**LABS for CCNA**

**Lab 1: Basic Router & Switch Configuration (Hostname, Passwords, Banners)**

**🎯 Lab Objective**

* Create a simple topology with a router, switch, and PCs.
* Configure device hostnames, passwords, and banners.
* Save configurations to NVRAM.

**🧰 Devices Needed in Cisco Packet Tracer**

1. **1 Router** – (e.g., 2811 or 2901)
2. **1 Switch** – (e.g., 2960)
3. **2 PCs**
4. **Cables** – Copper Straight-Through and Console

**📐 Step 1: Create the Topology**

1. **Open Cisco Packet Tracer.**
2. Drag and drop:
   * 1 Router (e.g., 2811)
   * 1 Switch (e.g., 2960)
   * 2 PCs
3. **Connect Devices:**
   * PC0 to Switch (use FastEthernet 0 on PC to any Switch port like Fa0/1)
   * PC1 to Switch (use FastEthernet 0 to Fa0/2)
   * Switch to Router (use Fa0/24 on Switch to Gig0/0 on Router)
   * Connect a **Console cable** from PC0 to the **Router's console port** (for CLI access)

**🖥️ Step 2: Access Router via Terminal**

1. Click on **PC0** → Go to **Desktop** → Click **Terminal**.
2. Accept the default settings (9600 baud rate, etc.) and click OK.

You are now in the **Router CLI** via console.

**⚙️ Step 3: Basic Router Configuration**

plaintext

CopyEdit

Router> enable

Router# configure terminal

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

**🔹 Set Hostname**

plaintext

CopyEdit

Router(config)# hostname R1

R1(config)#

**🔹 Set Console Password**

plaintext

CopyEdit

R1(config)# line console 0

R1(config-line)# password cisco

R1(config-line)# login

R1(config-line)# exit

**🔹 Set VTY Password (for Telnet/SSH access)**

plaintext

CopyEdit

R1(config)# line vty 0 4

R1(config-line)# password class

R1(config-line)# login

R1(config-line)# exit

**🔹 Set Enable Password (for privileged exec mode)**

plaintext

CopyEdit

R1(config)# enable password cisco123

**🔹 Set Enable Secret (more secure encrypted password)**

plaintext

CopyEdit

R1(config)# enable secret cisco123!

Note: enable secret overrides enable password if both are set.

**🪧 Step 4: Configure Banner Message**

plaintext

CopyEdit

R1(config)# banner motd #Unauthorized access is prohibited.#

You can use any delimiter instead of #, but it must not be in the message.

**💾 Step 5: Save Configuration**

plaintext

CopyEdit

R1# write memory

or

R1# copy running-config startup-config

**🔄 Step 6: Repeat for Switch**

Follow similar steps for Switch (you can connect via console or click the switch directly):

plaintext

CopyEdit

Switch> enable

Switch# configure terminal

Switch(config)# hostname S1

S1(config)# line console 0

S1(config-line)# password cisco

S1(config-line)# login

S1(config-line)# exit

S1(config)# line vty 0 4

S1(config-line)# password class

S1(config-line)# login

S1(config-line)# exit

S1(config)# enable secret switch123

S1(config)# banner motd #Switch configuration in progress#

S1# copy running-config startup-config

**✅ Step 7: Verify Configuration**

From **privileged exec mode**:

plaintext

CopyEdit

R1# show running-config

R1# show startup-config

**🧪 Optional: Assign IPs to PCs and Test**

1. Click **PC0** → Desktop → IP Configuration.
   * IP: 192.168.1.10
   * Subnet: 255.255.255.0
   * Gateway: 192.168.1.1
2. Click **PC1**
   * IP: 192.168.1.11
   * Subnet: 255.255.255.0
   * Gateway: 192.168.1.1
3. Configure router interface:

plaintext

CopyEdit

R1(config)# interface gig0/0

R1(config-if)# ip address 192.168.1.1 255.255.255.0

R1(config-if)# no shutdown

1. Test connectivity:
   * From PC0 → Command Prompt → ping 192.168.1.1

**🧠 Summary**

| **Task** | **Command** |
| --- | --- |
| Set hostname | hostname NAME |
| Set console password | line console 0 → password + login |
| Set VTY password | line vty 0 4 → password + login |
| Enable secret | enable secret PASSWORD |
| MOTD banner | banner motd #Your Message# |

**Output**

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:\>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.11:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

SW1#sh mac address-table

Mac Address Table

-------------------------------------------

Vlan Mac Address Type Ports

---- ----------- -------- -----

1 0002.4ab4.8b5d DYNAMIC Fa0/1

1 0030.a3d8.66d9 DYNAMIC Fa0/2

1 00d0.ba1d.7301 DYNAMIC Fa0/24

SW1#ping 192.168.1.11

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.1.11, timeout is 2 seconds:

.!!!!

Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/0 ms

SW1#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 = 0/3/15 ms