The SMBX64 *.LVL file file description

It is probed by Wohlstand 02/12/2014
(100% done)
This is a level map TEXT file. All parameters are written line by line without blank lines.

Introduction

Standart parameters:

Standart size of one block	32x32 pixels
On screen can showing height	19 blocks
On screen can showing width	25 blocks
Height of screen	608 pixels (non 600, 608: 608/19=32 — one block size)
Width of screen	800 pixels
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)	Section (X and Y axis ranges)
-200000	**01** (-190000 : -219999)
-180000	**02** (-170000 : -189999)
-160000	**03** (-150000 : -189999)
-140000	**04** (-130000 : -149999)
-120000	**05** (-110000 : -129999)
-100000	**06** (-90000 : -109999)
-80000	**07** (-70000 : -89999)
-60000	**08** (-50000 : -69999)
-40000	**09** (-30000 : -49999)
-20000	**10** (-10000 : -29999)
0000	**11** (9999 : -9999)
20000	**12** (10000 : 29999)
40000	**13** (30000 : 49999)
-60000	**14** (50000 : 69999)
80000	**15** (70000 : 89999)
100000	**16** (90000 : 109999)
120000	**17** (100000 : 129999)
140000	**18** (130000 : 149999)
160000	**19** (150000 : 169999)
180000	**20** (170000 : 189999)
200000	**21** (190000 : 209999)

- Standart 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 convert from absolute coordinates to the relative of center by one section:
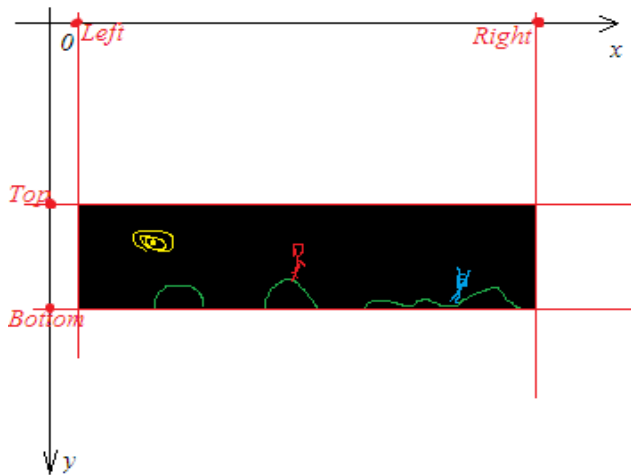
$$X_{n-section} = X_{absolute} - X_{Current\,section\,center}$$
$$Y_{n-section} = Y_{absolute} - Y_{Current\,section\,center}$$

The section size and position defining by position of eash side of section.
height and width are calculated on a formula:

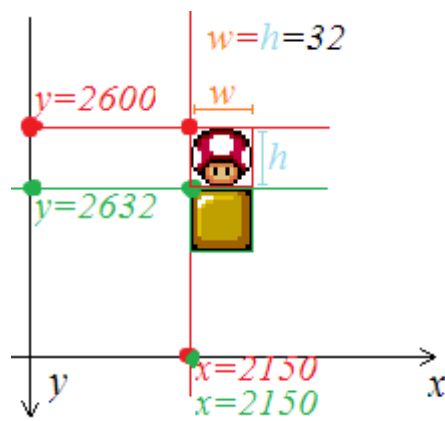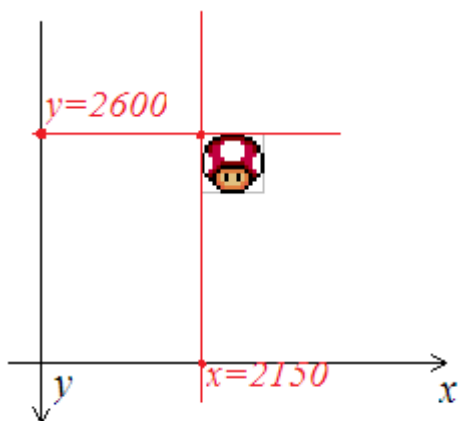$$W = |L\text{-}R| \qquad H = |T\text{-}B|$$

Coordinates of placement of object it is set concerning its upper left corner:
In this example, mushroom coordinates on current section is: X=2150; Y=2600
and block coordinates is: X=2150; Y=2632
Remember!
As the Y axis is turned to move object down, it is necessary to add to 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:
- standart parameter
- **Comment title**
- Comment description
- **loop**
- variable
- *Special option, using 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.

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 (>= 17)
"Level name"	(string) Level title (>=62)

Section properties

(loop 21 times) (if <8, loop 6 times)

Parameter	Description
-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 (>=32)
"somefile.mp3"	(string) Custom music file (>=2)

(End loop)

Player start points

Parameter	Description
-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)

For every block making this description:

(Loop = how much blocks 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 (>=62)
"Default"	**(string)** Layer name (>=10)
"BlockDestroy"	**(string)** Block destroy event name (>=10)
"hitme"	**(string)** Block hit event name (>=10)
"NoMore"	**(string)** "No more object in layer" event (>=10)
(Loop end)	

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

Marker between Backgrounds and blocks:

"next"

Background objects descriptions:

(Loop = how much backgrounds in this level)		
-199808	**(long)** Position x	
-200480	**(long)** Position y	
15	**(unsigned int)** Background-1 number	
"Default"	**(string)** Layer name	(>=10)
(Loop end)		

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

Marker between NPC and Backgrounds:

"next"

	(Loop = how much NPSs in this level)	
-199966	(long) Position x	
-200480	(long) Position y	
-1	(int) [-1] left, [0] random/none, [1] right	
91	(unsigned int) NPC number	
71	*(int) Special option:*	*(>=10)*
	Included NPC: using only if NPS is	
	Buuble(283)/Burried(91)/Lakitu(284)/Egg(96)	
	CoopaTroopa type:	
	0 chase, 1 jump, 2 hover L/R, 3 hover U/D	
	Cheap-cheap type:	
	0 Swim, 1 jump, 2 projective, 3 swim L/R, 4 swim U/D	
	Firebar position (NPC 260) 0-32	
#FALSE#	(bool) Generator enable	(>=10)
3	*(int) Special:* Generator direction: [1] up, [2] left, [3] down, [4] right (>=10)	
2	*(int) Special:* Generator type [1] Warp, [2] Projective	(>=10)
155	*(unsigned int) Special:* Generator period (sec*10) [1-600]	(>=10)
""	(string) Message by this NPC talkative	(>=10)
#FALSE#	(bool) Friedly NPC	(>=10)
#FALSE#	(bool) Don't move NPC	(>=10)
#FALSE#	(bool) LegacyBoss	(>=10)
"Default"	(string) Layer name	(>=10)
"Activate"	(string) Activate event	(>=10)
"GOldCoin D"	(string) Death event	(>=10)
"Talk"	(string) Talk event	(>=10)
"NoMoreObj"	(string) No more object in layer event	(>=10)
"AttachToLayer"	(string) Layer name to attach	(>=63)
	(Loop end)	

"next"

Doors descriptions:

(Loop = how much doors 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.lvl"	(string) Warp to level (>=8)
0	(unsigned int) Normal Entrance / To Warp [0-100] (>=8)
#FALSE#	(bool) Level Entrance (can not enter) (>=8)
#FALSE#	(bool) Level Exit (End of level) (>=8)
-1	(long) Wrap to X on world map (-1 is empty) (>=8)
-1	(long) Wrap to Y on world map (-1 is empty) (>=8)
5	(unsigned int) Need a stars for enter (>=8)
"Default"	(string) Layer name (>=10)
#FALSE#	(bool) <unused>, always FALSE (>=10)
#FALSE#	(bool) No Yoshi (>=28)
#FALSE#	(bool) Allow NPC (>=28)
#FALSE#	(bool) Locked (>=28)
(Loop end)	

Marker between Doors and water/quicksand:

"next"   (>=10)

Water/Quicksand descriptions:
(>=32), else skip section

(Loop = how much water ranges 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 (>=63)
"Default"	(string) Layer name
(Loop end)	

Marker between water/quicksand and layers:

"next"   (>=10)

Layers descriptions:
(>=10), else skip section

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

Marker between layers and events:

"next" (>=10)

(Loop = how much layers in this level)	
"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)
↓ **(loop 20 times = Show/hide/toggle layers lists)**	
"hideme1"	**(string)** Hide layer
"showme1"	**(string)** Show layer
"Toggleme1"	**(string)** Toggle layer
↑ **(loop 20 times end)**	
Warning: 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)
↓ **(loop 21 times start (for each 21 sections)**	
-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
↑ **(Loop 21 times end)**	
"Trigger event"	**(string)** Trigger event (>=28)
1532	**(unsigned int)** Start trigger event after x [sec*10]. 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	**(int)** Layer moving speed – horizontal (-Left/+Right) (>=32)
0	**(int)** Layer moving speed – vertical (+Up/-Down) (>=32)
0	**(int)** Move screen horizontal speed (-Left/+Right) (>=49)
0	**(int)** Move screen vertical speed (+Up/-Down) (>=49)
0	**(int)** Scroll section x, (in file value is x-1) (>=49)
(Loop end)	

--End of file--