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# MCE commands

## address-family ipv4 (VPN instance view)

Use **address-family ipv4** to enter VPN instance IPv4 address family view.

Use **undo address-family ipv4** to remove all configurations from VPN instance IPv4 address family view.

### Syntax

```
address-family ipv4
undo address-family ipv4
```

### Views

VPN instance view

### Predefined user roles

network-admin

### Usage guidelines

In VPN instance IPv4 address family view, you can configure IPv4 VPN parameters such as inbound and outbound routing policies.

### Examples

```
# Enter VPN instance IPv4 address family view.
<Sysname> system-view
[Sysname] ip vpn-instance vpn1
[Sysname-vpn-instance-vpn1] address-family ipv4
[Sysname-vpn-ipv4-vpn1]
```

### Related commands

**address-family ipv6** (VPN instance view)

## description (VPN instance view)

Use **description** to configure a description for a VPN instance.

Use **undo description** to restore the default.

### Syntax

```
description text
undo description
```

### Default

No description is configured for a VPN instance.

### Views

VPN instance view

### Predefined user roles

network-admin

## Parameters

*text*: Specifies a description, a case-sensitive string of 1 to 79 characters.

## Examples

```
# Configure a description of This is vpn1 for VPN instance vpn1.
<Sysname> system-view
[Sysname] ip vpn-instance vpn1
[Sysname-vpn-instance-vpn1] description This is vpn1
```

# display ip vpn-instance

Use **display ip vpn-instance** to display information about VPN instances.

## Syntax

```
display ip vpn-instance [ instance-name vpn-instance-name ]
```

## Views

Any view

## Predefined user roles

network-admin  
network-operator

## Parameters

**instance-name** *vpn-instance-name*: Displays information about the specified VPN instance. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If you do not specify a VPN instance, this command displays brief information about all VPN instances.

## Examples

```
# Display brief information about all VPN instances.
<Sysname> display ip vpn-instance
  Total VPN-Instances configured : 1
  VPN-Instance Name              RD              Create time
  abc                             1:1             2011/05/18 10:48:17
```

**Table 1 Command output**

Field	Description
VPN-Instance Name	Name of the VPN instance.
RD	RD of the VPN instance.
Create Time	Time when the VPN instance was created.

```
# Display detailed information about VPN instance vpn1.
<Sysname> display ip vpn-instance instance-name vpn1
  VPN-Instance Name and Index : vpn1, 2
  Route Distinguisher : 100:1
  VPN ID : 1:1
  Description : vpn1
  Interfaces : Vlan-interface2
  Address-family IPv4:
  Export VPN Targets :
```

```

2:2
Import VPN Targets :
3:3
Export Route Policy : outpolicy
Import Route Policy : inpolicy
Tunnel Policy : tunnell
Maximum Routes Limit : 500
Threshold Value(%): 50
Address-family IPv6:
Export VPN Targets :
2:2
Import VPN Targets :
3:3
Export Route Policy : outpolicy
Import Route Policy : inpolicy
Tunnel Policy : tunnell
Maximum Routes Limit :500
Threshold Value(%): 50
Address-family EVPN:
Export VPN Targets :
3:3
Import VPN Targets :
3:3

```

**Table 2 Command output**

Field	Description
Route Distinguisher	Route distinguisher of the VPN instance.
Interfaces	Interfaces that are associated with the VPN instance.
Address-family IPv4	IPv4 VPN information.
Address-family IPv6	IPv6 VPN information.
Address-family EVPN	EVPN information. For more information about EVPN, see <i>EVPN Configuration Guide</i> .
Export VPN Targets	Export route targets.
Import VPN Targets	Import route targets.
Export Route Policy	Routing policy in the outbound direction.
Import Route Policy	Routing policy in the inbound direction.
Tunnel Policy	Tunnel policy name.
Maximum Routes Limit	Maximum number of routes.
Threshold Value(%)	Alarm threshold for number of active routes.

## export route-policy

Use **export route-policy** to apply an export routing policy to a VPN instance.

Use **undo export route-policy** to restore the default.

## Syntax

```
export route-policy route-policy  
undo export route-policy
```

## Default

No export routing policy is applied to a VPN instance.

## Views

VPN instance view  
VPN instance IPv4 address family view  
VPN instance IPv6 address family view

## Predefined user roles

network-admin

## Parameters

*route-policy*: Specifies a routing policy by its name, a case-sensitive string of 1 to 63 characters.

## Usage guidelines

You can specify an export routing policy to filter advertised routes or modify their route attributes for the VPN instance.

If you execute this command multiple times, the most recent configuration takes effect.

An export routing policy specified in VPN instance view applies to both IPv4 VPN and IPv6 VPN. An export routing policy specified in VPN instance IPv4 address family view applies only to IPv4 VPN. An export routing policy specified in VPN instance IPv6 address family view applies only to IPv6 VPN.

If you have specified export routing policies in both VPN instance IPv4 address family view and VPN instance view, IPv4 VPN uses the export routing policy specified in VPN instance IPv4 address family view.

If you have specified export routing policies in both VPN instance IPv6 address family view and VPN instance view, IPv6 VPN uses the export routing policy specified in VPN instance IPv6 address family view.

## Examples

```
# Apply export routing policy poly-1 to VPN instance vpn1.  
<Sysname> system-view  
[Sysname] ip vpn-instance vpn1  
[Sysname-vpn-instance-vpn1] export route-policy poly-1
```

## Related commands

```
import route-policy  
route-policy (Layer 3—IP Routing Command Reference)
```

# import route-policy

Use **import route-policy** to apply an import routing policy to a VPN instance.

Use **undo import route-policy** to restore the default.

## Syntax

```
import route-policy route-policy
```

```
undo import route-policy
```

## Default

All routes matching the import target attribute are accepted.

## Views

VPN instance view

VPN instance IPv4 address family view

VPN instance IPv6 address family view

## Predefined user roles

network-admin

## Parameters

*route-policy*: Specifies a routing policy by its name, a case-sensitive string of 1 to 63 characters.

## Usage guidelines

You can specify an import routing policy to filter received routes or modify their route attributes for the VPN instance.

If you execute this command multiple times, the most recent configuration takes effect.

An import routing policy specified in VPN instance view applies to both IPv4 VPN and IPv6 VPN. An import routing policy specified in VPN instance IPv4 address family view applies only to IPv4 VPN. An import routing policy specified in VPN instance IPv6 address family view applies only to IPv6 VPN.

If you have specified import routing policies in both VPN instance IPv4 address family view and VPN instance view, IPv4 VPN uses the import routing policy specified in VPN instance IPv4 address family view.

If you have specified import routing policies in both VPN instance IPv6 address family view and VPN instance view, IPv6 VPN uses the import routing policy specified in VPN instance IPv6 address family view.

## Examples

```
# Apply import routing policy poly-1 to VPN instance vpn1.
```

```
<Sysname> system-view
```

```
[Sysname] ip vpn-instance vpn1
```

```
[Sysname-vpn-instance-vpn1] import route-policy poly-1
```

## Related commands

```
export route-policy
```

```
route-policy (Layer 3—IP Routing Command Reference)
```

# ip binding vpn-instance

Use **ip binding vpn-instance** to associate an interface with a VPN instance.

Use **undo ip binding vpn-instance** to restore the default.

## Syntax

```
ip binding vpn-instance vpn-instance-name
```

```
undo ip binding vpn-instance
```

## Default

An interface is associated with no VPN instance and belongs to the public network.

## Views

Interface view

## Predefined user roles

network-admin

## Parameters

*vpn-instance-name*: Specifies a VPN instance by its name, a case-sensitive string of 1 to 31 characters.

## Usage guidelines

Use this command to associate the VPN instance with the interface connected to the CE.

This command or its undo form clears the IP address and routing protocol configuration on the interface.

The specified VPN instance must have been created by using the **ip vpn-instance** command in system view.

To associate a new VPN instance with an interface, first execute the **undo ip binding vpn-instance** command to remove the existing association.

## Examples

```
# Associate VLAN-interface 1 with VPN instance vpn1.
<Sysname> system-view
[Sysname] interface vlan-interface 1
[Sysname-Vlan-interface1] ip binding vpn-instance vpn1
```

## Related commands

**ip vpn-instance** (system view)

## ip vpn-instance (system view)

Use **ip vpn-instance** to create a VPN instance and enter its view, or enter the view of an existing VPN instance.

Use **undo ip vpn-instance** to delete a VPN instance.

## Syntax

```
ip vpn-instance vpn-instance-name
undo ip vpn-instance vpn-instance-name
```

## Default

No VPN instances exist.

## Views

System view

## Predefined user roles

network-admin

## Parameters

*vpn-instance-name*: Specifies a VPN instance name, a case-sensitive string of 1 to 31 characters.

## Examples

```
# Create a VPN instance named vpn1 and enter its view.
<Sysname> system-view
[Sysname] ip vpn-instance vpn1
[Sysname-vpn-instance-vpn1]
```

## Related commands

**route-distinguisher**

# route-distinguisher (VPN instance view)

Use **route-distinguisher** to configure an RD for a VPN instance.

Use **undo route-distinguisher** to restore the default.

## Syntax

```
route-distinguisher route-distinguisher
undo route-distinguisher
```

## Default

No RD is specified for a VPN instance.

## Views

VPN instance view

## Predefined user roles

network-admin

## Parameters

*route-distinguisher*: Specifies an RD for the VPN instance, a string of 3 to 21 characters in one of the following formats:

- *16-bit AS number:32-bit user-defined number*. For example, 101:3.
- *32-bit IP address:16-bit user-defined number*. For example, 192.168.122.15:1.
- *32-bit AS number:16-bit user-defined number*, where the minimum value of the AS number is 65536. For example, 65536:1.

## Usage guidelines

RDs enable VPNs to use the same address space. An RD and an IPv4 prefix form a unique VPN-IPv4 prefix.

To guarantee global uniqueness for a VPN-IPv4 address, do not set the AS number or IP address in an RD to any private AS number or private IP address.

To modify an RD, execute the **undo route-distinguisher** command to remove the RD and then execute the **route-distinguisher** command.

## Examples

```
# Configure RD 22:1 for VPN instance vpn1.
<Sysname> system-view
[Sysname] ip vpn-instance vpn1
```

```
[Sysname-vpn-instance-vpn1] route-distinguisher 22:1
```

## routing-table limit

Use **routing-table limit** to set the maximum number of active routes in a VPN instance.

Use **undo routing-table limit** to restore the default.

### Syntax

```
routing-table limit number { warn-threshold | simply-alert }  
undo routing-table limit
```

### Default

The number of active routes in a VPN instance is not limited.

### Views

VPN instance view

VPN instance IPv4 address family view

VPN instance IPv6 address family view

### Predefined user roles

network-admin

### Parameters

*number*: Specifies the maximum number of active routes. The value range for this argument varies by the configuration of the **hardware-resource switch-mode** command. For more information about the **hardware-resource switch-mode** command, see device management commands in *Fundamentals Command Reference*.

*warn-threshold*: Specifies a warning threshold in the range of 1 to 100 in percentage. When the percentage of the existing active routes to the maximum active routes exceeds the threshold, the system gives a log message but still allows new active routes. If active routes in the VPN instance reach the maximum, no more active routes are added.

**simply-alert**: Specifies that when active routes exceed the maximum number, the system still accepts active routes but generates a log message.

### Usage guidelines

Setting the maximum number of active routes for a VPN instance can prevent a PE from learning too many routes.

A limit configured in VPN instance view applies to both the IPv4 VPN and the IPv6 VPN. A limit configured in VPN instance IPv4 address family view applies only to the IPv4 VPN. A limit configured in VPN instance IPv6 address family view applies only to the IPv6 VPN.

If you have specified the limit in both VPN instance IPv4 address family view and VPN instance view, IPv4 VPN uses the limit specified in VPN instance IPv4 address family view.

If you have specified the limit in both VPN instance IPv6 address family view and VPN instance view, IPv6 VPN uses the limit specified in VPN instance IPv6 address family view.

### Examples

# Specify that VPN instance **vpn1** supports a maximum of 1000 active routes. When active routes exceed this limit, the device can receive new active routes but generates a log message.

```
<Sysname> system-view
```

```
[Sysname] ip vpn-instance vpn1
```

```
[Sysname-vpn-instance-vpn1] route-distinguisher 100:1
```

```
[Sysname-vpn-instance-vpn1] routing-table limit 1000 simply-alert
```

## vpn-id

Use **vpn-id** to configure a VPN ID for a VPN instance.

Use **undo vpn-id** to restore the default.

### Syntax

```
vpn-id vpn-id
```

```
undo vpn-id
```

### Default

No VPN ID is configured for a VPN instance.

### Views

VPN instance view

### Predefined user roles

network-admin

### Parameters

*vpn-id*: Specifies a VPN ID for the VPN instance, in the form of OUI:Index. The OUI is a hexadecimal number in the range of 0 to FFFFFFFF, and the index is a hexadecimal number in the range of 0 to FFFFFFFF.

### Usage guidelines

A VPN ID uniquely identifies a VPN instance. Different VPN instances must have different VPN IDs.

A VPN ID cannot be 0:0.

### Examples

```
# Configure VPN ID 20:1 for VPN instance vpn1.
```

```
<Sysname> system-view
```

```
[Sysname] ip vpn-instance vpn1
```

```
[Sysname-vpn-instance-vpn1] vpn-id 20:1
```

### Related commands

```
display ip vpn-instance
```

## vpn-instance-capability simple (OSPF view)

Use **vpn-instance-capability simple** to disable routing loop detection for a VPN OSPF process.

Use **undo vpn-instance-capability** to enable routing loop detection for a VPN OSPF process.

### Syntax

```
vpn-instance-capability simple
```

```
undo vpn-instance-capability
```

### Default

Routing loop detection is enabled for a VPN OSPF process.

## Views

OSPF view

## Predefined user roles

network-admin

## Usage guidelines

For the MCE to receive OSPF routes from the PE, you must disable routing loop detection for a VPN OSPF process on the MCE.

This command is applicable only to VPN OSPF processes.

## Examples

```
# Disable routing loop detection for VPN OSPF process 100.
```

```
<Sysname> system-view
```

```
[Sysname] ospf 100 vpn-instance vpna
```

```
[Sysname-ospf-100] vpn-instance-capability simple
```

## vpn-target

Use **vpn-target** to configure route targets for a VPN instance.

Use **undo vpn-target** to remove the specified or all route targets of a VPN instance.

## Syntax

```
vpn-target vpn-target&<1-8> [ both | export-extcommunity | import-extcommunity ]
```

```
undo vpn-target { all | vpn-target&<1-8> [ both | export-extcommunity | import-extcommunity ] }
```

## Default

No route targets are configured for a VPN instance.

## Views

VPN instance view

VPN instance IPv4 address family view

VPN instance IPv6 address family view

## Predefined user roles

network-admin

## Parameters

*vpn-target*&<1-8>: Specifies a space-separated list of up to eight route targets.

A route target is a string of 3 to 21 characters in one of the following formats:

- *16-bit AS number:32-bit user-defined number*. For example, 101:3.
- *32-bit IP address:16-bit user-defined number*. For example, 192.168.122.15:1.
- *32-bit AS number:16-bit user-defined number*, where the AS number must not be less than 65536. For example, 65536:1.

**both**: Uses the specified route targets as both import targets and export targets. The **both** keyword is also used when you do not specify any of the following keywords: **both**, **export-extcommunity**, and **import-extcommunity**.

**export-extcommunity**: Uses the specified route targets as export targets.

**import-extcommunity:** Uses the specified route targets as import targets.

**all:** Removes all route targets.

## Usage guidelines

MPLS L3VPN uses route targets to control the advertisement of VPN routing information. A PE adds the configured export targets into the route target attribute of routes advertised to a peer. The peer uses the local import targets to match the route targets of received routes. If a match is found, the peer adds the routes to the routing table of the VPN instance.

If you repeat this command, all the configured route targets take effect.

Route targets configured in VPN instance view apply to both the IPv4 VPN and the IPv6 VPN. Route targets configured in VPN instance IPv4 address family view apply only to the IPv4 VPN. Route targets configured in VPN instance IPv6 address family view apply only to the IPv6 VPN.

IPv4 VPN prefers the route targets configured in VPN instance IPv4 address family view over those configured in VPN instance view.

IPv6 VPN prefers the route targets configured in VPN instance IPv6 address family view over those configured in VPN instance view.

## Examples

# Configure route targets for VPN instance **vpn1**.

```
<Sysname> system-view
[Sysname] ip vpn-instance vpn1
[Sysname-vpn-instance-vpn1] vpn-target 3:3 export-extcommunity
[Sysname-vpn-instance-vpn1] vpn-target 4:4 import-extcommunity
[Sysname-vpn-instance-vpn1] vpn-target 5:5 both
```

# IPv6 MCE commands

This chapter describes only IPv6 MCE-specific commands. For information about the commands available for both IPv4 MCE and IPv6 MCE, see "[MCE commands](#)."

## address-family ipv6 (VPN instance view)

Use **address-family ipv6** to enter VPN instance IPv6 address family view.

Use **undo address-family ipv6** to remove all configurations from VPN instance IPv6 address family view.

### Syntax

```
address-family ipv6
undo address-family ipv6
```

### Views

VPN instance view

### Predefined user roles

network-admin

### Usage guidelines

In VPN instance IPv6 address family view, you can configure IPv6 VPN parameters such as inbound and outbound routing policies.

### Examples

```
# Enter VPN instance IPv6 address family view.
<Sysname> system-view
[Sysname] ip vpn-instance vpn1
[Sysname-vpn-instance-vpn1] address-family ipv6
[Sysname-vpn-ipv6-vpn1]
```

### Related commands

**address-family ipv4** (VPN instance view)

## vpn-instance-capability simple (OSPFv3 view)

Use **vpn-instance-capability simple** to disable routing loop detection for a VPN OSPFv3 process.

Use **undo vpn-instance-capability** to enable routing loop detection for a VPN OSPFv3 process.

### Syntax

```
vpn-instance-capability simple
undo vpn-instance-capability
```

### Default

Routing loop detection is enabled for a VPN OSPFv3 process.

### Views

OSPFv3 view

## Predefined user roles

network-admin

## Usage guidelines

For the MCE to receive OSPFv3 routes from the PE, you must disable routing loop detection for a VPN OSPFv3 process on the MCE.

This command is applicable only to VPN OSPFv3 processes.

## Examples

# Disable routing loop detection for VPN OSPFv3 process 100.

```
<Sysname> system-view
```

```
[Sysname] ospfv3 100 vpn-instance vpn1
```

```
[Sysname-ospfv3-100] vpn-instance-capability simple
```