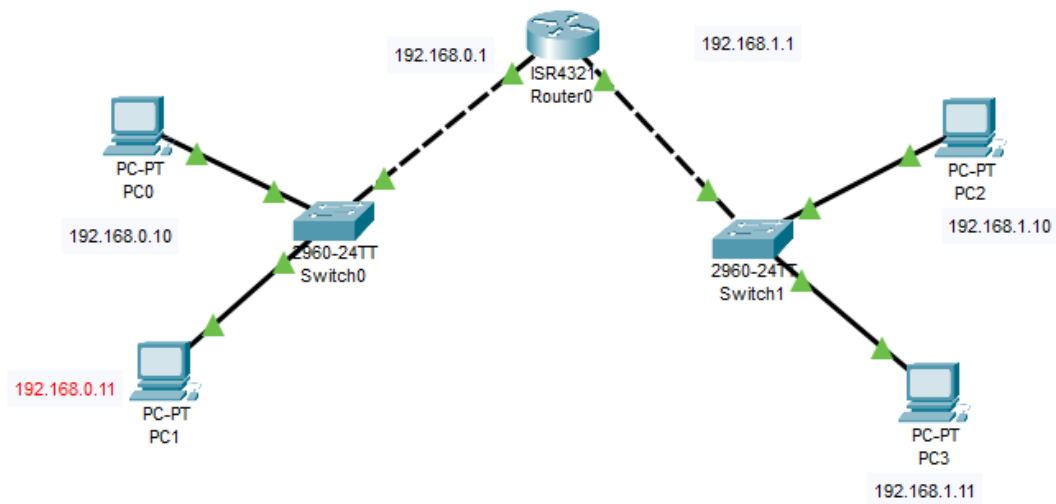


Router CONFIGURATION



Configure PC0

PC0

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.0.10

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address:

Link Local Address: FE80::209:7CFF:FEA1:675

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

Configure PC1

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.0.11

Subnet Mask 255.255.255.0

Default Gateway 192.168.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address

Link Local Address FE80::201:97FF:FE74:66DA

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Configure PC2

PC2

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.10

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address

Link Local Address FE80::2E0:F9FF:FE19:CA3D

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Configure PC3

The screenshot shows the 'PC3' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is highlighted in blue. Under 'Interface', 'FastEthernet0' is selected. The 'IP Configuration' section has two radio buttons: 'DHCP' (unselected) and 'Static' (selected). Below these are input fields for 'IPv4 Address' (192.168.1.11), 'Subnet Mask' (255.255.255.0), 'Default Gateway' (192.168.1.1), and 'DNS Server' (0.0.0.0). The 'IPv6 Configuration' section also has two radio buttons: 'Automatic' (unselected) and 'Static' (selected). Below these are input fields for 'IPv6 Address' (empty), 'Link Local Address' (FE80::290:21FF:FEE0:3321), 'Default Gateway' (empty), and 'DNS Server' (empty). The '802.1X' section has a checkbox 'Use 802.1X Security' (unchecked), an 'Authentication' dropdown set to 'MD5', and input fields for 'Username' and 'Password' (both empty).

Router>enable

Router#config t

Enter configuration commands, one per line. End with CNTL/Z.

The first configuration command on any device should be to give it a unique hostname.

Note: To return the Router to the default prompt, use the **no hostname** global config command.

Router(config)#hostname lab1

lab1(config)#

Context-sensitive (?)help enables you to quickly find answers to these questions:

- Which commands are available in each command mode?
- Which commands start with specific characters or group of characters?
- Which arguments and keywords are available to particular commands?

A **banner message** is important to warn unauthorized personnel from attempting to access the device.

To create a banner message of the day on a network device, use the banner motd # the message of the day # global config command.

Enter configuration commands, one per line. End with CNTL/Z.

```
lab1(config)#banner motd #authorized access only#
```

```
lab1(config)#
```

Line Configuration Mode:

*To move in and out of line configuration mode, use the **line** command followed by the management line type. To return to global configuration mode, use the **exit** command.*

```
lab1(config)#line console 0
```

Securing user EXEC mode access:

- First enter line console configuration mode using the **line console 0** command in global configuration mode.
- Next, specify the user EXEC mode password using the **password password** command.
- Finally, enable user EXEC access using the **login** command.

```
lab1(config-line)#password cisco
```

```
lab1(config-line)#login
```

```
lab1(config-line)#exit
```

```
lab1(config)#exit
```

```
lab1#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

lab1#exit

```
authorized access only
User Access Verification
Password: _____
```

lab1>enable

lab1#config t

Enter configuration commands, one per line. End with CNTL/Z.

lab1(config)#interface GigabitEthernet0/0/0

lab1(config-if)#ip address 192.168.0.1 255.255.255.0

lab1(config-if)#no shutdown

lab1(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up

exit

lab1(config)#exit

lab1#

%SYS-5-CONFIG_I: Configured from console by console

lab1#config t

Enter configuration commands, one per line. End with CNTL/Z.

lab1(config)#interface GigabitEthernet0/0/1

lab1(config-if)#ip address 192.168.1.1 255.255.255.0

lab1(config-if)#no shutdown

lab1(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1, changed state to up

lab1(config-if)#exit

lab1(config)#exit

lab1#

%SYS-5-CONFIG_I: Configured from console by console

lab1#

lab1(config)#ip routing

lab1(config)#exit

lab1#

%SYS-5-CONFIG_I: Configured from console by console

lab1#

Securing VTY line access:

- **First enter line VTY configuration mode using the line vty 0 15 command in global configuration mode.**
- **Next, specify the VTY password using the password *password* command.**
- **Finally, enable VTY access using the login command.**

VTY lines enable remote access using Telnet or SSH to the device

```
lab1#
```

```
lab1#config t
```

Enter configuration commands, one per line. End with CNTL/Z.

```
lab1(config)#line vty 0 15
```

```
lab1(config-line)#password cisco
```

```
lab1(config-line)#login
```

```
lab1(config-line)#exit
```

```
lab1(config)#exit
```

```
lab1#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

The startup-config and running-config files display most passwords in plaintext.

To encrypt all plaintext passwords, use the service password-encryption global config command.

```
lab1#show running-config
Building configuration...
```

```
Current configuration : 698 bytes
```

```
!
```

```
version 15.4
```

```
no service timestamps log datetime msec
```

```
no service timestamps debug datetime msec
```

```
no service password-encryption
```

```
!
```

```
hostname lab1
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
ip cef
```

```
no ipv6 cef
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!  
!  
!  
!  
!  
!  
!  
spanning-tree mode pvst  
!  
!  
!  
!  
!  
!  
interface GigabitEthernet0/0/0  
ip address 192.168.0.1 255.255.255.0  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/0/1  
ip address 192.168.1.1 255.255.255.0  
duplex auto  
speed auto  
!  
interface Vlan1  
no ip address  
shutdown  
!  
ip classless  
!  
ip flow-export version 9  
!  
!  
!  
banner motd ^Cauthorized access only^C  
!  
!  
!  
!  
line con 0  
password cisco  
login  
!  
line aux 0  
!  
line vty 0 4  
password cisco  
login  
line vty 5 15  
password cisco  
login  
!
```


!
!
!

end

To encrypt all plaintext passwords, use the service password-encryption global config command.

lab1#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

lab1(config)#service password-encryption

lab1(config)#exit

lab1#

lab1#

%SYS-5-CONFIG_I: Configured from console by console

Use the show running-config command to verify that the passwords on the device are now encrypted

lab1#show running-config

Building configuration...

Current configuration : 722 bytes

!

version 15.4

no service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname lab1

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

!

!

!

!

```
!  
!  
!  
!  
!  
!  
spanning-tree mode pvst  
!  
!  
!  
!  
!  
!  
interface GigabitEthernet0/0/0  
ip address 192.168.0.1 255.255.255.0  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/0/1  
ip address 192.168.1.1 255.255.255.0  
duplex auto  
speed auto  
!  
interface Vlan1  
no ip address  
shutdown  
!  
ip classless  
!  
ip flow-export version 9  
!  
!  
!  
banner motd ^Cauthorized access only^C  
!  
!  
!  
!  
line con 0  
password 7 0822455D0A16  
login  
!  
line aux 0  
!  
line vty 0 4  
password 7 0822455D0A16  
login  
line vty 5 15  
password 7 0822455D0A16  
login  
!  
!
```

!
end

lab1#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

lab1#

Reload the device using the reload command in privilege EXEC mode. Note: This will cause the device to briefly go offline, leading to network downtime.

```
Router# reload
Proceed with reload? [confirm]
Initializing Hardware ...
```

If the undesired changes were saved to the startup-config, it may be necessary to clear all the configurations using the erase startup-config command in privilege EXEC mode.

- **After erasing the startup-config, reload the device to clear the running-config file from RAM.**

```
Router# erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue? [confirm]
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
Router#
```

Ping from PC0 to PC2

```
C:\>ping 192.168.1.10

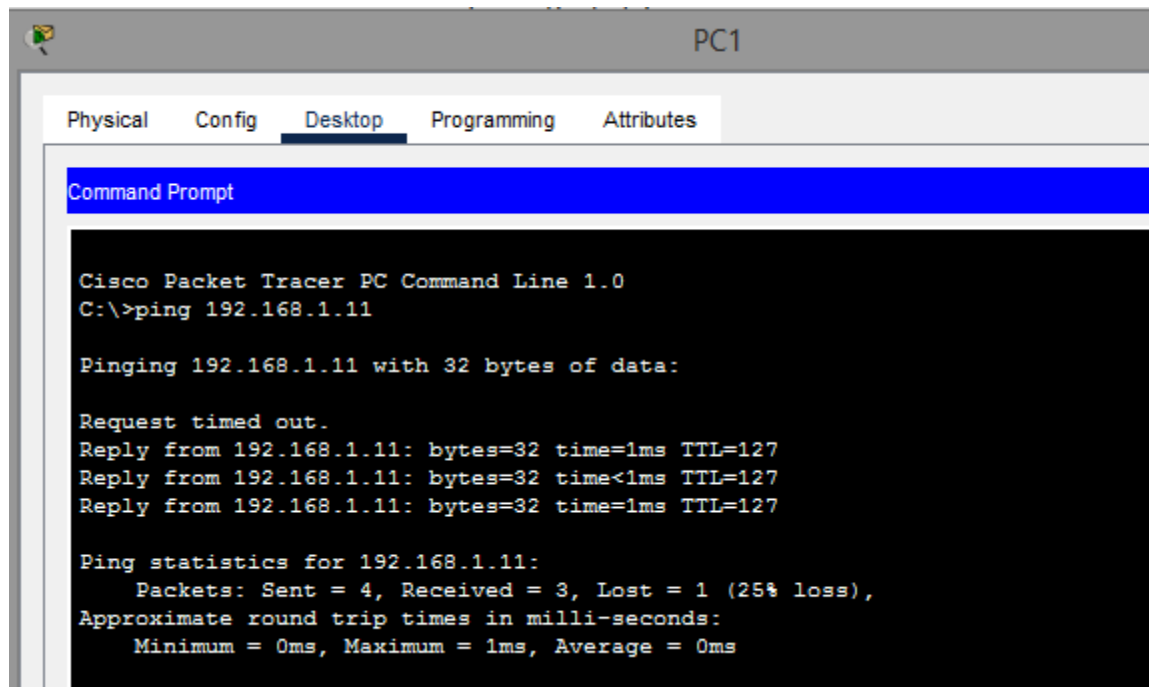
Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=127
Reply from 192.168.1.10: bytes=32 time<1ms TTL=127
Reply from 192.168.1.10: bytes=32 time=3ms TTL=127
Reply from 192.168.1.10: bytes=32 time=1ms TTL=127

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>|
```

Ping from PC1 to PC3



Access Router through telnet from PC1

