

```
R4#
R4#show running-config
Building configuration...

Current configuration : 2631 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R4
!
boot-start-marker
boot system flash:c1841-advipservicesk9-mz.124-25b.bin
boot-end-marker
!
no logging console
enable secret 5 $1$/jV1$vYpms8yDHgGeGsdSbjts//
!
no aaa new-model
ip cef
!
!
no ip dhcp use vrf connected
ip dhcp excluded-address 10.2.1.1 10.2.1.3
ip dhcp excluded-address 10.2.1.254
!
ip dhcp pool VLAN10
    network 10.2.1.0 255.255.255.0
    default-router 10.2.1.254
    domain-name netlearning.com.mx
    dns-server 209.65.200.243
!
!
ip multicast-routing
ip auth-proxy max-nodata-conns 3
ip admission max-nodata-conns 3
!
ipv6 unicast-routing
!
!
!
!
ip ftp username netlearning
ip ftp password netpass
!
!
!
!
interface Tunnel34
    no ip address
    ipv6 address 2026::34:2/122
    ipv6 enable
```

```
ipv6 ospf 6 area 34
tunnel source Serial0/1/0.34
tunnel destination 10.1.1.9
tunnel mode ipv6ip
!
interface Tunnel46
no ip address
ipv6 address 2026::2:1/122
ipv6 enable
ipv6 rip RIPNG enable
tunnel source 10.1.4.5
tunnel destination 10.1.4.6
!
interface FastEthernet0/0
ip address 10.1.4.5 255.255.255.252
ip pim sparse-dense-mode
duplex auto
speed auto
!
interface FastEthernet0/1
ip address 10.1.4.9 255.255.255.252
ip pim sparse-dense-mode
duplex auto
speed auto
!
interface Serial0/0/0
no ip address
clock rate 56000
!
interface Serial0/0/1
no ip address
clock rate 56000
!
interface Serial0/1/0
no ip address
encapsulation frame-relay
!
interface Serial0/1/0.34 point-to-point
ip address 10.1.1.10 255.255.255.252
ip pim sparse-dense-mode
frame-relay interface-dlci 403
!
router eigrp 10
redistribute ospf 1 metric 10000 10 255 1 1500
network 10.1.4.5 0.0.0.0
network 10.1.4.9 0.0.0.0
no auto-summary
eigrp router-id 4.4.4.4
!
router ospf 1
router-id 4.4.4.4
log-adjacency-changes
area 34 nssa
redistribute eigrp 10 subnets
```

```
network 10.1.1.10 0.0.0.0 area 34
!
ip forward-protocol nd
ip route 0.0.0.0 0.0.0.0 192.168.20.1
!
!
ip http server
no ip http secure-server
!
ip access-list standard DENY_10
deny 10.0.0.0 0.255.255.255
permit any
ip access-list standard DENY_ALL
deny any
ip access-list standard PERMIT_10
permit 10.0.0.0 0.255.255.255
ip access-list standard PERMIT_ALL
permit any
!
ipv6 router ospf 6
router-id 4.4.4.4
log-adjacency-changes
redistribute connected
redistribute rip RIPNG
!
ipv6 router rip RIPNG
redistribute connected metric 5
redistribute ospf 6 metric 5
!
!
!
!
control-plane
!
!
!
line con 0
exec-timeout 0 0
line aux 0
line vty 0 4
exec-timeout 0 0
no login
!
scheduler allocate 20000 1000
end
```

```
R4#ping 209.65.200.241
```

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

```
Sending 5, 100-byte ICMP Echos to 209.65.200.241, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/34/40 ms
```

```
R4#
```

R4#

R4#ping 209.65.200.226

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 209.65.200.226, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 32/36/56 ms

R4#

R4#

R4#ping 209.65.200.225

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 209.65.200.225, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 64/64/68 ms

R4#

```
R4#ping 10.1.1.1
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.1.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 128/130/132
```

```
ms
```

```
R4#
```

```
R4#ping 10.1.1.2
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.1.2, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/66/68 ms
```

```
R4#
```



```
R4#ping 10.1.1.5
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.1.5, timeout is 2 seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/66/68 ms
```

```
R4#
```

```
R4#ping 10.1.1.6
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.1.6, timeout is 2 seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 128/129/132  
ms
```

```
R4#
```

```
R4#ping 10.1.1.9
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.1.9, timeout is 2 seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 128/130/132
ms
R4#
```

```
R4#ping 10.1.1.10
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.1.10, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/193/196
ms
```

```
R4#
```

```
R4#ping 10.1.4.10
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.4.10, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/200  
ms
```

```
R4#
```

```
R4#ping 10.1.4.9
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.4.9, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/194/196
```

```
ms
```

```
R4#
```

```
R4#ping 10.1.4.6
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.4.6, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/200  
ms
```

```
R4#
```

```
R4#ping 10.1.4.5
```

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

```
Sending 5, 100-byte ICMP Echos to 10.1.4.5, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/193/196  
ms
```

```
R4#
```

```
R4#ping 10.2.1.1
```

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

```
Sending 5, 100-byte ICMP Echos to 10.2.1.1, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/196
```

```
ms
```

```
R4#
```



```
R4#ping 10.2.2.2
```

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

```
Sending 5, 100-byte ICMP Echos to 10.2.2.2, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/194/196
```

```
ms
```

```
R4#
```

```
R4#ping 10.2.1.254
```

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

```
Sending 5, 100-byte ICMP Echos to 10.2.1.254, timeout is 2 seconds:
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/196
```

```
ms
```

```
R4#
```

```
R4#ping 10.2.4.14
```

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

```
Sending 5, 100-byte ICMP Echos to 10.2.4.14, timeout is 2 seconds:
```

```
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/196  
ms
```

```
R4#
```

```
R4#ping 10.2.4.13
```

```
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 10.2.4.13, timeout is 2 seconds:  
!!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/196  
ms  
R4#
```

```
R4#ping 10.2.1.2
```

```
Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 10.2.1.2, timeout is 2 seconds:  
!!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/196/200
ms
R4#
```

```
R4#ping 10.2.2.1
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.2.2.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/200
ms
R4#
```

```
R4#ping 10.2.1.4
```

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

```
Sending 5, 100-byte ICMP Echos to 10.2.1.4, timeout is 2 seconds:
```

```
.....
```

```
Success rate is 0 percent (0/5)
```

```
R4#
```

```
R4#
R4#show ip interface brief
Interface          IP-Address      OK? Method Status
Protocol
FastEthernet0/0    10.1.4.5        YES NVRAM  up
up
FastEthernet0/1    10.1.4.9        YES NVRAM  up
up
Serial0/0/0        unassigned      YES NVRAM  down
down
Serial0/0/1        unassigned      YES NVRAM  down
down
Serial0/1/0        unassigned      YES NVRAM  up
up
Serial0/1/0.34     10.1.1.10       YES NVRAM  up
up
Tunnel34           unassigned      YES NVRAM  up
up
```

```
Tunnel46          unassigned      YES NVRAM  up
up
R4#
```

```
R4#show ip route
```

```
Codes: 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
       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
       o - ODR, P - periodic downloaded static route
```



Gateway of last resort is 10.1.1.9 to network 0.0.0.0

```
10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
D    10.2.4.12/30 [90/30720] via 10.1.4.10, 01:29:57, FastEthernet0/1
      [90/30720] via 10.1.4.6, 01:29:57, FastEthernet0/0
C    10.1.1.8/30 is directly connected, Serial0/1/0.34
C    10.1.4.8/30 is directly connected, FastEthernet0/1
D    10.2.1.0/24 [90/28416] via 10.1.4.10, 01:29:20, FastEthernet0/1
      [90/28416] via 10.1.4.6, 01:29:20, FastEthernet0/0
D    10.2.2.0/24 [90/28416] via 10.1.4.10, 01:29:25, FastEthernet0/1
      [90/28416] via 10.1.4.6, 01:29:25, FastEthernet0/0
C    10.1.4.4/30 is directly connected, FastEthernet0/0
O*IA 0.0.0.0/0 [110/65] via 10.1.1.9, 01:25:15, Serial0/1/0.34
R4#
```





60	0	3	0	0.00%	0.00%	0.00%	0	PPP Hooks
62	0	1	0	0.00%	0.00%	0.00%	0	SSS
Manager								
63	0	739	0	0.00%	0.00%	0.00%	0	SSS Test
Client								
64	0	1	0	0.00%	0.00%	0.00%	0	SSS
Feature Mana								
65	0	21617	0	0.08%	0.01%	0.00%	0	SSS
Feature Time								
66	0	1	0	0.00%	0.00%	0.00%	0	VPDN call
manage								
67	0	1	0	0.00%	0.00%	0.00%	0	L2X Socket
proce								
68	0	1	0	0.00%	0.00%	0.00%	0	L2X SSS
manager								
69	0	2	0	0.00%	0.00%	0.00%	0	L2TP mgmt
daemon								
70	0	1	0	0.00%	0.00%	0.00%	0	X.25
Encaps Mana								
71	0	2	0	0.00%	0.00%	0.00%	0	EAPoUDP
Process								
72	0	2	0	0.00%	0.00%	0.00%	0	IP Host
Track Pr								
73	0	23	0	0.00%	0.00%	0.00%	0	IPv6 RIB
Redistr								
74	0	2	0	0.00%	0.00%	0.00%	0	KRB5 AAA
75	24	163	147	0.00%	0.00%	0.00%	0	IP
Background								
76	0	113	0	0.00%	0.00%	0.00%	0	IP RIB
Update								
77	0	2	0	0.00%	0.00%	0.00%	0	PPP IP
Route								
78	0	2	0	0.00%	0.00%	0.00%	0	PPP IPCP
79	12	6704	1	0.00%	0.01%	0.00%	0	CEF
process								
80	0	1	0	0.00%	0.00%	0.00%	0	Socket
Timers								
81	4	2	2000	0.00%	0.00%	0.00%	0	L2MM
82	0	1	0	0.00%	0.00%	0.00%	0	MRD
83	0	1	0	0.00%	0.00%	0.00%	0	IGMPSN
84	0	1	0	0.00%	0.00%	0.00%	0	IP
Traceroute								
85	0	2	0	0.00%	0.00%	0.00%	0	RLM groups
Proce								
86	0	1	0	0.00%	0.00%	0.00%	0	SNMP
Timers								
87	4	2	2000	0.00%	0.00%	0.00%	0	SCTP Main
Proces								
88	0	1	0	0.00%	0.00%	0.00%	0	IUA Main
Process								
89	0	5533	0	0.00%	0.00%	0.00%	0	RUDPV1
Main Proc								
90	0	1	0	0.00%	0.00%	0.00%	0	bsm_timers

91	0	5536	0	0.00%	0.00%	0.00%	0
bsm_xmt_proc							
92	0	1	0	0.00%	0.00%	0.00%	0 CES Client
SVC R							
93	0	1	0	0.00%	0.00%	0.00%	0 TCP Timer
94	0	1	0	0.00%	0.00%	0.00%	0 TCP
Protocols							
95	0	1	0	0.00%	0.00%	0.00%	0 COPS
96	0	2	0	0.00%	0.00%	0.00%	0 Dialer
Forwarder							
97	0	93	0	0.00%	0.00%	0.00%	0 IP Cache
Ager							
98	0	94	0	0.00%	0.00%	0.00%	0 Adj
Manager							
99	0	2	0	0.00%	0.00%	0.00%	0 ATM OAM
Input							
100	0	2	0	0.00%	0.00%	0.00%	0 ATM OAM
TIMER							
101	0	20	0	0.00%	0.00%	0.00%	0 HTTP CORE
102	0	1	0	0.00%	0.00%	0.00%	0 RARP Input
103	0	1	0	0.00%	0.00%	0.00%	0 PAD InCall
104	0	2	0	0.00%	0.00%	0.00%	0 X.25
Background							
105	0	2	0	0.00%	0.00%	0.00%	0 PPP Bind
106	0	2	0	0.00%	0.00%	0.00%	0 PPP SSS
107	44	55340	0	0.08%	0.03%	0.02%	0 RBSCP
Background							
108	0	1108	0	0.00%	0.00%	0.00%	0 L2F
management d							
109	0	1	0	0.00%	0.00%	0.00%	0 Inspect
Timer							
110	52	1098	47	0.00%	0.00%	0.00%	0 OSPFv3-6
Hello							
111	0	19	0	0.00%	0.00%	0.00%	0
Authentication P							
112	0	1	0	0.00%	0.00%	0.00%	0 Auth-proxy
AAA B							
113	0	1	0	0.00%	0.00%	0.00%	0 IPS Timer
114	4	2	2000	0.00%	0.00%	0.00%	0 SDEE
Management							
115	0	1	0	0.00%	0.00%	0.00%	0 IPv6
Inspect Tim							
116	0	2	0	0.00%	0.00%	0.00%	0 URL filter
proc							
117	0	3	0	0.00%	0.00%	0.00%	0 Crypto HW
Proc							
118	0	2	0	0.00%	0.00%	0.00%	0 ENABLE AAA
119	0	1	0	0.00%	0.00%	0.00%	0 EM
Background Pr							
120	0	1	0	0.00%	0.00%	0.00%	0 Key chain
liveke							
121	0	2	0	0.00%	0.00%	0.00%	0 LINE AAA
122	0	2	0	0.00%	0.00%	0.00%	0 LOCAL AAA
123	0	2	0	0.00%	0.00%	0.00%	0 TPLUS









R4#show interfaces

FastEthernet0/0 is up, line protocol is up

Hardware is Gt96k FE, address is 0019.5578.1cb2 (bia 0019.5578.1cb2)

Internet address is 10.1.4.5/30

MTU 1500 bytes, BW 100000 Kbit/sec, DLY 100 usec,  
reliability 255/255, txload 1/255, rxload 1/255

Encapsulation ARPA, loopback not set

Keepalive set (10 sec)

Full-duplex, 100Mb/s, 100BaseTX/FX

ARP type: ARPA, ARP Timeout 04:00:00

Last input 00:00:01, output 00:00:00, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0

Queueing strategy: fifo

Output queue: 0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

2420 packets input, 240441 bytes

Received 1524 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored

0 watchdog

0 input packets with dribble condition detected

2638 packets output, 235238 bytes, 0 underruns

0 output errors, 0 collisions, 4 interface resets

0 unknown protocol drops

0 babbles, 0 late collision, 0 deferred

0 lost carrier, 0 no carrier

0 output buffer failures, 0 output buffers swapped out

FastEthernet0/1 is up, line protocol is up

Hardware is Gt96k FE, address is 0019.5578.1cb3 (bia 0019.5578.1cb3)

Internet address is 10.1.4.9/30

MTU 1500 bytes, BW 100000 Kbit/sec, DLY 100 usec,  
reliability 255/255, txload 1/255, rxload 1/255

Encapsulation ARPA, loopback not set

Keepalive set (10 sec)

Full-duplex, 100Mb/s, 100BaseTX/FX

ARP type: ARPA, ARP Timeout 04:00:00

Last input 00:00:01, output 00:00:00, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0

Queueing strategy: fifo

Output queue: 0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

1734 packets input, 175350 bytes

Received 1476 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored

0 watchdog

0 input packets with dribble condition detected

2413 packets output, 195634 bytes, 0 underruns

0 output errors, 0 collisions, 5 interface resets

0 unknown protocol drops

0 babbles, 0 late collision, 0 deferred

```
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Serial0/0/0 is down, line protocol is down
Hardware is GT96K Serial
MTU 1500 bytes, BW 128 Kbit/sec, DLY 20000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
  Conversations 0/0/32 (active/max active/max total)
  Reserved Conversations 0/0 (allocated/max allocated)
  Available Bandwidth 96 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 5 interface resets
  0 unknown protocol drops
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
DCD=up DSR=up DTR=down RTS=down CTS=up
```

```
Serial0/0/1 is down, line protocol is down
Hardware is GT96K Serial
MTU 1500 bytes, BW 128 Kbit/sec, DLY 20000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: weighted fair
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
  Conversations 0/0/32 (active/max active/max total)
  Reserved Conversations 0/0 (allocated/max allocated)
  Available Bandwidth 96 kilobits/sec
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  0 packets input, 0 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 5 interface resets
  0 unknown protocol drops
  0 output buffer failures, 0 output buffers swapped out
  0 carrier transitions
DCD=up DSR=up DTR=down RTS=down CTS=up
```

```
Serial0/1/0 is up, line protocol is up
  Hardware is GT96K Serial
  MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation FRAME-RELAY, loopback not set
  Keepalive set (10 sec)
  LMI enq sent 535, LMI stat recvd 537, LMI upd recvd 0, DTE LMI up
  LMI enq recvd 0, LMI stat sent 0, LMI upd sent 0
  LMI DLCI 1023 LMI type is CISCO frame relay DTE
  FR SVC disabled, LAPF state down
  Broadcast queue 0/64, broadcasts sent/dropped 849/0, interface
broadcasts 762
  Last input 00:00:01, output 00:00:01, output hang never
  Last clearing of "show interface" counters 01:32:38
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
    Conversations 0/4/256 (active/max active/max total)
    Reserved Conversations 0/0 (allocated/max allocated)
    Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
    2033 packets input, 166902 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    2459 packets output, 196630 bytes, 0 underruns
    0 output errors, 0 collisions, 7 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
    68 carrier transitions
    DCD=up DSR=up DTR=up RTS=up CTS=up
```

```
Serial0/1/0.34 is up, line protocol is up
  Hardware is GT96K Serial
  Internet address is 10.1.1.10/30
  MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation FRAME-RELAY
  Last clearing of "show interface" counters never
Tunnel34 is up, line protocol is up
  Hardware is Tunnel
  MTU 1514 bytes, BW 9 Kbit/sec, DLY 500000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation TUNNEL, loopback not set
  Keepalive not set
  Tunnel source 10.1.1.10 (Serial0/1/0.34), destination 10.1.1.9
  Tunnel protocol/transport IPv6/IP
  Tunnel TTL 255
  Fast tunneling enabled
  Tunnel transmit bandwidth 8000 (kbps)
  Tunnel receive bandwidth 8000 (kbps)
  Last input 00:00:08, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 4
```

```
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  556 packets input, 67704 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  572 packets output, 57924 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 output buffer failures, 0 output buffers swapped out
Tunnel46 is up, line protocol is up
Hardware is Tunnel
MTU 1514 bytes, BW 9 Kbit/sec, DLY 500000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation TUNNEL, loopback not set
Keepalive not set
Tunnel source 10.1.4.5, destination 10.1.4.6
Tunnel protocol/transport GRE/IP
  Key disabled, sequencing disabled
  Checksumming of packets disabled
Tunnel TTL 255
Fast tunneling enabled
Tunnel transmit bandwidth 8000 (kbps)
Tunnel receive bandwidth 8000 (kbps)
Last input 00:00:18, output 00:00:19, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 25
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
  206 packets input, 23744 bytes, 0 no buffer
  Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
  203 packets output, 30708 bytes, 0 underruns
  0 output errors, 0 collisions, 0 interface resets
  0 unknown protocol drops
  0 output buffer failures, 0 output buffers swapped out
```

R4#

```
R4#show interfaces counters errors
```

```
R4#
```

```
R4#show cdp neighbors
```

```
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge  
S - Switch, H - Host, I - IGMP, r - Repeater
```

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port
ID					
R3	Ser 0/1/0.34	145	R S I	2811	Ser
0/2/0.34					
DSW1	Fas 0/0	135	R S I	WS-C3550-	Fas
0/1					
DSW2	Fas 0/1	179	R S I	WS-C3550-	Fas
0/1					
R4#					

R4#show cdp neighbors detail

-----

Device ID: R3  
Entry address(es):  
  IP address: 10.1.1.9  
Platform: Cisco 2811, Capabilities: Router Switch IGMP  
Interface: Serial0/1/0.34, Port ID (outgoing port): Serial0/2/0.34  
Holdtime : 137 sec

Version :  
Cisco IOS Software, 2800 Software (C2800NM-ADVIPSERVICESK9-M), Version  
12.4(22)T2, RELEASE SOFTWARE (fc4)  
Technical Support: <http://www.cisco.com/techsupport>  
Copyright (c) 1986-2009 by Cisco Systems, Inc.  
Compiled Fri 19-Jun-09 15:34 by prod\_rel\_team

advertisement version: 2  
VTP Management Domain: ''

-----

Device ID: DSW1  
Entry address(es):  
  IP address: 10.1.4.6  
Platform: Cisco WS-C3550-24, Capabilities: Router Switch IGMP  
Interface: FastEthernet0/0, Port ID (outgoing port): FastEthernet0/1  
Holdtime : 127 sec

Version :  
Cisco IOS Software, C3550 Software (C3550-IPSERVICESK9-M), Version  
12.2(44)SE6, RELEASE SOFTWARE (fc1)  
Copyright (c) 1986-2009 by Cisco Systems, Inc.  
Compiled Mon 09-Mar-09 20:28 by gereddy

advertisement version: 2  
Protocol Hello: OUI=0x00000C, Protocol ID=0x0112; payload len=27,  
value=00000000FFFFFFFF010221FF0000000000000000DBDE36E00FF0000  
VTP Management Domain: 'netlearning'

Duplex: full

-----

Device ID: DSW2

Entry address(es):

  IP address: 10.1.4.10

Platform: Cisco WS-C3550-24-PWR, Capabilities: Router Switch IGMP

Interface: FastEthernet0/1, Port ID (outgoing port): FastEthernet0/1

Holdtime : 171 sec

Version :

Cisco IOS Software, C3550 Software (C3550-IPSERVICESK9-M), Version  
12.2(44)SE6, RELEASE SOFTWARE (fc1)

Copyright (c) 1986-2009 by Cisco Systems, Inc.

Compiled Mon 09-Mar-09 20:28 by gereddy

advertisement version: 2

Protocol Hello: OUI=0x00000C, Protocol ID=0x0112; payload len=27,  
value=00000000FFFFFFFFF010221FF0000000000000000BFD20BA00FF0000

VTP Management Domain: 'netlearning'

Duplex: full

R4#



```
R4#show frame-relay map
Serial0/1/0.34 (up): point-to-point dlci, dlci 403(0x193,0x6430),
broadcast
        status defined, active
R4#
```

R4#show arp

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	10.1.4.10	91	000b.fd20.ba00	ARPA	
FastEthernet0/1					
Internet	10.1.4.9	-	0019.5578.1cb3	ARPA	
FastEthernet0/1					
Internet	10.1.4.6	92	000d.bde3.6e00	ARPA	
FastEthernet0/0					
Internet	10.1.4.5	-	0019.5578.1cb2	ARPA	
FastEthernet0/0					

R4#

```
R4#show ip arp
Protocol Address           Age (min)  Hardware Addr  Type   Interface
-----
Internet 10.1.4.10             91         000b.fd20.ba00 ARPA   FastEthernet0/1
Internet 10.1.4.9              -          0019.5578.1cb3 ARPA   FastEthernet0/1
Internet 10.1.4.6              92         000d.bde3.6e00 ARPA   FastEthernet0/0
Internet 10.1.4.5              -          0019.5578.1cb2 ARPA   FastEthernet0/0
R4#
```

```
R4#show ip interface
FastEthernet0/0 is up, line protocol is up
```

Internet address is 10.1.4.5/30  
Broadcast address is 255.255.255.255  
Address determined by non-volatile memory  
MTU is 1500 bytes  
Helper address is not set  
Directed broadcast forwarding is disabled  
Multicast reserved groups joined: 224.0.0.1 224.0.0.2 224.0.0.22  
224.0.0.13

224.0.0.10

Outgoing access list is not set  
Inbound access list is not set  
Proxy ARP is enabled  
Local Proxy ARP is disabled  
Security level is default  
Split horizon is enabled  
ICMP redirects are always sent  
ICMP unreachable are always sent  
ICMP mask replies are never sent  
IP fast switching is enabled  
IP fast switching on the same interface is disabled  
IP Flow switching is disabled  
IP CEF switching is enabled  
IP CEF Fast switching turbo vector  
IP multicast fast switching is enabled  
IP multicast distributed fast switching is disabled  
IP route-cache flags are Fast, CEF  
Router Discovery is disabled  
IP output packet accounting is disabled  
IP access violation accounting is disabled  
TCP/IP header compression is disabled  
RTP/IP header compression is disabled  
Policy routing is disabled  
Network address translation is disabled  
BGP Policy Mapping is disabled  
WCCP Redirect outbound is disabled  
WCCP Redirect inbound is disabled  
WCCP Redirect exclude is disabled  
FastEthernet0/1 is up, line protocol is up  
Internet address is 10.1.4.9/30  
Broadcast address is 255.255.255.255  
Address determined by non-volatile memory  
MTU is 1500 bytes  
Helper address is not set  
Directed broadcast forwarding is disabled  
Multicast reserved groups joined: 224.0.0.1 224.0.0.2 224.0.0.22  
224.0.0.13

224.0.0.10

Outgoing access list is not set  
Inbound access list is not set  
Proxy ARP is enabled  
Local Proxy ARP is disabled  
Security level is default  
Split horizon is enabled  
ICMP redirects are always sent

```
ICMP unreachable are always sent
ICMP mask replies are never sent
IP fast switching is enabled
IP fast switching on the same interface is disabled
IP Flow switching is disabled
IP CEF switching is enabled
IP CEF Fast switching turbo vector
IP multicast fast switching is enabled
IP multicast distributed fast switching is disabled
IP route-cache flags are Fast, CEF
Router Discovery is disabled
IP output packet accounting is disabled
IP access violation accounting is disabled
TCP/IP header compression is disabled
RTP/IP header compression is disabled
Policy routing is disabled
Network address translation is disabled
BGP Policy Mapping is disabled
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
Serial0/0/0 is down, line protocol is down
  Internet protocol processing disabled
Serial0/0/1 is down, line protocol is down
  Internet protocol processing disabled
Serial0/1/0 is up, line protocol is up
  Internet protocol processing disabled
Serial0/1/0.34 is up, line protocol is up
  Internet address is 10.1.1.10/30
  Broadcast address is 255.255.255.255
  Address determined by non-volatile memory
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Multicast reserved groups joined: 224.0.0.1 224.0.0.2 224.0.0.22
  224.0.0.13
    224.0.0.5
  Outgoing access list is not set
  Inbound access list is not set
  Proxy ARP is enabled
  Local Proxy ARP is disabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachable are always sent
  ICMP mask replies are never sent
  IP fast switching is enabled
  IP fast switching on the same interface is enabled
  IP Flow switching is disabled
  IP CEF switching is enabled
  IP CEF Fast switching turbo vector
  IP multicast fast switching is enabled
  IP multicast distributed fast switching is disabled
  IP route-cache flags are Fast, CEF
```

```
Router Discovery is disabled
IP output packet accounting is disabled
IP access violation accounting is disabled
TCP/IP header compression is disabled
RTP/IP header compression is disabled
Policy routing is disabled
Network address translation is disabled
BGP Policy Mapping is disabled
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
Tunnel34 is up, line protocol is up
  Internet protocol processing disabled
Tunnel46 is up, line protocol is up
  Internet protocol processing disabled
R4#
```

R4#show ip cef

Prefix	Next Hop	Interface
0.0.0.0/0	10.1.1.9	Serial0/1/0.34
0.0.0.0/8	drop	
0.0.0.0/32	receive	
10.1.1.8/30	attached	Serial0/1/0.34
10.1.1.8/32	receive	
10.1.1.10/32	receive	
10.1.1.11/32	receive	
10.1.4.4/30	attached	FastEthernet0/0
10.1.4.4/32	receive	
10.1.4.5/32	receive	
10.1.4.6/32	10.1.4.6	FastEthernet0/0
10.1.4.7/32	receive	
10.1.4.8/30	attached	FastEthernet0/1
10.1.4.8/32	receive	
10.1.4.9/32	receive	
10.1.4.10/32	10.1.4.10	FastEthernet0/1
10.1.4.11/32	receive	
10.2.1.0/24	10.1.4.10	FastEthernet0/1
	10.1.4.6	FastEthernet0/0
10.2.2.0/24	10.1.4.10	FastEthernet0/1
	10.1.4.6	FastEthernet0/0
10.2.4.12/30	10.1.4.10	FastEthernet0/1
	10.1.4.6	FastEthernet0/0
127.0.0.0/8	drop	
224.0.0.0/4	0.0.0.0	
224.0.0.0/24	receive	
240.0.0.0/4	drop	
255.255.255.255/32	receive	

R4#

R4#show tcp statistics

Rcvd: 0 Total, 0 no port

0 checksum error, 0 bad offset, 0 too short

0 packets (0 bytes) in sequence

0 dup packets (0 bytes)

0 partially dup packets (0 bytes)

0 out-of-order packets (0 bytes)

0 packets (0 bytes) with data after window

0 packets after close

0 window probe packets, 0 window update packets

0 dup ack packets, 0 ack packets with unsend data

0 ack packets (0 bytes)

Sent: 0 Total, 0 urgent packets

0 control packets (including 0 retransmitted)

0 data packets (0 bytes)

0 data packets (0 bytes) retransmitted

0 data packets (0 bytes) fastretransmitted

0 ack only packets (0 delayed)

0 window probe packets, 0 window update packets

0 Connections initiated, 0 connections accepted, 0 connections established

0 Connections closed (including 0 dropped, 0 embryonic dropped)

0 Total rxmt timeout, 0 connections dropped in rxmt timeout

0 Keepalive timeout, 0 keepalive probe, 0 Connections dropped in keepalive

R4#



```
R4#show ip protocols
Routing Protocol is "eigrp 10"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  Default networks flagged in outgoing updates
  Default networks accepted from incoming updates
  EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
  EIGRP maximum hopcount 100
  EIGRP maximum metric variance 1
  Redistributing: eigrp 10, ospf 1
  EIGRP NSF-aware route hold timer is 240s
  Automatic network summarization is not in effect
  Maximum path: 4
  Routing for Networks:
    10.1.4.5/32
    10.1.4.9/32
  Routing Information Sources:
    Gateway          Distance      Last Update
    10.1.4.10         90           01:31:22
    10.1.4.6          90           01:31:22
```

Distance: internal 90 external 170

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 4.4.4.4

It is an autonomous system boundary router

Redistributing External Routes from,

eigrp 10, includes subnets in redistribution

Number of areas in this router is 1. 0 normal 0 stub 1 nssa

Maximum path: 4

Routing for Networks:

10.1.1.10 0.0.0.0 area 34

Reference bandwidth unit is 100 mbps

Routing Information Sources:

Gateway	Distance	Last Update
3.3.3.3	110	01:27:17

Distance: (default is 110)

R4#

```
R4#show access-lists
Standard IP access list DENY_10
  10 deny 10.0.0.0, wildcard bits 0.255.255.255
  20 permit any
Standard IP access list DENY_ALL
  10 deny any
Standard IP access list PERMIT_10
  10 permit 10.0.0.0, wildcard bits 0.255.255.255
Standard IP access list PERMIT_ALL
  10 permit any
R4#
```

```
R4#show ip route eigrp
  10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
D       10.2.4.12/30 [90/30720] via 10.1.4.10, 01:32:16, FastEthernet0/1
        [90/30720] via 10.1.4.6, 01:32:16, FastEthernet0/0
D       10.2.1.0/24 [90/28416] via 10.1.4.10, 01:31:39, FastEthernet0/1
        [90/28416] via 10.1.4.6, 01:31:39, FastEthernet0/0
D       10.2.2.0/24 [90/28416] via 10.1.4.10, 01:31:45, FastEthernet0/1
        [90/28416] via 10.1.4.6, 01:31:45, FastEthernet0/0
R4#
```

```
R4#show ip eigrp neighbors
IP-EIGRP neighbors for process 10
H   Address                Interface      Hold Uptime    SRTT    RTO    Q
Seq                                                    (sec)        (ms)          Cnt

Num
1   10.1.4.10                Fa0/1         11 01:32:33    1     200    0
73
0   10.1.4.6                  Fa0/0         12 01:33:08    1     200    0
83
R4#
```

```
R4#show ip eigrp interfaces
```

```

IP-EIGRP interfaces for process 10
      Xmit Queue  Mean  Pacing Time  Multicast
Pending
Interface      Peers  Un/Reliable  SRTT  Un/Reliable  Flow Timer
Routes
Fa0/0          1      0/0          1     0/1          50
0
Fa0/1          1      0/0          1     0/1          50
0
R4#

```

```

R4#show ip ospf neighbor

```

Neighbor ID	Pri	State	Dead Time	Address
Interface				
3.3.3.3	0	FULL/ -	00:00:35	10.1.1.9

Serial0/1/0.34  
R4#

```
R4#show ip ospf interface
Serial0/1/0.34 is up, line protocol is up
  Internet Address 10.1.1.10/30, Area 34
  Process ID 1, Router ID 4.4.4.4, Network Type POINT_TO_POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT_TO_POINT
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
  oob-resync timeout 40
  Hello due in 00:00:08
```

```
Supports Link-local Signaling (LLS)
Index 1/1, flood queue length 0
Next 0x0(0)/0x0(0)
Last flood scan length is 5, maximum is 5
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 1, Adjacent neighbor count is 1
  Adjacent with neighbor 3.3.3.3
Suppress hello for 0 neighbor(s)
R4#
```

```
R4#show ip ospf database
```

```
OSPF Router with ID (4.4.4.4) (Process ID 1)
```



Router Link States (Area 34)

Link ID count	ADV Router	Age	Seq#	Checksum	Link
3.3.3.3	3.3.3.3	1336	0x8000000D	0x00D070	2
4.4.4.4	4.4.4.4	1425	0x8000000F	0x0069D1	2

Summary Net Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum
0.0.0.0	3.3.3.3	1336	0x80000003	0x00DA4D

Type-7 AS External Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum	Tag
10.1.4.4	4.4.4.4	1425	0x80000006	0x00EF6B	0
10.1.4.8	4.4.4.4	1425	0x80000005	0x00C98E	0
10.2.1.0	4.4.4.4	1425	0x80000004	0x00431D	0
10.2.2.0	4.4.4.4	1425	0x80000004	0x003827	0
10.2.4.12	4.4.4.4	1425	0x80000005	0x0095BD	0

R4#

```
R4#show ip route ospf
O*IA 0.0.0.0/0 [110/65] via 10.1.1.9, 01:28:21, Serial0/1/0.34
R4#
```

```
R4#show ip dhcp binding
Bindings from all pools not associated with VRF:
```

IP address	Client-ID/ Hardware address/ User name	Lease expiration	Type
------------	--	------------------	------

R4#

R4#show ip dhcp conflict

IP address	Detection method	Detection time	VRF
------------	------------------	----------------	-----

R4#

```
R4#show ip dhcp pool
```

```
Pool VLAN10 :
```

```
Utilization mark (high/low) : 100 / 0
```

```
Subnet size (first/next) : 0 / 0
```

```
Total addresses : 254
```

```
Leased addresses : 2
```

```
Pending event : none
```

```
1 subnet is currently in the pool :
```

Current index	IP address range	Leased
addresses		
10.2.1.6	10.2.1.1 - 10.2.1.254	2

```
R4#
```

