

اهحال صإو ةي ج راخ ل DHCP ءاطخأ فاش ك تسأ EVPN VxLAN Cat9000 ىلع

تايوت حمل

[ةمدقملا](#)

[ةيساس ال ا تابل طتملا](#)

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[ةي زك ر م ل ا ةب ا و ب ل ا \) ي ج راخ ل ا م داخ ل ا ن م IP نا و ن ع ى ل ع ل و ص ح ل ا ر ذ ع ت ي : 1 ة ل ا ح ة س ا ر د
\(ةي ن ب ل ا ل ا خ ا د](#)

[Leaf-01 ة ح ص ن م ق ق ح ت ل ا](#)

[ةب ا و ب ل ا ن م ي زك ر م ل ا ق ق ح ت ل ا](#)

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[ةي زك ر م ل ا ةب ا و ب ل ا \) ي ج راخ ل ا م داخ ل ا ن م IP نا و ن ع ى ل ع ل و ص ح ل ا ر ذ ع ت ي : 2 ة ل ا ح ة س ا ر د
\(ةي ن ب ل ا ل ا خ ا ح](#)

[Leaf-01 ة ح ص ن م ق ق ح ت ل ا](#)

[Leaf-02 ة ح ص ن م ق ق ح ت ل ا](#)

[1 ة ل ك ش م ل ا ل ا ح](#)

[ق ق ح ت ل ا 1 ف ي ص م ل ا](#)

[ةي ن ا ت ل ا ة د ح و ل ا ن م ق ق ح ت ل ا](#)

[ةب ا و ب ل ا ن م ي زك ر م ل ا ق ق ح ت ل ا](#)

[2 ة ل ك ش م ل ا ل ا ح](#)

ةمدقملا

Cat9000 ىلع ةئيب EVPN VxLAN ي ج راخ ي ف ر ا د ص ا DHCP ى ر ح ت ي ن ا ف ي ك ة ق و ي ث و ا ذ ه ف ص ي
ة ص ن م .

ةيساس ال ا تابل طتملا

تابل طتملا

ةي ل ا ت ل ا ع ي ض ا و م ل ا ب ة ف ر ع م ك ي د ل ن و ك ت ن ا ب Cisco ي ص و ت

- Cat9000 ةسسأسألأ ةمظنألأل عل عيسوتلل ةلباقلل ةيرهاظلل ةيلحملل ةكبشلل
- VXlan ةائيب لعل فاشتكالل فيضم نيوكت ةالوكوتورب
- (BGP) ةدودحلل ةباوبلل لوكوتورب

إلإ عجرا ، ةاعوضوملل هذه لوح ةامولعملل نم ديزمل

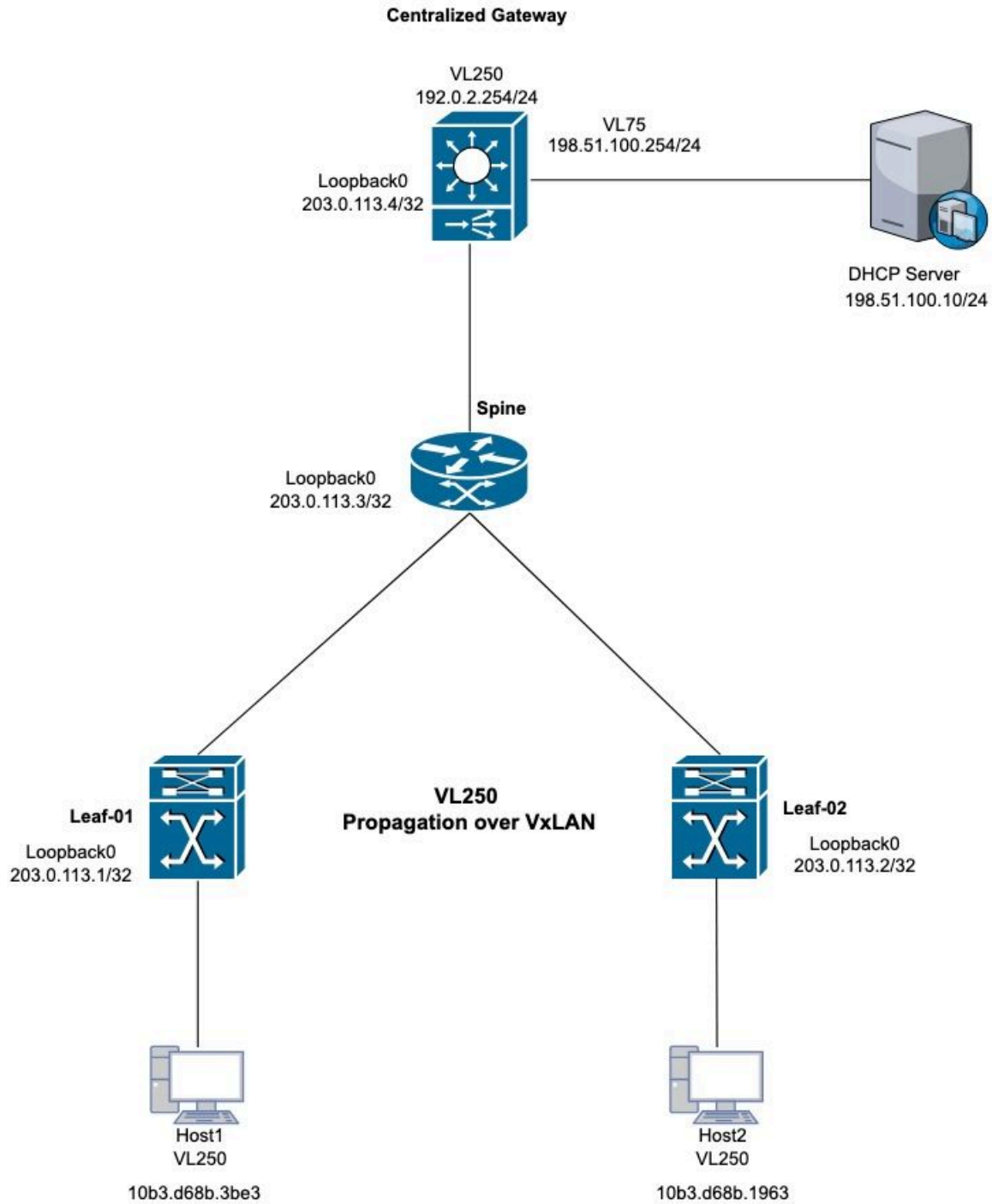
- [BGP EVPN VXLAN Fabric Cat9300 في DHCP ليحرت نيوكت :لصفللإ](#)
- [BGP EVPN VXLAN Fabric Cat9400 في DHCP ليحرت نيوكت :لصفللإ](#)
- [BGP EVPN VXLAN Fabric Cat9500 في DHCP ليحرت نيوكت :لصفللإ](#)
- [BGP EVPN VXLAN Fabric Cat9600 في DHCP ليحرت نيوكت :لصفللإ](#)

ةمدختسملل ةانوكملل

Cisco IOS XE جم انرب لىل دننسسملل اذه في ةدراولل ةامولعملل دننست

ةصاخ ةيلمعم ةئيب في ةدوجوملل ةزهألل نم دننسسملل اذه في ةدراولل ةامولعملل ءاشنإ مت
تنالك اذا . (يضا رتفا) حوسمم نيوكتب دننسسملل اذه في ةمدختسملل ةزهألل عيجم ةأدب
رملأل لم ةحملل ريشأتلل كمهف نم دكأتف ، ليغشتلل دي قكتكبش

ةكبشلل ليطي طختلل مسرلل



طاطخم DHCP VxLAN

يچراخل مداخل نم IP ناو نع ىلع لوصحل رذعتي: 1 ةلأح ةسارد
(ةينبل لآاد ةيزكرملا ةباوبلا)

IP نيوانع فيضملا بلطتي. 250 مقر VLAN ةكبشل 2 VxLAN ةقبطلا طاطخملا اذه مدختسي
يچراخل DHCP مداخل نم

Leaf-01 ةحص نم ققحتلا

نفيضم لل MAC ناونع ملعت نم ققحت ، ةيفرطال ةدحول ةحفص ىلع 1. ةوطخل
نفيصلح لل

دكأت . ةيضارتفالا ةرابعلل MAC ناونع ىلع فرعتلا نم دكأت ، كلذىل ةفاضلإاب 2. ةوطخل
ةيضارتفالا ةرابعلل IP ناونعو اهيلع فرعتلا متي ال MAC ناونع نم لك تيبتت نم
BGP لودج يف تالخدك حيحص لكشب

<#root>

Leaf-1#

show mac address-table address

10b3.d68b.3be3

(host mac address)

Mac Address Table

Vlan	Mac Address	Type	Ports
----	-----	-----	-----
250	10b3.d68b.3be3	DYNAMIC	Twe1/0/1

Centralized-Gateway#

show interface vlan 250 | include bia

(remote mac address)

Hardware is Ethernet SVI, address is

3473.2db8.bee3

(bia 3473.2db8.bee3)

<#root>

Leaf-1#

show bgp l2vpn evpn

10b3.d68b.3be3

(local mac address)
BGP routing table entry for [2][203.0.113.1:250][0][48][10B3D68B3BE3][0][*]/20, version 3
Paths: (1 available, best #1, table evi_250)
Advertised to update-groups:
2
Refresh Epoch 1
Local

0.0.0.0 (via default) from 0.0.0.0 (203.0.113.1)

Origin incomplete, localpref 100, weight 32768, valid, sourced, local,

best

EVPN ESI: 00000000000000000000, Label1 10250
Extended Community: RT:10:250 ENCAP:8
Local irb vxlan vtep:
vrf: not found, l3-vni:0
local router mac:0000.0000.0000
core-irb interface:(not found)

vtep-ip:203.0.113.1

rx pathid: 0, tx pathid: 0x0
Updated on Oct 14 2025 22:27:32 UTC

Leaf-1#

show bgp l2vpn evpn 3473.2db8.bee3

(remote mac address)
BGP routing table entry for [2][203.0.113.1:250][0][48][34732DB8BEE3][32][192.0.2.254]/24, version 9
Paths: (1 available, best #1, table evi_250)
Flag: 0x100

Not advertised to any peer
Refresh Epoch 4

Local, imported path from [2][203.0.113.4:250][0][48][34732DB8BEE3][32][192.0.2.254]/24 (global)
203.0.113.4 (metric 3) (via default) from 203.0.113.3 (203.0.113.3)
Origin incomplete, metric 0, localpref 100, valid, internal, best

EVPN ESI: 00000000000000000000, Label1 10250
Extended Community: RT:10:250 ENCAP:8 EVPN DEF GW:0:0
Originator: 203.0.113.4, Cluster list: 203.0.113.3
rx pathid: 0, tx pathid: 0x0

Updated on Oct 14 2025 14:48:35 UTC

BGP routing table entry for [2][203.0.113.4:250][0][48][34732DB8BEE3][32][192.0.2.254]/24, version 8
Paths: (1 available, best #1, table EVPN-BGP-Table)
Flag: 0x100

Not advertised to any peer
Refresh Epoch 4
Local

203.0.113.4 (metric 3) (via default) from 203.0.113.3 (203.0.113.3)
Origin incomplete, metric 0, localpref 100, valid, internal,

best

EVPN ESI: 00000000000000000000, Label 10250
Extended Community: RT:10:250 ENCAP:8 EVPN DEF GW:0:0
Originator: 203.0.113.4, Cluster list: 203.0.113.3
rx pathid: 0, tx pathid: 0x0
Updated on Oct 14 2025 14:48:35 UTC

ملعتت. ةيضارتفالا ةباوبلاو 1-ةقرولا ني ب MAC ناونع ملعت ةحص نم ققحت 3. ةوطخال
BGP ربع ةديعبلا MAC نيوانعو لاصلتالا طخ ذفنم ربع ةيلحمل MAC نيوانع 1 ةقرولا

<#root>

Leaf-1#

show l2route evpn mac

EVI	ETag	Prod	Mac Address	Next Hop(s)	Seq Number
250	0	L2VPN	10b3.d68b.3b81	Twe1/0/1:250 250	0
				L2VPN 10b3.d68b.3be3	
				Twe1/0/1:250	0 (Host local mac address) 250 0
				BGP 3473.2db8.bee3	
				V:10250 203.0.113.4	0 (CGW SVI mac address)

EVPN ليثم لخد Leaf-1 لوحملا يلع ةيضارتفالا ةباوبلا ةفرعم نم ققحت 4. ةوطخال
J2VPN.

<#root>

Leaf-1#

show l2vpn evpn default-gateway

Valid	Default Gateway Address	EVI	VLAN	MAC Address	Source
Y	192.0.2.254	250	250	3473.2db8.bee3	203.0.113.4



Wireshark حشرم ةينبب مزتلت يتلا ضرعلا حشرم لسالس طقتلا :ةظحالم

<#root>

Leaf-1#

```
monitor capture cap interface twel/0/1 in match ipv4 protocol udp any range 67 68 any range 67 68 start
```

Started capture point : cap

Leaf-1#

*Oct 21 22:57:04.719: %BUFCAP-6-ENABLE: Capture Point cap enabled.

Leaf-1#

Leaf-1#

```
monitor capture cap stop
```

Capture statistics collected at software:

Capture duration - 96 seconds

Packets received - 10

Packets dropped - 0

Packets oversized - 0

Bytes dropped in asic - 0

Capture buffer will exists till exported or cleared

Stopped capture point : cap

*Oct 21 22:58:40.810: %BUFCAP-6-DISABLE: Capture Point cap disabled.

Leaf-1#

```
show monitor capture cap buffer display-filter "eth,addr==10:b3:d6:8b:3b:e3" detailed
```

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 371 bytes on wire (2968 bits), 371 bytes captured (2968 bits) on interface /tmp/epc_ws/wif_to_

Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)

Interface name: /tmp/epc_ws/wif_to_ts_pipe

Encapsulation type: Ethernet (1)

Arrival Time: Oct 21, 2025 22:57:07.843851000 UTC

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1761087427.843851000 seconds

<snip>

[Protocols in frame: eth:ethertype:vlan:ethertype:ip:udp:dhcp]

Ethernet II, Src: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3), Dst: ff:ff:ff:ff:ff:ff (ff:ff:ff:ff:ff:ff)

Destination: ff:ff:ff:ff:ff:ff (ff:ff:ff:ff:ff:ff)

Address: ff:ff:ff:ff:ff:ff (ff:ff:ff:ff:ff:ff)

.... ..1. = LG bit: Locally administered address (this is NOT the factory de

```
.....1 ..... = IG bit: Group address (multicast/broadcast)
                Source: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)
                Address: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)
.....0. .... = LG bit: Globally unique address (factory default)
                .....0 ..... = IG bit: Individual address (unicast)
                Type: 802.1Q Virtual LAN (0x8100)
                802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 250
000. .... = Priority: Best Effort (default) (0)
                ...0 ..... = DEI: Ineligible
                .... 0000 1111 1010 = ID: 250
                Type: IPv4 (0x0800)
```

<snip>

User Datagram Protocol,

Src Port: 68, Dst Port: 67

```
Source Port: 68
Destination Port: 67
Length: 333
Checksum: 0xdf55 [unverified]
[Checksum Status: Unverified]
[Stream index: 0]
[Timestamps]
[Time since first frame: 0.000000000 seconds]
[Time since previous frame: 0.000000000 seconds]
Dynamic Host Configuration Protocol (Discover)
Message type: Boot Request (1)
Hardware type: Ethernet (0x01)
Hardware address length: 6
Hops: 0
Transaction ID: 0x3bd7aadb
Seconds elapsed: 7
```

Bootp flags: 0x8000, Broadcast flag (Broadcast)

```
1... .... = Broadcast flag: Broadcast
.000 0000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0
Your (client) IP address: 0.0.0.0
Next server IP address: 0.0.0.0
Relay agent IP address: 0.0.0.0
```

Client MAC address: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

```
Client hardware address padding: 00000000000000000000
Server host name not given
Boot file name not given
Magic cookie: DHCP
```

Option: (53) DHCP Message Type (Discover)

<snip>

ةيفصت لم اوع قي ب ط ت . مزحل طاق ت ل ا ربع VxLAN ة مزح نيمضت نم ق قحت ل ا . 8 ة و ط خ ل ا
UDP 4789 ذ ف نم ف ط و ي VxLAN . ة ح ص ل ا نم ق قحت ل ا ا ذ ه ل ة ف ل ت خ م

```
monitor capture cap interface <outgoing interface > out match ipv4 protocol udp any any eq 4789 (Inter
```

```
<#root>
```

```
Leaf-1#
```

```
show ip bgp all summary
```

```
For address family: L2VPN E-VPN
```

```
<snip>
```

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down	State/PfxRcd
									203.0.113.3
	4	10	4204	4122		365	0	0 2d13h	2

```
Leaf-1#
```

```
show ip route 203.0.113.3
```

```
Routing entry for 203.0.113.3/32
```

```
Known via "ospf 1", distance 110, metric 2, type intra area  
Last update from 172.x.x.2 on TwentyFiveGigE1/0/2, 2d13h ago
```

```
Routing Descriptor Blocks:
```

```
* 172.x.x.2, from 203.0.113.3, 2d13h ago, via
```

```
TwentyFiveGigE1/0/2
```

```
Leaf-1#
```

```
monitor capture cap interface twel1/0/2 out match ipv4 protocol udp any any eq 4789 start
```

```
*Oct 21 23:51:07.689: %BUFCAP-6-ENABLE: Capture Point cap enabled.
```

```
Leaf-1#
```

```
show monitor capture cap buffer display-filter "eth.addr==10:b3:d6:8b:3b:e3" detailed
```

```
Starting the packet display ..... Press Ctrl + Shift + 6 to exit
```

Frame 1: 443 bytes on wire (3544 bits), 443 bytes captured (3544 bits) on interface /tmp/epc_ws/wif_to_

Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)

Interface name: /tmp/epc_ws/wif_to_ts_pipe

Encapsulation type: Ethernet (1)

Arrival Time: Oct 21, 2025 23:51:34.848693000 UTC

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1761090694.848693000 seconds

<snip>

[Protocols in frame: eth:

ethertype:ip:udp:vxlan:eth:ethertype:ip:udp:dhcp]

Ethernet II, Src: 00:00:00:00:00:00 (00:00:00:00:00:00), Dst: 00:00:00:00:00:00 (00:00:00:00:00:00)

Destination: 00:00:00:00:00:00 (00:00:00:00:00:00)

Address: 00:00:00:00:00:00 (00:00:00:00:00:00)

.... ..0. = LG bit: Globally unique address (factory default)

.... ..0 = IG bit: Individual address (unicast)

Source: 00:00:00:00:00:00 (00:00:00:00:00:00)

Address: 00:00:00:00:00:00 (00:00:00:00:00:00)

.... ..0. = LG bit: Globally unique address (factory default)

.... ..0 = IG bit: Individual address (unicast)

Type: IPv4 (0x0800)

Internet Protocol Version 4, Src: 203.0.113.1, Dst: 203.0.113.4

0100 = Version: 4

.... 0101 = Header Length: 20 bytes (5)

Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)

0000 00.. = Differentiated Services Codepoint: Default (0)

.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)

<snip>

User Datagram Protocol, Src Port: 65479, Dst Port: 4789

Source Port: 65479

Destination Port: 4789

Length: 409

[Checksum: [missing]]

[Checksum Status: Not present]

[Stream index: 0]

[Timestamps]

[Time since first frame: 0.000000000 seconds]

[Time since previous frame: 0.000000000 seconds]

Virtual eXtensible Local Area Network

Flags: 0x0800, VXLAN Network ID (VNI)

0... .. = GBP Extension: Not defined

.... ..0.. = Don't Learn: False

.... 1... .. = VXLAN Network ID (VNI): True

.... .. 0... = Policy Applied: False

.000 .000 0.00 .000 = Reserved(R): 0x0000

Group Policy ID: 0

VXLAN Network Identifier (VNI): 10250

Reserved: 0
<snip>

User Datagram Protocol, Src Port: 68, Dst Port: 67

Source Port: 68
Destination Port: 67
Length: 359
Checksum: 0x767d [unverified]
[Checksum Status: Unverified]
[Stream index: 1]
[Timestamps]
[Time since first frame: 0.000000000 seconds]
[Time since previous frame: 0.000000000 seconds]
Dynamic Host Configuration Protocol (Discover)
Message type: Boot Request (1)
Hardware type: Ethernet (0x01)
Hardware address length: 6
Hops: 0
Transaction ID: 0xd4c42ec1
Seconds elapsed: 0

Bootp flags: 0x8000, Broadcast flag (Broadcast)

1... .. = Broadcast flag: Broadcast
.000 0000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0
Your (client) IP address: 0.0.0.0
Next server IP address: 0.0.0.0
Relay agent IP address: 0.0.0.0

Client MAC address: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

Client hardware address padding: 00000000000000000000
Server host name not given
Boot file name not given
Magic cookie: DHCP

ةبوابلا نم يزكرملا ققحتلا

BGP و L2 تاراسم يلع هيلع فرعتلا مت يذلا فيضم لل MAC ناونع ةحص نم ققحت 1. ةوطخلا
(ةولوالا ققحتلا ءارجا ةوطخلا هذه سكعت) EVPN

<#root>

Centralized-Gateway#

show bgp l2vpn evpn 10b3.d68b.3be3

(remote host mac address)
 BGP routing table entry for [2][203.0.113.1:250][0][48][10B3D68B3BE3][0][*]/20, version 12
 Paths: (1 available, best #1, table EVPN-BGP-Table)
 Not advertised to any peer
 Refresh Epoch 1
 Local

203.0.113.1 (metric 3) (via default) from 203.0.113.3 (203.0.113.3)

(learned via RR)
 Origin incomplete, metric 0, localpref 100, valid, internal,

best

EVPN ESI: 00000000000000000000, Label1 10250
 Extended Community: RT:10:250 ENCAP:8
 Originator: 203.0.113.1, Cluster list: 203.0.113.3
 rx pathid: 0, tx pathid: 0x0
 Updated on Oct 27 2025 17:53:37 UTC

BGP routing table entry for [2][203.0.113.4:250][0][48][10B3D68B3BE3][0][*]/20, version 14
 Paths: (1 available, best #1, table evi_250)
 Not advertised to any peer
 Refresh Epoch 1

Local, imported path from [2][203.0.113.1:250][0][48][10B3D68B3BE3][0][*]/20 (global)
 203.0.113.1 (metric 3) (via default) from 203.0.113.3 (203.0.113.3)
 Origin incomplete, metric 0, localpref 100, valid, internal, best

EVPN ESI: 00000000000000000000, Label1 10250
 Extended Community: RT:10:250 ENCAP:8
 Originator: 203.0.113.1, Cluster list: 203.0.113.3
 rx pathid: 0, tx pathid: 0x0
 Updated on Oct 27 2025 17:53:37 UTC

Centralized-Gateway#

show l2route evpn mac mac-address 10b3.d68b.3be3

EVI	ETag	Prod	Mac Address	Next Hop(s)	Seq Number
				250	0
				BGP 10b3.d68b.3be3	
				v:10250 203.0.113.1	
					0

يُجلب DHCP لوكوتورب على لفطتال نيوكوتو DHCP ليحرت تامولعم نم ققحت 2. ةوطخل
ةيزكرمال ةباوبال

<#root>

Centralized-Gateway#

```
show running-config | section dhcp
```

```
ip dhcp-relay source-interface Loopback0
ip dhcp relay information option vpn
ip dhcp relay information option
ip dhcp compatibility suboption link-selection standard
ip dhcp compatibility suboption server-override standard
ip dhcp snooping vlan 250
ip dhcp snooping
```

نراق VLAN 250 ل نم زياً ردصم ولدان DHCP ل ل ةيلوصوم تققد 3. ةوطخل

<#root>

Centralized-Gateway#

```
ping 198.51.100.10 source vlan 250
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 198.51.100.10, timeout is 2 seconds:
Packet sent with a source address of 192.0.2.254
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms
```

ةزهأل نم فاشتكال لئاسرتناك اذا امم ققحتلل ةمزح طاقتلل ءارجب مق 4. ةوطخل
ةيزكرمال ةباوبال ل ل صت ةديعبال ةفيضمال

<#root>

Centralized-Gateway#

```
monitor capture cap interface vlan250 in match ipv4 protocol udp any range 67 68 any range 67 68
```

```
Centralized-Gateway#monitor capture cap start
Started capture point : cap
```

<#root>

show monitor capture cap buffer display-filter "eth.addr==10:b3:d6:8b:3b:e3" detailed

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 401 bytes on wire (3208 bits), 401 bytes captured (3208 bits) on interface /tmp/epc_ws/wif_to_

Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)

Interface name: /tmp/epc_ws/wif_to_ts_pipe

Encapsulation type: Ethernet (1)

Arrival Time: Oct 27, 2025 20:43:30.774923000 UTC

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1761597810.774923000 seconds

<snip>

[Protocols in frame: eth:ethertype:cmd:ethertype:ip:udp:dhcp]

Ethernet II, Src: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3), Dst: 34:73:2d:b8:be:e3 (34:73:2d:b8:be:e3)

Destination: 34:73:2d:b8:be:e3 (34:73:2d:b8:be:e3)

Address: 34:73:2d:b8:be:e3 (34:73:2d:b8:be:e3)

.... ..0. = LG bit: Globally unique address (factory default)

.... ...0 = IG bit: Individual address (unicast)

Source: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

Address: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

.... ..0. = LG bit: Globally unique address (factory default)

.... ...0 = IG bit: Individual address (unicast)

Type: CiscoMetaData (0x8909)

<snip>

Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255

0100 = Version: 4

.... 0101 = Header Length: 20 bytes (5)

Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)

0000 00.. = Differentiated Services Codepoint: Default (0)

.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)

Total Length: 379

Identification: 0x0230 (560)

Flags: 0x00

0... = Reserved bit: Not set

.0.. = Don't fragment: Not set

..0. = More fragments: Not set

Fragment Offset: 0

Time to Live: 255

Protocol: UDP (17)

Header Checksum: 0xb842 [validation disabled]

[Header checksum status: Unverified]

Source Address: 0.0.0.0

Destination Address: 255.255.255.255

User Datagram Protocol, Src Port: 68, Dst Port: 67

Source Port: 68

Destination Port: 67
Length: 359
Checksum: 0x8f64 [unverified]
[Checksum Status: Unverified]
[Stream index: 0]
[Timestamps]
[Time since first frame: 0.000000000 seconds]
[Time since previous frame: 0.000000000 seconds]
UDP payload (351 bytes)

Dynamic Host Configuration Protocol (Discover)

Message type: Boot Request (1)
Hardware type: Ethernet (0x01)
Hardware address length: 6
Hops: 0
Transaction ID: 0xf23af863
Seconds elapsed: 0
Bootp flags: 0x8000, Broadcast flag (Broadcast)
1... = Broadcast flag: Broadcast
.000 0000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0
Your (client) IP address: 0.0.0.0
Next server IP address: 0.0.0.0
Relay agent IP address: 0.0.0.0

Client MAC address: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

Client hardware address padding: 00000000000000000000
Server host name not given
Boot file name not given
Magic cookie: DHCP

Option: (53) DHCP Message Type (Discover)

Length: 1
DHCP: Discover (1)
Option: (57) Maximum DHCP Message Size
Length: 2
Maximum DHCP Message Size: 1200
Option: (61) Client identifier
Length: 27
Type: 0

Client Identifier: cisco-10b3.d68b.3be3-V1250

<snip>

لخدم ضرع وجرخم فاشتكإلإا تققد .لوحملال ىلع قحال ةمزح طاقنلأا ءارجإب مق 5. ةوطخلأا

<#root>

```
Centralized-Gateway#  
no monitor capture cap  
Centralized-Gateway#  
monitor capture cap interface vlan 75 both match ipv4 protocol udp any range 67 68 any range 67 68  
Centralized-Gateway#  
monitor capture cap start  
Started capture point : cap  
Centralized-Gateway#  
monitor capture cap stop  
Capture statistics collected at software:  
Capture duration - 78 seconds  
Packets received - 0  
Packets dropped - 0  
Packets oversized - 0  
Bytes dropped in asic - 0
```

ققححتلأا و DHCP ءاطخأ ححصت ةعباتم كئلعف ،مزح يأ ةمزحلأا طاقنلأا رهظي مل اذا 6. ةوطخلأا
يساسألأا ماظنلأا ىلع ةمزحلأا ةلاح نم

<#root>

Centralized-Gateway#

debug ip dhcp snooping packet

<snip>

*Oct 27 22:20:24.444: DHCP_SNOOPING: process

new DHCP packet, message type: DHCPDISCOVER,

input interface: Tu0, MAC da: 3473.2db8.bee3,

MAC sa: 10b3.d68b.3be3

, IP da: 255.255.255.255, IP sa: 0.0.0.0, DHCP ciaddr: 0.0.0.0, DHCP yiaddr: 0.0.0.0, DHCP siaddr: 0.0.0.0,

*Oct 27 22:20:24.445: DHCP_SNOOPING: Packet destined to SVI Mac:3473.2db8.bee3

*Oct 27 22:20:24.445: DHCP_SNOOPING: bridge packet send packet to cpu port: Vlan250.

*Oct 27 22:20:24.445: DHCP_SNOOPING: bridge packet send packet to port: GigabitEthernet1/0/2, pak_vlan

*Oct 27 22:20:24.445: DHCP_SNOOPING: received new DHCP packet from input interface (Tunnel0)

*Oct 27 22:20:27.952: DHCP_SNOOPING: DHCP Memory dump is printed for process packet.

Centralized-Gateway#

debug ip dhcp server packet detail

*Oct 27 22:27:58.009: DHCPD: BOOTREQUEST from 0063.6973.636f.2d31.3062.332e.6436.3862.2e33.6265.332d.56

*Oct 27 22:28:02.008: DHCPD: tableid for 192.0.2.254 on Vlan250 is 0

*Oct 27 22:28:02.008: DHCPD: client's VPN is .

*Oct 27 22:28:02.008: DHCPD: No option 125

*Oct 27 22:28:02.008: DHCPD: Option 124: Vendor Class Information

*Oct 27 22:28:02.008: DHCPD: Enterprise ID: 9

*Oct 27 22:28:02.008: DHCPD: Vendor-class-data-len: 13

*Oct 27 22:28:02.008: DHCPD: Data: 43393330304C2D3234502D3447

*Oct 27 22:28:02.008: DHCPD: Option 125 not present in the msg.

*Oct 27 22:28:02.008: DHCPD: Option 125 not present in the msg.

*Oct 27 22:28:02.008: DHCPD: Looking up binding using address 192.0.2.254

*Oct 27 22:28:02.008: DHCPD: setting giaddr to 192.0.2.254.

*Oct 27 22:28:02.008: DHCPD: relay information option before replacing suboptions

```
*Oct 27 22:28:02.008: DHCPD: 5218010c010a00080000280a01010000020800064c5d3ceb4340
*Oct 27 22:28:02.008: DHCPD: replacing suboptions in relay information option.
*Oct 27 22:28:02.008: DHCPD: relay information option content (add/replace):
```

```
*Oct 27 22:28:02.008: DHCPD: 52060504c00002fe
*Oct 27 22:28:02.008: DHCPD: giaddr changed to 203.0.113.4
```

عن مي اذهو) ددحم لا رمألا نمضتتو DHCP مداخ ب لصتت يتلا تاهجاوالا نم ققحت 7. ةوطخال
DHCP) ةمزح طاقسإ

<#root>

```
Centralized-Gateway#sh running-config interface gi1/0/2
Building configuration...
```

```
Current configuration : 149 bytes
!
interface GigabitEthernet1/0/2
description to L2_switch
switchport trunk allowed vlan 75,250
switchport mode trunk
```

```
ip dhcp snooping trust
```

```
end
```

2. ةقبطلا لاصتا طخ تاهجاو ىلع طقف ip dhcp snooping trust رمأ قبطي: ةطخال

ةلكشم لا لِح

ىلإ DHCP دودر DHCP مداخ ليحرت لسري، كلذ عمو. عقوقتم وه امك VXlan ةكبش نيوكت فئاظو
اذه نع جتن. اذه IP ناو نع ىلإ لوصولا ةيناكمإ ىلإ DHCP مداخ رقتفا. IP 203.0.113.4 ناو نع
ةيزكرملا ةباوبلا يف يداخالأ ثبلا مزح طاقسإ تاي لمع لاصتالا يف صقنلا

ريفوتل IP ناو نعل راسم عاشنإ متو، ةديج 1 عاجرتسإ ةهجاو نيوكت مت، ةلكشم لا هذه لِح
اذه عاجرتسالا ليحرت ناو نع مادختساب لاصتالا

DHCP: تالچس

<#root>

DHCP-Server#d

debug ip dhcp server packet detail

DHCP server packet detail debugging is on.
*Oct 28 00:23:43.464:

DHCPD: DHCPDISCOVER

received from client 0063.6973.636f.2d31.3062.332e.6436.3862.2e33.6265.332d.566c.3235.30 through relay
*Oct 28 00:23:43.464: DHCPD: Option 125 not present in the msg.
*Oct 28 00:23:43.465: DHCPD: egress Interfce GigabitEthernet0/0/4.75

*Oct 28 00:23:43.465: DHCPD: unicasting BOOTREPLY for client 10b3.d68b.3be3 to relay 203.0.113.4.

DHCP-Server#

ping 203.0.113.4

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 203.0.113.4, timeout is 2 seconds:

.....

Success rate is 0 percent (0/5)

DHCP-Server#

ليحرت الة في طول ة دي دجل اعجرت س الة ة حاجاوب لاصت الة نيوك تب مق: ة يزك رمل ة باوب الة

<#root>

Centralized-Gateway#

```
configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Centralized-Gateway(config)#
```

```
interface loopback 1
```

```
Centralized-Gateway(config-if)#
```

```
ip address 198.51.100.25 255.255.255.255
```

```
Centralized-Gateway(config-if)#
```

```
router eigrp 1
```

```
Centralized-Gateway(config-router)#
```

```
network 198.51.100.25 0.0.0.0
```

```
Centralized-Gateway(config-router)#exit
```

```
Centralized-Gateway(config)#
```

```
no ip dhcp-relay source-interface Loopback0
```

```
Centralized-Gateway(config)#
```

```
ip dhcp-relay source-interface Loopback1
```

```
DHCP-Server#
```

```
ping 198.51.100.25
```

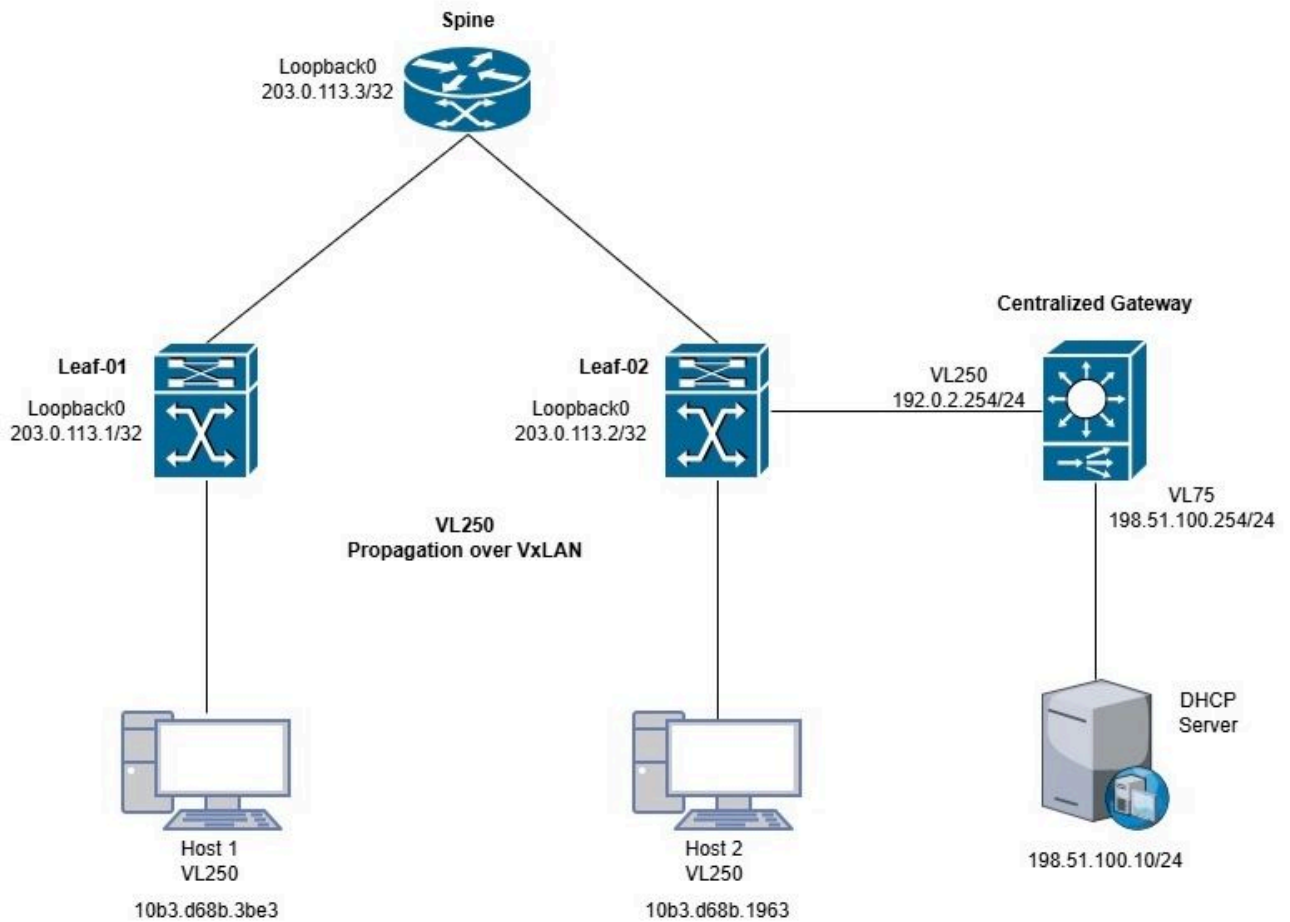
```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 198.51.100.25, timeout is 2 seconds:  
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/9 ms  
DHCP-Server#
```

يچراخلال مداخل ال ن م IP ناوع ىل لوصحلا رذعتي : 2 ةلح ةسارد (ةينبلا چراخ ةيزكرملا ةباوبلا)

ىل لوصحلا لوصح ي . 250 مقرر VLAN ةكبش ل VxLAN ن م 2 ةقبطلا ططخملا اذم مدختسي
ةينبلا چراخ دووم يچراخ DHCP مداخل ن م هب صاخلا ال ن اوع



يچراخلال VxLAN DHCP ططخم

Leaf-01 ةحص ن م ققحتلا

عق DHCP مداخل ن ا م ب . gateway-ريصقتلا ىل لوصحلا ن ا ل ا ل ا ق ق د ، 1-ةقرو ىل ل . 1 ةوطخ
IP ناوع نيي عتل ةحصلا فئاظولل ايساس ابل طتم دع اذم ن ا ف ، VxLAN ةينبلا چراخ

<#root>

Leaf-1#

```
show l2vpn evpn default-gateway
```

```
Valid Default Gateway Address EVI VLAN MAC Address Source
```

DHCP عا طخأ فاشك تسأ عم عبات ملاب مقف ، اغراف ق باسلا جارخإلناك اذا 2. ةوطخلا
ةزهجالا لعل ةلصللا تاذا DHCP لوكوتورب لعل لفطتلل تانويكت دوجونم ققحت . اهجالصإو
ة. فيرطللا

<#root>

```
Leaf-1#show running-config | section dhcp
```

```
ip dhcp relay information option vpn
```

```
ip dhcp relay information option
```

```
ip dhcp compatibility suboption link-selection standard
```

```
ip dhcp compatibility suboption server-override standard
```

```
ip dhcp snooping vlan 250
```

```
ip dhcp snooping
```

<#root>

```
Leaf-2#show running-config | section dhcp
```

```
ip dhcp relay information option vpn
```

```
ip dhcp relay information option
```

```
ip dhcp compatibility suboption link-selection standard
```

```
ip dhcp compatibility suboption server-override standard
```

```
ip dhcp snooping vlan 250
```

```
ip dhcp snooping
```

رمأل نېك م تب مق ، DHCP مادختساب طشن لكشب IP ناونع بلطي زاهجلا ناك اذا 3. ةوطخلا
يساسألماظنلا لىل ةمزحلا ةلاح نم ققحتلل ءاطخأل احي حصتل بسانملا

<#root>

```
*Dec 6 22:42:19.568:
```

```
DHCP_SNOOPING: received new DHCP packet from input interface (TwentyFiveGigE1/0/1)
```

```
*Dec 6 22:42:19.568: DHCP Memory dump is printed for process packet  
<snip>
```

```
*Dec 6 22:42:19.578:
```

```
DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER, input interface: Twel/0/1
```

```
, MAC da: ffff.ffff.ffff, MAC sa: 10b3.d68b.3be3, IP da: 255.255.255.255, IP sa: 0.0.0.0, DHCP ciaddr: 0.0.0.0
```

```
*Dec 6 22:42:19.578: DHCP_SNOOPING: add relay information option.
```

```
*Dec 6 22:42:19.578: DHCP_SNOOPING: Encoding opt82 CID in vlan-mod-port format
```

```
*Dec 6 22:42:19.578: DHCP_SNOOPING:VxLAN : vlan_id 250 VNI 10250 mod 1 port 1
```

```
*Dec 6 22:42:19.578: DHCP_SNOOPING: Encoding opt82 RID in MAC address format
```

```
*Dec 6 22:42:19.578: DHCP_SNOOPING: binary dump of relay info option, length: 26 data:  
0x52 0x18 0x1 0xc 0x1 0xa 0x0 0x8 0x0 0x0 0x28 0xa 0x1 0x1 0x0 0x0 0x2 0x8 0x0 0x6 0x4c 0x5d 0x3c 0xeb 0x0
```

```
*Dec 6 22:42:19.579: DHCP_SNOOPING: bridge packet get invalid mat entry: FFFF.FFFF.FFFF, packet is flooded
```

```
*Dec 6 22:42:19.579: DHCP_SNOOPING: bridge packet get invalid mat entry: FFFF.FFFF.FFFF, packet is flooded
```

```
*Dec 6 22:42:19.579:
```

```
DHCP_SNOOPING: L2RELAY: cannot find default gw for bd 250: src intf TwentyFiveGigE1/0/1
```



ديدحت نم نكمتي مل زاهجلا نأ لىل ةيئاهنلا ءاطخأل احي حصت ةلاسريشت : ةطخال

VLAN 250. كبل شلة ضارته الة باول

Leaf-02 حص نم ققحتل

ههوت ةءاع| نع ةلوؤسم انهف، VxLAN ةننبل لءاء ةطشنل ءوءحل ةقرويه Leaf-2 نأ امب ةضارته الة باول اب ةقلعهتمل ءامولعمل

ةضارته الة باول نع نالعل ل L2VPN EVPN ةرءق نم ققحتل يف رمتسا 1. ةوطءل

<#root>

Leaf-2#

show l2vpn evpn summary

```

L2VPN EVPN
EVPN Instances (excluding point-to-point): 1
  VLAN Based: 1
  Vlans: 1
BGP: ASN 65000, address-family l2vpn evpn configured
  Router ID: 203.0.113.2
  Global Replication Type: Ingress
  ARP/ND Flooding Suppression: Enabled
  Connectivity to Core: UP
  MAC Duplication: seconds 180 limit 5
    MAC Addresses: 5
      Local: 3
      Remote: 2
    Duplicate: 0
  IP Duplication: seconds 180 limit 5
    IP Addresses: 2
      Local: 2
      Remote: 0
    Duplicate: 0
```

Advertise Default Gateway: No

```

Default Gateway Addresses: 0
  Local: 0
  Remote: 0
Maximum number of Route Targets per EAD-ES route: 200
  Multi-home aliasing: Enabled
  Multi-home send proxy MAC/IP: Enabled
  Multi-home device ID: 0000.5e00.0101
  Global IP Local Learn: Enabled
  IP local learning limits
    IPv4: 4 addresses per-MAC
    IPv6: 12 addresses per-MAC
  IP local learning timers
    Down: 10 minutes
```

```
Poll: 1 minutes
Reachable: 5 minutes
Stale: 30 minutes
Auto route-target: vni-based
Advertise Multicast: No
Global Anycast Gateway MAC: No
```

ةرابع ال ن نالعالاب Leaf-2 ةحص نم ققحتلاب قباسلا جارخال موقى ال 2 ةوطخال
نيوكتلا يف رمتسا. اهسفن VxLAN ةي نبلخاد 1-ىخال ةيفرطلا ةدحولا هاجت ةيضارتفال
ححصلا نالعال ذيفنتل بولطملا

<#root>

```
Leaf-2(config)#
```

```
l2vpn evpn
```

```
Leaf-2(config-evpn)#
```

```
default-gateway advertise
```

EVPN L2VPN ةردق نيكمت بجي، نيوكتلا ةفاضل درجم ب 3 ةوطخال

<#root>

```
Leaf-2#
```

```
show l2vpn evpn summary
```

```
--snip--
```

```
Advertise Default Gateway: Yes
```

ةقرولا ل ةيضارتفال ةرابعلل بسانملا نالعال نيوكتل مق، اهنكمت درجم ب 4 ةوطخال
VxLAN ةي نبلخاد ىخال

1 ةلكشملال ح

م تي ال، كلذ عمو. عقوم وه امك DHCP و L2VPN لوكوتورب ىلع لفطتل نيوكت فئاظو
1-ةقروبو ةلصتملا ةيفرطلا ةزهجال نكمي ال، كلذل. ةيضارتفال ةرابعلا نالعال ذيفنت

DHCP مداخل IP ناووع يقلت

نالعال نيوكت بجي، ةلكشمالا هذه لجل

ةرابعال نعالعال راسم ةطيرخ عم (ACL) لوصولا يف مكحت ةمئاق نيوكتب مق 1. ةوطخال
ةكبشلالا لعالال ةرفرطالا ةزهجالا لال BGP ربع ةيضارتفال

<#root>

```
Leaf-2(config)#
```

```
ip access-list extended GW250
```

```
Leaf-2(config-ext-nacl)#
```

```
10 permit ip host 192.0.2.254 any
```

```
(permit the IP address if the GW)
```

```
Leaf-2(config)#
```

```
route-map CGW
```

```
Leaf-2(config-route-map)#match ip address GW250
```

```
Leaf-2(config-route-map)#
```

```
match evpn route-type 2-mac-ip
```

```
Leaf-2(config-route-map)#
```

```
set extcommunity default-gw
```

```
Leaf-2(config)#
```

```
router bgp 65000
```

```
Leaf-2(config-router)#address-family l2vpn evpn
```

```
Leaf-2(config-router-af)#
```

```
neighbor 203.0.113.3 route-map CGW out
```

لخدم-ريصقت حصري لدهاشي نأ 1 ةقبط تقود، قباس ليكشتلا تفضأ نأ دعب 2. ةوطخ نالعل

<#root>

Leaf-1#

show l2vpn evpn default-gateway

	Valid Default Gateway Address	EVI	VLAN	MAC Address	Source
Y	192.0.2.254	250	250	3473.2db8.bee3	203.0.113.2

اذه. ةغراف ةميق ضرعي ةيضا رتفال ةباوبلا نم ققحتلا، VTEP دحلل ىلع: ةظحالم دحلل VTEP ب ةرشابم ةلصتم ةيزك رمل ةباوبلا نأل، عقوتم كولس

<#root>

Leaf-2#

show l2vpn evpn default-gateway

	Valid Default Gateway Address	EVI	VLAN	MAC Address	Source
--	-------------------------------	-----	------	-------------	--------

ةزهجال تناك اذا ام ققحت. ةيضا رتفال ةرابعل نالعل ةيحص لكشب ةقرولا ةزهجأ رهظت نأل DHCP نم ةيحص لكشب IP ناوئع ىقلتت ةيفرطلال

ققحتلا 1 فيضملا

DHCP ربع IP ناوئع بلطا، 1 فيضملا ىلع 1. ةوطخلال

<#root>

Host1#

show running-config interface vlan 250

Building configuration...
Current configuration : 42 bytes

```
!  
interface Vlan250  
  
ip address dhcp  
  
end
```

تحقق من إعدادات DHCP على الواجهة Vlan250. 2. عوطل

```
Host1#show ip interface brief | include DHCP  
Vlan250 unassigned YES DHCP up up
```

تتضمن الخطوات التالية إعداد الواجهة Vlan250 على DHCP. 3. عوطل

الخطوات التالية لإعداد الواجهة Vlan250 على DHCP.

لإعداد الواجهة Vlan250 على DHCP، يجب إعداد الواجهة Vlan250 على DHCP. 1. عوطل

<#root>

```
Leaf-2#
```

```
debug ip dhcp snooping packet
```

```
DHCP Snooping Packet debugging is on
```

تتضمن الخطوات التالية إعداد الواجهة Vlan250 على DHCP. 2. عوطل

<#root>

```
Leaf-2#
```

```
debug ip dhcp snooping packet
```

```
*Dec 12 20:11:43.891: DHCP_SNOOPING: received new DHCP packet from input interface (Tunnel0)  
*Dec 12 20:11:43.891: DHCP Memory dump is printed for process packet  
<snip>  
*Dec 12 20:11:43.902:
```

```
DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER
```

```
, input interface: Tu0, MAC da: 3473.2db8.bee3, MAC sa: 10b3.d68b.3be3, IP da: 255.255.255.255, IP sa: 0.0.0.0  
*Dec 12 20:11:43.902: DHCPS BRIDGE PAK: vlan=250 platform_flags=1  
*Dec 12 20:11:43.902:
```

```
DHCP_SNOOPING: bridge packet output port set is null, packet is dropped.
```

ةزيم نأ ةلاس رلا هذه ينعت . ةمزح ل طاقس إىل ةقبا سلا (تال ج سلا) ل ج سلا ريشي 3. ةوطخ ل
اهي جوت ةداع إىل نكمي ال يتل DHCP ةمزح تقلت ل و ح م ل لىل DHCP لوكوت و رب لىل ل ف ط ت ل
ريغ DHCP لوكوت و رب لىل ل ف ط ت ل لوكوت و رب لىل ل ف ط ت ل لوكوت و رب لىل ل ف ط ت ل لوكوت و رب لىل ل ف ط ت ل
DHCP ةمزح هي جوت ةداع إىل بسا ن م ل ج ر م ل ذفنم ديحت لىل رداق

ةه ج اوك ةيزك ر م ل ةبا و ب ل لىل ريش ت يتل ةه ج اولل ني وكت ب جي ، ةلكش م ل هذه ل حل 4. ةوطخ ل
اهب قو و م

```
<#root>
```

```
Leaf-2(config)#
```

```
interface fortyGigabitEthernet 2/0/1
```

```
Leaf-2(config-if)#
```

```
ip dhcp snooping trust
```

نآل ع ق و ت م وه امك لمعي DHCP رب ع IP نا و ن ع ني عت ناك اذا ام ق قحت 5. ةوطخ ل

```
<#root>
```

```
Leaf-2#
```

```
debug ip dhcp snooping packet
```

```
*Dec 12 20:33:54.156: DHCP Memory dump is printed for process packet
```

```
<snip>
```

```
*Dec 12 20:33:54.167:
```

```
DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER
```

```
, input interface: Tu0, MAC da: 3473.2db8.bee3, MAC sa: 10b3.d68b.3be3, IP da: 255.255.255.255, IP sa: 0.0.0.0
```

*Dec 12 20:33:54.167: DHCP BRIDGE PAK: vlan=250 platform_flags=1
*Dec 12 20:33:54.167:

DHCP_SNOOPING: bridge packet send packet to port: FortyGigabitEthernet2/0/1, pak_vlan 250.

مزمح لالخال نم ةي داملا ةهجاو لا ححص لكشب نألا فرعي زاهجال نأى لىل لىلدل ريشي. 6 ةوطخال روظنم نم اهب قوئومك ةهجاو لا لىل ةم ال ع عضو متي شيح اههيجوت ةداعا بجي و DHCPdiscover ةقوت و ه امك لمعي ال IP ناو نع نيي عت لازي ال، كذا عم و DHCP لو كوت ورب لىل فطتال

ةب اوبال نم يزك رملال ققحتال

اذا، ةبسانملا ةهجاو لا لالخال نم نألا دودجال ةقرو ةطساوب DHCP مزح هيجوت ةداعا عم 1. ةوطخال اهجال صا و DHCP ءاطخا فاشكتسا ءاءارجا ةعباتم كىل عف، IP ناو نع نيي عت لش ف رمتسا ةيسايقلا

<#root>

Centralized-Gateway#debug ip dhcp server packet

DHCP server packet debugging is on.

```
*Dec 12 20:39:36.029: DHCPD: tableid for 192.0.2.254 on Vlan250 is 0
*Dec 12 20:39:36.029: DHCPD: client's VPN is .
*Dec 12 20:39:36.029: DHCPD: No option 125
*Dec 12 20:39:36.029: DHCPD: Option 124: Vendor Class Information
*Dec 12 20:39:36.029: DHCPD: Enterprise ID: 9
*Dec 12 20:39:36.029: DHCPD: Vendor-class-data-len: 13
*Dec 12 20:39:36.029: DHCPD: Data: 43393330304C2D3234502D3447
*Dec 12 20:39:36.029: DHCPD: inconsistent relay information.
*Dec 12 20:39:36.029:
```

DHCPD: relay information option exists, but giaddr is zero

مزمحل طاقئال جئائات نو ةيزك رملال ةب اوبال نم ءاطخالا ححصت جارخا لىل اءانئسا 2. ةوطخال رفس لىل giaddr لىل ققحت نيي عت متي ام دنع مزحل له اجت نم زاهجال ع نم لىل فاضا نيوكت مزلي

IP ناو نع نيي عت متي نكلو لىل حرتال تامول عم راخي دوجو عم DHCP مزمح لىل قىل متي ام دنع طاقساوب، لىل حرتال لكشب، DHCP لىل حرت لىل موقى، رافصالا عىم لىل (giaddr) ةراب لىل ip dhcp لىل حرت تامول عم قوئوملا رملال نيوكت ب مق، كولسلال اذه ءالاع مل. مزمحل

مزمحل طاقئال لىل ققحت ب مق، مزمحل ملئسا لىل زاهجال نأى نم ققحت لىل 3. ةوطخال

<#root>

Configure an Access-list to filter the interested traffic.

```
Extended IP access list dhcp
```

```
10 permit udp any any eq 67
```

```
20 permit udp any eq 67 any
```

```
Configure the capture.  
Centralized-Gateway#
```

```
monitor capture tac interface gigabitethernet1/0/1 both access-list dhcp buffer size 10
```

```
Centralized-Gateway#
```

```
monitor capture cap start
```

```
Started capture point : cap
```

```
Centralized-Gateway#
```

```
monitor capture cap stop
```

Capture statistics collected at software:

```
Capture duration - 58 seconds
```

```
Packets received - 6
```

```
Packets dropped - 0  
Packets oversized - 0  
Bytes dropped in asic - 0
```

```
Centralized-Gateway#
```

```
show monitor capture cap buffer display-filter "eth.addr==10:b3:d6:8b:3b:e3" detailed
```

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 397 bytes on wire (3176 bits), 397 bytes captured (3176 bits) on interface /tmp/epc_ws/wif_to_

Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)

Interface name: /tmp/epc_ws/wif_to_ts_pipe

Encapsulation type: Ethernet (1)

Arrival Time: Dec 12, 2025 18:35:21.821468000 UTC

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1765564521.821468000 seconds

[Time delta from previous captured frame: 0.000000000 seconds]

[Time delta from previous displayed frame: 0.000000000 seconds]

[Time since reference or first frame: 0.000000000 seconds]

Frame Number: 1

Frame Length: 397 bytes (3176 bits)

Capture Length: 397 bytes (3176 bits)

[Frame is marked: False]

[Frame is ignored: False]

[Protocols in frame: eth:ethertype:vlan:ethertype:ip:udp:dhcp]

Ethernet II, Src: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3), Dst: 34:73:2d:b8:be:e3 (34:73:2d:b8:be:e3)

Destination: 34:73:2d:b8:be:e3 (34:73:2d:b8:be:e3)

Address: 34:73:2d:b8:be:e3 (34:73:2d:b8:be:e3)

.... ..0. = LG bit: Globally unique address (factory default)

.... ..0 = IG bit: Individual address (unicast)

Source: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

Address: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

.... ..0. = LG bit: Globally unique address (factory default)

.... ..0 = IG bit: Individual address (unicast)

Type: 802.1Q Virtual LAN (0x8100)

802.1Q Virtual LAN, PRI: 0, DEI: 0, ID: 250

000. = Priority: Best Effort (default) (0)

...0 = DEI: Ineligible

.... 0000 1111 1010 = ID: 250

Type: IPv4 (0x0800)

Internet Protocol Version 4, Src: 0.0.0.0, Dst: 255.255.255.255

0100 = Version: 4

.... 0101 = Header Length: 20 bytes (5)

Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)

0000 00.. = Differentiated Services Codepoint: Default (0)

.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)

Total Length: 379

Identification: 0x4b04 (19204)

Flags: 0x00

0... = Reserved bit: Not set

.0.. = Don't fragment: Not set

..0. = More fragments: Not set

Fragment Offset: 0

Time to Live: 255

Protocol: UDP (17)

Header Checksum: 0x6f6e [validation disabled]

[Header checksum status: Unverified]

Source Address: 0.0.0.0

Destination Address: 255.255.255.255

User Datagram Protocol, Src Port: 68, Dst Port: 67

Source Port: 68
Destination Port: 67
Length: 359
Checksum: 0x2ae5 [unverified]
[Checksum Status: Unverified]
[Stream index: 0]
[Timestamps]
[Time since first frame: 0.000000000 seconds]
[Time since previous frame: 0.000000000 seconds]
UDP payload (351 bytes)

Dynamic Host Configuration Protocol (Discover)

Message type: Boot Request (1)
Hardware type: Ethernet (0x01)
Hardware address length: 6
Hops: 0
Transaction ID: 0xe9986585
Seconds elapsed: 0
Bootp flags: 0x8000, Broadcast flag (Broadcast)
1... = Broadcast flag: Broadcast
.000 0000 0000 0000 = Reserved flags: 0x0000
Client IP address: 0.0.0.0
Your (client) IP address: 0.0.0.0
Next server IP address: 0.0.0.0
Relay agent IP address: 0.0.0.0

Client MAC address: 10:b3:d6:8b:3b:e3 (10:b3:d6:8b:3b:e3)

Client hardware address padding: 00000000000000000000
Server host name not given
Boot file name not given
Magic cookie: DHCP

Option: (53) DHCP Message Type (Discover)

Length: 1
DHCP: Discover (1)
Option: (57) Maximum DHCP Message Size
Length: 2
Maximum DHCP Message Size: 1200
Option: (61) Client identifier
Length: 27
Type: 0

ةطساوب حيحص لكشب DHCP ةمزمح مالتسا متي ،ةقبااسلا ةمزلال طاقتلال اقفو 4. ةوطخلال زاهجلال

2 ةلكشملا لحو

،ةمزلال طاقتلال جئاتنو ةيتركمرملا ةباوبلا نم ءاطخالل حيحصت جارخا اىل اءاننسا 1. ةوطخلال رفس اىل ع giaddr لقق نييعت متي امءن ع مزلال لهاجت نم زاهجلال ع نم ل فاضا نيوكت مزللي

IP ناووع نييعت متي نكلو ،ليحرتلال تامولعم رايخ ءووع م DHCP ةمزمح اىل متي امءن ع ةمزلال طاقس ابا ءءاع DHCP ليحرتل ليكو موقبي ،رافصألا عي م ع اىل ع (giaddr) ةرابعللل

ip dhcp تامولعم ليحرتل هب قوئوملا رمألا نيوكتب مق ،كولسلال اءه ءءلاعمل

<#root>

```
Centralized-Gateway(config)#
```

```
interface vlan 250
```

```
Centralized-Gateway(config-if)
```

```
#ip dhcp relay information trusted
```

1. فيضملا نم IP ناووع بلط نم ققحتلال في رمتسا 2. ةوطخلال

<#root>

```
Host1#
```

```
*Dec 12 21:32:12.659: %DHCP-6-ADDRESS_ASSIGN: Interface Vlan250 assigned DHCP address 192.0.2.1, mask 2
```

```
Leaf-2#
```

```
*Dec 12 21:36:03.232: DHCP_SNOOPING: received new DHCP packet from input interface (Tunnel0)  
<snip>
```

```
*Dec 12 21:36:03.243:
```

DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER

, input interface: Tu0, MAC da: 3473.2db8.bee3, MAC sa: 10b3.d68b.3be3, IP da: 255.255.255.255, IP sa:

*Dec 12 21:36:03.243: DHCP_SNOOPING: bridge packet send packet to port: FortyGigabitEthernet2/0/1

, pak_vlan 250.

*Dec 12 21:36:03.245: DHCP_SNOOPING: received new DHCP packet from input interface (FortyGigabitEthernet2/0/1)

<snip>

*Dec 12 21:36:03.255:

DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER

, input interface: Fo2/0/1, MAC da: ffff.ffff.ffff, MAC sa: 3473.2db8.bee3, IP da: 255.255.255.255, IP sa:

*Dec 12 21:36:03.255: DHCP_SNOOPING: binary dump of option 82, length: 26 data:

0x52 0x18 0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x1 0x1 0x0 0x0 0x2 0x8 0x0 0x6 0x4C 0x5D 0x3C 0xEB

*Dec 12 21:36:03.256: DHCP_SNOOPING: binary dump of extracted circuit id, length: 14 data:

0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x1 0x1 0x0 0x0

*Dec 12 21:36:03.256: DHCP_SNOOPING: binary dump of extracted remote id, length: 10 data:

0x2 0x8 0x0 0x6 0x4C 0x5D 0x3C 0xEB 0x43 0x40

*Dec 12 21:36:03.256: actual_fmt_cid OPT82_FMT_CID_VXLAN_MOD_PORT_INTF global_opt82_fmt_rid OPT82_FMT_RID

*Dec 12 21:36:03.256: dhcp_snooping_platform_is_local_dhcp_packet: VXLAN-MOD-PORT opt82 vni 10250, vlan 250

*Dec 12 21:36:03.256: DHCP_SNOOPING: opt82 data indicates not a local packet

*Dec 12 21:36:03.256: DHCP_SNOOPING: EVPN enabled Ex GW: fabric relay can't parse option 82 data of the packet

*Dec 12 21:36:03.256: DHCP_SNOOPING: client address lookup failed to locate client interface, retry lookup

*Dec 12 21:36:03.256: DHCP_SNOOPING: lookup packet destination port failed to get mat entry for mac: 10b3.d68b.3be3

*Dec 12 21:36:03.256:

DHCP_SNOOPING: L2RELAY: Ex GW unicast bridge packet to fabric: vlan id 250 from Fo2/0/1

<snip>

*Dec 12 21:36:03.401:

DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER

, input interface: Tu0, MAC da: 3473.2db8.bee3, MAC sa: 10b3.d68b.3be3, IP da: 255.255.255.255, IP sa:

*Dec 12 21:36:03.401: DHCP_SNOOPING: bridge packet send packet to port: FortyGigabitEthernet2/0/1

, pak_vlan 250.

*Dec 12 21:36:03.402: DHCP_SNOOPING: received new DHCP packet from input interface (FortyGigabitEthernet2/0/1)

<snip>

*Dec 12 21:36:03.413:

DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER

, input interface: Fo2/0/1, MAC da: ffff.ffff.ffff, MAC sa: 3473.2db8.bee3, IP da: 255.255.255.255, IP sa:

*Dec 12 21:36:03.413: DHCP_SNOOPING: binary dump of option 82, length: 26 data:

0x52 0x18 0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x1 0x1 0x0 0x0 0x2 0x8 0x0 0x6 0x4C 0x5D 0x3C 0xEB

*Dec 12 21:36:03.413: DHCP_SNOOPING: binary dump of extracted circuit id, length: 14 data:

0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x1 0x1 0x0 0x0

```
*Dec 12 21:36:03.413: DHCP_SNOOPING: binary dump of extracted remote id, length: 10 data:
                                0x2 0x8 0x0 0x6 0x4C 0x5D 0x3C 0xEB 0x43 0x40
*Dec 12 21:36:03.413: actual_fmt_cid OPT82_FMT_CID_VXLAN_MOD_PORT_INTF global_opt82_fmt_rid OPT82_FMT_R
*Dec 12 21:36:03.413: dhcp_snooping_platform_is_local_dhcp_packet: VXLAN-MOD-PORT opt82 vni 10250, vlan
                                *Dec 12 21:36:03.413: DHCP_SNOOPING: opt82 data indicates not a local packet
*Dec 12 21:36:03.413: DHCP_SNOOPING: EVPN enabled Ex GW:fabric relay can't parse option 82 data of the r
*Dec 12 21:36:03.413: DHCP_SNOOPING: client address lookup failed to locate client interface, retry loo
*Dec 12 21:36:03.413: DHCP_SNOOPING: lookup packet destination port failed to get mat entry for mac: 10
*Dec 12 21:36:03.413: DHCP_SNOOPING: can't find client's destination port, packet is assumed to be not
*Dec 12 21:36:03.413: DHCP_SNOOPING: client address lookup failed to locate client interface, retry loo
*Dec 12 21:36:03.413: DHCP_SNOOPING: lookup packet destination port failed to get mat entry for mac: 10
                                *Dec 12 21:36:03.413:
```

```
DHCP_SNOOPING: L2RELAY: Ex GW unicast bridge packet to fabric: vlan id 250 from Fo2/0/1
```

نم هسفن كولسلا ءحص نم ققحتلا حرتقوي وحي حص لكشب IP ناونع نييعت مت 3 ءوطخل
2. فيضمل روظنم

<#root>

```
Host2#
*Dec 12 21:13:03.926:
%DHCP-6-ADDRESS_ASSIGN: Interface Vlan250 assigned DHCP address 192.0.2.2, mask 255.255.255.0, hostname
```

```
Leaf-2#
*Dec 12 22:08:15.417: DHCP_SNOOPING: received new DHCP packet from input interface (FortyGigabitEthernet
                                <snip>
*Dec 12 22:08:15.428:
```

```
DHCP_SNOOPING: process new DHCP packet, message type: DHCPDISCOVER
```

```
, input interface: Fo2/0/2, MAC da: ffff.ffff.ffff, MAC sa: 10b3.d68b.1963, IP da: 255.255.255.255, IP
                                *Dec 12 22:08:15.428: DHCP_SNOOPING: add relay information option.
*Dec 12 22:08:15.428: DHCP_SNOOPING: Encoding opt82 CID in vlan-mod-port format
                                *Dec 12 22:08:15.428:
```

```
DHCP_SNOOPING:VxLAN : vlan_id 250 VNI 10250 mod 2 port 2
```

```
*Dec 12 22:08:15.428: DHCP_SNOOPING: Encoding opt82 RID in MAC address format
*Dec 12 22:08:15.428: DHCP_SNOOPING: binary dump of relay info option, length: 26 data:
0x52 0x18 0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x2 0x2 0x0 0x0 0x2 0x8 0x0 0x6 0x68 0x7D 0xB4 0xA8
                                *Dec 12 22:08:15.428: DHCP BRIDGE PAK: vlan=250 platform_flags=1
*Dec 12 22:08:15.428: DHCP_SNOOPING: bridge packet get invalid mat entry: FFFF.FFFF.FFFF, packet is flo
                                *Dec 12 22:08:15.428:
```

```
DHCP_SNOOPING: L2RELAY: cannot find default gw for bd 250: src intf FortyGigabitEthernet2/0/2
```

```
*Dec 12 22:08:15.430: DHCP_SNOOPING: received new DHCP packet from input interface (FortyGigabitEthernet
```

<snip>

*Dec 12 22:08:15.440:

DHCP_SNOOPING: process new DHCP packet, message type: DHCPPOFFER

, input interface: Fo2/0/1, MAC da: ffff.ffff.ffff, MAC sa: 3473.2db8.bee3, IP da: 255.255.255.255, IP

*Dec 12 22:08:15.440: DHCP_SNOOPING: binary dump of option 82, length: 26 data:
0x52 0x18 0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x2 0x2 0x0 0x0 0x2 0x8 0x0 0x6 0x68 0x7D 0xB4 0xA8

*Dec 12 22:08:15.440: DHCP_SNOOPING: binary dump of extracted circuit id, length: 14 data:
0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x2 0x2 0x0 0x0

*Dec 12 22:08:15.440: DHCP_SNOOPING: binary dump of extracted remote id, length: 10 data:
0x2 0x8 0x0 0x6 0x68 0x7D 0xB4 0xA8 0xAF 0x0

*Dec 12 22:08:15.440: actual_fmt_cid OPT82_FMT_CID_VXLAN_MOD_PORT_INTF global_opt82_fmt_rid OPT82_FMT_R

*Dec 12 22:08:15.440: dhcp_snooping_platform_is_local_dhcp_packet: VXLAN-MOD-PORT opt82 vni 10250, vlan

*Dec 12 22:08:15.440: DHCP_SNOOPING: opt82 data indicates local packet

*Dec 12 22:08:15.440: DHCP_SNOOPING: remove relay information option.

*Dec 12 22:08:15.440: DHCP_SNOOPING opt82_fmt_cid_intf OPT82_FMT_CID_VXLAN_MOD_PORT_INTF opt82_fmt_cid

*Dec 12 22:08:15.440: DHCP_SNOOPING: VxLAN vlan_id 250 VNI 10250 mod 2 port 2

*Dec 12 22:08:15.440:

DHCP_SNOOPING: mod 2 port 2 idb Fo2/0/2 found for 10b3.d68b.1963

*Dec 12 22:08:15.441: DHCP_SNOOPING: calling forward_dhcp_reply

*Dec 12 22:08:15.441: platform lookup dest vlan for input_if: FortyGigabitEthernet2/0/1, is NOT tunnel,

*Dec 12 22:08:15.441: DHCP_SNOOPING opt82_fmt_cid_intf OPT82_FMT_CID_VXLAN_MOD_PORT_INTF opt82_fmt_cid

*Dec 12 22:08:15.441: DHCP_SNOOPING: VxLAN vlan_id 250 VNI 10250 mod 2 port 2

*Dec 12 22:08:15.441: DHCP_SNOOPING: mod 2 port 2 idb Fo2/0/2 found for 10b3.d68b.1963

*Dec 12 22:08:15.441: DHCP_SNOOPING: vlan 250 after pvlan check

<snip>

*Dec 12 22:08:15.930:

DHCP_SNOOPING: process new DHCP packet, message type: DHCPREQUEST

, input interface: Fo2/0/2, MAC da: ffff.ffff.ffff, MAC sa: 10b3.d68b.1963, IP da: 255.255.255.255, IP

*Dec 12 22:08:15.930: DHCP_SNOOPING: add relay information option.

*Dec 12 22:08:15.930: DHCP_SNOOPING: Encoding opt82 CID in vlan-mod-port format

*Dec 12 22:08:15.930: DHCP_SNOOPING: VxLAN : vlan_id 250 VNI 10250 mod 2 port 2

*Dec 12 22:08:15.930: DHCP_SNOOPING: Encoding opt82 RID in MAC address format

*Dec 12 22:08:15.930: DHCP_SNOOPING: binary dump of relay info option, length: 26 data:
0x52 0x18 0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x2 0x2 0x0 0x0 0x2 0x8 0x0 0x6 0x68 0x7D 0xB4 0xA8

*Dec 12 22:08:15.930: DHCP_SNOOPING: DHCP BRIDGE PAK: vlan=250 platform_flags=1

*Dec 12 22:08:15.930: DHCP_SNOOPING: bridge packet get invalid mat entry: FFFF.FFFF.FFFF, packet is flo

*Dec 12 22:08:15.930:

DHCP_SNOOPING: L2RELAY: cannot find default gw for bd 250: src intf FortyGigabitEthernet2/0/2

*Dec 12 22:08:15.932: DHCP_SNOOPING: received new DHCP packet from input interface (FortyGigabitEthernet

<snip>

*Dec 12 22:08:15.940:

DHCP_SNOOPING: process new DHCP packet, message type: DHCPACK

, input interface: Fo2/0/1, MAC da: ffff.ffff.ffff, MAC sa: 3473.2db8.bee3, IP da: 255.255.255.255, IP

*Dec 12 22:08:15.943: DHCP_SNOOPING: binary dump of option 82, length: 26 data:
0x52 0x18 0x1 0xC 0x1 0xA 0x0 0x8 0x0 0x0 0x28 0xA 0x2 0x2 0x0 0x0 0x2 0x8 0x0 0x6 0x68 0x7D 0xB4 0xA8

ةمچرتل هذه ل و ح

ةلأل تاي نقتل ن م ة و مچ م ادخت ساب دن تسم ل ا ذه Cisco ت مچرت
م ل ا ل اء ان ا ع مچ ي ف ن ي م دخت س م ل ل م عد ي و ت ح م م ي دقت ل ة ي ر ش ب ل و
امك ة ق ي ق د ن و ك ت ن ل ة ي ل ا ة مچرت ل ض ف ا ن ا ة ظ ح ال م ي ج ر ي . ة ص ا خ ل ا م ه ت غ ل ب
Cisco ي ل خ ت . ف ر ت ح م مچرت م ا ه م د ق ي ي ت ل ا ة ي ف ا ر ت ح ال ا ة مچرت ل ا ع م ل ا ح ل ا و ه
ي ل ا م اء ا د ع و ج ر ل ا ب ي ص و ت و ت ا مچرت ل ا هذه ة ق د ن ع ا ه ت ي ل و ئ س م Cisco
Systems (ر ف و ت م ط ب ا ر ل ا) ي ل ص ا ل ا ي ز ي ل ج ن ا ل ا دن ت س م ل ا