Configuring Onboard Failure Logging

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

This chapter includes the following sections:

- Overview, on page 1
- Prerequisites for OBFL, on page 2
- Guidelines and Limitations for OBFL, on page 2
- Default Settings for OBFL, on page 2
- Configuration, on page 2
- Verifying the OBFL Configuration, on page 6
- Configuration Example for OBFL, on page 7
- Additional References, on page 7

Overview

OBFL (On-Board Failure Logging) is a feature that stores critical operational and diagnostic data for hardware modules.

Types of Data Stored by OBFL

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

Default Settings

The following table lists the default settings for OBFL parameters.

Parameters	Default
OBFL	All features enabled

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 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 used in Cisco IOS.

Default Settings for OBFL

The following table lists the default settings for OBFL parameters.

Parameters	Default
OBFL	All features enabled

Configuration

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

Before you begin

Make sure that you are in global configuration mode.

Procedure

Step 1 Enter global configuration mode using the command **configure terminal**

Example:

```
switch# configure terminal
 switch(config)#
```

Step 2 Enable all OBFL features using the command **hw-module logging onboard**

Example:

```
switch(config)# hw-module logging onboard
 Module: 7 Enabling ... was successful.
 Module: 10 Enabling ... was successful.
 Module: 12 Enabling ... was successful.
```

Step 3 Enable the OBFL counter statistics using the command **hw-module logging onboard counter-stats**

Example:

```
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.
```

Step 4 Enable the OBFL CPU hog events using the command **hw-module logging onboard cpuhog**

Example:

```
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.
```

Step 5 Enable the OBFL environmental history using the command **hw-module logging onboard environmental-history**

Example:

```
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.
```

Step 6 Enable the OBFL error statistics using the command **hw-module logging onboard error-stats**

Example:

```
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.
```

Step 7 Enable the OBFL interrupt statistics using the command **hw-module logging onboard interrupt-stats**

Example:

```
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.
```

Step 8 Enable the OBFL information for a module using the command **hw-module logging onboard module** *slot* and enable the boot uptime, device version, and OBFL history using the command **hw-module logging onboard obfl-logs**

Example:

```
switch(config)# hw-module logging onboard module 7
 Module: 7 Enabling ... was successful.
```

Example:

```
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.
```

Step 9 (Optional) Display information about OBFL using the command **show logging onboard** and copy the running configuration to the startup configuration using the command **copy running-config startup-config** .

Example:

```
switch(config)# show logging onboard
```

Example:

```
switch(config)# copy running-config startup-config
```

This is an optional step.

Note
To display OBFL information stored in flash on a module, see Verifying the OBFL Configuration, on page 6 .

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
```

What to do next

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

Command	Purpose
show logging onboard boot-uptime	Displays the boot and uptime information.
show logging onboard counter-stats	Displays statistics on all ASIC counters.

Command	Purpose
show logging onboard credit-loss	Displays OBFL credit loss logs.
show logging onboard device-version	Displays device version information.
show logging onboard endtime	Displays OBFL logs to a specified end time.
show logging onboard environmental-history	Displays environmental history.
show logging onboard error-stats	Displays error statistics.
show logging onboard exception-log	Displays exception log information.
show logging onboard interrupt-stats	Displays interrupt statistics.
show logging onboard module *slot*	Displays OBFL information for a specific module.
show logging onboard obfl-history	Displays history information.
show logging onboard obfl-logs	Displays log information.
show logging onboard stack-trace	Displays kernel stack trace information.
show logging onboard starttime	Displays OBFL logs from a specified start time.
show logging onboard status	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.

Verifying the OBFL Configuration

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

Command	Purpose
show logging onboard boot-uptime	Displays the boot and uptime information.
show logging onboard counter-stats	Displays statistics on all ASIC counters.
show logging onboard credit-loss	Displays OBFL credit loss logs.
show logging onboard device-version	Displays device version information.
show logging onboard endtime	Displays OBFL logs to a specified end time.
show logging onboard environmental-history	Displays environmental history.
show logging onboard error-stats	Displays error statistics.
show logging onboard exception-log	Displays exception log information.
show logging onboard interrupt-stats	Displays interrupt statistics.
show logging onboard module *slot*	Displays OBFL information for a specific module.
show logging onboard obfl-history	Displays history information.
show logging onboard obfl-logs	Displays log information.
show logging onboard stack-trace	Displays kernel stack trace information.
show logging onboard starttime	Displays OBFL logs from a specified start time.
show logging onboard status	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

This reference provides a related document for configuration files.

Table 1: Related Documents

Related Topic	Document Title
Configuration files	*Cisco Nexus 9000 Series NX-OS Fundamentals Configuration Guide*