MẠNG MÁY TÍNH

CHƯƠNG 4 (Bài 4)

THỰC HÀNH ĐỊNH TUYẾN TĨNH, RIP

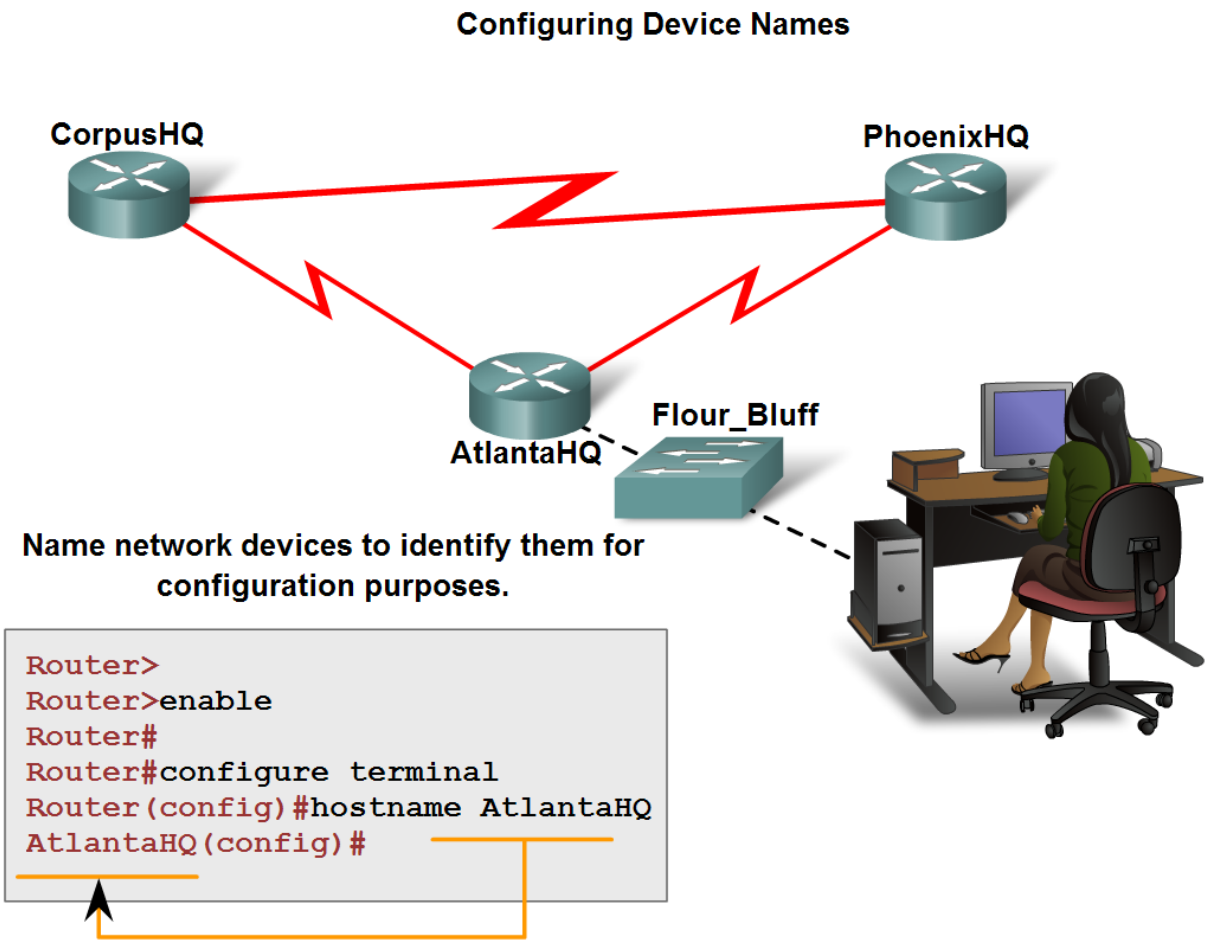
Khoa CNTT – HV KTMM

Nội dung

- Cấu hình cơ bản Router Cisco
- Bài tập thực hành
  - Định tuyến tĩnh
  - Định tuyến động sử dụng giao thức RIPv2

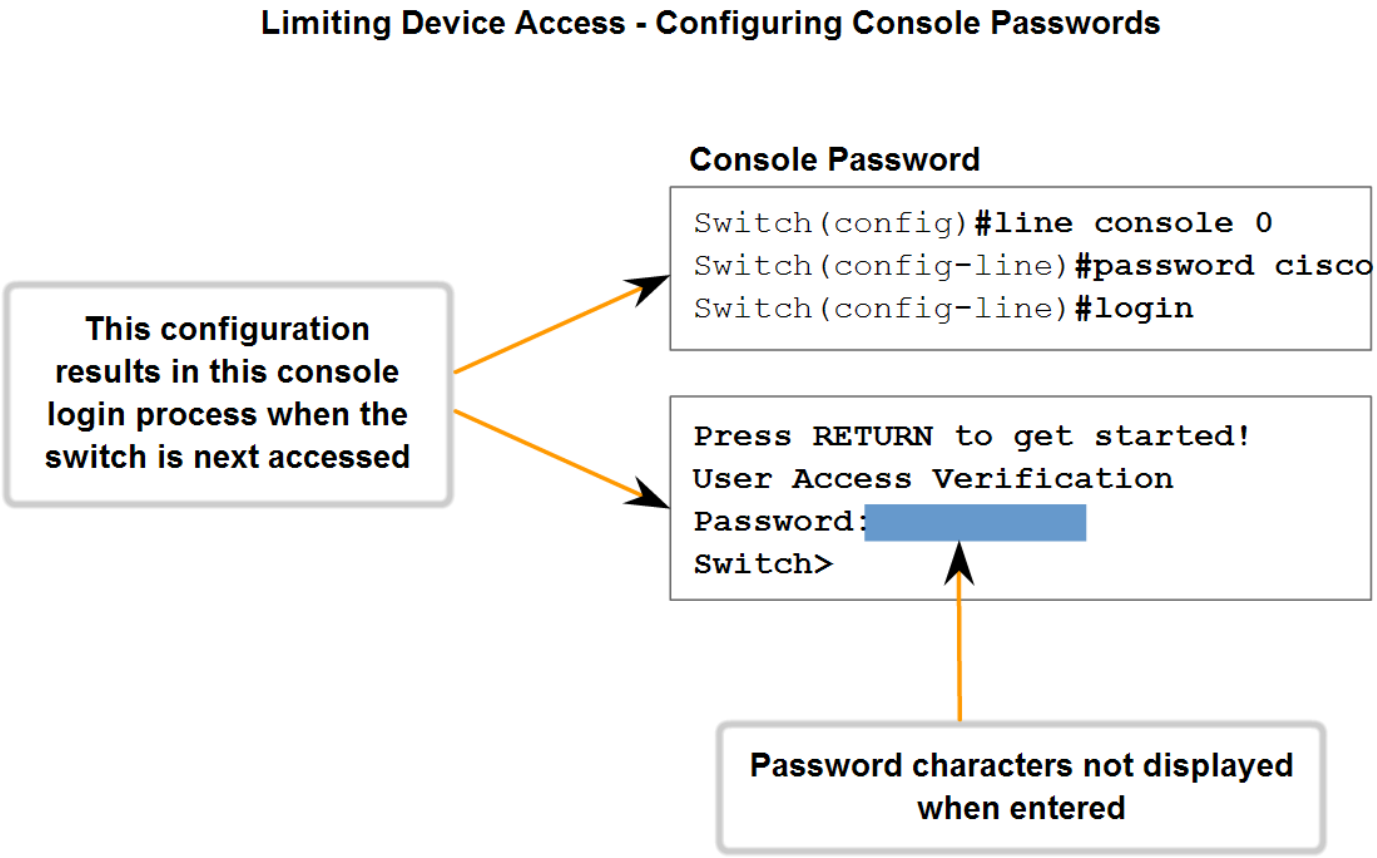
Cấu hình cơ bản Router Cisco

❖ Cấu hình tên thiết bị:



Cấu hình cơ bản Router Cisco

- Vai trò của các loại password trong việc hạn chế truy cập tới các cấu hình của thiết bị



Cấu hình cơ bản Router Cisco

- Một số cách hạn chế truy cập đến cấu hình của thiết bị:

Limiting Device Access
Configuring Telnet and Password Encryption

Virtual Terminal Password

```
Router(config)#line vty 0 4
Router(config-line)#password cisco
Router(config-line)#login
```

Enable Password

```
Router(config)#enable password san fran
```

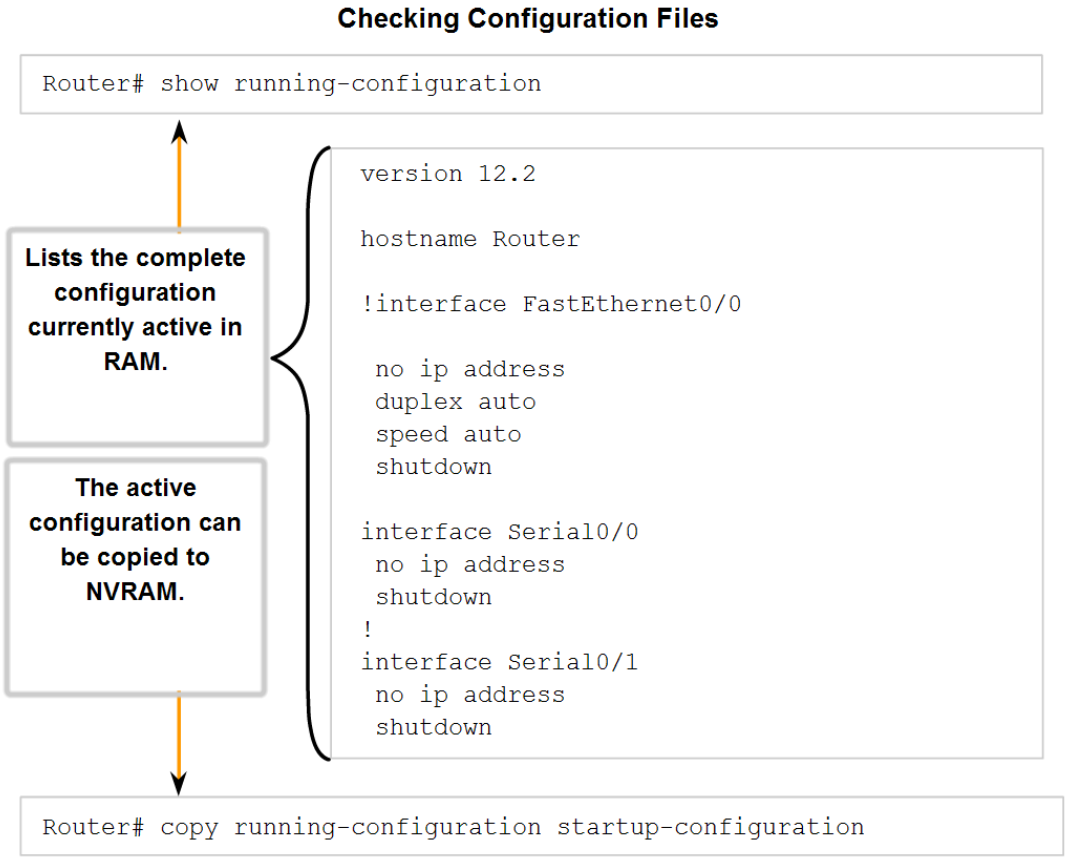
Enable Secret Password

```
Router(config)#enable secret cisco
```

Strongly encrypted password

Cấu hình cơ bản Router Cisco

- Trace the steps used to examine the startup config, make changes to config, and replace the startup config with the running config



Cấu hình cơ bản Router Cisco

❖ Cấu hình các interface của Router:

Configuring Router Interfaces

All interfaces are accessed by issuing the `interface` command at the global configuration prompt.

In the following commands, the *type* argument includes serial, ethernet, fastethernet, and others:

```
Router(config)#interface type port
Router(config)#interface type slot/port
Router(config)#interface type slot/subslot/port
```

The following command is used to administratively turn off the interface:

```
Router(config-if)#shutdown
```

The following command is used to turn on an interface that has been shutdown:

```
Router(config-if)#no shutdown
```

The following command is used to quit the current interface configuration mode:

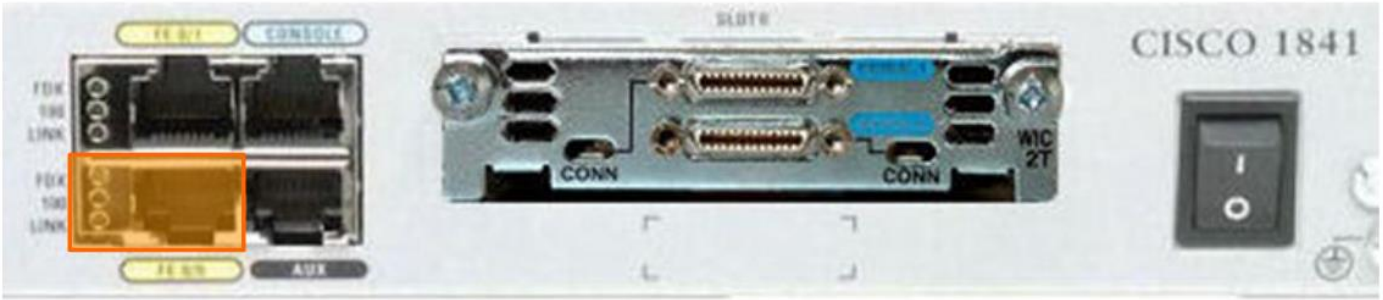
```
Router(config-if)#exit
```

When the configuration is complete, the interface is enabled and interface configuration mode is exited.

Cấu hình cơ bản Router Cisco

❖ Ví dụ:

Configuring Router Ethernet Interfaces



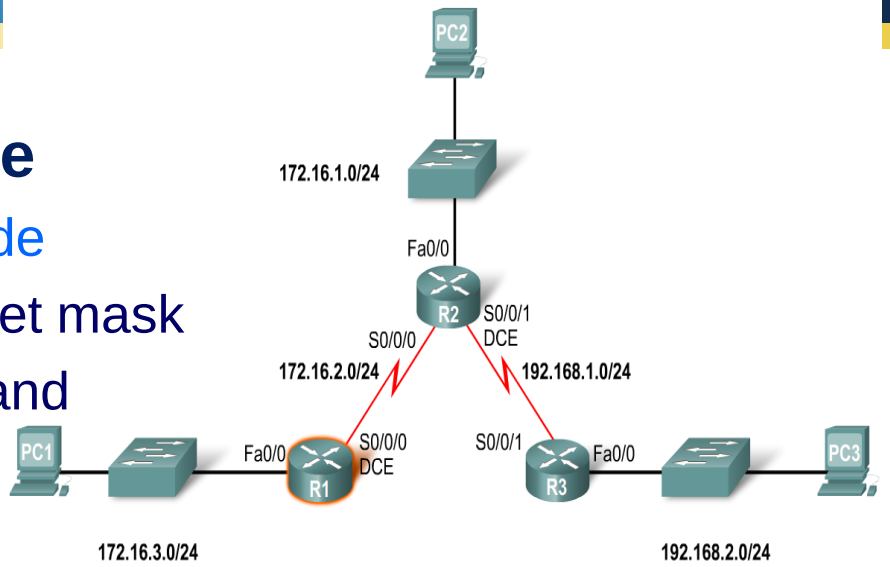

```
Router(config)#interface FastEthernet 0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
```

Configure Router Ethernet Interfaces

Serial Interface

❖Configuring a Serial interface

- Enter interface configuration mode
- Enter in the ip address and subnet mask
- Enter in the no shutdown command



❖ Example:

- R1(config)#interface serial 0/0
- R1(config-if)#ip address 172.16.2.1 255.255.255.0
- R1(config-if)#no shutdown

Serial interface with down and down

```
R1#show interfaces serial 0/0/0
Serial0/0/0 is administratively down, line protocol is down
  Hardware is PowerQUICC Serial
  Internet address is 172.16.2.1/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
<output omitted>
```

Serial interface is down and down even though it has an IP address and was enabled with no shutdown command.

Serial Interface

❖ Examining Router Interfaces

- Physically connecting a WAN Interface.
- A WAN Physical Layer connection has sides:
  - Data Circuit-terminating Equipment (DCE) – This is the service provider. CSU/DSU is a DCE device.
  - Data Terminal Equipment (DTE) – Typically the router is the DTE device.

Configuring serial links in a lab environment

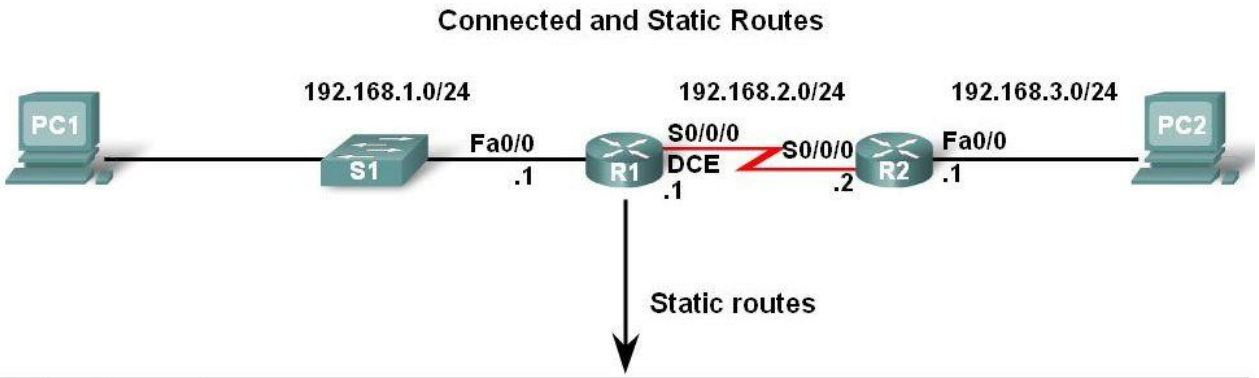
- One side of a serial connection must be considered a DCE.
- This requires placing a clocking signal – use the clock rate command.
- Example:
  - R1(config)#interface serial 0/0
  - R1(config-if)#clock rate 64000
- Serial Interfaces require a clock signal to control the timing of the communcations.

Cấu hình cơ bản Router Cisco

- Verify Basic Router Configuration
  - Issue the *show running-config* command
  - Save the basic router configuration by issuing the *copy running-config startup-config* command
  - Additional commands that will enable you to further verify router configuration are:
    - Show running-config - Displays configuration currently in RAM
    - Show startup-config - Displays configuration file NVRAM
    - Show IP route - Displays routing table
    - Show interfaces - Displays all interface configurations
    - Show IP int brief - Displays abbreviated interface configuration information

Routing Table Structure

- Connected and Static routes




```
R1#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
S    192.168.3.0/24 [1/0] via 192.168.2.2
```

Static Routes with Exit Interfaces

IP route command

- To configure a static route use the following command: ip route
- Example:
  - Router(config)# ip route network-address subnet-mask {ip-address | exit-interface }

Parameter	Description
network-address	Destination network address of the remote network to be added to the routing table.
subnet-mask	Subnet mask of the remote network to be added to the routing table. The subnet mask can be modified to summarize a group of networks.
ip-address	Commonly referred to as the next-hop router's IP address.
exit-interface	Outgoing interface that is used to forward packets to the destination network.

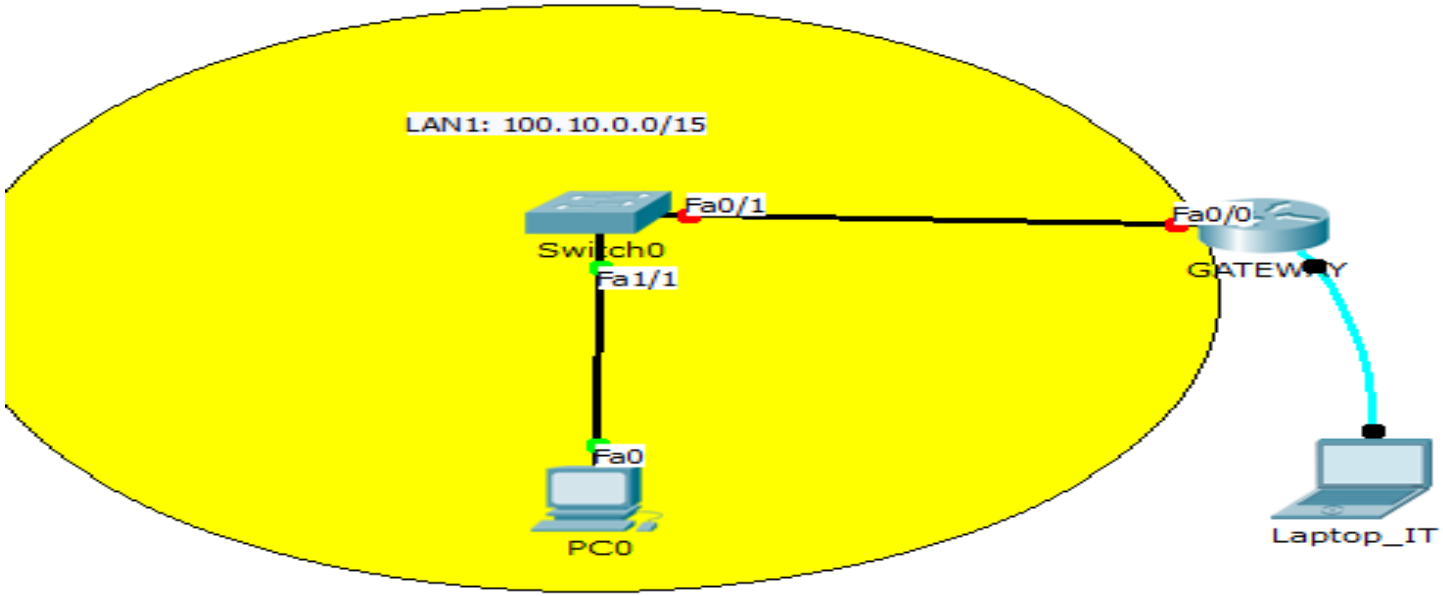
Bài tập thực hành 1

- Kết nối Laptop vào Console port của Router
- Từ Laptop: Cấu hình bằng dòng lệnh cho Router với các yêu cầu sau:

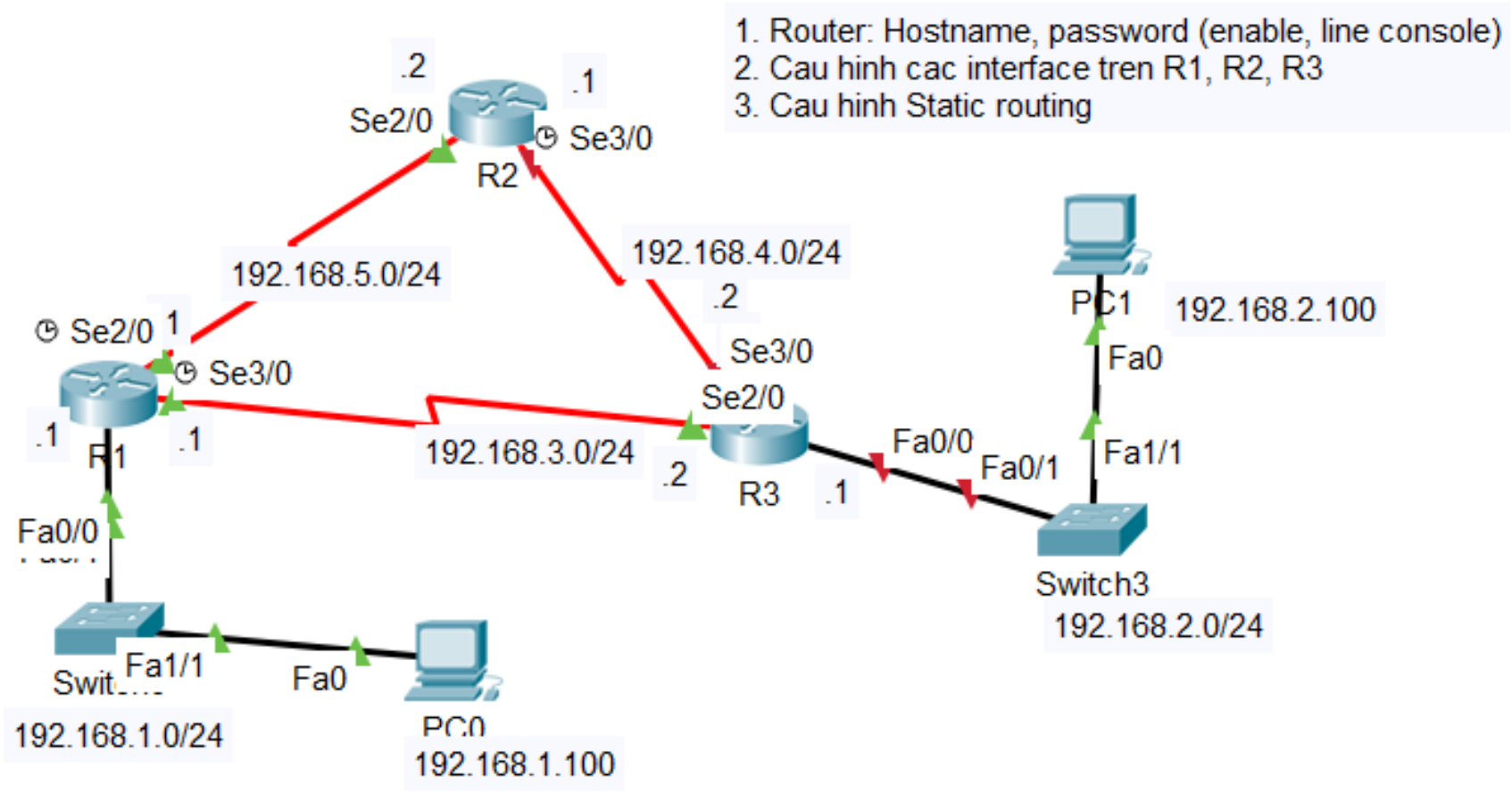
1. Tên router: GATEWAY
2. Banner: "THIS IS A SECURE SYSTEM!!! "
3. Configure the enable password and secret to "cisco1"

4. Configure password encryption for this router

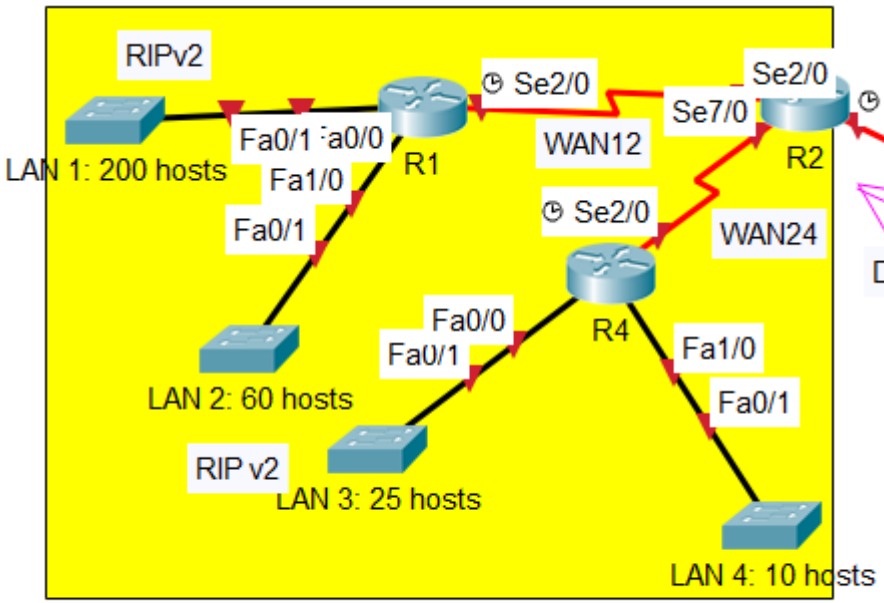
5. Configure the console access :
- Password : "cisco2"



Bài tập thực hành 2



Bài tập thực hành 3



CHO DIA CHI MANG 150.8.76.0/22
- CHIA MANG CHO CAC LAN, WAN
- CAU HINH RIPv2 TREN CAC ROUTER R1, R4, R2. VOI R2 CHI ENABLE RIP TREN CAC INTERFACE S2/0, S7/0 (TRU S3/0). R3 KHONG CHAY RIP

- TAI R2: STATIC ROUTE DEN CAC MANG LAN5, LAN6 QUA INTERFACE S3/0
- TAI R3: DEFAULT ROUTE QUA INTERFACE S2/0
- KIEM TRA KET NOI GIUA CAC MANG

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