

Description

Goo file consists of a header-info, layer-content and ending-string.
Consist sequence showed in below image.

Segment	Header Info	Layer content 1				Layer content 2	...
Content	Fields...	Layer definition	Data size	Image data	Delimiter	.....	...

Segment	.....	Layer content N				Ending string	
Content	.....	Layer definition	Data size	Image data	Delimiter	0x00 0x00 0x00 0x07 0x00 0x00 0x00 0x44 0x50 0x00	

Segment type: header info

Index	Field	type	length(byte)	Definitions
0	version	String	4	format version
1	Magic Tag	String	8	Fix content:0x07 0x00 0x00 0x00 0x44 0x4C 0x50 0x00
2	Software info	String	32	Software info
3	Software version	String	24	Software version
4	File time	String	24	File create time
5	Printer name	String	32	Printer name
6	Printer type	String	32	Printer type
7	Profile name	String	32	Resin profile name
8	Anti-aliasing level	short int	2	Anti-aliasing level setting by slicer
9	Grey level	short int	2	Grey level

Index	Field	type	length(byte)	Definitions
10	Blur level	short int	2	Blur level
11	Small Preview Image Data	RGB_565 16Bit	2*116*116	The color of a pixel using two bytes(16-bit). Red(5bit), Green(6bit),Blue(5bit)
12	Delimiter	String	2	Fix string: 0xd, 0xa
13	Big preview Image Data	RGB_565	2*290*290	The color of a pixel using two bytes(16-bit). Red(5bit), Green(6bit),Blue(5bit)
14	Delimiter	String	2	Fix string: 0xd, 0xa
15	Total layers	int	4	Total number of layers
16	X resolution	short int	2	Resolution of printing LCD in x direction.
17	Y resolution	short int	2	Resolution of printing LCD in y direction.
18	X mirror	bool	1	1 is mirror. That indicated if the image is mirror by Slicer.
19	Y mirror	bool	1	1 is mirror.
20	X size of platform	float	4	unit: mm. the actived area of printing in x direction. eg:165.00mm
21	Y size of platform	float	4	unit: mm. the actived area of printing in y direction. eg:71.28.00mm

Index	Field	type	length(byte)	Definitions
22	Z size of platform	float	4	unit: mm. the actived area of printing in y direction. eg:71.28.00mm
23	Layer thickness	float	4	unit:mm.
24	Common exposure time	float	4	Common layer exposure time. unit:s.
25	Exposure dely mode	bool	1	1: choose to use "Static time"; 0: choose to use "Turn Off time";
26	Turn off time	float	4	Delay time of layer exposure in Turn-off-time mode. unit:s.
27	Bottom before lift time	float	4	Waiting time before lift for bottom layers. unit:s
28	Bottom after lift time	float	4	Waiting time after lift for bottom layers. unit:s
29	Bottom after retract time	float	4	Waiting time after retract for bottom layers. unit:s
30	Before lift time	float	4	Waiting time before lift for common layers. unit:s

Index	Field	type	length(byte)	Definitions
31	After lift time	float	4	Waiting time after lift for common layers. unit:s
32	After retract time	float	4	Waiting time after retract for common layers. unit:s
33	Bottom exposure time	float	4	Exposure time of bottom layer. unit:s.
34	Bottom layers	int	4	The number of bottom layers
35	Bottom lift distance	float	4	The lift distance for bottom layers
36	Bottom lift speed	float	4	Lift speed for bottom layers. unit:mm/min
37	Lift distance	float	4	Lift distance for common layers. unit:mm
38	Lift speed	float	4	Lift speed for common layers. unit:mm/min
39	Bottom retract distance	float	4	Retract distance for bottom layers. unit:mm
40	Bottom retract speed	float	4	Retract speed for bottom layers. unit:mm/min

Index	Field	type	length(byte)	Definitions
41	Retract distance	float	4	Retract distance for common layers. unit:mm
42	Retract speed	float	4	Retract speed for common layers. unit:mm/min
43	Bottom second lift distance	float	4	Lift distance of second stage for bottom layers. unit:mm
44	Bottom second lift speed	float	4	Lift speed of second stage for bottom layers. unit:mm/min
45	Second lift distance	float	4	Lift distance of second stage for common layers. unit:mm
46	Second lift speed	float	4	lift speed of second stage for common layers. unit:mm/min
47	Bottom second retract distance	float	4	Retract distance of second stage for bottom layers. unit:mm
48	Bottom second retract speed	float	4	Retract speed of second stage for bottom layers. unit:mm/min

Index	Field	type	length(byte)	Definitions
49	Second retract distance	float	4	Retract distance of second stage for common layers. unit:mm
50	Second retract speed	float	4	Retract speed of second stage for common layers. unit:mm/min
51	Bottom light PWM	short int	2	The power of light for bottom layers. The range is 0 ~ 255.
52	Light PWM	short int	2	The power of light for common layers. The range is 0 ~ 255.
53	Advance mode	bool	1	0: normal mode; 1:advance mode, printing use the value of "Layer Definition Content"
54	Printing time	int	4	The printing times. unit:s
55	Total volume	float	4	The volume of all parts. unit:mm3
56	Total weight	float	4	The weight of all parts. unit:g
57	Total price	float	4	The cost of all resin used.
58	Price unit	String	8	The unit of price. eg:\$

Index	Field	type	length(byte)	Definitions
59	Offset of LayerContent	int	4	The position of LayerContent start address. Eg: 0x2FAB7
60	Gray scale level	bool	1	0: The range of pixel's gray value is from 0x0 ~ 0xf; 1: The range of pixel's gray value is from 0x0 ~ 0xff;
61	Transition layers	short int	2	The number of transition layer.

Segment type: Layer content

- Child field: Layer definition

Index	Field	type	length(byte)	Definitions
1	Pause flag	short int	2	0: reserve; 1: current layer pause printing
2	Pause position Z	float	4	The lift distance of Z axis when "Pause flag" equal 1. unit:mm
3	layer position Z	float	4	The height of current layer. unit:mm
4	layer exposure time	float	4	The exposure time of current layer. unit:s
5	layer off time	float	4	The off time of current layer, when "Exposure delay mode" set 0. unit:s

Index	Field	type	length(byte)	Definitions
6	Before lift time	float	4	Waiting time before lift for current layers. This is enabled when "Exposure dely mode" set 1. unit:s
7	After lift time	float	4	Waiting time after lift for current layers. This is enabled when "Exposure dely mode" set 1. unit:s
8	After retract time	float	4	Waiting time after retract for current layers. This is enabled when "Exposure dely mode" set 1. unit:s
9	Lift distance	float	4	Lift distance for current layers. unit:mm
10	Lift speed	float	4	Lift speed for current layers. unit:mm/min
11	Second lift distance	float	4	Lift distance of second stage for current layers. unit:mm
12	Second lift speed	float	4	lift speed of second stage for current layers. unit:mm/min
13	Retract distance	float	4	Retract distance for current layers. unit:mm
14	Retract speed	float	4	Retract speed for current layers. unit:mm/min
15	Second retract distance	float	4	Retract distance of second stage for current layers. unit:mm

Index	Field	type	length(byte)	Definitions
16	Second retract speed	float	4	Retract speed of second stage for current layers. unit:mm/min
17	Light PWM	short int	2	The power of light for current layers. The range is 0 ~ 255.
18	Delimiter	String	2	Fix string: 0xd, 0xa

- Child field: Data size

Index	Field	type	length(byte)	Definitions
1	Data size	int	4	The size of encoded image data

- Child field: Image data

The image's encoding method base on RLE scheme. There is a magic number 0x55 at the begin of this field and 8-bit checksum at the end of the image data.

The checksum don't include the magic number 0x55.

The chunk will consist with serval bytes. In byte[0], there are two type of tag to indicate the pixel's value and length .

Byte0[7:6] : The type of chunk

Byte0[7:6]	Definitions
0 0	This chunk contain all 0x0 pixels
0 1	This chunk contain the value of gray between 0x1 to 0xfe. The gray value is after byte0.
1 0	This chunk contain the diff value from the previous pixel
1 1	This chunk contain all 0xff pixels

Byte0[5:4] : The length of chunk except when byte0[7:6] is [1 0].

Byte0[5:4]	Definitions
0 0	4-bit run-length use byte0[3:0]
0 1	The run-length consist by byte1[7:0] and byte0[3:0]
1 0	The run-length consist by byte1[7:0] ,byte2[7:0] and byte0[3:0]
1 1	The run-length consist by byte1[7:0] ,byte2[7:0], byte3[7:0] and byte0[3:0]

When byte0[7:6] is [1:0], the meaning of byte0[5:4] follow below definition:

Byte0[5]	Byte0[4]	Definitions
0	0	byte0[3:0] is the positive diff value. that's mean current value subtract previous value is bigger than 0. The range is from 0 to 15. 0x0 map to 0. 0xf map to 15.
0	1	byte0[3:0] is the positive diff value. And this value's run-length represent by byte1[7:0]
1	0	byte0[3:0] is the negative diff value.that's mean current value subtract previous value is smaller than 0. The range is from 0 to 15. 0x0 map to 0. 0xf map to 15.
1	1	byte0[3:0] is the negative diff value. And this value's run-length represent by byte1[7:0]

Eg:

Byte[0]	Byte[1]	Byte[2]	Byte[3]	Byte[4]	comment
0 0 1 1 1 1 1 1	0x55	0x56	0x57	---	pixel value is 0x0; run-length is 0x555657f.

Byte[0]	Byte[1]	Byte[2]	Byte[3]	Byte[4]	comment
0 1 1 1 0 1 0 1	0xaa	0xbb	0xcc	0x15	pixel value is 0xaa; run-length is 0xbbcc155.
0 0 0 0 0 1 0 1	---	---	---	---	pixel value is 0x0; run-length is 0x5.
1 1 1 1 0 0 0 1	0xcc	0xbb	0xaa	0xff	pixel value is 0xff; run-length is 0xccbbaaff1.
1 0 0 0 0 0 0 1	---	---	---	---	Positive diff value is 1; run-length is 1.
1 0 0 1 0 0 1 0	0xff	---	---	---	Positive diff value is 2; run-length is 0xff
1 0 1 0 0 0 0 1	---	---	---	---	negative diff value is 1; run-length is 1.
1 0 1 1 0 0 1 0	0xee	---	---	---	negative diff value is 2; run-length is 0xee

- Child field: Delimiter

Index	Field	type	length(byte)	Definitions
1	Delimiter	String	2	Fix string: 0xd, 0xa