

# The SMBX64 \*.LVL file description

*Probed by Wohlstand 02/12/2014*

*(100% done)*

This is a level map TEXT file. All parameters are written line by line without any blank lines.

## Introduction

### Standard parameters:

Standard size of one block	32x32 pixels
Possible on screen display height	19 blocks
Possible on screen display width	25 blocks
Height of screen	600 pixels (19 blocks without 8 pixels)
Width of screen	800 pixels (25 blocks)
Max level space size:	419998×419998 pixels (but it is allowed to come out of limits)

### Limits of objects on one level map:

Blocks:	20000
NPCs:	5000
Background objects:	8000
Doors:	200

## Default section positions

### (Section Center)

-200000  
-180000  
-160000  
-140000  
-120000  
-100000  
-80000  
-60000  
-40000  
-20000  
0000  
20000  
40000  
-60000  
80000  
100000  
120000  
140000  
160000  
180000  
200000

### Section (X and Y axis ranges)

**01** (-190000 : -219999)  
**02** (-170000 : -189999)  
**03** (-150000 : -189999)  
**04** (-130000 : -149999)  
**05** (-110000 : -129999)  
**06** (-90000 : -109999)  
**07** (-70000 : -89999)  
**08** (-50000 : -69999)  
**09** (-30000 : -49999)  
**10** (-10000 : -29999)  
**11** (9999 : -9999)  
**12** (10000 : 29999)  
**13** (30000 : 49999)  
**14** (50000 : 69999)  
**15** (70000 : 89999)  
**16** (90000 : 109999)  
**17** (100000 : 129999)  
**18** (130000 : 149999)  
**19** (150000 : 169999)  
**20** (170000 : 189999)  
**21** (190000 : 209999)

- The standard size of one section zone is 29999×29999 pixels
- Y is always equal to X as Section center coordinates
- where x=0 and y=0 – is a center of 11'th section.

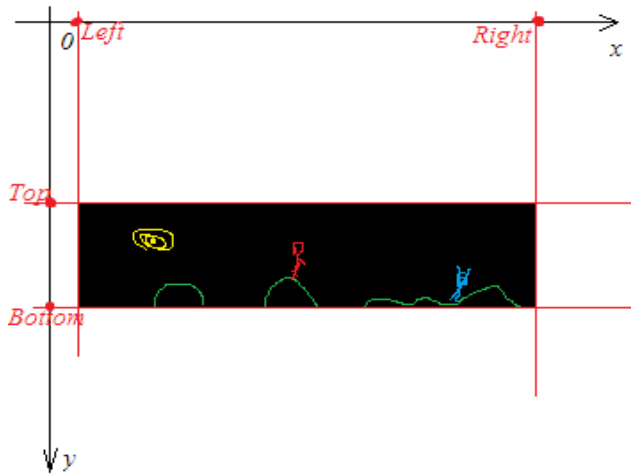
For converting from absolute coordinates to the relative of center by one section:

$$X_{n-section} = X_{absolute} - X_{Current\ section\ center}$$

$$Y_{n-section} = Y_{absolute} - Y_{Current\ section\ center}$$

The section size and position are defined by the position of each side of the section. height and width are calculated with a formula:

$$W = |L-R| \quad H = |T-B|$$

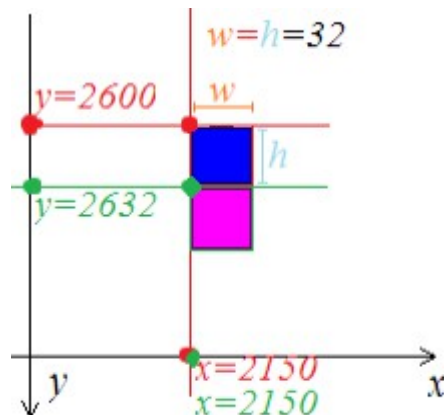
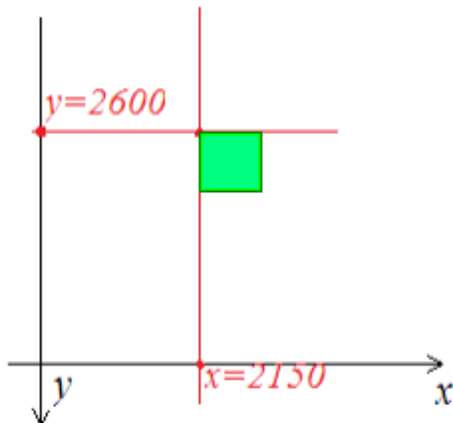


**The coordinates of an object's placement is set concerning its upper left corner:**

In this example, the mushroom's coordinates on the current section is: X=2150; Y=2600 and the block coordinates are: X=2150; Y=2632

**Remember!**

As the Y axis is turned to move an object down, it is necessary to add to the Y offset and to move up, it is necessary to subtract.



## File Format Specification

### Structure

- [header]
- [sections settings]
- [player's start points]
- [blocks on level]
- “next”
- [background tiles]
- “next”
- [NPS's options]
- “next”
- [Warps/Doors options]
- “next”
- [Water/Quicksand]
- “next”
- [Layers]
- “next”
- [Events]

### The reference designations:

- standard parameter
- **Comment title**
- Comment description
- **loop**
- **variable**
- *Special option, used only under special conditions, differently is absent*
- The option isn't known yet
- File format version limit
- Data type

### ***File format version:***

*The version number of the file format defines data present or absent in the file.*

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--File begin--

### First 3th lines (Header):

Parameter	Description
64	(unsigned int) File format number (last in SMBX is 64)
0	(unsigned int) number of stars on this level ( $\geq 17$ )
"Level name"	(string) Level title ( $\geq 62$ )

### Section properties

(loop 21 times) (if <8, loop 6 times)	
-200000	(long) Left size (-left/+right)
-200768	(long) Top size (-down/+up)
-200000	(long) Bottom size (full screen is -200600 -down/+up)
-199200	(long) Right size (full screen is -199200 +left/-right)
24	(unsigned int) Music number (24 is enable custom music file)
16291944	(long) Background color (In old versions editors) [0] = black, [16291944] = blue, [10520656] = dark blue-green
#FALSE#	(bool) Is Level wrap
#TRUE#	(bool) enable Off Screen exit
13	(unsigned int) Background number
#FALSE#	(bool) No turn back
#TRUE#	(bool) Under water ( $\geq 32$ )
"somefile.mp3"	(string) Custom music file ( $\geq 2$ )
(End loop)	

### Player start points

-199996	(long) First player Position x (+left/-right) (0 – player point isn't set)
-200600	(long) First player Position y (+up/-down) (0 – player point isn't set)
24	(unsigned int) Width of character (0 – is is first player point isn't set)
54	(unsigned int) Height of character (0 – is is first player point isn't set)
-199242	(long) Second player Position x (0 – player point isn't set)
-200068	(long) Second player Position y (0 – player point isn't set)
24	(unsigned int) Width of character (0 – is is second player point isn't set)
60	(unsigned int) Height of character (0 – is is second player point isn't set)

## Blocks

Description of the blocks placed on a map:

(Loop = how many blocks are in this level)		
-241408	(long)	Block position x
-180512	(long)	Block position y
32	(unsigned int)	Height
32	(unsigned int)	Width
63	(unsigned int)	Block ID
0	(unsigned int)	Containing NPC number 0 – empty, -99 coins 1000+npc_id – NPC
#FALSE#	(bool)	Invisible
#TRUE#	(bool)	Slippery ( <span style="background-color: #e0ffe0;">(&gt;=62)</span> )
"Default"	(string)	Layer name ( <span style="background-color: #e0ffe0;">(&gt;=10)</span> )
"BlockDestroy"	(string)	Block destroy event name ( <span style="background-color: #e0ffe0;">(&gt;=10)</span> )
"hitme"	(string)	Block hit event name ( <span style="background-color: #e0ffe0;">(&gt;=10)</span> )
"NoMore"	(string)	"No more object in layer" event ( <span style="background-color: #e0ffe0;">(&gt;=10)</span> )
(Loop end)		

Note: Array must be sorted by x and by y;

**Marker between Backgrounds and blocks:**

"next"

Background objects description:

(Loop = how many backgrounds are in this level)		
-199808	(long)	Position x
-200480	(long)	Position y
15	(unsigned int)	Background-1 number
"Default"	(string)	Layer name ( <span style="background-color: #e0ffe0;">(&gt;=10)</span> )
(Loop end)		

Note: Array must be sorted by x and by y and grouped by special priority by ID;

**Marker between NPC and Backgrounds:**

"next"

### NPC descriptions:

<b>(Loop = how many NPCs are in this level)</b>	
-199966	(long) Position x
-200480	(long) Position y
-1	(int) [-1] left, [0] random/none, [1] right
91	(unsigned int) NPC number
71	(int) <i>Special option:</i> ( $\geq 10$ )
	<b>Included NPC: used only if the NPC is</b>
	Buuble(283)/Burred(91)/Lakitu(284)/Egg(96)
	<b>CoopaTroopa algorithm:</b>
	0 chase, 1 jump, 2 hover L/R, 3 hover U/D, >4 idle in air
	<b>Cheap-cheap algorithm:</b>
	0 Swim, 1 jump, 2 projective, 3 swim L/R, 4 swim U/D
	<b>Firebar position (NPC 260) 0-32</b>
	<b>Warp to section: -1-20 (Section number -1)</b>
12	(int) <i>Second special option: (Only for NPC-91 with special=288)</i>
	<b>Section number for included magic potion: -1-20</b>
#FALSE#	(bool) Generator enable ( $\geq 10$ )
3	(int) <i>Special: Generator direction: [1] up, [2] left, [3] down, [4] right</i> ( $\geq 10$ )
2	(int) <i>Special: Generator type [1] Warp, [2] Projective</i> ( $\geq 10$ )
155	(unsigned int) <i>Special: Generator period ( sec*10 ) [1-600]</i> ( $\geq 10$ )
""	(string) Message by this NPC talkative ( $\geq 10$ )
#FALSE#	(bool) Friendly NPC ( $\geq 10$ )
#FALSE#	(bool) Don't move NPC ( $\geq 10$ )
#FALSE#	(bool) LegacyBoss ( $\geq 10$ )
"Default"	(string) Layer name ( $\geq 10$ )
"Activate"	(string) Activate event ( $\geq 10$ )
"GOldCoin D"	(string) Death event ( $\geq 10$ )
"Talk"	(string) Talk event ( $\geq 10$ )
"NoMoreObj"	(string) No more object in layer event ( $\geq 10$ )
"AttachToLayer"	(string) Layer name to attach ( $\geq 63$ )
<b>(Loop end)</b>	

### Marker between NPC and Doors:

"next"

#### Doors description:

(Loop = how many doors are in this level)	
-199824	(long) Entrance position x
-200224	(long) Entrance position y
-199824	(long) Exit position x
-200224	(long) Exit position y
3	(unsigned int) Entrance direction: [3] down, [1] up, [2] left, [4] right
3	(unsigned int) Exit direction: [1] down [3] up [4] left [2] right
1	(unsigned int) Door type: [1] pipe, [2] door, [0] instant
"file.lv1"	(string) Warp to level ( $\geq 8$ )
0	(unsigned int) Normal Entrance / To Warp [0-100] ( $\geq 8$ )
#FALSE#	(bool) Level Entrance (can not enter) ( $\geq 8$ )
#FALSE#	(bool) Level Exit (End of level) ( $\geq 8$ )
-1	(long) Wrap to X on world map (-1 is empty) ( $\geq 8$ )
-1	(long) Wrap to Y on world map (-1 is empty) ( $\geq 8$ )
5	(unsigned int) Need a stars for enter ( $\geq 8$ )
"Default"	(string) Layer name ( $\geq 10$ )
#FALSE#	(bool) <unused>, always FALSE ( $\geq 10$ )
#FALSE#	(bool) No Yoshi ( $\geq 28$ )
#FALSE#	(bool) Allow NPC ( $\geq 28$ )
#FALSE#	(bool) Locked ( $\geq 28$ )
(Loop end)	

### Marker between Doors and water/quicksand:

"next" ( $\geq 10$ )

#### Water/Quicksand descriptions:

( $\geq 32$ ), else skip section

(Loop = how many water ranges are in this level)	
-159968	(long) Position X
-160096	(long) Position Y
160	(unsigned long) Width
64	(unsigned long) Height
0	(int) <unused>, always 0
#TRUE#	(bool) Is Quicksand, else Water ( $\geq 63$ )
"Default"	(string) Layer name
(Loop end)	

### Marker between water/quicksand and layers:

"next" ( $\geq 10$ )

#### Layers descriptions:

( $\geq 10$ ), else skip section

(Loop = how many layers are in this level)	
"Default"	(string) Layer name
#FALSE#	(bool) Is Hidden layer
(Loop end)	

### Marker between layers and events:

"next" ( $\geq 10$ )

**Events descriptions:**  
(>=10), else skip section

<b>(Loop = how many events are in this level)</b>		
"New Event"	(string)	Event name
"All super-puper!!!))))))"	(string)	Show message after start event
0	(unsigned int)	Play sound number (0 is don't play sound) (>=18)
0	(unsigned int)	End game type (0 – none, or 1 – Bowser Defeat)
<b>□ (loop 20 times = Show/hide/toggle layers lists)</b>		
"hideme1"	(string)	Hide layer
"showme1"	(string)	Show layer
"Toggleme1"	(string)	Toggle layer
<b>□ (loop 20 times end)</b>		
<b>Warning:</b> In SMBX exist bug: if you add 21'st layer in any list, you will lose opportunity to delete layers from list. Max 21 layers		
""	(string)	Empty string (must by for SMBX)
""	(string)	Empty string (must by for SMBX)
""	(string)	Empty string (must by for SMBX)
<b>□ (loop 21 times start (for each 21 sections)</b>		
-1	(int)	Set Music ([-1] don't change; [-2] default; or number of music)
-1	(int)	Set Background ([-1] don't change; [-2] default; or # of back)
-1	(long)	Set Position ([-1] don't change; [-2] default; or LEFT x coordinates for section=current loop)
0	(long)	TOP y coordinates for section=current loop
0	(long)	BOTTOM y coordinates for section=current loop
0	(long)	RIGHT x coordinates for section=current loop
<b>□ (Loop 21 times end)</b>		
"Trigger event"	(string)	Trigger event (>=28)
1532	(unsigned int)	trigger delay in deciseconds. I. e. 153,2 sec (>=28)
#FALSE#	(bool)	No Smoke (>=28)
#FALSE#	(bool)	Hold ALT-JUMP player control (>=28)
#FALSE#	(bool)	Hold ALT-RUN player control (>=28)
#FALSE#	(bool)	Hold DOWN player control (>=28)
#FALSE#	(bool)	Hold DROP player control (>=28)
#FALSE#	(bool)	Hold JUMP player control (>=28)
#FALSE#	(bool)	Hold LEFT player control (>=28)
#FALSE#	(bool)	Hold RIGHT player control (>=28)
#FALSE#	(bool)	Hold RUN player control (>=28)
#FALSE#	(bool)	Hold START player control (>=28)
#FALSE#	(bool)	Hold UP player control (>=28)
#FALSE#	(bool)	Auto start (>=32)
"MoveMe"	(string)	Layer name for movement (>=32)
0	(float)	Layer moving speed – horizontal (-Left/+Right) (>=32)
0	(float)	Layer moving speed – vertical (+Up/-Down) (>=32)
0	(float)	Move screen horizontal speed (-Left/+Right) (>=49)
0	(float)	Move screen vertical speed (+Up/-Down) (>=49)
0	(int)	Scroll section x, (in file value is x-1) (>=49)
<b>(Loop end)</b>		

--End of file--



## Attachment: Background Sorting Priority table

Value	BackGround ID list	Comment
1	76	Backgrounds
2	30, 39, 40, 41, 42, 64, 75, 77, 78	Backgrounds
3	16, 17	Castles
4	14, 15, 47	Walls
5	60, 12	
6	43, 44, 97, 11, 61, 172, 158, 159, 66	
7	165, 65, 169, 82, 166	
8	164, 26, 167, 168, 83	
9	79, 160, 101, 102	
10	186, 110, 153, 152	
11	111, 112, 113	Bones
12	58, 132, 115	
13	116, 133, 117, 118	
14	190, 13, 189	
15	52, 53, 54, 55, 56, 57, 59	Tree
16	185	
17	170, 171	
18	99	
19	22, 21	Mushroom trunk
20	67, 150	
21	81, 151, 142, 162	
22	121, 144, 122, 123, 124, 85, 125	
23	146, 126, 127, 147, 128, 93	
24	148, 103, 149	
25	119, 120, 36, 152	
26	2, 4	Small Hills
27	114	
28	3, 6, 7, 8, 9, 10	Big Hills
29	32, 31	Bush
30	27, 28	SMW Grass
31	18, 19, 20	SMB1 Grass
32	89, 90, 91	Colomn
33	134, 135, 136	Check Point
34	5, 29, 80, 33	
35	38, 62, 63, 108, 109	Palm tree
36	174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184	Fence
37	173	Big bubble
38	15, 37, 84, 86	
39	94, 95	Lamp rope
40	35, 96, 98, 34	
41	163	
42	129	

43	131	
44	130	
45	1	Little bush
46	140, 139	
47	87, 88, 92, 141, 104, 105, 107	Doors
48	100, 74, 71, 70, 72, 73	Platform path
49	48	Spider web
50	161	Cloud
51	106	Little fence 1
52	23, 24, 25	Little fence 2
53	154, 155, 156, 157	Mother Brain Wires
54	137, 138	CheckPoint gates right FG
55	143, 145	Exit gates
56	68, 69	Air-Screw
57	45, 46	Rope 1
58	187, 188	Quicksand foreground
59	50, 51	HandRail Ghost
60	49	HandRail