

Assignment 04

Design a simple file transfer protocol

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Tieto – ja viestintätekniikka
Tekniikan ja liikenteen ala

1 FTP document

The protocol consists of client and server where client is used to download files from the server. Client must have two requests: "LIST" when server lists files that are available to download, and "DOWNLOAD" when server transfer specific file to client. Server must have two responses: "ERROR" when server reports to client that asked file cannot be transferred, and "FILE" when server transfers the file.

When transferring the file, server first sends a header which contains the filename and its size. The header is combined as a string and transferred in bytes. After the header server sends the file in bytes. Byte order is always big endian and all messages are transferred with the encoding of utf-8. The client uses header information to name the file, and to know how big of a file to expect. Client creates new file with the same name as the one in server, and import received data to it.

File transfer protocol is stateless protocol where server responses to the client according to current state. It doesn't require server to save any information of the clients or session details. Stateless protocol handles transactions very fast and is very easy to implement.

For the security of the protocol the server requires credentials for client to access its files.

Most of the protocol is binary based, but the error messages are in text. When error occurs, servers sends error information to the client and clients prints it out as string. Possible error conditions might be that file that were tried to obtain does not exist, in if this happens, server raises FileNotFoundError, and responses to client that "File is not found!"