# BigTIFF Design

This is the HTML equivalent of a former Wiki working place for preparing a 64-bit (larger than 4GB) TIFF format specification. The design is based on a proposal by Steve Carlsen of Adobe, with input from various other parties.

## Briefly

* Version = 43
* 8-byte offset to first IFD
* Value/Offset fields are 8 bytes
* 8-byte offset to the next IFD
* add TIFFType of LONG8, an 8 byte (unsigned) int
* StripOffsets and TileOffsets and ByteCounts can be LONG8

## More Detail

* The Version ID, in header bytes 2-3, formerly decimal 42, now changes to 43
* Header bytes 4-5 contain the decimal number 8.
  + If there is some other number here, a reader should give up.
  + This is to provide a nice way to move to 16-byte pointers some day.
* Header bytes 6-7 are reserved and must be zero.
  + If they're not, a reader should give up.
* Header bytes 8-15 contain the 8-byte offset to the first IFD.
* Value/Offset fields are 8 bytes long, and take up bytes 8-15 in an IFD entry.
  + If the value is <= 8 bytes, it must be stored in the field.
  + All values must begin at an 8-byte-aligned address.
* 8-byte offset to the Next\_IFD, at the end of an IFD.
* To keep IFD entries 8-byte-aligned, we begin with an 8-byte (instead of 2-byte) count of the number of directory entries.
* Add TIFFTypes of LONG8 (= 16), an 8 byte (unsigned) int, and SLONG8 (= 17).
* Add TIFFType IFD8 (=18) an 8byte IFD offset.
* StripOffsets and TileOffsets and ByteCounts may be LONG8 or the traditionally allowed LONG or SHORT.
* The proposed extension is ".tf8", and call it "8-Byte TIFF".

Otherwise, it's just like "original TIFF." ("TIFF Classic?")

## Open Issues

* What to call the new format
  + ChrisCox -- I don't think end users will understand what "8-byte TIFF" means
  + AndreyKiselev - 23 Sep 2004 -- What about TIFF64? "64" is a widely used buzzword and should be directly associated with the 64-bit offsets and 64-bit architectures.
* What 3 character file extension to use (gotta be DOS compatible)
* What 4 character file type to use (for Macintosh)
* What MIME type to use

## Samples

[Example files](http://www.awaresystems.be/imaging/tiff/bigtiff/BigTIFFSamples.zip) from Joris Van Damme

## Changes

* TIFFType 13 is ttIFD, 14 is assigned to ttUnicode, and 15 is assigned to ttComplex. So, I changed the types for ttLong8 and ttSLong8 to 16 and 17, respectively.
  + AndreyKiselev - 23 Sep 2004 -- Where are these fields defined? Is there any new Technical Note or something? And what is encoding behind the word "Unicode"?
  + ChrisCox - 27 Sep 2004 -- They are in the Adobe TIFF definitions. I am still working on releasing updated TIFF documentation.
* Added list of open issues.
* settle on version 43
* cleanup
* TIFFType 18 (8 byte IFD) added.
* Clarified that fields which may be LONG8 can also be one of the old supported types.

## See also

[AWare Systems' informal overview of the BigTIFF proposal](http://www.awaresystems.be/imaging/tiff/bigtiff.html)