Network

File Transfer

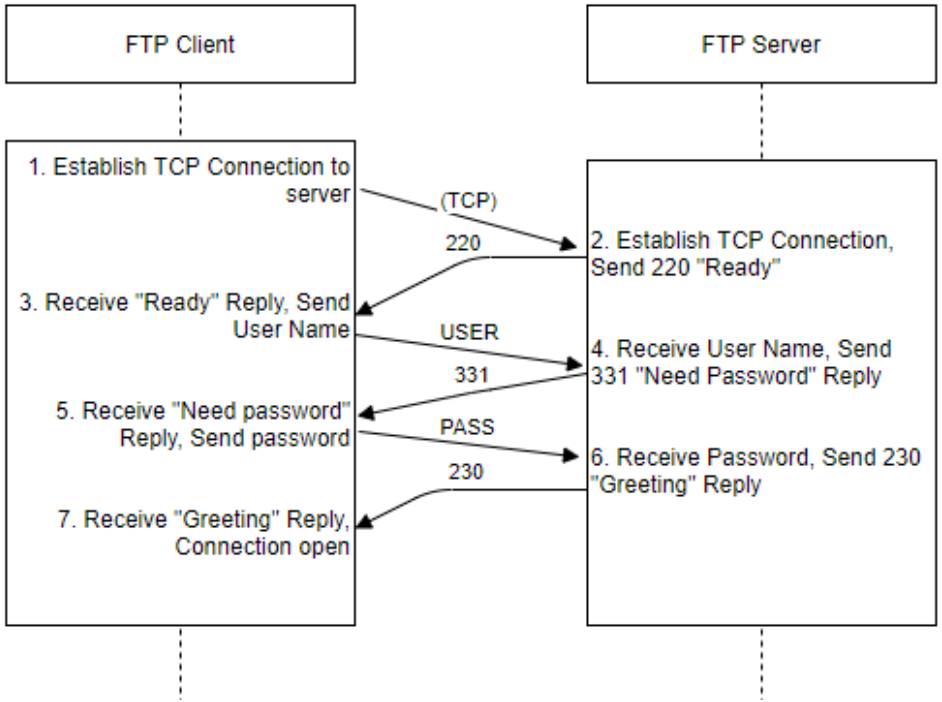
File Transfer Protocol and derived protocols

The **File Transfer Protocol** (**FTP**) is a standard communication protocol used for the transfer of computer files from a server to a client on a computer network. FTP is built on a client–server model architecture using separate control and data connections between the client and the server.[1] FTP users may authenticate themselves with a clear-text sign-in protocol, normally in the form of a username and password, but can connect anonymously if the server is configured to allow it. 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).

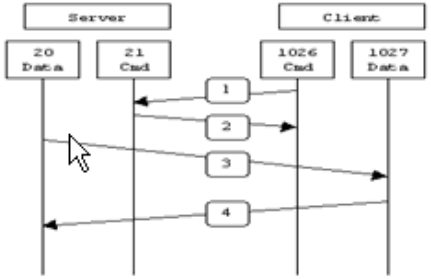
© Wikipedia

SFTP is a file transfer protocol similar to FTP but uses the SSH protocol as the network protocol (and benefits from leaving SSH to handle the authentication and encryption). **SCP is only for transferring files**, and can't do other things like list remote directories or removing files, which SFTP does do

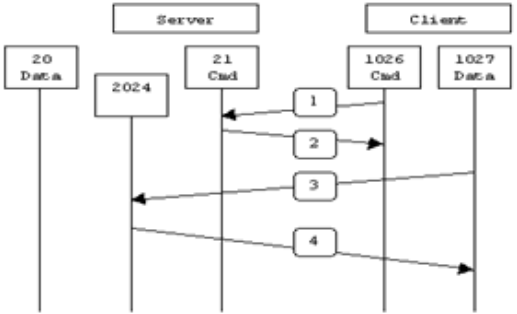
FTP Sequence



FTP Active vs Passive mode



Active FTP



Passive FTP

Active FTP :
command : client >1023 -> server 21
data : client >1023 <- server 20

Passive FTP :
command : client >1023 -> server 21
data : client >1023 -> server >1023

Use cases

SCP uses like: `scp [OPTION] [user@]SRC_HOST:]file1 [user@]DEST_HOST:]file2`
On SSH connection way include key basis auth.
Example:

```
scp file.txt remote_username@10.10.0.2:/remote/directory
```

SFTP Example:

```
$ sftp pluto
Connecting to pluto...
Password: xxx
sftp> lcd /tmp
sftp> cd /tmp
sftp> ls
filea
files
ps_data
sftp> get filea
/tmp/filea                                    100%  494     0.5KB/s   00:00
sftp> bye
```

File transfer protocols compare

Let's try compare file transfer protocols:

FTP	FTPS	SFTP	SCP
TCP	TCP	TCP	TCP
Port 20*, 21	Port 990, 989.	Port 22	Port 22
Slow	Slow	Slow	Fast
Less secure	Secure	Secure	Secure
No encryption	TLS encryption	Handle by SSH	Handle by SSH

* As you know it depends on passive/active modes

Self study

GOAL:

Do the scp file copy on you own virtual environment after SSH self study point.

What to do:

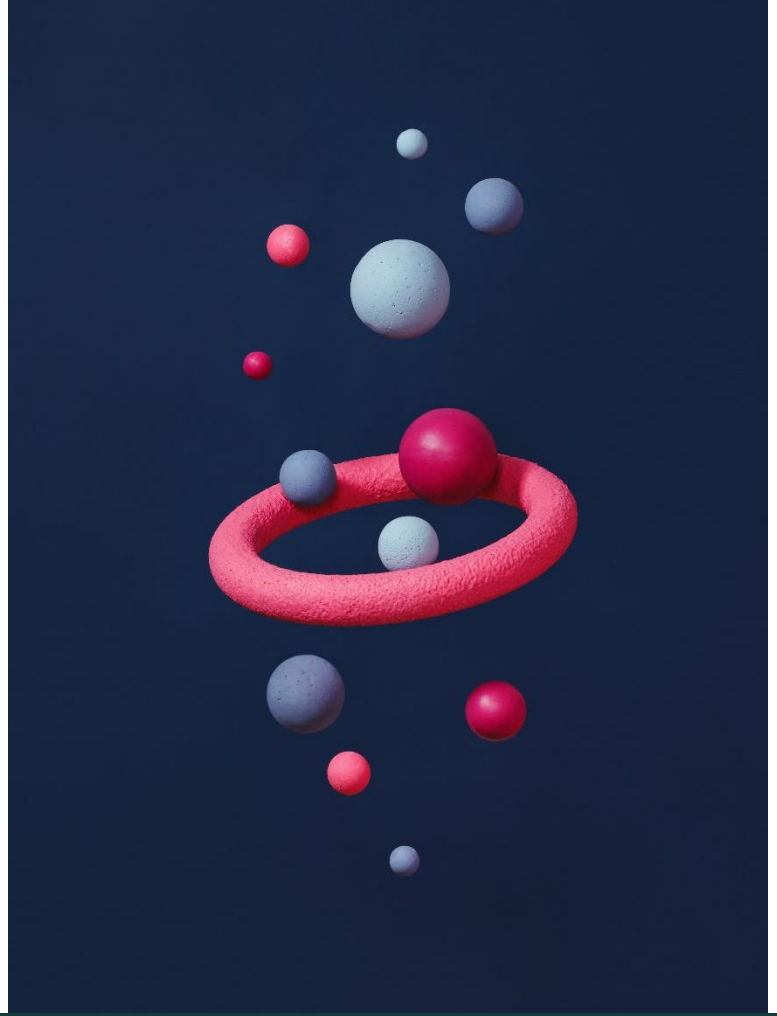
- copy file from SSH server by scp command.

Environment:

The same as on SSH self study.

How to check:

Do the ls command in target scp command directory on Client VM.



THANK YOU