

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

Current configuration : 2828 bytes
!
! Last configuration change at 21:05:42 UTC Thu Jun 10 2010
! NVRAM config last updated at 21:05:44 UTC Thu Jun 10 2010
!
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 Tunnel134
```

```
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 100 255 1 1500
network 10.1.4.5 0.0.0.0
network 10.1.4.9 0.0.0.0
metric weights 0 1 1 1 1 1
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
ntp clock-period 17177683
ntp server 10.1.1.1
end
```

R4#

```
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:
```

```
U.U.U
```

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

```
R4#
```

```
R4#ping 209.65.200.226
```

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

```
U.U.U
```

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

```
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:
```

```
U.U.U
```

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

```
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 = 192/194/196
```

```
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 = 128/129/132  
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 = 128/131/136  
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 = 64/65/68 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 = 64/66/68 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 = 128/130/136
```

```
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 = 1/2/4 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 = 1/1/4 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 = 1/2/4 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 = 1/1/1 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 = 1/2/4 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 = 1/2/4 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 = 1/2/4 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 = 1/2/4 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 = 1/2/4 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 = 1/2/4 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 = 1/2/4 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 100 percent (5/5), round-trip min/avg/max = 1/1/1 ms  
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
Tunnel134         unassigned      YES NVRAM  up
up
Tunnel146         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 [90/120] via 10.1.4.10, 00:38:52, FastEthernet0/1  
[90/120] via 10.1.4.6, 00:38:52, 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 [90/111] via 10.1.4.10, 00:38:18, FastEthernet0/1  
[90/111] via 10.1.4.6, 00:38:18, FastEthernet0/0  
D 10.2.2.0/24 [90/111] via 10.1.4.10, 00:38:20, FastEthernet0/1

```
[90/111] via 10.1.4.6, 00:38:20, 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, 00:34:46, Serial0/1/0.34
R4#
```

```
R4#show processes cpu
CPU utilization for five seconds: 1%/0%; one minute: 0%; five minutes: 0%
  PID Runtime(ms)   Invoked    uSecs   5Sec   1Min   5Min  TTY Process
    1         0         3         0  0.00%  0.00%  0.00%  0 Chunk
Manager
    2         0        494         0  0.00%  0.01%  0.00%  0 Load Meter
    3        24        494         48  0.00%  0.00%  0.00%  0 OSPF-1
Hello
    4       1560        248       6290  0.57%  0.07%  0.06%  0 Check
heaps
    5         0         1         0  0.00%  0.00%  0.00%  0 Pool
Manager
    6         0         2         0  0.00%  0.00%  0.00%  0 Timers
```

7	0	1	0	0.00%	0.00%	0.00%	0	OIR
Handler								
8	328	84	3904	0.00%	0.00%	0.00%	0	
Environmental mo								
9	0	1	0	0.00%	0.00%	0.00%	0	Crash
writer								
10	12	82	146	0.00%	0.00%	0.00%	0	ARP Input
11	0	2	0	0.00%	0.00%	0.00%	0	ATM Idle
Timer								
12	0	2	0	0.00%	0.00%	0.00%	0	AAA high-
capacit								
13	0	1	0	0.00%	0.00%	0.00%	0	
AAA_SERVER_DEADT								
14	0	1	0	0.00%	0.00%	0.00%	0	Policy
Manager								
15	0	7	0	0.00%	0.00%	0.00%	0	DDR Timers
16	4	2	2000	0.00%	0.00%	0.00%	0	Entity MIB
API								
17	12	132	90	0.00%	0.00%	0.00%	0	EEM ED
Syslog								
18	0	739	0	0.00%	0.00%	0.00%	0	HC Counter
Timer								
19	0	10	0	0.00%	0.00%	0.00%	0	Serial
Background								
20	0	1	0	0.00%	0.00%	0.00%	0	RO Notify
Timers								
21	0	2	0	0.00%	0.00%	0.00%	0	SMART
22	0	2463	0	0.00%	0.00%	0.00%	0	GraphIt
23	0	2	0	0.00%	0.00%	0.00%	0	Dialer
event								
24	0	1	0	0.00%	0.00%	0.00%	0	SERIAL
A'detect								
25	0	2	0	0.00%	0.00%	0.00%	0	XML Proxy
Client								
26	832	617	1348	0.00%	0.13%	0.14%	0	Exec
27	0	1	0	0.00%	0.00%	0.00%	0	Inode
Table Dest								
28	0	1	0	0.00%	0.00%	0.00%	0	Critical
Bkgnd								
29	8	2550	3	0.00%	0.00%	0.00%	0	Net
Background								
30	4	2	2000	0.00%	0.00%	0.00%	0	IDB Work
31	0	218	0	0.00%	0.00%	0.00%	0	Logger
32	0	2460	0	0.00%	0.00%	0.00%	0	TTY
Background								
33	52	2468	21	0.08%	0.01%	0.00%	0	Per-Second
Jobs								
34	0	1	0	0.00%	0.00%	0.00%	0	AggMgr
Process								
35	0	1	0	0.00%	0.00%	0.00%	0	Token
Daemon								
36	0	1	0	0.00%	0.00%	0.00%	0	Transport
Port A								
37	0	2	0	0.00%	0.00%	0.00%	0	ESWPPM







100	0	2	0	0.00%	0.00%	0.00%	0	ATM OAM
TIMER								
101	0	10	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	8	24697	0	0.08%	0.03%	0.02%	0	RBSCP
Background								
108	0	495	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	0	259	0	0.00%	0.00%	0.00%	0	OSPFv3-6
Hello								
111	0	9	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	0	2	0	0.00%	0.00%	0.00%	0	SDEE
Management								
115	0	1	0	0.00%	0.00%	0.00%	0	IPv6
Inspect Tim								
116	4	2	2000	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
124	0	2	0	0.00%	0.00%	0.00%	0	VSP_MGR
125	0	1	0	0.00%	0.00%	0.00%	0	encrypt
proc								
126	0	3	0	0.00%	0.00%	0.00%	0	Crypto WUI
127	0	2	0	0.00%	0.00%	0.00%	0	Crypto
Support								
128	0	1	0	0.00%	0.00%	0.00%	0	
RPMS_PROC_MAIN								
129	0	1	0	0.00%	0.00%	0.00%	0	crypto
engine pr								
130	32	4	8000	0.00%	0.00%	0.00%	0	Crypto CA
131	0	1	0	0.00%	0.00%	0.00%	0	Crypto
PKI-CRL								
132	0	1	0	0.00%	0.00%	0.00%	0	Crypto SSL
133	0	4	0	0.00%	0.00%	0.00%	0	Crypto ACL





R4#

```
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 00:00:00, output 00:00:01, 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, 1 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
```

```
5426 packets input, 566213 bytes
Received 691 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
3457 packets output, 406086 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 00:00:02, 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, 1 packets/sec
    882 packets input, 90041 bytes
    Received 659 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
    3388 packets output, 264131 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 232, LMI stat recvd 233, 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 404/0, interface
broadcasts 362
Last input 00:00:07, output 00:00:06, output hang never
Last clearing of "show interface" counters 00:41:29
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, 1 packets/sec  
5 minute output rate 0 bits/sec, 1 packets/sec  
3491 packets input, 255121 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  
3607 packets output, 261306 bytes, 0 underruns  
0 output errors, 0 collisions, 5 interface resets  
0 unknown protocol drops  
0 output buffer failures, 0 output buffers swapped out  
76 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 00:33:49, 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  
56 packets input, 7516 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  
296 packets output, 29652 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 00:00:12, output 00:00:16, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 24
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
  2135 packets input, 263820 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
  2124 packets output, 262736 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 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
R3	Ser 0/1/0.34	136	R S I	2811	Ser
DSW1	Fas 0/0	151	R S I	WS-C3550-	Fas
DSW2	Fas 0/1	135	R S I	WS-C3550-	Fas

```
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 : 128 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 : 143 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 : 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=00000000FFFFFFFFF010221FF0000000000000000BFD20BA0FF0000  
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 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=1, K3=1, K4=1, K5=1  
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	00:39:53
10.1.4.6	90	00:39:53

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	00:36:21

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 [90/120] via 10.1.4.10, 00:40:46, FastEthernet0/1
      [90/120] via 10.1.4.6, 00:40:46, FastEthernet0/0
D    10.2.1.0/24 [90/111] via 10.1.4.10, 00:40:12, FastEthernet0/1
      [90/111] via 10.1.4.6, 00:40:12, FastEthernet0/0
D    10.2.2.0/24 [90/111] via 10.1.4.10, 00:40:14, FastEthernet0/1
      [90/111] via 10.1.4.6, 00:40:14, 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	12 00:41:05	1	200	0
88						
0	10.1.4.6	Fa0/0	10 00:41:39	1	200	0
96						

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/ -	00:00:39	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 00:00:01
  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	287	0x8000000E	0x00CE71	2
4.4.4.4	4.4.4.4	341	0x80000010	0x0067D2	2

Summary Net Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum
0.0.0.0	3.3.3.3	287	0x80000002	0x00DC4C

Type-7 AS External Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum	Tag
10.1.4.4	4.4.4.4	341	0x80000005	0x00F16A	0
10.1.4.8	4.4.4.4	341	0x80000005	0x00C98E	0
10.2.1.0	4.4.4.4	341	0x80000003	0x00451C	0
10.2.2.0	4.4.4.4	341	0x80000003	0x003A26	0

```
10.2.4.12      4.4.4.4      341      0x80000003 0x0099BB 0
R4#
```

```
R4#show ip route ospf
O*IA 0.0.0.0/0 [110/65] via 10.1.1.9, 00:37:33, 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
10.2.1.4	0100.1c23.8edb.bc	Jun 08 2010 07:29 PM	

Automatic  
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 : 1

Pending event : none

1 subnet is currently in the pool :

Current index	IP address range	Leased
addresses		
10.2.1.5	10.2.1.1 - 10.2.1.254	1

R4#