

```
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#

```
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 = 32/33/36 ms
```

```
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 = 32/32/32 ms
```

```
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 = 64/71/96 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 = 128/129/132  
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 = 64/67/76 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 = 64/67/72 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 = 128/130/132  
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 = 192/196/208  
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 = 192/194/196
```

```
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 = 192/194/196  
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 = 192/194/196  
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 = 192/250/316  
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 = 192/196/204  
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 = 192/196/204  
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 = 192/194/200  
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 100 percent (5/5), round-trip min/avg/max = 192/194/196  
ms
```

```
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, 00:32:19, FastEthernet0/1
[90/30720] via 10.1.4.6, 00:32:19, 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, 00:31:50, FastEthernet0/1
[90/28416] via 10.1.4.6, 00:31:50, FastEthernet0/0
D 10.2.2.0/24 [90/28416] via 10.1.4.10, 00:32:19, FastEthernet0/1
[90/28416] via 10.1.4.6, 00:32:19, 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, 01:19:10, Serial0/1/0.34
R4#

R4#show processes cpu

CPU utilization for five seconds: 1%/0%; one minute: 1%; 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	1109	0	0.00%	0.01%	0.00%	0	Load Meter
3	76	1092	69	0.00%	0.00%	0.00%	0	OSPF-1
Hello								
4	3416	564	6056	0.57%	0.08%	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	736	186	3956	0.00%	0.01%	0.00%	0	
Environmental mo								
9	0	1	0	0.00%	0.00%	0.00%	0	Crash
writer								

72	0	2	0	0.00%	0.00%	0.00%	0	IP Host
Track Pr								
73	0	28	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	56	264	212	0.00%	0.00%	0.00%	0	IP
Background								
76	8	156	51	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	8	5973	1	0.00%	0.00%	0.00%	0	CEF
process								
80	0	1	0	0.00%	0.00%	0.00%	0	Socket
Timers								
81	0	2	0	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	0	2	0	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	4	5547	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	5550	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	4	2	2000	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

166	4	261	15	0.00%	0.00%	0.00%	0 Syslog
167	0	1	0	0.00%	0.00%	0.00%	0 VPDN Scal
168	0	93	0	0.00%	0.00%	0.00%	0 DHCPD
Database							
169	0	1	0	0.00%	0.00%	0.00%	0 Net Input
170	0	1113	0	0.00%	0.00%	0.00%	0 Compute
load avg							
171	1472	93	15827	0.00%	0.02%	0.00%	0 Per-minute
Jobs							
172	4	192	20	0.00%	0.00%	0.00%	0 CEF
Scanner							
173	0	1	0	0.00%	0.00%	0.00%	0 tHUB
175	16	26	615	0.00%	0.00%	0.00%	0 DHCPD
Receive							
176	88	815	107	0.00%	0.00%	0.00%	0 IPv6 Input
177	0	314	0	0.00%	0.00%	0.00%	0 IPv6 IDB
178	0	13	0	0.00%	0.00%	0.00%	0 IPv6 ND
179	4	22226	0	0.00%	0.02%	0.00%	0 MLD
180	4	5503	0	0.00%	0.00%	0.00%	0 OSPFv3-6
Router							
181	40	643	62	0.00%	0.00%	0.00%	0 IPv6 RIP
182	16	5602	2	0.08%	0.04%	0.06%	0 IGMP Input
183	16	55548	0	0.08%	0.03%	0.02%	0 Mwheel
Process							
184	188	6936	27	0.08%	0.03%	0.02%	0 PIM
Process							
185	784	1022	767	0.00%	0.00%	0.00%	0 FR LMI
186	4	55551	0	0.08%	0.02%	0.02%	0 FR
Broadcast Out							
187	4	557	7	0.00%	0.00%	0.00%	0 compute
load per							
188	0	108	0	0.00%	0.00%	0.00%	0 FR ARP
189	0	93	0	0.00%	0.00%	0.00%	0 FR
FRAGMENTATION							
190	0	278	0	0.00%	0.00%	0.00%	0 FR TUNNEL
191	0	1	0	0.00%	0.00%	0.00%	0 FRF9
manager							
192	0	1	0	0.00%	0.00%	0.00%	0 FRF9 timed
event							
194	0	55	0	0.00%	0.00%	0.00%	0 IP-EIGRP
Router							
195	336	4257	78	0.08%	0.00%	0.00%	0 IP-EIGRP:
PDM							
196	40	5652	7	0.00%	0.00%	0.00%	0 OSPF-1
Router							
197	256	4983	51	0.00%	0.00%	0.00%	0 IP-EIGRP:
HELLO							
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 00:00:00, 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
    1965 packets input, 205275 bytes
    Received 1465 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
```

```
2777 packets output, 248259 bytes, 0 underruns
0 output errors, 0 collisions, 16 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 00:00:04, output 00:00:03, 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
 1953 packets input, 190295 bytes
  Received 1572 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
2530 packets output, 203826 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 503, LMI stat recvd 509, 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 885/0, interface
broadcasts 791
Last input 00:00:00, output 00:00:01, output hang never
Last clearing of "show interface" counters 01:32:47
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
1961 packets input, 160372 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
2193 packets output, 174437 bytes, 0 underruns
0 output errors, 0 collisions, 12 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
192 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 00:00:08, 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
519 packets input, 63228 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
536 packets output, 54296 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 00:00:01, output 00:00:26, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 34
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
  209 packets input, 23696 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
  223 packets output, 31800 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
R3	Ser 0/1/0.34	156	R S I	2811	Ser
DSW1	Fas 0/0	161	R S I	WS-C3550-	Fas
DSW2	Fas 0/1	170	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 : 148 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 : 153 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=00000000FFFFFFFFF010221FF0000000000000000DBDE36E00FF0000
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 : 163 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	33	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            33         000d.bde3.6e00 ARPA   FastEthernet0/0
Internet 10.1.4.5            -          0019.5578.1cb2 ARPA   FastEthernet0/0
R4#
```

```
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      00:33:42
10.1.4.6           90      00:33:42
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	01:21:07

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#
```



```
0 10.1.4.6 Fa0/0 11 00:34:39 1 200 0
37
1 10.1.4.10 Fa0/1 12 01:32:40 1 200 0
359
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/ -	00:00:32	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 00:00:00
  Supports Link-local Signaling (LLS)
  Index 1/1, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 3
  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	1132	0x8000001B	0x00B47E	2
4.4.4.4	4.4.4.4	915	0x8000001F	0x0049E1	2

Summary Net Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum
0.0.0.0	3.3.3.3	1132	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	174	0x80000002	0x00F767	0
10.1.4.8	4.4.4.4	915	0x80000006	0x00C78F	0
10.2.1.0	4.4.4.4	915	0x80000004	0x00431D	0
10.2.2.0	4.4.4.4	915	0x80000004	0x003827	0
10.2.4.12	4.4.4.4	174	0x80000002	0x009BBA	0

R4#

```
R4#show ip route ospf
O*IA 0.0.0.0/0 [110/65] via 10.1.1.9, 01:22:11, 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 02 2010 03:01 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#