File Formats

> TODO:
> - More filetypes
> - Double-check course data block names
> - Perhaps info on control bytes and slope controllers?

This page lists file formats used by New Super Mario Bros., what they're used for, and their structures.

Do recall that the NDS uses little endian, so values are read starting from the least significant byte.

Tilesets

These files contain information about tilesets.

Tile Object Definition Files

AKA unt files. These define a tileset's tile objects and can be found in the `BG_unt/` folder. These are distinct from the unt_hd files.

These consist of an object block, which contain object row blocks, which can contain either a slope controller — a byte greater than or equal to `0x80`, or a tile — defined like so:

Length	Description
0x1	Control byte
0x2	Map16 tile; can be from any of the loaded tilesets — `0x0000-0x00FF` = jyotyu, `0x0100-0x03FF` = main tileset, `0x0400-0x05FF` = subnohara

The end of an object row block is denoted with `0xFE`, while the end of an object block is denoted with `0xFF`.

Unt_hd Files

Contain supplementary information about a tileset's tile objects. Can be found in the `BG_unt/` folder and will be suffixed with "_hd". Each block is defined suchly:

Length	Description

0x2	Offset of tile object (in unt file)
0x1	Width
0x1	Height

There is a block for each object defined in the tilesets unt file.

Courses

These files contain information about course areas and can be found in the `course/` folder.

Course Data Files

Course data files contain all the information about a course area bar tile object layout. Files are named `X##_#`.bin, where `X` is a letter corresponding to the world, `##` is a number corresponding to the course, and `#` is the area.

Blocks are counted starting from 1, *a la* NSMBe. Header:

Length	Description
0x4	Block 1 (general settings) offset
0x4	Block 1 (general settings) length
0x4	Block 2 offset
0x4	Block 2 length
0x4	Block 3 (bottom backgrounds) offset
0x4	Block 3 (bottom backgrounds) length
0x4	Block 4 (tilesets) offset
0x4	Block 4 (tilesets) length
0x4	Block 5 (top backgrounds) offset
0x4	Block 5 (top backgrounds) length
0x4	Block 6 (entrances) offset
0x4	Block 6 (entrances) length
0x4	Block 7 (stage objects) offset
0x4	Block 7 (stage objects) length
0x4	Block 8 (views) offset
0x4	Block 8 (views) length
0x4	Block 9 (zones) offset

Length	Description
0x4	Block 9 (zones) length
0x4	Block 10 (progress paths) offset
0x4	Block 10 (progress paths) length
0x4	Block 11 (paths) offset
0x4	Block 11 (paths) length
0x4	Block 12 (progress path nodes) offset
0x4	Block 12 (progress path nodes) length
0x4	Block 13 (path nodes) offset
0x4	Block 13 (path nodes) length
0x4	Block 14 (object banks) offset
0x4	Block 14 (object banks) length

Course BgDat Files

These files contain information about the placement of tile objects in a course area. Their filenames follow the same convention as the course data files but are suffixed with "_bgdat" Each tile object is defined as such:

Length	Description
0x1	Tile object number
0x1	Leftmost nybble determines which tileset the object comes from — 0x0 for jyotyu, 0x1 for the main tileset, 0x2 for subnohara
0x2	X position of tile object (top left, relative to top left of stage)
0x2	Y position of tile object (top left, relative to top left of stage)
0x2	Width of tile object
0x2	Height of tile object

Each file is terminated with `0xFFFF`.

NSMBe

File formats created for use with NSMBe.

NMP

A NSMBe Exported Patch; also specified in NSMBe's source. The header consists of a byte specifying a string length (in practice, always `0x15`) followed by a string (which must read "NSMBe4 Exported Patch" or, allowed in versions 5.3 and above, "NSMBe5 Exported Patch"). It's suceeded by a list of files to replace, with each file defined suchly:

Length	Description
0x1	File start byte. Always `0x01`; any other value denotes the end of the file list.
0x1	File name length.
File name length	File name; used to identify the files to replace. If the file is not found when applying the patch, it is skipped.
0x2	File ID. When a patch is applied, if a file in the ROM has the name of a file specified in the patch but a different file ID, a warning is shown.
0x4	File data length.
File data length	File data.

The end of the file list is denoted with a null byte.

Revision #2
Created 2025-06-21 16:03:37 UTC by keeper
Updated 2026-07-29 11:21:57 UTC by keeper