Capped License Enforcement

This document provides information on the Capped License feature and on how to configure it on Cisco cBR Series Routers.

Finding Feature Information

Your software release may not support all the features that are documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. The Feature Information Table at the end of this document provides information about the documented features and lists the releases in which each feature is supported.

Hardware Compatibility Matrix for the Cisco cBR Series Routers

Note   The hardware components that are 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 16.5.1 and Later Releases** Cisco cBR-8 Supervisor: • PID—CBR-SUP-250G • PID—CBR-CCAP-SUP-160G • PID—CBR-CCAP-SUP-60G • PID—CBR-SUP-8X10G-PIC	**Cisco IOS-XE Release 16.5.1 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 • PID—CBR-CCAP-LC-40G • PID—CBR-CCAP-LC-40G-R 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 • PID—CBR-D31-US-MOD

Information About Capped License Support

The capped license enforcement feature allows you to set a limit to the number of licenses for each licensed feature on Cisco cBR-8. Hence, with this feature, the uncontrolled usage of licensed features and the accidental consumption of more resources are kept under check. It also enables the users to track the usage per device and controls the usage of resources upfront.

If any of the capped enforcement limit is lower than the current usage number, you cannot apply the capped license option.

If capped enforcement is already in effect, the user cannot access more resources than the capped limit. The number of feature licenses accessed must be less than or equal to the capped count.

Smart License feature, which is a Reporting Model, discourages license enforcement. Hence, the Capped License Enforcement feature is disabled by default and is not publicized to every customer.

SNMP-MIB-based Capped Enforcement

Set the cap for the features and enable the Capped-Enforcement feature using the SNMP set command. The SNMP set command is successful only when the cap enforcement count for all the features are greater than

or equal to the current usage count. If the usage count for any feature is above the cap count, shutdown those resources and make sure that they are below or equal to the cap limit before issuing the SET command.

Platform, after synchronizing those values with the standby RP, enables the capped enforcement. So if the user tries to increase the usage beyond the CAP values, the resource are blocked and warning messages appear.

During the Return Material Authorization (RMA) of the SUP and when the SUP is moved across chassis, the stored cap numbers and the values configured while enabling cap enforcement are cleared. However, in a system with standby RP, if the standby RP has taken over, when the new RP is plugged in during RMA, the values are synced. In a non-redundant system, reissue the SNMP SET command after an RMA or when an SUP is moved across the chassis.

You cannot enable capped enforcement on Cisco cBR-8, which is already in a configuration lock state. However, a Cisco cBR8 that is cap enabled or not when fails to communicate with the license server for more than 90 days, moves to configuration lock state.

If you do not set the CAP count for a feature, the value is set to the default 0xfff_ffff (268435455).

Use Case Scenarios

The following table shows the use cases for SNMP-MIB-based capped enforcement.

If the entitlement usage is less than or equal to the CAP count	You can configure the limit and turn on additional resources. When the feature usage reaches the CAP count, the platform prevents the additional usage.
If the entitlement usage is greater than the CAP count	Stops the SNMP command from running. A message appears to inform you about this scenario and the difference in the count.

The following table shows the conditions under which you must set the CAP enable and the CAP count options.

Scenario	Non Redundant Cisco cBR	Redundant Cisco cBR
First-time boot	Yes	Yes
System reload	No	No
SSO	N/A	No
SUP RMA	Yes	No
Moving SUP across chassis	Yes	No

How to Configure Capped License Enforcement

This section contains the following:

Configuring Capped License Enforcement

To configure the Capped License Enforcement, use the SNMP command as given in the following example. Change the MIB value by running the following command from a Linux server:

```
snmpget -v <snmp_version_information> -c <snmp_readonly_community>
   <cBR8_Server_IP>   <MIB_OID>
snmpset -v <snmp_version_information> -c <snmp_read_write_community>
   <cBR8_Server_IP>   <MIB_OID>  <object_type>  <value>
```

Viewing the License Usage Count

To view the license usage count of the current configuration, use the show cable license all command as given in the following example.

```
Router-config# show cable license all
```

Configuration Examples

The following example shows how to get the **EnforcementEnabled** Global value using the community private on the server 172.25.15.210 using SNMP version 2c:

```
$ snmpget -v 2c -c public 172.25.15.210 1.3.6.1.4.1.9.9.839.1.1.3.0
```

The following example shows how to set the **EnforcementEnabled** Global value using the community private on the server 172.25.15.210 using SNMP version 2c.

```
$ snmpset -v 2c -c private 172.25.15.210 1.3.6.1.4.1.9.9.839.1.1.3.0 i 1
```

The following example shows how to set the DS license cap limit to 999999.

```
$ snmpset -v 2c -u private 123 172.25.15.210 1.3.6.1.4.1.9.9.839.1.1.4.1 u 999999
```

Feature Information for Capped License Enforcement

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 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 Capped License Enforcement

Feature Name	Releases	Feature Information
Capped License Enforcement	Cisco IOS XE Everest 16.6.1	This feature was introduced in Cisco IOS XE Everest 16.6.1 on Cisco cBR Series Converged Broadband Router.