File transfer protocol FTP

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Objectives

❑Define What is FTP (File Transfer Protocol)?
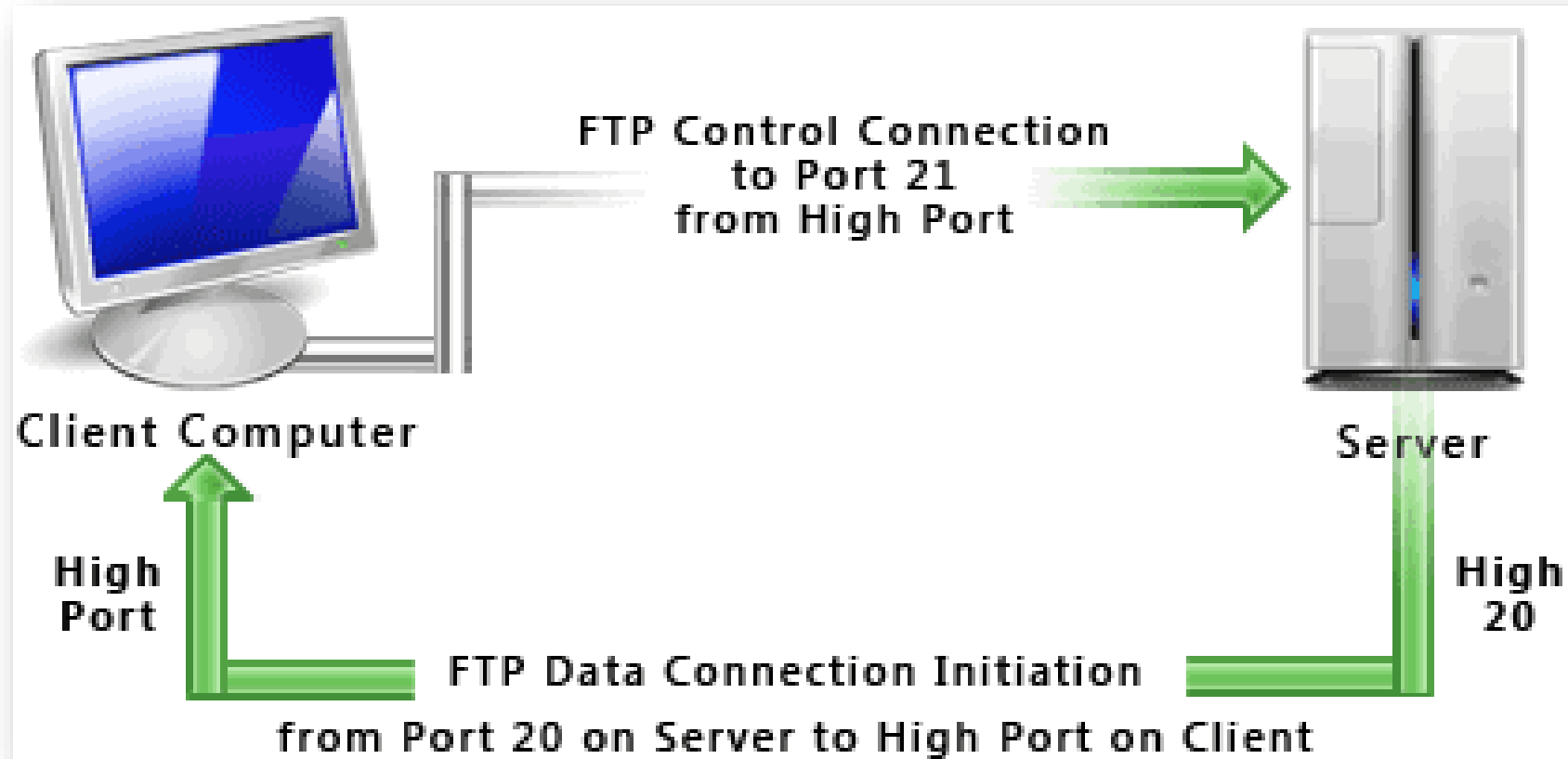
Type of FTP Connections

- *FTP server Configuration*

▪ working with FTP using Python

What is FTP?

❑ File Transfer Protocol(FTP) is an application layer protocol that moves files between local(client) and remote file systems (server). It runs on the top of TCP, like HTTP. To transfer a file, 2 TCP connections are used by FTP: control connection and data connection.

❑ FTP works on a client-server model

Control connection vs Data connection

Active FTP

High Port → Client Computer

FTP control connection to port 21 from high port → Server

Port 20

FTP data connection initiation from port 20 on server to high port on client

Passive FTP

High Port → Client Computer

FTP control connection to port 21 from high port → Server

High Port

**FTP data connection initiation from high port on client to high port on the server**

Passive Mode

- Passive Mode is used if there a firewall device in the network, in this Mode the server uses a random port number for the data channel

Ftp Server Configuration: FileZilla server

❑ if you would rather only run the FTP server manually, select the appropriate option from the drop down menu on the third screen:
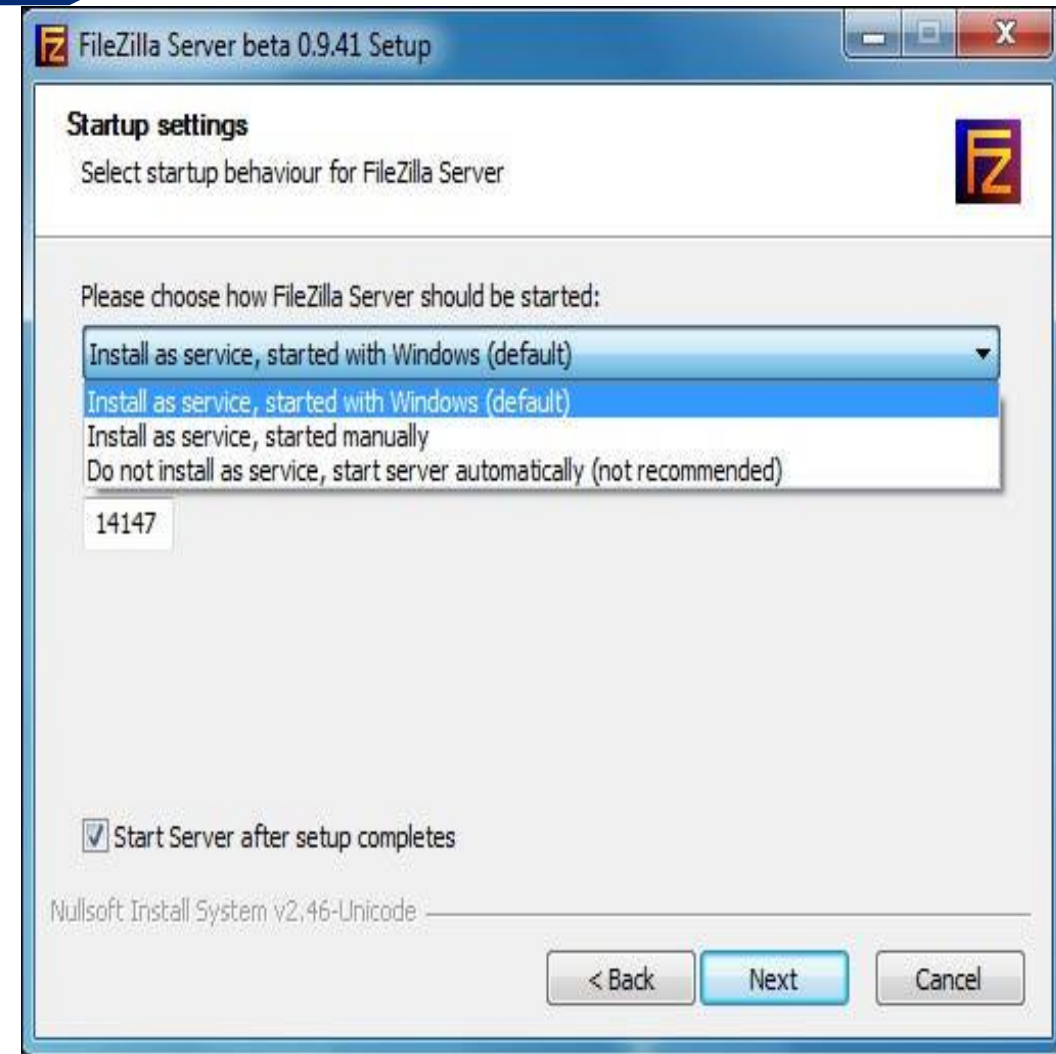
Ftp Server Configuration: FileZilla server

❑ Once installation is complete, the FileZilla interface will open. Just click OK when this window pops up right after installation:
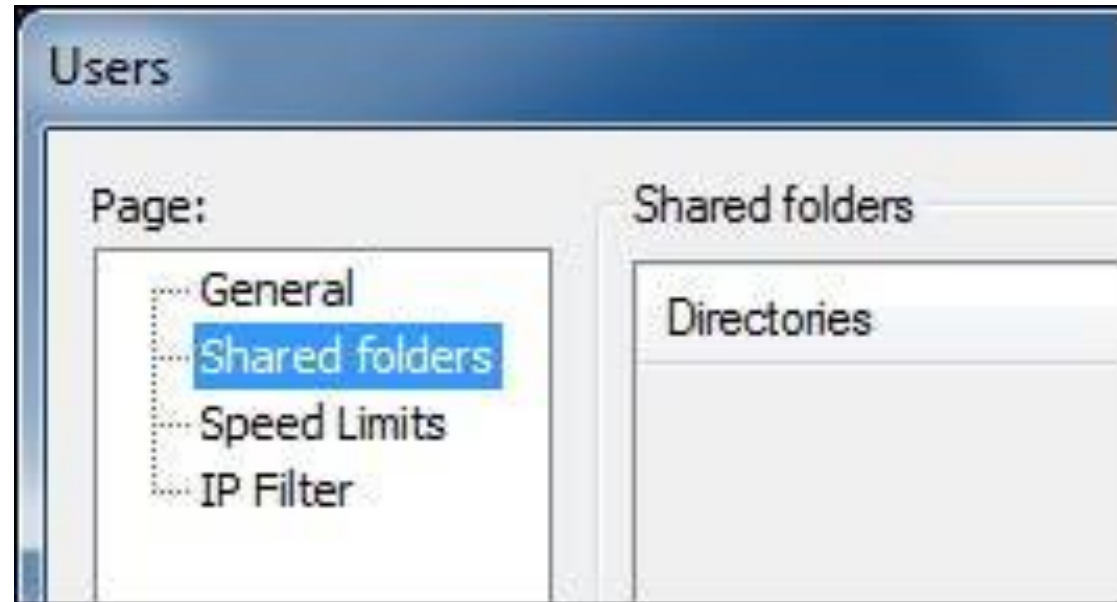
Ftp Server Configuration: FileZilla server

❑ If the directory you want to use isn't already created, minimize the interface and create a folder where you want the FTP share to be, we are going to use the folder 'ftp_server' on our desktop. Its exact location will be "C:\Users\ftp_server".
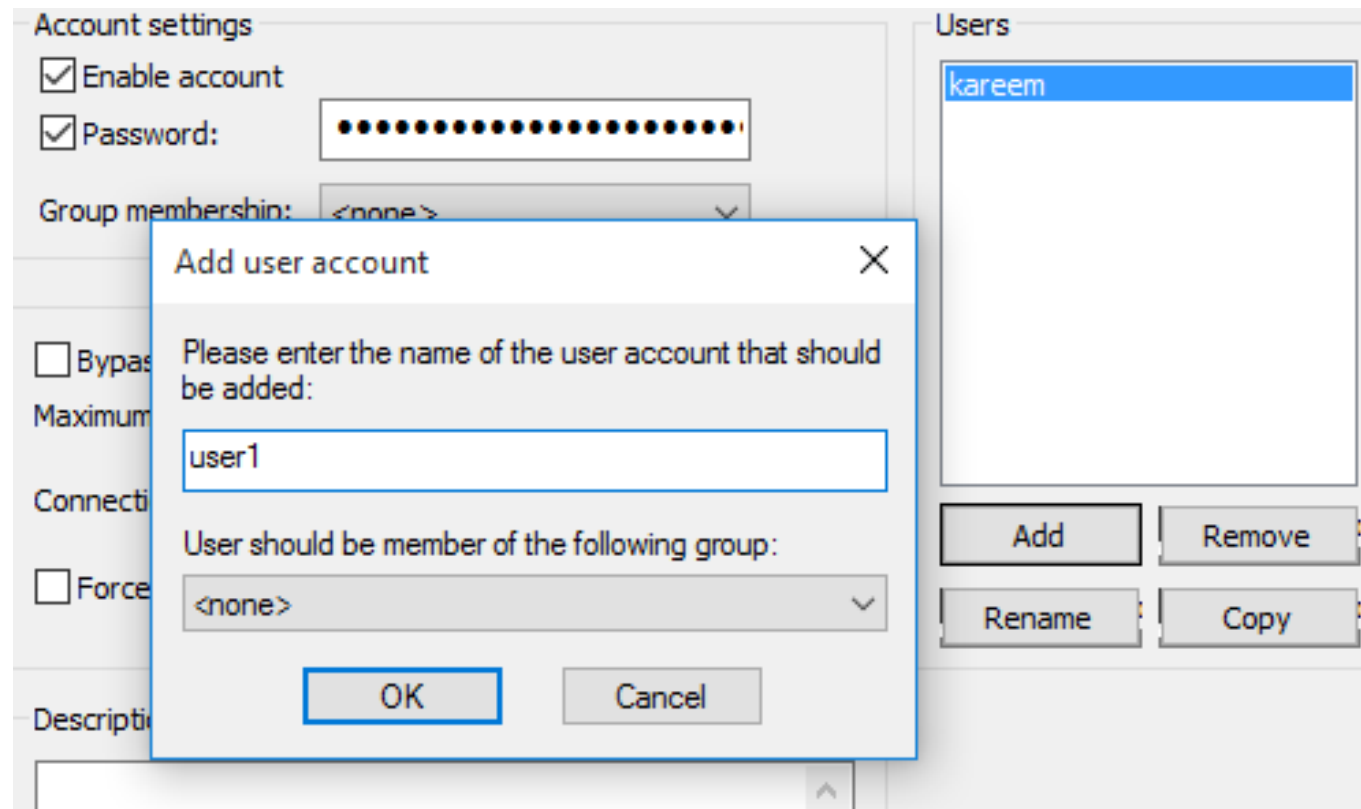
Ftp Server Configuration: FileZilla server

❑ On the left side of the window that comes up, click on "Shared folders."

Ftp Server Configuration: FileZilla server

❑ Once there, click on "Add" underneath "Users." Enter the username for an account that another computer will be using to access the repository we're setting up.
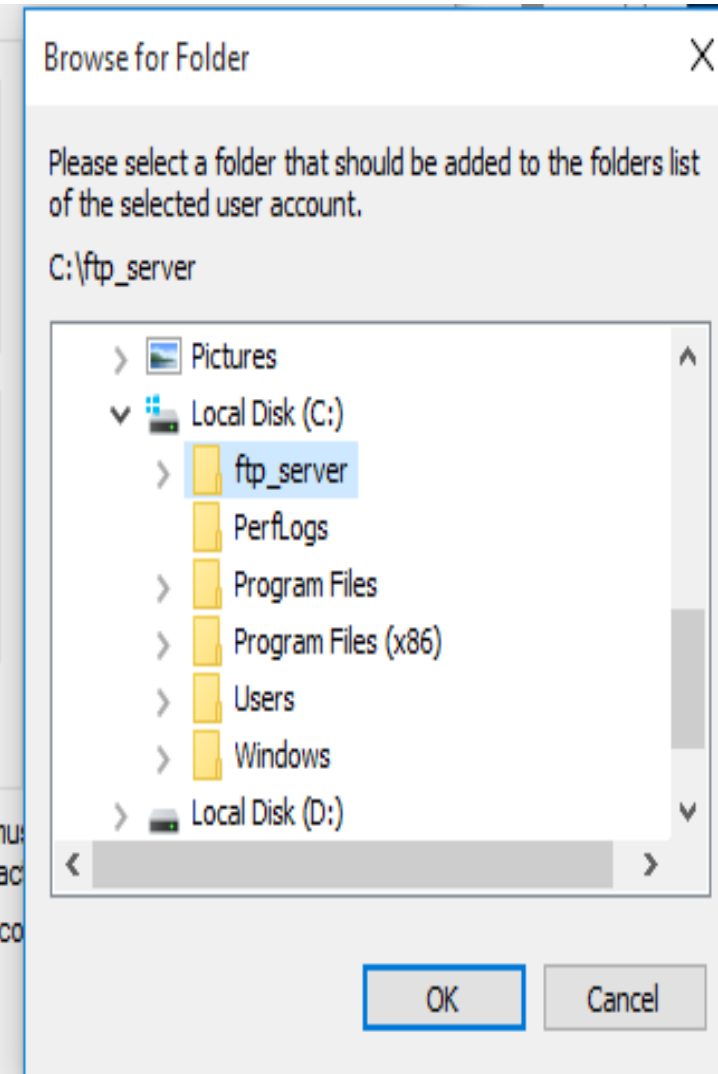
Ftp Server Configuration: FileZilla server

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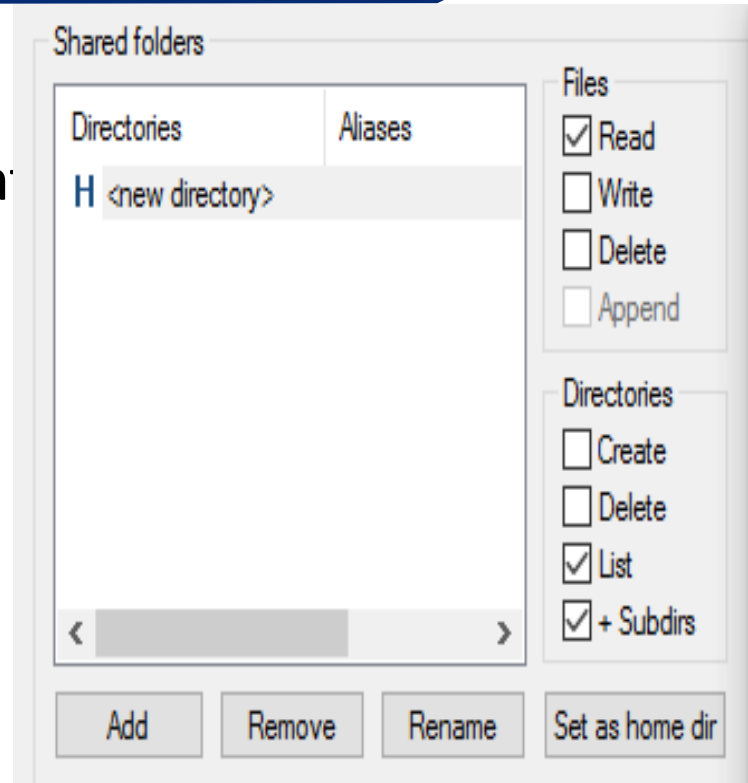
Ftp client Configuration: cmd

❑ To connect with ftp server write the command

```
Microsoft Windows [Version 10.0.19042.1526]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kareem>ftp 192.168.1.3
Connected to 192.168.1.3.
220-FileZilla Server 0.9.60 beta
220-written by Tim Kosse (tim.kosse@filezilla-project.org)
220 Please visit https://filezilla-project.org/
202 UTF8 mode is always enabled. No need to send this command.
```

Ftp client Configuration: cmd

❑ Write user and password of the ftp server

```
C:\Users\kareem>ftp 192.168.1.3
Connected to 192.168.1.3.
220-FileZilla Server 0.9.60 beta
220-written by Tim Kosse (tim.kosse@filezilla-project.org)
220 Please visit https://filezilla-project.org/
202 UTF8 mode is always enabled. No need to send this command.
User (192.168.1.3:(none)): kareem
331 Password required for kareem
Password:
230 Logged on
ftp>
```

Ftp client Configuration: cmd

❑ To download a file from ftp server

```
ftp> get
Remote file server.txt
Local file c:\ftp_client\myclient.txt
200 Port command successful
150 Opening data channel for file download from server of "/server.txt"
226 Successfully transferred "/server.txt"
ftp: 17 bytes received in 0.00Seconds 17000.00Kbytes/sec.
ftp>
```

Ftp client Configuration: cmd

❑ To upload a file to ftp server

```
ftp> put
Local file c:\ftp_client\client.txt
Remote file client.txt
200 Port command successful
150 Opening data channel for file upload to server of "/client.txt"
226 Successfully transferred "/client.txt"
ftp: 17 bytes sent in 0.09Seconds 0.20Kbytes/sec.
ftp>
```

Ftp client implementation : python

- Enter Required Information
- **Note:** ip will change time to time

```
import ftplib

# ftp.redhat.com
#ftp.ubuntu.com
HOSTNAME='192.168.1.3'
USERNAME='kareem'
PASSWORD='123'
```

Ftp client implementation : python

❑ Connect to Server

```python
# Connect FTP Server
ftp_server = ftplib.FTP(hostname, user, password)


print(ftp_server.getwelcome())  # welcome message


print(ftp_server.pwd())  # to get present working directory
# ftp_server.cwd('share')  # to set working directory
print(ftp_server.pwd())  # to get present working directory
print(ftp_server.dir())  # to print all files on the ftp server
```

Ftp client implementation : python

❑ **Upload** the File (To upload a file, we will use **storbinary()** method)

```python
try:
    # Enter File Name with Extension
    filename = 'client.txt'
    with open(filename, "rb") as file:  # Read file in binary mode
        # Command for Uploading the file "STOR filename"
        ftp_server.storbinary(f"STOR {filename}", file)
        print('file  Uploaded successfully')
        # ftp_server.close()
except:
    print("file Not Uploaded")
```

Ftp client implementation : python

❑ **Download** the File (To download a file, we will use **retrbinary()** method.

```python
# download file from ftp server
    try:
        filename = 'server.txt'
        with open(filename, "wb") as file:  # Read file in binary mode
            # Command for Downloading the file "RETR filename"
            ftp_server.retrbinary(f"RETR {filename}", file.write)
            print('file  Downloaded successfully')
            ftp_server.close() # close connection

    except:
        print('file not downloaded')
```

Ftp client implementation : python

❑ Display content

```python
# Display the content of downloaded file
content = open(filename, 'r')
print(content.read())
```

Ftp client implementation : python

❑ Display result

```
220-FileZilla Server 0.9.60 beta
220-written by Tim Kosse (tim.kosse@filezilla-project.org)
220 Please visit https://filezilla-project.org/
/
/
-rw-r--r-- 1 ftp ftp                17 Mar 02 20:16 client.txt
-rw-r--r-- 1 ftp ftp                17 Mar 02 13:24 server.txt
drwxr-xr-x 1 ftp ftp                 0 Mar 02 17:50 share
-rw-r--r-- 1 ftp ftp                34 Mar 02 14:53 upload_file.txt
None
file  Uploaded successfully
file  Downloaded successfully
Hello from server


Process finished with exit code 0
```

download FileZilla server

❑ To start, you'll need to download FileZilla server, available https://osdn.net/projects/filezilla/downloads/67736/FileZilla_Server-0_9_60_2.exe/