

```
R3#
R3#show running-config
Building configuration...
```

```
Current configuration : 2565 bytes
!
! No configuration change since last restart
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
logging message-counter syslog
enable secret 5 $1$p7Bj$JJYJbGT9E4K7craiToCfl.
!
no aaa new-model
!
dot11 syslog
ip source-route
!
!
ip cef
!
!
ip multicast-routing
ipv6 unicast-routing
ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
```

```
!  
!  
!  
!  
voice-card 0  
!  
!  
!  
!  
!  
archive  
  log config  
  hidekeys  
!  
!  
!  
!  
!  
!  
!  
!  
!  
interface Tunnel34  
  no ip address  
  ipv6 address 2026::34:1/122  
  ipv6 enable  
  ipv6 ospf 6 area 34  
  tunnel source 10.1.1.9  
  tunnel destination 10.1.1.10  
  tunnel mode ipv6ip  
!  
interface FastEthernet0/0  
  no ip address  
  shutdown  
  duplex auto  
  speed auto  
!  
interface FastEthernet0/1  
  no ip address  
  shutdown  
  duplex auto  
  speed auto  
!  
interface Serial0/0/0  
  no ip address  
!  
interface Serial0/0/1  
  no ip address  
  clock rate 2000000  
!  
interface Serial0/1/0  
  no ip address  
  shutdown  
!
```

```
interface Serial0/2/0
  no ip address
  encapsulation frame-relay
  !
interface Serial0/2/0.23 point-to-point
  ip address 10.1.1.6 255.255.255.252
  ip pim sparse-dense-mode
  snmp trap link-status
  ipv6 address 2026::1:2/122
  ipv6 enable
  ipv6 ospf 6 area 0
  frame-relay interface-dlci 302
  !
interface Serial0/2/0.34 point-to-point
  ip address 10.1.1.9 255.255.255.252
  ip pim sparse-dense-mode
  snmp trap link-status
  frame-relay interface-dlci 304
  !
interface Serial0/3/0
  no ip address
  !
router ospf 1
  router-id 3.3.3.3
  log-adjacency-changes
  area 34 nssa no-summary
  passive-interface Serial0/2/0
  network 10.1.1.2 0.0.0.0 area 0
  network 10.1.1.8 0.0.0.3 area 34
  network 10.3.3.1 0.0.0.0 area 0
  network 10.3.3.3 0.0.0.0 area 0
  network 0.0.0.0 255.255.255.255 area 0
  !
ip forward-protocol nd
no 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
  !
access-list 1 deny 10.2.1.0 0.0.0.255
access-list 1 permit any
ipv6 router ospf 6
  log-adjacency-changes
  !
```

```
!  
!  
!  
!  
!  
!  
control-plane  
!  
!  
!  
ccm-manager fax protocol cisco  
!  
mgcp fax t38 ecm  
mgcp behavior g729-variants static-pt  
!  
!  
!  
!  
!  
line con 0  
  exec-timeout 0 0  
  logging synchronous  
line aux 0  
line vty 0 4  
  exec-timeout 0 0  
  password cisco  
  login  
!  
scheduler allocate 20000 1000  
ntp server 10.1.1.1  
ntp peer 10.1.1.1  
end  
  
R3#
```

```
R3#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 = 160/161/164  
ms
```

```
R3#
```

```
R3#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 = 160/162/164  
ms
```

```
R3#
```

```
R3#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 = 128/129/132  
ms
```

```
R3#
```

```
R3#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 = 128/131/132  
ms
```

```
R3#
```



```
R3#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 = 64/72/100 ms
```

```
R3#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 = 64/91/192 ms
```

```
R3#ping 10.1.1.6
```

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

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

```
!!!!!
```

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

```
R3#
```

```
R3#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 = 128/131/136  
ms
```

```
R3#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 = 64/64/68 ms
```

```
R3#  
R3#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 = 64/64/68 ms
```

```
R3#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 = 64/65/68 ms
```

```
R3#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 = 64/64/68 ms
```

```
R3#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 = 64/65/68 ms
```

```
R3#
```



```
R3#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 0 percent (0/5)
```

```
R3#
```

```
R3#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 = 64/65/68 ms
```

```
R3#
```

```
R3#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 0 percent (0/5)
```

```
R3#
```

```
R3#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 = 64/65/68 ms
```

```
R3#
```

```
R3#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 = 64/65/68 ms
```

```
R3#
```

```
R3#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 0 percent (0/5)
```

```
R3#
```

```
R3#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 = 64/66/68 ms
```

```
R3#
```

```
R3#ping 10.2.1.4
```

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.2.1.4, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
R3#

```
R3#show ip interface brief
Interface          IP-Address      OK? Method Status
Protocol
FastEthernet0/0    unassigned      YES NVRAM  administratively
down down
```


FastEthernet0/1	unassigned	YES NVRAM	administratively
down down			
Serial0/0/0	unassigned	YES NVRAM	down
down			
Serial0/0/1	unassigned	YES NVRAM	down
down			
Serial0/1/0	unassigned	YES NVRAM	administratively
down down			
Serial0/2/0	unassigned	YES NVRAM	up
up			
Serial0/2/0.23	10.1.1.6	YES NVRAM	up
up			
Serial0/2/0.34	10.1.1.9	YES NVRAM	up
up			
Serial0/3/0	unassigned	YES NVRAM	down
down			
Tunnel34	unassigned	YES NVRAM	up
up			
R3#			

R3#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

209.65.200.0/24 is variably subnetted, 2 subnets, 2 masks
O E2 209.65.200.240/29 [110/1] via 10.1.1.5, 01:02:03, Serial0/2/0.23
O E2 209.65.200.224/30 [110/20] via 10.1.1.5, 01:02:03, Serial0/2/0.23
10.0.0.0/8 is variably subnetted, 7 subnets, 2 masks
O N2 10.2.4.12/30 [110/20] via 10.1.1.10, 01:01:48, Serial0/2/0.34
C 10.1.1.8/30 is directly connected, Serial0/2/0.34
O N2 10.1.4.8/30 [110/20] via 10.1.1.10, 01:01:48, Serial0/2/0.34
O N2 10.2.2.0/24 [110/20] via 10.1.1.10, 01:01:49, Serial0/2/0.34
O IA 10.1.1.0/30 [110/128] via 10.1.1.5, 01:02:04, Serial0/2/0.23
O N2 10.1.4.4/30 [110/20] via 10.1.1.10, 01:01:49, Serial0/2/0.34
C 10.1.1.4/30 is directly connected, Serial0/2/0.23
R3#

R3#show processes cpu

CPU utilization for five seconds: 1%/0%; one minute: 2%; five minutes: 2%

PID	Runtime (ms)	Invoked	uSecs	5Sec	1Min	5Min	TTY	Process
1	16	69	231	0.00%	0.00%	0.00%	0	Chunk
Manager								
2	4	906	4	0.00%	0.04%	0.03%	0	Load Meter
3	0	5	0	0.00%	0.00%	0.00%	0	Collection
proce								
4	0	1	0	0.00%	0.00%	0.00%	0	EDDRI_MAIN
5	5556	537	10346	0.00%	0.10%	0.11%	0	Check
heaps								
6	0	1	0	0.00%	0.00%	0.00%	0	Pool
Manager								
7	0	2	0	0.00%	0.00%	0.00%	0	Timers
8	0	1	0	0.00%	0.00%	0.00%	0	License
Client N								
9	184	1930	95	0.00%	0.01%	0.00%	0	OSPF-1
Hello								
10	0	76	0	0.00%	0.00%	0.00%	0	IPC
Dynamic Cach								
11	0	1	0	0.00%	0.00%	0.00%	0	IPC Zone
Manager								
12	0	4530	0	0.00%	0.00%	0.00%	0	IPC
Periodic Tim								
13	0	4530	0	0.00%	0.00%	0.00%	0	IPC
Deferred Por								
14	0	1	0	0.00%	0.00%	0.00%	0	IPC Seat
Manager								
15	0	1	0	0.00%	0.00%	0.00%	0	IPC
BackPressure								
16	0	1	0	0.00%	0.00%	0.00%	0	OIR
Handler								

17	0	1	0	0.00%	0.00%	0.00%	0	Crash
writer								
18	0	152	0	0.00%	0.00%	0.00%	0	
Environmental mo								
19	0	1	0	0.00%	0.00%	0.00%	0	ARP Input
20	0	4731	0	0.00%	0.00%	0.00%	0	ARP
Background								
21	0	2	0	0.00%	0.00%	0.00%	0	ATM Idle
Timer								
22	0	2	0	0.00%	0.00%	0.00%	0	AAA high-
capacit								
23	0	1	0	0.00%	0.00%	0.00%	0	
AAA_SERVER_DEADT								
24	0	1	0	0.00%	0.00%	0.00%	0	Policy
Manager								
25	0	6	0	0.00%	0.00%	0.00%	0	DDR Timers
26	8	2	4000	0.00%	0.00%	0.00%	0	Entity MIB
API								
27	16	49	326	0.00%	0.00%	0.00%	0	EEM ED
Syslog								
28	0	1361	0	0.00%	0.00%	0.00%	0	HC Counter
Timer								
29	0	153	0	0.00%	0.00%	0.00%	0	Serial
Background								
30	0	1	0	0.00%	0.00%	0.00%	0	RO Notify
Timers								
31	0	1	0	0.00%	0.00%	0.00%	0	RMI RM
Notify Wa								
32	0	2	0	0.00%	0.00%	0.00%	0	SMART
33	4	4528	0	0.00%	0.00%	0.00%	0	GraphIt
34	0	2	0	0.00%	0.00%	0.00%	0	Dialer
event								
35	0	1	0	0.00%	0.00%	0.00%	0	SERIAL
A'detect								
36	0	2	0	0.00%	0.00%	0.00%	0	XML Proxy
Client								
37	0	1	0	0.00%	0.00%	0.00%	0	Critical
Bkgnd								
38	44	2160	20	0.00%	0.00%	0.00%	0	Net
Background								
39	0	2	0	0.00%	0.00%	0.00%	0	IDB Work
40	4	53	75	0.00%	0.00%	0.00%	0	Logger
41	8	4525	1	0.00%	0.00%	0.00%	0	TTY
Background								
42	4	4533	0	0.07%	0.02%	0.00%	0	Per-Second
Jobs								
43	0	303	0	0.00%	0.00%	0.00%	0	c2800
Periodic								
44	0	1	0	0.00%	0.00%	0.00%	0	Inode
Table Dest								
45	0	1	0	0.00%	0.00%	0.00%	0	IKE HA Mgr
46	0	1	0	0.00%	0.00%	0.00%	0	IPSEC HA
Mgr								
47	4	4	1000	0.00%	0.00%	0.00%	0	rf task

106	0	2	0	0.00%	0.00%	0.00%	0	Ethernet
OAM Pro								
107	0	2	0	0.00%	0.00%	0.00%	0	CEF
switching ba								
108	0	2	0	0.00%	0.00%	0.00%	0	ADJ
resolve proc								
109	0	1	0	0.00%	0.00%	0.00%	0	IP ARP
Adjacency								
110	4	1	4000	0.00%	0.00%	0.00%	0	IP ARP
Retry Age								
111	616	2111	291	0.00%	0.01%	0.00%	0	IP Input
112	0	1	0	0.00%	0.00%	0.00%	0	ICMP event
handl								
113	0	4	0	0.00%	0.00%	0.00%	0	TurboACL
114	0	2	0	0.00%	0.00%	0.00%	0	TurboACL
chunk								
115	0	1	0	0.00%	0.00%	0.00%	0	IPv6 Echo
event								
116	0	1	0	0.00%	0.00%	0.00%	0	LSP Tunnel
FRR								
117	0	1	0	0.00%	0.00%	0.00%	0	MPLS Auto-
Tunnel								
118	0	10	0	0.00%	0.00%	0.00%	0	MOP
Protocols								
119	0	3	0	0.00%	0.00%	0.00%	0	PPP Hooks
120	1304	518	2517	0.15%	0.27%	0.24%	0	Exec
121	0	1	0	0.00%	0.00%	0.00%	0	SSS
Manager								
122	0	1	0	0.00%	0.00%	0.00%	0	SSS
Feature Mana								
123	0	1	0	0.00%	0.00%	0.00%	0	SSS
Feature Time								
124	0	2	0	0.00%	0.00%	0.00%	0	Spanning
Tree								
125	0	1	0	0.00%	0.00%	0.00%	0	X.25
Encaps Mana								
126	8	26	307	0.00%	0.00%	0.00%	0	SSM
connection m								
127	0	1	0	0.00%	0.00%	0.00%	0	AC Switch
128	0	16	0	0.00%	0.00%	0.00%	0	
Authentication P								
129	0	1	0	0.00%	0.00%	0.00%	0	Auth-proxy
AAA B								
130	100	2	50000	0.00%	0.00%	0.00%	0	EAPoUDP
Process								
131	0	2	0	0.00%	0.00%	0.00%	0	IP Host
Track Pr								
132	0	2	0	0.00%	0.00%	0.00%	0	KRB5 AAA
133	0	2	0	0.00%	0.00%	0.00%	0	Ethernet
LMI								
134	0	2	0	0.00%	0.00%	0.00%	0	PPP IP
Route								
135	0	2	0	0.00%	0.00%	0.00%	0	PPP IPCP


```
R3#show interfaces
FastEthernet0/0 is administratively down, line protocol is down
  Hardware is MV96340 Ethernet, address is 0016.479a.f6e8 (bia
0016.479a.f6e8)
  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)
  Auto-duplex, Auto Speed, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  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: 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
  0 packets input, 0 bytes
  Received 0 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
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 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 administratively down, line protocol is down
  Hardware is MV96340 Ethernet, address is 0016.479a.f6e9 (bia
0016.479a.f6e9)
  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)
  Auto-duplex, Auto Speed, 100BaseTX/FX
  ARP type: ARPA, ARP Timeout 04:00:00
  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: 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
  0 packets input, 0 bytes
  Received 0 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
  0 packets output, 0 bytes, 0 underruns
  0 output errors, 0 collisions, 0 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 1544 Kbit/sec, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set
  Keepalive set (10 sec)
  CRC checking enabled
  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 0/0/256 (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
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, 4 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=down DSR=down DTR=up RTS=up CTS=down

Serial0/0/1 is down, line protocol is down

Hardware is GT96K Serial
MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
CRC checking enabled
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 0/0/256 (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
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 administratively down, line protocol is down

Hardware is GT96K Serial
MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, loopback not set
Keepalive set (10 sec)
CRC checking enabled
Last input 01:16:06, output 01:16:07, 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 0/1/256 (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
1 packets input, 24 bytes, 0 no buffer
Received 1 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
1 packets output, 24 bytes, 0 underruns
0 output errors, 0 collisions, 3 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
1 carrier transitions
DCD=down DSR=down DTR=down RTS=down CTS=down

Serial0/2/0 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)
CRC checking enabled
LMI enq sent 447, LMI stat recvd 446, 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 2023/0, interface
broadcasts 1883
Last input 00:00:01, output 00:00:00, output hang never
Last clearing of "show interface" counters 01:16:06
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 0/3/256 (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
4137 packets input, 367585 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
4275 packets output, 381080 bytes, 0 underruns
0 output errors, 0 collisions, 6 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
38 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up

Serial0/2/0.23 is up, line protocol is up

Hardware is GT96K Serial
Internet address is 10.1.1.6/30
MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation FRAME-RELAY
CRC checking enabled
Last clearing of "show interface" counters never

```
Serial0/2/0.34 is up, line protocol is up
  Hardware is GT96K Serial
  Internet address is 10.1.1.9/30
  MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation FRAME-RELAY
  CRC checking enabled
  Last clearing of "show interface" counters never
Serial0/3/0 is down, line protocol is down
  Hardware is GT96K Serial
  MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set
  Keepalive set (10 sec)
  CRC checking enabled
  Last input 01:15:35, output 01:15:40, 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 0/1/256 (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
    1 packets input, 24 bytes, 0 no buffer
    Received 1 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    5 packets output, 1026 bytes, 0 underruns
    0 output errors, 0 collisions, 155 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
    8 carrier transitions
  DCD=down DSR=down DTR=up RTS=up CTS=down
```

```
Tunnel34 is up, line protocol is up
  Hardware is Tunnel
  MTU 17920 bytes, BW 100 Kbit/sec, DLY 50000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation TUNNEL, loopback not set
  Keepalive not set
  Tunnel source 10.1.1.9, destination 10.1.1.10
  Tunnel protocol/transport IPv6/IP
  Tunnel TTL 255
  Tunnel transport MTU 1480 bytes
  Tunnel transmit bandwidth 8000 (kbps)
  Tunnel receive bandwidth 8000 (kbps)
  Last input 00:00:00, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 17
  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
```

```
490 packets input, 71508 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
539 packets output, 54708 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
```

R3#

R3#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
R2	Ser 0/2/0.23	120	R S I	2811	Ser
R4	Ser 0/2/0.34	177	R S I	1841	Ser

```
R3#show cdp neighbors detail
```

```
-----
```

```
Device ID: R2
```

Entry address(es):
 IP address: 10.1.1.5
 IPv6 address: 2026::1:1 (global unicast)
 IPv6 address: FE80::216:9DFF:FEFA:CAB0 (link-local)
Platform: Cisco 2811, Capabilities: Router Switch IGMP
Interface: Serial0/2/0.23, Port ID (outgoing port): Serial0/2/0.23
Holdtime : 173 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: R4
Entry address(es):
 IP address: 10.1.1.10
Platform: Cisco 1841, Capabilities: Router Switch IGMP
Interface: Serial0/2/0.34, Port ID (outgoing port): Serial0/1/0.34
Holdtime : 170 sec

Version :
Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version
12.4(25b), RELEASE SOFTWARE (fc1)
Technical Support: <http://www.cisco.com/techsupport>
Copyright (c) 1986-2009 by Cisco Systems, Inc.
Compiled Wed 12-Aug-09 10:49 by prod_rel_team

advertisement version: 2
VTP Management Domain: ''

R3#

```
R3#show frame-relay map
Serial0/2/0.23 (up): point-to-point dlci, dlci 302(0x12E,0x48E0),
broadcast
                status defined, active
Serial0/2/0.34 (up): point-to-point dlci, dlci 304(0x130,0x4C00),
broadcast
                status defined, active
R3#
```

```
R3#show ip interface
FastEthernet0/0 is administratively down, line protocol is down
  Internet protocol processing disabled
FastEthernet0/1 is administratively down, line protocol is down
  Internet protocol processing 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 administratively down, line protocol is down
  Internet protocol processing disabled
Serial0/2/0 is up, line protocol is up
  Internet protocol processing disabled
Serial0/2/0.23 is up, line protocol is up
  Internet address is 10.1.1.6/30
  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 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
Input features: MCI Check
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
Serial0/2/0.34 is up, line protocol is up
  Internet address is 10.1.1.9/30
  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
    224.0.0.5
  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 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
Input features: MCI Check
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
Serial0/3/0 is down, line protocol is down
  Internet protocol processing disabled
Tunnel34 is up, line protocol is up
  Internet protocol processing disabled
R3#
```

R3#show ip cef

Prefix	Next Hop	Interface
0.0.0.0/0	no route	
0.0.0.0/8	drop	
0.0.0.0/32	receive	
10.1.1.0/30	10.1.1.5	Serial0/2/0.23
10.1.1.4/30	attached	Serial0/2/0.23
10.1.1.4/32	receive	Serial0/2/0.23
10.1.1.6/32	receive	Serial0/2/0.23
10.1.1.7/32	receive	Serial0/2/0.23
10.1.1.8/30	attached	Serial0/2/0.34
10.1.1.8/32	receive	Serial0/2/0.34
10.1.1.9/32	receive	Serial0/2/0.34
10.1.1.11/32	receive	Serial0/2/0.34
10.1.4.4/30	10.1.1.10	Serial0/2/0.34
10.1.4.8/30	10.1.1.10	Serial0/2/0.34
10.2.2.0/24	10.1.1.10	Serial0/2/0.34
10.2.4.12/30	10.1.1.10	Serial0/2/0.34
127.0.0.0/8	drop	
209.65.200.224/30	10.1.1.5	Serial0/2/0.23
209.65.200.240/29	10.1.1.5	Serial0/2/0.23
224.0.0.0/4	multicast	
224.0.0.0/24	receive	
240.0.0.0/4	drop	
255.255.255.255/32	receive	

R3#

```
R3#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
R3#
```

```
R3#show ip protocols
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 3.3.3.3
  It is an area border and autonomous system boundary router
  Redistributing External Routes from,
  Number of areas in this router is 2. 1 normal 0 stub 1 nssa
  Maximum path: 4
  Routing for Networks:
    10.1.1.2 0.0.0.0 area 0
    10.1.1.8 0.0.0.3 area 34
    10.3.3.1 0.0.0.0 area 0
    10.3.3.3 0.0.0.0 area 0
    0.0.0.0 255.255.255.255 area 0
Reference bandwidth unit is 100 mbps
Passive Interface(s):
  Serial0/2/0
Routing Information Sources:
  Gateway         Distance      Last Update
  4.4.4.4         110          01:03:39
  2.2.2.2         110          01:03:54
  10.1.1.1        110          01:03:54
Distance: (default is 110)
```

R3#

```
R3#show access-lists
Standard IP access list 1
 10 deny 10.2.1.0, wildcard bits 0.0.0.255
 20 permit any
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
R3#
```

```
R3#show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address
Interface				
2.2.2.2	0	FULL/ -	00:00:32	10.1.1.5
Serial0/2/0.23				

```
4.4.4.4          0    FULL/  -          00:00:38    10.1.1.10
Serial0/2/0.34
R3#
```

```
R3#show ip ospf interface
Serial0/2/0.23 is up, line protocol is up
  Internet Address 10.1.1.6/30, Area 0
  Process ID 1, Router ID 3.3.3.3, Network Type POINT_TO_POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT_TO_POINT
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    oob-resync timeout 40
    Hello due in 00:00:08
```

```
Supports Link-local Signaling (LLS)
Cisco NSF helper support enabled
IETF NSF helper support enabled
Index 1/2, 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 2.2.2.2
Suppress hello for 0 neighbor(s)
Serial0/2/0.34 is up, line protocol is up
Internet Address 10.1.1.9/30, Area 34
Process ID 1, Router ID 3.3.3.3, 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)
Cisco NSF helper support enabled
IETF NSF helper support enabled
Index 1/1, flood queue length 0
Next 0x0(0)/0x0(0)
Last flood scan length is 1, maximum is 1
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 1, Adjacent neighbor count is 1
  Adjacent with neighbor 4.4.4.4
Suppress hello for 0 neighbor(s)
R3#
```


R3#show ip ospf database

OSPF Router with ID (3.3.3.3) (Process ID 1)

Router Link States (Area 0)

Link ID	ADV Router	Age	Seq#	Checksum	Link
count					
2.2.2.2	2.2.2.2	597	0x8000000A	0x00C49B	2
3.3.3.3	3.3.3.3	1898	0x8000000B	0x0068EF	2

Summary Net Link States (Area 0)

Link ID	ADV Router	Age	Seq#	Checksum
10.1.1.0	2.2.2.2	597	0x80000003	0x0020C9
10.1.1.8	3.3.3.3	1898	0x80000002	0x00B32B

Summary ASB Link States (Area 0)

Link ID	ADV Router	Age	Seq#	Checksum
10.1.1.1	2.2.2.2	597	0x80000003	0x001ACA

Router Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum	Link
count					
3.3.3.3	3.3.3.3	1898	0x8000000D	0x00D070	2
4.4.4.4	4.4.4.4	1865	0x80000003	0x0081C5	2

Summary Net Link States (Area 34)

Link ID	ADV Router	Age	Seq#	Checksum
0.0.0.0	3.3.3.3	1898	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	1866	0x80000006	0x00EF6B	0
10.1.4.8	4.4.4.4	1866	0x80000006	0x00C78F	0
10.2.2.0	4.4.4.4	1866	0x80000004	0x003827	0
10.2.4.12	4.4.4.4	1866	0x80000004	0x0097BC	0

Type-5 AS External Link States

Link ID	ADV Router	Age	Seq#	Checksum	Tag
10.1.4.4	3.3.3.3	1899	0x80000002	0x00AAC2	0
10.1.4.8	3.3.3.3	1899	0x80000002	0x0082E6	0
10.2.2.0	3.3.3.3	1899	0x80000002	0x00EE80	0
10.2.4.12	3.3.3.3	1899	0x80000002	0x004E16	0
209.65.200.224	10.1.1.1	613	0x80000003	0x004295	0
209.65.200.240	10.1.1.1	613	0x80000003	0x002DC8	65002

R3#

```
R3#show ip route ospf
    209.65.200.0/24 is variably subnetted, 2 subnets, 2 masks
O E2    209.65.200.240/29 [110/1] via 10.1.1.5, 01:04:37, Serial0/2/0.23
O E2    209.65.200.224/30 [110/20] via 10.1.1.5, 01:04:37, Serial0/2/0.23
    10.0.0.0/8 is variably subnetted, 7 subnets, 2 masks
O N2    10.2.4.12/30 [110/20] via 10.1.1.10, 01:04:22, Serial0/2/0.34
O N2    10.1.4.8/30 [110/20] via 10.1.1.10, 01:04:22, Serial0/2/0.34
O N2    10.2.2.0/24 [110/20] via 10.1.1.10, 01:04:22, Serial0/2/0.34
O IA    10.1.1.0/30 [110/128] via 10.1.1.5, 01:04:37, Serial0/2/0.23
O N2    10.1.4.4/30 [110/20] via 10.1.1.10, 01:04:22, Serial0/2/0.34
R3#
```