



## L Commands

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# load-balancing

To specify the load-balancing method used by the active virtual gateway (AVG) of the Gateway Load Balancing Protocol (GLBP), use the **load-balancing** command. To disable load balancing, use the **no** form of this command.

**load-balancing** [{**host-dependent** | **round-robin** | **weighted**}]  
**no load-balancing**

## Syntax Description

<b>host-dependent</b>	(Optional) Specifies a load-balancing method based on the MAC address of a host where the same forwarder is always used for a particular host while the number of GLBP group members remains unchanged.
<b>round-robin</b>	(Optional) Specifies a load-balancing method where each virtual forwarder is included in Address Resolution Protocol (ARP) replies for the virtual IP address. This method is the default.
<b>weighted</b>	(Optional) Specifies a load-balancing method that is dependent on the weighting value advertised by the gateway.

## Command Default

The round-robin method is the default.

## Command Modes

GLBP configuration

## Command History

Release	Modification
4.0(1)	This command was introduced.

## Usage Guidelines

Use the host-dependent method of GLBP load balancing when you need each host to always use the same router. Use the weighted method of GLBP load balancing when you need unequal load balancing because gateways in the GLBP group have different forwarding capacities.

This command does not require a license.

## Examples

This example show how to configure the host-dependent load-balancing method for the AVG of the GLBP group 10:

```
switch# configure terminal
switch(config)# interface ethernet 1/1
switch(config-if)# glbp 10
switch(config-glbp)# load-balancing host-dependent
```

## Related Commands

Command	Description
<b>glbp</b>	Enters GLBP configuration mode and creates a GLBP group.
<b>show glbp</b>	Displays GLBP information.
<b>weighting</b>	Configures the weighting value and thresholds for the weighted load-balancing method.

Command	Description
<b>weighting track</b>	Configures object tracking for the weighted load-balancing method.

# local-as

To configure the Border Gateway Protocol (BGP) local AS number, use the **local-as** command.

**local-as** *as-number*

## Syntax Description

<i>as-number</i>	(Optional) Autonomous system number. The AS number can be a 16-bit integer or a 32-bit integer in the form of <higher 16-bit decimal number>.<lower 16-bit decimal number>.
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## Command Default

None

## Command Modes

Router VRF mode

## Command History

Release	Modification
4.0(3)	This command was introduced.

## Usage Guidelines

This command requires the Enterprise Services license.

## Examples

This example shows how to configure the local AS number for BGP:

```
switch# configure terminal
switch(config)# router bgp 65536.33
switch(config-router)# vrf red
switch(config-router-vrf)# local-as 65536.33
```

## Related Commands

Command	Description
<b>show bgp</b>	Displays information about BGP.

## local-as (bgp)

To configure a router to appear as a member of a second autonomous system (AS) in addition to the real AS of the device, use the **local-as** command. To remove the **local-as** configuration from the device, use the **no** form of this command.

**local-as** *autonomous-system-number* [{**no-prepend** | **replace-as** [**dual-as**]}]  
**no local-as** *autonomous-system-number* [{**no-prepend** | **replace-as** [**dual-as**]}]

Syntax Description	
<i>autonomous-system-number</i>	AS number. The range is from 1 to 4294967295.
<b>no-prepend</b>	(Optional) Specifies not to prepend the local autonomous system number to any routes received from the external Border Gateway Protocol (eBGP) neighbor.
<b>replace-as</b>	(Optional) Specifies to prepend only the local-as number to updates to the eBGP neighbor.
<b>dual-as</b>	(Optional) Configures the eBGP neighbor to establish a peering session using the real autonomous system number (from the local BGP routing process) or by using the autonomous-system number.

**Command Default** None

**Command Modes** Neighbor configuration (config-router-neighbor)

Command History	Release	Modification
	5.2(1)	This command was introduced.

**Usage Guidelines** This command does not require a license.

### Examples

This example shows how to configure a router to appear as a member of a second AS in addition to the real AS of the device:

```
switch# configure terminal
  switch(config)# router bgp 64496
switch(config-router)# neighbor 192.0.2.1
switch(config-router-neighbor)# local-as 429496 no-prepend replace-as dual-as
switch(config-router-neighbor)#
```

This example shows how to remove the local AS configuration from the device:

```
switch# configure terminal
  switch(config)# router bgp 64496
switch(config-router)# neighbor 192.0.2.1
switch(config-router-neighbor)# no local-as
switch(config-router-neighbor)#
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>router bgp</b>	Creates a BGP instance.
<b>show ip bgp</b>	Displays entries in the BGP routing table.
<b>show ip bgp neighbors</b>	Displays information about BGP neighbors.

# log-adjacency-changes (EIGRP)

To enable the logging of changes in Enhanced Interior Gateway Routing Protocol (EIGRP) adjacency state, use the **log-adjacency-changes** command. To disable the logging of changes in EIGRP adjacency state, use the **no** form of this command.

**log-adjacency-changes**  
**no log-adjacency-changes**

**Syntax Description** This command has no arguments or keywords.

**Command Default** Adjacency changes are not logged.

**Command Modes** Address-family configuration Router configuration Router VRF configuration

Command History	Release	Modification
	4.0(1)	This command was introduced.

**Usage Guidelines** This command requires the Enterprise Services license.

**Examples** This example shows how to enable logging of adjacency state changes for EIGRP 1:

```
switch# configure terminal
switch(config)# router eigrp 1
switch(config-router)# address-family ipv6
switch(config-router-af)# log-adjacency-changes
```

Related Commands	Command	Description
	<b>ip eigrp log-neighbor-changes</b>	Logs changes to neighbors for an interface.
	<b>ip eigrp log-neighbor-warnings</b>	Logs neighbor warnings for an interface.

## log-adjacency-changes (IS-IS)

To enable the router to send a syslog message when an Intermediate System-to-Intermediate System Intradomain Routing Protocol (IS-IS) neighbor goes up or down, use the **log-adjacency-changes** configuration mode command. To disable this function, use the **no** form of this command.

**log-adjacency-changes**  
**no log-adjacency-changes**

**Syntax Description** This command has no arguments or keywords.

**Command Default** This command is enabled by default.

**Command Modes** Router configuration VRF configuration

Command History	Release	Modification
	4.0(1)	This command was introduced.

**Usage Guidelines** The **log-adjacency-changes** command is on by default but only up/down (full/down) events are reported.

**Examples** This example configures the router to send a syslog message when an IS-IS neighbor state changes:

```
switch# configure terminal
switch(config)# router isis
switch(config-router)# log-adjacency-changes
```

Related Commands	Command	Description
	<b>feature isis</b>	Enables IS-IS on the router.
	<b>router isis</b>	Enables IS-IS.



# log-adjacency-changes (OSPF)

To configure the router to send a syslog message when the state of an Open Shortest Path First (OSPF) neighbor changes, use the **log-adjacency-changes** command. To turn off this function, use the **no** form of this command.

**log adjacency changes [detail]**

<b>Syntax Description</b>	<b>detail</b> (Optional) Provides all (DOWN, INIT, 2WAY, EXSTART, EXCHANGE, LOADING, FULL) adjacency state changes.
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**Command Default** The router sends a system message when the state of an OSPF neighbor changes.

**Command Modes** Router configuration  
Router VRF configuration

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0(1)	This command was introduced.

**Usage Guidelines** Use the **log-adjacency-changes** command to display high-level changes to the state of the OSPF neighbor relationship. This command is on by default but only reports the up/down (full/down) events if you do not use the **detail** keyword.

This command requires the Enterprise Services license.

## Examples

This example shows how to configure the router to send a system message when an OSPF neighbor state changes:

```
switch# configure terminal
switch(config)# router ospf 209
switch(config-router)# log-adjacency-changes detail
```

## log-adjacency-changes (OSPFv3)

To configure the router to send a system message when the state of an Open Shortest Path First version 3 (OSPFv3) neighbor changes, use the **log-adjacency-changes** command. To turn off this function, use the **no** form of this command.

**log adjacency changes [detail]**

### Syntax Description

<b>detail</b>	(Optional) Provides all (DOWN, INIT, 2WAY, EXSTART, EXCHANGE, LOADING, FULL) adjacency state changes.
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### Command Default

The router sends a system message when the state of an OSPFv3 neighbor changes.

### Command Modes

Router configuration  
Router VRF configuration

### Command History

Release	Modification
4.0(1)	This command was introduced.

### Usage Guidelines

Use the **log-adjacency-changes** command to display high-level changes to the state of the OSPFv3 neighbor relationship. This command is on by default but only reports the up/down (full/down) events if you do not use the **detail** keyword.

This command requires the Enterprise Services license.

### Examples

This example shows how to configure the router to send a system message when an OSPFv3 neighbor state changes:

```
switch# configure terminal
switch(config)# router ospfv3 209
switch(config-router)# log-adjacency-changes detail
```

# log-neighbor-warnings

To enable the logging of Enhanced Interior Gateway Routing Protocol (EIGRP) neighbor warning messages, use the **log-neighbor-warnings** command. To disable the logging of EIGRP neighbor warning messages, use the **no** form of this command.

**log-neighbor-warnings** [*seconds*]  
**no log-neighbor-warnings**

<b>Syntax Description</b>	<i>seconds</i> (Optional) Time interval (in seconds) between repeated neighbor warning messages. The range of seconds is from 1 to 65535.
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**Command Default** Neighbor warning messages are logged.

**Command Modes**

- Address-family configuration
- Router configuration
- Router VRF configuration

<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>4.0(3)</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	4.0(3)	This command was introduced.
Release	Modification				
4.0(3)	This command was introduced.				

**Usage Guidelines** Use the **log-neighbor-warnings** command to enable neighbor warning messages and to configure the interval between repeated neighbor warning messages.

This command requires the Enterprise Services license.

## Examples

This example shows how to log neighbor warning messages for EIGRP process 209 and to repeat the warning messages in 5-minute (300 seconds) intervals:

```
switch# configure terminal
switch(config)# router eigrp 209
switch(config-router)# log-neighbor-warnings 30
```

<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>log-adjacency-changes</b></td> <td>Enables logging of EIGRP adjacency state changes.</td> </tr> </tbody> </table>	Command	Description	<b>log-adjacency-changes</b>	Enables logging of EIGRP adjacency state changes.
Command	Description				
<b>log-adjacency-changes</b>	Enables logging of EIGRP adjacency state changes.				

# low-memory exempt

To exempt a Border Gateway Protocol (BGP) neighbor from a low-memory shutdown, use the **low-memory exempt** command. To make a BGP neighbor eligible for a low-memory shutdown, use the **no** form of this command.

**low-memory exempt**

**no low-memory exempt**

**Syntax Description** This command has no arguments or keywords.

**Command Default** Some eBGP peers shut down for severe memory alerts.

**Command Modes** Neighbor configuration

## Command History

Release	Modification
4.2(1)	This command was introduced.

**Usage Guidelines** This command requires the Enterprise Services license.

## Examples

This example shows how to exempt a neighbor from low-memory shutdown:

```
switch# configure terminal
switch(config)# router bgp 1.0
switch(config-router)# neighbor 192.0.2.0/24 remote-as 1.5
switch(config-router-af)# low-memory exempt
```

## Related Commands

Command	Description
<b>feature bgp</b>	Enables BGP.

# lsp-gen-interval

To customize the IS-IS throttling of the LSP generation, use the **lsp-gen-interval** configuration mode command. To restore default values, use the **no** form of this command.

**lsp-gen-interval** {**level-1** | **level-2**} *lsp-max-wait* [*lsp-initial-wait* *lsp-second-wait*]  
**no** **lsp-gen-interval**

## Syntax Description

<b>level-1</b>	Applies intervals to level-1 areas only.
<b>level-2</b>	Applies intervals to level-2 areas only.
<i>lsp-max-wait</i>	Maximum interval (in seconds) between two consecutive occurrences of an LSP being generated. Range: 500 to 65535. Default: 5.
<i>lsp-initial-wait</i>	(Optional) Initial LSP generation delay (in milliseconds). Range: 50 to 65535. Default: 50.
<i>lsp-second-wait</i>	Hold time between the first and second LSP generation (in milliseconds). Range: 50 to 65535. Default: 50.

## Command Default

The defaults are as follows:

- *lsp-max-wait*: 500
- *lsp-initial-wait*: 50
- *lsp-second-wait*: 50

## Command Modes

Router configuration  
 VRF configuration

## Command History

Release	Modification
4.0(1)	This command was introduced.

## Usage Guidelines

When you change the default values of this command, use the following guidelines:

- The *lsp-initial-wait* argument indicates the initial wait time (in milliseconds) before generating the first LSP.
- The *lsp-second-wait* argument indicates the amount of time to wait (in milliseconds) between the first and second LSP generation.
- Each subsequent wait interval is twice as long as the previous one until the wait interval reaches the **lsp-max-wait** interval specified, so this value causes the throttling or slowing down of the LSP generation after the initial and second intervals. Once this interval is reached, the wait interval continues at this interval until the network calms down.
- After the network calms down and there are no triggers for 2 times the **lsp-max-wait** interval, fast behavior is restored (the initial wait time).

The **lsp-mtu** command sets the delay (in milliseconds) between successive LSPs being transmitted (including LSPs generated by another system and forwarded by the local system).

You can enter these commands in combination to control the rate of LSP packets being generated, transmitted, and retransmitted.

### Examples

This example configures the interval for LSP generation:

```
switch# configure terminal
switch(config)# router isis
switch(config-router)# lsp-gen-interval 2 50 100
```

### Related Commands

Command	Description
<b>feature isis</b>	Enables IS-IS on the router.
<b>router isis</b>	Enables IS-IS.

# lsp-mtu

To set the maximum size of a link-state packet (LSP) generated by Cisco NX-OS software, use the **lsp-mtu** command. To restore the default Maximum Transmission Unit (MTU) size, use the **no** form of this command.

**lsp-mtu** *bytes*  
**no lsp-mtu**

## Syntax Description

<i>bytes</i>	Maximum LSP size in bytes. Range: 128 to 4352. Default: 1492.
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## Command Default

The default MTU size is 1492 bytes.

## Command Modes

Router configuration  
 VRF configuration

## Command History

Release	Modification
4.0(1)	This command was introduced.

## Usage Guidelines

You can increase the LSP MTU if there is a very large amount of information generated by a single router, because each device is limited to approximately 250 LSPs. In practice, this should never be necessary.

The LSP MTU must never be larger than the smallest MTU of any link in the area. This is because LSPs are flooded throughout the area.

The **lsp-mtu** command limits the size of LSPs generated by this router only.

## Examples

This example sets the maximum LSP size to 1500 bytes:

```
switch# configure terminal
switch(config)# router isis
switch(config-router)# lsp-mtu 1500
```

## Related Commands

Command	Description
<b>feature isis</b>	Enables IS-IS on the router.
<b>router isis</b>	Enables IS-IS.

