EXIF Makernotes - Reference Information

Nikon Makernote Format Specification

There are three types of Nikon Makernote:

Nikon Type 1 Makernote

Field	Size	Description
Header	8 Bytes	"Nikon\x00\x01\x00"
IFD Data	Variable	Standard TIFF IFD Data using Nikon Type 1 Tags Offsets are relative to the start of the TIFF header at the beginning of the EXIF segment

Nikon Type 2 Makernote

Field	Size	Description
IFD Data	Variable	Standard TIFF IFD Data using Nikon Type 3 Tags Offsets are relative to the start of the TIFF header at the beginning of the EXIF segment

This makernote has no header - the IFD starts immediately

Nikon Type 3 Makernote

Field	Size	Description
Header	10 Bytes	"Nikon\x00\x02\x10\x00\x00" or "Nikon\x00\x02\x00 \x00\x00"
TIFF Data	Variable	**TIFF header**, then standard IFD Data using Nikon Type 3 Tags.

		Offsets are from this second TIFF header, not the one at the start of the EXIF segment

Note: The Nikon Coolpix 775 uses the Fujifilm makernote format

For format specifications of TIFF Image File Directory data, see Section 2 of: TIFF, Revision 6.0, June 3, 1992, Adobe Systems Incorporated

Nikon Type 1 Makernote Tags Definition

Tag #	Name	Type	Details
3	Quality	Numeric Lookup	1 = VGA (640x480) Basic 2 = VGA (640x480) Normal 3 = VGA (640x480) Fine 4 = SXGA (1280x960) Basic 5 = SXGA (1280x960) Normal 6 = SXGA (1280x960) Fine 7 = Unknown, Possibly XGA (1024x768) Basic 8 = Unknown, Possibly XGA (1024x768) Basic 9 = Unknown, Possibly XGA (1024x768) Basic 10 = UXGA (1600x1200) Basic 11 = UXGA (1600x1200) Normal 12 = UXGA (1600x1200) Fine
4	Colour Mode	Numeric Lookup	1 = Colour 2 = Monochrome
5	Image Adjustment	Numeric Lookup	0 = Normal 1 = Bright+ 2 = Bright- 3 = Contrast+ 4 = Contrast-

6	CCD Sensitivity	Numeric Lookup	0 = ISO 80 2 = ISO 160 4 = ISO 320 5 = ISO 100
7	White Balance	Numeric Lookup	0 = Auto 1 = Preset 2 = Daylight 3 = Incandescense 4 = Flourescence 5 = Cloudy 6 = Speedlight
8	White Balance	Numeric	If infinite focus, value is '1/0'
10	Digital Zoom	Numeric	'160/100' means 1.6x digital zoom, '0/100' means no digital zoom (optical zoom only)
11	Converter	Numeric Lookup	0 = No Converter Used 1 = Fish-eye Converter Used

Nikon Type 3 Makernote Tags Definition

Tag #	Name	Type	Details
1	Nikon Makernote Version	Special	Some cameras use a binary version, some use a string
2	ISO Speed Used	Numeric	Contains 2 values. The first value is always zero. The second value is the ISO Speed
3	Colour Mode	String	
4	Quality	String	
5	White Balance	String	
6	Sharpening	String	
7	Focus Mode	String	
8	Flash Setting	String	
9	Auto Flash Mode	String	

11	White Balance Bias Value	Numeric	Units Approx: 100 Mired per increment
12	White Balance Red, Blue Coefficients?	Numeric	
15	ISO Selection?	String	
18	Flash Compensation	Numeric Lookup	0x06 = +1.0 EV 0x04 = +0.7 EV 0x03 = +0.5 EV 0x02 = +0.3 EV 0x00 = 0.0 EV 0xfe = -0.3 EV 0xfd = -0.5 EV 0xfc = -0.7 EV 0xfa = -1.0 EV 0xf8 = -1.3 EV 0xf7 = -1.5 EV 0xf6 = -1.7 EV 0xf4 = -2.0 EV 0xf2 = -2.3 EV 0xf1 = -2.5 EV 0xf0 = -2.7 EV 0xee = -3.0 EV
19	ISO Speed Requested	Special	Contains 2 values. The first value is always zero. The second value is the ISO Speed Requested (May be different to Speed Used when Auto ISO is on)
22	Photo corner coordinates	Numeric	Contains 4 values for the edges of the image in pixel coordinates
24	Flash Bracket Compensation Applied	Numeric Lookup	0x06 = +1.0 EV 0x04 = +0.7 EV 0x03 = +0.5 EV 0x02 = +0.3 EV 0x00 = 0.0 EV 0xfe = -0.3 EV 0xfd = -0.5 EV 0xfc = -0.7 EV 0xfa = -1.0 EV 0xf8 = -1.3 EV 0xf7 = -1.5 EV 0xf6 = -1.7 EV 0xf4 = -2.0 EV 0xf2 = -2.3 EV 0xf1 = -2.5 EV 0xf0 = -2.7 EV 0xee = -3.0 EV

25	AE Bracket Compensation Applied	Numeric	Units = EV
128	Image Adjustment?	String	
129	Tone Compensation (Contrast)	String	
130	Auxiliary Lens (Adapter)	String	
131	Lens Type?	String	6 = Nikon D series Lens 14 = Nikon G series Lens
132	Lens Min/Max Focal Length, Max Aperture	String	Four Values: Minimum Focal Length in millimetres, Maximum Focal Length in millimetres, Maximum Aperture F-Stop at Minimum Focal Length Maximum Aperture F-Stop at Maximum Focal Length
133	Manual Focus Distance?	Numeric	
134	Digital Zoom Factor?	Numeric	
135	Flash Used	Numeric Lookup	0 = Flash Not Used 9 = Flash Fired
136	Auto Focus Area	Special	Bit Masked data: byte 1 : AF Mode: 00 = single area, 01 = Dynamic Area, 02 = Closest Subject byte 2 : AF Area Selected : 00 = Centre, 01 = Top, 02 = Bottom, 03 = Left, 04 = Right byte 3 : Unknown, always zero\n byte 4 : Properly focused Area(s) : bit 0 = Centre, bit 1 = Top, bit 2 = Bottom, bit 3 = Left, bit 4 = Right
137	Bracketing & Shooting Mode	Special	Bit Masked data: bit 0&1 (0 = single frame, 1 = continuous,2=timer, 3=remote timer? 4 = remote? bit 4, Bracketing on or off bit 6, white Balance Bracketing on
141	Colour Mode	String	"1a" = Portrait sRGB, "2" = Adobe RGB, "3a" = Landscape sRGB

143	Scene Mode?	Numeric	
144	Lighting Type	String	
146	Hue Adjustment	Numeric	Units = Degrees
148	Saturation?	Numeric Lookup	-3 = Black and White -2 = -2 -1 = -1 0 => "Normal 1 => "+1 2 => "+2
149	Noise Reduction	String	
167	Total Number of Shutter Releases for Camera	Numeric	Units = Shutter Releases
169	Image optimisation	String	
170	Saturation	String	
171	Digital Vari-Program	String	

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