Supporting Redundant Routing Protocols

This chapter contains the following sections:

- Information About Redundant Routing Protocols, page 1
- Guidelines and Limitations, page 1
- Supporting Redundant Routing Protocols, page 2
- Feature History for Supporting Redundant Routing Protocol, page 6

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.
- 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

Configuring a vEthernet Interface to Support Redundant Routing Protocols

Use this procedure to configure a vEthernet interface to support redundant routing protocols.

Before You Begin

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

Procedure

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 switch# configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td>Step 2 switch(config)# interface vethernet interface-number</td>
<td>Enters the interface configuration mode for the specified vEthernet interface (from 1 to 1048575).</td>
</tr>
<tr>
<td>Step 3 switch(config-if)# disable-loop-detection { carp</td>
<td>hsrp</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.
• **ipproto** - IP protocol number for the user defined protocol.
• **port** - UDP or TCP destination port number for the user defined protocol.
### Configuring a Port Profile to Support Redundant Routing Protocols

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

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

---

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 4</strong></td>
<td>switch(config-if)# show running-config interface vethernet interface-number</td>
</tr>
<tr>
<td><strong>Step 5</strong></td>
<td>switch(config-if)# copy running-config startup-config</td>
</tr>
</tbody>
</table>

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

```
switch# configure terminal
switch(config)# int veth5
switch(config-if)# disable-loop-detection carp
switch(config-if)# disable-loop-detection vrrp
switch(config-if)# disable-loop-detection hsrp
switch(config-if)# disable-loop-detection custom-rp dest-ip 224.0.0.12 port 2234
switch(config-if)# end
switch# show running-config interface vethernet 5
!Command: show running-config interface Vethernet5
!Time: Fri Nov 4 02:21:24 2011
version 4.2(1)SV1(5.1)
interface Vethernet5
inherit port-profile vm59
description Fedora117, Network Adapter 2
disable-loop-detection carp
disable-loop-detection vrrp
disable-loop-detection hsrp
disable-loop-detection custom-rp dest-ip 224.0.0.12 port 2234
vmware dvport 32 dvswitch uuid "ea 5c 3b 50 cd 00 9f 55-41 a3 2d 61 84 9e 0e c4"
vmware vm mac 0050.56b3.00b2
switch#
```
## Configuring a Port Profile to Support Redundant Routing Protocols

### Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td><code>switch# configure terminal</code></td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td>Step 2</td>
<td><code>switch(config)# port-profile name</code></td>
<td>Enters port profile configuration mode for the named port profile.</td>
</tr>
<tr>
<td>Step 3</td>
<td>`switch(config-port-prof)# switchport mode {access</td>
<td>trunk}`</td>
</tr>
<tr>
<td>Step 4</td>
<td><code>switch(config-port-prof)# no shutdown</code></td>
<td>Administratively enables all ports in the profile.</td>
</tr>
<tr>
<td>Step 5</td>
<td>`switch(config-port-prof)# disable-loop-detection { carp</td>
<td>hsrp</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>disable-loop-detection</strong>: Disables the loop detection mechanism.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>no disable-loop-detection</strong>: Enables the loop detection mechanism. This is the default configuration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The protocols supported on a vEthernet interface include:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>carp</strong> - Common Address Redundancy Protocol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>custom-rp</strong> - User defined protocol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>hsrp</strong> - Hot Standby Router Protocol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>vrrp</strong> - Virtual Router Redundancy Protocol</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The parameters for custom defined protocols include:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>src-mac-range</strong> - Source MAC address range for the user defined protocol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>dest-ip</strong> - Destination IP address for the user defined protocol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>ip-proto</strong> - IP protocol number for the user defined protocol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>port</strong> - UDP or TCP destination port number for the user defined protocol.</td>
</tr>
<tr>
<td>Step 6</td>
<td>`switch(config-port-prof)# show port-profile [ brief</td>
<td>expand-interface</td>
</tr>
</tbody>
</table>
### Configuring a Port Profile to Support Redundant Routing Protocols

<table>
<thead>
<tr>
<th>Step 7</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>switch(config-port-prof)# copy running-config startup-config</td>
<td>(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.</td>
</tr>
</tbody>
</table>

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

```
switch# configure terminal
switch(config)# port-profile hsrp-1
switch(config-port-prof)# switchport mode trunk
switch(config-port-prof)# no shutdown
switch(config-port-prof)# disable-loop-detection hsrp
switch(config-port-prof)# state enabled
switch(config-port-prof)# vmware port-group
switch(config-port-prof)# show port-profile name hsrp-1
```

```
port-profile hsrp-1
  type: Vethernet
  description:
  status: enabled
  max-ports: 32
  min-ports: 1
  inherit:
    config attributes:
      switchport mode trunk
      disable-loop-detection hsrp
      no shutdown
  evaluated config attributes:
    switchport mode trunk
    disable-loop-detection hsrp
    no shutdown
  assigned interfaces:
    port-group: hsrp-1
  system vlans: none
  capability l3control: no
  capability iscsi-multipath: no
  capability vxlan: no
  capability l3-vservice: no
  port-profile role: none
  port-binding: static
```

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

```
n1000v# configure terminal
switch(config)# port-profile vrrp-1
switch(config-port-prof)# switchport mode trunk
switch(config-port-prof)# no shutdown
switch(config-port-prof)# disable-loop-detection vrrp
switch(config-port-prof)# state enabled
switch(config-port-prof)# vmware port-group
switch(config-port-prof)# show port-profile name vrrp-1
```

```
port-profile vrrp-1
  type: Vethernet
  description:
  status: enabled
  max-ports: 32
  min-ports: 1
  inherit:
    config attributes:
      switchport mode trunk
      disable-loop-detection vrrp
      no shutdown
  evaluated config attributes:
    switchport mode trunk
    disable-loop-detection vrrp
```
no shutdown
assigned interfaces:
port-group: vrrp-1
system vlans: none
capability l3control: no
capability iscsi-multipath: no
capability vxlan: no
capability l3-vservice: no
port-profile role: none
port-binding: static

# Feature History for Supporting Redundant Routing Protocol

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

Cisco Nexus 1000V Layer 2 Switching Configuration Guide, Release 4.2(1)SV2(1.1)