



Configure Cisco Router(Basics)

CCNA 200-301

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Nikhil Kumar

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 🌟

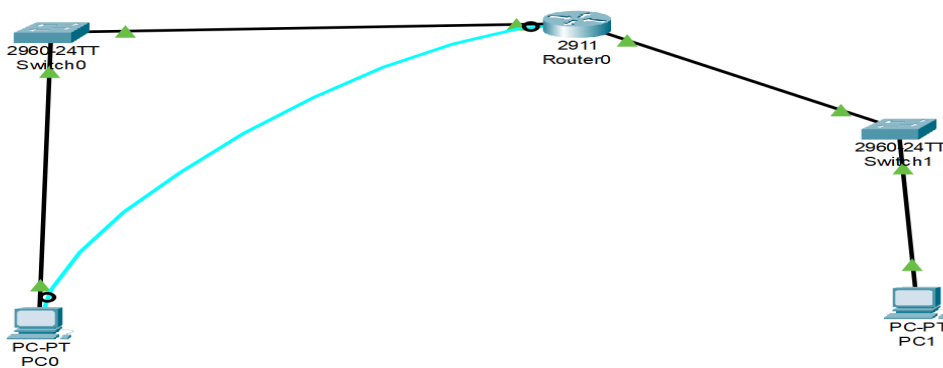
1. Introduction 🤝

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 🛠️

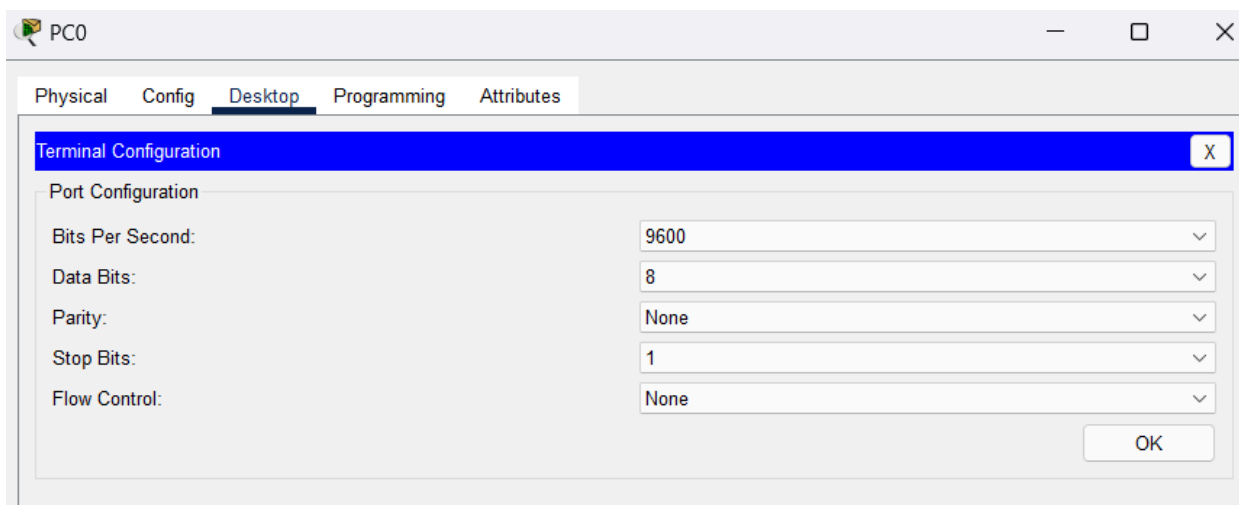
- **Router Model:** [Insert Model Number]
- **Software Version:** [Insert IOS Version]
- **Required Tools:**
 - Console cable 🖱️
 - Terminal emulator (e.g., PuTTY, Tera Term) 💻

3. Configuration Steps 🚀

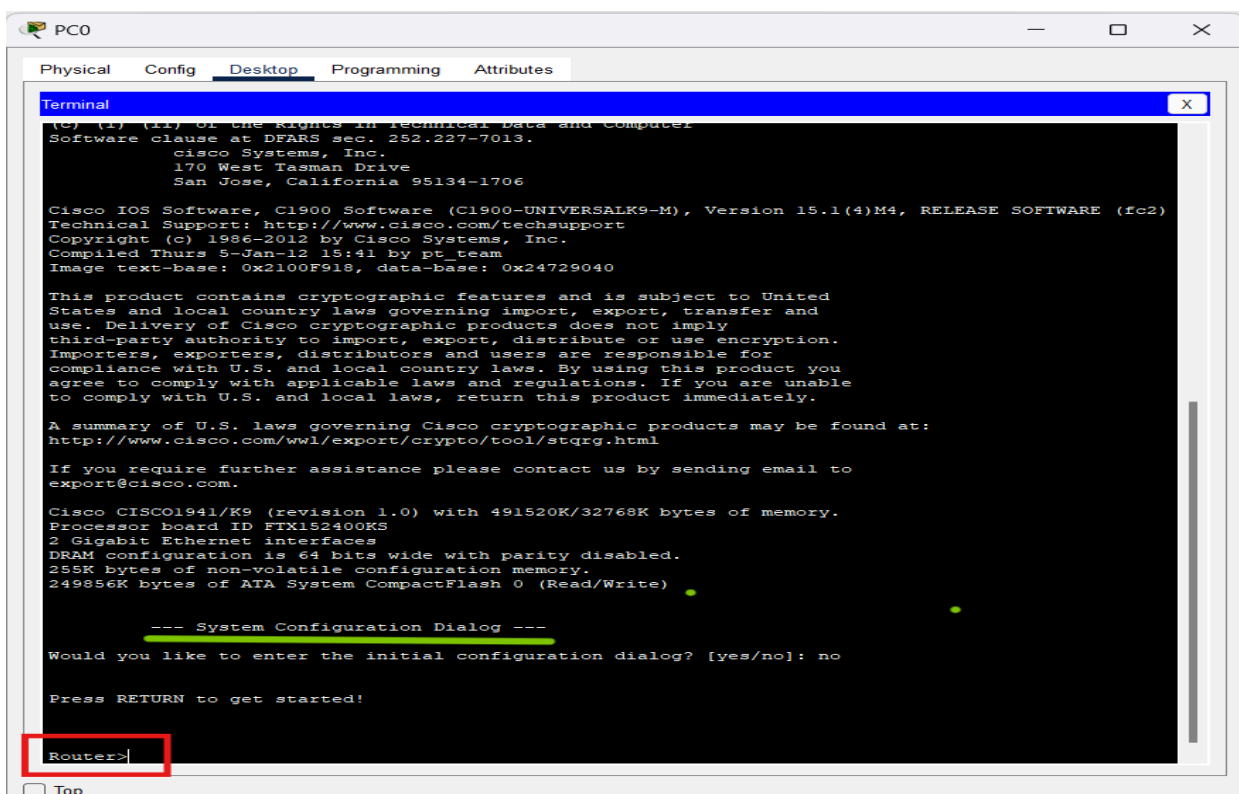


Step 1: Access the Router

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.

```
Router>enable
Router#
Router#
Router#
Router#
Router#
Router#disable
Router>
Router>
Router>
Router>
Router>
Router>
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
```

☐ Top

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

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

Step 4: Configure IP Addresses

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

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

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

☐ Top

- **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#

```

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::2D0:58FF:FE61:8E56

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

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`

```
Packet Tracer PC Command Line 1.0
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<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms 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

C:\>|
```

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

```
R1>ping 192.168.1.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.10, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

R1>
```



```

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**.

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 172.16.1.10

Subnet Mask: 255.255.255.0

Default Gateway: 172.16.1.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::209:7CFF:FE18:6DB3

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

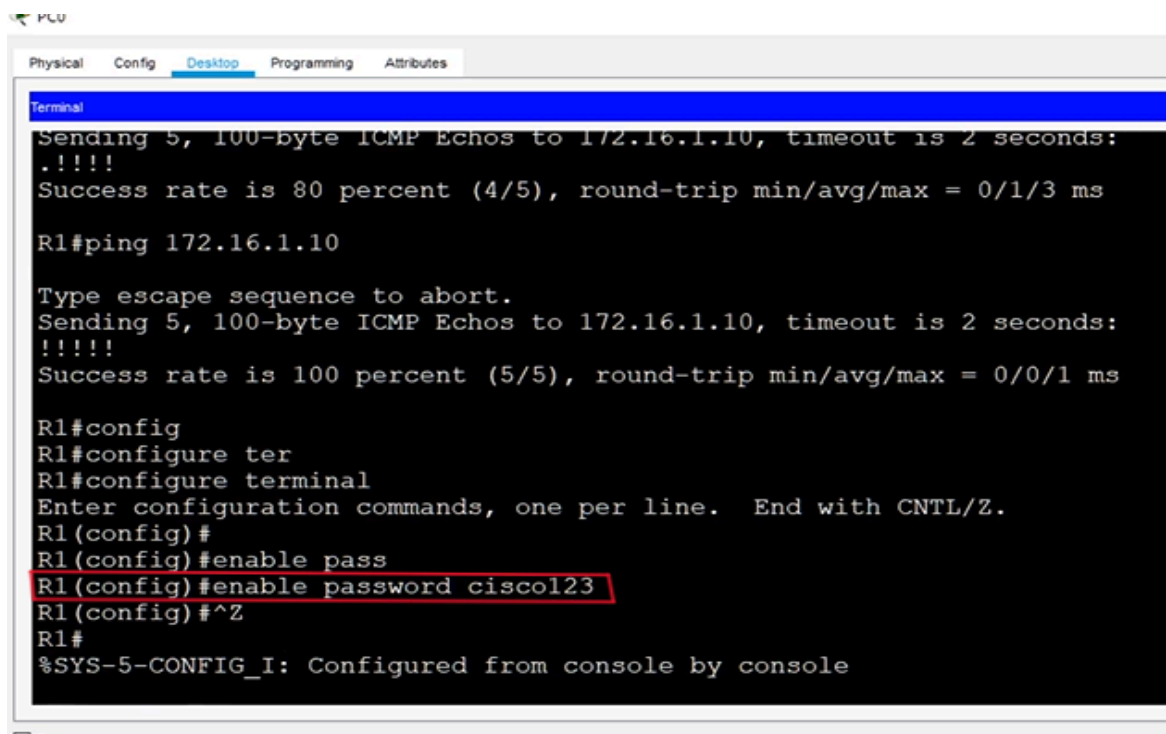
Authentication: MDS

Username:

- Setup for second PC1.

Step 6: Implement Security Measures

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



```

PCU
Physical  Config  Desktop  Programming  Attributes
Terminal
Sending 5, 100-byte ICMP Echos to 172.16.1.10, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/1/3 ms

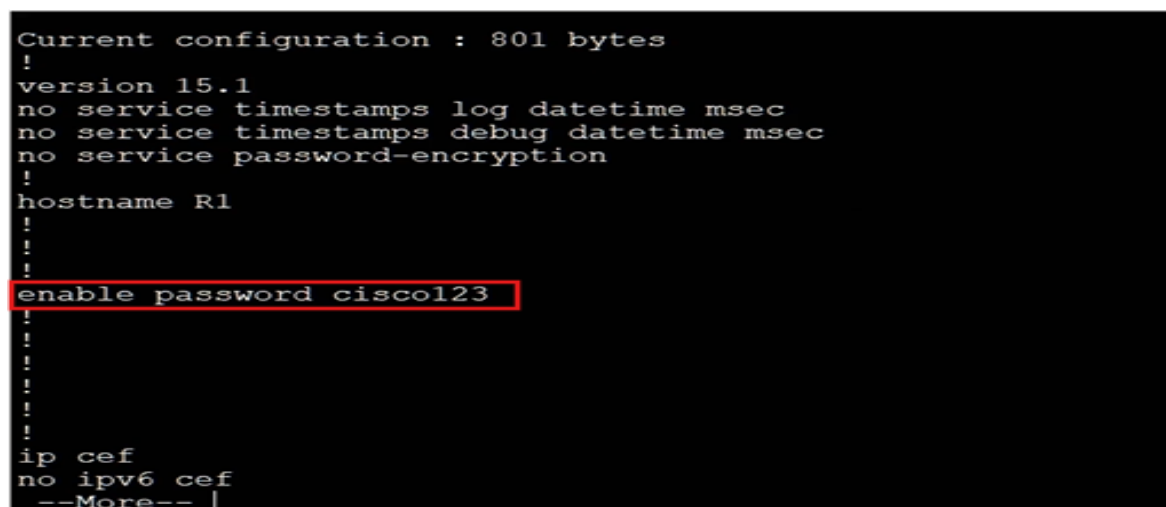
R1#ping 172.16.1.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.10, timeout is 2 seconds:
.!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/1 ms

R1#config
R1#configure ter
R1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#
R1(config)#enable pass
R1(config)#enable password cisco123
R1(config)#^Z
R1#
%SYS-5-CONFIG_I: Configured from console by console
  
```

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

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



```

Current configuration : 801 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
!
!
!
enable password cisco123
!
!
!
!
!
ip cef
no ipv6 cef
--More--
  
```

- **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$N5A2OzzVK4SU1SP717zP.
enable password cisco123
!
!
!
!
!
!
ip cef
--More--

```

Step 7: Configure Login Banner

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

- This is used in order 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
```

```
R1#conf t
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`

```
Press RETURN to get started!  
  
Keep Out  
  
User Access Verification  
  
Username: admin  
Password:  
  
R1>
```

 Top

5. Conclusion

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