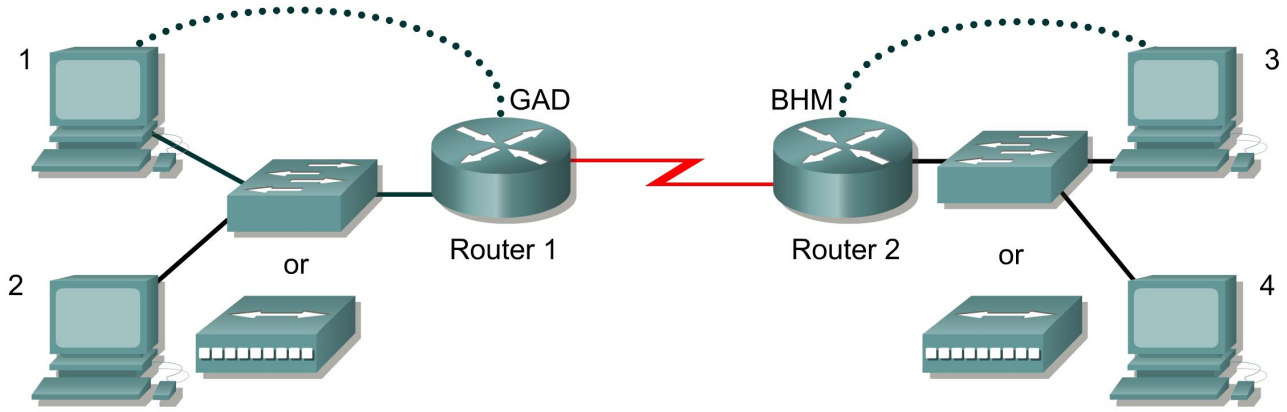
Lab 11.2.6 VTY Restriction – Instructor Version 2500



Straight-through cable	
Serial cable	
Console (Rollover)	
Crossover cable	

Router Name	FA0/0 Address	Interface Type S0/0	S0/0 Address	LO0 Address	Routing	Enable password	VTY password
GAD	192.168.1.1 /24	DCE	192.168..2.1 /24	172.16.1.1 /24	RIP	cisco	class
BHM	192.168.3.1 /24	DTE	192.168.2.2 /24	--	RIP	cisco	class

Host	IP Address	Subnet Mask	Gateway
1	192.168.1.2	255.255.255.0	192.168.1.1
2	192.168.1.3	255.255.255.0	192.168.1.1
3	192.168.3.2	255.255.255.0	192.168.3.1
4	192.168.3.3	255.255.255.0	192.168.3.1

NOTE: The loopback entry in this graphic is not required in the lab.

Objective

Use the access-class and line commands to control Telnet access to the router.

Scenario

The company home office in Gadsden (GAD) provides services to branch offices such as the Birmingham (BHM) office. Only systems within the local network should be able to Telnet to the router. To do this, a standard access-list will be created that will permit users on network the local

network to Telnet to local router. The access-list will then be applied to the Virtual Terminal (vty) lines.

Step 1 Basic Router Interconnection

a. Interconnect the routers as shown in the diagram.

Step 2 Basic Configuration

a. The router may contain configurations from a previous use. For this reason, erase the startup configuration and reload the router to remove any residual configurations. Using the information previously in the tables, setup the router and host configurations and verify reachablilty by pinging all systems and routers from each system.

b. Telnet from the hosts to both the local router and the remote router.

Step 3 Create the Access List that Represents the Gadsden LAN

a. The Local Area Network in Gadsden has a network address of 192.168.1.0 /24. To create the access list to permit this use the following commands:

```
GAD(config)#access-list 1 permit 192.168.1.0 0.0.0.255
```

Step 4 Apply the Access List to Permit Only the Gadsden LAN

a. Now that the list is created to represent traffic, it needs to be applied to the vty lines. This will restrict any Telnet access to the router. While these could be applied separately to each interface, it is easier to apply the list to all vty lines in one statement. This is done by enter the interface mode for all 5 line with the global config command **`line vty 0 4`**.

For the Gadsden router type:

```
GAD(config)#line vty 0 4
GAD(config-line)#access-class 1 in
GAD(config-line)#^Z
```

Step 5 Test the Restriction

a. Test the functionality of the ACL by trying to telnet to the host and verify that the access-list is working correctly.

```
[  ] verify that host 1 CAN  telnet GAD
[  ] verify that host 2 CAN  telnet GAD
[  ] verify that host 3 CANNOT  telnet GAD
[  ] verify that host 4 CANNOT  telnet GAD

Host 1
   C:\>ipconfig
   Windows 2000 IP Configuration
   Ethernet adapter Local Area Connection 2:

         Connection-specific DNS Suffix  . :
         IP Address. . . . . . . . . . . . : 192.168.1.2
         Subnet Mask . . . . . . . . . . . : 255.255.255.0
         Default Gateway . . . . . . . . . : 192.168.1.1
   C:\>ping 192.168.1.1

   Pinging 192.168.1.1 with 32 bytes of data:
```



```
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms


telnet 192.168.1.1

User Access Verification

Password:
```

Host 3

```
C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.3.2
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.3.1


C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms


telnet 192.168.1.1

Trying 192.168.1.1 ...
% Connection refused by remote host
```

Step 6 Create the Restrictions for Birmingham Router

a. Repeat the above process to restrict the Telnet access to BHM. Thus restriction should allow only hosts in the Birmingham LAN to Telnet to BHM.

b. Test the functionality of the ACL by trying to telnet to the host and verify that it is to be permitted or denied as appropriate.

```
[  ] verify that host 1 CANNOT  telnet BHM
```



```
[  ] verify that host 2 CANNOT  telnet BHM
[  ] verify that host 3 CAN  telnet BHM
[  ] verify that host 4 CAN  telnet BHM
Host 1
   C:\>ipconfig

   Windows 2000 IP Configuration

   Ethernet adapter Local Area Connection 2:

         Connection-specific DNS Suffix  . :
         IP Address. . . . . . . . . . . . : 192.168.1.2
         Subnet Mask . . . . . . . . . . . : 255.255.255.0
         Default Gateway . . . . . . . . . : 192.168.1.1


   C:\>ping 192.168.3.1

   Pinging 192.168.3.1 with 32 bytes of data:

   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255

   Ping statistics for 192.168.3.1:
       Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
   Approximate round trip times in milli-seconds:
       Minimum = 0ms, Maximum =  0ms, Average =  0ms


   telnet 192.168.3.1
   Trying 192.168.3.1 ...
   % Connection refused by remote host

Host 3

   C:\>ipconfig

   Windows 2000 IP Configuration

   Ethernet adapter Local Area Connection 2:

         Connection-specific DNS Suffix  . :
         IP Address. . . . . . . . . . . . : 192.168.3.2
         Subnet Mask . . . . . . . . . . . : 255.255.255.0
         Default Gateway . . . . . . . . . : 192.168.3.1


   C:\>ping 192.168.3.1

   Pinging 192.168.3.1 with 32 bytes of data:

   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
   Reply from 192.168.3.1: bytes=32 time<10ms TTL=255

   Ping statistics for 192.168.3.1:
       Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```



```
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms


telnet 192.168.3.1
Trying 192.168.3.1 ...
User Access Verification
Password:
```

Step 7 Document the ACL

a. As a part of all network management, documentation needs to be created. Capture a copy of the configuration and add additional comments to explain the purpose to ACL code.

b. The file should be saved with other network documentation. The file naming convention should reflect the function of the file and the date of implementation.

c. Once finished, erase the start-up configuration on routers, remove and store the cables and adapter. Also logoff and turn the router off.

Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class**. If "class" does not work, ask the instructor for assistance.

```
Router>enable
```

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

Router Interface Summary

Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)			
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)	
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)	

In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.

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

Current configuration : 650 bytes
!
version 12.2
!
hostname GAD
!
enable password cisco
!
ip subnet-zero
!
interface Ethernet0
 ip address 192.168.1.1 255.255.255.0
 half-duplex
!
interface Serial0
 ip address 192.168.2.1 255.255.255.0
 no fair-queue
 clockrate 56000
!
interface Serial1
 no ip address
 shutdown
!
router rip
 network 192.168.1.0
 network 192.168.2.0
!
ip classless
no ip http server
!
access-list 1 permit 192.168.1.0 0.0.0.255
!
line con 0
 password cisco
 login
line aux 0
 password cisco
 login
line vty 0 4
 access-class 1 in
 password class
 login
!
end


GAD#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
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       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, 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
```



```
C    192.168.1.0/24 is directly connected, Ethernet0
C    192.168.2.0/24 is directly connected, Serial0
R    192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:17, Serial0


GAD#show access-lists
Standard IP access list 1
    permit 192.168.1.0, wildcard bits 0.0.0.255 (6 matches)


BHM:


BHM#show running-config
Building configuration...

Current configuration : 843 bytes
!
version 12.1
!
hostname BHM
!
enable password cisco
!
ip subnet-zero
!
interface Ethernet0
 ip address 192.168.3.1 255.255.255.0
!
interface Serial0
 ip address 192.168.2.2 255.255.255.0
!
interface Serial1
 no ip address
 shutdown
!
router rip
 network 192.168.2.0
 network 192.168.3.0
!
ip classless
no ip http server
!
access-list 1 permit 192.168.3.0 0.0.0.255
!
line con 0
 password cisco
 login
 transport input none
line aux 0
 password cisco
 login
line vty 0 4
 access-class 1 in
 password class
 login
!
end
```



```
BHM#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
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       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, 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

R    192.168.1.0/24 [120/1] via 192.168.2.1, 00:00:11, Serial0
C    192.168.2.0/24 is directly connected, Serial0
C    192.168.3.0/24 is directly connected, Ethernet0


BHM#show access-lists
Standard IP access list 1
    permit 192.168.3.0, wildcard bits 0.0.0.255 (6 matches)
```



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

Current configuration : 650 bytes
!
version 12.2
!
hostname GAD
!
enable password cisco
!
ip subnet-zero
!
interface FastEthernet0/0
 ip address 192.168.1.1 255.255.255.0
 half-duplex
!
interface Serial0/0
 ip address 192.168.2.1 255.255.255.0
 no fair-queue
 clockrate 56000
!
interface Serial0/1
 no ip address
 shutdown
!
router rip
 network 192.168.1.0
 network 192.168.2.0
!
ip classless
no ip http server
!
access-list 1 permit 192.168.1.0 0.0.0.255
!
line con 0
 password cisco
 login
line aux 0
 password cisco
 login
line vty 0 4
 access-class 1 in
 password class
 login
!
end


GAD#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
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       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, 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
```



```
C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, Serial0/0
R    192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:17, Serial0/0


GAD#show access-lists
Standard IP access list 1
    permit 192.168.1.0, wildcard bits 0.0.0.255 (6 matches)

BHM:


BHM#show running-config
Building configuration...

Current configuration : 843 bytes
!
version 12.1
!
hostname BHM
!
enable password cisco
!
ip subnet-zero
!
interface FastEthernet0/0
 ip address 192.168.3.1 255.255.255.0
!
interface Serial0/0
 ip address 192.168.2.2 255.255.255.0
!
interface Serial0/1
 no ip address
 shutdown
!
router rip
 network 192.168.2.0
 network 192.168.3.0
!
ip classless
no ip http server
!
access-list 1 permit 192.168.3.0 0.0.0.255
!
line con 0
 password cisco
 login
 transport input none
line aux 0
 password cisco
 login
line vty 0 4
 access-class 1 in
 password class
 login
!
end
```



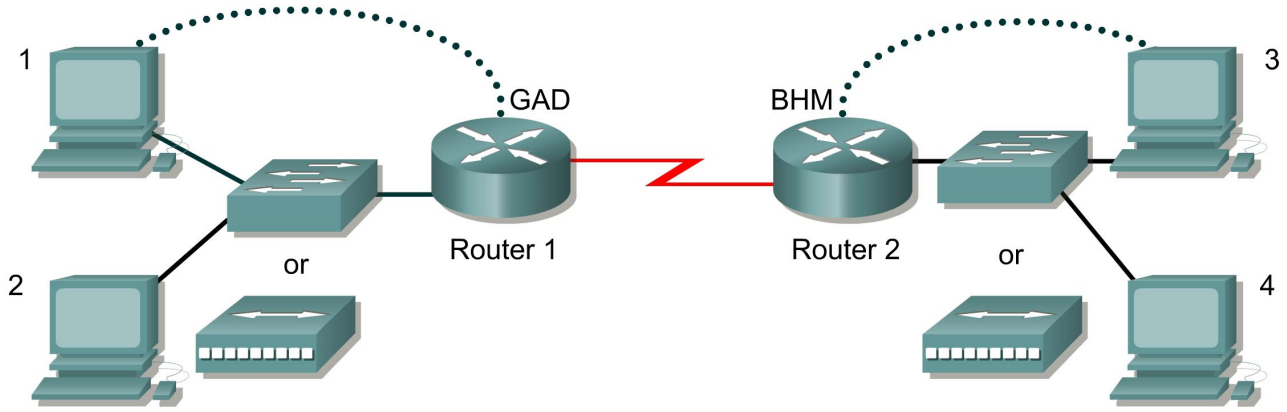
```
BHM#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, 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

R    192.168.1.0/24 [120/1] via 192.168.2.1, 00:00:11, Serial0/0
C    192.168.2.0/24 is directly connected, Serial0/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0


BHM#show access-lists
Standard IP access list 1
    permit 192.168.3.0, wildcard bits 0.0.0.255 (6 matches)
```


Lab 11.2.6 VTY Restriction – Instructor Version 2600



Straight-through cable	
Serial cable	
Console (Rollover)	
Crossover cable	

Router Name	FA0/0 Address	Interface Type S0/0	S0/0 Address	LO0 Address	Routing	Enable password	VTY password
GAD	192.168.1.1 /24	DCE	192.168..2.1 /24	172.16.1.1 /24	RIP	cisco	class
BHM	192.168.3.1 /24	DTE	192.168.2.2 /24	--	RIP	cisco	class

Host	IP Address	Subnet Mask	Gateway
1	192.168.1.2	255.255.255.0	192.168.1.1
2	192.168.1.3	255.255.255.0	192.168.1.1
3	192.168.3.2	255.255.255.0	192.168.3.1
4	192.168.3.3	255.255.255.0	192.168.3.1

NOTE: The loopback entry in this graphic is not required or referenced in the lab.

Objective

Use the access-class and line commands to control Telnet access to the router.

Scenario

The company home office in Gadsden (GAD) provides services to branch offices such as the Birmingham (BHM) office. Only systems within the local network should be able to Telnet to the router. To do this, a standard access-list will be created that will permit users on network the local

network to Telnet to local router. The access-list will then be applied to the Virtual Terminal (vty) lines.

Step 1 Basic Router Interconnection

a. Interconnect the routers as shown in the diagram.

Step 2 Basic Configuration

a. The router may contain configurations from a previous use. For this reason, erase the startup configuration and reload the router to remove any residual configurations. Using the information previously in the tables, setup the router and host configurations and verify reachablilty by pinging all systems and routers from each system.

b. Telnet from the hosts to both the local router and the remote router.

Step 3 Create the Access List that Represents the Gadsden LAN

a. The Local Area Network in Gadsden has a network address of 192.168.1.0 /24. To create the access list to permit this use the following commands:

```
GAD(config)#access-list 1 permit 192.168.1.0 0.0.0.255
```

Step 4 Apply the Access List to Permit Only the Gadsden LAN

a. Now that the list is created to represent traffic, it needs to be applied to the vty lines. This will restrict any Telnet access to the router. While these could be applied separately to each interface, it is easier to apply the list to all vty lines in one statement. This is done by enter the interface mode for all 5 line with the global config command **`line vty 0 4`**.

For the Gadsden router type:

```
GAD(config)#line vty 0 4
GAD(config-line)#access-class 1 in
GAD(config-line)#^Z
```

Step 5 Test the Restriction

a. Test the functionality of the ACL by trying to telnet to the host and verify that the access-list is working correctly.

```
[  ] verify that host 1 CAN  telnet GAD
[  ] verify that host 2 CAN  telnet GAD
[  ] verify that host 3 CANNOT  telnet GAD
[  ] verify that host 4 CANNOT  telnet GAD

Host 1
C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.1.2
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.1.1
```



```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms


telnet 192.168.1.1

User Access Verification

Password:

Host 3
C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.3.2
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.3.1


C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255
Reply from 192.168.1.1: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms


telnet 192.168.1.1

Trying 192.168.1.1 ...
% Connection refused by remote host
```

Step 6 Create the Restrictions for Birmingham Router

a. Repeat the above process to restrict the Telnet access to BHM. Thus restriction should allow only hosts in the Birmingham LAN to Telnet to BHM.

b. Test the functionality of the ACL by trying to telnet to the host and verify that it is to be permitted or denied as appropriate.

```
[  ] verify that host 1 CANNOT  telnet BHM
[  ] verify that host 2 CANNOT  telnet BHM
[  ] verify that host 3 CAN  telnet BHM
[  ] verify that host 4 CAN  telnet BHM
```

```
Host 1
C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.1.2
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.1.1


C:\>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
Reply from 192.168.3.1: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms


telnet 192.168.3.1
Trying 192.168.3.1 ...
% Connection refused by remote host

Host 3

C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 192.168.3.2
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.3.1


C:\>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
```



```
Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
Reply from 192.168.3.1: bytes=32 time<10ms TTL=255
Reply from 192.168.3.1: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms


telnet 192.168.3.1

Trying 192.168.3.1 ...

User Access Verification

Password:
```

Step 7 Document the ACL

a. As a part of all network management, documentation needs to be created. Capture a copy of the configuration and add additional comments to explain the purpose to ACL code.

b. The file should be saved with other network documentation. The file naming convention should reflect the function of the file and the date of implementation.

c. Once finished, erase the start-up configuration on routers, remove and store the cables and adapter. Also logoff and turn the router off.

Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class**. If "class" does not work, ask the instructor for assistance.

```
Router>enable
```

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

Router Interface Summary

Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)			
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)	
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)	

In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.

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

Current configuration : 650 bytes
!
version 12.2
!
hostname GAD
!
enable password cisco
!
ip subnet-zero
!
interface FastEthernet0/0
 ip address 192.168.1.1 255.255.255.0
 half-duplex
!
interface Serial0/0
 ip address 192.168.2.1 255.255.255.0
 no fair-queue
 clockrate 56000
!
interface Serial0/1
 no ip address
 shutdown
!
router rip
 network 192.168.1.0
 network 192.168.2.0
!
ip classless
no ip http server
!
access-list 1 permit 192.168.1.0 0.0.0.255
!
line con 0
 password cisco
 login
line aux 0
 password cisco
 login
line vty 0 4
 access-class 1 in
 password class
 login
!
end


GAD#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
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       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, 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
```



```
C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, Serial0/0
R    192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:17, Serial0/0


GAD#show access-lists
Standard IP access list 1
    permit 192.168.1.0, wildcard bits 0.0.0.255 (6 matches)

BHM:


BHM#show running-config
Building configuration...

Current configuration : 843 bytes
!
version 12.1
!
hostname BHM
!
enable password cisco
!
ip subnet-zero
!
interface FastEthernet0/0
 ip address 192.168.3.1 255.255.255.0
!
interface Serial0/0
 ip address 192.168.2.2 255.255.255.0
!
interface Serial0/1
 no ip address
 shutdown
!
router rip
 network 192.168.2.0
 network 192.168.3.0
!
ip classless
no ip http server
!
access-list 1 permit 192.168.3.0 0.0.0.255
!
line con 0
 password cisco
 login
 transport input none
line aux 0
 password cisco
 login
line vty 0 4
 access-class 1 in
 password class
 login
!
end
```



```
BHM#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
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       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, 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

R    192.168.1.0/24 [120/1] via 192.168.2.1, 00:00:11, Serial0/0
C    192.168.2.0/24 is directly connected, Serial0/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0


BHM#show access-lists
Standard IP access list 1
    permit 192.168.3.0, wildcard bits 0.0.0.255 (6 matches)
```