NAME

exiv2 – Image metadata manipulation tool

SYNOPSIS

exiv2 [*options*] [*action*] *file ...*

DESCRIPTION

exiv2 is a program to read and write Exif, IPTC, XMP metadata and image comments and can read many vendor makernote tags. The program optionally converts between Exif tags, XMP properties and IPTC datasets as recommended by the Exif Standard, the IPTC Standard, the XMP specification and Metadata Working Group guidelines.

The following image formats are supported:

Type	Exif	IPTC	XMP	Image Comments	ICC Profile
JPEG	Read/Write	Read/Write	Read/Write	Read/Write	Read/Write
EXV	Read/Write	Read/Write	Read/Write	Read/Write Read/Write	
CR2	Read/Write	Read/Write	Read/Write	-	Read/Write
CRW	Read/Write	-	-	Read/Write	-
MRW	Read	Read	Read	-	-
TIFF	Read/Write	Read/Write	Read/Write	-	Read/Write
WEBP	Read/Write	-	Read/Write	-	Read/Write
DNG	Read/Write	Read/Write	Read/Write	-	Read/Write
NEF	Read/Write	Read/Write	Read/Write	-	Read/Write
PEF	Read/Write	Read/Write	Read/Write	-	Read/Write
ARW	Read	Read	Read	-	-
RW2	Read	Read	Read	-	-
SR2	Read	Read	Read	-	-
SRW	Read/Write	Read/Write	Read/Write	-	-
ORF	Read/Write	Read/Write	Read/Write	-	-
PNG	Read/Write	Read/Write	Read/Write	Read/Write	Read/Write
PGF	Read/Write	Read/Write	Read/Write	Read/Write	Read/Write
RAF	Read	Read	Read	-	-
EPS	-	-	Read/Write	-	-
XMP	-	-	Read/Write	-	-
GIF	-	-	-	-	-
PSD	Read/Write	Read/Write	Read/Write	-	-
TGA	-	-	-	-	-
BMP	-	-	-	-	-
JP2	Read/Write	Read/Write	Read/Write	-	Read/Write

- Support for GIF, TGA and BMP images is minimal: the image format is recognized, a MIME type assigned to it and the height and width of the image are determined.

- Reading other TIFF-like RAW image formats, which are not listed in the table, may also work.

ACTIONS

The *action* argument is only required if it is not clear from the *options* which action is implied.

pr | print

Print image metadata. This is the default action, i.e., the command *exiv2 image.jpg* will print a summary of the image Exif metadata.

ex | extract

Extract metadata to *.exv, XMP sidecar (*.xmp) and thumbnail image files. Modification commands can be applied on-the-fly.

in | insert

Insert metadata from corresponding *.exv, XMP sidecar (*.xmp) and thumbnail files. Use option **−S** *.suf* to change the suffix of the input files. Since files of any supported format can be used as input files, this command can be used to copy the metadata between files of different formats.

Modification commands can be applied on-the-fly.

rm | delete
Delete image metadata from the files.

ad | adjust
Adjust Exif timestamps by the given time. Requires at least one of the options **−a** *time*, **−Y** *yrs*, **−O** *mon* or **−D** *day*.

mo | modify
Apply commands to modify (add, set, delete) the Exif, IPTC and XMP metadata of image files. Requires option **−c**, **−m** or **−M**.

mv | rename
Rename files and/or set file timestamps according to the Exif create timestamp. Uses the value of tag Exif.Photo.DateTimeOriginal or, if not present, Exif.Image.DateTime to determine the timestamp. The filename format can be set with **−r** *fmt*, timestamp options are **−t** and **−T**.

fi | fixiso
Copy the ISO setting from one of the proprietary Nikon or Canon makernote ISO tags to the regular Exif ISO tag, Exif.Photo.ISOSpeedRatings. Does not overwrite an existing standard Exif ISO tag.

fc | fixcom
Fix the character encoding of Exif Unicode user comments. Decodes the comment using the auto-detected or specified character encoding and writes it back in UCS-2. Use option **−n** to specify the current encoding of the comment if necessary.

COMMAND SUMMARY

exiv2 [opt [arg]]+ [act] file ...

option [arg]		long option	description
-a	tim	--adjust	Modify time stamps. [+|-]HH[:MM[:SS[.mmm]]]
-b		--binary	Show large binary values (default is to suppress them).
-c	txt	--comment	JPEG comment string to set in the image ('modify' action). ...
-d	tgt	--delete	Delete target(s) for the 'delete' action. ...
-D	+-n	--days	Time adjustment by a positive or negative number of days ...
-e	tgt	--extract	Extract target(s) for the 'extract' action.
-f		--force	Do not prompt before overwriting existing files ...
-F		--Force	Do not prompt before renaming files (Force rename) ...
-g	key	--grep	Only output info for this Exiv2 key
-h		--help	Display help and exit.
-i	tgt	--insert	Insert target(s) for the 'insert' action. ...
-k		--keep	Preserve file timestamps when updating files
-K	key	--key	Report key. Similar to -g (grep) however key must match exactly.
-l	dir	--location	Location (directory) for files to be inserted or extracted.
-m	file	--modify	read commands from cmd-file
-M	cmd	--Modify	Command line for the 'modify' action. ...
-n	enc	--encode	Charset to decode Exif Unicode user comments. See: man 3 iconv_open
-O	+-n	--months	Time adjustment by a positive or negative number of months, ...
-p	mod	--print	Print report (common reports)
-P	flg	--Print	Print report (fine grained control)
-q		--quiet	Silence warnings and error messages from the Exiv2 library ...
-Q	lvl	--log	Set the log-level to 'd'(ebug), 'i'(nfo), 'w'(arning), 'e'(rror)
-r	fmt	--rename	Filename format for the 'rename' action. ...
-S	suf	--suffix	Use suffix .suf for source files for insert command.
-t		--timestamp	Set the file timestamp according to the Exif create timestamp ...
-T		--Timestamp	Only set the file timestamp according to Exif create timestamp ...
-u		--unknown	Show unknown tags ...
-v		--verbose	verbose
-V		--version	Show the program version and exit.
-Y	+-n	--years	Time adjustment by a positive or negative number of years ...

act		pr	ex	in	rm	ad	mo	mv	fi	fc
		print, extract, insert, delete, adjust, modify, rename, fixiso, fixcom
cmd		See "Commands" below.
flg		E	I	X	x	g	k	l	n	y	c	s	v	t	h
		Exif, IPTC, XMP, num, grp, key, label, name, type, count, size, vanilla, translated, hex
fmt		Default format is %Y%m%d_%H%M%S.
lvl		d	i	i	w	e
		debug, info, warning, error
mod		s	a	e	t	v	h	i	x	c	p	i	C	R	S	X
		summary, all, exif, translated, vanilla, hex, iptc, xmp, comment, preview, ICC Profile, Recursive Structure, Simple Structure, raw XMP
tgt		a	c	e	i	p	t	x	C	X	XX	-
		all, comment, exif, iptc, preview, thumb, xmp, ICC Profile, SideCar, RawXMP, stdin/out

OPTIONS

–h   Display help and exit.

–V   Show the program version and exit.
When **–V** is combined with **–v** (Verbose version), build information is printed to standard output along with a list of shared libraries which have been loaded into memory. Verbose version is supported on Windows (MSVC, Cygwin and MinGW builds), MacOSX and Linux and is provided for test and debugging.

–v   Be verbose during the program run.

–q   Silence warnings and error messages from the Exiv2 library during the program run (quiet). Note that options **–v** and **–q** can be used at the same time.

–Q *lvl* Set the log-level to 'd'(ebug), 'i'(nfo), 'w'(arning), 'e'(rror) or 'm'(ute). The default log-level is 'w'. **–Qm** is equivalent to **–q**. All log messages are written to standard error.

–b   Show large binary values (default is to suppress them).

–u   Show unknown tags (default is to suppress tags which don't have a name).

–g *key* Only keys which match the given key (grep).
Multiple **–g** options can be used to grep info for several keys. Example: exiv2 -v -V -g webready -g time.

exiv2 –g Date –pt R.jpg
Exif.Image.DateTime   Ascii   20 2012:08:07 16:01:05
Exif.Photo.DateTimeOriginal Ascii   20 2011:09:18 16:25:48
Exif.Photo.DateTimeDigitized Ascii   20 2011:09:18 16:25:48

-g (--grep) is only applied to keys. It is not generally applied to all output such as the default -ps report.

The key may finish with the optional modifier /i to indicated case insensitive.

–K *key* Only report data for given key.
Multiple **–K** options can be used to report more than a single key.

exiv2 –K Exif.Photo.DateTimeDigitized -K Exif.Photo.DateTimeOriginal –pt R.jpg
Exif.Photo.DateTimeOriginal Ascii   20 2011:09:18 16:25:48
Exif.Photo.DateTimeDigitized Ascii   20 2011:09:18 16:25:48

–n *enc* Charset to use to decode Exif Unicode user comments. *enc* is a name understood by **iconv_open**(3), e.g., 'UTF-8'.

–k   Preserve file timestamps when updating files (keep). Can be used with all options which update files. The flag is ignored by read-only options.

–t   Set the file timestamp according to the Exif create timestamp in addition to renaming the file (overrides **–k**). This option is only used with the 'rename' action.

–T   Only set the file timestamp according to the Exif create timestamp, do not rename the file (overrides **–k**). This option is only used with the 'rename' action. Note: On Windows you may have to set the TZ environment variable for this option to work correctly.

–f   Do not prompt before overwriting existing files (force overwrite).

–F   Do not prompt before renaming files (Force rename). Appends '_1' ('_2', ...) to the name of the new file.

–a *time* Time adjustment in the format [–]HH[:MM[:SS]]. This option is only used with the 'adjust' action. Examples: 1 adds one hour, 1:01 adds one hour and one minute, –0:00:30 subtracts 30 seconds.

–Y *yrs*   Time adjustment by a positive or negative number of years, for the 'adjust' action.

–O *mon*

        Time adjustment by a positive or negative number of months, for the 'adjust' action.

–D *day*   Time adjustment by a positive or negative number of days, for the 'adjust' action.

–p *mode*

        Print mode for the 'print' action. Possible modes are:
        s : print a summary of the Exif metadata (the default)
        a : print Exif, IPTC and XMP metadata (shortcut for –Pkyct)
        e : print Exif metadata (shortcut for –PEkycv)
        t : interpreted (translated) Exif tags (–PEkyct)
        v : plain Exif tag values (–PExgnycv)
        h : hexdump of the Exif data (–PExgnycsh)
        i : IPTC datasets (–PIkyct)
        x : XMP properties (–PXkyct)
        c : JPEG comment
        p : list available image previews, sorted by preview image size in pixels
        C : print image ICC Profile (jpg, png, tiff, webp, cr2, jp2 only)
        R : print image structure recursively (jpg, png, tiff, webp, cr2, jp2 only)
        S : print image structure information (jpg, png, tiff, webp, cr2, jp2 only)
        X : print "raw" XMP (jpg, png, tiff, webp, cr2, jp2 only)

–P *flgs*   Print flags for fine control of the tag list ('print' action). Allows control of the type of metadata as well as data columns included in the print output. Valid flags are:
        E : include Exif tags in the list
        I : IPTC datasets
        X : XMP properties
        x : print a column with the tag number
        g : group name
        k : key
        l : tag label
        n : tag name
        y : type
        c : number of components (count)
        s : size in bytes
        v : plain data value (vanilla values)
        V : plain data value AND the word 'set ' (for use with exiv2 -m-)
        t : interpreted (translated) human readable data
        h : hexdump of the data

–d *tgt*   Delete target(s) for the 'delete' action. Possible targets are:
        a : all supported metadata (the default)
        e : Exif section
        t : Exif thumbnail only
        i : IPTC data
        x : XMP packet
        c : JPEG comment
        C : ICC Profile
        I : All IPTC data

–i *tgt*   Insert target(s) for the 'insert' action. Possible targets are the same as those for the **–d** option, plus an optional modifier:

        X : Insert metadata from an XMP sidecar file <file>.xmp. The remaining insert targets determine what metadata to insert from the sidecar file. Possible are Exif, IPTC and XMP and the default is all of these. Note that the inserted XMP properties include those converted to Exif and IPTC.

XX: Insert "raw" XMP metadata from a sidecar (see option -pX)

- : Read from stdin. This option is intended for "filter" operations such as:
$ exiv2 -e{tgt}- *filename* | xmllint .... | exiv2 -i{tgt}- *filename*

Only JPEG thumbnails can be inserted (not TIFF thumbnails), and must be named *file–thumb.jpg*.

–e *tgt*   Extract target(s) for the 'extract' action. Possible targets are the same as those for the **–d** option, plus a target to extract preview images and a modifier to generate an XMP sidecar file:
p[<n>[,<m> ...]] : Extract preview images. The optional comma separated list of preview image numbers is used to determine which preview images to extract. The available preview images and their numbers are displayed with the 'print' option **–pp**.

C : Extract embedded ICC profile to <file>.icc

X : Extract metadata to an XMP sidecar file <file>.xmp. The remaining extract targets determine what metadata to extract to the sidecar file. Possible are Exif, IPTC and XMP and the default is all of these.

XX: Extract "raw" XMP metadata to a sidecar (see -pX)
You may not use modify commands with the -eXX option and only XMP is written to the sidecar.

- : Output to stdout (see -i tgt for an example of this feature)

–r *fmt*   Filename format for the 'rename' action. The format string follows **strftime**(3) and supports the following keywords:

:basename: original filename without extension
:dirname: name of the directory holding the original file
:parentname: name of parent directory
Default filename format is %Y%m%d_%H%M%S.

–c *txt*   JPEG comment string to set in the image ('modify' action). This option can also be used with the 'extract' and 'insert' actions to modify metadata on-the-fly.

–m *file*   Command file for the 'modify' action. This option can also be used with the 'extract' and 'insert' actions to modify metadata on-the-fly. -m- represents standard-input.

–M *cmd*

Command line for the 'modify' action. This option can also be used with the 'extract' and 'insert' actions to modify metadata on-the-fly. The format for the commands is the same as that of the lines of a command file.

–l *dir*   Location (directory) for files to be inserted or extracted.

–S *.suf*   Use suffix *.suf* for source files in 'insert' action.

COMMANDS

Commands for the 'modify' action can be read from a command file, e.g.,

   exiv2 −m cmd.txt image.jpg

or given on the command line, as in

   exiv2 −M"add Iptc.Application2.Credit String Mr. Smith" image.jpg

Note the quotes. Multiple **−m** and **−M** options can be combined, and a non-standard XMP namespace registered.

   exiv2 −M"reg myprefix http://ns.myprefix.me/" −M"add Xmp.myprefix.Whom Mr. Smith" −M"set Exif.Image.Artist Mr. Sn

When writing Exif, IPTC and XMP metadata, **exiv2** enforces only a correct metadata structure. It is possible to write tags with types and values different from those specified in the standards, duplicate Exif tags, undefined tags, or incomplete metadata. While **exiv2** is able to read all metadata that it can write, other programs may have difficulties with images that contain non standard-conforming metadata.

Command format

The format of a command is

set | add | del *key* [[*type*] *value*]

set   Set the *value* of an existing tag with a matching *key* or add the tag.

add   Add a tag (unless *key* is a non–repeatable IPTC key; nothing prevents you from adding duplicate Exif tags).

del   Delete all occurrences of a tag (requires only a *key*).

key   Exiv2 Exif, IPTC or XMP key.

type   **Byte | Ascii | Short | Long | Rational | Undefined | SShort | SLong | SRational | Comment** for Exif keys,
          String | Date | Time | Short | Undefined for IPTC keys, and
          XmpText | XmpAlt | XmpBag | XmpSeq | LangAlt for XMP keys.

          A default *type* is used if none is explicitly given. The default is determined based on *key*.

value   The remaining text on the line is the value. It can optionally be enclosed in single quotes ('*value*') or double quotes ("*value*").

          The value is optional. Not providing any value is equivalent to an empty value ("") and is mainly useful to create an XMP array property, e.g., a bag.

          The format of Exif **Comment** values includes an optional charset specification at the beginning:
          [charset=Ascii|Jis|Unicode|Undefined]*comment*

          Undefined is used by default if the value doesn't start with a charset definition.

          The format for an IPTC **Date** value is:

             YYYY−MM−DD (year, month, day)

          The format for an IPTC **Time** value is:

             HH:MM:SS (hours, minutes, seconds)

and may optionally be followed by:

   −HH:MM or +HH:MM (hours, minutes ahead/behind UTC)

The format of **Rational** (and **SRational**) is one of:

   integer | integer/integer | Fnumber | number

Rational Examples:

$ exiv2 "-Mset Exif.Photo.MaxApertureValue 557429/62500" X.jpg
$ exiv2 "-Mset Exif.Photo.MaxApertureValue F5.6" X.jpg

The Rational format Fnumber is for the convenience of setting aperture values. Aperture values
are stored in Exif is an **APEX** value which can be evaluated by the expression:

apex-value =   log(Fnumber) * 2.0 / log(2.0)
number   = exp(apex-value * log(2.0) / 2.0)

The Rational format Fnumber is valid for any **Rational**, even when the key is not an Aperture.
More information about **APEX** value is available from: http://en.wikipedia.org/wiki/APEX_sys-
tem

The format of XMP **LangAlt** values includes an optional language qualifier:
lang="_language-code" text_

lang="x-default" is used if the value doesn't start with a language qualifier.

$ exiv2 -M'set Xmp.dc.title lang="de-DE" Euros' X.jpg
$ exiv2 -M'set Xmp.dc.title lang="en-GB" Pounds' X.jpg
$ exiv2 -M'set Xmp.dc.title lang="en-US" In God We Trust' X.jpg
$ exiv2 -M'set Xmp.dc.title All others pay cash' X.jpg

To remove a language specification, set the value to '' (empty string)
exiv2 -M'set Xmp.dc.title lang="en-US"' X.jpg
To remove all language specifications, delete the key:
$ exiv2 -M'del Xmp.dc.title' X.jpg
To register additional XMP namespaces, combine the command with:
reg _prefix namespace_

Command file format

Empty lines and lines starting with **#** in a command file are ignored (comments). Remaining lines are com-
mands as described above.

CONFIGURATION FILE

Exiv2 can read an optional configuration file ˜/.exiv2 on Unix systems and %USERPROFILE%\exiv2.ini on Windows (using a Visual Studio build). Cygwin and MinGW/msys2 follow the unix convention and use ˜/.exiv2 You can fine the location of the configuration file with the command:

```
$ exiv2 --verbose --version --grep config_path
exiv2 0.27.0.1
config_path=/Users/rmills/.exiv2
```

The purpose of the configuration file is to define your own lenses for recognition by Exiv2. The configuration file is in Windows .ini format and has sections for each of the major camera manufactures canon,nikon,pentax,minolta,olympus and sony. The lens metadata is stored as a integer called the lensID. You can change the lens name associated with any lensID.

```
$ cat ˜/.exiv2
[nikon]
146=Robin's Sigma Lens  <--- The name of your lens
```

You obtain the lensID for your camera with the command:

```
$ exiv2 -pv --grep lens/i http://clanmills.com/Stonehenge.jpg
0x0083 Nikon3     LensType              Byte      1  14
0x0084 Nikon3     Lens                  Rational  4  180/10 2500/10 35/10 63/10
0x008b Nikon3     LensFStops            Undefined 4  55 1 12 0
0x000c NikonLd3   LensIDNumber          Byte      1  146 <--- This number
0x000d NikonLd3   LensFStops            Byte      1  55
```

EXAMPLES

exiv2 *.jpg
>   Prints a summary of the Exif information for all JPEG files in the directory.

exiv2 –pi image.jpg
>   Prints the IPTC metadata of the image.

exiv2 rename img_1234.jpg
>   Renames img_1234.jpg (taken on 13–Nov–05 at 22:58:31) to 20051113_225831.jpg

exiv2 –r’:basename:_%Y%m’ rename img_1234.jpg
>   Renames img_1234.jpg to img_1234_200511.jpg

exiv2 –et img1.jpg img2.jpg
>   Extracts the Exif thumbnails from the two files into img1–thumb.jpg and img2–thumb.jpg.

exiv2 –it img1.jpg img2.jpg
>   Inserts (copies) metadata from img1.exv to img1.jpg and from img2.exv to img2.jpg.

exiv2 –ep1,2 image.jpg
>   Extracts previews 1 and 2 from the image to the files image–preview1.jpg and image–preview2.jpg.

exiv2 –eiX image.jpg
>   Extracts IPTC datasets into an XMP sidecar file image.xmp and in the process converts them to "IPTC Core" XMP schema.

exiv2 –iixX image.jpg
>   Inserts IPTC and XMP metadata from an XMP sidecar file image.xmp into image.jpg. The resulting IPTC datasets are converted from the "IPTC Core" XMP schema properties in the sidecar file to the older IPTC IIM4 format. The inserted XMP properties include those in the "IPTC Core" XMP schema.

exiv2 –M"set Exif.Photo.UserComment charset=Ascii New Exif comment" image.jpg
>   Sets the Exif comment to an ASCII string.

exiv2 –M"set Exif.GPSInfo.GPSLatitude 4/1 15/1 33/1" \ –M"set Exif.GPSInfo.GPSLatitudeRef N" image.jpg
>   Sets the latitude to 4 degrees, 15 minutes and 33 seconds north. The Exif standard stipulates that the GPSLatitude tag consists of three Rational numbers for the degrees, minutes and seconds of the latitude and GPSLatitudeRef contains either ’N’ or ’S’ for north or south latitude respectively.

exiv2 insert –l/tmp -S.CRW /data/*.JPG
>   Copy all metadata from CRW files in the /tmp directory to JPG files with corresponding basenames in the /data directory. Note that this copies metadata as is, without any modifications to adapt it to the requirements of the target format. Some tags copied like this may not make sense in the target image.

SEE ALSO

http://exiv2.dyndns.org/sample.html#modify
>   Sample command files.

http://exiv2.dyndns.org/metadata.html
>   Taglists with *key* and default *type* values.

AUTHORS

exiv2 was written by Andreas Huggel and others. The Exiv2 project web site is http://exiv2.dyndns.org. The code is hosted on GitHub at https://github.com/exiv2/exiv2

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