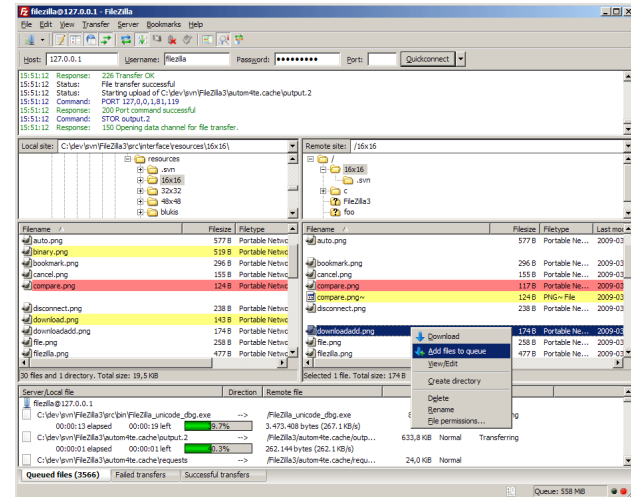# Application Layer File Transfer Protocols

- File Transfer Protocol (FTP)
- Secure File Transfer Protocol (SFTP)
- Trivial File Transfer Protocol (TFTP)

File Transfer Protocol (FTP)

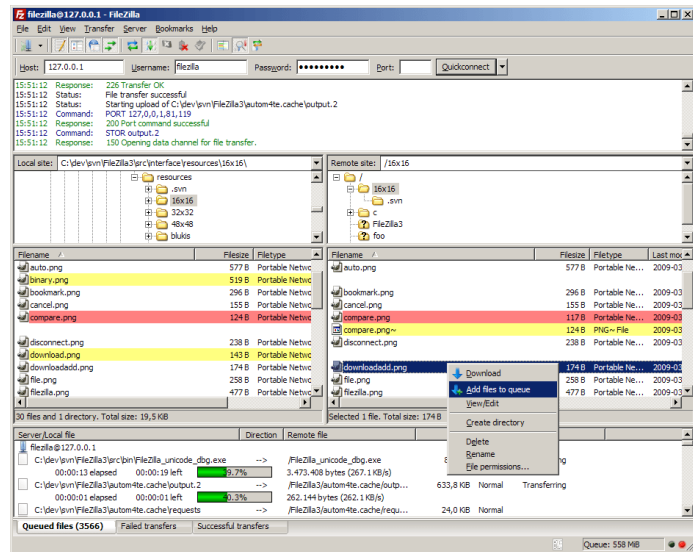**Ports:** 20, 21   **Transport Layer Protocol:** TCP

- Legacy protocol used to transfer files between systems
  - Slowly being replaced by Secure FTP (SFTP)
- Can authenticate with a username and password or utilize anonymous logins
- Data is transferred in clear text, so it's considered insecure
- Full-featured functionality:
  - View, list, add, delete, etc. files and folders
- Uses two TCP ports by default:
  - **Port 20 for Data**: Data Transfers
  - **Port 21 for Control**: Commands

Secure File Transfer Protocol (SFTP)

Port: 22   **Transport Layer Protocol:** TCP

- A secure cryptographic version of FTP that uses SSH to provide encryption services.
  - Provides file transfer over SSH
- Uses TCP port 22 by default (same port as SSH)

Trivial File Transfer Protocol (TFTP)

Port: 69   **Transport Layer Protocol:** UDP

- A bare-bones version of FTP used for simple downloads
  - o   Doesn't support authentication
  - o   Doesn't support directory navigation
- Requires that you request the exact file (and location)
- Often used to transfer software images for routers and switches during upgrades
- Utilizes UDP port 69 by default