

Date: 18/08/2025

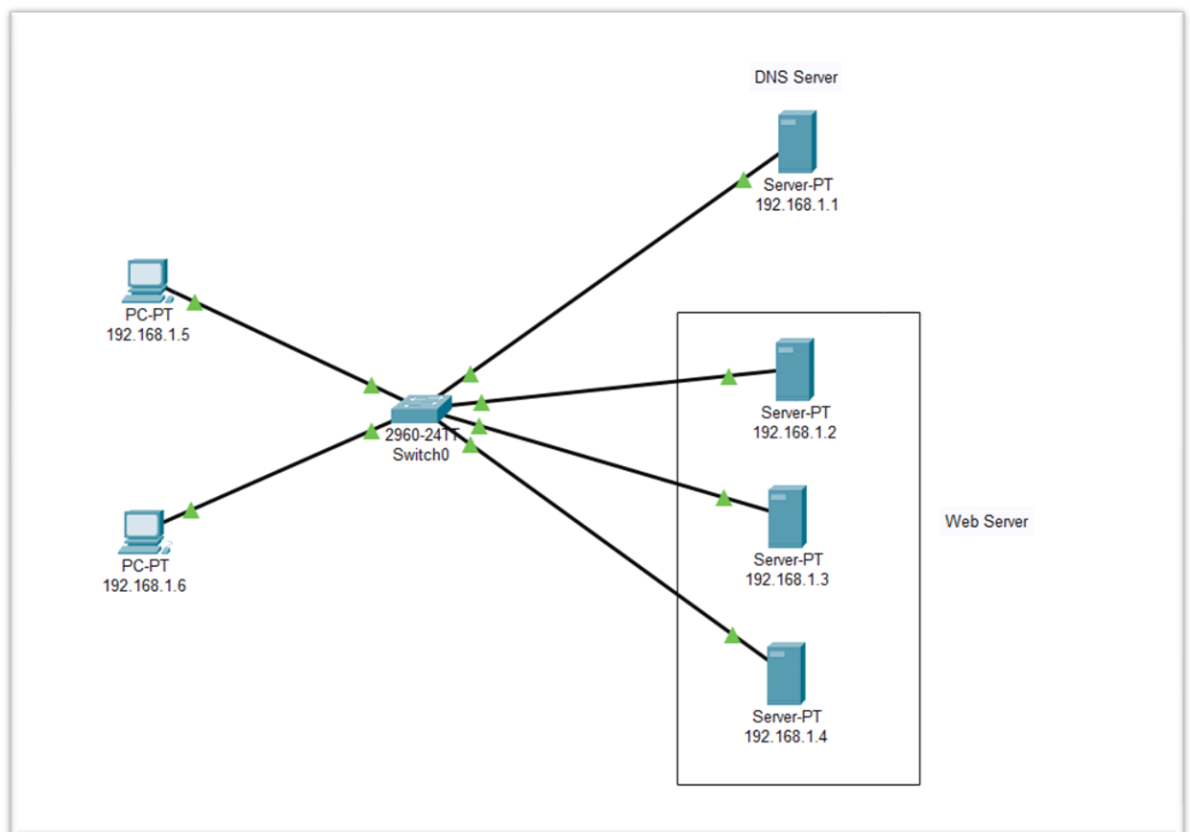
Lab Practical #07:

Study the application layer protocol DNS, DHCP, FTP.

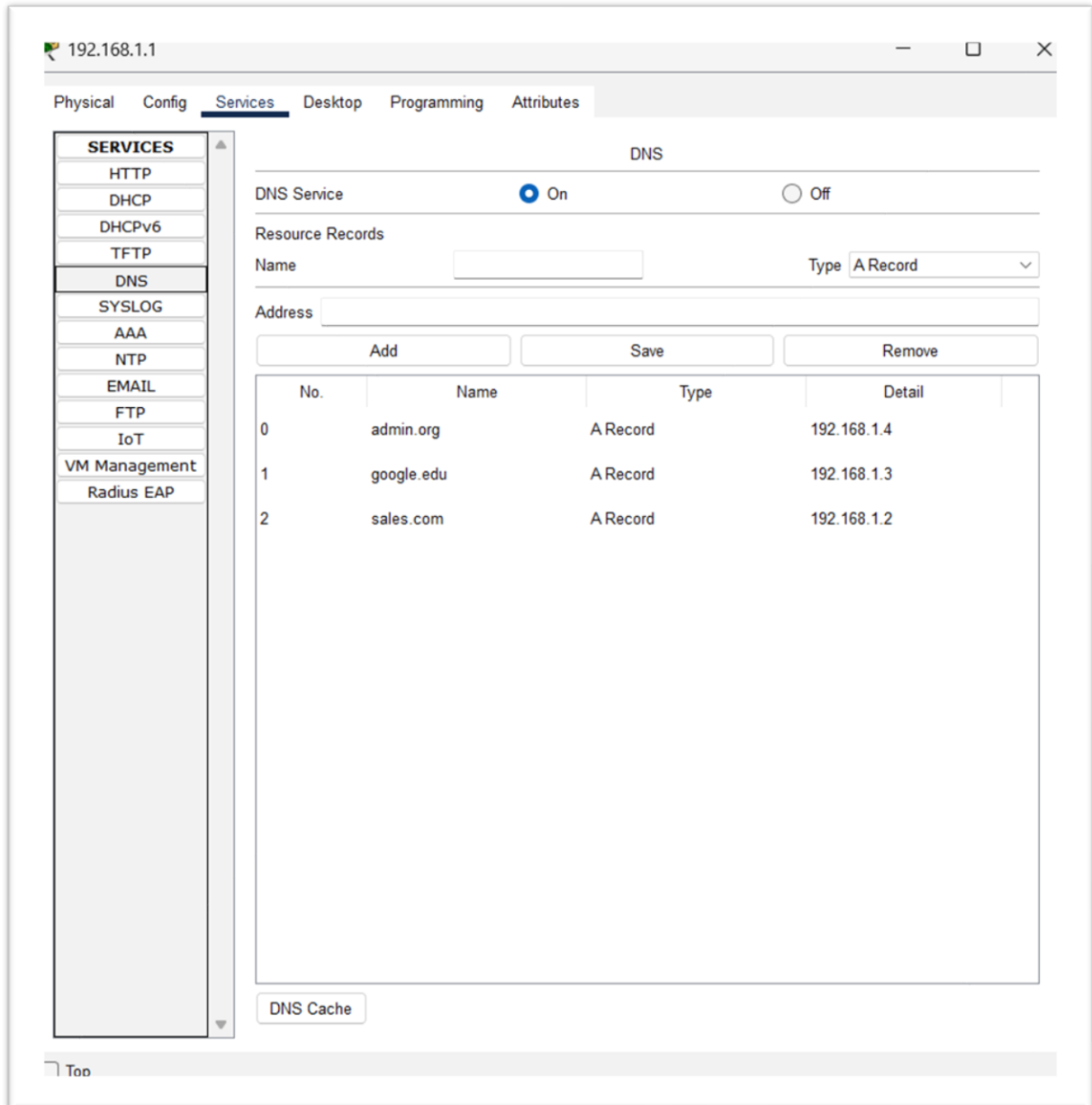
Practical Assignment #07:

1. Implement the application layer protocol DNS, DHCP, and FTP. Also check connectivity between them using ping command or PDU utility.

1) DNS



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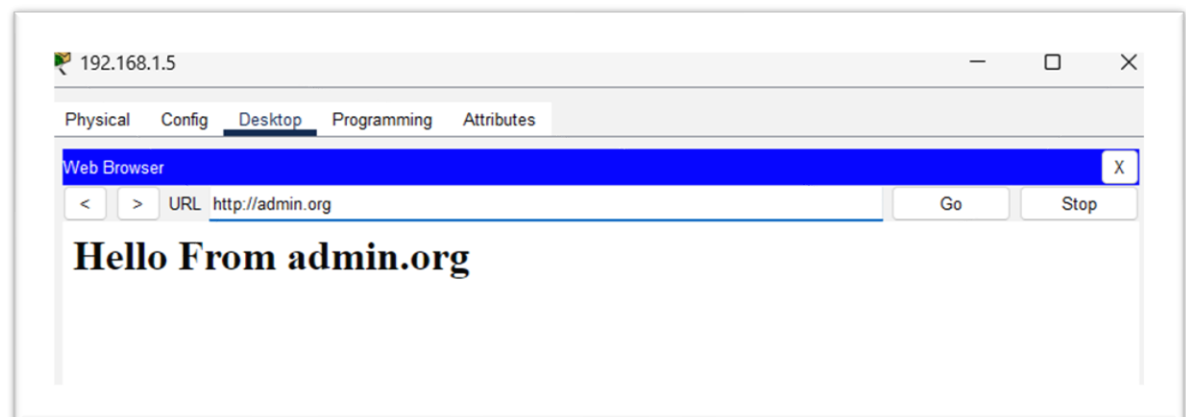
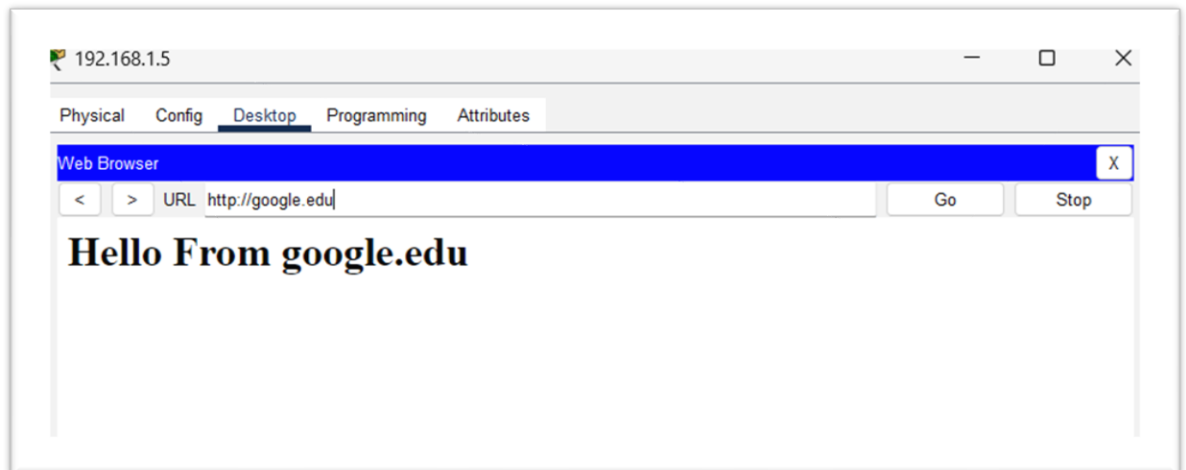
The screenshot shows the MikroTik WinBox interface for configuring DNS services on a device with IP 192.168.1.1. The 'Services' tab is selected, and the 'DNS' service is enabled. The 'Resource Records' section shows a table of configured A records.

No.	Name	Type	Detail
0	admin.org	A Record	192.168.1.4
1	google.edu	A Record	192.168.1.3
2	sales.com	A Record	192.168.1.2

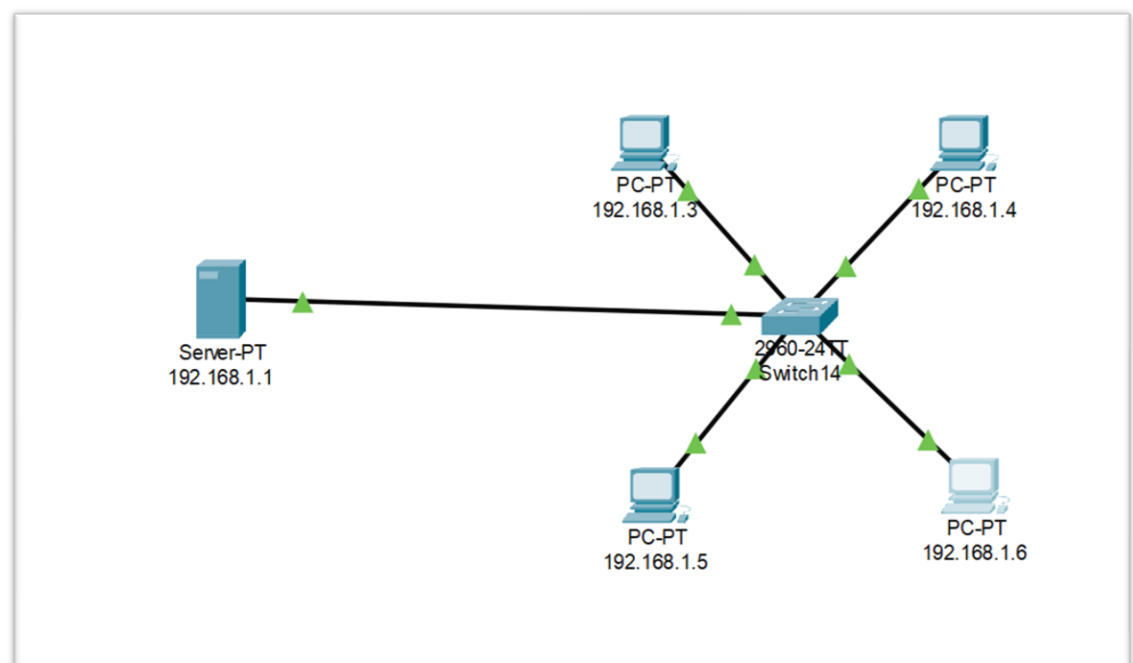


The screenshot shows a web browser window with the address bar set to 'http://sales.com'. The page displays the text 'Hello From sales.com', indicating that the DNS configuration is working correctly.

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2) DHCP



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192.168.3.1

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 192 168 3 2

Subnet Mask: 255 255 255 0

Maximum Number of Users: 254

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	192.168.3.2	255.255.255.0	254	0.0.0.0	0.0.0.0

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192.168.1.0

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.1.6

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::230:F2FF:FEDA:C539

Default Gateway

DNS Server

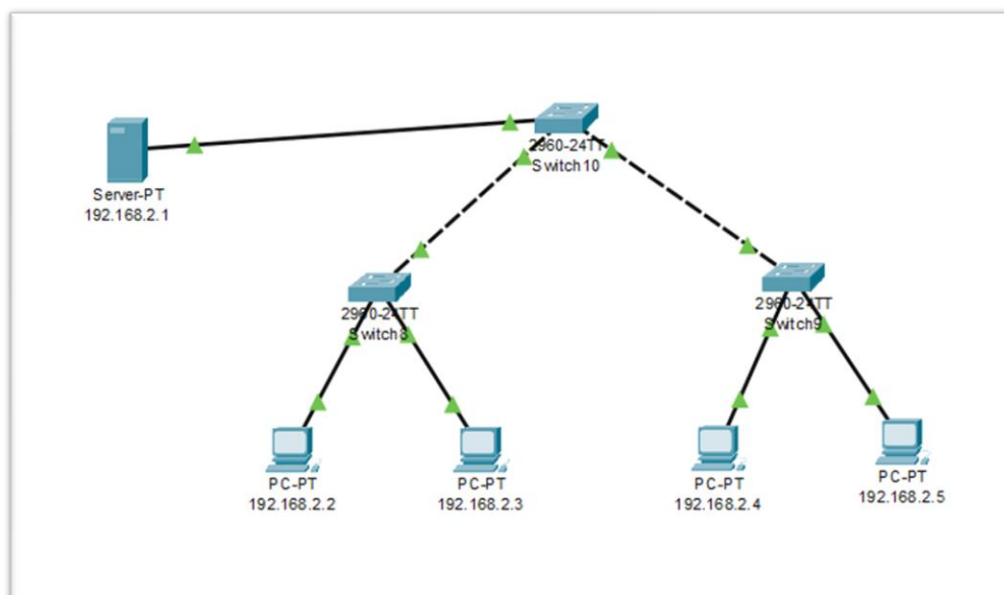
802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password



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192.168.1.1

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
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- NTP
- EMAIL
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DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 192 168 1 2

Subnet Mask: 255 255 255 0

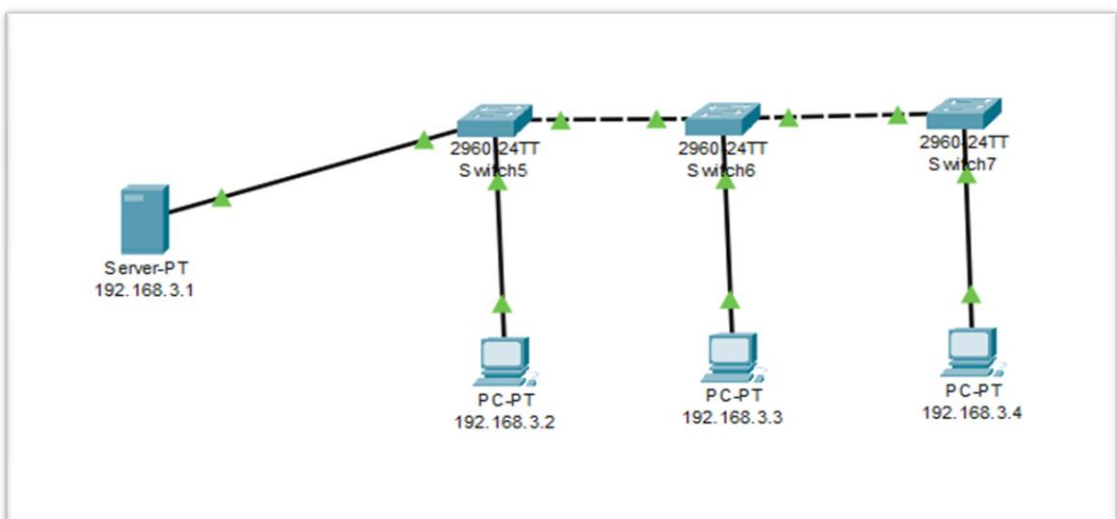
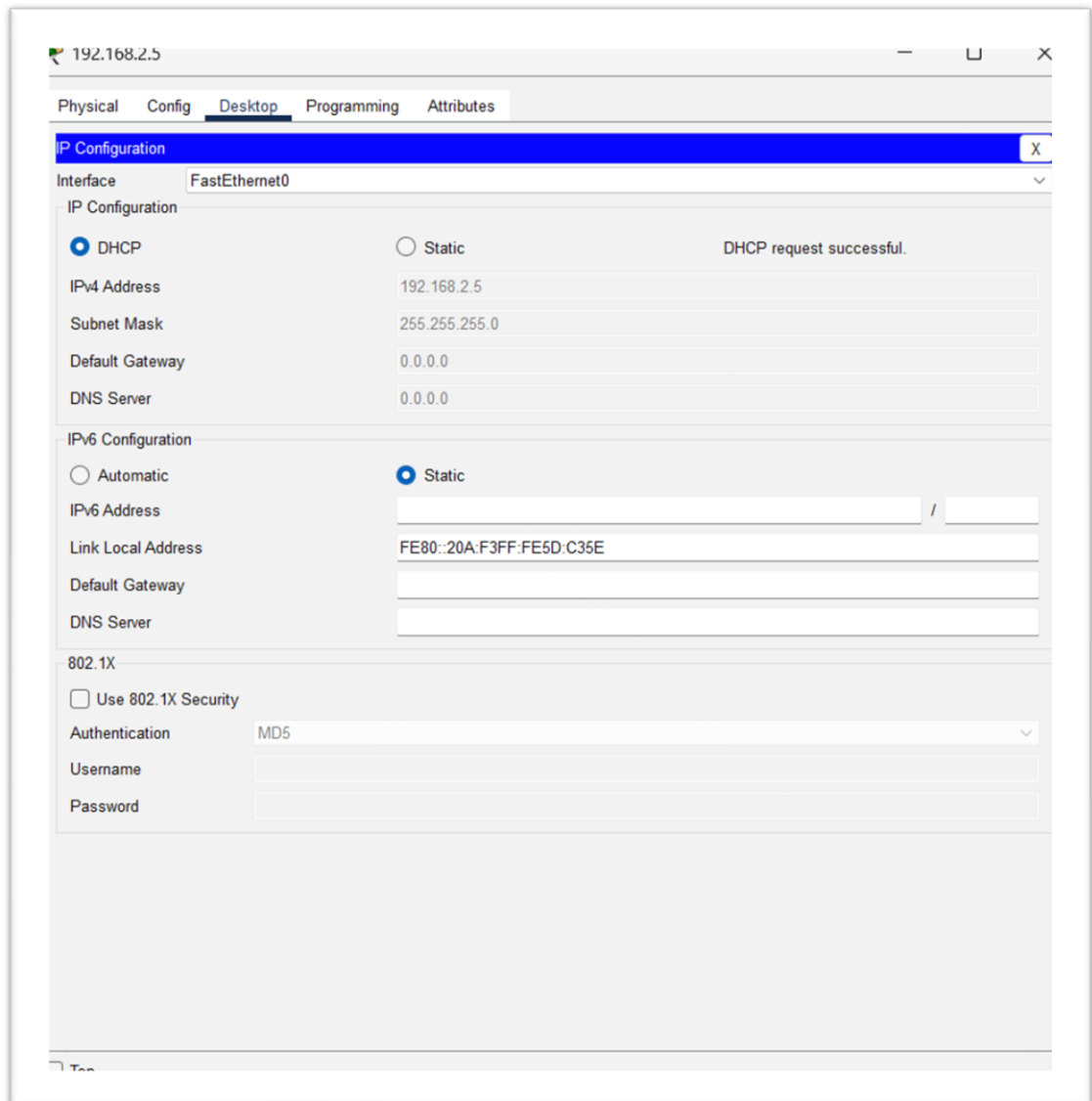
Maximum Number of Users: 254

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	192.168.1.2	255.255.255.0	254	0.0.0.0	0.0.0.0

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192.168.1.2

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 192 168 2 2

Subnet Mask: 255 255 255 0

Maximum Number of Users: 254

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	192.168.2.2	255.255.255.0	254	0.0.0.0	0.0.0.0

Top



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192.168.3.4

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface: FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address: 192.168.3.4

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::260:3EFF:FE76:558E

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

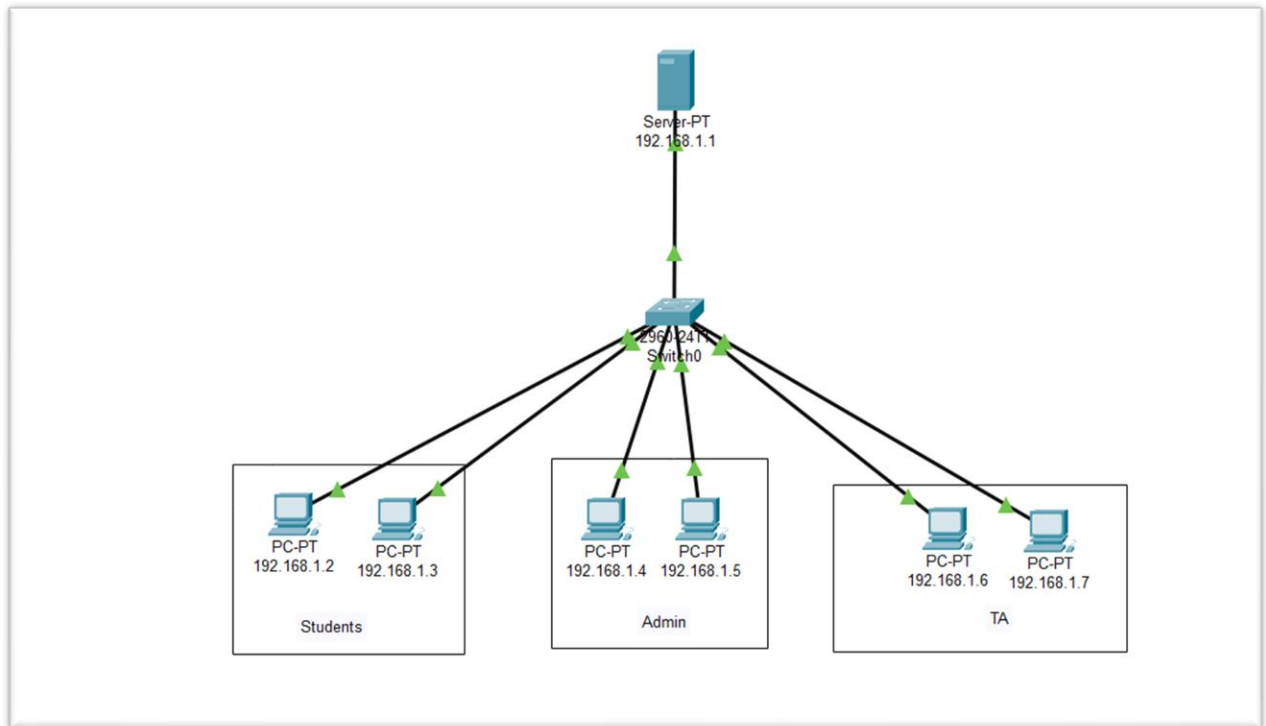
Authentication: MD5

Username:

Password:

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3) FTP :



192.168.1.1

PhysicalConfig**Services**DesktopProgrammingAttributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

FTP

Service

On

Off

User Setup

Username

Password

☐ Write

☐ Read

☐ Delete

☐ Rename

☐ List

	Username	Password	Permission
1	cisco	cisco	RWDNL
2	student	student	R
3	ta	ta	RNL
4	admin	admin	RWDNL

Add

Save

Remove

File

1	asa842-k8.bin
2	asa923-k8.bin
3	c1841-advipservicesk9-mz.124-15.T1.bin
4	c1841-ipbase-mz.123-14.T7.bin
5	c1841-ipbasek9-mz.124-12.bin
6	c1900-universalk9-mz.SPA.155-3.M4a.bin
7	c2600-advipservicesk9-mz.124-15.T1.bin

Remove

Top

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```
C:\>
C:\>ftp 192.168.1.1
Trying to connect...192.168.1.1
Connected to 192.168.1.1
220- Welcome to PT Ftp server
Username:admin
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir

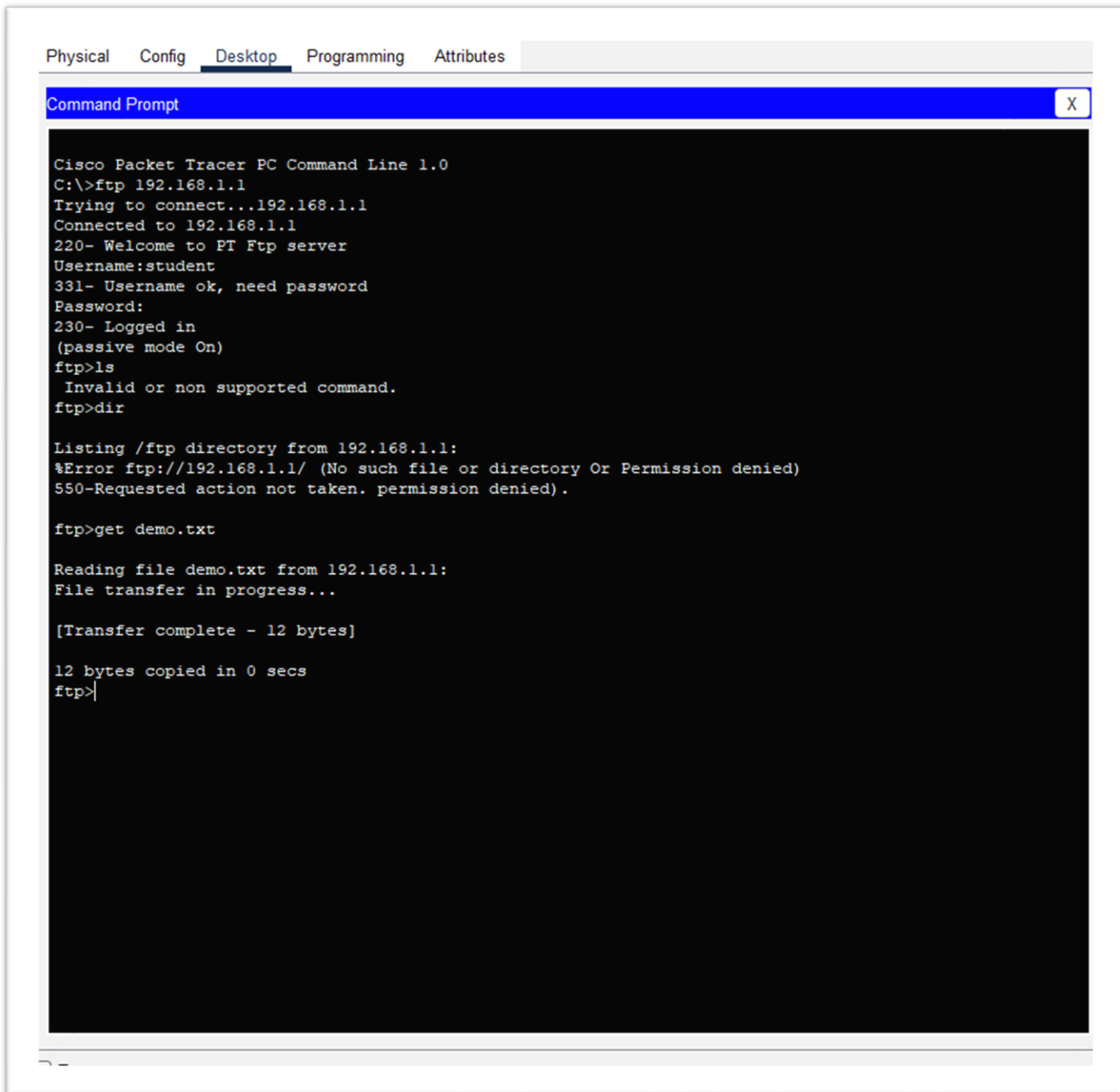
Listing /ftp directory from 192.168.1.1:
 0 : asa842-k8.bin                    5571584
 1 : asa923-k8.bin                    30468096
 2 : cl841-advipservicesk9-mz.124-15.T1.bin 33591768
 3 : cl841-ipbase-mz.123-14.T7.bin    13832032
 4 : cl841-ipbasek9-mz.124-12.bin    16599160
 5 : cl900-universalk9-mz.SPA.155-3.M4a.bin 33591768
 6 : c2600-advipservicesk9-mz.124-15.T1.bin 33591768
 7 : c2600-i-mz.122-28.bin           5571584
 8 : c2600-ipbasek9-mz.124-8.bin     13169700
 9 : c2800nm-advipservicesk9-mz.124-15.T1.bin 50938004
10 : c2800nm-advipservicesk9-mz.151-4.M4.bin 33591768
11 : c2800nm-ipbase-mz.123-14.T7.bin 5571584
12 : c2800nm-ipbasek9-mz.124-8.bin   15522644
13 : c2900-universalk9-mz.SPA.155-3.M4a.bin 33591768
14 : c2950-i6q412-mz.121-22.EA4.bin 3058048
15 : c2950-i6q412-mz.121-22.EA8.bin 3117390
16 : c2960-lanbase-mz.122-25.FX.bin 4414921
17 : c2960-lanbase-mz.122-25.SEE1.bin 4670455
18 : c2960-lanbasek9-mz.150-2.SE4.bin 4670455
19 : c3560-advipservicesk9-mz.122-37.SE1.bin 8662192
20 : c3560-advipservicesk9-mz.122-46.SE.bin 10713279
21 : c800-universalk9-mz.SPA.152-4.M4.bin 33591768
22 : c800-universalk9-mz.SPA.154-3.M6a.bin 83029236
23 : cat3k_caa-universalk9.16.03.02.SPA.bin 505532849
24 : cgr1000-universalk9-mz.SPA.154-2.CG 159487552
25 : cgr1000-universalk9-mz.SPA.156-3.CG 184530138
26 : ir800-universalk9-bundle.SPA.156-3.M.bin 160968869
27 : ir800-universalk9-mz.SPA.155-3.M 61750062
28 : ir800-universalk9-mz.SPA.156-3.M 63753767
29 : ir800_yocto-1.7.2.tar          2877440
30 : ir800_yocto-1.7.2_python-2.7.3.tar 6912000
31 : pt1000-i-mz.122-28.bin         5571584
32 : pt3000-i6q412-mz.121-22.EA4.bin 3117390
ftp>put demo.txt

Writing file demo.txt to 192.168.1.1:
File transfer in progress...

[Transfer complete - 12 bytes]

12 bytes copied in 0.08 secs (150 bytes/sec)
ftp>
```

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The screenshot shows the Cisco Packet Tracer PC Command Line interface. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the following text:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 192.168.1.1
Trying to connect...192.168.1.1
Connected to 192.168.1.1
220- Welcome to PT Ftp server
Username:student
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>ls
Invalid or non supported command.
ftp>dir
Listing /ftp directory from 192.168.1.1:
%Error ftp://192.168.1.1/ (No such file or directory Or Permission denied)
550-Requested action not taken. permission denied).

ftp>get demo.txt
Reading file demo.txt from 192.168.1.1:
File transfer in progress...

[Transfer complete - 12 bytes]

12 bytes copied in 0 secs
ftp>
```