



VSI Discovery and Configuration Protocol

This chapter describes how to identify and resolve problems that might occur when implementing the VSI Discovery and Configuration Protocol (VDP). This chapter contains the following sections:

- [Information About VDP, on page 1](#)
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Information About VDP

VDP on Cisco Nexus 1000V is an implementation of the IEEE standard 802.1Qbg/D2.2 (Edge Virtual Bridging). VDP can detect and signal the presence of end hosts and exchange capability with an adjacent VDP-capable bridge. VDP serves as a reliable first-hop protocol and communicates the presence of end-host Virtual Machines (VMs) to adjacent leaf nodes on the Cisco Dynamic Fabric Automation (DFA) architecture. In addition to detecting the MAC and IP addresses of the end-host VMs when a host comes up, or during VM mobility events, the VDP triggers auto-configuration of leaf nodes on the DFA architecture to make them ready for more VM traffic.

VDP enables network-based overlays that are a more scalable alternative when compared to the host-based overlays for segmentation and enable access to more than 4000 VLANs in a multi-tenant network. With the VDP configured on Cisco Nexus 1000V, segmentation support for bridge domains is extended to native encapsulated bridge domains. The original VXLAN-based bridge domains can also coexist with these bridge domains.

For more information about the Cisco DFA architecture, see the [Cisco DFA Solutions Guide](#).

Problems with VDP

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

Symptom	Possible Causes	Solution
VDP packets are not received by a leaf switch.	The connected port on the VEM does not have the trunk dynamic port profile.	<ol style="list-style-type: none"> 1. Verify that the connected port on the VEM has the trunk dynamic port profile: show interface ethernet <i>slot/port</i> 2. If the output of the show interface ethernet command does not contain dynamic VLANs, configure the port profile for trunk dynamic mode: <ol style="list-style-type: none"> 1. switch# configure terminal 2. switch(config)# port-profile name 3. switch(config-port-prof)# switchport mode trunk 4. switch(config-port-prof)# switchport trunk dynamic
VM is associated but it is not pinging.	The encapsulation mode is not native.	<p>Verify that the encapsulation mode is native and a valid VLAN value is returned by the leaf switch:</p> <pre>module vem <i>module_number</i> execute vemcmd show bd</pre> <pre>module vem <i>module_number</i> execute vemcmd show segment <i>segment_id</i></pre>

VDP Troubleshooting Commands

VDP VSM Commands

You can use the commands in this section to troubleshoot problems related to VDP.

Command	Purpose
show evb vsi interface vethernet <i>interface-number</i>	Displays if the VDP association sequence is complete for a vEthernet interface. Identify the vEthernet port of the VM and use this command. A VSI state of 3 means that it is associated. See show evb vsi interface vethernet, on page 3 .
show evb	Displays configured information in the EVB process. See show evb, on page 3 .
show run evb	Displays the running configuration for the EVB segmentation. See show run evb, on page 3 .
show ecp	Displays the configured information for ECP. See show ecp, on page 3 .

Examples

show evb vsi interface vethernet

```
switch(config)# show evb vsi interface vethernet 40
LTL : 135 [module: 2]
Segment : 30000
MAC : 0050.5693.63A1
IP : 30.0.1.2
VSI State : 3
State Machine State : 7
Rwd Expiry Count : 4621
Last CMD Time : 125
Last RSP Time : 125
```

show evb

```
switch(config)# show evb
Edge Virtual Bridging
Role : VDP Station
VDP Mac Address : 0180.0000.0000
VDP Resource Wait Delay : 22(66 secs)
VDP Reinit Keep Alive : 21(20 secs)
```

show run evb

```
switch(config)# show run evb
evb resource-wait-delay 24
evb reinit-keep-alive 25
ecp retransmission-timer-exponent 15
ecp max-retries 6
```

show ecp

```
switch(config)# show ecp
ECP Max Retries : 3
ECP Retransmission Timer Exp : 14(163840 micro seconds)
```

VDP VEM Commands

You can use the VEM commands in this section to troubleshoot problems related to VDP.

Command	Purpose
vemcmd show segment <i>segment-id</i>	Displays a list of VM interfaces that are a part of a segment and indicates if a segment is configured as VDP (native encapsulation mode). See vemcmd show segment, on page 4 .
vemcmd show bd <i>hwbd</i>	Displays a list of VM interfaces that are a part of an internal bridge domain and indicates if the bridge domain is configured as VDP (native encapsulation mode). See vemcmd show bd, on page 5 .
vemcmd show bd bd-name <i>bd-name</i>	Displays a list of VM interfaces that are a part of a configured bridge domain and indicates if the bridge domain is configured as VDP (native encapsulation mode). See vemcmd show bd bd-name, on page 5 .

Examples

vemcmd show segment

```

~ # vemcmd show segment 8000
BD 21, vdc 1, segment id 8000, segment group IP 224.9.19.10, encap NATIVE, vff_mode
Anycast,swbd 4098, VLAN 0, 28 ports, "BD-Mcast"
Segment Mode: Multicast
Portlist:
52 VM-L-13-25-10.eth7
62 VM-L-13-25-2.eth7
72 VM-L-13-25-1.eth7
82 VM-L-13-25-3.eth7
92 VM-L-13-25-7.eth7
102 VM-L-13-25-5.eth7
112 VM-L-13-25-4.eth7
122 VM-L-13-25-6.eth7
132 VM-L-13-25-8.eth7
144 VM-L-14-25-1.eth7

145 VM-L-14-25-2.eth7
162 VM-L-14-25-10.eth7
172 VM-L-14-25-3.eth7
182 VM-L-13-25-9.eth7
192 VM-L-14-25-4.eth7
202 VM-L-14-25-8.eth7
212 VM-L-14-25-7.eth7
222 VM-L-14-25-6.eth7
232 VM-L-14-25-5.eth7
242 VM-L-14-25-9.eth7

252 VM-L-15-25-10.eth7
262 VM-L-15-25-3.eth7
272 VM-L-15-25-2.eth7
282 VM-L-15-25-1.eth7
294 VM-L-15-25-7.eth7
295 VM-L-15-25-4.eth7

```

```
312 VM-L-15-25-5.eth7
322 VM-L-15-25-6.eth7
```

vemcmd show bd

```
~ # vemcmd show bd 21
BD 21, vdc 1, segment id 8000, segment group IP 224.9.19.10, encap NATIVE, vff_mode
Anycast,swbd 4098, VLAN 0, 28 ports, "BD-Mcast"
Segment Mode: Multicast
Portlist:
52 VM-L-13-25-10.eth7
62 VM-L-13-25-2.eth7
72 VM-L-13-25-1.eth7
82 VM-L-13-25-3.eth7
92 VM-L-13-25-7.eth7
102 VM-L-13-25-5.eth7
112 VM-L-13-25-4.eth7
122 VM-L-13-25-6.eth7
132 VM-L-13-25-8.eth7
144 VM-L-14-25-1.eth7

145 VM-L-14-25-2.eth7
162 VM-L-14-25-10.eth7
172 VM-L-14-25-3.eth7
182 VM-L-13-25-9.eth7
192 VM-L-14-25-4.eth7
202 VM-L-14-25-8.eth7
212 VM-L-14-25-7.eth7
222 VM-L-14-25-6.eth7
232 VM-L-14-25-5.eth7
242 VM-L-14-25-9.eth7

252 VM-L-15-25-10.eth7
262 VM-L-15-25-3.eth7
272 VM-L-15-25-2.eth7
282 VM-L-15-25-1.eth7
294 VM-L-15-25-7.eth7
295 VM-L-15-25-4.eth7
312 VM-L-15-25-5.eth7
322 VM-L-15-25-6.eth7
```

vemcmd show bd bd-name

```
~ # vemcmd show bd bd-name BD-Mcast
BD 21, vdc 1, segment id 8000, segment group IP 224.9.19.10, encap NATIVE, vff_mode
Anycast,swbd 4098, VLAN 0, 28 ports, "BD-Mcast"
Segment Mode: Multicast
Portlist:
52 VM-L-13-25-10.eth7
62 VM-L-13-25-2.eth7
72 VM-L-13-25-1.eth7
82 VM-L-13-25-3.eth7
92 VM-L-13-25-7.eth7
102 VM-L-13-25-5.eth7
112 VM-L-13-25-4.eth7
122 VM-L-13-25-6.eth7
132 VM-L-13-25-8.eth7
144 VM-L-14-25-1.eth7

145 VM-L-14-25-2.eth7
162 VM-L-14-25-10.eth7
172 VM-L-14-25-3.eth7
182 VM-L-13-25-9.eth7
192 VM-L-14-25-4.eth7
```

```
vemcmd show bd bd-name
```

```
202 VM-L-14-25-8.eth7
212 VM-L-14-25-7.eth7
222 VM-L-14-25-6.eth7
232 VM-L-14-25-5.eth7
242 VM-L-14-25-9.eth7

252 VM-L-15-25-10.eth7
262 VM-L-15-25-3.eth7
272 VM-L-15-25-2.eth7
282 VM-L-15-25-1.eth7
294 VM-L-15-25-7.eth7
295 VM-L-15-25-4.eth7
312 VM-L-15-25-5.eth7
322 VM-L-15-25-6.eth7
```