LAB No 6
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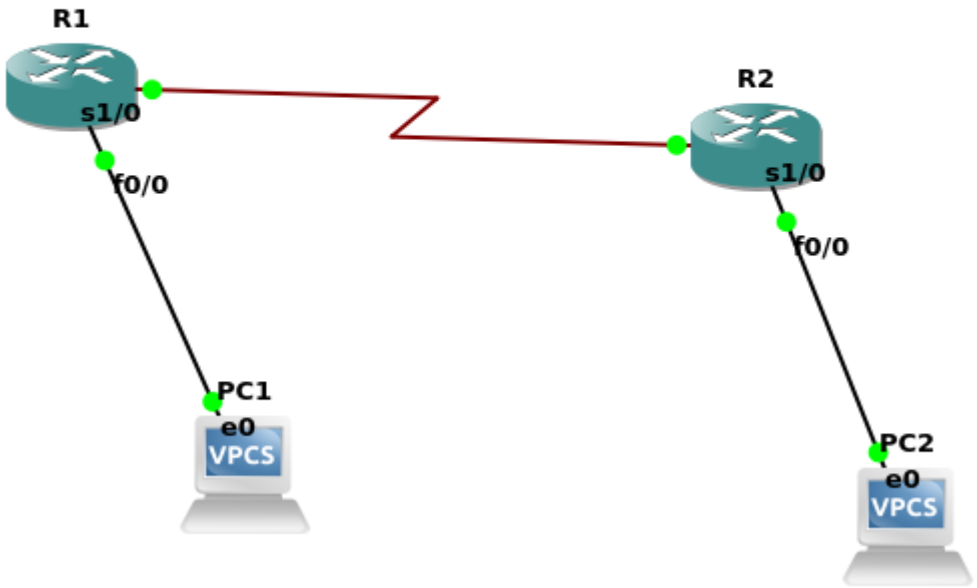
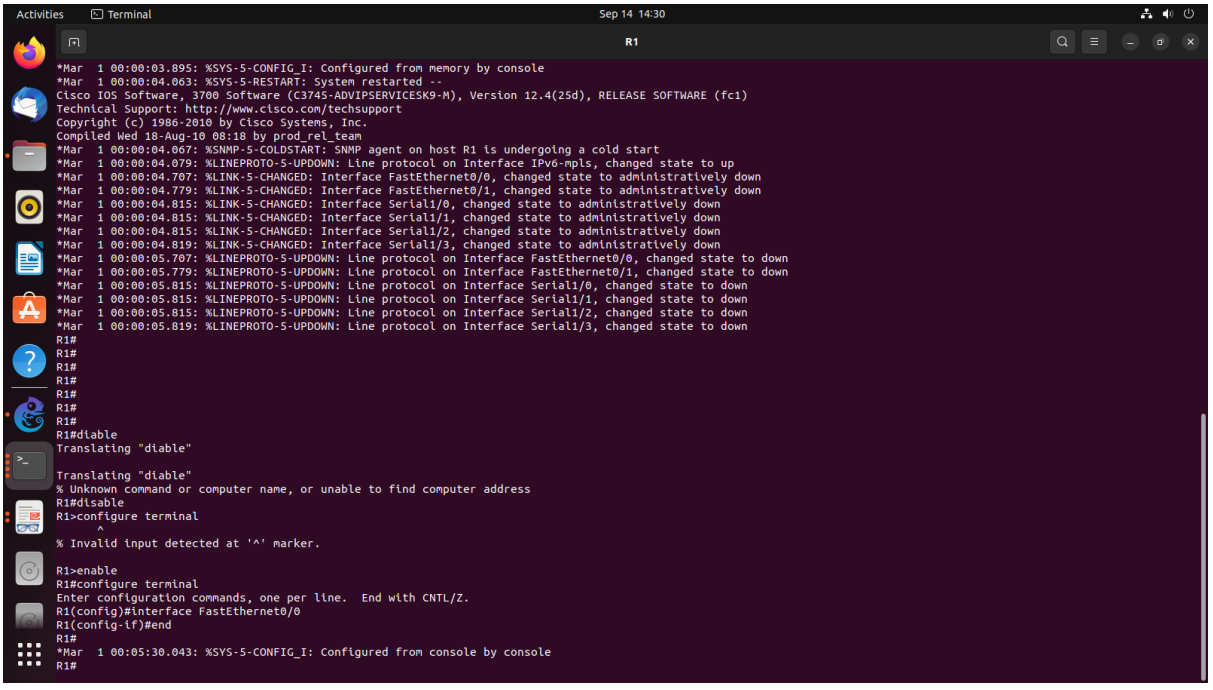
Computer Network Design using SWITCH and ROUTERS in GNS3
Kushala Sarada A V
210905189
ROLL NUMBER 33

II.
LAB EXERCISES
1. Switching Cisco IOS Command Modes
This exercise demonstrates how to log into a router and how to work with the different Cisco IOS command modes. It is important to understand the different modes so you know where you
are and what commands are accepted at any time.
i. Connect the Ethernet interfaces of the Linux PCs and the Cisco router as shown in Figure 6.7.
Do not turn on the Linux PCs yet.
ii. Right-click on Router1 and choose Start.
iii. Right-click on Router1 and choose Console. Wait a few seconds until the router is initialized.
If everything is fine, you should see the prompt shown below. This is the User EXEC mode. If
the prompt does not appear, try to restart GNS3 and repeat the setup again.
Router1>
iv. To see which commands are available in this mode, type ?:
Router1>?
v. To view and change system parameters of a Cisco router, you must enter the Privileged EXEC
mode by typing:
Router1>enable
Router1#
vi. Type the following command to disable the Privileged EXEC mode
Router1# disable





vii. To modify system wide configuration parameters, you must enter the global configuration mode. This mode is entered by typing:
Router1#configure terminal
Router1(config)#
or

Router1#conf t
Router1(config)#
viii. To make changes to a network interface, enter the interface configuration mode, with the command:
Router1(config)#interface FastEthernet0/0
Router1(config-if)#
The name of the interface is provided as an argument. Here, the network interface that is configured is FastEthernet0/0.
ix. To return from the interface configuration to the global configuration mode, or from the global configuration mode to the Privileged EXEC mode, use the exit command:
Router1(config-if)#exit
Router1(config)#exit
Router1#
The exit command takes you one step up in the command hierarchy. To directly return to the Privileged EXEC mode from any configuration mode, use the end command:
Router1(config-if)#end
Router1#
x. To terminate the console session from the User EXEC mode, type logout or exit:
Router1>logout
Router con0 is now available
Press RETURN to get started
2. Configuring a Cisco Router via the console
The following exercises use basic commands from the Cisco IOS that are needed to configure a
Cisco router.
PAGE: 61i. Right-click on Router1 and choose Start.
ii. Right-click on Router1 and choose Console. Wait some seconds until the initial console window is set up. When the router is ready to receive commands, proceed to the next step.
iii. Configure Router1 and Router 2 with the IP addresses given in Figure 6.7.
In Router 1
Interface Fastethernet0/0 in global configuration mode
R1(config)#inter f 0/0
R1(config-if)#ip address 10.0.0.1 255.0.0.0
R1(config-if)#no shutdown
R1(config-if)#exit

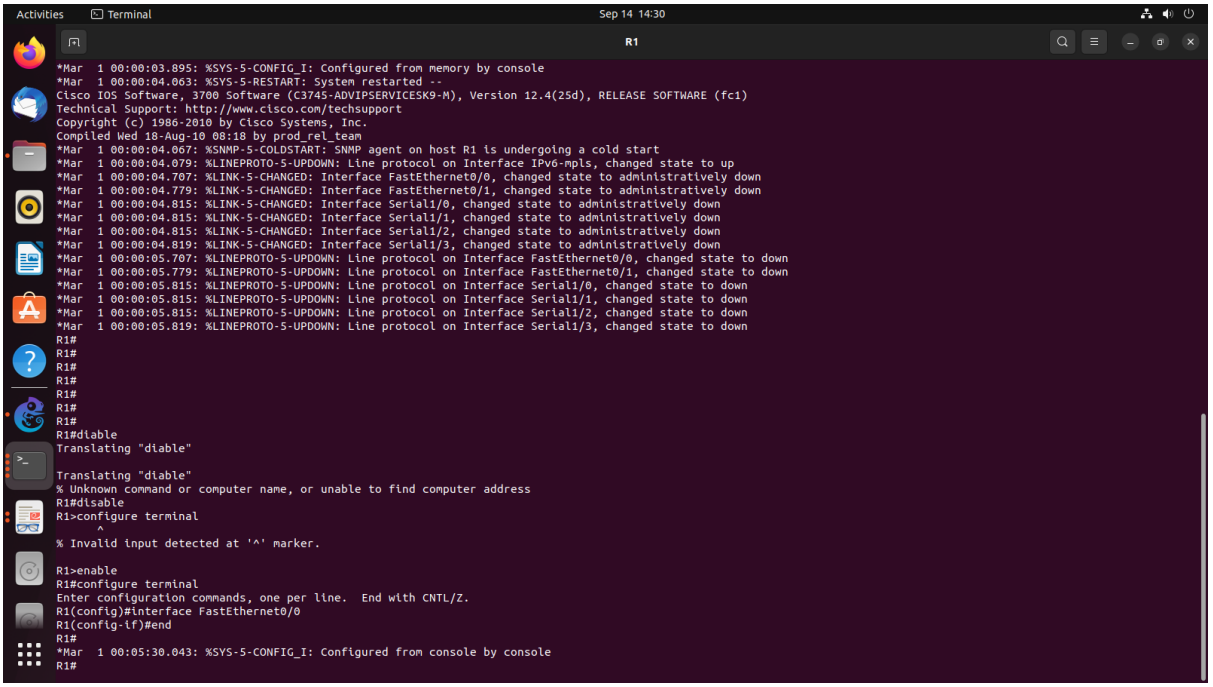
Interface Fastethernet 0/0
R2(config)#inter f0/0
R2(config-if)#ip address 30.0.0.1 255.0.0.0
R2(config-if)#no shutdown
R2(config-if)#exit

R1# show interfaces
R1#show running-config
R1(config)#ip route Destination Network| Destination N/W Subnet Mask |Next Hop Address
R1(config)#ip route 30.0.0.0 255.0.0.0 20.0.0.2
R2(config)#ip route 10.0.0.0 255.0.0.0 20.0.0.1

```
R1(config)#inter f0/0
R1(config-if)#ip address 30.0.0.1 255.0.0.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#
```

```
R1#show running-config
Building configuration...

Current configuration : 1168 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
no aaa new-model
memory-size iomem 5
no ip icmp rate-limit unreachable
ip cef
!
!
!
!
no ip domain lookup
ip auth-proxy max-nodata-conns 3
ip admission max-nodata-conns 3
!
!
!
!
 --More--
```




```
R2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#inter f0/0
R2(config-if)#ip address 30.0.0.1 255.0.0.0
R2(config-if)#no shutdown
R2(config-if)#exit
```

```
R1#show running-config
Building configuration...

Current configuration : 1168 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
no aaa new-model
memory-size iomem 5
no ip icmp rate-limit unreachable
ip cef
!
!
!
!
no ip domain lookup
ip auth-proxy max-nodata-conns 3
ip admission max-nodata-conns 3
!
!
!
!
 --More--
```

i. Issue a ping command from PC1 to PC2, Router1 and PC4, respectively

```
R1#ping 10.0.0.10

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.10, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
R1#
```

```
PC1> ping 30.0.0.10

84 bytes from 30.0.0.10 icmp_seq=1 ttl=62 time=33.483 ms
84 bytes from 30.0.0.10 icmp_seq=2 ttl=62 time=38.765 ms
84 bytes from 30.0.0.10 icmp_seq=3 ttl=62 time=38.002 ms
84 bytes from 30.0.0.10 icmp_seq=4 ttl=62 time=37.856 ms
84 bytes from 30.0.0.10 icmp_seq=5 ttl=62 time=47.912 ms

PC1> ping 20.0.0.1

84 bytes from 20.0.0.1 icmp_seq=1 ttl=255 time=9.242 ms
84 bytes from 20.0.0.1 icmp_seq=2 ttl=255 time=8.104 ms
84 bytes from 20.0.0.1 icmp_seq=3 ttl=255 time=5.651 ms
84 bytes from 20.0.0.1 icmp_seq=4 ttl=255 time=6.620 ms
84 bytes from 20.0.0.1 icmp_seq=5 ttl=255 time=9.126 ms

PC1>
```