



Bulk Content Downloader (BCDL) Commands on Cisco IOS XR Software

The Bulk Content Downloader (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 and distributed route processors (DRPs).
- MPLS—to download the Label Forwarding Information Base (LFIB) entries to the line card.
- LPTS—to maintain the Internal Forwarding Information Base (IFIB) table on all nodes that do IP forwarding to and from the DRPs.
- 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. This module describes the available **show** commands that you can use to see the status of the BCDL process.

show bcdl

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

```
show bcdl [group_name]
```

Syntax Description	<i>group_name</i> (Optional) Displays information for a specific BCDL group.
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	Release	Modification
	Release 3.3	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.
	Release 3.6.0	No modification.
	Release 3.7.0	No modification.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Task ID	Task ID	Operations
	sysmgr	read

Examples	The following example shows sample output from the show bcdl command:
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```
RP/0/RP0/CPU0:router# show bcdl ipv4_rib
```

```
grp ipv4_rib, gid 2052, sg cnt 1, agent jid 112, node 0/RP0/CPU0, pulse 23930, new mbr 0
  sg  lwg  fd  csmr  hdlr-act  dnld-act  susp  wait-lck  seq  pulse-tot  pulse-out
    0 2053 16   6       no         no    no         0 23950    23926     0
```

[Table 2](#) describes the significant fields shown in the display.

Table 2 *show bcdl Field Descriptions*

Field	Description
group ipv4_rib	Type of download and the Group Services Protocol (GSP) group name.
gid 2052	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.
agent jid 112	Job identifier of the BCDL agent. The JID is numerical identifier for a particular process and remains the same across process restarts.
node 0/RP0/CPU0	Node, expressed in the <i>rack/slot/module</i> notation, in which the agent is running.
pulse 23930	Pulse code used by the producer to pulse the BCDL agent.
new mbr 0	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 non-zero, 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]
```

Syntax Description	<i>group_name</i> (Optional) Displays information for a specific BCDL group.
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	Release	Modification
	Release 3.3	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.
	Release 3.6.0	No modification.
	Release 3.7.0	No modification.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Task ID	Task ID	Operations
	sysmgr	read

Examples	The following example shows sample output using the show bcdl consumers command:
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```
RP/0/RP0/CPU0:router# show bcdl consumers ipv4_rib

group ipv4_rib, gsp gid 2029, 3 consumers, agent jid 113, node 0/5/CPU0
(expected 3 consumers to reply, received 3 replies)
pid      node      asg  csg  lwg  sus  messages      bytes  errs  name
823389   0/5/CPU0   0    0  2030  N    20559         1518476    0  fib_mgr
45129    0/1/CPU0   0    0  2030  N    1922          222892   496  fib_mgr
45129    0/3/CPU0   0    0  2030  N    1922          222892   498  fib_mgr
```

[Table 3](#) describes the significant fields shown in the display that are not described in [Table 2](#).

Table 3 *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]
```

Syntax Description	<i>group_name</i> (Optional) Displays information for a specific BCDL group.
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	Release	Modification
	Release 3.3	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.
	Release 3.6.0	No modification.
	Release 3.7.0	No modification.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Task ID	Task ID	Operations
	sysmgr	read

Examples	The following example shows sample output from the show bcdl queue command:
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```
RP/0/RP0/CPU0:router# show bcdl queues ipv4_rib
```

```
group ipv4_rib, gsp gid 2052, 6 consumers, agent jid 112, node 0/RP0/CPU0
(expected 6 consumers to reply, received 6 replies)
```

pid	node	asg	csg	lwg	sus	msgs_in_q	bytes_in_q	errs	name
417925	0/RP0/CPU0	0	0	2053	N	0	0	0	fib_mgr
209029	0/RP1/CPU0	0	0	2053	N	0	0	0	fib_mgr
106595	0/4/CPU0	0	0	2053	N	0	0	0	fib_mgr
114785	0/4/CPU1	0	0	2053	N	0	0	0	fib_mgr
82008	0/6/CPU0	0	0	2053	N	0	0	0	fib_mgr
82008	0/1/CPU0	0	0	2053	N	0	0	0	fib_mgr

[Table 3](#) and [Table 2](#) 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]
```

Syntax Description	<i>group_name</i> (Optional) Displays information for a specific BCDL group.
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	Release	Modification
	Release 3.3	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.
	Release 3.6.0	No modification.
	Release 3.7.0	No modification.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Task ID	Task ID	Operations
	sysmgr	read

Examples	The following example shows sample output using the show bcdl tables command:
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```
RP/0/RP0/CPU0:router# show bcdl tables ipv4_rib

grp ipv4_rib, gid 2052, sg cnt 1, agent jid 112, node 0/RP0/CPU0, pulse 26587, new mbr 0
  sg lwg fd csmr hdlr-act dnld-act susp wait-lck seq pulse-tot pulse-out
  0 2053 16 6 no no 0 26607 26583 0
sgs: 1, table_cnt: 1, table_mid_cnt: 6, buf size: 124
Showing table info for 1 subgroups
sg 0: has 1 tables (messages: 0, bytes: 0)
  table 0xe0000000: 6 members, dnld act: 0, messages: 26607, bytes: 3447976
  cnsmr 0: pid 417925 on node 0/RP0/CPU0
  cnsmr 1: pid 82008 on node 0/6/CPU0
  cnsmr 2: pid 82008 on node 0/1/CPU0
  cnsmr 3: pid 209029 on node 0/RP1/CPU0
```

```

cnsmr 4: pid 106595 on node 0/4/CPU0
cnsmr 5: pid 114785 on node 0/4/CPU1

```

Table 4 describes the significant fields shown in the display that are not described in Table 2 or Table 3.

Table 4 *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.
6 members	Number of consumers associated with this table.
dnld act	Indicates whether the convergence flag has been sent or not
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] [grpsnd] [hexdump] [last n] [reverse] [stats] [tailf]
[unique] [verbose] [wrapping] [file filename original] [location [node-id | all]]
```

Syntax	Description
<i>group_name</i>	(Optional) Displays information for a specific BCDL group.
event	Displays event trace entries.
grpsnd	Displays group send trace entries.
hexdump	Displays traces in hexadecimal format.
last n	Displays the last <i>n</i> number of traces only.
reverse	Displays the most recent traces first.
stats	Displays execution path statistics.
tailf	Displays new traces as they are added.
unique	Displays unique entries only, along with the count of the number of times this entry appears.
verbose	Displays additional internal debugging information.
wrapping	Displays wrapping entries.
file filename original	Specifies the filename of the file to display.
location node-id	Specifies the RP node for which to display the execution path monitoring information. The <i>node-id</i> argument is expressed in <i>rack/slot/module</i> notation.
all	Displays mirroring information for all RP nodes in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 3.3	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.
	Release 3.6.0	No modification.
	Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID	Task ID	Operations
	sysmgr	read

Examples

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

```
RP/0/RP0/CPU0:router# show bcdl trace ipv4_rib location 0/0/cpu0 | inc /a/

Jul  7 09:02:25.658 bcdl/a/ipv4_rib 0/0/CPU0 t1 E bytes critical 524288, normal 262144,
max suspend 60
Jul  7 09:02:25.658 bcdl/a/ipv4_rib 0/0/CPU0 t1 E buffer size set to 65200
Jul  7 09:02:25.981 bcdl/a/ipv4_rib 0/0/CPU0 t1 E group_create bcdl_ipv4_rib returns 0,
gid is 2055
Jul  7 09:02:30.806 bcdl/a/ipv4_rib 0/0/CPU0 t3 E queuing new consumer: pid 172153, node
0/0/CPU0
Jul  7 09:02:30.807 bcdl/a/ipv4_rib 0/0/CPU0 t3 E add new member: pid 172153, node
0/0/CPU0 nmc 0 -> 1
Jul  7 09:02:31.812 bcdl/a/ipv4_rib 0/0/CPU0 t5 E attempt open producer connection sg 0
Jul  7 09:02:31.895 bcdl/a/ipv4_rib 0/0/CPU0 t5 E bind sg 0 to producer, fd 14, handle
0x48230e08
Jul  7 09:02:31.895 bcdl/a/ipv4_rib 0/0/CPU0 t5 E sbe: gid 2055, lwg_s: 0, lwg 2056,
node 0/0/CPU0, ent 1, rc 11, rr 1
Jul  7 09:02:31.895 bcdl/a/ipv4_rib 0/0/CPU0 t5 E send_bcdl_event: sending BCDL_EVENT,
rc 11(connection init), entries 1
Jul  7 09:02:31.942 bcdl/a/ipv4_rib 0/0/CPU0 t3 E processing table request
Jul  7 09:02:31.943 bcdl/a/ipv4_rib 0/0/CPU0 t3 E add 1 table tags, first tag 0xe0000000
Jul  7 09:02:31.945 bcdl/a/ipv4_rib 0/0/CPU0 t3 E create_table_entry: create 0xe0000000,
in sg 0, with pid 172153, node 0/0/CPU0
Jul  7 09:02:31.945 bcdl/a/ipv4_rib 0/0/CPU0 t3 E Call p_t_f to add table 0xe0000000 to
sg 0 inherit FALSE
```

■ show bcdl trace