CHAPTER 7

Configuring the Embedded Event Manager

This chapter describes how to configure the EEM to detect and handle critical events on a device.

This chapter includes the following sections:

Information About EEM

Embedded Event Manager monitors events that occur on your device and takes action to recover or troubleshoot these events, based on your configuration.

This section includes the following topics:

EEM Overview

EEM consists of three major components:

- Event statements—Events to monitor from another Cisco NX-OS component that may require some action, workaround, or notification.

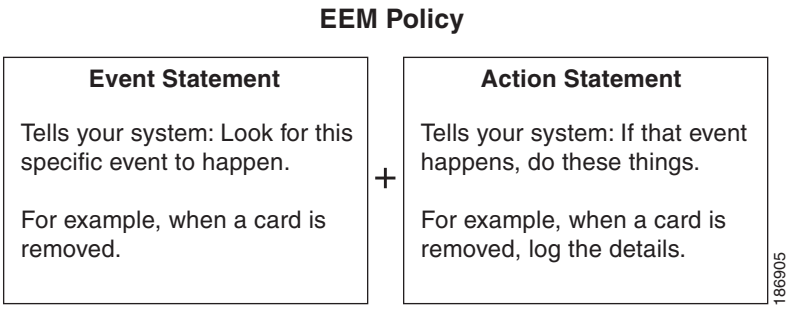
- Action statements —An action that EEM can take, such as sending an e-mail, or disabling an interface, to recover from an event.
- Policies—An event paired with one or more actions to troubleshoot or recover from the event.

Policies

An EEM policy consists of an event statement and one or more action statements. The event statement defines the event to look for as well as the filtering characteristics for the event. The action statement defines the action EEM takes when the event occurs.

Figure 7-1 shows the two basic statements in an EEM policy.

Figure 7-1 EEM Policy Statements



You can configure EEM policies using the CLI or using a VSH script.

Note EEM policy matching is not supported on MDS switches.

EEM maintains event logs on the supervisor.

Cisco NX-OS has a number of preconfigured system policies. These system policies define many common events and actions for the device. System policy names begin with two underscore characters (__).

You can create user policies to suit your network. If you create a user policy, any actions in your policy occur after EEM triggers any system policy actions related to the same event as your policy.

You can also override some system policies. The overrides that you configure take the place of the system policy. You can override the event or the actions.

Note Your override policy should always include an event statement. An override policy without an event statement overrides all possible events in the system policy.

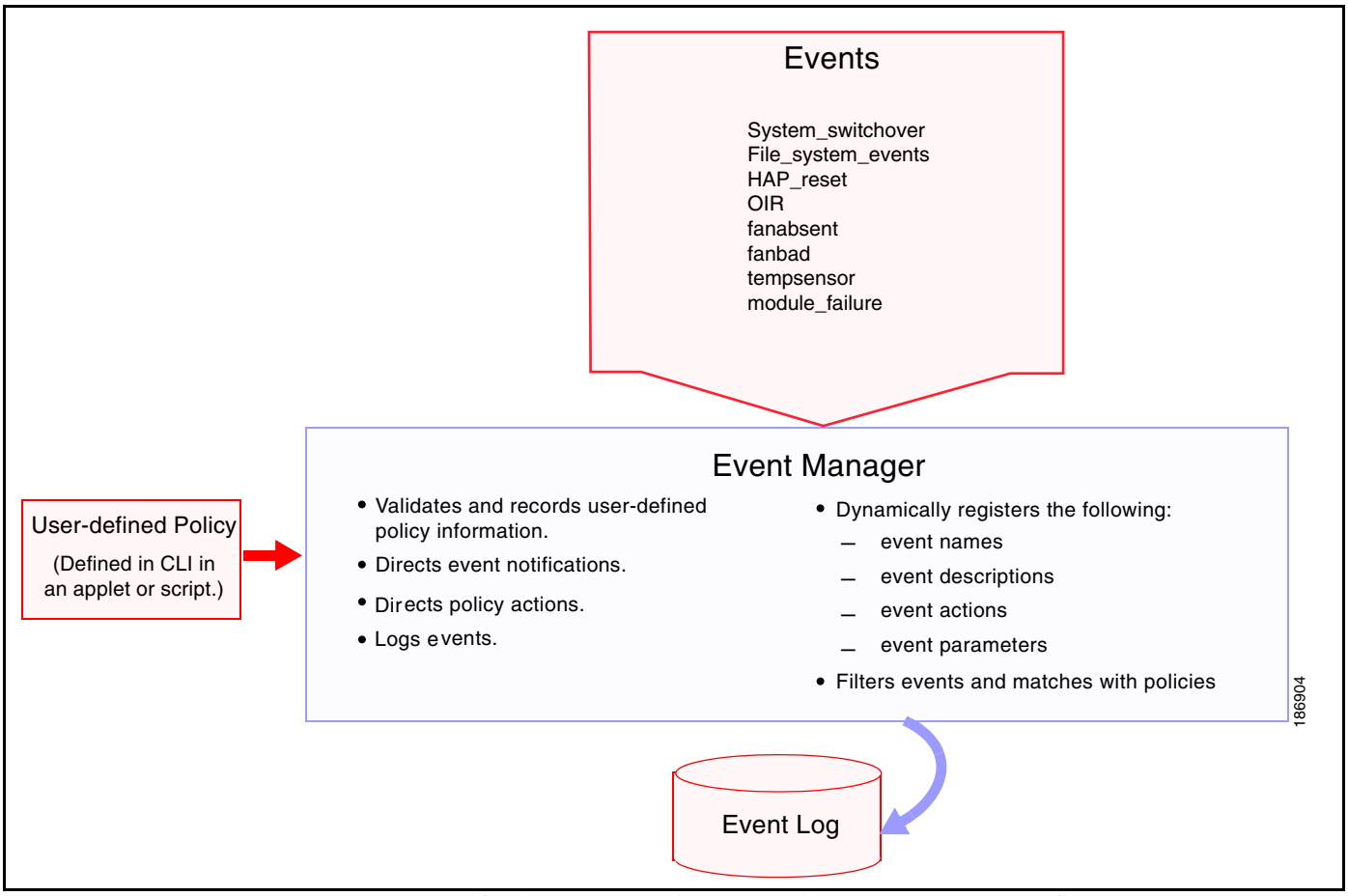
Event Statements

An event is any device activity for which some action, such as a workaround or a notification, should be taken. In many cases, these events are related to faults in the device such as when an interface or a fan malfunctions.

EEM defines event filters so only critical events or multiple occurrences of an event within a specified time period trigger an associated action.

Figure 7-2 shows events that are handled by EEM.

Figure 7-2 EEM Overview



Event statements specify the event that triggers a policy to run. You can configure only one event statement per policy.

EEM schedules and runs policies on the basis of event statements. EEM examines the event and action commands and runs them as defined.

Note If you want to allow the triggered event to process the default actions also, you must explicitly configure an EEM action with "event-default" or "policy-default" based on the type of policy.

Action Statements

Action statements describe the action triggered by a policy. Each policy can have multiple action statements. If no action is associated with a policy, EEM still observes events but takes no actions.

EEM supports the following actions in action statements:

- Execute any CLI commands.

- Update a counter.
- Log an exception.
- Force the shut down of any module.
- Reload the device.
- Shut down specified modules because the power is over budget.
- Generate a syslog message.
- Generate a Call Home event.
- Generate an SNMP notification.
- Use the default action for the system policy.

Note If you want to allow the triggered event to process the default actions also, you must explicitly configure an EEM action with **event-default** or **policy-default**, based on the type of policy. For example, if you match a CLI command in a match statement, you must add the event-default action statement to the EEM policy or EEM will not allow the CLI command to execute.

Note Verify that your action statements within your user policy or overriding policy do not negate each other or adversely affect the associated system policy.

VSH Script Policies

You can also write policies in a VSH script, using a text editor. These policies have an event statement and action statement(s) just as other policies, and these policies can either augment or override system polices. After you write your script policy, copy it to the device and activate it.

Environment Variables

You can define environment variables for EEM that are available for all policies. Environment variables are useful for configuring common values that you can use in multiple policies. For example, you can create an environment variable for the IP address of an external e-mail server.

You can use an environment variable in action statements by using the parameter substitution format.

High Availability

Cisco NX-OS supports stateless restarts for EEM. After a reboot or supervisor switchover, Cisco NX-OS applies the running configuration.

Prerequisites for EEM

EEM has the following prerequisites:

- You must have network-admin user privileges to configure EEM.

Guidelines and Limitations

EEM has the following configuration guidelines and limitations:

- Action statements within your user policy or overriding policy should not negate each other or adversely affect the associated system policy.
- If you want to allow the triggered event to process the default actions also, you must explicitly configure an EEM action with **event-default** or **policy-default**, based on the type of policy. For example, if you match a CLI command in a match statement, you must add the event-default action statement to the EEM policy or EEM will not allow the CLI command to execute.
- An override policy that consists of an event statement and no action statement triggers no action and no notification of failures.
- An override policy without an event statement overrides all possible events in the system policy.

Default Settings

Table 7-1 lists the default settings for EEM parameters.

Table 7-1 Default EEM Parameters

Parameters	Default
system policies	active

Additional References

For additional information related to implementing EEM, see the following section:

- MIBs, page 7-5

MIBs

MIBs	MIBs Link
• CISCO-EMBEDDED-EVENT-MGR-MIB	To locate and download MIBs, go to the following URL: http://www.cisco.com/en/US/products/ps5989/prod_technical_reference_list.html

Feature History for EEM

Table 7-2 lists the release history for this feature. Only features that were introduced or modified in Release 3.x or a later release appear in the table.

Table 7-2 Feature History for EEM

Feature Name	Releases	Feature Information
Embedded Event Manager (EEM)	4.1(3)	New chapter on configuring Embedded Event Manager (EEM) has been added.