

زاهج موقى ام دنع ريخأتلا نم ناوٲ 5 ةرجش ل طبرلا ليغش تب دي عبلا لابق تسالا mLDP

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ةمدقملا

ةرجش ربع ددعتملا ثبل رورم ةكرح هيحوت ةداع ي ف ناوٲ 5 هرذق اريخأت دن تسملا اذه فصى
ىل دي عبلا لابق تسالا مضمني ام دنع (mLDP) طاقنلا ددعتم ةيمستلا عيزوت لوكوتورب
Cisco IOS® XR جم انرب ليغش تب Ingress PE هجوم موقى ام دنع و ددعتملا ثبل ةعومجم

ةيساسأ تامولعم

ردصملا رظن ةهجو نم mLDP ل يرقفلا دومعلا ربع لابق تسالا زاهج وه دي عبلا لابق تسالا

Cisco نم ءاطخالل احيحست فرعم ببسب دصق نع ناوٲ 5 هتدم يذلا ريخأتلا ميقوت مت
كانه نوكي ام دنع يلحملا لابق تسالا يلا ناوٲ 5 ةدمل MLDP هيحوت ةداع رخأت [CSCvb50266](#)
دوجوم MVPN لابق تسالا

يضا رتفاللا نم ليوحتلا [CSCtg68851](#) id قب cisco نم رادصلا لوح لمعي نأ ةقيثو اذه تقلخ
تاراسملا ددعتم LC ل ةفلكت يا نودب سيل تانايب لل MDTs تادحو يلا

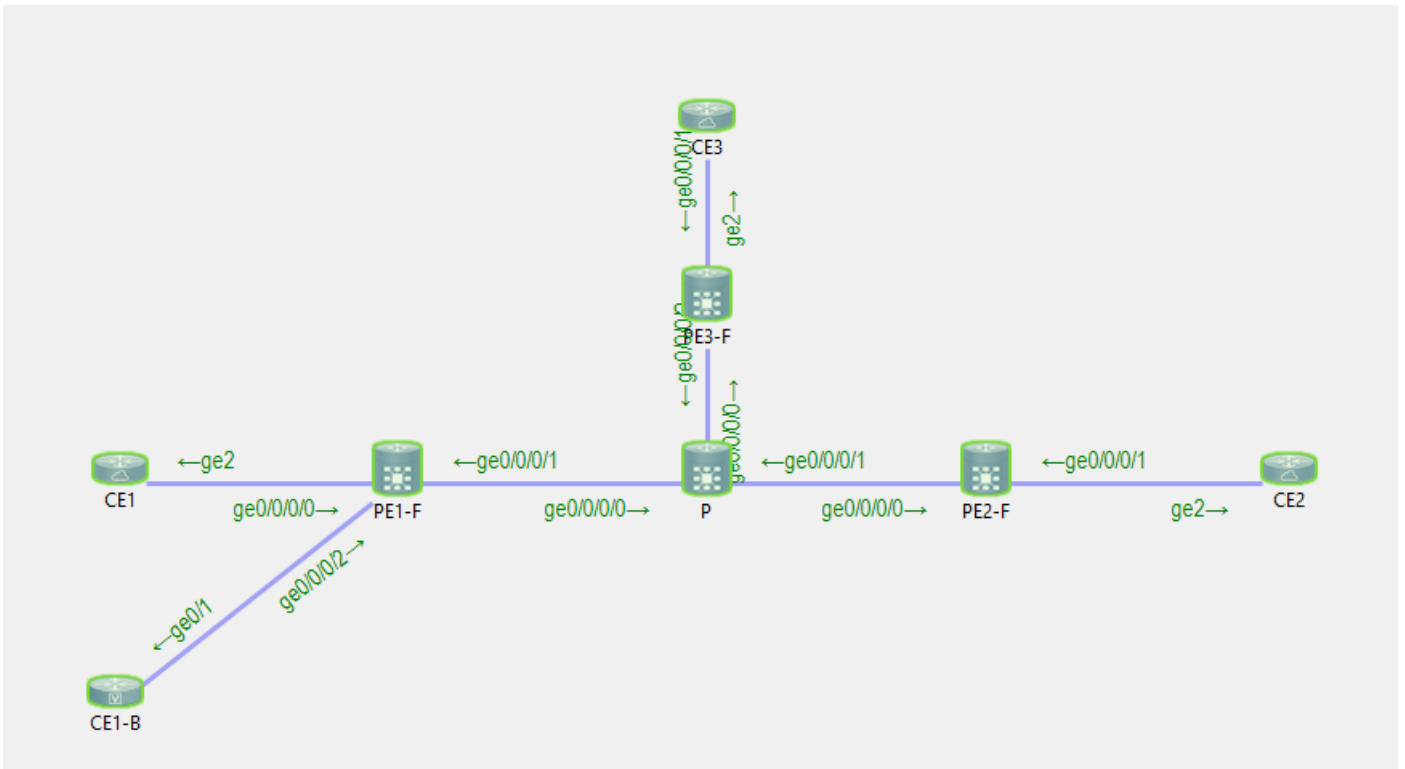
تارييغتلا

- 5 ريخأتلا ، [CSCtg68851](#) id قب cisco دعب ةغيص IOS®-XR دي دخت جاحسم لخدملا ضكري نإ
دوجوم ي ناوٲ.
- 5 ريخأتلا ، [CSCvb50266](#) id قب cisco دعب ةغيص IOS®-XR دي دخت جاحسم لخدملا ضكري نإ
يضا رتفاللا عضولا ي ف دوجوم ي ناوٲ.

ةطساوب ددعتملا ثبل قفدت هيحوت ةداع ةعرس ةدايز مت نأ نكمي ، ابولطم اذه نكي مل اذ
ي فخمي نيوكت رمأ

لاثم يلي امي ف.

رابتخاللا ايچولوبوط يلع عالطال 1 لكشلا يلا رظنا



CE1 ددعت مالا ثبلا قفدتل 10.100.1.5 رصملا وه 232.1.1.1.

CE2 و CE1-B اماه ازاج سلا لابق تسلا قفدتل لابق تسلا ازاج امه 232.1.1.1.

زاج نود زاجلا ال ماضي دعب نع لابق تسلا زاج 1 رابت خالا ي لحم لابق تسلا

ءاطخالا حيصت ني كمتمت

```
RP/0/0/CPU0:PE1#debug mrib vrf one route
RP/0/0/CPU0:PE1#debug mfib vrf one ipv4 encap
RP/0/0/CPU0:PE1#show debug
```

```
#### debug flags set from tty 'con0_0_CPU0' ####
ipv4 mfwd encap flag is ON with value '0x1##one'
ipv4 mrib route flag is ON with value 'one#'
```

لخدملا PE1 هجوم ال ع ي لحم لابق تسلا زاج دجوي ال:

```
RP/0/0/CPU0:PE1#sh mrib vrf one route 232.1.1.1 10.100.1.5
No matching route in MRIB route-DB
RP/0/0/CPU0:PE1#
```

تنترتن ال ربع CE1 دعب نع لابق تسلا زاج ي تي:

```
RP/0/0/CPU0:PE1RP/0/0/CPU0:Feb 13 10:26:33.280 : mrib[1149]: [ 6] TID: 0xe0000010
(10.100.1.5,232.1.1.1) Added RPF* EID*, #A=1, #F=1, #MDT_A=0, RPF=10.2.1.5 [Lm F* LMI* TR*]
[Gi0/0/0/0 A*], Route Ver = 0x7ca
RP/0/0/CPU0:Feb 13 10:26:33.290 : ipv4_mfwd_partner[263]: Encap: encap id set eid: 1
```

```
(10.100.1.5,232.1.1.1)
RP/0/0/CPU0:Feb 13 10:26:33.300 : mrib[1149]: [ 6] TID: 0xe0000010 (10.100.1.5,232.1.1.1)
Updated RPF EID*, #A=1, #F=1, #MDT_A=0 [Lm F LMI* MA* TR], Route Ver = 0x7cc
RP/0/0/CPU0:Feb 13 10:26:33.310 : ipv4_mfwd_partner[263]: Encap:
ip_mfwd_mrib_pre_process_encap_id_update: encap_id: 2, te_ole_cnt: 0, lsmid_ole_cnt: 1,
gre_ole_cnt: 0 ti_mofrr_ole_cnt: 0 flags: 0x0
RP/0/0/CPU0:Feb 13 10:26:33.310 : ipv4_mfwd_partner[263]: Encap: [2482] Encap entry created
(0xa10cb414) for eid 2 (stale N) flags 0x0
RP/0/0/CPU0:Feb 13 10:26:33.310 : ipv4_mfwd_partner[263]: Encap: [3039] RegDB entry 0xa08fd084
for LSMID 0x1d turnaround TRUE(new: Y ifh_changed N) ifhandle: b0
RP/0/0/CPU0:Feb 13 10:26:33.310 : ipv4_mfwd_partner[263]: Encap: [3533] Encap entry for eid 2
(0xa10cb414) proc done
RP/0/0/CPU0:Feb 13 10:26:33.310 : ipv4_mfwd_partner[263]: Encap: encap id update eid: 2
(10.100.1.5,232.1.1.1)
```

دي دخت جاح سم PE لخدم ىل ع encap-id ني عتلت ريخأت دجوي ال

لخدم ال PE هجوم ىل ع هؤاشن مت يذلا ددعت مل ثبل هيجوت ةداع ل لخد او وه اذه

```
RP/0/0/CPU0:PE1#show mrib vrf one route 232.1.1.1 10.100.1.5
```

```
IP Multicast Routing Information Base
Entry flags: L - Domain-Local Source, E - External Source to the Domain,
C - Directly-Connected Check, S - Signal, IA - Inherit Accept,
IF - Inherit From, D - Drop, ME - MDT Encap, EID - Encap ID,
MD - MDT Decap, MT - MDT Threshold Crossed, MH - MDT interface handle
CD - Conditional Decap, MPLS - MPLS Decap, EX - Extranet
MoFE - MoFRR Enabled, MoFS - MoFRR State, MoFP - MoFRR Primary
MoFB - MoFRR Backup, RPFID - RPF ID Set, X - VXLAN
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
II - Internal Interest, ID - Internal Disinterest, LI - Local Interest,
LD - Local Disinterest, DI - Decapsulation Interface
EI - Encapsulation Interface, MI - MDT Interface, LVIF - MPLS Encap,
EX - Extranet, A2 - Secondary Accept, MT - MDT Threshold Crossed,
MA - Data MDT Assigned, LMI - mLDP MDT Interface, TMI - P2MP-TE MDT Interface
IRMI - IR MDT Interface
```

```
(10.100.1.5,232.1.1.1) RPF nbr: 10.2.1.5 Flags: RPF
Up: 00:02:29
Incoming Interface List
GigabitEthernet0/0/0/0 Flags: A, Up: 00:02:2
Outgoing Interface List
Lmdtone Flags: F LMI MA TR, Up: 00:02:29
```

```
RP/0/0/CPU0:PE1#show mfib vrf one route 232.1.1.1 10.100.1.5 detail
```

```
IP Multicast Forwarding Information Base
Entry flags: C - Directly-Connected Check, S - Signal, D - Drop,
IA - Inherit Accept, IF - Inherit From, EID - Encap ID,
ME - MDT Encap, MD - MDT Decap, MT - MDT Threshold Crossed,
MH - MDT interface handle, CD - Conditional Decap,
DT - MDT Decap True, EX - Extranet, RPFID - RPF ID Set,
MoFE - MoFRR Enabled, MoFS - MoFRR State, X - VXLAN
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
EG - Egress, EI - Encapsulation Interface, MI - MDT Interface,
EX - Extranet, A2 - Secondary Accept
Forwarding/Replication Counts: Packets in/Packets out/Bytes out
Failure Counts: RPF / TTL / Empty Olist / Encap RL / Other
```

```
(10.100.1.5,232.1.1.1), Flags: EID , FMA: 0x10000 ,
```

Up: 00:02:48
Last Used: 00:00:01
SW Forwarding Counts: 168/168/16800
SW Replication Counts: 168/0/0
SW Failure Counts: 0/0/0/0/0
Route ver: 0x7d0
MVPN Info :-
Associated Table ID : 0xe0000000
MDT Handle: 0x0, MDT Probe:Y [Y], Rate:Y, Acc:Y
MDT SW Ingress Encap V4/V6, Egress decap: 0 / 0, 0
Encap ID: 2, RPF ID: 0
Local Receiver: False, Turnaround: False
Lmdtone Flags: F LMI TR, Up:00:02:48
GigabitEthernet0/0/0/0 Flags: A, Up:00:02:48

ل بقت س م ل ا ل ا م ض ن ي د ع ب ن ع ل ا ب ق ت س ا ل ا ز ا ه ج 2 ر ا ب ت خ ا ل ا ي ل ح م ل ا

PE1 ل خ د م ل ا د ن ع ي ل ح م ل ب ق ت س م د ج و ي:

```
RP/0/0/CPU0:PE1#show mrib vrf one route 232.1.1.1 10.100.1.5
```

IP Multicast Routing Information Base
Entry flags: L - Domain-Local Source, E - External Source to the Domain,
C - Directly-Connected Check, S - Signal, IA - Inherit Accept,
IF - Inherit From, D - Drop, ME - MDT Encap, EID - Encap ID,
MD - MDT Decap, MT - MDT Threshold Crossed, MH - MDT interface handle
CD - Conditional Decap, MPLS - MPLS Decap, EX - Extranet
MoFE - MoFRR Enabled, MoFS - MoFRR State, MoFP - MoFRR Primary
MoFB - MoFRR Backup, RPFID - RPF ID Set, X - VXLAN
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
II - Internal Interest, ID - Internal Disinterest, LI - Local Interest,
LD - Local Disinterest, DI - Decapsulation Interface
EI - Encapsulation Interface, MI - MDT Interface, LVIF - MPLS Encap,
EX - Extranet, A2 - Secondary Accept, MT - MDT Threshold Crossed,
MA - Data MDT Assigned, LMI - mLDP MDT Interface, TMI - P2MP-TE MDT Interface
IRMI - IR MDT Interface

```
(10.100.1.5,232.1.1.1) RPF nbr: 10.2.1.5 Flags: RPF
```

```
Up: 00:57:15
```

```
Incoming Interface List
```

```
GigabitEthernet0/0/0/0 Flags: A, Up: 00:57:15
```

```
Outgoing Interface List
```

```
GigabitEthernet0/0/0/2 Flags: F NS, Up: 00:57:15
```

ء ا ط خ ا ل ا ح ي ح ص ت ن ي ك م ت م ت

```
RP/0/0/CPU0:PE1#debug mrib vrf one route  
RP/0/0/CPU0:PE1#debug mfib vrf one ipv4 encap
```

```
RP/0/0/CPU0:PE1#show debug
```

```
#### debug flags set from tty 'con0_0_CPU0' ####  
ipv4 mfw d encap flag is ON with value '0x1##one'  
ipv4 mrib route flag is ON with value 'one#'
```

```
RP/0/0/CPU0:PE1#show mfib vrf one route 232.1.1.1 10.100.1.5 detail
```

IP Multicast Forwarding Information Base

Entry flags: C - Directly-Connected Check, S - Signal, D - Drop,
IA - Inherit Accept, IF - Inherit From, EID - Encap ID,
ME - MDT Encap, MD - MDT Decap, MT - MDT Threshold Crossed,
MH - MDT interface handle, CD - Conditional Decap,
DT - MDT Decap True, EX - Extranet, RPFID - RPF ID Set,
MoFE - MoFRR Enabled, MoFS - MoFRR State, X - VXLAN
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
EG - Egress, EI - Encapsulation Interface, MI - MDT Interface,
EX - Extranet, A2 - Secondary Accept
Forwarding/Replication Counts: Packets in/Packets out/Bytes out
Failure Counts: RPF / TTL / Empty Olist / Encap RL / Other

(10.100.1.5,232.1.1.1), Flags: , FMA: 0x10001 ,
Up: 00:59:35
Last Used: 00:00:01
SW Forwarding Counts: 3566/3566/356600
SW Replication Counts: 3566/3566/356600
SW Failure Counts: 0/0/0/0/0
Route ver: 0x3410
MVPN Info :-
MDT Handle: 0x0, MDT Probe:N [N], Rate:Y, Acc:Y
MDT SW Ingress Encap V4/V6, Egress decap: 0 / 0, 0
EG count: 1
Encap ID: 0, RPF ID: 0
Local Receiver: True, Turnaround: False
GigabitEthernet0/0/0/0 Flags: A, Up:00:59:35
GigabitEthernet0/0/0/2 Flags: NS EG, Up:00:59:35

دع ب دي عب لب ق ت س م ن م ك انه ن ال encap-id 0 ل

ت ن ر ت ن ال اب الص ت م دع ب ن ع ل اب ق ت س ال ا زاه ج ي ت ا ي CE2:

RP/0/0/CPU0:PE1#RP/0/0/CPU0:Feb 13 09:13:34.390 : mrib[1149]: [6] TID: 0xe0000010
(10.100.1.5,232.1.1.1) Updated RPF EID*, #A=1, #F=2, #MDT_A=0 [Lm F* LMI* TR*], Route Ver =
0x3412
RP/0/0/CPU0:Feb 13 09:13:34.390 : mrib[1149]: [22] Redistributed
RP/0/0/CPU0:Feb 13 09:13:34.390 : ipv4_mfwd_partner[263]: Encap:
ip_mfwd_mrib_pre_process_encap_id_update: encap_id: 6, te_ole_cnt: 0, lsmid_ole_cnt: 1,
gre_ole_cnt: 0 ti_mofrr_ole_cnt: 0 flags: 0x1
RP/0/0/CPU0:Feb 13 09:13:34.390 : ipv4_mfwd_partner[263]: Encap: [2482] Encap entry created
(0xa08fd9d0) for eid 6 (stale N) flags 0x1
RP/0/0/CPU0:Feb 13 09:13:34.390 : ipv4_mfwd_partner[263]: Encap: [3039] RegDB entry 0xa10b5404
for LSMID 0x1 turnaround TRUE(new: N ifh_changed N) ifhandle: b0
RP/0/0/CPU0:Feb 13 09:13:34.390 : ipv4_mfwd_partner[263]: Encap: [3533] Encap entry for eid 6
(0xa08fd9d0) proc done
RP/0/0/CPU0:Feb 13 09:13:34.410 : mrib[1149]: [6] TID: 0xe0000010 (10.100.1.5,232.1.1.1)
Updated RPF EID*, #A=1, #F=2, #MDT_A=0 [Lm F LMI* MA* TR], Route Ver = 0x3414
RP/0/0/CPU0:Feb 13 09:13:34.410 : mrib[1149]: [6] TID: 0xe0000010 (10.100.1.5,232.1.1.1)
Updated RPF EID, #A=1, #F=2, #MDT_A=0 [Lm F LMI* MA TR], Route Ver = 0x3415
RP/0/0/CPU0:Feb 13 09:13:34.410 : ipv4_mfwd_partner[263]: Encap:
ip_mfwd_mrib_pre_process_encap_id_update: encap_id: 7, te_ole_cnt: 0, lsmid_ole_cnt: 1,
gre_ole_cnt: 0 ti_mofrr_ole_cnt: 0 flags: 0x1
RP/0/0/CPU0:Feb 13 09:13:34.410 : ipv4_mfwd_partner[263]: Encap: [2482] Encap entry created
(0xa08fd8a8) for eid 7 (stale N) flags 0x1
RP/0/0/CPU0:Feb 13 09:13:34.410 : ipv4_mfwd_partner[263]: Encap: [3039] RegDB entry 0xa08fd824
for LSMID 0x1c turnaround TRUE(new: Y ifh_changed N) ifhandle: b0
RP/0/0/CPU0:Feb 13 09:13:34.410 : ipv4_mfwd_partner[263]: Encap: [3533] Encap entry for eid 7
(0xa08fd8a8) proc done
RP/0/0/CPU0:Feb 13 09:13:34.500 : mrib[1149]: [6] TID: 0xe0000010 (10.100.1.5,232.1.1.1)
Updated RPF EID, #A=1, #F=2, #MDT_A=0 [Lm F LMI* MA TR], Route Ver = 0x3416
RP/0/0/CPU0:Feb 13 09:13:34.620 : mrib[1149]: [22] Redistributed

```

RP/0/0/CPU0:Feb 13 09:13:34.620 : mrib[1149]: [ 6] TID: 0xe0000010 (10.100.1.5,232.1.1.1)
Updated RPF EID, #A=1, #F=2, #MDT_A=0 [Lm F LMI* MA TR], Route Ver = 0x3417
RP/0/0/CPU0:Feb 13 09:13:34.620 : ipv4_mfwd_partner[263]: Encap:
ip_mfwd_mrib_pre_process_encap_id_update: encap_id: 7, te_ole_cnt: 0, lsmid_ole_cnt: 1,
gre_ole_cnt: 0 ti_mofrr_ole_cnt: 0 flags: 0x1
RP/0/0/CPU0:Feb 13 09:13:34.620 : ipv4_mfwd_partner[263]: Encap: [2482] Encap entry existing
(0xa08fd8a8) for eid 7 (stale N) flags 0x1
RP/0/0/CPU0:Feb 13 09:13:34.620 : ipv4_mfwd_partner[263]: Encap: [3533] Encap entry for eid 7
(0xa08fd8a8) proc done
RP/0/0/CPU0:Feb 13 09:13:39.570 : ipv4_mfwd_partner[263]: Encap: encap id set eid: 7
(10.100.1.5,232.1.1.1)

```

هيجوتال تامول عم ةدعاق ثي دحتو encap-id ءاشن دع ب ناوٲ 5، 7 ىل | encap-id نى يعت متي
 (VRF) هيجوتال ةدعاقو يره اظلال هيجوتال ةام سملال (LMDT) مDT ةه جاوب (MRIB) ددعت ملال ثبلل
 (OIL). ةرداصلال ةه جاوالا ةمئاق ي ف دحاو

```
RP/0/0/CPU0:PE1#show mrib vrf one route 232.1.1.1 10.100.1.5
```

```

IP Multicast Routing Information Base
Entry flags: L - Domain-Local Source, E - External Source to the Domain,
C - Directly-Connected Check, S - Signal, IA - Inherit Accept,
IF - Inherit From, D - Drop, ME - MDT Encap, EID - Encap ID,
MD - MDT Decap, MT - MDT Threshold Crossed, MH - MDT interface handle
CD - Conditional Decap, MPLS - MPLS Decap, EX - Extranet
MoFE - MoFRR Enabled, MoFS - MoFRR State, MoFP - MoFRR Primary
MoFB - MoFRR Backup, RPFID - RPF ID Set, X - VXLAN
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
II - Internal Interest, ID - Internal Disinterest, LI - Local Interest,
LD - Local Disinterest, DI - Decapsulation Interface
EI - Encapsulation Interface, MI - MDT Interface, LVIF - MPLS Encap,
EX - Extranet, A2 - Secondary Accept, MT - MDT Threshold Crossed,
MA - Data MDT Assigned, LMI - mLDP MDT Interface, TMI - P2MP-TE MDT Interface
IRMI - IR MDT Interface

```

```

(10.100.1.5,232.1.1.1) RPF nbr: 10.2.1.5 Flags: RPF
Up: 01:04:11
Incoming Interface List
GigabitEthernet0/0/0/0 Flags: A, Up: 01:04:11
Outgoing Interface List
Lmdtone Flags: F LMI MA TR, Up: 00:03:33
GigabitEthernet0/0/0/2 Flags: F NS, Up: 01:04:11

```

```
RP/0/0/CPU0:PE1#show mfib vrf one route 232.1.1.1 10.100.1.5 detail
```

```

IP Multicast Forwarding Information Base
Entry flags: C - Directly-Connected Check, S - Signal, D - Drop,
IA - Inherit Accept, IF - Inherit From, EID - Encap ID,
ME - MDT Encap, MD - MDT Decap, MT - MDT Threshold Crossed,
MH - MDT interface handle, CD - Conditional Decap,
DT - MDT Decap True, EX - Extranet, RPFID - RPF ID Set,
MoFE - MoFRR Enabled, MoFS - MoFRR State, X - VXLAN
Interface flags: F - Forward, A - Accept, IC - Internal Copy,
NS - Negate Signal, DP - Don't Preserve, SP - Signal Present,
EG - Egress, EI - Encapsulation Interface, MI - MDT Interface,
EX - Extranet, A2 - Secondary Accept
Forwarding/Replication Counts: Packets in/Packets out/Bytes out
Failure Counts: RPF / TTL / Empty Olist / Encap RL / Other

```

```

(10.100.1.5,232.1.1.1), Flags: EID , FMA: 0x10001 ,
Up: 01:04:25
Last Used: 00:00:00

```

```
SW Forwarding Counts: 3856/3856/385600
SW Replication Counts: 3856/3856/385600
SW Failure Counts: 0/0/0/0/0
Route ver: 0x3417
MVPN Info :-
  Associated Table ID : 0xe0000000
  MDT Handle: 0x0, MDT Probe:Y [Y], Rate:Y, Acc:Y
  MDT SW Ingress Encap V4/V6, Egress decap: 0 / 0, 0
  EG count: 1
  Encap ID: 7, RPF ID: 0
  Local Receiver: True, Turnaround: False
Lmdtone Flags: F LMI TR, Up:00:03:47
GigabitEthernet0/0/0/0 Flags: A, Up:01:04:25
GigabitEthernet0/0/0/2 Flags: NS EG, Up:01:04:25
```

اذه ددعت مل ثبلا قفد ي ق ل ت ي ف ناو ث 5 هرادقم ي فاضا ر ي خأت ه ي دل دي ع بل ي ق ل ت مل ، ك ل ذل

ي ف LMDT هه جاو ة فاضا تمت امك ، روفال ي ل ع MRIB ي ف LMDT هه جاو ة فاضا تمت : **ةظحال**
encap فرعم ني عت متي مل نكلو ، F ةمال ع م روفال ي ل ع MFIB

ن او ث 5 ر ي خأت د ع ب MFIB ي ف encap فرعم ني عت مت

ي ق ال تي ام دن ع encap فرعم ة حمر بل ناو ث 5 وه ر ي خأت ال ، [CSCvb50266](#) id ق ب Cisco د ع ب
دي د جال ي ضار ت فال ك و ل س ال وه اذه . دي ع ب ل ب ق ت س م

ك و ل س ال ت ق ق د in order to ق ايس <> pim vrf ض ر ع م ال ت ض ك ر

```
RP/0/0/CPU0:PE1#show pim vrf one context
```

```
PIM context information for VRF one (0x12b70184)
```

```
VRF ID: 0x60000001
Table ID: 0xe0000010
Remote Table ID: 0xe0800010
MDT Default Group : 0.0.0.0
MDT Source : (10.100.1.1, Loopback0) Per-VRF
MDT Immediate Switch Not Configured
MDT handle: 0x0 (Null)
Context Active, ITAL Active
Routing Enabled
Registered with MRIB
Not owner of MDT Interface
Raw socket req: T, act: T, LPTS filter req: T, act: T
UDP socket req: T, act: T, UDP vbind req: T, act: T
Reg Inj socket req: T, act: T, Reg Inj LPTS filter req: T, act: T
Mhost Default Interface : GigabitEthernet0/0/0/0 (publish pending: F)
Remote MDT Default Group : 0.0.0.0
Backup MLC virtual interface: Null
Neighbor-filter: -
MDT Neighbor-filter: -
```

ن او ث 5 غ ل اب ال ر ي خأت ال ة ل ا زال switch-روفال MDT م ال اذه ل ي غ ش ت ب م ق

```
RP/0/0/CPU0:PE1#conf t
RP/0/0/CPU0:PE1 (config)#multicast-routing vrf one
RP/0/0/CPU0:PE1 (config-mcast-one)#address-family ipv4
RP/0/0/CPU0:PE1 (config-mcast-one-ipv4)#mdt immediate-switch
RP/0/0/CPU0:PE1 (config-mcast-one-ipv4)#commit
```

اي فخم رمألا دعي مل ، 7.4.1 ن م ارا بت عا :ةظ حالم

```
RP/0/0/CPU0:PE1#show pim vrf one context
```

```
PIM context information for VRF one (0x12b70184)
```

```
VRF ID: 0x60000001
Table ID: 0xe0000010
Remote Table ID: 0xe0800010
MDT Default Group : 0.0.0.0
MDT Source : (10.100.1.1, Loopback0) Per-VRF
MDT Immediate Switch Configured
MDT handle: 0x0 (Null)
Context Active, ITAL Active
Routing Enabled
Registered with MRIB
Not owner of MDT Interface
Raw socket req: T, act: T, LPTS filter req: T, act: T
UDP socket req: T, act: T, UDP vbind req: T, act: T
Reg Inj socket req: T, act: T, Reg Inj LPTS filter req: T, act: T
Mhost Default Interface : GigabitEthernet0/0/0/0 (publish pending: F)
Remote MDT Default Group : 0.0.0.0
Backup MLC virtual interface: Null
Neighbor-filter: -
MDT Neighbor-filter: -
```

هلهي غشت يراجل ل نيوكت ال ي ف رمألا اذه رهظي ال

```
RP/0/0/CPU0:PE1#show running-config multicast-routing vrf one
```

```
multicast-routing
vrf one
address-family ipv4
interface GigabitEthernet0/0/0/0
enable
!
interface GigabitEthernet0/0/0/2
enable
!
mdt source Loopback0
rate-per-route
accounting per-prefix
bgp auto-discovery mldp
!
mdt partitioned mldp ipv4 p2mp
mdt data mldp 100 immediate-switch
!
```

ةي ساسألا ةم لك ل م ادخت س اب *mdt data* رمألا او *MDT* رش اب مل ل و ح مل ل ن م لك نيوكت م معد م تي ال *immediate-switch*.

نيوكت ل اذه ل ع ل ا ث م ي لي ام ي و

```
RP/0/RP0/CPU0:PE1#conf t
RP/0/RP0/CPU0:PE1 (config)#multicast-routing
RP/0/RP0/CPU0:PE1 (config-mcast)#vrf one
RP/0/RP0/CPU0:PE1 (config-mcast-one)#address-family ipv4
RP/0/RP0/CPU0:PE1 (config-mcast-one-ipv4)#mdt data mldp 100 immediate-switch
RP/0/RP0/CPU0:PE1 (config-mcast-one-ipv4)#mdt immediate-switch
RP/0/RP0/CPU0:PE1 (config-mcast-one-ipv4)#commit
RP/0/RP0/CPU0:PE1 (config-mcast-one-ipv4)#end
```


RP/0/RP0/CPU0:PE1#

ةمچرتل هذه ل و ح

ةلأل تاي نقتل ن م ة و مچ م ادخت ساب دن تسمل اذ ه Cisco ت مچرت
ملاعلاء ن أ عي مچ ي ف ن ي م دخت سمل ل معد ي و تح م مي دقت ل ة ي رش ب ل و
امك ة ق ي قد ن و ك ت ن ل ة ي ل أ ة مچرت ل ض ف أ ن أ ة ظ حال م ي ج ر ي . ة ص ا خ ل 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 ا ل ا ة مچرت ل ا ع م ل ا ح ل ا و ه
ي ل ا م ا د ع و ج ر ل ا ب ي ص و ت و ت ا مچرت ل ا ه ذ ه ة ق د ن ع ا ه ت ي ل و ئ س م Cisco
Systems (رف و ت م ط بار ل ا) ي ل ص أ ل ا ي ز ي ل ج ن ا ل ا دن تسمل ا