Configure Cisco Router(Basics)

CCNA 200-301

26.10.2024

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Overview

🌐 Overview: Configuring a Cisco Router 🌐

Configuring a Cisco router is an essential step in setting up and managing your network. This process ensures that your router can effectively route data between networks, while also securing access and optimizing performance.

In this overview, you'll learn the basics of:

1. **Changing the Hostname** – Personalizing your router by giving it a unique name.
2. **Configuring IP Addresses** – Assigning IP addresses to router interfaces to establish network connections.
3. **Switch Virtual Interface (SVI)** – Managing switch interfaces for inter-VLAN routing.
4. **Securing Administrative Access** – Protecting your router with passwords, both basic and encrypted.
5. **Setting a Login Banner** – Displaying custom messages to users accessing the router.
6. **Creating Local User Accounts** – Setting up individual user accounts for secure access.
7. **Enabling Remote Access** – Configuring remote access so you can manage the router from anywhere.
8. **Disabling Domain Lookup** – Preventing annoying delays from mistyped commands.
9. **Saving and Backing Up Configurations** – Ensuring all changes are saved and available after a reboot.

Setup (Practical)

🌟 Cisco Router Configuration Documentation 🌟

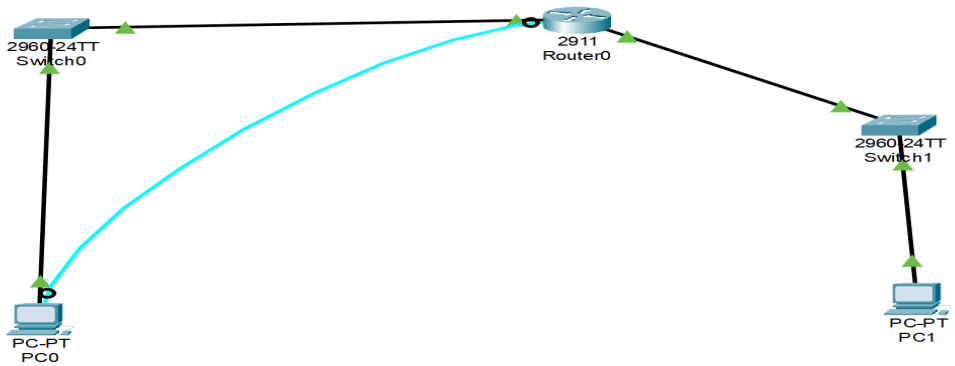
1. Introduction 🤝

Welcome to your guide on configuring a Cisco router! This document will walk you through the essential steps to ensure your router is set up properly and securely.

2. Equipment and Tools 🛠️

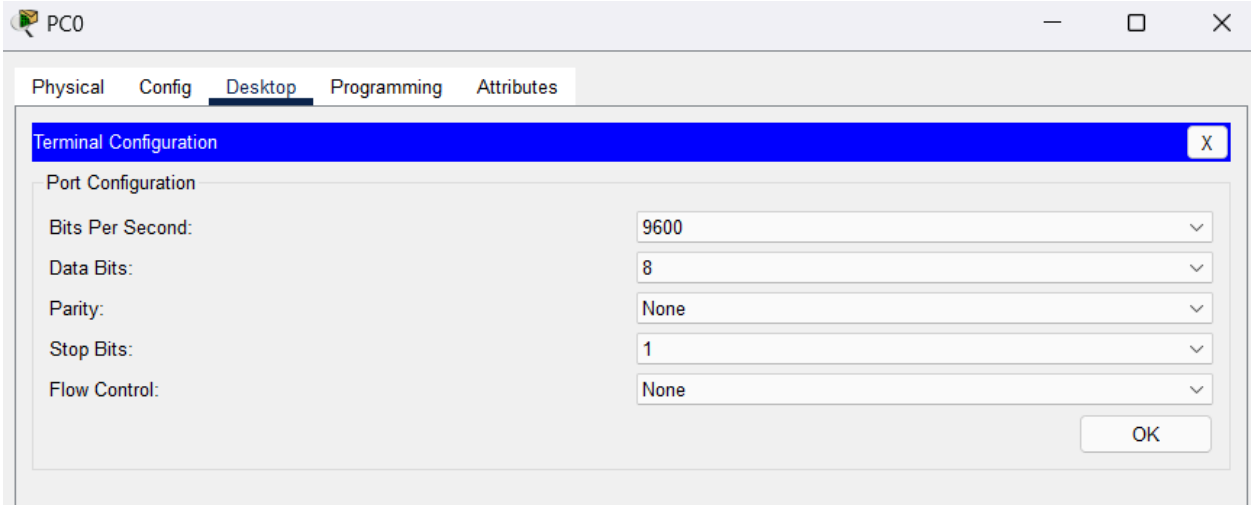
- **Router Model**: [Insert Model Number]
- **Software Version**: [Insert IOS Version]
- **Required Tools**:
    - Console cable 🔌
    - Terminal emulator (e.g., PuTTY, Tera Term) 💻

3. Configuration Steps 🚀

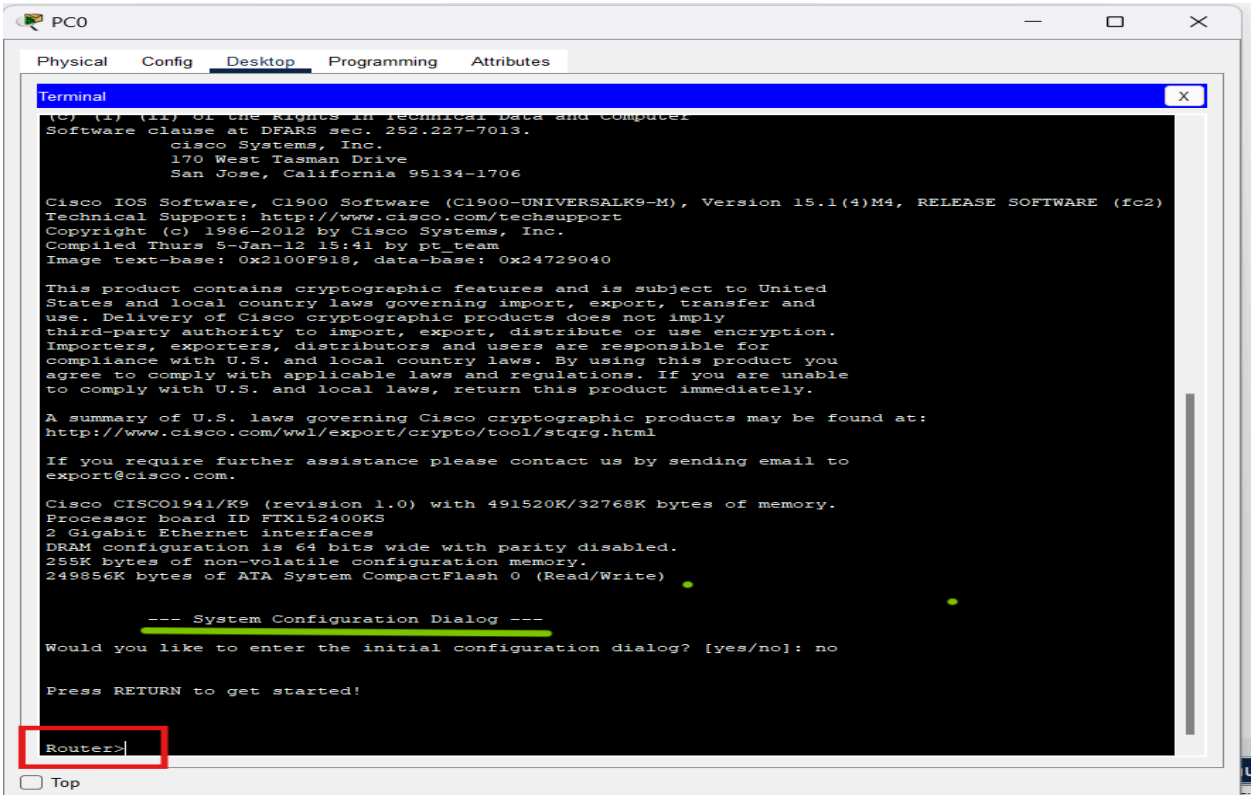


Step 1: Access the Router 🔑

1. Connect the console cable from the **PC** to the **router**.
2. Others are connected with fast ethernet cable.



3. **Configuration of router using PC0.**
4. **Press Ok to proceed with the default settings.**

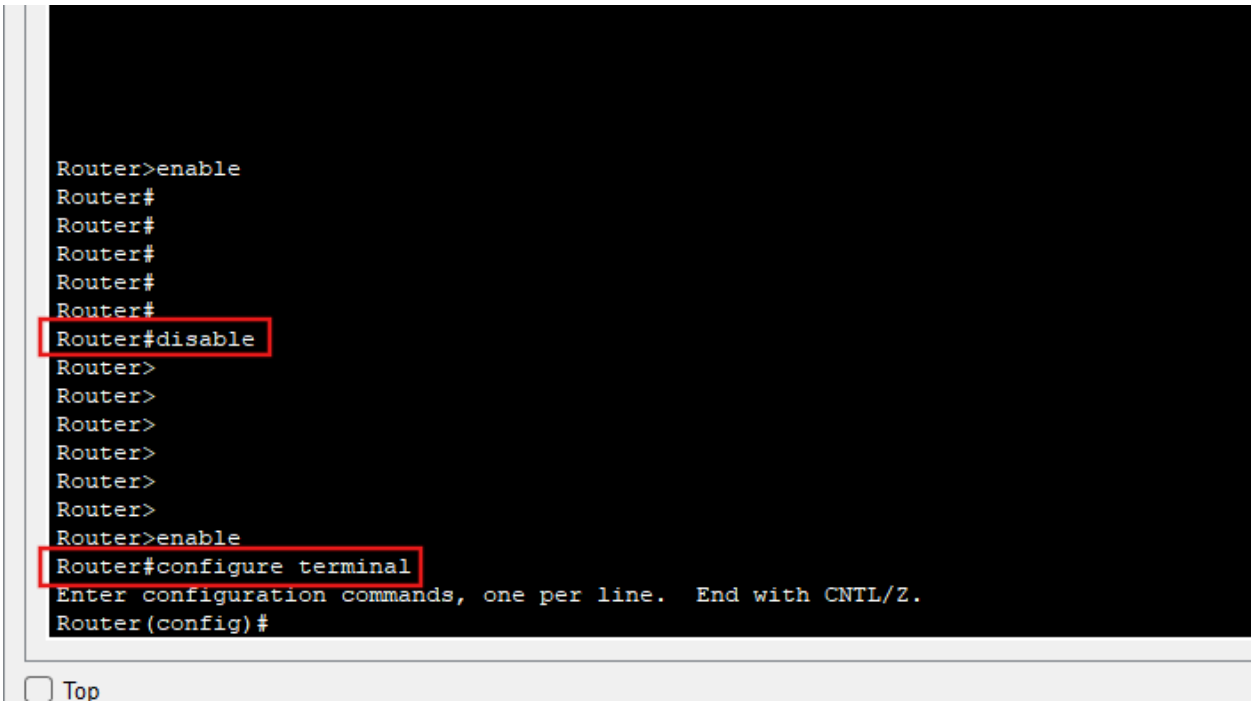


"**Router** " : Default name of the router.

">" : Represents we are in user mode.

Step 2: Enter Modes 🔄

- **User Mode**: Basic commands access.
- **Privilege Mode**: Enter using `enable` for advanced commands.
- **Global Configuration Mode**: Use `configure terminal` for setup.

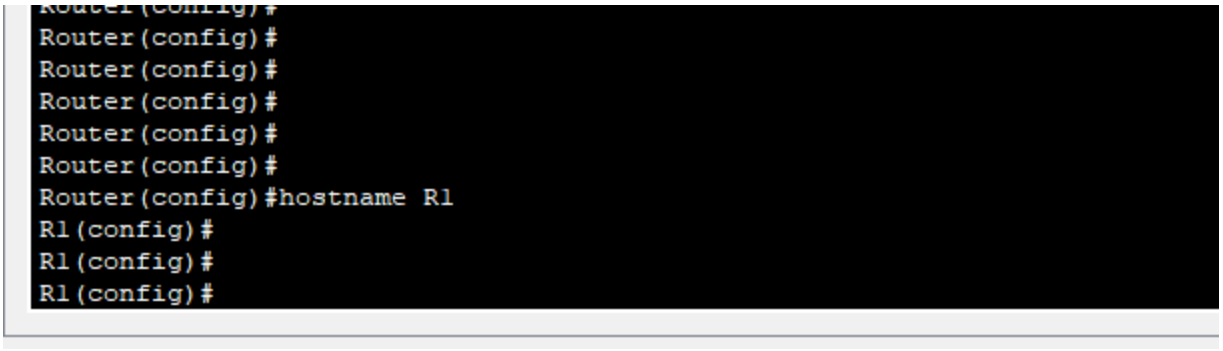


Command line:

- **enable:** user ------> privilege mode(Router#).
- **disable:** privilege ----> user mode.
- **configure terminal:** privilege ----> global mode(Router(config)#)

Step 3: Change the Hostname 🏷️

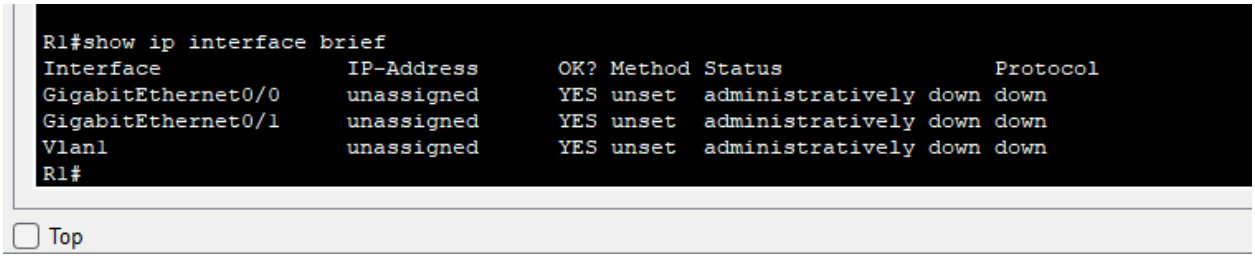
```
Router(config)# hostname R1
```



Step 4: Configure IP Addresses 🌐

Mode change (**Global** —---> **privilege**)

- **Check Interfaces**:
  `show ip interface brief`



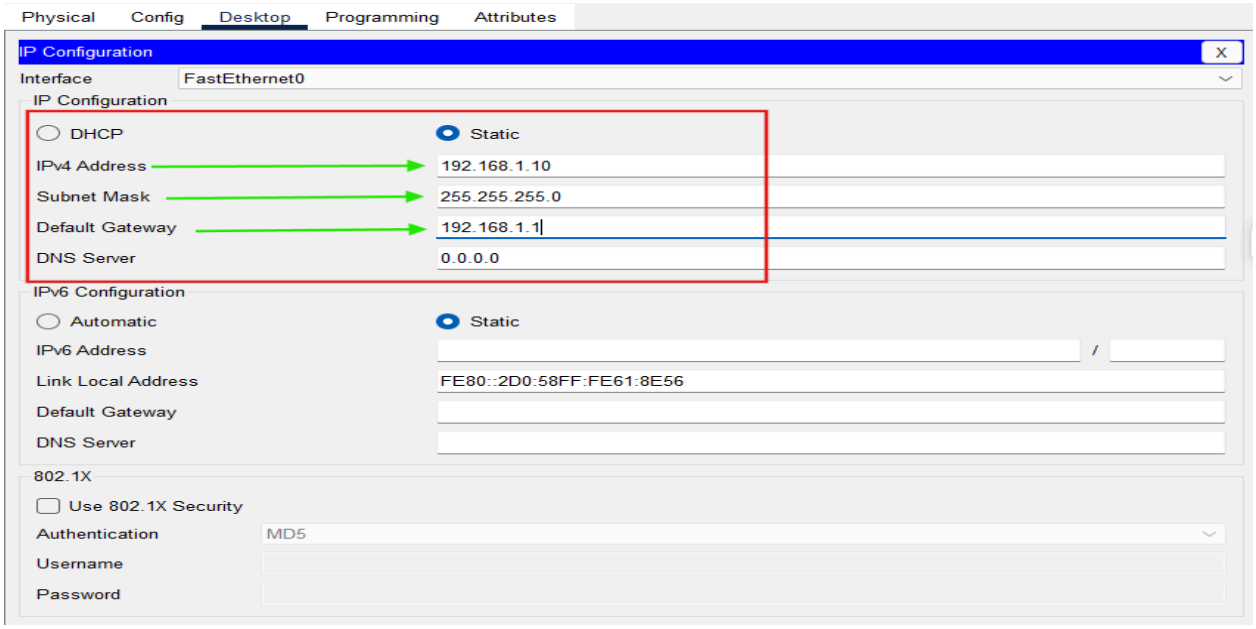
- **Configure Interface**:

```
R1(config)# interface gigabitEthernet 0/1
R1(config-if)# ip address 192.168.1.1 255.255.255.0
R1(config-if)# description Connected to LAN1
R1(config-if)# no shutdown
```

```
R1(config)#
R1(config)#interface gigabitEthe
R1(config)#interface gigabitEthernet 0/1
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#description Connected to LAN1
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

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

Mode (**Global** ----> **privilege**)

```
R1#
R1#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  administratively down down
GigabitEthernet0/1     192.168.1.1     YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R1#
```



Set PC0 with IPV4 : **192.168.1.10**

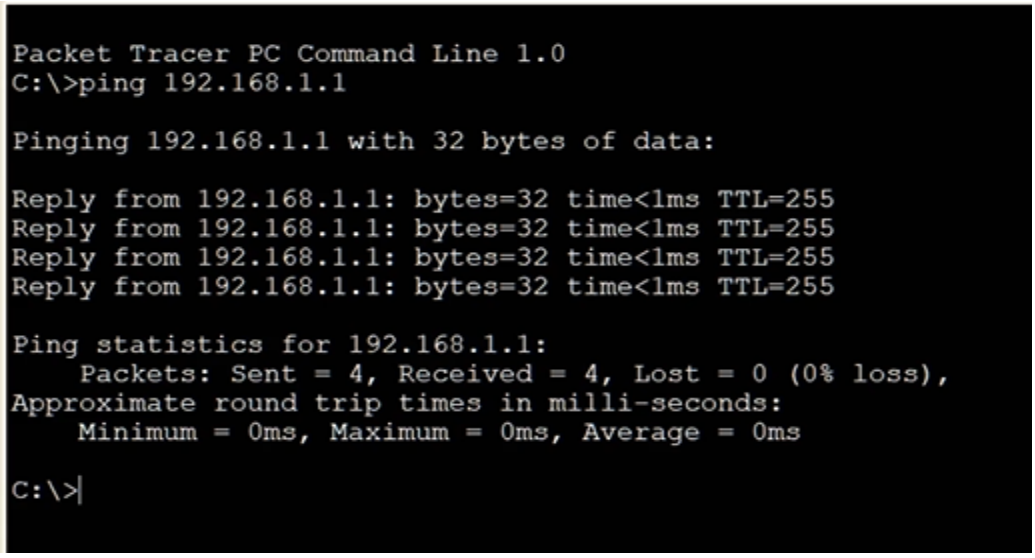
Set PC0 Subnet Mask : **255.255.255.0**

Set Default gateway : **192.168.1.1**

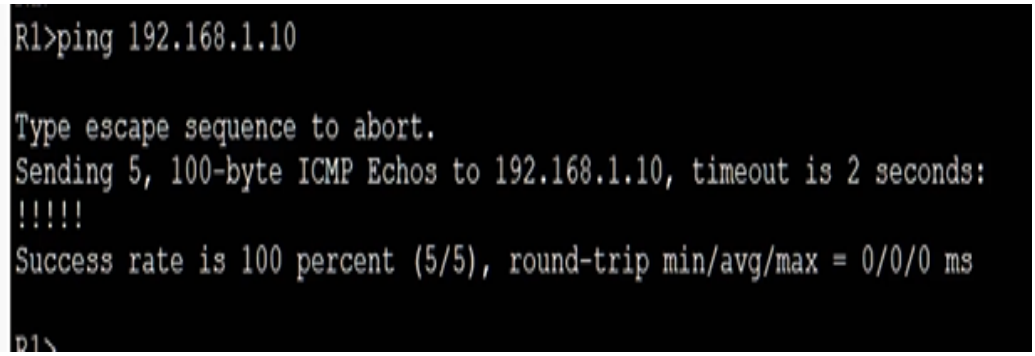
Step 5: Test Connectivity ✅

1. Go to **Command Prompt** on PC0 .

- **Run a ping test:**
  `ping 192.168.1.1`



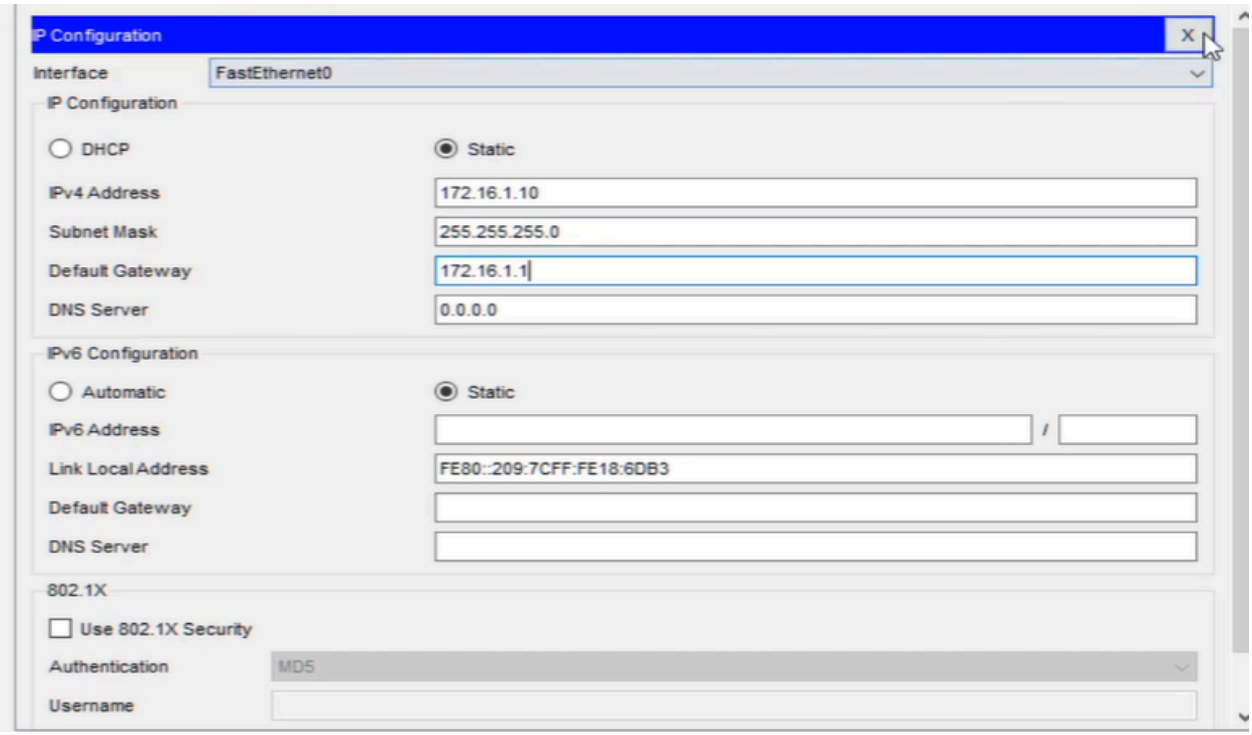
Check with the router if it gives **"!!!!"** This means that connection is **successful.**



```
R1(config)#
R1(config)#interface gi
R1(config)#interface gigabitEthernet 0/2
R1(config-if)#ip address 172.16.1.1 255.255.255.0
R1(config-if)#
R1(config-if)#dec
R1(config-if)#desc
R1(config-if)#description Connected to LAN2
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state
to up

R1(config-if)#
```

```
R1#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  administratively down down
GigabitEthernet0/1     192.168.1.1     YES manual up                    up
GigabitEthernet0/2     172.16.1.1      YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R1#
```

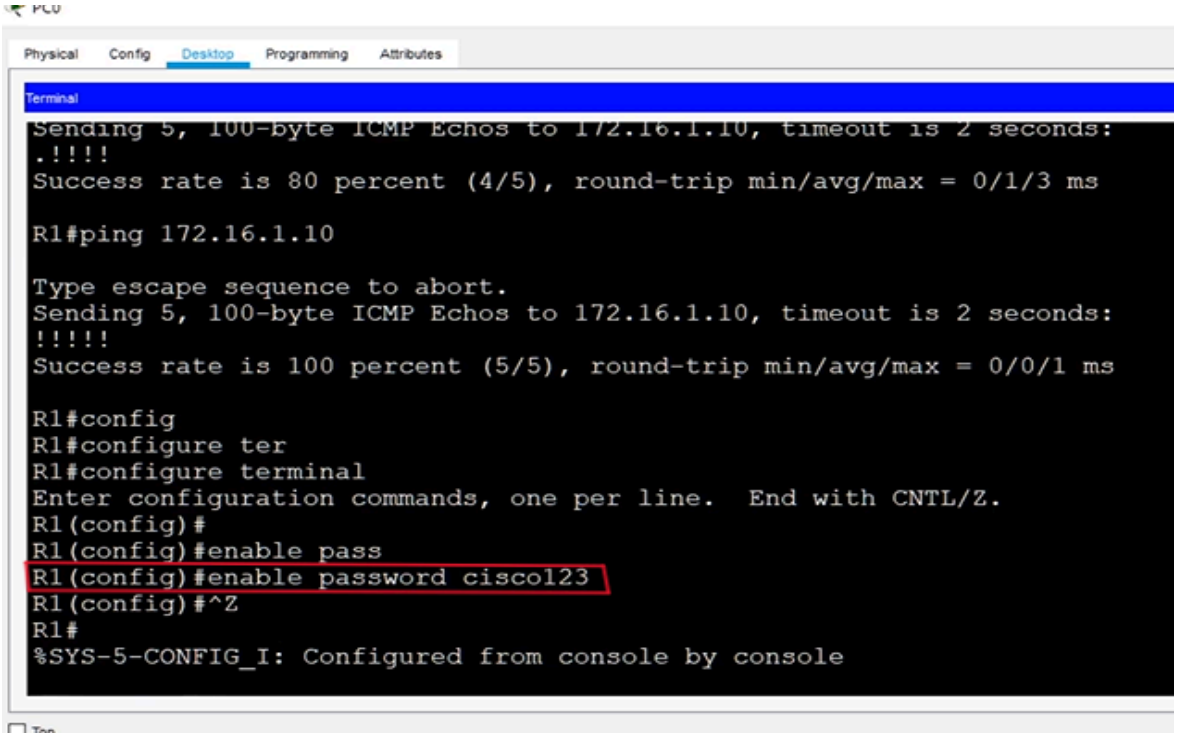
- Setting up **2 different networks** connected **via Router.**



- Setup for second PC1.

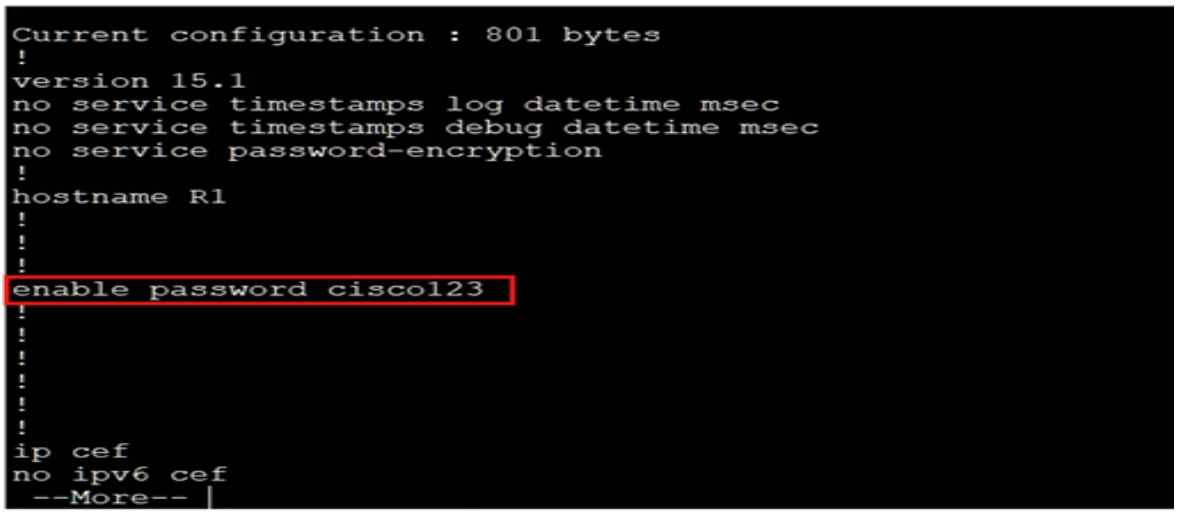
Step 6: Implement Security Measures 🔒

- **Set Basic Password**:
  `R1(config)# enable password cisco123`



- ☐ Insecure password setting way as saved in ***plain-text***.
- ☐ **Command : exit**

  Show running-config (*configuration setup info.*)



- **Set Encrypted Password**:
  `R1(config)# enable secret cisco456`

```
!
line con 0
!
line aux 0

R1#
R1#
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#
R1(config)#
R1(config)#
R1(config)#enabl
R1(config)#enable secret cisco456
R1(config)#^Z
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#
R1#
R1#conf t
```

- ☐ More secure connection as this stores password in ***hashed form.***
- ☐ **Command : exit**
  Show running-config

```
Current configuration : 848 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
!
!
!
enable secret 5 $1$mERr$nU5A2OzzVK4SUlSP717zP.
enable password cisco123
!
!
!
!
!
!
ip cef
 --More--
```

Step 7: Configure Login Banner 🖊️

```
R1(config)# banner motd %Keep Out%
```

- *This is used inorder to give a display while we want to access the router for configuration.*

Step 8: Create Local User Account 👤

```
R1(config)# username admin secret admin
```

```
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#
R1(config)#user
R1(config)#username admin pas
R1(config)#username admin secret class
R1(config)#
```

Step 9: Secure Console Access 🔐

```
R1(config)# line console 0
R1(config-line)# password cisco
R1(config-line)# login
```

```
Keep Out

R1>enable
Password:
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#exit
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
```

- *Makes the port connection of console 0 for the securing access.*

-

```
Press RETURN to get started.



Keep Out

User Access Verification

Password:
```

Step 10: Disable Domain Lookup ❌

```
R1(config)# no ip domain-lookup
```

```
R1(config)#no ip domain-lo
R1(config)#no ip domain-lookup
R1(config)#
R1(config)#serv
R1(config)#service pas
R1(config)#service password-encryption
R1(config)#^Z
R1#
%SYS-5-CONFIG_I: Configured from console by console
```

- ☐ *Disables the feature where the device automatically attempts to resolve any unknown command you type into an IP address using a DNS lookup.*

Step 11: Save Configuration 💾

```
R1# copy running-config startup-config
```

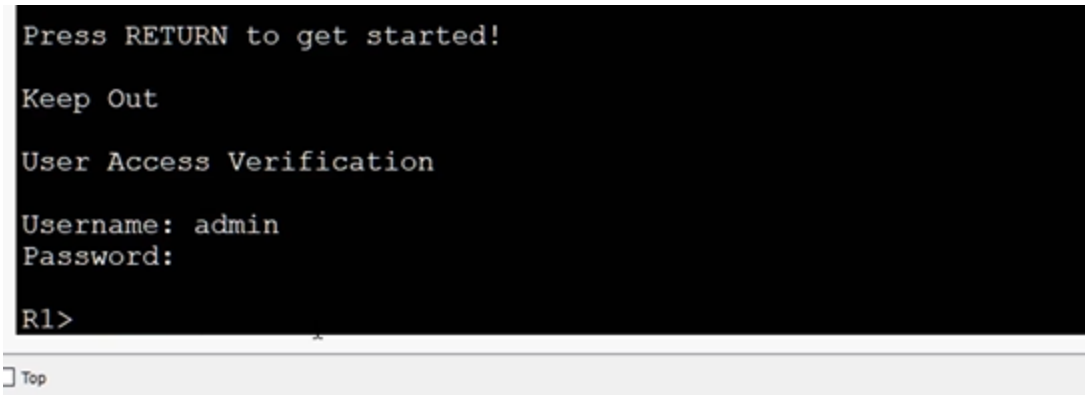
```
R1#copy run
R1#copy running-config s
R1#copy running-config str
R1#copy running-config sta
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
```

4. Testing and Verification 🔍

- **Run Tests**: Verify connectivity and security settings.

Check Running Config:
plaintext
Copy code

```
show running-config
```



5. Conclusion 🎉

Congratulations! You've successfully configured your Cisco router, ensuring functionality and security. Keep this guide handy for future setups!