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Course Name: Computer Networks LAB

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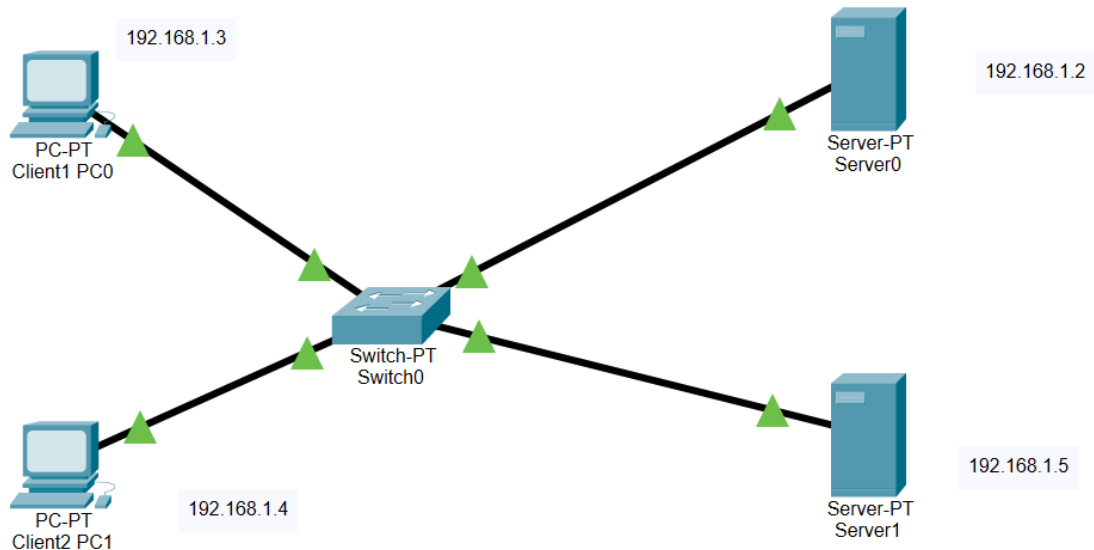
Submitted on : 10/05/2022

LAB 06

TASK 1:

Step 1:

Build a network topology.



Step 2: Configure IP addresses on the PCs, DNS Server and the Mail Server.

- Mail Server IP address: 192.168.1.2
- PC0 IP address: 192.168.1.4
- PC1 IP address: 192.168.1.3
- DNS server IP address: 192.168.1.5

Step 3: Configure mail clients on the PCs and mail service on the generic server.

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name: client1

Email Address: client1@mail.com

Server Information

Incoming Mail Server: mail.com

Outgoing Mail Server: mail.com

Logon Information

User Name: client1

Password: ●●●●

Save Clear Reset

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name: client2

Email Address: client2@mail.com

Server Information

Incoming Mail Server: mail.com

Outgoing Mail Server: mail.com

Logon Information

User Name: client2

Password: ●●●●

Save Clear Reset

Physical
Config
Services
Desktop
Programming
Attributes

SERVICES

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

EMAIL

SMTP Service

☒ ON
☐ OFF

POP3 Service

☒ ON
☐ OFF

Domain Name:

User Setup

User
Password

client1

client2

+

-

Step 4: Configure the DNS server.

Physical
Config
Services
Desktop
Programming
Attributes

SERVICES

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

DNS

DNS Service

☐ On
☒ Off

Resource Records

Name
Type

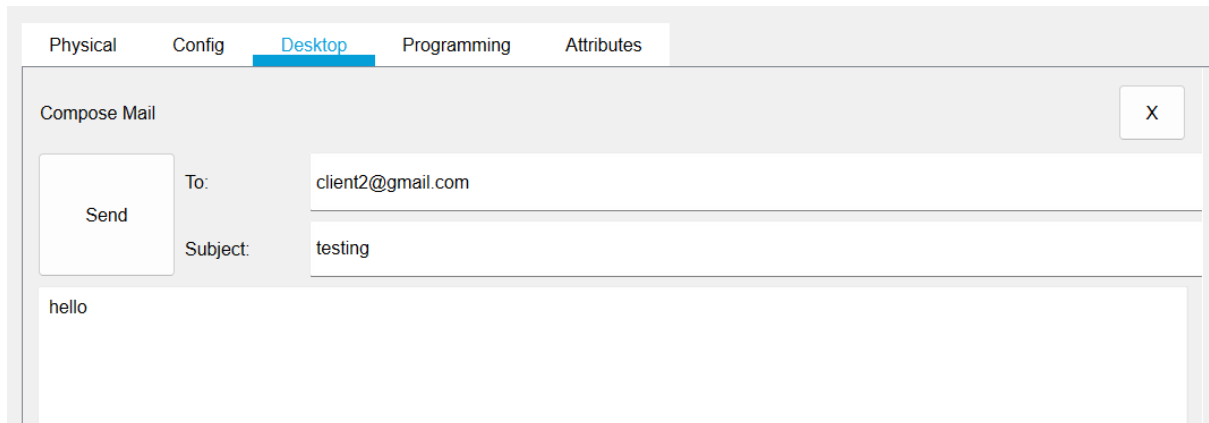
A Record

Address

No.	Name	Type	Detail
0	mail.com	A Record	192.168.1.2

Step 5: Testing the email service.

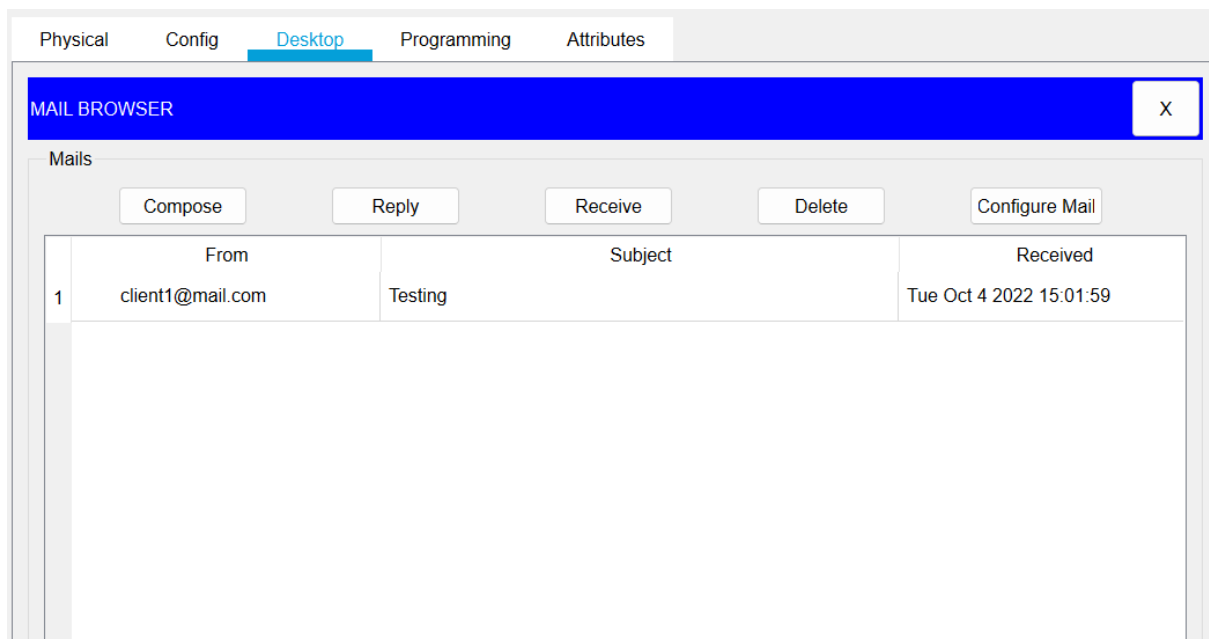
We will to PC0 email client, compose an email and send it to PC1 email address(client2@mail.com).



The screenshot shows a 'Compose Mail' window with a tabbed interface. The 'Desktop' tab is selected. The window contains a 'Send' button, a 'To:' field with the value 'client2@gmail.com', a 'Subject:' field with the value 'testing', and a text area with the content 'hello'.

Physical	Config	Desktop	Programming	Attributes
Compose Mail				
<div>Send</div>				
To: client2@gmail.com				
Subject: testing				
hello				

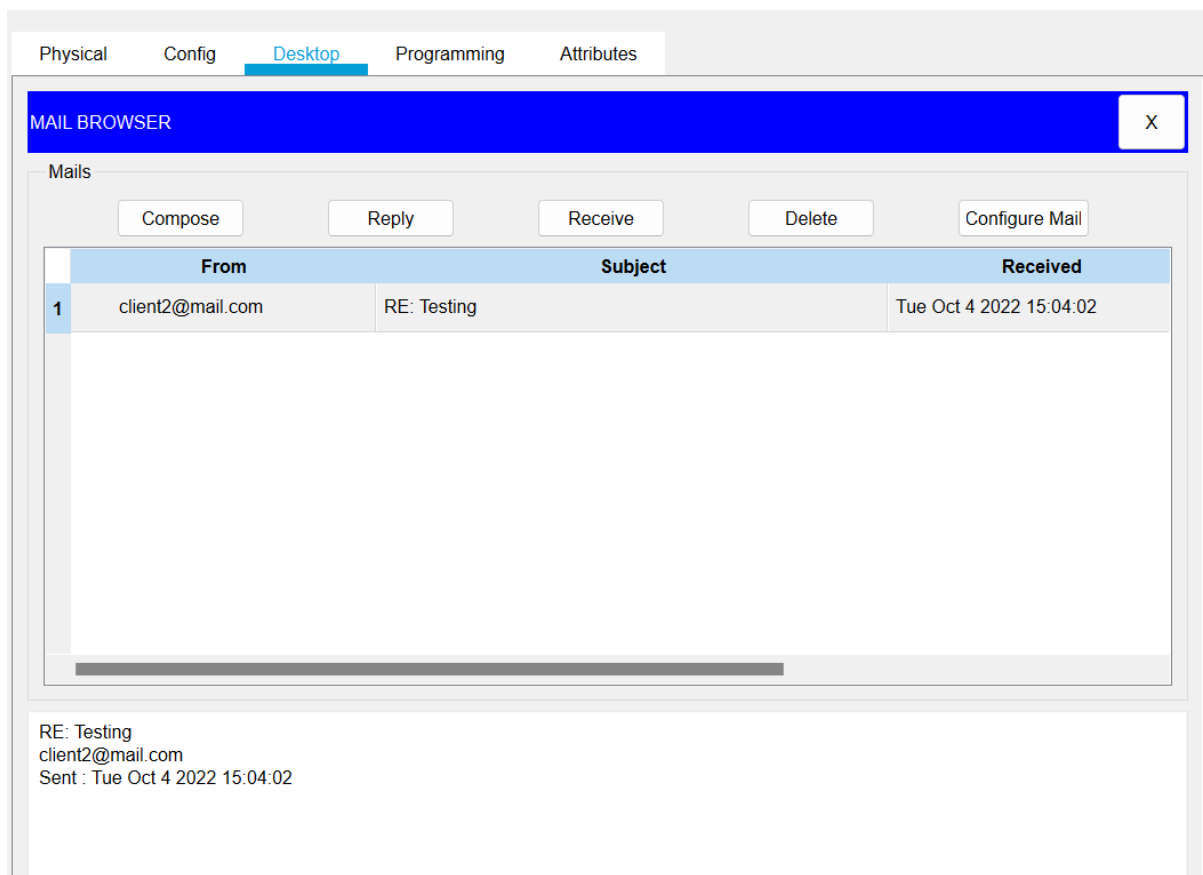
And then we will check whether the email from PC0 is received on PC1. On the email client of PC1.



The screenshot shows a 'MAIL BROWSER' window with a tabbed interface. The 'Desktop' tab is selected. The window contains a 'MAILS' section with a table of received emails. The table has columns for 'From', 'Subject', and 'Received'. The first row shows an email from 'client1@mail.com' with the subject 'Testing' received on 'Tue Oct 4 2022 15:01:59'.

Physical	Config	Desktop	Programming	Attributes
MAIL BROWSER				
Mails				
<div>Compose</div>				
<div>Reply</div>				
<div>Receive</div>				
<div>Delete</div>				
<div>Configure Mail</div>				
	From	Subject	Received	
1	client1@mail.com	Testing	Tue Oct 4 2022 15:01:59	

And we will send reply and check weather reply is received from PC1 to PC0.



Task 2: Configure an FTP server in Packet Tracer

Step 1: Build a network topology:



Step 2: Configure static IP addresses on the Laptop and the server.

Laptop: IP address: 192.168.1.1 Subnet Mask: 255.255.255.0

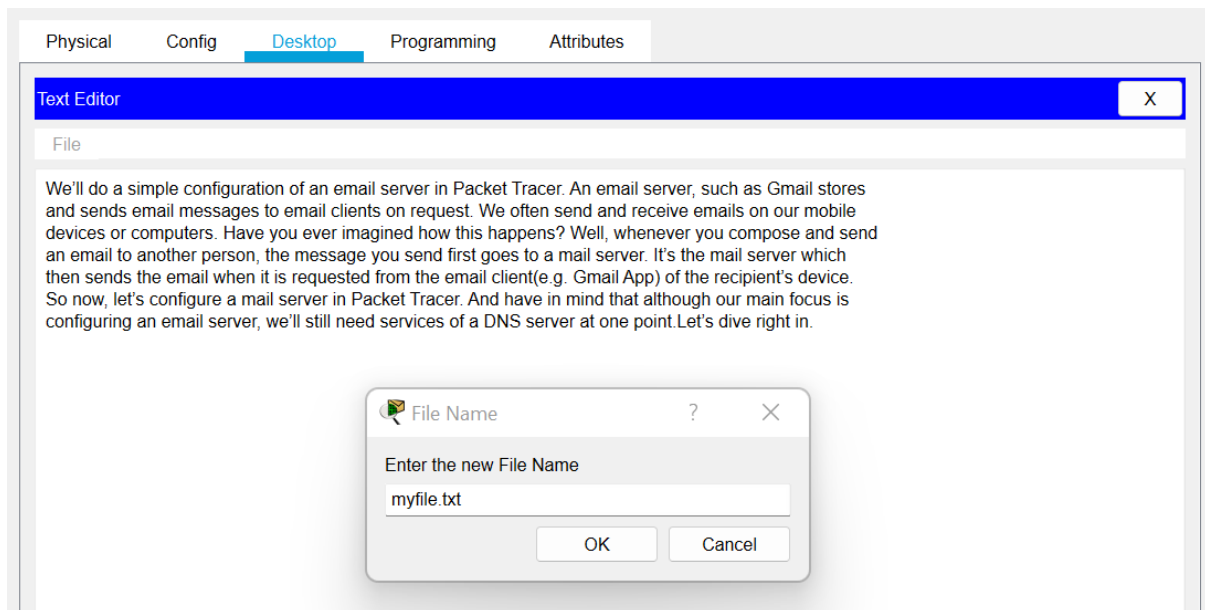
Server: IP address: 192.168.1.2 Subnet Mask: 255.255.255.0

Step 3: try using an FTP client built in the Laptop to send files to an FTP server configured in the Server.

The screenshot shows the 'Desktop' tab of a Packet Tracer PC configuration window. A 'Command Prompt' window is open, displaying the following text:

```
Packet Tracer PC Command Line 1.0
C:\>ftp 192.168.1.2
Trying to connect...192.168.1.2
Connected to 192.168.1.2
220- Welcome to PT Ftp server
Username:cisco
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

Step 4: Create a file in the Laptop then upload it to the server using FTP.



Now upload the file from the Laptop to the server using FTP.

```
ftp>put myfile.txt to 192.168.1.2  
  
Writing file myfile.txt to 192.168.1.2:  
File transfer in progress...  
  
[Transfer complete - 761 bytes]  
  
761 bytes copied in 0.049 secs (15530 bytes/sec)  
ftp>
```


Step 5: Go to the Server FTP directory to verify if the file sent has been received

Physical

Config

Services

Desktop

Programming

Attributes

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	<div>Add</div>

Save

Remove

File

30	ir800_yocto-1.7.2.tar
31	ir800_yocto-1.7.2_python-2.7.3.tar
32	myfile.txt
33	pt1000-i-mz.122-28.bin
34	pt3000-i6q4l2-mz.121-22.EA4.bin

Remove

Task 3: Create and Upload html file to HTTP server directory Using FTP

We will use the same network topology as we used in our earlier task and will assign same static IP address and subnet mask to ftp server and our laptop.

We will write **ftp** in our CLI and give username and password. And then we will write **cd /http** and then we will write **put <filename> to <server IP>**.

```
ftp>cd /http
ftp>
Working directory changed to /http successfully
ftp>writing file myfile.txt to 192.168.1.2
Invalid or non supported command.
ftp>put myfile.txt to 192.168.1.2

Writing file myfile.txt to 192.168.1.2:
File transfer in progress...

[Transfer complete - 761 bytes]

761 bytes copied in 0.041 secs (18560 bytes/sec)
ftp>
```

And then we will check up in the **HTTP** directory in the server and verify that the file uploaded from the Laptop.

The screenshot shows the WinBox interface with the 'Services' tab selected. On the left, a list of services includes HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. On the right, the 'HTTP' and 'HTTPS' service configuration panels are shown, both with the 'On' radio button selected. Below these panels is the 'File Manager' section, which contains a table of files stored on the device.

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)
6	myfile.txt	(edit)	(delete)

Another example for http file is we have a file for flex login page and we will upload it on http using ftp and then we will see from web browser if its working.

```
C:\>ftp 192.168.1.2
Trying to connect...192.168.1.2
Connected to 192.168.1.2
220- Welcome to PT Ftp server
Username:cisco
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>cd /http
ftp>
Working directory changed to /http successfully
ftp>put flex.html to 192.168.1.2

Writing file flex.html to 192.168.1.2:
File transfer in progress...

[Transfer complete - 1762 bytes]

1762 bytes copied in 0.02 secs (88100 bytes/sec)
ftp>
```

Physical Config **Services** Desktop Programming Attributes

SERVICES

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

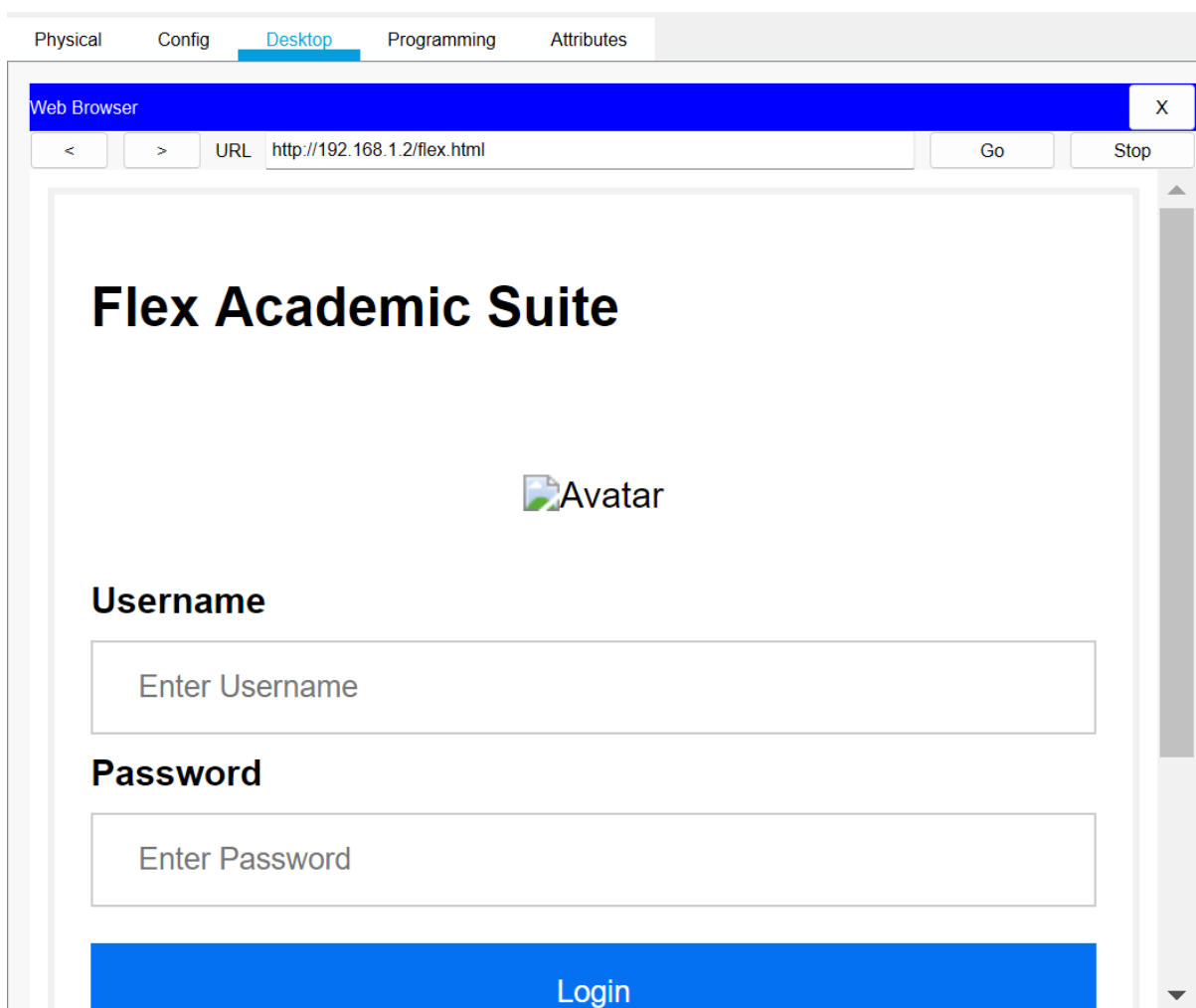
HTTP

HTTP ☒ On ☐ Off

HTTPS ☒ On ☐ Off

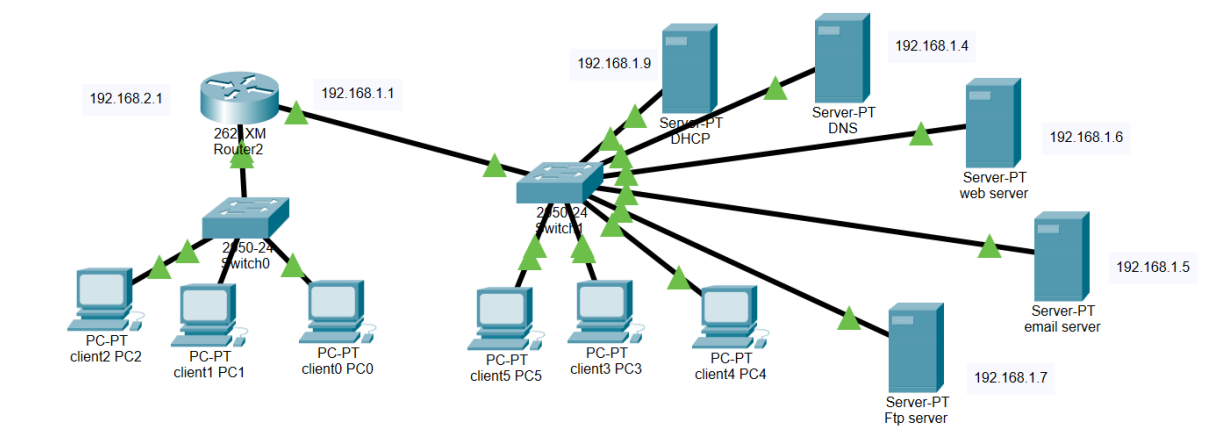
File Manager

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	flex.html	(edit)	(delete)
4	helloworld.html	(edit)	(delete)
5	image.html	(edit)	(delete)
6	index.html	(edit)	(delete)
7	myfile.txt	(edit)	(delete)



Task 4: Configure Mail server, Ftp Server, DHCP Server, DNS Server and web Server in a single topology, use router and switch.

Step1: build the network topology.



Step 2: Configure IP addresses on the PCs, router, DNS Server, DHCP server, Web server, ftp server and the Mail Server.

- Mail Server IP address: 192.168.1.5
- DNS server IP address: 192.168.1.2
- DHCP server IP address: 192.168.1.9
- web server IP address: 192.168.1.6
- ftp server IP address: 192.168.1.7
- PC5 IP address: 192.168.1.3
- router interface fa0/0 IP address: 192.168.2.1
- router interface fa0/1 IP address: 192.168.1.1

Step 3: configure services of DHCP and make IP pool.

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: 192.168.1.1

DNS Server: 192.168.1.4

Start IP Address: 192 168 1 20

Subnet Mask: 255 255 255 0

Maximum Number of Users: 236

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	192.168.1.1	192.168.1.4	192.168.1.20	255.255.255.0	236	0.0.0.0	0.0.0.0
Pool2	192.168.2.1	192.168.1.4	192.168.2.20	255.255.255.0	236	0.0.0.0	0.0.0.0

Step 4: Add Domain name in DNS server for other servers.

Physical Config **Services** Desktop Programming Attributes

SERVICES

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

DNS

DNS Service: ☒ On ☐ Off

Resource Records

Name: Type: A Record

Address:

No.	Name	Type	Detail
0	mail.com	A Record	192.168.1.5
1	www.dhcp.com	A Record	192.168.1.9
2	www.pwr.nu.edu.pk	A Record	192.168.1.6

Step 5: Configure mail clients on the PCs.

PC(0)

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name: client0

Email Address client0@mail.com

Server Information

Incoming Mail Server mail.com

Outgoing Mail Server mail.com

Logon Information

User Name: client0

Password: ●●●●

Save Clear Reset

PC(1)

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name: client1

Email Address client1@mail.com

Server Information

Incoming Mail Server mail.com

Outgoing Mail Server mail.com

Logon Information

User Name: client1

Password: ●●●●

Save Clear Reset

PC(2)

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name: client2

Email Address: client2@mail.com

Server Information

Incoming Mail Server: mail.com

Outgoing Mail Server: mail.com

Logon Information

User Name: client2

Password:

Save Clear Reset

PC(3)

Physical Config **Desktop** Programming Attributes

Configure Mail X

User Information

Your Name: client3

Email Address: client3@mail.com

Server Information

Incoming Mail Server: mail.com

Outgoing Mail Server: mail.com

Logon Information

User Name: client3

Password:

Save Clear Reset

PC(4)

Physical

Config

Desktop

Programming

Attributes

Configure Mail

X

User Information

Your Name:client4

Email Addressclient4@mail.com

Server Information

Incoming Mail Servermail.com

Outgoing Mail Servermail.com

Logon Information

User Name:client4

Password:.....

Save

Clear

Reset

PC(5)

Physical

Config

Desktop

Programming

Attributes

Configure Mail

X

User Information

Your Name:client5

Email Addressclient5@mail.com

Server Information

Incoming Mail Servermail.com

Outgoing Mail Servermail.com

Logon Information

User Name:client5

Password:.....

Save

Clear

Reset

Step 6: Now we will configure the email server.

Physical Config **Services** Desktop Programming Attributes

SERVICES

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

EMAIL

SMTP Service ☒ ON ☐ OFF

POP3 Service ☒ ON ☐ OFF

Domain Name:

User Setup

User Password

client0
client1
client2
client3
client4
client5

Step 7: Now we will assign Dynamic IP addresses to PCs
PC(0)

Physical Config **Desktop** Programming Attributes

IP Configuration [X]

Interface:

IP Configuration

☒ DHCP ☐ Static

IP Address:

Subnet Mask:

Default Gateway:

DNS Server:

PC(1)

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

☒ DHCP

☐ Static

IP Address

192.168.2.21

Subnet Mask

255.255.255.0

Default Gateway

192.168.2.1

DNS Server

192.168.1.4

PC(2)

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

☒ DHCP

☐ Static

IP Address

192.168.2.22

Subnet Mask

255.255.255.0

Default Gateway

192.168.2.1

DNS Server

192.168.1.4

PC(3)

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

☒ DHCP

☐ Static

IP Address

192.168.1.20

Subnet Mask

255.255.255.0

Default Gateway

192.168.1.1

DNS Server

192.168.1.4

PC(4)

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

▼

IP Configuration

☒ DHCP

☐ Static

IP Address

192.168.1.21

Subnet Mask

255.255.255.0

Default Gateway

192.168.1.1

DNS Server

192.168.1.4

PC(5)

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

▼

IP Configuration

☒ DHCP

☐ Static

IP Address

192.168.1.22

Subnet Mask

255.255.255.0

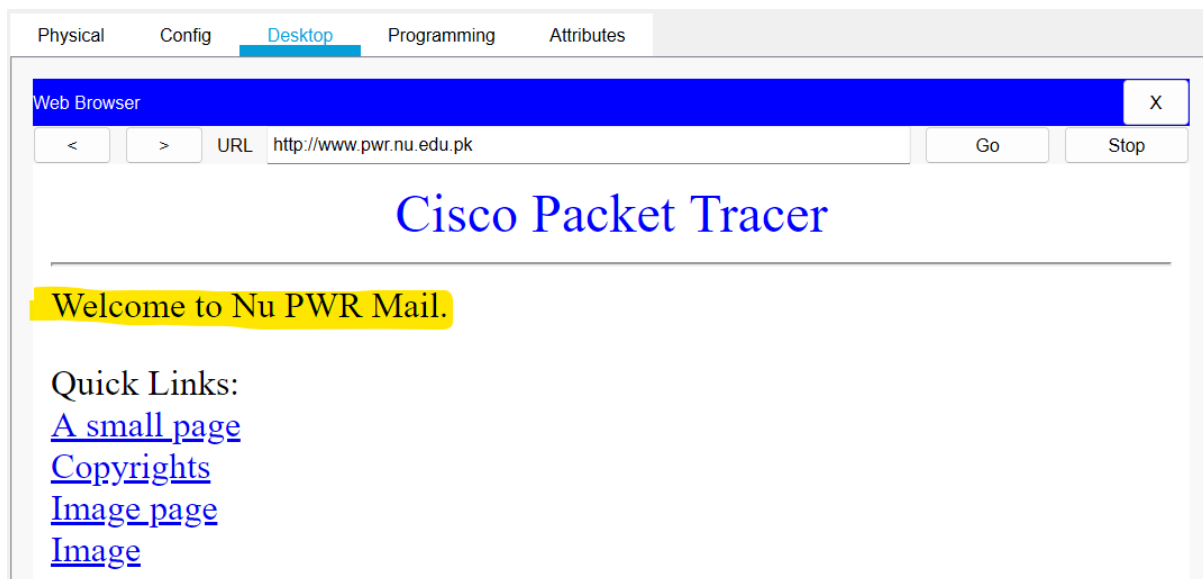
Default Gateway

192.168.1.1

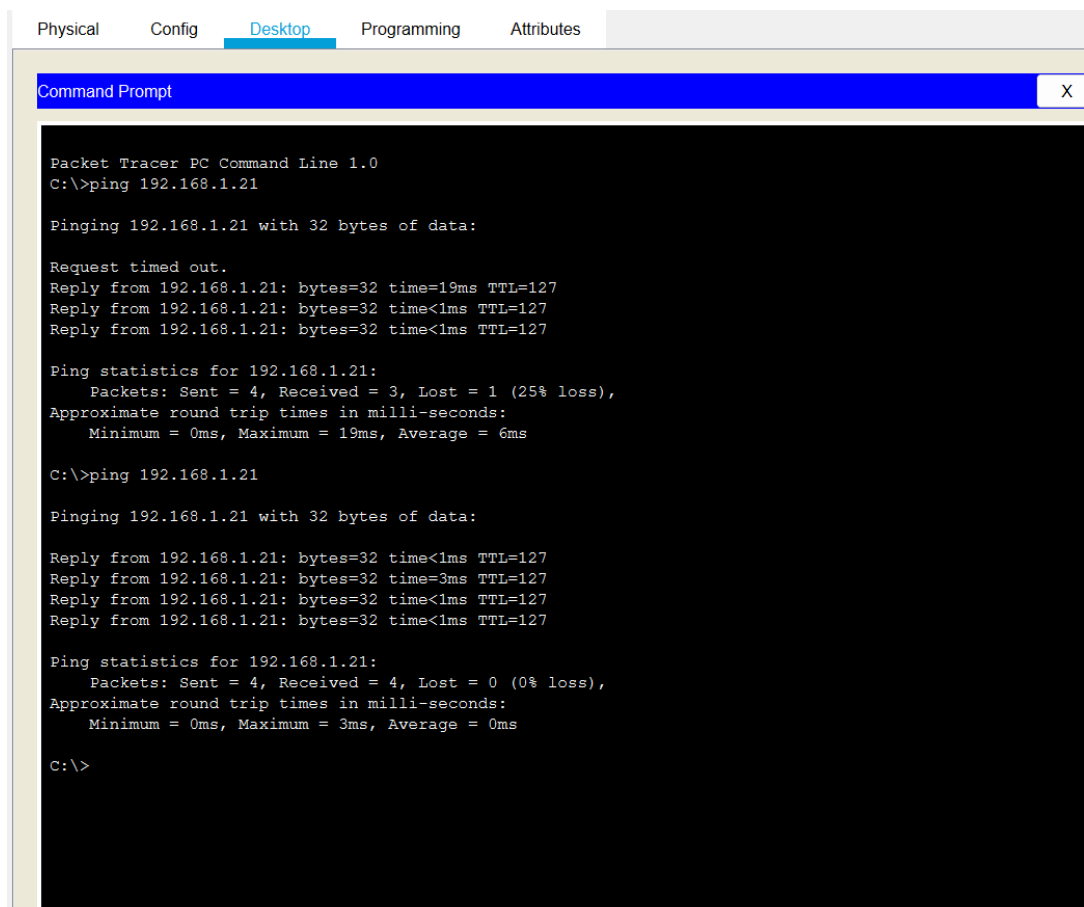
DNS Server

192.168.1.4

Step 8: we will check DNS server by searching a website on pc.



Step 9: we will check connection by pinging the pcs.



Step 10: we will check email server by sending an email from client1 to client3 and then we will send reply as well

Physical Config **Desktop** Programming Attributes

MAIL BROWSER X

Mails

Compose Reply Receive Delete Configure Mail

	From	Subject	Received
1	client1@mail.com	Testing email server	Tue Sep 20 2022 17:58:01

Testing email server
client1@mail.com
Sent : Tue Sep 20 2022 17:58:01

Hello
The service is all good
Thankyou

Physical Config **Desktop** Programming Attributes

MAIL BROWSER X

Mails

Compose Reply Receive Delete Configure Mail

	From	Subject	Received
1	client3@mail.com	RE: Testing email server	Tue Sep 20 2022 17:59:40

RE: Testing email server
client3@mail.com
Sent : Tue Sep 20 2022 17:59:40

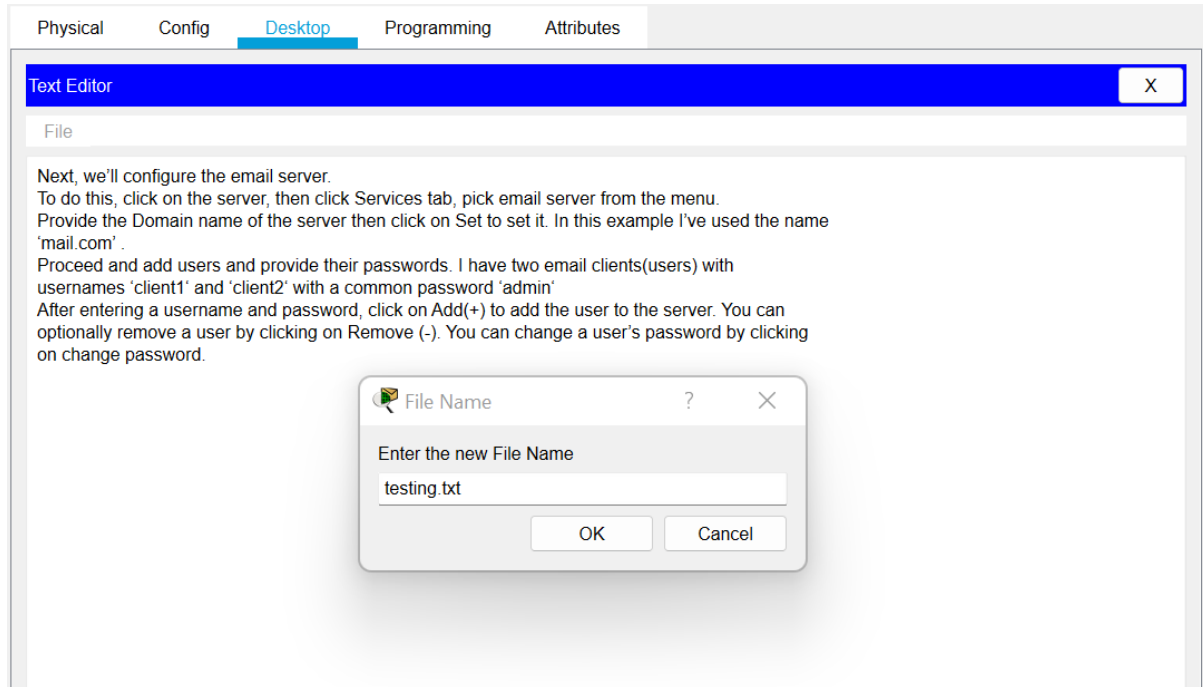
Its working properly
Thankyou

Subject : Testing email server
From : client1@mail.com
Sent : Tue Sep 20 2022 17:58:01

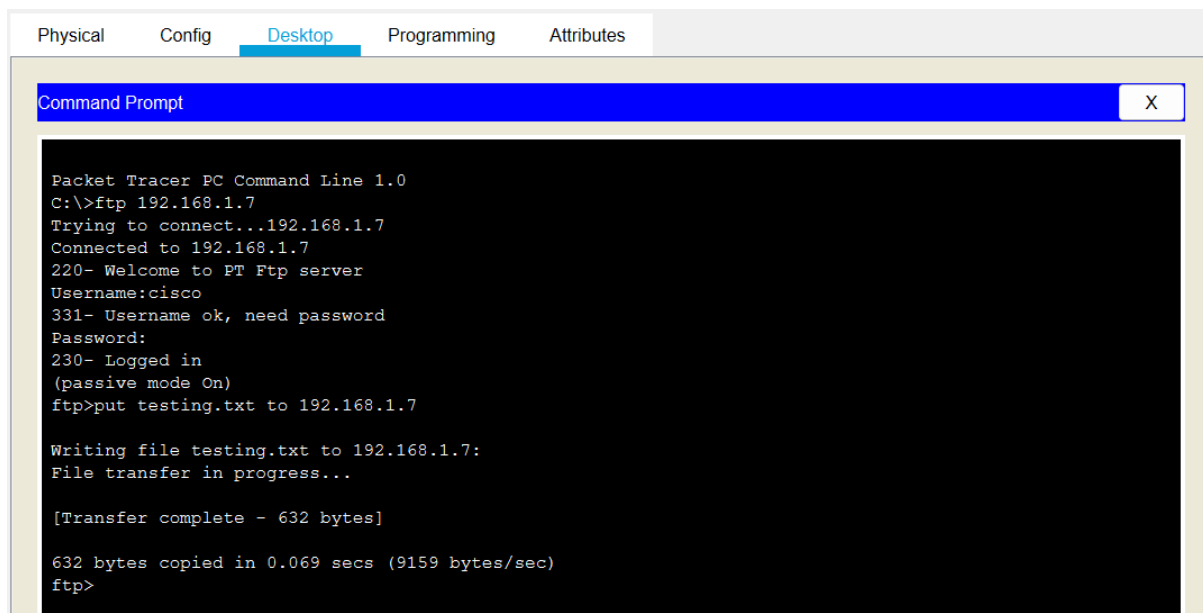
Hello

Step 11: we will use an FTP client built in the Laptop to send files to an FTP server configured in the Server.

=>First of all we will write and save a txt file.



=>Then we will send the file to ftp server.



=>And then we will check the file in ftp server.

Physical

Config

Services

Desktop

Programming

Attributes

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	Add

Save

Remove

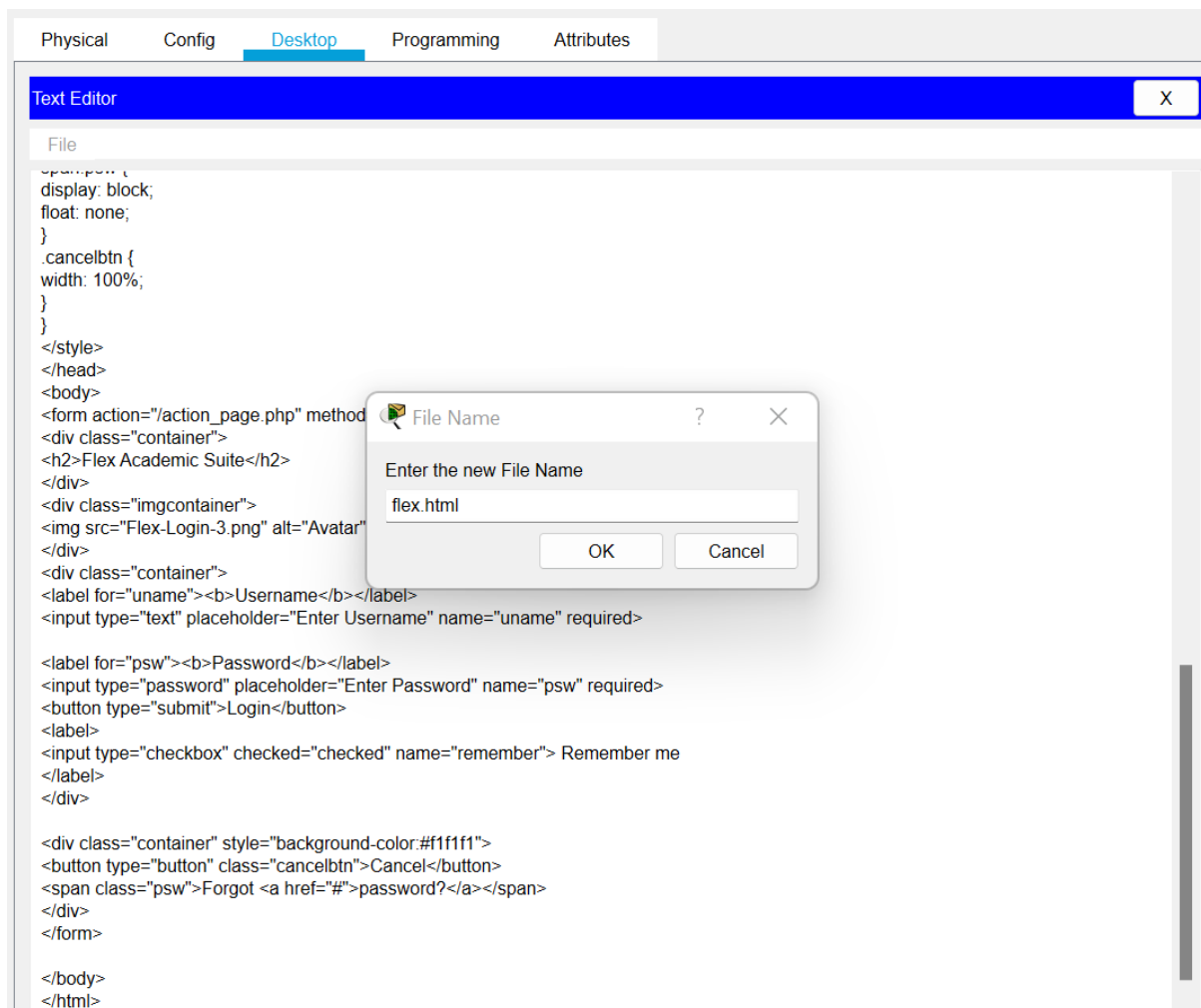
File

30	ir800_yocto-1.7.2.tar
31	ir800_yocto-1.7.2_python-2.7.3.tar
32	pt1000-i-mz.122-28.bin
33	pt3000-i6q4l2-mz.121-22.EA4.bin
34	testing.txt

Remove

Step 12: Create and Upload html file to HTTP server directory Using FTP.

First we will create a .html file and save it.



Then we will send it to http directory using ftp.

```
ftp>cd /http
ftp>
Working directory changed to /http successfully
ftp>put flex.html to 192.168.1.7

Writing file flex.html to 192.168.1.7:
File transfer in progress...

[Transfer complete - 1762 bytes]

1762 bytes copied in 0.034 secs (51823 bytes/sec)
ftp>
```

And then we will check it in http directory.

The screenshot shows the 'Services' tab in a configuration interface. On the left, a list of services includes HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. The 'HTTP' service is selected. On the right, there are two sections: 'HTTP' and 'HTTPS', each with 'On' and 'Off' radio buttons. The 'HTTP' radio button is selected. Below these sections is a 'File Manager' table listing files and their actions.

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	flex.html	(edit)	(delete)
4	helloworld.html	(edit)	(delete)
5	image.html	(edit)	(delete)
6	index.html	(edit)	(delete)

The file we saved had html code of flex login page so we will check it on web browser also.

The screenshot shows a web browser window with the URL 'http://192.168.1.7/flex.html'. The page title is 'Flex Academic Suite'. It features a login form with fields for 'Username' and 'Password', and a 'Login' button. There is also an 'Avatar' placeholder.

Web Browser

URL: http://192.168.1.7/flex.html

Go Stop

Flex Academic Suite

Avatar

Username

Enter Username

Password

Enter Password

Login

