



## Onboard Failure Logging

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Onboard Failure Logging (OBFL) captures and stores hardware failure and environmental information into nonvolatile memory. OBFL permits improved accuracy in hardware troubleshooting and root cause isolation analysis. Stored OBFL data can be retrieved in the event of a router crash or failure.

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## Finding Feature Information

### Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.

## Hardware Compatibility Matrix for Cisco cBR Series Routers



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**Note** The hardware components introduced in a given Cisco IOS-XE Release are supported in all subsequent releases unless otherwise specified.

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Table 1: Hardware Compatibility Matrix for the Cisco cBR Series Routers

Cisco CMTS Platform	Processor Engine	Interface Cards
Cisco cBR-8 Converged Broadband Router	<p><b>Cisco IOS-XE Release 16.5.1 and Later Releases</b></p> <p>Cisco cBR-8 Supervisor:</p> <ul style="list-style-type: none"> <li>• PID—CBR-CCAP-SUP-160G</li> <li>• PID—CBR-CCAP-SUP-60G</li> <li>• PID—CBR-SUP-8X10G-PIC</li> </ul>	<p><b>Cisco IOS-XE Release 16.5.1 and Later Releases</b></p> <p>Cisco cBR-8 CCAP Line Cards:</p> <ul style="list-style-type: none"> <li>• PID—CBR-LC-8D30-16U30</li> <li>• PID—CBR-LC-8D31-16U30</li> <li>• PID—CBR-RF-PIC</li> <li>• PID—CBR-RF-PROT-PIC</li> <li>• PID—CBR-CCAP-LC-40G-R</li> </ul> <p>Cisco cBR-8 Downstream PHY Modules:</p> <ul style="list-style-type: none"> <li>• PID—CBR-D30-DS-MOD</li> <li>• PID—CBR-D31-DS-MOD</li> </ul> <p>Cisco cBR-8 Upstream PHY Modules:</p> <ul style="list-style-type: none"> <li>• PID—CBR-D30-US-MOD</li> <li>• PID—CBR-D31-US-MOD</li> </ul>

## Understanding OBFL

OBFL provides a mechanism to store hardware, software, and environment related critical data in a non-volatile memory, such as flash EPROM or EEPROM on routers. The logging information is used by the TAC team to troubleshoot and fix hardware issues.

OBFL collects data like temperatures and voltages. It stores the data in a dedicated area of the flash memory of the router. This data is retrieved by TAC personnel to troubleshoot routers. It can also be analyzed by back-end software to detect failure patterns, and possibly to recommend specific quality improvements.

### Retrieval of the OBFL message

If the hardware is defective and the system cannot boot up, any data in flash is inaccessible. In that case, use any one of the following methods to recover OBFL data:

- Read the flash through JTAG: this requires provisions in hardware design and back-end hardware and software support tools.
- Repair the system; boot it; use the OBFL CLI commands.

## Configuring OBFL

Use the **hw-module** *{all|slot|module}* *{slotnumber/subslotnumber|modulenum}* **logging onboard** *{disable | enable}* command to enable or disable OBFL on a specified hardware module.



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**Note** OBFL is enabled by default.

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```
Router# hw-module slot R0 logging onboard enable
```

## Displaying OBFL Logging Information

Use the **show logging onboard** *{slot|module|bay}* *{slotnumber/subslotnumber|modulenum}* *{dram | message | serdes | status | temperature | uptime | voltage}* command to view the OBFL log information.



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**Note** OBFL is enabled by default on the Cisco cBR series router.

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For the card PICs, use the **show logging onboard bay** *slotnumber/subslotnumber* *{dram | message | serdes | status | temperature | uptime | voltage}* command to view its OBFL information.

## Clearing OBFL Logging

Use the **clear logging onboard** *{slot|module}* *{slotnumber/subslotnumber|modulenum}* *{dram | message | serdes | temperature | voltage}* command to clear OBFL logging.

Following example shows how to clear DRAM ECC error log:

```
Router# clear logging onboard slot R0 dram
```

Following example shows how to clear OBFL error message:

```
Router# clear logging onboard slot R0 message
```

Following example shows how to clear onboard serdes log:

```
Router# clear logging onboard slot R0 serdes
```

Following example shows how to clear onboard temperature log:

```
Router# clear logging onboard slot R0 temperature
```

Following example shows how to clear onboard voltage log:

```
Router# clear logging onboard slot R0 voltage
```

# Configuration and Verification Examples

## Example—Verifying OBFL Configuration Status

```
Router#show logging onboard slot R1 status
Status: Enabled
```

```
Router#show logging onboard slot 5 status
Status: Disabled
```

## Example—Displaying OBFL Logs

```
Router#show logging onboard slot R1 message
timestamp          module      sev  message
```

```
-----
01/01/12 12:00:23  SUP_PSOC  3    SUP MB PSOC alert interrupt
01/01/12 12:00:23  SUP_PSOC  3    SUP MB PSOC alert interrupt
01/01/12 12:00:23  SUP_PSOC  3    SUP MB PSOC alert interrupt
01/01/12 12:00:23  SUP_PSOC  3    SUP MB PSOC alert interrupt
01/01/12 12:01:15  SUP_PSOC  3    SUP MB PSOC alert interrupt
```

```
Router#show logging onboard slot R1 voltage
```

```
Name              Id      Data (mV)  Poll  Last Update
-----
PSOC-MB2_20: VO   40      1791      1     01/01/12 17:03:03
PSOC-MB2_21: VO   41      3290      1     01/01/12 17:03:03
PSOC-MB2_22: VO   42      3293      1     01/01/12 17:03:03
PSOC-MB2_23: VO   43      3299      1     01/01/12 17:03:03
PSOC-MB2_24: VO   44      4958      1     01/01/12 17:03:03
PSOC-MB2_25: VO   45      4508      1     01/01/12 17:03:03
PSOC-MB3_0: VOU   46      4999      1     01/01/12 17:03:03
PSOC-MB3_1: VOU   47      4982      1     01/01/12 17:03:03
PSOC-MB3_2: VOU   48      1499      1     01/01/12 17:03:03
PSOC-MB3_3: VOU   49      1193      1     01/01/12 17:03:03
PSOC-MB3_4: VOU   50      708       1     01/01/12 17:03:03
PSOC-MB3_5: VOU   51      757       1     01/01/12 17:03:03
PSOC-MB3_6: VOU   52      585       1     01/01/12 17:03:03
PSOC-MB3_7: VOU   53      1501      1     01/01/12 17:03:03
```

```
Router#show logging onboard slot R1 temperature
```

```
Name              Id      Data (C)  Poll  Last Update
-----
Temp: BB_DIE      159      25       1     01/02/12 23:04:19
Temp: VP_DIE      160      21       1     01/02/12 23:04:19
Temp: RT-E_DIE    161      29       1     01/02/12 23:04:19
Temp: INLET_1     162      20       1     01/02/12 23:04:19
Temp: INLET_2     163      18       1     01/02/12 23:04:19
Temp: OUTLET_1    164      22       1     01/02/12 23:04:19
Temp: 3882_1     165      44       1     01/02/12 23:04:19
```

```
Temp: 3882_1A      166           38  1           01/02/12 23:04:19
Temp: 3882_1B      167           36  1           01/02/12 23:04:19
Temp: 3882_2       168           38  1           01/02/12 23:04:19
Temp: 3882_2A      169           37  1           01/02/12 23:04:19
Temp: 3882_2B      170           35  1           01/02/12 23:04:19
Temp: 3882_3       171           38  1           01/02/12 23:04:19
```

Router#show logging onboard slot R1 uptime latest

```
Slot          Reset reason  Power On
-----
1             reset local software  01/02/12 23:02:46
```

Router#show logging onboard slot R1 uptime

```
Slot          Reset reason  Power On
-----
0             reset local software  01/06/12 01:52:26
4             reset local software  01/06/12 01:52:42
0             reset local software  01/06/12 01:52:45
0             reset local software  01/06/12 02:20:27
4             reset local software  01/06/12 02:20:43
0             reset local software  01/06/12 02:20:46
0             reset local software  01/06/12 05:12:02
4             reset local software  01/06/12 05:12:19
0             reset local software  01/06/12 05:12:22
0             reset local software  01/06/12 05:17:31
4             reset local software  01/06/12 05:17:48
0             reset local software  01/06/12 05:17:51
0             reset power on       01/01/12 08:56:44
4             reset power on       01/01/12 08:57:00
```

Router#show logging onboard bay 4/3 message

```
timestamp          module      sev  message
-----
01/02/12 08:14:22  RFSW-PIC  6    CAT1836E07Q:7.13:Initialize:3/1
01/02/12 08:20:42  RFSW-PIC  6    CAT1836E07Q:7.13:Initialize:3/1
01/02/12 09:13:23  RFSW-PIC  6    CAT1836E07Q:7.13:Initialize:3/1
01/02/12 09:42:33  RFSW-PIC  6    CAT1836E07Q:7.13:Initialize:3/1
01/02/12 11:56:09  RFSW-PIC  6    CAT1836E07Q:7.13:Initialize:3/1
01/02/12 12:27:23  RFSW-PIC  6    CAT1836E07Q:7.13:Initialize:3/1
```

Router#show logging onboard bay 5/3 message

```
timestamp          module      sev  message
-----
01/22/15 01:06:05  RFSW-PIC  6    JAB092709EL:7.35:Init--stby:3/1
01/22/15 01:19:01  RFSW-PIC  6    JAB092709EL:7.35:Init--stby:3/1
01/22/15 01:31:47  RFSW-PIC  6    JAB092709EL:7.35:Init--stby:3/1
01/22/15 01:44:38  RFSW-PIC  6    JAB092709EL:7.35:Init--stby:3/1
01/22/15 01:59:04  RFSW-PIC  6    JAB092709EL:7.35:Init--stby:3/1
```

```
01/22/15 02:12:07 RFSW-PIC 6 JAB092709EL:7.35:Init--stby:3/1
```

```
Router#show logging onboard bay 4/4 message
```

```
timestamp          module      sev  message
```

```
01/01/12 10:01:44 SUP-PIC 0 TEST1122334:0.130:PLL-LOS:1[04]
```

```
01/01/12 10:01:45 SUP-PIC 0 TEST1122334:0.130:PLL-LOS:2[04]
```

```
01/01/12 10:01:46 SUP-PIC 0 TEST1122334:0.130:PLL-LOS:3[04]
```

```
01/01/12 10:01:49 SUP-PIC 0 TEST1122334:0.130:PLL-LOS:4[04]
```

```
01/01/12 10:01:50 SUP-PIC 0 TEST1122334:0.130:PLL-LOS:5[04]
```

```
01/01/12 10:01:51 SUP-PIC 0 TEST1122334:0.130:PLL-LOS:6[04]
```

```
Router#show logging onboard bay 5/5 message
```

```
timestamp          module      sev  message
```

```
01/03/12 13:52:55 SUP-PIC 0 TEST8877665:0.130:PLL-LOS:1[04]
```

```
01/03/12 13:52:56 SUP-PIC 0 TEST8877665:0.130:PLL-LOS:2[04]
```

```
01/03/12 13:52:57 SUP-PIC 0 TEST8877665:0.130:PLL-LOS:3[04]
```

```
01/03/12 13:53:00 SUP-PIC 0 TEST8877665:0.130:PLL-LOS:4[04]
```

```
01/03/12 13:53:01 SUP-PIC 0 TEST8877665:0.130:PLL-LOS:5[04]
```

## Feature Information for Onboard Failure Logging

Use Cisco Feature Navigator to find information about the platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to the [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn) link. An account on the Cisco.com page is not required.



**Note** The following table lists the software release in which a given feature is introduced. Unless noted otherwise, subsequent releases of that software release train also support that feature.

**Table 2: Feature Information for Onboard Failure Logging**

Feature Name	Releases	Feature Information
Onboard Failure Logging	Cisco IOS XE Everest 16.6.1	This feature was integrated into Cisco IOS XE Everest 16.6.1 on the Cisco cBR Series Converged Broadband Routers.