

# تاهجوم مادختساب ATM ربع VPN MPLS نيوكت Cisco 7500 LightStream 1010 تالوحمو

## المحتويات

- [المقدمة](#)
- [المتطلبات الأساسية](#)
- [المتطلبات](#)
- [الاصطلاحات](#)
- [التكوين](#)
- [الرسم التخطيطي للشبكة](#)
- [وصف الشبكة](#)
- [التكوينات](#)
- [معلومات ذات صلة](#)

## [المقدمة](#)

يوضح هذا المستند كيفية تكوين تحويل التسمية متعدد البروتوكولات للشبكة الخاصة الظاهرية (VPN) عبر ATM باستخدام موجهات Cisco 7500 كموجهات (Label Edge (LERs) و LightStream 1010 كموجهات محول التسمية (LSRs). هناك موجهان متصلان بشبكة إيثرنت، كل منهما في موقع عميل بعيد، يعتبران جزءا من شبكة خاصة ظاهرية (VPN). في هذا المستند، نلقي نظرة على تكوينات الجهاز الطرفي وأوامر العرض المساعدة.

## [المتطلبات الأساسية](#)

### [المتطلبات](#)

لا توجد متطلبات خاصة لهذا المستند.

### [الاصطلاحات](#)

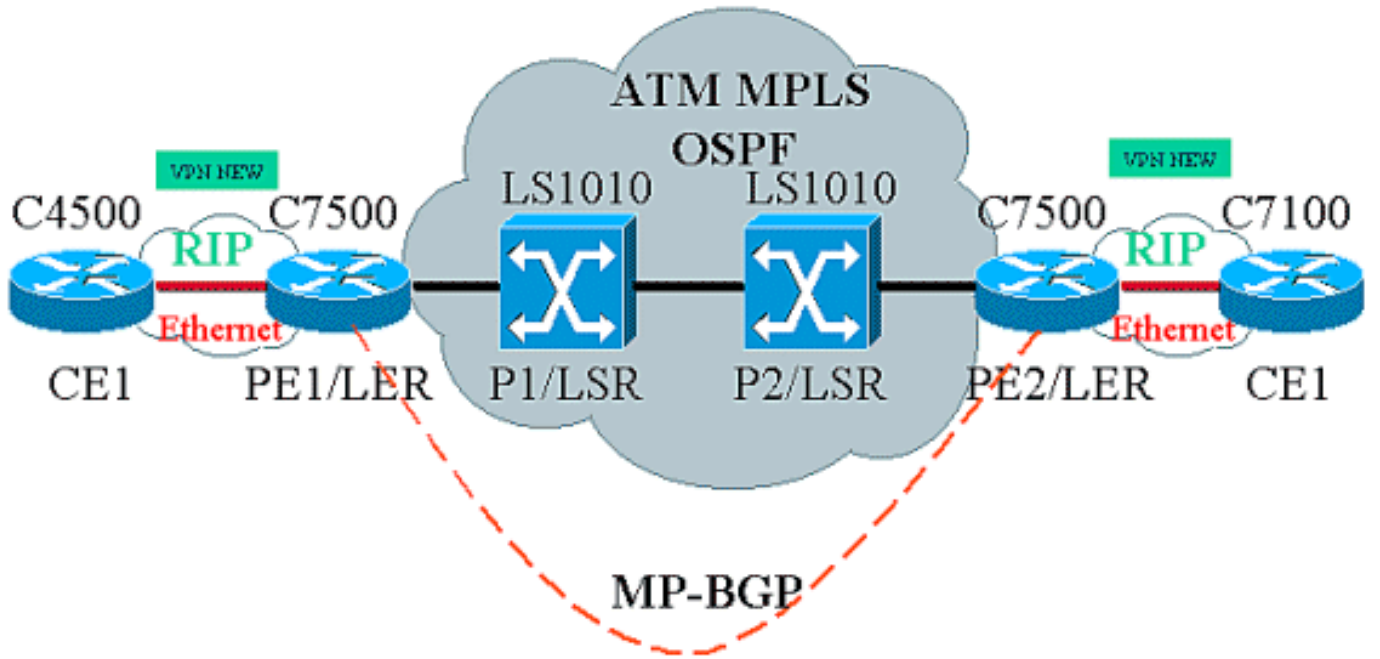
راجع [اصطلاحات تلميحات Cisco التقنية للحصول على مزيد من المعلومات حول اصطلاحات المستندات.](#)

## [التكوين](#)

في هذا القسم، تُقدّم لك معلومات تكوين الميزات الموضحة في هذا المستند.

### [الرسم التخطيطي للشبكة](#)

يستخدم هذا المستند إعداد الشبكة التالي:



## وصف الشبكة

يحتوي الإعداد الحالي على العناصر التالية في مصطلحات VPN:

- CE = موجه حافة العميل
  - PE = موجه حافة الموفر
  - P = موجه الموفر
- يحتوي الإعداد الحالي على هذه العناصر في مصطلحات MPLS:

- LER = موجه حافة التسمية
- LSR = موجه محول التسمية
- TDP/LDP = بروتوكول توزيع العلامات/بروتوكول توزيع التسمية

## التكوينات

يستخدم هذا المستند التكوينات التالية:

- PE1 و PE2 هي شبكات LER في شبكة ATM الخاصة بنا.
- P1 و P2 هما LSR.
- CE1 و CE2 هي موجهات Customer Edge غير مدركة ولا تقوم بتنفيذ VPN أو MPLS.
- CE1 و CE2 هما إيثرنت متصلان ب PE1 و PE2 على التوالي، وينفذان بروتوكول معلومات التوجيه (RIP).
- يقوم PE1 و PE2 و P1 و P2 بفتح أقصر مسار أولا (OSPF) وجميعها في المنطقة 0. OSPF هو بروتوكول العبارة الداخلية (IGP) المستخدم في شبكة ATM. يتم استخدام تبديل العلامات على واجهات ATM على جميع أجهزة ATM الأربعة. يقوم بروتوكول توزيع العلامات (TDP) بتعيين علامات على مسارات OSPF.
- PE1 و PE2 هي نظائر لبروتوكول العبارة متعدد البروتوكولات (MP-BGP).
- تتم إعادة توزيع مسارات بروتوكول معلومات التوجيه (RIP) في بروتوكول MP-BGP. إعادة توزيع مسارات MP-BGP إلى RIP على موجهات PE1 و PE2.
- يحتفظ الإعداد بجداول توجيه VRF منفصلة في موجهات PE1 و PE2.
- اسم الشبكة الخاصة الظاهرية (VPN) المستخدمة في هذا المثال جديد.

```
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec

!
boot system flashow c4500-js-mz.121-5
!

ip subnet-zero

!
interface Loopback0
ip address 10.1.1.1 255.255.255.0
!
interface Loopback1
ip address 10.2.2.2 255.255.255.0
!
interface Loopback2
ip address 10.3.3.3 255.255.255.0
!
interface Ethernet0
ip address 100.1.1.2 255.255.255.0
media-type 10BaseT
!

router rip
version 2
network 10.0.0.0
network 100.0.0.0
no auto-summary
!
ip classless
!
```

## PE1

```
!
version 12.1

service timestamps debug uptime
service timestamps log uptime

!
boot system flashow slot1:rsp-jsv-mz.121-5a.bin
!

ip subnet-zero

!
ip vrf NEW
rd 200:1
route-target export 200:1
route-target import 200:1
ip cef distributed

!
interface Loopback0
ip address 1.1.1.1 255.255.255.255
!
interface ATM2/0/0
```

```

        mtu 1500
        no ip address
        !
interface ATM2/0/0.10 tag-switching
    ip unnumbered Loopback0
    tag-switching ip
    !
        interface Ethernet2/1/0
        ip vrf forwarding NEW
ip address 100.1.1.1 255.255.255.0
    !
        router ospf 100
        no log-adjacency-changes
network 1.0.0.0 0.255.255.255 area 0
network 100.1.1.0 0.0.0.255 area 0
    !
        router rip
        version 2
network 100.0.0.0
    no auto-summary
    !
        address-family ipv4 vrf NEW
        version 2
redistribute bgp 200 metric 0
network 100.0.0.0
    no auto-summary
    exit-address-family
    !
        router bgp 200
        bgp log-neighbor-changes
neighbor 2.2.2.2 remote-as 200
neighbor 2.2.2.2 update-source Loopback0
    no auto-summary
    !
        address-family ipv4 vrf NEW
        redistribute rip
        no auto-summary
        no synchronization
        exit-address-family
        !
        address-family vpv4
        neighbor 2.2.2.2 activate
neighbor 2.2.2.2 send-community extended
    no auto-summary
    exit-address-family
    !
        ip classless
    !

```

**P1**

```

    !
service timestamps debug uptime
service timestamps log uptime
    !
        ip subnet-zero
    !
        interface Loopback0

```

```
ip address 4.4.4.4 255.255.255.255
no ip directed-broadcast
!
interface ATM12/0/0
ip unnumbered Loopback0
no ip directed-broadcast

tag-switching ip
!
interface ATM12/0/1
ip unnumbered Loopback0
no ip directed-broadcast

tag-switching ip
!
router ospf 100
network 4.0.0.0 0.255.255.255 area 0
!
ip classless
!
```

**P2**

```
!
service timestamps debug uptime
service timestamps log uptime
!
ip subnet-zero
!
interface Loopback0
ip address 3.3.3.3 255.255.255.255
no ip directed-broadcast
!
interface ATM0/1/1
ip unnumbered Loopback0
no ip directed-broadcast

tag-switching ip
!
interface ATM0/1/3
ip unnumbered Loopback0
no ip directed-broadcast

tag-switching ip
!
router ospf 100
network 3.0.0.0 0.255.255.255 area 0
!
ip classless
!
```

**PE2**

```
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
!
```

```
boot system flash slot0:rsp-jsv-mz.121-5a
```

```
!
```

```
ip subnet-zero
```

```
!
```

```
ip vrf NEW
```

```
rd 200:1
```

```
route-target export 200:1
```

```
route-target import 200:1
```

```
ip cef distributed
```

```
!
```

```
interface Loopback0
```

```
ip address 2.2.2.2 255.255.255.255
```

```
!
```

```
interface FastEthernet3/0/0
```

```
ip vrf forwarding NEW
```

```
ip address 110.1.1.1 255.255.255.0
```

```
half-duplex
```

```
!
```

```
interface ATM3/1/0.1 tag-switching
```

```
ip unnumbered Loopback0
```

```
tag-switching ip
```

```
!
```

```
router ospf 100
```

```
log-adjacency-changes
```

```
network 2.0.0.0 0.255.255.255 area 0
```

```
!
```

```
router rip
```

```
version 2
```

```
network 110.0.0.0
```

```
no auto-summary
```

```
!
```

```
address-family ipv4 vrf NEW
```

```
version 2
```

```
redistribute bgp 200 metric 0
```

```
network 110.0.0.0
```

```
no auto-summary
```

```
exit-address-family
```

```
!
```

```
router bgp 200
```

```
bgp log-neighbor-changes
```

```
neighbor 1.1.1.1 remote-as 200
```

```
neighbor 1.1.1.1 update-source Loopback0
```

```
no auto-summary
```

```
!
```

```
address-family ipv4 vrf NEW
```

```
redistribute rip
```

```
no auto-summary
```

```
no synchronization
```

```
exit-address-family
```

```
!
```

```
address-family vpnv4
```

```
neighbor 1.1.1.1 activate
```

```
neighbor 1.1.1.1 send-community extended
```

```
no auto-summary
```

```
exit-address-family
```

```

!
ip classless
!
CE2
!
version 12.1
service timestamps debug uptime
service timestamps log uptime
!
boot system disk0:c7100-jo3s56i-mz.121-5.T.bin
!
ip subnet-zero
!
interface Loopback0
ip address 30.1.1.1 255.255.255.0
!
interface Loopback1
ip address 30.2.2.2 255.255.255.0
!
interface Loopback2
ip address 30.3.3.3 255.255.255.0
!
interface FastEthernet0/0
ip address 110.1.1.2 255.255.255.0
!
router rip
version 2
network 30.0.0.0
network 110.0.0.0
no auto-summary
!

```

## الأوامر

أستخدم هذه الأوامر لاختبار أن شبكتك تعمل بشكل صحيح:

- **show ip route** - يعرض إدخلات جدول توجيه IP.
  - **show ip rip database vrf** - يبدي معلومة داخل ال RIP قاعدة معطيات ل VRF خاص.
  - **show ip bgp vpnv4 vrf** - يعرض معلومات عنوان VPN من جدول BGP.
  - **show tag-switching interfaces detail** - يعرض معلومات حول واجهة واحدة أو أكثر من الواجهات التي تم تمكين ميزة MPLS بها.
  - **show tag-switching tdp bindings** - يعرض الإدخالات المطلوبة من قاعدة بيانات ربط تسميات ATM LDP.
  - **show tag-switching forwarding-table vrf** - يتحقق من مكس التسميات المستخدم لموجه معين.
- الإخراج المعروف أدناه هو نتيجة لهذه الأوامر التي تم إدخالها على الأجهزة الموضحة في الرسم التخطيطي للشبكة. يوضح هذا الإخراج أن الشبكة تعمل بشكل صحيح.

## CE1

Cisco4500#**show ip route**

Codes: C - connected, S - static, I - IGRP, 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, E - EGP  
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area  
candidate default, U - per-user static route, o - ODR - \*  
P - periodic downloaded static route

Gateway of last resort is not set

```

          is subnetted, 1 subnets 100.0.0.0/24
C          100.1.1.0 is directly connected, Ethernet0
          is subnetted, 1 subnets 110.0.0.0/24
R          110.1.1.0 [120/1] via 100.1.1.1, 00:00:14, Ethernet0
          is subnetted, 3 subnets 10.0.0.0/24
C          10.3.3.0 is directly connected, Loopback2
C          10.2.2.0 is directly connected, Loopback1
C          10.1.1.0 is directly connected, Loopback0
          is subnetted, 3 subnets 30.0.0.0/24
R          30.3.3.0 [120/1] via 100.1.1.1, 00:00:14, Ethernet0
R          30.2.2.0 [120/1] via 100.1.1.1, 00:00:15, Ethernet0
R          30.1.1.0 [120/1] via 100.1.1.1, 00:00:15, Ethernet0
```

**PE1**

Cisco7500a#**show ip route**

Codes: C - connected, S - static, I - IGRP, 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, E - EGP  
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area  
candidate default, U - per-user static route, o - ODR - \*  
P - periodic downloaded static route

Gateway of last resort is not set

```

          is subnetted, 1 subnets 1.0.0.0/32
C          1.1.1.1 is directly connected, Loopback0
          is subnetted, 1 subnets 2.0.0.0/32
O          2.2.2.2 [110/4] via 4.4.4.4, 18:17:37, ATM2/0/0.10
          is subnetted, 1 subnets 3.0.0.0/32
O          3.3.3.3 [110/3] via 4.4.4.4, 18:17:37, ATM2/0/0.10
          is subnetted, 1 subnets 4.0.0.0/32
O          4.4.4.4 [110/2] via 4.4.4.4, 18:17:37, ATM2/0/0.10
```

Cisco7500a#**show ip route vrf NEW**

Codes: C - connected, S - static, I - IGRP, 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, E - EGP  
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area  
candidate default, U - per-user static route, o - ODR - \*  
P - periodic downloaded static route

Gateway of last resort is not set

```

          is subnetted, 1 subnets 100.0.0.0/24
C          100.1.1.0 is directly connected, Ethernet2/1/0
          is subnetted, 1 subnets 110.0.0.0/24
B          110.1.1.0 [200/0] via 2.2.2.2, 00:26:11
          is subnetted, 3 subnets 10.0.0.0/24
R          10.3.3.0 [120/1] via 100.1.1.2, 00:00:11, Ethernet2/1/0
R          10.2.2.0 [120/1] via 100.1.1.2, 00:00:11, Ethernet2/1/0
```



```

R      10.1.1.0 [120/1] via 100.1.1.2, 00:00:11, Ethernet2/1/0
      is subnetted, 3 subnets 30.0.0.0/24
B      30.3.3.0 [200/1] via 2.2.2.2, 00:26:12
B      30.2.2.0 [200/1] via 2.2.2.2, 00:26:12
B      30.1.1.0 [200/1] via 2.2.2.2, 00:26:12

```

Cisco7500a#show ip rip database vrf NEW

```

      auto-summary      10.0.0.0/8
                          10.1.1.0/24
via 100.1.1.2, 00:00:18, Ethernet2/1/0 [1]
                          10.2.2.0/24
via 100.1.1.2, 00:00:18, Ethernet2/1/0 [1]
                          10.3.3.0/24
via 100.1.1.2, 00:00:18, Ethernet2/1/0 [1]
      auto-summary      30.0.0.0/8
      redistributed     30.1.1.0/24
                          ,via 2.2.2.2 [1]
      redistributed     30.2.2.0/24
                          ,via 2.2.2.2 [1]
      redistributed     30.3.3.0/24
                          ,via 2.2.2.2 [1]
      auto-summary      100.0.0.0/8
directly connected, Ethernet2/1/0 100.1.1.0/24
      auto-summary      110.0.0.0/8
      redistributed     110.1.1.0/24
                          ,via 2.2.2.2 [1]

```

Cisco7500a#show ip bgp vpnv4 vrf NEW

```

BGP table version is 17, local router ID is 1.1.1.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete

```

Network	Next Hop	Metric	LocPrf	Weight	Path
(Route Distinguisher: 200:1 (default for vrf NEW					
? 32768	1	100.1.1.2			10.1.1.0/24 <*
? 32768	1	100.1.1.2			10.2.2.0/24 <*
? 32768	1	100.1.1.2			10.3.3.0/24 <*
? i30.1.1.0/24	2.2.2.2		1	100	0<*
? i30.2.2.0/24	2.2.2.2		1	100	0<*
? i30.3.3.0/24	2.2.2.2		1	100	0<*
? 32768	0	0.0.0.0			100.1.1.0/24 <*
? i110.1.1.0/24	2.2.2.2		0	100	0<*

Cisco7500a#show tag-switching interfaces

Interface	IP	Tunnel	Operational
(ATM2/0/0.10	Yes	No	Yes (ATM tagging)

Cisco7500a#show tag-switching interfaces detail

```

:Interface ATM2/0/0.10
  IP tagging enabled
  TSP Tunnel tagging not enabled
  Tagging operational
  Tagswitching turbo vector
  MTU = 4470
:ATM tagging
  Tag VPI = 1
  Tag VCI range = 33 - 65535
  Control VC = 0/32

```

? Cisco7500a#show tag-switching

```

atm-tdp      ATM Tagging Protocol information
cos-map      Show Tag CoS ATM Multi-VC CoS Map
(forwarding-table Show the Tag Forwarding Information Base (TFIB
interfaces    Show per-interface tag switching

```

```
prefix-map          Show Tag CoS Prefix Map
tdp                 Tag Distribution Protocol information
```

```
Cisco7500a#show tag-switching tdp bindings
```

```
tib entry: 1.1.1.1/32, rev 2
local binding: tag: imp-null
tib entry: 2.2.2.2/32, rev 23
local binding: tag: 27
tib entry: 3.3.3.3/32, rev 21
local binding: tag: 26
tib entry: 4.4.4.4/32, rev 10
local binding: tag: 28
```

```
Cisco7500a#show tag-switching atm-tdp bindings
```

```
Destination: 4.4.4.4/32
Headend Router ATM2/0/0.10 (1 hop) 1/33 Active, VCD=24
Destination: 3.3.3.3/32
Headend Router ATM2/0/0.10 (2 hops) 1/43 Active, VCD=25
Destination: 2.2.2.2/32
Headend Router ATM2/0/0.10 (3 hops) 1/42 Active, VCD=26
Destination: 1.1.1.1/32
Tailend Router ATM2/0/0.10 1/33 Active, VCD=24
```

```
Cisco7500a#show tag-switching forwarding-table vrf NEW
```

Local	Outgoing	Prefix	Bytes tag	Outgoing	Next Hop
	tag	tag or VC	or Tunnel Id	switched	interface
		Aggregate	100.1.1.0/24[V]	2080	29
Untagged	10.3.3.0/24[V]	0	Et2/1/0	100.1.1.2	30
Untagged	10.2.2.0/24[V]	0	Et2/1/0	100.1.1.2	31
Untagged	10.1.1.0/24[V]	0	Et2/1/0	100.1.1.2	32

P1

```
LS1010#show ip route
```

```
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
U - per-user static route, o - ODR
T - traffic engineered route
```

```
Gateway of last resort is not set
```

```
is subnetted, 1 subnets 1.0.0.0/32
O      1.1.1.1 [110/2] via 1.1.1.1, 19:00:12, ATM12/0/0
is subnetted, 1 subnets 2.0.0.0/32
O      2.2.2.2 [110/3] via 3.3.3.3, 19:00:12, ATM12/0/1
is subnetted, 1 subnets 3.0.0.0/32
O      3.3.3.3 [110/2] via 3.3.3.3, 19:00:12, ATM12/0/1
is subnetted, 1 subnets 4.0.0.0/32
C      4.4.4.4 is directly connected, Loopback0
```

```
LS1010#show tag-switching atm-tdp bindings
```

```
Destination: 4.4.4.4/32
Tailend Switch ATM12/0/0 1/33 Active -> Terminating Active
Tailend Switch ATM12/0/1 1/34 Active -> Terminating Active
Destination: 2.2.2.2/32
Transit ATM12/0/0 1/42 Active -> ATM12/0/1 1/35 Active
Destination: 1.1.1.1/32
Transit ATM12/0/1 1/33 Active -> ATM12/0/0 1/33 Active
```

Destination: 3.3.3.3/32  
Transit ATM12/0/0 1/43 Active -> ATM12/0/1 1/34 Active

**P2**

```
LS1010#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR
```

Gateway of last resort is 10.118.1.21 to network 0.0.0.0

```
is subnetted, 1 subnets 1.0.0.0/32
O      1.1.1.1 [110/3] via 4.4.4.4, 19:46:00, ATM0/1/1
is subnetted, 1 subnets 2.0.0.0/32
O      2.2.2.2 [110/2] via 2.2.2.2, 19:46:00, ATM0/1/3
is subnetted, 1 subnets 3.0.0.0/32
C      3.3.3.3 is directly connected, Loopback0
is subnetted, 1 subnets 4.0.0.0/32
O      4.4.4.4 [110/2] via 4.4.4.4, 19:46:00, ATM0/1/1
is subnetted, 1 subnets 10.0.0.0/24
C      10.118.1.0 is directly connected, Ethernet2/0/0
S*    0.0.0.0/0 [1/0] via 10.118.1.21
```

LS1010#show tag-switching atm-tdp bindings

```
Destination: 1.1.1.1/32
Transit ATM0/1/3 1/33 Active -> ATM0/1/1 1/33 Active
Destination: 3.3.3.3/32
Tailend Switch ATM0/1/3 1/34 Active -> Terminating Active
Tailend Switch ATM0/1/1 1/34 Active -> Terminating Active
Destination: 4.4.4.4/32
Transit ATM0/1/3 1/35 Active -> ATM0/1/1 1/34 Active
Destination: 2.2.2.2/32
Transit ATM0/1/1 1/35 Active -> ATM0/1/3 1/33 Active
```

**PE2**

```
Cisco7500#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       candidate default, U - per-user static route, o - ODR - *
       P - periodic downloaded static route
```

Gateway of last resort is not set

```
is subnetted, 1 subnets 1.0.0.0/32
O      1.1.1.1 [110/4] via 3.3.3.3, 02:58:46, ATM3/1/0.1
is subnetted, 1 subnets 2.0.0.0/32
C      2.2.2.2 is directly connected, Loopback0
is subnetted, 1 subnets 3.0.0.0/32
O      3.3.3.3 [110/2] via 3.3.3.3, 02:58:46, ATM3/1/0.1
is subnetted, 1 subnets 4.0.0.0/32
O      4.4.4.4 [110/3] via 3.3.3.3, 02:58:46, ATM3/1/0.1
```

Cisco7500#show ip route vrf NEW

Codes: C - connected, S - static, I - IGRP, 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, E - EGP  
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area  
candidate default, U - per-user static route, o - ODR - \*  
P - periodic downloaded static route

Gateway of last resort is not set

```

          is subnetted, 1 subnets 100.0.0.0/24
        B      100.1.1.0 [200/0] via 1.1.1.1, 01:16:13
          is subnetted, 1 subnets 110.0.0.0/24
        C      110.1.1.0 is directly connected, FastEthernet3/0/0
          is subnetted, 3 subnets 10.0.0.0/24
        B      10.3.3.0 [200/1] via 1.1.1.1, 01:16:13
        B      10.2.2.0 [200/1] via 1.1.1.1, 01:16:13
        B      10.1.1.0 [200/1] via 1.1.1.1, 01:16:13
          is subnetted, 3 subnets 30.0.0.0/24
        R      30.3.3.0 [120/1] via 110.1.1.2, 00:00:16, FastEthernet3/0/0
        R      30.2.2.0 [120/1] via 110.1.1.2, 00:00:17, FastEthernet3/0/0
        R      30.1.1.0 [120/1] via 110.1.1.2, 00:00:17, FastEthernet3/0/0
```

Cisco7500#show ip rip database vrf NEW

```

          auto-summary      10.0.0.0/8
          redistributed      10.1.1.0/24
                          ,via 1.1.1.1 [1]
          redistributed      10.2.2.0/24
                          ,via 1.1.1.1 [1]
          redistributed      10.3.3.0/24
                          ,via 1.1.1.1 [1]
          auto-summary      30.0.0.0/8
                          30.1.1.0/24
via 110.1.1.2, 00:00:09, FastEthernet3/0/0 [1]
                          30.2.2.0/24
via 110.1.1.2, 00:00:09, FastEthernet3/0/0 [1]
                          30.3.3.0/24
via 110.1.1.2, 00:00:09, FastEthernet3/0/0 [1]
          auto-summary      100.0.0.0/8
          redistributed      100.1.1.0/24
                          ,via 1.1.1.1 [1]
          auto-summary      110.0.0.0/8
directly connected, FastEthernet3/0/0 110.1.1.0/24
```

Cisco7500#show ip bgp vpnv4 vrf NEW

BGP table version is 17, local router ID is 2.2.2.2  
Status codes: s suppressed, d damped, h history, \* valid, > best, i - internal  
Origin codes: i - IGP, e - EGP, ? - incomplete

Network	Next Hop	Metric	LocPrf	Weight	Path
(Route Distinguisher: 200:1 (default for vrf NEW)					
? i10.1.1.0/24	1.1.1.1		1	100	0<*
? i10.2.2.0/24	1.1.1.1		1	100	0<*
? i10.3.3.0/24	1.1.1.1		1	100	0<*
? 32768	1	110.1.1.2			30.1.1.0/24 <*
? 32768	1	110.1.1.2			30.2.2.0/24 <*
? 32768	1	110.1.1.2			30.3.3.0/24 <*
? i100.1.1.0/24	1.1.1.1		0	100	0<*
? 32768	0	0.0.0.0			110.1.1.0/24 <*

Cisco7500#show tag-switching interfaces

Interface	IP	Tunnel	Operational
(ATM3/1/0.1	Yes	No	Yes (ATM tagging)

```

Cisco7500#show tag-switching interfaces detail
:Interface ATM3/1/0.1
    IP tagging enabled
    TSP Tunnel tagging not enabled
    Tagging operational
    Tagswitching turbo vector
        MTU = 4470
    :ATM tagging
        Tag VPI = 1
    Tag VCI range = 33 - 65535
    Control VC = 0/32

```

```

? Cisco7500#show tag-switching
atm-tdp          ATM Tagging Protocol information
cos-map          Show Tag CoS ATM Multi-VC CoS Map
(forwarding-table Show the Tag Forwarding Information Base (TFIB
interfaces       Show per-interface tag switching
prefix-map       Show Tag CoS Prefix Map
tdp              Tag Distribution Protocol information

```

```

Cisco7500#show tag-switching tdp bindings
tib entry: 1.1.1.1/32, rev 25
local binding: tag: 26
tib entry: 2.2.2.2/32, rev 2
local binding: tag: imp-null
tib entry: 3.3.3.3/32, rev 27
local binding: tag: 27
tib entry: 4.4.4.4/32, rev 29
local binding: tag: 28

```

```

Cisco7500#show tag-switching atm-tdp bindings
Destination: 1.1.1.1/32
Headend Router ATM3/1/0.1 (3 hops) 1/33 Active, VCD=8
Destination: 3.3.3.3/32
Headend Router ATM3/1/0.1 (1 hop) 1/34 Active, VCD=6
Destination: 4.4.4.4/32
Headend Router ATM3/1/0.1 (2 hops) 1/35 Active, VCD=7
Destination: 2.2.2.2/32
Tailend Router ATM3/1/0.1 1/33 Active, VCD=8

```

```

Cisco7500#show tag-switching forwarding-table vrf NEW
Local   Outgoing   Prefix           Bytes tag   Outgoing   Next Hop
      tag       tag or VC       or Tunnel Id   switched   interface
Aggregate 110.1.1.0/24[V] 0           Fa3/0/0      110.1.1.2   33
Untagged 30.3.3.0/24[V] 0           Fa3/0/0      110.1.1.2   34
Untagged 30.2.2.0/24[V] 0           Fa3/0/0      110.1.1.2   35
Untagged 30.1.1.0/24[V] 0           Fa3/0/0      110.1.1.2   36

```

## CE2

```

Cisco7100#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
candidate default, U - per-user static route, o - ODR - *
P - periodic downloaded static route

```

Gateway of last resort is not set

```
is subnetted, 1 subnets 100.0.0.0/24
R    100.1.1.0 [120/1] via 110.1.1.1, 00:00:19, FastEthernet0/0
    is subnetted, 1 subnets 110.0.0.0/24
    C    110.1.1.0 is directly connected, FastEthernet0/0
    is subnetted, 3 subnets 10.0.0.0/24
R    10.3.3.0 [120/1] via 110.1.1.1, 00:00:19, FastEthernet0/0
R    10.2.2.0 [120/1] via 110.1.1.1, 00:00:19, FastEthernet0/0
R    10.1.1.0 [120/1] via 110.1.1.1, 00:00:19, FastEthernet0/0
    is subnetted, 3 subnets 30.0.0.0/24
    C    30.3.3.0 is directly connected, Loopback2
    C    30.2.2.0 is directly connected, Loopback1
    C    30.1.1.0 is directly connected, Loopback0
```

## معلومات ذات صلة

- [شبكات MPLS الخاصة الافتراضية](#)
- [تكوين شبكة MPLS VPN أساسية](#)
- [تدفق الحزمة في بيئة MPLS VPN](#)
- [الدعم التقني والمستندات - Cisco Systems](#)

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م ل ا ل اء ان ا ع مچ ي ف ن م دخت س م ل ل م عد و ت ح م م ي دقت ل ة ي ر ش ب ل و  
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