



Team

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Protocol

These are the valid messages used in our protocol.

- Packet size: 1KiB¹

Process

- An initial request will be made, specifying which type of request
- An acknowledgement will always be returned from the server, regardless of if the request was invalid
- If the request was valid, the server/client will transmit the data in packets

Formats

Initial request

`type={0,1,2},name={<str>},n={<int>}`

Definitions

- **type:** 0 = get, 1 = put, 2 = list
- **name:** The file name. Will be the empty string if type = 2
- **n:** The number of packets required to upload the file. 0 unless type = 1

Request acknowledgement:

`status={0,1},msg={<str>},n={<int>}`

¹Kibibytes (KiB) are 1024 bits

Definitions

- **status**: 0 = success, 1 = error
- **msg**: The error message. Will be the empty string if type = 0
- **n**: The number of packets that the file will be sent in. 0 unless type = 0

File packets

- The file encoded in binary format
- Split into packets. Use the **n** header to determine how many packets to listen for

List response

First packet: **n**={<int>}

Next **n** packets: **name1**,**name2**,**name3**,...

Design decisions

Inspiration

- We used previous knowledge of the TCP protocol as a basis for our protocol
- Our protocol does a simpler version of the initial handshake of TCP. This inspired the formatting of our handshake messages
- It's also stream-based rather than using datagrams

Cooperation

- We split up **lib.py** and **request.py** to separate concerns
 - **lib.py** handles shared functions like the process of sending and receiving messages
 - **request.py** deals with formatting and parsing messages
 - This meant that **client.py** and **server.py** just had to dispatch to the correct send/receive function without having to understand any of that complexity
 - This modularity helped us to work on different things in parallel
- We used git and GitHub for source control

Issues

- **n** is communicated in 3 different places, depending on the request type
- We did this because it was the simplest idea that we had for communicating how many packets would be used
- It turned out to be inefficient and complicated
- If given the time to redesign the protocol, we would communicate **n** only once - likely in the acknowledges