1, the resulting event will be aligned with the device that sent the trap.
  - If no value is specified in this field, but the trap includes the default snmpTrapAddress OID, SL1 will examine the value stored in the snmpTrapAddress OID. If the value stored in the OID matches the IP address or hostname of a device in SL1, the resulting event will be aligned with that device.
  - If no value is specified in this field and the trap does not include the snmpTrapAddress OID, SL1 will align the resulting event with the device that sent the trap.
- ***First Match String***. A string used to correlate the event with a log message. To match this event policy, the text of a log message or alert must match the value you enter in this field. Can be any combination of alphanumeric characters. SL1's expression matching is case sensitive. This field is required for events generated with a source of Syslog, Security, 3rd Party, and Email.
- ***Second Match String***. A secondary string used to match against the originating log message. To match this event policy, the text of a log message or alert must match the value you enter in this field and the value you entered in the ***First Match String*** field. This field is optional.

NOTE: The ***Match Logic*** field specifies whether SL1 should process ***First Match String*** and ***Second Match String*** as simple text matches or as regular expressions.

NOTE: You can define an event so that it is triggered only when it occurs on a specific interface. You can then include the interface name and SL1's unique interface ID for the interface in the event message. When defining an event, you can use the following three fields below to associate an event with an interface.

- ***Identifier Pattern***. A regular expression used to extract the specific subentity (like the name of a network interface) within the log entry. SL1 will use this value as the yName of the interface. By identifying the subentity, SL1 can create a unique event for each subentity, instead of a single event for the entire device. For example, a log message indicating a link has gone down may include the network interface name. So this field could extract the network interface name from the log message. SL1's expression matching is case sensitive. For details on the regular expression syntax allowed by SL1, see http://www.python.org/doc/howto.
- ***Identifier Format***. If the ***Identifier Pattern*** field returns multiple results, users can specify which results to use and in which order. Each result is represented by a variable. This field is optional.
  - %1. First match with identifier pattern. This is the default behavior if no value is supplied in the ***Identifier Format*** field.
  - %2. Second match with identifier pattern.
  - For example, users could specify "%2:%1" for "Interface %2: Peer %1".

Select the **[Save]** button to save your settings when you have finished editing the fields pertaining to your trap event policy.

For more information on the remaining fields, as well as the **[Suppressions]** tab, see the ***Events*** manual.

Example Trap Event Policy in the Classic User Interface

Trap messages are sent from devices to SL1 in order to notify the platform of any issues or important events occurring on the device.

To create a Trap Event Policy:

1. Go to the **Event Policy Manager** page (Registry > Events > Event Manager).
2. Select the **[Create]** button, and the **Event Policy Editor** page will appear.
3. In the **Event Policy Editor** page, enter these values in the following fields:
   - ***Event Source***. We selected *Trap*.
   - ***Operational State***. We selected *Enabled*.
   - ***Event Severity***. We selected *Notice*.
   - ***Policy Name***. We entered "Example Trap Policy".
   - ***Event Message***. We entered "%M".
   - ***Policy Description***. We entered "Device Battery Low."
4. Select the **[Save]** button.
5. After saving those settings, select the **[Advanced]** tab. We entered the following values in the following fields:
   - ***Link-Trap***. We entered the device's trap oid of "1.3.6.1.6.3.1.1.5.7".
6. We left the rest of the fields at their default settings, and then selected the **[Save]** button.
7. When the device's battery is low, it will send the trap message and trigger an event, which appears in the **Event Console**. Clicking on the graph icon (📊) will bring up the **Device Summary** page for the device for which the event occurred. Clicking on the life ring icon (🛟) will create a ticket for the event.
8. Clicking on the graph icon (📊) will bring up the **Device Summary** page. You will see the event listed in the **Device Summary** page, and you can click on the event to view the **Event Summary** modal page.
9. You can also select the **[Logs]** tab from the **Device Summary** page to view the **Device Logs & Messages** page. The trap message will appear in the device logs, and you can select the View Events icon (⚠) which will take you to the **Viewing Active Events** page for that device.
10. From the **Viewing Active Events** page, you can select the information icon (ℹ) to view the **Event Information** modal page, filter the device's events based on event type, or view graphical reports about that device's events based on type.

Creating a Syslog Event Policy in the Classic User Interface

SL1 includes pre-defined events for the most commonly encountered conditions on the most common platforms. However, if the pre-defined events do not meet the needs of your organization, you can define new events that better suit your needs.

From the **Event Policies** page (or the **Event Policy Manager** page in the classic SL1 user interface), you can define a new event. You can define custom events to meet your business requirements. You can also define events to be triggered by any custom Dynamic Application alerts you have created.

To create an event definition:

1. Go to **Event Policy Manager** page (Registry > Events > Event Manager).
2. In the **Event Policy Manager** page, click the **[Create]** button. The **Event Policy Editor** page appears.
3. In the **Event Policy Editor** page and set of tabs, you can define a new event. The **Event Policy Editor** page contains three tabs:
    - ***Policy***. Allows you to define basic parameters for the event. This tab is described in the following section.
    - ***Advanced***. Allows you to define pattern-matching for the event and also define event roll-ups and suppressions.
    - ***Suppressions***. Allows you to suppress the event on selected devices. When you suppress an event, you are specifying that, in the future, if this event occurs again on a specific device, the event will not appear in the **Event Console** page or the **Viewing Events** page for the device.
4. Supply values in the following fields:
    - ***Event Source***. Select *Syslog*.
    - ***Policy Name***. The name of the event. Can be any combination of alphanumeric characters, up to 48 characters in length.
    - ***Operational State***. Specifies whether event is to be operational or not. Choices are *Enabled* or *Disabled*.
    - ***Event Message***. The message that appears in the **Event Console** page or the **Viewing Events** page when this event occurs. Can be any combination of alphanumeric characters. Variables include the characters "%" (percent) and "|" (bar). You can also use regular expressions and variables that represent text from the original log message to create the ***Event Message***:
        - To include regular expressions in the Event Message:

          Surround the regular expression with %R and %/R. For example:

          %RFilename: .*? %/R

          Would search for the first instance of the string "Filename: " (Filename-colon-space) followed by any number of any characters up to the line break. The %R indicates the beginning of a regular expression. The %/R indicates the end of a regular expression.

          SL1 will use the regular expression to search the log message and use the matching text in the event message.

          For details on the regular expression syntax allowed by SL1, see http://www.python.org/doc/howto/.

        - You can also use the following variables in this field:
            - *%I* ("eye").This variable contains the value that matches the ***Identifier Pattern*** field in the **[Advanced]** tab.

        - ▪ *%M*. The full text of the log message that triggered the event will be displayed in ***Event Message*** field.
        - ▪ *%V*. Data Value from log file will be displayed in the ***Event Message*** field.
        - ▪ *%T*. Threshold value from the log file will be displayed in ***Event Message*** field.

- ***Event Severity***. Defines the severity of the event. Choices are:
    - *Healthy*. Healthy Events indicate that a device or condition has returned to a healthy state. Frequently, a healthy event is generated after a problem has been fixed.
    - *Notice*. Notice Events indicate a condition that does not affect service but about which users should be aware.
    - *Minor*. Minor Events indicate a condition that does not currently impair service, but the condition needs to be corrected before it becomes more severe.
    - *Major*. Major Events indicate a condition that is service impacting and requires immediate investigation.
    - *Critical*. Critical Events indicate a condition that can seriously impair or curtail service and require immediate attention (i.e. service or system outages).
- ***Use Modifier***. If selected, when the event is triggered, SL1 will check to see if the interface associated with this event has a custom severity modifier. If so, the event will appear in the **Event Console** with that custom severity modifier applied to the severity in the ***Event Severity*** field. For example, if an interface with an ***Event Severity Adjust*** setting of *Sev -1* triggers an event with an ***Event Severity*** of *Major* and that event has the ***Use Modifier*** checkbox selected, the event will appear in the **Event Console** with a severity of *Minor*.
- ***Policy Description***. Text that explains what the event means and what possible causes are.

Defining Pattern Matching and Advanced Behavior

The **[Advanced]** tab in the **Event Policy Editor** page allows you to define or edit pattern-matching for the syslog event and also define event roll-ups and suppressions. In the **[Advanced]** tab, you can define or edit the following fields that pertain to syslogs:

- ***Syslog Facility***. Facility information used by syslog to match an event message.
- ***Syslog Severity***. Severity information used by syslog to match an event message.
- ***Syslog Application Name***. Application Name used by syslog to match an event message.
- ***Syslog Process ID***. Process ID used by syslog to match an event message.
- ***Syslog Message ID***. Message ID used by syslog to match an event message.

NOTE: For more information on the syslog fields for events, see http://www.rfc-archive.org/getrfc.php?rfc=5424 .

- ***First Match String***. A string used to correlate the event with a log message. To match this event policy, the text of a log message or alert must match the value you enter in this field. Can be any combination of alphanumeric characters. SL1's expression matching is case sensitive. This field is required for events generated with a source of Syslog, Security, 3rd Party, and Email.
- ***Second Match String***. A secondary string used to match against the originating log message. To match this event policy, the text of a log message or alert must match the value you enter in this field and the value you entered in the ***First Match String*** field. This field is optional.

NOTE: The ***Match Logic*** field specifies whether SL1 should process ***First Match String*** and ***Second Match String*** as simple text matches or as regular expressions.

NOTE: You can define an event so that it is triggered only when it occurs on a specific interface. You can then include the interface name and SL1's unique interface ID for the interface in the event message. When defining an event, you can use the following three fields below to associate an event with an interface.

- ***Identifier Pattern***. A regular expression used to extract the specific subentity (like the name of a network interface) within the log entry. SL1 will use this value as the yName of the interface. By identifying the subentity, SL1 can create a unique event for each subentity, instead of a single event for the entire device. For example, a log message indicating a link has gone down may include the network interface name. So this field could extract the network interface name from the log message. SL1's expression matching is case sensitive. For details on the regular expression syntax allowed by SL1, see http://www.python.org/doc/howto.
- ***Identifier Format***. If the ***Identifier Pattern*** field returns multiple results, users can specify which results to use and in which order. Each result is represented by a variable. This field is optional.
  - %1. First match with identifier pattern. This is the default behavior if no value is supplied in the ***Identifier Format*** field.
  - %2. Second match with identifier pattern.
  - For example, users could specify "%2:%1" for "Interface %2: Peer %1".

Select the **[Save]** button to save your settings when you have finished editing the fields pertaining to your syslog event policy.

For more information on the remaining fields, as well as the **[Suppressions]** tab, see the ***Events*** manual.

Example Syslog Event Policy in the Classic User Interface

This section will walk through the steps of creating an event policy for syslogs. We will be creating a policy that will send a syslog message when the device's disk space has reached 100% capacity.

To create a Syslog Event Policy:

1. Go to the **Event Policy Manager** page (Registry > Events > Event Manager).
2. Select the **[Create]** button, and the **Event Policy Editor** page will appear.
3. In the **Event Policy Editor** page, enter these values in the following fields:

   - ***Event Source***. We selected *Syslog*.
   - ***Operational State***. We selected *Enabled*.
   - ***Event Severity***. We selected *Notice*.
   - ***Policy Name***. We entered "Example Syslog Policy".
   - ***Event Message***. We entered "%M".
   - ***Policy Description***. We entered "Definition: Disk space has reached 100%."

4. Select the **[Save]** button.
5. After saving those settings, select the **[Advanced]** tab. We entered the following values in the following fields:
   - ***Syslog Facility***. We selected *Match Any*.
   - ***Syslog Severity***. We selected *Match Any*.
   - ***First Match String***. We entered "Disk space 100%%".
6. We left the rest of the fields at their default settings, and then selected the **[Save]** button.
7. When the device reaches 100% capacity, it will trigger an event, which appears in the **Event Console**. Clicking on the graph icon (📊) will bring up the **Device Summary** page for the device for which the event occurred. Clicking on the life ring icon (🛟) will create a ticket for the event.
8. Clicking on the graph icon (📊) will bring up the **Device Summary** page. You will see the event listed in the **Device Summary** page, and you can click on the event to view the **Event Summary** modal page.
9. You can also select the **[Logs]** tab from the **Device Summary** page to view the **Device Logs & Messages** page. The syslog message will appear in the device logs, and you can select the View Events icon (⚠) which will take you to the **Viewing Active Events** page for that device.
10. From the **Viewing Active Events** page, you can select the information icon (ℹ) to view the **Event Information** modal page, filter the device's events based on event type, or view graphical reports about that device's events based on type.

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