Supporting Redundant Routing Protocols

This section describes how to configure a vEthernet interface and port profile to support redundant routing protocols, and includes the following topics:

- Information About Redundant Routing Protocols, page 6-1
- Guidelines and Limitations, page 6-1
- Supporting Redundant Routing Protocols, page 6-1
- Feature History for Supporting Redundant Routing Protocol, page 6-7

Information About Redundant Routing Protocols

Cisco Nexus 1000V implements a loop detection mechanism based on source and destination MAC address and will drop packets coming in on uplink ports if the source MAC is already present on a local vEthernet interface. As a result, the protocols such as Virtual Router Redundancy Protocol (VRRP), Common Address Redundancy Protocol (CARP), Hot Standby Router Protocol (HSRP), and other similar protocols would fail on virtual machines associated to Cisco Nexus 1000V.

Disabling loop detection provides a flexible way of supporting these protocols on virtual machines associated to Cisco Nexus 1000V. By disabling the loop detection mechanism, you can configure any combination of the above mentioned protocols on a port profile or a vEthernet interface. As a result you can run multiple protocols on the same virtual machine.

Guidelines and Limitations

Supporting the redundant routing protocols feature has the following guidelines and limitations:

- Disable IGMP Snooping on both Cisco Nexus 1000V and upstream switches between the servers to support most redundant routing protocols. See Enabling or Disabling IGMP Snooping Globally for the VSM, page 5-4.
- Disable loop detection configuration is not supported on PVLAN ports.
- Disable loop detection configuration is not supported on the port security ports.

Supporting Redundant Routing Protocols

This section includes the following topics:
Configuring a vEthernet Interface to Support Redundant Routing Protocols

You can use this procedure to configure a vEthernet interface to support redundant routing protocols.

BEFORE YOU BEGIN

Before beginning this procedure, you must know or do the following:

- You are logged into the CLI in EXEC mode.

SUMMARY STEPS

1. configure t
2. interface vethernet interface-number
3. disable-loop-detection {carp | hsrp | vrrp | custom-rp [src-mac-range s_mac end_mac] [dest-ip ip_address] [ip,proto] [port(port)]}
4. show running-config interface vethernet interface-number
5. copy running-config startup-config

DETAILED STEPS

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>configure t</td>
<td></td>
<td>Enters the global configuration mode.</td>
</tr>
<tr>
<td>Example:</td>
<td>n1000v# config t</td>
<td></td>
</tr>
<tr>
<td>n1000v(config)#</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>interface vethernet interface-number</td>
<td>Enters the interface configuration mode for the specified vEthernet interface (from 1 to 1048575).</td>
</tr>
<tr>
<td>Example:</td>
<td>n1000v(config)# interface vethernet 100</td>
<td></td>
</tr>
<tr>
<td>n1000v(config-if)#</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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## Supporting Redundant Routing Protocols

### EXAMPLES

The following example shows how to configure a vEthernet interface to support VRRP, CERP, HSRP, and user defined protocols on a virtual machine:

```plaintext
n1000v(config)# int veth5
n1000v(config-if)# disable-loop-detection carp
n1000v(config-if)# disable-loop-detection vrrp
n1000v(config-if)# disable-loop-detection hsrp
n1000v(config-if)# disable-loop-detection custom-rp dest-ip 224.0.0.12 port 2234
n1000v(config-if)# end
n1000v# show running-config interface vethernet 5
```

### Command

<table>
<thead>
<tr>
<th>Step 3</th>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>disable-loop-detection</strong></td>
<td>Carp, HSRP, VRRP</td>
<td>Enables or disables the loop detection mechanism to support a redundant routing protocol on vEthernet interface.</td>
</tr>
</tbody>
</table>

- **disable-loop-detection** - Disables the loop detection mechanism.
- **no disable-loop-detection** - Enables the loop detection mechanism. This is the default configuration.

The protocols supported on a vEthernet interface include:

- **carp** - Common Address Redundancy Protocol
- **custom-rp** - User defined protocol
- **hsrp** - Hot Standby Router Protocol
- **vrrp** - Virtual Router Redundancy Protocol

The parameters for custom defined protocols include:

- **src-mac-range** - Source MAC address range for the user defined protocol.
- **dest-ip** - Destination IP address for the user defined protocol.
- **ip-proto** - IP protocol number for the user defined protocol.
- **port** - UDP or TCP destination port number for the user defined protocol.

### Step 4

**show running-config interface vethernet** interface-number

(Optional) Displays the interface status and information.

**Example:**

```
n1000v# show running-config interface vethernet 100
```

### Step 5

**copy running-config startup-config**

(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

**Example:**

```
n1000v(config)# copy running-config startup-config
```

### Command Purpose

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The parameters for custom defined protocols include:

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- **ip-proto** - IP protocol number for the user defined protocol.
- **port** - UDP or TCP destination port number for the user defined protocol.

### Examples

The following example shows how to configure a vEthernet interface to support VRRP, CERP, HSRP, and user defined protocols on a virtual machine:

```
n1000v(config)# int veth5
n1000v(config-if)# disable-loop-detection carp
n1000v(config-if)# disable-loop-detection vrrp
n1000v(config-if)# disable-loop-detection hsrp
n1000v(config-if)# disable-loop-detection custom-rp dest-ip 224.0.0.12 port 2234
n1000v(config-if)# end
n1000v# show running-config interface vethernet 5
```
Configuring a Port Profile to Support Redundant Routing Protocols

You can use this procedure to configure a port profile to support redundant routing protocols. Use this procedure when the master in a master/slave relationship has lost connectivity, the slave has taken over the master role, and the original master is attempting to overtake the master role.

**Note**

If you configure a vEthernet Interface and a port profile to run multiple protocols on the same virtual machine, then the configuration on the vEthernet Interface overrides the configuration on the port profile.

**BEFORE YOU BEGIN**

Before beginning the procedure, you must know or do the following:

- You are logged in to the CLI in EXEC mode.
- You know which redundant routing protocol you want to disable.

**SUMMARY STEPS**

1. configure terminal
2. port-profile name
3. switchport mode {access | trunk}
4. no shutdown
5. disable-loop-detection {carp | hsrp | vrrp | custom-rp [src-mac-range s_mac end_mac] [dest-ip ip_address] [ip-proto no] [port port]}
6. show port-profile [brief | expand-interface | usage] [name profile-name]
7. copy running-config startup-config
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### DETAILED STEPS

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><code>config t</code></td>
</tr>
</tbody>
</table>
| **Example:** | n1000v# config t  
n1000v(config)# | |

| **Step 2** | `port-profile name` | Enters port profile configuration mode for the named port profile. |
| **Example:** | n1000v(config)# port-profile TrunkProf  
n1000v(config-port-prof)# | |

| **Step 3** | `switchport mode {access | trunk}` | Designates that the interface is to be used as a trunking port. |
| **Example:** | n1000v(config-port-prof)# switchport mode trunk  
n1000v(config-port-prof)# | A trunk port transmits untagged packets for the native VLAN and transmits encapsulated, tagged packets for all other VLANs. |

| **Step 4** | `no shutdown` | Administratively enables all ports in the profile. |
| **Example:** | n1000v(config-port-prof)# no shutdown  
n1000v(config-port-prof)# | |

| **Step 5** | `disable-loop-detection {carp | hsrp | vrrp | custom-rp [src-mac-range s_mac end_mac] [dest-ip ip_address] [ip-proto no] [port port]}` | Enables or disables the loop detection mechanism to support a redundant routing protocol on port profile. |
| **Example:** | n1000v(config-port-prof)# disable-loop-detection carp | |

The protocols supported on a port profile include:
- **carp** - Common Address Redundancy Protocol
- **custom-rp** - User defined protocol
- **hsrp** - Hot Standby Router Protocol
- **vrrp** - Virtual Router Redundancy Protocol

The parameters for user defined protocols include:
- **src-mac-range** - Source MAC address range for the user defined protocol.
- **dest-ip** - Destination IP address for the user defined protocol.
- **ip-proto** - IP protocol number for the user defined protocol.
- **port** - UDP or TCP destination port number for the user defined protocol.
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**EXAMPLES**

This example shows how to disable loop detection for the Hot Standby Router Protocol.

**Example:**
```
n1000v# config t
n1000v(config)# port-profile hsrp-1
n1000v(config-port-prof)# switchport mode trunk
n1000v(config-port-prof)# no shutdown
n1000v(config-port-prof)# disable-loop-detection hsrp
n1000v(config-port-prof)# state enabled
n1000v(config-port-prof)# vmware port-group
n1000v(config-port-prof)# show port-profile name hsrp-1
```

This example shows how to disable loop detection for the Virtual Router Redundancy Protocol.

**Example:**
```
n1000v# config t
n1000v(config)# port-profile vrrp-1
n1000v(config-port-prof)# switchport mode trunk
n1000v(config-port-prof)# no shutdown
n1000v(config-port-prof)# disable-loop-detection vrrp
n1000v(config-port-prof)# state enabled
```

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<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 6</strong></td>
<td>show port-profile [brief</td>
</tr>
<tr>
<td>Example:</td>
<td>n1000v(config-port-prof)# show port-profile name TrunkProf</td>
</tr>
</tbody>
</table>

| Step 7 | copy running-config startup-config |
| Example: | n1000v(config-port-prof)# copy running-config startup-config |

(Optional) Displays the configuration for verification.

(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

Step 6

**Step 6**

```
show port-profile [brief | expand-interface | usage] [name profile-name]
```

(Optional) Displays the configuration for verification.

Example:
```
n1000v(config-port-prof)# show port-profile name TrunkProf
```

**Step 7**

```
copy running-config startup-config
```

(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

Example:
```
n1000v(config-port-prof)# copy running-config startup-config
```

(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.
Feature History for Supporting Redundant Routing Protocol

This section provides the release history for the Redundant Routing Protocol support.

Table 6-1

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting Redundant Routing Protocol</td>
<td>4.2(1)SV1(5.1)</td>
<td>This feature was introduced.</td>
</tr>
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Feature History for Supporting Redundant Routing Protocol

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