

iTunesSD3gen

Here it is. The reason for this wiki. The third generation shuffle iTunesSD format.
Just like in the iTunesDB the default size for integer numbers seems to be 32 bit. In earlier iTunesSD files it was a rather odd 24 bit.
Like the iTunesDB new third generation shuffle's iTunesSD is little endian. Earlier iTunesSD files were big endian.

Little endian means that the numbers start with the lowest byte. So a value of 0x12345678 (decimal 305419896) will be written in the iTunesSD file as 78 56 34 12.
Apparently the apple developers liked to look at their files with a hex viewer to. At least they choose the magic numbers for their headers in a way that their ASCII representation tells you its purpose. So the database header starts with a magic number 0x73686462 (dec. 1936221282). Not an easy number to remember. But translating those bytes one by one into ASCII you get "s" "h" "d" "b", which to me looks like "shuffle database". The little endian storage format changes the byte order so that the first characters of the new iTunesSD are in fact "bdhs", but now you know how we came up with the names for those separate elements.

Here's the general layout of an iTunesSD file:

- **bdhs** Shuffle Database
 - **hths** Tracks Header
 - **rths** Track1
 - **rths** Track2
 - ...
 - **hphs** Playlists Header
 - **lphs** Playlist1
 - **lphs** Playlist2
 - ...

bdhs Shuffle Database

Field	Size	Description	Data	Hexdump
header_id	4	Header	shdb	62 64 68 73
unknown_1	4	Version number?	0x02000003	03 00 00 02
			Old values:	
			0x02010001	
			Gen 2:	
			0x010600	
header_length	4	size of this header	0x010800	40 00 00 00
			64	
			126	
total_no_of_tracks	4			7e 00 00 00
total_no_of_playlists	4		10	0a 00 00 00

unknown_2	8		0x0000 0000 0000 0000	00 00 00 00 00 00 00 00
<hr/>				
max_volume	1	0x00 do not limit the volume 0x03 is the min setting 0x20 is the max setting	0x00	00
<hr/>				
voiceover_enabled	1	Only applies for tracks, not for playlists.	1	01
<hr/>				
unknown_3	2		0x0000	00 00
<hr/>				
total_no_of_tracks2	4	Does not include podcasts or audiobooks in the count.	126	7e 00 00 00
<hr/>				
track_header_chunk_offset	4		0x00000040	40 00 00 00
<hr/>				
playlist_header_chunk_offset	4		0x0000b964	64 b9 00 00
<hr/>				
unknown_4	20		0x0000 0000	00 00 00 00
			0000 0000	00 00 00 00
			0000	00 00 00 00
			0000 0000	00 00 00 00
			0000 0000	00 00 00 00
			0000	00 00 00 00
			0000	

Tracks Header

Field	Size	Data	Hexdump
header_id	4	shth	68 74 68 73
total_length	4	524	0c 02 00 00
number_of_tracks	4	126	7e 00 00 00
unknown_1	8	0x0000 0000 0000 0000	00 00 00 00 00 00 00 00
offset_of_track_chunk_0	4	0x0000024c	4c 02 00 00
offset_of_track_chunk_1	4	0x000003c0	c0 03 00 00
offset_of_track_chunk_2	4	0x00000534	34 05 00 00
offset_of_track_chunk_3	4	0x000006a8	a8 06 00 00
offset_of_track_chunk_4	4	0x0000081c	1c 08 00 00
...	

TrackX

Field	Size	Description	Data	Hexdump
header_id	4	shtr		72 74 68 73
total_length	4	372		74 01 00 00
start_at_pos_ms	4	0		00 00 00 00
stop_at_pos_ms	4	Rythmbox IPod plugin sets this value always 0. 112169		29 b6 01 00
volume_gain	4	0x00000000		00 00 00 00
filetype	4	Type 1 are mpeg, mp3 files Type 2 are aac, mp4, m4a files Type 4 are wav files 1 (MP3)		01 00 00 00
filename	256	/iPod_Control/Music/F02/NNCN.mp3		2f 69 50 6f 64 5f 43 6f 6e 74 72 6f 6c 2f 4d 75 73 69 63 2f 46 30 32 2f 4e 4e 43 4e 2e 6d 70 33 00 00 00 00 00 00 00 00 00 00

/

[illegible]

00 00
00 00

/

number_of_samples	4	0x4b6c24 = 4942884	24 6c 4b 00
unknown_file_related_data1	4	0	00 00 00 00
gapless_data	4	0x24a2a2 = 2400930	a2 a2 24 00
unknown_file_related_data2	4	0	00 00 00 00
Album ID	4	0x0000007f	7f 00 00 00
track_number	2	1	01 00
disc_number	2	0	00 00
unknown_2	8	0x0000 0000 0000 0000	00 00 00 00 00 00 00 00
dbid	8	Serves as the filename for the voiceover 0xdfa209b7ce6f2db9	b9 2d 6f ce b7 09 a2 df
Artist ID	4	0x00000146	46 01 00 00
unknown_3	32	0x0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	00 00

Field	Size	Description	Data	Hexdump
header_id	4		shph	68 70 68 73
total_length	4			20 00 00 00
number_of_playlists	4?		3	03 00 00 00
number_of_playlists_1	2	The number of non-podcast playlists, 0xffff if all playlists are not podcast playlists.	0xffff	ff ff
number_of_playlists_2	2	The number of master playlists, 0xffff if all playlists are not master playlists.	0x0100	01 00
number_of_playlists_3	2	The number of non-audiobook playlists, 0xffff if all playlists are not audiobook playlists.	0xffff	ff ff
unknown_2	2			00 00
offset_of_playlist_1	4		0x00015b14	14 5b 01 00
offset_of_playlist_2	4		0x00015ef0	f0 5e 01 00
...		

PlaylistX

Field	Size	Description	Data	Hexdump
header_id	4		shp1	6c 70 68 73
total_length	4			dc 03 00 00
number_of_songs	4		236	ec 00 00 00
number_of_songs2	4	Number of non podcast or audiobook songs.	236	ec 00 00 00
dbid	8	Serves as the filename for the voiceover	6bed	48 4d 19 eb 4e 34 ed 6b
type	4	1 is the master playlist 2 is a normal playlist 3 is a podcast playlist 4 is a audiobook playlist	2	02 00 00 00
unknown_1	16			00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

playlist_track_1	4	118	76 00 00 00
playlist_track_2	4	119	77 00 00 00
...	

A dbid of all zeros yields a voiceover of All songs. Also playlist dbids without a corresponding voiceover file will yield a voiceover of playlist n or audiobook n where n is the playlist number. The shuffle assumes the podcast playlist is last.

The iTunesStats file is also different in the 3gen iPod.

Original Source: <http://shuffle3db.wikispaces.com/iTunesSD3gen> (expired)