Case Study – Instructor Notes

Phase 1: Project Description

This phase of the case study can begin early in the semester, as students should be familiar with subnetting.

The entire case study should be discussed in class so that all students understand that the purpose of this study is not only to practice configuration and troubleshooting, but also to learn how to document their work. The following are some good web sites that will help the students' understanding of documentation:

http://www.ittoolkit.com/articles/tech/importofdocs.htm

http://www.serverwatch.com/tutorials/article.php/1475021

http://www.ethermanage.com/ethernet/100quickref/ch14qr_16.html

http://tampabay.bizjournals.com/tampabay/stories/1997/11/24/smallb2.html

The network address assigned should be one of the private IP address ranges or a subnet of one:

Class	**Range**
A	10.0.0.0 – 10.255.255.255
B	172.16.0.0 – 172.31.255.255
C	192.168.0.0 – 192.168.255.255

The routing protocol should be IGRP. The first part of Phase 1 should probably be completed as a class so that students understand the purpose of the case study. Along with a discussion of Phase 1, the deliverable piece should also be covered. The instructor should decide whether or not this is a group project. Certainly each student should be capable of deciding on IP addresses of interfaces after the IP scheme has been chosen.

The Network Diagram - IP Addressing on page 4 is the first document that should be approved by the instructor.

Phase 2: IP Addressing

This Phase of the case study should be due after module 4 or 5 is completed.

Students should recreate the drawing during this Phase using CDN, Visio, or a paint program. In the drawing the students should be advised to insert the appropriate interface connections on the routers. The drawing should be approved by the instructor.

The following topics can be used for class discussion:

- The reasons for using private IP addressing
- The concept of reserved address space for routers, servers, and hosts

- The reasons for developing an IP address scheme to allow for future growth

Phase 3: Basic Router and Workstation Configuration

This Phase should be completed after students feel comfortable with basic router configuration, sometime after Module 7.

Students should be somewhat familiar with router configuration, and understand the basic requirements. The checklist included in Phase 3 will help them to include the essential items for router configuration. The student should select which workstation is to be the TFTP server. They must understand which devices need access to the TFTP server. Students should be guided to complete the chart in Phase 3, and then have the instructor approve the configuration.

After instructor approval, students should enter their configurations and test them on the routers.

Phase 4: Access Control Lists

This Phase should be completed after Module 11.

This is a most critical portion of the case study. Students must develop an access control list on paper first, then type the ACL into a word processing application. The instructor should guide the students through the process of copying and pasting ACLs into the router configuration.

Phase 5: Documenting the Network

If the documentation requirements are clear to the students at the beginning of the case study, the final Phase will have been completed throughout the life of the case study. The Phase will help to reiterate the purpose of documentation, that it should be done continually and revisited, not only once.

During the last phase the deliverables list should be discussed again to make sure the student understands the requirements.

Optional

An additional Phase could be a reflection phase so that the student can look objectively at this case study. Questions might include: “Why have two types of documentation?”, “What happens when a piece of equipment fails?”, and so forth.

Case Study – Instructor Sample Outputs

Phase 5: Documenting the Network – Sample outputs Boaz (2500)

Configuration Management documentation – Boaz (2500)

```
Boaz#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source
Route Bridge
         S - Switch, H - Host, I - IGMP

Device ID    Local Intrfce   Holdtme  Capability Platform
Port ID
Centre       Ser 0     120     R     2500   Ser 0

Boaz#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M -
mobile, B - BGP
    D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF
inter area
    E1 - OSPF external type 1, E2 - OSPF external type 2, E
- EGP
    i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * -
candidate default
    U - per-user static route

Gateway of last resort is not set

   172.16.0.0/16 is subnetted, 4 subnets
I    172.16.128.0 [100/10476] via 172.16.64.1, 00:00:20,
Serial0
I    172.16.32.0 [100/8576] via 172.16.64.1, 00:00:20,
Serial0
C    172.16.96.0 is directly connected, Ethernet0
C    172.16.64.0 is directly connected, Serial0

Boaz#show ip protocols
Routing Protocol is "igrp 11"
 Sending updates every 90 seconds, next due in 34 seconds
 Invalid after 270 seconds, hold down 280, flushed after
630
 Outgoing update filter list for all interfaces is not set
 Incoming update filter list for all interfaces is not set
 Default networks flagged in outgoing updates
 Default networks accepted from incoming updates
 IGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
 IGRP maximum hopcount 100
 IGRP maximum metric variance 1
 Redistributing: igrp 11
 Routing for Networks:
  172.16.0.0
 Routing Information Sources:
  Gateway     Distance   Last Update
  172.16.64.1     100   00:00:37
 Distance: (default is 100)
```

```
Boaz#show ip interface brief
Interface       IP-Address   OK? Method Status
Protocol
Ethernet0       172.16.96.1   YES manual up          up
Serial0        172.16.64.2   YES manual up          up
Serial1        unassigned   YES unset administratively down
down

Boaz#show version
Cisco Internetwork Operating System Software
IOS (tm) 3000 Software (IGS-J-L), Version 11.1(5), RELEASE
SOFTWARE (fc1)
Copyright (c) 1986-1996 by Cisco Systems, Inc.
Compiled Mon 05-Aug-96 11:48 by mkamson
Image text-base: 0x0303794C, data-base: 0x00001000

ROM: System Bootstrap, Version 11.0(10c), SOFTWARE
ROM: 3000 Bootstrap Software (IGS-BOOT-R), Version
11.0(10c), RELEASE SOFTWARE (fc1)

Boaz uptime is 5 hours, 6 minutes
System restarted by power-on
System image file is "flash:igs-j-l.111-5", booted via
flash

Cisco 2500 (68030) processor (revision N) with 6144K/2048K
bytes of memory.
Processor board ID 22650091, with hardware revision
00000000
Bridging software.
SuperLAT software copyright 1990 by Meridian Technology
Corp).
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
TN3270 Emulation software (copyright 1994 by TGV Inc).
1 Ethernet/IEEE 802.3 interface.
2 Serial network interfaces.
32K bytes of non-volatile configuration memory.
8192K bytes of processor board System flash (Read ONLY)

Configuration register is 0x2102

Boaz#show hosts
Default domain is not set
Name/address lookup uses domain service
Name servers are 255.255.255.255

Host           Flags   Age Type  Address(es)
Centre          (perm, OK) 4  IP  172.16.64.1 172.16.128.1
                        172.16.32.1
Boaz           (perm, OK) 4  IP  172.16.64.2 172.16.96.1
Eva           (perm, OK) 4  IP  172.16.128.2 172.16.160.1
```

```
Boaz#show startup-config
Using 1090 out of 32762 bytes
!
version 11.1
service slave-log
service udp-small-servers
service tcp-small-servers
!
hostname Boaz
!
enable secret 5 $1$5EE4$v86z7o8zMLehnIWA0T7LB/
!
!
interface Ethernet0
 description Boaz LAN workgroup interface
 ip address 172.16.96.1 255.255.224.0
 ip access-group 101 in
 no keepalive
!
interface Serial0
 description Boaz WAN interface to Centre
 ip address 172.16.64.2 255.255.224.0
 no fair-queue
!
interface Serial1
 no ip address
 shutdown
!
router igrp 11
 network 172.16.0.0
!
ip host Centre 172.16.64.1 172.16.128.1 172.16.32.1
ip host Boaz 172.16.64.2 172.16.96.1
ip host Eva 172.16.128.2 172.16.160.1
no ip classless
access-list 101 permit ip 172.16.96.0 0.0.31.255 host
172.16.32.5
access-list 101 permit ip 172.16.96.0 0.0.31.255
172.16.96.0 0.0.31.255
access-list 101 deny  tcp 172.16.96.0 0.0.31.255 any eq
telnet
access-list 101 deny  icmp 172.16.96.0 0.0.31.255 any
!
banner motd ^CWarning: This is a SECURE SYSTEM:
UNAUTHORIZED USERS will be prosecuted.^C
!
line con 0
 exec-timeout 0 0
 password cisco
 login
line aux 0
line vty 0 4
 password cisco
 login
!
end
```

Boaz#

Security Management documentation – Boaz (2500)

```
Boaz#show ip interface
Ethernet0 is up, line protocol is up
 Internet address is 172.16.96.1/19
 Broadcast address is 255.255.255.255
 Address determined by setup command
 MTU is 1500 bytes
 Helper address is not set
 Directed broadcast forwarding is enabled
 Outgoing access list is not set
 Inbound access list is 101
 Proxy ARP is enabled
 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 disabled
 IP multicast fast switching is enabled
 Router Discovery is disabled
 IP output packet accounting is disabled
 IP access violation accounting is disabled
 TCP/IP header compression is disabled
 Probe proxy name replies are disabled
 Gateway Discovery is disabled
 Policy routing is disabled
Serial0 is up, line protocol is up
 Internet address is 172.16.64.2/19
 Broadcast address is 255.255.255.255
 Address determined by setup command
 MTU is 1500 bytes
 Helper address is not set
 Directed broadcast forwarding is enabled
 Outgoing access list is not set
 Inbound access list is not set
 Proxy ARP is enabled
 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 multicast fast switching is enabled
 Router Discovery is disabled
 IP output packet accounting is disabled
 IP access violation accounting is disabled
 TCP/IP header compression is disabled
 Probe proxy name replies are disabled
 Gateway Discovery is disabled
 Policy routing is disabled
Serial1 is administratively down, line protocol is down
 Internet protocol processing disabled
```

```
Boaz#show ip access-lists
Extended IP access list 101
  permit ip 172.16.96.0 0.0.31.255 host 172.16.32.5 (7
matches)
  permit ip 172.16.96.0 0.0.31.255 172.16.96.0 0.0.31.255
(72 matches)
  deny  tcp 172.16.96.0 0.0.31.255 any eq telnet
  deny  icmp 172.16.96.0 0.0.31.255 any (8 matches)
Boaz#
```

Phase 5: Documenting the Network – Sample outputs Centre (2500)

Configuration Management documentation

```
Centre#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source
Route Bridge
         S - Switch, H - Host, I - IGMP

Device ID    Local Intrfce   Holdtme  Capability Platform
Port ID
Boaz         Ser 0     153     R     2500   Ser 0
Eva          Ser 1     140     R     2500   Ser 1

Centre#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M -
mobile, B - BGP
    D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF
inter area
    E1 - OSPF external type 1, E2 - OSPF external type 2, E
- EGP
    i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * -
candidate default
    U - per-user static route

Gateway of last resort is not set

   172.16.0.0/16 is subnetted, 4 subnets
C    172.16.128.0 is directly connected, Serial1
C    172.16.32.0 is directly connected, Ethernet0
I    172.16.96.0 [100/8576] via 172.16.64.2, 00:00:57,
Serial0
C    172.16.64.0 is directly connected, Serial0

Centre#show ip protocol
Routing Protocol is "igrp 11"
 Sending updates every 90 seconds, next due in 50 seconds
 Invalid after 270 seconds, hold down 280, flushed after
630
 Outgoing update filter list for all interfaces is not set
 Incoming update filter list for all interfaces is not set
 Default networks flagged in outgoing updates
 Default networks accepted from incoming updates
 IGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
 IGRP maximum hopcount 100
 IGRP maximum metric variance 1
 Redistributing: igrp 11
 Routing for Networks:
  172.16.0.0
 Routing Information Sources:
  Gateway     Distance   Last Update
  172.16.128.2     100   00:40:35
  172.16.64.2      100   00:01:07
 Distance: (default is 100)
```

```
Centre#show ip interface brief
Interface       IP-Address   OK? Method Status
Protocol
Ethernet0       172.16.32.1   YES manual up          up
Ethernet1       unassigned   YES unset administratively
down down
Serial0        172.16.64.1   YES manual up          up
Serial1        172.16.128.1  YES manual up          up

Centre#show version
Cisco Internetwork Operating System Software
IOS (tm) 3000 Software (IGS-J-L), Version 11.1(5), RELEASE
SOFTWARE (fc1)
Copyright (c) 1986-1996 by Cisco Systems, Inc.
Compiled Mon 05-Aug-96 11:48 by mkamson
Image text-base: 0x0303794C, data-base: 0x00001000

ROM: System Bootstrap, Version 11.0(10c)XB2, PLATFORM
SPECIFIC RELEASE SOFTWARE (fc1)
ROM: 3000 Bootstrap Software (IGS-BOOT-R), Version
11.0(10c)XB2, PLATFORM SPECIFIC RELEASE SOFTWARE (fc1)

Centre uptime is 5 hours, 18 minutes
System restarted by power-on
System image file is "flash:igs-j-l.111-5", booted via
flash

Cisco 2500 (68030) processor (revision D) with 8192K/2048K
bytes of memory.
Processor board ID 02782545, with hardware revision
00000000
Bridging software.
SuperLAT software copyright 1990 by Meridian Technology
Corp).
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
TN3270 Emulation software (copyright 1994 by TGV Inc).
2 Ethernet/IEEE 802.3 interfaces.
2 Serial network interfaces.
32K bytes of non-volatile configuration memory.
8192K bytes of processor board System flash (Read ONLY)

Configuration register is 0x2102

Centre#show host
Default domain is not set
Name/address lookup uses domain service
Name servers are 255.255.255.255

Host           Flags   Age Type  Address(es)
Centre          (perm, OK) 4  IP  172.16.64.1 172.16.128.1
                        172.16.32.1
Boaz           (perm, OK) 4  IP  172.16.64.2 172.16.96.1
Eva           (perm, OK) 4  IP  172.16.128.2 172.16.160.1

Centre#show startup-config
Using 907 out of 32762 bytes
!
```

```
version 11.1
service slave-log
service udp-small-servers
service tcp-small-servers
!
hostname Centre
!
enable secret 5 $1$MlW5$wj.I9efI57i0AxLPf4qOj/
!
!
interface Ethernet0
 description Centre LAN workgroup interface
 ip address 172.16.32.1 255.255.224.0
!
interface Ethernet1
 no ip address
 shutdown
!
interface Serial0
 description Centre WAN interface to Boaz
 ip address 172.16.64.1 255.255.224.0
 no fair-queue
 clockrate 56000
!
interface Serial1
 description Centre WAN interface to Eva
 ip address 172.16.128.1 255.255.224.0
 clockrate 56000
!
router igrp 11
 network 172.16.0.0
!
ip host Centre 172.16.64.1 172.16.128.1 172.16.32.1
ip host Boaz 172.16.64.2 172.16.96.1
ip host Eva 172.16.128.2 172.16.160.1
no ip classless
!
banner motd ^CThis is a SECURE SYSTEM. UNAUTHORIZED USERS
will be prosecuted.^C
!
line con 0
 password cisco
 login
line aux 0
line vty 0 4
 password cisco
 login
!
end

Centre#
```

Security Management documentation – Centre (2500)

```
Centre#show ip interface
Ethernet0 is up, line protocol is up
 Internet address is 172.16.32.1/19
 Broadcast address is 255.255.255.255
 Address determined by setup command
 MTU is 1500 bytes
 Helper address is not set
 Directed broadcast forwarding is enabled
 Outgoing access list is not set
 Inbound access list is not set
 Proxy ARP is enabled
 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 disabled
 IP multicast fast switching is enabled
 Router Discovery is disabled
 IP output packet accounting is disabled
 IP access violation accounting is disabled
 TCP/IP header compression is disabled
 Probe proxy name replies are disabled
 Gateway Discovery is disabled
 Policy routing is disabled
Ethernet1 is administratively down, line protocol is down
 Internet protocol processing disabled
Serial0 is up, line protocol is up
 Internet address is 172.16.64.1/19
 Broadcast address is 255.255.255.255
 Address determined by setup command
 MTU is 1500 bytes
 Helper address is not set
 Directed broadcast forwarding is enabled
 Outgoing access list is not set
 Inbound access list is not set
 Proxy ARP is enabled
 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 multicast fast switching is enabled
 Router Discovery is disabled
 IP output packet accounting is disabled
 IP access violation accounting is disabled
 TCP/IP header compression is disabled
 Probe proxy name replies are disabled
 Gateway Discovery is disabled
 Policy routing is disabled
Serial1 is up, line protocol is up
 Internet address is 172.16.128.1/19
```

```
 Broadcast address is 255.255.255.255
 Address determined by setup command
 MTU is 1500 bytes
 Helper address is not set
 Directed broadcast forwarding is enabled
 Outgoing access list is not set
 Inbound access list is not set
 Proxy ARP is enabled
 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 multicast fast switching is enabled
 Router Discovery is disabled
 IP output packet accounting is disabled
 IP access violation accounting is disabled
 TCP/IP header compression is disabled
 Probe proxy name replies are disabled
 Gateway Discovery is disabled
 Policy routing is disabled

Centre#show ip access-lists
       <none applied>

Centre#
```

Phase 5: Documenting the Network – Sample outputs Eva (2500)

Configuration Management documentation – Eva (2500)

```
Eva#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source
Route Bridge
         S - Switch, H - Host, I - IGMP

Device ID    Local Intrfce   Holdtme  Capability Platform
Port ID
Centre       Ser 1     147     R     2500   Ser 1

Eva#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M -
mobile, B - BGP
    D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF
inter area
    E1 - OSPF external type 1, E2 - OSPF external type 2, E
- EGP
    i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * -
candidate default
    U - per-user static route

Gateway of last resort is not set

   172.16.0.0/16 is subnetted, 4 subnets
C    172.16.128.0 is directly connected, Serial1
I    172.16.32.0 [100/8576] via 172.16.128.1, 00:01:17,
Serial1
I    172.16.96.0 [100/10576] via 172.16.128.1, 00:01:18,
Serial1
I    172.16.64.0 [100/10476] via 172.16.128.1, 00:01:18,
Serial1

Eva#show ip protocol
Routing Protocol is "igrp 11"
 Sending updates every 90 seconds, next due in 24 seconds
 Invalid after 270 seconds, hold down 280, flushed after
630
 Outgoing update filter list for all interfaces is not set
 Incoming update filter list for all interfaces is not set
 Default networks flagged in outgoing updates
 Default networks accepted from incoming updates
 IGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0
 IGRP maximum hopcount 100
 IGRP maximum metric variance 1
 Redistributing: igrp 11
 Routing for Networks:
  172.16.0.0
 Routing Information Sources:
  Gateway     Distance   Last Update
  172.16.128.1     100   00:00:07
 Distance: (default is 100)
```

```
Eva#show ip interface brief
Interface       IP-Address   OK? Method Status
Protocol
Ethernet0       172.16.160.1  YES manual up          down
Serial0        unassigned   YES unset administratively down
down
Serial1        172.16.128.2  YES manual up          up
Eva#show version
Cisco Internetwork Operating System Software
IOS (tm) 3000 Software (IGS-J-L), Version 11.1(5), RELEASE
SOFTWARE (fc1)
Copyright (c) 1986-1996 by cisco Systems, Inc.
Compiled Mon 05-Aug-96 11:48 by mkamson
Image text-base: 0x0303794C, data-base: 0x00001000

ROM: System Bootstrap, Version 11.0(10c), SOFTWARE
ROM: 3000 Bootstrap Software (IGS-BOOT-R), Version
11.0(10c), RELEASE SOFTWARE (fc1)

Eva uptime is 5 hours, 4 minutes
System restarted by reload
System image file is "flash:igs-j-l.111-5", booted via
flash

Cisco 2500 (68030) processor (revision N) with 6144K/2048K
bytes of memory.
Processor board ID 06147980, with hardware revision
00000000
Bridging software.
SuperLAT software copyright 1990 by Meridian Technology
Corp).
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
TN3270 Emulation software (copyright 1994 by TGV Inc).
1 Ethernet/IEEE 802.3 interface.
2 Serial network interfaces.
32K bytes of non-volatile configuration memory.
8192K bytes of processor board System flash (Read ONLY)

Configuration register is 0x2102

Eva#show hosts
Default domain is not set
Name/address lookup uses static mappings

Host           Flags   Age Type  Address(es)
Boaz           (perm, OK) 4  IP  172.16.64.2 172.16.96.1
Centre          (perm, OK) 4  IP  172.16.64.1 172.16.128.1
                        172.16.32.1
```

```
Eva#show startup-config
Using 1156 out of 32762 bytes
!
version 11.1
service slave-log
service udp-small-servers
service tcp-small-servers
!
hostname Eva
!
enable secret 5 $1$ejwr$qcHMWf3GAiWytPceeWK1y0
!
ip subnet-zero
!
interface Ethernet0
 description Eva LAN workgroup interface
 ip address 172.16.160.1 255.255.224.0
 ip access-group 103 in
!
interface Serial0
 no ip address
 shutdown
 no fair-queue
!
interface Serial1
 description Eva WAN interface to Centre
 ip address 172.16.128.2 255.255.224.0
!
router igrp 11
 network 172.16.0.0
!
ip host Boaz 172.16.64.2 172.16.96.1
ip host Centre 172.16.64.1 172.16.128.1 172.16.32.1
no ip classless
ip http server
access-list 103 permit ip 172.16.160.0 0.0.31.255 host
172.16.32.5
access-list 103 permit ip 172.16.160.0 0.0.31.255
172.16.160.0 0.0.31.255
access-list 103 deny  tcp 172.16.160.0 0.0.31.255 any eq
telnet
access-list 103 deny  icmp 172.16.160.0 0.0.31.255 any
!
banner motd ^CWarning: This is a SECURE SYSTEM.
UNAUTHORIZED USER will be prosecuted.^C
!
line con 0
 exec-timeout 0 0
 password cisco
 login
 transport input none
line aux 0
 password cisco
 login
line vty 0 4
 password cisco
 login
```

```
!
end

Eva#
```

Security Management documentation – Eva (2500)

```
Eva#show ip interface
Ethernet0 is up, line protocol is down
 Internet address is 172.16.160.1/19
 Broadcast address is 255.255.255.255
 Address determined by setup command
 MTU is 1500 bytes
 Helper address is not set
 Directed broadcast forwarding is enabled
 Outgoing access list is not set
 Inbound access list is 103
 Proxy ARP is enabled
 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 disabled
 IP multicast fast switching is enabled
 Router Discovery is disabled
 IP output packet accounting is disabled
 IP access violation accounting is disabled
 TCP/IP header compression is disabled
 Probe proxy name replies are disabled
 Gateway Discovery is disabled
 Policy routing is disabled
Serial0 is administratively down, line protocol is down
 Internet protocol processing disabled
Serial1 is up, line protocol is up
 Internet address is 172.16.128.2/19
 Broadcast address is 255.255.255.255
 Address determined by setup command
 MTU is 1500 bytes
 Helper address is not set
 Directed broadcast forwarding is enabled
 Outgoing access list is not set
 Inbound access list is not set
 Proxy ARP is enabled
 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 multicast fast switching is enabled
 Router Discovery is disabled
 IP output packet accounting is disabled
 IP access violation accounting is disabled
 TCP/IP header compression is disabled
```

```
 Probe proxy name replies are disabled
 Gateway Discovery is disabled
 Policy routing is disabled

Eva#show ip access-lists
Extended IP access list 103
  permit ip 172.16.160.0 0.0.31.255 host 172.16.32.5 (15
matches)
  permit ip 172.16.160.0 0.0.31.255 172.16.160.0 0.0.31.255
(225 matches)
  deny  tcp 172.16.160.0 0.0.31.255 any eq telnet
  deny  icmp 172.16.160.0 0.0.31.255 any (20 matches)
Eva#
```