

## FAT Filesystem structure

Boot sector
Reserved sectors
FAT 1
FAT 2
Root directory
Cluster 2
Cluster 3
.....

Cluster numbering starts at 2 for FAT12 & FAT16, and is specified in the boot sector on FAT32 (normally 2)

## FAT16 Boot Sector

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	Jump Instruction			OEM ID								Bytes / sect		sect / cluster		reserved sectors	
10	no / FATS	Root entries		Small Sectors		Media descriptor	Sectors / FAT		Sectors / Track		Number / heads		Hidden sectors				
20	large Sectors			Physical drive number	reserved	ext boot sig	Volume Serial Number			Volume Label (deprecated)							
30	Volume label						File System Type										
40	OS Boot Code																
50																	
60																	
70																	
...																	
1D0																	
1E0																	
1F0															55	AA	

reference: <http://technet.microsoft.com/en-us/library/bb457122.aspx>

### FAT32 Boot Sector

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
0	Jump Instruction			OEM ID									Bytes / sect		sect / cl uster		reserved sectors	
10	no / FATS	0x0000		0x0000		Media descr iptor	0x0000		Sectors / Track		Number / heads		Hidden sectors					
20	large Sectors Total sectors in volume				Sectors / FAT				0x0000		File System Version		Root(first) Cluster Number					
30	FS Info sector		Backup boot sector		Reserved													
40	Phys Drive num	0x00	Extd boot sig	Volume Serial Number				Volume Label (deprecated) normally "NO NAME "										
50	Vol Label			System ID "FAT32"						Boot code								
60	Boot code																	
70	Boot code																	
80	Boot code																	
90	Boot code																	
...	Boot code																	
1D0	Boot code																	
1E0	Boot code																	
1F0	Boot code														55	AA		

reference: <http://technet.microsoft.com/en-us/library/bb457122.aspx>

### FAT Directory Entry

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	File name								Extension			attribute	reserved	10ms create time <sup>1</sup>	create time	
10	create date		last access date		unused		modified time		modified date		start cluster		File Size			

1. The 10millisecond create time is technically only used in FAT32.

### Attributes

BIT	5	4	3	2	1	0
Value	Archive	Directory	Volume	Hidden	System	Read only

### Long File Name

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	file name (Unicode 2 bytes/char)											0x0F	reserved	Check sum	file name		
10	file name											0x0000		file name			

reference: <http://technet.microsoft.com/en-us/library/cc938438.aspx>