Introduction

Session 04

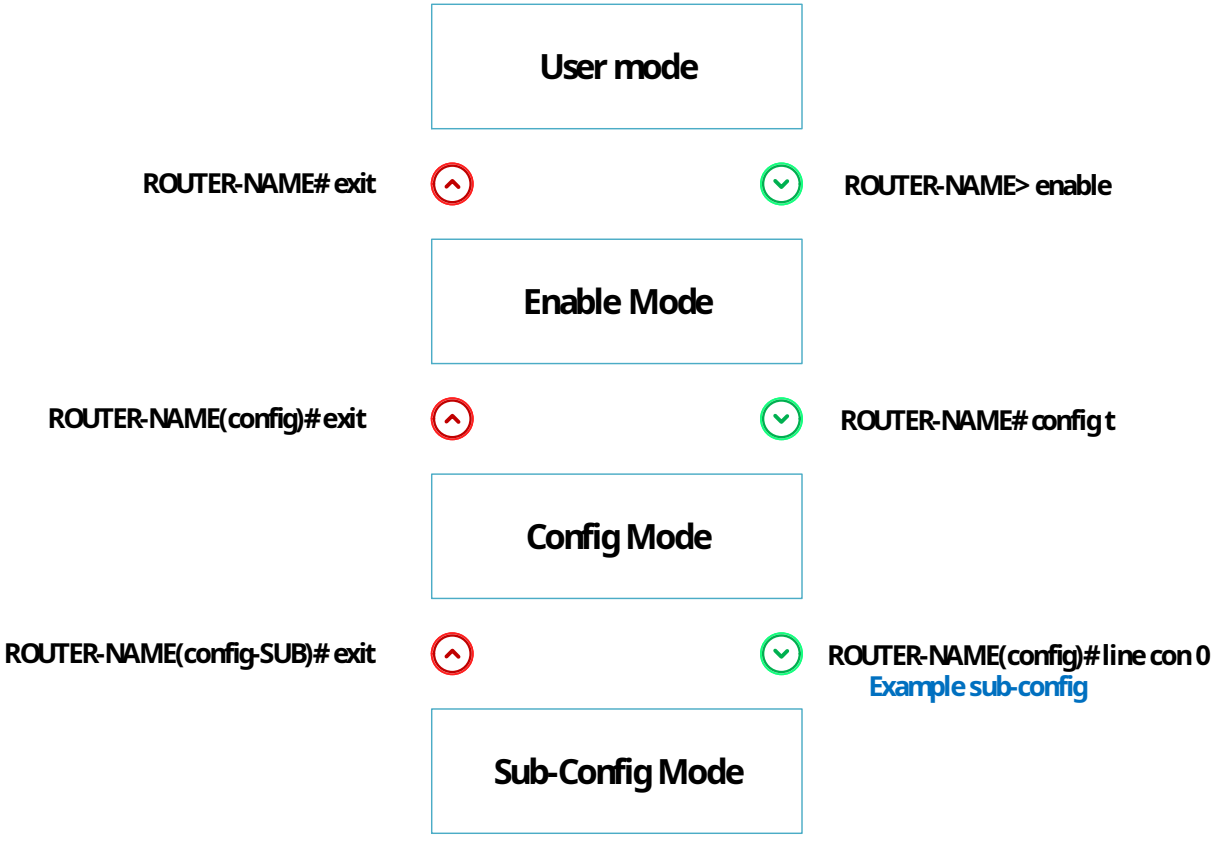
Router Component - Router Modes – Command to Facilitate work – login authentication – duplex & speed

- Router component
  - Processor
  - Storage
    - ROM
    - FLASH
    - RAM
    - NV-RAM
- Router Power-on Scenario
  - ROM (contain Boot Strap software) responsible for power-on self-test (POST).
  - FLASH: memory is used to store Router OS
  - load IOS (Internetwork Operating system) from flash to RAM
  - load start-up configuration from NV-RAM to RAM

Note: Start-up configuration when loaded into RAM called Running-configuration.
Note: to configuration router for first time.
connect your pc with router with console port, console port existing in router use console cable
connector for console Cable: - RJ45. -Serial.
or by rollover cable with convertor one of RJ45 to serial or USB if you can't get console cable.

Router Mode

- User Mode: default mode, you can view config and info about router
  - ROUTER-NAME>
- Enable Mode: provide higher level of access, allowing you to view and chage the configuration
  - ROUTER-NAME#
- Configuration Mode
  - ROUTER-NAME(config)#
- Sub-Configuration Mode
  - ROUTER-NAME(config-SUBNAME)#



Note : if want to return to Enable mode just write
ROUTER-NAME(config-sub)# end
OR Press Ctrl + Z

- Start-up configuration Command (Facilitate Work)
  - ROUTER-NAME(config)# no ip domain-lookup
  - ROUTER-NAME(config-SUBNAME)# exec-timeout 5 0
  - ROUTER-NAME(config-SUBNAME)# logging synchronous
- Encryption Services
  - Encryption Types
    - 1-7 Encryption
    - MD5 Encryption (Message digest 5)
    - SHA Encryption (secure Hash Algorithm)
  - Why using Encryption?
    - Case: use it To Hash Passwords of users to avoid man in middle attack.
- Login authentication
  - Login authentication (access across Console)
    - R1(config)#line con 0
    - R1(config-line)# login
    - R1(config-line)# Password 123

Note: anyone use console to access on router must enter password “123”.

  - Login authentication (access across Console)
    - R1(config)# username test password 123
    - R1(config)# line con 0
    - R1(config-line)# local login

Note: anyone use console to access on router must enter username “test” & password “123”.

Note: different between two scenario,
- First: all users use 1 password to access ‘123’,
- second: everyone can have specific username and password to access on router, which mean that router check verify of username and password that entered by user (by using pre-login-database).

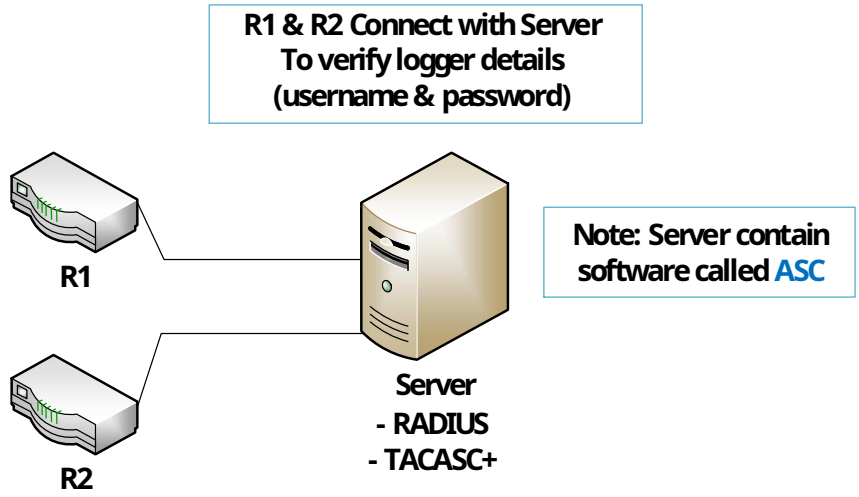
- How use Encryption to hash password?
  - 1-7 Encryption
    - R1(config)# service password-encryption

Note: this line encrypted all entered password, and don't encrypt any new password.
Note: 1-7 Encryption type is weak Hash
Note: Decryption 1-7 Encryption
- R1(config)#no service password-encryption

  - MD5 Encryption
    - R1(config)# username test secret 123

Note: replace 'password' with 'secret'
Note: attacker use strategy to decryption MD5 type, example:
- Brute Force. – Rainbow attack.

- Router, can verify login details through outside source?



Note: how many ways can use it to access on router?
many ways can use it to access on router, examples:

- AUX.
– Console.
- Telnet technology.

- Duplex - speed
  - change duplex of port
    - R1(config)# int f0/1
    - R1(config-if)# duplex half
    - R1(config-if)# speed 10

Note: two port are connected together must support same type of duplex type of duplex mode: - half - full - auto
Note: speed mean changing speed of port to transfer data through it interface fast-ethernet speed 100mbs, in this example we change speed to 10 mbs.
- speed using usually for change cost.