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Networks Services

Computer Networks

TRAINING

CENTER

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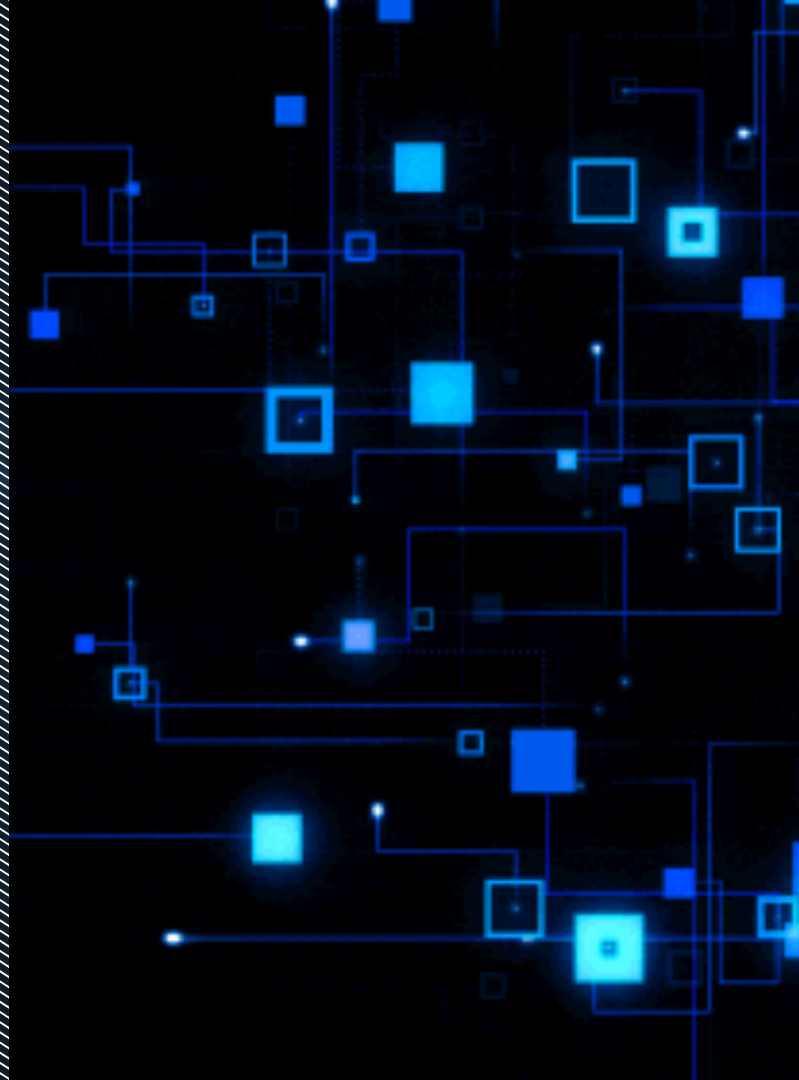
Agenda

- FTP
- FTPS
- SFTP

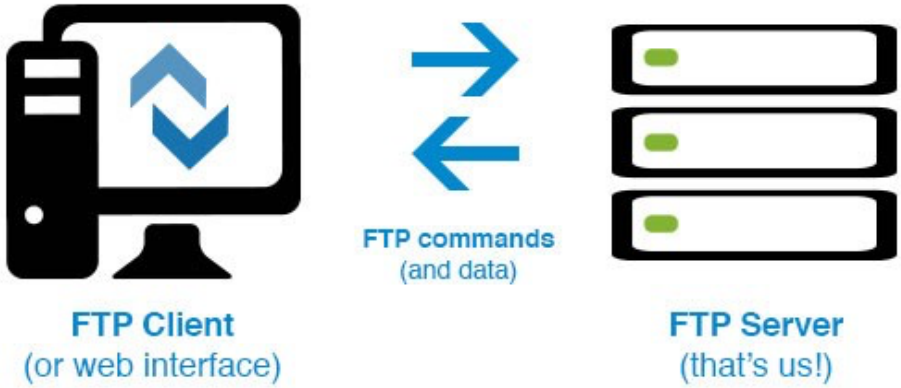


File transfer protocol

FTP is one of the simplest, and earliest formats created to quickly move files from one device to another. It has its origins all the way in 1971, when the first version was created and published by Abhay Bhushan. In the 1980s, the FTP format was updated to the TCP/IP version associated with servers.

An FTP server offers access to a directory, with sub-directories. Users connect to these servers with an FTP client, a piece of software that lets you download files from the server, as well as upload files to it.

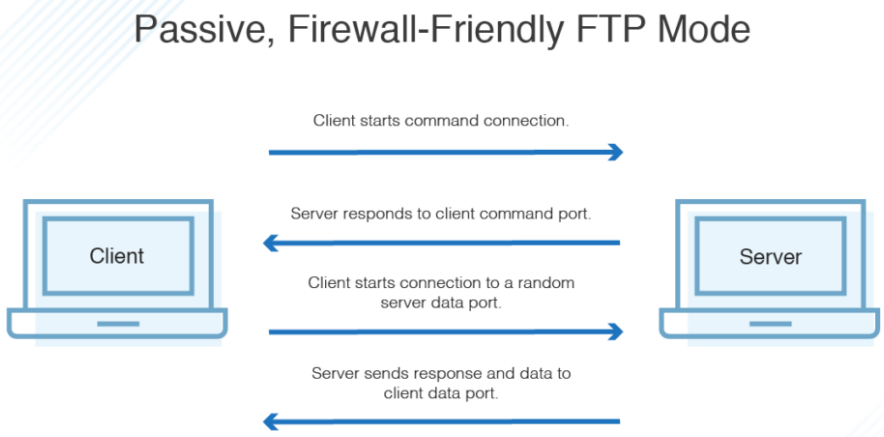
FTP is not secure!
All passwords transferred in plain text!



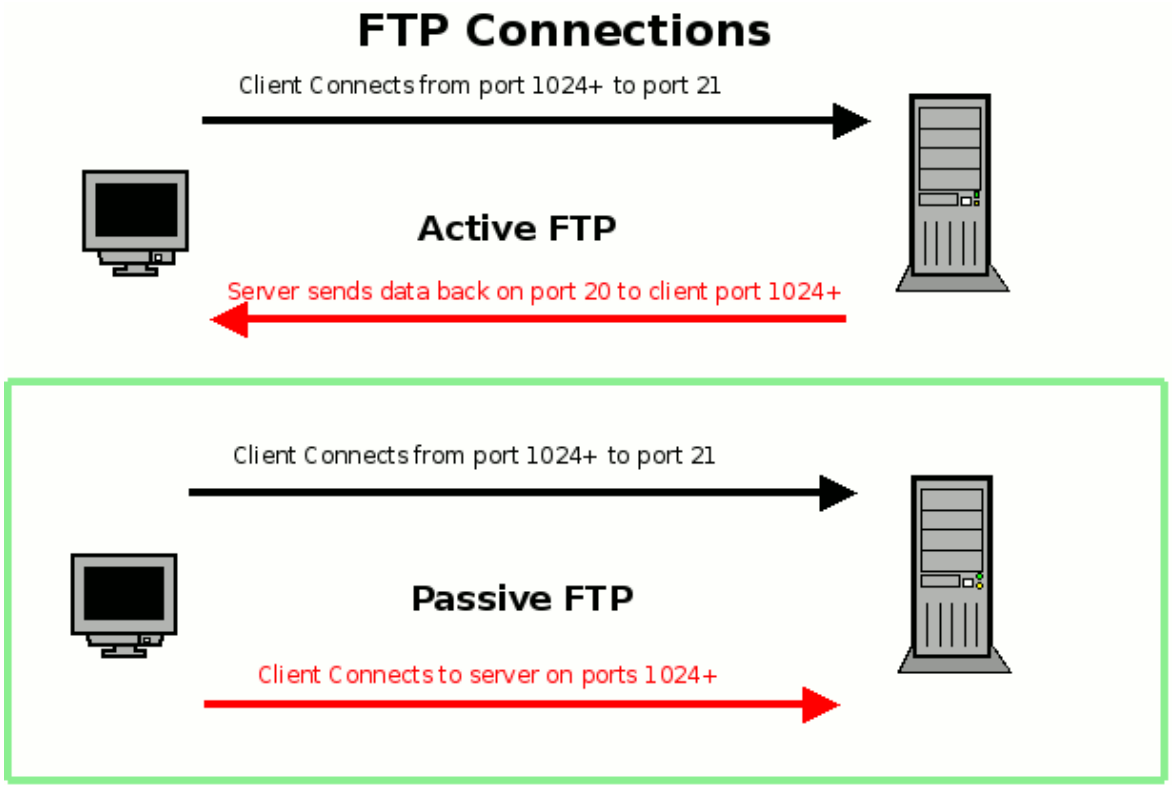
File transfer protocol

FTP uses **two basic channels** to operate.
The **command channel** carries information about the task itself — what files are to be accessed, if commands are registering, etc.
The **data channel** then transfers the actual file data between devices.

FTP connections can also have active and passive modes. **Active mode** are the most common, and allow open communication between the server and the device over both channels, with the **server taking an active role in establishing the connection** by approving requests for data.
However, this mode can be disrupted by firewalls and similar issues, so there's also a **passive mode** where the server pays attention but doesn't actively maintain the connections, allowing the other device to do all the work.



File transfer protocol



File transfer protocol

FTPS transfers data over an SSL-encrypted network.
Any connection attempt that doesn't use SSL encryption is not accepted by the server.
FTPS also leverages digital certificates to authenticate information. Certificates signed by a known certificate authority (CA) or that include a copy of the recipient's public key are considered secure.

SFTP (secure file transfer protocol) enhances the security of traditional FTP methodology. Unlike FTPS, which relies on the same data and command channels as FTP, SFTP transfers both data and commands via a single, secure connection.
SFTP also encrypts both the authentication information and the data being transferred with the Secure Shell (SSH) protocol, a form of public and private key encryption. This ensures nothing remains as clear text.