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COMPUTER NETWORKS
EXPERIMENT NO.9

Aim: Perform File Transfer and Access using FTP

Theory:

FTP stands for File Transfer Protocol. It is a standard communication protocol. There are various other protocols like HTTP which are used to transfer files between computers, but they lack clarity and focus as compared to FTP. Moreover, the systems involved in connection are heterogeneous, i.e. they differ in operating systems, directories, structures, character sets, etc the FTP shields the user from these differences and transfers data efficiently and reliably. FTP can transfer ASCII, EBCDIC, or image files. The ASCII is the default file share format, in this, each character is encoded by NVT ASCII. In ASCII or EBCDIC the destination must be ready to accept files in this mode. The image file format is the default format for transforming binary files.

Why is FTP important and what is it used for?

FTP (File Transfer Protocol) is a network protocol used to transfer files between computers over a network. It's important for tasks like:

- **File sharing and distribution:** Sharing large files, distributing software, and collaborating on projects.
- **Website deployment:** Uploading website files to a web server.
- **Data backup and archiving:** Backing up important files and archiving old data.
- **File transfer between different systems:** Transferring files between different operating systems and hardware platforms.
- **Automation and scripting:** Automating file transfer tasks and creating custom scripts.

FTP is especially useful for:

- **Transferring Large Files:** FTP can transfer large files in one shot; thus applicable when hosting websites, backing up servers, or sharing files in large quantities.
- **Remote File Management:** Files on a remote server can be uploaded, downloaded, deleted, renamed, and copied according to the users' choices.
- **Automating File Transfers:** FTP is a great protocol for the execution of file transfers on predefined scripts and employments.

- **Accessing Public Files:** Anonymous FTP means that everybody irrespective of the identity is allowed to download some files with no permissions needed.

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:

● **The FTP server address -** This looks a lot like the addresses you type to browse websites.

Example: Server address is "ftp.videodesk.net". Sometimes the server address will be given as a numeric address, like "64.185.225.87".

● **Username and password -** Some FTP servers let you connect to them anonymously. For anonymous connections, you do not need a username 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 sessions work in active or passive modes:

1] Active mode: After a client initiates a session via a command channel request, the server creates a data connection back to the client and begins transferring data.

2] Passive mode: The server uses the command channel to send the client the information it needs to open a data channel. Because passive mode has the client initiating all connections, it works well across firewalls and network address translation gateways.

Advantages of FTP:

- Allows the transfer of multiple files and directories
- Ability to resume a transfer if the connection is lost
- Ability put items into a queue to be uploaded or downloaded
- Allows you to schedule transfers
- No size limitation on single transfers (browsers only allow up to 2 GB)
- Scripting capabilities through command line
- Synchronizing utility
- Faster transfers then HTTP
- Supported on almost all hosts

Disadvantages of FTP:

- Usernames, passwords, and files are sent in clear text
- Filtering active FTP connections is difficult on your local machine (passive is preferred)
- Servers can be spoofed to send data to a port on the wrong computer
- Difficult to script jobs
- TLS 1.2 not always supported over https (use cURL instead)
- Easy for inexperienced users to wipe out work

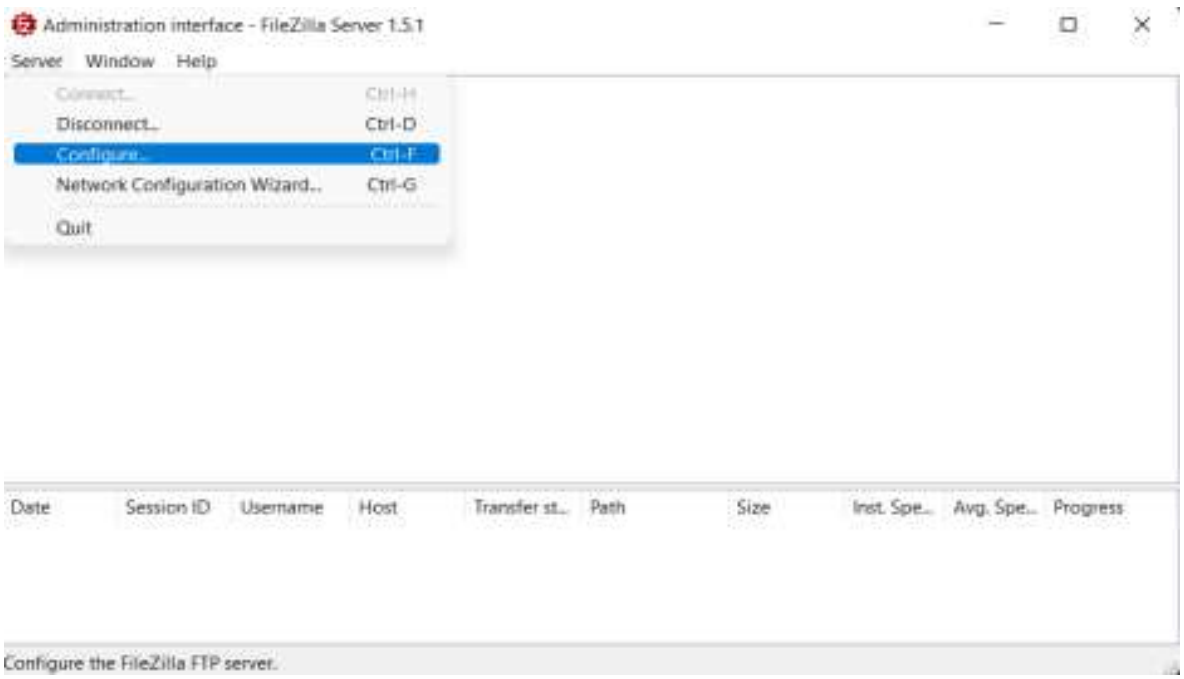
- Inconsistency/inability to track what has been uploaded on the remote system

Implementation:

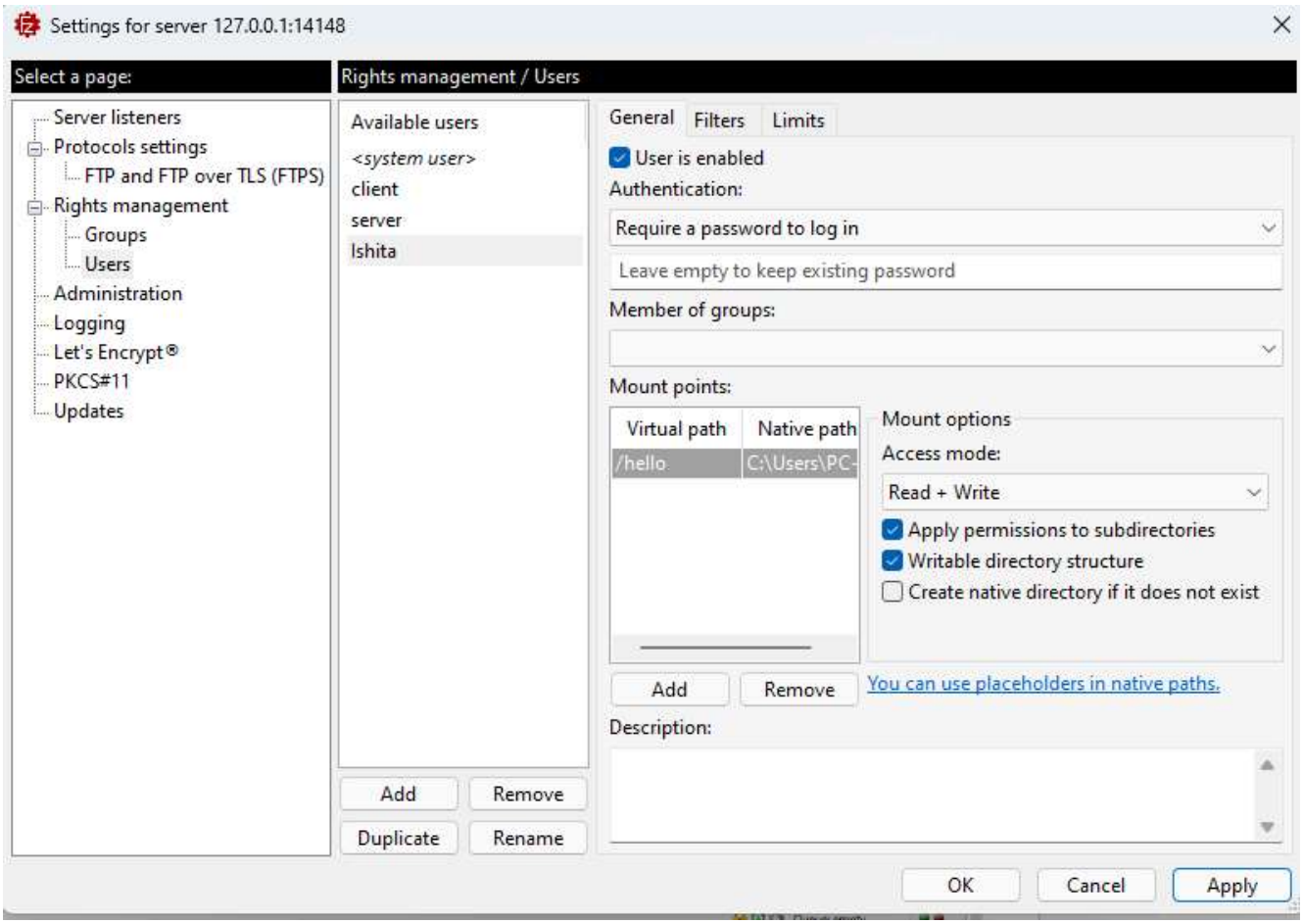
Step1: Connecting as Administrator to FTP server

Step2: Giving user rights to users to access FTP Server

a) Go to FileZilla Administration Interface and Select Server → Configure



b) Set username and a strong password
c) Add virtual and native path



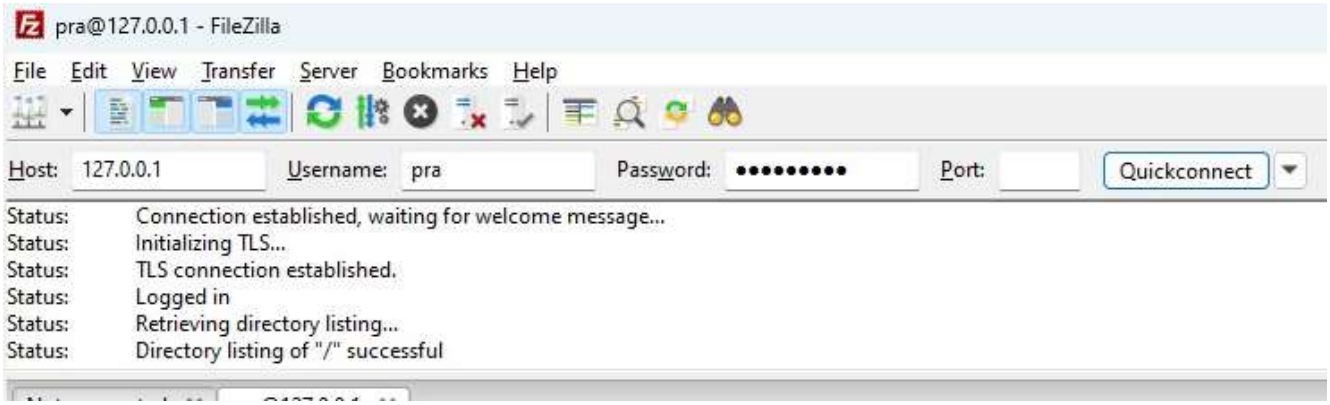
16-10-2024 11:35:00	FTP Session 13 127.0.0.1	Response	220-FileZilla Server 1.9.2
16-10-2024 11:35:00	FTP Session 13 127.0.0.1	Response	220 Please visit https://filezilla-project.org/
16-10-2024 11:35:00	FTP Session 13 127.0.0.1	Command	AUTH TLS
16-10-2024 11:35:00	FTP Session 13 127.0.0.1	Response	234 Using authentication type TLS.
16-10-2024 11:35:02	FTP Session 13 127.0.0.1	Command	USER pra
16-10-2024 11:35:02	FTP Session 13 127.0.0.1	Response	331 Please, specify the password.
16-10-2024 11:35:02	FTP Session 13 127.0.0.1	Command	PASS ****
16-10-2024 11:35:02	FTP Session 13 127.0.0.1	Response	230 Login successful.
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Command	FEAT
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Response	211-Features:
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Response	211 End
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Command	PWD
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Response	257 "/" is current directory.
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Command	TYPE I
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Response	200 Type set to I
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Command	PASV
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Response	227 Entering Passive Mode (127,0,0,1,196,5)
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Command	MLSD
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Response	150 Starting data transfer.
16-10-2024 11:35:02	FTP Session 13 127.0.0....	Response	226 Operation successful

Step3: Connect to the FTP server using User Login

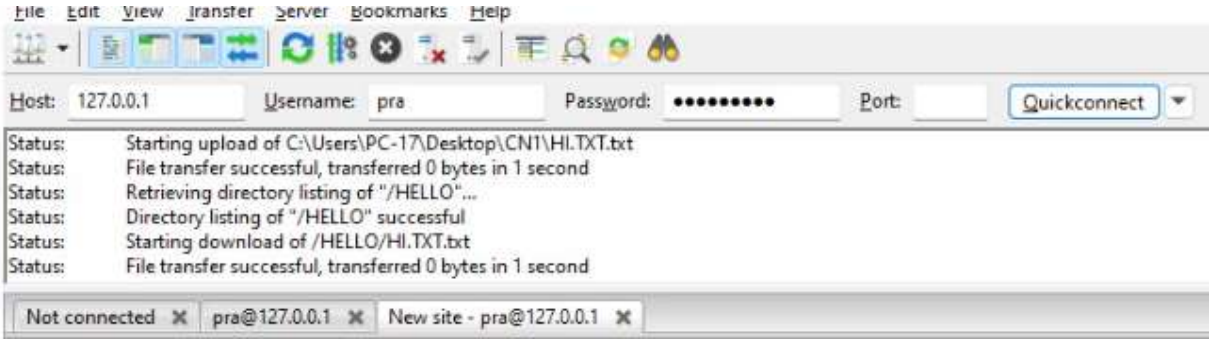
Two ways:

1) Go to File → SiteManager and create New site

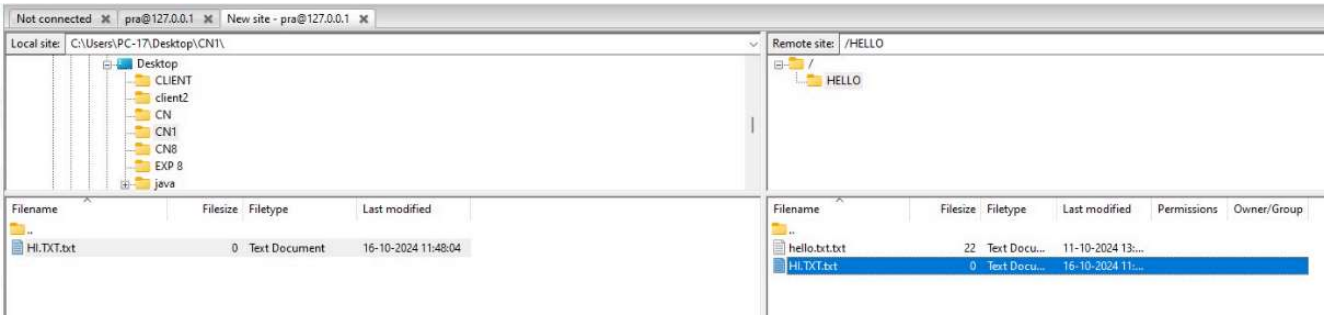
2) Direct login



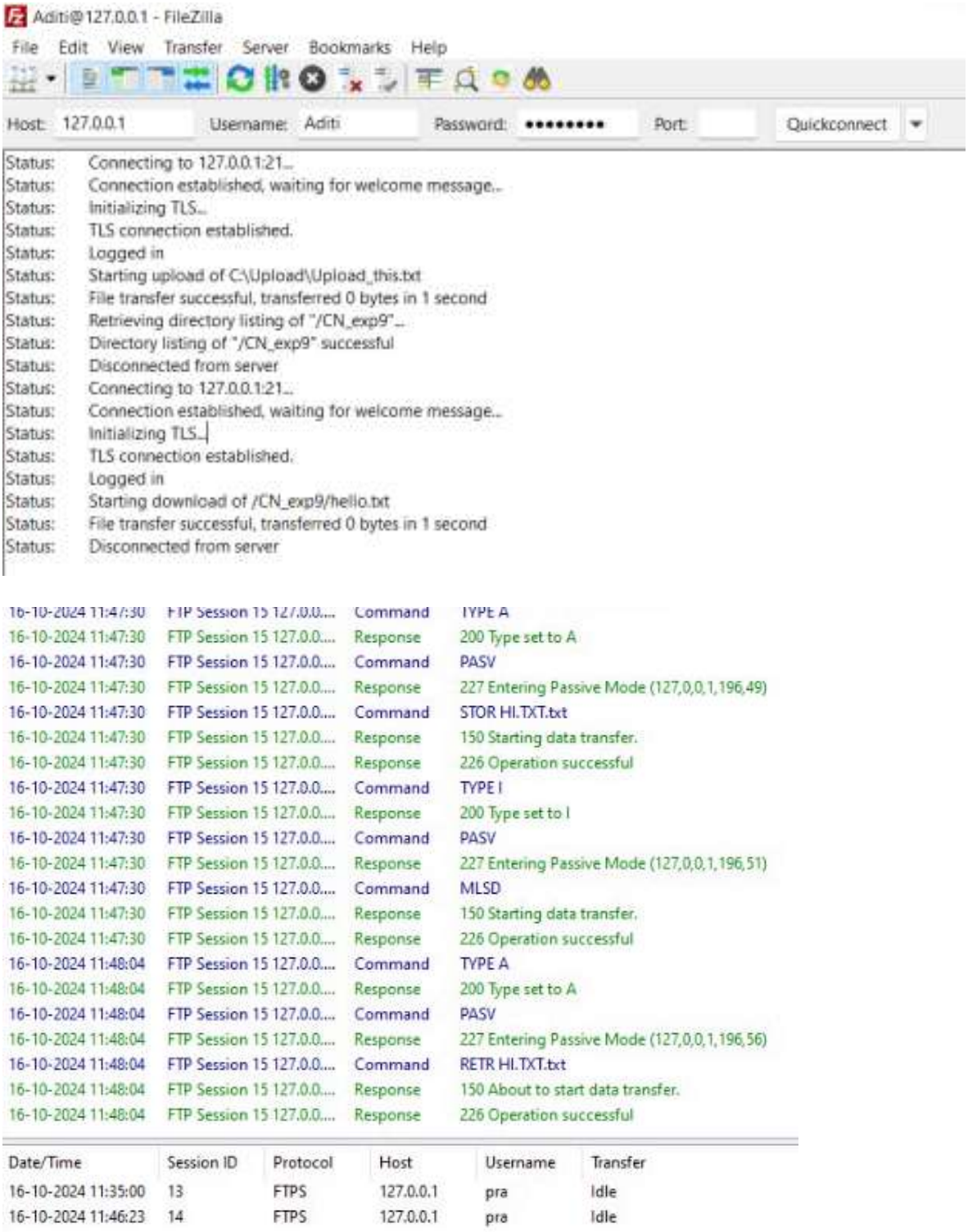
Step4: Uploading file to FTP server



Step5: Downloading file from FTP Server



Status Console:



Successful transfers:

Date/Time	Session ID	Protocol	Host	Username	Transfer
16-10-2024 11:35:00	13	FTPS	127.0.0.1	pra	Idle
16-10-2024 11:46:23	14	FTPS	127.0.0.1	pra	Idle

Conclusion: