



```
!  
!  
!  
!  
!  
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 deny 10.2.1.4
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#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 = 32/32/36 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 = 32/32/36 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 = 128/132/140
```

```
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 = 64/66/68 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 = 64/65/68 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 = 192/194/196  
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 100 percent (5/5), round-trip min/avg/max = 192/195/196  
ms
```

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

```
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 = 192/195/200  
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 100 percent (5/5), round-trip min/avg/max = 192/194/196  
ms  
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 100 percent (5/5), round-trip min/avg/max = 192/194/196  
ms  
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 80 percent (4/5), round-trip min/avg/max = 192/194/196 ms
```

```
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 100 percent (5/5), round-trip min/avg/max = 192/195/196
```

```
ms
```

```
R1#
```

```
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 100 percent (5/5), round-trip min/avg/max = 192/195/196
```

```
ms
```

```
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 100 percent (5/5), round-trip min/avg/max = 192/196/204  
ms  
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 100 percent (5/5), round-trip min/avg/max = 192/194/196  
ms  
R1#
```

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

```
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				
NV10	unassigned	YES	unset	administratively
down down				

```
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, 00:10:49  
C 209.65.200.224/30 is directly connected, Serial0/3/0  
10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks  
O E2 10.2.4.12/30 [110/20] via 10.1.1.2, 00:07:37, Serial0/2/0.12  
O IA 10.1.1.8/30 [110/192] via 10.1.1.2, 00:07:43, Serial0/2/0.12  
O E2 10.1.4.8/30 [110/20] via 10.1.1.2, 00:07:37, Serial0/2/0.12  
O E2 10.2.1.0/24 [110/20] via 10.1.1.2, 00:07:37, Serial0/2/0.12  
O E2 10.2.2.0/24 [110/20] via 10.1.1.2, 00:07:38, Serial0/2/0.12  
C 10.1.1.0/30 is directly connected, Serial0/2/0.12  
O E2 10.1.4.4/30 [110/20] via 10.1.1.2, 00:07:38, Serial0/2/0.12  
O IA 10.1.1.4/30 [110/128] via 10.1.1.2, 00:07:44, Serial0/2/0.12  
R1#

R1#show processes cpu

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

PID	Runtime (ms)	Invoked	uSecs	5Sec	1Min	5Min	TTY	Process
1	24	81	296	0.00%	0.00%	0.00%	0	Chunk
Manager								
2	0	145	0	0.07%	0.04%	0.02%	0	Load Meter
3	1212	619	1957	0.00%	0.22%	0.20%	0	Exec
4	0	1	0	0.00%	0.00%	0.00%	0	EDDRI_MAIN
5	924	82	11268	0.00%	0.10%	0.10%	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	699	0	0.00%	0.00%	0.00%	0	BGP
Scheduler								
10	0	13	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	733	0	0.00%	0.00%	0.00%	0	IPC
Periodic Tim								
13	0	733	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	4	25	160	0.00%	0.00%	0.00%	0	
Environmental mo								
19	0	1	0	0.00%	0.00%	0.00%	0	ARP Input
20	0	769	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	7	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	12	30	400	0.00%	0.00%	0.00%	0	EEM ED
Syslog								
28	0	221	0	0.00%	0.00%	0.00%	0	HC Counter
Timer								
29	0	3	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	720	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	36	334	107	0.00%	0.00%	0.00%	0	Net
Background								
39	4	2	2000	0.00%	0.00%	0.00%	0	IDB Work
40	0	29	0	0.00%	0.00%	0.00%	0	Logger



















279	0	3	0	0.00%	0.00%	0.00%	0	EM ED GOLD
280	4	3	1333	0.00%	0.00%	0.00%	0	EEM ED
Interface								
281	0	3	0	0.00%	0.00%	0.00%	0	EEM ED
IOSWD								
282	0	3	0	0.00%	0.00%	0.00%	0	EEM ED
Ipsla								
283	0	3	0	0.00%	0.00%	0.00%	0	EEM ED
None								
284	0	2	0	0.00%	0.00%	0.00%	0	EEM ED Nf
285	0	3	0	0.00%	0.00%	0.00%	0	EEM ED OIR
286	0	3	0	0.00%	0.00%	0.00%	0	EEM ED RF
287	0	3	0	0.00%	0.00%	0.00%	0	EEM ED
SNMP								
288	0	2	0	0.00%	0.00%	0.00%	0	EEM ED
SNMP Noti								
289	4	22	181	0.00%	0.00%	0.00%	0	EEM ED
Timer								
290	0	3	0	0.00%	0.00%	0.00%	0	EEM ED
Test								
291	4	3	1333	0.00%	0.00%	0.00%	0	EEM ED
Config								
292	0	3	0	0.00%	0.00%	0.00%	0	EEM ED Env
293	4	16	250	0.00%	0.00%	0.00%	0	Syslog
294	0	1	0	0.00%	0.00%	0.00%	0	VPDN Test
295	0	3	0	0.00%	0.00%	0.00%	0	EEM ED RPC
296	0	2	0	0.00%	0.00%	0.00%	0	Key Proc
297	0	1	0	0.00%	0.00%	0.00%	0	tHUB
299	0	18	0	0.00%	0.00%	0.00%	0	IPv6 RIB
Event H								
300	4	378	10	0.00%	0.00%	0.00%	0	CEF: IPv6
proces								
301	88	124	709	0.00%	0.00%	0.00%	0	FR LMI
302	8	16	500	0.00%	0.00%	0.00%	0	FR PVC
event man								
303	4	7509	0	0.07%	0.03%	0.02%	0	FR
Broadcast Out								
304	0	15	0	0.00%	0.00%	0.00%	0	FR ARP
305	0	13	0	0.00%	0.00%	0.00%	0	FR
FRAGMENTATION								
306	0	38	0	0.00%	0.00%	0.00%	0	FR TUNNEL
307	0	1	0	0.00%	0.00%	0.00%	0	FRF9
manager								
308	0	1	0	0.00%	0.00%	0.00%	0	FRF9 timed
event								
309	0	76	0	0.00%	0.00%	0.00%	0	compute
load per								
310	0	748	0	0.00%	0.00%	0.00%	0	IGMP Input
311	20	14874	1	0.15%	0.15%	0.15%	0	PIM
Process								
312	0	7519	0	0.00%	0.03%	0.02%	0	Mwheel
Process								
313	0	1456	0	0.00%	0.00%	0.00%	0	IP NAT
Ager								



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 00:12:52, output 00:12:51, 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 63, LMI stat recvd 61, 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 184/0, interface  
broadcasts 181  
Last input 00:00:00, output 00:00:00, output hang never  
Last clearing of "show interface" counters 00:12:50  
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, 1 packets/sec

5 minute output rate 0 bits/sec, 1 packets/sec  
1047 packets input, 77260 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  
961 packets output, 69678 bytes, 0 underruns  
0 output errors, 0 collisions, 1 interface resets  
0 unknown protocol drops  
0 output buffer failures, 0 output buffers swapped out  
67 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 00:00:01, 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: 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, 1 packets/sec  
5 minute output rate 0 bits/sec, 1 packets/sec  
648 packets input, 42831 bytes, 0 no buffer  
Received 93 broadcasts, 0 runts, 0 giants, 0 throttles  
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort  
785 packets output, 53031 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 administratively down, line protocol is down  
Hardware is NVI  
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 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      124      R S I      2811      Ser
0/2/0.12
R5          Ser 0/3/0        129      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 : 177 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 : 121 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 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  
NVIO is administratively down, line protocol is down  
Internet protocol processing 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
10.2.1.0/24	10.1.1.2	Serial0/2/0.12
10.2.2.0/24	10.1.1.2	Serial0/2/0.12
10.2.4.12/30	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: 32 Total, 0 no port
    0 checksum error, 0 bad offset, 0 too short
    16 packets (364 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
    16 ack packets (312 bytes)
Sent: 31 Total, 0 urgent packets
    1 control packets (including 0 retransmitted)
    15 data packets (311 bytes)
    0 data packets (0 bytes) retransmitted
    0 data packets (0 bytes) fastretransmitted
    15 ack only packets (15 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	00:09:24
2.2.2.2	110	00:09:29

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	00:12:36

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 (705 matches)
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/ -	00:00:39	10.1.1.2

Serial0/2/0.12  
R1#

```
R1#show ip ospf interface
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 count	ADV Router	Age	Seq#	Checksum	Link
2.2.2.2	2.2.2.2	612	0x8000000C	0x00392B	2
10.1.1.1	10.1.1.1	611	0x80000003	0x00A8BF	2

```
Summary Net Link States (Area 12)
```

Link ID	ADV Router	Age	Seq#	Checksum
10.1.1.4	2.2.2.2	612	0x80000001	0x00FBEB
10.1.1.8	2.2.2.2	602	0x80000001	0x00564D

Summary ASB Link States (Area 12)

Link ID	ADV Router	Age	Seq#	Checksum
3.3.3.3	2.2.2.2	602	0x80000001	0x0037B0

Type-5 AS External Link States

Link ID	ADV Router	Age	Seq#	Checksum	Tag
10.1.4.4	3.3.3.3	597	0x80000001	0x00ACC1	0
10.1.4.8	3.3.3.3	597	0x80000001	0x0084E5	0
10.2.1.0	3.3.3.3	597	0x80000001	0x00FB75	0
10.2.2.0	3.3.3.3	598	0x80000001	0x00F07F	0
10.2.4.12	3.3.3.3	598	0x80000001	0x005015	0
209.65.200.224	10.1.1.1	846	0x80000001	0x004693	0
209.65.200.240	10.1.1.1	787	0x80000001	0x0031C6	65002

R1#

```
R1#show ip route ospf
    10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks
O E2    10.2.4.12/30 [110/20] via 10.1.1.2, 00:10:04, Serial0/2/0.12
O IA    10.1.1.8/30 [110/192] via 10.1.1.2, 00:10:10, Serial0/2/0.12
O E2    10.1.4.8/30 [110/20] via 10.1.1.2, 00:10:04, Serial0/2/0.12
O E2    10.2.1.0/24 [110/20] via 10.1.1.2, 00:10:04, Serial0/2/0.12
O E2    10.2.2.0/24 [110/20] via 10.1.1.2, 00:10:04, Serial0/2/0.12
O E2    10.1.4.4/30 [110/20] via 10.1.1.2, 00:10:04, Serial0/2/0.12
O IA    10.1.1.4/30 [110/128] via 10.1.1.2, 00:10:10, 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 00:14:20
```

Last read 00:00:21, last write 00:00:22, 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:	15	15
Route Refresh:	0	0
Total:	16	17

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 NLRI 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: 55278

Connection tableid (VRF): 0

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

Event Timers (current time is 0xDFC8C):

Timer	Starts	Wakeups	Next
Retrans	17	0	0x0

TimeWait	0	0	0x0
AckHold	17	16	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: 1157726143 snduna: 1157726474 sndnxt: 1157726474 sndwnd:  
16054  
irs: 3958078028 rcvnxt: 3958078412 rcvwnd: 16001 delrcvwnd:  
383

SRTT: 269 ms, RTTO: 516 ms, RTV: 247 ms, KRTT: 0 ms  
minRTT: 20 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: 34 (out of order: 0), with data: 17, total data bytes: 383  
Sent: 33 (retransmit: 0, fastretransmit: 0, partialack: 0, Second  
Congestion: 0), with data: 16, total data bytes: 330  
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     17     16       2    0    0 00:14:33
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, 00:13:55
R1#
```

```
R1#show ip nat translations
Pro Inside global      Inside local      Outside local      Outside
global
R1#
```

```
R1#show ip nat statistics
Total active translations: 0 (0 static, 0 dynamic; 0 extended)
Peak translations: 21, occurred 00:21:20 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#