SNMP Engine Enhancement

The SNMP Cache Engine Enhancement feature caches the SNMP information on the Supervisor.

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.

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.

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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	**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 • PID—CBR-CCAP-LC-G2-R • PID—CBR-SUP-8X10G-PIC • PID—CBR-2X100G-PIC Digital PICs: • PID—CBR-DPIC-8X10G • PID—CBR-DPIC-2X100G Cisco cBR-8 Downstream PHY Module: • PID—CBR-D31-DS-MOD Cisco cBR-8 Upstream PHY Modules: • PID—CBR-D31-US-MOD

Note Do not use DPICs (8X10G and 2x100G) to forward IP traffic, as it may cause buffer exhaustion, leading to line card reload.

The only allowed traffic on a DPICs DEPI, UEPI, and GCP traffic from the Cisco cBR-8 router to Remote PHY devices. Other traffic such as DHCP, SSH, and UTSC should flow via another router, since DPICs cannot be used for normal routing.

Restrictions for SNMP Cache Engine Enhancement

The time interval for which the cached information is available on the Supervisor is 5 seconds.

Information About SNMP Cache Engine Enhancement

The SNMP Cache Engine Enhancement feature caches the information on the Supervisor for the MIB tables, which need to retrieve the data from the interface cards. When a MIB table item is queried from the interface card, the next N items are retrieved and cached on the Supervisor.

For example, if SNMP client queries the docsIf3CmtsCmRegStatusMacAddr.1, the interface card bundles docsIf3CmtsCmRegStatusMacAddr.1, docsIf3CmtsCmRegStatusMacAddr.2, docsIf3CmtsCmRegStatusMacAddr.3, to docsIf3CmtsCmRegStatusMacAddr.N together in one IPC response, and sends it to the Supervisor. The Supervisor caches all the items locally. When the SNMP client queries the docsIf3CmtsCmRegStatusMacAddr.2 later, the information is available in the Supervisor cache directly instead of sending another IPC message to interface card. The number N depends on the single MIB item size and maximum IPC message buffer size.

The MIB table information for following MIBs are retrieved and cached on the Supervisor:

- DOCS-IF-MIB
- DOCS-IFEXT2-MIB
- DOCS-QOS-MIB
- DOCS-IF3-MIB
- DOCS-IF31-MIB
- DOCS-QOS3-MIB
- DOCS-IETF-QOS-MIB
- DOCS-BPI-PLUS-MIB
- DOCS-LOADBALANCING-MIB
- DOCS-LOADBAL3-MIB
- DOCS-DSG-IF-MIB
- CISCO-DOCS-EXT-MIB
- CISCO-CABLE-WIDEBAND-MIB
- CISCO-CABLE-SPECTRUM-MIB

This feature is enabled by default on the Cisco cBR routers. The time interval for which the SNMP cache information is stored on the Supervisor is known as *age* and set to 5 seconds.

How to Configure SNMP Cache Engine Enhancement

Before you begin

You must configure the **service internal** command in global configuration mode to enable or disable SNMP Cache Engine Enhancement.

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** Router> **enable**	Enables privileged EXEC mode. • Enter your password, if prompted.
Step 2	**configure terminal** **Example:** Router# **configure terminal**	Enters global configuration mode.
Step 3	**cable snmp cache active** **Example:** Router(config)# **cable snmp cache active**	Sets the SNMP cache status to active. **Note** Use the **no** form of the command to disable the SNMP cache status.
Step 4	**exit** **Example:** Router(config)# **exit**	Exits the global configuration mode and enters the privileged EXEC mode.

Verifying the SNMP Cache Engine Status

Use the **show cable snmp cache-status** command to display the current SNMP cache engine status.

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Important   You must configure the **service internal** command in global configuration mode to verify the SNMP cache engine status.

Following is a sample output of the command.

```
Router# show cable snmp cache-status

    Cache engine is ON, age: 5 seconds
```

Use the **test cable snmp counter-show** command to display the cache counters information.

```
Router# test cable snmp counter-show
========== cache counters ==========
ubrcce_snmp_cache_hit_counter:0.
ubrcce_snmp_cache_get_from_lc_counter:1.
ubrcce_snmp_cache_miss_counter:0.
ubrcce_snmp_cache_ipc_fail_counter:0.
ubrcce_snmp_cache_buffer_full_counter:0.
```

hit and *mis* are the historic information for the SNMP cache after the system bootup. *hit* indicates the number of times the SNMP queries are hit in the cache and *mis* indicates the number of times the SNMP queries are missed in the SNMP cache.

Additional References

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support

Feature Information for SNMP Cache Engine Enhancement

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 SNMP Cache Engine Enhancement

Feature Name	Releases	Feature Information
SNMP Cache Engine Enhancement	Cisco IOS XE Everest 16.6.1	This feature was integrated into Cisco IOS XE Everest 16.6.1 on theCisco cBR Series Converged Broadband Routers.