Onboard Failure Logging

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.

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

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

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

Cisco CMTS Platform	Processor Engine	Interface Cards
Cisco cBR-8 Converged Broadband Router	**Cisco IOS-XE Release 3.15.0S and Later Releases** Cisco cBR-8 Supervisor: • PID—CBR-CCAP-SUP-160G • PID—CBR-CCAP-SUP-60G[1] • PID—CBR-SUP-8X10G-PIC	**Cisco IOS-XE Release 3.15.0S and Later Releases** Cisco cBR-8 CCAP Line Cards: • PID—CBR-LC-8D30-16U30 • PID—CBR-LC-8D31-16U30 • PID—CBR-RF-PIC • PID—CBR-RF-PROT-PIC Cisco cBR-8 Downstream PHY Modules: • PID—CBR-D30-DS-MOD • PID—CBR-D31-DS-MOD Cisco cBR-8 Upstream PHY Modules: • PID—CBR-D30-US-MOD

[1] Effective with Cisco IOS-XE Release 3.17.0S, CBR-CCAP-SUP-60G supports 8 cable line cards. The total traffic rate is limited to 60Gbps, the total number of downstream service flow is limited to 72268, and downstream unicast low-latency flow does not count against the limits.

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*|*modulenumber*} **logging onboard** {**disable** | **enable**} command to enable or disable OBFL on a specified hardware module.

Note OBFL is enabled by default.

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

Displaying OBFL Logging Information

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

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

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*|*modulenumber*} {**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 https://cfnng.cisco.com/ 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	IOS-XE 3.15.0S	This feature was introduced on the Cisco cBR Series Converged Broadband Routers.