Simple file transfer protocol

Version 0.1

Intro

Simple file transfer protocol is just what it says in the name. It's a protocol for sending files from one computer to another. It's supposed to be simple and small to allow for higher efficiency when transferring files and to be easy to implement.

Functionality

The protocol is meant for transferring a file over network with either TCP or UDP safely. By safely it means it will resend packages that get lost during the transfer so that the entire file can be recreated on the other side.

How it works

The client connects to the server and initiates a handshake, when the handshake is complete the client can start sending the file. The file is chopped up into smaller packages that are sent to the server. Each package sent needs to be acknowledged by the server, which means the server sends a small package back for each received package so that the client knows it has received them. If the client does not get an acknowledgment package for a package it has sent it will resend that package until all packages has been confirmed.

Details

Handshake

The client asks the server if it is a SFTP server and if the server answers with the correct info the client can continue with the process of sending the file.

Package header

All the mentioned packages in this protocol have as the first variable in the header a 2 byte size which tells the receiver how big the package is. The next byte defines what type of package it is. If the package carries part of the file it has a sequencing number 2 bytes big. If it's an acknowledgment it has the type of package it is acknowledging after what type of package it is.

Package types

0 - Acknowledgment

1 - Question

2- Answer

3 - File info

4 - Payload

The first package (The question)

This package asks the server if it is a SFTP server and prepares the server for a file transfer.

The second package (The answer)

The answer exists so that the client knows that the server is a SFTP server.

File info package

File info package includes data about the file that is being transferred. The info included is filename, file size in bytes, how many packages the server can expect.

This package needs to be acknowledged by the server.

Payload

A payload package is a part of raw data of the file, if the file is 3214 bytes in size and each payload package can hold 1400 bytes of data the file will be split into 3 packages, 2 holding 1400 bytes each and the third only 414 bytes.

This package needs to be acknowledged by the server.