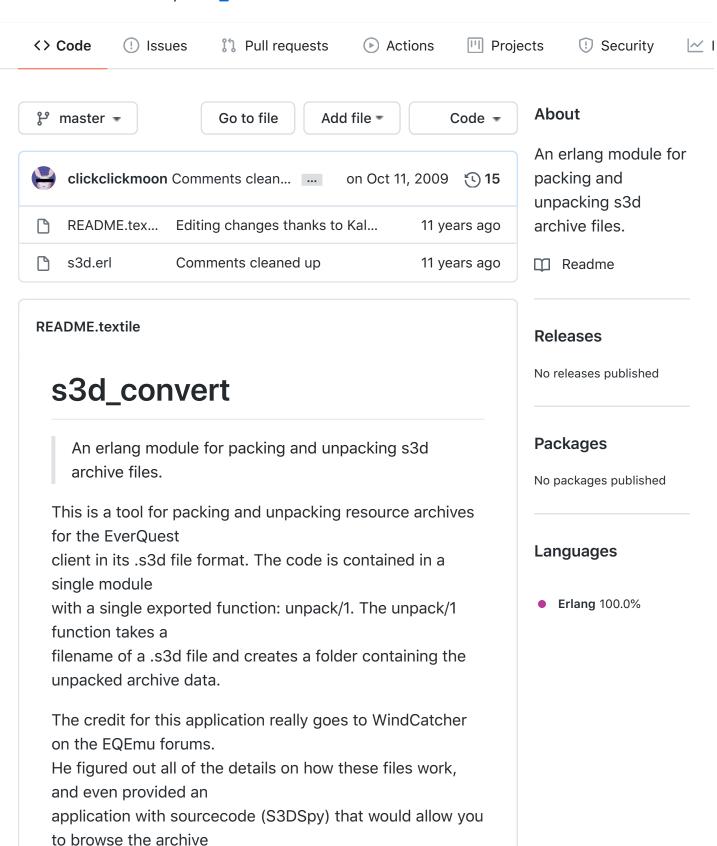
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and look at the textures contained within.

S3DSpy was written in Delphi, which is not a language I'm particularly fond of and have no intentions of using for other projects in the future. I wanted to make a general module/library for the s3d format that I could use on the command line or in a Makefile to unpack data easily. I also needed to learn the details and I've always thought there is no better way to learn than to do. So I did.

Thank you again to WindWatcher, all the EQEmu developers and contributors, along with the EQClassic project and it's collection of developers.

s3d Package Format

There are only two data types used internally in the package: a single byte that is used for the actual datablocks, and a four byte item (unsigned long int) for checksums, counts, and offset pointers. The four byte integers are stored as little endian.

File Header

The initial three items can be thought of as the file header, which contains just a little bit of data that seems to be consistant between files. The first of these is a pointer to another location in the file, which is very important. The other two are the constant header data that is the same between files.

- [4 bytes] @ 0×00 file_listing_offset
- [4 bytes] @ 0×04 **pfs_string**
- [4 bytes] @ 0×08 file_flags

file_listing_offset

This is a pointer to the file meta block.

pfs_string

This is always 542328400. As a character byte string, it is 'PFS' which is an identifier as a PFS archive.

file_flags

The last item in the header is somewhat of an unknown. It does not appear to

change between files and is never referenced elsewhere in the file. Given that

the number comes out to 131072, I suspect that this is a file flag bit mask.

The truth may never be found, but for now we just look for the known good number and go with that.

Meta Listing Block

The meta listing block contains the checksums, data offsets, and actual file

size for all of the files contained in the archive. The first item in this

block is a count of the number of entries (aka. files) in the archive.

The meta data for each file is in a twelve byte block and contains a four byte

field for a file checksum, the pointer to the first data block, and the size of the inflated file.

- [4 bytes] @ file_listing_offset EntryCount EntryCount times in a continuous block
- [4 bytes] @ X + 0×00 checksum
- [4 bytes] @ X + 0×04 offset
- [4 bytes] @ X + 0×08 file_size

checksum

IEEE 802.3 Ethernet CRC-32 checksum for the end file.

offset

Pointer to the first compressed data block for the file.

file_size

The real size of the decompressed file.

File Data Blocks

Each file is made up of one or more data blocks. Each of these data blocks has

an eight byte header. The previously mentioned file meta offset points to

the first block, subsequent blocks will follow behind. This is done to ensure

the blocks can be zlib compressed/uncompressed.

- [4 bytes] @ meta offset + 0×00 DeflatedLength
- [4 bytes] @ meta offset + 0×04 InflatedLength
- [DeflatedLength bytes] @ meta offset + 0×08 Data
 Bytes

DeflatedLength

The compressed size of this data block.

InflatedLength

The inflated size of this data block. Used to ensure we have collected all of the data blocks for the file.

Data Bytes

The raw data block for this file (one of possibly many), zlib compressed.

Directory File

The very last file (in terms of offset into the file) is zlib compressed,

and contains the list of file names in file offset order. The first four bytes

are unknown, then there are four bytes of separator data (0, 13, 0, 0), and then

the file name. This directory file is not listed inside of itself.

h.4 Data Footer

Sometimes the s3d archive has a small signature on the bottom. When there, it reads "STEVEXXXX" where XXXX is the date. This footer is ignored since it is not needed to parse and extract the file.

Rough Drawing