



Configuring Onboard Failure Logging

This chapter describes how to configure the onboard failure logging (OBFL) features on Cisco NX-OS devices.

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About OBFL

Cisco NX-OS provides the ability to log failure data to persistent storage, which you can retrieve and display for analysis at a later time. This onboard failure logging (OBFL) feature stores failure and environmental information in nonvolatile memory on the module. The information will help analyze failed modules.

OBFL stores the following types of data:

- Time of initial power-on
- Slot number of the module in the chassis
- Initial temperature of the module
- Firmware, BIOS, FPGA, and ASIC versions
- Serial number of the module
- Stack trace for crashes
- CPU hog information
- Memory leak information
- Software error messages
- Hardware exception logs

- Environmental history
- OBFL-specific history information
- ASIC interrupt and error statistics history
- ASIC register dumps

Prerequisites for OBFL

You must have network-admin user privileges.

Guidelines and Limitations for OBFL

OBFL has the following guidelines and limitations:

- OBFL is enabled by default.
- OBFL flash supports a limited number of writes and erases. The more logging that you enable, the faster you use up this number of writes and erases.



Note Be aware that the Cisco NX-OS commands for this feature may differ from those commands that are used in Cisco IOS.

Default Settings for OBFL

The following table lists the default settings for OBFL parameters.

Parameters	Default
OBFL	All features enabled

Configuring OBFL

You can configure the OBFL features on Cisco NX-OS devices.

Before you begin

Make sure that you are in global configuration mode.

Procedure

	Command or Action	Purpose
Step 1	configure terminal Example: <pre>switch# configure terminal switch(config)#</pre>	Enters global configuration mode.
Step 2	hw-module logging onboard Example: <pre>switch(config)# hw-module logging onboard Module: 7 Enabling ... was successful. Module: 10 Enabling ... was successful. Module: 12 Enabling ... was successful.</pre>	Enables all OBFL features.
Step 3	hw-module logging onboard counter-stats Example: <pre>switch(config)# hw-module logging onboard counter-stats Module: 7 Enabling counter-stats ... was successful. Module: 10 Enabling counter-stats ... was successful. Module: 12 Enabling counter-stats ... was successful.</pre>	Enables the OBFL counter statistics.
Step 4	hw-module logging onboard cpuhog Example: <pre>switch(config)# hw-module logging onboard cpuhog Module: 7 Enabling cpu-hog ... was successful. Module: 10 Enabling cpu-hog ... was successful. Module: 12 Enabling cpu-hog ... was successful.</pre>	Enables the OBFL CPU hog events.
Step 5	hw-module logging onboard environmental-history Example: <pre>switch(config)# hw-module logging onboard environmental-history Module: 7 Enabling environmental-history ... was successful. Module: 10 Enabling environmental-history ... was successful. Module: 12 Enabling environmental-history ... was successful.</pre>	Enables the OBFL environmental history.
Step 6	hw-module logging onboard error-stats	Enables the OBFL error statistics.

	Command or Action	Purpose
	<p>Example:</p> <pre>switch(config)# hw-module logging onboard error-stats Module: 7 Enabling error-stats ... was successful. Module: 10 Enabling error-stats ... was successful. Module: 12 Enabling error-stats ... was successful.</pre>	
Step 7	<p>hw-module logging onboard interrupt-stats</p> <p>Example:</p> <pre>switch(config)# hw-module logging onboard interrupt-stats Module: 7 Enabling interrupt-stats ... was successful. Module: 10 Enabling interrupt-stats ... was successful. Module: 12 Enabling interrupt-stats ... was successful.</pre>	Enables the OBFL interrupt statistics.
Step 8	<p>hw-module logging onboard module slot</p> <p>Example:</p> <pre>switch(config)# hw-module logging onboard module 7 Module: 7 Enabling ... was successful.</pre>	Enables the OBFL information for a module.
Step 9	<p>hw-module logging onboard obfl-logs</p> <p>Example:</p> <pre>switch(config)# hw-module logging onboard obfl-logs Module: 7 Enabling obfl-log ... was successful. Module: 10 Enabling obfl-log ... was successful. Module: 12 Enabling obfl-log ... was successful.</pre>	Enables the boot uptime, device version, and OBFL history.
Step 10	<p>(Optional) show logging onboard</p> <p>Example:</p> <pre>switch(config)# show logging onboard</pre>	<p>Displays information about OBFL.</p> <p>Note To display OBFL information stored in flash on a module, see Verifying the OBFL Configuration, on page 5.</p>
Step 11	<p>(Optional) copy running-config startup-config</p> <p>Example:</p> <pre>switch(config)# copy running-config startup-config</pre>	Copies the running configuration to the startup configuration.

Verifying the OBFL Configuration

To display OBFL information stored in flash on a module, perform one of the following tasks:

Command	Purpose
<code>show logging onboard boot-uptime</code>	Displays the boot and uptime information.
<code>show logging onboard counter-stats</code>	Displays statistics on all ASIC counters.
<code>show logging onboard credit-loss</code>	Displays OBFL credit loss logs.
<code>show logging onboard device-version</code>	Displays device version information.
<code>show logging onboard endtime</code>	Displays OBFL logs to a specified end time.
<code>show logging onboard environmental-history</code>	Displays environmental history.
<code>show logging onboard error-stats</code>	Displays error statistics.
<code>show logging onboard exception-log</code>	Displays exception log information.
<code>show logging onboard interrupt-stats</code>	Displays interrupt statistics.
<code>show logging onboard module <i>slot</i> internal reset-reason</code>	<p>Displays OBFL information for a specific module.</p> <p>Note If you specify internal reset-reason and you are operating in a redundant supervisor configuration, checking the persistent log on the standby supervisor after a system reset occurs will display a relevant reset reason. The reset reason is recorded on the on-board flash for both the active and standby supervisor.</p>
<code>show logging onboard obfl-history</code>	Displays history information.
<code>show logging onboard obfl-logs</code>	Displays log information.
<code>show logging onboard stack-trace</code>	Displays kernel stack trace information.
<code>show logging onboard starttime</code>	Displays OBFL logs from a specified start time.
<code>show logging onboard status</code>	Displays OBFL status information.

Use the `show logging onboard status` command to display the configuration status of OBFL.

```
switch# show logging onboard status
-----
OBFL Status
-----
Switch OBFL Log: Enabled

Module: 4 OBFL Log: Enabled
cpu-hog Enabled
credit-loss Enabled
environmental-history Enabled
error-stats Enabled
exception-log Enabled
interrupt-stats Enabled
```

```

mem-leak Enabled
miscellaneous-error Enabled
obfl-log (boot-uptime/device-version/obfl-history) Enabled
register-log Enabled
request-timeout Enabled
stack-trace Enabled
system-health Enabled
timeout-drops Enabled
stack-trace Enabled

Module: 22 OBFL Log: Enabled
cpu-hog Enabled
credit-loss Enabled
environmental-history Enabled
error-stats Enabled
exception-log Enabled
interrupt-stats Enabled
mem-leak Enabled
miscellaneous-error Enabled
obfl-log (boot-uptime/device-version/obfl-history) Enabled
register-log Enabled
request-timeout Enabled
stack-trace Enabled
system-health Enabled
timeout-drops Enabled
stack-trace Enabled

```

Use the **clear logging onboard** command to clear the OBFL information for each of the **show** command options listed.

Configuration Example for OBFL

This example shows how to enable OBFL on module 2 for environmental information:

```

switch# configure terminal
switch(config)# hw-module logging onboard module 2 environmental-history

```

Additional References

Related Documents

Related Topic	Document Title
Configuration files	<i>Cisco Nexus 9000 Series NX-OS Fundamentals Configuration Guide</i>