

EXIFutils

Image Metadata Utilities

Field Reference Guide

V3.0

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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 'exifinfo /f all' (on Windows) or `exifinfo -f all` (on Linux/MacOSX).

2.1 Key to Field Definitions

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

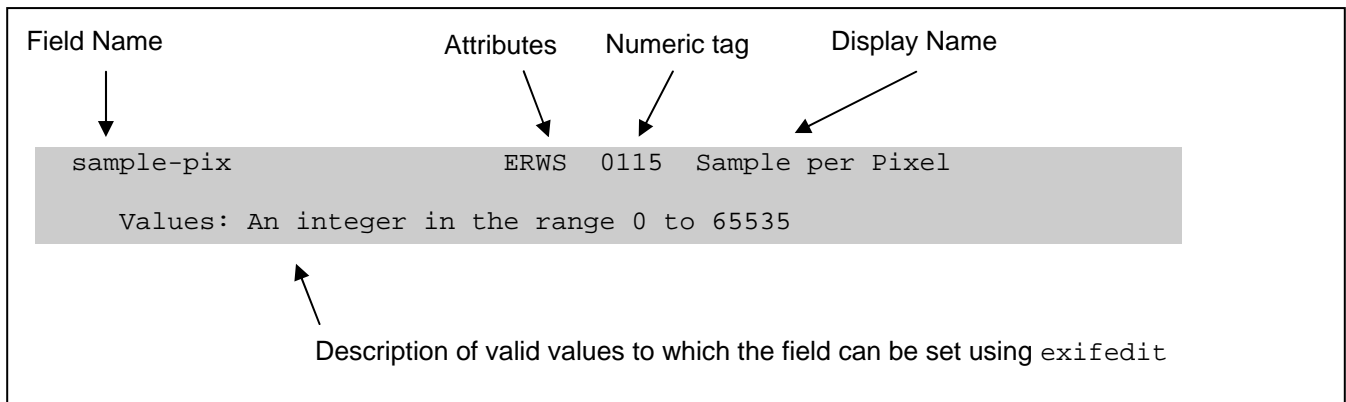


Figure 1 Basic Field Definition Format

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 'X' – this field is included in the <code>xmp</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.

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.

For XMP fields this field, if present, indicates the EXIF tag number of the EXIF field that is equivalent to this XMP field.

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:

- o Standard EXIF fields are defined in "JEITA CP-3451, Exchangeable image file format for digital still cameras: Exif Version 2.2".
- o Standard TIFF fields are defined in "TIFF, Revision 6.0, Final — June 3, 1992".
- o 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.	<p>In addition to the full values described in the Value column, and 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.</p> <p>The abbreviated equivalent to the command in the previous example is:</p> <p>For Windows:</p> <pre>exifedit /a meter-mode=msp myphoto.jpg</pre> <p>For Linux/OSX/Solaris:</p> <pre>exifedit -a meter-mode=msp myphoto.jpg</pre>
Num	<p>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.</p>
Meaning	<p>This column provides a text version of the field value. This is the string that will be displayed by <code>exiflist</code> for this field value.</p>

2.2 Field Definitions

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

2.2.1 File Related Fields

2.2.1.1 File Name Parts

Field Name	Attr	Tag	Description
file-dir	-R--	----	File directory
file-name-full	-R--	----	File name with path
file-name	-R--	----	File name
file-ext	-R--	----	File name extension
file-base	-R--	----	Base file name

2.2.1.2 Generated File Names

Field Name	Attr	Tag	Description
file-name-thumb	-R--	----	Thumbnail file name
file-name-audio	-R--	----	Audio file name
file-name-backup	-R--	----	Backup file name
file-name-exi	-R--	----	EXIF Save file name

2.2.1.3 File Attributes

Field Name	Attr	Tag	Description
file-size	-R--	----	File size in bytes
file-date-mod	-R--	----	File date modified
file-date-created	-R--	----	File date created (Windows only)

2.2.2 EXIF Fields

2.2.2.1 Date Taken Subfields

Field Name	-Attr-	-Tag-	Description
yyyy	-R--	----	Date Taken - Year (4 digits)
yy	-R--	----	Date Taken - Year (2 digits)
mm	-R--	----	Date Taken - Month (2 digits)
mmm	-R--	----	Date Taken - Month (3 letters)
dd	-R--	----	Date Taken - Day (2 digits)
hr	-R--	----	Date Taken - Hour (2 digits 24hr)
min	-R--	----	Date Taken - Minute (2 digits)
sec	-R--	----	Date Taken - Seconds (2 digits)

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2.2.2.2 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
  Values: Variable length binary data

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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2.2.2.3 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
    ccitt-rlc              rlc         2   CCITT modified Huffman RLE
    ccitt-g3               g3          3   CCITT Group 3 fax encoding
    ccitt-g4               g4          4   CCITT Group 4 fax encoding
    lzw                    lzw         5   LZW
    jpeg                   j           6   JPEG Compression (old style)
    jpeg2                   j2          7   JPEG Compression (new style)
    adobe-deflate          a-def       8   Adobe Deflate
    t85                     t85         9   ITU-T Rec. T.82 coding,
        using ITU-T Rec. T.85
    t43                     t43        10  ITU-T Rec. T.82 coding,
        using ITU-T Rec. T.43
    next                   nx          32766 Next
    ccitt-rlcw             rlw         32771 CCITT RLEW
    packbits               pb          32773 Packbits
    thunderscan            ts          32809 Thunderscan
    it8-ctpad              ctpad       32895 IT8 CTPAD
    it8-lw                  lw          32896 IT8 LW
    it8-mp                  mp          32897 IT8 MP
    it8-bl                  bl          32898 IT8 BL
    pixar-film             pix-f       32908 Pixar Film
    pixar-log              pix-l       32909 Pixar Log
    deflate                 def         32946 Deflate
    dsc                     dsc         32947 DCS
    jbig                    jb          34661 JBIG
    sci-log                 log         34676 SGI Log
    sci-log24              log24       34677 SGI Log24
    jpeg2000               j2000      34712 JPEG2000

```

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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
	sep	s	5	Separated
	ycbcr	y	6	YCbCr
	cie-lab	cie	8	CIE L*a*b*
	icc-tab	icc	9	ICC L*a*b*
	itu-lab	itu	10	ITU L*a*b*
	cfa	cfa	32803	Color Filter Array (CFA)
	logl	ll	32844	Photometric LogL
	logluv	luv	32845	Photometric LogLuv
	lin-raw	lr	32892	Linear Raw

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
	upper-right	ur	2	Upper Right
	lower-right	lr	3	Lower Right
	lower-left	lol	4	Lower Left
	left-upper	lu	5	Left Upper
	right-upper	ru	6	Right Upper
	right-lower	rl	7	Right Lower
	left-lower	llo	8	Left Lower
	undefined	u	9	Undefined

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

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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-----
Values: chunky c 1 Chunky
planar p 2 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-----
Values: none n 1 No Unit
inch i 2 Inch
cm c 3 Centimetre

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

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

tile-width ERWS 0142 Tile Width
Values: An integer in the range 0 to 65535

tile-length ERWS 0143 Tile Length
Values: An integer in the range 0 to 65535

tile-offsets ERWS 0144 Tile Offsets
Values: Any number of integers in the range 0 to 4294967295

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tile-counts ERWS 0145 Tile Byte Counts
 Values: Any number of integers in the range 0 to 4294967295

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

ycbcr-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

xp-title-text ERWS 0320 XP Title Text
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

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

cfa-rpt-pat-dim -RWS 828d CFA Repeat Pattern Dim
 Values: 2 integers in the range 0 to 65535

cfa-rpt-pattern -RWS 828e CFA Repeat Pattern
 Values: Variable length binary data

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

timezone-offset ERWS 882a Timezone Offset
 Values: 2 integers in the range -32768 to 32767

image-num -RW- 9211 Image Number
 Values: An integer in the range 0 to 65535

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

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```

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

dng-version        -RWS  c612  DNG Version
  Values: 4 bytes of binary data

dng-back-ver       -RWS  c613  DNG Backward Version
  Values: 4 bytes of binary data

dng-model          -RWS  c614  DNG Camera Model
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-local-model    -RWS  c615  DNG Camera Model
  Values: Variable length binary data

dng-plane-color    -RWS  c616  DNG CFA Plane Color
  Values: Variable length binary data

dng-cfa-layout     -RWS  c617  DNG CFA Layout
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: rect         r           1  Rectangular (or square) layout
         stag-a        a           2  Staggered layout
                                A: even columns offset down by 1/2 row
         stag-b        b           3  Staggered layout
                                B: even columns offset up by 1/2 row
         stag-c        c           4  Staggered layout
                                C: even rows offset right by 1/2 column
         stag-c        d           5  Staggered layout
                                D: even rows offset left by 1/2 column

dng-lin-table      -R-S  c618  DNG Linearization Table
  Not Editable
  Values: Any number of integers in the range 0 to 65535

dng-bl-lvl-dim     -R-S  c619  DNG Black Lvl Repeat Dims
  Not Editable
  Values: 2 integers in the range 0 to 65535

dng-bl-level       -RWS  c61a  DNG Black Level
  Values: Any number of integers in the range 0 to 65535

dng-bl-lvl-delta-h -R-S  c61b  DNG Black Lvl DeltaH
  Not Editable
  Values: Any number of positive or negative rational numbers

dng-bl-lvl-delta-v -R-S  c61c  DNG Black Lvl DeltaV
  Not Editable
  Values: Any number of positive or negative rational numbers

```

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dng-wh-level -RWS c61d DNG White Level
Values: Any number of integers in the range 0 to 65535

dng-default-scale -RWS c61e DNG Default Scale
Values: 2 positive rational numbers

dng-best-qual-scale -RWS c65c DNG Best Quality Scale
Values: 2 positive rational numbers

dng-def-crop-origin -RWS c61f DNG Default Crop Origin
Values: 2 integers in the range 0 to 4294967295

dng-def-crop-size -RWS c620 DNG Default Crop Size
Values: 2 integers in the range 0 to 4294967295

dng-color-matrix-1 -RWS c621 DNG Color Matrix 1
Values: Any number of positive or negative rational numbers

dng-color-matrix-2 -RWS c622 DNG Color Matrix 2
Values: Any number of positive or negative rational numbers

dng-camera-calib-1 -RWS c623 DNG Camera Callibration 1
Values: Any number of positive or negative rational numbers

dng-camera-calib-2 -RWS c624 DNG Camera Callibration 2
Values: Any number of positive or negative rational numbers

dng-reduct-matrix-1 -RWS c625 DNG Reduction Matrix 1
Values: Any number of positive or negative rational numbers

dng-reduct-matrix-2 -RWS c626 DNG Reduction Matrix 2
Values: Any number of positive or negative rational numbers

dng-analog-bal -RWS c627 DNG Analog Balance
Values: Any number of positive rational numbers

dng-as-shot-neutral -RWS c628 DNG As-Shot Neutral
Values: Any number of positive rational numbers

dng-as-shot-white-xy -RWS c629 DNG As-Shot White XY
Values: 2 positive rational numbers

dng-base-exp -RWS c62a DNG Baseline Exposure
Values: A positive or negative rational number

dng-base-noise -RWS c62b DNG Baseline Noise
Values: A positive rational number

dng-base-sharp -RWS c62c DNG Baseline Sharpness
Values: A positive rational number

dng-bayer-green-sp -RWS c62d DNG Bayer Green Split
Values: An integer in the range 0 to 65535

dng-lin-resp-limit -RWS c62e DNG Linear Response Limit
Values: A positive rational number

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```

dng-serial-num          -RWS  c62f  DNG Camera Serial Number
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-len-info           -RWS  c630  DNG Lens Info
  Values: 4 positive rational numbers

dng-chroma-blur-rad    -RWS  c631  DNG Chroma Blue Radius
  Values: A positive rational number

dng-anti-alias-str     -RWS  c632  DNG Anti-Alias Strength
  Values: A positive rational number

dng-shadow-scale       -RWS  c633  DNG Shadow Scale
  Values: A positive rational number

dng-private            -R-S   c634  DNG Private Data
  Not Editable
  Values: Variable length binary data

dng-maker-note-safe    -R-S   c635  DNG Maker Note Safety
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:                                0  Unsafe
                                           1  Safe

dng-calib-illum-1     -RWS  c65a  DNG Calib. Illuminant 1
  Values: An integer in the range 0 to 65535

dng-calib-illum-2     -RWS  c65b  DNG Calib. Illuminant 2
  Values: An integer in the range 0 to 65535

dng-raw-unique-id     -RWS  c65d  DNG Raw Data Unique Id
  Values: 16 bytes of binary data

dng-orig-file-name     -RWS  c68b  DNG Original Raw File Name
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-orig-raw-data     -R-S   c68c  DNG Original Raw Image Data
  Not Editable
  Values: Variable length binary data

dng-active-area       -R-S   c68d  DNG Active Area
  Not Editable
  Values: 4 integers in the range 0 to 4294967295

dng-masked-areas      -R-S   c68e  DNG Masked Areas
  Not Editable
  Values: 4 integers in the range 0 to 4294967295

dng-as-shot-icc       -R-S   c68f  DNG As-Shot ICC Profile
  Not Editable
  Values: Variable length binary data

dng-as-shot-pre-prof   -R-S   c690  DNG As-Shot Pre-Profile Matrix
  Not Editable
  Values: Any number of positive or negative rational numbers

```

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dng-curr-icc-prof -R-S c691 DNG Current ICC Profile
 Not Editable
 Values: Variable length binary data

dng-curr-pre-prof -R-S c692 DNG Currrent Pre-Profile Matrix
 Not Editable
 Values: Any number of positive or negative rational numbers

dng-camera-calib-sig -RWS c6f3 DNG Camera Calib. Signature
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-prof-calib-sig -RWS c6f4 DNG Profile Calib. Signature
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-as-shot-prof-name -RWS c6f6 DNG As-Shot Profile Name
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-noise-reduct -RWS c6f7 DNG Noise Reduction Applied
 Values: A positive rational number

dng-profile-name -RWS c6f8 DNG Profile Name
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-prof-hue-sat-dims -RWS c6f9 DNG Profile Hue Sat. Map Dims
 Values: 3 integers in the range 0 to 4294967295

dng-prof-hue-sat-dat1 -RWS c6fa DNG Profile Hue Sat. Map Data1
 Not editable (data type SIGNED FLOAT not supported for editing)

dng-prof-hue-sat-dat2 -RWS c6fb DNG Profile Hue Sat. Map Data2
 Not editable (data type SIGNED FLOAT not supported for editing)

dng-prof-tone-curve -RWS c6fc DNG Profile Tone Curve
 Not editable (data type SIGNED FLOAT not supported for editing)

dng-prof-embed-policy -RWS c6fd DNG Profile Embed Policy
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: allow-copy c 0 Allow Copying
 if-used u 1 Emded If Used
 never n 2 Never Embed
 any a 3 No Restrictions

dng-profile-copyright -RWS c6fe DNG Profile Copyright
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-forward-matrix-1 -RWS c714 DNG Forward Matrix 1
 Values: Any number of positive or negative rational numbers

dng-forward-matrix-2 -RWS c715 DNG Forward Matrix 2
 Values: Any number of positive or negative rational numbers

dng-prev-app-name -RWS c716 DNG Preview Appl. Name
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-prev-app-ver -RWS c717 DNG Preview Appl. Version
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

EXIFutils Field Reference Guide

dng-prev-set-name -RWS c718 DNG Preview Settings Name
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-prev-set-digest -RWS c719 DNG Preview Settings Digest
Values: 16 bytes of binary data

dng-prev-color-space -RWS c71a DNG Preview Color Space

-----Value-----	Abbrev	--Num-	-----Meaning-----
unknown	u	0	Unknown
gray	g	1	Gray Gamma 2.2
s-rgb	s	2	sRGB
adobe-rgb	a	3	Adobe RGB
prophoto-rgb	p	4	ProPhoto RGB

dng-prev-date-time -RWS c71b DNG Preview Date/Time
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

dng-raw-image-digest -RWS c71c DNG Raw Image Digest
Values: 16 bytes of binary data

dng-orig-raw-digest -RWS c71d DNG Original Raw Image Digest
Values: 16 bytes of binary data

dng-sub-tile-blk-size -RWS c71e DNG Sub-Tile Block Size
Values: 2 integers in the range 0 to 4294967295

dng-row-inter-factor -RWS c71f DNG Row Interleave Factor
Values: An integer in the range 0 to 65535

dng-prof-look-tab-dims -RWS c725 DNG Profile Look Table Dims
Values: 3 integers in the range 0 to 4294967295

dng-prof-look-tab-data -RWS c726 DNG Profile Look Table Data
Not editable (data type SIGNED FLOAT not supported for editing)

EXIFutils Field Reference Guide

2.2.2.4 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

```

EXIFutils Field Reference Guide

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	msh	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

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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

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

EXIFutils Field Reference Guide

	trilinear	t	7	Trilinear sensor
	col-seq-lin	cs1	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
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

EXIFutils Field Reference Guide

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

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

subj-range ERWS a40c Subject Distance Range
-----Value----- Abbrev --Num- -----Meaning-----
Values: 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

2.2.2.5 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
	ccitt-rlw	rlw 2	CCITT modified Huffman RLE
	ccitt-g3	g3 3	CCITT Group 3 fax encoding
	ccitt-g4	g4 4	CCITT Group 4 fax encoding
	lzw	lzw 5	LZW
	jpeg	j 6	JPEG Compression (old style)
	jpeg2	j2 7	JPEG Compression (new style)
	adobe-deflate	a-def 8	Adobe Deflate
	t85	t85 9	ITU-T Rec. T.82 coding, using ITU-T Rec. T.85
	t43	t43 10	ITU-T Rec. T.82 coding, using ITU-T Rec. T.43
	next	nx 32766	Next
	ccitt-rlw	rlw 32771	CCITT RLEW
	packbits	pb 32773	Packbits
	thunderscan	ts 32809	Thunderscan
	it8-ctpad	ctpad 32895	IT8 CTPAD
	it8-lw	lw 32896	IT8 LW
	it8-mp	mp 32897	IT8 MP
	it8-bl	bl 32898	IT8 BL
	pixar-film	pix-f 32908	Pixar Film
	pixar-log	pix-l 32909	Pixar Log
	deflate	def 32946	Delfate
	dsc	dsc 32947	DCS
	jbig	jb 34661	JBIG
	sci-log	log 34676	SGI Log
	sci-log24	log24 34677	SGI Log24
	jpeg2000	j2000 34712	JPEG2000

EXIFutils Field Reference Guide

```

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
        sep          s       5  Separated
        ycbcr        y       6  YCbCr
        cie-lab      cie      8  CIE L*a*b*
        icc-tab      icc      9  ICC L*a*b*
        itu-lab      itu      10 ITU L*a*b*
        cfa          cfa     32803 Color Filter Array (CFA)
        logl         ll      32844 Photometric LogL
        logluv       luv     32845 Photometric LogLuv
        lin-raw      lr      32892 Linear Raw

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
        upper-right   ur      2  Upper Right
        lower-right    lr      3  Lower Right
        lower-left     lol     4  Lower Left
        left-upper     lu      5  Left Upper
        right-upper    ru      6  Right Upper
        right-lower    rl      7  Right Lower
        left-lower     llo     8  Left Lower
        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

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

```

EXIFutils Field Reference Guide

```

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

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

th-ycbcr-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

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

```

2.2.2.6 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 either '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       s      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

```

EXIFutils Field Reference Guide

```

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

2.2.3 Maker Note Fields

2.2.3.1 Canon Maker Note Fields

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
Maker Note (Canon)
cn-0000                      -RW-  0000  Field 0x0000
  Values: Any number of integers in the range 0 to 4294967295

cn-macro-mode                -R--  0001  Macro Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                1  Macro
                                2  Normal

cn-self-timer                -R--  0001  Self Timer
  Not Editable
  Values: An integer in the range 0 to 65535

cn-quality                   -R--  0001  Quality
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                2  Normal
                                3  Fine
                                5  Superfine

cn-flash-mode                -R--  0001  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--  0001  Drive Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Single/Timer
                                1  Continuous

cn-focus-mode                -R--  0001  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--  0001  Image Size
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Large
                                1  Medium
                                2  Small
  
```

```

cn-easy-shoot         -R--  0001  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--  0001  Digital Zoom
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  None
                                1  2x
                                2  4x
  
```

```

cn-contrast          -R--  0001  Contrast
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                               65535  Low
                                0  Normal
                                1  High
  
```

```

cn-saturation        -R--  0001  Saturation
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                               65535  Low
                                0  Normal
                                1  High
  
```

```

cn-sharpness         -R--  0001  Sharpness
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                               65535  Low
                                0  Normal
                                1  High
  
```

EXIFutils Field Reference Guide

```

cn-iso                -R--  0001  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--  0001  Meter Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Unknown
                                3  Evaluative
                                4  Partial
                                5  Center Weighted
  
```

```

cn-focus-type        -R--  0001  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--  0001  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--  0001  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--  0001  Focal Length Long
  Not Editable
  Values: An integer in the range 0 to 65535
  
```

```

cn-focal-len-short   -R--  0001  Focal Length Short
  Not Editable
  Values: An integer in the range 0 to 65535
  
```

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```

cn-focal-units          -R--  0001  Focal Units per mm
  Not Editable
  Values: An integer in the range 0 to 65535

cn-flash-activity      -R--  0001  Flash Activity
  Not Editable
  Values:
    -----Value----- Abbrev --Num- -----Meaning-----
                                0  Not Fired
                                1  Fired
                                255 Unknown

cn-flash               -R--  0001  Flash
  Not Editable
  Values: An integer in the range 0 to 65535

cn-focus               -R--  0001  Focus
  Not Editable
  Values:
    -----Value----- Abbrev --Num- -----Meaning-----
                                0  Single
                                1  Continuous

cn-focal-type          -R--  0002  Focal Type
  Not Editable
  Values:
    -----Value----- Abbrev --Num- -----Meaning-----
                                1  Fixed
                                2  Zoom

cn-focal-len           -R--  0002  Focal Length
  Not Editable
  Values: An integer in the range 0 to 65535

cn-fp-x-size           -R--  0002  Focal Plane X Size
  Not Editable
  Values: An integer in the range 0 to 65535

cn-fp-y-size           -R--  0002  Focal Plane Y Size
  Not Editable
  Values: An integer in the range 0 to 65535

cn-flash-info          -RW-  0003  Flash Info
  Values: Any number of integers in the range 0 to 65535

cn-auto-iso            -R--  0004  Auto ISO
  Not Editable
  Values: An integer in the range 0 to 65535

cn-base-iso            -R--  0004  Base ISO
  Not Editable
  Values: An integer in the range 0 to 65535

cn-measured-ev         -R--  0004  Measured EV
  Not Editable
  Values: An integer in the range 0 to 65535

cn-target-aper         -R--  0004  Target Aperture
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

cn-target-exp-time      -R--  0004  Target Exposure Time
  Not Editable
  Values: An integer in the range 0 to 65535

cn-exp-comp            -R--  0004  Exposure Compensation
  Not Editable
  Values: An integer in the range 0 to 65535

cn-white-bal          -R--  0004  White Balance
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Auto
                                1  Sunny
                                2  Cloudy
                                3  Tungsten
                                4  Fluorescent
                                5  Flash
                                6  Custom
                                7  Black & White
                                8  Shade
                                9  Manual Temperature (Kelvin)
                               10  PC Set1
                               11  PC Set2
                               12  PC Set3
                               14  Daylight Fluorescent
                               15  Custom 1
                               16  Custom 2
                               17  Underwater
                               18  Custom 3
                               19  Custom 4
                               20  PC Set4
                               21  PC Set5

cn-slow-shutter       -R--  0004  Slow Shutter Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
                                1  Night Scene
                                2  On
                                3  None

cn-burst-seq         -R--  0004  Continuous Burst Seq
  Not Editable
  Values: An integer in the range 0 to 65535

cn-opt-zoom-code      -R--  0004  Optical Zoom Code
  Not Editable
  Values: An integer in the range 0 to 65535

cn-flash-guide-num    -R--  0004  Flash Guide Number
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

cn-af-point2          -R--  0004  AF Point (2)
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                12288 None (Manual Focus)
                                12289 Right
                                12290 Center
                                12291 Center+Right
                                12292 Left
                                12293 Left+Right
                                12294 Left+Center
                                12295 All

cn-flash-bias        -R--  0004  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-auto-exp-bracket  -R--  0004  Auto Exposure Bracketing
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                -1     On
                                0      Off
                                1     On (Shot 1)
                                2     On (Shot 2)
                                3     On (Shot 3)

cn-aeb-value         -R--  0004  AEB Value
  Not Editable
  Values: An integer in the range 0 to 65535

cn-ctrl-mode         -R--  0004  Subject Distance
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0     N/A
                                1     Camera Local Control
                                3     Computer Remote Control

cn-subj-dist-upper   -R--  0004  Focus Distance Upper
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

cn-subj-dist-lower      -R--  0004  Focus Distance Lower
  Not Editable
  Values: An integer in the range 0 to 65535

cn-f-number            -R--  0004  F-Number
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-exp-time            -R--  0004  Exposure Time
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-measured-ev2       -R--  0004  Measured EV 2
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-bulb-duration       -R--  0004  Bulb Duration
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-camera-type         -R--  0004  Camera Type
  Not Editable
  Values:
    -----Value----- Abbrev --Num- -----Meaning-----
                                248  EOS High-End
                                250  Compact
                                252  EOS Mid-Range
                                255  DV Camera

cn-auto-rotate         -R--  0004  Auto Rotate
  Not Editable
  Values:
    -----Value----- Abbrev --Num- -----Meaning-----
                                65535 Unknown
                                0    None
                                1    Rotate 90 CW
                                2    Rotate 180
                                3    Rotate 270 CW

cn-nd-filter           -R--  0004  ND Filter
  Not Editable
  Values:
    -----Value----- Abbrev --Num- -----Meaning-----
                                0    Off
                                1    On

cn-self-timer2        -R--  0004  Self Timer 2
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-flash-output        -R--  0004  Flash Output
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-pano-frame-num     -R--  0005  Panorama Frame Number
  Not Editable
  Values: An integer in the range 0 to 65535

```

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cn-pano-direction -R-- 0005 Panorama Direction
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Left to Right
		1	Right to Left
		2	Bottom to Top
		3	Top to Bottom
		4	2x2 Matrix (Clockwise)

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-camera-info -RW- 000d Camera Info
Values: Any number of integers in the range 0 to 65535

cn-file-len -RW- 000e File Length
Values: Any number of integers in the range 0 to 4294967295

cn-custfunc -RW- 000f Custom Functions
Values: Any number of integers in the range 0 to 65535

cn-model-id	-RW-	0010	Model Id
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: l-to-r	lr	0	Left to Right
a30	a30	16842752	PowerShot A30
s300	s300	17039360	PowerShot S300 / Digital IXUS 300 / IXY Digital 300
a20	a20	17170432	PowerShot A20
a10	a10	17301504	PowerShot A10
s110	s110	17367040	PowerShot S110 / Digital IXUS v / IXY Digital 200
g2	g2	17825792	PowerShot G2
s40	s40	17891328	PowerShot S40
s30	s30	17956864	PowerShot S30
a40	a40	18022400	PowerShot A40
d30	d30	18087936	EOS D30
a100	a100	18153472	PowerShot A100
s200	s200	18219008	PowerShot S200 / Digital IXUS v2 / IXY Digital 200a
a200	a200	18284544	PowerShot A200
s330	s330	18350080	PowerShot S330 / Digital IXUS 330 / IXY Digital 300a
g3	g3	18415616	PowerShot G3
s45	s45	18939904	PowerShot S45
sd100	sd100	19070976	PowerShot SD100 / Digital IXUS II / IXY Digital 30
s230	s230	19136512	PowerShot S230 / Digital IXUS v3 / IXY Digital 320
a70	a70	19202048	PowerShot A70
a60	a60	19267584	PowerShot A60
s400	s400	19333120	PowerShot S400 / Digital IXUS 400 / IXY Digital 400
g5	g5	19464192	PowerShot G5
a300	a300	19922944	PowerShot A300
s50	s50	19988480	PowerShot S50
a80	a80	20185088	PowerShot A80
sd10	sd10	20250624	PowerShot SD10 / Digital IXUS i / IXY Digital L
s1	s1	20316160	PowerShot S1 IS
pro1	pro1	20381696	PowerShot Pro1
s70	s70	20447232	PowerShot S70
s60	s60	20512768	PowerShot S60
g6	g6	20971520	PowerShot G6
s500	s500	21037056	PowerShot S500 / Digital IXUS 500 / IXY Digital 500
a75	a75	21102592	PowerShot A75
sd110	sd110	21233664	PowerShot SD110 / Digital IXUS IIs / IXY Digital 30a
a400	a400	21299200	PowerShot A400
a310	a310	21430272	PowerShot A310
a85	a85	21561344	PowerShot A85
s410	s410	22151168	PowerShot S410 / Digital IXUS 430 / IXY Digital 450
a95	a95	22216704	PowerShot A95

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sd300	sd300	22282240	PowerShot SD300 / Digital IXUS 40 / IXY Digital 50
sd200	sd200	22347776	PowerShot SD200 / Digital IXUS 30 / IXY Digital 40
a520	a520	22413312	PowerShot A520
a510	a510	22478848	PowerShot A510
sd20	sd20	22609920	PowerShot SD20 / Digital IXUS i5 / IXY Digital L2
s2	s2	23330816	PowerShot S2 IS
sd430	sd430	23396352	PowerShot SD430 / IXUS Wireless / IXY Wireless
sd500	sd500	23461888	PowerShot SD500 / Digital IXUS 700 / IXY Digital 600
d60	d60	23494656	EOS D60
sd30	sd30	24117248	PowerShot SD30 / Digital IXUS i zoom / IXY Digital L3
a430	a430	24379392	PowerShot A430
a410	a410	24444928	PowerShot A410
s80	s80	24510464	PowerShot S80
a620	a620	24641536	PowerShot A620
a610	a610	24707072	PowerShot A610
sd630	sd630	25165824	PowerShot SD630 / Digital IXUS 65 / IXY Digital 80
sd450	sd450	25231360	PowerShot SD450 / Digital IXUS 55 / IXY Digital 60
tx1	tx1	25296896	PowerShot TX1
sd400	sd400	25624576	PowerShot SD400 / Digital IXUS 50 / IXY Digital 55
a420	a420	25690112	PowerShot A420
sd900	sd900	25755648	PowerShot SD900 / Digital IXUS 900 Ti / IXY Digital 1000
sd550	sd550	26214400	PowerShot SD550 / Digital IXUS 750 / IXY Digital 700
a700	a700	26345472	PowerShot A700
sd700	sd700	26476544	PowerShot SD700 IS / Digital IXUS 800 IS / IXY Digital 800 IS
s3	s3	26542080	PowerShot S3 IS
a540	a540	26607616	PowerShot A540
sd600	sd600	26673152	PowerShot SD600 / Digital IXUS 60 / IXY Digital 70
g7	g7	26738688	PowerShot G7
a530	a530	26804224	PowerShot A530
sd800	sd800	33554432	PowerShot SD800 IS / Digital IXUS 850 IS / IXY Digital 900 IS
sd40	sd40	33619968	PowerShot SD40 / Digital IXUS i7 / IXY Digital L4
a710	a710	33685504	PowerShot A710 IS
a640	a640	33751040	PowerShot A640
a630	a630	33816576	PowerShot A630
s5	s5	34144256	PowerShot S5 IS
a460	a460	34603008	PowerShot A460
sd850	sd850	34734080	PowerShot SD850 IS / Digital IXUS 950 IS / IXY Digital 810 IS
a750	a750	34799616	PowerShot A750 IS
a560	a560	34865152	PowerShot A560
sd750	sd750	34930688	PowerShot SD750 / Digital IXUS 75 / IXY Digital 90
sd1000	sd1000	34996224	PowerShot SD1000 / Digital IXUS 70 / IXY Digital 10
a550	a550	35127296	PowerShot A550
a450	a450	35192832	PowerShot A450
g9	g9	35848192	PowerShot G9

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a650	a650	35913728	PowerShot A650 IS
a720	a720	36044800	PowerShot A720 IS
sx100	sx100	36241408	PowerShot SX100 IS
sd950	sd950	36700160	PowerShot SD950 IS / Digital IXUS 960 IS / IXY Digital 2000 IS
sd870	sd870	36765696	PowerShot SD870 IS / Digital IXUS 860 IS / IXY Digital 910 IS
sd890	sd890	36831232	PowerShot SD890 IS / Digital IXUS 970 IS / IXY Digital 820 IS
sd790	sd790	37093376	PowerShot SD790 IS / Digital IXUS 90 IS / IXY Digital 95 IS
sd770	sd770	37158912	PowerShot SD770 IS / Digital IXUS 85 IS / IXY Digital 25 IS
a590	a590	37224448	PowerShot A590 IS
a580	a580	37289984	PowerShot A580
a470	a470	37879808	PowerShot A470
sd1100	sd1100	37945344	PowerShot SD1100 IS / Digital IXUS 80 IS / IXY Digital 20 IS
sx1	sx1	38141952	PowerShot SX1 IS
sx10	sx10	38207488	PowerShot SX10 IS
a1000	a1000	38273024	PowerShot A1000 IS
g10	g10	38338560	PowerShot G10
a2000	a2000	38862848	PowerShot A2000 IS
sx110	sx110	38928384	PowerShot SX110 IS
sd990	sd990	38993920	PowerShot SD990 IS / Digital IXUS 980 IS / IXY Digital 3000 IS
sd880	sd880	39059456	PowerShot SD880 IS / Digital IXUS 870 IS / IXY Digital 920 IS
e1	e1	39124992	PowerShot E1
d10	d10	39190528	PowerShot D10
sd960	sd960	39256064	PowerShot SD960 IS / Digital IXUS 110 IS / IXY Digital 510 IS
a2100	a2100	39321600	PowerShot A2100 IS
a480	a480	39387136	PowerShot A480
sx200	sx200	39845888	PowerShot SX200 IS
sd970	sd970	39911424	PowerShot SD970 IS / Digital IXUS 990 IS / IXY Digital 830 IS
sd780	sd780	39976960	PowerShot SD780 IS / Digital IXUS 100 IS / IXY Digital 210 IS
a1100	a1100	40042496	PowerShot A1100 IS
sd1200	sd1200	40108032	PowerShot SD1200 IS / Digital IXUS 95 IS / IXY Digital 110 IS
pro90	pro90	50397184	PowerShot Pro90 IS
g1	g1	67371008	PowerShot G1
s100	s100	100925440	PowerShot S100 / Digital IXUS / IXY Digital
hv10	hv10	1074255477	HV10
dc50	dc50	1074255735	iVIS DC50
hv20	hv20	1074255736	iVIS HV20
dc211	dc211	1074255737	DC211
hr10	hr10	1074255739	iVIS HR10
fs100	fs100	1074255999	FS100
hf10	hf10	1074256000	iVIS HF10
1d	1d	-2147483647	EOS-1D
lds	lds	-2147483289	EOS-1DS
10d	10d	-2147483288	EOS 10D
1d-mk3	1d-mk3	-2147483287	EOS-1D Mark III

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300d	300d	-2147483280	EOS Digital Rebel / 300D / Kiss Digital
1d-mk2	1d-mk2	-2147483276	EOS-1D Mark II
20d	20d	-2147483275	EOS 20D
450d	450d	-2147483274	EOS Digital Rebel XSi / 450D / Kiss X2
1ds-mk2	1ds-mk2	-2147483256	EOS-1Ds Mark II
350d	350d	-2147483255	EOS Digital Rebel XT / 350D / Kiss Digital N
40d	40d	-2147483248	EOS 40D
5d	5d	-2147483117	EOS 5D
1ds-mk3	1ds-mk3	-2147483115	EOS-1Ds Mark III
5d-mk2	5d-mk2	-2147483112	EOS 5D Mark II
1d-mk2	1d-mk2	-2147483086	EOS-1D Mark II N
30d	30d	-2147483084	EOS 30D
400d	400d	-2147483082	EOS Digital Rebel XTi /400D/Kiss Digital X (and rare K236)
500d	500d	-2147483054	EOS Rebel T1i / 500D / Kiss X3
1000d	1000d	-2147483052	EOS Rebel XS / 1000D / Kiss F
50d	50d	-2147483039	EOS 50D

cn-af-info -RW- 0012 Auto-focus Info
 Values: Any number of integers in the range 0 to 65535

cn-th-area -RW- 0013 Thumbnail Valid Area
 Values: 4 integers in the range 0 to 65535

cn-sn-format -RW- 0015 Serial Number Format

Value	Abbrev	Num	Meaning
format-1	f1	-1879048192	Format 1
format-2	f2	-1610612736	Format 2

cn-super-macro -RW- 001a Super Macro

Value	Abbrev	Num	Meaning
off	off	0	Off
on-1	on1	1	On (1)
on-2	on2	2	On (2)

cn-date-stamp-mode -RW- 001c Date Stamp Mode

Value	Abbrev	Num	Meaning
off	o	0	Off
date	d	1	Date
date-time	dt	2	Date & Time

cn-my-color-mode -RW- 001d My Color Mode

Value	Abbrev	Num	Meaning
off	off	0	Off
positive-film	pf	1	Positive Film
light-skin-tone	lst	2	Light Skin Tone
dark-skin-tone	dst	3	Dark Skin Tone
vivid-blue	vb	4	Vivid Blue
vivid-green	vg	5	Vivid Green
vivid-red	vr	6	Vivid Red
color-accent	ca	7	Color Accent
color-swap	cs	8	Color Swap
custom	cust	9	Custom
vivid	v	12	Vivid
neutral	n	13	Neutral
sepia	s	14	Sepia
b-w	bw	15	B&W

cn-firmware-ver -RW- 001e Firmware Version
 Values: Any number of integers in the range 0 to 65535

cn-categories -R-- 0023 Categories
 Not Editable
 Values: Any number of integers in the range 0 to 65535

cn-face-detect-1 -RW- 0024 Face Detect 1
 Values: Any number of integers in the range 0 to 65535

cn-face-detect-2 -RW- 0025 Face Detect 2
 Values: Any number of integers in the range 0 to 65535

cn-af-info -RW- 0026 AF Info
 Values: Any number of integers in the range 0 to 65535

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cn-image-id -RW- 0028 Unique Image ID
 Values: Variable length binary data

cn-raw-data-off -RW- 0081 Raw Data Offset
 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-orig-data-off -RW- 0083 Orig. Decision Data Offset
 Values: Any number of integers in the range 0 to 4294967295

cn-file-num -R-- 0093 File Number
 Not Editable
 Values: An integer in the range 0 to 65535

cn-shutter-count -R-- 0093 Shutter Count
 Not Editable
 Values: An integer in the range 0 to 65535

cn-bracket-mode -R-- 0093 Bracket Mode
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Off
		1	AEB
		2	FEB
		3	ISO
		4	WB

cn-bracket-value -R-- 0093 Bracket Value
 Not Editable
 Values: An integer in the range -32768 to 32767

cn-bracket-shot-num -R-- 0093 Bracket Shot Number
 Not Editable
 Values: An integer in the range -32768 to 32767

cn-raw-jpg-quality -R-- 0093 Raw JPEG Quality
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		65535	Unknown
		1	Economy
		2	Normal
		3	Fine
		4	RAW
		5	Superfine
		130	Normal Movie

cn-raw-jpg-size -R-- 0093 Raw JPEG Size
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		65535	Unknown
		0	Large
		1	Medium
		2	Small
		5	Medium 1
		6	Medium 2

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7 Medium 3
 8 Postcard
 9 Widescreen
 129 Medium Movie
 130 Small Movie

```

cn-noise-reduction      -R--  0093  Noise Reduction
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                65535 Unknown
                                0 Off
                                1 On 1
                                2 On 2
                                3 On
                                4 Auto

cn-wb-bracket-mode      -R--  0093  WB Bracket Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0 Off
                                1 On (shift AB)
                                2 On (shift GM)

cn-wb-bracket-value-ab  -R--  0093  WB Bracket Value AB
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-wb-bracket-value-gm  -R--  0093  WB Bracket Value GM
  Not Editable
  Values: An integer in the range -32768 to 32767

cn-filter-effect        -R--  0093  Filter Effect
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0 None
                                1 Yellow
                                2 Orange
                                3 Red
                                4 Green

cn-toning-effect        -R--  0093  Toning Effect
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0 None
                                1 Sepia
                                2 Blue
                                3 Purple
                                4 Green

cn-live-view-shoot      -R--  0093  Live View Shooting
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0 Off
                                1 On

cn-flash-exp-lock       -R--  0093  Flash Exposure Lock
  Not Editable
  
```

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-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Off
		1	On
cn-af-pif	-RW-	0094	AF Points in Focus
Values:	Variable length binary data		
cn-lens-model	-RW-	0095	Lens Model
Values:	Text string up to 1999 bytes long (or up to 49 in demo version)		
cn-serial-info	-RW-	0096	Serial Number Info
Values:	Text string up to 1999 bytes long (or up to 49 in demo version)		
cn-dust-remove-data	-RW-	0097	Dust Removal Data
Values:	Variable length binary data		
cn-custom-func-2-ifd	-RW-	0099	Custom Function 2 IFD
Values:	An integer in the range 0 to 65535		
cn-proc-info	-RW-	00a0	Processing Info
Values:	Any number of integers in the range -32768 to 32767		
cn-tone-curve-table	-RW-	00a1	Tone Curve Table
Values:	Any number of integers in the range -32768 to 32767		
cn-sharp-table	-RW-	00a2	Sharpness Table
Values:	Any number of integers in the range -32768 to 32767		
cn-sharp-freq-table	-RW-	00a3	Sharpness Freq. Table
Values:	Any number of integers in the range -32768 to 32767		
cn-white-bal-table	-RW-	00a4	White Balance Table
Values:	Any number of integers in the range -32768 to 32767		
cn-color-bal	-RW-	00a9	Color Balance
Values:	Any number of integers in the range -32768 to 32767		
cn-measured-color	-RW-	00aa	Measured Color
Values:	4 integers in the range 0 to 65535		
cn-color-temp	-RW-	00ae	Color Temperature
Values:	Any number of integers in the range 0 to 65535		
cn-flags	-RW-	00b0	Flags
Values:	Any number of integers in the range -32768 to 32767		
cn-tone-curve-match	-RW-	00b2	Tone Curve Matching
Values:	Any number of integers in the range -32768 to 32767		
cn-white-bal-match	-RW-	00b3	White Balance Matching
Values:	Any number of integers in the range -32768 to 32767		
cn-color-space	-RW-	00b4	Color Space
	-----Value-----	Abbrev	--Num- -----Meaning-----
Values:	s-rgb	s	1 sRGB
	adobe-rgb	a	2 Adobe RGB

EXIFutils Field Reference Guide

```

cn-preview-qual          -RW-  00b6  Preview Quality
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: unknown      u      65535  Unknown
          economy      e         1  Economy
          normal       n         2  Normal
          fine         f         3  Fine
          raw          r         4  RAW
          superfine    s         5  Superfine
          normal-movie m        130  Normal Movie

cn-prev-image-len       -RW-  00b6  Preview Image Length
  Values: An integer in the range 0 to 65535

cn-prev-image-width     -RW-  00b6  Preview Image Width
  Values: An integer in the range 0 to 65535

cn-prev-image-height   -RW-  00b6  Preview Image Height
  Values: An integer in the range 0 to 65535

cn-prev-image-start    -RW-  00b6  Preview Image Start
  Values: An integer in the range 0 to 65535

cn-vrdo-offset         -RW-  00d0  VRDO Offset
  Values: Any number of integers in the range 0 to 4294967295

cn-sensor-width        -RW-  00e0  Sensor Width
  Values: An integer in the range 0 to 65535

cn-sensor-height       -RW-  00e0  Sensor Height
  Values: An integer in the range 0 to 65535

cn-sensor-left         -RW-  00e0  Sensor Left Border
  Values: An integer in the range 0 to 65535

cn-sensor-top          -RW-  00e0  Sensor Top Border
  Values: An integer in the range 0 to 65535

cn-sensor-right        -RW-  00e0  Sensor Right Border
  Values: An integer in the range 0 to 65535

cn-sensor-bottom       -RW-  00e0  Sensor Bottom Border
  Values: An integer in the range 0 to 65535

cn-black-mask-left    -RW-  00e0  Black Mask Left Border
  Values: An integer in the range 0 to 65535

cn-black-mask-top     -RW-  00e0  Black Mask Top Border
  Values: An integer in the range 0 to 65535

cn-black-mask-right   -RW-  00e0  Black Mask Right Border
  Values: An integer in the range 0 to 65535

cn-black-mask-bottom  -RW-  00e0  Black Mask Bottom Border
  Values: An integer in the range 0 to 65535

cn-color-data          -RW-  4001  Color Data
  Values: Any number of integers in the range 0 to 4294967295

```

EXIFutils Field Reference Guide

cn-4002 -RW- 4002 Field 0x4002
Values: Any number of integers in the range 0 to 4294967295

cn-ci-saturation -RW- 4003 Colour Info - Saturation
Values: An integer in the range -32768 to 32767

cn-ci-color-tone -RW- 4003 Colour Info - Tone
Values: An integer in the range -32768 to 32767

cn-ci-color-space -RW- 4003 Colour Info - Color Space
-----Value----- Abbrev --Num- -----Meaning-----
Values: s-rgb s 1 sRGB
 adobe-rgb a 2 Adobe RGB

cn-black-level -RW- 4008 Black Level
Values: Any number of integers in the range -32768 to 32767

2.2.3.1.1 Canon Custom Functions for 1D Models

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
cfld-focus-screen          -R--  0000  Focus Screen
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Ec-N, R
                                1  Ec-A,B,C,CII,CIII,D,H,I,L

cfld-finder-disp-in-exp    -R--  0001  Finder Display During Exposure
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
                                1  On

cfld-shutter-no-cf        -R--  0002  Shutter Release with no CF Card
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Yes
                                1  No

cfld-iso-expansion         -R--  0003  ISO Speed Expansion
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

cfld-shutter-ael-button    -R--  0004  Shutter AEL Button
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  AF/AE lock stop
                                1  AE lock/AF
                                2  AF/AF lock, No AE lock
                                3  AE/AF, No AE lock

cfld-manual-tv             -R--  0005  Manual Tv
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Tv=Main/Av=Control
                                1  Tv=Control/Av=Main
                                2  Tv=Main/Av=Main w/o lens
                                3  Tv=Control/Av=Main w/o lens

cfld-exp-increm           -R--  0006  Exposure Level Increments
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  1/3-stop set, 1/3-stop comp.
                                1  1-stop set, 1/3-stop comp.
                                2  1/2-stop set, 1/2-stop comp.

```

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cfld-elect-mf -R-- 0007 USM Lens Electronic MF
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Turns on after one-shot AF
		1	Turns off after one-shot AF
		2	Always turned off

cfld-lcd-panels -R-- 0008 LCD Panels
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Remain. shots/File no.
		1	ISO/Remain. shots
		2	ISO/File no.
		3	Shots in folder/Remain. shots

cfld-aeb-seq -R-- 0009 AEB Sequence Auto Cancel
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	0,-,+ / Enabled
		1	0,-,+ / Disabled
		2	-,0,+ / Enabled
		3	-,0,+ / Disabled

cfld-af-illum -R-- 000a AF Point Illumination
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	On
		1	Off
		2	On without Dimming
		3	Brighter

cfld-af-select -R-- 000b AF Point Selection
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	H=AF+Main/V=AF+Command
		1	H=Comp+Main/V=Comp+Command
		2	H=Command only/V=Assist+Main
		3	H=FEL+Main/V=FEL+Command

cfld-mirror-lockup -R-- 000c Mirror Lockup
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Disabled
		1	Enabled

cfld-af-spot-meter -R-- 000d AF Point Spot Metering
Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	45/Center AF point
		1	11/Active AF point
		2	11/Center AF point
		3	9/Active AF point

EXIFutils Field Reference Guide

```

cfld-fill-auto-reduct      -R--  000e  Fill Flash Auto Reduction
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Enabled
                                1  Disabled

cfld-curtain-sync        -R--  000f  Shutter Curtain Sync
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  1st Curtain Sync
                                1  2nd Curtain Sync

cfld-safety-shift        -R--  0010  Safety Shift in Av/Tv
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Disabled
                                1  Enabled

cfld-af-active-area      -R--  0011  AF Point Activation Area
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Single AF point
                                1  Expanded (TTL. of 7 AF points)
                                2  Automatic expanded (max. 13)

cfld-af-switch           -R--  0012  Switch to Registered AF
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Assist + AF
                                1  Assist
                                2  Only while pressing assist

cfld-af-stop-button      -R--  0013  Lens AF Stop Button
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  AF Stop
                                1  AF Start
                                2  AE lock while metering
                                3  AF point: M -> Auto / Auto -> Ctr.
                                4  AF mode: ONE SHOT <-> AI SERVO
                                5  IS start

cfld-ais-sensitivity     -R--  0014  AI Servo Sensitivity
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Standard
                                1  Slow
                                2  Moderately Slow
                                3  Moderately Fast
                                4  Fast

cfld-ais-contin-shoot    -R--  0015  AI Servo Continuous Shooting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Shooting not possible without focus
                                1  Shooting possible without focus

```

2.2.3.1.2 Canon Custom Functions 2

```

cn-exp-level-inc          -RW-  0101  Exposure Level Increm.
  -----Value----- Abbrev --Num- -----Meaning-----
Values: 13set-13comp     13-13    0  1/3-stop set, 1/3-stop comp.
          (Canon Canon 1D Mk III only)
          1set-13comp     1-13     1  1-stop set, 1/3-stop comp.
          (Canon Canon 1D Mk III only)
          12set-12-comp   12-12    2  1/2-stop set, 1/2-stop comp.
          (Canon Canon 1D Mk III only)
          1-3-stop       1-3      0  1/3 stop
          1-2-stop       1-2      1  1/2 stop

cn-iso-speed-inc         -RW-  0102  ISO Speed Increm.
  -----Value----- Abbrev --Num- -----Meaning-----
Values: 1-3-stop        1-3      0  1/3 stop
          1-stop         1        1  1-stop

cn-iso-expansion         -RW-  0103  ISO Expansion
Values: An integer in the range -2147483648 to 2147483647

cn-aeb-auto-cancel      -RW-  0104  AEB Auto Cancel
  -----Value----- Abbrev --Num- -----Meaning-----
Values: on              on        0  On
          off           off        1  Off

cn-aeb-sequence         -RW-  0105  AEB Sequence
  -----Value----- Abbrev --Num- -----Meaning-----
Values: 0pm            0pm      0  0,-,+
          m0p          m0p      1  -,0,+
          p0m          p0m      2  +,0,-

cn-aeb-shot-count       -RW-  0106  AEB Shot Count
  -----Value----- Abbrev --Num- -----Meaning-----
Values: 3              3        0  3
          2            2        1  2
          5            5        2  5
          7            7        3  7

cn-spot-link-to-af      -RW-  0107  Spot Meter Link to AF Point
  -----Value----- Abbrev --Num- -----Meaning-----
Values: disabled       d        0  Disabled
          enabled      e        1  Enabled

cn-safety-shift         -RW-  0108  Safety Shift
  -----Value----- Abbrev --Num- -----Meaning-----
Values: disabled       d        0  Disabled
          enabled      e        1  Enabled (Tv/Av)
          enabled      e        1  Enabled (ISO Speed)

cn-usable-shoot-modes   -RW-  0109  Usable Shooting Modes
  -----Value----- Abbrev --Num- -----Meaning-----
Values: disabled       d        0  Disabled
          enabled      e        1  Enabled

```

EXIFutils Field Reference Guide

cn-usable-meter-modes	-RW-	010a	Usable Metering Modes
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: disabled	d	0	Disabled
enabled	e	1	Enabled
cn-exp-mode-in-manual	-RW-	010b	Exposure Mode in Manual
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: specified	spec	0	Specified Metering Mode
evaluative	e	1	Evaluative
partial	p	2	Partial
spot	spot	3	Spot
center	c	4	Center-weighted Average
cn-shutter-range	-RW-	010c	Shutter Speed Range
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: disabled	d	0	Disabled
enabled	e	1	Enabled
cn-aperture-range	-RW-	010d	Aperture Range
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: disabled	d	0	Disabled
enabled	e	1	Enabled
cn-apply-shoot-mode	-RW-	010e	Apply Shooting Metering Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: disabled	d	0	Disabled
enabled	e	1	Enabled
cn-flash-sync-speed-av	-RW-	010f	Flash Synv Speed Av
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: auto	auto	0	Auto
fixed-40d	fixed-40d	1	Fixed 1/250 (40D only)
auto-5d	auto-5d	1	Auto 1/250-1/60(50D only)
fixed-5d	fixed-5d	2	Fixed 1/250 (50D only)
fixed-450d	fixed-450d	1	Fixed 1/200 (450D only)
fixed-1000d	fixed-1000d	1	Fixed 1/200 (1000D only)
auto-5d-mk2	auto-5d-mk2	1	Auto 1/200-1/60 (5D Mk II only)
fixed-5d_mk2	fixed-5d-mk2	2	Fixed 1/200 (5D Mk II only)
fixed-1d-mk3	fixed-1d-mk3	1	Fixed 1/300 (1D Mk III only)
cn-long-exp-noise-reduct	-RW-	0201	Long Exp. Noise Reduction
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	off	0	Off
auto	a	1	Auto
on	on	2	On

EXIFutils Field Reference Guide

```

cn-high-iso-noise-reduct  -RW-  0202  High ISO Noise Reduction
-----Value----- Abbrev --Num- -----Meaning-----
Values: off              off    0  Off
        on               on     1  On
        standard         std    0  Standard (50D only)
        low              low    1  Low (50D only)
        strong           str    2  Strong (50D only)
        disabled         dis    3  Disabled (50D only)
        standard         std    0  Standard (500D only)
        low              low    1  Low (500D only)
        strong           str    2  Strong (500D only)
        disabled         dis    3  Disabled (500D only)
        standard         std    0  Standard (5D Mk II only)
        low              low    1  Low (5D Mk II only)
        strong           str    2  Strong (5D Mk II only)
        disabled         dis    3  Disabled (5D Mk II only)

cn-high-tone-pri         -RW-  0203  Highlight Tone Priority
-----Value----- Abbrev --Num- -----Meaning-----
Values: disabled         d      0  Disabled
        enabled          e      1  Enabled

cn-auto-light-opt       -RW-  0204  Auto Lighting Optimizer
-----Value----- Abbrev --Num- -----Meaning-----
Values: off              off    0  Off
        on               on     1  On
        standard         std    0  Standard (50D only)
        low              low    1  Low (50D only)
        strong           str    2  Strong (50D only)
        disabled         dis    3  Disabled (50D only)
        standard         std    0  Standard (500D only)
        low              low    1  Low (500D only)
        strong           str    2  Strong (500D only)
        disabled         dis    3  Disabled (500D only)
        standard         std    0  Standard (5D Mk II only)
        low              low    1  Low (5D Mk II only)
        strong           str    2  Strong (5D Mk II only)
        disabled         dis    3  Disabled (5D Mk II only)

cn-ettl-2               -RW-  0304  E-TTL II
-----Value----- Abbrev --Num- -----Meaning-----
Values: evaluative       e      0  Evaluative
        average          a      1  Average

cn-curtain-sync         -RW-  0305  Shutter Curtain Sync
-----Value----- Abbrev --Num- -----Meaning-----
Values: 1st              1st    0  1st-curtain sync
        2nd              2nd    1  2nd-curtain sync

cn-flash-fires          -RW-  0306  Flash Fires
-----Value----- Abbrev --Num- -----Meaning-----
Values: fires            f      0  Fires
        not-fire         n      1  Does Not Fire

```

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cn-view-info	-RW-	0407	View Info During Exposure
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: disabled	d	0	Disabled
enabled	e	1	Enabled
cn-lcd-during-bulb	-RW-	0408	LCB Illum. During Bulb
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	off	0	Off
on	on	1	On
cn-info-button-shooting	-RW-	0409	Info Button When Shooting
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: camera	c	0	Displays camera settings
shoot	s	1	Displays shooting functions
cn-usm-lens-mf	-RW-	0501	USM Lens Electronic MF
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: mf0	mf0	0	Enable after one-shot AF
mf1	mf1	1	Disable after one-shot AF
mf2	mf2	2	Disable in AF mode
cn-ais-track-sensitivity	-RW-	0502	AIS Tracking Sensitivity
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: slow	sl	-2	Slow
med-slow	ms	-1	Medium Slow
standard	mt	0	Standard
med-fast	mf	1	Medium Fast
fast	fa	2	Fast
cn-ais-priority	-RW-	0503	AIS Image Priority
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: ais0	ais0	0	1: AF, 2: Tracking
ais1	ais1	1	1: AF, 2: Drive speed
ais2	ais2	2	1: Release, 2: Drive speed
cn-ais-track-method	-RW-	0504	AIS Track Method
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: main	m	0	Main focus point priority
cont	c	1	Continuous AF track priority
cn-lens-drive-no-af	-RW-	0505	Lens Drive No AF
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: on	on	0	Focus search on
off	off	1	Focus search off
cn-lens-af-stop-button	-RW-	0506	Lens AF Stop Button
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: afs0	afs0	0	AF Stop
afs1	afs1	1	AF Start
afs2	afs2	2	AE Lock
afs3	afs3	3	AF point: M->Auto/Auto->ctr
afs4	afs4	4	One Shot <-> AI servo
afs5	afs5	5	IS start
afs6	afs6	6	Switch to registered AF point

EXIFutils Field Reference Guide

```

cn-af-micro-adjust      -RW-  0507  AF Micro Adjust
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: disable      d          0  Disable
          same         s          1  Adjust all by same amount
          lens         l          2  Adjust by lens

cn-af-point-area-exp   -RW-  0508  AF Point Area Expansion
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: disable      d          0  Disable
          enable-1     e1         1  Enable (left/right assist points)
          enable-2     e2         2  Enable (surrounding assist points)

cn-select-af-point     -RW-  0509  Selectable AF Point
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: afp0         d          0  19 points
          afp1         e1         1  Inner 9 points
          afp2         e2         2  Outer 9 points
          afp3         e2         3  19 Points, Multi-controller selectable
          afp4         e2         4  Inner 9 Points,
          Multi-controller selectable
          afp5         e2         5  Outer 9 Points,
          Multi-controller selectable

cn-af-switch-to-reg    -RW-  050a  Switch to Registered AF
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: disabled     d          0  Disabled
          enabled      e          1  Enabled

cn-af-auto-select      -RW-  050b  AF Point Auto Select
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: sel0         s0          0  Control-direct:disable/Main:enable
          sel1         s1          1  Control-direct:disable/Main:disable
          sel2         s2          2  Control-direct:enable/Main:enable

cn-af-disp-during-focus -RW-  050c  AF Display During Focus
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: on           on          0  On
          off          off         1  Off
          on-focus     on-f       2  On (when focus achieved)

cn-af-point-brightness -RW-  050d  AF Point Brightness
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal       n          0  Normal
          brighter     b          1  Brighter

cn-af-assist-beam      -RW-  050e  AF Assist Beam
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: emits        y          0  Emits
          no-emit      n          1  Does not emit
          only-ext     e          2  Only external flash emits

```

EXIFutils Field Reference Guide

```
cn-af-point-select      -RW-  050f  AF Point Select Method
-----Value----- Abbrev --Num- -----Meaning-----
Values: afp0           d         0  19 points
        afp1           e1         1  Inner 9 points
        afp2           e2         2  Outer 9 points
        afp3           e2         3  19 Points, Multi-controller selectable
        afp4           e2         4  Inner 9 Points,
        Multi-controller selectable
        afp5           e2         5  Outer 9 Points,
        Multi-controller selectable
```

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2.2.3.2 Casio Maker Note 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

```

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

cs-ccd -RW- 0014 CCD Sensitivity
 -----Value----- Abbrev --Num- -----Meaning-----
Values: normal n 80 Normal
 high h 100 High

cs-0015 -RW- 0015 Field 0x0015
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

cs-0016 -RW- 0016 Field 0x0016
Values: An integer in the range 0 to 65535

cs-0017 -RW- 0017 Field 0x0017
Values: An integer in the range 0 to 65535

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

cs-0019 -RW- 0019 Field 0x0019
Values: An integer in the range 0 to 65535

cs-001a -RW- 001a Field 0x001a
Values: Variable length binary data

cs-001c -RW- 001c Field 0x001c
Values: Any number of integers in the range 0 to 65535

cs-001d -RW- 001d Field 0x001d
Values: Any number of integers in the range 0 to 65535

cs-0e00 -RW- 0e00 Field 0x0e00
Values: Variable length binary data

EXIFutils Field Reference Guide

2.2.3.3 Fujifilm Maker Note 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

```

EXIFutils Field Reference Guide

```

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

2.2.3.4 Minolta Maker Note Fields

```

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

mns1-exp-mode              -R--  0001  Exposure Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Program
                                1  Aperture Priority
                                2  Shutter Priority
                                3  Manual

mns1-flash-mode            -R--  0001  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--  0001  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

```

EXIFutils Field Reference Guide

```

mns1-image-dim          -R--  0001  Image Dimensions
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  2048x1536 (Minolta DiIMAGE 5 only)
                                0  2560x1920
                                1  1600x1200
                                2  1280x960
                                3  640x480
  
```

```

mns1-image-qual        -R--  0001  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--  0001  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--  0001  Meter Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Multisegment
                                1  Center-weighted
                                2  Spot
  
```

```

mns1-apex-film-speed    -R--  0001  APEX Film Speed Value
  Not Editable
  Values: An integer in the range 0 to 65535
  
```

```

mns1-apex-time          -R--  0001  APEX Time Value
  Not Editable
  Values: An integer in the range 0 to 65535
  
```

```

mns1-apex-aperture      -R--  0001  APEX Aperture Value
  Not Editable
  Values: An integer in the range 0 to 65535
  
```

```

mns1-macro-mode         -R--  0001  Macro Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
                                1  On
  
```

EXIFutils Field Reference Guide

```

mns1-digital-zoom      -R--  0001  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--  0001  Exposure Compensation
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-bracket-step     -R--  0001  Bracket Step (EV)
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  0.33
                                1  0.66
                                2  1.00

mns1-0003-10         -R--  0001  Field 0x0003-10
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-interval-len     -R--  0001  Interval Length (min)
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-interval-num     -R--  0001  Num Interval Frames
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-focal-len       -R--  0001  Focal Length
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-focus-dist      -R--  0001  Focus Distance (meters)
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-flashFired      -R--  0001  Flash Fired
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

mns1-date            -R--  0001  Date
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-time            -R--  0001  Time
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-max-aper        -R--  0001  Maximum Aperture
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

mns1-0003-19          -R--  0001  Field 0x0003-19
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-0003-1a          -R--  0001  Field 0x0003-1a
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-file-num-mem     -R--  0001  File Number Memory
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
                                1  On

mns1-last-file-num    -R--  0001  Last File Number
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-white-bal-red    -R--  0001  White Balance Red
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-white-bal-green  -R--  0001  White Balance Green
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-white-bal-blue   -R--  0001  White Balance Blue
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-saturation       -R--  0001  Saturation
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-Contrast         -R--  0001  Contrast
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-sharpness        -R--  0001  Sharpness
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Hard
                                1  Normal
                                2  Soft

mns1-subj-prog        -R--  0001  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-- 0001 Flash Compensation
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-iso-setting -R-- 0001 ISO Setting
 Not Editable

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

mns1-model -R-- 0001 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

mns1-interval-mode -R-- 0001 Interval Mode
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Still Image
		1	Timelapse Movie

mns1-folder-setting -R-- 0001 Folder Name Setting
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Standard Form
		1	Date Form

mns1-color-mode -R-- 0001 Color Mode
 Not Editable

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

mns1-color-filter -R-- 0001 Color Filter
 Not Editable
 Values: An integer in the range 0 to 65535

mns1-bw-filter -R-- 0001 Black and White Filter
 Not Editable
 Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

```

mns1-internal-flash      -R--  0001  Internal Flash Fired
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Not Fired
                                1  Fired

mns1-apex-bright        -R--  0001  APEX Brightness Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-spot-focus-x       -R--  0001  Spot Focus X Position
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-spot-focus-y       -R--  0001  Spot Focus Y Position
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-wide-focus-zone    -R--  0001  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--  0001  Focus Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  AF
                                1  MF

mns1-focus-area         -R--  0001  AF Focus Area
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Wide Focus
                                1  Spot Focus

mns1-dec-setting         -R--  0001  DEC Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Exposure
                                1  Contrast
                                2  Saturation
                                3  Filter

mns1-embedded-profile   -R--  0001  Embedded Color Profile
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

```

EXIFutils Field Reference Guide

```

mns1-data-imprint          -R--  0001  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--  0001  Field 0x0003-36
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-0003-37              -R--  0001  Field 0x0003-37
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-0003-38              -R--  0001  Field 0x0003-38
  Not Editable
  Values: An integer in the range 0 to 65535

mns1-0003-39              -R--  0001  Field 0x0003-39
  Not Editable
  Values: An integer in the range 0 to 65535

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

mns2-exp-mode             -R--  0003  Exposure Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Program
                                1  Aperture Priority
                                2  Shutter Priority
                                3  Manual

mns2-flash-mode           -R--  0003  Flash Mode
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Fill Flash
                                1  Red-eye Reduction
                                2  Rear Flash Sync
                                3  Wireless

```

EXIFutils Field Reference Guide

```

mns2-white-bal          -R--  0003  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 Fluorescent
92209152  A1 3-band White Fluorescent
92274688  A1 White Fluorescent
92340224  A1 Cool White Fluorescent
92405760  A1 3-band Cool White Fluorescent
92471296  A1 3-band Daylite Fluorescent
92536832  A1 Daylight flourescent
58720256  A1 Tundsten
75497472  A1 Flash
  
```

```

mns2-image-dim         -R--  0003  Image Dimensions
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
Values:
                                0  2048x1536 (Minolta DiMAGE 5 only)
                                0  2560x1920
                                1  1600x1200
                                2  1280x960
                                3  640x480
  
```

```

mns2-image-qual       -R--  0003  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--  0003  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
  
```

EXIFutils Field Reference Guide

```

mns2-meter-mode          -R--  0003  Meter Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Multisegment
                                1  Center-weighted
                                2  Spot

mns2-apex-film-speed     -R--  0003  APEX Film Speed Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-apex-time          -R--  0003  APEX Time Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-apex-aperture      -R--  0003  APEX Aperture Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-macro-mode         -R--  0003  Macro Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
                                1  On

mns2-digital-zoom       -R--  0003  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--  0003  Exposure Compensation
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-bracket-step       -R--  0003  Bracket Step (EV)
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  0.33
                                1  0.66
                                2  1.00

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

mns2-interval-len       -R--  0003  Interval Length (min)
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-interval-num       -R--  0003  Num Interval Frames
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

mns2-focal-len          -R--  0003  Focal Length
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-focus-dist        -R--  0003  Focus Distance (meters)
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-flashFired        -R--  0003  Flash Fired
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

mns2-date              -R--  0003  Date
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-time              -R--  0003  Time
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-max-aper          -R--  0003  Maximum Aperture
  Not Editable
  Values: An integer in the range 0 to 65535

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

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

mns2-file-num-mem      -R--  0003  File Number Memory
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Off
                                1  On

mns2-last-file-num     -R--  0003  Last File Number
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-white-bal-red     -R--  0003  White Balance Red
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-white-bal-green   -R--  0003  White Balance Green
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-white-bal-blue    -R--  0003  White Balance Blue
  Not Editable
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

mns2-saturation          -R--  0003  Saturation
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-Contrast           -R--  0003  Contrast
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-sharpness          -R--  0003  Sharpness
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Hard
                                1  Normal
                                2  Soft

mns2-subj-prog          -R--  0003  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--  0003  Flash Compensation
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-iso-setting         -R--  0003  ISO Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  100
                                1  200
                                2  400
                                3  800
                                4  Auto

mns2-model              -R--  0003  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--  0003  Interval Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Still Image
                                1  Timelapse Movie
  
```

EXIFutils Field Reference Guide

```

mns2-folder-setting      -R--  0003  Folder Name Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Standard Form
                                1  Date Form

mns2-color-mode         -R--  0003  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--  0003  Color Filter
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-bw-filter         -R--  0003  Black and White Filter
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-internal-flash    -R--  0003  Internal Flash Fired
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Not Fired
                                1  Fired

mns2-apex-bright       -R--  0003  APEX Brightness Value
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-spot-focus-x      -R--  0003  Spot Focus X Position
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-spot-focus-y      -R--  0003  Spot Focus Y Position
  Not Editable
  Values: An integer in the range 0 to 65535

mns2-wide-focus-zone   -R--  0003  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

```

EXIFutils Field Reference Guide

```

mns2-focus-mode          -R--  0003  Focus Mode
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  AF
                                1  MF

mns2-focus-area         -R--  0003  AF Focus Area
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Wide Focus
                                1  Spot Focus

mns2-dec-setting         -R--  0003  DEC Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  Exposure
                                1  Contrast
                                2  Saturation
                                3  Filter

mns2-embedded-profile   -R--  0003  Embedded Color Profile
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                0  No
                                1  Yes

mns2-data-imprint       -R--  0003  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#

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

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

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

mns2-0003-39           -R--  0003  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

```

EXIFutils Field Reference Guide

```

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
  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

```

EXIFutils Field Reference Guide

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

EXIFutils Field Reference Guide

2.2.3.5 Nikon Maker Note 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 up to 1999 bytes long (or up to 49 in demo version)

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

```

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	-RW-	000b	Lens Converter
	-----Value-----	Abbrev	--Num- -----Meaning-----
n1-converter			
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		
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)

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-mode        -RW- 0007 Focus Mode
  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-type        -RW- 0009 Flash Type
  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-color-bal         -RW- 000c Color Balance
  Values: 4 positive rational numbers

n3-prog-shift        -RW- 000d Program Shift
  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)

```

EXIFutils Field Reference Guide

```

n3-data-dump          -RW- 0010 Data Dump
  Values: Variable length binary data

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-iso2              -RW- 0013 ISO Setting 2
  Values: 2 integers in the range 0 to 65535

n3-color-bal-a       -RW- 0014 Color Balance A
  Values: 4 integers in the range 0 to 65535

n3-image-boundary    -RW- 0016 Image Boundary
  Values: 4 integers in the range 0 to 65535

n3-flash-exp-comp    -RW- 0017 Field 0x0017
  Values: 4 bytes of binary data

n3-flash-br-comp     -RW- 0018 Flash Bracket Comp.
  Values: Variable length binary data

n3-exp-br-comp       -RW- 0019 Exposure Bracket Comp.
  Values: A positive or negative rational number

n3-image-proc        -RW- 001a Image Processing
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-crop-hi-speed     -RW- 001b Crop High Speed
  Values: 7 integers in the range 0 to 65535

n3-exp-tuning        -RW- 001c Exposure Tuning
  Values: 3 bytes of binary data

n3-serial-num        -RW- 001d Serial Number
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

```

EXIFutils Field Reference Guide

```

n3-color-space          -RW-  001e  Color Space
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: s-rgb         s         1  sRGB
         adobe-rgb      a         2  Adobe RGB

n3-vr-info              -RW-  001f  VR Info
  Values: Any number of integers in the range 0 to 4294967295

n3-image-auth           -RW-  0020  Image Authentication
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off           of         0  Off
         on             on         1  On

n3-active-d-light       -RW-  0022  ActiveD Lighting
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off           o         0  Off
         low            l         1  Low
         normal         n         3  Normal
         high           h         5  High
         extra-high     e         7  Extra High
         auto           a        65535 Auto

n3-pic-control          -RW-  0023  Picture Control
  Values: Any number of integers in the range 0 to 4294967295

n3-world-time           -RW-  0024  World Time
  Values: Any number of integers in the range 0 to 4294967295

n3-iso-info             -RW-  0025  ISO Info
  Values: Any number of integers in the range 0 to 4294967295

n3-vignette-control     -RW-  002a  Vignette Control
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off           o         0  Off
         low            l         1  Low
         normal         n         3  Normal
         high           h         5  High

n3-distort-info         -RW-  002b  Distortion Info
  Values: Any number of integers in the range 0 to 4294967295

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-aux-lens             -RW-  0082  Auxiliary Lens
  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: mf            m         1  MF
         d              d         2  D
         g              g         4  G
         vr             v         8  VR

```

EXIFutils Field Reference Guide

```

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

n3-flash-mode         -RW- 0087  Flash Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: not-fired    n         0  Not Fired
         fired-man     fm         1  Fired, Manual
         not-ready     nr         3  Not Ready
         fired-ext     fe         7  Fired, External
         fired-cmd     fc         8  Fired, Commander Mode
         fired-ttl     ft         9  Fired, TTL Mode

n3-focus-posn        -RW- 0088  AF Focus Position
  Values: 4 bytes of binary data

n3-shoot-mode         -RW- 0089  Shooting Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: contin       c         0  Continuous
         delay         d         1  Delay
         pc-ctrl       p         2  PC Control
         exp-br        e         8  Exposure Bracketing
         auto-iso      a         16 Auto ISO
         wb-br         w         32 WB Bracket
         ir-ctrl       i         64 IR Control

n3-auto-brack-rel    -RW- 008a  Auto Bracket Release
  Values: An integer in the range 0 to 65535

n3-lens-f-stops      -RW- 008b  Lens F/stops
  Values: 4 bytes of binary data

n3-tone-curve        -RW- 008c  Tone Curve
  Values: Variable length binary data

n3-color-hue         -RW- 008d  Color Hue
  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-scene-mode        -RW- 008f  Scene Mode
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

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

n3-shot-info         -RW- 0091  Shot Info
  Values: Variable length binary data

```

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

n3-nef-comp -RW- 0093 NEF Compression

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: lossy1	11	1	Lossy (type 1)
uncomp	un	2	Uncompressed
lossless	11	3	Lossless
lossy2	12	4	Lossy (type 2)

n3-sat-adjust -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)

n3-comp-curve -RW- 0096 Compression Curve
 Values: Variable length binary data

n3-color-bal2 -RW- 0097 Color Balance 2
 Values: Variable length binary data

n3-lens-data -RW- 0098 Lens Data Settings
 Values: Variable length binary data

n3-raw-img-center -RW- 0099 Raw Image Center
 Values: 2 integers in the range 0 to 65535

n3-pixel-size -RW- 009a Sensor Pixel Size
 Values: A positive rational number

n3-009b -RW- 009b Field 0x009b
 Values: An integer in the range 0 to 65535

n3-scene-assist -RW- 009c Scene Assist
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-retouch-history -RW- 009e Retouch History
 Values: 10 integers in the range -32768 to 32767

n3-009f -RW- 009f Field 0x009f
 Values: An integer in the range -32768 to 32767

n3-camera-serial -RW- 00a0 Camera Serial Number
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-image-data-size -RW- 00a2 Image Data Size
 Values: An integer in the range 0 to 65535

n3-00a3 -RW- 00a3 Field 0x00a3
 Values: One byte of binary data

EXIFutils Field Reference Guide

n3-image-count -RW- 00a5 Image Count
 Values: An integer in the range 0 to 65535

n3-del-image-count -RW- 00a6 Delete Image Count
 Values: An integer in the range 0 to 65535

n3-shutter-count -RW- 00a7 Shutter Count
 Values: An integer in the range 0 to 65535

n3-flash-info -RW- 00a8 Flash Info
 Values: Variable length binary data

n3-image-optim -RW- 00a9 Image Optimization
 Values: Text string 15 bytes long

n3-saturation -RW- 00aa Saturation
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-prog-var -RW- 00ab Program Variation
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-stabilization -RW- 00ac Image Stabilization
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-af-response -RW- 00ad AF Response
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-multi-exp -RW- 00b0 Multi Exposure
 Values: An integer in the range 0 to 65535

n3-hi-iso-noise -RW- 00b1 High ISO Noise Reduction

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	o	0	Off
min	m	1	Minimal
low	l	2	Low
norm	n	4	Normal
high	h	6	High

n3-toning-effect -RW- 00b3 Toning Effect
 Values: An integer in the range 0 to 65535

n3-power-up-time -RW- 00b6 Power Up Time
 Values: An integer in the range 0 to 65535

n3-af-info2 -RW- 00b7 AF Info 2
 Values: An integer in the range 0 to 65535

n3-file-info -RW- 00b8 File Info
 Values: An integer in the range 0 to 65535

n3-af-tune -RW- 00b9 AF Tune
 Values: An integer in the range 0 to 65535

n3-picture-ctrl -RW- 00bd Picture Control
 Values: An integer in the range 0 to 65535

EXIFutils Field Reference Guide

n3-print-im -RW- 0e00 Print Image Matching
 Values: Variable length binary data

n3-capture-data -RW- 0e01 Capture Data
 Values: Variable length binary data

n3-capture-ver -RW- 0e09 Capture Version
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

n3-icc-profile -RW- 0e1d ICC Profile
 Values: One byte of binary data

n3-capture-output -RW- 0e1e Capture Output
 Values: An integer in the range 0 to 65535

n3-nef-bit-depth -RW- 0e22 NEF Bit Depth
 Values: 4 integers in the range 0 to 65535

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

2.2.3.5.1 Nikon Maker Note Preview Fields

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
np-compress                -RW-  0103  Compression
  Values: An integer in the range 0 to 65535

np-x-res                   -RW-  011a  X Resolution
  Values: An integer in the range 0 to 65535

np-y-res                   -RW-  011b  Y Resolution
  Values: An integer in the range 0 to 65535

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

np-preview-start           -RW-  0201  Preview Image Start
  Values: An integer in the range 0 to 65535

np-preview-len            -RW-  0202  Preview Image Length
  Values: An integer in the range 0 to 65535

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

```

EXIFutils Field Reference Guide

2.2.3.6 Olympus Maker Note 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

olc25001-spec-mode         -RW-  0200  Special Mode
  Values: 3 integers in the range 0 to 4294967295

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

```

EXIFutils Field Reference Guide

```

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

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

```

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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

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

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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

ol-maker-note-vsn -RW- 0000 Maker Note Version
Values: Variable length binary data

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

ol-prev-image-data -RW- 0081 Preview Image Data
Values: An integer in the range 0 to 65535

ol-prev-image-start -RW- 0088 Preview Image Start
Values: An integer in the range 0 to 65535

ol-prev-image-len -RW- 0089 Preview Image Length
Values: An integer in the range 0 to 65535

ol-thumb-image -RW- 0100 Thumbnail Image
Values: Variable length binary data

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ol-body-firm-vsn -RW- 0104 Body Firmware Version
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol-mode -RW- 0200 Picture Taking Mode
 Values: 3 integers in the range 0 to 4294967295

ol-quality -RW- 0201 Image Quality
 Values: An integer in the range 0 to 65535

ol2-macro -RW- 0202 Macro Mode
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: normal n 0 Normal
 macro m 1 Macro
 super s 2 Super Macro

ol2-bw-mode -RW- 0203 B&W Mode
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: off off 0 Off
 on on 1 On

ol2-zoom-ratio -RW- 0204 Digital Zoom Ratio
 Values: A positive rational number

ol2-focal-plane -RW- 0205 Focal Plane Diagonal
 Values: A positive rational number

ol2-distortion -RW- 0206 Lens Distortion Params
 Values: 6 integers in the range -32768 to 32767

ol2-camera-type -RW- 0207 Camera Type
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol2-text-info -RW- 0208 Text Info
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol2-camera-id -RW- 0209 Camera Id
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol2-epson-img-width -RW- 020b Epson Image Width
 Values: An integer in the range 0 to 65535

ol2-epson-img-height -RW- 020c Epson Image Height
 Values: An integer in the range 0 to 65535

ol2-epson-software -RW- 020d Epson Software
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol2-prev-image -RW- 0280 Preview Image
 Values: Variable length binary data

ol2-precap-frames -RW- 0300 Pre-Capture Frames
 Values: An integer in the range 0 to 65535

ol2-whiteboard -RW- 0301 White Board
 Values: An integer in the range 0 to 65535

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ol2-one-touch-wb -RW- 0302 One-Touch WB
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: off off 0 Off
 on on 1 On
 on-pre onp 2 On (Preset)

ol2-wb-bal-bracket -RW- 0303 WB Balance Bracket
 Values: An integer in the range 0 to 65535

ol2-wb-bal-bias -RW- 0304 WB Balance Bias
 Values: An integer in the range 0 to 65535

ol2-scene-mode -RW- 0403 Scene Mode
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: normal norm 0 Normal
 standard std 1 Standard
 auto auto 2 Auto
 portrait port 4 Portrait
 land-port lanpt 5 Landscape+Portrait
 landscape land 6 Landscape
 night-scene nite 7 Night Scene
 night-port ntpt 8 Night+Portrait
 sport sport 9 Sport
 self-port self 10 Self Portrait
 indoor ind 11 Indoor
 beach-snow bchsn 12 Beach & Snow
 beach beach 13 Beach
 snow snow 14 Snow
 self-port-timer slftm 15 Self Portrait+Self Timer
 sunset sunst 16 Sunset
 cuisine cuis 17 Cuisine
 document doc 18 Documents
 candle cand 19 Candle
 fireworks fire 20 Fireworks
 avail-light avail 21 Available Light
 vivid viv 22 Vivid
 uwater-wide1 uwide 23 Underwater Wide1
 uwater-macro umac 24 Underwater Macro
 museum musm 25 Museum
 behind-glass glass 26 Behind Glass
 auction auct 27 Auction
 shoot-sel1 sell 28 Shoot & Select1
 shoot-sel2 sel2 29 Shoot & Select2
 undwat-wide2 uwtr2 30 Underwater Wide2
 digi-stab digst 31 Digital Image Stabilization
 face-portrait face 32 Face Portrait
 pet pet 33 Pet
 smile-shot smile 34 Smile Shot

ol2-serial-num -RW- 0404 Serial Number
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol2-firmware -RW- 0405 Firmware
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol2-print-im -RW- 0e00 Print IM
 Values: Variable length binary data

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```

ol2-data-dump          -RW-  0f00  Data Dump
  Values: Any number of integers in the range 0 to 4294967295

ol2-data-dump2        -RW-  0f01  Data Dump 2
  Values: Any number of integers in the range 0 to 4294967295

ol2-shutter-speed     -RW-  1000  Shutter Speed
  Values: A positive or negative rational number

ol2-iso                -RW-  1001  ISO
  Values: A positive or negative rational number

ol2-aperture          -RW-  1002  Aperture
  Values: A positive or negative rational number

ol2-bright            -RW-  1003  Brightness
  Values: A positive or negative rational number

ol2-flash-mode        -RW-  1004  Flash Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: on           on      2    On
         off          off      3    Off

ol2-flash-dev         -RW-  1005  Flash Device
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none        n      0    None
         int         i      1    Internal
         ext         e      4    External
         int-ext     ie     5    Internal & External

ol2-exp-comp          -RW-  1006  Exposure Compensation
  Values: A positive or negative rational number

ol2-sensor-temp       -RW-  1007  Sensor Temperature
  Values: An integer in the range -32768 to 32767

ol2-lens-temp         -RW-  1008  Lens Temperature
  Values: An integer in the range -32768 to 32767

ol2-light-cond        -RW-  1009  Light Condition
  Values: An integer in the range 0 to 65535

ol2-focus-range       -RW-  100a  Focus Range
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n      0    Normal
         macro       m      1    Macro

ol2-focus-mode        -RW-  100b  Focus Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto        a      0    Auto
         manual      m      1    Manual

ol2-man-focus-dist    -RW-  100c  Manual Focus Distance
  Values: A positive rational number
  
```

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o12-zoom-step -RW- 100d Zoom Step Count
 Values: An integer in the range 0 to 65535

o12-focus-step -RW- 100e Focus Step Count
 Values: An integer in the range 0 to 65535

o12-sharpness -RW- 100f Sharpness
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: normal n 0 Normal
 hard h 1 Hard
 soft s 1 Soft

o12-flash-charge -RW- 1010 Flash Sharge Level
 Values: An integer in the range 0 to 65535

o12-color-matrix -RW- 1011 Color Matrix
 Values: 9 integers in the range 0 to 65535

o12-black-level -RW- 1012 Black Level
 Values: 4 integers in the range 0 to 65535

o12-color-temp-bg -RW- 1013 Color Temperature BG
 Values: An integer in the range 0 to 65535

o12-color-temp-rg -RW- 1014 Color Temperature RB
 Values: An integer in the range 0 to 65535

o12-wb-mode -RW- 1015 WB Mode
 Values: 2 integers in the range 0 to 65535

o12-1016 -RW- 1016 Field 0x1016
 Values: An integer in the range 0 to 65535

o12-red-bal -RW- 1017 Red Balance
 Values: 2 integers in the range 0 to 65535

o12-blue-bal -RW- 1018 Blue Balance
 Values: 2 integers in the range 0 to 65535

o12-color-matrix -RW- 1019 Color Matrix Number
 Values: Any number of integers in the range 0 to 65535

o12-serial-num -RW- 101a Serial Number
 Values: Text string up to 1999 bytes long (or up to 49 in demo version)

o12-ext-flash-ae10 -RW- 101b External Flash AE10?
 Values: An integer in the range 0 to 65535

o12-ext-flash-ae20 -RW- 101c External Flash AE20?
 Values: An integer in the range 0 to 65535

o12-int-flash-ae10 -RW- 101d Internal Flash AE10?
 Values: An integer in the range 0 to 65535

o12-int-flash-ae20 -RW- 101e Internal Flash AE20?
 Values: An integer in the range 0 to 65535

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```

ol2-ext-flash-ae1      -RW-  101f  External Flash AE1?
  Values: An integer in the range 0 to 65535

ol2-ext-flash-ae2      -RW-  1020  External Flash AE2?
  Values: An integer in the range 0 to 65535

ol2-int-flash-ae1      -RW-  1021  Internal Flash AE1?
  Values: An integer in the range 0 to 65535

ol2-int-flash-ae2      -RW-  1022  Internal Flash AE2?
  Values: An integer in the range 0 to 65535

ol2-flash-exp-comp     -RW-  1023  Flash Exposur Comp.
  Values: A positive or negative rational number

ol2-int-flash-tbl      -RW-  1024  Internal Flash Table
  Values: An integer in the range 0 to 65535

ol2-ext-flash-gv       -RW-  1025  External Flash GValue
  Values: A positive or negative rational number

ol2-ext-flash-bounce   -RW-  1026  External Flash Bounce
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: no           n         0   No
         yes          y         1   Yes

ol2-ext-flash-zoom     -RW-  1027  External Flash Zoom
  Values: An integer in the range 0 to 65535

ol2-ext-flash-mode     -RW-  1028  External Flash Mode
  Values: An integer in the range 0 to 65535

ol2-contrast          -RW-  1029  Contrast
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: high         h         0   High
         normal       n         1   Normal
         low          l         2   Low

ol2-sharp-factor       -RW-  102a  Sharpness Factor
  Values: An integer in the range 0 to 65535

ol2-color-control      -RW-  102b  Color Control
  Values: 6 integers in the range 0 to 65535

ol2-valid-bits        -RW-  102c  Valid Bits
  Values: 2 integers in the range 0 to 65535

ol2-coring-filter     -RW-  102d  Coring Filter
  Values: An integer in the range 0 to 65535

ol2-image-width       -RW-  102e  Image Width
  Values: An integer in the range 0 to 65535

ol2-image-height      -RW-  102f  Image Height
  Values: An integer in the range 0 to 65535

```

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ol2-scene-detect -RW- 1030 Scene Detect
 Values: An integer in the range 0 to 65535

ol2-scene-area -RW- 1031 Scene Area
 Values: 8 integers in the range 0 to 4294967295

ol2-scene-data -RW- 1033 Scene Data
 Values: Any number of integers in the range 0 to 4294967295

ol2-comp-ratio -RW- 1034 Compression Ratio
 Values: A positive rational number

ol2-prev-img-valid -RW- 1035 Preview Image Valid
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: no n 0 No
 yes y 1 Yes

ol2-prev-img-start -RW- 1036 Preview Image Start
 Values: An integer in the range 0 to 65535

ol2-prev-img-len -RW- 1037 Preview Image Length
 Values: An integer in the range 0 to 65535

ol2-af-result -RW- 1038 AF Result
 Values: An integer in the range 0 to 65535

ol2-ccd-scan-mode -RW- 1039 CCD Scan Mode
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: inter i 0 Interlaced
 prog p 1 Progressive

ol2-noise-reduct -RW- 103a Noise Reduction
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: off off 0 Off
 on on 1 On

ol2-inf-lens-step -RW- 103b Infinity Lens Step
 Values: An integer in the range 0 to 65535

ol2-near-lens-step -RW- 103c Near Lens Step
 Values: An integer in the range 0 to 65535

ol2-light-val-center -RW- 103d Light Value Center
 Values: A positive rational number

ol2-light-val-peri -RW- 103e Light Value Periphery
 Values: A positive rational number

ol2-field-count -RW- 103f Field Count
 Values: An integer in the range 0 to 65535

ol2-equip-ifd -RW- 2010 Equipment IFD
 Values: An integer in the range 0 to 65535

ol2-camera-ifd -RW- 2020 Camera Settings
 Values: An integer in the range 0 to 65535

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```

o12-raw-devel          -RW-  2030  Raw Development
  Values: An integer in the range 0 to 65535

o12-raw-devel2        -RW-  2031  Raw Development 2
  Values: An integer in the range 0 to 65535

o12-image-proc        -RW-  2040  Image Processing
  Values: An integer in the range 0 to 65535

o12-focus-info        -RW-  2050  Focus Info
  Values: An integer in the range 0 to 65535

o13-maker-note-vsn    -RW-   0000  Maker Note Version
  Values: Variable length binary data

o13-comp-image-size    -RW-   0040  Compressed Image Size
  Values: An integer in the range 0 to 65535

o13-prev-image-data    -RW-   0081  Preview Image Data
  Values: An integer in the range 0 to 65535

o13-prev-image-start  -RW-   0088  Preview Image Start
  Values: An integer in the range 0 to 65535

o13-prev-image-len    -RW-   0089  Preview Image Length
  Values: An integer in the range 0 to 65535

o13-thumb-image       -RW-   0100  Thumbnail Image
  Values: Variable length binary data

o13-body-firm-vsn     -RW-   0104  Body Firmware Version
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

o13-mode              -RW-   0200  Picture Taking Mode
  Values: 3 integers in the range 0 to 4294967295

o13-quality           -RW-   0201  Image Quality
  Values: An integer in the range 0 to 65535

o13-macro             -RW-   0202  Macro Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n         0   Normal
         macro       m         1   Macro
         super       s         2   Super Macro

o13-bw-mode           -RW-   0203  B&W Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off         off        0   Off
         on          on         1   On

o13-zoom-ratio        -RW-   0204  Digital Zoom Ratio
  Values: A positive rational number

o13-focal-plane       -RW-   0205  Focal Plane Diagonal
  Values: A positive rational number

```

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```

ol3-distortion          -RW-  0206  Lens Distortion Params
  Values: 6 integers in the range -32768 to 32767

ol3-camera-type        -RW-  0207  Camera Type
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol3-text-info          -RW-  0208  Text Info
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol3-camera-id          -RW-  0209  Camera Id
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol3-epson-img-width    -RW-  020b  Epson Image Width
  Values: An integer in the range 0 to 65535

ol3-epson-img-height   -RW-  020c  Epson Image Height
  Values: An integer in the range 0 to 65535

ol3-epson-software     -RW-  020d  Epson Software
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol3-prev-image         -RW-  0280  Preview Image
  Values: Variable length binary data

ol3-precap-frames      -RW-  0300  Pre-Capture Frames
  Values: An integer in the range 0 to 65535

ol3-whiteboard         -RW-  0301  White Board
  Values: An integer in the range 0 to 65535

ol3-one-touch-wb       -RW-  0302  One-Touch WB
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off           off      0  Off
         on            on       1  On
         on-pre        onp      2  On (Preset)

ol3-wb-bal-bracket     -RW-  0303  WB Balance Bracket
  Values: An integer in the range 0 to 65535

ol3-wb-bal-bias        -RW-  0304  WB Balance Bias
  Values: An integer in the range 0 to 65535

```

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```

ol3-scene-mode          -RW-  0403  Scene Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: normal         norm    0   Normal
        standard       std     1   Standard
        auto           auto   2   Auto
        portrait       port   4   Portrait
        land-port      lanpt  5   Landscape+Portrait
        landscape      land   6   Landscape
        night-scene    nite   7   Night Scene
        night-port     ntpt   8   Night+Portrait
        sport          sport  9   Sport
        self-port      self  10  Self Portrait
        indoor         ind    11  Indoor
        beach-snow     bchsn 12  Beach & Snow
        beach          beach  13  Beach
        snow           snow   14  Snow
        self-port-timer slftm  15  Self Portrait+Self Timer
        sunset         sunst  16  Sunset
        cuisine        cuis   17  Cuisine
        document       doc    18  Documents
        candle         cand   19  Candle
        fireworks      fire   20  Fireworks
        avail-light    avail  21  Available Light
        vivid          viv    22  Vivid
        uwater-wide1   uwide  23  Underwater Wide1
        uwater-macro   umac   24  Underwater Macro
        museum         musm   25  Museum
        behind-glass   glass  26  Behind Glass
        auction        auct   27  Auction
        shoot-sel1     sel1   28  Shoot & Select1
        shoot-sel2     sel2   29  Shoot & Select2
        undwat-wide2   uwtr2  30  Underwater Wide2
        digi-stab      digst  31  Digital Image Stabilization
        face-portrait  face   32  Face Portrait
        pet            pet    33  Pet
        smile-shot     smile  34  Smile Shot

ol3-serial-num         -RW-  0404  Serial Number
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol3-firmware           -RW-  0405  Firmware
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol3-print-im           -RW-  0e00  Print IM
  Values: Variable length binary data

ol3-data-dump          -RW-  0f00  Data Dump
  Values: Any number of integers in the range 0 to 4294967295

ol3-data-dump2         -RW-  0f01  Data Dump 2
  Values: Any number of integers in the range 0 to 4294967295

ol3-shutter-speed      -RW-  1000  Shutter Speed
  Values: A positive or negative rational number

```

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```

ol3-iso                -RW- 1001 ISO
  Values: A positive or negative rational number

ol3-aperture           -RW- 1002 Aperture
  Values: A positive or negative rational number

ol3-bright             -RW- 1003 Brightness
  Values: A positive or negative rational number

ol3-flash-mode         -RW- 1004 Flash Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: on           on      2    On
         off          off      3    Off

ol3-flash-dev         -RW- 1005 Flash Device
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none        n       0    None
         int         i       1    Internal
         ext         e       4    External
         int-ext     ie      5    Internal & External

ol3-exp-comp          -RW- 1006 Exposure Compensation
  Values: A positive or negative rational number

ol3-sensor-temp       -RW- 1007 Sensor Temperature
  Values: An integer in the range -32768 to 32767

ol3-lens-temp         -RW- 1008 Lens Temperature
  Values: An integer in the range -32768 to 32767

ol3-light-cond        -RW- 1009 Light Condition
  Values: An integer in the range 0 to 65535

ol3-focus-range       -RW- 100a Focus Range
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n       0    Normal
         macro       m       1    Macro

ol3-focus-mode        -RW- 100b Focus Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto        a       0    Auto
         manual      m       1    Manual

ol3-man-focus-dist    -RW- 100c Manual Focus Distance
  Values: A positive rational number

ol3-zoom-step         -RW- 100d Zoom Step Count
  Values: An integer in the range 0 to 65535

ol3-focus-step        -RW- 100e Focus Step Count
  Values: An integer in the range 0 to 65535

ol3-sharpness         -RW- 100f Sharpness
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal      n       0    Normal
         hard        h       1    Hard
         soft        s       1    Soft
  
```

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ol3-flash-charge -RW- 1010 Flash Sharge Level
Values: An integer in the range 0 to 65535

ol3-color-matrix -RW- 1011 Color Matrix
Values: 9 integers in the range 0 to 65535

ol3-black-level -RW- 1012 Black Level
Values: 4 integers in the range 0 to 65535

ol3-color-temp-bg -RW- 1013 Color Temperature BG
Values: An integer in the range 0 to 65535

ol3-color-temp-rg -RW- 1014 Color Temperature RB
Values: An integer in the range 0 to 65535

ol3-wb-mode -RW- 1015 WB Mode
Values: 2 integers in the range 0 to 65535

ol3-1016 -RW- 1016 Field 0x1016
Values: An integer in the range 0 to 65535

ol3-red-bal -RW- 1017 Red Balance
Values: 2 integers in the range 0 to 65535

ol3-blue-bal -RW- 1018 Blue Balance
Values: 2 integers in the range 0 to 65535

ol3-color-matrix -RW- 1019 Color Matrix Number
Values: Any number of integers in the range 0 to 65535

ol3-serial-num -RW- 101a Serial Number
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ol3-ext-flash-ae10 -RW- 101b External Flash AE10?
Values: An integer in the range 0 to 65535

ol3-ext-flash-ae20 -RW- 101c External Flash AE20?
Values: An integer in the range 0 to 65535

ol3-int-flash-ae10 -RW- 101d Internal Flash AE10?
Values: An integer in the range 0 to 65535

ol3-int-flash-ae20 -RW- 101e Internal Flash AE20?
Values: An integer in the range 0 to 65535

ol3-ext-flash-ae1 -RW- 101f External Flash AE1?
Values: An integer in the range 0 to 65535

ol3-ext-flash-ae2 -RW- 1020 External Flash AE2?
Values: An integer in the range 0 to 65535

ol3-int-flash-ae1 -RW- 1021 Internal Flash AE1?
Values: An integer in the range 0 to 65535

ol3-int-flash-ae2 -RW- 1022 Internal Flash AE2?
Values: An integer in the range 0 to 65535

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```

ol3-flash-exp-comp      -RW- 1023  Flash Exposur Comp.
  Values: A positive or negative rational number

ol3-int-flash-tbl      -RW- 1024  Internal Flash Table
  Values: An integer in the range 0 to 65535

ol3-ext-flash-gv       -RW- 1025  External Flash GValue
  Values: A positive or negative rational number

ol3-ext-flash-bounce   -RW- 1026  External Flash Bounce
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: no           n           0   No
         yes          y           1   Yes

ol3-ext-flash-zoom     -RW- 1027  External Flash Zoom
  Values: An integer in the range 0 to 65535

ol3-ext-flash-mode     -RW- 1028  External Flash Mode
  Values: An integer in the range 0 to 65535

ol3-contrast          -RW- 1029  Contrast
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: high         h           0   High
         normal       n           1   Normal
         low          l           2   Low

ol3-sharp-factor       -RW- 102a  Sharpness Factor
  Values: An integer in the range 0 to 65535

ol3-color-control      -RW- 102b  Color Control
  Values: 6 integers in the range 0 to 65535

ol3-valid-bits        -RW- 102c  Valid Bits
  Values: 2 integers in the range 0 to 65535

ol3-coring-filter      -RW- 102d  Coring Filter
  Values: An integer in the range 0 to 65535

ol3-image-width       -RW- 102e  Image Width
  Values: An integer in the range 0 to 65535

ol3-image-height      -RW- 102f  Image Height
  Values: An integer in the range 0 to 65535

ol3-scene-detect       -RW- 1030  Scene Detect
  Values: An integer in the range 0 to 65535

ol3-scene-area        -RW- 1031  Scene Area
  Values: 8 integers in the range 0 to 4294967295

ol3-scene-data        -RW- 1033  Scene Data
  Values: Any number of integers in the range 0 to 4294967295

ol3-comp-ratio        -RW- 1034  Compression Ratio
  Values: A positive rational number
  
```

EXIFutils Field Reference Guide

```

ol3-prev-img-valid      -RW-  1035  Preview Image Valid
  -----Value----- Abbrev --Num- -----Meaning-----
Values: no              n      0    No
       yes             y      1    Yes

ol3-prev-img-start     -RW-  1036  Preview Image Start
Values: An integer in the range 0 to 65535

ol3-prev-img-len       -RW-  1037  Preview Image Length
Values: An integer in the range 0 to 65535

ol3-af-result          -RW-  1038  AF Result
Values: An integer in the range 0 to 65535

ol3-ccd-scan-mode      -RW-  1039  CCD Scan Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: inter          i      0    Interlaced
       prog           p      1    Progressive

ol3-noise-reduct       -RW-  103a  Noise Reduction
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off            off    0    Off
       on             on     1    On

ol3-inf-lens-step      -RW-  103b  Infinity Lens Step
Values: An integer in the range 0 to 65535

ol3-near-lens-step     -RW-  103c  Near Lens Step
Values: An integer in the range 0 to 65535

ol3-light-val-center   -RW-  103d  Light Value Center
Values: A positive rational number

ol3-light-val-peri     -RW-  103e  Light Value Periphery
Values: A positive rational number

ol3-field-count        -RW-  103f  Field Count
Values: An integer in the range 0 to 65535

```

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2.2.3.7 Panasonic Maker Note Fields

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
pn-quality                 -RW-  0001  Image Quality
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: high            h      2   High
          standard        s      3   Normal
          very-high       vh     6   Very High
          raw              r      7   Raw
          motion          m      9   Motion Picture

pn-firmware-ver           -RW-  0002  Firmware Version
  Values: Variable length 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
          tungsten        h      4   Tungsten
          manual1         m1     5   Manual
          flash          f      8   Flash
          bw              bw     10  Black & White
          manual2         m2     11  Manual
          shade          s      12  Shade

pn-focus-mode             -RW-  0007  Focus Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: auto            a      1   Auto
          manual          m      2   Manual
          auto-focus      af     4   Auto, Focus Button
          auto-cont       ac     5   Auto, Continuous

pn-spot-mode              -RW-  000f  Spot Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: 9-area          9a     ... 9-Area
          3-area-hi       3ah    ... 3-Area (High Speed)
          spot            sp     ... Spot Focusing
          5-area          5a     ... 5-Area
          1-area          1a     ... 1-Area
          1-area-hi       lah    ... 1-Area (High Speed)
          auto-face       af     ... Auto or Face Detect
          3-area-l        3al    ... 3-Area (Left)
          3-area-c        3ac    ... 3-Area (Center)
          3-area-r        2ar    ... 3-Area (Right)
          face            fa     ... Face Detect

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

```

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pn-macro-mode	-RW-	001c	Macro Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: on	on	1	On
off	off	2	Off
tele-macro	tm	257	Tele-Macro
macro-zoom	mz	513	Macro-Zoom
pn-shoot-mode	-RW-	001f	Shooting Mode
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	of	0	Off
normal	nm	1	Normal
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
macro	mc	9	Macro
spot	st	10	Spot
manual	mn	11	Manual
movie	mv	12	Movie Preview
panning	pn	13	Panning
simple	si	14	Simple
color-effect	ce	15	Color Effects
self-portrait	sp	16	Self Portrait
economy	ec	17	Economy
fireworks	fw	18	Fireworks
party	py	19	Party
snow	sn	20	Snow
night-scene	ns	21	Night Scenery
food	fd	22	Food
baby	bb	23	Baby
soft-skin	ss	24	Soft Skin
candle	cd	25	Candlelight
starry	st	26	Starry Night
high-sens	hs	27	High Sensitivity
panorama	pa	28	Panorama Assist
underwater	uw	29	Underwater
beach	bc	30	Beach
aerial	ae	31	Aerial Photo
sunset	su	32	Sunset
pet	pt	33	Pet
intelli-iso	ii	34	Intelligent ISO
clipboard	cb	35	Clipboard
hi-speed-cont	hc	36	High Speed Continuous Shooting
intelli-auto	ia	37	Intelligent Auto
multi-aspect	ma	39	Multi-Aspect
transform	tr	41	Transform
flash-burst	fb	42	Flash Burst
pin-hole	ph	43	Pin Hole
film grain	fg	44	Film Grain
my-color	mc	45	My Color
photo-frame	pf	46	Photo Frame
hdr	hd	51	HDR

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```

pn-audio                -RW-  0020  Audio Clip
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: yes           y         1   Yes
         no            n         2   No

pn-data-dump           -RW-  0021  Data Dump
  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-int-serial-num      -RW-  0025  Internal Serial No.
  Values: 16 bytes of binary data

pn-exif-ver            -RW-  0026  EXIF Version
  Values: 4 bytes of binary data

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-time-since-on       -RW-  0029  Time Since Power On
  Values: An integer in the range 0 to 65535

pn-burst-mode          -RW-  002a  Burst Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off           off        0   Off
         on            on         1   On
         infinite      inf        2   Infinite
         unlimited     unl        4   Unlimited

pn-seq-number          -RW-  002b  Sequence Number
  Values: An integer in the range 0 to 65535

pn-contrast            -RW-  002c  Contrast
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: standard      s          0   Standard
         low1          l1         1   Low
         high1         h1         2   High
         lowest        lt         3   Lowest
         highest       ht         4   Highest
         med-low       mh         6   Medium Low
         med-high      ml         7   Medium High
         low2          l2         256  Low
         normal        n          272  Normal
         high2         h2         288  High
  
```

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```

pn-noise-reduct      -RW-  002d  Noise Reduction
  -----Value----- Abbrev --Num- -----Meaning-----
Values: standard    s         0  Standard
       low1         l1         1  Low
       high1        h1         2  High
       lowest       lt         3  Lowest
       highest      ht         4  Highest
       med-low      mh         6  Medium Low
       med-high     ml         7  Medium High
       low2         l2         256 Low
       normal       n          272 Normal
       high2       h2         288 High

pn-self-timer       -RW-  002e  Self Timer
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off         off         1  Off
       10-sec      10s        2  10 seconds
       2-sec       2s         3  2 seconds

pn-rotation         -RW-  0030  Rotation
  -----Value----- Abbrev --Num- -----Meaning-----
Values: horiz       h           1  Horizontal
       rot-180     r180       3  Rotate 180
       rot-90-cw   cw          6  Rotate 90 CW
       rot-90-ccw  ccw         8  Rotate 90 CCW

pn-af-assist-lamp  -RW-  0031  AF Assist Lamp
  -----Value----- Abbrev --Num- -----Meaning-----
Values: Fired       f           1  Fired
       enabled     e           2  Enabled but Not Used
       disab-req   dr          3  Disabled but Required
       disab-not   dn          4  Disabled and Not Required

pn-color-mode      -RW-  0032  Color Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: normal      nm           0  Normal
       natural     na           1  Natural
       vivid       vv           2  Vivid

pn-baby-age        -RW-  0033  Baby (or Pet) Age
Values: An integer in the range 0 to 65535

pn-opt-zoom-mode   -RW-  0034  Optical Zoom Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: standard    s           1  Standard
       extended    e           2  Extended

pn-conv-lens       -RW-  0035  Conversion Lens
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off         o           1  Off
       wide        w           2  Wide
       tele        t           3  Telephoto
       macro       m           4  Macro

pn-travel-day      -RW-  0036  Travel Day
Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

pn-contrast                -RW- 0039 Contrast
  Values: An integer in the range 0 to 65535

pn-world-time-loc          -RW- 003a World Time Location
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: home             h           1 Home
         dest             d           2 Destination

pn-text-stamp1             -RW- 003b Text Stamp 1
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off              off          1 Off
         on               on           2 On

pn-prog-iso                -RW- 003c Program ISO
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: int-iso          ii          65534 Intelligent ISO
         na                na          65535 N/A

pn-adv-scene-mode          -RW- 003d Advanced Scene Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: normal           n           1 Normal
         outdoor           o           2 Outdoor/Illuminations/Flower/HDR Art
         indoor            i           3 Indoor/Architecture/Objects/HDR B&W
         creative          c           4 Creative
         auto              a           5 Auto
         expressive         ex          7 Expressive
         retro             r           8 Retro
         pure              p           9 Pure
         elegant           el          10 Elegant
         monochrome        m           12 Monochrome
         dynamic           d           13 Dynamic Art
         silhouette        s           14 Silhouette

pn-text-stamp2             -RW- 003e Text Stamp 2
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off              off          1 Off
         on               on           2 On

pn-face-detected           -RW- 003f Face Detected
  Values: An integer in the range 0 to 65535

pn-saturation              -RW- 0040 Saturation
  Values: An integer in the range 0 to 65535

pn-sharpness               -RW- 0041 Sharpness
  Values: An integer in the range 0 to 65535

```

EXIFutils Field Reference Guide

```

pn-film-mode          -RW-  0042  Film Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: std-color    sdc      1  Standard (color)
       dyn-color     dc       2  Dynamic (color)
       nat-color     nc       3  Nature (color)
       smt-color     sm       4  Smooth (color)
       std-bw       sdbw     5  Standard (B&W)
       dyn-bw       dbw      6  Dynamic (B&W)
       smt-bw       dmbw     7  Smooth (B&W)
       nostalgic    n        10 Nostalgic
       vibrant      v        11 Vibrant

pn-wb-adj-ab         -RW-  0046  White Bal Adjust AB
Values: An integer in the range 0 to 65535

pn-wb-adj-gm         -RW-  0047  White Bal Adjust GM
Values: An integer in the range 0 to 65535

pn-image-width       -RW-  004b  Image Width
Values: An integer in the range 0 to 65535

pn-image-height      -RW-  004c  Image Height
Values: 2 integers in the range 0 to 65535

pn-af-point-posn    -RW-  004d  AF Point Position
Values: 2 positive rational numbers

pn-face-detection    -RW-  004e  Face Detection
Values: An integer in the range 0 to 65535

pn-lens-type         -RW-  0051  Lens Type
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

pn-lens-ser-no       -RW-  0052  Lens Serial Number
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

pn-accessory-type    -RW-  0053  Accessory Type
Values: Text string up to 1999 bytes long (or up to 49 in demo version)

pn-transform         -RW-  0059  Transform
Values: 4 bytes of binary data

pn-intell-exp        -RW-  005d  Intelligent Exposure
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off          o        0  Off
       low           l        1  Low
       standard     s        2  Standard
       high         h        3  High

pn-face-rec-info     -RW-  004e  Face Recog. Info
Values: Any number of integers in the range 0 to 4294967295

pn-flash-warn        -RW-  0062  Flash Warning
  -----Value----- Abbrev --Num- -----Meaning-----
Values: no          n        0  No
       yes         y        1  Yes

```

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pn-face-rec-flags -RW- 0063 Flash Recog. Flags
 Values: 4 bytes of binary data

pn-print-im -RW- 0e00 Print IM
 Values: Any number of integers in the range 0 to 4294967295

pn-maker-note-ver -RW- 8000 Maker Note Version
 Values: Variable length binary data

pn-scene-mode -RW- 8001 Scene Mode

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	of	0	Off
normal	nm	1	Normal
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
macro	mc	9	Macro
spot	st	10	Spot
manual	mn	11	Manual
movie	mv	12	Movie Preview
panning	pn	13	Panning
simple	si	14	Simple
color-effect	ce	15	Color Effects
self-portrait	sp	16	Self Portrait
economy	ec	17	Economy
fireworks	fw	18	Fireworks
party	py	19	Party
snow	sn	20	Snow
night-scene	ns	21	Night Scenery
food	fd	22	Food
baby	bb	23	Baby
soft-skin	ss	24	Soft Skin
candle	cd	25	Candlelight
starry	st	26	Starry Night
high-sens	hs	27	High Sensitivity
panorama	pa	28	Panorama Assist
underwater	uw	29	Underwater
beach	bc	30	Beach
aerial	ae	31	Aerial Photo
sunset	su	32	Sunset
pet	pt	33	Pet
intelli-iso	ii	34	Intelligent ISO
clipboard	cb	35	Clipboard
hi-speed-cont	hc	36	High Speed Continuous Shooting
intelli-auto	ia	37	Intelligent Auto
multi-aspect	ma	39	Multi-Aspect
transform	tr	41	Transform
flash-burst	fb	42	Flash Burst
pin-hole	ph	43	Pin Hole
film grain	fg	44	Film Grain
my-color	mc	45	My Color
photo-frame	pf	46	Photo Frame
hdr	hd	51	HDR

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pn-wb-red-level -RW- 8004 White Bal. Red Level
 Values: An integer in the range 0 to 65535

pn-wb-green-level -RW- 8005 White Bal. Grren Level
 Values: An integer in the range 0 to 65535

pn-wb-blue-level -RW- 8006 White Bal. Blue Level
 Values: An integer in the range 0 to 65535

pn-flash-fired -RW- 8007 Flash Fired

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: no	n	1	No
yes	y	2	Yes

pn-text-stamp1 -RW- 8008 Text Stamp 1

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	off	1	Off
on	on	2	On

pn-text-stamp2 -RW- 8009 Text Stamp 2

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: off	off	1	Off
on	on	2	On

pn-baby-age2 -RW- 8010 Baby (or Pet) Age 2
 Values: An integer in the range 0 to 65535

pn-baby-age2 -RW- 8012 Baby (or Pet) Age 2
 Values: An integer in the range 0 to 65535

pn-transform2 -RW- 8012 Transform 2
 Values: 4 bytes of binary data

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2.2.3.8 Pentax Maker Note 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
text	t	18	Text

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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-EyeZoom 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
pentax24	p24	...	smc PENTAX F 28mm F2.8

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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
sigma06	s06	...	SIGMA APO 70-200mm F2.8 EX

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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

EXIFutils Field Reference Guide

2.2.3.9 Ricoh Maker Note Fields

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ro-maker-note-type          -RW-  0001  Maker Note Type
  Values: Text string up to 1999 bytes long (or up to 49 in demo version)

ro-firmware-vsn            -RW-  0002  Firmware Version
  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-serial-num              -RW-  0005  Serial Number
  Values: 16 bytes of binary data

ro-0006                    -RW-  0006  Field 0x0006
  Values: Variable length binary data

ro-print-im                -RW-  0e00  Print IM
  Values: Variable length binary data

ro-image-info              -RW-  1001  Image Info
  Values: Any number of integers in the range 0 to 4294967295

ro-1002                    -RW-  1002  Field 0x1002
  Values: Any number of integers in the range 0 to 4294967295

ro-sharpness               -RW-  1003  Sharpness
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: sh           (null)   ...   sharp
```

2.2.3.9.1 Ricoh Camera Info Maker Note Fields

```
----- 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-manu-date1              -RW-  0004  Manufacture Date 1
  Values: Text string 19 bytes long

ri-manu-date2              -RW-  0005  Manufacture Date 2
  Values: Text string 19 bytes long

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
```

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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

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

ri-serial-info -RW- 002c Serial Info
Values: Variable length binary data

2.2.3.9.2 Ricoh Custom Fields

-----	Field Name	-----	-Attr-	-Tag-	-----	Description	-----
	rc-name1		-R--	0001		Custom Field 1 Name	
	Not Editable						
	Values: Text string 31 bytes long						
	rc-value1		-R--	0001		Custom Field 1 Value	
	Not Editable						
	Values: Text string 31 bytes long						
	rc-name2		-R--	0002		Custom Field 2 Name	
	Not Editable						
	Values: Text string 31 bytes long						
	rc-value2		-R--	0002		Custom Field 2 Value	
	Not Editable						
	Values: Text string 31 bytes long						
	rc-name3		-R--	0003		Custom Field 3 Name	
	Not Editable						
	Values: Text string 31 bytes long						
	rc-value3		-R--	0003		Custom Field 3 Value	
	Not Editable						
	Values: Text string 31 bytes long						

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```
rc-name4          -R--  0004  Custom Field 4 Name
  Not Editable
  Values: Text string 31 bytes long

rc-value4         -R--  0004  Custom Field 4 Value
  Not Editable
  Values: Text string 31 bytes long

rc-name5          -R--  0005  Custom Field 5 Name
  Not Editable
  Values: Text string 31 bytes long

rc-value5         -R--  0005  Custom Field 5 Value
  Not Editable
  Values: Text string 31 bytes long
```

EXIFutils Field Reference Guide

2.2.3.10 Sony Maker Note Fields

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
sy-quality                  -RW-  0102  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
       raw-jpeg            rj         6  RAW + JPEG
       comp-raw            cr         7  Compressed RAW
       comp-raw-jpeg       crj        8  Compressed RAW + JPEG

sy-flash-exp-comp          -RW-  0104  Flash Exposure Comp.
Values: A positive rational number

sy-tele-conv              -RW-  0105  Tele-converter
    -----Value----- Abbrev --Num- -----Meaning-----
Values: none                n         0  None
       af-2x-apo-d         2d         72  Minolta AF 2x APO (D)
       af-2x-apo-ii        2ii        80  Minolta AF 2x APO II
       af-14x-apo-d        14d        136  Minolta AF 1.4x APO (D)
       af-14x-apo-ii       14ii       144  Minolta AF 1.4x APO II

sy-wb-fine-tune           -RW-  0112  White Bal. Fine Tune
Values: An integer in the range 0 to 65535

sy-camera-settings        -R--  0114  Camera Settings
Not Editable
Values: Any number of integers in the range 0 to 4294967295

sy-white-bal              -RW-  0115  White Balance
    -----Value----- Abbrev --Num- -----Meaning-----
Values: auto                a         0  Auto
       color-temp          ct         1  Color Temperature/Color Filter
       daylight            d         16  Daylight
       cloudy              cl         32  Cloudy
       shade               sh         48  Shade
       tungsten            t         64  Tungsten
       flash               fla        80  Flash
       fluorescent         flu        96  Fluorescent
       custom              cu        112  Custom

sy-print-im               -R--  0e00  Print IM
Not Editable
Values: Any number of integers in the range 0 to 4294967295

sy-preview-image          -R--  2001  Preview Image
Not Editable
Values: Variable length binary data

```

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```

sy-auto-hdr          -RW-  200a  Auto HDR
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off          off      0    Off
        on           on      65537 On
  
```

```

sy-shot-info        -R--  3000  Shot Info
  Not Editable
  Values: An integer in the range 0 to 65535
  
```

```

sy-file-format      -RW-  b000  File Format
  -----Value----- Abbrev --Num- -----Meaning-----
Values: jpeg        j      ...  JPEG
        sr2         s      ...  SR2
        arw10       a10    ...  ARW 1.0
        arw20       a20    ...  ARW 2.0
        arw21       a21    ...  ARW 2.1
  
```

```

sy-model-id        -RW-  b001  Model ID
  -----Value----- Abbrev --Num- -----Meaning-----
Values: dsc-r1      dsc      2    DSC-R1
        dslr-a100   a100    256  DSLR-A100
        dslr-a900   a900    257  DSLR-A900
        dslr-a700   a700    258  DSLR-A700
        dslr-a200   a200    259  DSLR-A200
        dslr-a350   a350    260  DSLR-A350
        dslr-a300   a300    261  DSLR-A300
        dslr-a380   a380    263  DSLR-A380
        dslr-a330   a330    264  DSLR-A330
        dslr-a230   a230    265  DSLR-A230
        dslr-a850   a850    269  DSLR-A850
        dslr-a550   a550    273  DSLR-A550
        dslr-a500   a500    274  DSLR-A500
  
```

```

sy-color-reprod    -RW-  b020  Color Reproduction
  Values: Text string 1 byte long
  
```

```

sy-color-temp      -RW-  b021  Color Temperature
  Values: An integer in the range 0 to 65535
  
```

```

sy-color-comp      -RW-  b022  Color Comp. Filter
  Values: An integer in the range 0 to 65535
  
```

```

sy-scene-mod       -RW-  b023  Scene Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: stanford   st      0    Standard
        portrait   p      1    Portrait
        text       t      2    Text
        night-scene ns     3    Night Scene
        sunset     sun     4    Sunset
        sports     sp     5    Sports Action
        landscape  l      6    Landscape
        night-portrait np     7    Night Portrait
        macro      m      8    Macro
        super-macro sm     9    Super Macro
        auto       a     16   Auto
        night-view nv     17   Night View/Portrait
  
```

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```

sy-zone-matching      -RW-  b024  Zone Matching
-----Value----- Abbrev --Num- -----Meaning-----
Values: iso           i           1   ISO Setting Used
        high          h           2   High Key
        low           l           3   Low Key
    
```

```

sy-dyn-range-opt     -RW-  b025  Dynamic Range Optimizer
-----Value----- Abbrev --Num- -----Meaning-----
Values: off           o           0   Off
        standard      s           1   Standard
        adv-auto      aa          2   Advanced Auto
        auto          a           3   Auto
        adv-1         a1          8   Advanced Lv1
        adv-2         a2          9   Advanced Lv2
        adv-3         a3          10  Advanced Lv3
        adv-4         a4          11  Advanced Lv4
        adv-5         a5          12  Advanced Lv5
    
```

```

sy-image-stabil      -RW-  b026  Image Stabilization
-----Value----- Abbrev --Num- -----Meaning-----
Values: off           off          0   Off
        on            on           1   On
    
```

```

sy-lens-type         -RW-  b027  Lens Type
-----Value----- Abbrev --Num- -----Meaning-----
Values: 0             0           0   Minolta AF 28-85mm F3.5-4.5 New
        1             1           1   Minolta AF 80-200mm F2.8 HS-APO G
        2             2           2   Minolta AF 28-70mm F2.8 G
        3             3           3   Minolta AF 28-80mm F4-5.6
        5             5           5   Minolta AF 35-70mm F3.5-4.5
        6             6           6   Minolta AF 24-85mm F3.5-4.5
        7             7           7   Minolta AF 100-300mm F4.5-5.6 APO
        7a            7a          7   Minolta AF 100-400mm F4.5-6.7 APO
        7b            7b          7   Sigma AF 100-300mm F4 EX DG IF
        8             8           8   Minolta AF 70-210mm F4.5-5.6
        9             9           9   Minolta AF 50mm F3.5 Macro
        10            10          10  Minolta AF 28-105mm F3.5-4.5 [New]
        11            11          11  Minolta AF 300mm F4 HS-APO G
        12            12          12  Minolta AF 100mm F2.8 Soft Focus
        13            13          13  Minolta AF 75-300mm F4.5-5.6
        14            14          14  Minolta AF 100-400mm F4.5-6.7 APO
        15            15          15  Minolta AF 400mm F4.5 HS-APO G
        16            16          16  Minolta AF 17-35mm F3.5 G
        17            17          17  Minolta AF 20-35mm F3.5-4.5
        18            18          18  Minolta AF 28-80mm F3.5-5.6 II
        19            19          19  Minolta AF 35mm F1.4 G
        20            20          20  Minolta/Sony 135mm F2.8 [T4.5] STF
        22            22          22  Minolta AF 35-80mm F4-5.6 II
        23            23          23  Minolta AF 200mm F4 Macro APO G
        24            24          24  Minolta/Sony AF 24-105mm F3.5-4.5 (D)
        24a           24a          24  Sigma 18-50mm F2.8
        24b           24b          24  Sigma 17-70mm F2.8-4.5 (D)
        24c           24c          24  Sigma 20-40mm F2.8 EX DG Aspherical IF
        24d           24d          24  Sigma 18-200mm F3.5-6.3 DC
        24e           24e          24  Sigma 20-40mm F2.8 EX DG Asph IF
    
```

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24f	24f	24	Tamron SP AF 28-75mm F2.8 XR Di (IF) Macro
25	25	25	Minolta AF 100-300mm F4.5-5.6 APO (D) or Sigma Lens
25a	25a	25	Sigma 100-300mm F4 EX (APO (D) or D IF)
25b	25b	25	Sigma 70mm F2.8 EX DG Macro
25c	25c	25	Sigma 20mm F1.8 EX DG Aspherical RF
25d	25d	25	Sigma 30mm F1.4 DG EX
27	27	27	Minolta AF 85mm F1.4 G (D)
28	28	28	Minolta/Sony AF 100mm F2.8 Macro (D) or Tamron Lens
28a	28a	28	Tamron SP AF 90mm F2.8 Di Macro
29	29	29	Minolta/Sony AF 75-300mm F4.5-5.6 (D)
30	30	30	Minolta AF 28-80mm F3.5-5.6 (D) or Sigma Lens
30a	30a	30	Sigma AF 10-20mm F4-5.6 EX DC
30b	30b	30	Sigma AF 12-24mm F4.5-5.6 EX DG
30c	30c	30	Sigma 28-70mm EX DG F2.8
30d	30d	30	Sigma 55-200mm F4-5.6 DC
31	31	31	Minolta/Sony AF 50mm F2.8 Macro (D) or F3.5
31a	31a	31	Minolta/Sony AF 50mm F3.5 Macro
32	32	32	Minolta/Sony AF 300mm F2.8 G or 1.5x Teleconverter
33	33	33	Minolta/Sony AF 70-200mm F2.8 G
35	35	35	Minolta AF 85mm F1.4 G (D) Limited
36	36	36	Minolta AF 28-100mm F3.5-5.6 (D)
38	38	38	Minolta AF 17-35mm F2.8-4 (D)
39	39	39	Minolta AF 28-75mm F2.8 (D)
40	40	40	Minolta/Sony AF DT 18-70mm F3.5-5.6 (D) or 18-200m F3.5-6.3
40a	40a	40	Sony AF DT 18-200mm F3.5-6.3
41	41	41	Minolta/Sony AF DT 11-18mm F4.5-5.6 (D) or Tamron Lens
41a	41a	41	Tamron SP AF 11-18mm F4.5-5.6 Di II LD Aspherical IF
42	42	42	Minolta/Sony AF DT 18-200mm F3.5-6.3(D)
43	43	43	Sony 35mm F1.4 G (SAL-35F14G)
44	44	44	Sony 50mm F1.4 (SAL-50F14)
45	45	45	Carl Zeiss Planar T* 85mm F1.4 ZA
46	46	46	Carl Zeiss Vario-Sonnar T* DT 16-80mm F3.5-4.5 ZA
47	47	47	Carl Zeiss Sonnar T* 135mm F1.8 ZA
48	48	48	Carl Zeiss Vario-Sonnar T* 24-70mm F2.8 ZA SSM (SAL-2470Z)
49	49	49	Sony AF DT 55-200mm F4-5.6
50	50	50	Sony AF DT 18-250mm F3.5-6.3
51	51	51	Sony AF DT 16-105mm F3.5-5.6 or 55-200mm F4-5.5
51a	51a	51	Sony AF DT 55-200mm F4-5.5
52	52	52	Sony 70-300mm F4.5-5.6 G SSM
53	53	53	Sony AF 70-400mm F4.5-5.6 G SSM (SAL-70400G)
54	54	54	Carl Zeiss Vario-Sonnar T* 16-35mm F2.8 ZA SSM (SAL-1635Z)
55	55	55	Sony DT 18-55mm F3.5-5.6 SAM (SAL-1855)
56	56	56	Sony AF DT 55-200mm F4-5.6 SAM

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57	57	57	Sony AF DT 50mm F1.8 SAM
58	58	58	Sony AF DT 30mm F2.8 SAM Macro
128	128	128	Tamron or Sigma Lens (128)
128a	128a	128	Tamron 18-200mm F3.5-6.3
128b	128b	128	Tamron 28-300mm F3.5-6.3
128c	128c	128	Tamron 80-300mm F3.5-6.3
128d	128d	128	Tamron AF 28-200mm F3.8-5.6 XR Di Aspherical [IF] MACRO
128e	128e	128	Tamron SP AF 17-35mm F2.8-4 Di LD Aspherical IF
128f	128f	128	Sigma AF 50-150mm F2.8 EX DC APO HSM II
128g	128g	128	Sigma 10-20mm F3.5 EX DC HSM
129	129	129	Tamron Lens (129)
129a	129a	129	Tamron 200-400mm F5.6
129b	129b	129	Tamron 70-300mm F4-5.6 LD
135	135	135	Vivitar 28-210mm F3.5-5.6
136	136	136	Tokina EMZ M100 AF 100mm F3.5
137	137	137	Cosina 70-210mm F2.8-4 AF
138	138	138	Soligor 19-35mm F3.5-4.5
142	142	142	Voigtlander 70-300mm F4.5-5.6
146	146	146	Voigtlander Macro APO-Lanthar 125mm F2.5 SL
255	255	255	Tamron Lens (255)
255a	255a	255	Tamron SP AF 17-50mm F2.8 XR Di II LD Aspherical
255b	255b	255	Tamron AF 18-250mm F3.5-6.3 XR Di II LD
255c	255c	255	Tamron AF 55-200mm F4-5.6 Di II
255d	255d	255	Tamron AF 70-300mm F4-5.6 Di LD MACRO 1:2
255e	255e	255	Tamron SP AF 200-500mm F5.0-6.3 Di LD IF
255f	255f	255	Tamron SP AF 10-24mm F3.5-4.5 Di II LD Asph IF
255g	255g	255	Tamron SP AF 70-200mm F2.8 Di LD IF Macro
2550	2550	2550	Minolta AF 50mm F1.7
2551	2551	2551	Minolta AF 35-70mm F4 or Other Lens
2551a	2551a	2551	Sigma UC AF 28-70mm F3.5-4.5
2551b	2551b	2551	Sigma AF 28-70mm F2.8
2551c	2551c	2551	Sigma M-AF 70-200mm F2.8 EX Aspherical
2551d	2551d	2551	Quantaray M-AF 35-80mm F4-5.6
2552	2552	2552	Minolta AF 28-85mm F3.5-4.5 or Other Lens
2552a	2552a	2552	Tokina 19-35mm F3.5-4.5
2552b	2552b	2552	Tokina 28-70mm F2.8 AT-X
2552c	2552c	2552	Tokina 80-400mm F4.5-5.6 AT-X AF II 840
2552d	2552d	2552	Tokina AF PRO 28-80mm F2.8 AT-X 280
2552e	2552e	2552	Tamron AF 19-35mm F3.5-4.5
2552f	2552f	2552	Angenieux AF 28-70mm F2.6
2553	2553	2553	Minolta AF 28-135mm F4-4.5 or Sigma Lens
2553a	2553a	2553	Sigma ZOOM-alpha 35-135mm F3.5-4.5
2553b	2553b	2553	Sigma 28-105mm F2.8-4 Aspherical
2554	2554	2554	Minolta AF 35-105mm F3.5-4.5
2555	2555	2555	Minolta AF 70-210mm F4 Macro or Sigma Lens
2555a	2555a	2555	Sigma 70-210mm F4-5.6 APO

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2555b	2555b	2555	Sigma M-AF 70-200mm F2.8 EX APO
2555c	2555c	2555	Sigma 75-200mm F2.8-3.5
2556	2556	2556	Minolta AF 135mm F2.8
2557	2557	2557	Minolta/Sony AF 28mm F2.8
2558	2558	2558	Minolta AF 24-50mm F4
2560	2560	2560	Minolta AF 100-200mm F4.5
2561	2561	2561	Minolta AF 75-300mm F4.5-5.6 or Sigma Lens
2561a	2561a	2561	Sigma 70-300mm F4-5.6 DL Macro
2561b	2561b	2561	Sigma 300mm F4 APO Macro
2561c	2561c	2561	Sigma AF 500mm F4.5 APO
2561d	2561d	2561	Sigma AF 170-500mm F5-6.3 APO Aspherical
2561e	2561e	2561	Tokina AT-X AF 300mm F4
2561f	2561f	2561	Tokina AT-X AF 400mm F5.6 SD
2561g	2561g	2561	Tokina AF 730 II 75-300mm F4.5-5.6
2562	2562	2562	Minolta AF 50mm F1.4 [New]
2563	2563	2563	Minolta AF 300mm F2.8 APO or Sigma Lens
2563a	2563a	2563	Sigma AF 50-500mm F4-6.3 EX DG APO
2563b	2563b	2563	Sigma AF 170-500mm F5-6.3 APO Aspherical
2563c	2563c	2563	Sigma AF 500mm F4.5 EX DG APO
2563d	2563d	2563	Sigma 400mm F5.6 APO
2564	2564	2564	Minolta AF 50mm F2.8 Macro or Sigma Lens
2564a	2564a	2564	Sigma 50mm F2.8 EX Macro
single	s	0	Single
contin	c	1	Continuous

```

sy-color-mode          -RW-  b029  Color Mode
-----Value----- Abbrev --Num- -----Meaning-----
Values: standard      st      0      Standard
      vivid           v       1      Vivid
      portrait        p       2      Portrait
      landscape       l       3      Landscape
      sunset          sun     4      Sunset
      night-port      np      5      Night View/Portrait
      bw              bw      6      B&W
      adobe-rgb       argb   7      Adobe RGB
      neutrall        n1     12     Neutral
      neutral2       n2     100   Neutral
      clear          cl     101   Clear
      deep           dp     102   Deep
      light          lt     103   Light
      night-view     nv     104   Night View
      autumn-leaves  al     105   Autumn Leaves
  
```

```

sy-full-img-size      -RW-  b02b  Full Image Size
Values: 2 integers in the range 0 to 4294967295
  
```

```

sy-prev-img-size     -RW-  b02c  Preview Image Size
Values: 2 integers in the range 0 to 4294967295
  
```

```

sy-macro             -RW-  b040  Macro
-----Value----- Abbrev --Num- -----Meaning-----
Values: off          off     0      Off
      on            on     1      On
  
```

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```

sy-exp-mode          -RW-  b041  Exposure Mode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: auto         auto    0   Auto
        portrait    port    1   Portrait
        landscape   land    5   Landscape
        program     prog    6   Program
        aperture    aper    7   Aperture Priority
        shutter     shut    8   Shutter Priority
        night       nite    9   Night Scene
        manual      man     15  Manual
        panorama    pano    34  Panorama
        handheld    hand    35  Handheld Twilight
        anti-blur   anti    36  Anti Motion Blur
  
```

```

sy-quality          -RW-  b047  Quality
  -----Value----- Abbrev --Num- -----Meaning-----
Values: normal      n       0   Normal
        fine        f       1   Fine
  
```

```

sy-anti-blur       -RW-  b04b  Quality
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off         off     0   Off
        on-cont     onc     1   On (Continuous)
        on-shoot    ons     2   On (Shooting)
        na         na     65535 N/A
  
```

```

sy-long-exp-noise   -RW-  b04e  Long Exp. Noise Reduct
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off         off     0   Off
        on         on      1   On
  
```

```

sy-dyn-range-opt    -RW-  b04f  Dynamic Range Opt.
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off         o       0   Off
        standard   s       1   Standard
        plus       p       2   Plus
  
```

```

sy-intelli-auto     -RW-  b052  Intelligent Auto
  -----Value----- Abbrev --Num- -----Meaning-----
Values: off         off     0   Off
        on         on      1   On
  
```

```

sy-white-bal        -RW-  b054  White Balance
  -----Value----- Abbrev --Num- -----Meaning-----
Values: auto        a       0   Auto
        manual     m       4   Manual
        daylight   d       5   Daylight
        incandescent i      14  Incandescent
  
```

2.2.4 IPTC Fields

2.2.4.1 IPTC 1: Addressing

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
ipl-version                -RWS  1.000 Dataset 1 Record Version
  Values: The only supported version number is 2

ipl-destination            -RWS  1.005 Destination
  Values: Text string up to 1024 bytes long

ipl-format                 -RWS  1.020 File Format
  Values: An integer in the range 0 to 65535

ipl-format-ver            -RWS  1.022 File Format Version
  Values: An integer in the range 0 to 65535

ipl-service-id            -RWS  1.030 Service Identifier
  Values: Text string up to 10 bytes long

ipl-env-num                -RWS  1.040 Envelope Number
  Values: Text string up to 8 bytes long

ipl-product-id            -RWS  1.050 Product ID
  Values: Text string up to 32 bytes long

ipl-env-pri                -RWS  1.060 Envelope Priority
  Values: Text string 1 byte long

ipl-date-sent              -RWS  1.070 Date Sent
  Values: A date in the format YYYYMMDD

ipl-time-sent              -RWS  1.080 Time Sent
  Values: A time in the format HHMMSS +/-ZZZZ

ipl-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)
          069          069    ...  ISO 646 French Version (NF Z 62010-1982)

```

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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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2.2.4.2 IPTC 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 1999 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-----
 Values: 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-----
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 Job 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 Telegrambyra 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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2.2.4.3 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 - Perpedicular
  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         1  90
                                180        2  180
                                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

2.2.4.4 IPTC 7: Subfile Size

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
ip7-size-mode                -RWS  7.010 Size Mode
    Values: One byte of binary data

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
```

2.2.4.5 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
```

2.2.5 Canon Raw (.CRW) Fields

```

----- Field Name ----- -Attr- -Tag- ----- Description -----
crw-date                    -R--  0000  Date/Time Taken
  Not Editable
  Values: An integer in the range -2147483648 to 2147483647

crw-orig-file-name          -R--  0028  Original File Name
  Not Editable
  Values: Text string 31 bytes long

crw-thumb-file-name         -R--  0048  Thumbnail File Name
  Not Editable
  Values: Text string 31 bytes long

crw-file-format             -R--  0178  File Format
  Not Editable
  Values: Text string 31 bytes long

crw-owner                   -R--  01d2  Owner
  Not Editable
  Values: Text string 31 bytes long

crw-vendor                  -R--  01f2  Vendor
  Not Editable
  Values: Text string 31 bytes long

crw-model                   -R--  01f8  Camera Model
  Not Editable
  Values: Text string 31 bytes long

crw-firm-ver                -R--  0212  Firmware Version
  Not Editable
  Values: Text string 31 bytes long

crw-serial-num              -R--  0236  Camera Serial Number
  Not Editable
  Values: An integer in the range -2147483648 to 2147483647

crw-iso                     -R--  0288  ISO Setting
  Not Editable
  -----Value----- Abbrev --Num- -----Meaning-----
  Values:
                                160  100
                                192  200
                                224  400
                                256  800
                                268  1000
                                288  1600

crw-shutter                 -R--  02b0  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

```

EXIFutils Field Reference Guide

```

crw-aperture          -R--  02ae  Aperture (F-stop)
  Not Editable
    -----Value----- Abbrev --Num- -----Meaning-----
Values:
          0  1.0
          12 1.1
          20 1.2
          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
  
```

EXIFutils Field Reference Guide

crw-creative-mode -R-- 02e2 Creative Mode
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		5	A-DEP
		4	M
		3	Av
		2	Tv
		1	P
		0	None

crw-autofocus-mode -R-- 02c8 Autofocus Mode
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Single Shot
		1	AI Servo
		3	Manual

crw-meter-mode -R-- 02dc Meter Mode
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		5	Spot
		4	Center Weighted
		3	Evaluative
		0	Evaluative

crw-photo-in-seq -R-- 0296 Photo no. in Sequence
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-bulb-duration -R-- 02b4 Bulb Duration
 Not Editable
 Values: An integer in the range -2147483648 to 2147483647

crw-shutter-delay -R-- 02be Shutter Delay
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-drive-mode -R-- 02c4 Drive Mode
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Single Shot
		1	Continuous

crw-white-point -R-- 0292 White Point
 Not Editable

-----Value-----	Abbrev	--Num-	-----Meaning-----
Values:		0	Auto
		1	Sun
		2	Cloud
		3	Tungsten
		4	Fluorescent
		5	Flash
		6	Manual

EXIFutils Field Reference Guide

crw-exp-comp -R-- 0290 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
		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-- 02aa Focus Distance Lower (m)
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-focus-upper -R-- 02ac Focus Distance Upper (m)
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-zoom-lower -R-- 02e8 Zoom Range Lower (mm)
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-zoom-upper -R-- 02ea Zoom Range Upper (mm)
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-focal-len-used -R-- 152e Focal Length Used
 Not Editable
 Values: An integer in the range -32768 to 32767

EXIFutils Field Reference Guide

crw-flash-comp -R-- 02a2 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-- 02d4 Contrast (parameter)
Not Editable
Values: An integer in the range -32768 to 32767

crw-param-saturation -R-- 02d6 Saturation (parameter)
Not Editable
Values: An integer in the range -32768 to 32767

crw-param-sharpness -R-- 02d8 Sharpness (parameter)
Not Editable
Values: An integer in the range -32768 to 32767

crw-param-tone -R-- 030e Color Tone (parameter)
Not Editable
Values: An integer in the range -32768 to 32767

crw-flash-mode -R-- 02c2 Flash Mode
Not Editable

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

crw-orient -R-- 15f4 Orientation
Not Editable

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

crw-rotation -R-- 000c Rotation (degrees)
Not Editable

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

EXIFutils Field Reference Guide

crw-aeb-seq -R-- 02a4 AE Bracket Sequence
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-aeb-value -R-- 02a6 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
		52	1.5
		64	2.0

crw-custom-2 -R-- 0f1c Custom Field 2
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-custom-3 -R-- 0f1e Custom Field 3
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-custom-4 -R-- 0f20 Custom Field 4
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-custom-5 -R-- 0f22 Custom Field 5
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-custom-6 -R-- 0f24 Custom Field 6
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-custom-7 -R-- 0f26 Custom Field 7
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-custom-8 -R-- 0f28 Custom Field 8
 Not Editable
 Values: An integer in the range -32768 to 32767

crw-custom-9 -R-- 0f2a Custom Field 9
 Not Editable
 Values: An integer in the range -32768 to 32767

EXIFutils Field Reference Guide

crw-custom-10 -R-- 0f2c Custom Field 10
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-11 -R-- 0f2e Custom Field 11
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-12 -R-- 0f30 Custom Field 12
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-13 -R-- 0f32 Custom Field 13
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-14 -R-- 0f34 Custom Field 14
Not Editable
Values: An integer in the range -32768 to 32767

crw-custom-15 -R-- 0f36 Custom Field 15
Not Editable
Values: An integer in the range -32768 to 32767

EXIFutils Field Reference Guide

2.2.6 TIFF Fields

```

----- 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
  ccitt-rlw             rlw         2   CCITT modified Huffman RLE
  ccitt-g3              g3         3   CCITT Group 3 fax encoding
  ccitt-g4              g4         4   CCITT Group 4 fax encoding
  lzw                   lzw        5   LZW
  jpeg                  j          6   JPEG Compression (old style)
  jpeg2                 j2         7   JPEG Compression (new style)
  adobe-deflate         a-def     8   Adobe Deflate
  t85                   t85        9   ITU-T Rec. T.82 coding,
                        using ITU-T Rec. T.85
  t43                   t43       10  ITU-T Rec. T.82 coding,
                        using ITU-T Rec. T.43
  next                  nx         32766 Next
  ccitt-rlw            rlw         32771 CCITT RLEW
  packbits             pb         32773 Packbits
  thunderscan          ts         32809 Thunderscan
  it8-ctpad            ctpad    32895 IT8 CTPAD
  it8-lw               lw         32896 IT8 LW
  it8-mp               mp         32897 IT8 MP
  it8-bl               bl         32898 IT8 BL
  pixar-film           pix-f    32908 Pixar Film
  pixar-log            pix-l    32909 Pixar Log
  deflate              def       32946 Deflate
  dsc                  dsc      32947 DCS
  jbig                 jb        34661 JBIG
  sci-log              log       34676 SGI Log
  sci-log24            log24    34677 SGI Log24
  jpeg2000             j2000   34712 JPEG2000

```

EXIFutils Field Reference Guide

```

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
      sep          s        5  Separated
      ycbcr       y        6  YCbCr
      cie-lab     cie      8  CIE L*a*b*
      icc-tab     icc      9  ICC L*a*b*
      itu-lab     itu     10  ITU L*a*b*
      cfa         cfa    32803 Color Filter Array (CFA)
      logl        ll     32844 Photometric LogL
      logluv      luv    32845 Photometric LogLuv
      lin-raw     lr     32892 Linear Raw

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
      upper-right   ur      2  Upper Right
      lower-right   lr      3  Lower Right
      lower-left    lol     4  Lower Left
      left-upper    lu      5  Left Upper
      right-upper   ru      6  Right Upper
      right-lower   rl      7  Right Lower
      left-lower    llo     8  Left Lower
      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
  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

```

EXIFutils Field Reference Guide

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-----
Values:	chunky	c	1 Chunky
	planar	p	2 Planar
tf-res-unit	ERWS	0128	TIFF Resolution Unit
	-----Value-----	Abbrev	--Num- -----Meaning-----
Values:	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-ycbcr-coeff	ERWS	0211	TIFF YCbCr Coefficients
Values: 3 positive rational numbers			
tf-ycbcr-sub	ERWS	0212	TIFF YCbCr Sub-Sampling
Values: 2 integers in the range 0 to 65535			
tf-ycbcr-posn	ERWS	0213	TIFF YCbCr Positioning
	-----Value-----	Abbrev	--Num- -----Meaning-----
Values:	center	c	1 Centre
	datum	d	2 Datum Point
tf-ref-bw	ERWS	0214	TIFF Ref. Black/White
Values: 6 positive rational numbers			
tf-copyright	ERWS	8298	TIFF Copyright
Values: Text string up to 1999 bytes long (or up to 49 in demo version)			

2.2.7 XMP Fields

2.2.7.1 XMP TIF 1.0 Fields

Field Name	Attr	Tag	Description
xtif-make	XRWS	----	Make
Values: A Text String containing a Proper Name.			
xtif-model	XRWS	----	Model
Values: A Text String containing a Proper Name.			
xtif-description[]	XRWS	010e	ImageDescription
Values: Selection from List of Alternate Language Text.			
xtif-width	XRWS	0100	ImageWidth
Values: An Integer.			
xtif-length	XRWS	0101	ImageLength
Values: An Integer.			
xtif-compress	XRWS	0103	Compression
Values:	-----Value-----	Abbrev	--Num- -----Meaning-----
	none	n	1 None
	ccitt-rle	rle	2 CCITT modified Huffman RLE
	ccitt-g3	g3	3 CCITT Group 3 fax encoding
	ccitt-g4	g4	4 CCITT Group 4 fax encoding
	lzw	lzw	5 LZW
	jpeg	j	6 JPEG Compression (old style)
	jpeg2	j2	7 JPEG Compression (new style)
	adobe-deflate	a-def	8 Adobe Deflate
	t85	t85	9 ITU-T Rec. T.82 coding, using ITU-T Rec. T.85
	t43	t43	10 ITU-T Rec. T.82 coding, using ITU-T Rec. T.43
	next	nx	32766 Next
	ccitt-rlew	rlew	32771 CCITT RLEW
	packbits	pb	32773 Packbits
	thunderscan	ts	32809 Thunderscan
	it8-ctpad	ctpad	32895 IT8 CTPAD
	it8-lw	lw	32896 IT8 LW
	it8-mp	mp	32897 IT8 MP
	it8-bl	bl	32898 IT8 BL
	pixar-film	pix-f	32908 Pixar Film
	pixar-log	pix-l	32909 Pixar Log
	deflate	def	32946 Delfate
	dsc	dsc	32947 DCS
	jbig	jb	34661 JBIG
	sci-log	log	34676 SGI Log
	sci-log24	log24	34677 SGI Log24
	jpeg2000	j2000	34712 JPEG2000

EXIFutils Field Reference Guide

```

xtif-photo-inter      XRWS  0106  PhotometricInterpretation
  -----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
      sep          s        5  Separated
      ycbcr        y        6  YCbCr
      cie-lab      cie      8  CIE L*a*b*
      icc-tab      icc      9  ICC L*a*b*
      itu-lab      itu      10 ITU L*a*b*
      cfa          cfa     32803 Color Filter Array (CFA)
      logl         ll      32844 Photometric LogL
      logluv       luv     32845 Photometric LogLuv
      lin-raw      lr      32892 Linear Raw
  
```

```

xtif-orient          XRWS  0112  Orientation
  -----Value----- Abbrev --Num- -----Meaning-----
Values: upper-left   ul      1  Upper Left
      upper-right   ur      2  Upper Right
      lower-right   lr      3  Lower Right
      lower-left    lol     4  Lower Left
      left-upper    lu      5  Left Upper
      right-upper   ru      6  Right Upper
      right-lower   rl      7  Right Lower
      left-lower    llo     8  Left Lower
      undefined     u        9  Undefined
  
```

```

xtif-sample-per-pixel XRWS  0115  SamplesPerPixel
Values: An Integer.
  
```

```

xtif-x-res           XRWS  011a  XResolution
Values: A Rational Number.
  
```

```

xtif-y-res           XRWS  011b  YResolution
Values: A Rational Number.
  
```

```

xtif-planar-conf     XRWS  011c  PlanarConfiguration
  -----Value----- Abbrev --Num- -----Meaning-----
Values: chunky      c        1  Chunky
      planar        p        2  Planar
  
```

```

xtif-trans-func      XRWS  012d  TransferFunction
Values: An Integer.
  
```

```

xtif-software        XRWS  0131  Software
Values: A Text String.
  
```

```

xtif-date-time       XRWS  0132  DateTime
Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.
  
```

```

xtif-artist          XRWS  013b  Artist
Values: A Text String.
  
```

EXIFutils Field Reference Guide

xtif-ycbcr-coeff[] XRWS 0211 YCbCrCoefficients
Values: Sequenced List of Rational Number.

xtif-ycbcr-sub[] XRWS 0212 YCbCrSubSampling
Values: Sampling ratio of chrominance components:
[2, 1] = YCbCr4:2:2
[2, 2] = YCbCr4:2:0

xtif-ycbcr-posn XRWS 0213 YCbCrPositioning

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

xtif-ref-bw[] XRWS 0214 ReferenceBlackWhite
Values: Sequenced List of Rational Number.

xtif-res-unit XRWS 0218 ResolutionUnit

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

xtif-white-point[] XRWS 0318 WhitePoint
Values: Sequenced List of Rational Number.

xtif-primary-chrom[] XRWS 0319 PrimaryChromaticities
Values: Sequenced List of Rational Number.

xtif-copyright[] XRWS 8298 Copyright
Values: Selection from List of Alternate Language Text.

xtif-native-digest XRWS 0000 NativeDigest
Values: A List of EXIF tags and value checksum.

xtif-bits-per-sample[] XRWS 0000 BitsPerSample
Values: Sequenced List of Integer.

EXIFutils Field Reference Guide

2.2.7.2 XMP EXIF 1.0 Fields

----- Field Name -----	-Attr-	-Tag-	----- Description -----
xex-version	XRWS	9000	ExifVersion
Values: Choice of Text String.			
xex-exp-time	XRWS	829a	ExposureTime
Values: A Rational Number.			
xex-shutter	XRWS	9201	ShutterSpeedValue
Values: A Rational Number.			
xex-f-number	XRWS	829d	FNumber
Values: A Rational Number.			
xex-aperture	XRWS	9202	ApertureValue
Values: A Rational Number.			
xex-exp-prog	XRWS	8822	ExposureProgram
	-----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
xex-date-taken	XRWS	9003	DateTimeOriginal
Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.			
xex-date-digi	XRWS	9004	DateTimeDigitized
Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.			
xex-exp-bias	XRWS	9204	ExposureBiasValue
Values: A Rational Number.			
xex-max-aper	XRWS	9205	MaxApertureValue
Values: A Rational Number.			

EXIFutils Field Reference Guide

```
xex-light-src          XRWS  9208  LightSource
  -----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
```

```
xex-focal-len         XRWS  920a  FocalLength
  Values: A Rational Number.
```

```
xex-custom-render     XRWS  a401  CustomRendered
  -----Value----- Abbrev --Num- -----Meaning-----
Values: normal        n           0   Normal Process
        custom        c           1   Custom Process
```

```
xex-exp-mode          XRWS  a402  ExposureMode
  -----Value----- Abbrev --Num- -----Meaning-----
Values: auto          a           0   Auto Exposure
        manual        m           1   Manual Exposure
        bracket       b           2   Auto Bracket
```

```
xex-white-bal         XRWS  a403  WhiteBalance
  -----Value----- Abbrev --Num- -----Meaning-----
Values: auto          a           0   Auto
        manual        m           1   Manual
```

```
xex-scene-mode        XRWS  a406  SceneCaptureType
  -----Value----- Abbrev --Num- -----Meaning-----
Values: standard      s           0   Standard
        landscape     l           1   Landscape
        portrait      p           2   Portrait
        night         n           3   Night Scene
```

```
xex-fp-x-res          XRWS  a20e  FocalPlaneXResolution
  Values: A Rational Number.
```

```
xex-fp-y-res          XRWS  a20f  FocalPlaneYResolution
  Values: A Rational Number.
```

EXIFutils Field Reference Guide

```

xex-fp-res-unit          XRWS  a210  FocalPlaneResolutionUnit
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: none          n          1  No Unit
         inch           i          2  Inch
         cm             c          3  Centimetre

xex-iso-speed[]         XRWS  8827  ISOSpeedRatings
  Values: Sequenced List of Integer.

xex-flash.fl-fired      XRWS  ----  Fired
  Values: A True/False value.

xex-flash.fl-return     XRWS  ----  Return
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: off           off         0  No Strobe Return Detection
         not-detected   no          2  Strobe Return Light Not Detected
         detected       yes         3  Strobe Return Light Detected

xex-flash.fl-mode       XRWS  ----  Mode
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: unknown       u           0  Unknown
         comp-fire      f           1  Compulsory Flash Firing
         comp-supp      s           2  Compulsory Flash Suppression
         auto           a           3  Auto Mode

xex-flash.fl-function   XRWS  ----  Function
  Values: A True/False value.

xex-flash.fl-redeye     XRWS  ----  RedEyeMode
  Values: A True/False value.

xex-flashpix-ver        XRWS  a000  FlashpixVersion
  Values: Choice of Text String.

xex-color-space         XRWS  a001  ColorSpace
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: srgb          s           1  sRGB
         uncalibrated   u          65535  Uncalibrated

xex-comp-config[]       XRWS  9101  ComponentsConfiguration
  Values: Sequenced List of Integer.

xex-comp-bit-pixel      XRWS  9102  CompressedBitsPerPixel
  Values: A Rational Number.

xex-pixel-x-dim         XRWS  a002  PixelXDimension
  Values: An Integer.

xex-pixel-y-dim         XRWS  a003  PixelYDimension
  Values: An Integer.

xex-user-comment[]      XRWS  9286  UserComment
  Values: Selection from List of Alternate Language Text.

xex-rel-sound-file      XRWS  a004  RelatedSoundFile
  Values: A Text String.

```

EXIFutils Field Reference Guide

xex-spectral-sens XRWS 8824 SpectralSensitivity
 Values: A Text String.

xex-oecf.oecf-columns XRWS ---- Columns
 Values: An Integer.

xex-oecf.oecf-names XRWS ---- Names
 Values: Sequenced List of Text String.

xex-oecf.oecf-rows XRWS ---- Rows
 Values: An Integer.

xex-oecf.oecf-values XRWS ---- Values
 Values: Sequenced List of Rational Number.

xex-bright-value XRWS 9203 BrightnessValue
 Values: A Rational Number.

xex-subj-dist XRWS 9206 SubjectDistance
 Values: A Rational Number.

xex-meter-mode XRWS a001 MeteringMode
 -----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

xex-subj-area[] XRWS 9214 SubjectArea
 Values: Sequenced List of Integer.

xex-flash-energy XRWS a20b FlashEnergy
 Values: A Rational Number.

xex-spac-freq-resp.sfr-columns XRWS ---- Columns
 Values: An Integer.

xex-spac-freq-resp.sfr-names XRWS ---- Names
 Values: Sequenced List of Text String.

xex-spac-freq-resp.sfr-rows XRWS ---- Rows
 Values: An Integer.

xex-spac-freq-resp.sfr-values XRWS ---- Values
 Values: Sequenced List of Rational Number.

xex-subj-locn[] XRWS a214 SubjectLocation
 Values: Sequenced List of Integer.

xex-exp-index XRWS a215 ExposureIndex
 Values: A Rational Number.

EXIFutils Field Reference Guide

```

xex-sense-method          XRWS  a217  SensingMethod
  -----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

xex-file-src             XRWS  a300  FileSource
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: dsc            d           3  Digital Still Camera

xex-scene-type          XRWS  a301  SceneType
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: direct        d           1  Directly Photographed Image

xex-cfa-pattern.cfa-columns XRWS  ----  Columns
  Values: An Integer.

xex-cfa-pattern.cfa-rows XRWS  ----  Rows
  Values: An Integer.

xex-cfa-pattern.cfa-values XRWS  ----  Values
  Values: Sequenced List of Integer.

xex-digital-zoom        XRWS  a404  DigitalZoomRatio
  Values: A Rational Number.

xex-focal-len-35mm     XRWS  a405  FocalLengthIn35mmFilm
  Values: An Integer.

xex-gain-control        XRWS  a407  GainControl
  -----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

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

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

```

EXIFutils Field Reference Guide

```

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

xex-dev-set-desc.dsd-columns XRWS  ----  Columns
  Values: An Integer.

xex-dev-set-desc.dsd-rows  XRWS  ----  Rows
  Values: An Integer.

xex-dev-set-desc.dsd-settings XRWS  ----  Settings
  Values: Sequenced List of Text String.

xex-sharpness          XRWS  a40c  SubjectDistanceRange
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: unknown     u          0  Unknown
         macro        m          1  Macro
         close        c          2  Close View
         distant      d          3  Distant View

xex-unique-id          XRWS  a420  ImageUniqueID
  Values: A 32 character ASCII string, equivalent to hexadecimal notation
         and 128-bit fixed length.

xex-native-digest      XRWS  0000  NativeDigest
  Values: A List of EXIF tags and value checksum.

xex-gps-version        XRWS  0000  GPSVersionID
  Values: GPS version number. The current value is 2.0.0.0

xex-gps-latitude       XRWS  0000  GPSLatitude
  Values: A Text value in the form 'DDD,MM,SSk' or 'DDD,MM.mmk', where:
         DDD is a number of degrees
         MM is a number of minutes
         SS is a number of seconds
         mm is a fraction of minutes
         k is a single character N, S, E, or W indicating a direction
         (north, south, east, west).

xex-gps-longitude     XRWS  0000  GPSLongitude
  Values: A Text value in the form 'DDD,MM,SSk' or 'DDD,MM.mmk', where:
         DDD is a number of degrees
         MM is a number of minutes
         SS is a number of seconds
         mm is a fraction of minutes
         k is a single character N, S, E, or W indicating a direction
         (north, south, east, west).

xex-gps-alt-ref        XRWS  0005  GPSAltitudeRef
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: sea-level   s          0  Sea Level
         below-sea-level b          1  Below sea level

```

EXIFutils Field Reference Guide

xex-gps-altitude XRWS 0006 GPSAltitude
 Values: A Rational Number.

xex-gps-timestamp XRWS 001d GPSTimeStamp
 Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.

xex-gps-satellites XRWS 0008 GPSSatellites
 Values: A Text String.

xex-gps-status XRWS 0009 GPSStatus
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: in-progress a ... Measurement in Progress
 interop v ... Measurement Interoperability

xex-gps-measure-mode XRWS 000a GPSMeasureMode
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: 2d 2 ... Two-dimensional
 3d 3 ... Three-dimensional

xex-gps-precision XRWS 000b GPSDOP
 Values: A Rational Number.

xex-gps-speed-ref XRWS 000c GPSSpeedRef
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: kph k ... Kilometers per Hour
 mph m ... Miles per Hour
 knots n ... Knots

xex-gps-speed XRWS 000d GPSSpeed
 Values: A Rational Number.

xex-gps-track-ref XRWS 000e GPSTrackRef
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: true t ... True Direction
 magnetic m ... Magnetic Direction

xex-gps-track XRWS 000f GPSTrack
 Values: A Rational Number in the range 0.00 to 359.99.

xex-gps-img-dir-ref XRWS 0010 GPSImgDirectionRef
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: true t ... True Direction
 magnetic m ... Magnetic Direction

xex-gps-img-dir XRWS 0011 GPSImgDirection
 Values: A Rational Number in the range 0.00 to 359.99.

xex-gps-map-datum XRWS 0012 GPSMapDatum
 Values: A Text String.

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xex-gps-dest-lat XRWS 0000 GPSDestLatitude
 Values: A Text value in the form 'DDD,MM,SSk' or 'DDD,MM.mmk', where:
 DDD is a number of degrees
 MM is a number of minutes
 SS is a number of seconds
 mm is a fraction of minutes
 k is a single character N, S, E, or W indicating a direction
 (north, south, east, west).

xex-gps-dest-long XRWS 0000 GPSDestLongitude
 Values: A Text value in the form 'DDD,MM,SSk' or 'DDD,MM.mmk', where:
 DDD is a number of degrees
 MM is a number of minutes
 SS is a number of seconds
 mm is a fraction of minutes
 k is a single character N, S, E, or W indicating a direction
 (north, south, east, west).

xex-gps-dest-bear-ref XRWS 0017 GPSDestBearingRef
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: true t ... True Direction
 magnetic m ... Magnetic Direction

xex-gps-dest-bear XRWS 0018 GPSDestBearing
 Values: A Rational Number in the range 0.00 to 359.99.

xex-gps-dest-dist-ref XRWS 0019 GPSDestDistanceRef
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: kilometers k ... Kilometers
 miles m ... Miles
 knots n ... Knots

xex-gps-dest-dist XRWS 001a GPSDestDistance
 Values: A Rational Number.

xex-gps-proc-method XRWS 001b GPSProcessingMethod
 Values: A Text String.

xex-gps-area-info XRWS 001c GPSAreaInformation
 Values: A Text String.

xex-gps-diff XRWS 001e GPSDifferential
 -----Value----- Abbrev --Num- -----Meaning-----
 Values: no-corr n 0 Without Correction
 corr c 1 Correction Applied

EXIFutils Field Reference Guide

2.2.7.3 XMP EXIF 1.0 Auxillary

Field Name	-Attr-	-Tag-	Description
xaux-serial-num	XRWS	----	SerialNumber
Values: A Text String.			
xaux-lens-info	XRWS	----	LensInfo
Values: A List of rational numbers.			
xaux-lens	XRWS	----	Lens
Values: A Text String.			
xaux-image-num	XRWS	----	ImageNumber
Values: An Integer.			
xaux-flash-comp	XRWS	----	FlashCompensation
Values: A Rational Number.			
xaux-owner	XRWS	----	OwnerName
Values: A Text String.			
xaux-firmware	XRWS	----	Firmware
Values: A Text String.			

2.2.7.4 XMP 1.0

Field Name	-Attr-	-Tag-	Description
xmp-date-create	XRWS	----	CreateDate
Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.			
xmp-rating	XRWS	----	Rating
Values: Choice of Integer.			
xmp-advisory[]	XRWS	----	Advisory
Values: Unsequenced List of XPATH.			
xmp-base-url	XRWS	----	BaseURL
Values: A URL.			
xmp-creator-tool	XRWS	----	CreatorTool
Values: A Text String containing an Agent Name.			
xmp-identifier[]	XRWS	----	Identifier
Values: Unsequenced List of Text String.			
xmp-label	XRWS	----	Label
Values: A Text String.			
xmp-date-modify	XRWS	----	ModifyDate
Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.			
xmp-date-metadata	XRWS	----	MetadataDate
Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.			
xmp-nickname	XRWS	----	Nickname
Values: A Text String.			

2.2.7.5 XMP 1.0 Thumbnail Image

Field Name	-Attr-	-Tag-	Description
xmp-thumbnails.xth-format	XRWS	----	format
Value	Abbrev	--Num-	-----Meaning-----
Values: jpeg	j	...	JPEG
xmp-thumbnails.xth-height	XRWS	----	height
Values: An Integer.			
xmp-thumbnails.xth-width	XRWS	----	width
Values: An Integer.			
xmp-thumbnails.xth-image	XRWS	----	image
Values: A Text String.			

2.2.7.6 XMP 1.0 Rights

Field Name	-Attr-	-Tag-	Description
xrt-certificate	XRWS	----	Certificate
Values: A URL.			
xrt-marked	XRWS	----	Marked
Values: A True/False value.			
xrt-usage-terms[]	XRWS	----	UsageTerms
Values: Selection from List of Alternate Language Text.			
xrt-owner[]	XRWS	----	Owner
Values: Unsequenced List of Text String containing a Proper Name.			
xrt-web-stmt	XRWS	----	WebStatement
Values: A URL.			

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2.2.7.7 XMP Dublin Core

----- Field Name -----	-Attr-	-Tag-	----- Description -----
xdc-contributor[]	XRWS	----	contributor Values: Open List of Text String containing a Proper Name.
xdc-coverage	XRWS	----	coverage Values: A Text String.
xdc-creator[]	XRWS	----	creator Values: Sequenced List of Text String containing a Proper Name.
xdc-date[]	XRWS	----	date Values: Sequenced List of Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.
xdc-description[]	XRWS	----	description Values: Selection from List of Alternate Language Text.
xdc-format	XRWS	----	format Values: A MIME Type.
xdc-identifier	XRWS	----	identifer Values: A Text String.
xdc-language[]	XRWS	----	language Values: Closed List of Locale.
xdc-publisher[]	XRWS	----	publisher Values: Open List of Text String containing a Proper Name.
xdc-relation[]	XRWS	----	relation Values: Open List of Text String.
xdc-rights[]	XRWS	----	rights Values: Selection from List of Alternate Language Text.
xdc-source	XRWS	----	source Values: A Text String.
xdc-subject[]	XRWS	----	subject Values: Unsequenced List of Text String.
xdc-title[]	XRWS	----	title Values: Selection from List of Alternate Language Text.
xdc-type[]	XRWS	----	type Values: Open List of Text String.

2.2.7.8 XMP 1.0 Rights

----- Field Name -----	-Attr-	-Tag-	----- Description -----
xrt-rights[]	XRWS	----	Rights
Values: Selection from List of Alternate Language Text.			
xrt-certificate	XRWS	----	Certificate
Values: A URL.			
xrt-marked	XRWS	----	Marked
Values: A True/False value.			
xrt-usage-terms[]	XRWS	----	UsageTerms
Values: Selection from List of Alternate Language Text.			
xrt-owner[]	XRWS	----	Owner
Values: Unsequenced List of Text String containing a Proper Name.			
xrt-web-stmt	XRWS	----	WebStatement
Values: A URL.			

2.2.7.9 XMP PDF 1.3

----- Field Name -----	-Attr-	-Tag-	----- Description -----
xpdf-keywords	XRWS	----	Keywords
Values: A Text String.			
xpdf-version	XRWS	----	PDFVersion
Values: A Text String.			
xpdf-producer	XRWS	----	Producer
Values: A Text String containing an Agent Name.			

EXIFutils Field Reference Guide

2.2.7.10 XMP Adobe Photoshop 1.0

----- Field Name -----	-Attr-	-Tag-	----- Description -----
xph-author-posn Values: A Text String.	XRWS	----	AuthorsPosition
xph-caption-writer Values: A Text String containing a Proper Name.	XRWS	----	CaptionWriter
xph-category Values: A Text String.	XRWS	----	Category
xph-city Values: A Text String.	XRWS	----	City
xph-color-mode Values: An Integer.	XRWS	----	ColorMode
xph-country Values: A Text String.	XRWS	----	Country
xph-credit Values: A Text String.	XRWS	----	Credit
xph-date-create Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.	XRWS	----	DateCreated
xph-headline Values: A Text String.	XRWS	----	Headline
xph-instructions Values: A Text String.	XRWS	----	Instructions
xph-icc-profile Values: A Text String.	XRWS	----	ICCProfile
xph-source Values: A Text String.	XRWS	----	Source
xph-state Values: A Text String.	XRWS	----	State
xph-suppcat[] Values: Unsequenced List of Text String.	XRWS	----	SupplementalCategories
xph-trans-ref Values: A Text String.	XRWS	----	TransmissionReference
xph-urgency Values: An Integer in the range 1 to 8.	XRWS	----	Urgency

EXIFutils Field Reference Guide

2.2.7.11 XMP 1.0 Media Management

Field Name	-Attr-	-Tag-	Description
xmm-derived-from.xrr-alt-paths Values: Unsequenced List of URI.	XRWS	----	alternatePaths
xmm-derived-from.xrr-doc-id Values: A URI.	XRWS	----	documentID
xmm-derived-from.xrr-file-path Values: A URI.	XRWS	----	filePath
xmm-derived-from.xrr-from-part Values: A Text String.	XRWS	----	fromPart
xmm-derived-from.xrr-instance-id Values: A URI.	XRWS	----	instanceID
xmm-derived-from.xrr-date-last-mod Values: A Date in the format YYYY:MM:DDTHH:MM:SS-TT:TT.	XRWS	----	lastModifyDate
xmm-derived-from.xrr-manager Values: A Text String.	XRWS	----	manager
xmm-derived-from.xrr-manager-var Values: A Text String.	XRWS	----	managerVariant
xmm-derived-from.xrr-manage-to Values: A URI.	XRWS	----	manageTo
xmm-derived-from.xrr-manage-ui Values: A URI.	XRWS	----	manageUI
xmm-derived-from.xrr-mask-markers -----Value----- Abbrev --Num- -----Meaning----- Values: all a ... All none n ... None	XRWS	----	maskMarkers
xmm-derived-from.xrr-part-mapping Values: A Text String.	XRWS	----	partMapping
xmm-derived-from.xrr-rend-class Values: Choice of Text String.	XRWS	----	RenditionClass
xmm-derived-from.xrr-rend-params Values: A Text String.	XRWS	----	renditionParams
xmm-derived-from.xrr-to-part Values: A Text String.	XRWS	----	toPart
xmm-derived-from.xrr-ver-id Values: A Text String.	XRWS	----	versionID

EXIFutils Field Reference Guide

xmm-doc-id	XRWS	----	DocumentID
Values: A URI.			
xmm-history[]	XRWS	----	History
Values: Unsequenced List of Resource Event.			
xmm-ingredients[]	XRWS	----	Ingredients
Values: Unsequenced List of Resource Reference.			
xmm-instance-id	XRWS	----	InstanceID
Values: A URI.			
xmm-managed-from	XRWS	----	ManagedFrom
Values: A Resource Reference.			
xmm-manager	XRWS	----	Manager
Values: A Text String containing an Agent Name.			
xmm-manage-to	XRWS	----	ManageTo
Values: A URI.			
xmm-manager-variant	XRWS	----	ManagerVariant
Values: A Text String.			
xmm-orig-doc-id	XRWS	----	OriginalDocumentID
Values: A URI.			
xmm-rend-class	XRWS	----	RenditionClass
Values: A Rendition Class.			
xmm-rend-params	XRWS	----	RenditionParams
Values: A Text String.			
xmm-version-id	XRWS	----	VersionID
Values: A Text String.			

EXIFutils Field Reference Guide

2.2.7.12 XMP Camera Raw Settings

----- Field Name -----	-Attr-	-Tag-	----- Description -----
xraw-file-name	XRWS	----	RawFileName
Values: A Text String.			
xraw-version	XRWS	----	Version
Values: A Text String.			
xraw-white-bal	XRWS	----	WhiteBalance
-----Value-----	Abbrev	--Num-	-----Meaning-----
Values: as-shot	as	...	As Shot
auto	au	...	Auto
daylight	d	...	Daylight
cloudy	cl	...	Cloudy
shade	s	...	Shade
tungsten	t	...	Tungsten
fluorescent	flu	...	Fluorescent
flash	fla	...	Flash
custom	cu	...	Custom
xraw-temp	XRWS	----	Temperature
Values: An Integer in the range 2000 to 50000.			
xraw-tint	XRWS	----	Tint
Values: An Integer in the range -150 to 150.			
xraw-exposure	XRWS	----	Exposure
Values: A Real Number in the range -4.00 to 4.00.			
xraw-shadows	XRWS	----	Shadows
Values: An Integer in the range 0 to 100.			
xraw-bright	XRWS	----	Brightness
Values: An Integer in the range 0 to 150.			
xraw-contrast	XRWS	a408	Contrast
Values: An Integer in the range -50 to 100.			
xraw-saturation	XRWS	a409	Saturation
Values: An Integer in the range -100 to 100.			
xraw-sharpness	XRWS	a40a	Sharpness
Values: An Integer in the range 0 to 100.			
xraw-lum-smooth	XRWS	----	LuminanceSmoothing
Values: An Integer in the range 0 to 100.			
xraw-col-noise-reduct	XRWS	----	ColorNoiseReduction
Values: An Integer in the range 0 to 100.			
xraw-chrom-ab-r	XRWS	----	ChromaticAberrationR
Values: An Integer in the range -100 to 100.			

EXIFutils Field Reference Guide

xraw-chrom-ab-b XRWS ---- ChromaticAberrationB
 Values: An Integer in the range -100 to 100.

xraw-vignette-amt XRWS ---- VignetteAmount
 Values: An Integer in the range -100 to 100.

xraw-shadow-tint XRWS ---- ShadowTint
 Values: An Integer in the range -100 to 100.

xraw-red-hue XRWS ---- RedHue
 Values: An Integer in the range -100 to 100.

xraw-red-sat XRWS ---- RedSaturation
 Values: An Integer in the range -100 to 100.

xraw-green-hue XRWS ---- GreenHue
 Values: An Integer in the range -100 to 100.

xraw-green-sat XRWS ---- GreenSaturation
 Values: An Integer in the range -100 to 100.

xraw-blue-hue XRWS ---- BlueHue
 Values: An Integer in the range -100 to 100.

xraw-blue-sat XRWS ---- BlueSaturation
 Values: An Integer in the range -100 to 100.

xraw-fill-light XRWS ---- FillLight
 Values: An Integer.

xraw-vibrance XRWS ---- Vibrance
 Values: An Integer.

xraw-high-recov XRWS ---- HighlightRecovery
 Values: An Integer.

xraw-clarity XRWS ---- Clarity
 Values: An Integer.

xraw-defringe XRWS ---- Defringe
 Values: An Integer.

xraw-hue-adj-red XRWS ---- HueAdjustmentRed
 Values: An Integer.

xraw-hue-adj-orange XRWS ---- HueAdjustmentOrange
 Values: An Integer.

xraw-hue-adj-yellow XRWS ---- HueAdjustmentYellow
 Values: An Integer.

xraw-hue-adj-green XRWS ---- HueAdjustmentGreen
 Values: An Integer.

xraw-hue-adj-aqua XRWS ---- HueAdjustmentAqua
 Values: An Integer.

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xraw-hue-adj-blue Values: An Integer.	XRWS	----	HueAdjustmentBlue
xraw-hue-adj-purple Values: An Integer.	XRWS	----	HueAdjustmentPurple
xraw-hue-adj-magenta Values: An Integer.	XRWS	----	HueAdjustmentMagenta
xraw-sat-adj-red Values: An Integer.	XRWS	----	SaturationAdjustmentRed
xraw-sat-adj-orange Values: An Integer.	XRWS	----	SaturationAdjustmentOrange
xraw-sat-adj-yellow Values: An Integer.	XRWS	----	SaturationAdjustmentYellow
xraw-sat-adj-green Values: An Integer.	XRWS	----	SaturationAdjustmentGreen
xraw-sat-adj-aqua Values: An Integer.	XRWS	----	SaturationAdjustmentAqua
xraw-sat-adj-blue Values: An Integer.	XRWS	----	SaturationAdjustmentBlue
xraw-sat-adj-purple Values: An Integer.	XRWS	----	SaturationAdjustmentPurple
xraw-sat-adj-magenta Values: An Integer.	XRWS	----	SaturationAdjustmentMagenta
xraw-lum-adj-red Values: An Integer.	XRWS	----	LuminanceAdjustmentRed
xraw-lum-adj-orange Values: An Integer.	XRWS	----	LuminanceAdjustmentOrange
xraw-lum-adj-yellow Values: An Integer.	XRWS	----	LuminanceAdjustmentYellow
xraw-lum-adj-green Values: An Integer.	XRWS	----	LuminanceAdjustmentGreen
xraw-lum-adj-aqua Values: An Integer.	XRWS	----	LuminanceAdjustmentAqua
xraw-lum-adj-blue Values: An Integer.	XRWS	----	LuminanceAdjustmentBlue
xraw-lum-adj-purple Values: An Integer.	XRWS	----	LuminanceAdjustmentPurple
xraw-lum-adj-magenta Values: An Integer.	XRWS	----	LuminanceAdjustmentMagenta

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xraw-split-shad-hue Values: An Integer.	XRWS	----	SplitToningShadowHue
xraw-split-shad-sat Values: An Integer.	XRWS	----	SplitToningShadowSaturation
xraw-split-high-hue Values: An Integer.	XRWS	----	SplitToningHighlightHue
xraw-split-high-sat Values: An Integer.	XRWS	----	SplitToningHighlightSaturation
xraw-split-bal Values: An Integer.	XRWS	----	SplitToningBalance
xraw-param-shadows Values: An Integer.	XRWS	----	ParametricShadows
xraw-param-darks Values: An Integer.	XRWS	----	ParametricDarks
raw_param-lights Values: An Integer.	XRWS	----	ParametricLights
xraw-param-high Values: An Integer.	XRWS	----	ParametricHighlights
xraw-param-shad-split Values: An Integer.	XRWS	----	ParametricShadowSplit
xraw-param-mid-split Values: An Integer.	XRWS	----	ParametricMidtoneSplit
xraw-param-high-split Values: An Integer.	XRWS	----	ParametricHighlightSplit
xraw-sharpen-radius Values: An Integer.	XRWS	----	SharpenRadius
xraw-sharpen-detail Values: An Integer.	XRWS	----	SharpenDetail
xraw-sharpen-edge-mask Values: An Integer.	XRWS	----	SharpenEdgeMasking
xraw-pc-vignette-amt Values: An Integer.	XRWS	----	PostCropVignetteAmount
xraw-conv-grayscale Values: An Integer.	XRWS	----	ConvertToGrayscale

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```

xraw-tone-curve-name      XRWS  ----  ToneCurveName
  Values: A text string from the following list:
          Linear
          Medium Contrast
          Strong Contrast
          Custom
          or user defined value.

xraw-tone-curve[]        XRWS  ----  ToneCurve
  Values: Sequenced List of Point.

xraw-profile             XRWS  ----  CameraProfile
  Values: A Text String.

xraw-prof-digest        XRWS  ----  CameraProfileDigest
  Values: A Text String.

xraw-has-settings       XRWS  ----  HasSettings
  Values: A True/False value.

xraw-has-crop           XRWS  ----  HasCrop
  Values: A True/False value.

xraw-already-applied    XRWS  ----  AlreadyApplied
  Values: A True/False value.

xraw-crop-top           XRWS  ----  CropTop
  Values: A Real Number.

xraw-crop-left          XRWS  ----  CropLeft
  Values: A Real Number.

xraw-crop-bottom        XRWS  ----  CropBottom
  Values: A Real Number.

xraw-crop-right         XRWS  ----  CropRight
  Values: A Real Number.

xraw-crop-angle         XRWS  ----  CropAngle
  Values: A Real Number.

xraw-crop-width         XRWS  ----  CropWidth
  Values: A Real Number.

xraw-crop-height        XRWS  ----  CropHeight
  Values: A Real Number.

xraw-crop-units         XRWS  ----  CropUnits
  -----Value----- Abbrev --Num- -----Meaning-----
  Values: pixels       p         0  Pixels
          inches       i         1  Inches
          cm           c         2  Centimeters

xraw-auto-bright        XRWS  ----  AutoBrightness
  Values: A True/False value.

```

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```
xraw-auto-contrast      XRWS  ----  AutoContrast
  Values: A True/False value.

xraw-auto-exposure     XRWS  ----  AutoExposure
  Values: A True/False value.

xraw-auto-shadows      XRWS  ----  AutoShadows
  Values: A True/False value.

xraw-vignette-point    XRWS  ----  VignetteMidpoint
  Values: An Integer in the range 0 to 100.
```

2.2.7.13 IPTC for XMP Core

```
----- Field Name ----- -Attr- -Tag- ----- Description -----
i4x-creator-contact.cr-city XRWS  ----  CiAdrCity
  Values: A Text String.

i4x-creator-contact.cr-country XRWS  ----  CiAdrCtry
  Values: A Text String.

i4x-creator-contact.cr-address XRWS  ----  CiAdrExtadr
  Values: A Text String.

i4x-creator-contact.cr-postal-code XRWS  ----  CiAdrPcode
  Values: A Text String.

i4x-creator-contact.cr-state-prov XRWS  ----  CiAdrRegion
  Values: A Text String.

i4x-creator-contact.cr-email XRWS  ----  CiEmailWork
  Values: A Text String.

i4x-creator-contact.cr-phone XRWS  ----  CiTelWork
  Values: A Text String.

i4x-creator-contact.cr-url XRWS  ----  CiUrlWork
  Values: A Text String.

i4x-genre                XRWS  ----  IntellectualGenre
  Values: A Text String.

i4x-location              XRWS  ----  Location
  Values: A Text String.

i4x-genre.i4x-country-code XRWS  ----  CountryCode
  Values: A Text String.

i4x-scene[]               XRWS  ----  Scene
  Values: One ore more terms from the IPTC 'Scene-NewsCodes'.
  Each Scene is represented as a string of 6 digits
  in an unordered list. See www.newscodes.org.

i4x-subj-code[]           XRWS  ----  SubjectCode
  Values: Closed List of Text String.
```