

# Configurar VPN MPLS sobre la atmósfera con los Cisco 7500 Router y el Switches del LightStream1010

## Contenido

[Introducción](#)

[prerrequisitos](#)

[Requisitos](#)

[Convenciones](#)

[Configurar](#)

[Diagrama de la red](#)

[Descripción de la Red](#)

[Configuraciones](#)

[Información Relacionada](#)

## [Introducción](#)

Este documento muestra cómo configurar Multiprotocol Label Switching (MPLS) de Red Privada Virtual (VPN) sobre ATM con routers Cisco 7500 como Router de Borde de Etiqueta (LER) y switches LightStream 1010 como Label Switch Routers (LSR). Dos routers conectados por Ethernet, cada uno en un sitio de cliente remoto, forman parte de una VPN. En este documento, miramos las configuraciones de dispositivo de extremo a extremo y los comandos show útiles.

## [prerrequisitos](#)

### [Requisitos](#)

No hay requisitos específicos para este documento.

### [Convenciones](#)

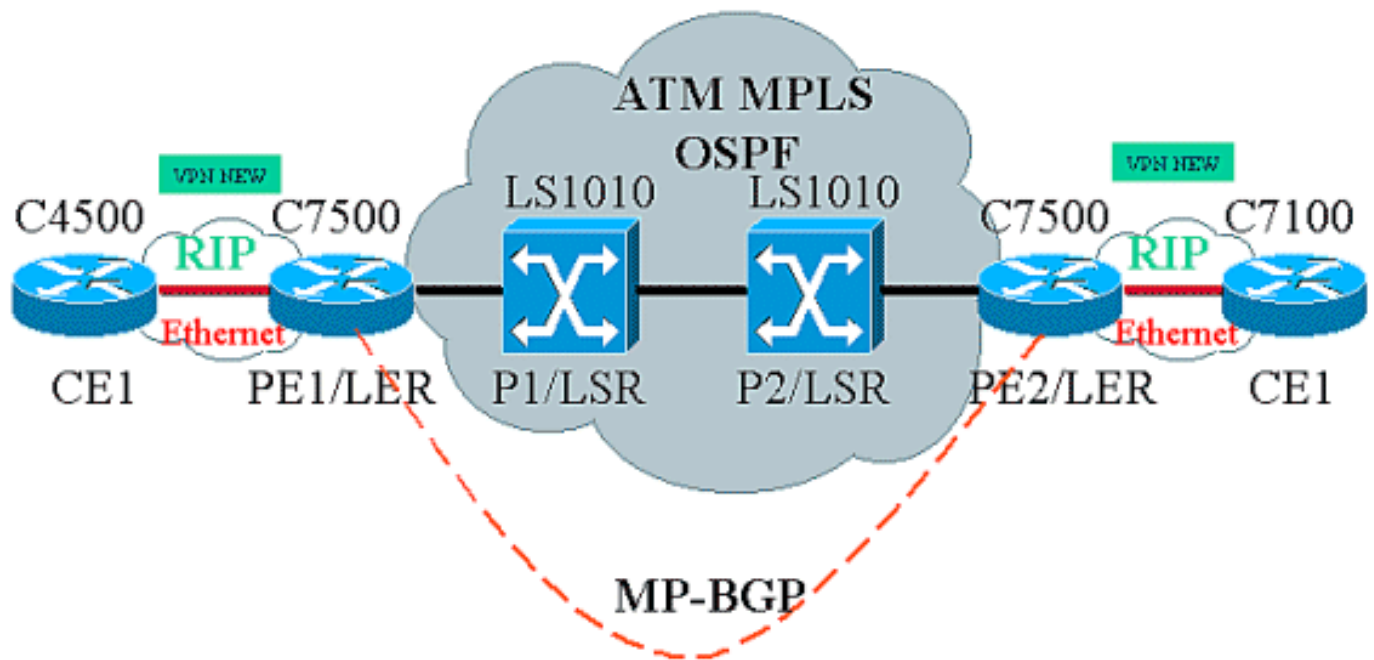
Consulte [Convenciones de Consejos TécnicosCisco](#) para obtener más información sobre las convenciones del documento.

## [Configurar](#)

En esta sección encontrará la información para configurar las funciones descritas en este documento.

## Diagrama de la red

En este documento, se utiliza esta configuración de red:



## Descripción de la Red

La configuración actual contiene estos elementos en terminología VPN:

- CE = Router borde del cliente
- PE = router de borde del proveedor
- Router de P=Provider

La configuración actual contiene estos elementos en terminología MPLS:

- LER = Router de borde de etiqueta
- LSR = Label Switch Router
- TDP/LDP = Tag Distribution Protocol/Label Distribution Protocol

## Configuraciones

En este documento, se utilizan estas configuraciones:

- El PE1 y el PE2 son los LER en nuestra red ATM.
- El P1 y el P2 son los LSR.
- El CE1 y el CE2 son el Routers de la frontera del cliente que está inconsciente y no realiza el VPN o el MPLS.
- El CE1 y el CE2 son Ethernet conectado con el PE1 y el PE2 respectivamente, y realizan el Routing Information Protocol (RIP).
- El PE1, el PE2, el P1 y el P2 hacen el Open Shortest Path First (OSPF) y son todo en el área 0. OSPF es el Interior Gateway Protocol (IGP) usado en la red ATM. El Tag Switching se utiliza en las interfaces ATM en los cuatro dispositivos ATM. El (TDP) del Tag Distribution

Protocol asigna las etiquetas a las OSPF rutas.

- El PE1 y el PE2 son pares del Multiprotocol-Border Gateway Protocol (MP-BGP).
- Las rutas del RIP se redistribuyen en el MP-BGP. Rutas MP-BGP redistribuidas en el RIP en el Routers PE1 y PE2.
- La configuración mantiene las tablas de ruteo separadas VRF en el Routers PE1 y PE2.
- El nombre del VPN usado en este ejemplo es NUEVO.

## CE1

```
!  
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 vpnv4
 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
!
```

## [Comandos show](#)

Use los siguientes comandos para probar que su red esté funcionando correctamente:

- **ruta de IP de la demostración** - Entradas de tabla de IP Routing de las visualizaciones.
- **show ip rip database vrf** - Muestra información contenida en la base de datos RIP para un VRF particular.
- **show ip bgp vpnv4 vrf** - Muestra la información de dirección de VPN desde la tabla BGP.
- **show tag-switching interfaces detail** - Visualiza la información sobre una o más interfaces que tengan la característica MPLS habilitada.
- **muestre los atascamientos del tdp del Tag Switching** - Visualiza las entradas pedidas de la base de datos de vinculación de etiquetas atmósfera LDP.
- **show tag-switching forwarding-table vrf** - Marca la pila de etiquetas usada para una ruta determinado.

La salida mostrada abajo es un resultado de estos comandos entered en los dispositivos mostrados en el diagrama de la red. Este resultado muestra que la red está funcionando correctamente.

## 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 100.0.0.0/24 is subnetted, 1 subnets C 100.1.1.0 is directly connected, Ethernet0
110.0.0.0/24 is subnetted, 1 subnets R 110.1.1.0 [120/1] via 100.1.1.1, 00:00:14, Ethernet0
10.0.0.0/24 is subnetted, 3 subnets 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 30.0.0.0/24 is
subnetted, 3 subnets 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 1.0.0.0/32 is subnetted, 1 subnets C 1.1.1.1 is directly connected, Loopback0
2.0.0.0/32 is subnetted, 1 subnets O 2.2.2.2 [110/4] via 4.4.4.4, 18:17:37, ATM2/0/0.10
3.0.0.0/32 is subnetted, 1 subnets O 3.3.3.3 [110/3] via 4.4.4.4, 18:17:37, ATM2/0/0.10
4.0.0.0/32 is subnetted, 1 subnets 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 100.0.0.0/24 is subnetted, 1 subnets C 100.1.1.0 is directly
connected, Ethernet2/1/0 110.0.0.0/24 is subnetted, 1 subnets B 110.1.1.0 [200/0] via 2.2.2.2,
00:26:11 10.0.0.0/24 is subnetted, 3 subnets 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 30.0.0.0/24 is subnetted, 3 subnets 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 10.0.0.0/8 auto-summary 10.1.1.0/24 [1] via
100.1.1.2, 00:00:18, Ethernet2/1/0 10.2.2.0/24 [1] via 100.1.1.2, 00:00:18, Ethernet2/1/0
10.3.3.0/24 [1] via 100.1.1.2, 00:00:18, Ethernet2/1/0 30.0.0.0/8 auto-summary 30.1.1.0/24
redistributed [1] via 2.2.2.2, 30.2.2.0/24 redistributed [1] via 2.2.2.2, 30.3.3.0/24
redistributed [1] via 2.2.2.2, 100.0.0.0/8 auto-summary 100.1.1.0/24 directly connected,
Ethernet2/1/0 110.0.0.0/8 auto-summary 110.1.1.0/24 redistributed [1] via 2.2.2.2,
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) >* 10.1.1.0/24 100.1.1.2 1 32768 ? >* 10.2.2.0/24 100.1.1.2 1 32768 ? >*
10.3.3.0/24 100.1.1.2 1 32768 ? >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 ? >* 100.1.1.0/24 0.0.0.0 0 32768 ? >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 29 Aggregate 100.1.1.0/24[V] 2080 30
```



Untagged 10.3.3.0/24[V] 0 Et2/1/0 100.1.1.2 31 Untagged 10.2.2.0/24[V] 0 Et2/1/0 100.1.1.2 32  
Untagged 10.1.1.0/24[V] 0 Et2/1/0 100.1.1.2

## 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 1.0.0.0/32 is subnetted,
1 subnets O 1.1.1.1 [110/2] via 1.1.1.1, 19:00:12, ATM12/0/0 2.0.0.0/32 is subnetted, 1 subnets
O 2.2.2.2 [110/3] via 3.3.3.3, 19:00:12, ATM12/0/1 3.0.0.0/32 is subnetted, 1 subnets O 3.3.3.3
[110/2] via 3.3.3.3, 19:00:12, ATM12/0/1 4.0.0.0/32 is subnetted, 1 subnets 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 1.0.0.0/32 is subnetted, 1
subnets O 1.1.1.1 [110/3] via 4.4.4.4, 19:46:00, ATM0/1/1 2.0.0.0/32 is subnetted, 1 subnets O
2.2.2.2 [110/2] via 2.2.2.2, 19:46:00, ATM0/1/3 3.0.0.0/32 is subnetted, 1 subnets C 3.3.3.3 is
directly connected, Loopback0 4.0.0.0/32 is subnetted, 1 subnets O 4.4.4.4 [110/2] via 4.4.4.4,
19:46:00, ATM0/1/1 10.0.0.0/24 is subnetted, 1 subnets 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 1.0.0.0/32 is subnetted, 1 subnets O 1.1.1.1 [110/4] via 3.3.3.3, 02:58:46, ATM3/1/0.1
2.0.0.0/32 is subnetted, 1 subnets C 2.2.2.2 is directly connected, Loopback0 3.0.0.0/32 is
subnetted, 1 subnets O 3.3.3.3 [110/2] via 3.3.3.3, 02:58:46, ATM3/1/0.1 4.0.0.0/32 is
subnetted, 1 subnets 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
100.0.0.0/24 is subnetted, 1 subnets B 100.1.1.0 [200/0] via 1.1.1.1, 01:16:13 110.0.0.0/24 is
subnetted, 1 subnets C 110.1.1.0 is directly connected, FastEthernet3/0/0 10.0.0.0/24 is
subnetted, 3 subnets 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 30.0.0.0/24 is subnetted, 3 subnets 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 10.0.0.0/8 auto-summary 10.1.1.0/24 redistributed [1] via 1.1.1.1,
10.2.2.0/24 redistributed [1] via 1.1.1.1, 10.3.3.0/24 redistributed [1] via 1.1.1.1, 30.0.0.0/8
auto-summary 30.1.1.0/24 [1] via 110.1.1.2, 00:00:09, FastEthernet3/0/0 30.2.2.0/24 [1] via
110.1.1.2, 00:00:09, FastEthernet3/0/0 30.3.3.0/24 [1] via 110.1.1.2, 00:00:09,
FastEthernet3/0/0 100.0.0.0/8 auto-summary 100.1.1.0/24 redistributed [1] via 1.1.1.1,
110.0.0.0/8 auto-summary 110.1.1.0/24 directly connected, FastEthernet3/0/0 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 ? *> 30.1.1.0/24 110.1.1.2 1 32768 ? *> 30.2.2.0/24 110.1.1.2 1 32768 ? *>
30.3.3.0/24 110.1.1.2 1 32768 ? *>i100.1.1.0/24 1.1.1.1 0 100 0 ? *> 110.1.1.0/24 0.0.0.0 0
32768 ? 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 33 Aggregate 110.1.1.0/24[V] 0 34 Untagged 30.3.3.0/24[V] 0 Fa3/0/0 110.1.1.2
35 Untagged 30.2.2.0/24[V] 0 Fa3/0/0 110.1.1.2 36 Untagged 30.1.1.0/24[V] 0 Fa3/0/0 110.1.1.2

```

## 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 100.0.0.0/24 is subnetted, 1 subnets R 100.1.1.0 [120/1] via 110.1.1.1, 00:00:19,
FastEthernet0/0 110.0.0.0/24 is subnetted, 1 subnets C 110.1.1.0 is directly connected,
FastEthernet0/0 10.0.0.0/24 is subnetted, 3 subnets 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 30.0.0.0/24 is subnetted, 3 subnets 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

```

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- [Configuración de una VPN MPLS básica](#)
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