



## Bulk Content Downloader (BCDL) Commands

This module describes the **show** commands that you can use to see the status of the Bulk Content Downloader (BCDL) process. The BCDL provides the Cisco IOS XR software with high-performance downloading capabilities. This capability is used by the following internal applications:

- IPv4 and IPv6 unicast routing protocols—To provide the ability to download forwarding information from the router Global Routing Information Base (GRIB) to the line cards.
- IPv4 and IPv6 multicast routing protocols—To download the Multicast Routing Information Base (MRIB) entries to consumers managing the Multicast Forwarding Information Base (MFIB) on the various line cards.
- MPLS—To download the Label Forwarding Information Base (LFIB) entries to the line card.
- Fabric Management—To update memberships for individual fabric group IDs (FGIDs) to selected portions of the fabric hardware.
- CDS—Context Distribution Service.

There is no configuration necessary for the BCDL.

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# show bcdl

To display Bulk Content Downloader (BCDL) information, use the **show bcdl** command in

EXEC

mode.

**show bcdl** [*group\_name*]

## Syntax Description

*group\_name* (Optional) Displays information for a specific BCDL group.

## Command Default

No default behavior or values

## Command Modes

EXEC

## Command History

| Release       | Modification                 |
|---------------|------------------------------|
| Release 3.7.2 | This command was introduced. |

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

## Task ID

| Task ID | Operations |
|---------|------------|
| sysmgr  | read       |

The following example shows sample output from the **show bcdl** command:

```
RP/0/RSP0/CPU0:router# show bcdl ipv4_rib

Sun May 31 06:56:12.093 PST
grp ipv4_rib, gid 2040, sg cnt 1, agent jid 124, node 0/RSP0/CPU0, pulse 105,
new mbr 0
sg  lwg fd csmr hdlr-act dnld-act susp wait-lck seq pulse-tot pulse-out
 0 2043 11   4      no      no   no      0 113      103      0
```

**Table 1: show bcdl Field Descriptions**

| Field    | Description  |
|----------|--|
| group    | Type of download and the Group Services Protocol (GSP) group name.   |
| gid      | Heavyweight group (HWG) in the GSP. This is the group that a consumer initially joins. It is used by the BCDL agent to send control updates. |
| sg count | Number of subgroups for this particular download type.   |

| Field     | Description  |
|-----------|--|
| agent jid | Job identifier of the BCDL agent. The JID is numerical identifier for a particular process and remains the same across process restarts.   |
| node      | Node, expressed in the <i>rack/slot/module</i> notation, in which the agent is running.  |
| pulse     | Pulse code used by the producer to pulse the BCDL agent.   |
| new mbr   | Number of new consumers that have not yet been assigned a subgroup.  |
| sg        | Subgroups number.  |
| lwg       | Lightweight group in GSP. This is a type of child group of the HWG. The BCDL agent tells the consumers to join this group to receive data. |
| fd        | The connection handle between the producer and the BCDL agent.   |
| csmr      | Number of consumers.   |
| hdlr-act  | Specifies if there is a download in progress.  |
| dnld-act  | Indicates whether the convergence flag has been sent or not.   |
| susp      | Indicates whether the download is suspended due to the queue filling up.   |
| wait-lck  | If nonzero, some thread is waiting for other thread to take control of this subgroup.  |
| seq       | Sequence number of the last message sent on this subgroup.   |
| pulse-tot | Total number of pulses sent by the producer to the BCDL agent.   |
| pulse-out | Total number of outstanding pulses that have not yet been processed by the BCDL agent.   |

# show bcdl consumers

To display Bulk Content Downloader (BCDL) consumer information, use the **show bcdl consumers** command in

EXEC

mode.

**show bcdl consumers** [*group\_name*]

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**Syntax Description**      *group\_name* (Optional) Displays information for a specific BCDL group.

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**Command Default**      No default behavior or values

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**Command Modes**      EXEC

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| Command History | Release       | Modification                 |
|-----------------|---------------|------------------------------|
|                 | Release 3.7.2 | This command was introduced. |

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**Usage Guidelines**      To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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| Task ID | Task ID | Operations |
|---------|---------|------------|
|         | sysmgr  | read       |

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The following example shows sample output using the **show bcdl consumers** command:

```
RP/0/RSP0/CPU0:router# show bcdl consumers ipv4_rib

Sun May 31 06:17:38.209 PST
group ipv4_rib, gsp gid 2040, 4 consumers, agent jid 124, node 0/RSP0/CPU0
(expected 4 consumers to reply, received 4 replies)
  pid      node asg csg  lwg sus  messages  bytes  errs name
  323727  0/RSP0/CPU0  0  0  2043  N      113      54196   0  fib_mgr
  110686  0/6/CPU0    0  0  2043  N      111      54140   0  fib_mgr
  110686  0/4/CPU0    0  0  2043  N      112      54168   0  fib_mgr
  110686  0/1/CPU0    0  0  2043  N      111      54140   0  fib_mgr
```

This table describes the significant fields shown in the display that are not described in [Table 1: show bcdl Field Descriptions, on page 2](#).

**Table 2: show bcdl consumers Field Descriptions**

| Field    | Description  |
|----------|--|
| PID      | Process identifier.  |
| node     | Consumer node, expressed in the <i>rack/slot/module</i> notation.                                      |
| asg      | Subgroup to which the BCDL agent thinks this consumer belongs.   |
| csg      | Subgroup to which the consumer thinks it belongs.  |
| messages | Number of messages processed by this particular consumer.  |
| bytes    | Bytes processed by this particular consumer.   |
| errors   | Errors encountered by the consumer. This field indicates the number of times the connection was reset. |
| name     | Name of the consumer process.  |

# show bcdl queues

To display the Bulk Content Downloader (BCDL) queue information, use the **show bcdl queues** command in

EXEC

mode.

**show bcdl queues** [*group\_name*]

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | <i>group_name</i> (Optional) Displays information for a specific BCDL group. |
|---------------------------|--|

|                        |                               |
|------------------------|-------------------------------|
| <b>Command Default</b> | No default behavior or values |
|------------------------|-------------------------------|

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | EXEC |
|----------------------|------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 3.7.2  | This command was introduced. |

|                         |   |
|-------------------------|---|
| <b>Usage Guidelines</b> | To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance. |
|-------------------------|---|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operations</b> |
|----------------|----------------|-------------------|
|                | sysmgr         | read              |

The following example shows sample output from the **show bcdl queues** command:

```
RP/0/RSP0/CPU0:router# show bcdl queues ipv4_rib

Sun May 31 07:13:28.665 PST
group ipv4_rib, gsp gid 2040, 4 consumers, agent jid 124, node 0/RSP0/CPU0
(expected 4 consumers to reply, received 4 replies)
  pid          node asg csg  lwg sus msgs_in_q  bytes_in_q  errs name
  323727 0/RSP0/CPU0  0  0 2043  N      0           0      0 fib_mgr
  110686 0/6/CPU0      0  0 2043  N      0           0      0 fib_mgr
  110686 0/1/CPU0      0  0 2043  N      0           0      0 fib_mgr
  110686 0/4/CPU0      0  0 2043  N      0           0      0 fib_mgr
```

[Table 1: show bcdl Field Descriptions, on page 2](#) and [Table 2: show bcdl consumers Field Descriptions, on page 5](#) describe the significant fields shown in the display.

# show bcdl tables

To display Bulk Content Downloader (BCDL) table information, use the **show bcdl tables** command in EXEC mode.

```
show bcdl tables [group_name]
```

|                           |   |
|---------------------------|---|
| <b>Syntax Description</b> | <i>group_name</i> Displays information for a specific BCDL group. |
|---------------------------|---|

|                        |                               |
|------------------------|-------------------------------|
| <b>Command Default</b> | No default behavior or values |
|------------------------|-------------------------------|

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | EXEC |
|----------------------|------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 3.7.2  | This command was introduced. |

|                         |   |
|-------------------------|---|
| <b>Usage Guidelines</b> | To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance. |
|-------------------------|---|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operations</b> |
|----------------|----------------|-------------------|
|                | sysmgr         | read              |

The following example shows sample output using the **show bcdl tables** command:

```
RP/0/RSP0/CPU0:router# show bcdl tables ipv4_rib

Sun May 31 07:19:29.878 PST
grp ipv4_rib, gid 2040, sg cnt 1, agent jid 124, node 0/RSP0/CPU0, pulse 105, ne
w mbr 0
  sg  lwg fd csmr hdlr-act dnld-act susp wait-lck  seq pulse-tot pulse-out
    0 2043 11  4      no      no  no      0  113      103      0
sgs: 1, table_cnt: 1, table_mid_cnt: 4, buf size: 100
Showing table info for 1 subgroups
sg 0: has 1 tables (messages: 0, bytes: 0)
  table 0xe0000000: 4 members, dnld act: 0, messages: 113, bytes: 54196
    cnsmr 0: pid 323727 on node 0/RSP0/CPU0
    cnsmr 1: pid 110686 on node 0/6/CPU0
    cnsmr 2: pid 110686 on node 0/1/CPU0
    cnsmr 3: pid 110686 on node 0/4/CPU0
```

The significant fields shown in the display that are not described in [Table 1: show bcdl Field Descriptions, on page 2](#) or [Table 2: show bcdl consumers Field Descriptions, on page 5](#) are described in this table.

**Table 3: show bcdl tables Field Descriptions**

| Field                                  | Description   |
|--|---|
| sgs                                    | Number of subgroups.  |
| table_cnt                              | Number of tables in this subgroup.  |
| sg                                     | Specific subgroup for which information is provided.                      |
| has 1 tables                           | Number of tables in this subgroup.  |
| messages                               | Messages sent that are not associated with a particular table ID.         |
| bytes                                  | Bytes sent that are not associated with a particular table ID.            |
| table                                  | Specific table ID for which information is provided.                      |
| members                                | Number of consumers associated with this table.                           |
| dnld act                               | Indicates whether or not the convergence flag has been sent.              |
| messages                               | Number of messages sent for a particular table.                           |
| bytes                                  | Number of bytes sent for a particular table.                              |
| cnsmr 0: pid 419725 on node 0/RP0/CPU0 | Process ID and node information for each consumer in the specified table. |



## show bcdl trace

To display Bulk Content Downloader (BCDL) trace information, use the **show bcdl trace** command in EXEC mode.

```
show bcdl trace [group_name] [event] [timing] [grpsnd] [{wrapping|unique}] [hexdump] [last n] [reverse] [stats] [tailf] [verbose] [{file filename original location node-id| location {node-id|all}}]
```

|                           |  |  |
|---------------------------|--|--|
| <b>Syntax Description</b> | <i>group_name</i>                              | (Optional) Displays information for a specific BCDL group.   |
|                           | <b>event</b>                                   | (Optional) Displays event trace entries.   |
|                           | <b>timing</b>                                  | (Optional) Displays timing trace entries.  |
|                           | <b>grpsnd</b>                                  | (Optional) Displays group send trace entries.  |
|                           | <b>wrapping</b>                                | (Optional) Displays wrapping entries.  |
|                           | <b>unique</b>                                  | (Optional) Displays unique entries only, along with the count of the number of times this entry appears.   |
|                           | <b>hexdump</b>                                 | (Optional) Displays traces in hexadecimal format.  |
|                           | <b>last n</b>                                  | (Optional) Displays the last <i>n</i> number of traces only.   |
|                           | <b>reverse</b>                                 | (Optional) Displays the most recent traces first.  |
|                           | <b>stats</b>                                   | (Optional) Displays execution path statistics.   |
|                           | <b>tailf</b>                                   | (Optional) Displays new traces as they are added.  |
|                           | <b>verbose</b>                                 | (Optional) Displays additional internal debugging information.   |
|                           | <b>file filename original location node-id</b> | (Optional) Specifies a filename and original location of the file to display.  |
|                           | <b>location {node-id all}</b>                  | Specifies the RP node for which to display the execution path monitoring information. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. The <b>all</b> keyword specifies all RP nodes. |
| <b>Command Default</b>    | None   |  |
| <b>Command Modes</b>      | EXEC   |  |
| <b>Command History</b>    | <b>Release</b>                                 | <b>Modification</b>  |
|                           | Release 3.7.2                                  | This command was introduced.   |

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

**Task ID****Task Operations**

| Task ID | Task Operations |
|---------|-----------------|
|         | sysmgr read     |

The following example shows sample output using the **show bcdl trace** command:

```
RP/0/RSP0/CPU0:router# show bcdl trace ipv4_rib location 0/1/cpu0

Sun May 31 08:21:07.933 PST
143 wrapping entries (4096 possible, 0 filtered, 143 total)
May 21 15:14:55.790 bcdl/c/ipv4_rib 0/1/CPU0 t4 LE
  bcdl_join_internal: timer_create ret 0, id is 9
May 21 15:14:56.890 bcdl/c/ipv4_rib 0/1/CPU0 t7 LE
  bcdl_join_internal: group_lookup bcdl_ipv4_rib
  returned gid 2040
May 21 15:14:56.966 bcdl/c/ipv4_rib 0/1/CPU0 t7 LE
  join hwg 2040 returns 0
May 21 15:14:56.978 bcdl/c/ipv4_rib 0/1/CPU0 t7 LE
  bcdl_join_internal: joined group bcdl_ipv4_rib,
  member count 5
May 21 15:14:58.969 bcdl/c/ipv4_rib 0/1/CPU0 t7 LE
  rcv gsp mtype 3: connection init sg 1 cur_seq 0
  lwg_gid 2056 table tag 0x00000000 resend state yes
May 21 15:14:58.969 bcdl/c/ipv4_rib 0/1/CPU0 t7 LE
  pc ring high water 0 -> 1, 0 bytes
May 21 15:14:58.969 bcdl/c/ipv4_rib 0/1/CPU0 t4 LE
  c_h deliver msg_id 7 connection init, table event
  0 table tag 0x00000000
May 21 15:14:58.969 bcdl/c/ipv4_rib 0/1/CPU0 t4 LE
  conn init, seq 64206 -> 0, sg 65534 -> 1, gid 2040,
  lwg gid -1 -> 2056
...
```