Computer Networks-Lab 07

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CL30001 – Computer Networks-Lab

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Computer Networks Lab 07

Objective

The objective of this lab is to provide students with practical experience in configuring FTP (File Transfer Protocol) on a generic server. Students will learn to configure FTP on the server, transfer files between client and server, manipulate files (delete, update, rename), and send .html files to the server's HTTP directory. By completing this lab, students will gain a comprehensive understanding of FTP configuration.

Learning Outcomes

By the end of this lab, students will be able to:

- Configure FTP on a generic server, enabling file transfer between clients and the server.
- Transfer files from a client to the server and vice versa using FTP commands.
- Perform file manipulation tasks, including deleting, updating, and renaming files on the server through FTP.
- Transfer .html files to the server's HTTP directory via FTP for web access.
- Open the transferred .html files from the client's PC, ensuring successful access to web content.

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File Transfer Protocol (FTP)

The **File Transfer Protocol (FTP)** is a standard network protocol used for the transfer of computer files between a client and server on a computer network.

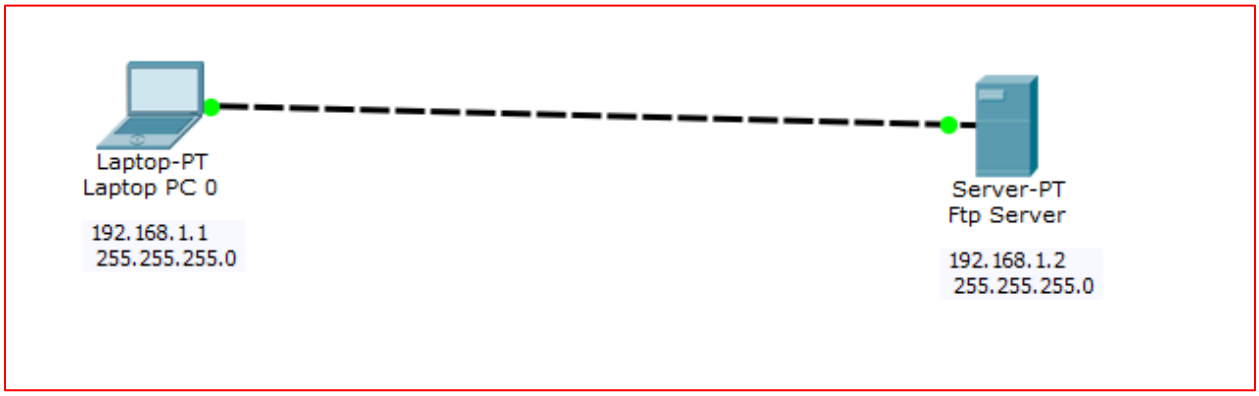
FTP employs a **client-server** architecture whereby the client machine has an **FTP client** installed and establishes a connection to an **FTP server** running on a remote machine. After the connection has been established and the user is successfully authenticated, the data transfer phase can begin.

Worth noting**:** Although FTP does support **user authentication**, all data is sent in clear text, including usernames and passwords. For **secure** transmission that protects the username and password, and encrypts the content, FTP is often secured with SSL/TLS (FTPS) or replaced with SSH File Transfer Protocol (SFTP)

How to configure an FTP server in Packet Tracer

Let's now do FTP configuration in Packet Tracer:

1. **Build the network topology.**



2. **Configure static IP addresses on the Laptop and the server**

   Laptop: **IP address:** 192.168.1.1 **Subnet Mask:** 255.255.255.0

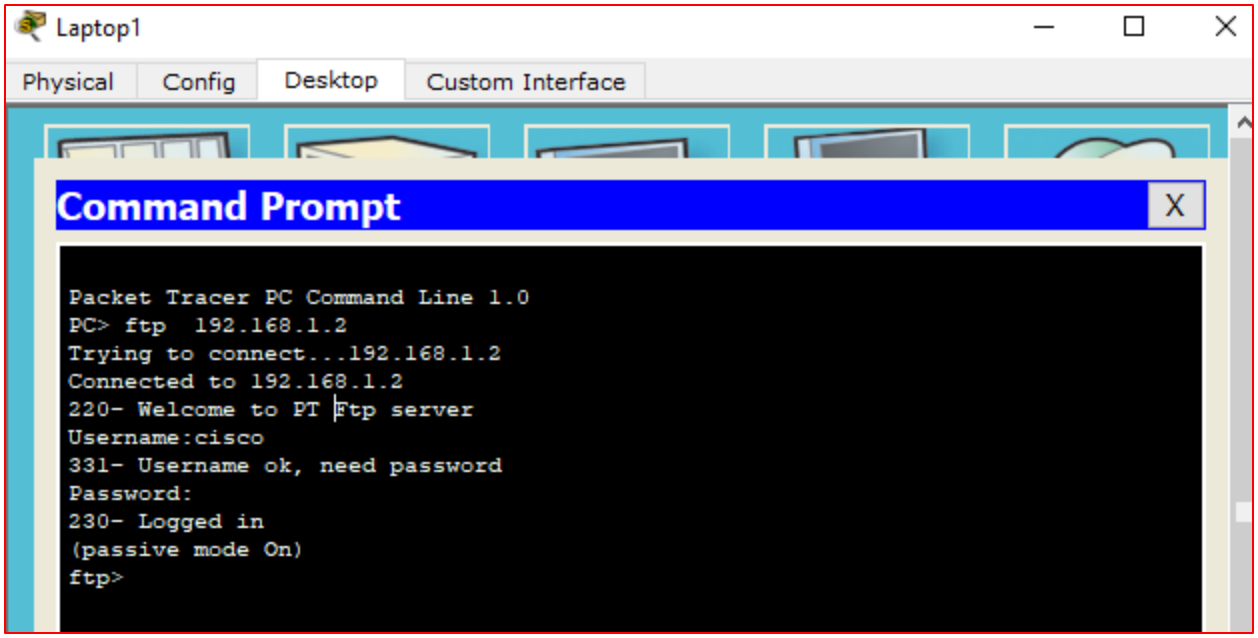
   Server: **IP address:** 192.168.1.2 **Subnet Mask:** 255.255.255.0

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

   From the Laptop's command prompt, FTP the server using the server IP address by typing:

   ```
   ftp  192.168.1.2
   ```

   Provide the **username**(cisco) and **password**(cisco) [which are the defaults] for ftp login.



You are now in the FTP prompt .

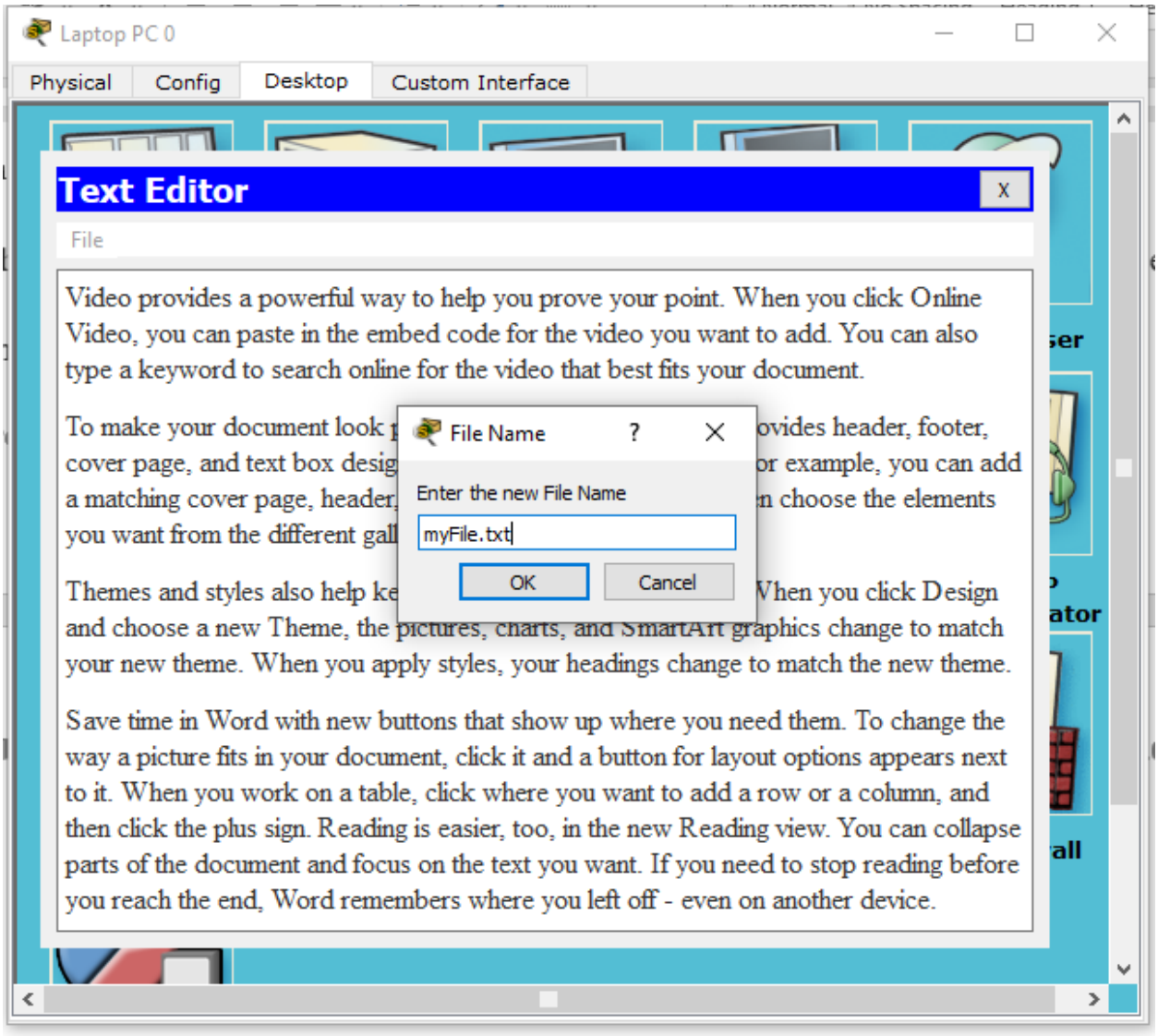
PC0 has an **FTP client** which can be used to read, write, delete and rename files present in the FTP server.

The **FTP server** can be used to read and write configuration files as well as IOS images. Additionally, the FTP server also supports file operations such rename, delete and listing directory.

With that in mind, we can do something extra. So let's do this:

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

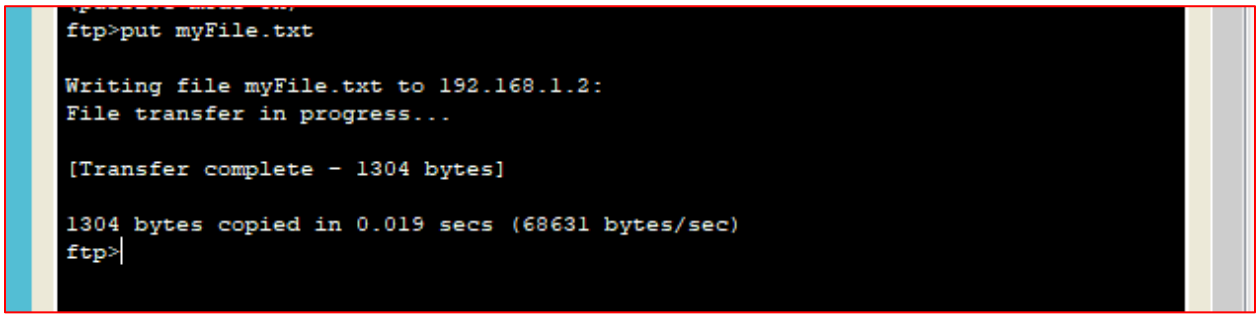
   To do this, open the **Text Editor** in the Laptop, create a file and give it your name of choice. Type any text in the editor then **save** your file. e.g. myFile.txt.



Now upload the file from the Laptop to the server using FTP. (An FTP connection has to be started first. But this is what we've done in step 3)

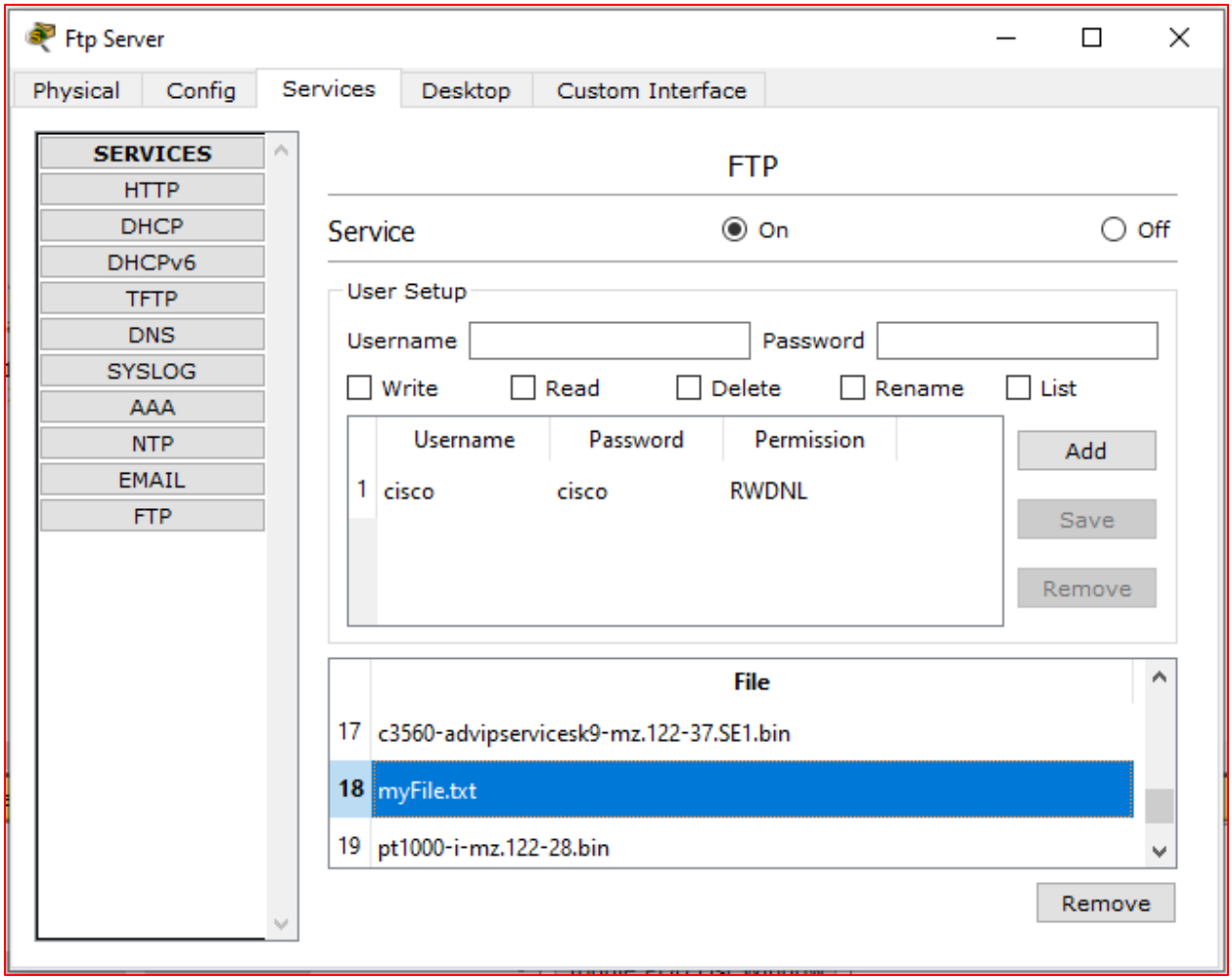
So to do an FTP upload, we'll type:

```
put myFile.txt
```



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

Once file upload is successful, go to the Server **FTP directory** to verify if the file sent has been received. To do this, go to **Server-> Services->FTP**. Here look for myFile.txt sent from the laptop.



Something extra: To check other FTP commands supported by the FTP client running on the Laptop(or PC), you can use a question mark (**?**) on the Laptop's command prompt as shown below:

You can see the put command that we used to upload our file to the FTP server. Other commands listed include:

get-used to get(download) a file from the server.
For example: get myFile.txt

delete– to delete a file in the FTP directory with the server
For example: delete myFile.txt

Rename– used to Rename a file
cd – used to change directory.

6. **Open HTTP directory and upload file there.**

For example, we can open an **HTTP directory** in the server by typing: cd /http. This will change the current directory from FTP directory to HTTP directory

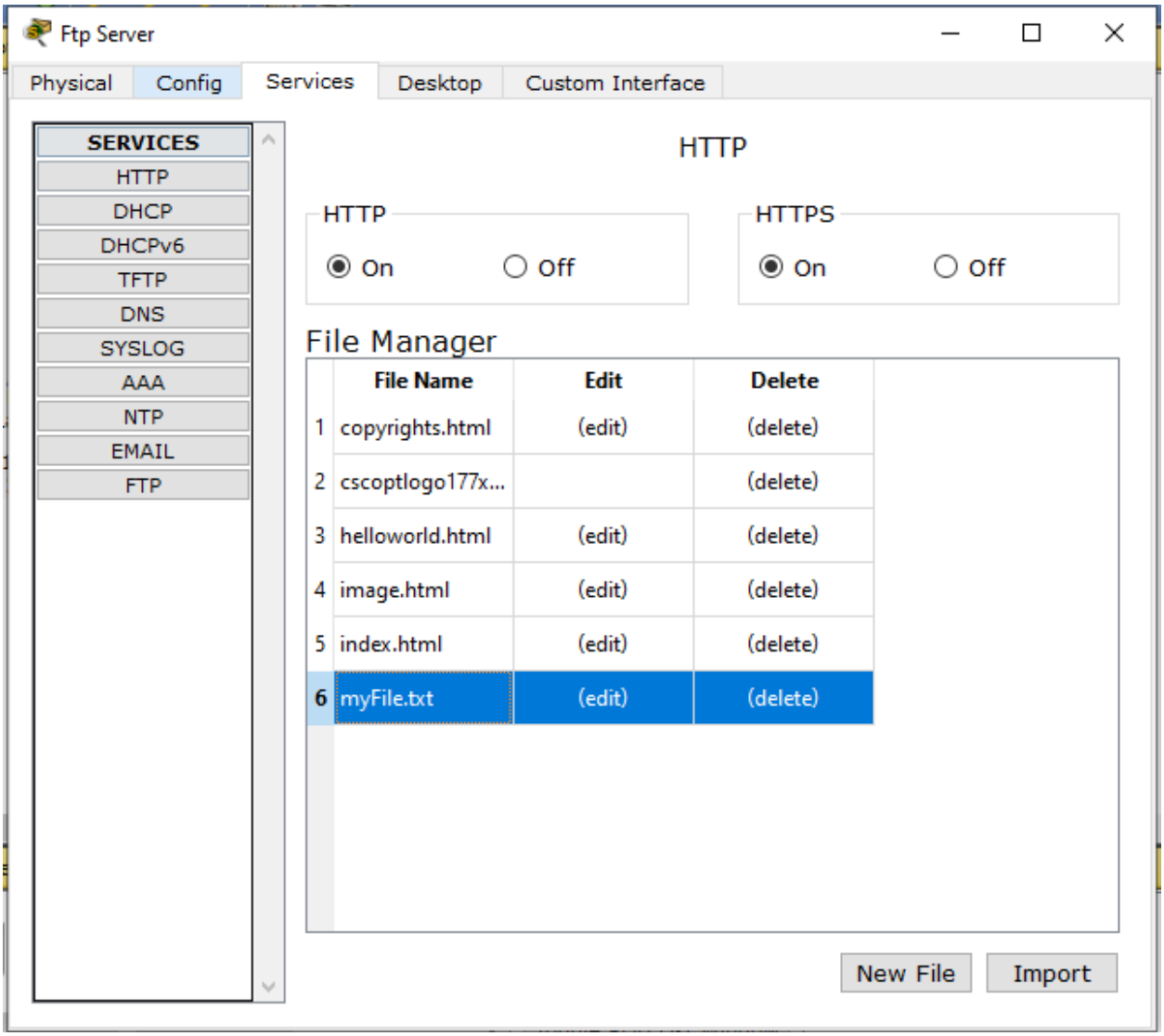
Once the http directory is open, you can upload a file to the HTTP server. You're now uploading a file to an HTTP folder(directory) using FTP.

For example: put myFile.txt

To see this working, let's **open** an **HTTP directory** and upload(**put**) a file to it using FTP:

```
ftp>cd /http
ftp>
Working directory changed to /http successfully
ftp>put myFile.txt

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

[Transfer complete - 1304 bytes]

1304 bytes copied in 0.028 secs (46571 bytes/sec)
ftp>
```

You can now check up in the **HTTP directory** in the server and verify that the file uploaded from the Laptop(myFile.txt) is well received:



Notice that we are uploading files to an HTTP Server directory using File Transfer Protocol.(FTP). This is what actually happens when you use an **FTP client** such as FileZilla client to upload files to a website. In our case here, we are using an FTP client **built-in** the Laptop.

This may interest you*: T*he first FTP client applications were command-line programs developed before operating systems had graphical user interfaces, and are still shipped with most Windows and Linux operating systems. (Actually this is what we have been using this far). Many FTP clients(e.g. FileZilla) and automation utilities have since been developed for desktops, servers, mobile devices, and hardware. FTP has also been incorporated into productivity applications, such as HTML *editors.*

Create and Upload html file to HTTP server directory Using FTP

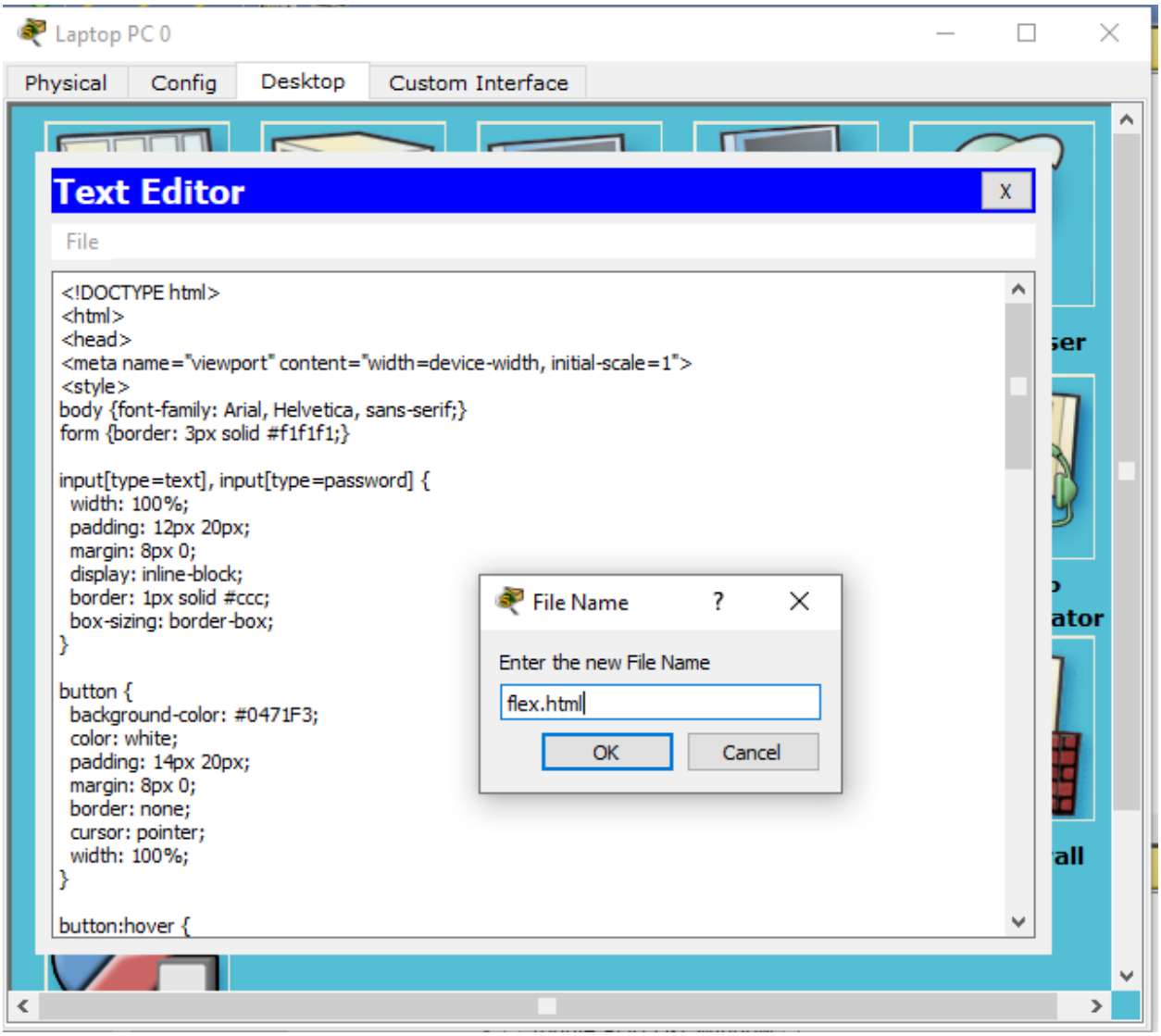
We'll **create** an html file in our Laptop, **upload** it to HTTP server directory using FTP, then try to **access** the file from the Laptop's browser.

On the Laptop, open the **text editor**, then type some markup(html) and save the file with the extension *.html*. See all this below:

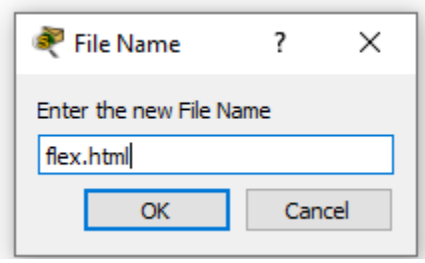
```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style>
body {font-family: Arial, Helvetica, sans-serif;}
form {border: 3px solid #f1f1f1;}

input[type=text], input[type=password] {
width: 100%;
padding: 12px 20px;
margin: 8px 0;
display: inline-block;
border: 1px solid #ccc;
box-sizing: border-box;
}

button {
background-color: #0471F3;
color: white;
padding: 14px 20px;
margin: 8px 0;
border: none;
cursor: pointer;
width: 100%;
}
```

```
button:hover {
opacity: 0.8;
}
.cancelbtn {
width: auto;
padding: 10px 18px;
background-color: #f44336;
}
.imgcontainer {
text-align: center;
margin: 24px 0 12px 0;
}
img.avatar {
width: 30%;
height: 30%;

}
.container {
padding: 16px;
}

span.psw {
float: right;
padding-top: 16px;
}

/* Change styles for span and cancel button on extra small screens */
@media screen and (max-width: 300px) {
span.psw {
display: block;
float: none;
}
.cancelbtn {
width: 100%;
```

```
}
}
</style>
</head>
<body>
<form action="/action_page.php" method="post">
<div class="container">
<h2>Flex Academic Suite</h2>
</div>
<div class="imgcontainer">
<img src="Flex-Login-3.png" alt="Avatar" class="avatar">
</div>
<div class="container">
<label for="uname"><b>Username</b></label>
<input type="text" placeholder="Enter Username" name="uname" required>

<label for="psw"><b>Password</b></label>
<input type="password" placeholder="Enter Password" name="psw" required>
<button type="submit">Login</button>
<label>
<input type="checkbox" checked="checked" name="remember"> Remember me
</label>
</div>

<div class="container" style="background-color:#f1f1f1">
<button type="button" class="cancelbtn">Cancel</button>
<span class="psw">Forgot <a href="#">password?</a></span>
</div>
</form>

</body>
</html>
```

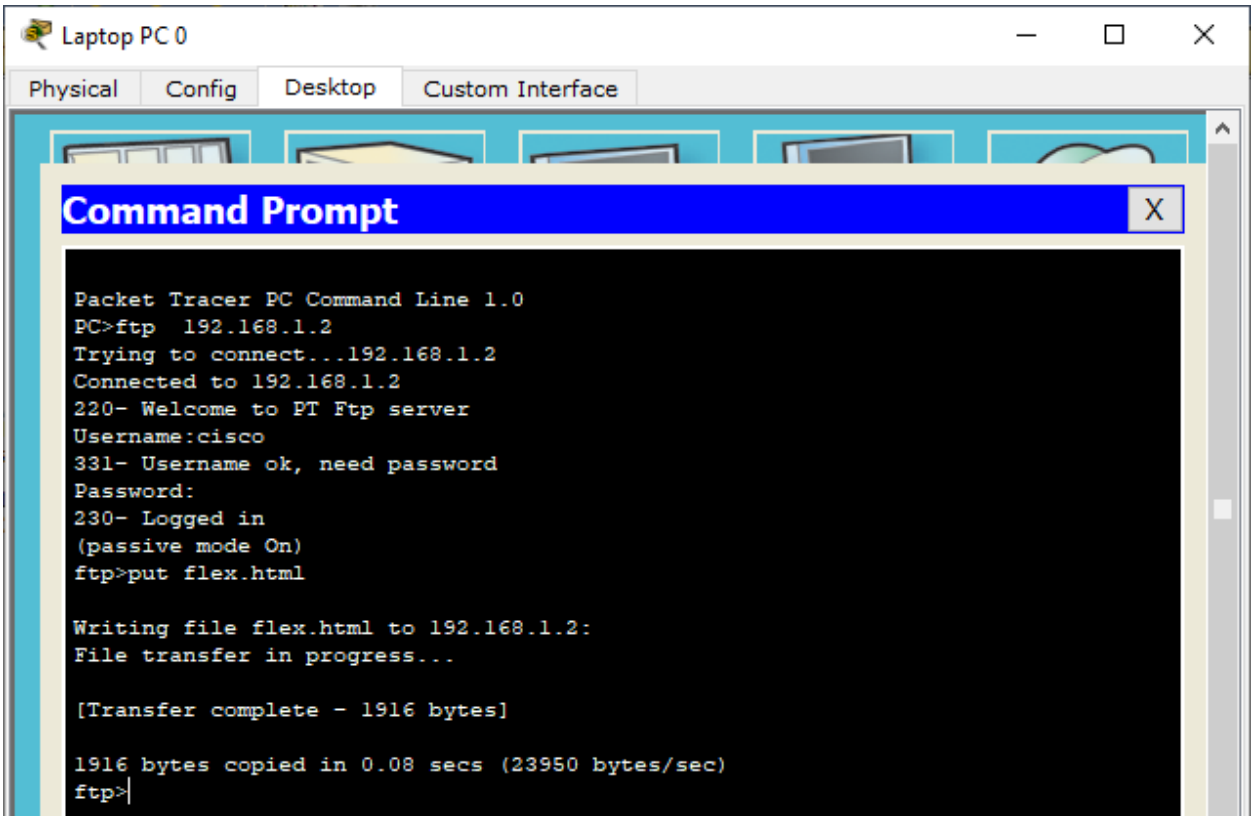


Save your file as an html file like this:

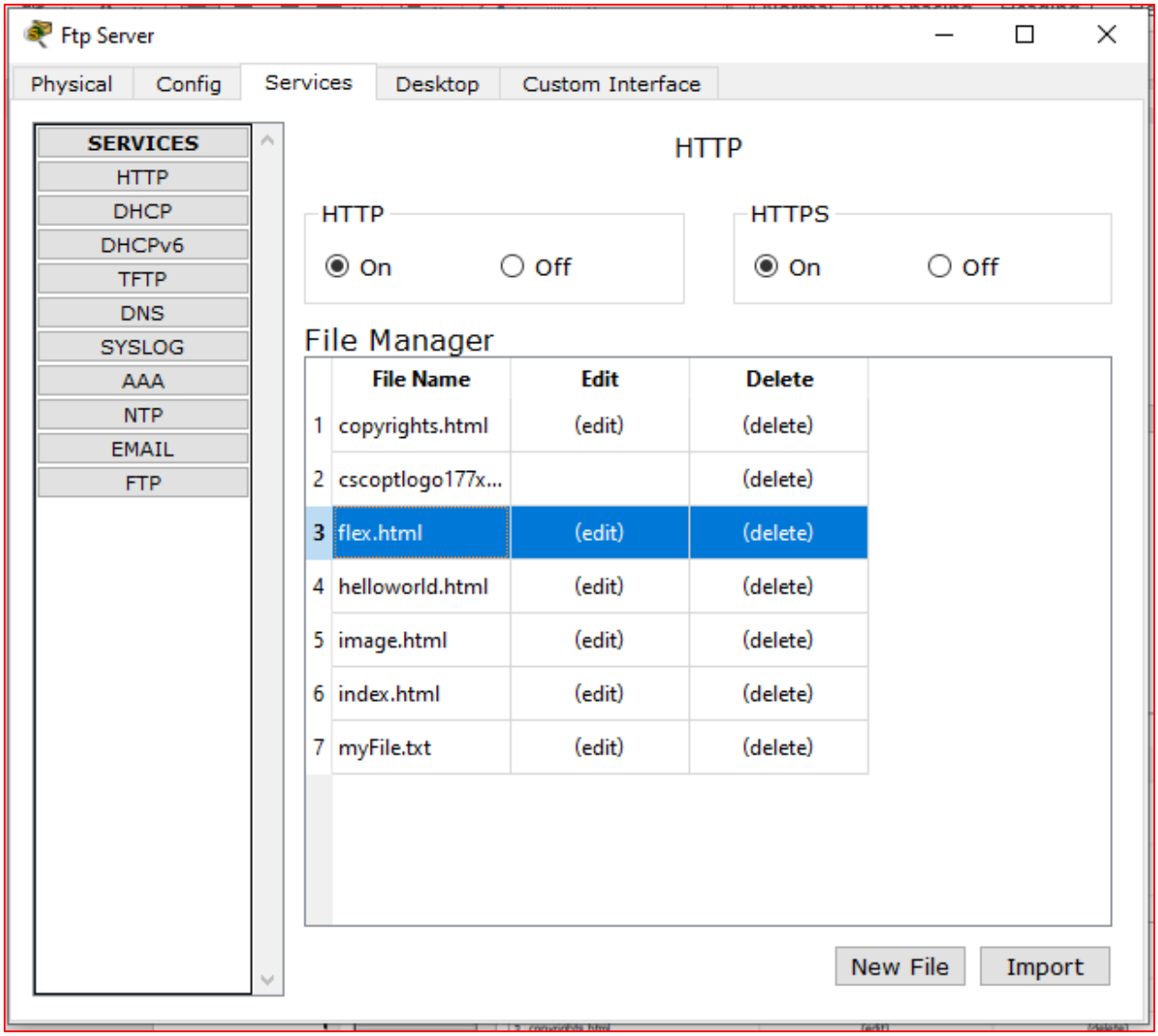


Now upload the file(flex.html) to the HTTP server using FTP. This is easy. We've already done it previously!

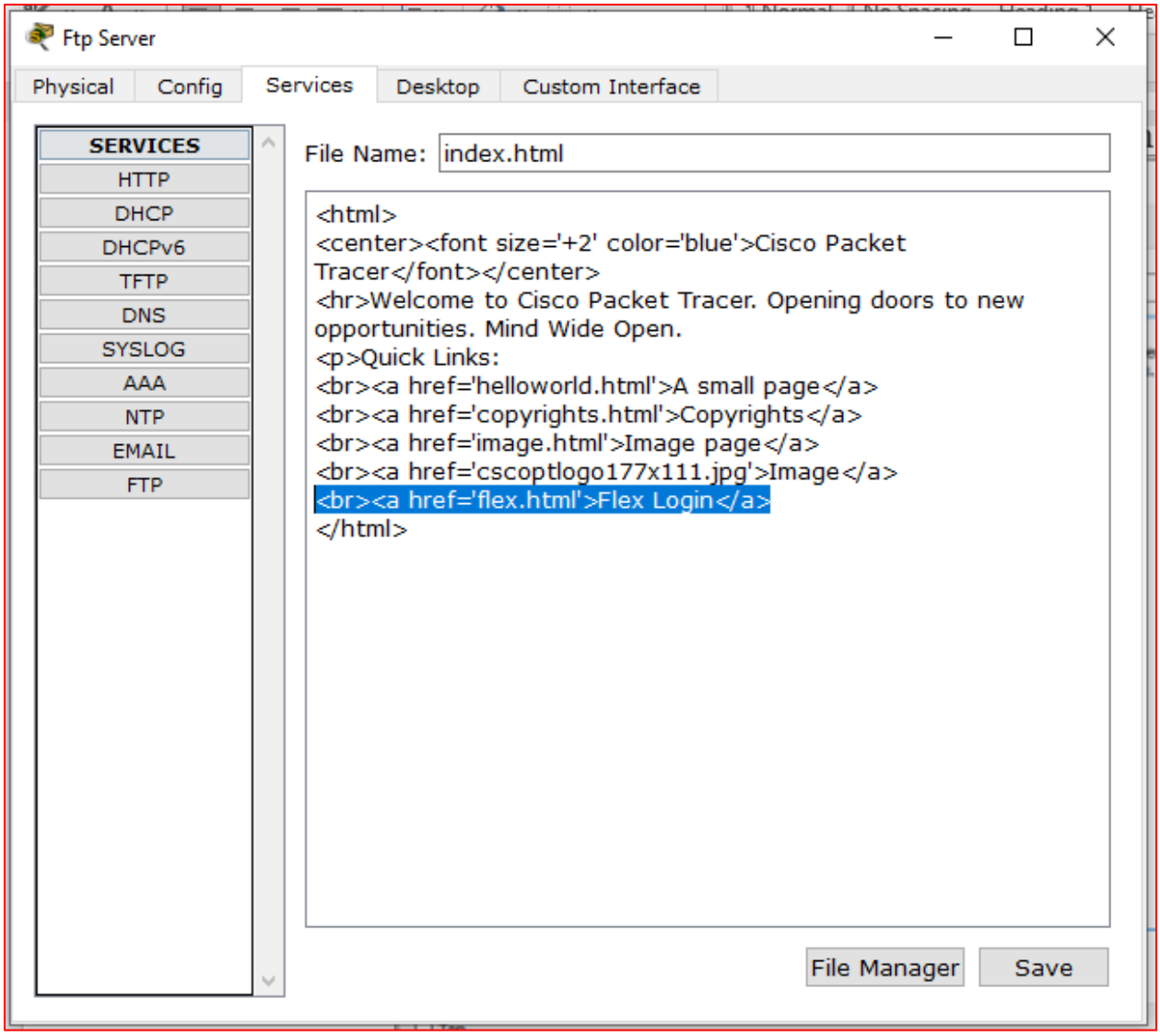
If you're already in the HTTP directory, you just need to type: put flex.html. If no, first ftp the server(ftp 192.168.1.2), provide the login username(cisco) and password(cisco); change the current directory to HTTP(cd /http) , and finally upload the html file onto the HTTP directory(put flex.html)



Check whether the html file uploaded has been received in the HTTP directory:
Go to **Server->Services-> HTTP**. Then look up for the file in the File Manager.

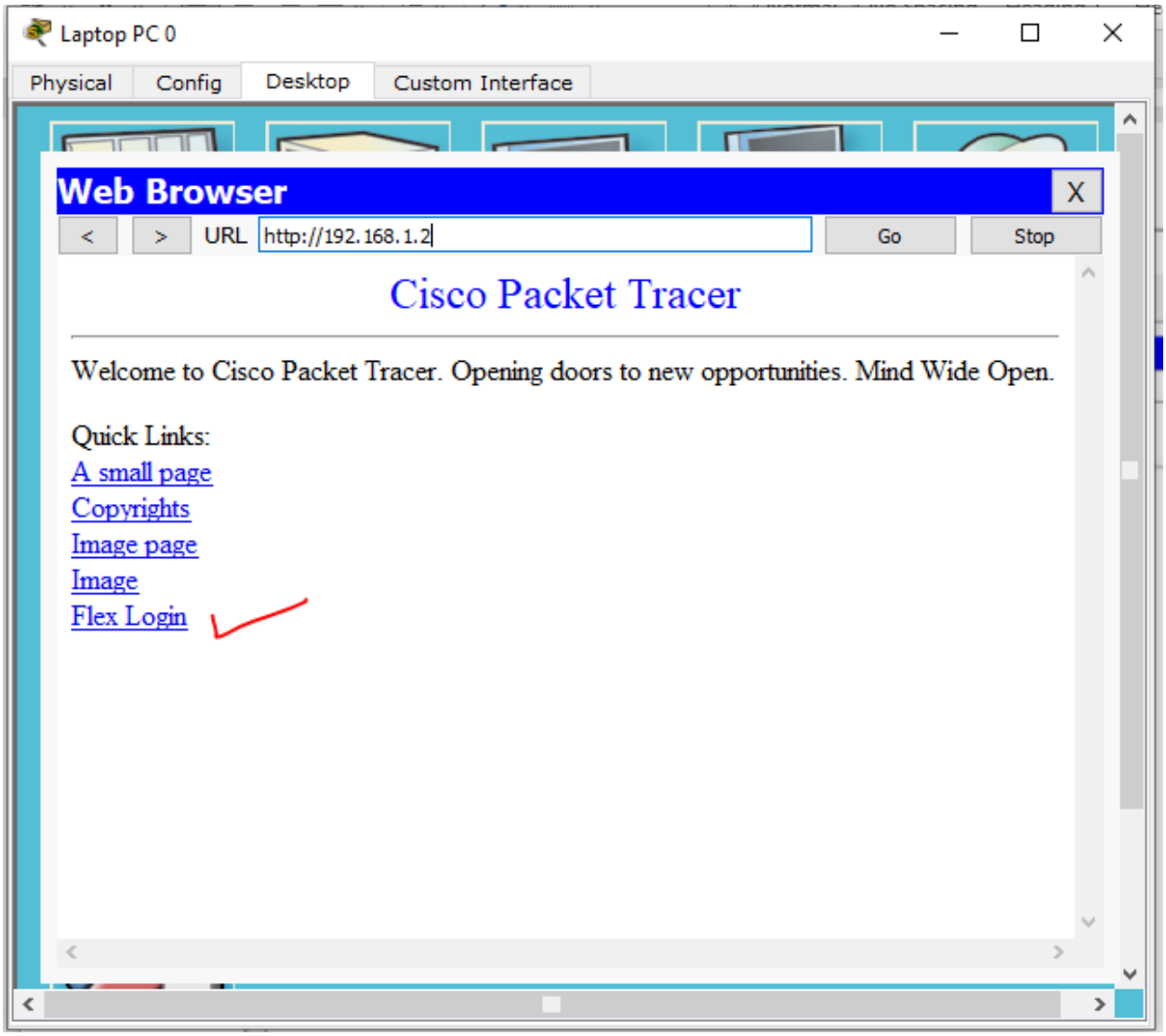


Now edit index.html file in the **HTTP directory** so as to include a link to flex that we've just uploaded. This will make flex accessible from the Laptop's browser. To do this, locate index.html then click **edit**. Proceed to edit it as shown below. Then **save** and accept overwrite.

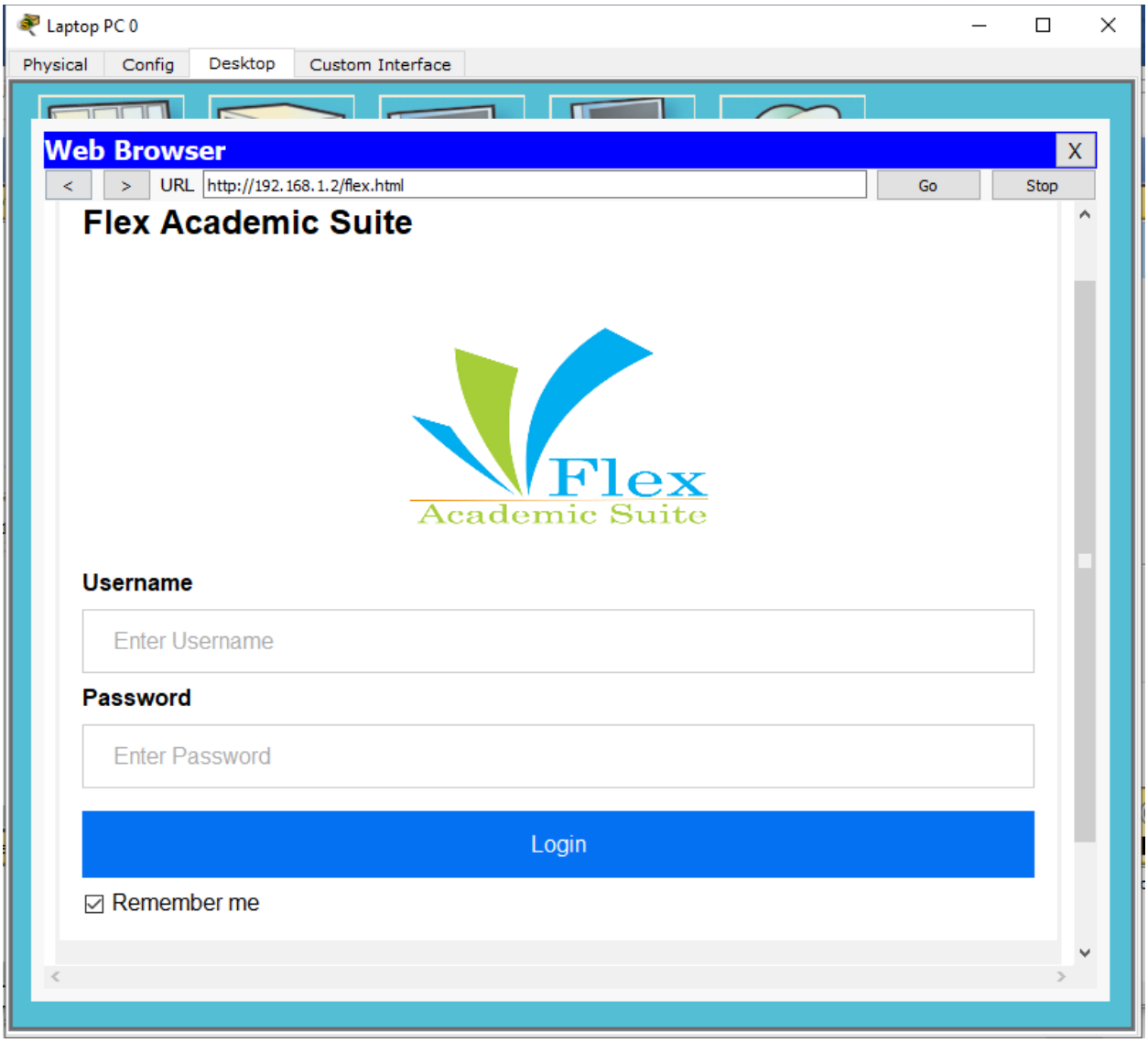


Finally, try to access the newly uploaded file from the Laptop's browser.

So go to the Laptop's browser and access the server using the server's IP address. By doing this, the browser is making an http request to the server. The server will respond to the Laptop with the index.html file containing a **link** to flex which we've uploaded from the Laptop using FTP.



Click **flex** link to view the contents of the file in the browser.


Laptop PC 0
Physical
Config
Desktop
Custom Interface
Web Browser
X
<
>
URL
http://192.168.1.2/flex.html
Go
Stop
Flex Academic Suite
Flex
Academic Suite
Username
Enter Username
Password
Enter Password
Login
Remember me

Tasks for students

1. Configure an FTP server in Packet Tracer
2. Create and Upload html file to HTTP server directory Using FTP
3. Configure Mail server, Ftp Server, DHCP Server, DNS Server and web Server in a single topology, use router and switch.

   Note: Submit the following: PDF and Packet tracer files