



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, page 2-1](#)
- [Guidelines and Limitations, page 2-3](#)
- [Default Settings, page 2-4](#)
- [Configuring Port Profiles, page 2-4](#)
- [Additional References, page 2-26](#)
- [Feature History for Port Profiles, page 2-27](#)

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 2-23](#).

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Table 2-1 Port Profile States

State	Behavior
Disabled (the default)	When disabled, a port profile behaves as follows: <ul style="list-style-type: none"> • Its configuration is not applied to assigned ports. • 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: <ul style="list-style-type: none"> • Its configuration is applied to assigned ports. • If configured with the VMware port-group attribute, the port group is created on the vCenter Server.

vEthernet Port Binding

You can configure either static, dynamic, or ephemeral port binding for vEthernet port profiles. [Table 2-2](#) shows how this setting controls how ports are assigned in the VMware port group.

Table 2-2 vEthernet Port Binding

Type	Behavior
Static (the default)	A DVPortID is assigned from the port group pool when you first assign the port group to the port. The DVPortID persists for the life of the network adapter. The port group has a fixed number of ports.

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Table 2-2 vEthernet Port Binding (continued)

Type	Behavior
Dynamic	<p>A DVPortID is assigned to a virtual machine only when the virtual machine is powered on and its NIC is in a connected state. The DVPortID is freed when the virtual machine is powered off or the virtual machine's NIC is disconnected. Virtual machines connected to a port group configured with dynamic binding must be powered on and off through the VMware vCenter Server.</p> <p>Dynamic binding can be used in environments where you have more virtual machines than available ports, but do not plan to have a greater number of virtual machines active than you have available ports. For example, if you have 300 virtual machines and 100 ports, but will never have more than 90 virtual machines active at one time, then dynamic binding would be appropriate for your port group.</p>
Ephemeral	<p>A new DVPortID is assigned to the port every time the VM is powered on. The port keeps this same DVPortID while the VM is up. All available DVS ports are shared. Ports are not allocated from the port group pool.</p> <p>Note If a system administrator changes the port profile assignment for an interface, any manual configuration on the interface is purged if either port profile is configured with ephemeral port binding. This purging of manual configurations occurs regardless of your auto purge setting. For more information about configuring <code>svs veth auto-config-purge</code>, see the <i>Cisco Nexus 1000V Interface Configuration Guide, Release 4.2(1)SV1(4a)</i></p>

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.
- In an installation where multiple Ethernet port profiles are active on the same VEM, it is recommended that they do not carry the same VLAN(s). The allowed VLAN list should be mutually exclusive. Overlapping VLANs can be configured but may cause duplicate packets to be received by virtual machines in the network.
- To maintain consistency between the port profile definition and what is applied to an interface, if a port profile modification is rejected by any port, the modification is rejected by the port profile too.

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- If you create a port profile with a command error, for example a private VLAN mapping error or service policy map error, then an attempt to apply this port profile to an interface shuts down the interface. The error is not copied to the interface and a system message is generated with details of the error. In this case, you must correct the error in the port profile. Then return the interface to service and apply the corrected port profile using the following command sequence:

1. **no shutdown**
2. **default shutdown**

For more information, see the *Cisco Nexus 1000V Troubleshooting Guide, Release 4.2(1)SV1(4a)*.

- MTU can only be configured for uplink, Ethernet type port profiles.
- If you configure MTU for an Ethernet port profile, your ESX host may generate the following error:

```
2010 Nov 15 04:35:27 my-n1k %VEM_MGR-SLOT3-1-VEM_SYSLOG_ALERT: vssnet :
sf_platform_set_mtu: Failed setting MTU for VMW port with portID 33554475.
```

In this case, the MTU value you have set is not supported by the VEM physical NIC. See your VMware documentation for more information about supported MTU for PNIC.

- Before configuring a port profile, the Cisco Nexus 1000V software must be initially configured. For information, see the *Cisco Nexus 1000V Getting Started Guide, Release 4.2(1)SV1(4a)*.
- The Cisco Nexus 1000V must be connected to the vCenter Server.

Default Settings

Table 2-3 lists the default settings in the port profile configuration.

Table 2-3 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
max-ports	32
min-ports	32
vmware port-group name	Port profile name
vEthernet port-binding	Static

Configuring Port Profiles

This section include the following topics:

- [Creating a Port Profile, page 2-5](#)

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- [Configuring VMware Attributes, page 2-7](#)
- [Configuring Port Mode, page 2-9](#)
- [Configuring Port Binding for vEthernet Port Profiles, page 2-16](#)
- [Enabling a Port Profile, page 2-23](#)
- [Removing a Port Profile, page 2-25](#)

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-profile [brief | expand-interface | usage] [name *profile-name*]**
5. **copy running-config startup-config**

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DETAILED STEPS

	Command	Description
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	port-profile [type {ethernet vether- net}] name Example: n1000v(config)# port-profile type ether- net AllAccess1 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: <ul style="list-style-type: none"> name—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V. type—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type. <p>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).</p> <p>Note If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports.</p>
Step 3	description profiledescription Example: n1000v(config-port-prof)# description all_access 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-inter- face usage] [name profile-name] Example: n1000v(config-port-prof)# show port-pro- file name AllAccess1	(Optional) Displays the configuration for verification.
Step 5	copy running-config startup-config Example: n1000v(config-port-prof)# copy running- config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

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: -
```

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```
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 **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. **max-ports** *number*
5. **show port-profile** [brief | expand-interface | usage] [name *profile-name*]
6. **copy running-config startup-config**

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DETAILED STEPS

	Command	Description/Result
Step 1	<pre>config t</pre> <p>Example: n1000v# config t n1000v(config)#</p>	Enters global configuration mode.
Step 2	<pre>port-profile [type {ethernet vethernet}] name</pre> <p>Example: n1000v(config)# port-profile AccessProf n1000v(config-port-prof)#</p>	<p>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:</p> <ul style="list-style-type: none"> name—The port profile name can be up to 80 characters and must be unique for each port profile on the Cisco Nexus 1000V. type—(Optional) The port profile type can be Ethernet or vEthernet. Once configured, the type cannot be changed. The default is the vEthernet type. <p>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).</p> <p>Note If a port profile is configured as an Ethernet type, then it cannot be used to configure VMware virtual ports.</p>
Step 3	<pre>vmware port-group [pg_name]</pre> <p>Example: n1000v(config-port-prof)# vmware port-group n1000v(config-port-prof)#</p>	<p>Designates the port profile as a VMware port group.</p> <p>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.</p>
Step 4	<pre>max-ports num</pre> <p>Example: n1000v(config-port-prof)# max-ports 5 n1000v(config-port-prof)#</p>	<p>Designates the maximum number of ports that can be assigned to this non-uplink port profile. The default is 32 ports.</p> <p>When the specified maximum number of ports is reached, no more ports can be assigned.</p>
Step 5	<pre>show port-profile [brief expand-interface usage] [name profile-name]</pre> <p>Example: n1000v(config-port-prof)# show port-profile name AccessProf</p>	(Optional) Displays the configuration for verification.
Step 6	<pre>copy running-config startup-config</pre> <p>Example: n1000v(config-port-prof)# copy running-config startup-config</p>	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

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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 2-10](#)
- [Configuring an Access Profile, page 2-12](#)
- [Clearing a Port Management Policy, page 2-14](#)

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 2-4](#) describes the available VLAN ranges and their use.

Table 2-4 **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: <ul style="list-style-type: none"> • State is always active. • VLAN is always enabled. 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.

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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 2-5.
- 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 2-4 on page 2-9](#).
- 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 Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	port-profile name Example: n1000v(config)# port-profile TrunkProf n1000v(config-port-prof)#	Enters port profile configuration mode for the named port profile.

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	Command	Description
Step 3	<p>switchport mode trunk</p> <p>Example: n1000v(config-port-prof)# switchport mode trunk n1000v(config-port-prof)#</p>	<p>Designates that the interfaces are to be used as a trunking ports.</p> <p>A trunk port transmits untagged packets for the native VLAN and transmits encapsulated, tagged packets for all other VLANs.</p>
Step 4	<p>no shutdown</p> <p>Example: n1000v(config-port-prof)# no shutdown n1000v(config-port-prof)#</p>	<p>Administratively enables all ports in the profile.</p>
Step 5	<p>switchport trunk allowed vlan {<i>allowed-vlans</i> add <i>add-vlans</i> except <i>except-vlans</i> remove <i>remove-vlans</i> all none}</p> <p>Example: n1000v(config-port-prof)# switchport trunk allowed vlan all</p>	<p>(Optional) Designates the port profile as trunking and defines VLAN access to it as follows:</p> <ul style="list-style-type: none"> • <i>allowed-vlans</i>—Defines VLAN IDs that are allowed on the port. • add—Lists VLAN IDs to add to the list of those allowed on the port. • except—Lists VLAN IDs that are not allowed on the port. • remove—Lists VLAN IDs whose access is to be removed from the port. • all—Indicates that all VLAN IDs are allowed on the port, unless exceptions are also specified. • none—Indicates that no VLAN IDs are allowed on the port. <p>Note If you do not configure allowed VLANs, then the default VLAN 1 is used as the allowed VLAN.</p>
Step 6	<p>switchport trunk native vlan <i>vlan-id</i></p> <p>Example: n1000v(config-port-prof)# switchport trunk native vlan 3</p>	<p>(Optional) Sets the trunking native characteristics when the interface is in trunking mode.</p> <p>If you do not configure a native VLAN, then the default VLAN 1 is used as the native VLAN.</p>
Step 7	<p>show port-profile [brief expand-interface usage] [name <i>profile-name</i>]</p> <p>Example: n1000v(config-port-prof)# show port-profile TrunkProf</p>	<p>(Optional) Displays the configuration for verification.</p>
Step 8	<p>copy running-config startup-config</p> <p>Example: n1000v(config-port-prof)# copy running-config startup-config</p>	<p>(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.</p>

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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*]**

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7. copy running-config startup-config

DETAILED STEPS

	Command	Description
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	port-profile name Example: n1000v(config)# port-profile AccessProf n1000v(config-port-prof)#	Enters port profile configuration mode for the named port profile.
Step 3	switchport mode {access trunk} Example: n1000v(config-port-prof)# switchport mode access n1000v(config-port-prof)#	Designates the interfaces as either switch access ports (the default) or trunks.
Step 4	no shutdown Example: n1000v(config-port-prof)# no shutdown n1000v(config-port-prof)#	Administratively enables all ports in the profile.
Step 5	switchport access vlan vlan-id-access. Example: n1000v(config-port-prof)# switchport access vlan 300	(Optional) Assigns an access VLAN ID to this port profile. 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] Example: n1000v(config-port-prof)# show port-profile AccessProf	(Optional) Displays the configuration for verification.
Step 7	copy running-config startup-config Example: n1000v(config-port-prof)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

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
```

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```

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**

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DETAILED STEPS

	Command	Description
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	port-profile name Example: n1000v(config)# port-profile AccessProf n1000v(config-port-prof)#	Enters port profile configuration mode for the named port profile.
Step 3	default {shutdown switchport mode} Example: n1000v(config-port-prof)# default switchport mode n1000v(config-port-prof)#	Removes either the shutdown or the switchport mode configuration from the port profile. <ul style="list-style-type: none"> • shutdown—Reverts port profile ports to the shutdown state • switchport mode—Reverts port profile ports to switch access ports.
Step 4	show port-profile [brief expand-interface usage] [name profile-name] Example: n1000v(config-port-prof)# show port-profile name AccessProf	(Optional) Displays the configuration for verification.
Step 5	copy running-config startup-config Example: n1000v(config-port-prof)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

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)#
```

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Configuring Port Binding for vEthernet Port Profiles

You can use the following procedures in this section to configure port binding for vEthernet port profiles:

- [Configuring a Default Port Binding Type, page 2-16](#)
- [Configuring Port Binding for a vEthernet Port Profile, page 2-18](#)
- [Configuring a Port Profile with Dynamic or Static Port Binding with the Auto Option, page 2-20](#)
- [Verifying Port Binding on vCenter Server, page 2-22](#)

BEFORE YOU BEGIN

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

- You have read the “[vEthernet Port Binding](#)” section on [page 2-2](#).
- Once a vEthernet port profile has been created as a port group on the vCenter Server, you are not allowed to change its port binding type.
- You are not allowed to configure max ports for vEthernet port profiles with ephemeral port binding.
- You are not allowed to configure port binding for Ethernet type port profiles. Port binding is only available for vEthernet port profiles.
- Manual configurations on an interface are purged when the system administrator changes its port profile if either port profile is configured with ephemeral port binding. This occurs regardless of your auto purge setting.

For more information about the **svs auto-config-purge** command, see the *Cisco Nexus 1000V Interface Configuration Guide, Release 4.2(1)SV1(4a)*.

Configuring a Default Port Binding Type

You can use this procedure to configure the type of port binding (static, dynamic, or ephemeral) to apply by default to all new vEthernet port profiles.

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 type of port binding (static, dynamic, or ephemeral) you want to use as a default for all new vEthernet port profiles.

SUMMARY STEPS

1. **config t**
2. **port-profile default port-binding {static [auto] | dynamic [auto] | ephemeral}**
3. **show running-config**
4. **copy running-config startup-config**

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DETAILED STEPS

	Command	Description
Step 1	<pre>config t</pre> <p>EXAMPLE: n1000v# config t n1000V(config)#</p>	Enter global configuration mode.
Step 2	<pre>port-profile default port-binding {static [auto] dynamic [auto] ephemeral}</pre> <p>Example: n1000v(config)# port-profile default port-binding ephemeral n1000v(config)#</p>	<p>Configures a default port binding type to be applied automatically to all new vEthernet port profiles unless explicitly configured otherwise:</p> <ul style="list-style-type: none"> • Static: <p>A DVPortID is assigned from the port group pool when you first assign the port group to the port. The DVPortID persists for the life of the network adapter. The port group has a fixed number of ports.</p> <ul style="list-style-type: none"> – auto: Port profiles are created with both min-ports and max-ports, which are initially inherited from the global defaults and can be redefined by the user at a later time. By configuring the binding type with the auto option, the Nexus 1000V will adjust the number of ports per profile created at the vCenter server based on the usage of the port groups. • Dynamic: <p>A DVPortID is assigned to a virtual machine only when the virtual machine is powered on and its NIC is in a connected state. The DVPortID is freed when the virtual machine is powered off or the virtual machine's NIC is disconnected.</p> <ul style="list-style-type: none"> – See auto option above. • Ephemeral: <p>A new DVPortID is assigned to the port every time the VM is powered on. The port keeps this same DVPortID while the VM is up. All available DVS ports are shared. Ports are not allocated from the port group pool.</p>
Step 3	<pre>show running-config</pre> <p>Example: n1000v(config)# show running-config</p>	(Optional) Displays the configuration for verification.
Step 4	<pre>copy running-config startup-config</pre> <p>Example: n1000v(config-port-prof)# copy running-config startup-config</p>	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

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EXAMPLES

This example shows how to configure the dynamic port binding type as the default for all new vEthernet port profiles created:

```
n1000v# config t
n1000v(config)# port-profile default port-binding dynamic
n1000v(config)#
```

Configuring Port Binding for a vEthernet Port Profile

You can use this procedure to configure the type of port binding (static, dynamic, or ephemeral) for an existing vEthernet 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 vEthernet port profile using the [“Creating a Port Profile” procedure on page 2-5](#).
- You know the type of port binding (static, dynamic, or ephemeral) you want to apply to this vEthernet port profile.

SUMMARY STEPS

1. **config t**
2. **port-profile [type {vethernet}] profile-name**
3. **port-binding {static [auto] | dynamic [auto] | ephemeral}**
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 Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	port-profile [type {vethernet}] profile-name Example: n1000v(config)# port-profile AccessProf n1000v(config-port-prof)#	Enters port profile configuration mode for the named vEthernet port profile.

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	Command	Description
Step 3	<p>port-binding {static [auto] dynamic [auto] ephemeral}</p> <p>Example: n1000v(config-port-prof)# port-binding ephemeral n1000v(config-port-prof)#</p>	<p>Configures a default port binding type to be applied automatically to all new vEthernet port profiles unless explicitly configured otherwise:</p> <ul style="list-style-type: none"> • Static: A DVPortID is assigned from the port group pool when you first assign the port group to the port. The DVPortID persists for the life of the network adapter. The port group has a fixed number of ports. <ul style="list-style-type: none"> – auto: Port profiles are created with both min-ports and max-ports, which are initially inherited from the global defaults and can be redefined by the user at a later time. By configuring the binding type with the auto option, the Nexus 1000V will adjust the number of ports per profile created at the vCenter server based on the usage of the port groups. • Dynamic: A DVPortID is assigned to a virtual machine only when the virtual machine is powered on and its NIC is in a connected state. The DVPortID is freed when the virtual machine is powered off or the virtual machine's NIC is disconnected. <ul style="list-style-type: none"> – See auto option above. • Ephemeral: A new DVPortID is assigned to the port every time the VM is powered on. The port keeps this same DVPortID while the VM is up. All available DVS ports are shared. Ports are not allocated from the port group pool.
Step 4	<p>show port-profile [name profile-name]</p> <p>Example: n1000v(config-port-prof)# show port-profile name AccessProf</p>	(Optional) Displays the configuration for verification.
Step 5	<p>copy running-config startup-config</p> <p>Example: n1000v(config-port-prof)# copy running-config startup-config</p>	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

This example shows how to configure the dynamic port binding type for the existing port profile named target-pp:

```
n1000v# config t
n1000v(config)# port-profile target-pp
n1000v(config-port-prof)# port-binding dynamic
n1000v(config-port-prof)#
```

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Configuring a Port Profile with Dynamic or Static Port Binding with the Auto Option

You can use this procedure to configure a port profile (static or dynamic) with or without the auto option.

BEFORE YOU BEGIN

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

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

SUMMARY STEPS

- config t**
- port-profile** [type {vethernet}] *profile-name*
- vmware port-group** [*pg_name*]
- port-binding** {static [auto] | dynamic [auto] | ephemeral}
- max-ports** *number*
- min-ports** *number*
- state enabled**
- copy running-config startup-config**

DETAILED STEPS

	Command	Description
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	port-profile [type {vethernet}] <i>profile-name</i> Example: n1000v(config)# port-profile type vethernet v3 n1000v(config-port-prof)#	Enters port profile configuration mode for the named vEthernet port profile.
Step 3	vmware port-group [<i>pg_name</i>] Example: n1000v(config-port-prof)# vmware port-group n1000v(config-port-prof)#	Designates the port profile as a VMware port group. 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.

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	Command	Description
Step 4	<p>port-binding {static [auto] dynamic [auto] ephemeral}</p> <p>Example: n1000v(config-port-prof)# port-binding static auto n1000v(config-port-prof)#</p>	<p>Configures a default port binding type to be applied automatically to all new vEthernet port profiles unless explicitly configured otherwise:</p> <ul style="list-style-type: none"> • Static: A DVPortID is assigned from the port group pool when you first assign the port group to the port. The DVPortID persists for the life of the network adapter. The port group has a fixed number of ports. <ul style="list-style-type: none"> – auto: Port profiles are created with both min-ports and max-ports, which are initially inherited from the global defaults and can be redefined by the user at a later time. By configuring the binding type with the auto option, the Nexus 1000V will adjust the number of ports per profile created at the vCenter server based on the usage of the port groups. • Dynamic: A DVPortID is assigned to a virtual machine only when the virtual machine is powered on and its NIC is in a connected state. The DVPortID is freed when the virtual machine is powered off or the virtual machine's NIC is disconnected. <ul style="list-style-type: none"> – See auto option above. • Ephemeral: A new DVPortID is assigned to the port every time the VM is powered on. The port keeps this same DVPortID while the VM is up. All available DVS ports are shared. Ports are not allocated from the port group pool.
Step 5	<p>max-ports <i>number</i></p> <p>Example: n1000v(config-port-prof)# max-ports 512 n1000v(config-port-prof)#</p>	<p>Designates the maximum number of ports that can be assigned to this non-uplink port profile. The default value is the global default at the time of port profile creation.</p> <p>When the specified maximum number of ports is reached, no more ports can be assigned.</p> <p>The valid range is 1 to 1024.</p> <p>Note Do not configure a value less than min-ports.</p>
Step 6	<p>min-ports <i>number</i></p> <p>Example: n1000v(config-port-prof)# min-ports 32 n1000v(config-port-prof)#</p>	<p>Designates the minimum number of ports that can be assigned to this non-uplink port profile. The default value is the global default at the time of port profile creation.</p> <p>The valid range is 1 to 1024.</p> <p>Note Do not configure a value greater than max-ports.</p>
Step 7	<p>state enabled</p> <p>Example: n1000v(config-port-prof)# state enabled n1000v(config-port-prof)#</p>	<p>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.</p>

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	Command	Description
Step 8	copy running-config startup-config Example: n1000v(config-port-prof)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

This example shows how to configure the dynamic auto port binding type:

```
n1000v# config t
n1000v(config)# port-profile type vethernet dynamic_auto_pp
n1000v(config-port-prof)# vmware port-group
n1000v(config-port-prof)# port-binding dynamic auto
n1000v(config-port-prof)# max-ports 128
n1000v(config-port-prof)# min-ports 64
n1000v(config-port-prof)# state enabled
n1000v(config-port-prof)# copy running-config startup-config
```

Verifying Port Binding on vCenter Server

You can use this procedure to verify the port binding configuration for a port group in vCenter Server.

BEFORE YOU BEGIN

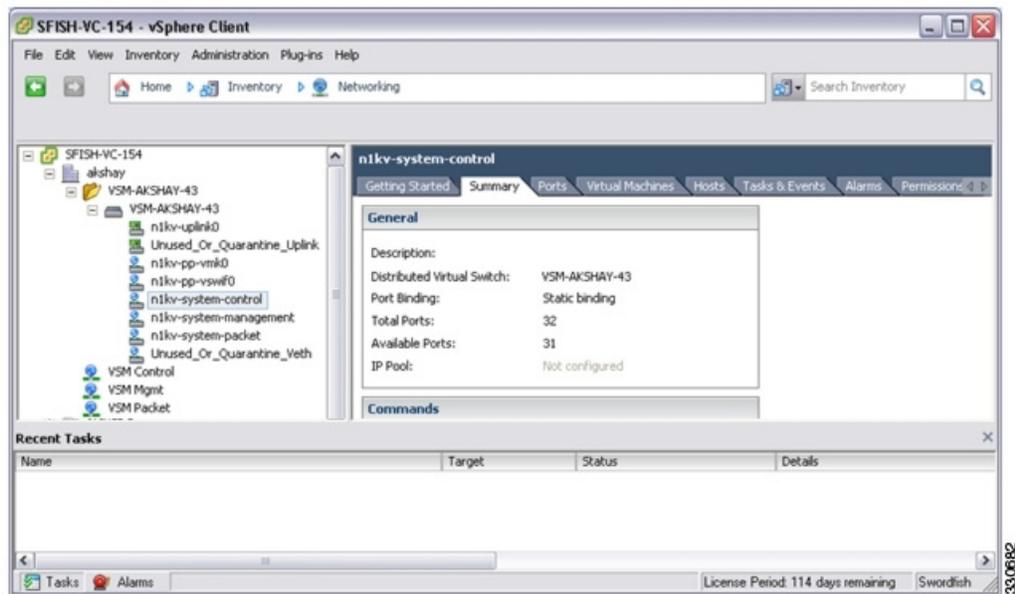
Before beginning this procedure, you must know or do the following:

- You are logged in to vCenter Server on the host.

DETAILED STEPS

-
- Step 1** From your DVS in the Networking tab, choose the port group, and then click the Summary tab. The General section of the Summary tab displays the type of port binding for this port group.

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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 2-5.

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`

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DETAILED STEPS

	Command	Description
Step 1	config t Example: n1000v# config t n1000v(config)#	Enters global configuration mode.
Step 2	port-profile [type {ethernet vethernet}] name Example: n1000v(config)# port-profile AccessProf n1000v(config-port-prof)#	Enters port profile configuration mode for the named port profile.
Step 3	state enabled Example: n1000v(config-port-prof)# state enabled 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] Example: n1000v(config-port-prof)# show port-profile name AccessProf	(Optional) Displays the configuration for verification.
Step 5	copy running-config startup-config Example: n1000v(config-port-prof)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

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)#
```

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

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	Command	Description
Step 4	show port-profile name <i>profile_name</i> Example: n1000v(config)# show port-profile name AccessProf ERROR: port-profile AccessProf does not exist n1000v(config)#	(Optional) Verifies that the port profile does not exist.
Step 5	copy running-config startup-config Example: n1000v(config-port-prof)# copy running-config startup-config	(Optional) Saves the running configuration persistently through reboots and restarts by copying it to the startup configuration.

EXAMPLES

This example shows how to remove a port profile:

```
n1000v# config t
n1000v(config)# show port-profile virtual usage name AccessProf
-----
Port Profile          Port          Adapter          Owner
-----
n1kv-uplink0         Po1
                    Eth3/2        vmnic1           localhost.
                    Eth3/3        vmnic2           localhost.
vlan1767              Veth7         Net Adapter 1    all-tool-7
AccessProf            vEth12        vmnic1           localhost.
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
```

Additional References

For additional information related to port profiles, see the following sections:

- [Related Documents, page 2-27](#)
- [Standards, page 2-27](#)

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Related Documents

Related Topic	Document Title
Complete command syntax, command modes, command history, defaults, usage guidelines, and examples for all Cisco Nexus 1000V commands.	<i>Cisco Nexus 1000V Command Reference, Release 4.2(1)SV1(4)</i>
Port Profile Inheritance	“Configuring Port Profile Inheritance” section on page 3-1
System Port Profiles	“Configuring System Port Profiles” section on page 4-1
Port Channels	<i>Cisco Nexus 1000V Interface Configuration Guide, Release 4.2(1)SV1(4a)</i>
Private VLANs	“Configuring a Private VLAN in a Port Profile” section on page 5-1
Port profile roles	“Restricting Port Profile Visibility” section on page 6-1
Verifying port profiles	“Verifying the Port Profile Configuration” section on page 7-1
Configuration limits	“Port Profile Configuration Limits” section on page A-1
Configuring interfaces including port channels	<i>Cisco Nexus 1000V Interface Configuration Guide, Release 4.2(1)SV1(4a)</i>
Adding an IP or MAC access control list (ACL) to a port profile.	<i>Cisco Nexus 1000V Security Configuration Guide, Release 4.2(1)SV1(4a)</i>
Adding a NetFlow flow monitor to a port profile.	<i>Cisco Nexus 1000V System Management Configuration Guide, Release 4.2(1)SV1(4a)</i>

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

Feature History for Port Profiles

This section provides the feature history for port profiles.

Table 2-5 Feature History for Port Profiles

Feature Name	Releases	Feature Information
Port Binding	4.2(1)SV1(4a)	You can configure a static port binding with the auto option.
Port Binding	4.2(1)SV1(4a)	You can configure a port binding with the dynamic [auto] option.
Atomic Inheritance	4.2(1)SV1(4)	Port Profile configuration applied to member interfaces.
Port Profile Rollback	4.2(1)SV1(4)	After configuration failure, a port profile and its member interfaces are rolled back to the last good configuration.

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Table 2-5 Feature History for Port Profiles

Feature Name	Releases	Feature Information
Interface Quarantine	4.2(1)SV1(4)	After a configuration failure, interfaces are shut down to maintain accurate configuration.
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. The no capability uplink command has been removed.
Port Profiles	4.0(4)SV1(1)	This feature was introduced.