

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

Current configuration : 2707 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 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 15
!
!
!
!
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 17177718
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:
```

```
.....
```

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

```
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 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:
```

```
.....
```

```
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 0 percent (0/5)
```

```
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 0 percent (0/5)
```

```
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 0 percent (0/5)
```

```
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 0 percent (0/5)
```

```
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 0 percent (0/5)  
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 0 percent (0/5)  
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 = 1/1/4 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 80 percent (4/5), round-trip min/avg/max = 1/1/4 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 = 1/1/4 ms
```

```
R4#
```

```
R4#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status
FastEthernet0/0	10.1.4.5	YES	NVRAM	up
FastEthernet0/1	10.1.4.9	YES	NVRAM	up
Serial0/0/0	unassigned	YES	NVRAM	down
Serial0/0/1	unassigned	YES	NVRAM	down
Serial0/1/0	unassigned	YES	NVRAM	up
Serial0/1/0.34	10.1.1.10	YES	NVRAM	down
Tunnel34	unassigned	YES	NVRAM	up
Tunnel46	unassigned	YES	NVRAM	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 not set

10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks  
D 10.2.4.12/30 [90/120] via 10.1.4.10, 00:37:34, FastEthernet0/1  
[90/120] via 10.1.4.6, 00:37:34, FastEthernet0/0  
C 10.1.4.8/30 is directly connected, FastEthernet0/1  
D 10.2.1.0/24 [90/111] via 10.1.4.10, 00:37:01, FastEthernet0/1  
[90/111] via 10.1.4.6, 00:37:01, FastEthernet0/0  
D 10.2.2.0/24 [90/111] via 10.1.4.10, 00:37:07, FastEthernet0/1  
[90/111] via 10.1.4.6, 00:37:07, FastEthernet0/0  
C 10.1.4.4/30 is directly connected, FastEthernet0/0  
R4#



R4#show processes cpu

CPU utilization for five seconds: 0%/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	8	479	16	0.08%	0.01%	0.00%	0	Load Meter
3	0	15	0	0.00%	0.00%	0.00%	0	OSPF-1
Hello								
4	1472	242	6082	0.00%	0.05%	0.05%	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	316	81	3901	0.00%	0.01%	0.00%	0	
Environmental mo								





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	22	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	0	74	0	0.00%	0.00%	0.00%	0	IP
Background								
76	0	15	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	2675	4	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	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	2396	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	2398	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	40	0	0.00%	0.00%	0.00%	0	IP Cache
Ager								
98	4	41	97	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	10	0	0.00%	0.00%	0.00%	0	HTTP CORE
102	0	1	0	0.00%	0.00%	0.00%	0	RARP Input



137	252	123	2048	0.00%	0.00%	0.00%	0	IPSEC key engine
138	0	1	0	0.00%	0.00%	0.00%	0	IPSEC manual key
139	0	1	0	0.00%	0.00%	0.00%	0	Crypto PAS Proc
140	0	1	0	0.00%	0.00%	0.00%	0	Crypto Delete Ma
141	0	2	0	0.00%	0.00%	0.00%	0	Key Proc
142	0	2404	0	0.00%	0.00%	0.00%	0	Crypto Device Up
143	0	1	0	0.00%	0.00%	0.00%	0	Crypto Hardware
144	0	2	0	0.00%	0.00%	0.00%	0	Multi-ISA Event
145	0	1	0	0.00%	0.00%	0.00%	0	Multi-ISA Cleanu
146	0	1	0	0.00%	0.00%	0.00%	0	PM Callback
147	0	1	0	0.00%	0.00%	0.00%	0	DATA Transfer Pr
148	0	1	0	0.00%	0.00%	0.00%	0	DATA Collector
149	0	2	0	0.00%	0.00%	0.00%	0	AAA SEND STOP EV
150	4	3	1333	0.00%	0.00%	0.00%	0	EEM ED CLI
151	0	2	0	0.00%	0.00%	0.00%	0	EEM ED Counter
152	0	2	0	0.00%	0.00%	0.00%	0	EEM ED Interface
153	0	3	0	0.00%	0.00%	0.00%	0	EEM ED IOSWD
154	0	2	0	0.00%	0.00%	0.00%	0	EEM ED Memory-th
155	0	2	0	0.00%	0.00%	0.00%	0	EEM ED None
156	0	2	0	0.00%	0.00%	0.00%	0	EM ED OIR
157	0	2	0	0.00%	0.00%	0.00%	0	EEM ED SNMP
158	0	43	0	0.00%	0.00%	0.00%	0	EEM ED Timer
159	0	496	0	0.00%	0.00%	0.00%	0	EEM Server
160	0	242	0	0.00%	0.00%	0.00%	0	RMON Recycle Pro
161	0	2	0	0.00%	0.00%	0.00%	0	RMON Deferred Se
162	0	1	0	0.00%	0.00%	0.00%	0	Syslog Traps
163	12	2	6000	0.00%	0.00%	0.00%	0	VLAN Manager
164	0	21	0	0.00%	0.00%	0.00%	0	DHCPD Timer
165	0	2	0	0.00%	0.00%	0.00%	0	EEM Policy Direc

166	0	94	0	0.00%	0.00%	0.00%	0	Syslog
167	0	1	0	0.00%	0.00%	0.00%	0	VPDN Scal
168	0	41	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	482	0	0.00%	0.00%	0.00%	0	Compute
load avg								
171	640	41	15609	0.32%	0.03%	0.00%	0	Per-minute
Jobs								
172	4	84	47	0.00%	0.00%	0.00%	0	CEF
Scanner								
173	0	1	0	0.00%	0.00%	0.00%	0	tHUB
175	12	23	521	0.00%	0.00%	0.00%	0	DHCPD
Receive								
176	4	126	31	0.00%	0.00%	0.00%	0	IPv6 Input
177	0	104	0	0.00%	0.00%	0.00%	0	IPv6 IDB
178	0	10	0	0.00%	0.00%	0.00%	0	IPv6 ND
179	8	9618	0	0.00%	0.02%	0.00%	0	MLD
180	0	2382	0	0.00%	0.00%	0.00%	0	OSPFv3-6
Router								
181	4	284	14	0.00%	0.00%	0.00%	0	IPv6 RIP
182	16	2425	6	0.00%	0.04%	0.04%	0	IGMP Input
183	16	24037	0	0.08%	0.03%	0.02%	0	Mwheel
Process								
184	48	2761	17	0.08%	0.03%	0.02%	0	PIM
Process								
185	284	481	590	0.00%	0.00%	0.00%	0	FR LMI
186	0	24039	0	0.00%	0.02%	0.01%	0	FR
Broadcast Out								
187	0	242	0	0.00%	0.00%	0.00%	0	compute
load per								
188	0	45	0	0.00%	0.00%	0.00%	0	FR ARP
189	0	41	0	0.00%	0.00%	0.00%	0	FR
FRAGMENTATION								
190	0	121	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	2407	0	0.00%	0.00%	0.00%	0	NTP
195	4	11	363	0.00%	0.00%	0.00%	0	IP-EIGRP
Router								
196	132	1606	82	0.00%	0.00%	0.00%	0	IP-EIGRP:
PDM								
197	12	2376	5	0.00%	0.00%	0.00%	0	OSPF-1
Router								
198	104	2085	49	0.00%	0.01%	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 00:00:01, 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
    928 packets input, 96507 bytes
```



```
Received 665 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
1235 packets output, 107669 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 00:00:02, 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
    766 packets input, 79164 bytes
Received 635 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
1087 packets output, 89238 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 241, LMI stat recvd 241, 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 6/0, interface broadcasts

3

Last input 00:00:05, output 00:00:05, output hang never  
Last clearing of "show interface" counters 00:40:15  
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  
241 packets input, 4237 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  
268 packets output, 6403 bytes, 0 underruns  
0 output errors, 0 collisions, 2 interface resets  
0 unknown protocol drops  
0 output buffer failures, 0 output buffers swapped out  
8 carrier transitions  
DCD=up DSR=up DTR=up RTS=up CTS=up

Serial0/1/0.34 is down, line protocol is down

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 down

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 never, output 00:39:57, 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  
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  
21 packets output, 1968 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 00:00:24, output 00:00:06, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 29
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
  85 packets input, 9840 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
  109 packets output, 10556 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
DSW1 ID 0/1	Fas 0/0	164	R S I	WS-C3550-	Fas
DSW2 0/1	Fas 0/1	148	R S I	WS-C3550-	Fas

```
R4#
```

R4#show cdp neighbors detail

-----

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 : 156 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 : 140 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 (down): point-to-point dlci, dlci 403(0x193,0x6430),
broadcast
                status defined, inactive
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 down, line protocol is down
  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 down
  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      drop              Null0 (default route handler
entry)
0.0.0.0/8      drop
0.0.0.0/32     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	00:38:42
-----------	----	----------

10.1.4.6	90	00:38:42
----------	----	----------

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
---------	----------	-------------

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, 5 subnets, 2 masks
D       10.2.4.12/30 [90/120] via 10.1.4.10, 00:39:36, FastEthernet0/1
        [90/120] via 10.1.4.6, 00:39:36, FastEthernet0/0
D       10.2.1.0/24 [90/111] via 10.1.4.10, 00:39:04, FastEthernet0/1
        [90/111] via 10.1.4.6, 00:39:04, FastEthernet0/0
D       10.2.2.0/24 [90/111] via 10.1.4.10, 00:39:10, FastEthernet0/1
        [90/111] via 10.1.4.6, 00:39:10, 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	00:39:58	2	200	0
36							
0	10.1.4.6	Fa0/0	13	00:40:32	1	200	0
39							

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	2	0/1	50
0					

```
R4#
```

```
R4#show ip ospf neighbor
```

```
R4#
```

```
R4#show ip ospf interface
Serial0/1/0.34 is down, line protocol is down
  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 DOWN
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    oob-resync timeout 40
R4#
```

R4#show ip ospf database

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

Router Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum	Link
count					
4.4.4.4	4.4.4.4	530	0x80000003	0x001405	0

Type-7 AS External Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum	Tag
10.1.4.4	4.4.4.4	530	0x80000002	0x00E391	0
10.1.4.8	4.4.4.4	530	0x80000002	0x00BBB5	0
10.2.1.0	4.4.4.4	530	0x80000002	0x003345	0
10.2.2.0	4.4.4.4	530	0x80000002	0x00284F	0
10.2.4.12	4.4.4.4	530	0x80000002	0x0087E4	0

R4#

```
R4#show ip route ospf
```

```
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 11 2010 06:44 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#