DHCP

- Setup DHCP in router :-

Router>enable

Router#configure terminal

Router(config)#host ICSS

ICSS(config)#

ICSS(config)# interface fastEthernet 0/0

ICSS(config-if)#ip address 192.168.1.1 255.255.255.0

ICSS(config-if)#no shutdown

ICSS(config-if)#exit

DHCP

ICSS(config)#ip dhcp pool IP1

ICSS(dhcp-config)#net 192.168.1.0 255.255.255.0

ICSS(dhcp-config)#default 192.168.1.1

ICSS(dhcp-config)#exit

ICSS(config)#

DHCP

ICSS(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10

ICSS(config)#exit

ICSS#copy running-config startup-config

Destination filename [startup-config]?

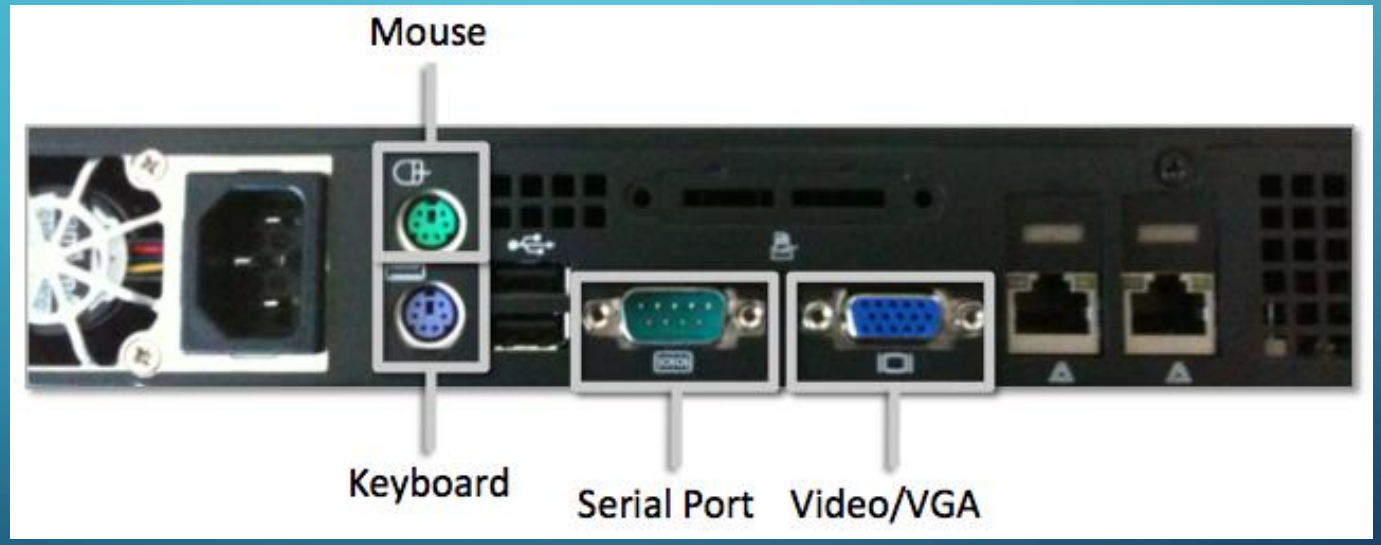
[Press Enter Here]

To the running configuration

ICSS#show running-config

CISCO ROUTER CONFIGURATION

- A router itself has no input or output devices, so we need a PC to communicate with it. A PC is connected to the Router by console cable. The RJ45 connector of the console cable goes to the router console port and the DB9 connector connects to the COM port of the PC. Console cable is not for data transfer but only for management.



CISCO ROUTER CONFIGURATION

- After connecting the router with the PC, you need to use a software to interact with the router. This software is called terminal programme. Putty, HyperTerminal, Minicorn are few example of such kind of software.

CISCO ROUTER CONFIGURATION

- When the router boots up and produces **user execution mode** indicated by the prompt

  Router>

  This is very limited capability mode. So, we need to go to **privilege mode** by using following command in the user execution mode.

  Router>enable

  This mode is used for all kind of verification, all types of system related jobs and from this mode we can go to different configuration mode. From this mode at first we have to go to the **global configuration mode** by using the following command

  Router#configure terminal

CISCO ROUTER CONFIGURATION

- The global config mode is indicated by **Router(config)#**. This mode is used to configure the global properties of the router. If you want to configure any specific property of the router, you have to go to the specific item configuration mode from the global config mode.
- Some Examples are given below

CISCO ROUTER CONFIGURATION

- To configure the router hostname as ICSS

  Router(config)# hostname ICSS

- To activate f0/0 interface and set it with ip address 192.168.1.1 and subnet mask 255.255.255.0

  Router(config)# interface f0/0

  Router(config-if)# ip address 192.168.1.1 255.255.255.0

  Router(config-if)# no shutdown

- To save present configurations into its nvram (startup-config) for future use

  Router# copy run start

  or, **Router# write**

CISCO ROUTER CONFIGURATION

- Cisco CLI : -

  The user interface that we get in any terminal program is called Cisco Command Line Interface. It has some helpful features.

  -> Cisco commands can be executed by typing first few letters of the commands and then press Enter.

  -> We can auto complete a command by using TAB.

  -> We can get entire list of all the objects on which a particular command work by typing the command name and press **'?'**.

  -> Cisco IOS CLI commands are not case sensitive.

CISCO ROUTER CONFIGURATION

- Some Verification Commands :-
- **Router# show run** [To display the content of the router ram]
- **Router# show start** [To display the contents of router nvram]
- **Router# show flash** [To display the contents of router flash memory]
- **Router# show ip interface brief** [To display ip information from different ports]

CISCO ROUTER CONFIGURATION

- **Router# show interface f0/0**

  To display the status and statistics of any particular port. Such as- Whether the port is up/down, port hardware, mac address, ip address, bandwidth, delay, reliability, load, encapsulation, port error and connections etc.

- **Router# show version**

  It shows router OS, platform version, router ROM version, IOS file, processor number with maximum and minimum memory support, motherboard no., size of flash memory, etc.

  All types of verification commands are to be run in Privilege Mode.

CISCO ROUTER CONFIGURATION

- Connecting two routers by Serial Cable :-

  We can connect two routers by a serial cable. The two ends of the serial cable are similar, but only one end can produce the clock signal. This end is named as the dce (data communication equipment) and the dce device will produce the clock signal whereas the other router connected to the dte end named as dte device.

- To verify the dte/dce status of the serial port use the following command

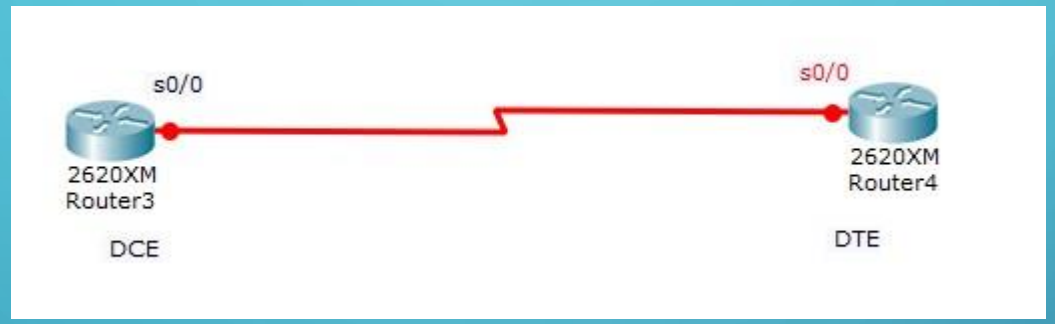
  router# show controller s0/0

  Specify clock signal for the serial dce port

  router(config)# interface s0/0

  router(config-if)# clock rate 64000

CISCO ROUTER CONFIGURATION



CISCO ROUTER CONFIGURATION

- Securing your router by Password : -
  Router passwords can be of the following types
- Console Password – This password is required when you access the router via console port. It is to be provided before getting the user exec mode. To configure console password use the following commands,
  Router(config)#line con 0
  Router(config-line)#password p@ssw0rd
  Router(config-line)#login

CISCO ROUTER CONFIGURATION

- Enable Password – This password is required to enable the router for going to the privilege mode. It can be of 2 types – enable password and enable secret. Enable password saved in plain text but enable secret is always encrypted and enable secret gets more preference over enable password.
- To configure we need to use following commands
  Router(config)#enable password p@ssw0rd
  Router(config)#enable secret cisco
- We can also use the following command to encrypt all types of passwords in a router
  Router(config)#service password encryption

CISCO ROUTER CONFIGURATION

- Bypassing the router passwords : -
  Remember a router saves all the passwords in its nvram. During booting the router loads the nvram values, due to the hex value **0x2102** of the configuration register. If the hex value can be made 0x2142 then the nvram values will not be loaded at boot time. So the router will never ask for the password. To configure the configuration register,
- Switch on the router and press **ctrl+c** (break)
- The router will abort its booting process and will stop at the rommom prompt. Use the following command **rommon 1 > confreg 0x2142**
- Then use the command **rommon 1 > reset**, to continue with the booting process the router boots up successfully without any password

CISCO ROUTER CONFIGURATION

- Prevention : -

  As this is a big security hole, we should prevent anyone from entering rommon mode using following command.

  Router(config)#no service password recovery

CISCO ROUTER CONFIGURATION

- Router IOS Recovery : -

  If the router IOS is corrupted or deleted, the router will not boot and when it is powered up it produces the rommon prompt. From this prompt we can enter the following commands to recover the IOS from already configured TFTP server.

  rommon 1 > IP_ADDRESS=192.168.1.1 [Router f0/0 address]

  rommon 2 > IP_SUBNET_MASK=255.255.255.0

  rommon 3 > DEFAULT_GATEWAY=192.168.1.1

  rommon 4 > TFTP_SERVER=192.168.1.2 [TFTP server address]

  rommon 5 > TFTP_FILE=c2691-adventerprisek9-mz.124-25c.bin [IOS Filename]

  rommon 6 > FE_SPEED_MODE=3

  rommon 7 > tftpdnld

REMOTE MANAGEMENT OF ROUTER USING TELNET

- We have to access a router via telnet. Necessary configuration is given below.

  Router(config)# username icss password cisco

  Router(config)# line vty 0 4

  Router(config)# login local

- In this case user can logs in by username icss and password cisco

END OF DAY 12

NETWORKING (CCNA TRAINING)

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