Configuring Virtual Ethernet Interfaces

This chapter contains the following sections:

Information About vEthernet Interfaces

Virtual Ethernet (vEthernet or vEth) interfaces are logical interfaces. Each vEthernet interface corresponds to a switch interface that is connected to a virtual port. The interface types are as follows:

- VM (interfaces connected to VM NICs)
- Virtual Network Adapter

vEthernet interfaces are created on the Cisco Nexus 1000V to represent virtual ports in use on the distributed virtual switch.

vEthernet interfaces are mapped to connected ports by MAC address as well as DVPort number. When a server administrator changes the port profile assignment on a vNIC or hypervisor port, the same vEthernet interface is reused.

When bringing up a vEthernet interface where a change in the port profile assignment is detected, the Virtual Supervisor Module (VSM) automatically purges any manual configuration present on the interface. You can use the following command to prevent purging of the manual configuration:

no svs veth auto-config-purge

Guidelines and Limitations

vEthernet interface configuration has the following configuration guideline and limitation:

MTU cannot be configured on a vEthernet interface.

Default Settings

Table 1: Default Settings for vEthernet Interface

Parameters	Default
Switchport mode	Access
Allowed VLANs	1 to 4094
Access VLAN ID	VLAN1
Native VLAN ID	VLAN1
Native VLAN ID tagging	Disabled
Administrative state	Shut
Automatic deletion of vEthernet interfaces	Enabled
Automatic purge of manual configuration on vEthernet interfaces	Enabled
Automatic creation of vEthernet interfaces	Enabled

Configuring vEthernet Properties

Configuring Global vEthernet Properties

You can use this procedure to enable or disable the following automatic controls for vEthernet interfaces:

- Deleting unused vEthernet interfaces
- Purging of manual vEthernet configurations
- Creating vEthernet interfaces

Before You Begin

You are logged in to the CLI in EXEC mode.

Procedure

	Command or Action	**Purpose**
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# [**no**] **svs veth auto-delete**	(Optional) Enables the VSM to automatically delete DVPorts no longer used by a vNIC or hypervisor port. The default setting is enabled The no form of this command prevents the VSM from deleting unused DVPorts.
Step 3	switch(config)# [**no**] **svs veth auto-config-purge**	(Optional) Enables the VSM to remove all manual configuration on a vEthernet interface when the system administrator changes a port profile on the interface. The default setting is enabled The no form of this command prevents the manual configuration from being deleted in this situation. **Note** Port profiles with ephemeral bindings are purged regardless of this setting.
Step 4	switch(config)# [**no**] **svs veth auto-setup**	(Optional) Enables the VSM to automatically create a vEthernet interface when a new port is activated on a host. The no form of this command disables the automatic creation of vEthernet interfaces in this situation. **Note** You can use no form of the command to temporary block automatic creation of vEthernet interfaces.
Step 5	switch(config)# **show running-config all | grep "svs-veth"**	(Optional) Displays the default global vEthernet settings that are in effect on the VSM for verification. If a setting is disabled, it does not display in the show command output.
Step 6	switch(config)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

```
switch# configure terminal
switch(config)# svs veth auto-delete
switch(config)# svs veth auto-config-purge
switch(config)# svs veth auto-setup
switch(config)# show running-config all | grep "svs veth"
svs veth auto-setup
svs veth auto-delete
svs veth auto-config-purge
switch(config-if)#
```

Configuring a vEthernet Access Interface

You can use this procedure to configure a vEthernet interface for use as an access interface.

Before You Begin

- You are logged in to the CLI in EXEC mode.

- If you do not add a description to the vEthernet interface, then the following descriptions is added at attach time. If you add a description and then remove it using the **no description** command, then the following descriptions is added to the interface:

  For a VM—*VM-Name, Network Adapter number*

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface vethernet** *interface-number*	(Optional) Enters the interface configuration mode for the specified vEthernet interface (from 1 to 1048575).
Step 3	switch(config-if)# **description** *string*	(Optional) Adds a description of up to 80 alphanumeric characters to the interface in the running configuration. **Note** If you do not add a description, the default description is added. **Note** You do not need to use quotations around descriptions that include spaces.
Step 4	switch(config-if)# **switchport access vlan** *vlanid*	Configures the vEthernet interface as an access interface and specifies the VLAN ID (1 to 4094) in the running configuration.
Step 5	switch(config-if)# **switchport mode access**	Configures the vEthernet interface for use as an access interface in the running configuration.
Step 6	switch(config-if)# **show interface vethernet** *interface-number*	(Optional) Displays the specified interface for verification.
Step 7	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

```
switch# configure terminal
switch(config)# interface vethernet 100
switch(config-if)# description accessvlan
switch(config-if)# switchport access vlan 5
switch(config-if)# switchport mode access
```

```
switch(config-if)# show interface vethernet1
switch(config-if)#
```

Configuring a Private VLAN on a vEthernet Interface

You can use this procedure to configure a private VLAN (PVLAN) on a vEthernet interface.

Before You Begin

You are logged in to the CLI in EXEC mode.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface vethernet** *interface-number*	Enters the interface configuration mode for the specified vEthernet interface (from 1 to 1048575).
Step 3	switch(config-if)# **description** *string*	(Optional) Adds a description of up to 80 alphanumeric characters to the interface in the running configuration. **Note** If you do not add a description, the default description is added. **Note** You do not need to use quotations around descriptions that include spaces.
Step 4	switch(config-if)# **switchport mode private-vlan host**	Configures the vEthernet interface for a PVLAN host in the running configuration.
Step 5	switch(config-if)# **switchport private-vlan host-association** *primary-vlanid*	Configures the vEthernet interface for a host association with a specific primary VLAN ID (from 1 to 4094) in the running configuration.
Step 6	switch(config-if)# **show interface**	(Optional) Displays the interface status and information.
Step 7	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

Enabling or Disabling a vEthernet Interface

You can use this procedure to enable or disable a vEthernet interface.

Before You Begin

You are logged in to the CLI in EXEC mode.

Procedure

	Command or Action	**Purpose**
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface vethernet** *interface-number*	Enters the interface configuration mode for the specified vEthernet interface (from 1 to 1048575).
Step 3	switch(config-if)# [**no**] **shutdown**	Enables or disables the vEthernet interface in the running configuration: • **shutdown**: Disables the vEthernet interface. • **no shutdown**: Enables the vEthernet interface.
Step 4	switch(config-if)# **show interface**	(Optional) Displays the interface status and information.
Step 5	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

The following example shows how to enable a vEthernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 100
switch(config-if)# no shutdown
switch(config-if)# how interface veth100 status
--------------------------------------------------------------------------------
Port            Name            Status   Vlan     Duplex  Speed    Type
--------------------------------------------------------------------------------
Veth100         --                       up       1       auto     auto    --
switch(config-if)#
```

Verifying the vEthernet Interface Configuration

Use one of the following commands to verify the configuration:

Command	**Purpose**
show interface vethernet *interface-number* [**brief** | **counters** [**detailed** [**all**] | **errors**] | **description** | **mac-address** | **status** [**down** | **err-disabled** | **inactive** | **module** *num* | **up**] | **switchport**]	Displays the vEthernet interface configuration.
show interface [**vethernet** *interface-number*]	Displays the complete interface configuration.
show interface [**vethernet** *interface-number*] **brief**	Displays abbreviated interface configuration.

Command	Purpose
show interface [**vethernet** *interface-number*] **description**	Displays the interface description.
show interface [**vethernet** *interface-number*] **mac-address**	Displays the interface MAC address. **Note** For vEth interfaces this shows the MAC address of the connected device.
show interface [**vethernet** *interface-number*] **status** [**down** | **err-disabled** | **inactive** | **module** *num* | **up**]	Displays interface line status.
show interface [**vethernet** *interface-number*] **switchport**	Displays interface switchport information.
show interface virtual [**vm** [*vm_name*] | **vmk** | **vswif**] [**module** *mod_no*]	Displays virtual interfaces only.
show interface virtual port-mapping [**vm** [*name*] | **vmk** | **vswif** | **description**] [*module_num*]	Displays mappings between vEthernet and DVPort.

Example: show interface vethernet

The following example shows how to display vEthernet 1:

```
switch# show int vethernet192
Vethernet192 is up
Port description is Win2008-2-2
Hardware: Virtual, address: 0015.5de1.2500 (bia 0015.5de1.2500)
Owner is VM "Win2008-2-2"
Active on module 4
DVS port 3aea7bd7-916c-4334-9a22-1cf6252e6fe3--773e26ff-d8b9-48fe-a506-11ee1e7
f8c9e
Port-Profile is dynpp_2993d316-3205-479a-a645-11bda506e514_7b376ba9-c9bb-47e5-
b6e2-9519a46ddcb8
Port mode is Private-vlan host
5 minute input rate 120 bits/second, 0 packets/second
5 minute output rate 208 bits/second, 0 packets/second
Rx
21393 Input Packets 3202 Unicast Packets
17261 Multicast Packets 930 Broadcast Packets
1251379 Bytes
Tx
30387 Output Packets 3981 Unicast Packets
22906 Multicast Packets 3500 Broadcast Packets 26553 Flood Packets
2338267 Bytes
0 Input Packet Drops 0 Output Packet Drops
switch#
```

Example: show interface virtual

The following example shows how to display information for all vEthernet interfaces:

```
switch# show interface virtual
-------------------------------------------------------------------------------
Port Owner Mod Host
-------------------------------------------------------------------------------
Veth192 Win2008-2-2 4 WIN-37
Veth194 Win2008-3-2 4 WIN-37
```

```
Veth195 Win2008-1-2 4 WIN-37
switch#
```

Example: show interface virtual description

The following example shows how to display the descriptions for all vEthernet interfaces:

```
switch# show interface virtual description
--------------------------------------------------------------------------------
Interface   Description
--------------------------------------------------------------------------------
Veth1       gentoo1, Network Adapter 1
Veth2       gentoo1, Network Adapter 2
switch#
```

Example: show interface virtual port-mapping

The following example shows how to display the virtual port mapping for all vEthernet interfaces:

```
switch# show interface virtual port-mapping
--------------------------------------------------------------------------------
Port Binding-Type Status Reason
Hypervisor-Port
--------------------------------------------------------------------------------

Veth194 static up none
f2c2e88b-0a5e-496d-91ee-37159f5dadaf--1ca16eb0-6645-4afb-aeba-3b01c4770182
Veth195 static up none
fb20a6ed-6638-4a38-852d-2b813df34044--a8ec865e-5b01-4e79-b9a2-5393e55ae96a
switch#
```

Example: show running-config interface veth1

The following example shows how to display the running configuration information for all vEthernet interfaces:

```
switch# show running-config interface veth192
!Command: show running-config interface Vethernet192
!Time: Mon Feb 4 20:44:20 2013

version 5.2(1)SM1(5.1)

interface Vethernet192
inherit port-profile
dynpp_2993d316-3205-479a-a645-11bda506e514_7b376ba9-c9bb-47e5-b6e2-9519a46ddcb8
description Win2008-2-2
dvport uuid "3aea7bd7-916c-4334-9a22-1cf6252e6fe3--773e26ff-d8b9-48fe-a506-11ee1e7f8c9e"


switch#
```

Monitoring the vEthernet Interface Configuration

Use one of the following commands to monitor the vEthernet interface configuration:

Command	Purpose
show interface [**vethernet** *interface-number*] **counters**	Displays the interface incoming and outgoing counters.
show interface [**vethernet** *interface-number*] **counters detailed** [**all**]	Displays detailed information for all counters. **Note** If 'all' is not specified then only non-zero counters are shown.

Command	Purpose
show interface [**vethernet** *interface-number*] **counters errors**	Displays the interface error counters.

The following example shows how to display the counters for all vEthernet interfaces:

```
switch# show interface counters

--------------------------------------------------------------------------------
Port            InOctets   InUcastPkts   InMcastPkts   InBcastPkts
--------------------------------------------------------------------------------
mgmt0             42754          --             0            --
Eth2/2         41423421      112708        125997        180167
Eth5/2         39686276      119152         93284        180100
Eth5/6          4216279        9530         31268            40
Veth1                 0           0             0             0
Veth2                 0           0             0             0
Veth3                 0           0             0             0
Veth4                 0           0             0             0
Veth5                 0           0             0             0
Veth6                 0           0             0             0
Veth7                 0           0             0             0
Veth100               0           0             0             0


--------------------------------------------------------------------------------
Port            OutOctets  OutUcastPkts  OutMcastPkts  OutBcastPkts
--------------------------------------------------------------------------------
mgmt0              3358          --            --            --
Eth2/2         23964739      116150           516         52768
Eth5/2         26419473      111598           571         52420
Eth5/6          1042930        9548           536            14
Veth1            393589           0          6150             0
Veth2            393600           0          6150             0
Veth3            393600           0          6150             0
Veth4                 0           0             0             0
Veth5                 0           0             0             0
Veth6                 0           0             0             0
Veth7                 0           0             0             0
Veth100               0           0             0             0

switchyup#
```

Configuration Examples for vEthernet Interfaces

The following example shows how to configure a vEthernet access interface and assign the access VLAN for that interface:

```
switch# configure terminal
switch(config)# interface vethernet 100
switch(config-if)# switchport
switch(config-if)# switchport mode access
switch(config-if)# switchport access vlan 5
switch(config-if)#
```

Feature History for vEthernet Interfaces

Feature Name	Releases	Feature Information
vEthernet interface parameters	5.2(1)SM1(5.1)	This feature was introduced