

```
R1#  
R1#show running-config  
Building configuration...  
  
Current configuration : 2616 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 R1  
!  
boot-start-marker  
boot-end-marker  
!  
logging message-counter syslog  
no logging console  
enable secret 5 $1$aKZT$RO6SAsRilNacGlsvRsdUg0  
!  
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 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  
  shutdown  
  no fair-queue  
  clock rate 2000000  
!  
interface Serial0/0/1  
  no ip address  
  shutdown  
!  
interface Serial0/1/0  
  no ip address  
  shutdown  
  clock rate 2000000  
!  
interface Serial0/2/0  
  no ip address  
  encapsulation frame-relay  
!
```

```
interface Serial0/2/0.12 point-to-point
 ip address 10.1.1.1 255.255.255.252
 ip pim sparse-dense-mode
 ip nat inside
 ip virtual-reassembly
 snmp trap link-status
 ipv6 address 2026::12:1/122
 ipv6 enable
 ipv6 ospf 6 area 12
 frame-relay interface-dlci 102
!
interface Serial0/3/0
 ip address 209.65.200.225 255.255.255.252
 ip nat outside
 ip virtual-reassembly
 clock rate 56000
!
router ospf 1
 router-id 10.1.1.1
 log-adjacency-changes
 redistribute connected subnets
 redistribute static subnets
 redistribute bgp 65001 subnets
 network 10.1.1.1 0.0.0.0 area 12
!
router bgp 65001
 no synchronization
 bgp router-id 1.1.1.1
 bgp log-neighbor-changes
 neighbor 209.65.200.226 remote-as 65002
 no auto-summary
!
ip forward-protocol nd
ip http server
no ip http secure-server
!
!
ip nat inside source list 10 interface Serial0/3/0 overload
!
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 10 permit 10.0.0.0 0.255.255.255
ipv6 router ospf 6
 router-id 1.1.1.1
 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  
  password cisco  
  login  
!  
scheduler allocate 20000 1000  
ntp master 5  
ntp peer 10.1.1.2  
ntp peer 10.1.4.6  
ntp peer 10.1.1.6  
ntp peer 10.1.4.10  
ntp peer 10.1.1.10  
ntp peer 10.2.4.13  
ntp peer 10.2.4.14  
end
```

R1#

```
R1#ping 209.65.200.241
```

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

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

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/34/40 ms  
R1#
```

```
R1#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 = 32/33/36 ms  
R1#
```

```
R1#ping 209.65.200.225
```

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

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

```
!!!!!
```

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

```
R1#
```

```
R1#ping 10.1.1.1
```

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

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

```
!!!!!
```

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

```
ms
```

```
R1#
```

```
R1#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 = 64/65/68 ms
```

```
R1#
```



```
R1#ping 10.1.1.5
```

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

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

```
!!!!
```

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

```
R1#
```

```
R1#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
```

```
R1#
```

R1#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

R1#

R1#ping 10.1.1.10

Type escape sequence to abort.

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

!!!!!

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

R1#

```
R1#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 0 percent (0/5)
```

```
R1#
```

```
R1#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 = 192/195/196  
ms
```

```
R1#
```

```
R1#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 0 percent (0/5)
```

```
R1#
```

```
R1#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 = 192/195/196  
ms
```

```
R1#
```

```
R1#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)
```

R1#

R1#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 0 percent (0/5)

R1#


```
R1#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)
```

```
R1#
```

```
R1#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 0 percent (0/5)
```

```
R1#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 0 percent (0/5)
```

```
R1#
```

```
R1#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)
```

```
R1#
```

```
R1#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 0 percent (0/5)
```

```
R1#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)
```

```
R1#
```

```
R1#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status
FastEthernet0/0	unassigned	YES	NVRAM	administratively
down down				
FastEthernet0/1	unassigned	YES	NVRAM	administratively
down down				
Serial0/0/0	unassigned	YES	NVRAM	administratively
down down				
Serial0/0/1	unassigned	YES	NVRAM	administratively
down down				
Serial0/1/0	unassigned	YES	NVRAM	administratively
down down				
Serial0/2/0	unassigned	YES	NVRAM	up
up				
Serial0/2/0.12	10.1.1.1	YES	NVRAM	up
up				
Serial0/3/0	209.65.200.225	YES	NVRAM	up
up				
NVI0	10.1.1.1	YES	unset	up
up				

```
R1#
```

```
R1#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  
B       209.65.200.240/29 [20/0] via 209.65.200.226, 00:13:55  
C       209.65.200.224/30 is directly connected, Serial0/3/0  
        10.0.0.0/30 is subnetted, 5 subnets  
O IA    10.1.1.8 [110/192] via 10.1.1.2, 00:14:28, Serial0/2/0.12  
O E2    10.1.4.8 [110/20] via 10.1.1.2, 00:14:28, Serial0/2/0.12  
C       10.1.1.0 is directly connected, Serial0/2/0.12  
O E2    10.1.4.4 [110/20] via 10.1.1.2, 00:14:28, Serial0/2/0.12  
O IA    10.1.1.4 [110/128] via 10.1.1.2, 00:14:29, Serial0/2/0.12  
R1#
```

R1#show processes cpu

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

PID	Runtime (ms)	Invoked	uSecs	5Sec	1Min	5Min	TTY	Process
1	20	78	256	0.00%	0.00%	0.00%	0	Chunk
Manager								
2	4	182	21	0.07%	0.04%	0.02%	0	Load Meter
3	1200	618	1941	0.79%	0.17%	0.18%	0	Exec
4	0	1	0	0.00%	0.00%	0.00%	0	EDDRI_MAIN
5	1164	103	11300	0.00%	0.11%	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	0	883	0	0.00%	0.00%	0.00%	0	BGP
Scheduler								
10	0	16	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	921	0	0.00%	0.00%	0.00%	0	IPC
Periodic Tim								
13	4	921	4	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	32	0	0.00%	0.00%	0.00%	0
Environmental mo							
19	0	1	0	0.00%	0.00%	0.00%	0 ARP Input
20	8	965	8	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	3	0	0.00%	0.00%	0.00%	0 DDR Timers
26	4	2	2000	0.00%	0.00%	0.00%	0 Entity MIB
API							
27	16	18	888	0.00%	0.00%	0.00%	0 EEM ED
Syslog							
28	0	278	0	0.00%	0.00%	0.00%	0 HC Counter
Timer							
29	0	2	0	0.00%	0.00%	0.00%	0 Serial
Backgroun							
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	0	908	0	0.07%	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	4	2	2000	0.00%	0.00%	0.00%	0 XML Proxy
Client							
37	0	1	0	0.00%	0.00%	0.00%	0 Critical
Bkgnd							
38	24	382	62	0.00%	0.00%	0.00%	0 Net
Background							
39	4	2	2000	0.00%	0.00%	0.00%	0 IDB Work
40	8	11	727	0.00%	0.00%	0.00%	0 Logger
41	0	905	0	0.00%	0.00%	0.00%	0 TTY
Background							
42	8	925	8	0.07%	0.02%	0.00%	0 Per-Second
Jobs							
43	0	62	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
48	8	101	79	0.00%	0.00%	0.00%	0 Net Input

325	52	1007	51	0.00%	0.01%	0.00%	0	NTP
327	4	1	4000	0.00%	0.00%	0.00%	0	LICENSE
AGENT								
328	36	960	37	0.00%	0.00%	0.00%	0	OSPF-1
Router								
329	48	123	390	0.00%	0.00%	0.00%	0	BGP Router
330	0	1	0	0.00%	0.00%	0.00%	0	
cpf_process_tpQ								
R1#								

```

R1#show interfaces
FastEthernet0/0 is administratively down, line protocol is down
  Hardware is MV96340 Ethernet, address is 001d.70a0.c690 (bia
001d.70a0.c690)
  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 001d.70a0.c691 (bia
001d.70a0.c691)
  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 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 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, 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, 3 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=down DSR=down DTR=down RTS=down CTS=down

Serial0/0/1 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 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, 3 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=down DSR=down DTR=down RTS=down CTS=down

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 00:15:59, output 00:15:59, 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
5 packets input, 1026 bytes, 0 no buffer
Received 5 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
3 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=down DSR=down DTR=up 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 95, LMI stat recvd 94, 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 283/0, interface
broadcasts 268
Last input 00:00:03, output 00:00:00, output hang never
Last clearing of "show interface" counters 00:15:58
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
495 packets input, 41750 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
548 packets output, 45080 bytes, 0 underruns
0 output errors, 0 collisions, 2 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up

Serial0/2/0.12 is up, line protocol is up
Hardware is GT96K Serial
Internet address is 10.1.1.1/30
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 up, line protocol is up
Hardware is GT96K Serial
Internet address is 209.65.200.225/30
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 00:00:08, 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: 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
    172 packets input, 12338 bytes, 0 no buffer
    Received 114 broadcasts, 0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    170 packets output, 12169 bytes, 0 underruns
    0 output errors, 0 collisions, 5 interface resets
    3 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
    5 carrier transitions
DCD=up DSR=up DTR=up RTS=up CTS=up
```

```
NV10 is up, line protocol is up
Hardware is NVI
Interface is unnumbered. Using address of Serial0/2/0.12 (10.1.1.1)
MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation UNKNOWN, loopback not set
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
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, 0 interface resets
    0 unknown protocol drops
    0 output buffer failures, 0 output buffers swapped out
```

R1#

```
R1#show interfaces counters errors
```

```
R1#
```



```
R1#show cdp neighbors
```

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

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port
ID					
R2	Ser 0/2/0.12	146	R S I	2811	Ser
0/2/0.12					
R5	Ser 0/3/0	174	R S I	2811	Ser
0/3/0					
R1#					

```
R1#show cdp neighbors detail
```

```
-----
```

```
Device ID: R2
```

```
Entry address(es):
```

```
  IP address: 10.1.1.2
```

```
  IPv6 address: 2026::12:2 (global unicast)
```

```
  IPv6 address: FE80::216:9DFF:FEFA:CAB0 (link-local)
```

```
Platform: Cisco 2811, Capabilities: Router Switch IGMP
```

```
Interface: Serial0/2/0.12, Port ID (outgoing port): Serial0/2/0.12
```

```
Holdtime : 140 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: R5
```

```
Entry address(es):
```

```
  IP address: 209.65.200.226
```

```
Platform: Cisco 2811, Capabilities: Router Switch IGMP
```

```
Interface: Serial0/3/0, Port ID (outgoing port): Serial0/3/0
```

```
Holdtime : 167 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: ''
```

```
R1#
```

```
R1#show frame-relay map
Serial0/2/0.12 (up): point-to-point dlci, dlci 102(0x66,0x1860),
broadcast
                status defined, active
R1#
```

```
R1#show arp
```

```
R1#
```

```
R1#show ip arp
```

```
R1#
```

```
R1#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 administratively down, line protocol is down
```

```
  Internet protocol processing disabled
```

```
Serial0/0/1 is administratively 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
Serial0/2/0.12 is up, line protocol is up
  Internet address is 10.1.1.1/30
  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 enabled, interface in domain inside
  BGP Policy Mapping is disabled
  Input features: Stateful Inspection, Virtual Fragment Reassembly,
  Virtual Fragment Reassembly After IPsec Decryption, MCI Check
  Output features: NAT Inside, Stateful Inspection
  WCCP Redirect outbound is disabled
  WCCP Redirect inbound is disabled
  WCCP Redirect exclude is disabled
Serial0/3/0 is up, line protocol is up
  Internet address is 209.65.200.225/30
  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
  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 enabled, interface in domain outside
BGP Policy Mapping is disabled
Input features: Stateful Inspection, Virtual Fragment Reassembly,
Virtual Fragment Reassembly After IPsec Decryption, NAT Outside, MCI
Check
Output features: CCE Output Classification, Post-routing NAT Outside,
Stateful Inspection
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
NV10 is up, line protocol is up
Interface is unnumbered. Using address of Serial0/2/0.12 (10.1.1.1)
Broadcast address is 255.255.255.255
MTU is 1514 bytes
Helper address is not set
Directed broadcast forwarding is disabled
Multicast reserved groups joined: 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 disabled
IP fast switching on the same interface is disabled
IP Flow switching is disabled
IP CEF switching is disabled
IP Null turbo vector
IP Null turbo vector
IP multicast fast switching is disabled
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
Output features: Post-routing NAT NVI Output
WCCP Redirect outbound is disabled
WCCP Redirect inbound is disabled
WCCP Redirect exclude is disabled
R1#
```

```
R1#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	attached	Serial0/2/0.12
10.1.1.0/32	receive	Serial0/2/0.12
10.1.1.1/32	receive	Serial0/2/0.12
10.1.1.3/32	receive	Serial0/2/0.12
10.1.1.4/30	10.1.1.2	Serial0/2/0.12
10.1.1.8/30	10.1.1.2	Serial0/2/0.12
10.1.4.4/30	10.1.1.2	Serial0/2/0.12
10.1.4.8/30	10.1.1.2	Serial0/2/0.12
127.0.0.0/8	drop	
209.65.200.224/30	attached	Serial0/3/0
209.65.200.224/32	receive	Serial0/3/0
209.65.200.225/32	receive	Serial0/3/0
209.65.200.227/32	receive	Serial0/3/0
209.65.200.240/29	209.65.200.226	Serial0/3/0
224.0.0.0/4	multicast	
224.0.0.0/24	receive	
240.0.0.0/4	drop	
255.255.255.255/32	receive	

R1#

R1#show tcp statistics

Rcvd: 40 Total, 0 no port

0 checksum error, 0 bad offset, 0 too short

19 packets (421 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

19 ack packets (369 bytes)

Sent: 37 Total, 0 urgent packets

1 control packets (including 0 retransmitted)

18 data packets (368 bytes)

0 data packets (0 bytes) retransmitted

0 data packets (0 bytes) fastretransmitted

18 ack only packets (18 delayed)

0 window probe packets, 0 window update packets

0 Connections initiated, 1 connections accepted, 1 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

R1#

```
R1#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 10.1.1.1
  It is an autonomous system boundary router
  Redistributing External Routes from,
    connected, includes subnets in redistribution
    static, includes subnets in redistribution
    bgp 65001, includes subnets in redistribution
  Number of areas in this router is 1. 1 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    10.1.1.1 0.0.0.0 area 12
Reference bandwidth unit is 100 mbps
Routing Information Sources:
  Gateway          Distance      Last Update
  3.3.3.3           110          00:16:31
  2.2.2.2           110          00:16:31
Distance: (default is 110)
```

```
Routing Protocol is "bgp 65001"
  Outgoing update filter list for all interfaces is not set
  Incoming update filter list for all interfaces is not set
  IGP synchronization is disabled
  Automatic route summarization is disabled
  Neighbor(s):
    Address          FiltIn FiltOut DistIn DistOut Weight RouteMap
    209.65.200.226
  Maximum path: 1
  Routing Information Sources:
    Gateway          Distance      Last Update
    209.65.200.226   20           00:16:00
  Distance: external 20 internal 200 local 200
```

```
R1#
```

```
R1#show access-lists
Standard IP access list 10
  10 permit 10.0.0.0, wildcard bits 0.255.255.255
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
R1#
```

```
R1#show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address
Interface				
2.2.2.2	0	FULL/ -	00:00:31	10.1.1.2
Serial0/2/0.12				

```
R1#
```

```
R1#show ip ospf interface
NVI0 is up, line protocol is up
  Interface is unnumbered. Using address of Serial0/2/0.12 (10.1.1.1),
Area 12
  Process ID 1, Router ID 10.1.1.1, Network Type POINT_TO_POINT, Cost:
1785
  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 00:00:02
  Supports Link-local Signaling (LLS)
  Cisco NSF helper support enabled
  IETF NSF helper support enabled
  Index 2/2, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 0, maximum is 0
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
Serial0/2/0.12 is up, line protocol is up
  Internet Address 10.1.1.1/30, Area 12
  Process ID 1, Router ID 10.1.1.1, 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 00:00:05
  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 2.2.2.2
  Suppress hello for 0 neighbor(s)
R1#
```

R1#show ip ospf database

OSPF Router with ID (10.1.1.1) (Process ID 1)

Router Link States (Area 12)

Link ID	ADV Router	Age	Seq#	Checksum	Link
count					
2.2.2.2	2.2.2.2	1025	0x80000006	0x004525	2
10.1.1.1	10.1.1.1	1028	0x80000002	0x00AABE	2

Summary Net Link States (Area 12)

Link ID	ADV Router	Age	Seq#	Checksum
10.1.1.4	2.2.2.2	1030	0x80000001	0x00FBEB
10.1.1.8	2.2.2.2	1030	0x80000001	0x00564D

Summary ASB Link States (Area 12)

Link ID	ADV Router	Age	Seq#	Checksum
3.3.3.3	2.2.2.2	1030	0x80000001	0x0037B0

Type-5 AS External Link States

Link ID	ADV Router	Age	Seq#	Checksum	Tag
10.1.4.4	3.3.3.3	1061	0x80000001	0x00ACC1	0
10.1.4.8	3.3.3.3	1051	0x80000001	0x0084E5	0
209.65.200.224	10.1.1.1	1051	0x80000001	0x004693	0
209.65.200.240	10.1.1.1	993	0x80000001	0x0031C6	65002

R1#

```
R1#show ip route ospf
 10.0.0.0/30 is subnetted, 5 subnets
O IA   10.1.1.8 [110/192] via 10.1.1.2, 00:17:12, Serial0/2/0.12
O E2   10.1.4.8 [110/20] via 10.1.1.2, 00:17:12, Serial0/2/0.12
O E2   10.1.4.4 [110/20] via 10.1.1.2, 00:17:12, Serial0/2/0.12
O IA   10.1.1.4 [110/128] via 10.1.1.2, 00:17:12, Serial0/2/0.12
R1#
```



```
R1#show ip bgp neighbors
BGP neighbor is 209.65.200.226, remote AS 65002, external link
  BGP version 4, remote router ID 5.5.5.5
  BGP state = Established, up for 00:17:44
  Last read 00:00:40, last write 00:00:41, hold time is 180, keepalive
interval is 60 seconds
  Neighbor capabilities:
    Route refresh: advertised and received(new)
    Address family IPv4 Unicast: advertised and received
  Message statistics:
    InQ depth is 0
    OutQ depth is 0

                Sent          Rcvd
Opens:           1            1
Notifications:  0            0
Updates:         0            1
Keepalives:     18           18
Route Refresh:  0            0
Total:          19           20
Default minimum time between advertisement runs is 30 seconds
```

For address family: IPv4 Unicast
BGP table version 2, neighbor version 2/0
Output queue size : 0
Index 1, Offset 0, Mask 0x2
1 update-group member

	Sent	Rcvd
Prefix activity:	----	----
Prefixes Current:	0	1 (Consumes 52 bytes)
Prefixes Total:	0	1
Implicit Withdraw:	0	0
Explicit Withdraw:	0	0
Used as bestpath:	n/a	1
Used as multipath:	n/a	0

	Outbound	Inbound
Local Policy Denied Prefixes:	-----	-----
Bestpath from this peer:	1	n/a
Total:	1	0

Number of NLRIs in the update sent: max 0, min 0

Address tracking is enabled, the RIB does have a route to 209.65.200.226

Connections established 1; dropped 0

Last reset never

Transport(tcp) path-mtu-discovery is enabled

Connection state is ESTAB, I/O status: 1, unread input bytes: 0

Connection is ECN Disabled, Minimum incoming TTL 0, Outgoing TTL 1

Local host: 209.65.200.225, Local port: 179

Foreign host: 209.65.200.226, Foreign port: 52846

Connection tableid (VRF): 0

Enqueued packets for retransmit: 0, input: 0 mis-ordered: 0 (0 bytes)

Event Timers (current time is 0x111370):

Timer	Starts	Wakeups	Next
Retrans	20	0	0x0
TimeWait	0	0	0x0
AckHold	20	19	0x0
SendWnd	0	0	0x0
KeepAlive	0	0	0x0
GiveUp	0	0	0x0
PmtuAger	0	0	0x0
DeadWait	0	0	0x0
Linger	0	0	0x0
ProcessQ	0	0	0x0

iss: 417078331 snduna: 417078719 sndnxt: 417078719 sndwnd: 15997

irs: 1437431768 rcvnxt: 1437432209 rcvwnd: 15944 delrcvwnd: 440

SRTT: 279 ms, RTTO: 446 ms, RTV: 167 ms, KRTT: 0 ms

minRTT: 16 ms, maxRTT: 300 ms, ACK hold: 200 ms

Status Flags: passive open, gen tcbs

Option Flags: nagle, path mtu capable
IP Precedence value : 6

Datagrams (max data segment is 1460 bytes):

Rcvd: 40 (out of order: 0), with data: 20, total data bytes: 440
Sent: 39 (retransmit: 0, fastretransmit: 0, partialack: 0, Second
Congestion: 0), with data: 19, total data bytes: 387

Packets received in fast path: 0, fast processed: 0, slow path: 0
fast lock acquisition failures: 0, slow path: 0

R1#

R1#show ip bgp summary

BGP router identifier 1.1.1.1, local AS number 65001

BGP table version is 2, main routing table version 2

1 network entries using 132 bytes of memory

1 path entries using 52 bytes of memory

2/1 BGP path/bestpath attribute entries using 296 bytes of memory

1 BGP AS-PATH entries using 24 bytes of memory

0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
BGP using 504 total bytes of memory
BGP activity 1/0 prefixes, 1/0 paths, scan interval 60 secs

Neighbor	V	AS	MsgRcvd	MsgSent	TblVer	InQ	OutQ	Up/Down
State/PfxRcd								
209.65.200.226	4	65002	20	19	2	0	0	00:17:56

1
R1#

R1#show ip bgp
BGP table version is 2, local router ID is 1.1.1.1
Status codes: s suppressed, d damped, h history, * valid, > best, i -
internal,
 r RIB-failure, S Stale
Origin codes: i - IGP, e - EGP, ? - incomplete

Network	Next Hop	Metric	LocPrf	Weight	Path
---------	----------	--------	--------	--------	------

```
*> 209.65.200.240/29
      209.65.200.226          0          0 65002 i
R1#
```

```
R1#show ip route bgp
      209.65.200.0/24 is variably subnetted, 2 subnets, 2 masks
B      209.65.200.240/29 [20/0] via 209.65.200.226, 00:17:15
R1#
```

```
R1#show ip nat translations
```

```
R1#
```

```
R1#show ip nat statistics
Total active translations: 0 (0 static, 0 dynamic; 0 extended)
Peak translations: 0, occurred 00:19:19 ago
Outside interfaces:
  Serial0/3/0
Inside interfaces:
  Serial0/2/0.12
Hits: 0 Misses: 0
CEF Translated packets: 0, CEF Punted packets: 0
Expired translations: 0
Dynamic mappings:
-- Inside Source
  [Id: 1] access-list 10 interface Serial0/3/0 refcount 0
Appl doors: 0
Normal doors: 0
Queued Packets: 0
R1#
```