Bachelor Cycle

Cisco Networking

PW #6

Summary

- Routing Information Protocol (RIP)
- RIPv1
  - ✧ Specifications
  - ✧ Configuration
- RIPv2
  - ✧ Specifications
  - ✧ Configuration
  - ✧ Authentication
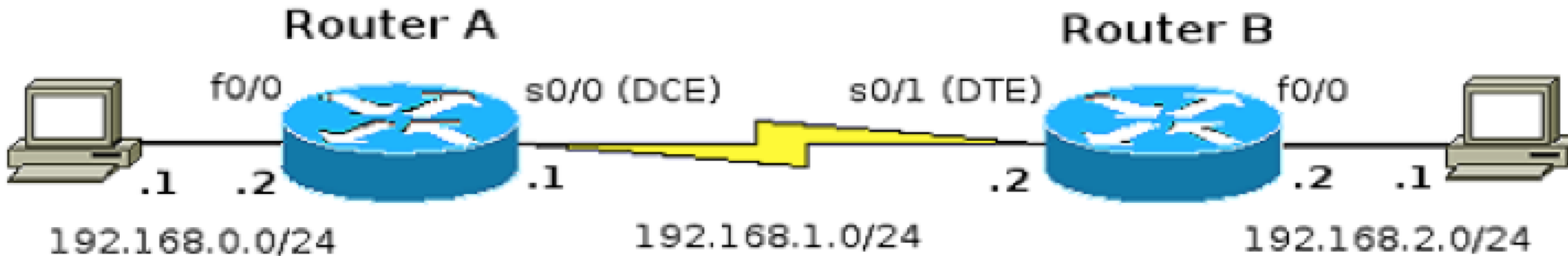 - ✧ Passive Interface
- Practical Work

Routing Information Protocol (RIP)

- Distance Vector Protocol

- RFC 1058 (RIPv1) & RFC 2453 (RIPv2)

- 25 routes for each RIP message (24 with authentication)

- Administrative Distance : 120

RIPv1 Specifications

- Advantages
  - ✧ Exist on all routing equipments
  - ✧ Easy to use

- Inconvenients
  - ✧ Limited on 15 hops
  - ✧ Convergence is slow
  - ✧ Classfull (Don't works with subnets)

RIPv1 Configuration (1/2)

Router A   **Router B**

f0/0   s0/0 (DCE)   s0/1 (DTE)   f0/0

.1   .2   .1   .2   .2   .1

192.168.0.0/24   192.168.1.0/24   192.168.2.0/24

```
RouterA(config)#>router rip
RouterA(config-router)#>network 192.168.0.0
RouterA(config-router)#>network 192.168.1.0
RouterA(config-router)#>exit
```

```
RouterB(config)#>router rip
RouterB(config-router)#>network 192.168.2.0
RouterB(config-router)#>network 192.168.1.0
RouterB(config-router)#>exit
```

RIPv1 Configuration (2/2)

- Display information about the routing protocol used on each interface

```
Lab1-ro1841-1#>show ip protocols
```

- Display RIP routes

```
Lab1-ro1841-1#>show ip route rip
[…]
Gateway of last resort is not set
R          192.168.2.0/24 [120/1] via 192.168.1.2, 00:00:23, Serial 0/0/0
```

RIPv2 Specifications

- Advantages
  - ✧Widespread use and implemented on every routing equipment
  - ✧Handle subnet (« Classless »)
  - ✧Handle authentification
  - ✧Friendly user

- Inconvenients
  - ✧Metric (hop count)
  - ✧Limited to 15 hops
  - ✧Slow convergence time

RIPv2 Configuration

- By default, the router sends RIPv1 and can receive both versions.

- To activate RIPv2

```
Lab1-ro1841-1(config)#>router rip
Lab1-ro1841-1(config-router)#>version 2
```

- To use RIPv2 only on a specified interface

```
Lab1-ro1841-1(config)#>interface fastEthernet 0/0
Lab1-ro1841-1(config-if)#>ip rip send version 2
Lab1-ro1841-1(config-if)#>ip rip receive version 2
```

RIPv2 Authentication

- RIPv2 provides 2 authentication modes : simple text form or MD5.

- Create a key chain

```
Lab1-ro1841-1(config)#>key chain [my_chain]
Lab1-ro1841-1(config-keychain)#>key [number]
Lab1-ro1841-1(config-keychain-key)#>key–string password [my_password]
```

- Use authentication on a interface

```
Lab1-ro1841-1(config)#>interface fastEthernet 0/0
Lab1-ro1841-1(config-if)#>ip rip authentication key-chain [my_chain]
Lab1-ro1841-1(config-if)#>ip rip authentication mode [text | md5]
```

RIPv2 Passive Interface

- A router can switch an interface in passive mode : this interface can receive RIP route but cannont send one, except toward routers specified with the « neighbor » commande

- Passive interface command

```
Lab1-ro1841-1(config)#>router rip
Lab1-ro1841-1(config-router)#>passive-interface Serial 0/0/0
```

- Neighbor command

```
Lab1-ro1841-1(config)#>router rip
Lab1-ro1841-1(config-router)#>neighbor 192.168.0.2
```

Practical Work (1/2)
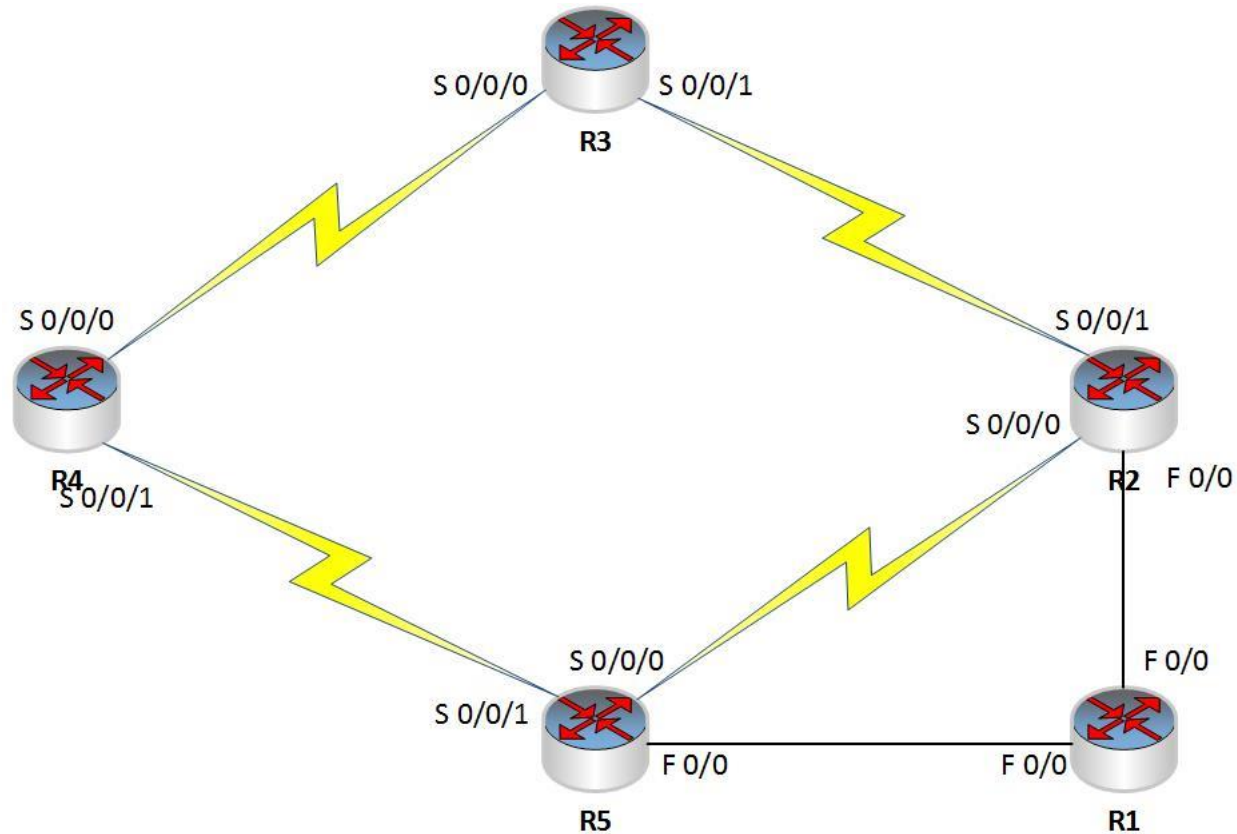
Practical Work (2/2)

- You must to use the class C : 192.168.1.0 for RIPv1 part and 192.168.2.0 for RIPv2 part.

- **Warning : The RIPv2 part must be optimized.**

- Use protocol RIPv1 between R3 & R4 and RIPv2 for others routers.

- The FastEthernet 0/1 of R1 mustn't sends routes.

- An authentification method must be configure between R1 & R2 and R1 & R5.