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# Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(2)

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**Americas Headquarters**
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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*Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(2)*

# CONTENTS

# New and Changed Information

This section describes the information in this document that is either new or has changed with Release 4.0(4)SV1(2).

To find additional information about new features or command changes in Release 4.0(4)SV1(2), see the following:

- Release Notes.
- Command Reference.

| Feature | Description | Changed in release | Where Documented |
|---|---|---|---|
| Uplink port profile | Port profiles are not classified as uplink, but are, instead, configured as Ethernet or vEthernet. | 4.0(4)SV1(2) | Removed from this document. |
| Configuration limits | Added configuration limits for vEthernet interfaces, vEthernet trunks, port profiles, system profiles, and PVLANs. | 4.0(4)SV1(2) | Appendix A, "Port Profile Configuration Limits" |
| vPC-Host Mode | Support for the following:<br>• Manual creation of subgroups.<br>• Connecting to upstream switches that do not support port channels using MAC Pinning. | 4.0(4)SV1(2) | Chapter 5, "Configuring Port Channels in Port Profiles" |
| MAC Pinning | Connecting to upstream switches that do not support port channels using the MAC-pinning command. | 4.0(4)SV1(2) | Chapter 5, "Configuring Port Channels in Port Profiles" |
| Static Pinning | Support for pinning or directing traffic for a vEthernet interface, control VLAN, or packet VLAN to a specific port channel subgroup. | 4.0(4)SV1(2) | Chapter 5, "Configuring Port Channels in Port Profiles" |
| Port Profile Type | Creation of port-profiles includes the optional type field, which specifies the port profile as either Ethernet or vEthernet. By default, a port profiles is created as a vEthernet type. | 4.0(4)SV1(2) | Chapter 2, "Creating Port Profiles" |

| Feature | Description | Changed in release | Where Documented |
|---|---|---|---|
| [**no**] **capability uplink** command | The **capability uplink** command has been superseded by the **port-profile** [**type** {**ethernet** \| **vethernet**}] *name* command. To configure a port profile with uplink capability, configure the port profile as an Ethernet type.<br>The **no capability uplink** command has been removed. | 4.0(4)SV1(2) | Chapter 2, "Creating Port Profiles" |
| **show running-config** command | This command now shows the port profile type (Ethernet or vEthernet). Also, you can optionally specify to show only the port profile configurations. | 4.0(4)SV1(2) | Chapter 7, "Verifying the Port Profile Configuration" |
| **show port-profile name** command | This command shows the port profile type and does not show the capability uplink. This command also shows the pinning and channel-group configuration. | 4.0(4)SV1(2) | Chapter 7, "Verifying the Port Profile Configuration" |

# Preface

This preface describes the audience, organization, and conventions of the *Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(2)*. It also lists available Cisco Nexus 1000V documentation and how to obtain it.

This chapter includes the following sections:

## Audience

This guide is for network administrators with the following experience and knowledge:

- An understanding of virtualization
- Using VMware tools to configure a vswitch

**Note** Knowledge of VMware vNetwork Distributed Switch is not a prerequisite.

## Document Organization

This publication is organized as follows:

| Chapter and Title | Description |
|---|---|
| Chapter 1, "Overview" | Describes port profiles and their use. |
| Chapter 2, "Creating Port Profiles" | Describes how to create, enable, and configure port profiles. |

| Chapter and Title | Description |
|---|---|
| Chapter 3, “Configuring Port Profile Inheritance” | Describes port profile inheritance, how to configure it, and how to remove inheritance from a port profile. |
| Chapter 4, “Configuring System Port Profiles” | Describes system port profiles and how to configure them. |
| Chapter 5, “Configuring Port Channels in Port Profiles” | Describes port channels in port profiles and how to configure them. |
| Chapter 6, “Configuring a Private VLAN in a Port Profile” | Describes how to configure a port profile to be used as a private VLAN (PVLAN). |
| Chapter 7, “Verifying the Port Profile Configuration” | Lists and describes the commands used to verify port profile configurations |
| Appendix A, “Port Profile Configuration Limits” | Lists the maximum configuration limits for port profile features. |

# Document Conventions

Command descriptions use these conventions:

| **boldface font** | Commands and keywords are in boldface. |
|---|---|
| *italic font* | Arguments for which you supply values are in italics. |
| { } | Elements in braces are required choices. |
| [ ] | Elements in square brackets are optional. |
| x \| y \| z | Alternative, mutually exclusive elements are separated by vertical bars. |
| string | A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks. |

Screen examples use these conventions:

| `screen font` | Terminal sessions and information the device displays are in screen font. |
|---|---|
| **`boldface screen font`** | Information you must enter is in boldface screen font. |
| *`italic screen font`* | Arguments for which you supply values are in italic screen font. |
| < > | Nonprinting characters, such as passwords, are in angle brackets. |
| [ ] | Default responses to system prompts are in square brackets. |
| !, # | An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line. |

This document uses the following conventions for notes and cautions:

**Note** Means reader *take note*. Notes contain helpful suggestions or references to material not covered in the manual.

**Caution** Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

# Recommended Reading

Before configuring the Cisco Nexus 1000V, we recommend that you read and become familiar with the following documentation:

- *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(2)*
- *Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(2)*
- *Cisco VN-Link: Virtualization-Aware Networking* white paper

# Related Documentation

Cisco Nexus 1000V includes the following documents available on Cisco.com:

## General Information

*Cisco Nexus 1000V Release Notes, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Compatibility Information, Release 4.0(4)SV1(2)*

## Install and Upgrade

*Cisco Nexus 1000V Software Installation Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Virtual Ethernet Module Software Installation Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Software Upgrade Guide, Release 4.0(4)SV1(2)*

## Configuration Guides

*Cisco Nexus 1000V License Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V  Layer 2 Switching Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Port Profile Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Quality of Service Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Security Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V System Management Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V High Availability and Redundancy Configuration Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V XML API User Guide, Release 4.0(4)SV1(2)*

## Programming Guide

*Cisco Nexus 1000V XML API User Guide, Release 4.0(4)SV1(2)*

### Reference Guides

*Cisco Nexus 1000V Command Reference, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V MIB Quick Reference*

### Troubleshooting and Alerts

*Cisco Nexus 1000V Troubleshooting Guide, Release 4.0(4)SV1(2)*

*Cisco Nexus 1000V Password Recovery Guide*

*Cisco NX-OS System Messages Reference*

# Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

CHAPTER 1

# Overview

This chapter provides an overview of port profiles, the primary mechanism by which network policy is defined and applied to switch interfaces.

This chapter includes the following sections:

## Port Profiles and Port Groups

A port profile is a collection of interface-level configuration commands that are combined to create a complete network policy.

A port group is a representation of a port profile on the vCenter server. Every port group on the vCenter server is associated with a port profile on the Cisco Nexus 1000V. Network administrators configure port profiles, and then server administrators can use the corresponding port groups on the vCenter server to assign ports to port profiles.

In the VMware vCenter Server, a port profile is represented as a port group. You assign the vEthernet or Ethernet interfaces to a port group in vCenter to do the following:

- Define port configuration by policy.
- Apply a single policy across a large number of ports.

Port profiles are created on the VSM and propagated to VMware vCenter Server as VMware port groups using the VMware VIM API. After propagation, a port profile appears within VMware vSphere Client and is available to apply to the vNICs on a virtual machine.

When a newly-provisioned virtual machine is powered on, a vEthernet interface is created on the Cisco Nexus 1000V for each of the virtual machine vNICs. The vEthernet inherits the definitions in the selected port profile.

# Live Policy Changes

Port profiles are not static entities but dynamic policies that can change as network needs change. Changes to active port profiles are applied to each switch port that is using the profile. This simplifies the process of applying new network policies or changing an existing policy.

# Uplink Profiles

Port profiles also manage the physical NICs within a VMware ESX host. When a port profile is defined, the network administrator determines whether the profile will be used to manage vEthernet interfaces or physical NICs. By default, the port profile is assumed to be used for vEthernet management.

To define a port profile for use on physical NICs, the network administrator must create the profile as an Ethernet type. When this option is used, the port profile will be available only to the server administrator to apply to physical NICs within an VMware ESX server.

Uplink port profiles are applied to a physical NIC when a VMware ESX host is first added to the Cisco Nexus 1000V. The server administrator is presented with a dialog box in which they can select the following:

- physical NICs to associate with the VEM
- uplink port profiles to associate with the physical NICs

In addition, the server administrator can apply uplink port profiles to interfaces that are added to the VEM after the host has been added to the switch.

# Port Profile Inheritance

You can apply the configuration from an existing port profile as the default configuration for another port profile. This is called inheritance. The configuration of the parent is copied to and stored in the child port profile. You can also override the inheritance by configuring the attributes explicitly in the child port profile.

You can also explicitly remove port profile inheritance, so that a port profile returns to the default settings, except where there has been a direct configuration.

For more information, see the "Configuring Port Profile Inheritance" section on page 3-1.

CHAPTER 2

# Creating Port Profiles

This chapter describes how to create, enable, or remove a port profile or add VMware attributes, access or trunk ports, ACLs, and NetFlow.

This chapter includes the following sections:

# Information About Port Profiles

Port profiles simplify interface configuration by defining policies that can be reused for multiple interfaces. For more information about port profiles, see Chapter 1, "Overview."

## Port Profile States

A port profile can be in one of two states: enabled or disabled. Port profiles are disabled by default. Table 2-1 describes port profile behavior in these two states.

To enable a port profile, see the "Enabling a Port Profile" procedure on page 2-17.

*Table 2-1 Port Profile States*

| State | Behavior |
|---|---|
| **Disabled**[1] | When disabled, a port profile behaves as follows:<br>• Its configuration is not applied to assigned ports.<br>• If exporting policies to a VMware port group, the port group is not created on the vCenter Server. |
| **Enabled** | When enabled, a port profile behaves as follows:<br>• Its configuration is applied to assigned ports.<br>• If inheriting policies from a VMware port group, the port group is created on the vCenter Server. |

[1] Disabled is the default.

# Guidelines and Limitations

Use the following guidelines and limitations when configuring port profiles:

- Once a port profile is created as either an Ethernet or vEthernet type, you cannot change the type.
- Do not configure virtual port channel host mode (vPC-HM) on the Cisco Nexus 1000V if the upstream switches have vPC enabled. If vPC-HM is configured on the Cisco Nexus 1000V and vPC is configured on the upstream switch(es), the connection can be interrupted or disabled. For more information about vPC-HM, see the "Configuring Port Channels in Port Profiles" section on page 5-1.
- The Cisco Nexus 1000V software must be initially configured. For information, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(2)*.
- The Cisco Nexus 1000V must be connected to the vCenter Server.

# Default Settings

Table 2-2 lists the default settings in the port profile configuration.

***Table 2-2 Port Profile Defaults***

| Parameter | Default |
|---|---|
| capability l3control | No |
| description | - |
| administrative state | all ports disabled |
| switchport mode (access or trunk) | access |
| system vlan *vlan list* | - |
| type | vEthernet |
| access port vlan | VLAN 1 |
| vmware max-ports | 32 |
| vmware port-group name | Port profile name |

# Configuring Port Profiles

This section includes the following topics:

- Creating a Port Profile, page 2-3
- Configuring VMware Attributes, page 2-4
- Configuring Port Mode, page 2-6
- Adding a MAC or IP ACL to a Profile, page 2-14
- Adding a NetFlow Flow Monitor to a Profile, page 2-16
- Enabling a Port Profile, page 2-17
- Removing a Port Profile, page 2-19

# Creating a Port Profile

You can use this procedure to create a new port profile.

## BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You know whether the ports need to be initialized with system settings.
- You have identified the characteristics needed for this port profile.

## SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. (Optional) **description** *profiledescription*
4. **show port-profil**e [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br><br>**Example:**<br>n1000v# config t<br>n1000v(config)# | Enters global configuration mode. |
| **Step 2** | **port-profile** [**type** {**ethernet** \| **vethernet**}] *name*<br><br>**Example:**<br>n1000v(config)# port-profile type ethernet AllAccess1<br>n1000v(config-port-prof)# | Enters port profile configuration mode for the named port profile. If the port profile does not already exist, it is created using the following characteristics:<br>• *name*—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.<br>• **type**—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type.<br>Defining a port profile type as Ethernet allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).<br>**Note** If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports. |

| | Command | Description |
|---|---|---|
| **Step 3** | **description** *profiledescription*<br>**Example:**<br>`n1000v(config-port-prof)# description all_access`<br>`n1000v(config-port-prof)#` | (Optional) Adds a description of up to 80 ASCII characters in length to the port profile. This description is automatically pushed to vCenter Server. |
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile name AllAccess1` | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br>**Example:**<br>`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. |

### EXAMPLES

This example shows how to create a new port profile:

```
n1000v(config)# port-profile type ethernet AllAccess1
n1000v(config-port-prof)# description all_access
n1000v(config-port-prof)# show port-profile name AllAccess1
port-profile AllAccess1
  description: all_access
  type: ethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: -
  inherit:
  config attributes:
  evaluated config attributes:
  assigned interfaces:
n1000v(config-port-prof)#
```

## Configuring VMware Attributes

You can use this procedure to designate a port profile as a VMware port profile.

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You know if you will configure the VMware port group with the same name as the port profile or if you will specify an alternate name for the VMware port group.
- The **vmware max-ports** command is available only for non-uplink profiles.

- You know if you want to restrict the maximum number of ports that can be assigned to the port profile. If so, you know what the maximum number is.

## SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **vmware port-group** [*pg_name*]
4. **vmware max-ports** *number*
5. **show port-profile** [**brief** | **expand-interface** | **usage**] [name *profile-name*]
6. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description/Result |
|---|---|---|
| **Step 1** | **`config t`**<br><br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **`port-profile`** `[`**`type`** `{`**`ethernet`** `\|` **`vethernet`**`}]` *`name`*<br><br>**Example:**<br>`n1000v(config)# port-profile AccessProf`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile. If the port profile does not already exist, it is created using the following characteristics:<br>• *name*—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.<br>• **type**—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type.<br>Defining a port profile type as Ethernet allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).<br>**Note** If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports. |
| **Step 3** | **`vmware port-group`** `[`*`pg_name`*`]`<br><br>**Example:**<br>`n1000v(config-port-prof)# vmware port-group`<br>`n1000v(config-port-prof)#` | Designates the port profile as a VMware port group.<br>The port profile is mapped to a VMware port group of the same name unless you specify a name here. When you connect the VSM to vCenter Server, the port group is distributed to the virtual switch on the vCenter Server. |
| **Step 4** | **`vmware max-ports`** *`num`*<br><br>**Example:**<br>`n1000v(config-port-prof)# vmware max-ports 5`<br>`n1000v(config-port-prof)#` | Designates the maximum number of ports that can be assigned to this non-uplink port profile. The default is 32 ports.<br>When the specified maximum number of ports is reached, no more ports can be assigned. |

| | Command | Description/Result |
|---|---|---|
| **Step 5** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [name *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile name AccessProf` | (Optional) Displays the configuration for verification. |
| **Step 6** | **copy running-config startup-config**<br>**Example:**<br>`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. |

## EXAMPLES

This example shows how to designate a port profile as a VMware port profile and set the maximum allowed ports to five:

```
Example:
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# vmware port-group
n1000v(config-port-prof)# vmware max-ports 5
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  description: allaccess4
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: 8
  pinning packet-vlan: 8
  system vlans: none
  port-group: AccessProf
  max ports: 5
  inherit:
  config attributes:
  evaluated config attributes:
  assigned interfaces:n1000v(config-port-prof)#
```

# Configuring Port Mode

You can use the following procedures to designate trunking or access ports and configure VLANs for an existing port profile.

- Configuring a Trunking Profile, page 2-7
- Configuring an Access Profile, page 2-10

## BEFORE YOU BEGIN

Before beginning the procedures in this section, you must know or do the following:

- You are logged in to the CLI in EXEC mode.
- You know whether you are configuring the port profile as an access port or trunk port.
  - An access port transmits packets on only one untagged VLAN. You can specify the VLAN, and it becomes the access VLAN. If you do not specify a VLAN for an access port, that interface carries traffic only on the default VLAN 1.

  - A trunk port transmits untagged packets for the native VLAN and transmits encapsulated, tagged packets for all other VLANs.
- You know the needed VLAN configuration for this port profile.
- A VLAN must already be created on the switch before you can assign it to a port profile.
- You know the VLAN ID for the VLAN that you are assigning.
- VLAN 1 is the default VLAN. You cannot create, modify, or delete this VLAN.
- In accordance with the IEEE 802.1Q standard, up to 4094 VLANs are supported. Table 2-3 describes the available VLAN ranges and their use.

*Table 2-3 VLAN Ranges*

| VLANs Numbers | Range | Usage |
|---|---|---|
| 1 | Normal | Cisco default. You can use this VLAN, but you cannot modify or delete it. |
| 2–1005 | Normal | You can create, use, modify, and delete these VLANs. |
| 1006-4094 | Extended | You can create, name, and use these VLANs. You cannot change the following parameters:<br>• State is always active.<br>• VLAN is always enabled.<br>You cannot shut down these VLANs. |
| 3968-4047 and 4094 | Internally allocated | These 80 VLANs, plus VLAN 4094, are allocated for internal device use. You cannot create, delete, or modify any VLANs within the block reserved for internal use. |

# Configuring a Trunking Profile

You can use this procedure to define a trunking port profile including the VLANs that are allowed on the interfaces.

## BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You have already created the port profile using the "Creating a Port Profile" procedure on page 2-3.
- You know the needed VLAN configuration for this port profile and that it is to be used in trunk mode.
- A VLAN must already be created on the switch before you can assign it to a port profile.
- You know the supported VLAN ranges described in Table 2-3 on page 2-7.
- If you do not configure allowed VLANs in this procedure, then the default VLAN 1 is used.
- If you do not configure a native VLAN in this procedure, then the default VLAN 1 is used.

## SUMMARY STEPS

1. **config t**
2. **port-profile** *name*
3. **switchport mode** {**access** | **trunk**}
4. **no shutdown**
5. **switchport trunk allowed vlan** {*allowed-vlans* | add *add-vlans* | except *except-vlans* | remove *remove-vlans* | all | none}
6. **switchport trunk native vlan** *vlan-id*
7. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
8. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **`config t`**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **`port-profile`** *`name`*<br>**Example:**<br>`n1000v(config)# port-profile TrunkProf`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile. |
| **Step 3** | **`switchport mode trunk`**<br>**Example:**<br>`n1000v(config-port-prof)# switchport mode trunk`<br>`n1000v(config-port-prof)#` | Designates that the interfaces are to be used as a trunking ports.<br>A trunk port transmits untagged packets for the native VLAN and transmits encapsulated, tagged packets for all other VLANs. |
| **Step 4** | **`no shutdown`**<br>**Example:**<br>`n1000v(config-port-prof)# no shutdown`<br>`n1000v(config-port-prof)#` | Administratively enables all ports in the profile. |

| | Command | Description |
|---|---|---|
| **Step 5** | **switchport trunk allowed vlan** {*allowed-vlans* \| **add** *add-vlans* \| **except** *except-vlans* \| **remove** *remove-vlans* \| **all** \| **none**}<br>**Example:**<br>`n1000v(config-port-prof)# switchport trunk allowed vlan all` | (Optional) Designates the port profile as trunking and defines VLAN access to it as follows:<br>• *allowed-vlans*—Defines VLAN IDs that are allowed on the port.<br>• **add**—Lists VLAN IDs to add to the list of those allowed on the port.<br>• **except**—Lists VLAN IDs that are not allowed on the port.<br>• **remove**—Lists VLAN IDs whose access is to be removed from the port.<br>• **all**—Indicates that all VLAN IDs are allowed on the port, unless exceptions are also specified.<br>• **none**—Indicates that no VLAN IDs are allowed on the port.<br>**Note** If you do not configure allowed VLANs, then the default VLAN 1 is used as the allowed VLAN. |
| **Step 6** | **switchport trunk native vlan** *vlan-id*<br>**Example:**<br>`n1000v(config-port-prof)# switchport trunk native vlan 3` | (Optional) Sets the trunking native characteristics when the interface is in trunking mode.<br>If you do not configure a native VLAN, then the default VLAN 1 is used as the native VLAN. |
| **Step 7** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile TrunkProf` | (Optional) Displays the configuration for verification. |
| **Step 8** | **copy running-config startup-config**<br>**Example:**<br>`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. |

## EXAMPLES

This example shows how to configure a trunking port profile, allowing all VLANs, and setting VLAN 3 as its native VLAN.

```
Example:
n1000v# config t
n1000v(config)# port-profile TrunkProf
n1000v(config-port-prof)# switchport mode trunk
n1000v(config-port-prof)# no shutdown
n1000v(config-port-prof)# switchport trunk allowed vlan all
n1000v(config-port-prof)# switchport trunk native vlan 3
n1000v(config-port-prof)# show port-profile name TrunkProf
port-profile TrunkProf
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    switchport mode trunk
    switchport trunk native vlan 3
    switchport trunk allowed vlan all
    no shutdown
  evaluated config attributes:
    switchport mode trunk
    switchport trunk native vlan 3
    switchport trunk allowed vlan all
    no shutdown
  assigned interfaces:
n1000v(config-port-prof)#
```

## Configuring an Access Profile

Use this procedure to add an access VLAN to the access port in an existing port profile.

### BEFORE YOU BEGIN

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

- An access port transmits packets on only one untagged VLAN. You can specify the VLAN, and it becomes the access VLAN. If you do not specify a VLAN for an access port, that interface carries traffic only on the default VLAN 1.

### SUMMARY STEPS

1. **config t**
2. **port-profile** *name*
3. **switchport mode** {**access** | **trunk**}
4. **no shutdown**
5. **switchport access vlan** *vlan-id-access*
6. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
7. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br>**Example:**<br>n1000v# config t<br>n1000v(config)# | Enters global configuration mode. |
| **Step 2** | **port-profile** *name*<br>**Example:**<br>n1000v(config)# port-profile AccessProf<br>n1000v(config-port-prof)# | Enters port profile configuration mode for the named port profile. |
| **Step 3** | **switchport mode** {**access** \| **trunk**}<br>**Example:**<br>n1000v(config-port-prof)# switchport mode access<br>n1000v(config-port-prof)# | Designates the interfaces as either switch access ports (the default) or trunks. |
| **Step 4** | **no shutdown**<br>**Example:**<br>n1000v(config-port-prof)# no shutdown<br>n1000v(config-port-prof)# | Administratively enables all ports in the profile. |
| **Step 5** | **switchport access vlan** *vlan-id-access.*<br>**Example:**<br>n1000v(config-port-prof)# switchport access vlan 300 | (Optional) Assigns an access VLAN ID to this port profile.<br>**Note** If you do not specify a VLAN ID, then VLAN 1 is used automatically. |
| **Step 6** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>n1000v(config-port-prof)# show port-profile AccessProf | (Optional) Displays the configuration for verification. |
| **Step 7** | **copy running-config startup-config**<br>**Example:**<br>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. |

## EXAMPLES

This example shows how to configure a port profile with switch access ports, enable the ports, and then add an access VLAN:

```
Example:
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# switchport mode access
n1000v(config-port-prof)# no shutdown
n1000v(config-port-prof)# switchport access vlan 300
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  description: allaccess4
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group: AccessProf
  max ports: 5
  inherit:
  config attributes:
    switchport mode access
    switchport access vlan 300
    no shutdown
  evaluated config attributes:
    switchport mode access
    switchport access vlan 300
    no shutdown
  assigned interfaces:
n1000v(config-port-prof)#
```

## Clearing a Port Management Policy

You can use this procedure to remove either of the following port management policies from an existing port profile configuration.

- shutdown
- switchport mode

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- Removing the shutdown configuration changes the state of the port profile ports to shutdown.
- Removing the switchport mode converts the port profile ports to switch access ports.
- After removing the configuration for an attribute, the attribute does not appear in show command output.

### SUMMARY STEPS

1. **config t**
2. **port-profile** *name*
3. **default** {**shutdown** | **switchport mode**}
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br>**Example:**<br>n1000v# config t<br>n1000v(config)# | Enters global configuration mode. |
| **Step 2** | **port-profile** *name*<br>**Example:**<br>n1000v(config)# port-profile AccessProf<br>n1000v(config-port-prof)# | Enters port profile configuration mode for the named port profile. |
| **Step 3** | **default** {**shutdown** \| **switchport mode**}<br>**Example:**<br>n1000v(config-port-prof)# default switchport mode<br>n1000v(config-port-prof)# | Removes either the shutdown or the switchport mode configuration from the port profile.<br>• **shutdown**—Reverts port profile ports to the shutdown state<br>• **switchport mode**—Reverts port profile ports to switch access ports. |
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>n1000v(config-port-prof)# show port-profile name AccessProf | (Optional) Displays the configuration for verification. |

## EXAMPLES

This example shows how to change the administrative state of a port profile back to its default setting (all ports disabled):

```
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# default shutdown
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  description: allaccess4
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: 8
  pinning packet-vlan: 8
  system vlans: none
  port-group: AccessProf
  max ports: 5
  inherit:
  config attributes:
    switchport mode access
  evaluated config attributes:
    switchport mode access
  assigned interfaces:
n1000v(config-port-prof)#
```

## Adding a MAC or IP ACL to a Profile

You can use this procedure to add one of the following access control list (ACL) to a port profile:

- MAC ACL
- IP ACL

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You have already created the port profile using the "Creating a Port Profile" procedure on page 2-3.
- You know the name of the IP or MAC access control list that you want to configure for this port profile.
- You know the direction of packet flow for the access list.
- For more information about ACLs, see the *Cisco Nexus 1000V Security Configuration Guide, Release 4.0(4)SV1(2)*.

### SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **mac port access-group** *name* {**in** | **out**}
   **ip port access-group** *name* {**in** | **out**}
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

### DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **port-profile** [**type** {**ethernet** \| **vethernet**}] *name*<br>**Example:**<br>`n1000v(config)# port-profile AccessProf`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile. |

| | Command | Description |
|---|---|---|
| **Step 3** | **mac port access-group** *name* {**in** \| **out**}<br>**ip port access-group** *name* {**in** \| **out**}<br>**Example:**<br>`n1000v(config-port-prof)# mac port access-group allaccess4 out`<br>**Example:**<br>`n1000v(config-port-prof)# ip port access-group allaccess4 in` | Adds the named ACL to the port profile for either in or outbound traffic. |
| **Step 4** | **show port-profile name** *profile-name*<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile name AccessProf` | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br>**Example:**<br>`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. |

## EXAMPLES

This example shows how to add a MAC ACL and an IP ACL to a port profile:

```
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# mac port access-group allaccess4 out
n1000v(config-port-prof)# ip port access-group allaccess4 in
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  description: allaccess4
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    ip port access-group allaccess4 in
    mac port access-group allaccess4 out
  evaluated config attributes:
    ip port access-group allaccess4 in
    mac port access-group allaccess4 out
  assigned interfaces:n1000v(config-port-prof)#
```

# Adding a NetFlow Flow Monitor to a Profile

You can use this procedure to configure a NetFlow flow monitor for a port profile.

## BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You have already created the port profile using the "Creating a Port Profile" procedure on page 2-3.
- For more information about NetFlow, see the *Cisco Nexus 1000V System Management Configuration Guide, Release 4.0(4)SV1(2)*.

## SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **ip flow monitor** *name* {input | output}
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **port-profile** [**type** {**ethernet** \| **vethernet**}] *name*<br>**Example:**<br>`n1000v(config)# port-profile AccessProf`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile. |
| **Step 3** | **ip flow monitor** *name* {**input** \| **output**}<br>**Example:**<br>`n1000v(config-port-prof)# ip flow monitor allaccess4 output`<br>`n1000v(config-port-prof)#` | Applies a named flow monitor to the port profile for either incoming (**input**) or outgoing (**output**) traffic. |
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile name AccessProf` | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br>**Example:**<br>`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. |

### EXAMPLES

This example shows how to configure a NetFlow flow monitor for the port profile:

```
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# ip flow monitor allacces4 output
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    ip flow monitor allaccess4 output
  evaluated config attributes:
    ip flow monitor allaccess4 output
  assigned interfaces:n1000v(config-port-prof)#
```

## Enabling a Port Profile

You can use this procedure to enable an existing port profile.

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You have already created the port profile using the "Creating a Port Profile" procedure on page 2-3.

### SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **state enabled**
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br><br>**Example:**<br>n1000v# config t<br>n1000v(config)# | Enters global configuration mode. |
| **Step 2** | **port-profile** [**type** {**ethernet** \| **vethernet**}] *name*<br><br>**Example:**<br>n1000v(config)# port-profile AccessProf<br>n1000v(config-port-prof)# | Enters port profile configuration mode for the named port profile. |
| **Step 3** | **state enabled**<br><br>**Example:**<br>n1000v(config-port-prof)# state enabled<br>n1000v(config-port-prof)# | Enables the port profile and applies its configuration to the assigned ports. If the port profile is a VMware port group, the port group will be created in the vswitch on vCenter Server. |
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br><br>**Example:**<br>n1000v(config-port-prof)# show port-profile name AccessProf | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br><br>**Example:**<br>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. |

## EXAMPLES

This example shows how to enable a port profile:

```
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# state enabled
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  description: allaccess4
  status: enabled
capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on
  evaluated config attributes:
    channel-group auto mode on
  assigned interfaces:
n1000v(config-port-prof)#n1000v(config-port-prof)#
```

## Removing a Port Profile

You can use this procedure to remove a port profile.

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- If the port profile is inherited by another port profile, you need to remove the inheritance from the other port profile before removing this port profile. If you do not remove the inheritance first, the procedure fails. See Removing Inherited Policies from a Port Profile, page 3-4.
- When you remove a port profile that is mapped to a VMware port group, the associated port group and settings within the vCenter Server are also removed.

### SUMMARY STEPS

1. **config t**
2. (Optional) **show port-profile usage name** *profile_name*
3. **no port-profile** *profile_name*
4. **show port-profile name** *profile_name*
5. **copy running-config startup-config**

### DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **show port-profile usage name** *profile_name*<br>**Example:**<br>`n1000v(config)# show port-profile usage name AccessProf` | (Optional) Verifies if active interfaces use this port profile.<br>**Note** You cannot remove a port profile if there are active interfaces associated with it. |
| **Step 3** | **no port-profile** *profile_name*<br>**Example:**<br>`n1000v(config)# no port-profile AccessProf`<br>`n1000v(config)#` | Removes the port profile configuration and operational settings. |

| | Command | Description |
|---|---|---|
| **Step 4** | **show port-profile name** *profile_name*<br><br>**Example**:<br>`n1000v(config)# show port-profile name AccessProf`<br>`ERROR: port-profile AccessProf does not exist`<br>`n1000v(config)#` | (Optional) Verifies that the port profile does not exist. |
| **Step 5** | **copy running-config startup-config**<br><br>**Example:**<br>`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. |

### EXAMPLES

This example shows how to remove a port profile:

```
n1000v# config t
n1000v(config)# show port-profile usage name AccessProf
--------------------------------------------------------------------------------
Port Profile               Port        Adapter        Owner
--------------------------------------------------------------------------------
n1000v(config)# no port-profile AccessProf
n1000v(config)# show port-profile name AccessProf
ERROR: port-profile AccessProf does not exist
n1000v(config)# copy running-config startup-config
```

# Feature History for Port Profiles

This section provides the feature history for port profiles.

| Feature Name | Releases | Feature Information |
|---|---|---|
| Port Profiles | 4.0(4)SV1(1) | This feature was introduced. |
| Port Profile Type | 4.0(4)SV1(2) | Port profiles are configured as either Ethernet or vEthernet **type**. By default, a port profile is created as vEthernet type. |
| [**no**] **capability uplink** command | 4.0(4)SV1(2) | The **capability uplink** command has been replaced with the **port-profile** [**type** {**ethernet** \| **vethernet**}] *name* command. To configure a port profile with uplink capability, configure the port profile as an Ethernet type.<br>The **no capability uplink** command has been removed. |

CHAPTER 3

# Configuring Port Profile Inheritance

This chapter describes how to configure port profile inheritance, including the following:

## Information About Port Profile Inheritance

You can apply the configuration from an existing port profile as the default configuration for another port profile. This is called inheritance. The configuration of the parent port profile is copied to and stored in the child port profile. You can also override the inheritance by configuring the attributes explicitly in the child port profile.

Table 3-1 lists the port profile settings and shows whether they can be inherited.

*Table 3-1 Port Profile Settings Inheritance*

| | Can it be inherited? | |
|---|---|---|
| Port Profile Setting | Yes | No |
| acl | X | |
| capability (iscsi-multipath, l3control) | | X |
| channel group | X | |
| default (resets characteristic to its default) | X | |
| description | | X |
| inherit | X | |
| interface state (shut/no shut) | X | |
| name | X | |
| netflow | X | |
| port security | X | |
| private vlan configuration | X | |
| qos policy | X | |
| state (enabled or disabled) | | X |

*Table 3-1 Port Profile Settings Inheritance (continued)*

| Port Profile Setting | Can it be inherited? | |
|---|---|---|
| | Yes | No |
| acl | X | |
| capability (iscsi-multipath, l3control) | | X |
| channel group | X | |
| switchport mode (access or trunk) | X | |
| system vlan *vlan list* | | X |
| vlan configuration | X | |
| vmware max-ports | | X |
| vmware port-group name | | X |

# Guidelines and Limitations

Follow these guidelines and limitations when configuring port profile inheritance:

- Inherited port profiles cannot be changed or removed from an interface using the Cisco Nexus 1000V CLI. This can only be done through the vCenter Server.
- Inherited port profiles are automatically configured by the Cisco Nexus 1000V when the ports are attached on the hosts. This is done by matching up the VMware port group assigned by the system administrator with the port profile that created it.
- You can change a setting directly on a port profile to override the inherited settings.
- You can also explicitly remove port profile inheritance, so that a port profile returns to the default settings, except where there has been a direct configuration. For more information, see the "Removing Inherited Policies from a Port Profile" procedure on page 3-4.
- The Cisco Nexus 1000V software must be initially configured. For information, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(2)*.
- The Cisco Nexus 1000V must be connected to the vCenter Server.
- Once a port profile is created, you cannot change its type (Ethernet or vEthernet).
- Once a port profile is created, you cannot change its type (Ethernet or vEthernet).

# Inheriting a Configuration from a Port Profile

You can use this procedure to apply the configuration from an existing port profile as the default configuration for another port profile.

### Before You Begin

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

- You are logged in to the CLI  in EXEC mode.
- To identify the port profile with a configuration you want to use, use the following command to view your existing port profiles:

  - **show port profiles**
- You are familiar with the port profile characteristics shown in Table 3-1 on page 3-1, and whether they can be inherited.
- The port profile type cannot be inherited from another port profile.

## SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **inherit port-profile** *name*
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **`config t`**<br><br>**`Example:`**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **`port-profile`** `[`**`type`** `{`**`ethernet`** `\|` **`vethernet`**`}]`<br>`name`<br><br>**`Example:`**<br>`n1000v(config)# port-profile type vethernet`<br>`AllAccess2`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile.<br>• *name*—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.<br>• **type**—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type.<br>The type cannot be inherited.<br>Defining a port profile type as Ethernet allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).<br>**Note** If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports. |
| **Step 1** | **`inherit port-profile`** *`name`*<br><br>**`Example:`**<br>`n1000v(config-port-prof)# inherit`<br>`port-profile AllAccess1`<br>`n1000v(config-port-prof)#` | Adds the inherited configuration of the named profile as a default configuration. |

| | Command | Description |
|---|---|---|
| **Step 2** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example**:<br>`n1000v(config-port-prof)# show port-profile AllAccess2` | (Optional) Displays the configuration for verification. |
| **Step 3** | **copy running-config startup-config**<br>**Example:**<br>`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. |

### EXAMPLES

This example shows how to inherit the port profile configuration of another port profile:

```
n1000v# config t
n1000v(config)# port-profile AllAccess2
n1000v(config-port-prof)# inherit port-profile AllAccess1
n1000v(config-port-prof)# show port-profile name AllAccess2
port-profile AllAccess2
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit: port-profile AllAccess1
  config attributes:
  evaluated config attributes:
  assigned interfaces:
n1000v(config-port-prof)#
```

# Removing Inherited Policies from a Port Profile

You can use this procedure to remove the inherited policies from a port profile.

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in configuration mode.
- If you have configured policies independently of inheritance, then they will not be removed when you remove the inheritance. Only the policies that are configured solely through the inheritance are removed.

### SUMMARY STEPS

1. **config t**
2. (Optional) **show port-profile usage name** *profile_name*

3. **no port-profile inherit**
4. **show port-profile name** *profile_name*
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **`config t`**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 1** | **`port-profile`** *`name`*<br>**Example:**<br>`(config)# port-profile Access4`<br>`(config-port-prof)#` | Enters port profile configuration mode for the named port profile. |
| **Step 2** | **`no port-profile inherit`**<br>**Example:**<br>`(config-port-prof)# no port-profile map` | Removes the inherited policies.<br>The port profile settings are returned to the defaults, except for the port profile type and any settings that were explicitly configured independent of those inherited. |
| **Step 3** | **`show port-profile name`** *`profile_name`*<br>**Example:**<br>`n1000v(config)# show port-profile name AccessProf` | (Optional) Displays the configuration for verification. |
| **Step 4** | **`copy running-config startup-config`**<br>**Example:**<br>`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. |

CHAPTER 4

# Configuring System Port Profiles

This chapter describes system port profiles and how to configure them.

This chapter includes the following sections:

## Information About System Port Profiles

System port profiles are designed to establish and protect those ports and VLANs which need to be configured before the VEM contacts the VSM.

For this reason, the following ports must use system VLANs:

- Control and packet VLANs in the uplinks that communicate with the VSM.
- Management VLAN in the uplinks and VMware kernel NICs used for VMware vCenter server connectivity or SSH or Telnet connections.
- Storage VLAN used by the VSM for VM file system access in the uplinks and VMware kernel NICs used for iSCSI or network file systems. This is needed only in the host that runs the VSM on the VEM.
- VSM ports on the VEM must be system ports.

For more information about system port profiles and system VLANs, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(2)*.

## Guidelines and Limitations for System Port Profiles

System port profiles and system VLANs are subject to the following guidelines and limitations:

- System VLANs must be used sparingly and only as described in the "Information About System Port Profiles" section on page 4-1.
- In a single ESX host, one VLAN can be a system VLAN on one port but a regular VLAN on another.

- You cannot delete a system VLAN when the port profile is in use.
- You can add or delete VLANs that are not system VLANs when the port profile is in use because one or more distributed virtual switch (DVS) ports are carrying that profile.
- System VLANs can be added to a port profile, even when the port profile is in use.
- You can only delete a system VLAN from a port profile after removing the port profile from service. This is to prevent accidentally deleting a critical VLAN, such as the management VLAN for a host, or the storage VLAN for the VSM.
- A system port profile cannot be converted to a port profile that is not a system port profile.
- The native VLAN on a system port profile can be a system VLAN but it does not have to be.
- When a system port profile is in use, you can change the native VLAN as follows:
  - From one VLAN that is not a system VLAN to another VLAN that is not a system VLAN.
  - From a VLAN that is not a system VLAN to a system VLAN
  - From one system VLAN to another system VLAN
- When a system port profile is in use, you cannot change the native VLAN from a system VLAN to a VLAN that is not a system VLAN.

# Creating a System Port Profile

You can use this procedure to configure a system port profile for critical ports.

## BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- The VSM is connected to vCenter server.
- You have configured the following:
  - Port admin status is active (no shutdown).
  - Port mode is access or trunk.
  - VLANs that are to be used as system VLANs already exist.
  - VLANs are configured as access VLANs or trunk-allowed VLANs.
- Once a port profile is created, you cannot change its type (Ethernet or vEthernet).

## SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *profilename*
3. **description** *profiledescription*
4. **switchport mode trunk**
5. **switchport trunk allowed vlan** *vlan-id-list*
6. **system vlan** *vlan-id-list*
7. **show port-profil**e [**brief** | **expand-interface** | **usage**] [**name** *profilename*]

8. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br><br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **port-profile** [**type** {**ethernet** \| **vethernet**}] *name*<br><br>**Example:**<br>`n1000v(config)# port-profile AccessProf`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile.<br>• *name*—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.<br>• **type**—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type.<br>Defining a port profile type as Ethernet allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).<br>**Note** If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports. |
| **Step 3** | **description** *profiledescription*<br><br>**Example:**<br>`n1000v(config-port-prof)# description System profile for critical ports`<br>`n1000v(config-port-prof)#` | Adds a description of up to 80 ASCII characters to the port profile. This description is automatically pushed to the vCenter Server. |
| **Step 4** | **switchport mode trunk**<br><br>**Example:**<br>`n1000v(config-port-prof)# switchport mode trunk`<br>`n1000v(config-port-prof)#` | Designates that the interfaces are to be used as a trunking ports.<br>A trunk port transmits untagged packets for the native VLAN and transmits encapsulated, tagged packets for all other VLANs. |

| | Command | Description |
|---|---|---|
| Step 5 | **switchport trunk allowed vlan** *vlan-id-list*<br>**Example:**<br>`n1000v(config-port-prof)# switchport trunk allowed vlan 114,115`<br>`n1000v(config-port-prof)#` | Designates the port profile as trunking and defines VLAN access to it as follows:<br>• *allowed-vlans*—Defines VLAN IDs that are allowed on the port.<br>• **add**—Lists VLAN IDs to add to the list of those allowed on the port.<br>• **except**—Lists VLAN IDs that are not allowed on the port.<br>• **remove**—Lists VLAN IDs whose access is to be removed from the port.<br>• **all**—Indicates that all VLAN IDs are allowed on the port, unless exceptions are also specified.<br>• **none**—Indicates that no VLAN IDs are allowed on the port.<br>If you do not configure allowed VLANs, then the default VLAN 1 is used as the allowed VLAN. |
| Step 6 | **system vlan** *vlan-id-list*<br>**Example:**<br>`n1000v(config-port-prof)# system vlan 114,115`<br>`n1000v(config-port-prof)#` | Adds system VLANs to this port profile. |
| Step 7 | **show port-profil**e [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile name AccessProf` | (Optional) Displays the configuration for verification. |

## EXAMPLES

This example shows how to create a system port profile:

```
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# description “System profile for critical ports”
n1000v(config-port-prof)# system vlan 1
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: 1
  port-group:
  max ports: 32
  inherit: port-profile xyz
  config attributes:
    switchport mode access
    switchport access vlan 1
    switchport trunk allowed vlan 1-10
    channel-group auto mode on sub-group cdp
    no shutdown
  evaluated config attributes:
    switchport mode access
    switchport access vlan 1
    switchport trunk allowed vlan 1-10
    channel-group auto mode on sub-group cdp
    no shutdown
  assigned interfaces:
```

# Deleting System VLANs from a Port

You can use this procedure to delete system VLANs from a port from vCenter server.

### BEFORE YOU BEGIN

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

- You are logged in to vCenter server.
- The VSM is connected to vCenter server.

### DETAILED STEPS

**Step 1** From vCenter server, delete the port from the DVS.

**Step 2** Add the port to vCenter with a different or modified port profile.

# Modifying the System VLANs in a Port Profile

You can use the following procedures in this section to modify the system VLANs in a port profile without removing all system VLANs.

- Modifying the System VLANs in a Trunk Mode Port Profile, page 4-5
- Modifying System VLANs in an Access Mode Port Profile, page 4-7

## Modifying the System VLANs in a Trunk Mode Port Profile

You can use this procedure to change the set of system VLANs in a trunk mode port profile without removing all system VLANs.

### BEFORE YOU BEGIN

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

- You are logged in to vCenter server.
- You are logged in to the Cisco Nexus 1000V CLI in EXEC mode.
- The VSM is connected to vCenter server.

- You know the VLAN ID of a system VLAN in your network. It does not matter which system VLAN it is.
- You know the VLAN IDs of the system VLANs required for the port profile you are modifying.

## DETAILED STEPS

**Step 1** From the upstream switch for each VEM that carries this profile, shut off the switchport that carries the control VLAN.

The VEMs are disconnected from the VSM.

**Step 2** From the Cisco Nexus 1000V, use the following commands to convert the port profile to an access profile with a system VLAN. It does not matter which system VLAN you use.

**config t**

**port-profile** *name*

**no system vlan**

**switchport mode access**

**switchport access vlan** *vlan-id*

**system vlan** *vlan-id*

```
Example:
n1000v# config t
n1000v(config)# port-profile Trunk_System_Prof
n1000v(config-port-prof)# no system vlan
n1000v(config-port-prof)# switchport mode access
n1000v(config-port-prof)# switchport access vlan 1

n1000v(config-port-prof)# system vlan 300
```

The trunk port profile is converted to an access port profile with a system VLAN.

**Step 3** From the Cisco Nexus 1000V, use the following commands to convert the port profile back to a trunk profile with the required system VLAN IDs.

**config t**

**port-profile** *name*

**switchport mode trunk**

**system vlan** *vlan-id-list*

**show port-profil**e [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]

**copy running-config startup-config**

```
Example:
n1000v# config t
n1000v(config)# port-profile Trunk_System_Prof
n1000v(config-port-prof)# switchport mode trunk
n1000v(config-port-prof)# system vlan 114,115
n1000v(config-port-prof)# show port-profile name Trunk_System_Prof
port-profile Trunk_System_Prof
  description:
  type: vethernet
  status: enabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: 114,115
  port-group:
  max ports: 32
  inherit:
  config attributes:
    switchport mode trunk
    switchport trunk allowed vlan all
    no shutdown
  evaluated config attributes:
    switchport mode trunk
    switchport trunk allowed vlan all
    no shutdown
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

The port profile is changed back to a trunk profile with the required system VLANs, and the changes are saved in the running configuration.

**Step 4** From the upstream switch for each VEM that carries this profile, unshut the switchport that carries the control VLAN.

The VEMs are reconnected to the VSM.

## Modifying System VLANs in an Access Mode Port Profile

You can use this procedure to change the set of system VLANs in an access port profile without removing all system VLANs.

### BEFORE YOU BEGIN

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

- You are logged in to vCenter server.
- You are logged in to the Cisco Nexus 1000V CLI in EXEC mode.
- The VSM is connected to vCenter server.
- You know the VLAN IDs of the system VLANs required for the port profile you are modifying.

### DETAILED STEPS

**Step 1** From the upstream switch for each VEM that carries this profile, shut off the switchport that carries the control VLAN.

The VEMs are disconnected from the VSM.

**Step 2** From the Cisco Nexus 1000V, use the following commands to configure a new list of system VLANs in the port profile.

**config t**

**port-profile** *name*

**system vlan** *vlan-id-list*

**show port-profile name** *profile-name*]

**copy running-config startup-config**

```
Example:
n1000v# config t
n1000v(config)# port-profile Access_System_Prof
n1000v(config-port-prof)# system vlan 114,115
n1000v(config-port-prof)# show port-profile name Access_System_prof
port-profile Access_System_Prof
  description:
  type: vethernet
  status: enabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: 114,115
  port-group:
  max ports: 32
  inherit:
  config attributes:
    switchport mode access
    switchport trunk allowed vlan all
    no shutdown
  evaluated config attributes:
    switchport mode access
    switchport trunk allowed vlan all
    no shutdown
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

The list of system VLANs is changed and saved in the running configuration.

**Step 3** From the upstream switch for each VEM that carries this profile, unshut the switchport that carries the control VLAN.

The VEMs are reconnected to the VSM.

# Feature History for System Port Profiles

This section provides the feature history for system port profiles.

| Feature Name | Releases | Feature Information |
|---|---|---|
| System Port Profiles | 4.0(4)SV1(1) | This feature was introduced. |

CHAPTER 5

# Configuring Port Channels in Port Profiles

This chapter describes port channels in port profiles and how to configure them, including the following:

- Information About Port Channels in Port Profiles, page 5-1
- Guidelines and Limitations, page 5-5
- Creating a Port Profile for a Port Channel, page 5-5
- Pinning a vEthernet Interface to a Subgroup, page 5-13
- Pinning a Control or Packet VLAN to a Subgroup, page 5-14
- Feature History for Port Channels in Port Profiles, page 5-16

## Information About Port Channels in Port Profiles

A port channel is an aggregation of multiple physical interfaces that creates a logical interface. You can bundle up to eight individual active links into a port channel to provide increased bandwidth and redundancy. Port channels also balance the traffic across these physical interfaces. The port channel stays operational as long as at least one physical interface within the port channel is operational.

The Cisco Nexus 1000V is an end-host switch where the following port channels can be created:

- A standard port channel that is configured on both the Cisco Nexus 1000V and the upstream switches.
- A port channel that is configured only on the Cisco Nexus 1000V without the need to configure anything upstream.

This section includes the following topics:

- Standard Port Channels, page 5-2
- vPC Host Mode, page 5-2
- Subgroup Creation, page 5-3
- Static Pinning, page 5-3
- MAC Pinning, page 5-4

## Standard Port Channels

A standard port channel behaves like an EtherChannel on other Cisco switches and supports the Link Aggregation Control Protocol (LACP). All uplinks in the port channel must be in the same EtherChannel on the upstream switch.

Standard port channels can be spread across more than one physical switch if the physical switches are clustered, such as that available in the following:

- Cisco Catalyst 6500 Virtual Switching System 1440
- Virtual port channels on the Cisco Nexus 7000 Series Switches
- Cisco Catalyst Blade Switch 3120 for HP

Clustered switches act as a single switch allowing the creation of EtherChannels across them. This clustering is transparent to the Cisco Nexus 1000V. When the upstream switches are clustered the Cisco Nexus 1000V should be configured to use LACP with one port profile using all available links. This makes greater bandwidth available for the Virtual Machines and improves the speed of VMotion.

Standard port channels do not use MAC pinning or virtual port channel—host mode (vPC-HM).

To configure a standard port channel, use the "Creating a Port Profile for a Port Channel" section on page 5-5.

## vPC Host Mode

vPC-HM is a way of creating a port channel when connecting to multiple upstream switches that are not clustered because they do not support port channels. In the Cisco Nexus 1000V, the port channel is divided into subgroups or logical smaller port channels, each representing one or more uplinks to one upstream physical switch.

Links that connect to the same physical switch are bundled in the same subgroup automatically by using information gathered from the Cisco Discovery Protocol packets from the upstream switch. Interfaces can also be manually assigned a specific subgroup using interface configuration. For more information, see the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(2)*.

When vPC-HM is used, each vEthernet interface on the VEM is mapped to one of two subgroups in a round-robin method. All traffic from the vEthernet interface uses the assigned subgroup unless it is unavailable, in which case the vEthernet interface fails over to the remaining subgroup. When the original subgroup becomes available again, traffic shifts back to it. Traffic from each vEthernet interface is then balanced based on the configured hashing algorithm.

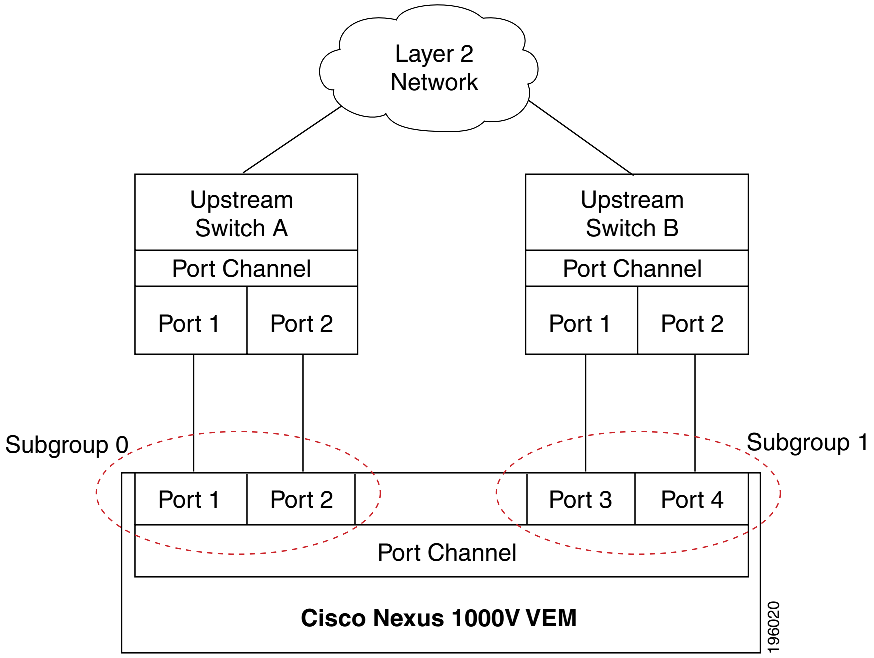
When multiple uplinks are attached to the same subgroup, the upstream switch must be configured in a port channel, the links bundled together. The port channel must also be configured with the **channel-group auto mode on** (active and passive modes use LACP).

If the upstream switches do not support port channels, you can use MAC pinning to assign each Ethernet port member to a particular port channel subgroup. For more information, see the "MAC Pinning" section on page 5-4.

**Note** Do not configure vPC-HM on the Cisco Nexus 1000V when the upstream switch ports that connect to the VEMs have vPC configured. In this case, the connection can be interrupted or disabled.

Figure 5-1 shows traffic separation using vPC-HM by assigning member ports 1 and 2 to subgroup ID 0 and member ports 3 and 4 to subgroup ID 1.

*Figure 5-1 Using vPC-HM to Connect a Port Channel to Multiple Upstream Switches*



To configure a port profile in vPC-HM, see the "Connecting to Multiple Upstream Switches" procedure on page 5-8.

## Subgroup Creation

If Cisco Discovery Protocol (CDP) is enabled on the upstream switches, then subgroups are automatically created using information gathered from the Cisco Discovery Protocol packets. If not, then you must use the "Manually Configuring Subgroups" procedure on page 5-11.

## Static Pinning

Static pinning allows you to pin the virtual ports behind a VEM to a particular subgroup within the channel. Instead of allowing round robin dynamic assignment between the subgroups, you can assign (or pin) a static vEthernet interface, control VLAN, or packet VLAN to a specific port channel subgroup. With static pinning, traffic is forwarded only through the member ports in the specified subgroup.

You can use the following procedures to designate the subgroup to communicate with the network.

- "Pinning a vEthernet Interface to a Subgroup" section on page 5-13
- "Pinning a Control or Packet VLAN to a Subgroup" section on page 5-14

You can also pin vEthernet interfaces to subgroups in interface configuration mode. For more information, see the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(2)*.

## MAC Pinning

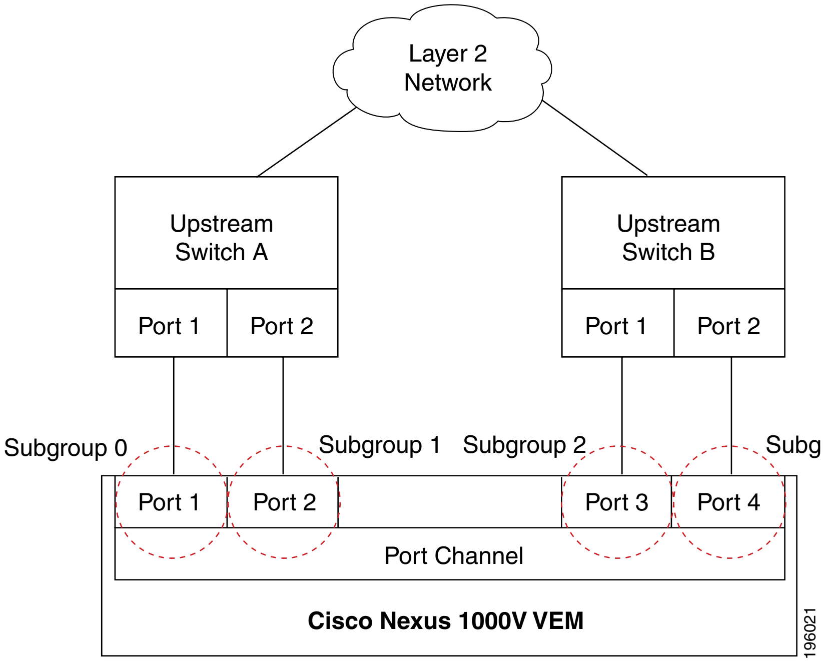
If you are connecting to multiple upstream switches that do not support port channels, then MAC pinning is the preferred configuration. MAC pinning divides the uplinks from your server into standalone links and pins the MAC addresses to those links in a round-robin method. This ensures that the MAC address of a virtual machine is never seen on multiple upstream switch interfaces. Therefore no upstream configuration is required to connect the VEM to upstream switches.

MAC pinning does not rely on any protocol to distinguish upstream switches so the configuration is independent of upstream hardware or design.

In case of a failure, the Cisco Nexus 1000V first sends a gratuitous ARP packet to the upstream switch indicating that the VEM MAC address will now be learned on a different link. It also allows for sub-second failover time.

Figure 5-2 shows each member port that is assigned to a specific port channel subgroup using MAC pinning.

***Figure 5-2 Using MAC Pinning to Connect a Port Channel to Multiple Upstream Switches***



To configure MAC pinning, see one of the following procedures:

- "Connecting to a Single Upstream Switch" section on page 5-5
- "Connecting to Multiple Upstream Switches" section on page 5-8.

# Guidelines and Limitations

Before beginning the procedures in this section, you must know or do the following:

- If you are connecting to an upstream switch or switches that do not support port channels, then MAC pinning is the preferred configuration. MAC pinning divides the uplinks from your server into standalone links and pins the MAC addresses to those links in a round-robin method. The drawback is that you cannot leverage the load sharing performance that LACP provides.
- Once a port profile is created, you cannot change its type (Ethernet or vEthernet).
- The server administrator should not assign more than one uplink on the same VLAN without port channels. It is not supported to assign more than one uplink on the same host to a profile without port channels or port profiles that share one or more VLANs.

⚠

**Caution** Disruption of connectivity may result if you configure vPC-HM on the Cisco Nexus 1000V when vPC is also configured on the ports of upstream switches that connect to its VEMs.

- You must have already configured the Cisco Nexus 1000V software using the setup routine. For information, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.0(4)SV1(2)*.
- The Cisco Nexus 1000V must be connected to the vCenter Server.
- You are logged in to the CLI in EXEC mode.
- When you create a port channel, an associated channel group is automatically created.

# Creating a Port Profile for a Port Channel

You can use the procedures in this section to define upstream switch configurations for a port channel or to manually configure subgroups for a port channel.

- Connecting to a Single Upstream Switch, page 5-5
- Connecting to Multiple Upstream Switches, page 5-8
- Manually Configuring Subgroups, page 5-11

## Connecting to a Single Upstream Switch

You can use this procedure to configure a port channel whose ports are connected to the same upstream switch.

### BEFORE YOU BEGIN

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

- If the ports are connected to multiple upstream switches, see the "Connecting to Multiple Upstream Switches" section on page 5-8.
- The channel group number assignment is made automatically when the port profile is assigned to the first interface.

## SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **channel-group auto** [**mode** {**on** | **active** | **passive**} [**sub-group** {**cdp** | **manual**}] [**mac-pinning**]
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **`config t`**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **`port-profile`** `[`**`type`** `{`**`ethernet`** `\|` **`vethernet`**`}]` *`name`*<br>**Example:**<br>`n1000v(config)# port-profile AccessProf`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile.<br>• *name*—Specifies the port profile name, which can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.<br>• **type**—(Optional) Specifies the port profile as an Ethernet or vEthernet type. Once configured, this setting cannot be changed. The default is the vEthernet type.<br>Defining a port profile as an Ethernet type allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).<br>**Note** If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports. |

| | Command | Description |
|---|---|---|
| **Step 3** | **channel-group auto** [**mode** {**on** \| **active** \| **passive**}] **mac-pinning**<br>**Example:**<br>`n1000v(config-port-prof)# channel-group auto mode on`<br>`n1000v(config-port-prof)#`<br>**Example:**<br>`n1000v(config-port-prof)# channel-group auto mode on mac-pinning`<br>`n1000v(config-port-prof)#` | Defines a port channel group in which a unique port channel is created and automatically assigned when the port profile is assigned to the first interface.<br>Each additional interface that belongs to the same module is added to the same port channel. In VMware environments, a different port channel is created for each module.<br>• **mode—**Sets the port channel mode to **on**, **active**, or **passive** (active and passive use LACP).<br>• **mac-pinning**—If the upstream switch does not support port channels, this designates that one subgroup per Ethernet member port must be automatically assigned, |
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile name AccessProf` | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br>**Example:**<br>`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. |

## EXAMPLES

This example shows how to configure a port channel that connects to one upstream switch:

```
Example:
n1000v# config t
n1000v(config)# port-profile AccessProf
n1000v(config-port-prof)# channel-group auto mode on
n1000v(config-port-prof)# show port-profile name AccessProf
port-profile AccessProf
  description: allaccess4
  status: disabled
capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on
  evaluated config attributes:
    channel-group auto mode on
  assigned interfaces:
n1000v(config-port-prof)#
```

# Connecting to Multiple Upstream Switches

You can use this procedure to create a port channel that connects to multiple upstream switches,.

## BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- If the ports are connected to a single upstream switch, see the "Connecting to a Single Upstream Switch" procedure on page 5-5.
- You can use this procedure to configure an uplink port profile to be used by the physical NICs in the VEM in virtual port channel-host mode (vPC-HM) when the ports connect to multiple upstream switches.
- If you are connecting to multiple upstream switches that do not support port channels, then MAC pinning is the preferred configuration. You can configure MAC pinning using this procedure. For more information about the feature, see the "MAC Pinning" section on page 5-4.
- You can also configure vPC-HM on the interface. For more information, see the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(2)*.
- The channel group mode must be set to **on** (active and passive modes use LACP).
- You need to know whether CDP is configured in the upstream switches.
  - If configured, then CDP packets from the upstream switch are used to automatically create a subgroup for each upstream switch to manage its traffic separately.
  - If not configured, then, after completing this procedure, you must manually configure subgroups to manage the traffic flow on the separate switches. See the "Manually Configuring Subgroups" procedure on page 5-11.

**Caution** Connectivity may be disrupted for up to 60 seconds if the CDP timer is set to 60 seconds (the default).

**Caution** The VMs behind the Cisco Nexus 1000V receive duplicate packets from the network for unknown unicasts, multicast floods, and broadcasts if vPC-HM is not configured when port channels connect to two different upstream switches.

## SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **channel-group auto mode on** [**sub-group** {**cdp** | **manual**}] [**mac-pinning**]
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **port-profile** [**type** {**ethernet** \| **vethernet**}] *name*<br>**Example:**<br>`n1000v(config)# port-profile uplinkProf`<br>`n1000v(config-port-prof)#` | Creates an Ethernet type port profile (the default) and enters port profile configuration mode for that port profile.<br>• *name*—Specifies the port profile name, which can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.<br>• **type**—An Ethernet type port profile can be used for physical ports, and in the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).<br>**Note** If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports.<br>**Note** Once a port profile is created, you cannot change its type (Ethernet or vEthernet). |
| **Step 3** | **channel-group auto mode on** [**sub-group** {**cdp** \| **manual**}] [**mac-pinning**]<br>**Example—CDP is configured on the upstream switches:**<br>`n1000v(config-port-prof)# channel-group auto mode on sub-group cdp`<br>`n1000v(config-port-prof)#`<br>**Example—CDP is not configured on the upstream switches:**<br>`n1000v(config-port-prof)# channel-group auto mode on manual`<br>`n1000v(config-port-prof)#`<br>**Example—Upstream switches do not support port channels:**<br>`n1000v(config-port-prof)# channel-group auto mode on mac-pinning`<br>`n1000v(config-port-prof)#` | Creates a unique asymmetric port channel (also known as vPC-HM) and automatically assigns it when the port profile is assigned to the first interface.<br>Each additional interface that belongs to the same module is added to the same port channel. In VMware environments, a different port channel is created for each module.<br>The following options are also defined:<br>• **mode—**Sets the port channel mode to **on** (active and passive use LACP).<br>• **sub-group**—Identifies this channel group as asymmetric, or connected to more than one switch.<br>– **cdp**—Specifies that CDP information is used to automatically create subgroups for managing the traffic flow.<br>– **manual**—Specifies that subgroups are configured manually. This option is used if CDP is not configured on the upstream switches. To configure subgroups, see the "Manually Configuring Subgroups" procedure on page 5-11.<br>• **mac-pinning**—Specifies that Ethernet member ports are assigned to subgroups automatically, one subgroup per member port. This option is used if the upstream switch does not support port channels. |

| | Command | Description |
|---|---|---|
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>n1000v(config-port-prof)# show port-profile name AccessProf | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br>**Example:**<br>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. |

## EXAMPLES

This example shows how to create a port channel that connects to multiple upstream switches that support CDP:

```
n1000v(config)# port-profile UpLinkProfile2
n1000v(config-port-prof)# channel-group auto mode on sub-group cdp
n1000v(config-port-prof)# show port-profile name UpLinkProfile2
port-profile UpLinkProfile2
  description:
  type: ethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on sub-group cdp
  evaluated config attributes:
    channel-group auto mode on sub-group cdp
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

This example shows how to create a port channel that connects to multiple upstream switches that do not support CDP:

```
n1000v(config)# port-profile UpLinkProfile3
n1000v(config-port-prof)# channel-group auto mode on sub-group manual
n1000v(config-port-prof)# exit
n1000v(config)# interface ethernet3/2-3
n1000v(config-if)# sub-group-id 0
n1000v(config-port-prof)# show port-profile name
n1000v(config-port-prof)# show port-profile name UplinkProfile3
port-profile UplinkProfile3
  description:
  type: ethernet
  status: enabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group: UplinkProfile3
  max ports: -
  inherit:
  config attributes:
    channel-group auto mode on sub-group manual
  evaluated config attributes:
    channel-group auto mode on sub-group manual
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

This example shows how to create a port channel that connects to multiple upstream switches that do not support port channels:

```
n1000v(config)# port-profile UpLinkProfile1
n1000v(config-port-prof)# channel-group auto mode on mac-pinning
n1000v(config-port-prof)# show port-profile name UpLinkProfile1
port-profile UpLinkProfile1
  description:
  type: ethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on mac-pinning
  evaluated config attributes:
    channel-group auto mode on mac-pinning
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

## Manually Configuring Subgroups

You can use this procedure to manually configure port channel subgroups to manage the traffic flow on multiple upstream switches. This is required for a port channel that connects to multiple upstream switches where CDP is not configured.

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You have already configured the port profile for the port channel using the "Connecting to Multiple Upstream Switches" procedure on page 5-8.
- You know the interface range and the subgroup IDs (0-31) for traffic to the upstream switches.

### SUMMARY STEPS

1. **config t**
2. **interface ethernet** *range*
3. **sub-group-id** *number*
4. Repeat step 2 and 3 for each port connected to an upstream switch where CDP is not configured.
5. **show interface ethernet** *range*
6. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br><br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **interface ethernet** *range*<br><br>**Example:**<br>`n1000v(config)# interface ethernet3/2-3`<br>`n1000v(config-if)#` | Enters interface configuration mode for the specified interface range. |
| **Step 3** | **sub-group id** *number*<br><br>**Example:**<br>`n1000v(config-if)# sub-group-id 0`<br>`n1000v(config-if)#` | Manually configures a subgroup to manage traffic for the upstream switch.<br>Allowable subgroup numbers are from 0 to 31. |
| **Step 4** | Repeat Step 2 and Step 3 for each port connected to an upstream switch where CDP is not configured. | |
| **Step 5** | **show interface ethernet** *range*<br><br>**Example:**<br>`n1000v(config-if)# show interface ethernet 3/2-3` | (Optional) Displays the configuration for verification. |
| **Step 6** | **copy running-config startup-config**<br><br>**Example:**<br>`n1000v(config-if)# copy running-config startup-config` | (Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration. |

## EXAMPLES

This example shows how to manually configure port channel subgroups for a host in module 3 which has four physical ports. The upstream switches do not support CDP. Ethernet ports 3/2 and 3/3 connect to one upstream switch and the Ethernet ports 3/4 and 3/5 connect to another.

```
n1000v# conf t
n1000v(config)# int eth3/2
n1000v(config-if)# sub-group-id 0
n1000v(config-if)# int eth3/3
n1000v(config-if)# sub-group-id 0
n1000v(config-if)# int eth3/4
n1000v(config-if)# sub-group-id 1
n1000v(config-if)# int eth3/5
n1000v(config-if)# sub-group-id 1
n1000v(config-if)# show running-config interface
. . .
interface Ethernet3/2
  inherit port-profile system-uplink-pvlan
  sub-group-id 0
interface Ethernet3/3
  inherit port-profile system-uplink-pvlan
  sub-group-id 0
interface Ethernet3/4
  inherit port-profile system-uplink-pvlan
  sub-group-id 1
interface Ethernet3/5
  inherit port-profile system-uplink-pvlan
  sub-group-id 1
```

# Pinning a vEthernet Interface to a Subgroup

You can use this procedure to pin a vEthernet interface to a specific port channel subgroup in the port profile configuration.

**Note** You can also pin a subgroup to a vEthernet interface in the interface configuration. For information, see the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.0(4)SV1(2)*.

## BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You know the subgroup ID (0-31) for the vEthernet interface.

## SUMMARY STEPS

1. **config t**
2. **port-profile type vethernet** *name*
3. **pinning id** *subgroup_id*
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| Step 1 | **config t**<br>**Example:**<br>n1000v# config t<br>n1000v(config)# | Enters global configuration mode. |
| Step 2 | **port-profile type vethernet** *name*<br>**Example:**<br>n1000v(config)# port-profile type vethernet PortProfile1<br>n1000v(config-port-prof)# | Enters port profile configuration mode for the named profile. |
| Step 3 | **pinning id** *subgroup_id*<br>**Example:**<br>n1000v(config-port-prof)# pinning id 3 | For the named port profile, assigns (or pins) a vEthernet interface to a port channel subgroup (0–31). |

| | Command | Description |
|---|---|---|
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile PortProfile1` | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br>**Example:**<br>`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. |

## EXAMPLES

This example shows how to create a vEthernet port profile and pin it to port channel subgroup 3:

```
n1000v# config t
n1000v(config)# port-profile type vethernet PortProfile1
n1000v(config-port-prof)# pinning id 3
n1000v(config-port-prof)# show port-profile name PortProfile1
port-profile PortProfile1
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    pinning id 3
  evaluated config attributes:
    pinning id 3
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

# Pinning a Control or Packet VLAN to a Subgroup

You can use this procedure to pin a control or packet VLAN to a specific subgroup.

## BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- The existing port profile must be a system port profile.
- The port profile must be an Ethernet type.
- If you are pinning a control or packet VLAN, it must already be in the port profile.
  - If you are pinning a control VLAN, the control VLAN must already be one of the system VLANs in the port profile.

## SUMMARY STEPS

1. **config t**
2. **port-profile** *name*
3. **pinning** {**control-vlan** | **packet-vlan**} *subgroup_id*
4. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
5. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **config t**<br>**Example:**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **port-profile** *name*<br>**Example:**<br>`n1000v(config)# port-profile SystemProfile1`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile. |
| **Step 3** | **pinning** {**control-vlan** \| **packet-vlan**} *subgroup_id*<br>**Example:**<br>`n1000v(config-port-prof)# pinning control-vlan 3`<br>`n1000v(config-port-prof)#` | Assigns (or pins) a control VLAN or packet VLAN to a port channel subgroup (0–31). |
| **Step 4** | **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*]<br>**Example:**<br>`n1000v(config-port-prof)# show port-profile SystemProfile1` | (Optional) Displays the configuration for verification. |
| **Step 5** | **copy running-config startup-config**<br>**Example:**<br>`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. |

## EXAMPLES

This example shows how to configure static pinning on a control VLAN:

```
n1000v# config t
n1000v(config)# port-profile SystemProfile1
n1000v(config-port-prof)# pinning control-vlan 3
n1000v(config-port-prof)# show port-profile SystemProfile1
port-profile SystemProfile1
  description:
  type: ethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: 3
  pinning packet-vlan: -
  system vlans: 1
  port-group: SystemProfile1
  max ports: -
  inherit:
  config attributes:
    switchport mode trunk
    switchport trunk allowed vlan 1-5
    no shutdown
  evaluated config attributes:
    switchport mode trunk
    switchport trunk allowed vlan 1-5
    no shutdown
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

This example shows how to configure static pinning on a packet VLAN:

```
n1000v# config t
n1000v(config)# port-profile SystemProfile1
n1000v(config-port-prof)# pinning packet-vlan 0
n1000v(config-port-prof)# show port-profile name SystemProfile1
port-profile SystemProfile1
  description:
  type: ethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: 0
  system vlans: 1
  port-group:
  max ports: -
  inherit:
  config attributes:
    switchport mode access
    switchport access vlan 1
    switchport trunk native vlan 1
    no shutdown
  evaluated config attributes:
    switchport mode access
    switchport access vlan 1
    switchport trunk native vlan 1
    no shutdown
  assigned interfaces:
n1000v(config-port-prof)# copy running-config startup-config
```

# Feature History for Port Channels in Port Profiles

This section provides the feature history for port channels in port profiles.

| Feature Name | Releases | Feature Information |
|---|---|---|
| Port Channels in Port Profiles | 4.0(4)SV1(1) | This feature was introduced. |
| vPC-Host Mode | 4.0(4)SV1(2) | Supports the following:<br>• Manual creation of subgroups.<br>• MAC pinning for upstream switches that do not support port channels. |

| Feature Name | Releases | Feature Information |
|---|---|---|
| MAC Pinning | 4.0(4)SV1(2) | Connecting to upstream switches that do not support port channels using the MAC-pinning command. |
| Static Pinning | 4.0(4)SV1(2) | Supports attaching (or pinning) a vEthernet interface, control VLAN, or packet VLAN to a specific port channel subgroup. |

CHAPTER 6

# Configuring a Private VLAN in a Port Profile

This chapter describes how to create a port profile for a private VLAN (PVLAN).

This chapter includes the following sections:

## Information About Private VLANs

Private VLANs (PVLANs) are used to segregate Layer 2 ISP traffic and convey it to a single router interface. PVLANs achieve device isolation by applying Layer 2 forwarding constraints that allow end devices to share the same IP subnet while being Layer 2 isolated. In turn, the use of larger subnets reduces address management overhead.

For more information about PVLAN, see the *Cisco Nexus 1000V Layer 2 Switching Configuration Guide, Release 4.0(4)SV1(2)*

## Configuring a Port Profile as a Private VLAN

You can use this procedure to configure a port profile to be used as a private VLAN (PVLAN).

### BEFORE YOU BEGIN

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

- You are logged in to the CLI in EXEC mode.
- You know the VLAN IDs for both the primary and secondary VLAN in the private VLAN pair.
- You know whether this private VLAN inherits its configuration.

### SUMMARY STEPS

1. **config t**
2. **port-profile** [**type** {**ethernet** | **vethernet**}] *name*
3. **switchport mode private-vlan** {*host* | *promiscuous*}

4. **switchport private-vlan host-association** *primary-vlan secondary-vlans*
5. **switchport private-vlan mapping** *primary_vlan* [add | remove] *secondary_vlans*
6. **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]
7. **copy running-config startup-config**

## DETAILED STEPS

| | Command | Description |
|---|---|---|
| **Step 1** | **`config t`**<br><br>**`Example:`**<br>`n1000v# config t`<br>`n1000v(config)#` | Enters global configuration mode. |
| **Step 2** | **`port-profile`** `[`**`type`** `{`**`ethernet`** `\|` **`vethernet`**`}]` *`name`*<br><br>**`Example:`**<br>`n1000v(config)# port-profile AccessProf`<br>`n1000v(config-port-prof)#` | Enters port profile configuration mode for the named port profile. If the port profile does not already exist, it is created using the following characteristics:<br>• *name*—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V.<br>• **type**—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type.<br>Defining a port profile type as Ethernet allows the port profile to be used for physical (Ethernet) ports. In the vCenter Server, the corresponding port group can be selected and assigned to physical ports (PNICs).<br>**Note** If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports. |
| **Step 3** | **`switchport mode private-vlan`** `{`**`host`** `\|` **`promiscuous`**`}`<br><br>**`Example:`**<br>`n1000v(config-port-prof)# switchport mode private-vlan promiscuous`<br>`n1000v(config-port-prof)#` | Designates the port profile for use as a private VLAN and defines the ports as follows:<br>• **promiscuous**—Ports that belong to the primary VLAN and communicate with the Layer 3 gateway. Promiscuous ports can communicate with any interface in the PVLAN domain, including those associated with secondary VLANs.<br>• **host**—Ports that belong to the secondary VLAN as one of the following:<br>– Community PVLAN host port<br>– Isolated PVLAN host port |

| | Command | Description |
|---|---|---|
| **Step 4** | **`switchport private-vlan host-association`** *`primary-vlan secondary-vlans`*<br>**`Example:`**<br>`n1000v(config-port-prof)# switchport private-vlan host-association 3 300 301 302`<br>`n1000v(config-port-prof)#` | Assigns the primary and secondary VLAN IDs to the port profile and saves this association in the running configuration.<br>• *primary-vlan*—Specifies a primary VLAN ID. You can specify only one primary VLAN ID.<br>• *secondary-vlans*—Specifies the secondary VLAN IDs. You can specify more than one secondary VLAN ID. |
| **Step 5** | **`switchport private-vlan mapping`** *`primary_vlan`* `[add \| remove]` *`secondary_vlans`*<br>**`Example:`**<br>`n1000v(config-port-prof)# switchport private-vlan mapping 3 add 300 301 302`<br>`n1000v(config-port-prof)#` | Maps the primary VLAN ID to the secondary VLAN IDs for the port profile. |
| **Step 6** | **`show port-profile`** `[`**`brief`** `\|` **`expand-interface`** `\|` **`usage`**`] [`**`name`** *`profile-name`*`]`<br>**`Example:`**<br>`n1000v(config-port-prof)# show port-profile name AccessProf` | (Optional) Displays the configuration for verification. |
| **Step 7** | **`copy running-config startup-config`**<br>**`Example:`**<br>`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. |

```
n1000v(config)# port-profile pvlanprof
n1000v(config-port-prof)# switchport mode private-vlan promiscuous
n1000v(config-port-prof)# switchport private-vlan host-association 3 300 301 302
n1000v(config-port-prof)# switchport private-vlan mapping 3 add 300 301 302
n1000v(config-port-prof)# show port-profile name pvlanprof
port-profile pvlanprof
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    switchport mode private-vlan promiscuous
    switchport private-vlan host-association 3 300 301 302
    switchport private-vlan mapping 3 300 301 302
  evaluated config attributes:
    switchport mode private-vlan promiscuous
    switchport private-vlan host-association 3 300
    switchport private-vlan mapping 3 300
  assigned interfaces:
n1000v(config-port-prof)#
```

# Feature History for Private VLAN Port Profiles

This section provides the feature history for system port profiles.

| Feature Name | Releases | Feature Information |
|---|---|---|
| Private VLAN Port Profiles | 4.0(4)SV1(1) | This feature was introduced. |

CHAPTER 7

# Verifying the Port Profile Configuration

This chapter describes the commands used to verify port profile configurations.

This chapter includes the following sections:

- Verifying the Port Profile Configuration, page 7-1
- Feature History for Port Profile Verification, page 7-4

## Verifying the Port Profile Configuration

You can use the following commands to verify the port profile configuration.

| Command | Purpose |
|---|---|
| **show port-profile** [**brief** \| **expand-interface** \| **usage**] [**name** *profile-name*] | Displays the port profile configuration. |
| **show running-config interface** {**ethernet** *slot/port* \| **mgmt 0** \| **vethernet** *number*} | Displays the port profile configuration, including interface assignments. |

For detailed information about the command output, see the *Cisco Nexus 1000V Command Reference, Release 4.0(4)SV1(2)*.

### EXAMPLES

The following example shows how to display information about all port profiles:

```
n1000v# show port-profile
port-profile UpLinkProfile1
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on mac-pinning
  evaluated config attributes:
    channel-group auto mode on mac-pinning
  assigned interfaces:
port-profile UpLinkProfile2
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on sub-group cdp
  evaluated config attributes:
    channel-group auto mode on sub-group cdp
  assigned interfaces:
port-profile UpLinkProfile3
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on sub-group manual
  evaluated config attributes:
    channel-group auto mode on sub-group manual
  assigned interfaces:n1000v#
```

The following example shows how to display information about a specific port profile:

```
n1000v# show port-profile name UpLinkProfile3
port-profile UpLinkProfile3
  description:
  type: vethernet
  status: disabled
  capability l3control: no
  pinning control-vlan: -
  pinning packet-vlan: -
  system vlans: none
  port-group:
  max ports: 32
  inherit:
  config attributes:
    channel-group auto mode on sub-group manual
  evaluated config attributes:
    channel-group auto mode on sub-group manual
  assigned interfaces:
n1000v#
```

The following example shows how to display summary information about all port profiles:

```
n1000v# show port-profile brief
--------------------------------------------------------------------------------
Port                                    Profile  Remote Conf  Eval  Child Child
Profile                                 State    Mgmt   Items Items Intfs Profs
```

```
--------------------------------------------------------------------------------
UplinkProfile1                          enabled  vmware     3     3     1     0
UplinkProfile2                          enabled  vmware     3     3     2     0
Ubuntu-Profile                          enabled  vmware     3     3     1     0
n1000v#
```

The following example shows how to display usage information about all port profiles:

```
n1000v# show port-profile usage
--------------------------------------------------------------------------------
Port Profile               Port        Adapter        Owner
--------------------------------------------------------------------------------
UplinkProfile1             Eth2/2      vmnic1         mcs-srvr26
UplinkProfile2             Eth2/3      vmnic2         mcs-srvr26
                           Eth2/4      vmnic3         mcs-srvr26
Ubuntu-Profile             Veth439                    ubuntu-2
n1000v#
```

The following example shows how to display expanded interface information about a specific port profile:

```
n1000v# show port-profile expand-interface name UplinkProfile1
port-profile UplinkProfile1
Ethernet2/2
    switchport mode trunk
    switchport trunk allowed vlan 110-119
    no shutdown
n1000v#
```

The following example shows how to display expanded interface information for all port profiles:

```
n1000v# show port-profile expand-interface
port-profile UplinkProfile1
Ethernet2/2
    switchport mode trunk
    switchport trunk allowed vlan 110-119
    no shutdown

port-profile UplinkProfile2
Ethernet2/3
    switchport mode trunk
    switchport trunk allowed vlan 117
    no shutdown
Ethernet2/4
    switchport mode trunk
    switchport trunk allowed vlan 117
    no shutdown

port-profile Ubuntu-Profile
Vethernet439
    switchport mode access
    switchport access vlan 118
    no shutdown
n1000v#
```

The following example shows how to display the running configuration of all port profiles:

```
n1000v# show running-config port-profile
port-profile type ethernet UplinkProfile1
  description "Profile for critical system ports"
  vmware port-group
  switchport mode access
  switchport access vlan 113
  switchport trunk native vlan 113
  channel-group auto mode on
  no shutdown
port-profile type vethernet UplinkProfile2
  vmware port-group
  vmware max-ports 5
  switchport mode trunk
  switchport trunk native vlan 112
  channel-group auto mode on sub-group cdp
  no shutdown
n1000v#
```

# Feature History for Port Profile Verification

This section provides the feature history for port profile verification.

| Feature Name | Releases | Feature Information |
|---|---|---|
| Port Profile verification | 4.0(4)SV1(1) | This feature was introduced. |
| **show running-config** command | 4.0(4)SV1(2) | This command output has the following changes:<br>• Shows the port profile type (Ethernet or vEthernet).<br>• Optionally, you can display running configurations for all port profiles or a specific port profile. |
| **show port-profile** *name* command | 4.0(4)SV1(2) | This command output shows the port profile type, pinning, and channel-group configuration. The uplink capability is removed from the output of this command since port profiles used as uplinks are now configured as Ethernet type instead. |

APPENDIX A

# Port Profile Configuration Limits

This section lists the maximum configuration limits for port profile features.

*Table A-1 Port Profile Maximum Configuration Limits*

| Port Profile Feature | Maximum Limits (per DVS) | Maximum Limits (per Host) |
|---|---|---|
| vEthernet interfaces | 2000 | 216 |
| vEthernet trunks | 256 | 8 |
| vEthernet interfaces per port profile | 1024 | — |
| Port Profiles | 256 | — |
| System Profiles per host | 16 | — |
| Private VLAN | 512 | — |

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