

EXIFutils

Image Metadata Utilities

Field Reference Guide

V2.7

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1 Introduction

1.1 Structure of this manual

The manual contains a complete list of all EXIF, IPTC, and file attribute fields that can be used by EXIFutils.

1.2 Intended Audience

This manual is intended for users of the EXIFutils, and is to be used in conjunction with the EXIFutils Getting Started Guide and the EXIFutils Command Reference Manual.

2 EXIFutils Field Definitions

This section lists all of the EXIF and IPTC fields defined in the EXIFutils, and indicates that valid values to which they can be set. Section 2.1 describes the format in which this information is presented. All field information listed in Section 2.2 was generated using the command `'exiflist /l f'`.

2.1 Key to Field Definitions

The basic format of the field definitions in Section 2.2 is shown in Figure 1.

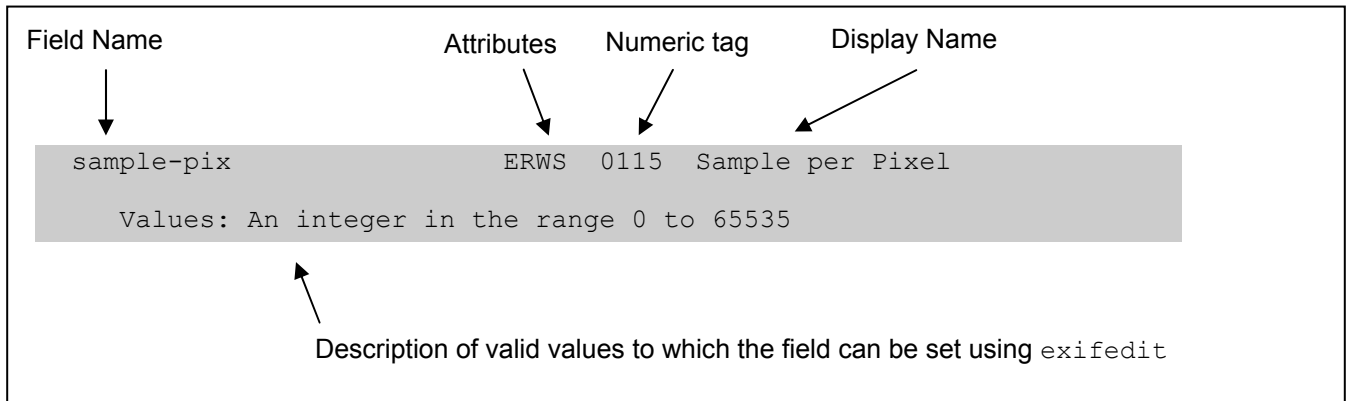


Figure 1 Basic Field Definition Format

Field Name The EXIFutils nickname for this field, which can be used to reference this field in EXIFutils commands.

Attr Field Attributes. This contains four characters that provide information about the field.

1 st character	Indicates whether this field is included in the <code>exif-common</code> or <code>iptc</code> group nicknames (Refer to EXIFutils Getting Started Guide). Possible values are: 'E' – this field is included in the <code>exif-common</code> group nickname 'I' – this field is included in the <code>iptc</code> group nickname '-' – this field is not included in either <code>exif-common</code> or <code>iptc</code>
2 nd character	Indicates whether EXIFutils supports reading of this field value. Possible values are: 'R' – this field is readable '-' – this field is not readable
3 rd character	Indicates whether EXIFutils supports writing of this field. "Writing" means that this field can be individually edited by <code>exifedit</code> . Possible values are: 'W' – editing of this field is supported '-' – editing of this field is not supported
4 th character	Indicates whether this field is defined in the relevant standard. Possible values are: 'S' – this field is defined in the relevant standard (see note 1). '-' – this is not a standard field. Either it is a proprietary field defined by a camera maker, or is a field defined by EXIFutils.

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Tag For EXIF and TIFF fields, this is the numeric tag that identifies the field. It is supplied for reference purposes only. For IPTC fields, this value shows the dataset number and field number that together uniquely identify the IPTC field. They are shown in the format x.y where 'x' is the dataset number and y is the field number.

The dataset number is used to group related IPTC fields together. Many Meta data editing applications only support fields in Dataset 2, the "Editorial" fields. These applications typically do not show the dataset number when referring to the field as it is assumed to be the "Editorial" dataset.

Description A brief description of the contents of the field. This is the full display name that will be shown by `exiflist`

Values Valid values to which this field can be set using `exifedit`. If the field cannot be edited by `exifedit` the value will be shown as "Not editable". See the Getting Started Guide for a description of the data types referred to in this field.

For some fields there is a predefined list of valid values, in which case a table of valid values will be shown. See Section 2.1.1 for more details.

Note 1:

- Standard EXIF fields are defined in "JEITA CP-3451, Exchangeable image file format for digital still cameras: Exif Version 2.2".
- Standard TIFF fields are defined in "TIFF, Revision 6.0, Final — June 3, 1992".
- Standard IPTC fields are defined in "IPTC - NAA Information Interchange Model, Version No. 4, Rev 1, July 1999"

2.1.1 Fields with Predefined Values

Some fields can only be set to a value selected from a predefined list of valid values. For these fields a table listing the valid values will be shown. For example:

meter-mode	ERWS	9207	Metering Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: average	a	1	Average
centre	c	2	Centre Weighted Average
spot	s	3	Spot
multi-spot	mSP	4	Multi-Spot
multi-segment	mSE	5	Multi-Segment
partial	p	6	Partial
other	o	255	Other

The meaning of each column is as follows:

Value The values to which the field can be set. For example, based on the above field definition a valid `exifedit` command is:

For Windows:

```
exifedit /a meter-mode=multi-spot myphoto.jpg
```

For Linux/OSX/Solaris:

```
exifedit -a meter-mode=multi-spot myphoto.jpg
```

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Abbrev. In addition to the full values described in the Value column, an abbreviated value can also be used to reduce the number of characters entered. The Abbrev. column lists the valid abbreviations corresponding to each full value.

The abbreviated equivalent to the command in the previous example is:

For Windows:

```
exifedit /a meter-mode=msp myphoto.jpg
```

For Linux/OSX/Solaris:

```
exifedit -a meter-mode=msp myphoto.jpg
```

Num Each field value is stored internally as a numeric value, or in some cases as a single character value. The Num column shows this value. This is provided for reference only and cannot be used as input to any EXIFutils command.

Meaning This column provides a text version of the field value. This is the string that will be displayed by `exiflist` for this field value.

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2.2 Field Definitions

This section lists the valid values to which EXIFutil fields can be set.

2.2.1 File Related Fields

Field Name	-Attr-	-Tag-	Description
file-name Not Editable	-R--	N/A	File name
file-base Not Editable	-R--	N/A	Base file name
file-ext Not Editable	-R--	N/A	File name extension
file-name-full Not Editable	-R--	N/A	File name with path
file-dir Not Editable	-R--	N/A	File directory
file-size Not Editable	-R--	N/A	File size in bytes
file-date-mod Not Editable	-R--	N/A	File date modified
file-date-created Not Editable	-R--	N/A	File date created (Windows only)
file-name-thumb Not Editable	-R--	N/A	Thumbnail file name
file-name-audio Not Editable	-R--	N/A	Audio file name
file-name-backup Not Editable	-R--	N/A	Backup file name
file-name-exi Not Editable	-R--	N/A	EXIF Save file name

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2.2.2 Date Taken Subfields

Field Name	-Attr-	-Tag-	Description	
yyyy Not Editable	-R--	N/A	Date Taken - Year	(4 digits)
YY Not Editable	-R--	N/A	Date Taken - Year	(2 digits)
mm Not Editable	-R--	N/A	Date Taken - Month	(2 digits)
mmm Not Editable	-R--	N/A	Date Taken - Month	(3 letters)
dd Not Editable	-R--	N/A	Date Taken - Day	(2 digits)
hr Not Editable	-R--	N/A	Date Taken - Hour	(2 digits 24hr)
min Not Editable	-R--	N/A	Date Taken - Minute	(2 digits)
sec Not Editable	-R--	N/A	Date Taken - Seconds	(2 digits)

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2.2.3 Interoperability IFD Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----  
iop-index                ERWS  0001  Interop. Index  
  Values: Text string 3 bytes long  
  
iop-ver                  ERWS  0002  Interop. Version  
  Not editable (data type UNDEFINED not supported for editing)  
  
iop-form                 ERWS  1000  Related File Format  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
  
iop-width                ERWS  1001  Related Image Width  
  Values: An integer in the range 0 to 65535  
  
iop-length               ERWS  1002  Related Image Length  
  Values: An integer in the range 0 to 65535
```

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2.2.4 Main Image IFD Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
acd-comment                -RW-  000b  ACD Comment
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

image-type                 -RWS  00fe  Image Type
  Values: An integer in the range -2147483648 to 2147483647

main-width                 -RWS  0100  Main Image Width
  Values: An integer in the range 0 to 65535

main-len                   -RWS  0101  Main Image Length
  Values: An integer in the range 0 to 65535

main-bits-sam              -RWS  0102  Main Image Bits/Sample
  Values: Any number of integers in the range 0 to 65535

main-comp                  -RWS  0103  Main Image Compression
-----Value----- Abbrev --Num- -----Meaning-----
  Values: none           n           1  None
         jpeg           j           6  JPEG Compression

photo-int                  ERWS  0106  PhotometricInterpret.
-----Value----- Abbrev --Num- -----Meaning-----
  Values: gray-wz       gw           0  Bi-Level/Grayscale - White is Zero
         gray-bz       gb           1  Bi-Level/Grayscale - Black is Zero
         rgb           r           2  RGB
         palette      p           3  Palette Colour
         trans-mask    t           4  Transparency Mask

doc-name                   ERWS  010d  Document Name
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

description                 ERWS  010e  Description
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

make                       ERWS  010f  Make
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

model                      ERWS  0110  Model
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

strip-off                  -R-S  0111  Strip Offsets
  Not Editable
  Values: Any number of integers in the range 0 to 4294967295

orient                     ERWS  0112  Orientation (start point)
-----Value----- Abbrev --Num- -----Meaning-----
  Values: upper-left    ul           1  Upper Left
         lower-right   lr           3  Lower Right
         upper-right   ur           6  Upper Right
         lower-left    ll           8  Lower Left
         undefined     u           9  Undefined
```

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sample-pix ERWS 0115 Sample per Pixel
Values: An integer in the range 0 to 65535

row-strip -R-S 0116 Rows per Strip
Not Editable
Values: An integer in the range 0 to 65535

strip-cnt -R-S 0117 Strip Byte Count
Not Editable
Values: Any number of integers in the range 0 to 4294967295

x-res ERWS 011a X Resolution
Values: A positive rational number

y-res ERWS 011b Y Resolution
Values: A positive rational number

planar-conf ERWS 011c Planar Configuration

-----Value-----	Abbrev	--Num-	-----Meaning-----
chunky	c	1	Chunky
planar	p	2	Planar

Values: chunky
planar

page-name ERWS 011d Page Name
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

page-x-pos ERWS 011e Page X Position
Values: A positive rational number

page-y-pos ERWS 011f Page Y Position
Values: A positive rational number

res-unit ERWS 0128 Resolution Unit

-----Value-----	Abbrev	--Num-	-----Meaning-----
none	n	1	No Unit
inch	i	2	Inch
cm	c	3	Centimetre

Values: none
inch
cm

page-num ERWS 0129 Page Number (X of Y)
Values: 2 integers in the range 0 to 65535

trans-func -RWS 012d Transfer Function
Values: 768 integers in the range 0 to 65535

firm-ver ERWS 0131 Firmware Version
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

date-mod ERWS 0132 Date/Time Modified
Values: A date/time in the format YYYY:MM:DD HH:MM:SS

artist -RWS 013b Artist
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

white-point ERWS 013e White Point
Values: 2 positive rational numbers

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```

prim-chrom          ERWS  013f  Primary Chromatic
  Values: 6 positive rational numbers

yccr-coeff          ERWS  0211  YCbCr Coefficients
  Values: 3 positive rational numbers

yccr-posn          ERWS  0213  YCbCr Positioning
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: center      c          1  Centre
          datum      d          2  Datum Point

ref-bw             ERWS  0214  Reference Black&White
  Values: 6 positive rational numbers

camera-num         ERWS  827d  Camera Number
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

copyright          ERWS  8298  Copyright
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

comment-old        -RW-  9286  User Comment (EXIF 2.0)
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

xp-rating          -RW-  4746  XP Rating (1-5,0=Unrated)
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 0           0          0  0
          1           1          1  1
          2           2          2  2
          3           3          3  3
          4           4          4  4
          5           5          5  5

xp-dip-tags        -RW-  4747  Digital Image Pro Tags
  Values: Variable length binary data

xp-title           -RW-  9c9b  XP Title
  Values: Variable length binary data

xp-comment         -RW-  9c9c  XP Comment
  Values: Variable length binary data

xp-author          -RW-  9c9d  XP Author
  Values: Variable length binary data

xp-keyword         -RW-  9c9e  XP Keywords
  Values: Variable length binary data

xp-subject         -RW-  9c9f  XP Subject
  Values: Variable length binary data

print-im          -RWS  c4a5  Print Image Matching
  Values: Variable length binary data

```

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2.2.5 EXIF Sub-IFD Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
exp-time                      ERWS  829a  Exposure Time (sec)
  Values: An integer number of seconds (eg 30) or a fraction of a
          second specified as 1/x, eg 1/125

f-number                      ERWS  829d  F-Number
  Values: A positive rational number

exp-prog                      ERWS  8822  Exposure Program
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: manual          m          1  Manual
          prog-normal    pn          2  Program Normal
          aperture       a          3  Aperture Priority
          shutter        s          4  Shutter Priority
          prog-creative  pc          5  Program Creative
          prog-action    pa          6  Program Action
          portrait       p          7  Portrait Mode
          landscape      l          8  Landscape Mode

spec-sens                     ERWS  8824  Spectral Sensitivity
  Values: A date/time in the format YYYY:MM:DD HH:MM:SS

iso-speed                     ERWS  8827  ISO Speed
  Values: An integer in the range 0 to 65535

oecf                          ERWS  8828  Optoelectric Conv. Factor
  Values: Variable length binary data

exif-ver                      ERWS  9000  EXIF Version
  Values: '0210', or in the range '0220' to '0229' inclusive.

date-taken                    ERWS  9003  Date/Time Taken
  Values: A date/time in the format YYYY:MM:DD HH:MM:SS

date-digi                     ERWS  9004  Date/Time Digitised
  Values: A date/time in the format YYYY:MM:DD HH:MM:SS

comp-conf                     -RWS  9101  Components Configuration
  Values: Variable length binary data

ave-comp                      ERWS  9102  Average Compression Ratio
  Values: A positive rational number

shutter                       ERWS  9201  Shutter Speed (sec)
  Values: An integer number of seconds (eg 30) or a fraction of a
          second specified as 1/x, eg 1/125

aperture                      ERWS  9202  Aperture
  Values: A positive rational number

brightness                    ERWS  9203  Brightness
  Values: A positive or negative rational number
```

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exp-bias ERWS 9204 Exposure Bias (EV)
 Values: A positive or negative rational number

max-aper ERWS 9205 Max Aperture
 Values: A positive rational number

subj-dist ERWS 9206 Subject Distance (metres)
 Values: A positive rational number

meter-mode ERWS 9207 Metering Mode

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: average	a	1	Average
centre	c	2	Centre Weighted Average
spot	s	3	Spot
multi-spot	msh	4	Multi-Spot
multi-segment	mse	5	Multi-Segment
partial	p	6	Partial
other	o	255	Other

light-src ERWS 9208 Light Source

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: auto	a	0	Auto
daylight	d	1	Daylight
fluorescent	flu	2	Fluorescent
tungsten	t	3	Tungsten
flash	fla	4	Flash
fine	fi	9	Fine Weather
cloudy	cl	10	Cloudy Weather
shade	sh	11	Shade
day-fluor	dlf	12	Daylight Fluorescent
day-white-fl	dwf	13	Day White Fluorescent
cool-white-fl	cwf	14	Cool White Fluorescent
white-fl	wf	15	White Fluorescent
standard-a	sa	17	Standard Light A
standard-b	sb	18	Standard Light B
standard-c	sc	19	Standard Light C
d55	d55	20	D55
d65	d65	21	D65
d75	d75	22	D75
d50	d50	23	D50
iso-tungsten	ist	24	ISO Studio Tungsten
other	o	255	Other Light Source

flash ERWS 9209 Flash

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: none	n	0	Not Fired
fired	f	1	Fired
srn	srn	5	Strobe return not detected
sr	sr	7	Strobe return detected
ff-cfm	fc	9	Flash fired; Compulsory flash mode
ff-cfm-rlnd	fcrn	13	Flash fired; Compulsory flash mode; Return light not detected
ff-cfm-rld	fcrd	15	Flash fired; Compulsory flash mode; Return light detected
fnf-cfm	nc	16	Flash not fired; Compulsory flash mode
fnf-am	na	24	Flash not fired; Auto mode

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ff-am	fa	25	Flash fired; Auto mode
ff-am-rlnd	farn	29	Flash fired; Auto mode; Return light not detected
ff-am-rld	fard	31	Flash fired; Auto mode; Return light detected
nff	nff	32	No flash function
ff-rrm	fre	65	Flash fired; Red-eye reduction mode
ff-rrm-rlnd	frrn	69	Flash fired; Red-eye reduction mode; Return light not detected
ff-rrm-rld	frrd	71	Flash fired; Red-eye reduction mode; Return light detected
ff-cfm-rrm	fcr	73	Flash fired; Compulsory flash mode; Red-eye reduction mode
ff-cfm-rrm-rlnd	fcrn	77	Flash fired; Compulsory flash mode; Red-eye reduction mode; Return light not detected
ff-cfm-rrm-rld	fcrd	79	Flash fired; Compulsory flash mode; Red-eye reduction mode; Return light detected
ff-am-rrm	far	89	Flash fired; Auto mode; Red-eye reduction mode
ff-am-rrm-rlnd	farrn	93	Flash fired; Auto mode; Red-eye reduction mode; Return light not detected
ff-am-rrm-rld	farrd	95	Flash fired; Auto mode; Red-eye reduction mode; Return light detected
focal-len	ERWS	920a	Focal Length (mm)
Values: A positive rational number			
history	ERWS	9213	Image History
Values: Text string up to 1999 bytes long (or up to 49 in demo version)			
subj-area	ERWS	9214	Subject Area
Values: Any number of integers in the range 0 to 65535			
maker-note	-R-S	927c	Maker Note
Not Editable			
Values: Variable length binary data			
comment	ERWS	9286	User Comment
Values: Text string (any length)			
sub-time	ERWS	9290	Subsec Time
Values: Text string up to 1999 bytes long (or up to 49 in demo version)			
sub-time-orig	ERWS	9291	Subsec Time Original
Values: Text string up to 1999 bytes long (or up to 49 in demo version)			
sub-time-digi	ERWS	9292	Subsec Time Digitised
Values: Text string up to 1999 bytes long (or up to 49 in demo version)			
flashpix-ver	-RWS	a000	FlashPix Version
Values: 4 bytes of binary data			

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colour-space	ERWS	a001	Colour Space
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: srgb	s	1	sRGB
uncalibrated	u	65535	Uncalibrated
width	ERWS	a002	Image Width
Values:	An integer in the range 0 to 65535		
height	ERWS	a003	Image Height
Values:	An integer in the range 0 to 65535		
sound-file	ERWS	a004	Related Sound File
Values:	Text string 12 bytes long		
sfr	-RWS	a20c	Spatial Freq. Response
Values:	Variable length binary data		
flash-energy	ERWS	a20b	Flash Energy (BCPS)
Values:	A positive rational number		
fp-x-res	ERWS	a20e	Focal Plane X Resolution
Values:	A positive rational number		
fp-y-res	ERWS	a20f	Focal Plane Y Resolution
Values:	A positive rational number		
fp-res-unit	ERWS	a210	Focal Plane Res. Unit
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: none	n	1	No Unit
inch	i	2	Inch
cm	c	3	Centimetre
subj-locn	ERWS	a214	Subject Location
Values:	2 integers in the range 0 to 65535		
exp-index	ERWS	a215	Exposure Index
Values:	A positive rational number		
sense-method	ERWS	a217	Sensing Method
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: not-def	n	1	Not defined
one-chip	1	2	One chip colour area sensor
two-chip	2	3	Two chip colour area sensor
three-chip	3	4	Three chip colour area sensor
col-seq-area	csa	5	Colour sequential area sensor
trilinear	t	7	Trilinear sensor
col-seq-lin	csl	8	Colour sequential linear sensor
file-src	ERWS	a300	File Source
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: dsc	d	3	Digital Still Camera
scene-type	ERWS	a301	Scene Type
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: direct	d	1	Directly Photographed Image

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```

cfa-pattern          -RWS  a302  CFA Pattern
  Values: Variable length binary data

custom-render        ERWS  a401  Custom Render
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n          0  Normal Process
         custom       c          1  Custom Process

exp-mode             ERWS  a402  Exposure Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto        a          0  Auto Exposure
         manual       m          1  Manual Exposure
         bracket      b          2  Auto Bracket

white-bal            ERWS  a403  White Balance
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto        a          0  Auto
         manual       m          1  Manual

digital-zoom         ERWS  a404  Digital Zoom Ratio
  Values: A positive rational number

focal-len-35mm      ERWS  a405  Focal Length (35mm equiv)
  Values: An integer in the range 0 to 65535

scene-mode           ERWS  a406  Scene Capture Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: standard    s          0  Standard
         landscape    l          1  Landscape
         portrait     p          2  Portrait
         night        n          3  Night Scene

gain                 ERWS  a407  Gain Control
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none        n          0  None
         low-gain-up   lgu         1  Low Gain Up
         high-gain-up  hgu         2  High Gain Up
         low-gain-down lgd         3  Low Gain Down
         high-gain-down hgd         4  High Gain Down

contrast             ERWS  a408  Contrast
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n          0  Normal
         soft         s          1  Soft
         hard         h          2  Hard

saturation           ERWS  a409  Saturation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n          0  Normal
         low         l          1  Low
         high        h          2  High

sharpness            ERWS  a40a  Sharpness
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n          0  Normal
         soft         s          1  Soft
         hard         h          2  Hard

```

EXIFutils Field Reference Guide

dev-setting -RWS a40b Device Setting
Values: Variable length binary data

subj-range ERWS a40c Subject Distance Range

-----Value-----	Abbrev	--Num-	-----Meaning-----
unknown	u	0	Unknown
macro	m	1	Macro
close	c	2	Close View
distant	d	3	Distant View

image-id ERWS a420 Unique Image Id
Values: Text string 32 bytes long

EXIFutils Field Reference Guide

2.2.6 Thumbnail IFD Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
th-width                      ERWS  0100  Thumb Image Width
  Values: An integer in the range 0 to 65535

th-len                        ERWS  0101  Thumb Image Length
  Values: An integer in the range 0 to 65535

th-bits-sam                   -RWS  0102  Thumb Bits per Sample
  Values: Any number of integers in the range 0 to 65535

th-comp                       ERWS  0103  Thumb Compression
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none          n          1  None
         jpeg          j          6  JPEG Compression

th-photo-int                  ERWS  0106  Thumb PhotometricInterp.
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: gray-wz      gw          0  Bi-Level/Grayscale - White is Zero
         gray-bz      gb          1  Bi-Level/Grayscale - Black is Zero
         rgb          r          2  RGB
         palette     p          3  Palette Colour
         trans-mask   t          4  Transparency Mask

th-description                 ERWS  010e  Thumb Description
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

th-make                        ERWS  010f  Thumb Make
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

th-model                       ERWS  0110  Thumb Model
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

th-strip-off                   -R-S  0111  Thumb Strip Offsets
  Not Editable
  Values: Any number of integers in the range 0 to 4294967295

th-orient                      ERWS  0112  Thumb Orientation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: upper-left   ul          1  Upper Left
         lower-right  lr          3  Lower Right
         upper-right  ur          6  Upper Right
         lower-left   ll          8  Lower Left
         undefined    u          9  Undefined

th-sample-pix                  ERWS  0115  Thumb Sample per Pixel
  Values: An integer in the range 0 to 65535

th-row-strip                   ER-S  0116  Thumb Rows per Strip
  Not Editable
  Values: An integer in the range 0 to 65535
```

EXIFutils Field Reference Guide

th-strip-cnt ER-S 0117 Thumb Strip Byte Count(s)
 Not Editable
 Values: Any number of integers in the range 0 to 4294967295

th-x-res ERWS 011a Thumb X Resolution
 Values: A positive rational number

th-y-res ERWS 011b Thumb Y Resolution
 Values: A positive rational number

th-plan-conf ERWS 011c Thumb Planar Config
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: chunky c 1 Chunky
 planar p 2 Planar

th-res-unit ERWS 0128 Thumb Resolution Unit
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: none n 1 No Unit
 inch i 2 Inch
 cm c 3 Centimetre

th-firm-ver ERWS 0131 Thumb Firmware Version
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

th-date-mod ERWS 0132 Thumb Date/Time Modified
 Values: A date/time in the format YYYY:MM:DD HH:MM:SS

th-artist -RWS 013b Thumb Artist
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

th-white-point ERWS 013e Thumb White Point
 Values: 2 positive rational numbers

th-prim-chrom ERWS 013f Thumb Primary Chromatic
 Values: 6 positive rational numbers

th-if-offset ERWS 0201 Thumb Jpeg IF Offset
 Values: Editing of this field is not permitted

th-if-count ERWS 0202 Thumb Jpeg IF Byte Count
 Values: Editing of this field is not permitted

th-ybcr-coeff ERWS 0211 Thumb YCbCr Coefficients
 Values: 3 positive rational numbers

th-ybcr-sub ERWS 0212 Thumb YCbCr Sub-Sampling
 Values: 2 integers in the range 0 to 65535

th-ybcr-posn ERWS 0213 Thumb YCbCr Positioning
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: center c 1 Centre
 datum d 2 Datum Point

th-ref-bw ERWS 0214 Thumb Reference Black/White
 Values: 6 positive rational numbers

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th-copyright ERWS 8298 Thumb Copyright
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

EXIFutils Field Reference Guide

2.2.7 Global Positioning System (GPS) IFD Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
gps-ver                      -RWS  0000  Version
  Values: Automatically generated

gps-lat-ref                  -RWS  0001  Latitude Reference
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: north           n      ...  North
         south           s      ...  South

gps-latitude                 -RWS  0002  Latitude
  Values: Latitude specified as 'dd mm.mm' (eg. 45 27.50)
         or as 'dd mm ss' (eg. 45 27 30)

gps-long-ref                 -RWS  0003  Longitude Reference
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: east            e      ...  East
         west            w      ...  West

gps-longitude                -RWS  0004  Longitude
  Values: Longitude specified as either 'ddd mm.mm' (eg. 415 27.50)
         or as 'ddd mm ss' (eg. 145 27 30)

gps-alt-ref                  -RWS  0005  Altitude Reference
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: sea-level       0      0  Sea Level
         below-sea-level b      1  Below sea level

gps-altitude                 -RWS  0006  Altitude
  Values: A positive rational number

gps-time                      -RWS  0007  Time
  Values: 3 positive rational numbers

gps-satellite                -RWS  0008  Satellite
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

gps-recv-stat                -RWS  0009  Receive Status
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: in-progress     a      ...  Measurement in Progress
         interop         v      ...  Measurement Interoperability

gps-mode                      -RWS  000a  Measurement Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 2d              2      ...  Two-dimensional
         3d              3      ...  Three-dimensional

gps-precision                 -RWS  000b  Measurement Precision
  Values: A positive rational number
```

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```

gps-speed-unit          -RWS  000c  Speed Unit
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: kph           k      ...  Kilometers per Hour
         mph           m      ...  Miles per Hour
         knots         n      ...  Knots

gps-recv-speed          -RWS  000d  Receiver Speed
  Values: A positive rational number

gps-mov-dir-ref         -RWS  000e  Movement Direction Ref
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: true          t      ...  True Direction
         magnetic       m      ...  Magnetic Direction

gps-mov-dir             -RWS  000f  Movement Direction
  Values: A positive rational number

gps-img-dir-ref         -RWS  0010  Image Direction Ref
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: true          t      ...  True Direction
         magnetic       m      ...  Magnetic Direction

gps-img-dir             -RWS  0011  Image Direction
  Values: A positive rational number

gps-geodetic            -RWS  0012  Geodetic Survey Data
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

gps-dest-lat-ref        -RWS  0013  Dest. Latitude Ref
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: north         n      ...  North
         south         s      ...  South

gps-dest-lat            -RWS  0014  Destination Latitude
  Values: 3 positive rational numbers

gps-dest-long-ref       -RWS  0015  Dest. Longitude Ref
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: east          e      ...  East
         west          w      ...  West

gps-dest-long           -RWS  0016  Destination Longitude
  Values: 3 positive rational numbers

gps-dest-bear-ref       -RWS  0017  Dest. Bearing Ref
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: true          t      ...  True Direction
         magnetic       m      ...  Magnetic Direction

gps-dest-bear           -RWS  0018  Destination Bearing
  Values: A positive rational number

gps-dest-dist-ref       -RWS  0019  Dest. Distance Ref
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: kilometers    k      ...  Kilometers
         miles         m      ...  Miles
         knots         n      ...  Knots

```


EXIFutils Field Reference Guide

gps-dest-dist -RWS 001a Destination Distance
Values: A positive rational number

gps-proc-method -RWS 001b Processing Method
Values: Variable length binary data

gps-area -RWS 001c Area Information
Values: Variable length binary data

gps-date -RWS 001d Datestamp
Values: Text string 10 bytes long

gps-diff-corr -RWS 001e Differential Correction
Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

2.2.8 IPTC Fields

2.2.8.1 IPTC 1: Addressing

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ip1-version                -RWS  1.000 Dataset 1 Record Version
  Values: The only supported version number is 2
ip1-destination            -RWS  1.005 Destination
  Values: Text string up to 1024 bytes long
ip1-format                 -RWS  1.020 File Format
  Values: An integer in the range 0 to 65535
ip1-format-ver            -RWS  1.022 File Format Version
  Values: An integer in the range 0 to 65535
ip1-service-id            -RWS  1.030 Service Identifier
  Values: Text string up to 10 bytes long
ip1-env-num               -RWS  1.040 Envelope Number
  Values: Text string up to 8 bytes long
ip1-product-id           -RWS  1.050 Product ID
  Values: Text string up to 32 bytes long
ip1-env-pri              -RWS  1.060 Envelope Priority
  Values: Text string 1 byte long
ip1-date-sent            -RWS  1.070 Date Sent
  Values: A date in the format YYYYMMDD
ip1-time-sent            -RWS  1.080 Time Sent
  Values: A time in the format HHMMSS +/-ZZZZ
ip1-char-set             -RWS  1.090 Coded Character Set
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 002          002    ...  ISO 646 IRV
          004          004    ...  ISO 646 British Version
          008-1        008-1  ...  NATS Primary Set for Finland and Sweden
          008-2        008-2  ...  NATS Secondary Set for Finland and
          Sweden
          009-1        009-1  ...  NATS Primary Set for Denmark and Norway
          009-2        009-2  ...  NATS Secondary Set for Denmark and
          Norway
          010          010    ...  ISO 646 Swedish Version (SEN 850200)
          015          015    ...  ISO 646 Italian Version (ECMA)
          016          016    ...  ISO 646 Portuguese Version (ECMA
          Olivetti)
          017          017    ...  ISO 646 Spanish Version (ECMA Olivetti)
          018          018    ...  ISO 646 Greek Version (ECMA)
          021          021    ...  ISO 646 German Version (DIN 66003)
          037          037    ...  Basic Cyrillic Character Set (ISO 5427)
          060          060    ...  ISO 646 Norwegian Version (NS 4551)
```

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069	069	...	ISO 646 French Version (NF Z 62010-1982)
084	084	...	ISO 646 Portuguese Version (ECMA IBM)
085	085	...	ISO 646 Spanish Version (ECMA IBM)
086	086	...	ISO 646 Hungarian Version (HS 7795/3)
121	121	...	Alternate Primary Graphic Set No. 1 (Canada CSA Z 243.4-1985)
122	122	...	Alternate Primary Graphic Set No. 2 (Canada CSA Z 243.4-1985)
100	100	...	Right-hand Part of Latin Alphabet No. 1 (ISO 8859-1)
101	101	...	Right-hand Part of Latin Alphabet No. 2 (ISO 8859-2)
109	109	...	Right-hand Part of Latin Alphabet No. 3 (ISO 8859-3)
110	110	...	Right-hand Part of Latin Alphabet No. 4 (ISO 8859-4)
111	111	...	Right-hand Part of Latin/Cyrillic Alphabet (ISO 8859-5)
125	125	...	Right-hand Part of Latin/Greek Alphabet (ISO 8859-7)
127	127	...	Right-hand Part of Latin/Arabic Alphabet (ISO 8859-6)
138	138	...	Right-hand Part of Latin/Hebrew Alphabet (ISO 8859-8)
139	139	...	Right-hand Part of Czechoslovak Standard (CSN 369103)
087	087	...	Japanese characters (JIS X 0208-1983)
001	001	...	C0 Set of ISO 646
026	026	...	IPTC C0 Set for newspaper text transmission
036	036	...	C0 Set of ISO 646 with SS2 instead of IS4
104	104	...	Minimum C0 Set for ISO 4873
077	077	...	C1 Control Set of ISO 6429
105	105	...	Minimum C1 Set for ISO 4873
062	062	...	Locking-Shift Two (LS2), ISO 2022
063	063	...	Locking-Shift Three (LS3), ISO 2022
064	064	...	Locking-Shift Three Right (LS3R), ISO 2022
065	065	...	Locking-Shift Two Right (LS2R), ISO 2022
066	066	...	Locking-Shift One Right (LS1R), ISO 2022
196	196	...	UCS Transformation Format (UTF-8)

ipl-uno -RWS 1.100 Unique Name of Object
Values: Text string up to 80 bytes long

ipl-arm-id -RWS 1.120 ARM Identifier
Values: An integer in the range 0 to 65535

ipl-arm-ver -RWS 1.122 ARM Version
Values: An integer in the range 0 to 65535

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2.2.8.2IPTC 2: Editorial

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ip-version                IRWS  2.000 Dataset 2 Record Version
  Values: The only supported version number is 2
ip-obj-type-ref           IRWS  2.003 Object Type Reference
  Values: Text string up to 67 bytes long
ip-obj-attr-ref           IRWS  2.004 Object Attribute Reference
  Values: Text string up to 68 bytes long
ip-object                 IRWS  2.005 Object
  Values: Text string up to 64 bytes long
ip-edit-status            IRWS  2.007 Edit Status
  Values: Text string up to 1999 bytes long
ip-editor-update          IRWS  2.008 Editorial Update
  Values: Text string up to 2 bytes long
ip-urgency                IRWS  2.010 Urgency
  Values: One digit in the range 1-8.
         1=Most Urgent, 5=Normal Urgency, 8=Least Urgent
ip-subj-ref               IRWS  2.012 Subject Reference
  Values: Text string up to 236 bytes long
ip-category               IRWS  2.015 Category
  Values: Text string up to 3 bytes long
ip-suppcat                IRWS  2.020 Supplemental-Categories
  Values: Text string up to 32 bytes long
         This field can be repeated up to 999 times.
ip-fixture                IRWS  2.022 Fixture
  Values: Text string up to 1999 bytes long
ip-keyword                IRWS  2.025 Keywords
  Values: Text string up to 31 bytes long
         This field can be repeated up to 999 times.
ip-cont-loc-code          IRWS  2.026 Content Location Code
  Values: Text string up to 3 bytes long
ip-cont-loc-name          IRWS  2.027 Content Location Name
  Values: Text string up to 64 bytes long
ip-rel-date               IRWS  2.030 Release Date
  Values: A date in the format YYYYMMDD
ip-rel-time               IRWS  2.035 Release Time
  Values: A time in the format HHMMSS +/-ZZZZ
```

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ip-exp-date IRWS 2.037 Expiration Date
Values: A date in the format YYYYMMDD

ip-exp-time IRWS 2.038 Expiration Time
Values: A time in the format HHMMSS +/-ZZZZ

ip-instructions IRWS 2.040 Special Instructions
Values: Text string up to 255 bytes long

ip-action-advised IRWS 2.042 Action Advised

-----Value-----	Abbrev	--Num-	-----Meaning-----
kill	k	...	Object Kill
replace	rep	...	Object Replace
append	a	...	Object Append
reference	ref	...	Object Reference

ip-ref-service IRWS 2.045 Reference Service Ident.
Values: Text string up to 10 bytes long
This field can be repeated up to 999 times.

ip-ref-date IRWS 2.047 Reference Date
Values: A date in the format YYYYMMDD
This field can be repeated up to 999 times.

ip-ref-env-num IRWS 2.050 Reference Envelope Number
Values: Text string up to 8 bytes long
This field can be repeated up to 999 times.

ip-date IRWS 2.055 Creation Date
Values: A date in the format YYYYMMDD

ip-time IRWS 2.060 Creation Time
Values: A time in the format HHMMSS +/-ZZZZ

ip-digi-date IRWS 2.062 Digital Creation Date
Values: A date in the format YYYYMMDD

ip-digi-time IRWS 2.063 Digital Creation Time
Values: A time in the format HHMMSS +/-ZZZZ

ip-program IRWS 2.065 Originating Program
Values: Text string up to 255 bytes long

ip-prog-ver IRWS 2.070 Program Version
Values: Text string up to 255 bytes long

ip-obj-cycle IRWS 2.075 Object Cycle
Values: Text string 1 byte long

ip-byline IRWS 2.080 Byline
Values: Text string up to 32 bytes long

ip-byline-title IRWS 2.085 Byline Title
Values: Text string up to 32 bytes long

ip-city IRWS 2.090 City
Values: Text string up to 32 bytes long

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ip-subloc IRWS 2.092 Sub Location
Values: Text string up to 1999 bytes long

ip-state-prov IRWS 2.095 State/Province
Values: Text string up to 32 bytes long

ip-loc-code IRWS 2.100 Location Code
Values: Text string up to 32 bytes long

ip-country IRWS 2.101 Country
Values: Text string up to 64 bytes long

ip-orig-ref IRWS 2.103 Original Xmit Reference
Values: Text string up to 32 bytes long

ip-headline IRWS 2.105 Headline
Values: Text string up to 255 bytes long

ip-credit IRWS 2.110 Credit
Values: Text string up to 32 bytes long

ip-source IRWS 2.115 Source
Values: Text string up to 32 bytes long

ip-copyright IRWS 2.116 Copyright Notice
Values: Text string up to 128 bytes long

ip-contact IRWS 2.118 Contact
Values: Text string up to 1999 bytes long

ip-caption IRWS 2.120 Caption
Values: Text string up to 1999 bytes long

ip-local-caption IRWS 2.121 Local Caption
Values: Text string up to 1999 bytes long

ip-cap-writer IRWS 2.122 Caption Writer
Values: Text string up to 32 bytes long

ip-image-type IRWS 2.130 Image Type
Values: Text string up to 2 bytes long

ip-image-orient IRWS 2.131 Image Orientation
-----Value----- Abbrev --Num- -----Meaning-----
Values: portrait p 'P' Portrait
landscape l 'L' Landscape
square s 'S' Square

ip-lang-id IRWS 2.135 Language Id
Values: Text string up to 2 bytes long

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ip-audio-type IRWS 2.150 Audio Type
-----Value----- Abbrev --Num- -----Meaning-----
Values: Text t ... Text only
 actual-mono am ... Actuality (mono)
 actual-stereo as ... Actuality (stereo)
 qa-mono qm ... Q&A Session (mono)
 qa-stereo qs ... Q&A Session (stereo)
 music-mono mm ... Music (mono)
 music-stereo ms ... Music (stereo)
 response-mono rem ... Response to a Question (mono)
 response-stereo res ... Response to a Question (stereo)
 raw-mono ram ... Raw sound (mono)
 raw-stereo ras ... Raw sound (stereo)
 scener-mono sm ... Scener (mono)
 scener-stereo ss ... Scener (stereo)
 voicer-mono vm ... Voicer (mono)
 voicer-stereo vs ... Voicer (stereo)
 wrap-mono wm ... Wrap (mono)
 wrap-stereo ws ... Wrap (stereo)

ip-audio-samp-rate IRWS 2.151 Audio Sampling Rate (Hz)
Values: Six numeric characters. eg: 011025 indicates 11025 Hz

ip-audio-samp-res IRWS 2.152 Audio Sampling Resolution
Values: Two numeric characters with leading zeros.
 eg: 08 indicates a sample size of 8 bits

ip-audio-duration IRWS 2.153 Audio Duration
Values: Six numeric characters in the format HHMMSS,
 eg: 000211 indicates a duration of 2 minutes 11 seconds

ip-audio-outcue IRWS 2.154 Audio Outcue
Values: Text string up to 64 bytes long

ip-job-id IRW- 2.184 Jod Id
Values: Text string up to 255 bytes long

ip-master-doc-id IRW- 2.185 Master Document Id
Values: Text string up to 255 bytes long

ip-short-doc-id IRW- 2.186 Short Document Id
Values: Text string up to 255 bytes long

ip-unique-doc-id IRW- 2.187 Unique Document Id
Values: Text string up to 255 bytes long

ip-owner-id IRW- 2.188 Owner Id
Values: Text string up to 255 bytes long

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```

ip-preview-format      IRWS  2.200 Preview File Format
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none         00      ...  No ObjectData
         iptc-naa       01      ...  IPTC-NAA
         iptc7901       02      ...  IPTC7901
         tiff           03      ...  Tagged Image File Format
         illustrator    04      ...  Illustrator
         applesingle    05      ...  AppleSingle
         naa-89-3       06      ...  NAA 89-3 (ANPA 1312)
         mac-bin-ii     07      ...  MacBinary II
         iptc-ucoff     08      ...  IPTC UCOFF
         upi-1312       09      ...  UPI ANPA 1312 variant
         upi-dlm        10      ...  UPI Down-Load Message
         jpeg           11      ...  JPEG File Interchange (JFIF)
         photo-cd       12      ...  Photo-CD Image-Pac
         bmp            13      ...  Microsoft .BMP
         wav            14      ...  Digital Audio File .WAV
         avi            15      ...  Audio plus Moving Video .AVI
         exe-com        16      ...  Windows Executable Files .COM/.EXE
         zip            17      ...  Compressed Binary File .ZIP
         aiff           18      ...  Audio Interchange File Format AIFF
         riff-wav       19      ...  RIFF Wave
         freehand       20      ...  Freehand
         html           21      ...  Hypertext Markup Language
         mpeg2-2        22      ...  MPEG 2 Audio Layer 2
         mpeg2-3        23      ...  MPEG 2 Audio Layer 3
         pdf            24      ...  Portable Document File .PDF
         nitf           25      ...  News Industry Text Format (NITF)
         tar            26      ...  Tape Archive .TAR
         tt-ntif        27      ...  Tidningarnas Telegrambyrå NITF
         rb-ntif        28      ...  Ritzaus Bureau NITF
         cdr            29      ...  Corel Draw .CDR

ip-service-id          IRWS  2.201 Service Id
  Values: Text string up to 255 bytes long

ip-class-state         IRW-  2.225 Classification State
  Values: Text string up to 255 bytes long

ip-sim-index           IRW-  2.228 Similarity Index
  Values: Text string up to 255 bytes long

ip-doc-notes           IRW-  2.230 Document Notes
  Values: Text string up to 255 bytes long

ip-doc-history         IRW-  2.231 Document History
  Values: Text string up to 255 bytes long

ip-exif-info           IRW-  2.232 Camera EXIF Information
  Values: Text string up to 1999 bytes long

```


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2.2.8.3 IPTC 3: Newsphoto Parameters

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ip3-version                -RWS  3.000 Dataset 3 Record Version
  Values: The only supported version number is 2
ip3-picture-num           -RWS  3.010 Picture Number
  Values: Text string up to 16 bytes long
ip3-width                 -RWS  3.020 Image Width
  Values: An integer in the range 0 to 65535
ip3-height                -RWS  3.030 Image Height
  Values: An integer in the range 0 to 65535
ip3-pix-size-scan         -RWS  3.040 Pixel Size - Scan Dirctn
  Values: An integer in the range 0 to 65535
ip3-pix-size-perp         -RWS  3.050 Pixel Size - Perpendicular
  Values: An integer in the range 0 to 65535
ip3-supp-type             -RWS  3.055 Supplemental Type
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: main           m           0   Main Image
         reduced        r           1   Reduced Redolution Image
         logo           l           2   Logo
         caption        c           3   Rasterized Caption
ip3-color-rep             -RWS  3.060 Color Representation
  Values: 2 bytes of binary data
ip3-color-space           -RWS  3.064 Interchange Color Space
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: xyz            z           1   X,Y,Z CIE
         rgb-smpte      r           2   RGB SMPTE
         yuv            yuv        3   Y,U,V (K) (default illuminant D65)
         rgb-dd         rd          4   RGB Device Dependent
         cmyk           c           5   CMY(K) Device Dependent
         lab            l           6   L*a*b* (K) CIE
         ycbcr          ycbcr      7   YCbCr
         srgb           s           8   sRGB
ip3-color-seq             -RWS  3.065 Color Sequence
  Values: 4 bytes of binary data
ip3-index-entries         -RWS  3.084 Number of Index Entries
  Values: An integer in the range 0 to 65535
ip3-bits-per-sample       -RWS  3.086 Bits per Sample
  Values: One byte of binary data
```

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```

ip3-sample-struct          -RWS  3.090 Sample Structure
-----Value----- Abbrev --Num- -----Meaning-----
Values: orth-same         o1      0  Orthogonal with same relative sample
                             frequencies on each component
                             orth-4224     o2      1  Orthogonal with sampling frequencies in
                             the ration of 4:2:2:(4)
                             comp          c       2  Defined within the compression process

ip3-scan-dir              -RWS  3.100 Scanning Direction
-----Value----- Abbrev --Num- -----Meaning-----
Values: lrtb              lrtb    0  Left to Right, Top to Bottom
                             rltb        1  Right to Left, Top to Bottom
                             lrbt        2  Left to Right, Bottom to Top
                             rlbt        3  Right to Left, Bottom to Top
                             tblr        4  Top to Bottom, Left to Right
                             btlr        5  Bottom to Top, Left to Right
                             tbrl        6  Top to Bottom, Right to Left
                             btrl        7  Bottom to Top, Right to Left

ip3-rotation              -RWS  3.102 Image Rotation (degrees)
-----Value----- Abbrev --Num- -----Meaning-----
Values: 0                  0       0  0
                             90           90      1  90
                             180          180     2  180
                             270          270     3  270

ip3-data-comp             -RWS  3.110 Data Compression Method
Values: 4 bytes of binary data

ip3-quant-method          -RWS  3.120 Quantization Method
-----Value----- Abbrev --Num- -----Meaning-----
Values: linear-rt         lr       0  Linear Reflectance/Transmittance
                             linear-d     ld       1  Linear Density
                             iptc-ref-b    ip       2  IPTC Ref B
                             linear-dot    ld       3  Linear Dot Percent
                             ap-dom        ap       4  AP Domestic Analogue
                             comp-spec     cm       5  Compression Method Specific
                             color-spec    cl       6  Color Space Specific
                             gamma        gm       7  Gamma Compensated

ip3-end-points            -RWS  3.125 End Points
Values: 6 bytes of binary data

ip3-excursion             -RWS  3.130 Excursion Tolerance
-----Value----- Abbrev --Num- -----Meaning-----
Values: not-allowed       no       0  Not Allowed
                             allowed       yes      1  Allowed

ip3-bits-per-comp        -RWS  3.135 Bits per Component
Values: 3 bytes of binary data

```

EXIFutils Field Reference Guide

2.2.8.4 IPTC 7: Subfile Size

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ip7-size-mode                -RWS  7.010 Size Mode
    Not editable (data type UNSIGNED BYTE not supported for editing)

ip7-max-subfile              -RWS  7.020 Max Subfile Size
    Values: An integer in the range 0 to 65535

ip7-obj-size                 -RWS  7.090 Object Size Announced
    Values: An integer in the range 0 to 65535
```

2.2.8.5 IPTC Photoshop Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ip-copyrighted              -RW-   ----- Mark as Copyrighted
    -----Value----- Abbrev --Num- -----Meaning-----
    Values: yes           y       256   Yes
           no            n        0    No

ip-url                       -RW-   ----- Image URL
    Values: Text string up to 255 bytes long
```

EXIFutils Field Reference Guide

2.2.9 Maker Note (Canon) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
cn-0000                      -RW-  0000  Field 0x0000
  Values: Any number of integers in the range 0 to 4294967295

cn-macro-mode                -R--  10001  Macro Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                     1  Macro
                                                2  Normal

cn-self-timer                -R--  20001  Self Timer
  Not Editable
  Values: An integer in the range 0 to 65535

cn-quality                   -R--  30001  Quality
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                     2  Normal
                                                3  Fine
                                                5  Superfine

cn-flash-mode                -R--  40001  Flash Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                     0  Not Fired
                                                1  Auto
                                                2  On
                                                3  Redeye
                                                4  Slow Synch
                                                5  Auto+Redeye
                                                6  On+Redeye
                                                16 External

cn-drive-mode                -R--  50001  Drive Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                     0  Single/Timer
                                                1  Continuous

cn-focus-mode                -R--  70001  Focus Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                     0  One Shot
                                                1  AI Servo
                                                2  AI Focus
                                                3  MF
                                                4  Single
                                                5  Continuous
                                                6  MF
```

EXIFutils Field Reference Guide

```

cn-image-size          -R--  a0001  Image Size
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Large
                                1  Medium
                                2  Small
  
```

```

cn-easy-shoot         -R--  b0001  Easy Shoot
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Full Auto
                                1  Manual
                                2  Landscape
                                3  Fast Shutter
                                4  Slow Shutter
                                5  Night
                                6  B&W
                                7  Sepia
                                8  Portrait
                                9  Sports
                               10  Macro
                               11  Pan Focus
  
```

```

cn-digi-zoom         -R--  c0001  Digital Zoom
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  None
                                1  2x
                                2  4x
  
```

```

cn-contrast          -R--  d0001  Contrast
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                               65535  Low
                                0  Normal
                                1  High
  
```

```

cn-saturation        -R--  e0001  Saturation
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                               65535  Low
                                0  Normal
                                1  High
  
```

```

cn-sharpness         -R--  f0001  Sharpness
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                               65535  Low
                                0  Normal
                                1  High
  
```

EXIFutils Field Reference Guide

```

cn-iso                -R--  100001  ISO
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  N/A
                                15  Auto
                                16  50
                                17  100
                                18  200
                                19  400

cn-meter-mode        -R--  110001  Meter Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Unknown
                                3  Evaluative
                                4  Partial
                                5  Center Weighted

cn-focus-type        -R--  120001  Focus Type
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Manual
                                1  Auto
                                3  Close-up (Macro)
                                8  Locked (Pan Mode)

cn-af-point          -R--  130001  AF Point
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Right
                                1  Center
                                2  Left
                                12288  None
                                12289  Auto
                                12290  Right
                                12291  Center
                                12292  Left

cn-exp-mode          -R--  140001  Exposure Moded
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Easy Shoot
                                1  Program
                                2  Tv Priority
                                3  Av Priority
                                4  Manual
                                5  A-DEP

cn-focal-len-long    -R--  170001  Focal Length Long
  Not Editable
  Values: An integer in the range 0 to 65535

cn-focal-len-short   -R--  180001  Focal Length Short
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

cn-focal-units          -R--  190001  Focal Units per mm
  Not Editable
  Values: An integer in the range 0 to 65535

cn-flash-activity      -R--  1c0001  Flash Activity
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Not Fired
                                1  Fired
                                255 Unknown

cn-flash               -R--  1d0001  Flash
  Not Editable
  Values: An integer in the range 0 to 65535

cn-focus               -R--  200001  Focus
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Single
                                1  Continuous

cn-0002                -RW-  0002  Field 0x0002
  Values: Any number of integers in the range 0 to 65535

cn-0003                -RW-  0003  Field 0x0003
  Values: Any number of integers in the range 0 to 65535

cn-white-bal           -R--  70004  White Balance
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Auto
                                1  Sunny
                                2  Cloudy
                                3  Tungsten
                                4  Fluorescent
                                5  Flash
                                6  Custom

cn-burst-seq          -R--  90004  Continuous Burst Seq
  Not Editable
  Values: Any number of integers in the range 0 to 65535

cn-af-point2           -R--  e0004  AF Point (2)
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Right
                                1  Center
                                2  Left
                                12288 Right
                                12289 Center
                                12290 Left
  
```

EXIFutils Field Reference Guide

cn-flash-bias -R-- f0004 Flash Bias (EV)
 Not Editable
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: 65472 -2.00
 65484 -1.67
 65488 -1.50
 65492 -1.33
 65504 -1.00
 65516 -0.67
 65520 -0.50
 65524 -0.33
 0 0.00
 12 +0.33
 16 +0.50
 20 +0.67
 32 +1.00
 44 +1.33
 48 +1.50
 52 +1.67
 64 +2.00

cn-subj-dist -R-- 130004 Subject Distance
 Not Editable
 Values: Any number of integers in the range 0 to 65535

cn-0005 -RW- 0005 Field 0x0005
 Values: Any number of integers in the range 0 to 65535

cn-image-type -RW- 0006 Image Type
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

cn-firm-ver -RW- 0007 Firmware Version
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

cn-image-num -RW- 0008 Image Number
 Values: An integer in the range 0 to 65535

cn-owner -RW- 0009 Owner Name
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

cn-000a -RW- 000a Field 0x000a
 Values: Any number of integers in the range 0 to 65535

cn-body-num -RW- 000c Camera Body Number
 Values: Any number of integers in the range 0 to 4294967295

cn-000d -RW- 000d Field 0x000d
 Values: Any number of integers in the range 0 to 65535

cn-000e -RW- 000e Field 0x000e
 Values: Any number of integers in the range 0 to 4294967295

cn-noise-reduct -RW- 1000f Long Exp. Noise Reduct
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: off off 0 Off
 on on 1 On

EXIFutils Field Reference Guide

```

cn-ae-lock          -RW- 2000f AE Lock Button
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: ae-af-lock 11      0   AF/AE Lock
         ae-lock-af  12      1   AE Lock/AF
         af-af-lock  13      2   AF/AF Lock
         ae-release-ae-af 14      3   AE+release/AE+AF

cn-mirror-lockup   -RW- 3000f Mirror Lockup
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: disabled   d       0   Disabled
         enabled     e       1   Enabled

cn-tv-av-exp       -RW- 4000f Tv/Av and Exposure Level
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: half-stop  2       0   1/2 stop
         third-stop  3       1   1/3 stop

cn-av-assist       -RW- 5000f Av Assist Light
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: on         on      0   On (Auto)
         off         off     1   Off

cn-shutter-in-av   -RW- 6000f Shutter in Av Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto       a       0   Auto
         fixed       f       1   Fixed (1/200)

cn-aeb-seq         -RW- 7000f AEB Seq/Auto Cancellation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: aeb1       1       0   0,-,+ / Enabled
         aeb2       2       1   0,-,+ / Disabled
         aeb3       3       2   -,0,+ / Enabled
         aeb4       4       3   -,0,+ / Disabled

cn-shutter-curtain -RW- 8000f Shutter Curtain Sync
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 1st        1       0   1st Curtain Sync
         2nd        2       1   2nd Curtain Sync

cn-lens-func       -RW- 9000f Lens AF Stop Button Func.
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: ae-stop    s       0   AF Stop
         operate-ae  o       1   Operate AF
         lock-ae     l       2   Lock AE and Start Timer

cn-fill-flash      -RW- a000f Auto Reduction Fill Flash
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: enabled    e       0   Enabled
         disabled    d       1   Disabled

cn-menu-return     -RW- b000f MENU Button Return Posn
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: top        t       0   Top
         prev-vol    pv      1   Previous (volatile)
         prev        p       2   Previous

```

EXIFutils Field Reference Guide

```

cn-set-button          -RW-  c000f  SET Button Function
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none         n         0   Not Assigned
         change-qual   cq         1   Change Quality
         change-iso    ci         2   Change ISO Speed
         select        s         2   Select Parameters

cn-sensor-cleaning    -RW-  d000f  Sensor Cleaning
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: disabled     d         0   Disabled
         enabled       e         1   Enabled

cn-0010               -RW-  0010  Field 0x0010
  Values: Any number of integers in the range 0 to 4294967295

cn-0012               -RW-  0012  Field 0x0012
  Values: Any number of integers in the range 0 to 65535

cn-0013               -RW-  0013  Field 0x0013
  Values: 4 integers in the range 0 to 65535

cn-0015               -RW-  0015  Field 0x0015
  Values: Any number of integers in the range 0 to 4294967295

cn-0081               -RW-  0081  Field 0x0081
  Values: Any number of integers in the range 0 to 4294967295

cn-0082               -RW-  0082  Field 0x0082
  Values: Any number of integers in the range 0 to 4294967295

cn-0083               -RW-  0083  Field 0x0083
  Values: Any number of integers in the range 0 to 4294967295

cn-0090               -RW-  0090  Field 0x0090
  Values: Any number of integers in the range 0 to 65535

cn-0091               -RW-  0091  Field 0x0091
  Values: Any number of integers in the range 0 to 65535

cn-0092               -RW-  0092  Field 0x0092
  Values: Any number of integers in the range 0 to 65535

cn-0094               -RW-  0094  Field 0x0094
  Values: Variable length binary data

```

EXIFutils Field Reference Guide

2.2.10 Maker Note (Casio) Fields

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
cs-rec-mode                -RW-  0001  Recording Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: pan                pa      2  Panorama          (CASIO QV-2000UX only)
       night              n       3  Night Scene       (CASIO QV-2000UX only)
       port              po      4  Portrait          (CASIO QV-2000UX only)
       land              l       5  Landscape         (CASIO QV-2000UX only)
       pan                pa      7  Panorama          (CASIO QV-8000SX only)
       night              n      10  Night Scene       (CASIO QV-8000SX only)
       port              po     15  Portrait          (CASIO QV-8000SX only)
       land              l     16  Landscape         (CASIO QV-8000SX only)
       single             s       1  Single Shutter

cs-quality                 -RW-  0002  Quality
  -----Value----- Abbrev --Num- -----Meaning-----
Values: economy            e       1  Economy
       normal            n       2  Normal
       fine              f       3  Fine

cs-focus-mode             -RW-  0003  Focusing Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: macro             mac     2  Macro
       auto              a       3  Auto Focus
       manual            man     4  Manual Focus
       infinity          i       5  Infinity

cs-flash-mode             -RW-  0004  Flash Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off               of      3  Off               (CASIO QV-2000UX only)
       red-eye           r       4  Red Eye Reduction (CASIO QV-2000UX only)
       off               of      4  Off               (CASIO QV-8000SX only)
       red-eye           r       5  Red Eye Reduction (CASIO QV-8000SX only)
       off               of      4  Off               (CASIO QV-3500EX only)
       red-eye           r       5  Red Eye Reduction (CASIO QV-3500EX only)
       auto              a       1  Auto
       on                on      2  On

cs-flash-int              -RW-  0005  Flash Intensity
  -----Value----- Abbrev --Num- -----Meaning-----
Values: weak              w       11  Weak
       normal            n       13  Normal
       high              h       14  High
       strong            s       15  Strong

cs-obj-dist               -RW-  0006  Object Distance
Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

cs-white-bal          -RW- 0007 White Balance
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto        a         1 Auto
          tungsten    t         2 Tungsten
          daylight    d         3 Daylight
          fluor        f         4 Fluorescent
          shade        s         5 Shade
          manual       m        129 Manual

cs-0008              -RW- 0008 Field 0x0008
  Values: An integer in the range 0 to 65535

cs-0009              -RW- 0009 Field 0x0009
  Values: An integer in the range 0 to 65535

cs-digi-zoom         -RW- 000a Digital Zoom
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 2x          2        65537 2X (CASIO QV-2000UX only)
          2x          2        131072 2X (CASIO QV-8000SX only)
          4x          4        262144 4X (CASIO QV-8000SX only)
          off         o         65536 Off

cs-sharpness         -RW- 000b Sharpness
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n         0 Normal
          soft        s         1 Soft
          hard        h         2 Hard

cs-contrast          -RW- 000c Contrast
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n         0 Normal
          low         l         1 Low
          high        h         2 High

cs-saturation        -RW- 000d Saturation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n         0 Normal
          low         l         1 Low
          high        h         2 High

cs-000e              -RW- 000e Field 0x000e
  Values: An integer in the range 0 to 65535

cs-000f              -RW- 000f Field 0x000f
  Values: An integer in the range 0 to 65535

cs-0010              -RW- 0010 Field 0x0010
  Values: An integer in the range 0 to 65535

cs-0011              -RW- 0011 Field 0x0011
  Values: An integer in the range 0 to 65535

cs-0012              -RW- 0012 Field 0x0012
  Values: An integer in the range 0 to 65535

cs-0013              -RW- 0013 Field 0x0013
  Values: An integer in the range 0 to 65535

```

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	-----Value-----	Abbrev	--Num-	-----Meaning-----
cs-ccd			0014	CCD Sensitivity
Values:	normal	n	80	Normal
	high	h	100	High
cs-0015			0015	Field 0x0015
Values:	Text string up to 1999 bytes long (or up to 49 in demo version)			
cs-0016			0016	Field 0x0016
Values:	An integer in the range 0 to 65535			
cs-0017			0017	Field 0x0017
Values:	An integer in the range 0 to 65535			
cs-0018			0018	Field 0x0018
Values:	An integer in the range 0 to 65535			
cs-0019			0019	Field 0x0019
Values:	An integer in the range 0 to 65535			
cs-001a			001a	Field 0x001a
Values:	Variable length binary data			
cs-001c			001c	Field 0x001c
Values:	Any number of integers in the range 0 to 65535			
cs-001d			001d	Field 0x001d
Values:	Any number of integers in the range 0 to 65535			
cs-0e00			0e00	Field 0x0e00
Values:	Variable length binary data			

EXIFutils Field Reference Guide

2.2.11 Maker Note (FujiFilm) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----  
  
fu-version                -RW-  0000  Version  
  Values: 4 bytes of binary data  
  
fu-quality                -RW-  1000  Quality  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
  
fu-sharpness              -RW-  1001  Sharpness  
  -----Value----- Abbrev --Num- -----Meaning-----  
  Values: soft           s           1  Soft  
          normal        n           3  Normal  
          hard          h           5  Hard  
  
fu-white-bal              -RW-  1002  White Balance  
  -----Value----- Abbrev --Num- -----Meaning-----  
  Values: auto           a           0  Auto  
          daylight      d          256  Daylight  
          cloudy        cl          512  Cloudy  
          daylight-fluor dlf          768  Daylight-colour Fluorescent  
          daywhite-fluor dwf          769  DayWhite-colour Fluorescent  
          white-fluor    wf           770  White Fluorescent  
          incandescent  i          1024  Incandescent  
          custom        cu          3840  Custom  
  
fu-1003                   -RW-  1003  Field 0x1003  
  Values: An integer in the range 0 to 65535  
  
fu-flash-mode             -RW-  1010  Flash Mode  
  -----Value----- Abbrev --Num- -----Meaning-----  
  Values: auto           a           0  Auto  
          on            on           1  On  
          off           of           2  Off  
          redeye        r           3  Redeye Reduction  
  
fu-flash-str              -RW-  1011  Flash Strength Comp  
  Values: A positive or negative rational number  
  
fu-macro                  -RW-  1020  Macro  
  -----Value----- Abbrev --Num- -----Meaning-----  
  Values: off            of           0  Off  
          on            on           1  On  
  
fu-focus-mode             -RW-  1021  Focus Mode  
  -----Value----- Abbrev --Num- -----Meaning-----  
  Values: auto           a           0  Auto  
          manual        m           1  Manual  
  
fu-1022                   -RW-  1022  Field 0x1022  
  Values: An integer in the range 0 to 65535  
  
fu-1023                   -RW-  1023  Field 0x1023  
  Values: 2 integers in the range 0 to 65535
```

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```

fu-slow-sync          -RW-  1030  Slow Sync.
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off         of      0  Off
         on          on      1  On

fu-picture-mode      -RW-  1031  Picture Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto        a        0  Auto
         portrait    p        1  Portrait
         landscape   l        2  Landscape
         sports      s        4  Sports
         night       n        5  Night
         program-ae  pae       6  Program AE
         aperture-ae aae      256  Aperture Priority AE
         shutter-ae  sae      512  Shutter Priority AE
         manual      m        768  Manual

fu-bracket           -RW-  1100  Contin/Bracket Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off         of      0  Off
         on          on      1  On

fu-1200              -RW-  1200  Field 0x1200
  Values: An integer in the range 0 to 65535

fu-blur-warn         -RW-  1300  Blur Warning
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: no          n        0  No
         yes         y        1  Yes

fu-focus-warn        -RW-  1301  Focus Warning
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: no          n        0  No
         out-of-focus o        1  Out of Focus

fu-ae-warn           -RW-  1302  AE Warning
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: no          n        0  No
         over-exposed o        1  Over Exposed

```

EXIFutils Field Reference Guide

2.2.12 Maker Note (Minolta) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
mn-version                -RW-  0000  Version
  Values: Variable length binary data

mns1-exp-mode             -R--  20001  Exposure Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                0  Program
                                           1  Aperture Priority
                                           2  Shutter Priority
                                           3  Manual

mns1-flash-mode          -R--  30001  Flash Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                0  Fill Flash
                                           1  Red-eye Reduction
                                           2  Rear Flash Sync
                                           3  Wireless

mns1-white-bal            -R--  40001  White Balance
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                0  Auto
                                           1  Daylight
                                           2  Cloudy
                                           3  Tungsten
                                           5  Custom 1
                                           7  Fluorescent
                                           8  Fluorescent 2
                                           11 Custom 2
                                           12 Custom 3
125829120  A1 Manual
8388608   A1 Auto/Sunset
25165824  A1 Daylight
41943040  A1 Cloudy
109051904 A1 Shade
92143616  A1 3-band Warm White Flourescent
92209152  A1 3-band White Flourescent
92274688  A1 White Flourescent
92340224  A1 Cool White Flourescent
92405760  A1 3-band Cool White Flourescent
92471296  A1 3-band Daylite Flourescent
92536832  A1 Daylight flourescent
58720256  A1 Tundsten
75497472  A1 Flash
```


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```

mns1-image-dim          -R--  50001  Image Dimensions
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
DiIMAGE 5 only)                0  2048x1536          (Minolta Co., Ltd.
                                0  2560x1920
                                1  1600x1200
                                2  1280x960
                                3  640x480

mns1-image-qual        -R--  60001  Image Quality
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Raw
                                1  Super Fine
                                2  Fine
                                3  Standard
                                4  Economy
                                5  Extra Fine

mns1-drive-mode        -R--  70001  Drive Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Single
                                1  Continuous
                                2  Self Timer
                                4  Bracketing
                                5  Interval
                                6  UHS Continuous
                                7  HS Continuous

mns1-meter-mode        -R--  80001  Meter Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Multisegment
                                1  Center-weighted
                                2  Spot

mns1-apex-film-speed    -R--  90001  APEX Film Speed Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-apex-time         -R--  a0001  APEX Time Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-apex-aperture     -R--  b0001  APEX Aperture Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-macro-mode        -R--  c0001  Macro Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
  
```

EXIFutils Field Reference Guide

```

1 On

mns1-digital-zoom      -R--  d0001  Digital Zoom
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
                                1  Electronic Magnification
                                2  Digital Zoom x2
                                3  Unknown(3)

mns1-exp-comp         -R--  e0001  Exposure Compensation
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-bracket-step     -R--  f0001  Bracket Step (EV)
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  0.33
                                1  0.66
                                2  1.00

mns1-0003-10         -R--  100001  Field 0x0003-10
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-interval-len     -R--  110001  Interval Length (min)
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-interval-num     -R--  120001  Num Interval Frames
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-focal-len        -R--  130001  Focal Length
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-focus-dist       -R--  140001  Focus Distance (meters)
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-flashFired       -R--  150001  Flash Fired
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

mns1-date             -R--  160001  Date
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-time             -R--  170001  Time
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-max-aper         -R--  180001  Maximum Aperture
  Not Editable

```

EXIFutils Field Reference Guide

Values: An integer in the range 0 to 65535

mns1-0003-19 -R-- 190001 Field 0x0003-19
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-0003-1a -R-- 1a0001 Field 0x0003-1a
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-file-num-mem -R-- 1b0001 File Number Memory
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Off
		1	On

mns1-last-file-num -R-- 1c0001 Last File Number
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-white-bal-red -R-- 1d0001 White Balance Red
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-white-bal-green -R-- 1e0001 White Balance Green
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-white-bal-blue -R-- 1f0001 White Balance Blue
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-saturation -R-- 200001 Saturation
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-Contrast -R-- 210001 Contrast
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-sharpness -R-- 220001 Sharpness
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Hard
		1	Normal
		2	Soft

mns1-subj-prog -R-- 230001 Subject Program
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	None
		1	Portrait
		2	Text
		3	Night Portrait
		4	Sunset
		5	Sports Action

EXIFutils Field Reference Guide

mns1-flash-comp -R-- 240001 Flash Compensation
Not Editable
Values: An integer in the range 0 to 65535

mns1-iso-setting -R-- 250001 ISO Setting
Not Editable

Value	Abbrev	Num	Meaning
0		100	
1		200	
2		400	
3		800	
4		Auto	

mns1-model -R-- 260001 Camera Model
Not Editable

Value	Abbrev	Num	Meaning
0		DiIMAGE 7	
1		DiIMAGE 5	
2		DiIMAGE S304	
3		DiIMAGE S404	
4		DiIMAGE 7i	
5		DiIMAGE 7Hi	
6		DiIMAGE A1	

mns1-interval-mode -R-- 270001 Interval Mode
Not Editable

Value	Abbrev	Num	Meaning
0		Still Image	
1		Timelapse Movie	

mns1-folder-setting -R-- 280001 Folder Name Setting
Not Editable

Value	Abbrev	Num	Meaning
0		Standard Form	
1		Date Form	

mns1-color-mode -R-- 290001 Color Mode
Not Editable

Value	Abbrev	Num	Meaning
0		Natural Color	
1		Black & White	
2		Vivid Color	
3		Solarization	
4		Adobe RGB	

mns1-color-filter -R-- 2a0001 Color Filter
Not Editable
Values: An integer in the range 0 to 65535

mns1-bw-filter -R-- 2b0001 Black and White Filter
Not Editable
Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

```

mns1-internal-flash      -R--  2c0001  Internal Flash Fired
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Not Fired
                                1  Fired

mns1-apex-bright        -R--  2d0001  APEX Brightness Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-spot-focus-x       -R--  2e0001  Spot Focus X Position
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-spot-focus-y       -R--  2f0001  Spot Focus Y Position
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-wide-focus-zone    -R--  300001  AF Wide Focus Zone
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No Zone
                                1  Center Zone (Horizontal)
                                2  Center Zone (Vertical)
                                3  Left Zone
                                4  Right Zone

mns1-focus-mode         -R--  310001  Focus Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  AF
                                1  MF

mns1-focus-area         -R--  320001  AF Focus Area
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Wide Focus
                                1  Spot Focus

mns1-dec-setting         -R--  330001  DEC Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Exposure
                                1  Contrast
                                2  Saturation
                                3  Filter

mns1-embedded-profile   -R--  340001  Embedded Color Profile
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

```

EXIFutils Field Reference Guide

```

mns1-data-imprint          -R--  350001  Data Imprint
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  None
                                1  yy/mm/dd
                                2  mm/dd/hr:min
                                3  Text
                                4  Text + Id#

mns1-0003-36              -R--  360001  Field 0x0003-36
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-0003-37              -R--  370001  Field 0x0003-37
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-0003-38              -R--  380001  Field 0x0003-38
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-0003-39              -R--  390001  Field 0x0003-39
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-0003-1               -R--  10003  Field 0x0003-1
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-exp-mode             -R--  20003  Exposure Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Program
                                1  Aperture Priority
                                2  Shutter Priority
                                3  Manual

mns2-flash-mode           -R--  30003  Flash Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Fill Flash
                                1  Red-eye Reduction
                                2  Rear Flash Sync
                                3  Wireless

mns2-white-bal            -R--  40003  White Balance
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Auto
                                1  Daylight
                                2  Cloudy
                                3  Tungsten
                                5  Custom 1
                                7  Fluorescent
                                8  Fluorescent 2

```

EXIFutils Field Reference Guide

```

11 Custom 2
12 Custom 3
125829120 A1 Manual
8388608 A1 Auto/Sunset
25165824 A1 Daylight
41943040 A1 Cloudy
109051904 A1 Shade
92143616 A1 3-band Warm White Flourescent
92209152 A1 3-band White Flourescent
92274688 A1 White Flourescent
92340224 A1 Cool White Flourescent
92405760 A1 3-band Cool White Flourescent
92471296 A1 3-band Daylite Flourescent
92536832 A1 Daylight flourescent
58720256 A1 Tundsten
75497472 A1 Flash

```

```

mns2-image-dim          -R--  50003  Image Dimensions
  Not Editable

```

```

-----Value----- Abbrev --Num- -----Meaning-----
Values:
DiIMAGE 5 only)          0  2048x1536          (Minolta Co., Ltd.
                        0  2560x1920
                        1  1600x1200
                        2  1280x960
                        3  640x480

```

```

mns2-image-qual        -R--  60003  Image Quality
  Not Editable

```

```

-----Value----- Abbrev --Num- -----Meaning-----
Values:
                        0  Raw
                        1  Super Fine
                        2  Fine
                        3  Standard
                        4  Economy
                        5  Extra Fine

```

```

mns2-drive-mode        -R--  70003  Drive Mode
  Not Editable

```

```

-----Value----- Abbrev --Num- -----Meaning-----
Values:
                        0  Single
                        1  Continuous
                        2  Self Timer
                        4  Bracketing
                        5  Interval
                        6  UHS Continuous
                        7  HS Continuous

```

```

mns2-meter-mode        -R--  80003  Meter Mode
  Not Editable

```

```

-----Value----- Abbrev --Num- -----Meaning-----
Values:
                        0  Multisegment
                        1  Center-weighted
                        2  Spot

```

```

mns2-apex-film-speed   -R--  90003  APEX Film Speed Value
  Not Editable

```

EXIFutils Field Reference Guide

Values: An integer in the range 0 to 65535

mns2-apex-time -R-- a0003 APEX Time Value
Not Editable
Values: An integer in the range 0 to 65535

mns2-apex-aperture -R-- b0003 APEX Aperture Value
Not Editable
Values: An integer in the range 0 to 65535

mns2-macro-mode -R-- c0003 Macro Mode
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Off
		1	On

mns2-digital-zoom -R-- d0003 Digital Zoom
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Off
		1	Electronic Magnification
		2	Digital Zoom x2
		3	Unknown(3)

mns2-exp-comp -R-- e0003 Exposure Compensation
Not Editable
Values: An integer in the range 0 to 65535

mns2-bracket-step -R-- f0003 Bracket Step (EV)
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	0.33
		1	0.66
		2	1.00

mns2-0003-10 -R-- 100003 Field 0x0003-10
Not Editable
Values: An integer in the range 0 to 65535

mns2-interval-len -R-- 110003 Interval Length (min)
Not Editable
Values: An integer in the range 0 to 65535

mns2-interval-num -R-- 120003 Num Interval Frames
Not Editable
Values: An integer in the range 0 to 65535

mns2-focal-len -R-- 130003 Focal Length
Not Editable
Values: An integer in the range 0 to 65535

mns2-focus-dist -R-- 140003 Focus Distance (meters)
Not Editable
Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

```

mns2-flashFired          -R--  150003  Flash Fired
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                0  No
                                           1  Yes

mns2-date                -R--  160003  Date
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-time                -R--  170003  Time
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-max-aper           -R--  180003  Maximum Aperture
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-0003-19            -R--  190003  Field 0x0003-19
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-0003-1a           -R--  1a0003  Field 0x0003-1a
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-file-num-mem       -R--  1b0003  File Number Memory
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                0  Off
                                           1  On

mns2-last-file-num      -R--  1c0003  Last File Number
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-white-bal-red      -R--  1d0003  White Balance Red
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-white-bal-green    -R--  1e0003  White Balance Green
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-white-bal-blue     -R--  1f0003  White Balance Blue
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-saturation         -R--  200003  Saturation
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-Contrast           -R--  210003  Contrast
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```
mns2-sharpness          -R--  220003  Sharpness
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Hard
                                1  Normal
                                2  Soft

mns2-subj-prog         -R--  230003  Subject Program
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  None
                                1  Portrait
                                2  Text
                                3  Night Portrait
                                4  Sunset
                                5  Sports Action

mns2-flash-comp        -R--  240003  Flash Compensation
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-iso-setting        -R--  250003  ISO Setting
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  100
                                1  200
                                2  400
                                3  800
                                4  Auto

mns2-model             -R--  260003  Camera Model
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  DiIMAGE 7
                                1  DiIMAGE 5
                                2  DiIMAGE S304
                                3  DiIMAGE S404
                                4  DiIMAGE 7i
                                5  DiIMAGE 7Hi
                                6  DiIMAGE A1

mns2-interval-mode     -R--  270003  Interval Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Still Image
                                1  Timelapse Movie

mns2-folder-setting     -R--  280003  Folder Name Setting
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Standard Form
                                1  Date Form
```

EXIFutils Field Reference Guide

mns2-color-mode -R-- 290003 Color Mode
Not Editable
-----Value----- Abbrev --Num- -----Meaning-----
Values: 0 Natural Color
1 Black & White
2 Vivid Color
3 Solarization
4 Adobe RGB

mns2-color-filter -R-- 2a0003 Color Filter
Not Editable
Values: An integer in the range 0 to 65535

mns2-bw-filter -R-- 2b0003 Black and White Filter
Not Editable
Values: An integer in the range 0 to 65535

mns2-internal-flash -R-- 2c0003 Internal Flash Fired
Not Editable
-----Value----- Abbrev --Num- -----Meaning-----
Values: 0 Not Fired
1 Fired

mns2-apex-bright -R-- 2d0003 APEX Brightness Value
Not Editable
Values: An integer in the range 0 to 65535

mns2-spot-focus-x -R-- 2e0003 Spot Focus X Position
Not Editable
Values: An integer in the range 0 to 65535

mns2-spot-focus-y -R-- 2f0003 Spot Focus Y Position
Not Editable
Values: An integer in the range 0 to 65535

mns2-wide-focus-zone -R-- 300003 AF Wide Focus Zone
Not Editable
-----Value----- Abbrev --Num- -----Meaning-----
Values: 0 No Zone
1 Center Zone (Horizontal)
2 Center Zone (Vertical)
3 Left Zone
4 Right Zone

mns2-focus-mode -R-- 310003 Focus Mode
Not Editable
-----Value----- Abbrev --Num- -----Meaning-----
Values: 0 AF
1 MF

mns2-focus-area -R-- 320003 AF Focus Area
Not Editable
-----Value----- Abbrev --Num- -----Meaning-----
Values: 0 Wide Focus
1 Spot Focus

EXIFutils Field Reference Guide

```

mns2-dec-setting          -R--  330003  DEC Setting
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Exposure
                                1  Contrast
                                2  Saturation
                                3  Filter

mns2-embedded-profile    -R--  340003  Embedded Color Profile
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

mns2-data-imprint        -R--  350003  Data Imprint
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  None
                                1  yyy/mm/dd
                                2  mm/dd/hr:min
                                3  Text
                                4  Text + Id#

mns2-0003-36             -R--  360003  Field 0x0003-36
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-0003-37             -R--  370003  Field 0x0003-37
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-0003-38             -R--  380003  Field 0x0003-38
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-0003-39             -R--  390003  Field 0x0003-39
  Not Editable
  Values: An integer in the range 0 to 65535

mn-0010                  -RW-   0010  Field 0x0010
  Values: Variable length binary data

mn-0018                  -RW-   0018  Field 0x0018
  Values: Variable length binary data

mn-0020                  -RW-   0020  Field 0x0020
  Values: Variable length binary data

mn-image-size            -RW-   0040  Compressed Image Size
  Values: An integer in the range 0 to 65535

mn-thumbnail             -RW-   0081  Thumbnail Image
  Values: Variable length binary data

mn-thumb-offset          -RW-   0088  Thumbnail Offset

```

EXIFutils Field Reference Guide

Values: Any number of integers in the range 0 to 4294967295

mn-thumb-len -RW- 0089 Thumbnail Length
 Values: Any number of integers in the range 0 to 4294967295

mn-00e0 -RW- 00e0 Field 0x00e0
 Values: Variable length binary data

mn-0100 -RW- 0100 Field 0x0100
 Values: An integer in the range 0 to 65535

mn-color-mode -RW- 0101 Color Mode

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: natural	n	0	Natural Colour
black-and-white	bw	1	Black and White
vivid	v	2	Vivid Color
solar	s	3	Solarization
adobe	a	4	Adobe RGB

mn-quality -RW- 0102 Image Quality

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: raw	r	0	Raw
super-fine	sf	1	Super Fine
fine	f	2	Fine
standard	st	3	Standard
economy	ec	4	Economy
extra-fine	ef	5	Extra Fine

mn-quality2 -RW- 0103 Image Quality 2

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: raw	r	0	Raw
super-fine	sf	1	Super Fine
fine	f	2	Fine
standard	st	3	Standard
economy	ec	4	Economy
extra-fine	ef	5	Extra Fine

mn-0006 -RW- 0106 Field 0x0106
 Values: An integer in the range 0 to 65535

mn-0211 -RW- 0211 Field 0x0211
 Values: An integer in the range 0 to 65535

mn-0212 -RW- 0212 Field 0x0212
 Values: An integer in the range 0 to 65535

mn-0213 -RW- 0213 Field 0x0213
 Values: An integer in the range 0 to 65535

mn-0214 -RW- 0214 Field 0x0214
 Values: An integer in the range 0 to 65535

mn-pim -RW- 0e00 PIM Information
 Values: Variable length binary data

mn-settings3 -RW- 0f00 Camera Settings 3
 Values: Variable length binary data

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2.2.13 Maker Note (Nikon Type 1) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
n1-0002                      -RW-  0002  Field 0x0002
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n1-quality                    -RW-  0003  Quality
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: vga-basic        vb      1  VGA Basic
         vga-normal       vn      2  VGA Normal
         vga-fine         vf      3  VGA Fine
         xsga-basic       xb      4  SXGA Basic
         xsga-normal      xn      5  SXGA Normal
         xsga-fine        xf      6  SXGA Fine

n1-col-mode                   -RW-  0004  Colour Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: colour          c        1  Colour
         mono             m        2  Monochrome

n1-image-adj                  -RW-  0005  Image Adjustment
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal          n         0  Normal
         bright+         b+       1  Bright+
         bright-         b-       2  Bright-
         contrast+       c+       3  Contrast+
         contrast-       c-       4  Contrast-

n1-ccd-sens                   -RW-  0006  CCD Sensitivity
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 80              80        0  ISO 80
         160             160        2  ISO 160
         320             320        4  ISO 320
         100             100        5  ISO 100

n1-white-bal                  -RW-  0007  White Balance
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto            a         0  Auto
         preset          p         1  Preset
         daylight        d         2  Daylight
         incand          i         3  Incandescent
         fluor           f         4  Fluorescent
         cloudy          c         5  Cloudy
         speed-light     s         6  Speed Light

n1-focus                      -RW-  0008  Focus
  Values: A positive rational number

n1-0020                       -RW-  0009  Field 0x0020
  Values: Text string 19 bytes long

n1-digi-zoom                  -RW-  000a  Digital Zoom
  Values: A positive rational number
```

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```
n1-converter          -RW-  000b  Lens Converter
  -----Value----- Abbrev --Num- -----Meaning-----
Values: none          n          0  None
        fisheye       f          1  Fisheye

n1-0f00               -RW-  0f00  Field 0x0f00
Values: Any number of integers in the range 0 to 4294967295
```


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2.2.14 Maker Note (Nikon Type 2) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----  
n2-version                -RW-  0001  Version  
  Values: 4 bytes of binary data  
n2-iso                    -RW-  0002  ISO Setting  
  Values: 2 integers in the range 0 to 65535  
n2-color-mode            -RW-  0003  Colour Mode  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-quality               -RW-  0004  Quality  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-white-bal            -RW-  0005  White Balance  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-sharpen              -RW-  0006  Image Sharpening  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-focus-mode           -RW-  0007  Focus Mode  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-flash-set            -RW-  0008  Flash Setting  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-000a                 -RW-  000a  Field 0x000a  
  Values: A positive rational number  
n2-iso-sel              -RW-  000f  ISO Selection  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-data-dump            -RW-  0010  Data Dump  
  Values: Variable length binary data  
n2-image-adj            -RW-  0080  Image Adjustment  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-adapter              -RW-  0082  Lens Adapter  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n2-man-focus            -RW-  0085  Manual Focus Distance  
  Values: A positive rational number  
n2-digi-zoom            -RW-  0086  Digital Zoom  
  Values: A positive rational number  
n2-focus-posn          -RW-  0088  AF Focus Position  
  Values: 4 bytes of binary data
```

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n2-saturation -RW- 0094 Saturation Adjustment
-----Value----- Abbrev --Num- -----Meaning-----
Values: none 0 0 None
 +1 +1 1 +1
 +2 +2 2 +2
 -1 -1 65535 -1
 -2 -2 65534 -2
 bw bw 65533 B&W

n2-noise -RW- 0095 Noise Reduction
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

EXIFutils Field Reference Guide

2.2.15 Maker Note (Nikon Type 3) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----  
n3-version                -RW-  0001  Version  
  Values: 4 bytes of binary data  
n3-iso                    -RW-  0002  ISO Setting  
  Values: 2 integers in the range 0 to 65535  
n3-color-mode            -RW-  0003  Colour Mode  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-quality               -RW-  0004  Quality  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-white-bal            -RW-  0005  White Balance  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-sharp                 -RW-  0006  Sharpening  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-focus                 -RW-  0007  Focus  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-flash-set            -RW-  0008  Flash Setting  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-flash-mode           -RW-  0009  Flash Mode  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-000a                 -RW-  000a  Field 0x000a  
  Values: A positive rational number  
n3-white-bias           -RW-  000b  White Balance Bias  
  Values: An integer in the range -32768 to 32767  
n3-000c                 -RW-  000c  Field 0x000c  
  Values: 4 positive rational numbers  
n3-000d                 -RW-  000d  Field 0x000d  
  Values: 4 bytes of binary data  
n3-exp-diff             -RW-  000e  Exposure Difference  
  Values: 4 bytes of binary data  
n3-iso-sel              -RW-  000f  ISO Selection  
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)  
n3-0010                 -RW-  0010  Field 0x0010  
  Values: Variable length binary data  
n3-thumb-offset         -R--  0011  Thumbnail IFD Offset  
  Not Editable  
  Values: An integer in the range 0 to 65535
```

EXIFutils Field Reference Guide

```

n3-flash-comp          -RW-  0012  Flash Compensation
  -----Value----- Abbrev --Num- -----Meaning-----
Values: 0.00           0      ...   0.00
         0.33           0.3    ...   0.33
         0.67           0.6    ...   0.67
         1.00           1      ...   1.00
         1.33           1.3    ...   1.33
         1.67           1.6    ...   1.67
         2.00           2      ...   2.00
         2.33           2.3    ...   2.33
         2.66           2.6    ...   2.66
         3.00           3      ...   3.00
        -0.33          -0.3    ...  -0.33
        -0.67          -0.6    ...  -0.67
        -1.00          -1      ...  -1.00
        -1.33          -1.3    ...  -1.33
        -1.67          -1.6    ...  -1.67
        -2.00          -2      ...  -2.00
        -2.33          -2.3    ...  -2.33
        -2.66          -2.6    ...  -2.66
        -3.00          -3      ...  -3.00

n3-0013                -RW-  0013  Field 0x0013
Values: 2 integers in the range 0 to 65535

n3-0017                -RW-  0017  Field 0x0017
Values: Variable length binary data

n3-0018                -RW-  0018  Field 0x0018
Values: Variable length binary data

n3-0019                -RW-  0019  Field 0x0019
Values: A positive or negative rational number

n3-image-adj           -RW-  0080  Image Adjustment
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-tone-comp           -RW-  0081  Tone Compensation
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-lens-type           -RW-  0083  Lens Type
  -----Value----- Abbrev --Num- -----Meaning-----
Values: af             a      0    AF
         manual        m      1    Manual
         afd           d      2    AF-D
         afd-g         g      6    AF-D G
         afd-vr        v     10    AF-D VR

n3-lens                -RW-  0084  Lens
Values: 4 positive rational numbers

n3-man-focus           -RW-  0085  Manual Focus Distance
Values: A positive rational number

n3-digi-zoom           -RW-  0086  Digital Zoom
Values: A positive rational number

```

EXIFutils Field Reference Guide

```

n3-flash-used          -RW-  0087  Flash Used
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none         n         0  None
         external      e         7  External
         on-camera     o         9  On Camera

n3-focus-posn         -RW-  0088  AF Focus Position
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: manual       m         ... Manual
         manual       m         ... Manual
         af-center    afc        ... AF Center
         af-top       aft         ... AF Top
         af-bottom    afb        ... AF Bottom
         af-left      afl         ... AF Left
         af-right     afr         ... AF Right

n3-bracket            -RW-  0089  Bracketing
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none         n         1  None
         none0        n0        0  None
         exposure     e         17 Exposure
         white-bal     w         81 White Balance

n3-008a               -RW-  008a  Field 0x008a
  Values: An integer in the range 0 to 65535

n3-008b               -RW-  008b  Field 0x008b
  Values: Variable length binary data

n3-color-mode2       -RW-  008d  Color Mode
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-008e               -RW-  008e  Field 0x008e
  Values: 4 positive or negative rational numbers

n3-light-type        -RW-  0090  Lighting Type
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-0091               -RW-  0091  Field 0x0091
  Values: Variable length binary data

n3-hue-adj           -RW-  0092  Hue Adjustment
  Values: An integer in the range -32768 to 32767

n3-saturation         -RW-  0094  Saturation Adjustment
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none         0         0  None
         +1          +1         1  +1
         +2          +2         2  +2
         -1          -1        65535 -1
         -2          -2        65534 -2
         bw          bw        65533 B&W

n3-noise              -RW-  0095  Noise Reduction
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

```

EXIFutils Field Reference Guide

n3-0091 -RW- 0097 Field 0x0091
Values: Variable length binary data

n3-0098 -RW- 0098 Field 0x0098
Values: Variable length binary data

n3-009a -RW- 009a Field 0x009a
Values: 2 positive rational numbers

n3-0103 -RW- 0103 Field 0x0103
Values: An integer in the range 0 to 65535

n3-0e10 -RW- 0e10 Field 0x0e10
Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

2.2.16 Maker Note (Olympus) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ol-spec-mode                -RW-  0200  Special Mode
  Values: 3 integers in the range 0 to 4294967295

ol-jpg-qual                 -RW-  0201  JPEG Quality
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: sq                s      1    SQ
         hq                h      2    HQ
         shq               sh     3    SHQ

ol-macro                    -RW-  0202  Macro
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal           n      0    Normal
         macro             m      1    Macro
         super             s      2    Super Macro

ol-0203                     -RW-  0203  Field 0x0203
  Values: An integer in the range 0 to 65535

ol-digi-zoom                -RW-  0204  Digital Zoom
  Values: A positive rational number

ol-0205                     -RW-  0205  Field 0x0205
  Values: A positive rational number

ol-0206                     -RW-  0206  Field 0x0206
  Values: 6 integers in the range -32768 to 32767

ol-sw-rel                   -RW-  0207  Software Release
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol-pic-info                 -RW-  0208  Picture Information
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol-camera-id                -RW-  0209  Camera Id
  Values: Variable length binary data

ol-data-dump                -RW-  0f00  Data Dump
  Values: 30 integers in the range 0 to 4294967295
```

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2.2.17 Maker Note (Olympus C2500L) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
olc25001-spec-mode          -RW-  0200  Special Mode
  Values: 3 integers in the range 0 to 4294967295

olc25001-jpgg-qual         -RW-  0201  JPEG Quality
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: sq              s          1  SQ
         hq              h          2  HQ
         shq            sh          3  SHQ

olc25001-macro             -RW-  0202  Macro
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal         n           0  Normal
         macro          m           1  Macro
         super          s           2  Super Macro

olc25001-0203             -RW-  0203  Field 0x0203
  Values: An integer in the range 0 to 65535

olc25001-digi-zoom        -RW-  0204  Digital Zoom
  Values: A positive rational number

olc25001-0205             -RW-  0205  Field 0x0205
  Values: A positive rational number

olc25001-0206             -RW-  0206  Field 0x0206
  Values: 6 integers in the range -32768 to 32767

olc25001-sw-rel           -RW-  0207  Software Release
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

olc25001-pic-info         -RW-  0208  Picture Information
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

olc25001-camera-id        -RW-  0209  Camera Id
  Values: Variable length binary data

olc25001-data-dump        -RW-  0f00  Data Dump
  Values: Variable length binary data

olc25001-1000             -RW-  1000  Field 0x1000
  Values: A positive or negative rational number

olc25001-1001             -RW-  1001  Field 0x1001
  Values: A positive or negative rational number

olc25001-1002             -RW-  1002  Field 0x1002
  Values: A positive or negative rational number

olc25001-1003             -RW-  1003  Field 0x1003
  Values: A positive or negative rational number
```


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olc25001-1004 -RW- 1004 Field 0x1004
Values: An integer in the range 0 to 65535

olc25001-1005 -RW- 1005 Field 0x1005
Values: 2 integers in the range 0 to 65535

olc25001-1006 -RW- 1006 Field 0x1006
Values: A positive or negative rational number

olc25001-1007 -RW- 1007 Field 0x1007
Values: An integer in the range -32768 to 32767

olc25001-1008 -RW- 1008 Field 0x1008
Values: An integer in the range -32768 to 32767

olc25001-1009 -RW- 1009 Field 0x1009
Values: An integer in the range 0 to 65535

olc25001-100a -RW- 100a Field 0x100a
Values: An integer in the range 0 to 65535

olc25001-100b -RW- 100b Field 0x100b
Values: An integer in the range 0 to 65535

olc25001-100c -RW- 100c Field 0x100c
Values: A positive rational number

olc25001-100d -RW- 100d Field 0x100d
Values: An integer in the range 0 to 65535

olc25001-100e -RW- 100e Field 0x100e
Values: An integer in the range 0 to 65535

olc25001-100f -RW- 100f Field 0x100f
Values: An integer in the range 0 to 65535

olc25001-1010 -RW- 1010 Field 0x1010
Values: An integer in the range 0 to 65535

olc25001-1011 -RW- 1011 Field 0x1011
Values: Any number of integers in the range 0 to 65535

olc25001-1012 -RW- 1012 Field 0x1012
Values: Any number of integers in the range 0 to 65535

olc25001-1013 -RW- 1013 Field 0x1013
Values: An integer in the range 0 to 65535

olc25001-1014 -RW- 1014 Field 0x1014
Values: An integer in the range 0 to 65535

olc25001-1015 -RW- 1015 Field 0x1015
Values: 2 integers in the range 0 to 65535

olc25001-1016 -RW- 1016 Field 0x1016
Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

olc25001-1017 -RW- 1017 Field 0x1017
Values: 2 integers in the range 0 to 65535

olc25001-1018 -RW- 1018 Field 0x1018
Values: 2 integers in the range 0 to 65535

olc25001-1019 -RW- 1019 Field 0x1019
Values: Any number of integers in the range 0 to 65535

olc25001-101a -RW- 101a Field 0x101a
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

olc25001-101b -RW- 101b Field 0x101b
Values: An integer in the range 0 to 65535

olc25001-101c -RW- 101c Field 0x101c
Values: An integer in the range 0 to 65535

olc25001-101d -RW- 101d Field 0x101d
Values: An integer in the range 0 to 65535

olc25001-101e -RW- 101e Field 0x101e
Values: An integer in the range 0 to 65535

olc25001-101f -RW- 101f Field 0x101f
Values: An integer in the range 0 to 65535

olc25001-1020 -RW- 1020 Field 0x1020
Values: An integer in the range 0 to 65535

olc25001-1021 -RW- 1021 Field 0x1021
Values: An integer in the range 0 to 65535

olc25001-1022 -RW- 1022 Field 0x1022
Values: An integer in the range 0 to 65535

olc25001-1023 -RW- 1023 Field 0x1023
Values: A positive or negative rational number

olc25001-1024 -RW- 1024 Field 0x1024
Values: An integer in the range 0 to 65535

olc25001-1025 -RW- 1025 Field 0x1025
Values: A positive or negative rational number

olc25001-1026 -RW- 1026 Field 0x1026
Values: An integer in the range 0 to 65535

olc25001-1027 -RW- 1027 Field 0x1027
Values: An integer in the range 0 to 65535

olc25001-1028 -RW- 1028 Field 0x1028
Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

2.2.18 Maker Note (Olympus E-20,E-20N,E-20P) Fields

Field Name	-Attr-	-Tag-	Description
ole-0200	-RW-	0200	Field 0x0200 Values: 3 integers in the range 0 to 4294967295
ole-0201	-RW-	0201	Field 0x0201 Values: An integer in the range 0 to 65535
ole-0202	-RW-	0202	Field 0x0202 Values: An integer in the range 0 to 65535
ole-0203	-RW-	0203	Field 0x0203 Values: An integer in the range 0 to 65535
ole-0204	-RW-	0204	Field 0x0204 Values: A positive rational number
ole-0205	-RW-	0205	Field 0x0205 Values: A positive rational number
ole-0206	-RW-	0206	Field 0x0206 Values: 6 integers in the range -32768 to 32767
ole-0207	-RW-	0207	Field 0x0207 Values: Text string up to 1999 bytes long (or up to 49 in demo version)
ole-0208	-RW-	0208	Field 0x0208 Values: Text string up to 1999 bytes long (or up to 49 in demo version)
ole-0209	-RW-	0209	Field 0x0209 Values: Variable length binary data
ole-0f00	-RW-	0f00	Field 0x0f00 Values: 30 integers in the range 0 to 4294967295
ole-1000	-RW-	1000	Field 0x1000 Values: A positive or negative rational number
ole-1001	-RW-	1001	Field 0x1001 Values: A positive or negative rational number
ole-1002	-RW-	1002	Field 0x1002 Values: A positive or negative rational number
ole-1003	-RW-	1003	Field 0x1003 Values: A positive or negative rational number
ole-1004	-RW-	1004	Field 0x1004 Values: An integer in the range 0 to 65535
ole-1005	-RW-	1005	Field 0x1005 Values: 2 integers in the range 0 to 65535

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ole-1006 -RW- 1006 Field 0x1006
Values: A positive or negative rational number

ole-1007 -RW- 1007 Field 0x1007
Values: An integer in the range -32768 to 32767

ole-1008 -RW- 1008 Field 0x1008
Values: An integer in the range -32768 to 32767

ole-1009 -RW- 1009 Field 0x1009
Values: An integer in the range 0 to 65535

ole-100a -RW- 100a Field 0x100a
Values: An integer in the range 0 to 65535

ole-100b -RW- 100b Field 0x100b
Values: An integer in the range 0 to 65535

ole-100c -RW- 100c Field 0x100c
Values: A positive rational number

ole-100d -RW- 100d Field 0x100d
Values: An integer in the range 0 to 65535

ole-100e -RW- 100e Field 0x100e
Values: An integer in the range 0 to 65535

ole-100f -RW- 100f Field 0x100f
Values: An integer in the range 0 to 65535

ole-1010 -RW- 1010 Field 0x1010
Values: An integer in the range 0 to 65535

ole-1011 -RW- 1011 Field 0x1011
Values: 9 integers in the range 0 to 65535

ole-1012 -RW- 1012 Field 0x1012
Values: 4 integers in the range 0 to 65535

ole-1013 -RW- 1013 Field 0x1013
Values: An integer in the range 0 to 65535

ole-1014 -RW- 1014 Field 0x1014
Values: An integer in the range 0 to 65535

ole-1015 -RW- 1015 Field 0x1015
Values: 2 integers in the range 0 to 65535

ole-1016 -RW- 1016 Field 0x1016
Values: An integer in the range 0 to 65535

ole-1017 -RW- 1017 Field 0x1017
Values: 2 integers in the range 0 to 65535

ole-1018 -RW- 1018 Field 0x1018
Values: 2 integers in the range 0 to 65535

EXIFutils Field Reference Guide

ole-1019 -RW- 1019 Field 0x1019
Values: Any number of integers in the range 0 to 65535

ole-101a -RW- 101a Field 0x101a
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ole-101b -RW- 101b Field 0x101b
Values: An integer in the range 0 to 65535

ole-101c -RW- 101c Field 0x101c
Values: An integer in the range 0 to 65535

ole-101d -RW- 101d Field 0x101d
Values: An integer in the range 0 to 65535

ole-101e -RW- 101e Field 0x101e
Values: An integer in the range 0 to 65535

ole-101f -RW- 101f Field 0x101f
Values: An integer in the range 0 to 65535

ole-1020 -RW- 1020 Field 0x1020
Values: An integer in the range 0 to 65535

ole-1021 -RW- 1021 Field 0x1021
Values: An integer in the range 0 to 65535

ole-1022 -RW- 1022 Field 0x1022
Values: An integer in the range 0 to 65535

ole-1023 -RW- 1023 Field 0x1023
Values: A positive or negative rational number

ole-1024 -RW- 1024 Field 0x1024
Values: An integer in the range 0 to 65535

ole-1025 -RW- 1025 Field 0x1025
Values: A positive or negative rational number

ole-1026 -RW- 1026 Field 0x1026
Values: An integer in the range 0 to 65535

ole-1027 -RW- 1027 Field 0x1027
Values: An integer in the range 0 to 65535

ole-1028 -RW- 1028 Field 0x1028
Values: An integer in the range 0 to 65535

ole-1031 -RW- 1031 Field 0x1031
Values: 8 integers in the range 0 to 4294967295

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2.2.19 Maker Note (Panasonic) Fields

Field Name	-Attr-	-Tag-	Description
pn-quality	-RW-	0001	Image Quality
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: high	h	2	High
standard	s	3	Standard
pn-0002	-RW-	0002	Field 0x0002
Values: 4 bytes of binary data			
pn-white-bal	-RW-	0003	White Balance
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: auto	a	1	Auto
daylight	d	2	Daylight
cloudy	c	3	Cloudy
halogen	h	4	Halogen
manual	m	5	Manual
flash	f	8	Flash
pn-focus-mode	-RW-	0007	Focus Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: auto	a	1	Auto
manual	m	2	Manual
pn-spot-mode	-RW-	000f	Spot Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	off	...	Off
off1	off1	...	Off
off2	off2	...	Off
off3	off3	...	Off
on	on	...	On
on1	on1	...	On
pn-stab-mode	-RW-	001a	Image Stabiliser Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: on	on	2	Mode 1
off	off	3	Off
off	off	4	Mode 2
pn-macro-mode	-RW-	001c	Macro Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: macro	m	1	Macro
normal	n	2	Normal
pn-shoot-mode	-RW-	001f	Shooting Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: portrait	pt	2	Portrait
scenery	sc	3	Scenery
sports	sp	4	Sports
night-port	np	5	Night Portrait
program	pr	6	Program
aperture-pri	ap	7	Aperture Priority
shutter-pri	sp	8	Shutter Priority

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macro	mc	9	Macro
manual	mn	11	Manual
panning	pn	13	Panning
fireworks	fw	18	Fireworks
party	py	19	Party
snow	sn	20	Snow
night-scene	ns	21	Night Scenery
pn-audio	-RW-	0020	Audio Clip
	-----Value-----	Abbrev --Num-	-----Meaning-----
Values:	yes	y 1	Yes
	no	n 2	No
pn-0021	-RW-	0021	Field 0x0021
Values:	Variable length binary data		
pn-0022	-RW-	0022	Field 0x0022
Values:	An integer in the range 0 to 65535		
pn-white-adj	-RW-	0023	White Balance Adjust
Values:	An integer in the range -32768 to 32767		
pn-flash-bias	-RW-	0024	Flash Bias
Values:	An integer in the range -32768 to 32767		
pn-0025	-RW-	0025	Field 0x0025
Values:	16 bytes of binary data		
pn-0026	-RW-	0026	Field 0x0026
Values:	4 bytes of binary data		
pn-0027	-RW-	0027	Field 0x0027
Values:	An integer in the range 0 to 65535		
pn-color-effect	-RW-	0028	Color Effect
	-----Value-----	Abbrev --Num-	-----Meaning-----
Values:	off	o 1	Off
	warm	w 2	Warm
	cool	c 3	Cool
	bw	b 4	Black and White
	sepia	s 5	Sepia
pn-0029	-RW-	0029	Field 0x0029
Values:	An integer in the range 0 to 65535		
pn-002a	-RW-	002a	Field 0x002a
Values:	An integer in the range 0 to 65535		
pn-002b	-RW-	002b	Field 0x002b
Values:	An integer in the range 0 to 65535		
pn-contrast	-RW-	002c	Contrast
	-----Value-----	Abbrev --Num-	-----Meaning-----
Values:	standard	s 0	Standard
	low	l 1	Low
	high	h 2	High

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pn-noise-reduct -RW- 002d Noise Reduction
-----Value----- Abbrev --Num- -----Meaning-----
Values: standard s 0 Standard
 low 1 1 Low
 high h 2 High

pn-002e -RW- 002e Field 0x002e
Values: An integer in the range 0 to 65535

pn-002f -RW- 002f Field 0x002f
Values: An integer in the range 0 to 65535

pn-4449 -RW- 4449 Field 0x4449
Values: Variable length binary data

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2.2.20 Maker Note (Pentax) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
px-mode                      -RW-  0001  Mode
-----Value----- Abbrev --Num- -----Meaning-----
Values: auto                a      0   Auto
       night                n      1   Night Scene
       manual               m      2   Manual

px-prev-size                 -RW-  0002  Preview Image Size
Values: 2 integers in the range 0 to 65535

px-prev-len                  -RW-  0003  Preview Image Length
Values: An integer in the range 0 to 65535

px-prev-offset               -RW-  0004  Preview Image Offset
Values: An integer in the range 0 to 65535

px-0005                      -RW-  0005  Field 0x0005
Values: An integer in the range 0 to 65535

px-0006                      -RW-  0006  Field 0x0006
Values: 4 bytes of binary data

px-0007                      -RW-  0007  Field 0x0007
Values: 3 bytes of binary data

px-quality                   -RW-  0008  Quality
-----Value----- Abbrev --Num- -----Meaning-----
Values: good                g      0   Good
       better              br     1   Better
       best                bt     2   Best

px-image-size                -RW-  0009  Image Size
-----Value----- Abbrev --Num- -----Meaning-----
Values: 640x480             640    0   640 x 480
       1024x768            1024   2   1024 x 768
       1600x1200           1600   4   1600 x 1200
       2048x1536           2048   5   2048 x 1536
       2592x1944           2592   21  2592 x 1944

px-zoom                       -RW-  000a  Zoom
Values: An integer in the range 0 to 65535

px-picture-mode              -RW-  000b  Picture Mode
-----Value----- Abbrev --Num- -----Meaning-----
Values: not-select         none    0   Not Selected
       portrait            p      5   Portrait
       landscape          l      6   Landscape
       night-scene        n      9   Night Scene
       surf-snow           sas    12  Surf and Snow
       sunset              ss     13  Sunset
       autumn              a      14  Autumn
       flower              fl     15  Flower
       fireworks           fi     17  Fireworks
```

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```

text                t                18  Text

px-000c              -RW-  000c  Field 0x000c
  Values: An integer in the range 0 to 65535

px-focus-mode        -RW-  000d  Focus Mode
  Values: An integer in the range 0 to 65535

px-000e              -RW-  000e  Field 0x000e
  Values: An integer in the range 0 to 65535

px-000f              -RW-  000f  Field 0x000f
  Values: An integer in the range 0 to 65535

px-0010              -RW-  0010  Field 0x0010
  Values: An integer in the range 0 to 65535

px-0012              -RW-  0012  Field 0x0012
  Values: An integer in the range 0 to 65535

px-0013              -RW-  0013  Field 0x0013
  Values: An integer in the range 0 to 65535

px-iso               -RW-  0014  ISO Setting
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 50           50      3   50
          64           64      4   64
          100          100     6   100
          200          200     9   200
          400          400    12  400
          800          800    15  800
          1600         1600   18 1600
          3200         3200   21 3200

px-0015              -RW-  0015  Field 0x0015
  Values: An integer in the range 0 to 65535

px-meter-mode        -RW-  0017  Meter Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: multi        m        0   Multi-Segment
          center       c        1   Center Weighted
          spot         s        2   Spot

px-0018              -RW-  0018  Field 0x0018
  Values: An integer in the range 0 to 65535

px-white-bal         -RW-  0019  White Balance
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto         a        0   Auto
          daylight     d        1   Daylight
          shade        s        2   Shade
          tungsten     t        4   Tungsten
          manual       m        5   Manual
          fluor-daylight fd       6   Fluorescent (Daylight)
          fluor-neutral fn       7   Fluorescent (Neutral)
          fluor-white  fw       8   Fluorescent (White)

```

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```

px-001a                -RW-  001a  Field 0x001a
  Values: An integer in the range 0 to 65535

px-focal-len           -RW-  001d  Focal Length
  Values: An integer in the range 0 to 65535

px-zoom                -RW-  001e  Zoom
  Values: An integer in the range 0 to 65535

px-satur-comp          -RW-  001f  Saturation Compensation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: soft         s         0  Soft
          normal      n         1  Normal
          hard        h         2  Hard

px-contrast-comp       -RW-  0020  Contrast Compensation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: soft         s         0  Soft
          normal      n         1  Normal
          hard        h         2  Hard

px-sharp-comp          -RW-  0021  Sharpness Compensation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: soft         s         0  Soft
          normal      n         1  Normal
          hard        h         2  Hard

px-0022                -RW-  0022  Field 0x0022
  Values: Any number of integers in the range 0 to 65535

px-0023                -RW-  0023  Field 0x0023
  Values: Any number of integers in the range 0 to 65535

px-0024                -RW-  0024  Field 0x0024
  Values: Any number of integers in the range 0 to 65535

px-0025                -RW-  0025  Field 0x0025
  Values: Any number of integers in the range 0 to 65535

px-0026                -RW-  0026  Field 0x0026
  Values: Any number of integers in the range 0 to 65535

px-0027                -RW-  0027  Field 0x0027
  Values: Variable length binary data

px-0028                -RW-  0028  Field 0x0028
  Values: Variable length binary data

px-0029                -RW-  0029  Field 0x0029
  Values: Any number of integers in the range 0 to 4294967295

px-002b                -RW-  002b  Field 0x002b
  Values: Any number of integers in the range 0 to 4294967295

px-002c                -RW-  002c  Field 0x002c
  Values: Any number of integers in the range 0 to 4294967295

```

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px-002d -RW- 002d Field 0x002d
 Values: Any number of integers in the range 0 to 65535

px-0032 -RW- 0032 Field 0x0032
 Values: Variable length binary data

px-0033 -RW- 0033 Field 0x0033
 Values: Variable length binary data

px-0034 -RW- 0034 Field 0x0034
 Values: Variable length binary data

px-0035 -RW- 0035 Field 0x0035
 Values: Any number of integers in the range 0 to 65535

px-0036 -RW- 0036 Field 0x0036
 Values: Any number of integers in the range 0 to 65535

px-0037 -RW- 0037 Field 0x0037
 Values: Any number of integers in the range 0 to 65535

px-003a -RW- 003a Field 0x003a
 Values: Any number of integers in the range 0 to 65535

px-003d -RW- 003d Field 0x003d
 Values: Any number of integers in the range 0 to 65535

px-003e -RW- 003e Field 0x003e
 Values: Variable length binary data

px-lens-id -RW- 003f Lens Id

	-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:	pentax01	p01	...	smc PENTAX F 1.7x AF
	pentax02	p02	...	smc PENTAX DA 14mm F2.8 ED [IF]
	pentax02	p02	...	smc PENTAX DA 18-55mm F3.5-F5.6 AL
	pentax03	p03	...	smc PENTAX DA 16-45mm F4 ED
	pentax04	p04	...	smc PENTAX F Fish-Eye Zoom 17-28 F3.5-4.5
	pentax05	p05	...	smc PENTAX FA J 18-35mm F4-5.6 AL
	pentax06	p06	...	smc PENTAX FA 20-35mm F4 AL
	pentax07	p07	...	smc PENTAX FA 20mm F2.8
	pentax08	p08	...	smc PENTAX F 24-50mm F4
	pentax09	p09	...	smc PENTAX FA 28-105mm F3.2-4.5 AL [IF]
	pentax10	p10	...	smc PENTAX FA 28-105mm F4-5.6
	pentax11	p11	...	smc PENTAX FA 28-105mm F4-5.6 [IF]
	pentax12	p12	...	smc PENTAX FA 28-200mm F3.8-5.6 AL [IF]
	pentax13	p13	...	smc PENTAX FA 28-70mm F2.8 AL
	pentax14	p14	...	smc PENTAX FA 28-70mm F2.8 AL
	pentax15	p15	...	smc PENTAX FA 28-70mm F4 AL
	pentax16	p16	...	smc PENTAX FA 28-70mm F4 AL
	pentax17	p17	...	smc PENTAX F 28-80mm F3.5-4.5
	pentax18	p18	...	smc PENTAX F 28-80mm F3.5-4.5
	pentax19	p19	...	smc PENTAX FA 28-80mm F3.5-4.7
	pentax20	p20	...	smc PENTAX FA 28-80mm F3.5-5.6
	pentax21	p21	...	smc PENTAX FA 28-80mm F3.5-5.6 AL
	pentax22	p22	...	smc PENTAX FA J 28-80mm F3.5-5.6 AL
	pentax23	p23	...	smc PENTAX FA 28-90mm F3.5-5.6

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pentax24	p24	...	smc PENTAX F 28mm F2.8
pentax25	p25	...	smc PENTAX FA 28mm F2.8
pentax26	p26	...	smc PENTAX FA 28mm F2.8 AL
pentax27	p27	...	smc PENTAX FA 31mm F1.8 AL Limited
pentax28	p28	...	smc PENTAX F 35-105mm F4-5.6
pentax29	p29	...	smc PENTAX F 35-135mm F3.5-4.5
pentax30	p30	...	smc PENTAX F 35-70mm F3.5-4.5
pentax31	p31	...	smc PENTAX F 35-80mm F4-5.6
pentax32	p32	...	smc PENTAX FA 35-80mm F4-5.6
pentax33	p33	...	smc PENTAX FA 35mm F2 AL
pentax34	p34	...	smc PENTAX FA 43mm F1.9 Limited
pentax35	p35	...	smc PENTAX F 50mm F1.4
pentax36	p36	...	smc PENTAX FA 50mm F1.4
pentax37	p37	...	smc PENTAX F 50mm F1.7
pentax38	p38	...	smc PENTAX FA 50mm F1.7
pentax39	p39	...	smc PENTAX F Macro 50mm F2.8
pentax40	p40	...	smc PENTAX FA Macro 50mm F2.8
pentax41	p41	...	smc PENTAX F 70-200mm F4-5.6
pentax42	p42	...	smc PENTAX FA 70-200mm F4-5.6
pentax43	p43	...	smc PENTAX F 70-210mm F4-5.6
pentax44	p44	...	smc PENTAX FA J 75-300mm F4.5-5.8 AL
pentax45	p45	...	smc PENTAX FA 77mm F1.8 Limited
pentax46	p46	...	smc PENTAX FA 80-200mm F2.8 ED [IF]
pentax47	p47	...	smc PENTAX FA 80-200mm F2.8 ED [IF]
pentax48	p48	...	smc PENTAX F 80-200mm F4.7-5.6
pentax49	p49	...	smc PENTAX FA 80-320mm F4.5-5.6
pentax50	p50	...	smc PENTAX FA 85mm F1.4 [IF]
pentax51	p51	...	smc PENTAX FA 85mm F1.4 [IF]
pentax52	p52	...	smc PENTAX FA 85mm F2.8
pentax53	p53	...	smc PENTAX F 100-300mm F4.5-5.6
pentax54	p54	...	smc PENTAX FA 100-300mm F4.5-5.6
pentax55	p55	...	smc PENTAX FA 100-300mm F4.7-5.8
pentax56	p56	...	smc PENTAX F Macro 100mm F2.8
pentax57	p57	...	smc PENTAX FA Macro 100mm F2.8
pentax58	p58	...	smc PENTAX FA 100mm F3.5
pentax59	p59	...	smc PENTAX FA 135mm F2.4 [IF]
pentax60	p60	...	smc PENTAX F 135mm F2.8 [IF]
pentax61	p61	...	smc PENTAX FA 200mm F2.8 ED [IF]
pentax62	p62	...	smc PENTAX FA 200mm F2.8 ED [IF]
pentax63	p63	...	smc PENTAX FA Macro 200mm F4 ED [IF]
pentax64	p64	...	smc PENTAX FA 24-90mm F3.5-4.5 AL [IF]
pentax65	p65	...	smc PENTAX FA 24mm F2 AL [IF]
pentax66	p66	...	smc PENTAX F 250-600mm F5.6 ED [IF]
pentax67	p67	...	smc PENTAX FA 250-600mm F5.6 ED [IF]
pentax68	p68	...	smc PENTAX FA 300mm F2.8 ED [IF]
pentax69	p69	...	smc PENTAX F 300mm F4.5 ED [IF]
pentax70	p70	...	smc PENTAX FA 300mm F4.5 ED [IF]
pentax71	p71	...	smc PENTAX FA 400mm F5.6 ED [IF]
pentax72	p72	...	smc PENTAX FA 400mm F5.6 ED [IF]
pentax73	p73	...	smc PENTAX F 600mm F4 ED [IF]
pentax74	p74	...	smc PENTAX FA 600mm F4 ED [IF]
pentax75	p75	...	smc PENTAX DA 18-55mm F3.5-F5.6 AL
sigma01	s01	...	SIGMA 15-30mm F3.5-4.5 EX DG AL
sigma02	s02	...	SIGMA 18-50mm F3.5-5.6 DC
sigma03	s03	...	SIGMA 28-70mm F2.8-4 HIGH SPEED ZOOM
sigma04	s04	...	SIGMA 28mm-300mm F3.5-6.3 MACRO
sigma05	s05	...	SIGMA MACRO 50mm F2.8 EX

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sigma06	s06	...	SIGMA APO 70-200mm F2.8 EX
sigma07	s07	...	SIGMA APO 100-300mm F4 EX IF
sigma08	s08	...	SIGMA MACRO 105mm F2.8 EX
sigma09	s09	...	SIGMA APO MACRO 180mm F3.5 EX IF
sigma10	s10	...	SIGMA MIRROR 600mm F8
tamron01	t01	...	TAMRON SP AF14mm F/2.8
tamron02	t02	...	TAMRON SP AF24-135mm F/3.5-5.6 AD AL [IF] MACRO
tamron03	t03	...	TAMRON AF28-105mm F/4-5.6 [IF]
tamron04	t04	...	TAMRON AF28-200mm F/3.8-5.6 LD (571D)
tamron05	t05	...	TAMRON AF28-200mm Super Zoom F/3.8-5.6 AL XR {IF} MACRO (A03)
tamron06	t06	...	TAMRON AF28-300mm Ultra Zoom XR F/3.5-6.3 LD AL [IF] MACRO (A06)
tamron07	t07	...	TAMRON SP AF28-75mm F/2.8 XR Di LD AL [IF] MACRO (A09)
tamron08	t08	...	TAMRON SP AF90mm F2.8 (172E)
px-0041	-RW-	0041	Field 0x0041
			Values: Any number of integers in the range 0 to 65535
px-0047	-RW-	0047	Field 0x0047
			Values: Variable length binary data
px-0048	-RW-	0048	Field 0x0048
			Values: Any number of integers in the range 0 to 65535
px-0049	-RW-	0049	Field 0x0049
			Values: Any number of integers in the range 0 to 65535
px-004f	-RW-	004f	Field 0x004f
			Values: Any number of integers in the range 0 to 65535
px-print-im	-RW-	0e00	Print IM
			Values: Variable length binary data
px-0200	-RW-	0200	Field 0x0200
			Values: Any number of integers in the range 0 to 65535
px-0201	-RW-	0201	Field 0x0201
			Values: Any number of integers in the range 0 to 65535
px-0202	-RW-	0202	Field 0x0202
			Values: Any number of integers in the range 0 to 65535
px-0203	-RW-	0203	Field 0x0203
			Values: Any number of integers in the range -32768 to 32767
px-0204	-RW-	0204	Field 0x0204
			Values: Any number of integers in the range -32768 to 32767
px-0205	-RW-	0205	Field 0x0205
			Values: Variable length binary data
px-0206	-RW-	0206	Field 0x0206
			Values: Variable length binary data

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px-0207 -RW- 0207 Field 0x0207
Values: Variable length binary data

px-0208 -RW- 0208 Field 0x0208
Values: Variable length binary data

px-0209 -RW- 0209 Field 0x0209
Values: Variable length binary data

px-020a -RW- 020a Field 0x020a
Values: Variable length binary data

px-020b -RW- 020b Field 0x020b
Values: Variable length binary data

px-020d -RW- 020d Field 0x020d
Values: Any number of integers in the range 0 to 65535

px-020e -RW- 020e Field 0x020e
Values: Any number of integers in the range 0 to 65535

px-020f -RW- 020f Field 0x020f
Values: Any number of integers in the range 0 to 65535

px-0210 -RW- 0210 Field 0x0210
Values: Any number of integers in the range 0 to 65535

px-0211 -RW- 0211 Field 0x0211
Values: Any number of integers in the range 0 to 65535

px-0212 -RW- 0212 Field 0x0212
Values: Any number of integers in the range 0 to 65535

px-0213 -RW- 0213 Field 0x0213
Values: Any number of integers in the range 0 to 65535

px-0214 -RW- 0214 Field 0x0214
Values: Any number of integers in the range 0 to 65535

px-0215 -RW- 0215 Field 0x0215
Values: Any number of integers in the range 0 to 4294967295

px-0216 -RW- 0216 Field 0x0216
Values: Variable length binary data

px-021f -RW- 021f Field 0x021f
Values: Variable length binary data

px-03ff -RW- 03ff Field 0x03ff
Values: Any number of integers in the range 0 to 65535

px-time-zone -RW- 1000 Time Zone
Values: An integer in the range 0 to 65535

px-daylight-sav -RW- 1001 Daylight Savings
Values: An integer in the range 0 to 65535

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2.2.21 Maker Note (Ricoh)

Field Name	Attr	Tag	Description
ro-0001	-RW-	0001	Field 0x0001 Values: Text string up to 1999 bytes long (or up to 49 in demo version)
ro-0002	-RW-	0002	Field 0x0002 Values: Text string up to 1999 bytes long (or up to 49 in demo version)
ro-0003	-RW-	0003	Field 0x0003 Values: Any number of integers in the range 0 to 4294967295
ro-0005	-RW-	0005	Field 0x0005 Values: Variable length binary data
ro-0006	-RW-	0006	Field 0x0006 Values: Variable length binary data
ro-1001	-RW-	1001	Field 0x1001 Values: Variable length binary data
ro-1002	-RW-	1002	Field 0x1002 Values: Any number of integers in the range 0 to 4294967295

2.2.22 Maker Note (Ricoh Camera Info)

Field Name	Attr	Tag	Description
ri-0001	-RW-	0001	Field 0x0001 Values: Any number of integers in the range 0 to 65535
ri-0002	-RW-	0002	Field 0x0002 Values: Any number of integers in the range 0 to 4294967295
ri-0003	-RW-	0003	Field 0x0003 Values: Text string up to 1999 bytes long (or up to 49 in demo version)
ri-0005	-RW-	0004	Field 0x0005 Values: Text string up to 1999 bytes long (or up to 49 in demo version)
ri-0006	-RW-	0006	Field 0x0006 Values: Any number of integers in the range 0 to 65535
ri-0007	-RW-	0007	Field 0x0007 Values: Any number of integers in the range 0 to 65535
ri-0008	-RW-	0008	Field 0x0008 Values: Any number of integers in the range 0 to 4294967295
ri-0009	-RW-	0009	Field 0x0009 Values: Any number of integers in the range 0 to 4294967295
ri-000a	-RW-	000a	Field 0x000a Values: Any number of positive rational numbers

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ri-000b -RW- 000b Field 0x000b
Values: Any number of positive rational numbers

ri-000c -RW- 000c Field 0x000c
Values: Any number of integers in the range 0 to 4294967295

ri-000d -RW- 000d Field 0x000d
Values: Any number of integers in the range 0 to 65535

ri-000e -RW- 000e Field 0x000e
Values: Any number of integers in the range 0 to 4294967295

ri-000f -RW- 000f Field 0x000f
Values: Any number of integers in the range 0 to 65535

ri-0010 -RW- 0010 Field 0x0010
Values: Variable length binary data

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2.2.23 Ricoh Custom Fields

rc-name1 -R-- f5010001 Custom Field 1 Name
Not Editable
Values: Text string 31 bytes long

rc-value1 -R-- f5020001 Custom Field 1 Value
Not Editable
Values: Text string 31 bytes long

rc-name2 -R-- f5010002 Custom Field 2 Name
Not Editable
Values: Text string 31 bytes long

rc-value2 -R-- f5020002 Custom Field 2 Value
Not Editable
Values: Text string 31 bytes long

rc-name3 -R-- f5010003 Custom Field 3 Name
Not Editable
Values: Text string 31 bytes long

rc-value3 -R-- f5020003 Custom Field 3 Value
Not Editable
Values: Text string 31 bytes long

rc-name4 -R-- f5010004 Custom Field 4 Name
Not Editable
Values: Text string 31 bytes long

rc-value4 -R-- f5020004 Custom Field 4 Value
Not Editable
Values: Text string 31 bytes long

rc-name5 -R-- f5010005 Custom Field 5 Name
Not Editable
Values: Text string 31 bytes long

rc-value5 -R-- f5020005 Custom Field 5 Value
Not Editable
Values: Text string 31 bytes long

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2.2.24 Canon Raw (.CRW) Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
crw-date                    -R--  f0000  Date/Time Taken
  Not Editable
  Values: An integer in the range -2147483648 to 2147483647
crw-file-format             -R--  f0178  File Format
  Not Editable
  Values: Text string 31 bytes long
crw-owner                   -R--  f01d2  Owner
  Not Editable
  Values: Text string 31 bytes long
crw-vendor                  -R--  f01f2  Vendor
  Not Editable
  Values: Text string 31 bytes long
crw-model                   -R--  f01f8  Camera Model
  Not Editable
  Values: Text string 31 bytes long
crw-firm-ver                -R--  f0212  Firmware Version
  Not Editable
  Values: Text string 31 bytes long
crw-serial-num              -R--  f0236  Camera Serial Number
  Not Editable
  Values: An integer in the range -2147483648 to 2147483647
crw-iso                     -R--  f0288  ISO Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                160  100
                                192  200
                                224  400
                                256  800
                                268  1000
                                288  1600
crw-shutter                 -R--  f02b0  Shutter Speed
  Not Editable
  Values: A number of seconds (eg 30.5) or a fraction of a
          second specified as 1/x, eg 1/125
crw-aperture                -R--  f02ae  Aperture (F-stop)
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                32768 None
                                0    1.0
                                12   1.1
                                20   1.2
```

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32	1.4
44	1.6
56	1.8
64	2.0
76	2.2
84	2.5
96	2.8
108	3.2
112	3.5
116	3.5
128	4.0
140	4.5
144	4.5
148	5.0
160	5.6
172	6.3
176	6.7
180	7.1
192	8.0
204	9.0
208	9.5
212	10
224	11
236	13
240	13
255	14
256	16
268	18
272	19
276	20
288	22
300	25
304	27
308	29
320	32
332	36
336	38
340	40
352	45
364	51
368	54
372	57
384	64
396	72
400	76
404	81
416	91

```

crw-creative-mode      -R-- f02e2 Creative Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
Values:                5  A-DEP
                       4  M
                       3  Av
                       2  Tv
                       1  P
                       0  None
  
```

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```

crw-autofocus-mode      -R--  f02c8  Autofocus Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Single Shot
                                1  AI Servo
                                3  Manual

crw-meter-mode         -R--  f02dc  Meter Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                5  Spot
                                4  Center Weighted
                                3  Evaluative
                                0  Evaluative

crw-photo-in-seq      -R--  f0296  Photo no. in Sequence
  Not Editable
  Values: An integer in the range -32768 to 32767

crw-bulb-duration     -R--  f02b4  Bulb Duration
  Not Editable
  Values: An integer in the range -2147483648 to 2147483647

crw-shutter-delay     -R--  f02be  Shutter Delay
  Not Editable
  Values: An integer in the range -32768 to 32767

crw-drive-mode        -R--  f02c4  Drive Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Single Shot
                                1  Continuous

crw-white-point       -R--  f0292  White Point
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Auto
                                1  Sun
                                2  Cloud
                                3  Tungsten
                                4  Fluorescent
                                5  Flash
                                6  Manual

crw-exp-comp          -R--  f0290  Exposure Compensation
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                -64 -2.0
                                -52 -1.6
                                -48 -1.5
                                -44 -1.3
                                -32 -1.0
                                -20 -0.6
                                -16 -0.5
                                -12 -0.3
                                0  0.0

```

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```

12 0.3
16 0.5
20 0.6
32 1.0
44 1.3
32 1.5
52 1.6
64 2.0

```

```

crw-focus-lower          -R-- f02aa Focus Distance Lower (m)
  Not Editable
  Values: An integer in the range -32768 to 32767

```

```

crw-focus-upper         -R-- f02ac Focus Distance Upper (m)
  Not Editable
  Values: An integer in the range -32768 to 32767

```

```

crw-zoom-lower          -R-- f02e8 Zoom Range Lower (mm)
  Not Editable
  Values: An integer in the range -32768 to 32767

```

```

crw-zoom-upper          -R-- f02ea Zoom Range Upper (mm)
  Not Editable
  Values: An integer in the range -32768 to 32767

```

```

crw-focal-len-used      -R-- f152e Focal Length Used
  Not Editable
  Values: An integer in the range -32768 to 32767

```

```

crw-flash-comp          -R-- f02a2 Flash Compensation (EV)
  Not Editable

```

```

-----Value----- Abbrev --Num- -----Meaning-----
Values:
          -64 -2.0
          -52 -1.6
          -48 -1.5
          -44 -1.3
          -32 -1.0
          -20 -0.6
          -16 -0.5
          -12 -0.3
           0  0.0
           12 0.3
           16 0.5
           20 0.6
           32 1.0
           44 1.3
           32 1.5
           52 1.6
           64 2.0

```

```

crw-param-contrast      -R-- f02d4 Contrast (parameter)
  Not Editable
  Values: An integer in the range -32768 to 32767

```

```

crw-param-saturation    -R-- f02d6 Saturation (parameter)
  Not Editable
  Values: An integer in the range -32768 to 32767

```

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crw-param-sharpness -R-- f02d8 Sharpness (parameter)
Not Editable
Values: An integer in the range -32768 to 32767

crw-param-tone -R-- f030e Color Tone (parameter)
Not Editable
Values: An integer in the range -32768 to 32767

crw-flash-mode -R-- f02c2 Flash Mode
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	None
		2	Normal
		6	Red-eye

crw-orient -R-- f15f4 Orientation
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Landscape
		28	Portrait

crw-rotation -R-- f000c Rotation (degrees)
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		3072	0
		90	90
		270	270

crw-aeb-seq -R-- f02a4 AE Bracket Sequence
Not Editable
Values: An integer in the range -32768 to 32767

crw-aeb-value -R-- f02a6 AE Bracket Value (EV)
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		-64	-2.0
		-52	-1.6
		-48	-1.5
		-44	-1.3
		-32	-1.0
		-20	-0.6
		-16	-0.5
		-12	-0.3
		0	0.0
		12	0.3
		16	0.5
		20	0.6
		32	1.0
		44	1.3
		32	1.5
		52	1.6
		64	2.0

crw-custom-2 -R-- f0f1c Custom Field 2
Not Editable
Values: An integer in the range -32768 to 32767

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crw-custom-3 -R-- f0f1e Custom Field 3
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-4 -R-- f0f20 Custom Field 4
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-5 -R-- f0f22 Custom Field 5
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-6 -R-- f0f24 Custom Field 6
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-7 -R-- f0f26 Custom Field 7
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-8 -R-- f0f28 Custom Field 8
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-9 -R-- f0f2a Custom Field 9
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-10 -R-- f0f2c Custom Field 10
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-11 -R-- f0f2e Custom Field 11
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-12 -R-- f0f30 Custom Field 12
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-13 -R-- f0f32 Custom Field 13
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-14 -R-- f0f34 Custom Field 14
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-15 -R-- f0f36 Custom Field 15
Not Editable
Values: An integer in the range -32768 to 32767

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2.2.25 TIFF Fields

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----- Field Name ----- -Attr- -Tag- ----- Description -----
tf-image-type                -RWS  00fe  TIFF Image Type
  Values: An integer in the range -2147483648 to 2147483647

tf-width                     ERWS  0100  TIFF Image Width
  Values: An integer in the range 0 to 65535

tf-len                       ERWS  0101  TIFF Image Length
  Values: An integer in the range 0 to 65535

tf-bits-sam                  -RWS  0102  TIFF Image Bits/Sample
  Values: Any number of integers in the range 0 to 65535

tf-comp                       ERWS  0103  TIFF Image Compression
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none           n           1   None
         jpeg           j           6   JPEG Compression

tf-photo-int                 ERWS  0106  TIFF PhotometricInterp.
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: gray-wz       gw           0   Bi-Level/Grayscale - White is Zero
         gray-bz       gb           1   Bi-Level/Grayscale - Black is Zero
         rgb           r           2   RGB
         palette       p           3   Palette Colour
         trans-mask    t           4   Transparency Mask

tf-description               ERWS  010e  TIFF Description
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

tf-make                      ERWS  010f  TIFF Make
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

tf-model                     ERWS  0110  TIFF Model
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

tf-strip-off                 -R-S  0111  TIFF Strip Offsets
  Not Editable
  Values: Any number of integers in the range 0 to 4294967295

tf-orient                    ERWS  0112  TIFF Orientation
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: upper-left    ul           1   Upper Left
         lower-right   lr           3   Lower Right
         upper-right   ur           6   Upper Right
         lower-left    ll           8   Lower Left
         undefined     u           9   Undefined

tf-sample-pix                ER-S  0115  TIFF Sample per Pixel
  Not Editable
  Values: An integer in the range 0 to 65535

tf-row-strip                 ER-S  0116  TIFF Rows per Strip
  Not Editable

```

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Values: An integer in the range 0 to 65535

tf-strip-cnt ER-S 0117 TIFF Strip Byte Count(s)
Not Editable

Values: Any number of integers in the range 0 to 4294967295

tf-x-res ERWS 011a TIFF X Resolution

Values: A positive rational number

tf-y-res ERWS 011b TIFF Y Resolution

Values: A positive rational number

tf-plan-conf ERWS 011c TIFF Planar Config

Value	Abbrev	Num	Meaning
chunky	c	1	Chunky
planar	p	2	Planar

tf-res-unit ERWS 0128 TIFF Resolution Unit

Value	Abbrev	Num	Meaning
none	n	1	No Unit
inch	i	2	Inch
cm	c	3	Centimetre

tf-firm-ver ERWS 0131 TIFF Firmware Version

Values: Text string up to 1999 bytes long (or up to 49 in demo version)

tf-date-mod ERWS 0132 TIFF Date/Time Modified

Values: A date/time in the format YYYY:MM:DD HH:MM:SS

tf-artist -RWS 013b TIFF Artist

Values: Text string up to 1999 bytes long (or up to 49 in demo version)

tf-white-point ERWS 013e TIFF White Point

Values: 2 positive rational numbers

tf-prim-chrom ERWS 013f TIFF Primary Chromatic

Values: 6 positive rational numbers

tf-if-offset ERWS 0201 TIFF Jpeg IF Offset

Values: Editing of this field is not permitted

tf-if-count ERWS 0202 TIFF Jpeg IF Byte Count

Values: Editing of this field is not permitted

tf-ybcr-coeff ERWS 0211 TIFF YCbCr Coefficients

Values: 3 positive rational numbers

tf-ybcr-sub ERWS 0212 TIFF YCbCr Sub-Sampling

Values: 2 integers in the range 0 to 65535

tf-ybcr-posn ERWS 0213 TIFF YCbCr Positioning

Value	Abbrev	Num	Meaning
center	c	1	Centre
datum	d	2	Datum Point

tf-ref-bw ERWS 0214 TIFF Reference Black/White

Values: 6 positive rational numbers

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tf-copyright ERWS 8298 TIFF Copyright
Values: Text string up to 1999 bytes long (or up to 49 in demo version)