```
R2#
R2#show running-config
Building configuration...


Current configuration : 2355 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
logging message-counter syslog
enable secret 5 $1$NytN$xb8Trn0Re9vS6jG1ygMvO0
!
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
!
interface Serial0/0/1
 no ip address
!
interface Serial0/1/0
 no ip address
 ip nat outside
 ip virtual-reassembly
 shutdown
 clock rate 56000
!
interface Serial0/2/0
 no ip address
 encapsulation frame-relay
!
interface Serial0/2/0.12 point-to-point
 ip address 10.1.1.2 255.255.255.252
 ip pim sparse-dense-mode
 snmp trap link-status
 ipv6 address 2026::12:2/122
```

```
 ipv6 enable
 ipv6 ospf 6 area 12
 frame-relay interface-dlci 201
!
interface Serial0/2/0.23 point-to-point
 ip address 10.1.1.5 255.255.255.252
 ip pim sparse-dense-mode
 snmp trap link-status
 ipv6 address 2026::1:1/122
 ipv6 enable
 ipv6 ospf 6 area 0
 frame-relay interface-dlci 203
!
interface Serial0/3/0
 no ip address
 ip virtual-reassembly
 shutdown
 clock rate 56000
!
router ospf 1
 router-id 2.2.2.2
 log-adjacency-changes
 network 10.1.1.1 0.0.0.0 area 0
 network 10.1.1.5 0.0.0.0 area 0
 network 10.2.2.1 0.0.0.0 area 0
 network 10.0.0.0 0.255.255.255 area 12
!
ip forward-protocol nd
ip http server
no ip http secure-server
!
!
!
ip access-list standard DENY_10
 deny   10.0.0.0 0.255.255.255
 permit any
ip access-list standard DENY_ALL
 deny   any
ip access-list standard PERMIT_10
 permit 10.0.0.0 0.255.255.255
ip access-list standard PERMIT_ALL
 permit any
!
ipv6 router ospf 6
 router-id 2.2.2.2
 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
line vty 5
 exec-timeout 0 0
 login
!
scheduler allocate 20000 1000
end
```

```
R2#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
R2#
```

```
R2#
R2#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 = 32/36/56 ms
R2#
```

```
R2#
R2#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
R2#
```

```
R2#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
R2#
```

```
R2#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
R2#
```

```
R2#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
R2#
```

```
R2#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
R2#
```

```
R2#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
R2#
```

```
R2#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
R2#
```

```
R2#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 = 192/195/200
ms
R2#
```

```
R2#ping 10.1.4.9

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.1.4.9, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/194/196
ms
R2#
```

```
R2#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 = 192/195/200
ms
R2#
```

```
R2#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 = 192/193/196
ms
R2#
```

```
R2#ping 10.2.1.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.2.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/196
ms
R2#
```

```
R2#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
R2#
```

```
R2#ping 10.2.1.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.2.1.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/196
ms
```

```
R2#
```

```
R2#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
R2#
```

```
R2#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
R2#
```

```
R2#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 = 192/196/200
ms
R2#
```

```
R2#ping 10.2.2.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.2.2.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 192/195/200
ms
R2#
```

```
R2#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)
R2#
```

```
R2#
R2#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
Serial0/2/0.12             10.1.1.2        YES NVRAM  up
up
Serial0/2/0.23             10.1.1.5        YES NVRAM  up
up
Serial0/3/0                unassigned      YES NVRAM  administratively
down down
NVI0                       unassigned      YES unset  administratively
down down
R2#
```

```
R2#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS
level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static
route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 10.1.1.1 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 8 subnets, 2 masks
O E2    10.2.4.12/30 [110/20] via 10.1.1.6, 01:16:06, Serial0/2/0.23
O IA    10.1.1.8/30 [110/128] via 10.1.1.6, 01:16:22, Serial0/2/0.23
O E2    10.1.4.8/30 [110/20] via 10.1.1.6, 01:16:06, Serial0/2/0.23
O E2    10.2.1.0/24 [110/20] via 10.1.1.6, 01:16:06, Serial0/2/0.23
O E2    10.2.2.0/24 [110/20] via 10.1.1.6, 01:16:06, Serial0/2/0.23
C       10.1.1.0/30 is directly connected, Serial0/2/0.12
O E2    10.1.4.4/30 [110/20] via 10.1.1.6, 01:16:07, Serial0/2/0.23
C       10.1.1.4/30 is directly connected, Serial0/2/0.23
O*E2 0.0.0.0/0 [110/1] via 10.1.1.1, 01:16:23, Serial0/2/0.12
R2#
```

```
R2#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        75        213  0.00%  0.00%  0.00%   0 Chunk
Manager
   2           4       981          4  0.07%  0.04%  0.03%   0 Load Meter
   3        1060       183       5792  0.00%  1.09%  0.31%   0 Exec
   4           0         1          0  0.00%  0.00%  0.00%   0 EDDRI_MAIN
   5        6604       582      11347  0.00%  0.15%  0.12%   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         128      2030          63  0.00%  0.01%  0.00%    0 OSPF-1
Hello
  10           0        83           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           4      4913           0  0.00%  0.00%  0.00%    0 IPC
Periodic Tim
  13           0      4913           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       165           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      5129           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           4         6         666  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        39         307  0.00%  0.00%  0.00%    0 EEM ED
Syslog
  28           0      1474           0  0.00%  0.00%  0.00%    0 HC Counter
Timer
  29           0        11           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      4900           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          32      2025          15  0.07%  0.00%  0.00%   0 Net
Background
  39           4         2        2000  0.00%  0.00%  0.00%   0 IDB Work
  40           0        31           0  0.00%  0.00%  0.00%   0 Logger
  41           0      4897           0  0.00%  0.00%  0.00%   0 TTY
Background
  42           4      4917           0  0.00%  0.01%  0.00%   0 Per-Second
Jobs
  43           0       328           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           4        17         235  0.00%  0.00%  0.00%   0 Net Input
  49           0       982           0  0.00%  0.00%  0.00%   0 Compute
load avg
  50        1968        83       23710  0.00%  0.04%  0.00%   0 Per-minute
Jobs
  51           0         1           0  0.00%  0.00%  0.00%   0 AggMgr
Process
  52           0         1           0  0.00%  0.00%  0.00%   0 Token
Daemon
  53           0         1           0  0.00%  0.00%  0.00%   0 Transport
Port A
  54           0         1           0  0.00%  0.00%  0.00%   0
dev_device_inser
  55           0         1           0  0.00%  0.00%  0.00%   0
dev_device_remov
  56           0         1           0  0.00%  0.00%  0.00%   0
sal_dpc_process
  57           0         1           0  0.00%  0.00%  0.00%   0 ARL Table
Manage
  58           0         2           0  0.00%  0.00%  0.00%   0 ESWPPM
  59           0         2           0  0.00%  0.00%  0.00%   0 Eswilp
Storm Con
  60           0         2           0  0.00%  0.00%  0.00%   0 ESWILPPM
  61           0         2           0  0.00%  0.00%  0.00%   0 Eswilp
Storm Con
  62           0     19610           0  0.07%  0.01%  0.00%   0 Netclock
Backgro
  63           0         2           0  0.00%  0.00%  0.00%   0 SM Monitor
  64           0         2           0  0.00%  0.00%  0.00%   0 Bryce I2C
CMD Qu
  65         272         4       68000  0.00%  0.00%  0.00%   0 USB
Startup
  66           0       820           0  0.00%  0.00%  0.00%   0 mxt5100
  67           0         2           0  0.00%  0.00%  0.00%   0 VNM DSPRM
MAIN
```

```
  68           0         1           0  0.00%  0.00%  0.00%    0 DSPFARM
DSP READ
  69           4         2        2000  0.00%  0.00%  0.00%    0 FLEX DNLD
MAIN
  70           0         1           0  0.00%  0.00%  0.00%    0 HDV
background
  71           0         2           0  0.00%  0.00%  0.00%    0 VMI
Background
  72           0         1           0  0.00%  0.00%  0.00%    0
RF_INTERDEV_DELA
  73           0         1           0  0.00%  0.00%  0.00%    0
RF_INTERDEV_SCTP
  74           0         1           0  0.00%  0.00%  0.00%    0 chkpt
message ha
  75           0      4905           0  0.00%  0.00%  0.00%    0 Ether-
Switch RBC
  76           0         1           0  0.00%  0.00%  0.00%    0 IGMP
Snooping Pr
  77           0         1           0  0.00%  0.00%  0.00%    0 IGMP
Snooping Re
  78           0       165           0  0.00%  0.00%  0.00%    0 Call
Management
  79           0         1           0  0.00%  0.00%  0.00%    0 AAL2CPS
TIMER_CU
  80           0         1           0  0.00%  0.00%  0.00%    0 CES Line
Conditi
  81           0         1           0  0.00%  0.00%  0.00%    0
CF_INTERDEV_SCTP
  82           0         1           0  0.00%  0.00%  0.00%    0 Async
write proc
  83           0         1           0  0.00%  0.00%  0.00%    0 Async
write proc
  84           0         1           0  0.00%  0.00%  0.00%    0 Async
write proc
  85           0         1           0  0.00%  0.00%  0.00%    0 Async
write proc
  86           0        83           0  0.00%  0.00%  0.00%    0 DFS flush
period
  87           0         2           0  0.00%  0.00%  0.00%    0 Dot1x Mgr
Proces
  88           0         1           0  0.00%  0.00%  0.00%    0 MAB
Framework
  89           0         1           0  0.00%  0.00%  0.00%    0 EAP
Framework
  90           0         2           0  0.00%  0.00%  0.00%    0 DTP
Protocol
  91           0      4906           0  0.00%  0.00%  0.00%    0 PI MATM
Aging Pr
  92           0       492           0  0.00%  0.00%  0.00%    0 EtherChnl
  93           0         2           0  0.00%  0.00%  0.00%    0 Ethernet
CFM
  94           0      4790           0  0.00%  0.00%  0.00%    0 Ethernet
Timer C
  95           0      4920           0  0.00%  0.00%  0.00%    0 linktest
```

```
  96           0         2           0  0.00%  0.00%  0.00%   0 Dot11 Mgmt
& Ass
  97           0         2           0  0.00%  0.00%  0.00%   0 Dot11 aaa
proces
  98           0        83           0  0.00%  0.00%  0.00%   0 pmkid
  99           0         2           0  0.00%  0.00%  0.00%   0 Dot11 auth
Dot1x
 100           0         1           0  0.00%  0.00%  0.00%   0 Dot11 Mac
Auth
 101           0         2           0  0.00%  0.00%  0.00%   0 AAA
Dictionary R
 102           0         2           0  0.00%  0.00%  0.00%   0 AAA Server
 103           0         1           0  0.00%  0.00%  0.00%   0 AAA ACCT
Proc
 104           0         1           0  0.00%  0.00%  0.00%   0 ACCT
Periodic Pr
 105          40       735          54  0.00%  0.00%  0.00%   0 CDP
Protocol
 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         264      1430         184  0.00%  0.00%  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
 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           4         2        2000  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        14         571  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        17           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         104         2       52000  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
 136          60       134         447  0.07%  0.00%  0.00%   0 IP
Background
 137         328        90        3644  0.00%  0.00%  0.00%   0 IP RIB
Update
 138           0         2           0  0.00%  0.00%  0.00%   0 Dot1x
Supplicant
 139           0         2           0  0.00%  0.00%  0.00%   0 Dot1x
Supplicant
 140           0         2           0  0.00%  0.00%  0.00%   0 Dot1x
Supplicant
 141           0         1           0  0.00%  0.00%  0.00%   0 Asy FS
Helper
 142           4        83          48  0.00%  0.00%  0.00%   0 Licensing
Auto U
 143           0         1           0  0.00%  0.00%  0.00%   0 Socket
Timers
 144           0        84           0  0.00%  0.00%  0.00%   0 CEF
background p
 145          20      6723           2  0.00%  0.00%  0.00%   0 CEF: IPv4
proces
 146           0        17           0  0.00%  0.00%  0.00%   0 ADJ
background
 147           0         2           0  0.00%  0.00%  0.00%   0 L2MM
 148           0         1           0  0.00%  0.00%  0.00%   0 MRD
 149           0         1           0  0.00%  0.00%  0.00%   0 IGMPSN
 150           0         1           0  0.00%  0.00%  0.00%   0 L2X Data
Daemon
 151           0         1           0  0.00%  0.00%  0.00%   0 TCP Timer
 152           0         1           0  0.00%  0.00%  0.00%   0 TCP
Protocols
 153           4        18         222  0.00%  0.00%  0.00%   0 HTTP CORE
 154           0         1           0  0.00%  0.00%  0.00%   0 IP
Traceroute
 155           0         2           0  0.00%  0.00%  0.00%   0 RLM groups
Proce
 156           0         2           0  0.00%  0.00%  0.00%   0 PPPoE Flow
Contr
```

```
 157           0         1           0  0.00%  0.00%  0.00%   0 SNMP
Timers
 158           4         2        2000  0.00%  0.00%  0.00%   0 SCTP Main
Proces
 159           0         1           0  0.00%  0.00%  0.00%   0 IUA Main
Process
 160           0      4912           0  0.00%  0.00%  0.00%   0 RUDPV1
Main Proc
 161           0         1           0  0.00%  0.00%  0.00%   0 bsm_timers
 162           0      4927           0  0.00%  0.00%  0.00%   0
bsm_xmt_proc
 163           0         1           0  0.00%  0.00%  0.00%   0 CES Client
SVC R
 164           0         1           0  0.00%  0.00%  0.00%   0 COPS
 165           0         2           0  0.00%  0.00%  0.00%   0 Dialer
Forwarder
 166           0         3           0  0.00%  0.00%  0.00%   0 Flow
Exporter Ti
 167           0         2           0  0.00%  0.00%  0.00%   0 ATM OAM
Input
 168           0         2           0  0.00%  0.00%  0.00%   0 ATM OAM
TIMER
 169           0         1           0  0.00%  0.00%  0.00%   0 RARP Input
 170           0         1           0  0.00%  0.00%  0.00%   0 LAPB
Process
 171           0         1           0  0.00%  0.00%  0.00%   0 IPv6
Inspect Tim
 172           0         2           0  0.00%  0.00%  0.00%   0 LFDp Input
Proc
 173           0         1           0  0.00%  0.00%  0.00%   0 PAD InCall
 174           0         2           0  0.00%  0.00%  0.00%   0 X.25
Background
 175           0         2           0  0.00%  0.00%  0.00%   0 PPP Bind
 176           0         2           0  0.00%  0.00%  0.00%   0 PPP SSS
 177           0         1           0  0.00%  0.00%  0.00%   0 MQC Flow
Event B
 178          16   1226405           0  0.79%  0.79%  0.79%   0 HQF Shaper
Backg
 179           0     49100           0  0.00%  0.03%  0.02%   0 RBSCP
Background
 180           0         1           0  0.00%  0.00%  0.00%   0 VPDN call
manage
 181           0         1           0  0.00%  0.00%  0.00%   0 CHKPT
EXAMPLE
 182           0         1           0  0.00%  0.00%  0.00%   0 CHKPT
DevTest
 183           0         1           0  0.00%  0.00%  0.00%   0 IPS
Process
 184           0         2           0  0.00%  0.00%  0.00%   0 IPS Auto
Update
 185           0         2           0  0.00%  0.00%  0.00%   0 SDEE
Management
 186           0      9597           0  0.00%  0.00%  0.00%   0 Inspect
process
```

```
 187           0         2           0  0.00%  0.00%  0.00%   0
cpf_process_msg_
 188           0      9597           0  0.00%  0.00%  0.00%   0 FW DP
Inspect pr
 189           0      9597           0  0.07%  0.00%  0.00%   0 CCE DP
URLF cach
 190           0         2           0  0.00%  0.00%  0.00%   0 URL filter
proc
 191           0         1           0  0.00%  0.00%  0.00%   0 Select
Timers
 192          32         2       16000  0.00%  0.00%  0.00%   0 HTTP
Process
 193           0         2           0  0.00%  0.00%  0.00%   0 CIFS API
Process
 194           0         2           0  0.00%  0.00%  0.00%   0 CIFS Proxy
Proce
 195           8         3        2666  0.00%  0.00%  0.00%   0 Crypto HW
Proc
 196           0       199           0  0.00%  0.00%  0.00%   0
CRM_CALL_UPDATE_
 197         116         2       58000  0.00%  0.00%  0.00%   0
CCVPM_HDSPRM
 198           0         4           0  0.00%  0.00%  0.00%   0 HDA DSPRM
MAIN
 199           0         2           0  0.00%  0.00%  0.00%   0 STUN_APP
 200           0         1           0  0.00%  0.00%  0.00%   0 STUN_TEST
 201           0         1           0  0.00%  0.00%  0.00%   0
cpf_process_tpQ
 202           0         2           0  0.00%  0.00%  0.00%   0 AAA Cached
Serve
 203           0         2           0  0.00%  0.00%  0.00%   0 ENABLE AAA
 204           0         1           0  0.00%  0.00%  0.00%   0 EM
Background Pr
 205           0         1           0  0.00%  0.00%  0.00%   0 Key chain
liveke
 206           0         2           0  0.00%  0.00%  0.00%   0 LINE AAA
 207           0         2           0  0.00%  0.00%  0.00%   0 LOCAL AAA
 208           0         5           0  0.00%  0.00%  0.00%   0 MPLS Auto
Mesh P
 209           0         2           0  0.00%  0.00%  0.00%   0 TPLUS
 210           0         2           0  0.00%  0.00%  0.00%   0 VSP_MGR
 211           0         1           0  0.00%  0.00%  0.00%   0
FW_TEST_TRP
 212           0         1           0  0.00%  0.00%  0.00%   0 EPM MAIN
PROCESS
 213           0         3           0  0.00%  0.00%  0.00%   0 Crypto WUI
 214           0         2           0  0.00%  0.00%  0.00%   0 Crypto
Support
 215           0         1           0  0.00%  0.00%  0.00%   0 IPSECv6 PS
Proc
 216           4         1        4000  0.00%  0.00%  0.00%   0 CCVPM_HTSP
 217           0         2           0  0.00%  0.00%  0.00%   0
VPM_MWI_BACKGROU
 218           0         1           0  0.00%  0.00%  0.00%   0 CCVPM_R2
```

```
 219           0         1           0  0.00%  0.00%  0.00%   0 EPHONE MWI
Refre
 220           0         6           0  0.00%  0.00%  0.00%   0 FB/KS Log
HouseK
 221           0         2           0  0.00%  0.00%  0.00%   0 EPHONE MWI
BG Pr
 222           0         1           0  0.00%  0.00%  0.00%   0 Skinny HW
confer
 223           4      1824           2  0.00%  0.00%  0.00%   0 FLEX DSPRM
MAIN
 224           0      1822           0  0.00%  0.00%  0.00%   0 FLEX DSP
KEEPALI
 225           0       165           0  0.00%  0.00%  0.00%   0 VOICE REG
BG Pro
 226           0         1           0  0.00%  0.00%  0.00%   0 Presence
Process
 227           0         1           0  0.00%  0.00%  0.00%   0 CCSWVOICE
 229           0         1           0  0.00%  0.00%  0.00%   0 http
client proc
 231           4         1        4000  0.00%  0.00%  0.00%   0
QOS_MODULE_MAIN
 232           0         1           0  0.00%  0.00%  0.00%   0
RPMS_PROC_MAIN
 233           0         1           0  0.00%  0.00%  0.00%   0 VoIP AAA
 234           4         2        2000  0.00%  0.00%  0.00%   0 Dialog
Manager
 235           0         3           0  0.00%  0.00%  0.00%   0 crypto
engine pr
 236           0         4           0  0.00%  0.00%  0.00%   0 Crypto CA
 237           0         1           0  0.00%  0.00%  0.00%   0 Crypto
PKI-CRL
 238           0         1           0  0.00%  0.00%  0.00%   0 encrypt
proc
 239           0         2           0  0.00%  0.00%  0.00%   0 crypto sw
pk pro
 240           0         1           0  0.00%  0.00%  0.00%   0 Crypto INT
 241           0         3           0  0.00%  0.00%  0.00%   0 Crypto IKE
Dispa
 242           4         3        1333  0.00%  0.00%  0.00%   0 Crypto
IKMP
 243           0         1           0  0.00%  0.00%  0.00%   0 IPSEC
manual key
 244         212       249         851  0.00%  0.00%  0.00%   0 IPSEC key
engine
 245           0         2           0  0.00%  0.00%  0.00%   0 CRYPTO QoS
proce
 246           8         4        2000  0.00%  0.00%  0.00%   0 Crypto ACL
 247           0         1           0  0.00%  0.00%  0.00%   0 Crypto PAS
Proc
 248           0         1           0  0.00%  0.00%  0.00%   0 GDOI GM
Process
 249           0         1           0  0.00%  0.00%  0.00%   0 UNICAST
REKEY
```

250	0	1	0	0.00%	0.00%	0.00%	0	UNICAST REKEY AC
251	4	4935	0	0.00%	0.00%	0.00%	0	Crypto Device Up
252	0	2	0	0.00%	0.00%	0.00%	0	Multi-ISA Event
253	0	1	0	0.00%	0.00%	0.00%	0	Multi-ISA Cleanu
254	0	1	0	0.00%	0.00%	0.00%	0	PM Callback
255	0	1	0	0.00%	0.00%	0.00%	0	Licensing MIB pr
256	4	24663	0	0.00%	0.01%	0.00%	0	Atheros LED Ctro
257	0	2	0	0.00%	0.00%	0.00%	0	Control-plane ho
258	0	1	0	0.00%	0.00%	0.00%	0	DATA Transfer Pr
259	0	1	0	0.00%	0.00%	0.00%	0	DATA Collector
260	0	2	0	0.00%	0.00%	0.00%	0	AAA SEND STOP EV
261	0	2	0	0.00%	0.00%	0.00%	0	EEM ED Resource
262	0	2	0	0.00%	0.00%	0.00%	0	EEM ED Routing
263	0	3	0	0.00%	0.00%	0.00%	0	EEM ED Track
264	0	494	0	0.00%	0.00%	0.00%	0	RMON Recycle Pro
265	0	2	0	0.00%	0.00%	0.00%	0	RMON Deferred Se
266	0	1	0	0.00%	0.00%	0.00%	0	Syslog Traps
267	0	155	0	0.00%	0.00%	0.00%	0	Crypto cTCP proc
268	4	2	2000	0.00%	0.00%	0.00%	0	VLAN Manager
269	132	2009	65	0.00%	0.00%	0.00%	0	OSPFv3-6 Hello
271	0	4916	0	0.00%	0.00%	0.00%	0	trunk conditioni
272	0	1	0	0.00%	0.00%	0.00%	0	trunk conditioni
273	0	4937	0	0.00%	0.00%	0.00%	0	CME Extension Mo
274	0	1	0	0.00%	0.00%	0.00%	0	IP SLAs Ethernet
275	12	218	55	0.00%	0.00%	0.00%	0	EEM Server
276	0	2	0	0.00%	0.00%	0.00%	0	EEM Policy Direc
277	0	3	0	0.00%	0.00%	0.00%	0	EEM ED CLI
278	0	3	0	0.00%	0.00%	0.00%	0	EEM ED Counter

```
 279           0         3           0  0.00%  0.00%  0.00%   0 EM ED GOLD
 280           8         3        2666  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       126          31  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           0         3           0  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        17         235  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          12        34         352  0.00%  0.00%  0.00%   0 IPv6 RIB
Event H
 300           0      2468           0  0.00%  0.00%  0.00%   0 CEF: IPv6
proces
 301           0      9618           0  0.00%  0.00%  0.00%   0 IP NAT
Ager
 302           0         1           0  0.00%  0.00%  0.00%   0 IP NAT
WLAN
 303           0         1           0  0.00%  0.00%  0.00%   0 IP VFR
proc
 304         664       946         701  0.00%  0.00%  0.00%   0 FR LMI
 305          20        92         217  0.00%  0.00%  0.00%   0 FR PVC
event man
 306           8     49224           0  0.00%  0.03%  0.02%   0 FR
Broadcast Out
 307           0        84           0  0.00%  0.00%  0.00%   0 FR ARP
 308           0        83           0  0.00%  0.00%  0.00%   0 FR
FRAGMENTATION
 309           0       247           0  0.00%  0.00%  0.00%   0 FR TUNNEL
 310           0         1           0  0.00%  0.00%  0.00%   0 FRF9
manager
 311           0         1           0  0.00%  0.00%  0.00%   0 FRF9 timed
event
 312           0       494           0  0.00%  0.00%  0.00%   0 compute
load per
 313           0      4933           0  0.00%  0.01%  0.00%   0 IGMP Input
```

```
 314           0     49232           0  0.07%  0.03%  0.02%   0 Mwheel
Process
 315          84     98773           0  0.15%  0.15%  0.15%   0 PIM
Process
 316          16       201          79  0.00%  0.00%  0.00%   0 IPv6 IDB
 317         148      1122         131  0.00%  0.00%  0.00%   0 IPv6 Input
 318          28        15        1866  0.00%  0.00%  0.00%   0 IPv6 ND
 319           0         1           0  0.00%  0.00%  0.00%   0 IPv6
Address
 320          20     19717           1  0.00%  0.02%  0.01%   0 MLD
 321          60      4942          12  0.00%  0.00%  0.00%   0 OSPFv3-6
Router
 324           0         1           0  0.00%  0.00%  0.00%   0 LICENSE
AGENT
 325          80      5065          15  0.00%  0.00%  0.00%   0 OSPF-1
Router
R2#
```

```
R2#show interfaces
FastEthernet0/0 is administratively down, line protocol is down
  Hardware is MV96340 Ethernet, address is 0016.9dfa.cab0 (bia
0016.9dfa.cab0)
  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 0016.9dfa.cab1 (bia
0016.9dfa.cab1)
  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, 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

Serial0/1/0 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 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

Serial0/2/0 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  473, LMI stat recvd 473, 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 2700/1, interface
broadcasts 2559
  Last input 00:00:02, output 00:00:02, output hang never
  Last clearing of "show interface" counters 01:22:23
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/4/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 0 bits/sec, 0 packets/sec
```

```
  5 minute output rate 0 bits/sec, 0 packets/sec
     3633 packets input, 316292 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
     3776 packets output, 327213 bytes, 0 underruns
     0 output errors, 0 collisions, 9 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
     60 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 10.1.1.2/30
  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
Serial0/2/0.23 is up, line protocol is up
  Hardware is GT96K Serial
  Internet address is 10.1.1.5/30
  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 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 01:22:39, output 01:22:39, 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
     3 carrier transitions
     DCD=down  DSR=down  DTR=down  RTS=down  CTS=down
```

```
NVI0 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
R2#
```

```
R2#show interfaces counters errors

R2#
```

```
R2#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
R3               Ser 0/2/0.23       134         R S I     2811      Ser
0/2/0.23
R1               Ser 0/2/0.12       134         R S I     2811      Ser
0/2/0.12
R2#
```

```
R2#show cdp neighbors detail
-------------------------
Device ID: R3
Entry address(es):
  IP address: 10.1.1.6
  IPv6 address: 2026::1:2  (global unicast)
```

```
  IPv6 address: FE80::216:47FF:FE9A:F6E8  (link-local)
Platform: Cisco 2811,  Capabilities: Router Switch IGMP
Interface: Serial0/2/0.23,  Port ID (outgoing port): Serial0/2/0.23
Holdtime : 126 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: R1
Entry address(es):
  IP address: 10.1.1.1
  IPv6 address: 2026::12:1  (global unicast)
  IPv6 address: FE80::21D:70FF:FEA0:C690  (link-local)
Platform: Cisco 2811,  Capabilities: Router Switch IGMP
Interface: Serial0/2/0.12,  Port ID (outgoing port): Serial0/2/0.12
Holdtime : 126 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
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advertisement version: 2
VTP Management Domain: ''

R2#
```

```
R2#show frame-relay map
Serial0/2/0.12 (up): point-to-point dlci, dlci 201(0xC9,0x3090),
broadcast
          status defined, active
Serial0/2/0.23 (up): point-to-point dlci, dlci 203(0xCB,0x30B0),
broadcast
          status defined, active
R2#
```

```
R2#show arp

R2#
```

```
R2#show ip arp

R2#
```

```
R2#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
Serial0/2/0.12 is up, line protocol is up
  Internet address is 10.1.1.2/30
  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 unreachables 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
Serial0/2/0.23 is up, line protocol is up
  Internet address is 10.1.1.5/30
  Broadcast address is 255.255.255.255
  Address determined by non-volatile memory
```

```
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Multicast reserved groups joined: 224.0.0.1 224.0.0.2 224.0.0.22
224.0.0.13
      224.0.0.5
  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 unreachables 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 administratively down, line protocol is down
  Internet protocol processing disabled
NVI0 is administratively down, line protocol is down
  Internet protocol processing disabled
R2#
```

```
R2#show ip cef
Prefix              Next Hop            Interface
0.0.0.0/0           10.1.1.1            Serial0/2/0.12
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
10.1.1.2/32         receive             Serial0/2/0.12
10.1.1.3/32         receive             Serial0/2/0.12
10.1.1.4/30         attached            Serial0/2/0.23
10.1.1.4/32         receive             Serial0/2/0.23
10.1.1.5/32         receive             Serial0/2/0.23
10.1.1.7/32         receive             Serial0/2/0.23
10.1.1.8/30         10.1.1.6            Serial0/2/0.23
10.1.4.4/30         10.1.1.6            Serial0/2/0.23
10.1.4.8/30         10.1.1.6            Serial0/2/0.23
10.2.1.0/24         10.1.1.6            Serial0/2/0.23
10.2.2.0/24         10.1.1.6            Serial0/2/0.23
10.2.4.12/30        10.1.1.6            Serial0/2/0.23
127.0.0.0/8         drop
224.0.0.0/4         multicast
224.0.0.0/24        receive
240.0.0.0/4         drop
255.255.255.255/32  receive
R2#
```

```
R2#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
R2#
```

```
R2#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 2.2.2.2
  It is an area border router
  Number of areas in this router is 2. 2 normal 0 stub 0 nssa
  Maximum path: 4
  Routing for Networks:
    10.1.1.1 0.0.0.0 area 0
    10.1.1.5 0.0.0.0 area 0
    10.2.2.1 0.0.0.0 area 0
    10.0.0.0 0.255.255.255 area 12
 Reference bandwidth unit is 100 mbps
  Routing Information Sources:
    Gateway         Distance      Last Update
    3.3.3.3              110      01:18:43
    10.1.1.1             110      01:18:59
  Distance: (default is 110)

R2#
```

```
R2#show access-lists
Standard IP access list DENY_10
    10 deny   10.0.0.0, wildcard bits 0.255.255.255
    20 permit any
Standard IP access list DENY_ALL
    10 deny   any
Standard IP access list PERMIT_10
    10 permit 10.0.0.0, wildcard bits 0.255.255.255
Standard IP access list PERMIT_ALL
    10 permit any
R2#
```

```
R2#
R2#show ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address
Interface
3.3.3.3           0   FULL/  -        00:00:35    10.1.1.6
Serial0/2/0.23
10.1.1.1          0   FULL/  -        00:00:39    10.1.1.1
Serial0/2/0.12
R2#
```

```
R2#show ip ospf interface
Serial0/2/0.23 is up, line protocol is up
  Internet Address 10.1.1.5/30, Area 0
  Process ID 1, Router ID 2.2.2.2, 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 00:00:07
  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 2, maximum is 2
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 3.3.3.3
  Suppress hello for 0 neighbor(s)
Serial0/2/0.12 is up, line protocol is up
  Internet Address 10.1.1.2/30, Area 12
  Process ID 1, Router ID 2.2.2.2, 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 1/2, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 3, maximum is 4
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 1, Adjacent neighbor count is 1
    Adjacent with neighbor 10.1.1.1
  Suppress hello for 0 neighbor(s)
R2#
```

```
R2#show ip ospf database

            OSPF Router with ID (2.2.2.2) (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         777         0x8000000C 0x00C09D 2
3.3.3.3         3.3.3.3         806         0x8000000C 0x0066F0 2

                Summary Net Link States (Area 0)

Link ID         ADV Router      Age         Seq#       Checksum
10.1.1.0        2.2.2.2         777         0x80000003 0x0020C9
10.1.1.8        3.3.3.3         806         0x80000003 0x00B12C

                Summary ASB Link States (Area 0)

Link ID         ADV Router      Age         Seq#       Checksum
10.1.1.1        2.2.2.2         777         0x80000003 0x001ACA

                Router Link States (Area 12)

Link ID         ADV Router      Age         Seq#       Checksum Link
count
2.2.2.2         2.2.2.2         777         0x8000000C 0x00392B 2
10.1.1.1        10.1.1.1        739         0x80000005 0x00A4C1 2

                Summary Net Link States (Area 12)
```

```
Link ID         ADV Router      Age         Seq#       Checksum
10.1.1.4        2.2.2.2         777         0x80000003 0x00F7ED
10.1.1.8        2.2.2.2         778         0x80000003 0x00524F

                Summary ASB Link States (Area 12)

Link ID         ADV Router      Age         Seq#       Checksum
3.3.3.3         2.2.2.2         778         0x80000003 0x0033B2

                Type-5 AS External Link States

Link ID         ADV Router      Age         Seq#       Checksum Tag
0.0.0.0         10.1.1.1        986         0x80000003 0x00C7DB 1
10.1.4.4        3.3.3.3         807         0x80000003 0x00A8C3 0
10.1.4.8        3.3.3.3         807         0x80000003 0x0080E7 0
10.2.1.0        3.3.3.3         807         0x80000003 0x00F777 0
10.2.2.0        3.3.3.3         807         0x80000003 0x00EC81 0
10.2.4.12       3.3.3.3         807         0x80000003 0x004C17 0
R2#
```

```
R2#
R2#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 10.1.1.6, 01:19:28, Serial0/2/0.23
O IA    10.1.1.8/30 [110/128] via 10.1.1.6, 01:19:44, Serial0/2/0.23
O E2    10.1.4.8/30 [110/20] via 10.1.1.6, 01:19:28, Serial0/2/0.23
O E2    10.2.1.0/24 [110/20] via 10.1.1.6, 01:19:28, Serial0/2/0.23
O E2    10.2.2.0/24 [110/20] via 10.1.1.6, 01:19:28, Serial0/2/0.23
O E2    10.1.4.4/30 [110/20] via 10.1.1.6, 01:19:28, Serial0/2/0.23
O*E2 0.0.0.0/0 [110/1] via 10.1.1.1, 01:19:44, Serial0/2/0.12
R2#
```