Router basic configuration

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What is router?

Router is a network device that is primarily used for connecting two different networks with each other.

Modes in Router

There are three basic modes in router as follows,

1. **User mode**
   ```
   router>
   ```

2. **Privilege mode**
   ```
   router#
   ```

3. **Configuration mode**
   ```
   router(config)#
   ```

1   User mode

When you turn the router on for the first time, you will enter into the user mode. This mode allows you to only perform testing and verification of connections. Some of the commands you can use in the user mode are as follows,

1. **enable (or en) :** To command will enter you into the privilege mode of the router
   ```
   router>enable
   router#
   ```

2. **ping <IP address>:** This command is use to check the connect with the router and corresponding device on the source IP address
   ```
   router>ping 192.168.1.5
   ```

3. **traceroute <IP address>:** To trace the route of the destination IP address, i.e, the computer path from the current router to the destination IP address
```
router>traceroute 192.168.1.5
```

4. **?:** This command will you know the number of commands that can be entered in the user mode
```
router>?
```

5. **exit:** To exit from the current mode
```
router>exit
```

2   Privilege mode

This mode allows you to enter all the commands from the user mode, but it also allows your to observe and check all the configurations of the router. Some of the commands you can enter in the privilege mode are as follows,

1. **configure terminal (or conf t):** This command will enter you into the configuration mode of the router
```
router#conf t
router(config)#
```

2. **?:** This command will you know the number of commands that can be entered in this mode
```
router#?
```

3. **show (or sh):** This commands shows you detail about router configuration, such as running-config, routing table and so on

   (a) **sh running-config:** this command will show you the running configuration in RAM of the router
   ```
   router#sh running-config
   ```

   (b) **sh startup-config:** This command will show you the startup configuration, that loads into the router when it restarts or turned on.
   ```
   router#sh startup-config
   ```
   (c) **sh ip route:** This command will show the routing table of the router
   ```
   router#sh ip route
   ```

4. **copy <source> <destination>:** This is very useful command. If the running-config is not copied into the startup-config, then all the data in the RAM or running-config will be lost if router is shutdown or restarted
```
router#copy running-config startup-config
```

5. **exit:** To exit from the current mode
```
router#exit
router>
```

3   Configuration mode

This mode allows to make or change all configurations of the router. Some of the configuration mode commands are as follows,

1. **?:** This command will you know the number of commands that can be entered in this mode
   `router#?`

2. **hostname <desired hostname>** It allows to change change the hostname "router" to any other hostname, such as
   `router(config)#hostname R1`
   `R1(config)#`

3. **enable password <your-password>:** This command will apply a non-encrypted password that will be required while entering from user mode into the privilege mode. Such as,
   `router(config)#enable password fast123`

4. **enable secret <your-password>** This is apply encrypted password. A user will be asked for a password when entering from user mode into the privilege mode. Such as,
   `router(config)#enable secret fast123`

5. **do <privilege mode command>:**This command allows you to enter all the privilege mode commands in configuration mode such as,

   (a) **do sh running-config** This will show the running configuration of the router
       `router(config)#do sh running-config`
   (b) **do sh ip route** This will show the routing table of the router
       `router(config)#do sh ip router`

6. **interface (or int) <interface-name>:** To enter into the configuration terminal of a particular interface of a router
   `router(config)#int FastEthernet 0/0`
   `router(config-if)#`

7. **router <routing protocol-name>:**This allows you to enter into specific routing protocol configuration terminal, such as,
   `router(config)#router rip`
   `router(config-router)#`

8. **exit:** To exit from the current mode
   `router(config)#exit`
   `router#`