File format of the `*.rcd` data files

Alberth

Version 1

1 File header

Each data file starts with a file header indicating it is a RCD file. The format is as follows

Offset	Length	Contents description
0	4	Magic string 'RCDF'
4	4	Value '1', version number of the data file format.

2 Data blocks

After the file header come the various data blocks. The goal of data blocks is to provide blobs of information that are somewhat independent. The data blocks are referenced by game blocks by their ID. The first data block gets number 1, the second block number 2, etc.

A reference to data block 0 means 'not present'.

2.1 Palette data block

A data block stating the palette of a 8bpp image.

Offset	Length	Contents description
0	4	Magic string '8PAL'
4	4	Version number of the block '1'.
8	4	Length of the block excluding magic string, version, and length.
12	2	*count*, number of palette entries (should be at least 1 and at most 256).
14	3**count*	Palette data, 3 bytes RGB data for each entry.

2.2 Sprite Pixels

A data block containing the actual image of a sprite (in 8bpp).

Offset	Length	Contents description
0	4	Magic string '8PXL'
4	4	Version number of the block '1'.
8	4	Length of the block excluding magic string, version, and length.
12	2	Width of the image.
14	2	h, height of the image.
16	$4 * h$	jump table to start of pixel data of each line. Offset is relative to the first entry of the jump table. Value 0 means there is no data for that line.
?	?	Pixels of each line.

Line data is a sequence of pixels with an offset. Its format is

Offset	Length	Contents description
0	1	Relative offset (0-127), bit 7 means 'last entry of the line'.
1	1	n, number of pixels that follow this count (0-255).
2	n	Pixels, 1 byte per pixel (as it is 8bpp).

The offset byte is relative to the end of the previous pixels, thus an offset of 0 means no gap between the pixels. A count of 0 is useful if the gap at a line is longer than 127 pixels.

Note: Some simple form of compressing may be useful in the pixels as it decreases the amount of memory transfers.

2.3 Sprite block

Data of a single sprite.

Offset	Length	Contents description
0	4	Magic string 'SPRT'
4	4	Version number of the block '1'.
8	4	Length of the block excluding magic string, version, and length.
12	2	(signed) X-offset.
14	2	(signed) Y-offset.
16	4	Sprite image data.
18	4	Palette data.

3 Game blocks

A game block is a piece of data useful for the game. Normally it refers to one or more data blocks.

3.1 Surface block

A set of tiles that form a surface.

Offset	Length	Contents description
0	4	Magic string 'SURF'
4	4	Version number of the block '1'.
8	4	Length of the block excluding magic string, version, and length.
12	2	Width of a tile of the surface.
14	2	Change in Z height (in pixels) when going up or down a tile level.
16	76	19 sprite block references for the tile when viewing towards north.
92	76	19 sprite block references for the tile when viewing towards east.
168	76	19 sprite block references for the tile when viewing towards south.
244	76	19 sprite block references for the tile when viewing towards west.

The 19 sprite entries of a view contain

Offset	Length	Contents description
0	4	Flat surface tile.
4	4	North corner up.
8	4	East corner up.
12	4	North, east corners up.
16	4	South corner up.
20	4	North, south corners up.
24	4	East, south corners up.
28	4	North, east, south corners up.
32	4	West, north corners up.
36	4	West, east corners up.
40	4	West, north, east corners up.
44	4	West, south corners up.
48	4	West, north, south corners up.
52	4	West, east, south corners up.
56	4	Steep north slope.
64	4	Steep east slope.
72	4	Steep south slope.
76	4	Steep west slope.

Note that this entries are about *real* (unrotated) corners. In other words, at a given tile the same entry is used independent of the view orientation.

Note: *Whether this is a sane decision remains to be seen, it is probably not clear until rendering of multi-tile pieces is implemented.*

4 Future

To consider:

- Place for the license
- Author and other information?
- Readme document?
- . . . ?

To do:

- (nothing, at the moment)