

## EXPERIMENT NO.: 9

**Aim:** Perform File Transfer and Access using FTP

### Theory:

Transferring files from a client computer to a server computer is called "**uploading**" and transferring from a server to a client is "**downloading**".

### Requirements for using FTP

1. An FTP client like Auto FTP Manager installed on your computer
2. Certain information about the FTP server you want to connect to:
  - a. The **FTP server address**. This looks a lot like the addresses you type to browse web sites.

Example : Server address is "ftp.videodesk.net".

Sometimes the server address will be given as a numeric address, like "64.185.225.87".

- b. A user name and password. Some FTP servers let you connect to them anonymously. For anonymous connections, you do not need a user name and password. To transfer files, provide your client software (Auto FTP Manager) with the server address, user name, and password. After connecting to the FTP server, you can use Auto FTP Manager's **File Manager** to upload, download and delete files. Using the File Manager is a lot like working with Windows Explorer.

### FTP and Internet Connections

FTP uses one connection for commands and the other for sending and receiving data. FTP has a standard port number on which the FTP server "listens" for connections. A port is a "logical connection point" for communicating using the Internet Protocol (IP). The standard port number used by FTP servers is 21 and is used only for sending commands. Since port 21 is used exclusively for sending commands, this port is referred to as a **command port**. For example, to get a list of folders and files present on the FTP server, the FTP Client issues a "LIST" command. The FTP server then sends a list of all folders and files back to the FTP Client. So what about the internet connection used to send and receive data? The port that is used for transferring data is referred to as a **data port**. The number of the data port will vary depending on the "mode" of the connection. (See below for Active and Passive modes.)

### Active and Passive Connection Mode

The FTP server may support **Active** or **Passive** connections or both. In an Active FTP connection, the client opens a port and listens and the server actively connects to it. In a Passive FTP connection, the server opens a port and listens (passively) and the client connects to it. You must grant Auto FTP Manager access to the Internet and to choose the right type of FTP Connection Mode.

Most FTP client programs select passive connection mode by default because server administrators prefer it as a safety measure. Firewalls generally block connections that are "initiated" from the outside. Using passive mode, the FTP client (like Auto FTP Manager) is "reaching out" to the server to make the connection. The firewall will allow these outgoing connections, meaning that no special adjustments to firewall settings are required.

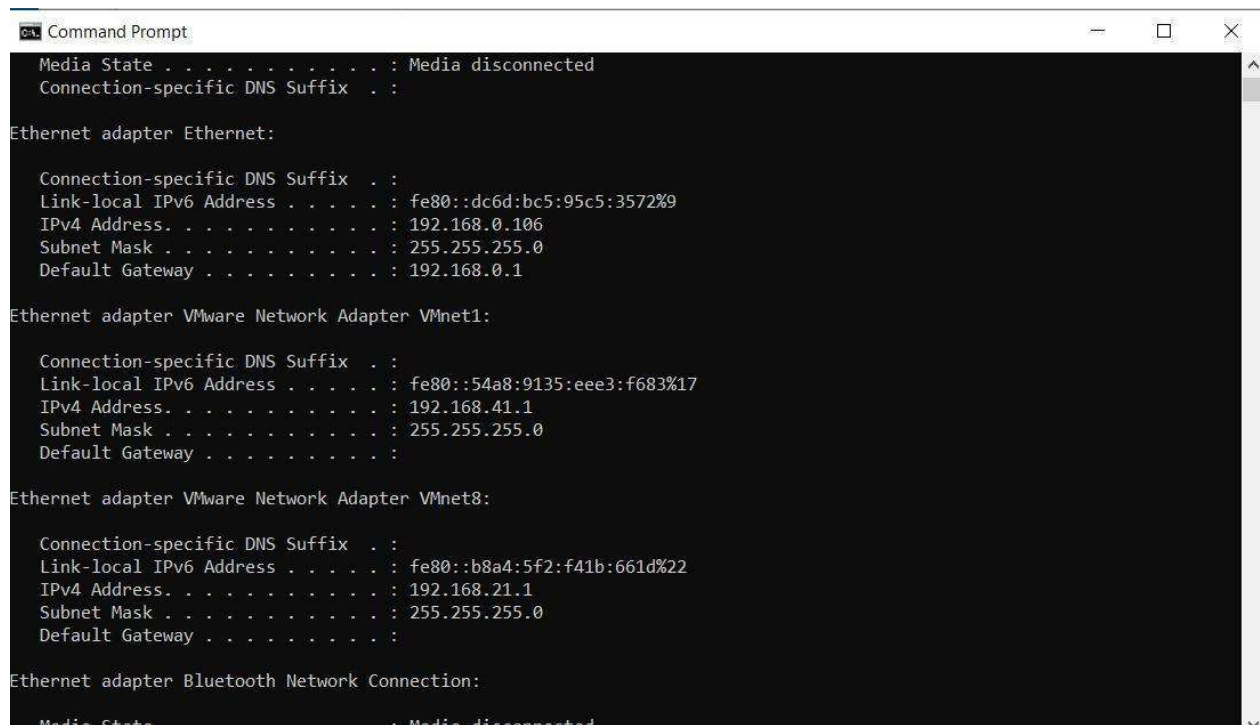
If you are connecting to the FTP server using **Active mode** of connection you must set your firewall to accept connections to the port that your FTP client will open. However, many Internet service providers block incoming connections to all ports above 1024. Active FTP servers generally use port 20 as their data port.

## IMPLEMENTATION:

### Implementing FTP server on Windows Machine:

#### 1. Step-1: Open Command Prompt (cmd)

Execute "*ipconfig*" command in cmd and **note down** the **local IP address** of your system Command: *ipconfig*



```
cmd Command Prompt
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix . :
    Link-local IPv6 Address . . . . . : fe80::dc6d:bc5:95c5:3572%9
    IPv4 Address. . . . . : 192.168.0.106
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

Ethernet adapter VMware Network Adapter VMnet1:

    Connection-specific DNS Suffix . :
    Link-local IPv6 Address . . . . . : fe80::54a8:9135:eee3:f683%17
    IPv4 Address. . . . . : 192.168.41.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

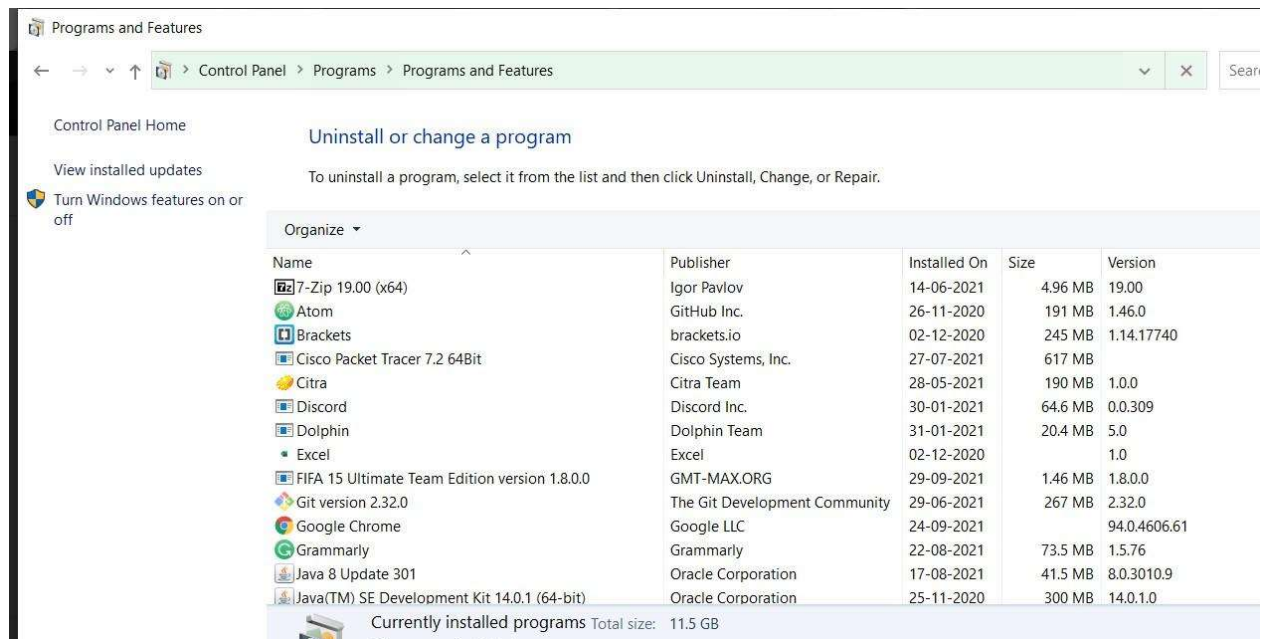
Ethernet adapter VMware Network Adapter VMnet8:

    Connection-specific DNS Suffix . :
    Link-local IPv6 Address . . . . . : fe80::b8a4:5f2:f41b:661d%22
    IPv4 Address. . . . . : 192.168.21.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

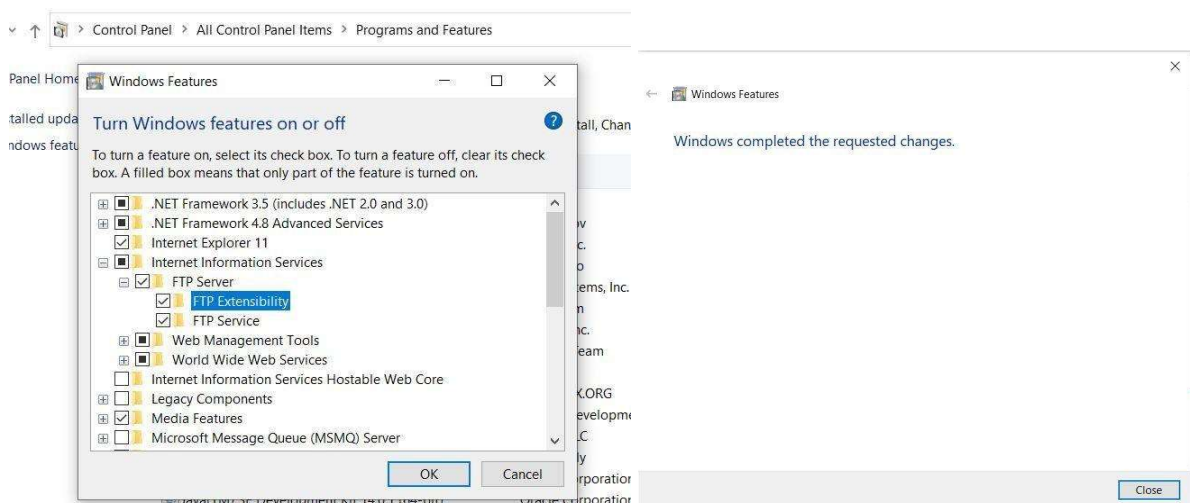
Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
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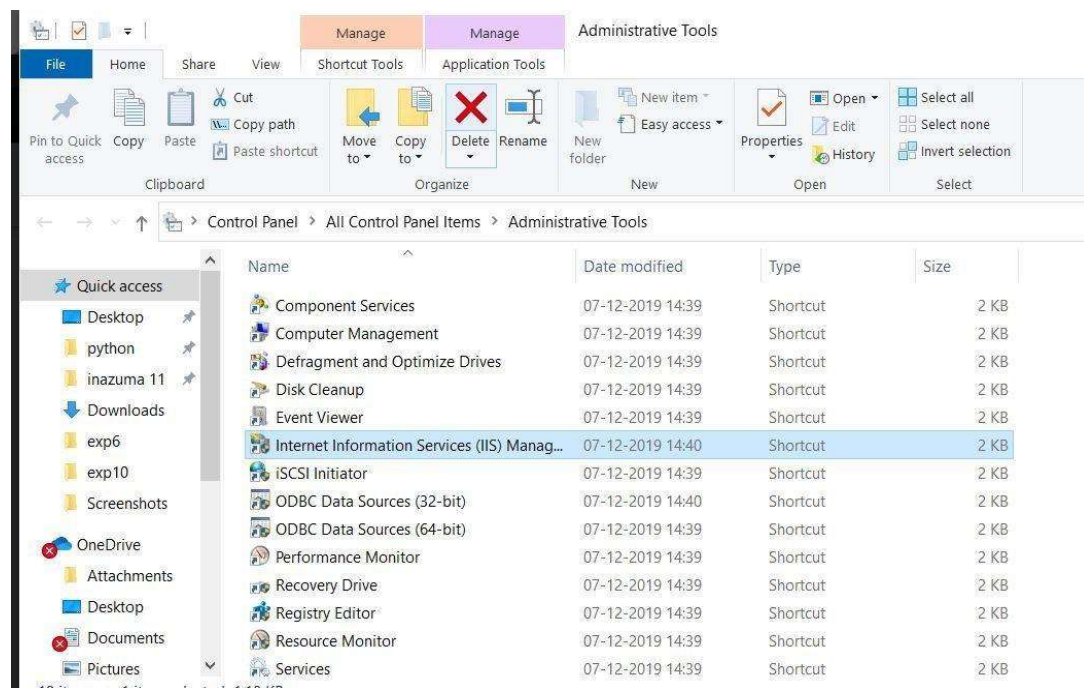
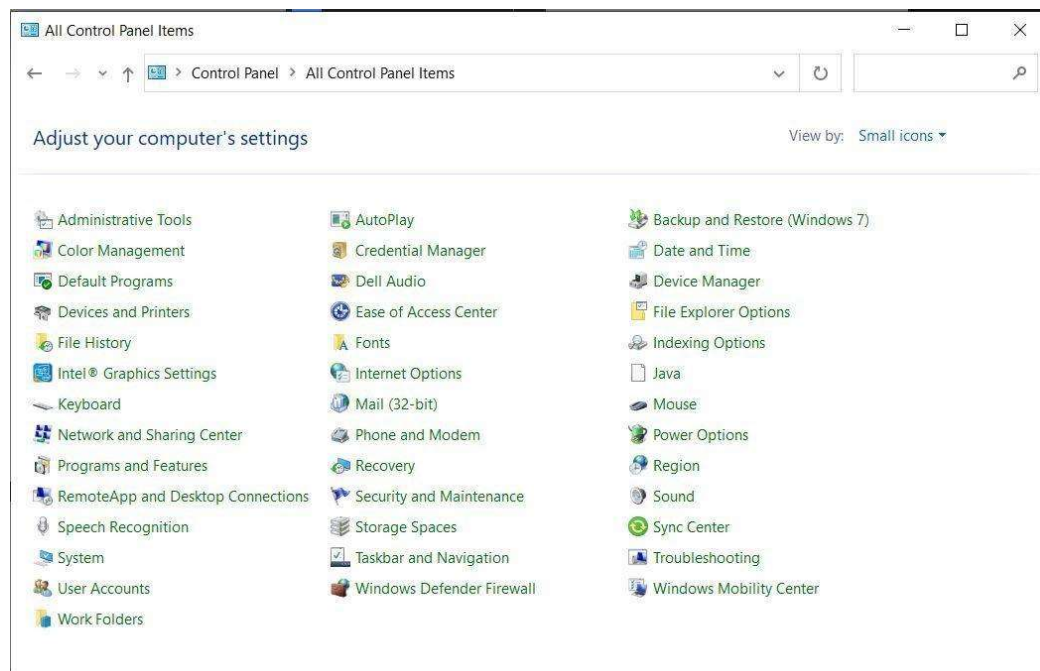
## 2. Step-2: Go to Control Panel > Programs and Features > Turn windows features on or off



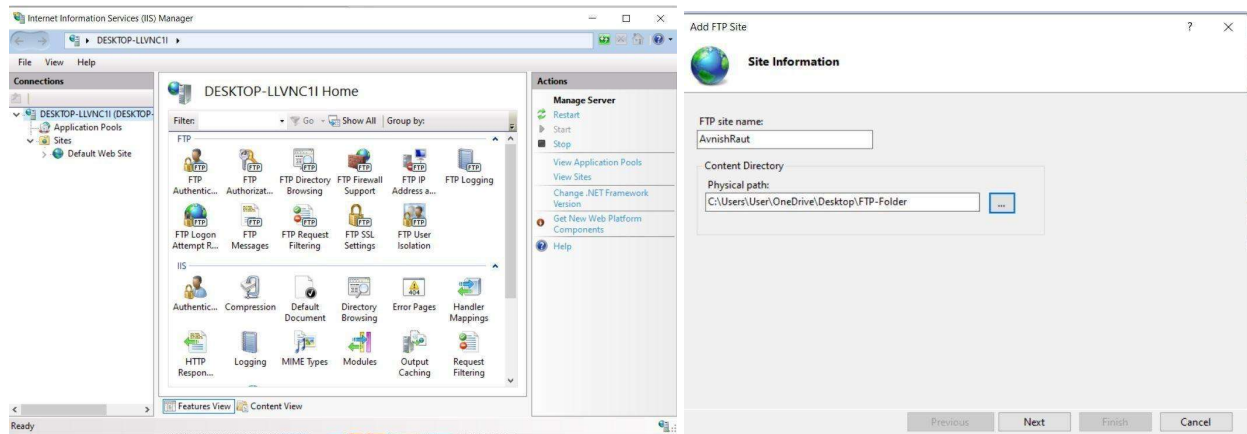
## 3. Step-3: Check Internet Information Services > Expand it and > Check FTP Server, Web Management Tools and World Wide Web Services > OK



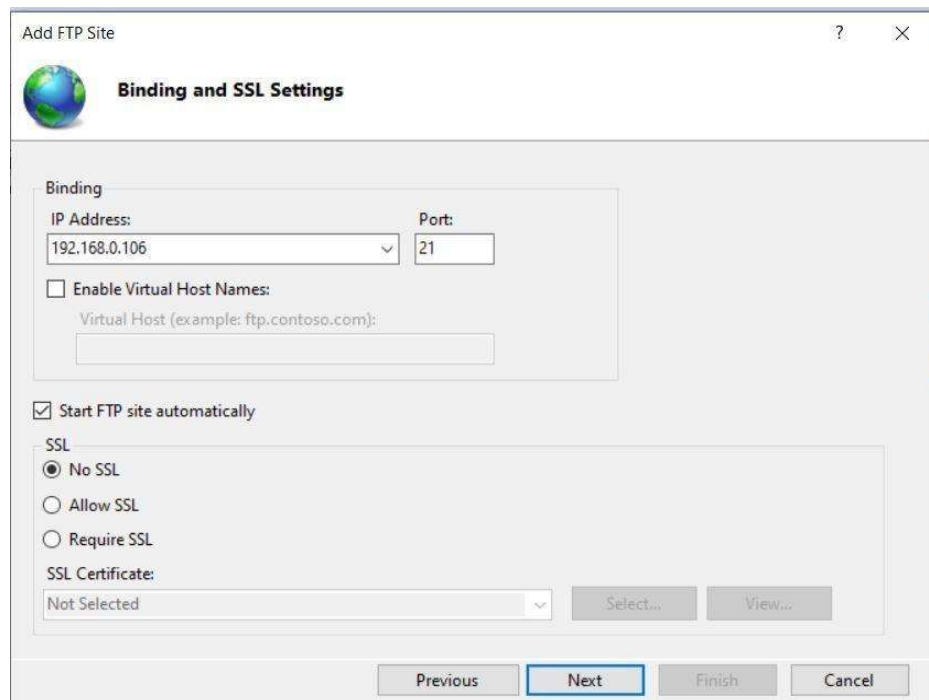
#### 4. Step-4: Control Panel > Administrative Tools > Internet Information Services (IIS)



**5. Step-5: In Left Panel Right Click on Sites > Add FTP Site > Pop will open; Fill FTP Site Name and local FTP Folder Path**



**6. Step-6: After filling Physical Path; Next > Binding and SSL popup window will appear; Fill Local IP Address and Port Number i.e., 21 under Binding > Check Start FTP Site Automatically > Select No SSL under SSL > Next**



7. **Step-7:** After filling previous details; **Authentication and Authorization** pop up window will appear; Check **Basic** under Authentication > For Authorization select **Specified Users** > and fill current admin user **Username** > check both **Read** and **Write** permissions > **Finis**

The screenshot shows the 'Add FTP Site' dialog box with the 'Authentication and Authorization Information' tab selected. The 'Authentication' section has 'Basic' checked. The 'Authorization' section has 'Allow access to:' set to 'Specified users' with 'Avnish Raut' entered in the text box. The 'Permissions' section has both 'Read' and 'Write' checked. At the bottom are 'Previous', 'Next', 'Finish', and 'Cancel' buttons.

| Authentication and Authorization Information |           |
|--|-----------|
| <b>Authentication</b>                        |           |
| <input type="checkbox"/>                     | Anonymous |
| <input checked="" type="checkbox"/>          | Basic     |
| <b>Authorization</b>                         |           |
| Allow access to:                             |           |
| Specified users                              |           |
| Avnish Raut                                  |           |
| <b>Permissions</b>                           |           |
| <input checked="" type="checkbox"/>          | Read      |
| <input checked="" type="checkbox"/>          | Write     |

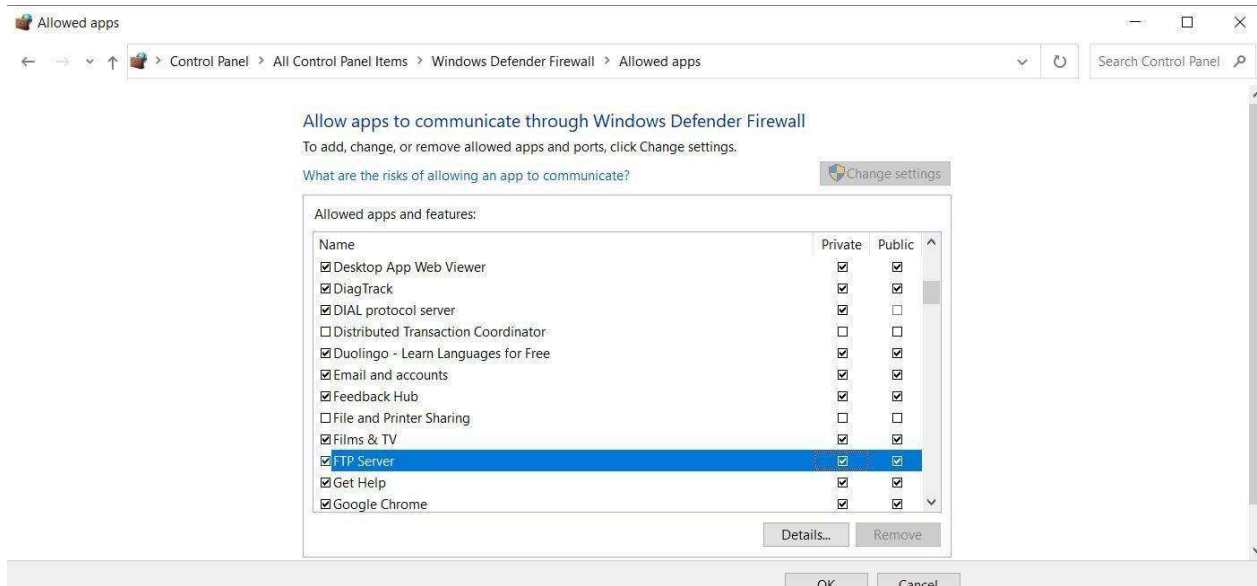
8. **Step-8:** Open **Control Panel** > **Windows Defender Firewall** > click on **Allow and app or feature through firewall**

The screenshot shows the Windows Defender Firewall control panel window. The left sidebar contains links like 'Control Panel Home', 'Allow an app or feature through Windows Defender Firewall', 'Change notification settings', 'Turn Windows Defender Firewall on or off', 'Restore defaults', 'Advanced settings', and 'Troubleshoot my network'. The main area has a heading 'Help protect your PC with Windows Defender Firewall' and a description. Below this are two network status sections: 'Private networks' (Not connected) and 'Guest or public networks' (Connected). A section titled 'Networks in public places such as airports or coffee shops' lists 'Avnish\_5G' as an active public network. At the bottom, there's a 'Windows Defender Firewall state' section showing it is 'On' and a 'Notification state' section with a checkbox to 'Notify me when Windows Defender Firewall blocks a new app'.

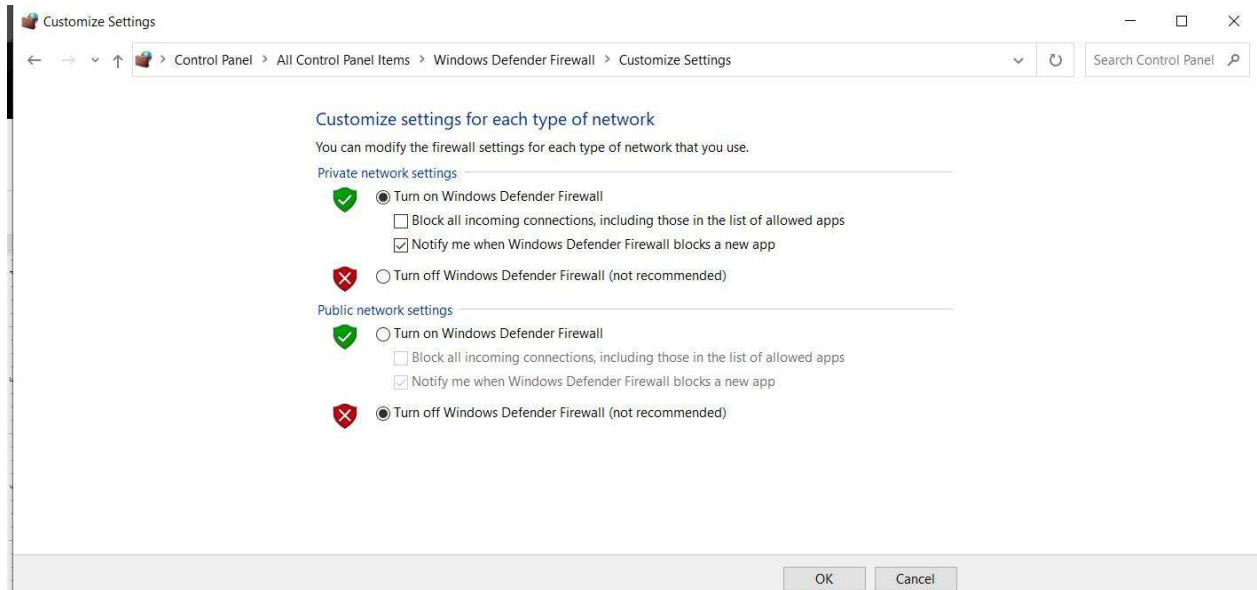
| Help protect your PC with Windows Defender Firewall  |  |               |
|--|--|---------------|
| Windows Defender Firewall can help prevent hackers or malicious software from gaining access to your PC through the Internet or a network. |  |               |
| <input checked="" type="checkbox"/>  | Private networks   | Not connected |
| <input checked="" type="checkbox"/>  | Guest or public networks   | Connected     |
| Networks in public places such as airports or coffee shops   |  |               |
| Windows Defender Firewall state:   | On   |               |
| Incoming connections:  | Block all connections to apps that are not on the list of allowed apps |               |
| Active public networks:  | Avnish_5G  |               |
| Notification state:  | Notify me when Windows Defender Firewall blocks a new app              |               |



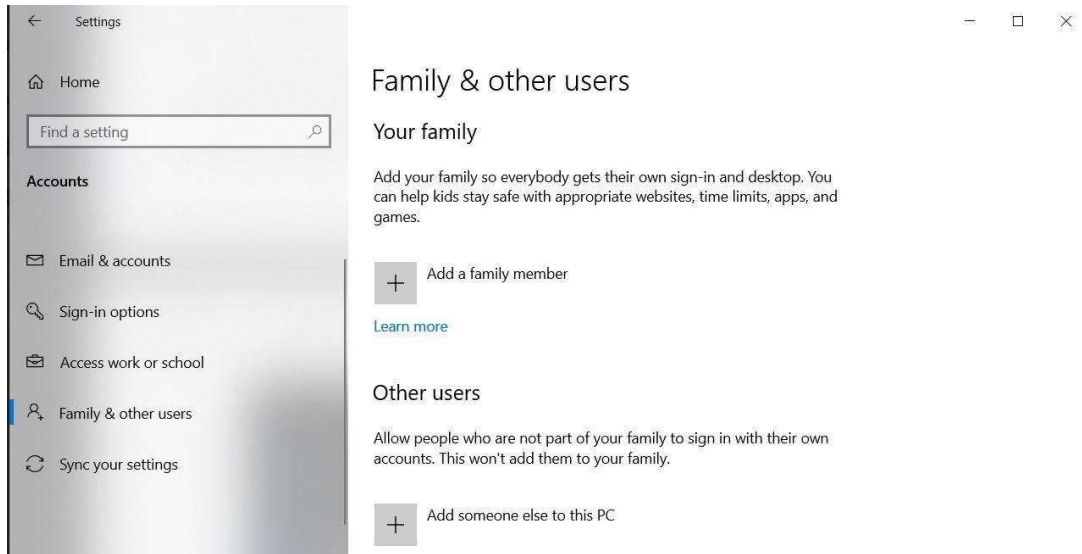
## Click on **Change Settings > Check Private and Public** for **FTP-Server**



## 9. Step-9: Turn OFF windows firewall for both **Public** and **Private** networks:



**10. Step-10: Go to Settings > Accounts > Family and Other Users > Add someone else to this PC:**

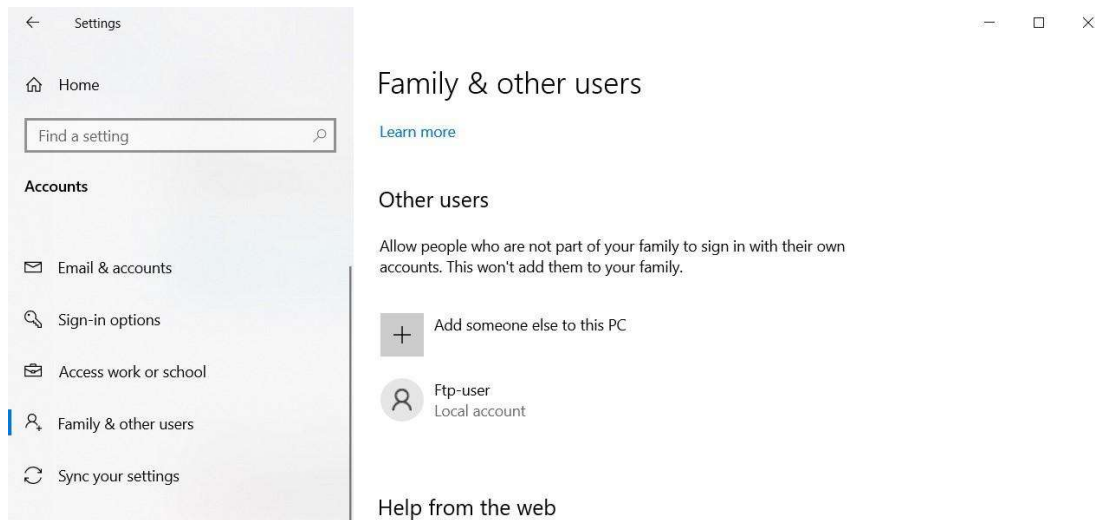


Another popup window will open; Click on **I don't have this person's sign-in information > Add a user without a Microsoft account**

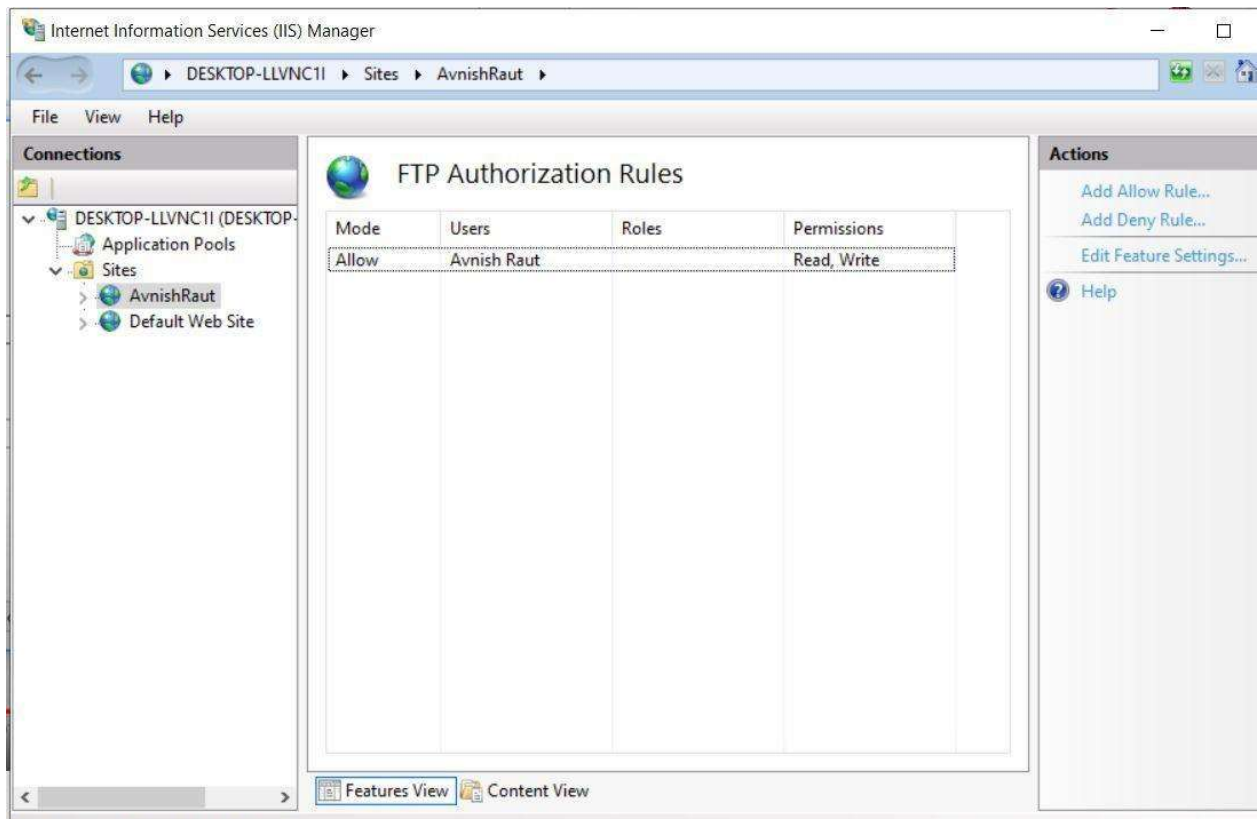
A screenshot of a Windows 'Create a user for this PC' window. The title bar says 'Microsoft account'. The main heading is 'Create a user for this PC'. Below it is a note: 'If you want to use a password, choose something that will be easy for you to remember but hard for others to guess.' There are three sections: 1. 'Who's going to use this PC?' with a text input field containing 'Ftp-user'. 2. 'Make it secure.' with two password input fields, each showing four dots. 3. 'In case you forget your password' with a dropdown menu showing 'What's the name of the first school you attended?' and a text input field containing 'Vpm'. At the bottom right are two buttons: 'Next' (blue) and 'Back' (grey).



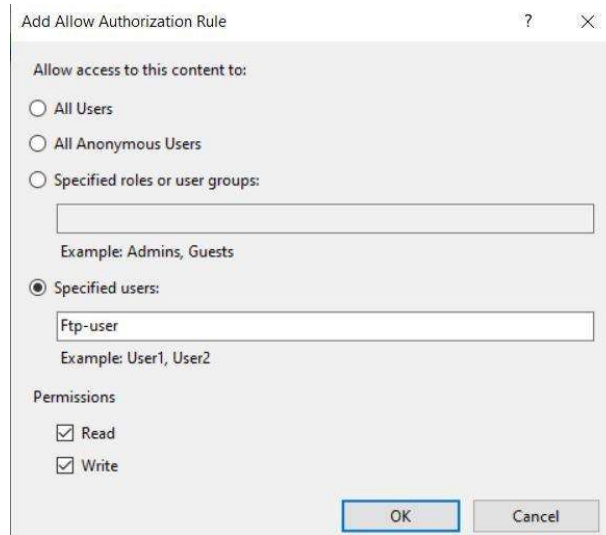
Confirm that the new FTP-User is added under other users:



Go to **Windows administrative tools > IIS > click on FTP Site Name that we created> right click FTPAuthorization Rules In empty space right click > Add Allow Rule...**



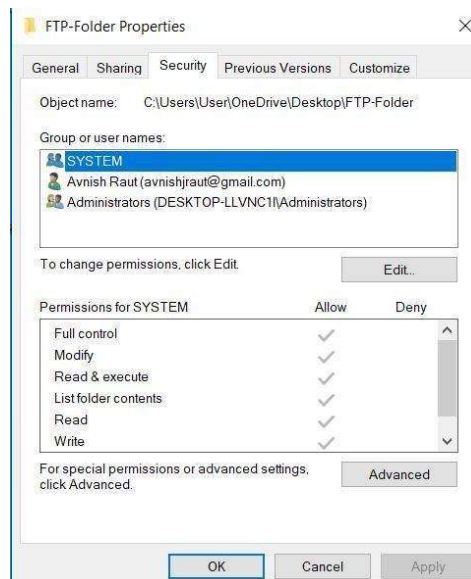
A window will appear; **Select Specified Users > fill FTP Username > check both Read and Write permissions**



Open the **Properties** of local FTP Folder > Switch to **Security** tab> **Edit** >

**Add**

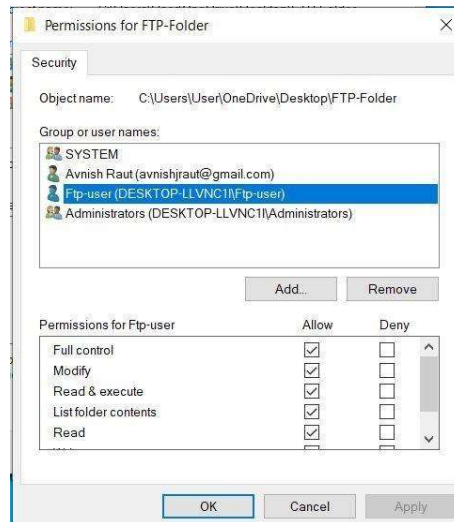
**User**



Enter the **FTP Username** under objects names to select > **Check Names**

> OK

Click on **FTP-User** > **Check Full Control Allow** > **Apply** > OK

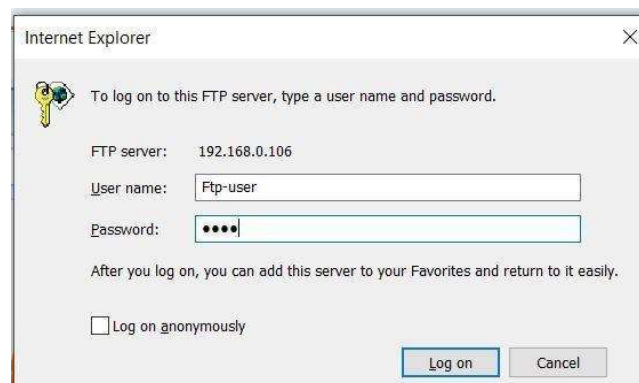


- **Accessing the ftp server from browser:**

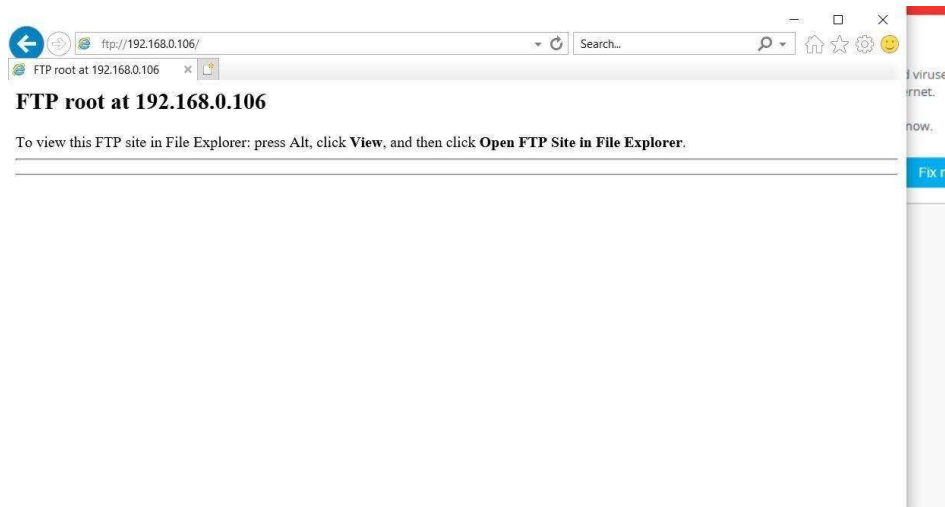
As most of the modern browsers have deprecated the feature/support to access the FTP. So, access the ftp server using “*Internet Explorer*”

Open Internet Explorer > In address bar type: `ftp://192.168.0.106/` > Enter

A popup window will open; Enter your *FTP Username* and *Password* respectively > Click **Logon**



As there are **no files in that folder** so it's not showing any files.



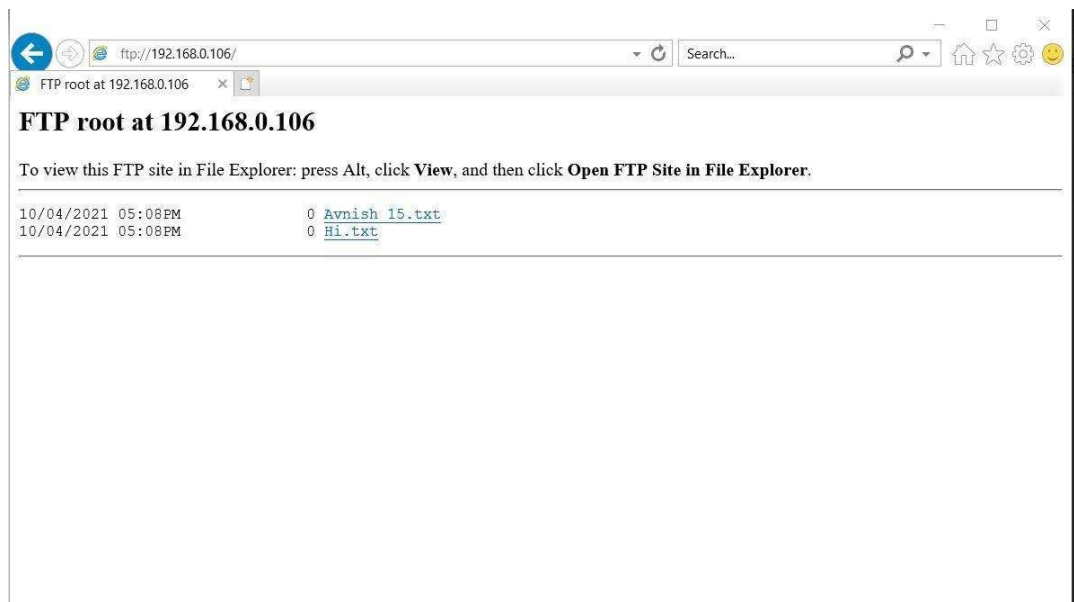
Let's **add some files in that local ftp folder:**

E.g: *Hi.txt*

*Avnish\_15.txt*

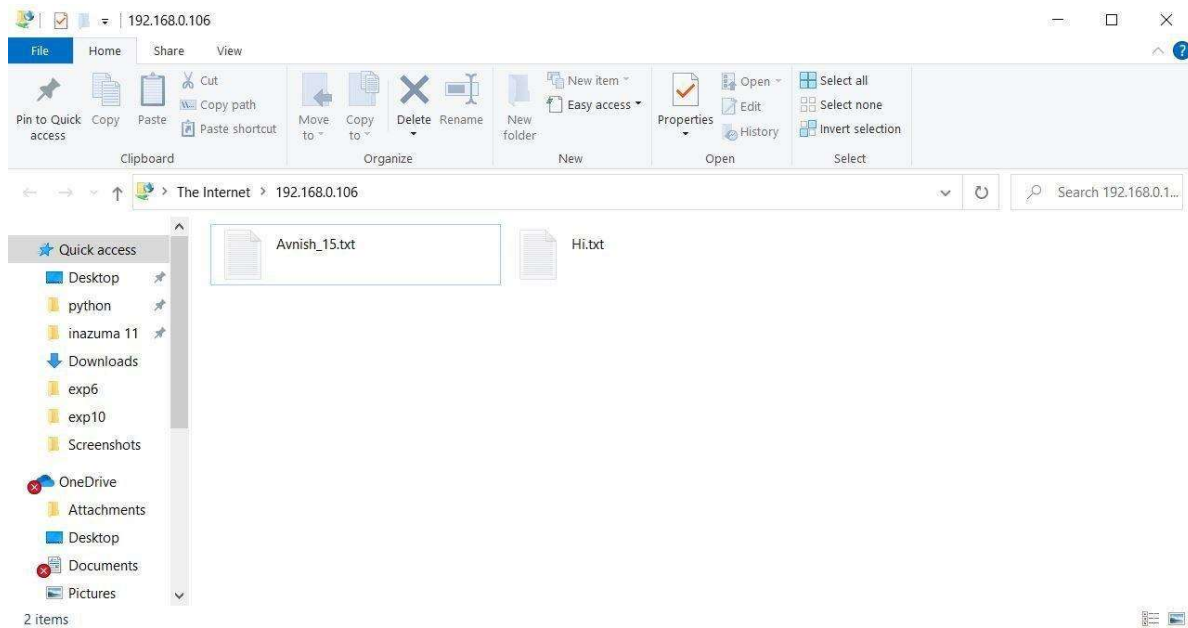
After adding files to local ftp folder **refresh** the **browser page**

As we can see that files in local ftp folder are accessible over FTP



- **Accessing the ftp server from File Manager:**

Go to file manager > click in address(path) bar > put your ftp address e.g.: ***ftp://192.168.0.106/*** > Enter



As we can see that the FTP folder is successfully accessible over FTP through; both Internet Browser as well as the File Manager.

### **Conclusion:**

The File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files from one host to another host over a TCP-based network, such as the Internet. FTP is built on a client-server architecture and uses separate control and data connections between the client and the server.

During the Anonymous access of FTP server default location of FTP data will be pub directory. However during user specific access default location of ftp data will be user directory in /home on serve.