



Managing Server Connections

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Information About Server Connections

In order to connect to vCenter Server or an ESX server, you must first define the connection in the Cisco Nexus 1000V including the following:

- A connection name
- The protocol used
- The server IP address
- The server DNS name
- All communication with vCenter Server is secured by the Transport Layer Security (TLS) protocol.

Guidelines and Limitations

A single Virtual Supervisor Module (VSM) can only connect to one vCenter Server at a time. A single VSM cannot connect to multiple vCenter Server at once.

Connecting to the vCenter Server

Before You Begin

Before beginning this procedure, you must be logged in to the CLI in EXEC mode.

You must know the following:

- The datacenter name
- The vCenter Server IP address or hostname.

You must be sure the following is set up:

- The vCenter Server management station is installed and running.
- The ESX servers are installed and running.
- The Cisco Nexus 1000V appliance is installed.
- The management port is configured.
- The DNS is already configured if you are configuring a connection using a hostname.
- An extension with vCenter Server has been registered. The extension includes the extension key and public certificate for the VSM. vCenter Server uses the extension to verify the authenticity of the request it receives from the VSM. For instructions about adding and registering an extension, see the *Cisco Nexus 1000V Installation and Upgrade Guide*.

Procedure

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | switch# configure terminal | Places you in global configuration mode. |
| Step 2 | switch(config)# svs connection name | Places you in connection configuration mode for adding this connection between the Cisco Nexus 1000V and either a particular ESX server or vCenter Server. By using a name, information for multiple connections can be stored in the configuration. |
| Step 3 | switch(config-svs-conn)# protocol vmware-vim | Use the http keyword to specify that this connection uses the VIM protocol. This command is stored locally. http : Specifies that the VIM protocol runs over HTTP. The default is to use HTTP over SSL (HTTPS). |
| Step 4 | Do one of the following: | <ul style="list-style-type: none"> • If you are configuring an IP address, go to Step 5. • If you are configuring a hostname, go to Step 6. |

| | Command or Action | Purpose |
|---------------|---|--|
| Step 5 | switch(config-svs-conn)# remote ip address <i>ipaddress</i> | Specifies the IP address of the ESX server or vCenter Server for this connection. This command is stored locally. Go to step 7 to configure the datacenter name. |
| Step 6 | switch(config-svs-conn)# remote hostname <i>hostname</i> | Specifies the DNS name of the ESX server or vCenter Server for this connection. This command is stored locally. Note DNS is already configured. |
| Step 7 | switch(config-svs-conn)# remote port <i>port number</i> | Specifies the HTTP port number of vCenter for this connection. The default port number is 80. Though the communication is HTTPS, vCenter receives the packets on its HTTP port. |
| Step 8 | switch(config-svs-conn)# vmware dvs datacenter-name [<i>folder/</i>] <i>name</i> | Identifies the datacenter name in the vCenter Server where the Cisco Nexus 1000V is to be created as a distributed virtual switch (DVS). You can use this command before or after connecting. The datacenter name is stored locally. Note The Nexus 1000V folder name must be same in the vCenter Server and in the VSM. If the Nexus 1000V folder is renamed in the vCenter Server, you must manually rename the folder name in the VSM. The names are not automatically synchronized, and if they are not the same, the DVS connection between the VSM and vCenter Server is broken. |
| Step 9 | switch(config-svs-conn)# connect | Initiates the connection. If the username and password have not been configured for this connection, the you are prompted for a username and password. The default is no connect. There can be only one active connection at a time. If a previously defined connection is up, an error message appears and the command is rejected until you close the previous connection by entering no connect. |

```

switch# config t
switch(config)# svs connection VC
switch(config-svs-conn)# protocol vmware-vim
switch(config-svs-conn)# remote ip address 192.168.0.1
switch(config-svs-conn)# remote port 80
switch(config-svs-conn)# vmware dvs datacenter-name Hamilton-DC
switch(config-svs-conn)# connect
switch# show svs connections
connection VC:
  ip address: 192.168.0.1
  protocol: vmware-vim https
  certificate: default
  datacenter name: Hamilton-DC
  DVS uuid: ac 36 07 50 42 88 e9 ab-03 fe 4f dd d1 30 cc 5c
  config status: Enabled
  operational status: Connected
switch#
    
```

Validating vCenter Server Certificates

The VSM can validate the certificate presented by vCenter Server to authenticate it. The certificate may be self-signed or signed by a Certificate Authority (CA). The validation is done every time the VSM connects to the vCenter Server. If the certificate authentication fails, a warning is generated but the connection is not impaired.

Installing Certificates

Before You Begin

Check if a vCenter Server certificate can be received:

- 1 Run the following command and store the output of this command in a file, for example, `sconnect_out`.

```
openssl s_client -connect vCenterServer_IPaddress:443 -showcerts
```

- 2 Add information about the certificates in a file named `cacerts.pem`.

- 3 Verify that a certificate is received from the vCenter Server:

```
openssl verify -CAfile cacerts.pem sconnect_out
```

For more information about the OpenSSL commands, go to www.openssl.org.

Procedure

Step 1 Create a file named `cacerts.pem` in `bootflash:`.

Step 2 Add a list of trusted certificates in the `cacerts.pem` file.

You can add the self-signed certificate of the vCenter Server or the list of root certificate authorities that your security policy allows. The information about each certificate must be included within the following lines:

```
-----BEGIN CERTIFICATE-----
```

```
-----END CERTIFICATE-----
```

Verifying vCenter Server Certificates

To verify a vCenter Server certificate, use the **show svcs connections** command.

```
switch# show svcs connections
connection vc:
  ip address: 172.23.181.103
  remote port: 80
  protocol: vmware-vim https
  certificate: default
  ssl-cert: Authenticated
  . . .
```

If the authentication fails or the `bootflash:/cacerts.pem` file is not present, the following message is displayed:

```
ssl-cert: self-signed or not authenticated
```

In addition, the following warning message is displayed for five times or less after every 3 minutes:

```
VMS-1-CONN_SSL_NOAUTH: SSL AUTHENTICATION failure
```

Disconnecting From the vCenter Server

You can disconnect from the vCenter Server, for example, after correcting a vCenter Server configuration.

Before You Begin

Before beginning this procedure, be sure you have done the following:

- Logged in to the Cisco Nexus 1000V in EXEC mode.
- Configured a Cisco Nexus 1000V connection
- Connected the Cisco Nexus 1000V to vCenter Server/ESX.

Procedure

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | switch# configure terminal | Places you in global configuration mode. |
| Step 2 | switch(config)# svs connection <i>name</i> | Places you in a global configuration submode for the connection to vCenter Server. |
| Step 3 | switch(config-svs-conn)# no connect | Closes the connection. |

```
switch# config t
switch# (config)# svs connection vcWest
switch# (config-svs-conn) # no connect
```

Removing the DVS from the vCenter Server

Use this procedure to remove the Distributed Virtual Switch (DVS) from the vCenter Server.

Before You Begin

Before beginning this procedure, be sure you have done the following:

- Logged in to the Cisco Nexus 1000V in EXEC mode
- Configured a connection to the vCenter Server
- Connected the Cisco Nexus 1000V to vCenter Server/ESX
- Checked that the server administrator has removed all of the hosts that are connected to the Cisco Nexus 1000V from the VI client. For more information, see the VMware documentation.

Procedure

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | switch# configure terminal | Places you in global configuration mode. |
| Step 2 | switch(config)# svs connection name | Places you in a global configuration submode for the connection to vCenter Server. |
| Step 3 | switch(config-svs-conn)# no vmware dvs | Removes the DVS associated with the specified connection from the vCenter Server. |

```
switch# config t
switch(config)# svs connection vcWest
switch(config-svs-conn)# no vmware dvs
```

Removing the DVS from the vCenter Server When the VSM Is Not Connected

Configuring the ability to delete the DVS when the VSM is not connected to the vCenter Server is a two-step process:

Procedure

-
- Step 1** Configure the admin user or group. See the Configuring the Admin User or Admin Group section.
 - Step 2** Remove the DVS from the vCenter Server. See the Removing the DVS from the vCenter Server section
-

Configuring the Admin User or Admin Group

Before You Begin

Before beginning this procedure, ensure that the system administrator has created an admin user or admin group on vCenter Server to manage and delete the DVS. This user should not be given any other permissions such as deploying VMs or hosts, and so on. The admin user name configured on the VSM should be the same as the username on vCenter Server.

Procedure

-
- Step 1** Determine the name of the DVS.

Example:

- Step 2** Configure the admin user in the vCenter Server.

Example:

Note You can also configure an admin group by entering the `admin group groupname` command.

Step 3 Verify that the admin user has been created.

Example:

```
switch# show svcs connections

connection VC:
  ipaddress: 10.104.63.16
  remote port: 80
  protocol: VMware-vim https
  certificate: default
  datacenter name: NLK-DC
  admin:
  DVS uuid: a2 ...
  config status: Enabled
  operational status: Connected
  sync status: Complete
  version: VMware vCenter Server 4.1.0 build 258902

switch# config t
switch(config)# svcs connection VC
switch(config-svcs-conn) # admin user NAuser
switch(config-svcs-conn) #show svcs connections

connection VC:
  ipaddress: 10.104.63.16
  remote port: 80
  protocol: VMware-vim https
  certificate: default
  datacenter name: NLK-DC
  admin: NAuser(user)
  DVS uuid: a2 ...
  config status: Enabled
  operational status: Connected
  sync status: Complete
  version: VMware vCenter Server 4.1.0 build 258902
```

Removing the DVS from the vCenter Server Using the Graphical User Interface

Procedure

-
- Step 1** Log in to the vCenter Server through the VMware vSphere Client with the admin user account
 - Step 2** In the vSphere Client left pane, choose the data center.
 - Step 3** Click **Hosts and Clusters > Networking**.
 - Step 4** Right-click the **DVS** and choose **Remove**.
-

Configuring Host Mapping

This section includes the following topics:

- Information about Host Mapping
- Removing Host Mapping from a Module
- Mapping to a New Host
- Viewing Host Mapping

Information about Host Server Connections

When a VSM detects a new Virtual Ethernet Module (VEM), it automatically assigns a free module number to the VEM and then maintains the mapping between the module number and the universally unique identifier (UUID) of a host server. This mapping is used to assign the same module number to a given host server.

Removing Host Mapping from a Module

Before You Begin

Before beginning this procedure, be sure you have done the following:

- Logged in to the Cisco Nexus 1000V in EXEC mode.
- Removed the host from the Cisco Nexus 1000V DVS on vCenter

Procedure

| | Command or Action | Purpose |
|---------------|---|---|
| Step 1 | switch# configure terminal | Places you in global configuration mode. |
| Step 2 | switch(config)# no vem module-number | Removes the specified module from software. Note If the module is still present in the slot, the command is rejected, as shown in this example. |
| Step 3 | switch(config)# show module vem mapping | (Optional) Displays the mapping of modules to host servers. |
| Step 4 | switch(config)# copy running-config startup-config | Copies the running configuration to the startup configuration. |

```
switch# configure terminal
switch(config)# no vem 4
switch(config)# no vem 3
cannot modify slot 3: host module is inserted
switch(config)# show module vem mapping
```



```

Mod      Status      UUID
-----
3        powered-up  93312881-309e-11db-afa1-0015170f51a8  licensed
switch(config-vem-slot)# copy running-config startup-config
    
```

Mapping to a New Host

Before You Begin

Before beginning this procedure, be sure you have done the following:

- Logged in to the CLI in EXEC mode
- Removed the host from the Cisco Nexus 1000V DVS on vCenter



Note

If you do not first remove the existing host server mapping, the new host server is assigned a different module number.

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | switch# configure terminal | Places you in global configuration mode. |
| Step 2 | switch(config)# vem module number | Places you in VEM slot configuration mode. |
| Step 3 | switch(config-vem-slot)# host vmware id server-bios-uuid | Assigns a different host server UUID to the specified module. |
| Step 4 | switch(config-vem-slot)# show module vem mapping | (Optional) Displays the mapping of modules to host servers. |
| Step 5 | switch(config-vem-slot)# copy running-config startup-config | Copies the running configuration to the startup configuration. |

```

switch# config t
switch(config)# vem 3
switch(config-vem-slot)# host vmware id 6dd6c3e3-7379-11db-abcd-000bab086eb6
switch(config-vem-slot)# show module vem mapping
Mod      Status      UUID
-----
3        powered-up  93312881-309e-11db-afa1-0015170f51a8  licensed
4        absent      6dd6c3e3-7379-11db-abcd-000bab086eb6  licensed
switch(config-vem-slot)# copy running-config startup-config
    
```

Viewing Host Mapping

- Use this procedure in EXEC mode to view the mapping of modules to host servers.

Procedure

Display the mapping on modules to host servers by entering the following command: **show module vem mapping**

```

Mod Status          UUID                               License Status
-----
3    powered-up    93312881-309e-11db-afa1-0015170f51a8    licensed
n1000v(config)#

```

Verifying Connections

Use this procedure to view and verify connections.

Before You Begin

- You are logged in to the CLI in any command mode.
- You have configured the connection using the Connecting to the vCenter Server procedure.
- The Cisco Nexus 1000V is connected to vCenter Server/ESX.

Procedure

show svcs connections [*name*]

Displays the current connections to the Cisco Nexus 1000V.

Note Network connectivity issues may shut down your connection to the vCenter Server. When network connectivity is restored, the Cisco Nexus 1000V will not automatically restore the connection. In this case, you must restore the connection manually using the following command sequence **no connect**

```

connect

```

```

n1000v# show svcs connections vc
Connection vc:
IP address: 172.28.15.206
Protocol: vmware-vim https
vmware dvs datacenter-name: HamiltonDC
ConfigStatus: Enabled
OperStatus: Connected
n1000v#

```

Verifying the Domain

Use this procedure to view and verify the configured domain.

Before You Begin

- You are logged in to the CLI in any command mode.
- You have configured a domain using the Creating a Domain procedure.

Procedure

show svcs domain

Example:

```
n1000v# show svcs domain
SVS domain config:
Domain id: 98
Control vlan: 70
Packet vlan: 71
Sync state: -
n1000v#
```

Display the domain configured on the Cisco Nexus 1000V.

Verifying the Configuration

Use one of the following commands to verify the configuration:

| Command | Description |
|--|--|
| show running-config | Displays the current configuration. If the Cisco Nexus 1000V is not connected to a vCenter Server or ESX server, the output is limited to connection-related information. |
| show svcs connections <i>[name]</i> | Displays the current connections to the Cisco Nexus 1000V. Note Network connectivity issues may shut down your connection to the vCenter Server. When network connectivity is restored, the Cisco Nexus 1000V will not automatically restore the connection. In this case, you must restore the connection manually using the following command sequence: no connect connect |
| show svcs domain | Displays the domain configured on the Cisco Nexus 1000V. |
| show module | Displays module information. |
| show server_info | Displays server information. |
| show interface brief | Displays interface information, including the uplinks to vCenter Server. |
| show interface virtual | Displays virtual interface information. |

| Command | Description |
|--------------------------------------|--|
| <code>show module vem mapping</code> | Displays the mapping of modules to host servers. |

Verifying Module Information

Use this procedure to display and verify module information, including a view of the DVS from Cisco Nexus 1000V.

Before You Begin

- You are logged in to the CLI in any command mode.
- You have configured the Cisco Nexus 1000V connection using the Connecting to the vCenter Server procedure.
- The Cisco Nexus 1000V is connected to vCenter Server/ESX.
- The Server Administrator has already added the host running Cisco Nexus 1000V to the DVS in vCenter Server.

Procedure

Step 1 `show module`

Example:

```
n1000v# show module
Mod Ports Module-Type Model Status
-----
1 1 Virtual Supervisor Module Nexus1000V active *
2 48 Virtual Ethernet Module ok
3 48 Virtual Ethernet Module ok
Mod Sw Hw World-Wide-Name(s) (WWN)
-----
1 4.0(0)S1(0.82) 0.0 --
2 NA 0.0 --
3 NA 0.0 --
Mod MAC-Address(es) Serial-Num
-----
1 00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8 NA
2 02-00-0c-00-02-00 to 02-00-0c-00-02-80 NA
3 02-00-0c-00-03-00 to 02-00-0c-00-03-80 NA
Mod Server-IP Server-UUID Server-Name
-----
1 172.18.217.180 esx-1
2 172.18.117.44 487701ee-6e87-c9e8-fb62-001a64d20a20 esx-2
3 172.18.217.3 4876efdd-b563-9873-8b39-001a64644a24 esx-3
* this terminal session
Displays module information.
```

Step 2 `show server_info`

Example:

```
n1000v# show server_info
Mod Status UUID
```

```

-----
2 powered-up 34303734-3239-5347-4838-323130344654
3 absent 371e5916-8505-3833-a02b-74a4122fc476
4 powered-up 4880a7a7-7b51-dd96-5561-001e4f3a22f9
5 absent 48840e85-e6f9-e298-85fc-001e4f3a2326
6 powered-up eb084ba6-3b35-3031-a6fe-255506d10cd0
n1000v#
    
```

Displays server information.

Step 3 show interface brief

Example:

```

n1000v# show interface brief
-----
Port VRF Status IP Address Speed MTU
-----
mgmt0 -- up 172.28.15.211 1000 1500
-----
Ethernet VLAN Type Mode Status Reason Speed Port
Interface Ch #
-----
Eth2/2 1 eth trunk up none a-1000(D) --
-----
Interface VLAN Type Mode Status Reason MTU
-----
    
```

Example
n1000v#
Displays interface information, including the uplinks to vCenter Server.

Step 4 show interface virtual

Example:

```

n1000v# show interface virtual
-----
Port Adapter Owner Mod Host
-----
Veth49 R-VM-1 2 mcs-srvr35
Displays virtual interface information.
    
```

Feature History for Server Connections

| Feature Name | Releases | Feature Information |
|--|-----------------|------------------------------|
| vCenter Server Certificates Validation | 4.2(1)SV2(2.1a) | This feature was introduced. |
| DVS Deletion | 4.2(1)SV1(4a) | This feature was added. |
| Server Connections | 4.0(4)SV1(1) | This feature was introduced. |

