

Graceful Handling of Out of Resource Situations Commands

This module describes the Cisco IOS XR Software commands to configure graceful handling of out of resource situations for system monitoring on the router.

For detailed information about graceful handling of out of resource concepts, configuration tasks, and examples, see the *Graceful Handling of Out of Resource Situations* chapter in the *System Monitoring Configuration Guide for Cisco 8000 Series Routers*.

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oor hw

To configure hardwares for Out of Resource (OOR) situations and to configure OOR threshold values, use the **oor hw** command in XR Config mode. To remove the **oor hw** configuration file, use the **no** form of this command.

oor hw { **dampening** *timeout-value* | **threshold** | { **red** *red-threshold-value* | **yellow** *yellow-threshold-value* } }

oor hw { **dampening** *timeout-value* | **threshold** { **red yellow** } *threshold-value* }

Syntax Description

dampening *timeout-value*	Configures the timeout value of dampening the OOR state.
threshold	Configures the threshold values of OOR states.
red *red-threshold-value*	Specifies the threshold value for OOR state, **Red**. This value indicates that the hardware and SDK resources are utilized over the permissible limits.You can configure this value as a percentage.

yellow *yellow-threshold-value*	Specifies the threshold value for OOR state, **Yellow**. This value indicates that the hardware and SDK resources are close to being utilized over the permissible limits.You can configure this value as a percentage.

Command Default

By default, the threshold value for **Red** and **Yellow** OOR states are 95% and 80% respectively.

Command Modes

XR Config mode

Task ID

Task ID	Operations
config-services	read, write

Examples

This example shows how to configure threshold values for OOR states:

```
Router(config)#oor hw threshold red 96
Router(config)#oor hw threshold yellow 85
Router(config)#commit
```

show ofa transport async stats client fib

To display the async response error stats that are sent through the out-of-band async channel from OFA npu_drvr to FIM Mgr, you can use the **show ofa transport async stats client fib** command in XR EXEC mode.

show ofa transport async stats client fib

Command Default

None

Command Modes

XR Exec Mode

Command History

Release	Modification
Release 7.5.4	This command was updated to include support for Protection Groups.
Release 7.3.1	This command was introduced.

The following example displays entries that are queued in the FIB OOR retry queue based on the object queue ID, using the **show ofatransport async stats client fib** command:

```
RP/0/RP0/CPU0:PE1# show ofa transport async stats client fib <>
Client name: OfaAsyncFeedbackClientFib

Channel Type:
```

```
Async P2P Notification:

Message Type:
NoMemory rx:0 tx:0

HwFailure rx:0 tx:0

OutOfResource rx:0 tx:0

IssuV2Primary rx:0 tx:0

ReplayDone rx:0 tx:0

Dump rx:0 tx:0

DelayedDelete rx:8 tx:8

NpuUp rx:0 tx:0

NpuDown rx:0 tx:0

WbStart rx:0 tx:0

WbEnd rx:0 tx:0

DebugInfo rx:0 tx:0

AsyncProgramError rx:44 tx:44 → Default Async errors sent to PI-FIB

AsyncResolveError rx:0 tx:0

AsyncEnoent rx:0 tx:0

AsyncSWIDOutOfResource rx:0 tx:0

NpdEvent rx:0 tx:0

FabricUp rx:0 tx:0

FabricDown rx:0 tx:0

OorMsg rx:0 tx:0

CustomMsg rx:224 tx:224 → Custom Async errors sent to PI-FIB
```

show cef object-queue

To display entries that are queued in the FIB OOR retry queue based on the object queue ID, you can use the **show cef object-queue location** command in XR EXEC mode.

show cef object-queue

Syntax Description

location	Displays the queued entries in the FIB OOR for all locations.

Command Default

None

Command Modes XR Exec Mode

Command History

Release	Modification
Release 7.5.4	This command was updated to include support for Protection Groups.
Release 7.3.1	This command was introduced.

The following example displays entries that are queued in the FIB OOR retry queue based on the object queue ID, using the **show cef object-queue location** <> command:

```
RP/0/RP0/CPU0:PE1# show cef object-queue location 0/0/cpu0
Queue                          QID   No. of Markers   No. of Objects
-------------------------------------------------------------------------
OOR FEC                        23    0                17

OOR LEAF                       24    1                0
OOR NHINFO                     25    1                0
OOR GENERIC                    26    1                0
```

The following is an example usage of the **show cef object-queue queue** <*queue-id*> **location** <> command:

```
RP/0/RP0/CPU0:PE1#sh cef object-queue queue 23 location 0/0/cpu0
Wed Nov 18 21:39:04.432 EST
PATHLIST pl:0x309a912db0 paths:2 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.1.10.16/32 leaf:0x309713a890
PATHLIST pl:0x309a912cc8 paths:2 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.1.14.218/32 leaf:0x309e46c8b8
PATHLIST pl:0x309a912be0 paths:2 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.1.17.63/32 leaf:0x309e469738
PATHLIST pl:0x309a912a10 paths:2 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.1.22.9/32 leaf:0x309e503b00
PATHLIST pl:0x309a912928 paths:2 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.1.24.110/32 leaf:0x309e4f1a40
PATHLIST pl:0x309a912758 paths:3 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.0.0.182/32 leaf:0x30ad885fa0
PATHLIST pl:0x309a9124a0 paths:3 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.0.19.208/32 leaf:0x30ad889228
PATHLIST pl:0x309a9123b8 paths:3 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.0.26.46/32 leaf:0x30ad889c78
PATHLIST pl:0x309a905430 paths:3 pl-type:Shared
1st prefix dependent: default 0xe0000000 202.0.51.166/32 leaf:0x3096582798
```

show controllers npu resources

To display the usage of Open Forwarding Abstraction (OFA) resources, use the **show controllers npu resources** command in the XR EXEC mode. OFA is an infrastructure layer which provides an abstraction interface for networking hardware.

show controllers npu resources { *resource-type* | **all** } **location** { **all** *location-id* }

Syntax Description

all	Use the **all** keyword to display the usage of all the OFA resources for a single location or all locations.
resource-type	Specify the **resource-type** to display the usage of the particular OFA resource for a single location or all locations.
location all	Use the **location all** keywords to display the usage of a single resource type or all resource types for all locations.
location *location-id*	Specify the *location-id* to display the usage of a single resource type or all resource types for the particular location.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 7.3.2	The following resource types are added to the command: • egresslargeencaptb • sipidxtbl • myipv4tbl • tunneltermination
Release 7.3.1	This command was introduced.

Task ID

Task ID	Operations
interface	read
cisco-support	read

The **show controllers npu resources lpmtcam location** *0/0/CPU0* command displays that the lptcam resource has reached Out of Resource (OOR) state as it has exceeded the usage thresholds.

```
RP/0/RP0/CPU0:ios# show controllers npu resources lpmtcam location 0/0/CPU0
HW Resource Information
    Name                            : lpm_tcam
    Asic Type                       : Pacific

NPU-0
OOR Summary
        Estimated Max Entries       : 100
        Red Threshold              : 95 %
        Yellow Threshold            : 80 %
```

```
        OOR State                    : Red
        OOR State Change Time        : 2020.Dec.17 09:53:02 EST
```

This example displays the IPv6 shortening entry as highlighted below. With both the IPv6 LPM normal entries and IPv6 LPM shortening entries in the output, you can determine the total number of IPv6 routes.

```
RP/0/RP0/CPU0:ios# show controllers npu resources lpmtcam location 0/0/CPU0
Thu Jan 18 00:59:50.488 UTC
HW Resource Information
    Name : lpm_tcam
    Asic Type : Q200

NPU-0
OOR Summary
  Estimated Max Entries : 100
  Red Threshold : 95 %
  Yellow Threshold : 80 %
  OOR State : Green

OFA Table Information
(May not match HW usage)
 iprte : 3
 ip6rte : 2
 ip6mcrte : 0
 ipmcrte : 0

Current Hardware Usage
 Name: lpm_tcam
 Estimated Max Entries : 100
 Total In-Use : 0 (0 %)
 OOR State : Green

 Name: v4_lpm
 Total In-Use : 6

 Name: v6_lpm
 Total In-Use : 4

 Name: v6_shortening_lpm
 Total In-Use : <>
```