



VSM and VEM Modules

This chapter describes how to identify and resolve problems that relate to modules.

Information About Modules

The Cisco Nexus 1000V implementation has two parts:

- Virtual Supervisor Module (VSM)—This is the control software of the Cisco Nexus 1000V distributed virtual switch. It runs on a VM and is based on Cisco NX-OS software.
- Virtual Ethernet Module (VEM)—This is the part of Cisco Nexus 1000V that actually switches data traffic. It runs on a KVM (Kernel-based virtual machine) server. Several VEMs are controlled by one VSM.

Troubleshooting a Module That Does Not Come Up on the VSM

This section describes the process that you can use when a module does not come up on the VSM.

Troubleshooting Guidelines

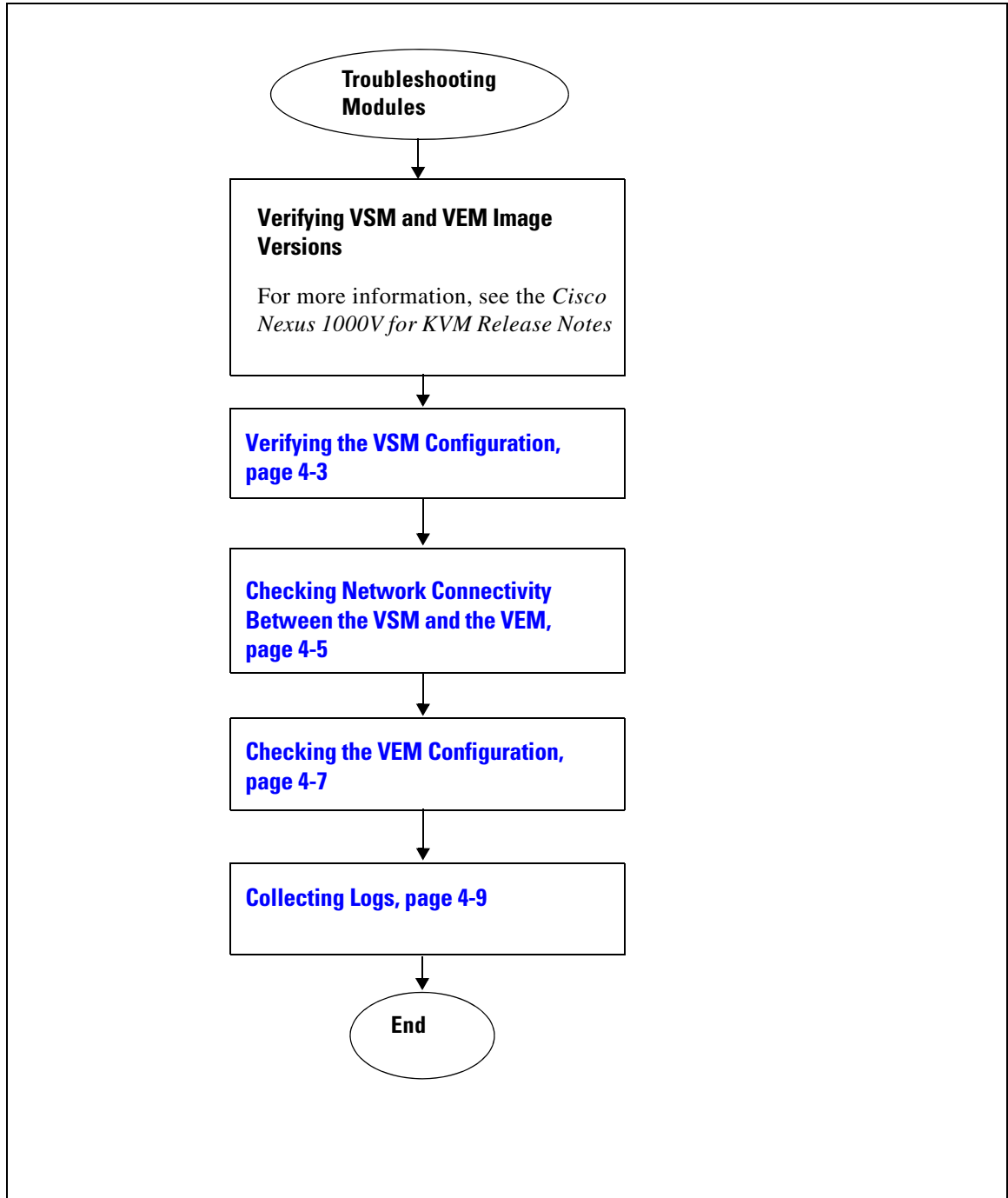
Follow these guidelines when troubleshooting a module that is controlled by the VSM:

- You must have a VSM VM and a VEM up and running.
- Make sure that you are running compatible versions of the OpenStack server and VSM.
- Make sure that the VEM has reachability to the VSM.

For more information, see the *Cisco Nexus 1000V for KVM Release Notes*.

Flowchart for Troubleshooting Modules

Use the following flowchart to troubleshoot modules.



Verifying the VSM Configuration

You can verify the domain configuration.

Step 1 Log in to the CLI in EXEC mode.

Step 2 On the VSM, verify the domain configuration by entering this command:

show svcs domain

```
n1000v# show svcs domain
SVS domain config:
  Domain id: 36
  Control vlan: NA
  Packet vlan: NA
  Control mode: L3
  Switch guid: 6bd22a84-b262-4327-8bd0-696109748c6a
  L3 control interface: mgmt0
  Status: Config not pushed to Management Server.
  Control type multicast: No
Note: Control VLAN and Packet VLAN are not used in L3 mode
```

Problems with the VSM

The following are symptoms, possible causes, and solutions for problems with the VSM.

Symptom	Possible Causes	Solution
After a VSM is rebooted, the system stops functioning in one of the following states and does not recover on its own. Attempts to debug fail.		
After boot, the VSM has a loader prompt.	The VSM kickstart image has been corrupted.	<ol style="list-style-type: none"> 1. Disable the primary and secondary VSM resources in the pacemaker cluster. 2. Log in to the nodes with active VSMS and shut down the VMs. 3. Log in to the controller nodes and run the qemu image command. 4. Enable the primary and secondary VSMS in the pacemaker cluster. 5. Verify the active and standby VSMS using the show module command. 6. Compare the running configuration with the configuration defined in the backup file. Use show running-config command to view the running configuration. If there are any discrepancies between the running configuration and backup configuration, run the missing configuration commands on the VSM. <p>For detailed information, see <i>Cisco Nexus 1000V for KVM Installation Guide for Red Hat Enterprise Linux OpenStack Platform 7</i>.</p>
After boot, the VSM has a boot prompt.	The VSM system image has been corrupted.	<ol style="list-style-type: none"> 1. Disable the primary and secondary VSM resources in the pacemaker cluster. 2. Log in to the nodes with active VSMS and shutdown the VMs. 3. Log in to the controller nodes and run the qemu image command. 4. Enable the primary and secondary VSMS in the pacemaker cluster. 5. Verify the active and standby VSMS using the show module command. 6. Compare the running configuration with the configuration defined in the backup file. Use show running-config command to view the running configuration. If there are any discrepancies between the running configuration and backup configuration, run the missing configuration commands on the VSM. <p>For detailed information, see <i>Cisco Nexus 1000V for KVM Installation Guide for Red Hat Enterprise Linux OpenStack Platform 7</i>.</p>

Symptom	Possible Causes	Solution
After boot, the VSM has been reconfigured.	The startup configuration has been deleted.	Do one of the following: <ul style="list-style-type: none"> If you have a saved backup copy of your configuration file, restore the configuration on the VSM by entering the copy source-filesystem:filename running-config command. If a backup copy of the running configuration is not available, contact TAC for advanced recovery procedures.
After boot, the VSM stopped at “Loader Loading.”	The boot menu file has been corrupted.	<ol style="list-style-type: none"> Disable both the primary and secondary VSM resources in pacemaker. Log in to nodes with active VSMS and shutdown the VMs. Log in to all the three controllers and run the following commands: <pre>[root@overcloud-controller-0 heat-admin]# qemu-img create /var/spool/cisco/vsm/primary_disk 4G [root@overcloud-controller-0 heat-admin]# qemu-img create /var/spool/cisco/vsm/secondary_disk 4G [root@overcloud-controller-1 heat-admin]# qemu-img create /var/spool/cisco/vsm/primary_disk 4G [root@overcloud-controller-1 heat-admin]# qemu-img create /var/spool/cisco/vsm/secondary_disk 4G [root@overcloud-controller-2 heat-admin]# qemu-img create /var/spool/cisco/vsm/primary_disk 4G [root@overcloud-controller-2 heat-admin]# qemu-img create /var/spool/cisco/vsm/secondary_disk 4G</pre> Enable both the primary and secondary VSMS in pacemaker. Log in to the primary VSM and verify both the active and standby VSMS using the show module command. Compare the running configuration with the configuration defined in the backup file. Use show running-config command to view the running configuration. If there are any discrepancies between the running configuration and backup configuration, run the missing configuration commands on the VSM.
After boot, the secondary VSM reboots continuously.	Check the L3 connectivity between the two VSMS.	Check the control connectivity between the active and standby VSM.
	Active and standby VSMS are failing to synchronize.	From the active VSM, check gsyncstats to identify which application caused the failure by entering the show logging command.
The management IP address is not reachable.	Varies.	Use the virsh console (\$vsm-vm-name) command on the VSM host node to connect directly to the console.

Checking Network Connectivity Between the VSM and the VEM

You can verify Layer 2 network connectivity between the VSM and the VEM.

Step 1 On the VSM, find its MAC address by entering this command:

show svcs neighbors

The VSM MAC address displays as the AIPC Interface MAC.

The user VEM Agent MAC address of the host displays as the Src MAC.

```
n1000v# show svcs neighbors
```

```
Active Domain ID: 36
```

```
AIPC Interface MAC: 5254-0040-9ad6
```

```
Inband Interface MAC: 5254-0002-3a0f
```

Src MAC	Type	Domain-id	Node-id	Last learnt (Sec. ago)
0002-3d40-2403	VEM	36	0402	0.07
0002-3d40-2404	VEM	36	0502	0.07
0002-3d40-2405	VEM	36	0602	0.07

Step 2 Do one of the following:

- If the output of the **show svcs neighbors** command in [Step 1](#) does not display the VEMs, there might be a problem with the VSM network connectivity. Proceed to the next step.
- If only some VEMs are missing, the problem might be on the VEM. See [Checking the VEM Configuration, page 4-7](#).

Step 3 On the upstream switch, display the MAC address table to verify the network configuration by entering this command:

```
show mac address-table interface int_id vlan vlan_id
```



Note The MAC address table should be checked on the VLAN where the VSM is connected.

```
switch# show mac address-table interface Gi3/2 vlan 3002
```

```
Legend: * - primary entry
age - seconds since last seen
n/a - not available
```

vlan	mac address	type	learn	age	ports
Active Supervisor:					
* 3002	00:02:3d:40:0b:0c	dynamic	Yes	0	Gi3/2

Step 4 If the output from [Step 3](#) does not display the MAC address of the VSM, there might be a problem with the VSM's network connectivity.

Verifying the VEM Installation

Step 1 Verify the VEM installation by entering the **show svcs upgrade status** command

```
n1000v# show svcs upgrade status
Upgrade State: Active
Upgrade mgmt0 ipv4 addr:
Upgrade mgmt0 ipv6 addr:
Upgrade control0 ipv4 addr:
```

Step 2 Check that the upgrade state is active and does not report any errors.

Checking the VEM Configuration

You can verify the VEM configuration.

Step 1 Verify the domain ID by entering the **vemcmd show card** command:

```
n1000v# attach vem 3
n1000v(vem-attach)# vemcmd show card
Card UUID type 2: 3EC25838-8116-11E4-0000-0000000011F
Card name: mac0025b50d005f.example.com
Switch name: VSM1-P
Switch alias: NA
Switch uuid: c3ca0345-770c-4c84-9731-dbd49d62c095
Card domain: 501
Card slot: 3
VEM Tunnel Mode: L3 Mode
L3 Ctrl Index: 0
VEM Control (AIPC) MAC: 00:02:3d:11:f5:02
VEM Packet (Inband) MAC: 00:02:3d:21:f5:02
VEM Control Agent (DPA) MAC: 00:02:3d:41:f5:02
VEM SPAN MAC: 00:02:3d:31:f5:02
Primary VSM MAC : 00:50:66:ee:04:00
Primary VSM PKT MAC : 00:00:00:00:00:00
Primary VSM MGMT MAC : 00:00:00:00:00:00
Standby VSM CTRL MAC : 00:00:00:00:00:00
Management IPv4 address: 11.11.0.22
Management IPv6 address: 0000:0000:0000:0000:0000:0000:0000:0000
Primary L3 Control IPv4 address: 0.0.0.0
Secondary VSM MAC : 00:00:00:00:00:00
Upgrade : Default
Max physical ports: 32
Max virtual ports: 990
Card control VLAN: 0
Card packet VLAN: 0
Control type multicast: No
Card Headless Mode : No
DPA Status : Up
    Processors: 6
    Processor Cores: 6
    Processor Sockets: 2
    Kernel Memory: 0
Port link-up delay: 5s
Global UFB: DISABLED
Layer 3 Forwarding: DISABLED
Heartbeat Set: True
Card Type: vem
PC LB Algo: source-mac
Datapath portset event in progress : no
Licensed: Yes
Global BPDU Guard: Disabled
DP Initialized: Yes
Tag Native VLAN: No
L3Sec Mode: TRUE
Layer 3 Forwarding mode: Gateway-Mode
Layer 3 Forwarding Mac : 00:02:3d:b0:00:00
n1000v(vem-attach)#
```

- Step 2** Verify that the ports of the host added to the logical switch are listed and that the ports are correctly configured as access or trunk on the host by entering the **vemcmd show port** command:

```
VSM# module vem 3 execute vemcmd show port-oid
L/TL   IfIndex  Vlan/   Bndl  SG_ID Pinned_SGID  Type  Admin State      CBL Mode  Name
      SegId
      6         0        1 T    0     32      32  VIRT    UP    UP    1  Trunk  vns
      11        0     3968   0     32      32  VIRT    UP   DOWN  1  Access _123
      12        0         1     0     32       1  VIRT    UP   DOWN  1  Access _124
      13        0         1     0     32      32  VIRT    UP   DOWN  0  Access _125
      15        0     3971   0     32      32  VIRT    UP   DOWN  1  Access _127
      16        0         1 T    0     32      32  VIRT    UP   DOWN  1  Trunk  arp
      17        0         1     0     32      32  VIRT    UP    UP    0  Access _12vxn
      18  2500c000   1 T  1040   0     32  PHYS    UP    UP    1  Trunk  eth1
      19  2500c040   1 T  1040   1     32  PHYS    UP    UP    1  Trunk  eth0
      50  1c000050    40     0     32       0  VIRT    UP    UP    1  Access
cn1-vtep1-ovs
 1040  16000002    1 T    0     32      32  CHAN    UP    UP    1  Trunk
```

The last line of the output indicates that vnic1 should be in trunk mode with a color blocking logic (CBL) value of 1. The CBL value of the native VLAN does not have to be 1. It can be 0 if it is not allowed or 1 if it is VLAN 1 and not allowed. If the CBL value is 0 it is not a problem unless the native VLAN is the control VLAN. The Admin state and Port state should be UP.

- Step 3** Check if the VSM is reachable from the OpenStack host by entering these commands:

```
route
arp -a
```

Problems with the VEM

The following are symptoms, possible causes, and solutions for problems with the VEM.

Symptom	Possible Causes	Solution
A VEM that you created has failed.	Check whether the OpenStack services are installed. For the compute node, the nova-compute service has to be installed before installing the VEM.	<ol style="list-style-type: none"> 1. Ensure that the VSM/VEM are installed into the Overcloud image. 2. Run glance image-list command on the Undercloud. 3. Verify that the size of overcloud-full image matches the size of the modified Overcloud image (with VSM/VEM installed). If the sizes do not match, remove the five images using glance image-delete (\$image-uuid) command and re-install the images using openstack overcloud image upload --image-path /home/stack/images/ command. 4. Run the openstack baremetal configure boot command to update the image configuration for all node types. Verify that the redeployed Overcloud is using modified image.
	VEM is installed and VSM is reachable from VEM but still the module is not attached. This condition occurs when the VSM and VEM are in different subnet.	<ol style="list-style-type: none"> 1. Ensure that the N1000vVEMHostMgmtIntf configuration is on the same network as N1000vVSMHostMgmtIntf. 1. Synchronize the configuration across all the VEM nodes using the deploy command. <p>If the VEM configuration is different between Control and Compute nodes, use the per-node configuration parameter to configure the control nodes because there are three Controller nodes and the Compute nodes may be added later.</p>

Collecting Logs

After you verify the network connectivity between the VEM and the VSM, you can collect log files to help identify the problem.

Step 1 On the VEM, verify its universally unique identifier (UUID) by entering the **vemcmd show card info** command:

```
n1000v# vemcmd show card info
Card UUID type 2: 6AC6E608-C51D-E211-0010-20304050008D
Card name: compute-1
Switch name: vsm-p
Switch alias: NA
Switch uuid: 6bd22a84-b262-4327-8bd0-696109748c6a
Card domain: 36
Card slot: 4
VEM Tunnel Mode: L3 Mode
L3 Ctrl Index: 0
VEM Control (AIPC) MAC: 00:02:3d:10:24:03
VEM Packet (Inband) MAC: 00:02:3d:20:24:03
VEM Control Agent (DPA) MAC: 00:02:3d:40:24:03
VEM SPAN MAC: 00:02:3d:30:24:03
Primary VSM MAC : 52:54:00:40:9a:d6
Primary VSM PKT MAC : 00:00:00:00:00:00
Primary VSM MGMT MAC : 00:00:00:00:00:00
Standby VSM CTRL MAC : 00:00:00:00:00:00
Management IPv4 address: 172.27.0.215
```

```

Management IPv6 address: 0000:0000:0000:0000:0000:0000:0000:0000
Primary L3 Control IPv4 address: 0.0.0.0
Secondary VSM MAC : 00:00:00:00:00:00
Upgrade : Default
Max physical ports: 32
Max virtual ports: 990
Card control VLAN: 0
Card packet VLAN: 1
Control type multicast: No
Card Headless Mode : No
DPA Status : Up
    Processors: 6
    Processor Cores: 6
Processor Sockets: 2
    Kernel Memory: 0
Port link-up delay: 5s
Global UUFb: DISABLED
Heartbeat Set: True
Card Type: vem
PC LB Algo: source-mac
Datapath portset event in progress : no
Licensed: Yes
Global BPDU Guard: Disabled
DP Initialized: Yes
Tag Native VLAN: No
L3Sec Mode: TRUE

```

Step 2 On the VSM, verify the module number to which the corresponding UUID entry is mapped by entering the **show module vem mapping** command:

```

n1000v# show module vem mapping
Mod      Status          UUID                                     License Status
----      -
3        absent          6AC6E608-C51D-E211-0010-20304050005E  unlicensed
4        powered-up      6AC6E608-C51D-E211-0010-20304050008D  licensed
5        powered-up      6AC6E608-C51D-E211-0010-20304050001E  licensed
6        powered-up      6AC6E608-C51D-E211-0010-2030405000AD  licensed
n1000v#

```

Step 3 Using the module number from [Step 2](#), collect the output of these commands:

- **show platform internal event-history module 13**
- **show module internal event-history module 13**
- **show system internal im event-history module 13**
- **show system internal vmm event-history module 13**
- **show system internal ethpm event-history module 13**

If you need to contact Cisco TAC for assistance in resolving an issue, you must have the output of the commands listed in [Step 3](#).

VSM and VEM Troubleshooting Commands

You can use the commands in this section to troubleshoot problems related to the VSM and the VEM. Enter these commands in a PowerShell window > Linux command prompt.


Note

VSM commands should be issued from within an SSH session to the VSM. VEM commands should be issued on the command prompt of the control or compute node that you are troubleshooting.

VSM Command	Description
show svcs neighbors	Displays all SVS neighbors. See Example 4-1 on page 4-12 .
show svcs domain	Displays the domain configuration. See Example 4-2 on page 4-13 .
show port-profile name <i>name</i>	Displays the configuration for a named port profile. See Example 4-3 on page 4-13 .
show running-config vlan <i>vlanID</i>	Displays the VLAN information in the running configuration. See Example 4-4 on page 4-14 .
show mac address-table interface	Displays the MAC address table on an upstream switch to verify the network configuration. See Example 4-5 on page 4-14 .
module vem <i>module_number</i> execute vemcmd show <i>l2</i> [<i>control_vlan_id</i> \ <i>packet_vlan_id</i>]	Displays the VLAN configuration on the VEM to verify that the VSM MAC address appears in the control and packet VLANs. See Example 4-6 on page 4-14 .
vemlog	Displays and controls the VEM kernel logs.
vemlog show last <i>number-of-entries</i>	Displays the circular buffer. See Example 4-21 on page 4-22 .
vemlog show info	Displays information about entries in the log. See Example 4-22 on page 4-22 .
vem-support.ps1	Navigate to the support directory under \Nexus1000V and run the vem-support.ps1 script. See Example 4-24 on page 4-28 .
show module vem mapping	Displays information about the VEM that a VSM maps to, including the VEM module number, status, UUID, and license status. See Example 4-14 on page 4-17 .
show platform internal event-history module <i>module-number</i>	Displays platform FSM event information.
show module internal event-history module <i>module-number</i>	Displays the event log for a module. See Example 4-15 on page 4-17 .

VSM Command	Description
show system internal im event-history module <i>module-number</i>	Displays the module IM event logs for the system. See Example 4-16 on page 4-18 .
show system internal vmm event-history module <i>module-number</i>	Displays the module VMM event logs for the system. See Example 4-17 on page 4-19 .
show system internal ethpm event-history module <i>module-number</i>	Displays the module Ethernet event logs for the system. See Example 4-18 on page 4-20 .
show system internal ethpm event-history interface <i>type slot</i>	Displays the Ethernet interface logs for the system. See Example 4-19 on page 4-21 .

VEM Command	Description
vemcmd	Displays configuration and status information.
vemcmd show card	Displays information about the cards on the VEM to verify that the domain ID, control VLANs, and packet VLANs are configured correctly on the host. See Example 4-6 on page 4-14 .
vemcmd show attach	Displays information about the platform port attach. See Example 4-9 on page 4-15 .
vemcmd show vem internal info	Displays information about the VEM queue status. See Example 4-10 on page 4-15 .
vemcmd show port [<i>port-LTL-number</i>]	Displays information about the ports on the VEM to verify that the ports of the host added to the DVS are listed and that the ports are correctly configured as access or trunk on the host. See Example 4-11 on page 4-16 .
vemcmd show bd [<i>control_vlan_id</i> <i>packet_vlan_id</i>]	Displays the list of ports that belong to the VLAN. The bd number is not the same as a VLAN number. You can display a listing of bd numbers by entering the vemcmd show bd command. See Example 4-12 on page 4-16 .
vemcmd show trunk	Displays configured information about the VEM to verify that the DV port groups are successfully pushed from the KVM server to the host and that the correct physical trunk port VM NIC is used. See Example 4-13 on page 4-16 .
vemcmd show version	Displays the version information. See Example 4-20 on page 4-21 .
vemcmd help	Displays the type of information you can display. See Example 4-23 on page 4-22 .

Example 4-1 show svcs neighbors command

```
switch# show svcs neighbors
```

```
Active Domain ID: 36
```

```
AIPC Interface MAC: 5254-0040-9ad6
```

```
Inband Interface MAC: 5254-0002-3a0f
```

Src MAC	Type	Domain-id	Node-id	Last learnt (Sec. ago)
0002-3d40-2403	VEM	36	0402	0.49
0002-3d40-2404	VEM	36	0502	0.49
0002-3d40-2405	VEM	36	0602	0.49

```
switch#
```

Example 4-2 show svcs domain command

```
n1000v# show svcs domain
```

```
SVS domain config:
```

```
Domain id: 36
```

```
Control vlan: NA
```

```
Packet vlan: NA
```

```
Control mode: L3
```

```
Switch guid: 6bd22a84-b262-4327-8bd0-696109748c6a
```

```
L3 control interface: mgmt0
```

```
Status: Config not pushed to Management Server.
```

```
Control type multicast: No
```

Note: Control VLAN and Packet VLAN are not used in L3 mode

Example 4-3 show port-profile command

```
switch# show port-profile name SystemUplink
```

```
port-profile SystemUplink
```

```
type: Ethernet
```

```
description: NSM created profile. Do not delete.
```

```
status: enabled
```

```
max-ports: 512
```

```
min-ports: 1
```

```
inherit: PortChannelProfile
```

```
config attributes:
```

```
switchport mode trunk
```

```
switchport trunk allowed vlan 173
```

```
evaluated config attributes:
```

```
switchport mode trunk
```

```
switchport trunk allowed vlan 173
```

```
channel-group auto
```

```
no shutdown
```

```
assigned interfaces:
```

```
port-group:
```

```
system vlans: none
```

```
capability l3control: no
```

```
capability iscsi-multipath: no
```

```
capability vxlan: no
```

```
capability l3-vn-service: no
```

```
port-profile role: none
```

```
port-binding: static
```

Example 4-4 show running-config vlan command

```
switch# show running-config vlan 260-261
!Time: Fri Sep 12 05:12:34 2014

version 5.2(1)SK3(2.1)
#
```

Example 4-5 show mac address-table interface command

```
switch# show mac address-table interface Gi3/1 vlan 3002
Legend: * - primary entry
        age - seconds since last seen
        n/a - not available
```

vlan	mac address	type	learn	age	ports
Active Supervisor:					
* 3002	0050.56be.7ca7	dynamic	Yes	0	Gi3/1

Example 4-6 vemcmd show card info command

```
switch# vemcmd show card info
Card UUID type 2: 6AC6E608-C51D-E211-0010-20304050008D
Card name: compute-1
Switch name: vsm-p
Switch alias: NA
Switch uuid: 6bd22a84-b262-4327-8bd0-696109748c6a
Card domain: 36
Card slot: 4
VEM Tunnel Mode: L3 Mode
L3 Ctrl Index: 0
VEM Control (AIPC) MAC: 00:02:3d:10:24:03
VEM Packet (Inband) MAC: 00:02:3d:20:24:03
VEM Control Agent (DPA) MAC: 00:02:3d:40:24:03
VEM SPAN MAC: 00:02:3d:30:24:03
Primary VSM MAC : 52:54:00:40:9a:d6
Primary VSM PKT MAC : 00:00:00:00:00:00
Primary VSM MGMT MAC : 00:00:00:00:00:00
Standby VSM CTRL MAC : 00:00:00:00:00:00
Management IPv4 address: 172.27.0.215
Management IPv6 address: 0000:0000:0000:0000:0000:0000:0000:0000
Primary L3 Control IPv4 address: 0.0.0.0
Secondary VSM MAC : 00:00:00:00:00:00
Upgrade : Default
Max physical ports: 32
Max virtual ports: 990
Card control VLAN: 0
Card packet VLAN: 1
Control type multicast: No
Card Headless Mode : No
DPA Status : Up
    Processors: 6
    Processor Cores: 6
    Processor Sockets: 2
    Kernel Memory: 0
Port link-up delay: 5s
Global UUFb: DISABLED
Heartbeat Set: True
Card Type: vem
PC LB Algo: source-mac
Datapath portset event in progress : no
```

```

Licensed: Yes
Global BPDU Guard: Disabled
DP Initialized: Yes
Tag Native VLAN: No
L3Sec Mode: TRUE

```

Example 4-7 *vemcmd show vmq allocation command*

```

~ # vemcmd show vmq allocation
LTL   VSM Port  Phy LTL  Queue id  Team queue id
   49   Veth13      17      1      49
           18      2      49
   50   Veth14      17      2      50
           18      3      50
   51   Veth16      19      1      51
           20      1      51

```

Example 4-8 *vemcmd show vmq resources command*

```

~ # vemcmd show vmq resources
LTL   VSM Port  Max queues  Free queues
   17   Eth3/1      16          10
   18   Eth3/2      16          10
   19   Eth3/3       8           7

```

Example 4-9 *vemcmd show attach command*

```

~ # vemcmd show attach
-----
LTL:                17
-----
Port ID:             1
NIC Index:           1
Port UUID:           BC9C4957-88B0-4292-879A-A4109A5A345B
NIC Instance ID:    {239C8D0D-43AD-4DB7-94E1-1D90D265D21F}
MAC address:        d0:d0:fd:09:31:f8
Port profile:        uplink-trunk
VM/NIC name:        Intel(R) 82576 Gigabit Dual Port Network Connection
VM UUID:
MTU:                 1514
Link state:          UP
Duplex:              Full
Tx speed:            1000000000
Rx speed:            1000000000
Autoneg:             Enabled
Link Params pending: No
Speed Capability 0x13
Duplex Capability 0x7

```

Example 4-10 *vemcmd show vem internal info command*

```

~ # vemcmd show vem internal info
-----
VEM Internal counters
-----
# Tx pkts pending:          0
# Timer events queued:      0
# Internal pkts queued:     0
# DPA notifications queued: 0

```

Example 4-11 vemcmd show port command

```
vsm-p(vem-attach)# vemcmd show vem internal info command
vsm-p(vem-attach)# vemcmd show vem internal info
vsm-p(vem-attach)# vemcmd show port
  LTL   VSM Port  Admin Link  State  PC-LTL  SGID           Vem Port  Type      ORG
svcpath Owner
  18    Eth4/1    UP    UP    FWD    1040    0           eth1      0
0
  19    Eth4/2    UP    UP    FWD    1040    1           eth0      0
0
  50    Veth6       UP    UP    FWD     0      0          cn1-vtep1-ovs  VXLAN    0
0
 1040   Po3         UP    UP    FWD     0
0
```

* F/B: Port is BLOCKED on some of the vlans.
 One or more vlans are either not created or
 not in the list of allowed vlans for this port.
 Please run "vemcmd show port vlans" to see the details.

Example 4-12 vemcmd show bd command

```
VSM# module vem 3 execute vemcmd show bd 8
BD 1, vdc 1, vlan 1, swbd 1, 4 ports, ""

Portlist:
  12 _l24
  18 eth1
  19 eth0
 1040

BD 2, vdc 1, vlan 3972, swbd 3972, 0 ports, ""

Portlist:
BD 3, vdc 1, vlan 3970, swbd 3970, 0 ports, ""

Portlist:
BD 4, vdc 1, vlan 3968, swbd 3968, 3 ports, ""

Portlist:
  1 inband
  5 inband port security
 11 _l23

BD 5, vdc 1, vlan 3971, swbd 3971, 1 ports, ""

Portlist:
 15 _l27

BD 6, vdc 1, vlan 40, swbd 40, 4 ports, ""

Portlist:
 18 eth1
 19 eth0
 50 cn1-vtep1-ovs
 1040
```

Example 4-13 vemcmd show trunk command

```
~ # vemcmd show trunk
```



```
Trunk port 6 native_vlan 1 CBL 1
vlan(1) cbl 1, vlan(3972) cbl 1, vlan(3970) cbl 1, vlan(3968) cbl 1, vlan(3971) cbl 1,
vlan(40) cbl 1,
Trunk port 16 native_vlan 1 CBL 1
vlan(1) cbl 1, vlan(3972) cbl 1, vlan(3970) cbl 1, vlan(3968) cbl 1, vlan(3971) cbl 1,
vlan(40) cbl 1,
Trunk port 18 native_vlan 1 CBL 1
vlan(1) cbl 1, vlan(40) cbl 1,
Trunk port 19 native_vlan 1 CBL 1
vlan(1) cbl 1, vlan(40) cbl 1,
Trunk port 1040 native_vlan 1 CBL 1
vlan(1) cbl 1, vlan(40) cbl 1
```

Example 4-14 show module vem mapping command

```
switch# show module vem mapping
Mod      Status          UUID                               License Status
----      -
3        absent         6AC6E608-C51D-E211-0010-20304050005E  unlicensed
4        powered-up    6AC6E608-C51D-E211-0010-20304050008D  licensed
5        powered-up    6AC6E608-C51D-E211-0010-20304050001E  licensed
6        powered-up    6AC6E608-C51D-E211-0010-2030405000AD  licensed#
```

Example 4-15 show module internal event-history module command

```
switch# show module internal event-history module 1
>>>FSM: <ID(257): Slot 1, node 0x0101> has 16 logged transitions<<<<<<

1) FSM:<ID(257): Slot 1, node 0x0101> Transition at 638272 usecs after Thu Sep
4 16:49:09 2014
   Previous state: [LCM_ST_LC_NOT_PRESENT]
   Triggered event: [LCM_EV_PFM_MODULE_SUP_INSERTED]
   Next state: [LCM_ST_SUPERVISOR_INSERTED]

2) FSM:<ID(257): Slot 1, node 0x0101> Transition at 638480 usecs after Thu Sep
4 16:49:09 2014
   Previous state: [LCM_ST_SUPERVISOR_INSERTED]
   Triggered event: [LCM_EV_START_SUP_INSERTED_SEQUENCE]
   Next state: [LCM_ST_CHECK_INSERT_SEQUENCE]

3) Event:ESQ_START length:38, at 639085 usecs after Thu Sep 4 16:49:09 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq Type:SERIAL

4) Event:ESQ_REQ length:38, at 668947 usecs after Thu Sep 4 16:49:09 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_TX] Dst:MTS_SAP_MIGUTILS_DAEMON(949), Opc:MTS_OPC_LC_INSERTED(1081)

5) FSM:<ID(257): Slot 1, node 0x0101> Transition at 668974 usecs after Thu Sep
4 16:49:09 2014
   Previous state: [LCM_ST_CHECK_INSERT_SEQUENCE]
   Triggered event: [LCM_EV_LC_ONLINE]
   Next state: [LCM_ST_LC_ONLINE]

6) FSM:<ID(257): Slot 1, node 0x0101> Transition at 798999 usecs after Thu Sep
4 16:49:29 2014
   Previous state: [LCM_ST_LC_ONLINE]
   Triggered event: [LCM_EV_PLUGIN_UP]
   Next state: [LCM_ST_LC_ONLINE]

7) Event:ESQ_START length:38, at 799051 usecs after Thu Sep 4 16:49:29 2014
```

```

Instance:257, Seq Id:0x1, Ret:SUCCESS
Seq Type:SERIAL

8) Event:ESQ_REQ length:38, at 799288 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_TX] Dst:MTS_SAP_MIGUTILS_DAEMON(949), Opc:MTS_OPC_LC_INSERTED(1081)

9) Event:ESQ_REQ length:38, at 805215 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_TX] Dst:MTS_SAP_PIXM(176), Opc:MTS_OPC_LC_INSERTED(1081)

10) Event:ESQ_REQ length:38, at 811158 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_TX] Dst:MTS_SAP_IFMGR(179), Opc:MTS_OPC_LC_INSERTED(1081)
RRtoken:0x0000107E

11) Event:ESQ_RSP length:38, at 822258 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_RX] Src:MTS_SAP_IFMGR(179), Opc:MTS_OPC_LC_INSERTED(1081)
RRtoken:0x0000107E

12) Event:ESQ_REQ length:38, at 822467 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_TX] Dst:MTS_SAP_IFMGR(179), Opc:MTS_OPC_LC_INSERTED(1081)
RRtoken:0x00001090

13) Event:ESQ_RSP length:38, at 831933 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_RX] Src:MTS_SAP_IFMGR(179), Opc:MTS_OPC_LC_INSERTED(1081)
RRtoken:0x00001090

14) Event:ESQ_REQ length:38, at 832069 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_TX] Dst:MTS_SAP_PORT_MANAGER_REQ_HIGH(43), Opc:MTS_OPC_LC_INSERTED(1081)

15) Event:ESQ_REQ length:38, at 832195 usecs after Thu Sep  4 16:49:29 2014
Instance:257, Seq Id:0x1, Ret:SUCCESS
[E_MTS_TX] Dst:MTS_SAP_PORT_MANAGER_REQ_HIGH(43), Opc:MTS_OPC_LC_INSERTED(1081)

16) FSM:<ID(257): Slot 1, node 0x0101> Transition at 832242 usecs after Thu Sep
4 16:49:29 2014
Previous state: [LCM_ST_LC_ONLINE]
Triggered event: [LCM_EV_LC_ONLINE]
Next state: [No transition found]
Curr state: [LCM_ST_LC_ONLINE]

```

Example 4-16 show system internal im event-history module command

```

switch# show system internal im event-history module 1
>>>>FSM: <Module NodeID(0x101)> has 13 logged transitions<<<<<

1) FSM:<Module NodeID(0x101)> Transition at 812168 usecs after Thu Sep  4 16:49:
29 2014
Previous state: [IM_MOD_ST_MODULE_NOT_EXISTENT]
Triggered event: [IM_MOD_EV_MOD_INSERTED]
Next state: [IM_MOD_ST_WAIT_CONFIG_FLUSH]

2) FSM:<Module NodeID(0x101)> Transition at 812435 usecs after Thu Sep  4 16:49:
29 2014
Previous state: [IM_MOD_ST_WAIT_CONFIG_FLUSH]
Triggered event: [IM_MOD_EV_CONFIG_FLUSH_BYPASSED]

```

```

Next state: [IM_MOD_ST_WAIT_PLATFORM_INIT]

3) Event:ESQ_START length:38, at 812525 usecs after Thu Sep  4 16:49:29 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq Type:SERIAL

4) Event:ESQ_REQ length:38, at 812568 usecs after Thu Sep  4 16:49:29 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_TX] Dst:MTS_SAP_CRDCFG_SERVER(975), Opc:MTS_OPC_CRDCFG_API_REQ(482)

5) Event:ESQ_REQ length:38, at 813011 usecs after Thu Sep  4 16:49:29 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq:IM module internal initialization

6) Event:ESQ_REQ length:38, at 813050 usecs after Thu Sep  4 16:49:29 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq:determine steps to skip

7) Event:ESQ_REQ length:38, at 813077 usecs after Thu Sep  4 16:49:29 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_TX] Dst:MTS_SAP_VDC_MGR(357), Opc:MTS_OPC_GET_PORT_VDC_MEMB(20483)

8) Event:ESQ_REQ length:38, at 813101 usecs after Thu Sep  4 16:49:29 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_TX] Dst:MTS_SAP_PIXM(176), Opc:MTS_OPC_IM_SHARED_IF_VDC_MEMBERSHIP_UP
DATE(62523)

9) FSM:<Module NodeID(0x101)> Transition at 813470 usecs after Thu Sep  4 16:49:
29 2014
   Previous state: [IM_MOD_ST_WAIT_PLATFORM_INIT]
   Triggered event: [IM_MOD_EV_PLATFORM_INIT_DONE]
   Next state: [IM_MOD_ST_WAIT_P2_MODULE_INSERT]

10) FSM:<Module NodeID(0x101)> Transition at 823156 usecs after Thu Sep  4 16:49:
:29 2014
   Previous state: [IM_MOD_ST_WAIT_P2_MODULE_INSERT]
   Triggered event: [IM_MOD_EV_MOD_INSERTED]
   Next state: [FSM_ST_NO_CHANGE]

11) FSM:<Module NodeID(0x101)> Transition at 823251 usecs after Thu Sep  4 16:49:
:29 2014
   Previous state: [IM_MOD_ST_WAIT_P2_MODULE_INSERT]
   Triggered event: [IM_MOD_EV_INTERFACE_CREATE]
   Next state: [IM_MOD_ST_WAIT_INTERFACE_CREATE]

12) FSM:<Module NodeID(0x101)> Transition at 823369 usecs after Thu Sep  4 16:49:
:29 2014
   Previous state: [IM_MOD_ST_WAIT_INTERFACE_CREATE]
   Triggered event: [IM_MOD_EV_INTERFACE_CREATE_BYPASSED]
   Next state: [IM_MOD_ST_WAIT_INTERFACE_BIND]

13) FSM:<Module NodeID(0x101)> Transition at 823436 usecs after Thu Sep  4 16:49:
:29 2014
   Previous state: [IM_MOD_ST_WAIT_INTERFACE_BIND]
   Triggered event: [IM_MOD_EV_INTERFACE_BIND_BYPASSED]
   Next state: [IM_MOD_ST_MODULE_INIT_DONE]
Curr state: [IM_MOD_ST_MODULE_INIT_DONE]

```

Example 4-17 show system internal vmm event-history module command

```

switch# show system internal vmm event-history module 1
>>>>FSM: <ID(257): Module 1> has 8 logged transitions<<<<<

```

```

1) FSM:<ID(257): Module 1> Transition at 950000 usecs after Wed Apr 24 10:02:15
2013
   Previous state: [VMM_ST_IDLE]
   Triggered event: [VMM_EV_IF_BIND]
   Next state: [VMM_ST_CHECK_INSERT_SEQUENCE]

2) Event:ESQ_START length:38, at 950000 usecs after Wed Apr 24 10:02:15 2013
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq Type:SERIAL

3) Event:ESQ_REQ length:38, at 990000 usecs after Wed Apr 24 10:02:15 2013
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_TX] Dst:MTS_SAP_ETH_PORT_CHANNEL_MGR(378), Opc:MTS_OPC_IM_IF_VDC_BIN
D(62488)
   RRtoken:0x000019F0

4) Event:ESQ_RSP length:38, at 990000 usecs after Wed Apr 24 10:02:15 2013
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_RX] Src:MTS_SAP_ETH_PORT_CHANNEL_MGR(378), Opc:MTS_OPC_IM_IF_VDC_BIN
D(62488)
   RRtoken:0x000019F0

5) Event:ESQ_REQ length:38, at 990000 usecs after Wed Apr 24 10:02:15 2013
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_TX] Dst:MTS_SAP_TEST_ETHPM(175), Opc:MTS_OPC_IM_IF_VDC_BIND(62488)
   RRtoken:0x000019F5

6) Event:ESQ_RSP length:38, at 990000 usecs after Wed Apr 24 10:02:15 2013
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_RX] Src:MTS_SAP_TEST_ETHPM(175), Opc:MTS_OPC_IM_IF_VDC_BIND(62488)
   RRtoken:0x000019F5

7) Event:ESQ_REQ length:38, at 990000 usecs after Wed Apr 24 10:02:15 2013
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Type: 0

8) FSM:<ID(257): Module 1> Transition at 990000 usecs after Wed Apr 24 10:02:15
2013
   Previous state: [VMM_ST_CHECK_INSERT_SEQUENCE]
   Triggered event: [VMM_EV_INSERT_SEQ_DONE]
   Next state: [VMM_ST_IDLE]

   Curr state: [VMM_ST_IDLE]
switch#

```

Example 4-18 show system internal ethpm event-history module command

```

switch# show system internal ethpm event-history module 1
>>>>FSM: <Module NodeID(0x101)> has 8 logged transitions<<<<<

1) FSM:<Module NodeID(0x101)> Transition at 754798 usecs after Thu Sep  4 16:49:
35 2014
   Previous state: [ETHPM_MODULE_ST_MODULE_NOT_EXISTENT]
   Triggered event: [ETHPM_MODULE_EV_IF_BIND_CMD]
   Next state: [FSM_ST_NO_CHANGE]

2) FSM:<Module NodeID(0x101)> Transition at 754834 usecs after Thu Sep  4 16:49:
35 2014
   Previous state: [ETHPM_MODULE_ST_MODULE_NOT_EXISTENT]
   Triggered event: [ETHPM_MODULE_EV_SUP_INSERT]
   Next state: [ETHPM_MODULE_ST_AWAIT_SUP_INSERT]

```

```

3) Event:ESQ_START length:38, at 757831 usecs after Thu Sep  4 16:49:35 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq Type:SERIAL

4) Event:ESQ_REQ length:38, at 757864 usecs after Thu Sep  4 16:49:35 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq:SUP_INTERNAL_INIT

5) Event:ESQ_REQ length:38, at 758367 usecs after Thu Sep  4 16:49:35 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_TX] Dst:MTS_SAP_REGISTRY(0), Opc:MTS_OPC_PSSHELPER_PUB_WRITE(28673)

6) Event:ESQ_RSP length:38, at 759300 usecs after Thu Sep  4 16:49:35 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   [E_MTS_RX] Src:MTS_SAP_REGISTRY(0), Opc:MTS_OPC_PSSHELPER_PUB_WRITE(28673)

7) Event:ESQ_REQ length:38, at 759360 usecs after Thu Sep  4 16:49:35 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq:Update_Sup_Module_PSS

8) FSM:<Module NodeID(0x101)> Transition at 759412 usecs after Thu Sep  4 16:49:
35 2014
   Previous state: [ETHPM_MODULE_ST_AWAIT_SUP_INSERT]
   Triggered event: [ETHPM_MODULE_EV_SUP_INSERT_DONE]
   Next state: [ETHPM_MODULE_ST_MODULE_PRESENT]

   Curr state: [ETHPM_MODULE_ST_MODULE_PRESENT]
switch#

```

Example 4-19 show system internal ethpm event-history module command

```

switch# show system internal ethpm event-history module 1

>>>FSM: <Module NodeID(0x101)> has 8 logged transitions<<<<<

1) FSM:<Module NodeID(0x101)> Transition at 754798 usecs after Thu Sep  4 16:49:
35 2014
   Previous state: [ETHPM_MODULE_ST_MODULE_NOT_EXISTENT]
   Triggered event: [ETHPM_MODULE_EV_IF_BIND_CMD]
   Next state: [FSM_ST_NO_CHANGE]

2) FSM:<Module NodeID(0x101)> Transition at 754834 usecs after Thu Sep  4 16:49:
35 2014
   Previous state: [ETHPM_MODULE_ST_MODULE_NOT_EXISTENT]
   Triggered event: [ETHPM_MODULE_EV_SUP_INSERT]
   Next state: [ETHPM_MODULE_ST_AWAIT_SUP_INSERT]

3) Event:ESQ_START length:38, at 757831 usecs after Thu Sep  4 16:49:35 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq Type:SERIAL

4) Event:ESQ_REQ length:38, at 757864 usecs after Thu Sep  4 16:49:35 2014
   Instance:257, Seq Id:0x1, Ret:SUCCESS
   Seq:SUP_INTERNAL_INIT

```

Example 4-20 vemcmd show version command

```

switch# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# attach vem 4

```

```
switch(vem-attach)# vemcmd show version command
VEM Version: 5.2.1.SK3.2.0.190-0.4.0
VSM Version: 5.2(1)SK3(2.1)
System Version: Linux 3.13.0-34-generic
```

Example 4-21 vemlog show last command

```
switch# vemlog show last 5
Timestamp Entry CPU Mod Lv Message
Mar 17 14:47:30.124446 28768 0 99 4 Warning Could not get LACP Port for LTL 20
Mar 17 14:48:00.123500 28769 0 99 4 Warning Could not get LACP Port for LTL 22
Mar 17 14:48:00.123500 28770 0 99 4 Warning Could not get LACP Port for LTL 21
Mar 17 14:48:00.123500 28771 0 99 4 Warning Could not get LACP Port for LTL 20
Mar 17 14:48:00.248291 28772 6 0 0 Suspending log
```

Example 4-22 vemlog show info command

```
switch# vemlog show info
Enabled: Yes
  Total Entries: 1498
  Wrapped Entries: 0
  Lost Entries: 0
  Skipped Entries: 0
Available Entries: 27594
  Stop After Entry: Not Specified
```

Example 4-23 vemcmd help command

```
switch# vemcmd help
vemcmd help:
show
show version                Show the VEM and VSM versions
show card                   Show the card's global info
show vsm uptime             Show the VSM's uptime
show vlan [vlan] cookie <number>
                             Show the VLAN list (or a given vlan)
show bd [hwbd] cookie <number> Show the VLAN/BD table
show bd bd-name <bd-name>   Show the VLAN/BD table for the given BD name
show segment [<segment-id>] cookie <number>
                             Show the BD for the given segment ID
show igmp <vlan> [detail]   Show IGMP status and tables
show acl                    Show ACL ids
show storm stats            Show Storm Control Debug Stats
show storm-rate ltl <ltl>   Show Storm Control rate
show storm status           Show Storm Control Ltl Status
show qos node [num|cookie] <number>
                             Show QoS Node info
show acl debug stats        Show ACL debug stats
clear acl debug stats       Clear ACL debug stats
show dpa config vlan brief  Show VLAN Brief
show dpa config vlan vlan_id <vlan-id>
                             Show VLAN info
show dpa config port-profile brief
                             Show Port Profile Brief
show dpa config port-profile pp_id <pp-id>
                             Show Port Profile Info
show qos debug stats        Show QoS debug stats
clear qos debug stats       Clear QoS debug stats
show dr [vlan] cookie <number>
                             Show the VLAN Designated Receiver
show l2 <vlan>              Show the L2 table for a given VLAN
show l2 all cookie <number> Show the L2 table
show l2 bd-name <bd-name>   Show the L2 table for a given BD name
```

```

show l2 segment <seg-id>          Show the L2 table for a given Segment ID
show l2-slotwise                  Dump the l2 table slotwise
show l2-num-entries              Show the num of entries in l2 table
show port-old [priv|vsm] cookie <number>
                                Show the port table
show port-old [priv|vsm] cookie <number>
                                Show the port table
show port [internal|system|vsm] cookie <number>
                                Show port information
show port vlans [internal|system|vsm] cookie <number>
                                Show port vlan information
show port segments cookie <number>
                                Show port segment information
show port disable-loop-detect [l1]
                                Show port disable-loop-detect state
show get-mac bd-name <bd-name>   Show the get mac table
show port uufb-override          Show port UUFb override states
show port bpduguard              Show port BPDUGUARD states
err_disable port bringup l1 <l1>
                                Err_disable port bringup
show port-drops ingress [internal] cookie <number>
                                Show port drop counters on all ingress stages
show port-drops egress [internal] cookie <number>
                                Show port drop counters on all egress stages
show port-drops ingress l1 <number>
                                Show port drop counters on all ingress stages of
f a l1
show port-drops egress l1 <number>
                                Show port drop counters on all egress stages of
a l1
show port-drops l1 <number> Show port drop counters on all ingress & egress
stages of a l1
show dvport [internal] cookie <number>
                                Show dvport information
show l1 range cookie <number>    Show l1 range usage
show portdevice cookie <number>
                                Show the port device types
show pc cookie <number>          Show the port channel table
dump pc                          Show debug dump for port-channel table
show portmac                     Show the port table MAC entries
show port auto-smac-learning     Show auto static mac learning state
show trunk [priv|vsm] cookie <number>
                                Show the trunk ports in the port table
show bd-trunk                    Show the BD trunk ports in the port table
show stats cookie <number>       Show port stats
show vxlan interfaces            Show the VXLAN Encap Interfaces
show vxlan-encap l1 <l1>         Show VXLAN Encap Information
show vxlan-encap mac <MAC.MAC.MAC>
                                Show VXLAN Encap Information
show vxlan-vtep-map              Show VXLAN VTEP VM mapping Information
show vxlan-stats                 Show VXLAN port stats for all ports
show vxlan-stats bd-all         Show VXLAN port stats for all BDs
show vxlan-stats l1-detail       Show all VXLAN ports stats detail
show vxlan-stats l1 <l1>         Show VXLAN port stats detail
show vxlan-stats l1-detail       Show all VXLAN ports stats detail
show vxlan-stats l1 <l1> bd-all cookie <number>
                                Show VXLAN port stats for all BDs
show vxlan-stats l1 <l1> bd-name <bd-name>
                                Show VXLAN port stats for a BD
show vxlan-stats l1 <l1> bd-num <bd-num>
                                Show VXLAN port stats for a BD
show vxlan-vteps                 Show VXLAN VTEPs
show vxlan-vteps bd-name <bd-name>
                                Show VXLAN VTEPs

```

show vxlan threads	Show the VXLAN thread stats
clear vxlan threads	Clear the VXLAN thread stats
show vxlan udp-port	Show the VXLAN UDP port
show packets	Show port packet stats
show mempool	Show the memory pool list
show profile	Show system profile
show pd-port	Show the platform-dependent (vssnet) port table
showpd-portvlans table	Showtheplatform-dependent (vssnet) portvlan table
show pd-port-headroom ltl	Show headroom for a port
show span	Show SPAN/ERSPAN information
show erspan-capability	Show ERSPAN capability information
show heap	Show the heap list
show acl pinst	Show ACL policy instances
dump acl policy <acl id>	Dump ACL policy for given acl id
show acl pinst tables	Show ACL policy instances tables
dump pacl entry	Show PAACL entry
show lacp [ltl] cookie <number>	Show the LACP PDU Cache
show netflow monitor	Show NF Monitors
show netflow interface	Show NF Interfaces
show netflow stats	Show NF CLI session stats
show portsec stats	Show the Port Security Stats
show portsec stats vlan <vlan>	Show the Port Security Stats for a given VLAN
show portsec stats bd-name <bd-name>	Show the Port Security Stats for given BD
show portsec macs <vlan>	Show the Port Security MACs for a given VLAN
show portsec macs bd-name <bd-name>	Show the Port Security Macs for given BD
show portsec macs all	Show the Port Security Macs
show qos policy [num cookie] <number>	Show QoS policy info
show qos pinst num cookie <number>	Show QoS pinst info
dump qos pinst tables num cookie <number>	Show QoS table pinst info
show qos queue-stats num cookie <number>	Show QoS queuing stats
clear qos queue-stats num cookie <number>	Clear QoS queuing stats
show qos queue-rate num cookie <number>	Show QoS queuing rate stats
dump qos queue-nodes	show QoS queuing nodes
test respool option <option>	Test the resource pool scheduling APIs
show dhcpv6 vlan	Show DHCP snoop VLANs
show dhcpv6 interfaces	Show DHCP snoop trusted/untrusted intfs
show dhcpv6 binding	Show binding table entry in VEM
show dai vlan	Show DAI VLANs
show dai interfaces	Show DAI trusted/untrusted intfs
show ipsg interfaces	Show IPSP intfs
show pinning	Show Veth pinning
show static pinning config	Show static pinning config for Veths
show dhcpv6 opt82	Show DHCP option 82 Information
show dhcpv6 stats	Show DHCP stats
clear dhcpv6 stats	Clear DHCP stats
show dai stats	Show DAI stats
clear dai stats <vlan-id>	Clear DAI stats
show dhcpv6 log level	Show DHCPv6 log level on this VEM
show dhcpv6 filter-mode	Show DHCPv6 Filter-Mode
set dhcpv6 log level <level>	Set DHCPv6 log level on this VEM
show vsd	Show all installed VSDs
show vsd ports <number>	Show VSD port details


```

show iscsi pinning                Show iSCSI pinning
show iscsi nics                   Show iSCSI HW capable nics
show ltl-map                      Show Local - Global LTL map
show arp <VLAN>                  Show ARP Cache for a given VLAN
show arp all cookie <number>     Show ARP Cache
show arp bd-name <bd-name>       Show ARP entry for the given BD name
show arp filter                   Show ARP filter entries
show learnt ip                    Show learnts IPs
show learnt ip port [<ltl>]       Show learnt IPs for a LTL
show ip lisp                      Show LISP Config
show ip lisp stats cookie <number> NULL
                                Show LISP VEM stats
show ip lisp map-cache [local | remote | <eid>] cookie <number>
                                Display map cache
show ip lisp map-cache-stats [<eid>]
                                Display map cache stats for remote entries
clear ip lisp stats               Clear LISP VEM stats
clear ip lisp map-cache [<eid>]
                                Delete map cache entries

show vsn binding [priv|vsm]       Show the VNS Configuration
show vsn config [unused]          Show the VSN Configuration
show vsn interfaces               Show the VSN L3 interfaces
show tracking [ltl] cookie <number>
                                Show network-state tracking based information
show tracking config              Show network-state tracking config
show channel type                 Show Channel type
show sched stats                  Show scheduler statistics
clear sched stats                 Clear scheduler and port statistics
show sched errors                 Show scheduler errors
show sched debug                  Show scheduler debugs
show dr stats                     Show DR stats
show ids state                    Show Intrusion Detection System (IDS) state
show pd packet stats              Show Platform specific Packet statistics
clear pd packet stats             Clear Platform specific Packet statistics

--- Set commands - be careful! ---

clear portsec mac-address <MAC.MAC.MAC> [bd-name | vlan] [<vlan>|<bdname>]
                                Clear portsec mac entry
card uuid vmware <string>         Set the host UUID string
card name <string>                Set the host name string
card ip ddd.ddd.ddd.ddd           Set the management IPv4 address
card ipv6 xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx
                                Set the management IPv6 address
card update_level 0-255           Set the ESX Version Update level
set iscsi nic <vmnicN>            Set vmnics that are iSCSI HW capable
clear iscsi nic <vmnicN>          Clear iSCSI HW capability of a vmnic
set iscsi pinning <vmk-ltl> <vmnic-ltl>
                                Manually pin vmknic to vmnic, overrides auto
set port-mode {trunk|access} [native-vlan <vlan>] ltl <ltl-num>
                                Set port mode and native VLAN as systempropert
ies
set VNS mac-move-timer <seconds>
                                Set VNS-VM MAC-refresh timer

set palo-enic <vmnicN>            Set a flag this vmnic is a Palo nic
clear palo-enic <vmnicN>          Clear the flag that vmnic is a Palo nic
show palo-enic                    Show all the Palo Nics on ESX
show pc-internal                  Show PC Internal info.
set ids <enable | disable>        Enable/Disable Intrusion Detection System (IDS)
show dpa heap usage                Display the DPA heap objects
show dp heap usage                Display the DP heap objects
show aclflow stats                Display ACL flow stats
show aclflows [permit|deny]       Display ACL flows

```

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flush aclflows           Flush all ACL flows
show acllog config      Show ACL-Log config on VEM
show aclflow dbgstats   Display ACL flow stats
clear aclflow dbgstats  Clear ACL flow debug stats
set card type <vem|vxgw|cgu|cgp>
                        Set Card Type
show card type          Get Card Type
show l3sec              shows l3sec mode and state info
show l3ctrl ipaddr     Get L3-Control IP-Address
show stun rate         Get STUN allowed rate
show nlkv processes    Show nlkv processes information
show nlkv dp-threads   Show nlkv dp thread information
show ovsswitch         Print out socket information
get ovconfig <socket number> Send OFPT_GET_CONFIG_REQUEST
show ovsports <socket number> Print out port information
show ofp stats <socket number> Print out OFP stats
system profile <name> <physical|virtual|access <vlan>|trunk <vlan list>|duplex
                        Switch profile
profile install         Install privileged profile <ltl> <profile>
set switch data <file-name> Set switch opaque data
attach vm <port-uuid> <vm-uuid> <port-number> <vmname> <macaddr> <pgname> [ltl]
                        Attach a VM port to an LTL
detach vm <Port UUID>   Detach a VM port from an LTL
vlan <vlan list>       Add one or more vlans
no vlan <vlan list>    Remove one or more vlans
port <ifname> <mode> <vlan list>
                        Enable a port
cbl state <ltl> <vlan> <state> Set CBL state for a LTL/VLAN
notify ports <physical|virtual|all>
                        Send notifications for ports
attach pnic <port-uuid> <vm-uuid> <port-number> <portname> <macaddr> <pgname>
                        Attach a physical port to an LTL
detach pnic <Port UUID> Detach a physical port from an LTL
switch uuid <switch-uuid> Set the switch UUID
attach port <port-name> profile <pgname>
                        Attach Port to a Port-Profile
reread config          Read and Store config data in config file
offload clear-all     Clear offloading of all flows
ovs-threshold <low> <high> Set ovsk-ovsd netlink socket thresholds
offload clear <dmac>   Clear offloading of dmac
config lacp-fp enable/disable Set lacp fastpath to on/off
show vxlan-gw-mappings cookie <number>
                        Show VXLAN GW VXLAN-VLAN mappings
show vxlan-gw-ha-state Show VXLAN GW HA State
show offload status [<ltl>] Show if flow programming is enabled
show flow-mgr status   Show fmgr status
set offload <on | off> [<ltl>] Enable or disable offload
set offload flow <poll-timeout|rapid-timeout|l2-timeout|stats-timeout> <timeout>
                        Set offload flow timeout
show opaque data       Display switch opaque data
klm pktdebug enable/disable Enable/disable klm packet debugging
klm debug enable/disable Enable/disable klm debugging
show klm               Display KLM info
show klm flows         Display KLM flows
show klm l2id [l2id]   Display L2ID Info
show klm port [<ltl>] Display KLM port info
show klm pc            Display KLM PC data
show klm port stats [<ltl>] Display KLM port stats
show klm port stats tab [<ltl>]
                        Display KLM port stats in tabular form
show klm port stats fp [<ltl>] Display KLM port stats (fast path pkts only)
show klm port stats tab fp [<ltl>]
                        Display KLM port stats (fast path pkts only) in
                        tabular form

```

```

show klm port stats vss [<ltl>]
    Display KLM port stats (vssnet pkts only)
show klm port stats tab vss [<ltl>]
    Display KLM port stats (vssnet pkts only) in tabular form
show klm port rates [<interval> [<iterations>]]
    Display KLM port rates (summary)
show klm port rates detailed [<interval> [<iterations>]]
    Display KLM port rates (detailed)
show klm punt stats
    Display KLM punt stats
show klm punt stats tab
    Display KLM punt stats in tabular form
show klm punt stats port [<ltl>]
    Display KLM punt stats for port
show klm punt stats tab port [<ltl>]
    Display KLM punt stats for port in tabular form
show klm punt reasons
    Display KLM punt reasons
show klm punt reasons port [<ltl>]
    Display KLM punt reasons for port
show klm punt reasons tab port [<ltl>]
    Display KLM punt reasons for port in tabular form
rm
show klm punt reasons pri
    Display KLM punt reasons per priority
show klm punt reasons tab pri
    Display KLM punt reasons per priority in tabular form
clear klm punt stats
    Clear KLM punt stats
show klm vxlan source-vteps
    Display KLM VXLAN Src VTEPs
show klm ip-mac
    Display KLM IP MAC Binding Table
show klm l2map
    Display KLM VLAN <-> VXLAN Mapping Table
show l2flows
    Display l2flows in user-space
flush l2flows
    Flushes l2flows
show featflows [create]
    Display feature flows in user-space
flush featflows
    Flushes feature flows
show klm span [ses_id]
    Display KLM SPAN session data
show klm span-source port [ltl]
    Display KLM SPAN source port data
show klm span-source vlan [vlan]
    Display KLM SPAN source vlan data
show klm span ltl
    Display KLM SPAN ltl data
show cts global
    Show cts global config
show cts interfaces
    Show cts interface config
show cts ipsgt
    Show cts ipsgt entries
set cts sgt <sgt_val> ltl <ltl-num>
    Set CTS SGT on a port
show cts policy
    Show cts policy
show cts access-list
    Show cts access-list
set cts trust <0/1> ltl <ltl-num>
    Set CTS Trust on a port
set cts enable <0/1> ltl <ltl-num>
    Set CTS Enable on a port
set cts role-based sgt <sgt_val> dgt <dgt_val> access-list <access-list-name>
    Set CTS SGT policy global
set cts enforcement <0/1> ltl <ltl-num>
    Set CTS Enforcement on a port
set cts propagate <0/1> ltl <ltl-num>
    Set CTS Propagate on a port
show vlan-vxlan mapping
    Show VXLAN-VLAN Port mappings
show multi-mac-capable interfaces
    Show multi-mac capable interfaces
show l2-macdistr-num
    Show L2 Mac Distribution entries

```

Example 4-24 *vem-support.ps1* command

```
switch# vem-support.ps1

Directory: C:\Program Files (x86)\Cisco\Nexus1000V\Support

Mode LastWriteTime Length Name
----
d---- 3/17/2013 2:51 PM WIN-35-cisco-vem-2013-0317-1451
```

VEM Log Commands

Use the following commands to control the vemlog:

- **vemlog stop**—Stops the log.
- **vemlog clear**—Clears the log.
- **vemlog start** *number-of-entries*—Starts the log and stops it after the specified number of entries.
- **vemlog stop** *number-of-entries*—Stops the log after the next specified number of entries.
- **vemlog resume**—Starts the log, but does not clear the stop value.