nanofiles-c protocol specification

Revision B

Notation

- asdf: static data
- <>: mandatory field
- []: optional field
- [...]: last object N times
- All sizes are in bytes

Directory protocol

UTF-8 encoded text/plain in key:value format over simple UDP. Whitespaces are stripped.

Client requests

Ping request Test the connection and compatibility

- Operation ping
- Fields
 - protocol id
- Answer 'ping reply'

operation: ping

Filelist request Get file information known by directory

- Operation filelist
- Fields: None
- Answer 'filelist reply [bad]'

operation: filelist

Publish requst Inform directory of list available files for download from client

- Operation publish
- Fields: (see below), the list can be empty
- Answer 'publish response'

operation: publish
[port: <port>]

<hash1>: <filename1>; <size1> <hash2>: <filename2>; <size2>

[...]

Directory responses

Ping reply Acknoledges back connection and informs client of compatibility

- Operation pingok
- Fields: None
- Answer to 'ping request'

operation: pingok

Ping bad reply Warns the client its using the wrong protocol

- Operation pingbad
- Fields: None
- Answer to 'ping request'

operation: pingbad

Filelist reply Send back list of known (filename, hash, size and peers) for every file known

- Operation filelistres
- Fields: (see below), the list can be empty
- Answer to 'filelist request'

```
operation: filelistres
<hash1>: <filename1>; <size1>; <server1a>, <server1b> [...]
<hash2>: <filename2>; <size2>; <server2a>, <server2b> [...]
[...]
```

Publish reply Acknowledge publish request

- Operation publishack
- Fields: None
- Answer to: 'publish request'

operation: publishack

Peer protocol

Binary little-endian over TCP buffers

All messages begin with an opcode byte

Client requests

Opcode in 0x0X

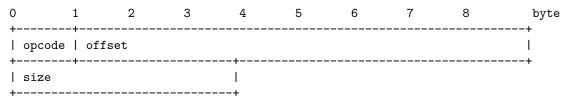
File request	Requests	availability	of file	to l	be downloaded
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- Opcode: 0x01
- Fields:
 - fnamelen[1]: Filename length
 - filename[fnamelen]: Filename
- Answer: 'accepted' or 'file not found error'

0		1	byte
+-		+	+
1	opcode	fnamelen	l
+-			⊦
	filenam	ne .	

Chunk request Asks server to send a chunk

- Opcode: 0x02
- Fields:
 - offset[8]: Starting byte of chunk
 - size[4]: Size of chunk
- Answer: 'chunk'



Stop download Terminates current file request

Opcode: 0x03Fields: NoneAnswer: None

0 +----+ | opcode | +----+

Server requests

Opcode in 0x1X

Accepted File is available to download via chunk requests

- Opcode 0x11
- Fields: None

• Answer to: 'file request'

0 +----+ | opcode | +----+

Bad chunk request error File is unavailable or not found

Opcode: 0x12Fields: None

• Answer to: 'file request'

0 +----+ | opcode | +----+

Chunk Data chunk of file

• Opcode: 0x13

• Fields:

- size[4]: Size of chunk
- data[size]:
- Answer to: 'chunk request'