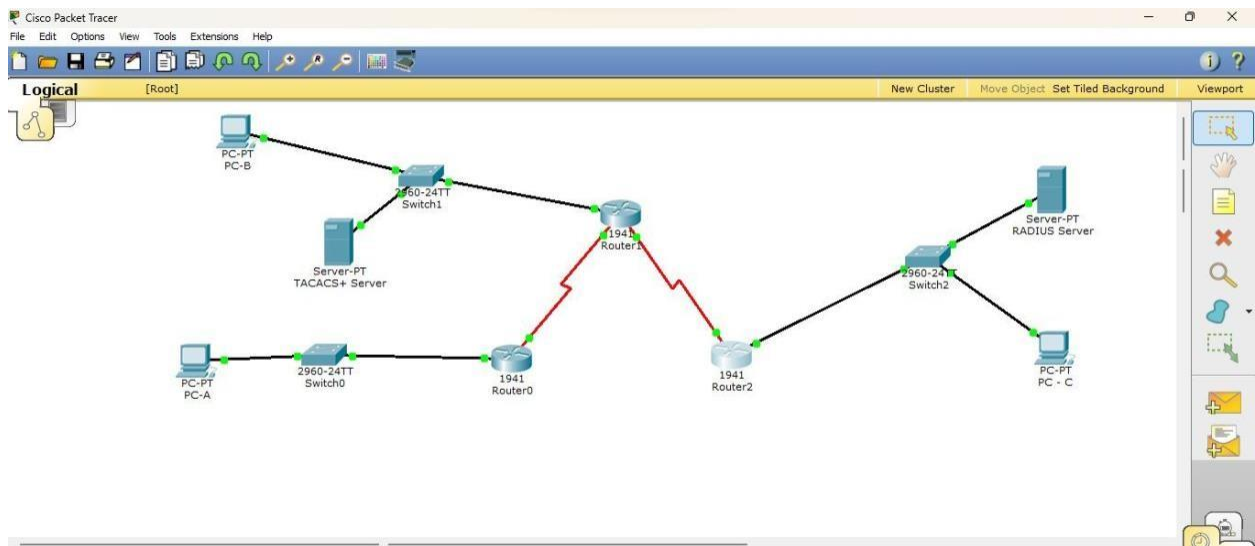


PRACTICAL NO :2

AIM: CONFIGURE AAA AUTHENTICATION

- A) CONFIGURE A LOCAL USER ACCOUNT ON ROUTER AND CONFIGURE AUTHENTICATE ON THE CONSOLE AND VTY LINE USING LOCAL AAA
- B) VERIFY B. LOCAL AAA AUTHENTICATION FROM THE ROUTER CONSOLE AND THE PC-A CLIENT

TOPOLOGY DAIGRAM

ASSIGN IP ADDRESS

PC-A

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 192.168.1.3

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS Server:

Web Browser

PC-B

IP Configuration

IP Configuration

☐ DHCP ☒ Static

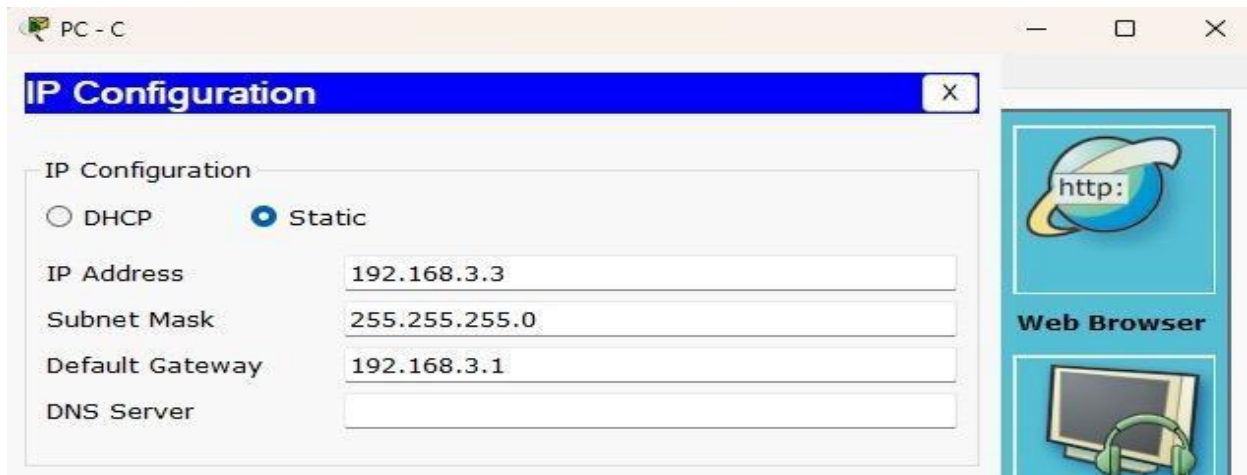
IP Address: 192.168.2.3

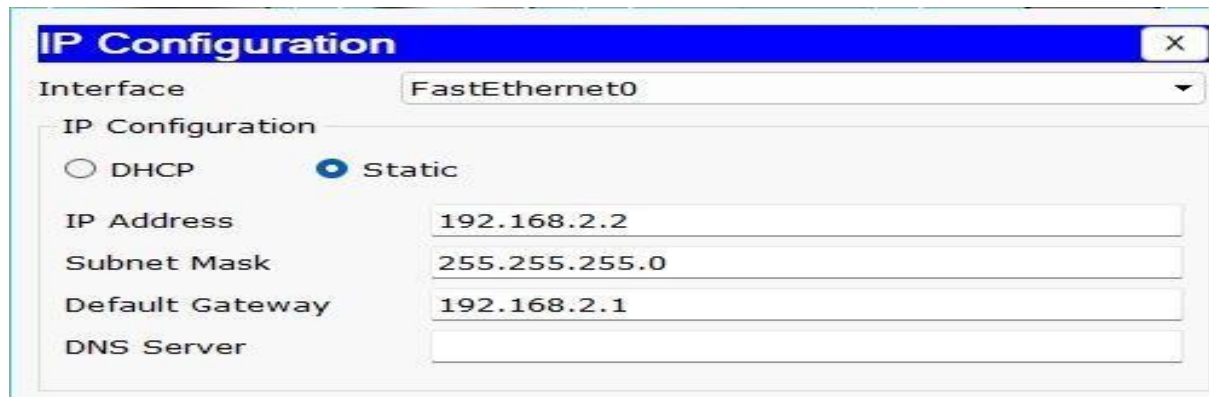
Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.1

DNS Server:

Web Browser





IP Configuration

Interface: FastEthernet0

IP Configuration

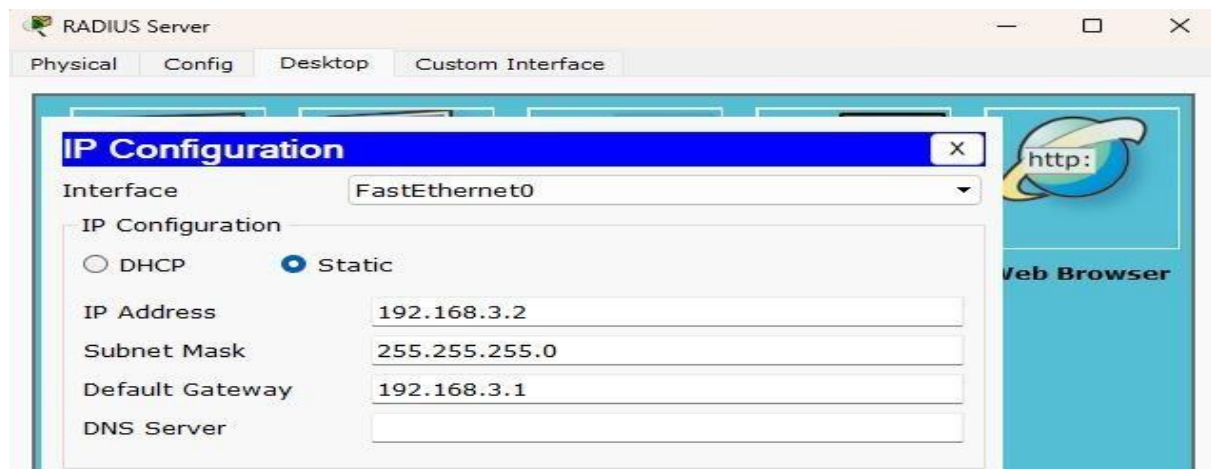
☐ DHCP ☒ Static

IP Address: 192.168.2.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.1

DNS Server:



RADIUS Server

Physical Config Desktop Custom Interface

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

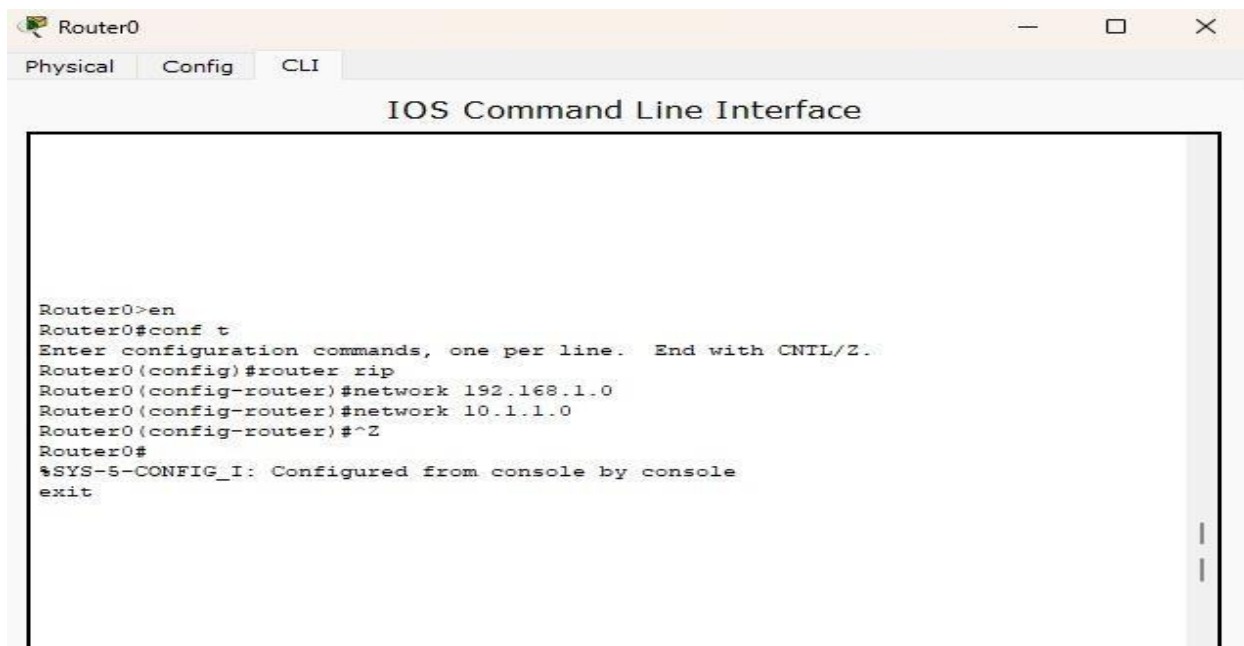
IP Address: 192.168.3.2

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.3.1

DNS Server:

Web Browser

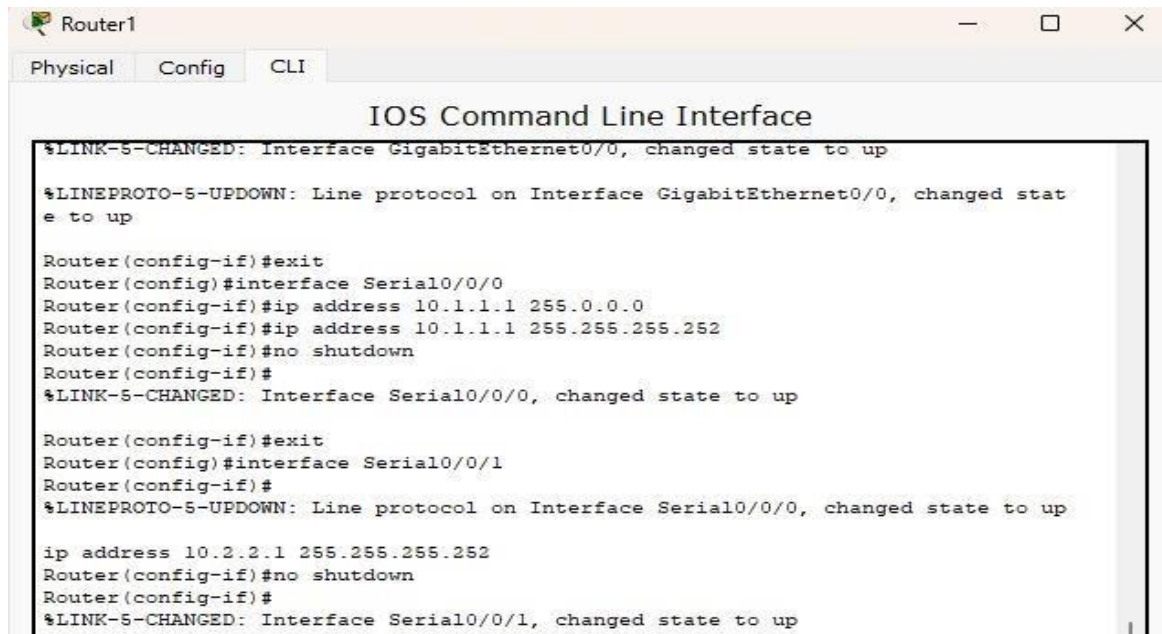


Router0

Physical Config CLI

IOS Command Line Interface

```
Router0>en
Router0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router0(config)#router rip
Router0(config-router)#network 192.168.1.0
Router0(config-router)#network 10.1.1.0
Router0(config-router)#^Z
Router0#
%SYS-5-CONFIG_I: Configured from console by console
exit
```



Router1

Physical Config CLI

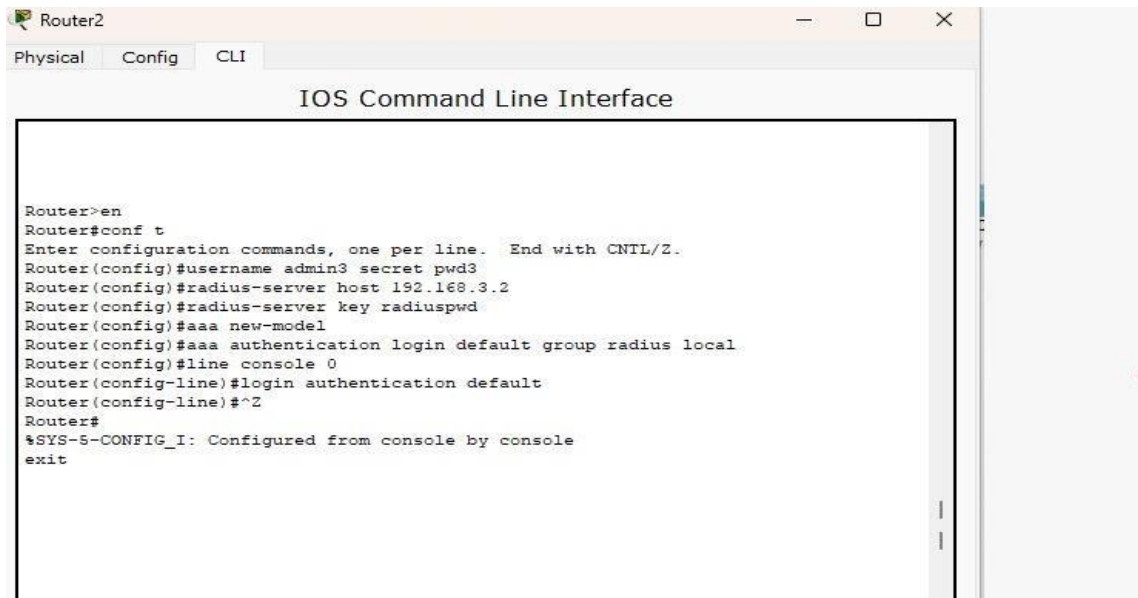
IOS Command Line Interface

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#ip address 10.1.1.1 255.0.0.0
Router(config-if)#ip address 10.1.1.1 255.255.255.252
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

Router(config-if)#exit
Router(config)#interface Serial0/0/1
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

ip address 10.2.2.1 255.255.255.252
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
```



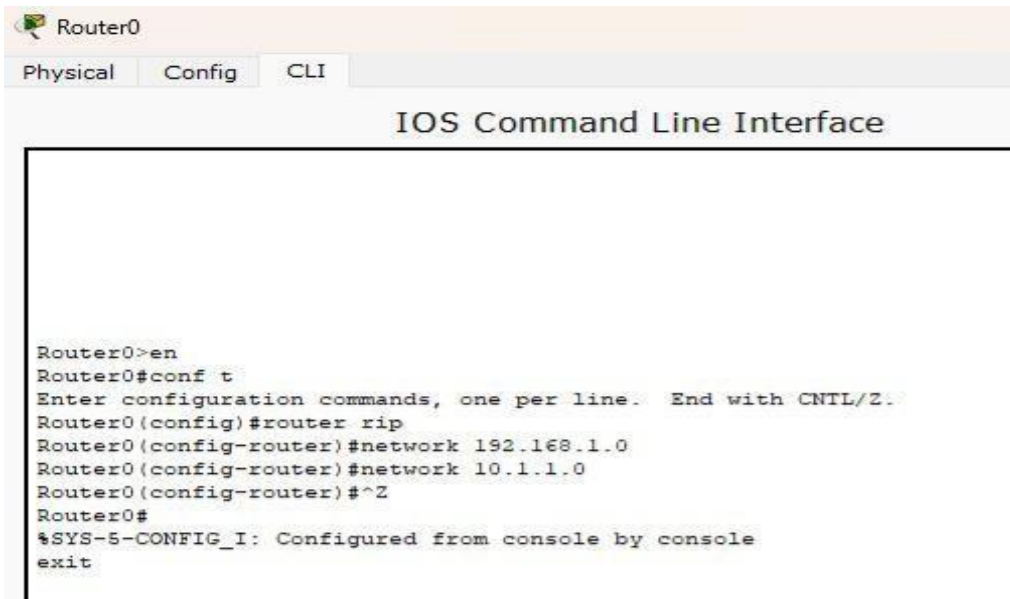
Router2

Physical Config CLI

IOS Command Line Interface

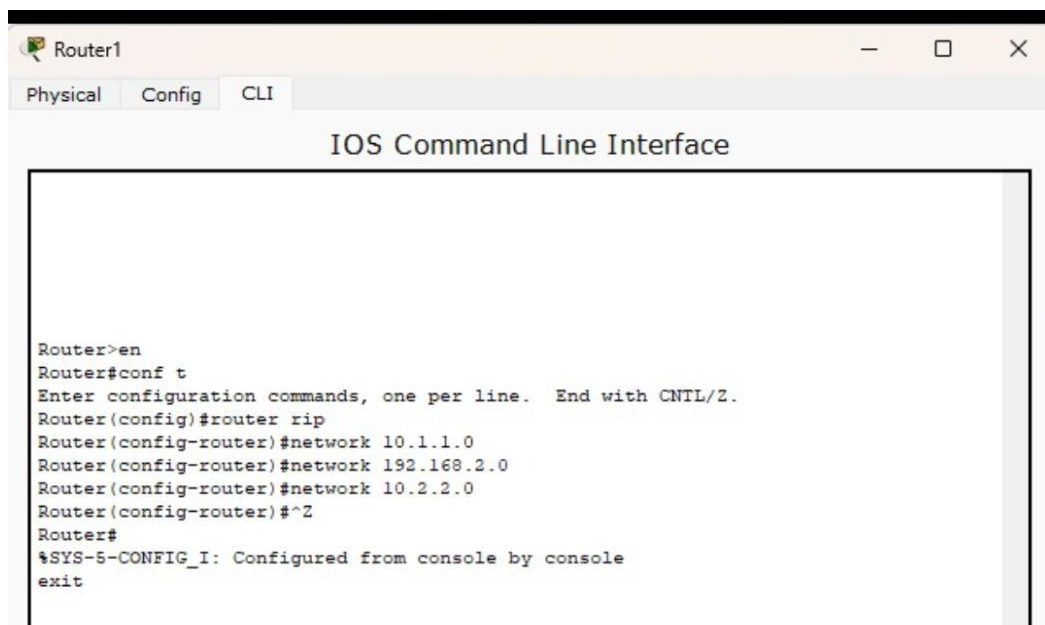
```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#username admin3 secret pwd3
Router(config)#radius-server host 192.168.3.2
Router(config)#radius-server key radiuspwd
Router(config)#aaa new-model
Router(config)#aaa authentication login default group radius local
Router(config)#line console 0
Router(config-line)#login authentication default
Router(config-line)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

CONFIGURE RIP ON ROUTERS



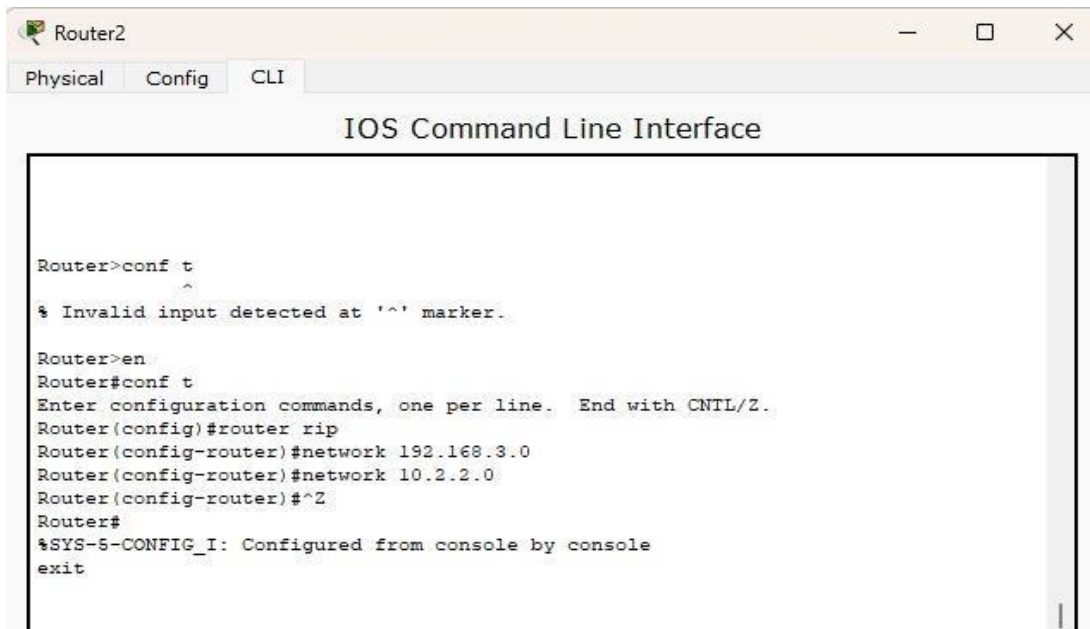
The screenshot shows the CLI interface of Router0. The tabs at the top are 'Physical', 'Config', and 'CLI'. The title bar says 'Router0'. The main window title is 'IOS Command Line Interface'. The command history is as follows:

```
Router0>en
Router0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router0(config)#router rip
Router0(config-router)#network 192.168.1.0
Router0(config-router)#network 10.1.1.0
Router0(config-router)#^Z
Router0#
%SYS-5-CONFIG_I: Configured from console by console
exit
```



The screenshot shows the CLI interface of Router1. The tabs at the top are 'Physical', 'Config', and 'CLI'. The title bar says 'Router1'. The main window title is 'IOS Command Line Interface'. The command history is as follows:

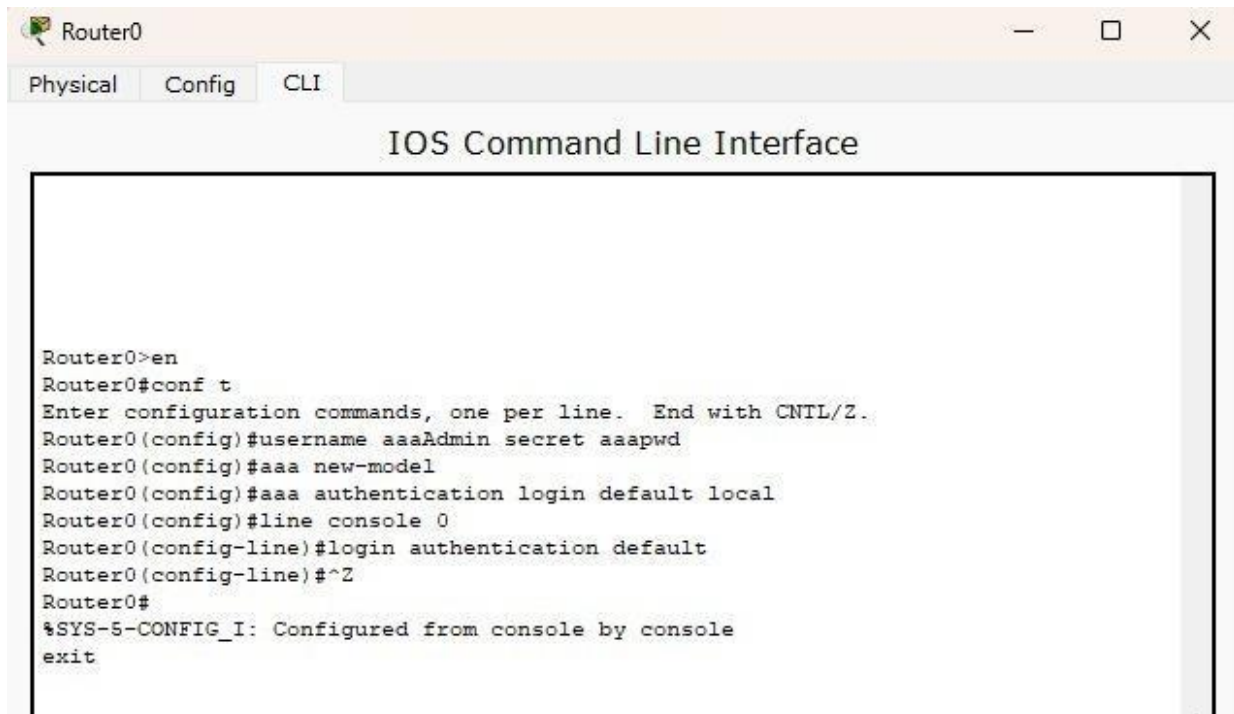
```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 10.1.1.0
Router(config-router)#network 192.168.2.0
Router(config-router)#network 10.2.2.0
Router(config-router)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
exit
```



The screenshot shows a window titled "Router2" with tabs for "Physical", "Config", and "CLI". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text is as follows:

```
Router>conf t
Router#conf t
% Invalid input detected at '^' marker.
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 192.168.3.0
Router(config-router)#network 10.2.2.0
Router(config-router)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

: CONFIGURE LOCAL AAA AUTHENTICATION FOR CONSOLELINES ON R1



The screenshot shows a window titled "Router0" with tabs for "Physical", "Config", and "CLI". The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal text is as follows:

```
Router0>en
Router0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router0(config)#username aaaAdmin secret aaapwd
Router0(config)#aaa new-model
Router0(config)#aaa authentication login default local
Router0(config)#line console 0
Router0(config-line)#login authentication default
Router0(config-line)#^Z
Router0#
%SYS-5-CONFIG_I: Configured from console by console
exit
```



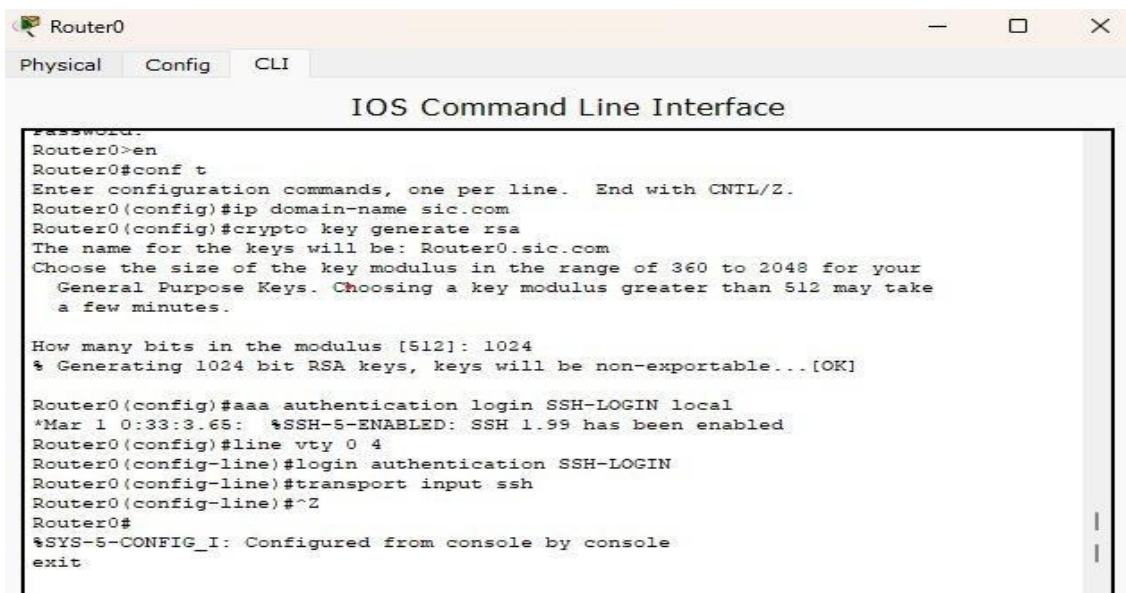
```
User Access Verification
```

```
Username: aaaAdmin
```

```
Password:
```

```
Router0>
```

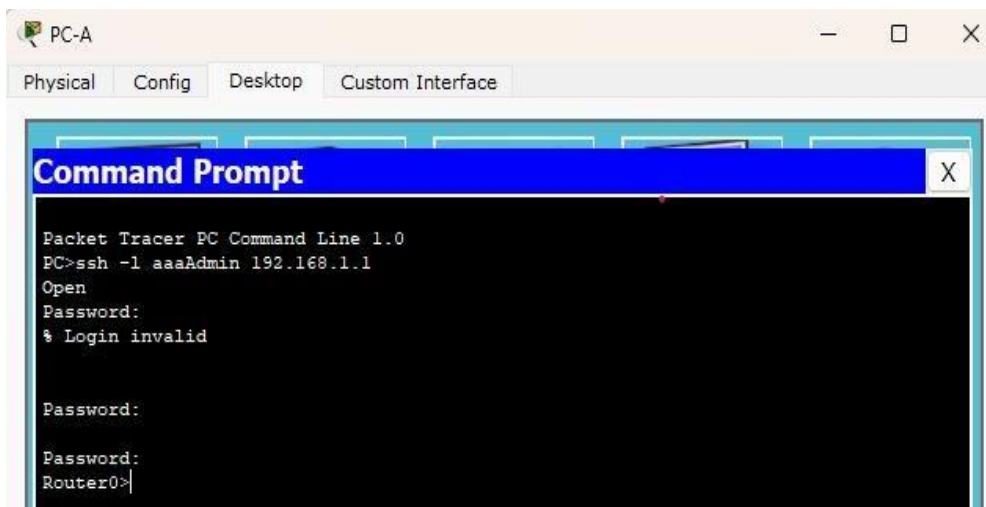
: FCONFIGURE LOCAL AAA AUTHENTICATION FOR VTY LINES ON R1



```
Router0
Physical Config CLI
IOS Command Line Interface
Router0>en
Router0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router0(config)#ip domain-name sic.com
Router0(config)#crypto key generate rsa
The name for the keys will be: Router0.sic.com
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

Router0(config)#aaa authentication login SSH-LOGIN local
*Mar 1 0:33:3.65: %SSH-S-ENABLED: SSH 1.99 has been enabled
Router0(config)#line vty 0 4
Router0(config-line)#login authentication SSH-LOGIN
Router0(config-line)#transport input ssh
Router0(config-line)#^Z
Router0#
%SYS-S-CONFIG_I: Configured from console by console
exit
```



```
PC-A
Physical Config Desktop Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ssh -l aaaAdmin 192.168.1.1
Open
Password:
% Login invalid

Password:

Password:
Router0>
```


: CONFIGURE SERVER-BASED AAA AUTHENTICATION USING TACACS+ ON R2

TACACS+ Server

Physical Config Desktop Custom Interface

GLOBAL

- Settings
- Algorithm Settings

SERVICES

- HTTP
- DHCP
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- FIREWALL
- IPv6 FIREWALL

INTERFACE

- FastEthernet0

AAA

Service ☒ On ☐ Off Radius Port **1645**

Network Configuration

Client Name **R2** Client IP **192.168.2.1**

Secret **tacacspwd** ServerType **Tacacs**

	ClientName	ClientIP	ServerType	Key	
1	R2	192.168.2.1	Tacacs	tacacspwd	+
					-

User Setup

UserName **admin2** Password **pwd2**

	UserName	Password	
1	admin2	pwd2	+
			-

Router1

Physical Config CLI

IOS Command Line Interface

```
Router>en
Router#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#username admin2 secret pwd2
Router(config)#tacacs-server host 192.168.2.2
Router(config)#tacacs-server key tacacspwd
Router(config)#aaa new-model
Router(config)#aaa authentication login default group tacacs+ local
Router(config)#line console 0
^
% Invalid input detected at '^' marker.
Router(config)#line console 0
Router(config-line)#login authentication default
Router(config-line)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

```
User Access Verification

Username: admin2
Password:
Router>
```

: CONFIGURE SERVER-BASED AAA AUTHENTICATION USING RADIUS ON R3

The screenshot shows the 'RADIUS Server' configuration window with the 'Config' tab selected. The left sidebar lists various configuration categories: GLOBAL (Settings, Algorithm Settings), SERVICES (HTTP, DHCP, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, FIREWALL, IPv6 FIREWALL), and INTERFACE (FastEthernet0). The 'AAA' service is selected under SERVICES.

AAA Configuration:

- Service:** On (radio button selected), Off (radio button unselected)
- Radius Port:** 1645
- Network Configuration:**
 - Client Name:** R3
 - Client IP:** 192.168.3.1
 - Secret:** radiuspwd
 - ServerType:** Radius (dropdown menu)
 - Table:**

	ClientName	ClientIP	ServerType	Key	
1	R3	192.168.3.1	Radius	radiuspwd	+ -
- User Setup:**
 - UserName:** admin3
 - Password:** pwd3
 - Table:**

	UserName	Password	
1	admin3	pwd3	+ -

```
User Access Verification

Username: admin3
Password:
Router>
```

DATE : 16/01/24.

SECURITY IN COMPUTING

IT21036

DATE : 16/01/24.

SECURITY IN COMPUTING

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