

# تالوحم ىلع VRF EVPN VXlan ةمدخ نيوكت Catalyst 9000 Switches

## تايوتحمل

---

[ةمدقملا](#)

[ةيساسألا تابلطتملا](#)

[تابلطتملا](#)

[ةمدختسملا تانوكملا](#)

[نيوكتلا](#)

[ةكبشلا لىطىطختلا مسرلا](#)

[ماعلا راسملا بيرست](#)

[ةيفصتلا مادختساب راسملا بيرست](#)

[يضارتفالا راسملا عبتتو طقف يضارتفالا راسملا نالعا](#)

[قربكملا دودجلا عم طقف يضارتفالا راسملا نالعا](#)

[ةلص تاذ تامولعم](#)

---

## ةمدقملا

VXLAN ةكبشلا (Ethernet VPN) EVPN ةكبشلا راسملا بيرست نيوكت دنتسملا اذه فصى ةفلتخم تاهويرانىس ي (ةيرهاظلا ةعسوملا LAN ةكبش).

## ةيساسألا تابلطتملا

Unicast EVPN VxLAN، BGP، ةزيمب ةيارد ىلع نوكت نأ نسحتسملا نم.

## تابلطتملا

يساسأ عم لكاشم كانه تناك اذ. لعلاب نوحىحص NVE عارظنو، BGP نأ ليلدلا اذه ضررتفي (اذكو، لفسألل ريظن NVE، BGP، يداحلأا شبلا لاصتالا رابتخا لشف) راضح| EVPN VxLAN ةرورضلا بسح احوالصلو لوحملا/راسملا، EVPN، BGP عاخذ فاشكتسا ةلدا عجرم عاجر.

---

طوق IPv4 ل ةمدخلل VRF نيوكت ةلثمأ معد متي :ةظحال

## ةمدختسملا تانوكملا

ةيلاتلا ةيداملا تانوكملا وجماربل تارادصا ىل دننسملا اذه في ةدراولا تامولعمل دننست

- C9300
- C9400
- C9500
- C9600

ةصاخ ةيلمعم ةئيب في ةدوجوملا ةزهجال نم دننسملا اذه في ةدراولا تامولعمل عاشنإ مت تناك اذإ. (يضا رتفا) حوسمم نيوكتب دننسملا اذه في ةمدختسُملا ةزهجال عيمج تادب رمأ يال لمحتملا ريثأتلل كمهف نم دكأتف ، ليغشتلا ديق كتكبش

---

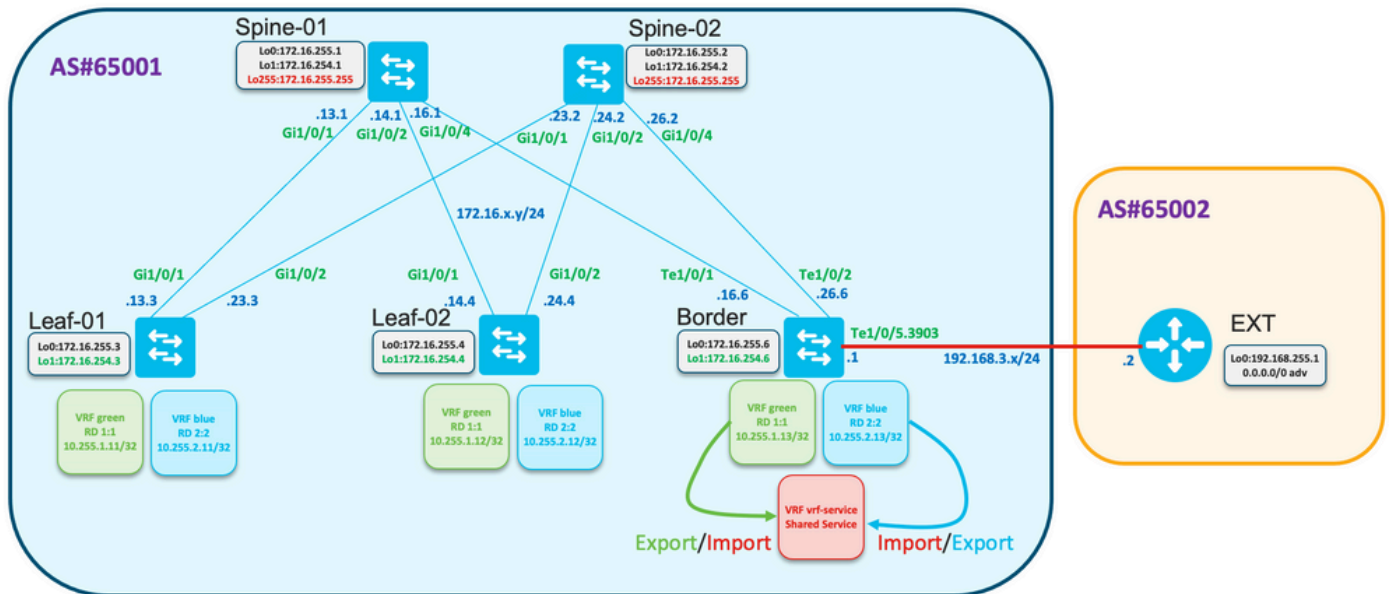
هذه نيكمتل اهمادختسا متي يتل رماوألل بسانملا نيوكتلا ليلد عجار: عظالم  
ىرخألا Cisco تاصنم ىلع تازيمل

## نيوكتلا

وأ "ةكرتشملا VRF" تامدخ عاشنإ ةلاح يف عساو لكش ب راسملا ليچست ةزيم مادختسا متي  
نيوكت اهيف متي يتل دقعلا دودحل قاروا نوكت، ةداعو. ةياملحلا رادجب ةيدودحل دقعلا لاصتا  
راسملا بيرست

- ال Cisco IOS® XE ىلع VRF ل EVPN/VXLAN تاكبش ني ب راسملا ليچست ذيفنت متي ال  
(ةطيسبلا ةيرهاظلا ةكبشلا) EVN ةزيم مادختسا متي. داتعملاك BGP ىوتسم ىلع  
لكلذ نم الدب

ةكبشلل يطيختلا مسرلا



## مراعلا راسملا بڤرست

ددرتلا ةمدخ" ىلا "قرزال"و "رضأل" نم راسملا لڤرست ةڤلمع نڤوكت متڤي، لاثملا اذڤ يڤ ةڤدودحلا ةدقلا ىل؁ ةططخملا "VRF" ڤرهاظلا ڤكلساللا

دودحلا ىل؁ "قرزال"و "رضأل" VRF ب صاخلا هڤجوتلا لودج نم ققحت

```
<#root>
```

```
Border#
```

```
show ip route vrf green
```

```
<...snip...>
```

```
10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
B    10.1.1.0/24 [200/0] via 172.16.254.3, 01:19:43, Vlan901
B    10.1.2.0/24 [200/0] via 172.16.254.3, 01:19:43, Vlan901
B    10.255.1.11/32 [200/0] via 172.16.254.3, 01:19:43, Vlan901
B    10.255.1.12/32 [200/0] via 172.16.254.4, 01:19:43, Vlan901
C    10.255.1.13/32 is directly connected, Loopback11
```

```
Border#
```

```
show ip route vrf blue
```

```
<...snip...>
```

```
10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
B    10.2.1.0/24 [200/0] via 172.16.254.3, 01:20:28, Vlan902
B    10.2.2.0/24 [200/0] via 172.16.254.3, 01:20:28, Vlan902
B    10.255.2.11/32 [200/0] via 172.16.254.3, 01:20:28, Vlan902
B    10.255.2.12/32 [200/0] via 172.16.254.4, 01:20:28, Vlan902
C    10.255.2.13/32 is directly connected, Loopback12
```

يُعدّ (VRF) كلاً من الدورات للمعالجة الخاصة بـ "عرض الخلل" من تاهج ومال عيمج داريت سال ةئيهت "VRF" كلاً من الدورات لمعالجة

<#root>

```
vrf definition vrf-service
 rd 3:3
 !
 address-family ipv4

 route-replicate from vrf green unicast all

 route-target export 3:3
 route-target import 3:3
 exit-address-family
```

"عرض الخلل" من تاراسم يلع يوتحي دودجلا يلع "VRF ةمدخ" هيجوت لودج نأ من ققحت (VRF) كلاً من الدورات لمعالجة

<#root>

Border#

```
show ip route vrf vrf-service
```

Routing Table: vrf-service

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
 D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
 N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
 E1 - OSPF external type 1, E2 - OSPF external type 2, m - OMP
 n - NAT, Ni - NAT inside, No - NAT outside, Nd - NAT DIA
 i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
 ia - IS-IS inter area, * - candidate default, U - per-user static route
 H - NHRP, G - NHRP registered, g - NHRP registration summary
 o - ODR, P - periodic downloaded static route, l - LISP
 a - application route
 + - replicated route, % - next hop override, p - overrides from Pfr
 & - replicated local route overrides by connected
```

Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks

```
B + 10.1.1.0/24 [200/0] via 172.16.254.3, 00:00:42, Vlan901
B + 10.1.1.11/32 [200/0] via 172.16.254.3, 00:00:28, Vlan901
B + 10.255.1.11/32 [200/0] via 172.16.254.3, 01:32:49, Vlan901
B + 10.255.1.12/32 [200/0] via 172.16.254.4, 01:32:49, Vlan901

C + 10.255.1.13/32 is directly connected, Loopback11
C 10.255.3.13/32 is directly connected, Loopback13
```

يُعدّ (VRF) كلاً من الدورات للمعالجة الخاصة بـ "عرض الخلل" من تاراسم يلع يوتحي دودجلا يلع "VRF ةمدخ" هيجوت لودج نأ من ققحت (VRF) كلاً من الدورات لمعالجة

## ةيفصتلا مادختساب راسملا برست

اذهل تاراسملا طئارخ مدختستو .ةيفصتلا مادختساب راسملا لثامتملا خسنلا ءارجا نكمي  
ضرغلا.

نم طقف 10.255.2.12 ةئدابللا خسن "VRF "VRF-service" لىا "blue".

```
ip prefix-list PL-BLUE-2-VRF-SERVICE permit 10.255.2.12/32
!
route-map RM-BLUE-2-VRF-SERVICE permit 10
  match ip address prefix-list PL-BLUE-2-VRF-SERVICE
```

## ةيفصتلا لماع مادختساب لثامتملا خسنلا نيوكت

<#root>

```
vrf definition vrf-service
  rd 3:3
  !
  address-family ipv4

    route-replicate from vrf green unicast all

    route-replicate from vrf blue unicast all route-map RM-BLUE-2-VRF-SERVICE

    route-target export 3:3
    route-target import 3:3
  exit-address-family
```

"قرزا" يف أشنت يئلا 10.255.2.12/32 ةئدابللا لىع يوتحي "VRF ةمدخ" هي جوت لودج نأ ظحال  
VRF ددرتل:

<#root>

Border#

```
show ip route vrf VRF-SERVICE
```

<...snip...>

```
10.0.0.0/8 is variably subnetted, 7 subnets, 2 masks
B + 10.1.1.0/24 [200/0] via 172.16.254.3, 00:09:38, Vlan901
B + 10.1.1.11/32 [200/0] via 172.16.254.3, 00:09:24, Vlan901
B + 10.255.1.11/32 [200/0] via 172.16.254.3, 01:41:45, Vlan901
B + 10.255.1.12/32 [200/0] via 172.16.254.4, 01:41:45, Vlan901
C + 10.255.1.13/32 is directly connected, Loopback11
B + 10.255.2.12/32 [200/0] via 172.16.254.4, 01:41:45, Vlan902 <--
```

## يضايرتفالا راسملا عبتو طقف يضايرتفالا راسملا نالعا

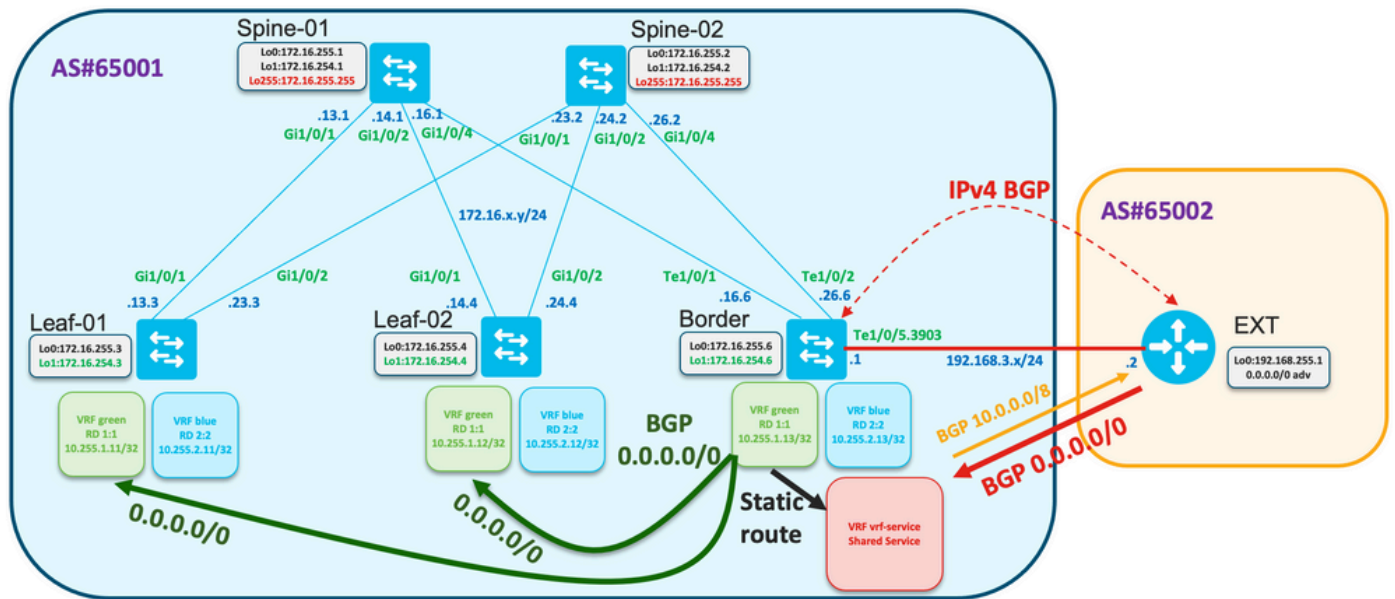
دودحل ربع ةيجراخ ةكبش تاذ قارواب ةلصتملا ةفيضملا ةزهجالا نيب لاصتالا انا متيو

- لىا ةفاضللاب يضايرتفالا راسملا واطقف يضايرتفالا راسملا دودحلا ىقلتت ، ةداع صخلملا تاراسم
- نم يضايرتفالا راسملا نع طقف نالعالا نكمملا نم ، Leafs لىع هيجوتلا لودج نيسحتل دودحل

"ةكرتشملا ةمدخال" VRF "vrf-service"/" يضايرتفالا راسملا مالتسا متي

- ةداع نكمي ال نكلو (VRF) وي دارلا ددرتل "رضأ" عضو يفا راسملا اذ ه راركت نكمي و ل BGP يضايرتفالا راسملا نالعا نيوكتل بولطم وه .خوسنملا راسملا نع نالعالا VRF "green".
- نالعالا دنع دوسالا بقثلا ةلاح بنجتل راسملا نئاك عم تباثلا راسملا نيوكتل نكمي نالعالا "VRF ةمدخ" يضايرتفالا راسملا نكلو ، "رضأ" VRF يضايرتفالا راسملا نع دوجوم ريغ

## طاطخملا ةعجارم



ةي دودحلا ةدق لىل يضايرتفالا راسملا مالتسا نم ققحت:

```
<#root>
```

```
Border#
```

```
show ip route vrf vrf-service 0.0.0.0
```

```
Routing Table: red
```

```
Routing entry for 0.0.0.0/0, supernet
```

```
Known via "bgp 65001", distance 20, metric 0, candidate default path
Tag 65002, type external
Last update from 192.168.3.2 00:13:32 ago
Routing Descriptor Blocks:
* 192.168.3.2, from 192.168.3.2, 00:13:32 ago
  opaque_ptr 0x7FA2A139FE50
  Route metric is 0, traffic share count is 1
  AS Hops 1
  Route tag 65002
  MPLS label: none
```

<#root>

Border#

```
show ip cef vrf vrf-service 0.0.0.0/0
```

```
0.0.0.0/0
  nexthop 192.168.3.2 TenGigabitEthernet1/0/5.3903
```

في VRF "مدخ" في ضارته الال راسم لل لوصول اة ناكم ا نم 1 راسم لل ققحتي

```
track 1 ip route 0.0.0.0 0.0.0.0 reachability
ip vrf vrf-service
```

وه راسم لل نئاكو (VRF) دروملا ةئف فرعمل "VRF مدخ" في ضارته الال راسم لل دوجو نم ققحت "ىلأ".

<#root>

Border#

```
show track 1
```

```
Track 1
  IP route 0.0.0.0 0.0.0.0 reachability

  Reachability is Up (BGP)

  2 changes, last change 00:23:12
  VPN Routing/Forwarding table "vrf-service"
  First-hop interface is TenGigabitEthernet1/0/5.3903
  Tracked by:
    Static IP Routing 0
```

رايخ رمم عم "رضأ" VRF ال في رمم ري صقت ال تللكش



```
!  
ip route vrf green 0.0.0.0 0.0.0.0 TenGigabitEthernet1/0/5.3903 192.168.3.2 track 1  
!
```

<#root>

Border#

```
show ip route vrf green 0.0.0.0
```

```
Routing Table: green  
Routing entry for 0.0.0.0/0, supernet  
  Known via "static", distance 1, metric 0, candidate default path  
  Redistributing via bgp 65001  
  Advertised by bgp 65001  
  Routing Descriptor Blocks:  
    * 192.168.3.2, via TenGigabitEthernet1/0/5.3903  
      Route metric is 0, traffic share count is 1
```

ربيع هجويرتو 5 route-type لثم L2VPN EVPN AF لى لى ضارت فال راسم لال نالعل نى وكت متي VRF "green" ل BGP

<#root>

```
router bgp 65001  
!  
<...snip...>  
!  
  address-family ipv4 vrf green  
    advertise l2vpn evpn  
    redistribute static  
    redistribute connected  
  
  default-information originate  
  
  exit-address-family  
!  
<...snip...>
```

ربيع هجويرتو 5 route-type لثم L2VPN EVPN AF لى لى ضارت فال راسم لال نالعل نى وكت متي لى لى

<#root>

Border#

```
show bgp l2vpn evpn rd 1:1 route-type 5 0 0.0.0.0 0
```

```
BGP routing table entry for [5][1:1][0][0][0.0.0.0]/17, version 622  
Paths: (1 available, best #1, table EVPN-BGP-Table)  
  Advertised to update-groups:  
    2  
  Refresh Epoch 1
```

```
Local, imported path from base
192.168.3.2 (via vrf red) from 0.0.0.0 (172.16.255.6)
Origin incomplete, metric 0, localpref 100, weight 32768, valid, external, best
EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, local vtep: 172.16.254.6, VNI Label 50901
Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD67.EF48
rx pathid: 0, tx pathid: 0x0
Updated on Jul 8 2022 10:41:40 UTC
```

Leaf-01 ىلع (CEF) عيرسلا هيچوتلا ةداعإ تامولعم ، هيچوتلا ، EVPN نم ققحت

<#root>

Leaf-01#

```
show bgp l2vpn evpn rd 1:1 route-type 5 0 0.0.0.0 0
```

BGP routing table entry for [5][1:1][0][0][0.0.0.0]/17, version 595

Paths: (2 available, best #2, table EVPN-BGP-Table)

Not advertised to any peer

Refresh Epoch 7

Local

172.16.254.6 (metric 3) (via default) from 172.16.255.2 (172.16.255.2)

Origin incomplete, metric 0, localpref 100, valid, internal

EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0

Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD67.EF48

Originator: 172.16.255.6, Cluster list: 172.16.255.2

rx pathid: 0, tx pathid: 0

Updated on Jul 8 2022 10:41:40 UTC

Refresh Epoch 7

Local

172.16.254.6 (metric 3) (via default) from 172.16.255.1 (172.16.255.1)

Origin incomplete, metric 0, localpref 100, valid, internal, best

EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0

Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD67.EF48

Originator: 172.16.255.6, Cluster list: 172.16.255.1

rx pathid: 0, tx pathid: 0x0

Updated on Jul 8 2022 10:41:40 UTC

Leaf-01#

```
show ip route vrf green 0.0.0.0
```

Routing Table: green

Routing entry for 0.0.0.0/0, supernet

Known via "bgp 65001", distance 200, metric 0, candidate default path, type internal

Last update from 172.16.254.6 on Vlan901, 02:07:17 ago

Routing Descriptor Blocks:

\* 172.16.254.6 (default), from 172.16.255.1, 02:07:17 ago, via Vlan901

opaque\_ptr 0x7FC3606F4D80

Route metric is 0, traffic share count is 1

AS Hops 0

MPLS label: none

Leaf-01#

```
show ip cef vrf green 0.0.0.0/0
```

0.0.0.0/0

nexthop 172.16.254.6 Vlan901

صخلم راسم لثم BGP نم ةيجراخلا ةكبشلا لىل ةينبلا نم يسكعلا راسملا عاشنإ مت

```
<#root>
!
ip route vrf vrf-service 10.0.0.0 255.0.0.0 Null0
!
router bgp 65001
<...snip...>
!
address-family ipv4 vrf vrf-service
  advertise l2vpn evpn

  aggregate-address 10.0.0.0 255.0.0.0 summary-only

  redistribute static
  redistribute connected
  neighbor 192.168.3.2 remote-as 65002
  neighbor 192.168.3.2 activate
exit-address-family
!
<...snip...>
```

ديعبلا IP ناونعو VRF ب صاخلا "رضخألا" يف Leaf-01 لىل ةوجوملا هيجوتلا لودج نم ققحت  
192.168.255.1

```
<#root>
Leaf-01#
show ip route vrf green 192.168.255.1
```

```
Routing Table: green
% Network not in table
```

```
Leaf-01#
show ip route vrf green 0.0.0.0
```

```
Routing Table: green
Routing entry for 0.0.0.0/0, supernet
  Known via "bgp 65001", distance 200, metric 0, candidate default path, type internal
  Last update from 172.16.254.6 on Vlan901, 05:15:19 ago
  Routing Descriptor Blocks:
  * 172.16.254.6 (default), from 172.16.255.1, 05:15:19 ago, via Vlan901
    opaque_ptr 0x7FC3606F4D80
    Route metric is 0, traffic share count is 1
    AS Hops 0
    MPLS label: none
```

```
Leaf-01#
```

```
show ip cef vrf green 0.0.0.0/0
```

```
0.0.0.0/0
```

```
  nexthop 172.16.254.6 Vlan901
```

```
Leaf-01#
```

```
ping vrf green 192.168.3.2 source 10.255.1.11
```

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

```
Sending 5, 100-byte ICMP Echos to 192.168.3.2, timeout is 2 seconds:
```

```
Packet sent with a source address of 10.255.1.11
```

```
!!!!
```

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

لازيو، راسم لائك لزنيف، "VRF مدمخ" يف دودحل اليلع يضارتفالال راسم لادق فمت اذا  
يف هنع نلعملال يضارتفالال راسم لالازيو، RIB نم VRF يف "رضأل" يف تبالال راسم لال  
BGP

```
<#root>
```

```
### Border ###
```

```
Border#
```

```
show ip route vrf vrf-service 0.0.0.0
```

```
Routing Table: vrf-service
```

```
% Network not in table
```

```
Border#
```

```
show track 1
```

```
Track 1
```

```
IP route 0.0.0.0 0.0.0.0 reachability
```

```
Reachability is Down (no ip route) <-- Track object is down
```

```
 3 changes, last change 00:03:15
```

```
VPN Routing/Forwarding table "vrf-service"
```

```
First-hop interface is unknown
```

```
Tracked by:
```

```
  Static IP Routing 0
```

```
Border#
```

```
show ip route vrf green 0.0.0.0
```

```
Routing Table: green
```

```
% Network not in table
```

```
Border#
```

```
show bgp l2vpn evpn rd 1:1 route-type 5 0 0.0.0.0 0
```

% Network not in table

### Leaf ###

Leaf-01#

show ip route vrf green 0.0.0.0

Routing Table: green

% Network not in table

مَدْخَلٌ إِلَى (VRF) دَرُومِ الْوَيْفِ فَرَعِمْ لَ "رَضْخَالِ طَخَلِ" نَمِ يَضَارْتِ فَالِ رَاسِمْ لَ الْوَيْفِ فَصَتْ بَجِي  
" (VRF) دَرُومِ الْوَيْفِ فَرَعِمْ

<#root>

vrf definition vrf-service

rd 3:3

!

address-family ipv4

route-replicate from vrf green unicast all route-map RM-GREEN-2-VRF-SERVICE

route-target export 3:3

route-target import 3:3

exit-address-family

ip prefix-list PL-DEFAULT seq 5 permit 0.0.0.0/0

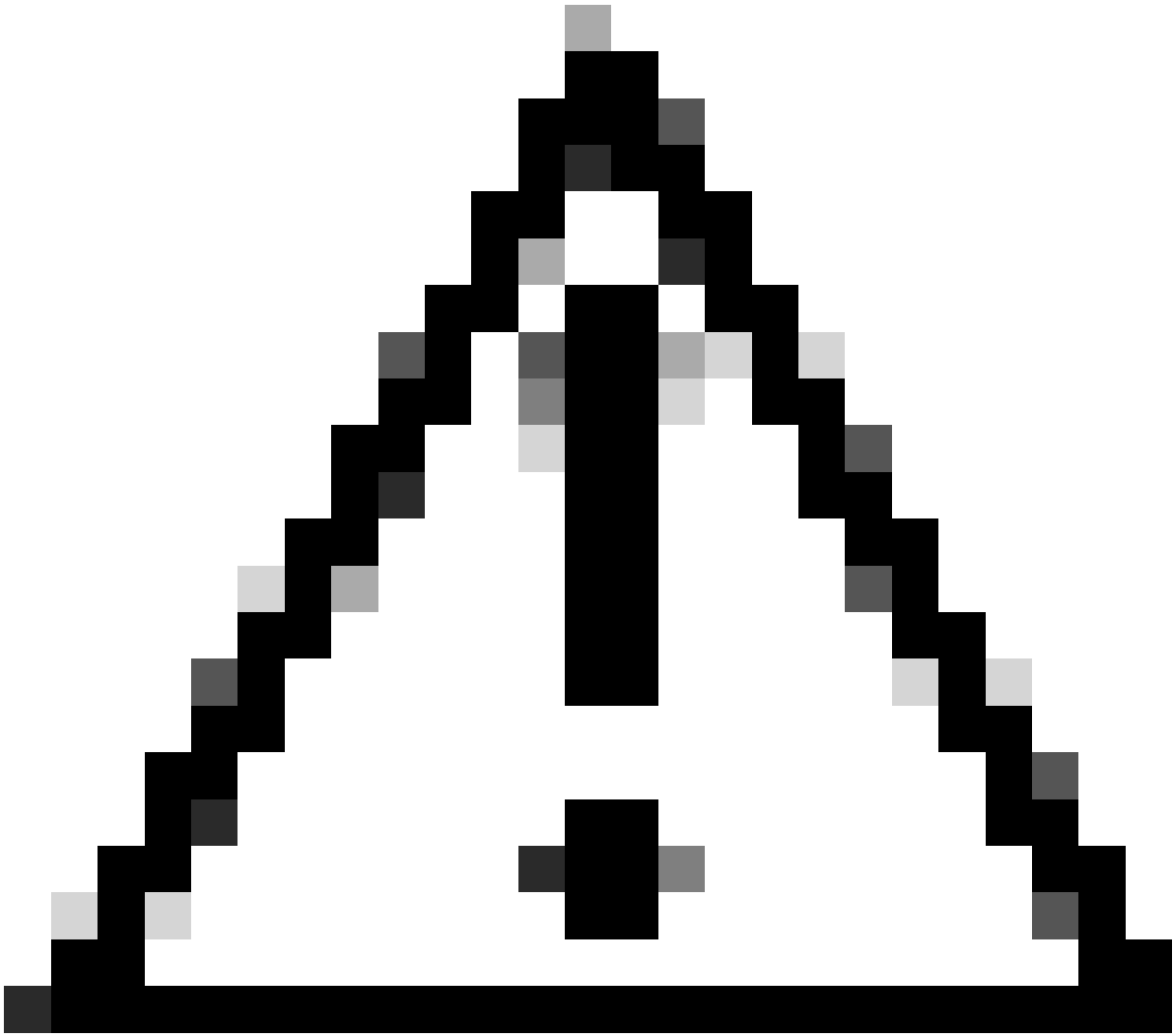
!

route-map RM-GREEN-2-VRF-SERVICE deny 10

match ip address prefix-list PL-DEFAULT

!

route-map RM-GREEN-2-VRF-SERVICE permit 20

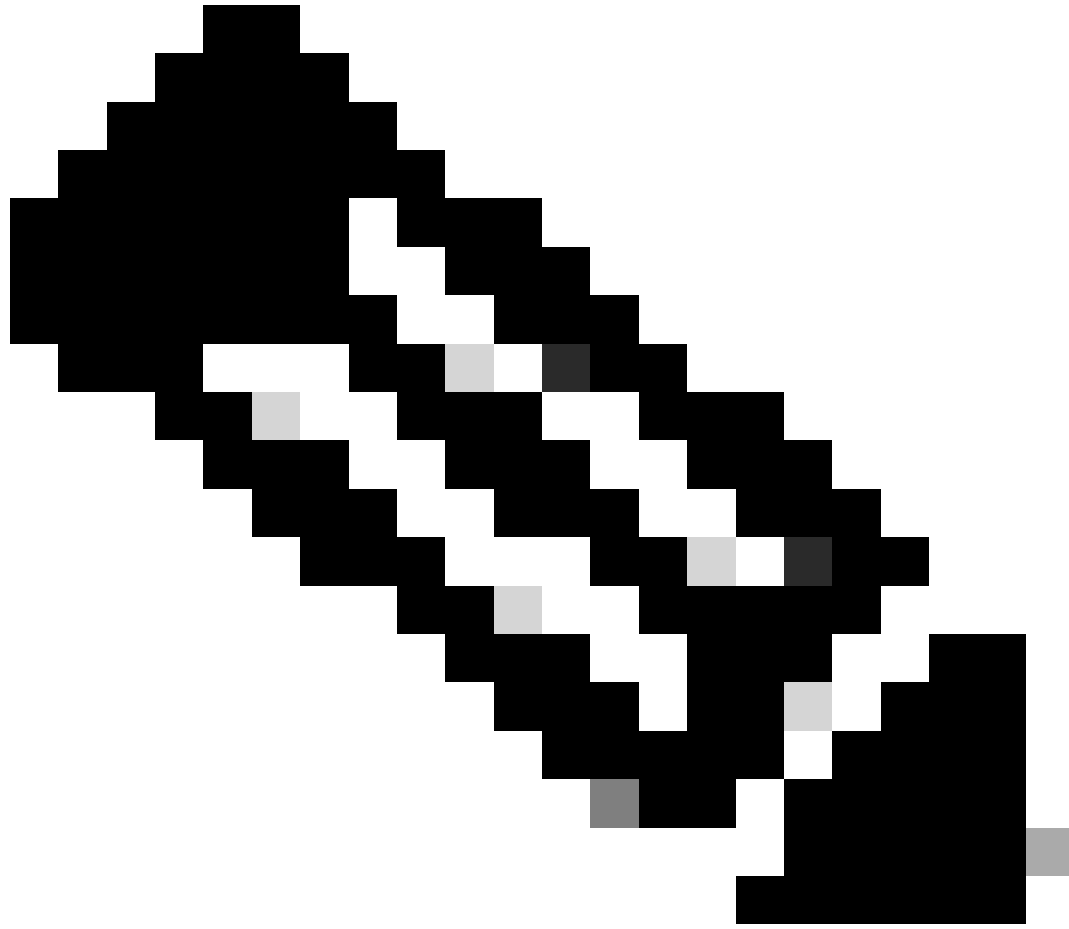


م تي، لفسأ إلى راسم ل نئك و يضارت فال راسم ل دق ف ن ي ب ريخأت ل ب بس ب : ريذحت  
نئك لى ل ع ظاف ل او "VRF ةم د خ" لى "VRF "green" ن م ت با ث ل ل ي ضارت فال راسم ل خ س ن  
رورم ة ك ر ح ل ي ضارت فال راسم ل ن ع ن ال ع ل م تي، ك ل ذ ل ة ج ي ت ن و . لى ل ع أ ل راسم ل  
رورم ل ة ك ر ح ت ي ت ش ت و "ة ي ن ب ل ا".

---

ة رر ك م ل ا دود ح ل ا ع م ط ق ف ي ضارت فال راسم ل ن ال ع ل

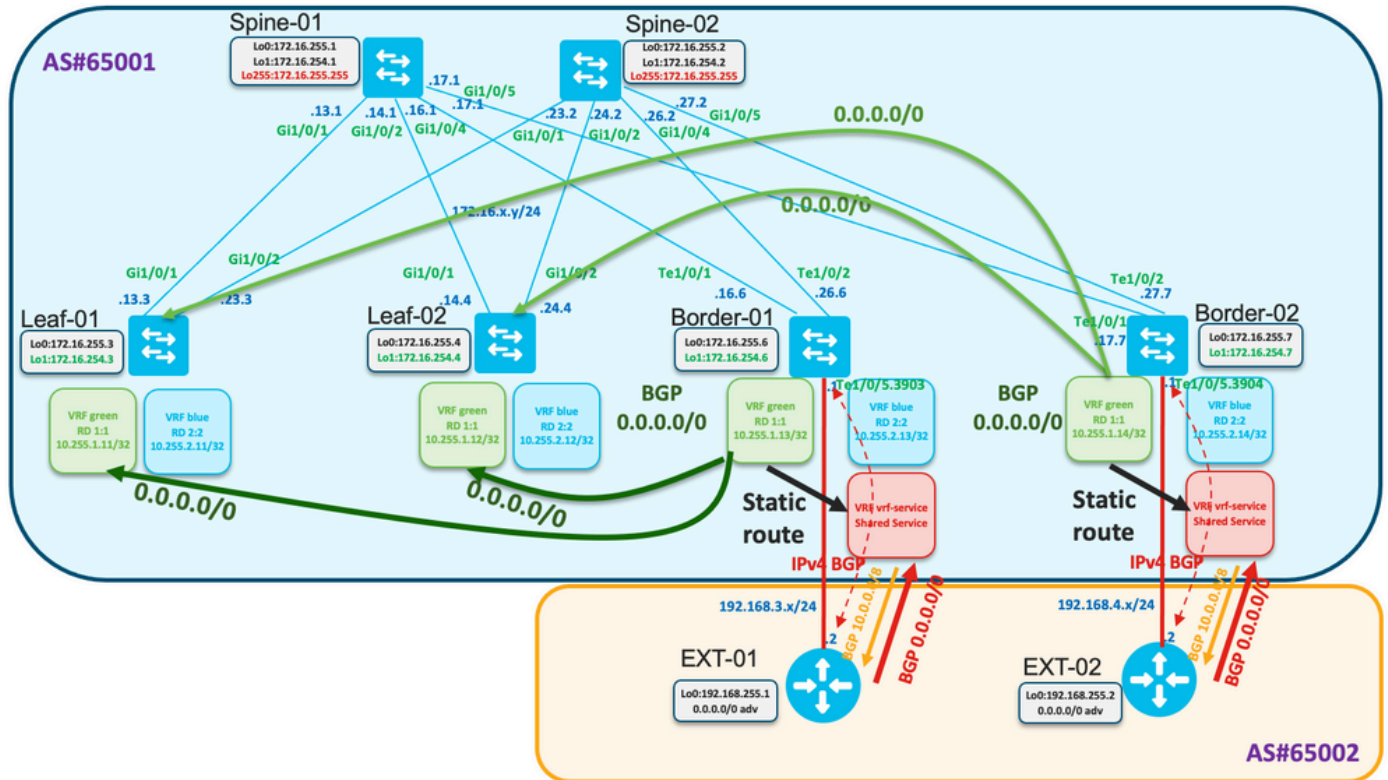
ة رر ك م ل ا دود ح ل ا م اد خ ت س ا ه ي ف م تي ي ت ل ا ة ل ا ح ل لى ل ع ال ا ث م م س ق ل ا ا ذ ه م د ق ي



RD مَادخْتَسَا وَه رَخَا رَايَخ. يَفَاضِلَا BGP رَاسَم عَزِيْم اِنْمَدْخْتَسَا، لَاثْمَلَا اذَه يَف: عَظْحَالَم  
نِي رَاسَمَلَا اَلْكَ نَع نَالْعِلَل اَهْمَادْخْتَسَا نَكْمِي Border-02 وَ 01-دودْحَلَا يَلْع فِلْتَخْم  
تَارُوشْ نَمَلَا يَلَا دودْحَلَا اَلْكَ نَم نِي ضَارْتَفَالَا

---

طَطْخَمَلَا عَجَارَم



يلاولتلا يلع EXT-01 و EXT-02 نم يضارتفالا راسملا Border-01 و Border-02 نم لك يقلت ي  
 01-ردنوا نم

<#root>

Border-01#

```
show ip route vrf vrf-service 0.0.0.0
```

```
Routing Table: vrf-service
Routing entry for 0.0.0.0/0, supernet
  Known via "bgp 65001", distance 20, metric 0, candidate default path
  Tag 65002, type external
  Last update from 192.168.3.2 00:00:06 ago
Routing Descriptor Blocks:
  * 192.168.3.2, from 192.168.3.2, 00:00:06 ago
    opaque_ptr 0x7F68E5AC02A0
    Route metric is 0, traffic share count is 1
    AS Hops 1
    Route tag 65002
    MPLS label: none
```

Border-01#

```
show ip cef vrf vrf-service 0.0.0.0/0
```

```
0.0.0.0/0
  nexthop 192.168.3.2 TenGigabitEthernet1/0/5.3903
```



## 02-ردن وأ ن م

<#root>

Border-02#

```
show ip route vrf vrf-service 0.0.0.0
```

Routing Table: vrf-service

Routing entry for 0.0.0.0/0, supernet

Known via "bgp 65001", distance 20, metric 0, candidate default path

Tag 65002, type external

Last update from 192.168.4.2 01:22:08 ago

Routing Descriptor Blocks:

\* 192.168.4.2, from 192.168.4.2, 01:22:08 ago

opaque\_ptr 0x7FE529FF3D48

Route metric is 0, traffic share count is 1

AS Hops 1

Route tag 65002

MPLS label: none

Border-02#

```
show ip cef vrf vrf-service 0.0.0.0/0
```

0.0.0.0/0

nexthop 192.168.4.2 TenGigabitEthernet1/0/5.3904

يكي تاتاسا نكاس - قباس لاثم في لثم ليكشت دح جودزم في تلمعتسا جهنلا سفن  
بقتت عم رمم ريصقت.

نالك لال Border-01/02 رمم، رير قيرط، VRF "green"، BGP config  
ريصقت لال يكي تاتاسا نكاس قيرط.

<#root>

```
track 1 ip route 0.0.0.0 0.0.0.0 reachability
```

```
ip vrf vrf-service
```

```
!
```

```
ip route vrf green 0.0.0.0 0.0.0.0 TenGigabitEthernet1/0/5.3903 192.168.3.2 track 1
```

```
!
```

```
router bgp 65001
```

```
!
```

```
<...snip...>
```

```
!
```

```
address-family ipv4 vrf green
```

```
advertise l2vpn evpn
```

```
redistribute static
```

```
redistribute connected
```

```
default-information originate
```

```
exit-address-family
```

```
!
```

```
<...snip...>
```

نيدحل الالك نم ةيضارتفال تاهجوملا يقلت نم ةيسئيرلا تازيملا ىلع ققحتل

<#root>

Spine-01#

show bgp l2vpn evpn

```
BGP table version is 25, local router ID is 172.16.255.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
               t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 1:1					
* ia [5][1:1][0][0][0.0.0.0]/17					
	172.16.254.7	0	100	0	?
*>i	172.16.254.6	0	100	0	?
* i	172.16.254.6	0	100	0	?

<...snip...>

Spine-02#

show bgp l2vpn evpn

```
BGP table version is 75, local router ID is 172.16.255.2
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
               t secondary path, L long-lived-stale,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 1:1					
* i [5][1:1][0][0][0.0.0.0]/17					
	172.16.254.6	0	100	0	?
* ia	172.16.254.7	0	100	0	?
*>i	172.16.254.6	0	100	0	?

<...snip...>

BGP يفاضإلا راسملل ةيضارتفال تاراسملا الك رشنل ةيساسأل تازيملا ىلع نيوكتل

<#root>

router bgp 65001

!

<...snip...>

```

!
address-family l2vpn evpn

bgp additional-paths select all best 2
bgp additional-paths send receive

<...snip...>

neighbor 172.16.255.3 advertise additional-paths best 2

<...snip...>

neighbor 172.16.255.4 advertise additional-paths best 2

!
<...snip...>

```

كلذ نم الدب موقيو طقف لصفألا يضارتفالا رشنلا ريغت تب موقيو نيوكتلا اذه نأ طحال  
نيهجوملا الك نع نالعالاب

```
<#root>
```

```
Spine-01#
```

```
show bgp l2vpn evpn neighbors 172.16.255.3 advertised-routes
```

```
BGP table version is 25, local router ID is 172.16.255.1
Status codes: s suppressed, d damped, h history, * valid,
```

```
> best
```

```
, i - internal,
      r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
      x best-external,
```

```
a additional-path
```

```
, c RIB-compressed,
      t secondary path, L long-lived-stale,
```

```
Origin codes: i - IGP, e - EGP, ? - incomplete
```

```
RPKI validation codes: V valid, I invalid, N Not found
```

```

Network          Next Hop          Metric LocPrf Weight Path
Route Distinguisher: 1:1

```

```
*>i [5][1:1][0][0][0.0.0.0]/17
                172.16.254.6          0    100    0 ?
```

```
<-- best path
```

```
* ia [5][1:1][0][0][0.0.0.0]/17
                172.16.254.7          0    100    0 ?
```

```
<-- additional path (note the a flag indicating this)
```

```
<...snip...>
```

## قيضارتفالا BGP تاراسم 4 ىرن اننأ ةقورولا ىلع طحال

<#root>

Leaf-01#

sh bgp 12vpn evpn

BGP table version is 63, local router ID is 172.16.255.3

Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  
x best-external, a additional-path, c RIB-compressed,  
t secondary path, L long-lived-stale,

Origin codes: i - IGP, e - EGP, ? - incomplete

RPKI validation codes: V valid, I invalid, N Not found

Network	Next Hop	Metric	LocPrf	Weight	Path
---------	----------	--------	--------	--------	------

Route Distinguisher: 1:1 (default for vrf green)

* i	[5][1:1][0][0][0.0.0.0]/17				
	172.16.254.7	0	100	0	?
* ia	172.16.254.7	0	100	0	?
*>i	172.16.254.6	0	100	0	?
* i	172.16.254.6	0	100	0	?

<...snip...>

Leaf-01#

sh bgp 12vpn evpn route-type 5 0 0.0.0.0 0

BGP routing table entry for [5][1:1][0][0][0.0.0.0]/17, version 64

Paths: (4 available, best #3, table EVPN-BGP-Table)

Not advertised to any peer

Refresh Epoch 4

Local

172.16.254.7 (metric 3) (via default) from 172.16.255.2 (172.16.255.2)

Origin incomplete, metric 0, localpref 100, valid, internal

EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0

Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD68.E548

Originator: 172.16.255.7, Cluster list: 172.16.255.2

rx pathid: 0x1, tx pathid: 0

Updated on Aug 24 2022 16:52:56 UTC

Refresh Epoch 1

Local

172.16.254.7 (metric 3) (via default) from 172.16.255.1 (172.16.255.1)

Origin incomplete, metric 0, localpref 100, valid, internal

EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0

Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD68.E548

Originator: 172.16.255.7, Cluster list: 172.16.255.1

rx pathid: 0x1, tx pathid: 0

Updated on Aug 24 2022 16:49:48 UTC

Refresh Epoch 1

Local

172.16.254.6 (metric 3) (via default) from 172.16.255.1 (172.16.255.1)

Origin incomplete, metric 0, localpref 100, valid, internal, best

EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0

Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD67.EF48

Originator: 172.16.255.6, Cluster list: 172.16.255.1

rx pathid: 0x0, tx pathid: 0x0

Updated on Aug 24 2022 16:49:48 UTC

Refresh Epoch 4

Local

172.16.254.6 (metric 3) (via default) from 172.16.255.2 (172.16.255.2)

Origin incomplete, metric 0, localpref 100, valid, internal

EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0

Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD67.EF48

Originator: 172.16.255.6, Cluster list: 172.16.255.2

rx pathid: 0x0, tx pathid: 0

Updated on Aug 24 2022 16:52:56 UTC

انه قورولا يلغ نيوكتال ضرع متي

<#root>

```
router bgp 65001
```

```
!
```

```
<...snip...>
```

```
!
```

```
address-family l2vpn evpn
```

```
bgp additional-paths receive
```

```
<...snip...>
```

```
!
```

```
address-family ipv4 vrf green
```

```
import path selection all
```

```
maximum-paths ibgp 2
```

```
<...snip...>
```

دودحل الك لى لى نيراسم هي ف ى رن يذال Leaf Routing Table لودحل نم ققحت

<#root>

```
Leaf-01#
```

```
show ip route vrf green
```

```
Routing Table: green
```

```
<...snip...>
```

```
Gateway of last resort is 172.16.254.7 to network 0.0.0.0
```

```
B* 0.0.0.0/0 [200/0] via 172.16.254.7, 00:02:15, Vlan901
```

```
[200/0] via 172.16.254.6, 00:02:15, Vlan901
```

```
<...snip...>
```

```
Leaf-01#
```

```
show ip cef vrf green 0.0.0.0/0
```

```
0.0.0.0/0
```

```
nexthop 172.16.254.6 Vlan901
```

```
nexthop 172.16.254.7 Vlan901
```

border-01. نم يضارت فالالاسم لادق ةلح ايف ثدحي ام طحال

<#root>

Border-01#

```
show ip route vrf vrf-service 0.0.0.0
```

```
Routing Table: vrf-service
% Network not in table
```

لفسألل بهذي راسملا

<#root>

Border-01#

```
show track 1
```

Track 1

```
IP route 0.0.0.0 0.0.0.0 reachability
```

```
Reachability is Down (no ip route)
```

```
5 changes, last change 00:00:56
```

```
VPN Routing/Forwarding table "vrf-service"
```

```
First-hop interface is unknown
```

```
Tracked by:
```

```
Static IP Routing 0
```

02-ردروب نم طقف قيرطال ىرن يرقفال دوماعال ىلع

<#root>

Spine-01#

```
show bgp l2vpn evpn
```

```
BGP table version is 27, local router ID is 172.16.255.1
```

```
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
               t secondary path, L long-lived-stale,
```

```
Origin codes: i - IGP, e - EGP, ? - incomplete
```

```
RPKI validation codes: V valid, I invalid, N Not found
```

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 1:1					
* i [5][1:1][0][0][0.0.0.0]/17					
	172.16.254.7	0	100	0	?
*>i	172.16.254.7	0	100	0	?

<...snip...>

## 02-ردروب نم طقف قي رطلال ىرن ةقرولا ىلع

<#root>

Leaf-01#

show bgp l2vpn evpn

BGP table version is 68, local router ID is 172.16.255.3  
Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal,  
r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,  
x best-external, a additional-path, c RIB-compressed,  
t secondary path, L long-lived-stale,  
Origin codes: i - IGP, e - EGP, ? - incomplete  
RPKI validation codes: V valid, I invalid, N Not found

Network	Next Hop	Metric	LocPrf	Weight	Path
Route Distinguisher: 1:1 (default for vrf green)					
*>i [5][1:1][0][0][0.0.0.0]/17					
	172.16.254.7	0	100	0	?
* i	172.16.254.7	0	100	0	?

<...snip...>

Leaf-01#

sh bgp l2vpn evpn route-type 5 0 0.0.0.0 0

BGP routing table entry for [5][1:1][0][0][0.0.0.0]/17, version 68  
Paths: (2 available, best #1, table EVPN-BGP-Table)  
Not advertised to any peer  
Refresh Epoch 1  
Local  
172.16.254.7 (metric 3) (via default) from 172.16.255.1 (172.16.255.1)  
Origin incomplete, metric 0, localpref 100, valid, internal, best  
EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0  
Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD68.E548  
Originator: 172.16.255.7, Cluster list: 172.16.255.1  
rx pathid: 0x0, tx pathid: 0x0  
Updated on Aug 24 2022 17:17:31 UTC  
Refresh Epoch 4  
Local  
172.16.254.7 (metric 3) (via default) from 172.16.255.2 (172.16.255.2)  
Origin incomplete, metric 0, localpref 100, valid, internal  
EVPN ESI: 00000000000000000000, Gateway Address: 0.0.0.0, VNI Label 50901, MPLS VPN Label 0  
Extended Community: RT:1:1 ENCAP:8 Router MAC:0C75.BD68.E548  
Originator: 172.16.255.7, Cluster list: 172.16.255.2  
rx pathid: 0x0, tx pathid: 0  
Updated on Aug 24 2022 17:17:31 UTC

## Leaf-01 ىلع CEF يفو هي جوتلا لودج ي ف طقف دحاو راسم دجوي

<#root>

Leaf-01#

```
show ip route vrf green
```

Routing Table: green

<...snip...>

Gateway of last resort is 172.16.254.7 to network 0.0.0.0

```
B* 0.0.0.0/0 [200/0] via 172.16.254.7, 00:04:02, Vlan901
```

<...snip...>

Leaf-01#

```
show ip cef vrf green 0.0.0.0/0
```

0.0.0.0/0

```
nexthop 172.16.254.7 Vlan901
```

## ةلص تاذا تامولعم

- [تادنتس مل او ينق تالام عدللا - Cisco Systems](#)
- [تالوحم\) 17.3.x رادصلال، Cisco IOS XE Amsterdam، BGP EVPN VXLAN نيوكت ليلد \(Catalyst 9500 Switches\)](#)
- [ل تا زي مللا تاظوفحم BGP EVPN VXLAN](#)



ةمچرتل هذه لوج

ةللأل تاي نقتل نمة ومة مادختساب دن تسمل اذة Cisco تمةرت  
ملاعلاء انء مء مء نمة دختسمل معد و تمة مء دقتل ةر شبل او  
امك ةق قء نوك ت نل ةللأل ةمچرت لصف أن ةظحال مء ءرء. ةصاأل مء تءل ب  
Cisco ةلخت. فرتمة مچرت مء دقء ةل ةل ةفارتحال ةمچرتل عم لاعل او  
ىل إأمءءاد ءوچرلاب ةصوء و تامةرتل هذه ةقء نء اهءل وئس م Cisco  
Systems (رفوتم طبارل) ةلصلأل ةزءل ءن إل دن تسمل