

LAB FAT  
INFORMATION SECURITY MANAGEMENT

SLOT: L13-L14

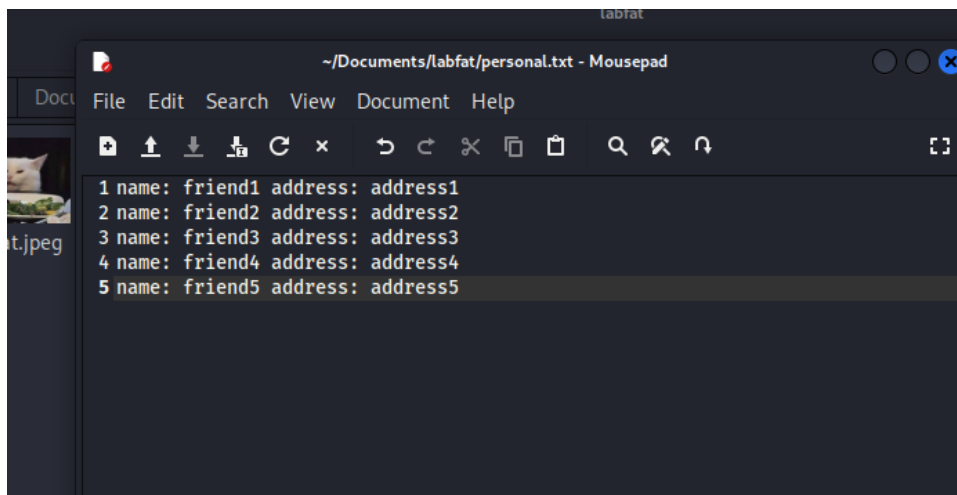
SET 6

19BCE1150

Devansh Gupta

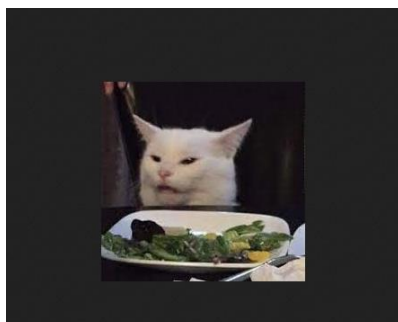
1. John has a file (personal.txt) that contains his friends name, address. He needs to send the detail as encrypted file to his friend Mohammed for updating the contact numbers. Mohammed needs to decrypt the file and update the contact numbers. He wants to send back to John as encrypted file (personalcontact.txt). Now, John needs to open the file and to know the contact numbers. Demonstrate the encryption and decryption processes.

Contents of personal.txt

A screenshot of a text editor window titled "labfat" with a subtitle "~Documents/labfat/personal.txt - Mousepad". The window has a menu bar with "File", "Edit", "Search", "View", "Document", and "Help". Below the menu bar is a toolbar with various icons for file operations. The main text area contains five lines of text:

```
1 name: friend1 address: address1  
2 name: friend2 address: address2  
3 name: friend3 address: address3  
4 name: friend4 address: address4  
5 name: friend5 address: address5
```

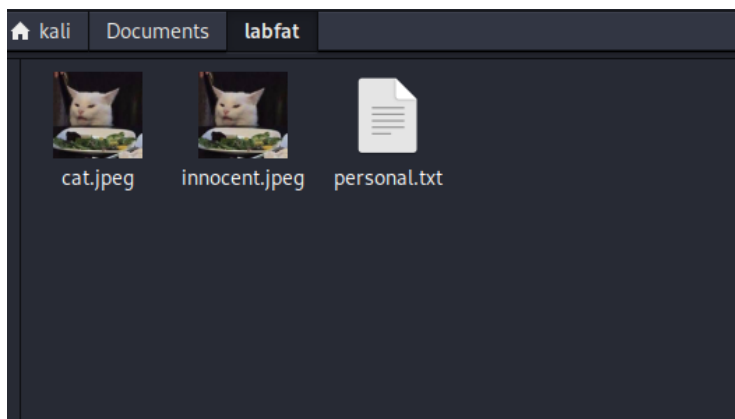
cat.jpeg



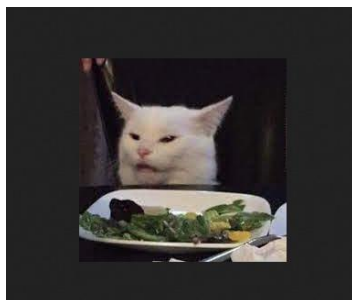
Command: steghide embed -ef personal.txt -cf cat.jpeg -sf innocent.jpeg -p password

Embedded the personal.txt file in innocent.jpeg which is a copy file of cat.jpeg

```
(root@kali)-[/home/kali/Documents/labfat]
# steghide embed -ef personal.txt -cf cat.jpeg -sf innocent.jpeg -p password
embedding "personal.txt" in "cat.jpeg" ... done
writing stego file "innocent.jpeg" ... done
```



Innocent.jpeg



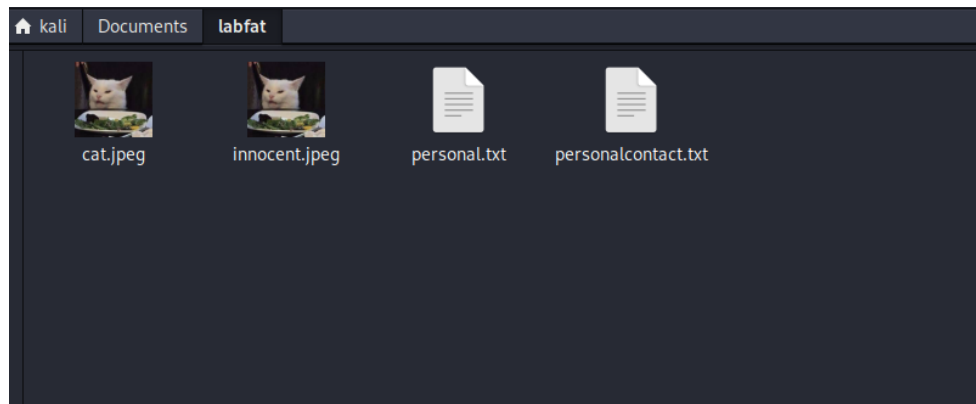
Command: steghide extract -sf innocent.jpeg -xf personalcontact.txt

From encrypted file innocent.jpeg we extract the hidden content and put it in personalcontact.txt

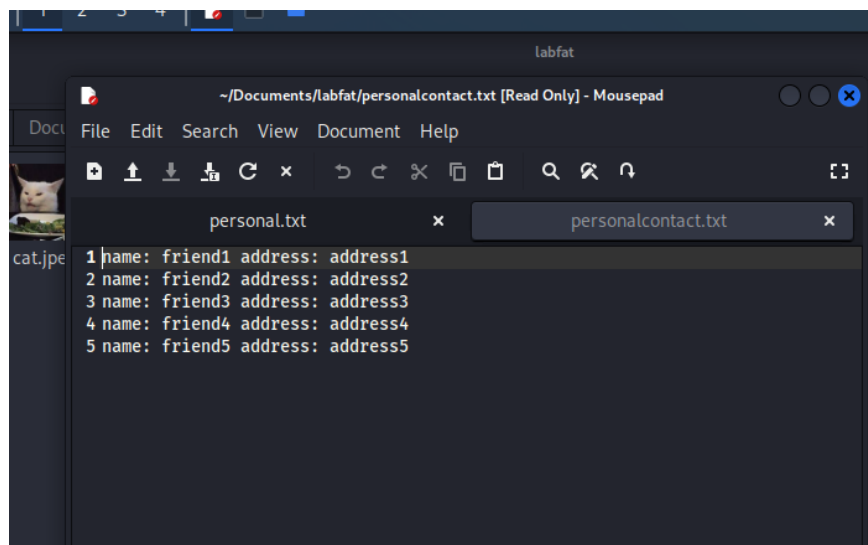
```
(root@kali)-[/home/kali/Documents/labfat]
# steghide extract -sf innocent.jpeg -xf personalcontact.txt
Enter passphrase:
wrote extracted data to "personalcontact.txt".

(root@kali)-[/home/kali/Documents/labfat]
#
```

File by the name of personalcontact.txt is created

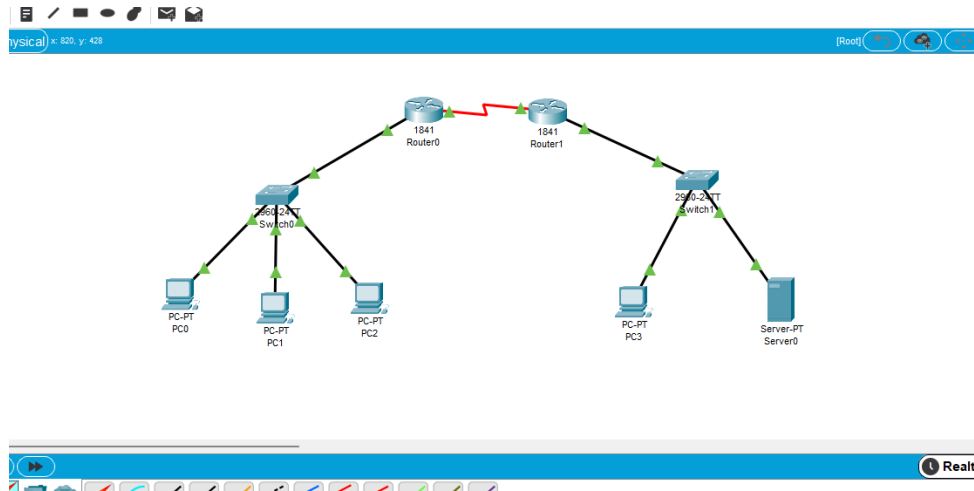


Contents of personalcontact.txt



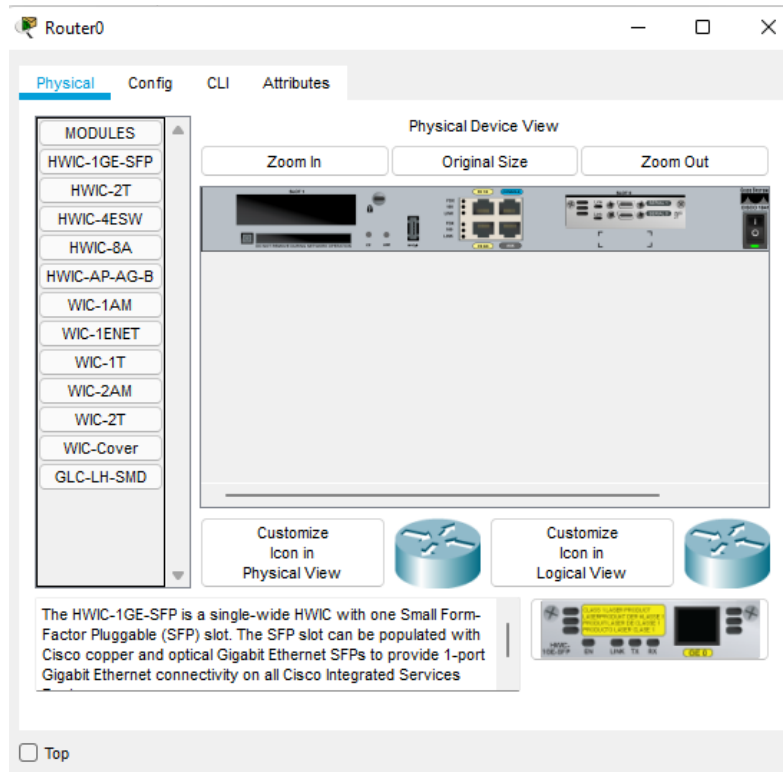
2. Configure a network topology with two routers, two switches, four PCs, a server and configure the static NAT and Dynamic NAT. Submit the necessary screenshot and configuration details in a document.

## Topology



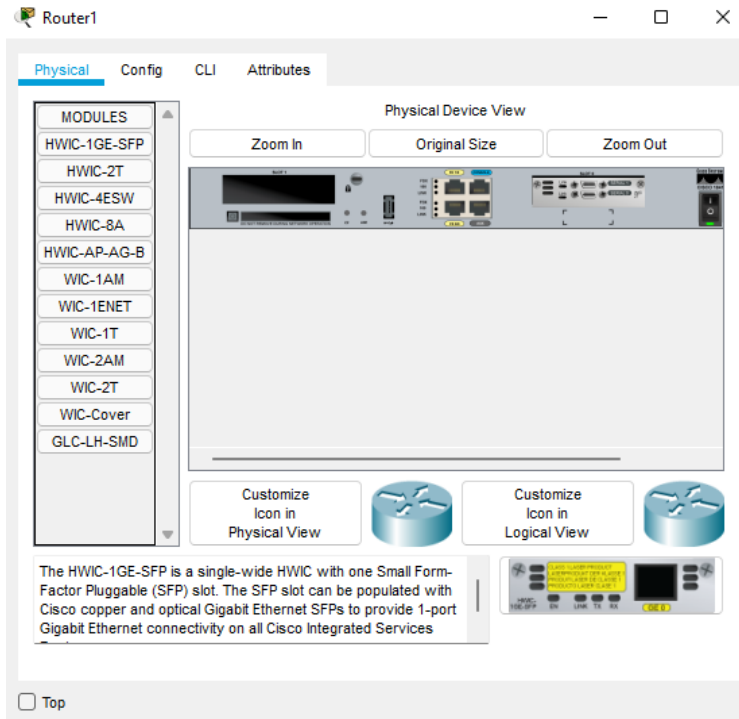
## Router0

Inserting WIC-2T in Router0 to get serial ports

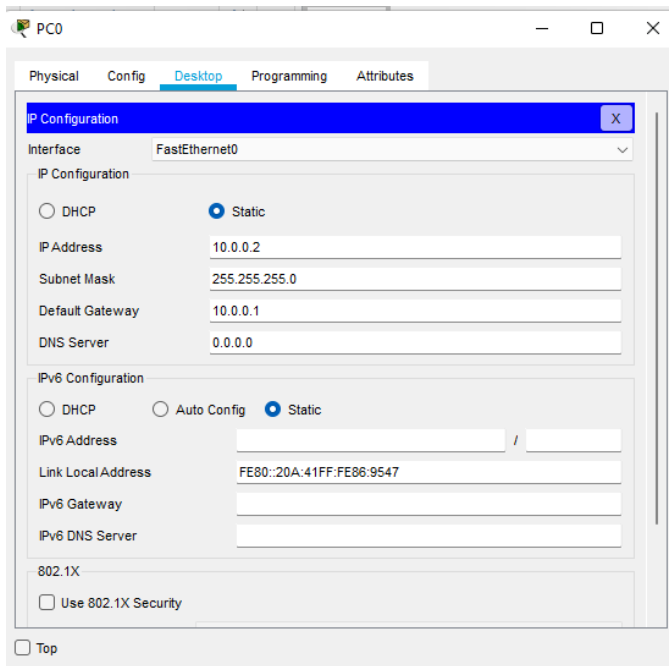


## Router1

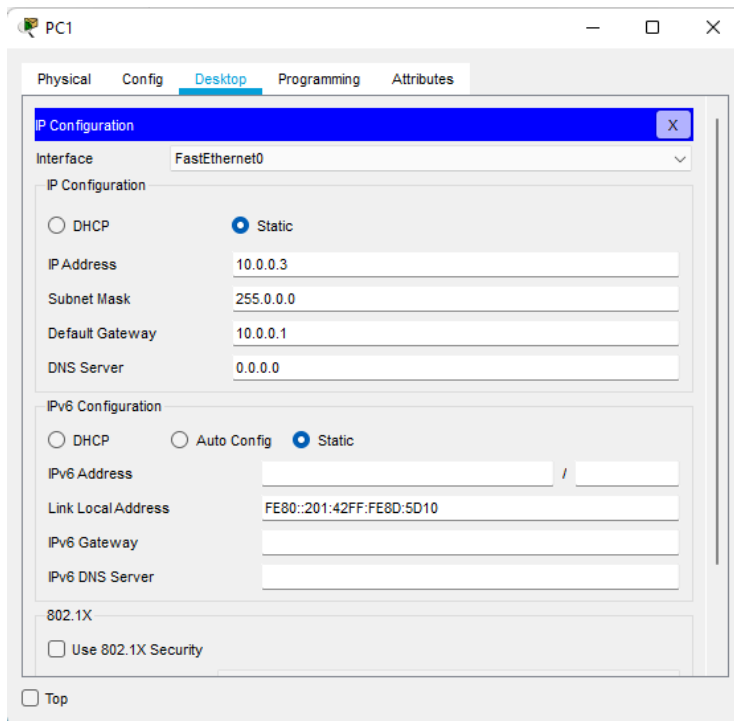
Inserting WIC-2T in Router1 to get serial ports



## PC0 Ip Configuration



## PC1 Ip configuration



PC1

Physical Config **Desktop** Programming Attributes

**IP Configuration** [X]

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 10.0.0.3

Subnet Mask: 255.0.0.0

Default Gateway: 10.0.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:42FF:FE8D:5D10

IPv6 Gateway:

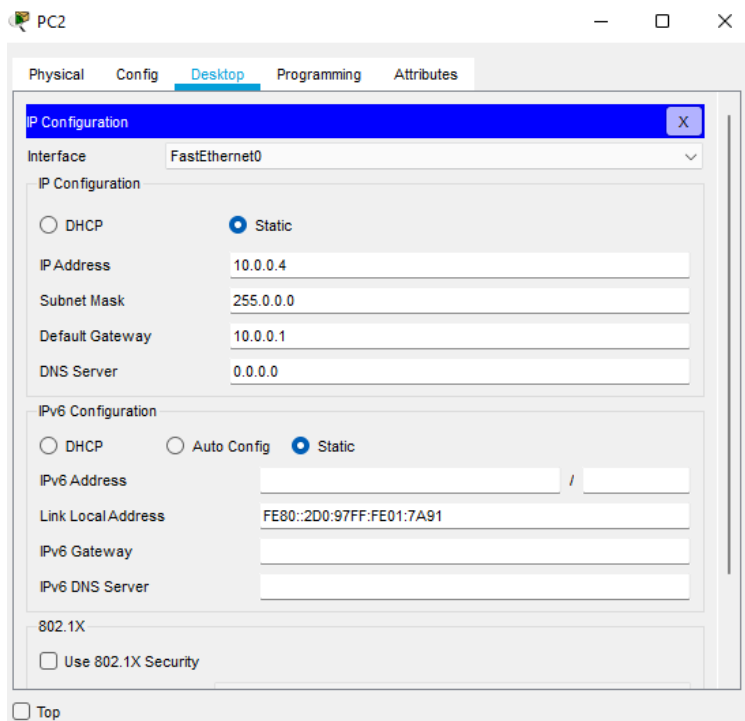
IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

☐ Top

## PC2 Ip configuration



PC2

Physical Config **Desktop** Programming Attributes

**IP Configuration** [X]

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 10.0.0.4

Subnet Mask: 255.0.0.0

Default Gateway: 10.0.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::2D0:97FF:FE01:7A91

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

☐ Top

## PC3 Ip configuration

PC3

Physical Config **Desktop** Programming Attributes

IP Configuration [X]

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address: 20.0.0.2

Subnet Mask: 255.0.0.0

Default Gateway: 20.0.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::2D0:FFFF:FE31:93D6

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

☐ Top

## Server0 Ip configuration

Server0

Physical Config Services **Desktop** Programming Attributes

IP Configuration [X]

IP Configuration

☐ DHCP ☒ Static

IP Address: 20.0.0.3

Subnet Mask: 255.0.0.0

Default Gateway: 20.0.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::2E0:F9FF:FE78:2E0A

IPv6 Gateway:

IPv6 DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

☐ Top

## Router0 FastEthernet0/0 Configuration

The screenshot shows the configuration window for the FastEthernet0/0 interface on Router0. The left sidebar contains a tree view with categories: GLOBAL, Settings, Algorithm Settings, ROUTING, Static, RIP, SWITCHING, VLAN Database, and INTERFACE. Under the INTERFACE category, the following interfaces are listed: FastEthernet0/0 (selected), FastEthernet0/1, Serial0/0/0, and Serial0/0/1. The main configuration area for FastEthernet0/0 includes: Port Status (On), Bandwidth (100 Mbps, 10 Mbps, Auto), Duplex (Half Duplex, Full Duplex, Auto), MAC Address (0007.EC44.3901), IP Configuration (IP Address: 10.0.0.1, Subnet Mask: 255.0.0.0), and Tx Ring Limit (10). Below the configuration area, the 'Equivalent IOS Commands' section displays the following commands: 

```
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-S-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up
```

## Router0 Serial0/0/0 Configuration

The screenshot shows the configuration window for the Serial0/0/0 interface on Router0. The left sidebar is identical to the previous screenshot, with the Serial0/0/0 interface selected under the INTERFACE category. The main configuration area for Serial0/0/0 includes: Port Status (On), Duplex (Full Duplex), Clock Rate (2000000), IP Configuration (IP Address: 11.0.0.2, Subnet Mask: 255.0.0.0), and Tx Ring Limit (10). Below the configuration area, the 'Equivalent IOS Commands' section displays the following commands: 

```
Router(config-if)#ip address
% Incomplete command.
Router(config-if)#ip address 11.0.0.2 255.0.0.0
Router(config-if)#ip address 11.0.0.2 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-S-CHANGED: Interface Serial0/0/0, changed state to up
```



## Router0 RIP Routing

The screenshot shows the configuration window for Router0. The 'Config' tab is active, and the 'ROUTING' section is expanded, showing 'RIP' selected. The 'RIP Routing' configuration area shows a list of networks: 10.0.0.0 and 20.0.0.0. Below this, the 'Equivalent IOS Commands' section displays the following commands:

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#
```

## Router1 FastEthernet0/0 Configuration

The screenshot shows the configuration window for Router1. The 'Config' tab is active, and the 'INTERFACE' section is expanded, showing 'FastEthernet0/0' selected. The 'FastEthernet0/0' configuration area shows the following settings:

- Port Status: ☒ On
- Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
- Duplex: ☒ Half Duplex ☐ Full Duplex ☒ Auto
- MAC Address: 000C.CFE3.2101
- IP Configuration:
  - IP Address: 20.0.0.1
  - Subnet Mask: 255.0.0.0
- Tx Ring Limit: 10

Below the configuration area, the 'Equivalent IOS Commands' section displays the following commands:

```
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up
```

## Router1 Serial0/0/0 Configuration

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

Serial0/0/0

Port Status ☒ On

Duplex ☐ Full Duplex

Clock Rate 2000000

IP Configuration

IP Address 11.0.0.3

Subnet Mask 255.0.0.0

Tx Ring Limit 10

Equivalent IOS Commands

Router(config-if)#ip address 11.0.0.3 255.0.0.0  
Router(config-if)#no shutdown  
Router(config-if)#ip address 11.0.0.3 255.0.0.0  
Router(config-if)#shutdown  
Router(config-if)#ip address 11.0.0.3 255.0.0.0  
Router(config-if)#ip address 11.0.0.3 255.0.0.0  
Router(config-if)#no shutdown  
Router(config-if)#

☐ Top

## Router1 RIP Routing

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0/0

Serial0/0/1

RIP Routing

Network

Add

Network Address

10.0.0.0

20.0.0.0

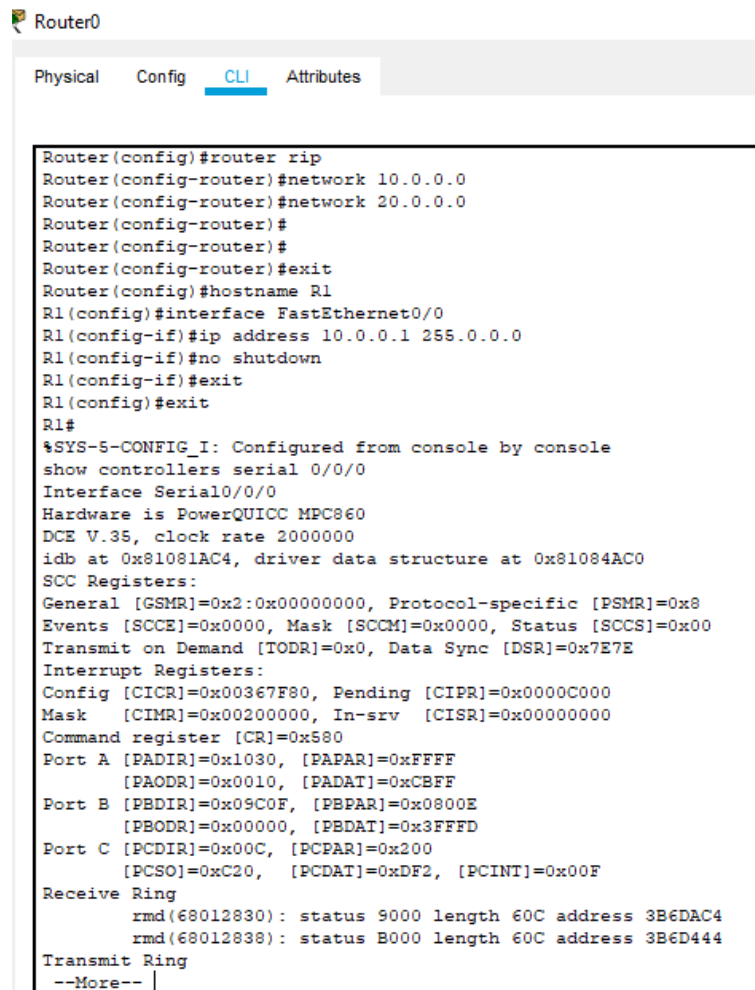
Remove

Equivalent IOS Commands

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up  
  
Router(config-if)#exit  
Router(config)#router rip  
Router(config-router)#network 10.0.0.0  
Router(config-router)#network 20.0.0.0  
Router(config-router)#

☐ Top

Router0 CLI commands are used to access the global configuration mode.



```
Router0
Physical Config CLI Attributes

Router(config)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#
Router(config-router)#
Router(config-router)#exit
Router(config)#hostname R1
R1(config)#interface FastEthernet0/0
R1(config-if)#ip address 10.0.0.1 255.0.0.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
show controllers serial 0/0/0
Interface Serial0/0/0
Hardware is PowerQUICC MPC860
DCE V.35, clock rate 2000000
idb at 0x81081AC4, driver data structure at 0x81084AC0
SCC Registers:
General [GSMR]=0x2:0x00000000, Protocol-specific [PSMR]=0x8
Events [SCCE]=0x0000, Mask [SCCM]=0x0000, Status [SCCS]=0x00
Transmit on Demand [TODR]=0x0, Data Sync [DSR]=0x7E7E
Interrupt Registers:
Config [CICR]=0x00367F80, Pending [CIPR]=0x0000C000
Mask [CIMR]=0x00200000, In-srv [CISR]=0x00000000
Command register [CR]=0x580
Port A [PADIR]=0x1030, [PAPAR]=0xFFFF
[PAODR]=0x0010, [PADAT]=0xCEFF
Port B [PBDIR]=0x09C0F, [PBPAR]=0x0800E
[PBODR]=0x00000, [PBDAT]=0x3FFFD
Port C [PCDIR]=0x00C, [PCPAR]=0x200
[PCSO]=0xC20, [PCDAT]=0xDF2, [PCINT]=0x00F
Receive Ring
  rmd(68012830): status 9000 length 60C address 3B6DAC4
  rmd(68012838): status B000 length 60C address 3B6D444
Transmit Ring
--More-- |
```

## STATIC NAT

NAT of cisco.com device using IP address of 10.1.1.3 Static translation Commands for static translation

First we mark interfaces as nat outside or nat inside and then using ip nat command to translate public ip address into a private ip address in our case for honeypot.

en conf t

int g0/0 ip

nat out int g0/1

ip nat inside

## DYNAMIC NAT



PC1

