



# Dynamic Bandwidth Sharing

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The Cisco cBR series router enables dynamic bandwidth sharing (DBS) on integrated cable (IC) and wideband (WB) cable interfaces.

## 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.

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## 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 3.15.0S 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<sup>1</sup></li> <li>• PID—CBR-SUP-8X10G-PIC</li> </ul>	<p><b>Cisco IOS-XE Release 3.15.0S 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> </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> </ul>

<sup>1</sup> 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.

## Information About Dynamic Bandwidth Sharing

### DBS for Integrated and Wideband Cable Interfaces

Prior to DOCSIS 3.0 standards, cable service flows were associated with a single cable interface, which in turn corresponded to a physical downstream on a line card. Under DOCSIS 3.0 standards, cable service flows can be associated with more than one downstream channel.

DBS is the dynamic allocation of bandwidth for IC and WB cable interfaces sharing the same downstream channel. The bandwidth available to each IC, WB cable, or narrowband channel is not a fixed value—it depends on the configuration and the traffic load on the IC or WB cable.

DBS enables high burst rates with DOCSIS 2.0 cable modems as well as DOCSIS 3.0 cable modems. The DBS feature continues working across line card and Supervisor switchovers with no loss of functionality.

## How to Configure Dynamic Bandwidth Sharing

Dynamic bandwidth sharing is enabled by default on the integrated and wideband cable interfaces on the Cisco cBR router. You can configure the bandwidth allocation for the WB and IC interfaces.



**Important** Dynamic bandwidth sharing cannot be disabled on the Cisco cBR router.

This section contains the following procedures:

## Configuring DBS for a Wideband Cable Interface

Perform the following to configure the bandwidth allocation for a wideband cable interface.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b>  Router> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b>  Router# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>interface wideband-cable</b> <i>slot/subslot/portwideband-channel</i> <b>Example:</b>  Router(config)# <b>interface wideband-cable</b> 1/0/0:0	Configures a wideband cable interface.
<b>Step 4</b>	<b>cable rf-channel channel-list</b> <i>group</i> <b>[bandwidth-percent</b> <i>bw-percent</i> <b>]</b> <b>Example:</b>  Router(config-if)# <b>cable rf-channel</b> <b>channel-list 10 bandwidth-percent 50</b>	Configures the bandwidth allocation for the wideband channel interface.

## Configuring DBS for an Integrated Cable Interface

Perform this procedure to configure the bandwidth allocation for an integrated cable interface.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b>	Enables privileged EXEC mode.  • Enter your password if prompted.

	Command or Action	Purpose
	Router> enable	
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b>  Router# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>interface integrated-cable</b> <i>slot/subslot/portrf-channel</i>  <b>Example:</b>  Router(config)# <b>interface</b> <b>integrated-cable 1/0/0:0</b>	Enters the cable interface mode.
<b>Step 4</b>	<b>cable rf-bandwidth-percent</b> <i>bw-percent</i>  <b>Example:</b>  Router(config-if)# <b>cable</b> <b>rf-bandwidth-percent 50</b>	Configures the bandwidth allocation for the integrated cable interface.

## Verifying the Dynamic Bandwidth Sharing Configuration

Use the following commands to verify the dynamic bandwidth sharing information:

- **show controllers Integrated-Cable** *slot/subslot/port* **bandwidth rf-channel**—Displays the bandwidth information for RF channels.

Following is a sample output of the command:

```
Router# show controllers integrated-Cable 2/0/0 bandwidth rf-channel
```

```

Ctrlr  RF      IF          CIR(Kbps)  Guar(Kbps)
2/0/0   0      In2/0/0:0  7500       13750
        0      Wi2/0/0:0  7500       13750
        0      Wi2/0/0:1  3750       10000
2/0/0   1      In2/0/0:1  7500       13750
        1      Wi2/0/0:0  7500       13750
        1      Wi2/0/0:1  3750       10000
2/0/0   2      In2/0/0:2  7500       12500
        2      Wi2/0/0:0  7500       12500
        2      Wi2/0/0:1  7500       12500
2/0/0   3      In2/0/0:3  7500       12500
        3      Wi2/0/0:0  7500       12500
        3      Wi2/0/0:1  7500       12500
2/0/0   4      In2/0/0:4  7500       12500
        4      Wi2/0/0:0  7500       12500
        4      Wi2/0/0:1  7500       12500
2/0/0   5      In2/0/0:5  7500       12500
        5      Wi2/0/0:0  7500       12500
        5      Wi2/0/0:1  7500       12500
2/0/0   6      In2/0/0:6  7500       12500
        6      Wi2/0/0:0  7500       12500
        6      Wi2/0/0:1  7500       12500

```

2/0/0	7	In2/0/0:7	7500	12500
		Wi2/0/0:0	7500	12500
		Wi2/0/0:1	7500	12500
2/0/0	8	In2/0/0:8	7500	18750
		Wi2/0/0:1	7500	18750
		Wi2/0/0:2	7500	0
2/0/0	9	In2/0/0:9	7500	18750
		Wi2/0/0:1	7500	18750
		Wi2/0/0:2	7500	0
2/0/0	10	In2/0/0:10	7500	18750
		Wi2/0/0:1	7500	18750
		Wi2/0/0:2	7500	0
2/0/0	11	In2/0/0:11	7500	18750
		Wi2/0/0:1	7500	18750
		Wi2/0/0:2	7500	0
2/0/0	12	In2/0/0:12	7500	37500
		Wi2/0/0:2	7500	0
		Wi2/0/0:3	7500	0
2/0/0	13	In2/0/0:13	7500	37500
		Wi2/0/0:2	7500	0
		Wi2/0/0:3	7500	0

- **show controllers Integrated-Cable slot/subslot/port bandwidth wb-channel**—Displays the bandwidth information for wideband channels.

Following is a sample output of the command:

```
Router# show controllers Integrated-Cable 2/0/0 bandwidth wb-channel
```

Ctrlr	WB	RF	CIR(Kbps)	Guar (Kbps)
2/0/0	0		60000	102500
		2/0/0:0	7500	13750
		2/0/0:1	7500	13750
		2/0/0:2	7500	12500
		2/0/0:3	7500	12500
		2/0/0:4	7500	12500
		2/0/0:5	7500	12500
		2/0/0:6	7500	12500
		2/0/0:7	7500	12500
2/0/0	1		82500	170000
		2/0/0:0	3750	10000
		2/0/0:1	3750	10000
		2/0/0:2	7500	12500
		2/0/0:3	7500	12500
		2/0/0:4	7500	12500
		2/0/0:5	7500	12500
		2/0/0:6	7500	12500
		2/0/0:7	7500	12500
		2/0/0:8	7500	18750
		2/0/0:9	7500	18750
		2/0/0:10	7500	18750
		2/0/0:11	7500	18750
		2/0/0:32	0	0
		2/0/0:33	0	0
		2/0/0:34	0	0
		2/0/0:35	0	0
2/0/0	2		60000	0
		2/0/0:8	7500	0
		2/0/0:9	7500	0
		2/0/0:10	7500	0
		2/0/0:11	7500	0
		2/0/0:12	7500	0
		2/0/0:13	7500	0

```

2/0/0:14 7500 0
2/0/0:15 7500 0
2/0/0:64 0 0
2/0/0:65 0 0
2/0/0:66 0 0
2/0/0:67 0 0

```

- **show controllers Integrated-Cable slot/subslot/port mapping rf-channel**—Displays the mapping for RF channels.

Following is a sample output of the command:

```

Router# show controllers integrated-Cable 2/0/0 mapping rf-channel

Ctrlr  RF      IC %      IC Rem    WB          WB %      WB Rem
2/0/0  0        20        1         2/0/0:0    20        1
                2/0/0:1    10        1
2/0/0  1        20        1         2/0/0:0    20        1
                2/0/0:1    10        1
2/0/0  2        20        1         2/0/0:0    20        1
                2/0/0:1    20        1
2/0/0  3        20        1         2/0/0:0    20        1
                2/0/0:1    20        1
2/0/0  4        20        1         2/0/0:0    20        1
                2/0/0:1    20        1
2/0/0  5        20        1         2/0/0:0    20        1
                2/0/0:1    20        1
2/0/0  6        20        1         2/0/0:0    20        1
                2/0/0:1    20        1
2/0/0  7        20        1         2/0/0:0    20        1
                2/0/0:1    20        1
2/0/0  8        20        1         2/0/0:1    20        1
                2/0/0:2    20        1
2/0/0  9        20        1         2/0/0:1    20        1
                2/0/0:2    20        1
2/0/0  10       20        1         2/0/0:1    20        1
                2/0/0:2    20        1

```

- **show controllers Integrated-Cable slot/port/interface-number mapping wb-channel**—Displays the mapping for wideband channels.

Following is a sample output of the command:

```

Router# show controllers integrated-Cable 2/0/0 mapping wb-channel

Ctrlr  WB      RF          WB %      WB Rem
2/0/0  0        2/0/0:0    20        1
                2/0/0:1    20        1
                2/0/0:2    20        1
                2/0/0:3    20        1
                2/0/0:4    20        1
                2/0/0:5    20        1
                2/0/0:6    20        1
                2/0/0:7    20        1
2/0/0  1        2/0/0:0    10        1
                2/0/0:1    10        1
                2/0/0:2    20        1
                2/0/0:3    20        1
                2/0/0:4    20        1
                2/0/0:5    20        1
                2/0/0:6    20        1
                2/0/0:7    20        1
                2/0/0:8    20        1
                2/0/0:9    20        1

```

		2/0/0:10	20	1
		2/0/0:11	20	1
		2/0/0:32	20	1
		2/0/0:33	20	1
		2/0/0:34	20	1
		2/0/0:35	20	1
2/0/0	2	2/0/0:8	20	1
		2/0/0:9	20	1
		2/0/0:10	20	1
		2/0/0:11	20	1
		2/0/0:12	20	1
		2/0/0:13	20	1
		2/0/0:14	20	1
		2/0/0:15	20	1
		2/0/0:64	20	1
		2/0/0:65	20	1
		2/0/0:66	20	1
		2/0/0:67	20	1
2/0/0	3	2/0/0:12	20	1
		2/0/0:13	20	1
		2/0/0:14	20	1
		2/0/0:15	20	1
		2/0/0:16	20	1
		2/0/0:17	20	1

## Additional References

### Related Documents

Related Topic	Document Title
Cisco CMTS cable commands	<i>Cisco CMTS Cable Command Reference</i>

### Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>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.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<a href="http://www.cisco.com/support">http://www.cisco.com/support</a>

# Feature Information for Dynamic Bandwidth Sharing

Use Cisco Feature Navigator to find information about 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 <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.



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

*Table 2: Feature Information for Dynamic Bandwidth Sharing*

Feature Name	Releases	Feature Information
Dynamic Bandwidth Sharing	Cisco IOS-XE Release 3.15.0S	This feature was introduced on the Cisco cBR Series Converged Broadband Router s.