Configuring Virtual Services Blades

This chapter contains the following sections:

Information About Virtual Service Blades

The Cisco Nexus Cloud Services Platform manages services called virtual service blades (VSBs). The VSBs are created using ISO or OVA files found in the Cisco Nexus Cloud Services Platform `bootflash:repository`. The ISO or OVA defines the following for a VSB:

- Required number of interfaces
- Required hard disk emulation
- Disk and RAM defaults

Note The Cisco Nexus Cloud Services Platform supports the Cisco Nexus 1000V Virtual Supervisor Modules (VSMs) for VMware vSphere, the Microsoft Hyper-V, and KVM hypervisors.

Cisco Nexus Cloud Services Platform supports the following VSB types:

- Cisco Nexus 1000V VSM Virtual Service Blades
- Cisco Network Analysis Module Virtual Service Blades
- Cisco Virtual Security Gateway Module Virtual Service Blades
- Cisco Nexus VXLAN Gateway Virtual Service Blades, on page 3
- Citrix NetScaler 1000V Virtual Service Blades, on page 4
- Cisco Nexus 1000V for KVM Virtual Service Blades, on page 4

For information about the supported VSBs and their weighting matrix, see the *Cisco Nexus Cloud Services Platform Compatibility Information*.

Cisco Nexus 1000V VSM Virtual Service Blades

The Cisco Nexus Cloud Services Platform supports the Cisco Nexus 1000V Virtual Supervisor Module (VSM) for VMware vSphere, KVM, and Microsoft Hyper-V hypervisors.

The Cisco Nexus 1110-S can host up to six VSMs and the Cisco Nexus 1110-X can host up to ten VSMs. Each VSM controls a group of virtual Ethernet modules (VEMs). From a network management perspective, a VSM and its VEMs make up a virtual switch. The Cisco Nexus Cloud Services Platform and the multiple virtual switches that it hosts are viewed as a cluster of switches.

You can create redundant VSMs on the Cisco Nexus Cloud Services Platform with the Cisco Nexus 1000V ISO or OVA image that is located in the `bootflash:repository`. The image is copied to a new VSB when you create it. After you create the first VSM, you can point to that software image to create additional VSMs. You can upgrade your VSMs to a new release of Cisco Nexus 1000V software as needed.

To create a VSM virtual service blade, see Creating a Virtual Service Blade, on page 11.

Cisco Network Analysis Module Virtual Service Blades

You can create a Network Analysis Module (NAM) on the Cisco Nexus Cloud Services Platform with the NAM ISO image in the Cisco Nexus 1010 `bootflash:repository`. This image is copied to a new NAM VSB when you create it. To create a VSB for NAM, see Creating a Virtual Service Blade, on page 11.

For more information about NAM, see the *Cisco Network Analysis Module Software Documentation Guide*.

Cisco Virtual Security Gateway Module Virtual Service Blades

You can create up to three Cisco Virtual Security Gateway (VSG) modules on the Cisco Nexus Cloud Services Platform with the Cisco VSG ISO image. You can copy the Cisco VSG ISO image from Cisco.com and then copy it to the new Cisco VSG VSB when you create it.

The Cisco Nexus Cloud Services Platform does not support:

- OVA deployment and migration on the Cisco VSG VSB.
- VSG deployment in standalone mode. We recommend that you deploy VSG as an HA pair on the Cisco Nexus Cloud Services Platform.

Cisco Data Center Network Manager Virtual Service Blades

Cisco Data Center Network Manager (DCNM) is an advanced management software that provides comprehensive lifecycle management of the LAN and SAN data center.

You can create one Cisco DCNM on the Cisco Nexus Cloud Services Platform with the Cisco DCNM ISO image in the Cisco Nexus Cloud Services Platform `bootflash:repository`. The image is copied to a new Cisco DCNM VSB when you create it.

Note The Cisco DCNM VSB is supported only on the Cisco Nexus 1010 and the Cisco Nexus 1010-X.

For more information about installing Cisco DCNM on the Cisco Nexus Cloud Services Platform, see the *Cisco DCNM Installation and Licensing Guide*.

Cisco Nexus VXLAN Gateway Virtual Service Blades

The VXLAN gateway is a Layer 2 gateway that extends the virtual extensible LAN (VXLAN) Layer 2 domain to physical servers and services deployed on a VLAN. A VXLAN gateway is created when a Layer 2 adjacency is required between virtual machines on a VXLAN and physical servers and services on a VLAN.

A VXLAN gateway is managed as a Virtual Ethernet Module (VEM) from the Cisco Nexus 1000V Virtual Supervisor Module (VSM) and defines the mapping between a VXLAN and VLAN on a VSM. The VXLAN gateway acts as a bridge between the VXLAN and the VLAN to direct traffic to and from the VXLAN to a traditional VLAN.

You can copy the VXLAN gateway ISO image from Cisco.com and then copy it to the new VXLAN gateway VSB when you create it.

Note The Cisco Nexus Cloud Services Platform does not support OVA deployment and migration on a VXLAN gateway VSB.

For more information about installing and configuring a VXLAN gateway as a VSB, see the *Cisco Nexus 1000V VXLAN Configuration Guide*.

Citrix NetScaler 1000V Virtual Service Blades

Citrix NetScaler 1000V is a virtual appliance that provides load-balancing and traffic management capabilities. The Citrix NetScaler 1000V enables application-aware Layer 7 content switching and fundamental Layer 4 load-balancing, that feature health checks, session persistence mechanisms, and load-balancing algorithms to ensure traffic is always sent to the most appropriate server. The global server load-balancing feature on the Citrix NetScaler 1000V enhances disaster recovery by redirecting users to alternate data centers if an outage or interruption occurs.

You can deploy the Citrix NetScaler 1000V on the Cisco Nexus Cloud Services Platform as a Virtual Service Blade (VSB). The Citrix NetScaler 1000V hosted on a Cisco Nexus Cloud Services Platform gives you the flexibility to use two vCPU or six vCPU deployments for high performance. The Cisco Nexus Cloud Services Platform HA also enables Citrix NetScaler 1000V high availability.

For more information, see the Citrix NetScaler 1000V documentation at http://www.cisco.com/c/en/us/support/switches/citrix-netscaler-1000v/tsd-products-support-series-home.html.

Cisco Nexus 1000V for KVM Virtual Service Blades

The Cisco Nexus 1000V for KVM is a virtual distributed switch that works with the Linux Kernel-based virtual machine (KVM) open source hypervisor. The Linux KVM hypervisor is ideally suited for OpenStack environments. Using the Cisco Nexus 1000V for KVM Virtual Supervisor Module (VSM), you can create policy profiles (called port profiles on the VSM), which define port classification information, such as security settings (access control lists [ACLs], and so on). When a virtual machine (VM) is deployed, a port profile is dynamically created on the Cisco Nexus 1000V for KVM for each unique combination of policy port profile and network segment. All other VMs deployed with the same policy to this network reuse this dynamic port profile.

You can use the Cisco Nexus 1000V for KVM as a VSB on the Cisco Nexus Cloud Services Platform. For more information about the Cisco Nexus 1000V for KVM, see the *Cisco Nexus 1000V for KVM Virtual Network Configuration Guide*. For information about the supported version of the Cisco Nexus 1000V for KVM, see the *Cisco Nexus Cloud Services Platform Compatibility Information*.

Virtual Service Blade Management VLAN

Starting in Release 5.2(1)SP1(7.1), the management VLAN of a virtual service blade (VSB) and the Cisco Nexus Cloud Services Platform host can be different from each other.

Virtual Service Blade High Availability

High availability (HA) is configured for the redundant VSB pairs that you create on the Cisco Nexus Cloud Services Platform. At a given time, not all VSBs are active on the active Cisco Nexus Cloud Services Platform. If there is connectivity between the active and standby Cisco Nexus Cloud Services Platforms, access through a serial connection is maintained to any VSB. When a Cisco Nexus Cloud Services Platform fails, the other Cisco Nexus Cloud Services Platform becomes active and all VSBs in the standby state on that Cisco Nexus Cloud Services Platform become active on their own.

The VSB HA has the following features:

- Deployment—You must deploy an HA-capable VSB on a Cisco Nexus Cloud Services Platform HA pair.
- HA role and inheritance—A VSB's HA role is inherited from the host Cisco Nexus Cloud Services Platform's HA role. A primary VSB always resides on a primary Cisco Nexus Cloud Services Platform and a secondary VSB always resides on a secondary Cisco Nexus Cloud Services Platform.
- Independence—A VSB's HA role is independent of the state of the Cisco Nexus Cloud Services Platform. Although the initial role of VSB is inherited from the Cisco Nexus Cloud Services Platform HA role, the eventual status is independent of the Cisco Nexus Cloud Services Platform HA role. For example, an active primary VSB can reside on a standby primary Cisco Nexus Cloud Services Platform or a standby primary Cisco Nexus Cloud Services Platform can reside on an active primary VSB.
- Control VLAN and domain ID—HA information for the Cisco Nexus Cloud Services Platform and a VSB are formed based on the control VLAN and domain ID combination.

Note The Cisco Nexus Cloud Services Platform does not support control VLAN and domain ID combinations in the following cases:

- Across a VSM and Cisco Nexus Cloud Services Platform.
- Across VSMs of different releases.
- Across VSMs of the same hypervisors (VMware, KVM, or Hyper-V).

If a VSM or VSB is configured with such a combination, it might result in system instability or traffic loss.

- Back up and save—You must save modifications to the configuration of a VSB and the Cisco Nexus Cloud Services Platform, and back up their settings independently. It is important to do so because the configuration settings of a Cisco Nexus Cloud Services Platform are different from the settings of a VSB and the **copy configuration** or **save configuration** commands do not produce uniform results on both platforms.

Note Although there is an auto config feature that automatically saves the configuration every 5 minutes, we recommend that you run the **copy running-config startup-config** command each time you make a critical change to the configuration.

- Removing a VSB from the Cisco Nexus Cloud Services Platform—You can remove a VSB from both Cisco Nexus Cloud Services Platforms or from only one. If one redundant pair becomes unusable, you can remove it from only the Cisco Nexus Cloud Services Platform where it resides. This process enables you to preserve the remaining VSB in the HA pair.

For more information about HA, see Cisco Nexus Cloud Services Platform High Availability.

For more information about VSM HA, see the *Cisco Nexus 1000V High Availability and Redundancy Configuration Guide*.

Role Collision Detection

When you configure a Cisco Nexus 1000V Virtual Switch Module (VSM) with the same role as an existing VSM with the same control VLAN and domain ID, the new VSM and the existing VSM exchange heartbeats to discover each other. Both VSMs detect a role collision when they exchange heartbeats. When a collision occurs, identifying the primary and secondary VSMs becomes disruptive and inconsistent on a Cisco Nexus Cloud Services Platform.

Note In this document, Cisco Nexus 1000V VSM refers to the service on VMware, KVM, and Hyper-V hypervisors and their different versions.

A role collision is detected on the control and the management interfaces if the Cisco Nexus 1000V VSMs and the Cisco Nexus Cloud Services Platforms are configured in the following combinations:

1. When a Cisco Nexus 1000V VSM is configured with the same role and the control VLAN and domain ID as that of an existing VSM in the same platform (VMware with VMware, KVM with KVM, or Hyper-V with Hyper-V VSMs) or with another Cisco Nexus 1000V VSM from a different release.
2. When a VSM shares the control VLAN and the domain ID with a Cisco Nexus Cloud Services Platform.
3. When a Cisco Nexus Cloud Services Platform shares the control VLAN and domain ID with another Cisco Nexus Cloud Services Platform.

Caution The Cisco Nexus Cloud Services Platform does not support the architecture to detect and display a role collision in the HA-paired Cisco Nexus 1000V VSMs or between two Cisco Nexus Cloud Services Platforms.

In any of these combinations, the Cisco Nexus Cloud Services Platform cannot identify the primary and secondary VSM, which might result in flapping, rebooting, and some traffic loss. This problem can occur on a primary or a secondary Cisco Nexus 1000V VSM, depending on whether the newly configured or the installed VSM has the primary or the secondary role assigned to it.

At the first occurrence of a role collision on a Cisco Nexus Cloud Services Platform, the HA pairing begins to fluctuate when the secondary VSM tries to identify the primary and causes system instability. When the Cisco Nexus 1000V VSM stops communicating in the domain, the collision is no longer updated. After an hour has elapsed since the last collision, the collision MAC entries are removed.

For combinations 1 and 2, you can enter the **show system redundancy status** command on the primary or secondary VSM console to display the traffic collision details. You can change the domain ID on the Cisco Nexus 1000V VSM or the Cisco Nexus Cloud Services Platform to ensure proper operation of the Cisco Nexus Cloud Services Platform.

Note The colliding VSMs might also report a collision detection from the original VSM. Because the colliding VSMs can use the same IP address for their management interfaces, the remote SSH or Telnet connections might fail. Therefore, we recommend that you use the consoles during a role collision detection.

However, when a Cisco Nexus Cloud Services Platform shares the control VLAN and domain ID with another Cisco Nexus Cloud Services Platform, you cannot use the **show system redundancy status** command to

display the role collision details. We recommend that you keep the domain IDs unique on both the Cisco Nexus Cloud Services Platforms to maintain high availability and to avoid the potential system instability and data loss due to the role collision.

For more information about high availability on the Cisco Nexus Cloud Services Platform, see Cisco Nexus Cloud Services Platform High Availability.

Guidelines and Limitations for Virtual Service Blades

Unlike the control and packet VLANs that are set when a VSB is created, a Virtual Supervisor Module (VSM) inherits its management VLAN from the Cisco Nexus Cloud Services Platform.

Crypto and SSL Offloading in Virtual Service Blades

VSBs on the Cisco Nexus Cloud Services Platform can offload their security processing capacity to a dedicated external processor to improve performance. Depending on their deployment models, different VSBs might require more or less processing capacity than the others on the Cisco Nexus Cloud Services Platform.

To meet the security processing requirements of the VSBs, the Cisco Nexus 1110-X supports the Cavium NITROX CNN3550-C20-NHB-2.0-G security processor card as a field replacement unit (FRU) to enable Secure Sockets Layer (SSL) and crypto acceleration. The Cavium NITROX security processor card provides a total of 30 Gbps of SSL offload capacity that is shared by all VSBs on the Cisco Nexus Cloud Services Platform. The Cisco Nexus Cloud Services Platform slices the security processor card and allocates the corresponding capacities to the VSBs based on their bandwidth requirements. However, you must configure the VSBs to use the allocated slice of the security processor card.

Guidelines and Limitations for Using the Cavium NITROX Security Processor Card

Cavium NITROX security processor cards have the following guidelines and limitations:

1. Cavium's NITROX security processor card is supported only as a field replacement unit (FRU) on the Cisco Nexus 1110-X.
2. Multiple VSBs on a single Cisco Nexus Cloud Services Platform can offload their security processing to a single security processor.
3. The Cavium NITROX security processor card is supported only on a new deployment; you cannot upgrade your existing Cisco Nexus 1110-X pair to a crypto-enabled Cisco Nexus 1110-X pair. However, you can convert the existing Cisco Nexus 1110-X to a crypto-enabled appliance by replacing the Intel quad-port NIC card with a Cavium NITROX card, or by replacing the Cisco UCS 10-Gbps card with a Cavium NITROX card and reinstalling the Cisco Nexus Cloud Services Platform software.

   For information about installing the Cavium NITROX card on your Cisco Nexus Cloud Services Platform, see the *Cisco Nexus Cloud Services Platform Hardware Installation Guide*. For information about installing the Cisco Nexus Cloud Services Platform software, see the *Cisco Nexus Cloud Services Platform Software Installation and Upgrade Guide*.
4. If the security processor card that is used by a VSB gets disabled, the VSB moves to the shutdown state in the following cases:

- When the presence of a Cavium NITROX card is not detected after a system reboot.
- When a Cisco Nexus Cloud Services Platform is paired with a new HA appliance, and the HA Cisco Nexus Cloud Services Platform does not have a Cavium NITROX card, the VSB moves to the shutdown state on the newly paired HA appliance.

Configuring SSL and Crypto Offloading Capability in Virtual Service Blades

You can configure Secure Sockets Layer (SSL) and crypto offloading capability in a VSB.

Before You Begin

- Log in to the CLI in EXEC mode.
- Ensure that the latest CIMC version is installed before configuring the crypto card. For more information about the latest CIMC version, see the *Cisco Nexus Cloud Services Platform Software Installation and Upgrade Guide*.
- Know the name of the VSB that you created. If you want to create a new VSB, see Creating a Virtual Service Blade, on page 11.
- Ensure that there is enough crypto bandwidth to meet the requirement of the VSB.
- In a standalone Cisco Nexus Cloud Services Platform configuration, ensure that the Cavium NITROX card is present locally.
- In an HA configuration, ensure that the Cavium NITROX card is present on both Cisco Nexus Cloud Services Platforms.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch (config) # **virtual-service-blade** *name*	Creates the named VSB and enters configuration mode for that VSB. *name*—Enter an alphanumeric string of up to 80 characters.
Step 3	switch (config-vsb-config) # **virtual-service-blade-type [name** *name* |**new** [*iso-filename* |*ova-filename*]	Specifies the type and name of the software image file to add to this VSB. • *name*—Enter the name of the existing VSB. • *iso-filename* | *ova-filename*—Enter the name of the new ISO or OVA image file in the `bootflash:repository`.
Step 4	switch (config-vsb-config) # **interface** *name* **uplink** *name*	Assigns the uplink port channel ID to this interface. The port channel ID range is from 1 to 6.

	Command or Action	Purpose
		This command also assigns an uplink to a VSB interface to be configured as passthrough. This uplink can be Gigabit Ethernet or Portchannel.
Step 5	switch (config-vsb-config) # **interface** *name* **mode passthrough**	Sets up the named interface in passthrough mode on the VSB.
Step 6	switch (config-vsb-config) # **crypto-offload** *bandwidth*	Configures the bandwidth requirement of the traffic that needs to be offloaded to the Cavium NITROX card. The bandwidth range is from 100 to 30,000 Mbps.
Step 7	switch (config-vsb-config) # **enable**	Initiates the configuration of the VSB and then enables it.
Step 8	Enter the configuration details as prompted.	Information that you entered is echoed back to the console.
Step 9	Review the configuration details, and then enter **Y** at the prompt.	The configuration details that you entered are applied to the VSB.
Step 10	switch (config-vsb-config) # **exit**	Exits virtual service configuration mode and returns to global configuration mode.
Step 11	switch (config) # **exit**	Exits global configuration mode and returns to EXEC mode.
Step 12	switch #**show virtual-service-blade name** *name*	(Optional) Displays information about the newly created VSB.

This example shows how to configure SSL and crypto offloading capability in a VSB:

```
switch# configure terminal
switch (config)# virtual-service-blade NS1000V
switch(config-vsb-config)# virtual-service-blade-type new
NetScaler1000V-NEXUS-10.5-52.11_nc.ova
Note: It can take awhile to finish OVA extract operation. Please be patient..
Note: please be patient..
Note: please be patient..

switch(config-vsb-config)# interface ns_intf_1 uplink ethernet 2
switch(config-vsb-config)# interface ns_intf_1 mode passthrough
switch(config-vsb-config)# crypto-offload 10000
switch(config-vsb-config)# enable

Enter vsb image: [NetScaler1000V-NEXUS-10.5-52.11_nc.ova]
NS HA [true/false]: [true] 2
Out of range. NS HA [true/false]: [true]
Management IP version [V4|V6]: [V4]
Enter Primary IPv4 address: 80.80.80.91
Enter Primary subnet mask: 255.255.255.0
Primary IPv4 address of the default gateway: 80.80.80.1
Enter Secondary IPv4 address: [0.0.0.0] 80.80.80.92
Enter Secondary subnet mask: [0.0.0.0] 255.255.255.0
Enter secondary IPv4 address of the default gateway: [0.0.0.0] 80.80.80.1
Enter Primary HostName: NS1000V-1
Enter Secondary HostName: NS1000V-2
Enter the password for  'nsroot': Sfish123
```

```
----Details entered----
NS HA [true/false]: : true
Management IP version [V4|V6]: : V4
Enter Primary IPv4 address: : 80.80.80.91
Enter Primary subnet mask: : 255.255.255.0
Primary IPv4 address of the default gateway: : 80.80.80.1
Enter Secondary IPv4 address: : 80.80.80.92
Enter Secondary subnet mask: : 255.255.255.0
Enter secondary IPv4 address of the default gateway: : 80.80.80.1
Enter Primary HostName: : NS1000V-1
Enter Secondary HostName: : NS1000V-2
Enter the password for  'nsroot': : Sfish123
Do you want to continue installation with entered details (Y/N)? [Y]
Note: VSB installation is in progress, please use show virtual-service-blade commands to
check the installation status.
Note: VSB installation may take upto 5 minutes.

switch(config-vsb-config)# exit
switch(config)# exit
switch# show virtual-service-blade name VSM
virtual-service-blade NS1000V
  Description:
  Slot id:        4
  Host Name:      NS1000V-2
  Management IP:  80.80.80.92
  VSB Type Name :  NetScaler1000V-1055211.1
  Configured vCPU:           2
  Operational vCPU:           2
  Configured Ramsize:        2048
  Operational Ramsize:        2048
  Disksize:       20
  Configured CryptoOffload Bandwidth:       10000
  Operational CryptoOffload Bandwidth:       10000
  Configured CryptoOffload VF:       3
  Operational CryptoOffload VF:       3
  Heartbeat:      78

  Legends:   P -  Passthrough
  ------------------------------------------------------------------------------
   Interface           Type         MAC     VLAN    State  Uplink-Int
                                                   Pri  Sec Oper  Adm
  ------------------------------------------------------------------------------
  VsbEthernet4/1   ns_intf_0 0002.3d70.2393 2050        up Eth1   Eth1
        internal          NA        NA       NA         up
  VsbEthernet4/3   ns_intf_1 0002.3d70.2394 3123        up Eth2(P)Eth2(P)
  VsbEthernet4/4   ns_intf_2 0002.3d70.2395 3123      down Eth7   Eth7
  VsbEthernet4/5   ns_intf_3 0002.3d70.2396 3123      down Eth7   Eth7
  VsbEthernet4/6   ns_intf_4 0002.3d70.2397 3123      down Eth7   Eth7
  VsbEthernet4/7   ns_intf_5 0002.3d70.2398 3123      down Eth7   Eth7
  VsbEthernet4/8   ns_intf_6 0002.3d70.2399 3123      down Eth7   Eth7
  VsbEthernet4/9   ns_intf_7 0002.3d70.239a 3123      down Eth7   Eth7
  virtual-service-blade:
    HA Status: ACTIVE
    Status:       VSB POWERED ON
    Location:     SECONDARY
    SW version:   NetScaler NS10.5: Build 52.11.nc, Date: Sep 30 2014, 00:55:10
  VSB Info:
    Netscaler VPX

switch#
```

Configuring Virtual Service Blades

Creating a Virtual Service Blade

You can create a VSB, such as a virtual supervisor module (VSM), by installing and configuring the software.

Note For information about upgrading the Cisco Nexus 1000V software on an existing VSB, see the *Cisco Nexus 1000V Installation and Upgrade Guide*.

Before You Begin

- Log in to the CLI in EXEC mode.
- Know the name of the VSB that you want to create.
- You can create a new VSB using an ISO file from any of the following sources:
  - From a previously created VSB.
  - Shipped with the Cisco Nexus Cloud Services Platform in the `bootflash:repository`.
  - Downloaded from Cisco.com and copied to the `bootflash:repository`.
- If you are using an ISO file from the `bootflash:repository` or a downloaded ISO file, make sure that you know the filename.
- If you are using an ISO file from an existing VSB, make sure that you know the name of the VSB type. This procedure includes information about identifying this name.
- Know the following properties for the VSB:
  - Domain ID
  - Management IP address
  - Management subnet mask length
  - Default gateway IPv4 address
  - Hostname
  - Administrator password
  - Control and packet VLAN IDs

Note

- When you are connected through a serial port on the Cisco Nexus Cloud Services Platform, and you want to create a VSB, do the following:
  - Manually enter the configuration commands one at a time. If you copy and paste the commands in bulk into the CLI, the terminal might hang and leave the process incomplete.
  - Avoid using **show** commands that generate large outputs. Using these commands causes the serial port to lock and hangs the terminal.
- If a terminal becomes unresponsive, open a new console and manually enter the commands one after the other to set up a new VSB.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch (config) # **virtual-service-blade** *name*	Enters the VSB configuration mode and creates the named VSB. *name*—Enter an alphanumeric string of up to 79 case-sensitive characters.
Step 3	switch (config-vsb-config) # **show virtual-service-blade-type summary**	Displays a summary of all VSB configurations by VSB type, such as VSM or Network Analysis Module (NAM). Use this type name in the next step.
Step 4	switch (config-vsb-config) # **virtual-service-blade-type [name** *name* |**new** *iso-filename* |*ova filename*]	Specifies the type and name of the software image file to add to this VSB. The keywords are as follows: • *name*—Enter the name of the existing VSB type as displayed in the output to Step 3. • [*iso-filename* | *ova-filename*]—Enter the name of the new ISO or OVA software image file in the `bootflash:repository`.
Step 5	switch (config-vsb-config) # **description**	(Optional) Enter an alphanumeric string of up to 79 case-sensitive characters.
Step 6	switch (config-vsb-config) # **show virtual-service-blade name** *name*	Displays the VSB that you just created, including the interface names that you configure in the next step.
Step 7	switch (config-vsb-config) # **interface** *name* **vlan** *vlan-id*	Applies the interface name and VLAN ID to this VSB. Use the interface names from the Step 6 command output. If you attempt to apply an interface name that is not present, the following error is displayed:

	Command or Action	Purpose
		`ERROR: Interface name not found in the associated virtual-service-blade type.` **Caution** To prevent a loss of connectivity, you must configure the same control and packet VLANs on the hosted VSMs.
Step 8	Repeat Step 7 to apply additional interfaces.	—
Step 9	switch (config-vsb-config) # **enable [primary | secondary]**	Initiates the configuration of the VSB and then enables it. If you are enabling a non-redundant VSB, you can specify its HA role as follows: • **primary—**Designates the VSB in a primary role. • **secondary—**Designates the VSB in a secondary role. The Cisco Nexus Cloud Services Platform prompts you for the following: • Domain ID—This must be a different domain ID than the one you used for the Cisco Nexus Cloud Services Platform. • VSB image name • Software virtual switch (SVS) control mode • Management IP version • Management IP address • Management subnet mask length • Default gateway IPv4 address • Hostname • Administrator password
Step 10	Confirm the configuration and then enter **Y**.	The configuration is applied to the VSB.
Step 11	switch (config-vsb-config) # **show virtual-service-blade name** *name*	(Optional) Displays the new VSB for verification. While the switch is configuring the VSB, the switch output for this command progresses from in progress to powered on.

This example shows how to create a VSB:

```
switch configure terminal
switch(config)# virtual-service-blade VSM
switch(config-vsb-config)# show virtual-service-blade-type summary
```

```
-------------------------------------------------------------------------------
Virtual-Service-Blade-Type    Virtual-Service-Blade
-------------------------------------------------------------------------------
VSM_SK1-3.1                         KVM-VSM
VSM_SV3-1.1                         ESX-VSM
VSG-1.2                             HyperV-VSG
                                    ESX-VSG
switch(config-vsb-config)# virtual-service-blade-type new n1000v-dk9.5.2.1.SV3.1.1.1010.ova
Note: It can take awhile to finish OVA extract operation. Please be patient..
Note: please be patient..
Note: please be patient..

switch(config-vsb-config)#
switch(config-vsb-config)# description vsm-for-esx
switch(config-vsb-config)# show virtual-service-blade name VSM

virtual-service-blade VSM
  Description:  vsm-for-esx
  Slot id:        5
  Host Name:
  Management IP:
  VSB Type Name :  VSM_SV3-1.1
  Configured vCPU:           2
  Operational vCPU:           2
  Configured Ramsize:        4096
  Operational Ramsize:        4096
  Disksize:       3
  Configured CryptoOffload Bandwidth:       0
  Operational CryptoOffload Bandwidth:       0
  Configured CryptoOffload VF:       0
  Operational CryptoOffload VF:       0
  Heartbeat:      0

  Legends:   P -  Passthrough
  ------------------------------------------------------------------------------
   Interface           Type         MAC     VLAN    State   Uplink-Int
                                                   Pri  Sec  Oper  Adm
  ------------------------------------------------------------------------------
  VsbEthernet5/1     control                        up   up
  VsbEthernet5/2  management                1496   up   up
  VsbEthernet5/3      packet                        up   up
        internal          NA        NA       NA    up   up
  HA Role: Primary
    HA Status: NONE
    Status:       VSB NOT PRESENT
    Location:     PRIMARY
    SW version:
  HA Role: Secondary
    HA Status: NONE
    Status:       VSB NOT PRESENT
    Location:     SECONDARY
    SW version:
  VSB Info:

cppa-mgr(config-vsb-config)# interface control vlan 2013
cppa-mgr(config-vsb-config)# interface packet vlan 2014
cppa-mgr(config-vsb-config)# enable
Enter vsb image: [n1000v-dk9.5.2.1.SV3.1.1.1010.ova]
Enter domain id[1-1023]: 111
Enter SVS Control mode (L2 / L3): [L3]
Management IP version [V4/V6]: [V4]
Enter Management IP address: 80.80.80.70
Enter Management subnet mask: 255.255.255.0
IPv4 address of the default gateway: 80.80.80.1
Enter HostName: VSM
Enter the password for 'admin': Sfish123

----Details entered----
Enter domain id[1-1023]: : 111
Enter SVS Control mode (L2 / L3): : L3
Management IP version [V4/V6]: : V4
Enter Management IP address: : 80.80.80.70
```

```
Enter Management subnet mask: : 255.255.255.0
IPv4 address of the default gateway: : 80.80.80.1
Enter HostName: : VSM
Enter the password for 'admin': : Sfish123
Do you want to continue installation with entered details (Y/N)? [Y]
Note: VSB installation is in progress, please use show virtual-service-blade commands to
check the installation status.
Note: VSB installation may take upto 10 minutes.

cppa-mgr(config-vsb-config)#
cppa-mgr(config-vsb-config)# show virtual-service-blade name VSM
virtual-service-blade VSM
  Description:  vsm-for-esx
  Slot id:        5
  Host Name:      VSM
  Management IP:  80.80.80.70
  VSB Type Name :  VSM_SV3-1.1
  Configured vCPU:           2
  Operational vCPU:           2
  Configured Ramsize:        4096
  Operational Ramsize:        4096
  Disksize:       3
  Configured CryptoOffload Bandwidth:       0
  Operational CryptoOffload Bandwidth:       0
  Configured CryptoOffload VF:       0
  Operational CryptoOffload VF:       0
  Heartbeat:      356

  Legends:   P -  Passthrough
  ------------------------------------------------------------------------------
   Interface           Type         MAC     VLAN    State   Uplink-Int
                                                   Pri  Sec  Oper  Adm
  ------------------------------------------------------------------------------
  VsbEthernet5/1     control 0002.3d77.e38f 2013   up   up Po1    Po1
  VsbEthernet5/2  management 0002.3d77.e38e 1496   up   up Po1    Po1
  VsbEthernet5/3      packet 0002.3d77.e390 2014   up   up Po1    Po1
        internal          NA        NA       NA    up   up
  HA Role: Primary
    HA Status: STANDBY
    Status:       VSB POWERED ON
    Location:     PRIMARY
    SW version:
  HA Role: Secondary
    HA Status: ACTIVE
    Status:       VSB POWERED ON
    Location:     SECONDARY
    SW version:
  VSB Info:
    Domain ID : 111
```

Deleting a Virtual Service Blade

You can delete a VSB, such as a virtual supervisor module (VSM) or Network Analysis Module (NAM).

Before You Begin

- Log in to the CLI in EXEC mode.
- Know the name of the VSB that you are deleting.
- Shut down the VSB before you delete it. This procedure includes instructions for shutting down the VSB.
- Know that you can remove a VSB from both redundant Cisco Nexus Cloud Services Platforms or from only one platform. If one redundant pair becomes unusable, you can remove it from only the Cisco Nexus Cloud Services Platform where it resides. This process enables you to preserve the remaining

VSB in the pair. This action might may become necessary if a new instance of the service must be provisioned.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch (config) # **virtual-service-blade** *name*	Enters configuration mode for the named VSB.
Step 3	switch (config-vsb-config) # **shutdown**	Shuts down the VSB.
Step 4	switch (config-vsb-config) # **show virtual-service-blade summary**	(Optional) Displays a summary of services to verify the shutdown.
Step 5	Do one of the following: • **no virtual-service-blade** *name* • **no enable [primary | secondary]**	Deletes the specified VSB. The keywords are as follows: • **no virtual-service-blade** *name***—**Removes the specified VSB from the Cisco Nexus Cloud Services Platform. • **no enable [primary | secondary]—**Removes the specified VSB from the system but retains the infrastructure configuration (interface VLANs, RAM size, disk size overrides) in the Cisco Nexus Cloud Services Platform. Use this command to delete only the primary or secondary VSB in a pair.
Step 6	switch (config-vsb-config) # **show virtual-service-blade-type-summary**	(Optional) Displays a summary of services for verification of the removal.

This example shows how to delete a VSB:

```
switch# configure terminal
switch(config)# virtual-service-blade vsm-5
switch(config-vsb-config)# shutdown
switch(config-vsb-config)# show virtual-service-blade summary
------------------------------------------------------------------------------------------------
Name                HA-Role         HA-Status   Status               Location
------------------------------------------------------------------------------------------------
vsm-1               PRIMARY     ACTIVE      VSB POWERED ON           PRIMARY
vsm-1               SECONDARY   STANDBY     VSB POWERED ON           SECONDARY


switch(config-vsb-config)# no virtual-service-blade vsm-5
switch(config-vsb-config)# no enable
switch(config)# copy running-config startup-config
```

Modifying a Virtual Service Blade

You can modify the control VLAN, packet VLAN, disk size, number of CPUs, or RAM size of a VSB and then make the corresponding changes to the VSM.

Modifying a Virtual Service Blade on the Cisco Nexus Cloud Services Platform

Before You Begin

- Log in to the CLI in EXEC mode.
- Know the name of the VSB that you are modifying.
- Shut down the VSB before modifying the RAM size or the control VLAN. This procedure includes instructions for shutting down the VSB.

Caution The virtual supervisor module (VSM) must be in the shutdown state before you modify the control VLAN to preserve HA when the service comes back up. The control VLAN passes control messages to the standby VSM.

- Change the configuration first in the VSB configuration and then in the Cisco Nexus 1000V VSM configuration. This procedure changes the VSB configuration. To change the Cisco Nexus 1000V configuration, see Modifying the Cisco Nexus 1000V VSM Configuration, on page 19.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters the global configuration mode.
Step 2	switch (config) # **virtual-service-blade** *name*	Enters the configuration mode for the named VSB.
Step 3	switch (config-vsb-config) # **shutdown**	Shuts down the VSB.
Step 4	switch (config-vsb-config) # **show virtual-service-blade-summary**	(Optional) Displays a summary of services for verification of the shutdown.
Step 5	Do one of the following: • **ramsize** *name* • **interface control vlan** *vlanid* • **interface packet vlan** *vlanid* • **numcpu** *number* • **disk size** *number* • **crypto offload** *bandwidth*	Modifies the VSB. You can modify any of the following VSB parameters: • Memory allocated for RAM (1024-4096 MB) • Control VLAN ID • Packet VLAN ID • Number of CPUs • Disk size

	Command or Action	Purpose
		• Crypto offload bandwidth
Step 6	switch (config-vsb-config) # **no shutdown**	Returns the VSB status to powered on.
Step 7	switch (config) # **show virtual-service-blade name** *name*	(Optional) Displays the VSB information for verification of the changes.

This example shows how to modify a VSB on the Cisco Nexus Cloud Services Platform:

```
switch# configure terminal
switch(config)# virtual-service-blade vsm-1
switch(config-vsb-config)# shutdown
switch(config-vsb-config)# show virtual-service-blade summary
------------------------------------------------------------------------------------------
Name         HA-Role           HA-Status   Status       Location
------------------------------------------------------------------------------------------
vsm-1       PRIMARY ACTIVE     VSB POWERED ON           PRIMARY
vsm-1       SECONDARY STANDBY  VSB POWERED ON           SECONDARY

Do one of the following to modify the VSB parameters:

switch(config-vsb-config)# ramsize 1024
switch(config-vsb-config)# interface control vlan 1116
switch(config-vsb-config)# interface packet vlan 1116
switch(config-vsb-config)# no shutdown
switch(config-vsb-config)# show virtual-service-blade name vsm-1
virtual-service-blade vsm-1
  Description:
  Slot id:        1
  Host Name:      switch
  Management IP:  172.23.181.37
  VSB Type Name :  VSM-1.1
  vCPU:           1
  Ramsize:        2048
  Disksize:       3
  Heartbeat:      35275
  ------------------------------------------------------------------------------------------
       Interface  Type       VLAN      State                     Uplink-Interface
                                       Primary    Secondary      Oper  Admin
  ------------------------------------------------------------------------------------------
  VsbEthernet1/1     control 423       up         up             Po1    Po1
  VsbEthernet1/2  management 231       up         up             Po1    Po1
  VsbEthernet1/3      packet 423       up         up             Po1    Po1
                    internal NA        NA         up         up
  HA Role: Primary
    HA Status: ACTIVE
    Status:       VSB POWERED ON
    Location:     PRIMARY
    SW version:   4.2(1)SV1(4a)
  HA Role: Secondary
    HA Status: STANDBY
    Status:       VSB POWERED ON
    Location:     SECONDARY
    SW version:   4.2(1)SV1(4a)
  VSB Info:
    Domain ID : 441
```

Modifying the Cisco Nexus 1000V VSM Configuration

Before You Begin

- Log in to the CLI in EXEC mode.
- Know the name of the virtual supervisor module (VSM) that you are modifying.
- Change the configuration of the Cisco Nexus Cloud Services Platform VSB first, and then change the Cisco Nexus 1000V VSM configuration. This procedure changes the Cisco Nexus 1000V VSM configuration. To change the Cisco Nexus Cloud Services Platform VSB configuration, see Modifying a Virtual Service Blade on the Cisco Nexus Cloud Services Platform, on page 17.

Procedure

	Command or Action	Purpose
Step 1	switch # **login virtual-service-blade** *name*	Enters global configuration mode.
Step 2	Enter your username.	Authenticates your user ID.
Step 3	Enter your password.	Authenticates your password.
Step 4	switch # **show svs domain**	Displays the domain configuration for the VSM.
Step 5	switch # **configure terminal**	Enters the CLI global configuration mode.
Step 6	switch(config) # **svs-domain**	Enters SVS domain configuration mode.
Step 7	switch (config-svs-domain) # **control vlan** *vlanid*	Modifies the VLAN ID of the VSM domain control VLAN.
Step 8	switch (config-svs-domain) # **packet vlan** *vlanid*	Modifies the VLAN ID of the VSM domain packet VLAN.
Step 9	switch # **show svs-domain**	(Optional) Displays the domain configuration for verification of the changes.
Step 10	Press the **Ctrl** key and the \ backslash key.	Exits the SVS domain configuration mode and returns you to a Telnet prompt.
Step 11	Telnet **close**	Closes the Telnet session and returns you to EXEC mode on the Cisco Nexus Cloud Services Platform.

This example shows how to modify a VSM on the Cisco Nexus 1000V:

```
switch-1# login virtual-service-blade 1
Telnet escape character is '^\'.
Trying 192.168.0.18...
Connected to 192.168.0.18.
Escape character is '^\'.

User Access Verification
```

```
switch-vsm1 login:
password:
switch # show svs domain
SVS domain config:
  Domain id:    100
  Control vlan: 1114
  Packet vlan:  1115
  L2/L3 Control mode: L2
  L3 control interface:  NA
Status: Config push to VC successful.
switch(config)# svs domain
switch(config-svs-domain)# control vlan 1116
switch(config-svs-domain)# packet vlan 1117
switch(config-svs-domain)# Ctrl \
Telnet> close
```

Defining Form Factors for a Cisco Virtual Security Gateway VSB

Before You Begin

- Log in to the CLI in EXEC mode.
- Know the name of the VSB that you created. If you want to create a new VSB, see Creating a Virtual Service Blade, on page 11.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch (config) # **virtual-service-blade** *name*	Enters the configuration mode for the named VSB. *name*—Enter an alphanumeric string of up to 80 characters.
Step 3	switch# **shutdown**	(Optional) Shuts down the running Virtual Security Gateway (VSG) that requires modification.
Step 4	switch (config-vsb-config) # **description**	(Optional) Enter a description for the VSB as an alphanumeric string of up to 80 characters.
Step 5	switch (config-vsb-config) # **numcpu**	Configures the VSB as a medium or large model based on the number of virtual CPUs attached to the VSB. *number*—Enter the numeric value of 1 or 2.
Step 6	switch (config-vsb-config) # **name**	Enter the name of the VSB.
Step 7	(Optional) switch (config-vsb-config) # **no shutdown** *name*	(Optional) Returns the VSB status to powered on. Use ths command if you shut down a running VSG in Step 3.

	Command or Action	Purpose
Step 8	switch (config-vsb-config) # **show virtual-service-blade** *name*	(Optional) Displays the VSB information for verification of the changes.

This example shows how to define form factors for a Cisco VSG VSB:

```
switch# configure terminal
switch(config)# virtual-service-blade vy252
switch(config-vsb-config)# shutdown vy252
switch(config-vsb-config)# description VSG_vy_252
switch(config-vsb-config)# numcpu 2
switch(config-vsb-config)# name vy252
switch(config-vsb-config)# no shutdown vy252
switch(config-vsb-config)# show virtual-service-blade name vy252
virtual-service-blade vy252
Description:  VSG_CY_252
Slot id:        2
Host Name:      vsg-c252
Management IP:
VSB Type Name :  VSG-1.2
vCPU:           2
Ramsize:        2048
Disksize:       3
Heartbeat:      1933
------------------------------------------------------------------------------
Interface            Type   VLAN       State            Uplink-Interface
Primary  Secondary   Oper   Admin
------------------------------------------------------------------------------
VsbEthernet2/1        data    21       up         up    eth3    eth3
VsbEthernet2/2  management    21       up         up    eth3    eth3
VsbEthernet2/3          ha    21       up         up    eth3    eth3
internal          NA    NA             up         up
HA Role: Primary
HA Status: NONE
 Status:       VSB POWERED OFF
Location:     PRIMARY
SW version:   4.2(1)VSG2(1.0.252)
HA Role: Secondary
HA Status: NONE
Status:       VSB POWERED OFF
Location:     SECONDARY
SW version:   4.2(1)VSG2(1.0.252)
VSB Info:
Domain ID : 441
```

Automatic Execution of the copy running-config startup-config Command

Beginning in Release 5.2(1)SP1(7.1) of the Cisco Nexus Cloud Services Platform, the **copy running-config startup-config** command persistently saves your VSB and network configuration settings, and copies them to the startup configuration every 5 minutes. This feature prevents the loss of VSB configurations during a reload or a power failure.

- Even though the **copy running-config startup-config** command is triggered at 5-minute intervals, we recommended that you execute the command manually to save your critical configuration settings immediately.

- The auto-save of the configuration settings is triggered only if a VSB-related configuration is affected. Therefore, if you have critical configuration settings not involving a VSB, you must manually save your settings.

The following table lists the commands that are impacted by this change in the configuration procedure.

Impacted Commands	Description
VSB Configuration Commands	
virtual-service-blade *name*	Creates a virtual service blade.
virtual-service-blade-type name *template name*	Attaches a VSB template file to the VSB.
virtual-service-blade-type new [*iso-filename* | *ova-filename*]	Attaches an ISO or OVA file to a VSB.
switch-vsb-config # **ramsize**	Configures the RAM size for a VSB.
switch-vsb-config # **disksize**	Configures the disk size for a VSB.
switch-vsb-config # **numcpu**	Configures the number of CPU cores for a VSB.
switch-vsb-config # **interface** *int-name* **mode** *mode*	Configures the VSB interface mode.
switch-vsb-config # **interface** *int-name* **vlan** *vlan-id*	Configures the VLAN for a VSB interface.
switch-vsb-config # **interface** *int-name* **uplink** *uplink-id*	Configures an uplink port for a VSB interface.
switch-vsb-config # **shutdown** [*primary* | *secondary* | *both*]	Shuts down a VSB.
switch-vsb-config # **enable** [*primary* | *secondary* | *both*]	Enables a VSB.
switch # **[no] virtual-service-blade** *name*	Deletes a VSB.
Network Configuration Commands	
config-if # **channel-group**	Configures an interface as a part of the port channel group.
config-if # **no shutdown**	Changes the operational state of the interface.
config-if # **native vlan** *vlan-id*	Configures a native VLAN on an interface.
SVS Configuration Commands	
config-svs-domain # **control vlan** *vlan-id*	Configures the control VLAN on the uplink.

Impacted Commands	Description
config-svs-domain # **control management** *vlan-id*	Configures the management VLAN on the uplink.

Configuring a Passthrough VSB Interface

After you create a Cisco Nexus VXLAN gateway VSB, you can configure it to function as a passthrough interface. The passthrough VSB interface enables the VSB to assign a virtual interface to a dedicated uplink. This uplink can be an Ethernet port on the Cisco Nexus Cloud Services Platform or a port channel.

A passthrough VSB interface has the following features and limitations:

- The passthrough VSB interface is available for the Cisco Nexus VXLAN gateway and the Citrix NetScaler 1000V VSBs.
- A VSB can have multiple passthrough interfaces and also have a combination of passthrough and shared interfaces.
- A passthrough uplink has a one-to-one mapping with the corresponding VSB interface and cannot be shared by multiple interfaces of the same or different VSBs.
- A VSB passthrough interface is not supported on Cisco UCS VIC 1225 10-Gbps interfaces.

A passthrough VSB interface has the following benefits:

- Ensures higher network throughput than a shared uplink interface.
- Allows the VSB to be in trunkall mode to receive tagged packets.

Setting Up a Passthrough VSB Interface

You can configure a VSB interface in passthrough mode.

Before You Begin

- Log in to the CLI in EXEC mode.
- Know the name of the VSB that you created. If you want to create a new VSB, see Creating a Virtual Service Blade, on page 11.
- Know that VLAN IDs are not required to be assigned to an interface before you configure it in passthrough mode. Previously assigned VLANs are ignored while setting up an interface in passthrough mode.
- Know the following properties for the VSB:
  - Management IP version
  - Primary IPv4 address
  - Primary subnet mask length
  - Primary default gateway IPv4 address
  - Secondary IPv4 address

- Secondary subnet mask length
- Secondary default gateway IPv4 address
- Primary hostname
- Secondary hostname
- Administrator password

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch (config) # **virtual-service-blade** *name*	Enters the VSB configuration mode and creates the named VSB. *name*—Enter an alphanumeric string of up to 80 characters.
Step 3	switch (config-vsb-config) # **virtual-service-blade-type [name** *name* |**new** [*iso filename* | *ova filename*]	Specifies the type and name of the software image file to add to this VSB. • *name*—Enter the name of the existing VSB type. • [*iso-filename* | *ova-filename*]—Enter the name of the new ISO or OVA software image file in the `bootflash:repository`.
Step 4	switch (config-vsb-config) # **interface** *name* **uplink** *name*	Applies the uplink port channel ID to this interface. The range is from 1 to 6. This command also assigns an uplink to a VSB interface to be configured as passthrough. This uplink can be Gigabit Ethernet or Portchannel.
Step 5	switch (config-vsb-config) # **interface** *name* **mode passthrough**	Sets up the interface in passthrough mode on the VSB.
Step 6	switch (config-vsb-config) # **enable**	Initiates the configuration of the VSB and then enables it. If you are enabling a non-redundant VSB, you can specify its HA role as follows: • **primary**—Designates the VSB in a primary role. • **secondary**—Designates the VSB in a secondary role. The Cisco Nexus Cloud Services Platform prompts you for the following: • Management IP version • Primary IPv4 address • Primary subnet mask length

	Command or Action	Purpose
		• Primary default gateway IPv4 address • Secondary IPv4 address • Secondary subnet mask length • Secondary default gateway IPv4 address • Primary hostname • Secondary hostname • Administrator password
Step 7	Confirm the configuration and then enter **Y**.	Applies the configuration to the VSB.
Step 8	switch (config) # **show network summary**	(Optional) Displays a summary of all VSBs, including the ones configured in passthrough mode. The passthrough legend (`P`) is added to the uplink interfaces for the interfaces that are configured in passthrough mode.
Step 9	switch (config) # **show virtual service blade name** *name*	(Optional) Displays details about the named VSB that you just created.

This example shows how to configure a passthrough VSB interface:

```
switch# configure terminal
switch(config)# virtual-service-blade NS1000V
switch(config-vsb-config)# virtual-service-blade-type new vpx.ova
Note: It can take awhile to finish OVA extract operation. Please be patient..
Note: please be patient..
Note: please be patient..

switch(config-vsb-config)#
switch(config-vsb-config)# interface ns_intf_1 uplink Ethernet 4
switch(config-vsb-config)# interface ns_intf_1 mode passthrough
switch(config-vsb-config)# enable
Enter vsb image: [vpx.ova]
NS HA [true/false]: [true]
Management IP version [V4|V6]: [V4]
Enter Primary IPv4 address: 80.80.80.80
Enter Primary subnet mask: 255.255.255.0
Primary IPv4 address of the default gateway: 80.80.80.1
Enter Secondary IPv4 address: [0.0.0.0] 80.80.80.81
Enter Secondary subnet mask: [0.0.0.0] 255.255.255.0
Enter secondary IPv4 address of the default gateway: [0.0.0.0] 80.80.80.1
Enter Primary HostName: vpx-1
Enter Secondary HostName: vpx-2
Enter the password for  'nsroot': Sfish123

----Details entered----
NS HA [true/false]: : true
Management IP version [V4|V6]: : V4
Enter Primary IPv4 address: : 80.80.80.80
Enter Primary subnet mask: : 255.255.255.0
Primary IPv4 address of the default gateway: : 80.80.80.1
Enter Secondary IPv4 address: : 80.80.80.81
Enter Secondary subnet mask: : 255.255.255.0
```

```
Enter secondary IPv4 address of the default gateway: : 80.80.80.1
Enter Primary HostName: : vpx-1
Enter Secondary HostName: : vpx-2
Enter the password for  'nsroot': : Sfish123
Do you want to continue installation with entered details (Y/N)? [Y]
Note: VSB installation is in progress, please use show virtual-service-blade commands to
check the installation status.
Note: VSB installation may take upto 5 minutes.

switch(config)# show network summary

Legends:    P - Passthrough
-------------------------------------------------------------------------------
      Port     State     Uplink-Interface  Speed  RefCnt    MTU   Nat-Vlan
            Oper  Admin  Oper    Admin                          Oper  Admin
-------------------------------------------------------------------------------
      Eth1    up     up                     1000       0   9000
      Eth2    up     up                     1000       0   9000
      Eth3    up     up                     1000       8   9000
      Eth4    up     up                     1000       1   9000
      Eth5    up     up                     1000       3   9000
      Eth6    up     up                     1000       0   9000
       Po1    up     up                     1000       9   9000
 VsbEth1/1    up     up  Eth3   Eth3        1000           9000
 VsbEth1/3    up     up  Eth3   Eth3        1000           9000
 VsbEth1/4    up     up  Eth3   Eth3        1000           9000
 VsbEth1/5    up     up  Eth3   Eth3        1000           9000
 VsbEth1/6    up     up  Eth3   Eth3        1000           9000
 VsbEth1/7    up     up  Eth3   Eth3        1000           9000
 VsbEth1/8    up     up  Eth3   Eth3        1000           9000
 VsbEth1/9    up     up  Eth3   Eth3        1000           9000
 VsbEth2/1    up     up   Po1    Po1        1000           9000
 VsbEth2/3    up     up  Eth4(P)Eth4(P)     1000           9000
 VsbEth2/4  down   down   Po1    Po1        1000           9000
 VsbEth2/5  down   down   Po1    Po1        1000           9000
 VsbEth2/6  down   down   Po1    Po1        1000           9000
 VsbEth2/7  down   down   Po1    Po1        1000           9000
 VsbEth2/8  down   down   Po1    Po1        1000           9000
 VsbEth2/9  down   down   Po1    Po1        1000           9000
   control0    up     up   Po1    Po1        1000           9000
     mgmt0    up     up   Po1    Po1        1000           9000

switch(config)# show virtual-service-blade name NS1000V
virtual-service-blade NS1000V
  Description:
  Slot id:        2
  Host Name:      vpx-2
  Management IP:  80.80.80.81
  VSB Type Name :  NetScaler1000V-1055211.1
  Configured vCPU:           2
  Operational vCPU:           2
  Configured Ramsize:        2048
  Operational Ramsize:        2048
  Disksize:       20
  Configured CryptoOffload Bandwidth:       0
  Operational CryptoOffload Bandwidth:       0
  Configured CryptoOffload VF:       0
  Operational CryptoOffload VF:       0
  Heartbeat:      966

  Legends:   P -  Passthrough
  -------------------------------------------------------------------------------
   Interface           Type         MAC     VLAN    State   Uplink-Int
                                                   Pri  Sec Oper  Adm
  -------------------------------------------------------------------------------
  VsbEthernet2/1   ns_intf_0 0002.3d71.4d8a 2050   up   up Po1    Po1
        internal          NA        NA       NA    up   up
  VsbEthernet2/3   ns_intf_1 0002.3d71.4d8b        up   upEth4(P)Eth4(P)
  VsbEthernet2/4   ns_intf_2 0002.3d71.4d8c 3423 down down Po1    Po1
  VsbEthernet2/5   ns_intf_3 0002.3d71.4d8d 3423 down down Po1    Po1
  VsbEthernet2/6   ns_intf_4 0002.3d71.4d8e 3423 down down Po1    Po1
  VsbEthernet2/7   ns_intf_5 0002.3d71.4d8f 3423 down down Po1    Po1
  VsbEthernet2/8   ns_intf_6 0002.3d71.4d90 3423 down down Po1    Po1
```

```
  VsbEthernet2/9   ns_intf_7 0002.3d71.4d91 3423 down down Po1    Po1
  HA Role: Primary
    HA Status: STANDBY
    Status:       VSB POWERED ON
    Location:     PRIMARY
    SW version:   NetScaler NS10.5: Build 52.11.nc, Date: Sep 30 2014, 00:55:10
  HA Role: Secondary
    HA Status: ACTIVE
    Status:       VSB POWERED ON
    Location:     SECONDARY
    SW version:   NetScaler NS10.5: Build 52.11.nc, Date: Sep 30 2014, 00:55:10
  VSB Info:
    Netscaler VPX
```

Configuration Examples for Virtual Service Blades

This example shows how to display the running configuration of a VXLAN gateway VSB in passthrough mode:

```
switch # show virtual-service-blade vxgw
  Description:
  Slot id:        2
  Host Name:
  Management IP:
  VSB Type Name :  vx-gw-1.5
  Configured vCPU:           3
  Operational vCPU:           3
  Configured Ramsize:        2048
  Operational Ramsize:        2048
  Disksize:       3
  Configured CryptoOffload Bandwidth:       0
  Operational CryptoOffload Bandwidth:       0
  Configured CryptoOffload VF:       0
  Operational CryptoOffload VF:       0
  Heartbeat:      0

  Legends:   P -  Passthrough
  ------------------------------------------------------------------------------
   Interface           Type         MAC     VLAN    State   Uplink-Int
                                                   Pri  Sec Oper  Adm
  ------------------------------------------------------------------------------
  VsbEthernet2/1  gw-uplink1                        up   upEth5(P)Eth5(P)
  VsbEthernet2/2  management                 180    up   upEth2   Eth2
  VsbEthernet2/3  gw-uplink2                 366    up   upEth2   Eth2
        internal          NA        NA       NA    up   up
  HA Role: Primary
    HA Status: ACTIVE
    Status:       VSB POWERED ON
    Location:     PRIMARY
    SW version:
  HA Role: Secondary
    HA Status: STANDBY
    Status:       VSB POWERED ON
    Location:     SECONDARY
    SW version:
  VSB Info:

switch#
```

Verifying the Virtual Service Blade Configuration

Command	Purpose
show virtual-service-blade [name *name*]	Displays the configuration for a specific VSB.
show virtual-service-blade-type summary	Displays a summary of all VSB configurations by type, such as VSM or NAM.
show virtual-service-blade summary	Displays a summary of all VSB configurations. This command is only recognized by the primary Cisco Nexus Cloud Services Platform.
show virtual-service-blade [name *name*] **statistics**	Displays statistics for a specific VSB such as CPU utilization, memory, last reboot time, or total number of reboots.
show network summary	Displays a summary of all interfaces, including the ones configured in passthrough mode.

This example shows how to display the VSB type summary:

```
switch# show virtual-service-blade-type summary
------------------------------------------------------------------------------
Virtual-Service-Blade-Type    Virtual-Service-Blade
------------------------------------------------------------------------------
VSM_SV1_3                     vsm-1
                              vsm-2
NAM-MV                        nam-1
switch#
```

This example shows how to display the VSB names for a Cisco Nexus 1000V VSM and a Cisco Nexus VXLAN gateway VSB:

```
switch# show virtual-service-blade vxgw
 virtual-service-blade vxgw
 Description:
 Slot id:        2
 Host Name:
 Management IP:
 VSB Type Name :  vx-gw-1.5
 Configured vCPU:           3
 Operational vCPU:           3
 Configured Ramsize:        2048
 Operational Ramsize:        2048
 Disksize:       3
 Configured CryptoOffload Bandwidth:       0
 Operational CryptoOffload Bandwidth:       0
 Configured CryptoOffload VF:       0
 Operational CryptoOffload VF:       0
 Heartbeat:      0

 Legends:   P -  Passthrough
 ------------------------------------------------------------------------------
  Interface           Type         MAC     VLAN    State   Uplink-Int
                                                  Pri  Sec Oper   Adm
 ------------------------------------------------------------------------------
 VsbEthernet2/1  gw-uplink1                        up   up Eth5(P)Eth5(P)
```

```
  VsbEthernet2/2  management                180   up   up Eth2   Eth2
  VsbEthernet2/3  gw-uplink2                366   up   up Eth2   Eth2
        internal          NA        NA       NA    up   up
  HA Role: Primary
    HA Status: ACTIVE
    Status:       VSB POWERED ON
    Location:     PRIMARY
    SW version:
  HA Role: Secondary
    HA Status: STANDBY
    Status:       VSB POWERED ON
    Location:     SECONDARY
    SW version:
  VSB Info:

switch#
```

This example shows how to display the VSB summary:

```
switch# show virtual-service-blade summary

--------------------------------------------------------------------------------
Name                HA-Role     HA-Status   Status                    Location
--------------------------------------------------------------------------------
dcnm                PRIMARY     ACTIVE      VSB POWERED ON            PRIMARY
dcnm                SECONDARY   NONE        VSB NOT PRESENT           SECONDARY
vsm                 PRIMARY     ACTIVE      VSB POWERED ON            PRIMARY
```

This example shows how to display the VSB statistics:

```
switch# show virtual-service-blade statistics

virtual-service-blade: dcnm
  Virtual Memory: 8558m
  Physical Memory: 3.4g
  CPU Usage Percentage: 1.00
  Up Since: Thu May 15 22:46:51 2014
  Number of Restarts: 1
  Last heartbeat received at: Fri May 16 15:57:58 2014


virtual-service-blade: vsm
  Virtual Memory: 4442m
  Physical Memory: 1.7g
  CPU Usage Percentage: 3.00
  Up Since: Thu May 15 22:46:51 2014
  Number of Restarts: 1
  Last heartbeat received at: Fri May 16 15:57:58 2014
```

This example shows how to display the network summary:

```
switch# show network summary

Legends:    P - Passthrough
--------------------------------------------------------------------------------
      Port     State     Uplink-Interface  Speed  RefCnt    MTU   Nat-Vlan
            Oper  Admin   Oper    Admin                          Oper  Admin
--------------------------------------------------------------------------------
      Eth1    up     up                        1000       5   9000
      Eth2    up     up                        1000       1   9000
      Eth3    up     up                        1000       0   9000
      Eth4    up     up                        1000       0   9000
      Eth5  down     up                        1000       0   9000
      Eth6    up     up                        1000       0   9000
 VsbEth1/1    up     up  Eth2   Eth2           1000           9000
 VsbEth2/1    up     up  Eth1   Eth1           1000           9000
 VsbEth2/2    up     up  Eth1   Eth1           1000           9000
 VsbEth2/3    up     up  Eth1   Eth1           1000           9000
  control0    up     up  Eth1   Eth1           1000           9000
     mgmt0    up     up  Eth1   Eth1           1000           9000
```

```
switch#
```

MIBs

To locate and download MIBs, go to the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

Feature History for Virtual Service Blades

This section provides the release history for VSBs.

Feature Name	Releases	Feature Information
Static network uplink	5.2(1)SP1(7.1)	This feature was removed.
Support for KVM VSB	5.2(1)SP1(7.1)	This feature was introduced.
Enabling the 10-Gbps interface	5.2(1)SP1(7.1)	This feature was introduced.
Enabling the Cavium NITROX crypto card	5.2(1)SP1(7.1)	This feature was introduced.
Automatic execution of the **copy running-config startup-config** command	5.2(1)SP1(7.1)	This feature was introduced.
Passthrough interface	4.2(1)SP1(6.1)	This feature was introduced.
Creating VSBs for the VXLAN gateway	4.2(1)SP1(6.1)	This feature was introduced.
Setting up different form factors for the Cisco VSG VSBs	4.2(1)SP1(6.1)	This feature was introduced.
show virtual-service-blade name *name* **statistics** command	4.2(1)SP1(5.1)	This feature was introduced.
Creating and exporting a VSB backup file	4.2(1)SP1(3)	This feature was introduced.
Importing a VSB backup file	4.2(1)SP1(3)	This feature was introduced.
Escape sequence	4.2(1)SP1(2)	This feature was introduced.
VSB	4.0(4)SP1(1)	This feature was introduced.