

Contents

IPv6 static routing commands	1
delete ipv6 static-routes all	1
display ipv6 route-static nib	1
display ipv6 route-static routing-table	4
ipv6 route-static	6
ipv6 route-static default-preference	8

IPv6 static routing commands

delete ipv6 static-routes all

Use `delete ipv6 static-routes all` to delete all IPv6 static routes.

Syntax

```
delete ipv6 [ vpn-instance vpn-instance-name ] static-routes all
```

Views

System view

Predefined user roles

network-admin

Parameters

vpn-instance *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, the command deletes all IPv6 static routes for the public network.

Usage guidelines

When you use this command, the system will prompt you to confirm the operation before deleting all the IPv6 static routes.

Examples

```
# Delete all IPv6 static routes.
<Sysname> system-view
[Sysname] delete ipv6 static-routes all
This will erase all IPv6 static routes and their configurations, you must reconfigure all
static routes.
Are you sure?[Y/N]:y
```

Related commands

```
ipv6 route-static
```

display ipv6 route-static nib

Use `display ipv6 route-static nib` to display IPv6 static route next hop information.

Syntax

```
display ipv6 route-static nib [ nib-id ] [ verbose ]
```

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

nib-id: Specifies a NIB by its ID, a hexadecimal string in the range of 1 to fffffff.

verbose: Displays detailed IPv6 static route next hop information. If you do not specify this keyword, the command displays brief IPv6 static route next hop information.

Examples

Display brief IPv6 static route next hop information.

```
<Sysname> display ipv6 route-static nib
Total number of nexthop(s): 35

      NibID: 0x21000000      Sequence: 0
      Type: 0x41            Flushed: Yes
UserKey0: 0x0              VrfNthp: 0
UserKey1: 0x0              Nexthop: 2::3
      IFIndex: 0x0          LocalAddr: ::
TopoNthp: Invalid         ExtType: 0x0

      NibID: 0x21000001      Sequence: 1
      Type: 0x41            Flushed: Yes
UserKey0: 0x0              VrfNthp: 0
UserKey1: 0x0              Nexthop: 3::4
      IFIndex: 0x0          LocalAddr: ::
TopoNthp: Invalid         ExtType: 0x0
```

...

Table 1 Command output

Field	Description
NibID	ID of the NIB.
Sequence	Sequence number of the NIB.
Type	Type of the NIB.
Flushed	Indicates whether the route with the NIB has been flushed to the FIB.
UserKey0	Reserved data 1.
UserKey1	Reserved data 2.
VrfNthp	Index of the VPN instance to which the next hop belongs. This field displays 0 if the next hop is on an IPv6 network.
Nexthop	Next hop address.
IFIndex	Interface index
LocalAddr	Local interface address.
TopoNthp	This field is not supported in the current software version. Index of the topology that contains the next hop. This field displays Invalid if the next hop is on an IPv6 network, because the router does not support multiple topologies.
ExtType	NIB extension type.

Display detailed IPv6 static route next hop information.

```
<Sysname> display ipv6 route-static nib verbose
Total number of nexthop(s): 35
```

```

        NibID: 0x21000000      Sequence: 0
        Type: 0x41             Flushed: Yes
    UserKey0: 0x0              VrfNthp: 0
    UserKey1: 0x0              Nexthop: 2::3
    IFIndex: 0x0               LocalAddr: ::
    TopoNthp: Invalid          ExtType: 0x0
    RefCnt: 1                  FlushRefCnt: 0
    Flag: 0x12                 Version: 1
1 nexthop(s):
PrefixIndex: 0                OrigNexthop: 2::3
RelyDepth: 2                  RealNexthop: ::
Interface: NULL0              LocalAddr: ::
TunnelCnt: 0                  Vrf: default-vrf
TunnelID: N/A                 Topology:
Weight: 0

        NibID: 0x21000001      Sequence: 1
        Type: 0x41             Flushed: Yes
    UserKey0: 0x0              VrfNthp: 0
    UserKey1: 0x0              Nexthop: 3::4
    IFIndex: 0x0               LocalAddr: ::
    TopoNthp: Invalid          ExtType: 0x0
    RefCnt: 1                  FlushRefCnt: 0
    Flag: 0x12                 Version: 1
1 nexthop(s):
PrefixIndex: 0                OrigNexthop: 3::4
RelyDepth: 1                  RealNexthop: ::
Interface: Vlan11             LocalAddr: ::
TunnelCnt: 0                  Vrf: default-vrf
TunnelID: N/A                 Topology:
Weight: 0

```

...

Table 2 Command output

Field	Description
x nexthop(s)	Number of next hops.
PrefixIndex	Prefix index of the next hop for an ECMP route.
Vrf	VPN instance name. For an IPv6 network, this field displays default-vrf .
OrigNexthop	Original next hop.
RealNexthop	Real next hop.
Interface	Output interface.
localAddr	Local interface address.
RelyDepth	Recursion depth.

Field	Description
TunnelCnt	Number of tunnels after route recursion.
TunnelID	ID of the tunnel after route recursion.
Topology	This field is not supported in the current software version. Topology name. This field is blank for IPv6, because IPv6 does not support multiple topologies.
Weight	ECMP route weight. This field displays 0 for non-ECMP routes.
RefCnt	Reference count of the next hop.
FlushRefCnt	Reference count of the next hop that is flushed to the FIB.
Flag	Flag of the next hop.
Version	Version of the next hop.
ExtType	NIB extension type.

display ipv6 route-static routing-table

Use `display ipv6 route-static routing-table` to display IPv6 static routing table information.

Syntax

```
display ipv6 route-static routing-table [ vpn-instance vpn-instance-name ]
[ ipv6-address prefix-length ]
```

Views

Any view

Predefined user roles

network-admin
network-operator

Parameters

vpn-instance *vpn-instance-name*: Specifies an MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, the command displays IPv6 static routing table information for the public network.

ipv6-address: Specifies the destination IPv6 address.

prefix-length: Specifies the prefix length in the range of 0 to 128.

Examples

Display IPv6 static routing table information.

```
<Sysname> display ipv6 route-static routing-table
```

```
Total number of routes: 5
```

```
Status: * - valid
```

```
*Destination: 1::1/128
```

```
    NibID: 0x21000000
```

```
    NextHop: 2::2
```

```
    MainNibID: N/A
```

```
    BkNextHop: N/A
```

```
    BkNibID: N/A
```

```
    Interface: Vlan-interface11
```

```

TableID: 0xa          BkInterface: N/A
  Flag: 0x80d0a      BfdSrcIp: N/A
DbIndex: 0x3         BfdIfIndex: 0x0
  Type: Normal       BfdVrfIndex: 0
TrackIndex: 0xffffffff Label: NULL
Preference: 60       vrfIndexDst: 0
  BfdMode: N/A      vrfIndexNH: 0
Permanent: 0         Tag: 0

*Destination: 1::1234/128
  NibID: 0x21000000  NextHop: 2::2
MainNibID: N/A      BkNextHop: N/A
  BkNibID: N/A      Interface: NULL0
TableID: 0xa       BkInterface: N/A
  Flag: 0x80d0a      BfdSrcIp: N/A
DbIndex: 0x1       BfdIfIndex: 0x0
  Type: Normal       BfdVrfIndex: 0
TrackIndex: 0xffffffff Label: NULL
Preference: 60       vrfIndexDst: 0
  BfdMode: N/A      vrfIndexNH: 0
Permanent: 0         Tag: 0

```

...

Table 3 Command output

Field	Description
Destination	Destination address/prefix.
NibID	ID of the NIB.
MainNibID	ID of the primary next hop for static route FRR.
BkNibID	ID of the backup next hop for static route FRR.
NextHop	Next hop address.
BkNextHop	Backup next hop address.
Interface	Output interface of the route.
BkInterface	Backup output interface.
TableID	ID of the table to which the route belongs.
DbIndex	Index of the database to which the route belongs.
Type	Route type: <ul style="list-style-type: none"> • Normal. • DHCP. • NAT.
BfdSrcIp	Source IPv6 address of the indirect BFD session.
BfdIfIndex	Index of the interface where BFD is enabled.
BfdVrfIndex	Index of the VPN instance where BFD is enabled. This field displays 0 if BFD is enabled for an IPv6 network.

Field	Description
BfdMode	BFD session mode: <ul style="list-style-type: none"> • N/A—No BFD session is configured. • Ctrl—Control packet mode. • Echo—Echo packet mode.
TrackIndex	NQA Track index.
vrfIndexDst	Index of the VPN instance to which the destination belongs. For an IPv6 network, this field displays 0 .
vrfIndexNH	Index of the VPN instance to which the next hop belongs. For an IPv6 network, this field displays 0 .
Permanent	Permanent static route flag. 1 indicates a permanent static route.

ipv6 route-static

Use `ipv6 route-static` to configure an IPv6 static route.

Use `undo ipv6 route-static` to remove an IPv6 static route.

Syntax

```
ipv6 route-static ipv6-address prefix-length { interface-type
interface-number [ next-hop-address ] [ bfd { control-packet | echo-packet }
[ bfd-source ipv6-address ] | permanent ] | [ vpn-instance
d-vpn-instance-name ] next-hop-address [ bfd control-packet bfd-source
ipv6-address | permanent ] } [ preference preference ] [ tag tag-value ]
[ description text ]
```

```
undo ipv6 route-static ipv6-address prefix-length [ interface-type
interface-number [ next-hop-address ] | [ vpn-instance
d-vpn-instance-name ] next-hop-address ] [ preference preference ]
```

```
ipv6 route-static vpn-instance s-vpn-instance-name ipv6-address
prefix-length { interface-type interface-number [ next-hop-address ] [ bfd
{ control-packet | echo-packet } [ bfd-source ipv6-address ] | permanent ] |
next-hop-address [ public ] [ bfd control-packet bfd-source ipv6-address |
permanent ] | vpn-instance d-vpn-instance-name next-hop-address [ bfd
control-packet bfd-source ipv6-address | permanent ] } [ preference
preference ] [ tag tag-value ] [ description text ]
```

```
undo ipv6 route-static vpn-instance s-vpn-instance-name ipv6-address
prefix-length [ interface-type interface-number [ next-hop-address ] |
next-hop-address [ public ] | vpn-instance d-vpn-instance-name
next-hop-address ] [ preference preference ]
```

Default

No IPv6 static route is configured.

Views

System view

Predefined user roles

network-admin

Parameters

ipv6-address prefix-length: Specifies the IPv6 address and prefix length.

interface-type interface-number: Specifies an output interface by its type and number. If the output interface is an NBMA interface or broadcast interface and not a point-to-point (P2P) interface, the next hop address must be specified.

next-hop-address: Specifies the next hop IPv6 address.

bfd: Enables BFD to detect reachability of the static route's next hop.

control-packet: Specifies the BFD control mode.

bfd-source *ipv6-address*: Specifies the source IPv6 address of BFD packets.

echo-packet: Specifies the BFD echo mode.

permanent: Specifies the IPv6 route as a permanent IPv6 static route. If the output interface is down, the permanent IPv6 static route is still active.

public: Indicates the next hop is on the public network.

vpn-instance *d-vpn-instance-name*: Specifies a destination MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. If a destination VPN is specified, packets will search for the output interface based on the specified next hop (IPv6 address) for the static route.

preference *preference*: Specifies a preference for IPv6 static routes, in the range of 1 to 255. The default is 60.

tag *tag-value*: Sets a tag for marking the static route, in the range of 1 to 4294967295. The default is 0. Tags of routes are used for route control in routing policies. For more information about routing policies, see *Layer 3—IP Routing Configuration Guide*.

description *text*: Configures a description for the IPv6 static route, which consists of 1 to 60 characters, including special characters such as the space, but excluding the question mark (?).

vpn-instance *s-vpn-instance-name*: Specifies a source MPLS L3VPN instance by its name, a case-sensitive string of 1 to 31 characters. Each VPN has its own routing table, and the configured static route is installed in the routing tables of the specified VPNs.

Usage guidelines

An IPv6 static route that has the destination address configured as **::/0** (a prefix length of 0) is the default IPv6 route. If the destination address of an IPv6 packet does not match any entry in the routing table, this default route is used to forward the packet.

Follow these guidelines to configure the output interface, next hop address, or both for a static route:

- If the output interface is a broadcast interface or an NBMA interface, the next hop address must be specified.
- If the output interface is a P2P interface, you can specify only the output interface. You do not need to change the configuration of the route even if the peer address is changed.

Follow these guidelines when you configure BFD for IPv6 static routes:

- If you specify the source IPv6 address of BFD packets, you must specify the IPv6 address as the next hop IPv6 address on the peer device.
- If you specify a non-P2P output interface and a direct next hop, specify the **bfd-source** *ipv6-address* option as a best practice. Make sure the source IPv6 address of BFD packets meets the following requirements:
 - The address is the same as the IPv6 address of the output interface.
 - The address is on the same network segment as the next hop IPv6 address of the same type.

For example, if the next hop IPv6 address is a link-local address, the source IPv6 address of BFD packets must also be a link-local address.

Follow these guidelines when you configure a static route:

- Enabling BFD for a flapping route could worsen the route flapping situation. Therefore, use it with caution. For more information about BFD, see *High Availability Configuration Guide*.
- The next hop IPv6 address of echo packets must be a global unicast address.
- Do not specify the **permanent** keyword together with the **bfd** keyword.

Examples

```
# Configure an IPv6 static route, with the destination address 1:1:2::/64 and next hop 1:1:3::1.
<Sysname> system-view
[Sysname] ipv6 route-static 1:1:2:: 64 1:1:3::1
```

Related commands

```
display ipv6 routing-table protocol
```

ipv6 route-static default-preference

Use **ipv6 route-static default-preference** to set a default preference for IPv6 static routes.

Use **undo ipv6 route-static default-preference** to restore the default.

Syntax

```
ipv6 route-static default-preference default-preference
undo ipv6 route-static default-preference
```

Default

The default preference of IPv6 static routes is 60.

Views

System view

Predefined user roles

network-admin

Parameters

default-preference: Specifies a default preference for IPv6 static routes, in the range of 1 to 255.

Usage guidelines

If no preference is specified for an IPv6 static route, the default preference applies.

When the default preference is reconfigured, it applies only to newly added IPv6 static routes.

Examples

```
# Set a default preference of 120 for IPv6 static routes.
<Sysname> system-view
[Sysname] ipv6 route-static default-preference 120
```

Related commands

```
display ipv6 routing-table protocol
```