



# BGP Dynamic Update Peer-Groups

The BGP Dynamic Update Peer-Groups feature introduces a new algorithm that dynamically calculates and optimizes update-groups of neighbors that share the same outbound policies and can share the same update messages. In previous versions of Cisco IOS software, Border Gateway Protocol (BGP) update messages were grouped together based on peer-group configurations. This method of grouping updates limited outbound policies and specific-session configurations. The BGP Dynamic Update Peer-Group feature separates update-group replication from peer-group configuration, which improves convergence time and flexibility of neighbor configuration.

## Feature History for the BGP Dynamic Update Peer-Groups Feature

| Release     | Modification                                                  |
|-------------|---------------------------------------------------------------|
| 12.0(24)S   | This feature was introduced.                                  |
| 12.2(18)S   | This feature was integrated in Cisco IOS Release 12.2(18)S.   |
| 12.3(4)T    | This feature was integrated in Cisco IOS Release 12.3(4)T.    |
| 12.2(27)SBC | This feature was integrated in Cisco IOS Release 12.2(27)SBC. |

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Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at <http://www.cisco.com/go/fn>. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

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# Information About BGP Dynamic Update Peer-Groups

To support this feature, you must understand the following concepts:

- [BGP Update Generation and Dynamic Update Peer-Groups, page 2](#)
- [BGP Dynamic Update Peer-Groups and BGP Configuration Using Peer Templates, page 2](#)
- [BGP Dynamic Update Peer-Group Configuration, page 3](#)

## BGP Update Generation and Dynamic Update Peer-Groups

In previous versions of Cisco IOS software, BGP update messages were grouped based on peer-group configurations. This method of grouping neighbors for BGP update message generation reduced the amount of system processing resources needed to process the routing table. This method, however, had the following limitations:

- All neighbors that shared the same peer-group configuration also had to share the same outbound routing policies.
- All neighbors had to belong to the same peer-group and address-family. Neighbors configured in different peer-groups cannot belong to different address-families.

These limitations existed to balance optimal update generation and replication against peer-group configuration. These limitations also caused the network operator to configure smaller peer-groups, which reduced the efficiency of update message generation.

The introduction of the BGP Dynamic Update Peer-Groups feature separates BGP update generation from peer-group configuration. The BGP Dynamic Update Peer-Groups feature introduces an algorithm that dynamically calculates BGP update-group membership based on outbound routing policies. This feature does not require any configuration by the network operator. Optimal BGP update message generation occurs automatically and independently. BGP neighbor configuration is no longer restricted by outbound routing policies, and update-groups can belong to different address families.

## BGP Dynamic Update Peer-Groups and BGP Configuration Using Peer Templates

The BGP Dynamic Update Peer-Groups feature was introduced with the BGP Configuration Using Peer Templates feature. The BGP Dynamic Peer-Groups feature improves the performance of BGP update message generation. The BGP Configuration Using Peer Templates feature improves the flexibility of BGP neighbor configuration through the introduction of peer-policy and peer-session configuration templates. Peer-policy configuration templates are used to configure policy-related commands. Peer-session configuration templates are used for the configuration of general session commands. Peer configuration templates support inheritance and more robust and flexible configurations.

With the configuration of the BGP Configuration Using Templates feature and the support of the BGP Dynamic Update Peer-Groups features, the network operator no longer needs to configure peer-groups in BGP and can benefit from improved configuration flexibility and system performance. For more information about the BGP Configuration Using Templates feature, refer to the [BGP Configuration Using Peer Templates](#) document.

## BGP Dynamic Update Peer-Group Configuration

The BGP Dynamic Update Peer-Group feature requires no configuration and occurs automatically. When a change to outbound policy occurs, the router automatically recalculates update-group memberships and applies the changes by triggering an outbound soft reset after a 1 minute timer expires. This behavior is designed to provide the network operator with time to change the configuration if a mistake is made. You can manually enable an outbound soft reset before the timer expires by entering the **clear ip bgp *ip-address* soft out** command.

**Note**

In Cisco IOS Release 12.0(25)S, 12.3(2)T, and prior releases the update group recalculation delay timer is set to 3 minutes.

For the best optimization of BGP update-group generation, we recommend that the network operator keeps outbound routing policy the same for neighbors that have similar outbound policies. This feature introduces new commands for monitoring and maintaining BGP update-groups. For more information about the new commands, see the section “[How to Monitor and Maintain BGP Dynamic Update Peer-Groups](#).”

## How to Monitor and Maintain BGP Dynamic Update Peer-Groups

This section contains the following procedures:

- [Clearing BGP Update-Group Member Sessions, page 3](#) (optional)
- [Troubleshooting the Processing of BGP Update-Groups: Example, page 7](#) (optional)
- [Displaying BGP Update-Group Statistics: Example, page 7](#) (optional)
- [Displaying BGP Update-Group Statistics: Example, page 7](#)(optional)

### Clearing BGP Update-Group Member Sessions

Perform this task to clear BGP update-group member sessions:

#### SUMMARY STEPS

1. **enable**
2. **clear ip bgp update-group** [*index-group* | *ip-address*]

## DETAILED STEPS

|        | Command or Action                                                                                                                       | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <b>enable</b><br><br><b>Example:</b><br>Router> enable                                                                                  | Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Step 2 | <b>clear ip bgp update-group</b> [ <i>index-group</i>   <i>ip-address</i> ]<br><br><b>Example:</b><br>Router# clear ip bgp update-group | Clears BGP update membership and recalculates BGP update-groups. <ul style="list-style-type: none"> <li>Specific update-groups can be cleared by using the <i>index-group</i> argument. The range of update-group index numbers is from 1 to 4294967295. Specific neighbors can be cleared by using the <i>ip-address</i> argument.</li> <li>Specific index numbers for update groups and information about update-group membership is displayed in the output of the <b>show ip bgp update-group</b> and <b>debug ip bgp groups</b> commands.</li> <li>If no argument is specified, this command will clear and recalculate all BGP update-groups.</li> </ul> |

## Troubleshooting and Processing BGP Update-Groups

Perform this task to troubleshoot the processing of BGP update-groups:

## SUMMARY STEPS

- enable**
- debug ip bgp groups** [*index-group* | *ip-address*]

## DETAILED STEPS

|        | Command or Action                                                                                                           | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <b>enable</b><br><br><b>Example:</b><br>Router> enable                                                                      | Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Step 2 | <b>debug ip bgp groups</b> [ <i>index-group</i>   <i>ip-address</i> ]<br><br><b>Example:</b><br>Router# debug ip bgp groups | Displays information related to the processing of BGP update-groups. <ul style="list-style-type: none"> <li>Debugging information about specific update-groups can be displayed by using the <i>index-group</i> argument. The range of update-group index numbers is from 1 to 4294967295. Debugging information about specific neighbors can be displayed by using the <i>ip-address</i> argument.</li> <li>If no argument is specified, debugging information about all update-groups will be displayed.</li> </ul> <b>Note</b> The output of this command can be very verbose. This command should not be deployed in a production network unless you are troubleshooting a problem. |

## Displaying BGP Update-Group Statistics

Perform this task to display BGP update-group statistics:

### SUMMARY STEPS

1. **enable**
2. **show ip bgp replication** [*index-group* | *ip-address*]

## DETAILED STEPS

|        | Command or Action                                                         | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <b>enable</b>                                                             | Enables higher privilege levels, such as privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>                                                                                                                                                                                                                                                                                                                                                 |
|        | <b>Example:</b><br>Router> enable                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Step 2 | <b>show ip bgp replication</b> [ <i>index-group</i>   <i>ip-address</i> ] | Displays BGP update-group replication statistics. <ul style="list-style-type: none"> <li>Specific update-group replication statistics can be displayed by using the <i>index-group</i> argument. The range of update-group index numbers is from 1 to 4294967295. Specific update-group replication statistics can be displayed by using the <i>ip-address</i> argument.</li> <li>If no argument is specified, this command will display replication statistics for all update-groups.</li> </ul> |
|        | <b>Example:</b><br>Router# show ip bgp replication                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## Displaying Information About the Processing of BGP Update-Groups

Perform this task to display information related to the processing of BGP update-groups.

## SUMMARY STEPS

1. **enable**
2. **show ip bgp update-group** [*index-group* | *ip-address*] [**summary**]

## DETAILED STEPS

|        | Command or Action                                                                             | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <b>enable</b>                                                                                 | Enables higher privilege levels, such as privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|        | <b>Example:</b><br>Router> enable                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Step 2 | <b>show ip bgp update-group</b> [ <i>index-group</i>   <i>ip-address</i> ] [ <b>summary</b> ] | Displays information about BGP update-groups. <ul style="list-style-type: none"> <li>Information about specific update-group replication statistics can be displayed by using the <i>index-group</i> argument. The range of update-group index numbers is from 1 to 4294967295. Information about specific update-groups can be displayed by using the <i>ip-address</i> argument.</li> <li>If no argument is specified, this command will display replication statistics for all update-groups.</li> <li>Summary information can be displayed by using the <b>summary</b> keyword.</li> </ul> |
|        | <b>Example:</b><br>Router# show ip bgp update-group                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

# Configuration Examples for BGP Dynamic Update Peer-Groups

The following examples illustrate the configuration and verification of this feature:

- [Clearing BGP Update-Group Member Sessions: Example, page 7](#)
- [Troubleshooting the Processing of BGP Update-Groups: Example, page 7](#)
- [Displaying BGP Update-Group Statistics: Example, page 7](#)
- [Displaying Information About the Processing of BGP Update Groups: Example, page 8](#)

## Clearing BGP Update-Group Member Sessions: Example

The following example clears the membership of neighbor 10.0.0.1 from an update-group:

```
Router# clear ip bgp update-group 10.0.0.1
```

## Troubleshooting the Processing of BGP Update-Groups: Example

The following example output from the **debug ip bgp groups** command shows the recalculation of update-groups after the **clear ip bgp groups** command was issued:

```
Router# debug ip bgp groups
```

```
5w4d: %BGP-5-ADJCHANGE: neighbor 10.4.9.5 Down User reset
5w4d: BGP-DYN(0): Comparing neighbor 10.4.9.5 flags 0x0 cap 0x0 and updgrp 2 f10
5w4d: BGP-DYN(0): Update-group 2 flags 0x0 cap 0x0 policies same as 10.4.9.5 f10
5w4d: %BGP-5-ADJCHANGE: neighbor 10.4.9.8 Down User reset
5w4d: BGP-DYN(0): Comparing neighbor 10.4.9.8 flags 0x0 cap 0x0 and updgrp 2 f10
5w4d: BGP-DYN(0): Update-group 2 flags 0x0 cap 0x0 policies same as 10.4.9.8 f10
5w4d: %BGP-5-ADJCHANGE: neighbor 10.4.9.21 Down User reset
5w4d: BGP-DYN(0): Comparing neighbor 10.4.9.21 flags 0x0 cap 0x0 and updgrp 1 f0
5w4d: BGP-DYN(0): Update-group 1 flags 0x0 cap 0x0 policies same as 10.4.9.21 f0
5w4d: %BGP-5-ADJCHANGE: neighbor 10.4.9.5 Up
5w4d: %BGP-5-ADJCHANGE: neighbor 10.4.9.21 Up
5w4d: %BGP-5-ADJCHANGE: neighbor 10.4.9.8 Up
```

## Displaying BGP Update-Group Statistics: Example

The following sample output from the **show ip bgp replication** command shows update-group replication information for all for neighbors:

```
Router# show ip bgp replication
```

```
BGP Total Messages Formatted/Enqueued : 0/0
```

| Index | Type     | Members | Leader    | MsgFmt | MsgRepl | Csize | Qsize |
|-------|----------|---------|-----------|--------|---------|-------|-------|
| 1     | internal | 1       | 10.4.9.21 | 0      | 0       | 0     | 0     |
| 2     | internal | 2       | 10.4.9.5  | 0      | 0       | 0     | 0     |

## Displaying Information About the Processing of BGP Update Groups: Example

The following sample output from the **show ip bgp update-group** command shows update-group information for all neighbors:

```
Router# show ip bgp update-group

BGP version 4 update-group 1, internal, Address Family: IPv4 Unicast
  BGP Update version : 0, messages 0/0
  Route map for outgoing advertisements is COST1
  Update messages formatted 0, replicated 0
  Number of NLRI in the update sent: max 0, min 0
  Minimum time between advertisement runs is 5 seconds
  Has 1 member:
  10.4.9.21

BGP version 4 update-group 2, internal, Address Family: IPv4 Unicast
  BGP Update version : 0, messages 0/0
  Update messages formatted 0, replicated 0
  Number of NLRI in the update sent: max 0, min 0
  Minimum time between advertisement runs is 5 seconds
  Has 2 members:
  10.4.9.5 10.4.9.8
```

## Where to Go Next

For information about the BGP Configuration Using Peer Templates feature, refer to the [BGP Configuration Using Peer Templates](#) document.

## Additional References

The following sections provide references related to the BGP Dynamic Update Peer-Group feature.

## Related Documents

| Related Topic                         | Document Title                                                                                                                                                                                                                                          |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BGP commands                          | Cisco IOS Release 12.0 Network Protocols Command Reference, Part 1<br><i>Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols</i> , Release 12.2<br><i>Cisco IOS IP Command Reference, Volume 2 of 4: Routing Protocols</i> , Release 12.3T |
| BGP configuration tasks               | <i>Cisco IOS Release 12.0 Network Protocols Configuration Guide, Part 1</i><br><i>Cisco IOS IP Configuration Guide</i> , Release 12.3T                                                                                                                  |
| BGP peer template configuration tasks | <a href="#">BGP Configuration Using Peer Templates</a> , Release 12.3T                                                                                                                                                                                  |

## Standards

| Standards                                                                                                                             | Title |
|---------------------------------------------------------------------------------------------------------------------------------------|-------|
| No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature. | —     |

## MIBs

| MIBs                                                                                                                        | MIBs Link                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature. | To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:<br><a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a> |

## RFCs

| RFCs                                                                                                                        | Title |
|-----------------------------------------------------------------------------------------------------------------------------|-------|
| No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature. | —     |

## Technical Assistance

| Description                                                                                                                                                                                                                                                         | Link                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content. | <a href="http://www.cisco.com/techsupport">http://www.cisco.com/techsupport</a> |

# Command Reference

This section documents new commands only.

## New Commands

- [clear ip bgp update-group](#)
- [Glossary](#)
- [Glossary](#)

# clear ip bgp update-group

To reset Border Gateway Protocol (BGP) connections for all the members of a BGP update group, use the **clear ip bgp update-group** command in privileged EXEC mode.

## Syntax Without Address Family Syntax

```
clear ip bgp update-group [index-group | neighbor-address]
```

## Syntax With Address Family Syntax

```
clear ip bgp [all | ipv4 { multicast | mdt | unicast } | ipv6 { multicast | unicast } | vpn4 unicast |  
vpn6 unicast] update-group [index-group | neighbor-address]
```

| Syntax Description      |  |                                                                                                                                                            |
|-------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>index-group</i>      |  | (Optional) Specifies that the update group with the specified index number will be reset. The range of update group index numbers is from 1 to 4294967295. |
| <i>neighbor-address</i> |  | (Optional) Specifies the IP address of a single peer that will be reset. The value for this argument can be an IPv4 or IPv6 address.                       |
| <b>all</b>              |  | (Optional) Specifies the reset of update group members in all address families.                                                                            |
| <b>ipv4</b>             |  | (Optional) Specifies the reset of update group members in IPv4 address family sessions.                                                                    |
| <b>multicast</b>        |  | (Optional) Specifies the reset of update group members in multicast address family sessions.                                                               |
| <b>mdt</b>              |  | (Optional) Specifies the reset of update group members in multicast distribution tree (MDT) address family sessions.                                       |
| <b>unicast</b>          |  | (Optional) Specifies the reset of update group members in unicast address family sessions.                                                                 |
| <b>ipv6</b>             |  | (Optional) Specifies the reset of update group members in IPv6 address family sessions.                                                                    |
| <b>vpn4</b>             |  | (Optional) Specifies the reset of update group members in Virtual Private Network Version 4 (VPNv4) address family sessions.                               |
| <b>vpn6</b>             |  | (Optional) Specifies the reset of update group members in Virtual Private Network Version 6 (VPNv6) address family sessions.                               |

| Command Modes | Privileged EXEC |
|---------------|-----------------|
|---------------|-----------------|

| Command History | Release   | Modification                                                  |
|-----------------|-----------|---------------------------------------------------------------|
|                 | 12.0(24)S | This command was introduced.                                  |
|                 | 12.2(18)S | This command was integrated into Cisco IOS Release 12.2(18)S. |
|                 | 12.3(4)T  | This command was integrated into Cisco IOS Release 12.3(4)T.  |
|                 | 12.0(29)S | The <b>mdt</b> keyword was added.                             |

| Release     | Modification                                                    |
|-------------|-----------------------------------------------------------------|
| 12.2(27)SBC | This command was integrated into Cisco IOS Release 12.2(27)SBC. |
| 12.2(33)SRA | This command was integrated into Cisco IOS Release 12.2(33)SRA. |

### Usage Guidelines

The **clear ip bgp update-group** command is used to clear BGP update group member sessions. If no keywords or arguments are specified, entering this command will recalculate all update groups. Specific index numbers for update groups and information about update-group membership is displayed in the output of the **show ip bgp update-group** and **debug ip bgp groups** commands.

When a change to outbound policy occurs, the BGP routing process will automatically recalculate update-group memberships and apply changes by triggering an outbound soft reset after a 1-minute timer expires. This behavior is designed to provide the network operator with time to change the configuration before the soft reset is initiated. You can immediately initiate the outbound soft reset before the timer expires by entering the **clear ip bgp ip-address soft out** command or immediately initiate a hard reset by entering the **clear ip bgp ip-address** command.



### Note

In Cisco IOS Release 12.0(25)S, 12.3(2)T, and prior releases, the update group recalculation delay timer is set to 3 minutes.

### Examples

In the following example, the membership of the 10.0.0.1 peer is cleared from an update group:

```
Router# clear ip bgp update-group 10.0.0.1
```

In the following example, update-group information for all peers in the index 1 update group is cleared:

```
Router# clear ip bgp update-group 1
```

In the following example, update-group information for all MDT address family session peers in the index 6 update group is cleared:

```
Router# clear ip bgp ipv4 mdt update-group 6
```

### Related Commands

| Command                         | Description                                                          |
|---------------------------------|----------------------------------------------------------------------|
| <b>clear ip bgp</b>             | Resets a BGP connection or session.                                  |
| <b>debug ip bgp groups</b>      | Displays information related to the processing of BGP update groups. |
| <b>show ip bgp replication</b>  | Displays BGP update-group replication statistics.                    |
| <b>show ip bgp update-group</b> | Displays information about BGP update groups.                        |

# debug ip bgp updates

To display information about the processing of Border Gateway Protocol (BGP) updates, use the **debug ip bgp updates** command in privileged EXEC mode. To disable the display of BGP update information, use the **no** form of this command.

**debug ip bgp updates** [*access-list* | *expanded-access-list*] [**in** | **out**] [**events**]

**no debug ip bgp updates** [*access-list* | *expanded-access-list*] [**in** | **out**] [**events**]

## Syntax Description

|                             |                                                                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <i>access-list</i>          | (Optional) Number of access list used to filter debugging messages. The range that can be specified is from 1 to 199.               |
| <i>expanded-access-list</i> | (Optional) Number of expanded access lists used to filter debugging messages. The range that can be specified is from 1300 to 2699. |
| <b>in</b>                   | (Optional) Specifies debugging messages for inbound BGP update information.                                                         |
| <b>out</b>                  | (Optional) Specifies debugging messages for outbound BGP update information.                                                        |
| <b>events</b>               | (Optional) Specifies debugging messages for BGP update events.                                                                      |

## Command Modes

Privileged EXEC

## Command History

| Release     | Modification                                                    |
|-------------|-----------------------------------------------------------------|
| 12.0(5)T    | This command was introduced.                                    |
| 12.2(18)S   | This command was integrated into Cisco IOS Release 12.2(18)S.   |
| 12.2(27)SBC | This command was integrated into Cisco IOS Release 12.2(27)SBC. |
| 12.2(33)SRA | This command was integrated into Cisco IOS Release 12.2(33)SRA. |

## Examples

In the following sample output, the output shows that the BGP session was cleared between neighbor 10.4.9.21 and the local router 10.4.9.4. There are no field description tables for this command because the debugging output from this command depends on the subsequent commands that are entered.

Router# **debug ip bgp updates**

```
5w2d: %SYS-5-CONFIG_I: Configured from console by console
5w2d: BGP: 10.4.9.21 went from Idle to Active
5w2d: BGP: 10.4.9.21 open active, delay 7032ms
5w2d: BGP: 10.4.9.21 open active, local address 10.4.9.4
5w2d: BGP: 10.4.9.21 went from Active to OpenSent
5w2d: BGP: 10.4.9.21 sending OPEN, version 4, my as: 101
5w2d: BGP: 10.4.9.21 send message type 1, length (incl. header) 45
5w2d: BGP: 10.4.9.21 rcv message type 1, length (excl. header) 26
5w2d: BGP: 10.4.9.21 rcv OPEN, version 4
5w2d: BGP: 10.4.9.21 rcv OPEN w/ OPTION parameter len: 16
5w2d: BGP: 10.4.9.21 rcvd OPEN w/ optional parameter type 2 (Capability) len 6
5w2d: BGP: 10.4.9.21 OPEN has CAPABILITY code: 1, length 4
5w2d: BGP: 10.4.9.21 OPEN has MP_EXT CAP for afi/safi: 1/1
```

```

5w2d: BGP: 10.4.9.21 rcvd OPEN w/ optional parameter type 2 (Capability) len 2
5w2d: BGP: 10.4.9.21 OPEN has CAPABILITY code: 128, length 0
5w2d: BGP: 10.4.9.21 OPEN has ROUTE-REFRESH capability(old) for all address-fams
5w2d: BGP: 10.4.9.21 rcvd OPEN w/ optional parameter type 2 (Capability) len 2
5w2d: BGP: 10.4.9.21 OPEN has CAPABILITY code: 2, length 0
5w2d: BGP: 10.4.9.21 OPEN has ROUTE-REFRESH capability for all address-families
5w2d: BGP: 10.4.9.21 went from OpenSent to OpenConfirm
5w2d: BGP: 10.4.9.21 went from OpenConfirm to Established
5w2d: %BGP-5-ADJCHANGE: neighbor 10.4.9.21 Up
5w2d: BGP(0): 10.4.9.21 computing updates, afi 0, neighbor version 0, table ver0
5w2d: BGP(0): 10.4.9.21 update run completed, afi 0, ran for 0ms, neighbor vers1
5w2d: BGP(0): 10.4.9.21 initial update completed

```

In the following sample, the output shows that the local router is sending updates with the cost community:

Router# **debug ip bgp updates out**

```

*Mar 15 01:41:23.515:BGP(0):10.0.0.5 computing updates, afi 0, neighbor version 0, table
version 64, starting at 0.0.0.0
*Mar 15 01:41:23.515:BGP(0):10.0.0.5 send UPDATE (format) 0.0.0.0/0, next 10.0.0.2, metric
0, path , extended community Cost:igp:1:100
*Mar 15 01:41:23.515:BGP(0):10.0.0.5 send UPDATE (format) 10.2.2.0/24, next 10.20.20.10,
metric 0, path 10, extended community Cost:igp:8:22
*Mar 15 01:41:23.515:BGP(0):10.0.0.5 send UPDATE (format) 10.13.13.0/24, next 10.0.0.8,
metric 0, path

```

In the following sample, the output shows that the local router is receiving updates with the cost community:

Router# **debug ip bgp updates in**

```

*Jan 6 01:27:09.111:BGP(2):10.0.0.8 rcvd UPDATE w/ attr:nexthop 10.0.0.8, origin ?,
localpref 100, metric 0, path 10, extended community RT:100:1 Cost:igp:10:10
Cost:igp:11:11

```

# show ip bgp update-group

To display information about BGP update groups, use the **show ip bgp update-group** command in user EXEC or privileged EXEC mode.

**show ip bgp update-group** [*index-group* | *ip-address*] [**summary**]

## Syntax Description

|                    |                                                                                                                                                                                                              |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>index-group</i> | (Optional) Displays the update group with its corresponding index number. The range of update-group index numbers is from 1 to 4294967295.                                                                   |
| <i>ip-address</i>  | (Optional) Displays the IP address of a single neighbor who is a member of an update group.                                                                                                                  |
| <b>summary</b>     | (Optional) Displays a summary of update-group member information. The output can be filtered to show information for a single index group or peer with the <i>index-group</i> or <i>ip-address</i> argument. |

## Command Modes

User EXEC  
Privileged EXEC

## Command History

| Release     | Modification                                                    |
|-------------|-----------------------------------------------------------------|
| 12.0(24)S   | This command was introduced.                                    |
| 12.2(18)S   | This command was integrated into Cisco IOS Release 12.2(18)S.   |
| 12.3(4)T    | This command was integrated into Cisco IOS Release 12.3(4)T.    |
| 12.2(27)SBC | This command was integrated into Cisco IOS Release 12.2(27)SBC. |

## Usage Guidelines

Use this command to display information about BGP update groups. When a change to BGP outbound policy occurs, the router automatically recalculates update group memberships and applies the changes by triggering an outbound soft reset after a 1-minute timer expires. This behavior is designed to provide the network operator with time to change the configuration if a mistake is made. You can manually enable an outbound soft reset before the timer expires by entering the **clear ip bgp ip-address soft out** command.



### Note

In Cisco IOS Release 12.0(25)S, 12.3(2)T, and prior releases the update group recalculation delay timer is set to 3 minutes.

## Examples

The following sample output from the **show ip bgp update-group** command shows update group information for all neighbors:

```
Router# show ip bgp update-group
```

```
BGP version 4 update-group 1, internal, Address Family: IPv4 Unicast
  BGP Update version : 0, messages 0/0
  Route map for outgoing advertisements is COST1
  Update messages formatted 0, replicated 0
```

**show ip bgp update-group**

```

Number of NLRIs in the update sent: max 0, min 0
Minimum time between advertisement runs is 5 seconds
Has 1 member:
10.4.9.21

```

```

BGP version 4 update-group 2, internal, Address Family: IPv4 Unicast
BGP Update version : 0, messages 0/0
Update messages formatted 0, replicated 0
Number of NLRIs in the update sent: max 0, min 0
Minimum time between advertisement runs is 5 seconds
Has 2 members:
10.4.9.5 10.4.9.8

```

Table 1 describes the significant fields shown in the display.

**Table 1** *show ip bgp update group Field Descriptions*

| Field                                       | Description                                                        |
|---------------------------------------------|--------------------------------------------------------------------|
| BGP version                                 | BGP version.                                                       |
| update-group                                | Update-group number and type (internal or external).               |
| Update messages formatted..., replicated... | Number of update messages that have been formatted and replicated. |
| Number of NLRIs...                          | NLRI information sent in update.                                   |
| Minimum time between...                     | Minimum time, in seconds, between update advertisements.           |
| Has...                                      | Number of member listed by IP address in the update group.         |

The following sample output from the **show ip bgp update-group** command shows a summary of update-group information for the 10.4.9.8 neighbor:

```

Router# show ip bgp update-group 10.4.9.8 summary
Summary for Update-group 2 :
-----
BGP router identifier 10.4.9.4, local AS number 101
BGP table version is 1, main routing table version 1

Neighbor      V    AS MsgRcvd MsgSent   TblVer  InQ  OutQ Up/Down  State/PfxRcd
10.4.9.5      4   101     35     35       1    0    0 00:26:22        0
10.4.9.8      4   101     39     39       1    0    0 00:26:21        0

```

Table 2 describes the significant fields shown in the display.

**Table 2** *show ip bgp-update group summary Field Descriptions*

| Field                                       | Description                                                        |
|---------------------------------------------|--------------------------------------------------------------------|
| Summary for Update-group...                 | Update-group number.                                               |
| BGP router identifier...                    | IP address and AS number for specified peer.                       |
| update messages formatted..., replicated... | Number of update messages that have been formatted and replicated. |

**Table 2** *show ip bgp-update group summary Field Descriptions (continued)*

| Field                | Description                                                                   |
|----------------------|-------------------------------------------------------------------------------|
| BGP table version... | Displays incremental changes in the BGP routing table.                        |
| Neighbor...          | Specific peer information and statistics, including IP address and AS number. |

**Related Commands**

| Command                          | Description                                                          |
|----------------------------------|----------------------------------------------------------------------|
| <b>clear ip bgp</b>              | Resets a BGP connection or session.                                  |
| <b>clear ip bgp update-group</b> | Clears BGP update-group member sessions.                             |
| <b>debug ip bgp groups</b>       | Displays information related to the processing of BGP update groups. |
| <b>show ip bgp replication</b>   | Displays BGP update-group replication statistics.                    |

# Glossary

**dynamic peer-group**—Another name for an update-group.

**peer-group**—A group of neighbors, calculated at configuration time, that share the same outbound policies and can be replicated in the same updates.

**peer-policy template**—Peer policy templates are used to used group and apply the configuration of commands that are applied within specific address-families and NLRI configuration mode.

**peer-session template**—Peer session templates are used to group and apply the configuration of general session commands that are common to all address-family and Network Layer Reachability Information (NLRI) configuration modes.

**peer-template**—A configuration pattern that can be applied to neighbors that share common policies. Peer templates are reusable and support inheritance, allowing the network operator to group and apply distinct neighbor configurations for BGP neighbors that share common policies, and define very complex configuration patterns through the ability of a peer template to inherit configurations from other peer templates. There are two types of peer templates: “policy-templates” and “session-templates.”

**update-group**—Like a peer-group, an update-group is a group of neighbors, calculated at configuration time, that share the same outbound policies and can be replicated in the same updates. However, update-groups are calculated dynamically and are not restricted by outbound policies.



## Note

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