V Commands

vfhrp delay

To specify the delay period for the initialization of First Hop Redundancy Protocol (FHRP) clients, use the vfhrp delay command.

vfhrp delay [**minimum**] [**reload**] *seconds*

Syntax Description	minimum	(Optional) Configures the delay period after an interface becomes available.
	reload	(Optional) Configures the delay period after the device reloads.
	seconds	Seconds. The range is from 0 to 3600.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command requires the Enterprise Services license.

Examples

This example shows how to specify the delay period for the initialization of FHRP clients:

```
switch# configure terminal
switch(config)# fhrp delay minimum 90
switch(config)#
```

Related Commands

Command	Description
show fhrp	Displays First Hop Redundancy Protocol (FHRP) information.

vrf

To create a VPN routing and forwarding instance (VRF) or enter the VRF configuration mode and configure submode commands for the Intermediate System-to-Intermediate System Intradomain Routing Protocol (IS-IS), use the **vrf** command. To remove a VRF instance or disable the VRF configuration mode, use the **no** form of this command.

{ **vrf** *name* | **management** }
{ **no** **vrf** *name* | **management** }

Syntax Description		
	name	Name of the VRF.
	management	Specifies a configurable VRF name.

Command Default None

Command Modes Address-family configuration

Router configuration

VRF configuration

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

Usage Guidelines Each VRF mode serves as a separate instance within the IS-IS process. All configuration commands available in the global configuration mode are available in the new VRF mode. For example, each VRF mode must has its own NET configured for that particular instance to be operational. All EXEC commands can be specified to be per-VRF, else with no arguments, it will be applied to the default VRF. Note that interfaces belong to a particular VRF and the appropriate interface will only be applied to the particular interface with the ip/ipv6 router isis command.

The VRF does not become active until you create an identically named VRF in global configuration mode.

When you enter the VRF configuration mode, the following commands are available:

- **address-family** —Configures an address family. See the **address-family (BGP)** command for additional information.
- **authentication key-chain** —Sets the authentication key chain string. See the **authentication key-chain** command for additional information.
- **authentication-check** —Checks the authentication. See the **authentication-check** command for additional information.
- **authentication-type** — Sets the authentication type. See the **authentication-type** command for additional information.
- **default-information** — Controls the origination of a default route. See the **default-information originate (IS-IS)** command for additional information.
- **distance** —Configures the administrative distance. See the **distance (IS-IS)** command for additional information.

- **distribute** —Distributes routes between ISIS levels. See the **distribute** command for additional information.
- **exit** —Exits from the current command mode.
- **graceful-restart** —Enables the graceful restart for IS-IS process. See the **graceful-restart (BGP)** command for additional information.
- **hostname** —Configures the dynamic hostname for IS-IS. See the **hostname dynamic** command for additional information.
- **is-type** —Configures the IS type for this IS-IS process. See the **is-type** command for additional information.
- **log-adjacency-changes** —Logs the changes in adjacency state. See the **log-adjacency-changes (IS-IS)** command for additional information.
- **lsp-gen-interval** —Configures the LSP generation interval. See the **lsp-gen-interval** command for additional information.
- **lsp-mtu** —Sets the LSP MTU. See the **lsp-mtu** command for additional information.
- **max-lsp-lifetime** —Sets the maximum LSP lifetime. See the **max-lsp-lifetime** command for additional information.
- **maximum-paths** —Sets the maximum paths per destination. See the **maximum-paths (IS-IS)** command for additional information.
- **net** —Configures the Network Entity Title for this IS-IS process. See the **net** command for additional information.
- **no** —Negates a command or set its defaults.
- **redistribute** —Redistributes the information from another routing protocol. See the **redistribute (IS-IS)** command for additional information.
- **reference-bandwidth** —Changes the reference bandwidth used for setting interface metric. See the **reference-bandwidth** command for additional information.
- **set-overload-bit** —Signals other routers not to use us for transit. See the **set-overload-bit** command for additional information.
- **shutdown** —Shuts down this IS-IS process. See the **shutdown (IS-IS)** command for additional information.
- **spf-interval** —Configures the SPF interval. See the **spf-interval** command for additional information.
- **summary-address** —Configures the IP address summaries. See the **summary-address** command for additional information.
- **wide-metric-only** —Advertises only wide metric. See the **wide-metric-only** command for additional information.

Examples

The following command shows how to enter VRF configuration mode:

```
switch(config)# router isis 100
switch(config-router)# vrf management
switch(config-router-vrf)#
```

Related Commands

Command	Description
address-family	Enters the address family mode or a VRF address-family mode.
feature isis	Enables IS-IS on the router.
router isis	Enables IS-IS.

vrf context

To create a virtual routing and forwarding instance (VRF) and enter VRF configuration mode, use the **vrf** router BGP configuration command. To remove a VRF entry, use the **no** form of this command.

vrf context {*name* | **management**}
no vrf context {*name* | **management**}

Syntax Description		
	name	Name of the VRF. The *name* can be any case-sensitive, alphanumeric string up to 32 characters.
	management	Specifies a configurable VRF name.

Command Default   This command has no default settings.

Command Modes   Neighbor address-family configuration

Router bgp configuration

Command History

Release	Modification
4.0(1)	This command was introduced.

Usage Guidelines   The VRF does not become active until you create an identically named VRF in global configuration mode.

When you enter the VRF configuration mode, the following commands are available:

- **address-family**—Configures an address-family. See the **address-family (BGP)** command for additional information.
- **cluster-id** {*cluster-id* | *cluster-ip-addr*} —Configures the Route Reflector Cluster-ID (router, vrf). Range: 1 to 4294967295. You can enter the cluster identification as a 32-bit quantity or as an IP address. To remove the cluster ID, use the **no** form of this command. Together, a route reflector and its clients form a cluster. When a single route reflector is deployed in a cluster, the cluster is identified by the router ID of the route reflector.

The **cluster-id** command is used to assign a cluster ID to a route reflector when the cluster has one or more route reflectors. Multiple route reflectors are deployed in a cluster to increase redundancy and avoid a single point of failure. When multiple route reflectors are configured in a cluster, the same cluster ID is assigned to all route reflectors. This allows all route reflectors in the cluster to recognize updates from peers in the same cluster and reduces the number of updates that need to be stored in BGP routing tables.

Note   All route reflectors must maintain stable sessions between all peers in the cluster. If stable sessions cannot be maintained, then overlay route reflector clusters should be used instead (route reflectors with different cluster IDs).

- **exit**—Exits from the current command mode.
- **graceful-restart**—Configure Graceful Restart functionality. See the **graceful-restart (BGP)** command for additional information.

- **graceful-restart-helper**—Configure Graceful Restart Helper mode functionality. See the **graceful-restart (BGP)** command for additional information.
- **log-neighbor-changes**—Enables logging of the BGP neighbor resets. To disable the logging of changes in BGP neighbor adjacencies, use the **no** form of this command. The **log-neighbor-changes** command enables logging of BGP neighbor status changes (up or down) and resets for troubleshooting network connectivity problems and measuring network stability. Unexpected neighbor resets might indicate high error rates or high packet loss in the network and should be investigated.

Using the **log-neighbor-changes** command to enable status change message logging does not cause a substantial performance impact, unlike, for example, enabling per BGP update debugging. If the UNIX syslog facility is enabled, messages are sent to the UNIX host running the syslog daemon so that the messages can be stored and archived. If the UNIX syslog facility is not enabled, the status change messages are retained in the internal buffer of the router, and are not stored to disk. You can set the size of this buffer, which is dependent upon the available RAM, using the **logging buffered** command.

The neighbor status change messages are not tracked if the bgp **log-neighbor-changes** command is disabled, except for the reset reason, which is always available as output of the **show ip bgp neighbors** and **show bgp ipv6 neighbors** commands.

The **eigrp log-neighbor-changes** command enables logging of Enhanced Interior Gateway Routing Protocol (EIGRP) neighbor adjacencies, but messages for BGP neighbors are logged only if they are specifically enabled with the bgp **log-neighbor-changes** command.

Use the **show logging command** to display the log for the BGP neighbor changes.

- **neighbor**—Configures a BGP neighbor. See the **neighbor** command for additional information.
- **no**—Negates a command or set its defaults
- **router-id** *ip-addr*—Specifies the IP address to use as the router-id.
- **timers** *bestpath-timeout*—Configures the bestpath timeout in seconds. Range: 1 to 3600. Default: 300.

Examples

The following command shows how to enter VRF configuration mode:

```
switch(config)# router bgp 64496
switch(config-router)# vrf context management
switch(config-router-vrf)#
```

This example shows how to set the local router as one of the route reflectors serving the cluster. You configure the cluster ID to identify the cluster.

```
switch(config)# router bgp 64496
switch(config-router)# neighbor 192.168.70.24 route-reflector-client
switch(config-router)# cluster-id 10.0.1.2
```

vrf member

To configure object tracking on a virtual routing and forwarding (VRF) instance, use the **vrf member** command. To remove the object tracking for this route, use the **no** form of this command.

vrf member *vrf-name*
no vrf member *vrf-name*

Syntax Description	*vrf-name*	VRF name. The name can be any case-sensitive, alphanumeric string up to 64 characters.

Command Default None

Command Modes Global configuration

Command History

Release	Modification
4.0(1)	This command was introduced.

Usage Guidelines Use the **vrf member** command in object tracking configuration mode to track objects in a nondefault VRF.

This command does not require a license.

Examples This example shows how to track an IP route in vrf Red:

```
switch(config)# track 1 ip route 10.10.10.0/8 reachability
switch(config-track)# vrf member Red
```

Related Commands

Command	Description
show track	Displays information about object tracking.
track ip route	Tracks an interface.

vrrp

To create a Virtual Router Redundancy Protocol (VRRP) group on a particular Ethernet interface and assign a number to the VRRP group and enter VRRP configuration mode, use the **vrrp** command. To remove a VRRP group, use the **no** form of this command.

vrrp *number*
no vrrp *number*

Syntax Description	*number*	The VRRP group number, which you can configure for a Gigabit Ethernet port, including the main interfaces and subinterfaces. The range is from 1 to 255.

Command Default

None

Command Modes

VRRP configuration

Command History

Release	Modified
4.0(1)	This command was introduced.

Usage Guidelines

You can configure VRRP only if its state is disabled. Make sure that you configure at least one IP address before you attempt to enable a virtual router.

This command does not require a license.

Examples

This example shows how to create a VRRP group:

```
switch(config-if-vrrp)# vrrp 7
```

This example shows how to create a VRRP group and configure an IPv4 address for the group:

```
switch# config terminal
switch(config)# interface ethernet 2/1
switch(config-if)# vrrp 7

switch(config-if-vrrp)# address 10.0.0.10
switch(config-if-vrrp)# # no shutdown
```

Related Commands

Command	Description
feature vrrp	Enables VRRP.
show vrrp	Displays VRRP configuration information.
clear vrrp	Clears all the software counters for the specified virtual router.

vrrpv3 address-family

To create a Virtual Router Redundancy Protocol version 3 (VRRPv3) group and enter VRRPv3 group configuration mode, use the vrrpv3 address-family command.

vrrpv3 number address-family {ipv4 | ipv6}

Syntax Description

number	VRRP number.
ipv4	(Optional) Specifies IPv4 address.
ipv6	(Optional) Specifies IPv6 address.

Command Default   None

Command Modes   Interface configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines   This command requires the Enterprise Services license.

Examples   This example shows how to create a VRRPv3 group and enter VRRPv3 group configuration mode:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# vrrpv3 5 address-family ipv4
switch(config-if-vrrpv3-group)#
```

Related Commands

Command	Description
feature vrrpv3	Enables VRRPv3 and VRRS.
timers advertise interval	Sets the advertisement timer in milliseconds.

vrrs leader

To specify a leader's name to be registered with Virtual Router Redundancy Service (VRRS), use the vrrs leader command.

vrrs   leader *vrrs-leader-name*

Syntax Description

vrrs-leader-name	VRRS leader name.

Command Default

None

Command Modes

config-if-vrrpv3-group mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command requires the Enterprise Services license.

Examples

This example shows how to specify a leader's name to be registered with VRRS:

```
switch# configure terminal
switch(config)# interface ethernet 2/1
switch(config-if)# vrrpv3 5 address-family ipv4
switch(config-if-vrrpv3-group)# address 100.0.1.10 primary
switch(config-if-vrrpv3-group)# description group3
switch(config-if-vrrpv3-group)# match-address
switch(config-if-vrrpv3-group)# preempt delay minimum 30
switch(config-if-vrrpv3-group)# priority 3
switch(config-if-vrrpv3-group)# timers advertise 100
switch(config-if-vrrpv3-group)# vrrs leaderleader1
switch(config-if-vrrpv3-group)#
```

Related Commands

Command	Description
vrrpv3 address-family	Creates a VRRPv3 group and enter VRRPv3 group configuration mode.

vrrs pathway

To define the Virtual Router Redundancy Service (VRRS) pathway for a VRRS group and enter VRRS pathway configuration mode, use the **vrrs pathway** command.

vrrs pathway *vrrs-tag*

Syntax Description

vrrs-tag	VRRS tag.

Command Default   None

Command Modes   Interface configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines   This command requires the Enterprise Services license.

Examples   This example shows how to define the VRRS pathway for a VRRS group and enter VRRS pathway configuration mode:

```
switch# configure terminal
switch(config)# interface port-channel 100
switch(config-if)# ip address 209.165.200.230 255.255.255.224
switch(config-if)# vrrs pathway path1
switch(config-if-vrrs-pw)#
```

Related Commands

Command	Description
show vrrs pathway	Displays the VRRS pathway information for different pathway states.
show vrrs tag	Displays the VRRS tag information.
show vrrs client	Displays the VRRS client information.
show vrrs server	Displays the VRRS server information.

vrrs pathway