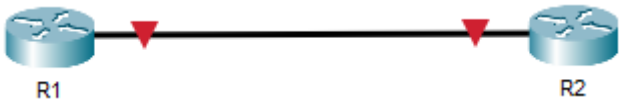
ACTIVITY 1 - Basic Router Security Configuration 1



- Set the hostnames according to the network diagram (R1 and R2)

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R2
```

- Set the enable password on the router to 'cisco'

```
R2(config)#enable password cisco
```

- View the password in the running configuration. Is it encrypted?

```
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#show running-config
Building configuration...
Current configuration : 644 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R2
!
enable password cisco
```

- Enable password encryption on a router

```
R2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#service password-encryption
```

- View the encrypted password in the running configuration.

```
R2(config)#do show running-config
Building configuration...
version 15.1
...
service password-encryption
!
hostname R2
!
enable password 7 0822455D0A16
```

- Disable password encryption on each router but the previous password stays encrypted

```
R2(config)#no service password-encryption
```

ACTIVITY 2: Basic Router Security Configuration 2

(Same topology as Activity 1)

- Set the enable password of the router to 'cisco'

R2(config)#enable password cisco

- Set the enable secret of each router to 'ccna'

R2(config)#enable secret ccna

- Exit back to exec mode and try to enter privileged exec mode. Which password do you have to use?

R2>enable
Password:
Password:
R2#
---→ I had to use the secret

- View the running configuration. Which of the passwords is encrypted?

R2#show running-config
Building configuration...
...
no service password-encryption
hostname R2
enable secret 5 1mERr$Bok4KDfVutXOJolNq009M/
enable password cisco
----> The secret is encrypted

- Enable password encryption on the router, and view the running configuration. What has changed?

R2(config)#service password-encryption
R2(config)#do show running-config
Building configuration...
…
service password-encryption
hostname R2
enable secret 5 1mERr$Bok4KDfVutXOJolNq009M/
enable password 7 0822455D0A16

- Save the configuration and reload the router to confirm.

--- First copy the running config to the startup-config

R2#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]

--- Or the following:

R2#write
Building configuration...
[OK]
R2#

--- Then, reload the router

R2#reload

Proceed with reload? [confirm]
System Bootstrap, Version 15.1(4)M4, RELEASE SOFTWARE (fc1)

Technical Support: http://www.cisco.com/techsupport
Copyright (c) 2010 by cisco Systems, Inc.
Total memory size = 512 MB - On-board = 512 MB, DIMM0 = 0 MB
CISCO1941/K9 platform with 524288 Kbytes of main memory
Main memory is configured to 64/-1(On-board/DIMM0) bit mode with ECC disabled

ACTIVITY 3: Basic Router Security Configuration 3

- Set the enable secret of R1 to 'cisco'.
R1(config)#enable secret cisco

- Set the console password to 'ccna', and make it required to connect to R1 by the console port.
R1(config)#line console 0
R1(config-line)#password ccna
R1(config-line)#login

- Check the runing configuration. Is the password encrypted?

R1(config-line)#end

R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#show running-config

Building configuration…

….

no service password-encryption

!
hostname R1
!
enable secret 5 1mERr$hx5rVt7rPNoS4wqbXKX7m0
….
line con 0
password ccna
login

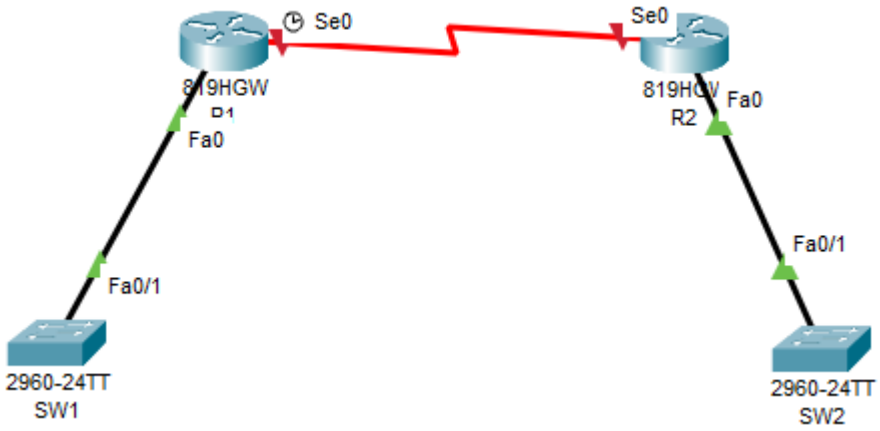
- Enable password encryption on R1. Verify by checking the running configuration, and then save your configurations.
R1(config)#service password-encryption

R1(config)#do show running-config
Building configuration…
...
line con 0
password 7 08224F4008
login
…
R1#write
Building configuration...
[OK]
R1#

- Verify it by entering ‘ccna’ as user access password and ‘cisco’ as to enter user privileged mode

R1#exit
User Access Verification
Password:
R1>
R1>enable
Password:
R1#

ACTIVITY 4: Basic Serial Connection Configuration



1. Use CDP to discover which interfaces are used to connect the routers and switches.

```
SW1#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID     Local Intrfce   Holdtme    Capability   Platform     Port ID
R1            Fas 0/1          131            R       C810         Fas 0

R1#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID     Local Intrfce   Holdtme    Capability   Platform     Port ID
SW1           Fas 0            125            S       2960         Fas 0/1
```

- R1 only shows SW1 so let’s enable the interfaces on both of the routers.

R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface s0
R1(config-if)#no shutdown
%LINK-5-CHANGED: Interface Serial0, changed state to down

R2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface s0
R2(config-if)#no shutdown
R2(config-if)#
%LINK-5-CHANGED: Interface Serial0, changed state to up

- Now let's test it

```
R1#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID    Local Intrfce   Holdtme    Capability   Platform    Port ID
SW1          Fas 0            165            S       2960        Fas 0/1
R2           Ser 0            144            R       C810        Ser 0
```

```
R2#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone
Device ID    Local Intrfce   Holdtme    Capability   Platform    Port ID
SW2          Fas 0            158            S       2960        Fas 0/1
R1           Ser 0            129            R       C810        Ser 0
```

2. Identify which end of the serial cable attaching R1 and R2 is DCE and which is DTE.
R1#show controllers s0
Interface Serial0
Hardware is PowerQUICC MPC860
DCE V.35, clock rate 2000000
idb at 0x81081AC4, driver data structure at 0x81084AC0

R2#show controllers s0
Interface Serial0
Hardware is PowerQUICC MPC860
DTE V.35 TX and RX clocks detected
idb at 0x81081AC4, driver data structure at 0x81084AC0

- So, R1 is DCE and R2 is DTE.

3. Set the clock rate on the DCE end to 64 Kb/s.
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface s0
R1(config-if)#clock rate 64000
R1(config-if)#end
R1#
%SYS-5-CONFIG_I: Configured from console by console
R1#show controllers s0
Interface Serial0
Hardware is PowerQUICC MPC860
DCE V.35, clock rate 64000

4. Set the IP addresses of the serial interfaces of R1 and R2 to 192.168.0.1/24 and 192.168.0.2/24, respectively.
R1(config)#interface s0
R1(config-if)#ip address 192.168.0.1 255.255.255.0

R2(config)#interface s0
R2(config-if)#ip address 192.168.0.2 255.255.255.0

5. Ping between the routers to test connectivity.

```
R1#ping 192.168.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 6/14/18 ms
```

```
R2#ping 192.168.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 6/14/19 ms
```