

Read and Write Exif or ID3 tags for pictures, mp3, videos

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Technical Note xx-xx (the number is filled in later)

Abstract

EXIF: Exchangeable image file format. Description from Wikipedia:

The metadata tags defined in the Exif standard cover a broad spectrum:

- Date and time information. Digital cameras will record the current date and time and save this in the metadata.
- Camera settings. This includes static information such as the camera model and make, and information that varies with each image such as orientation, aperture, shutter speed, focal length, metering mode, and ISO speed information.
- A thumbnail for previewing the picture on the camera's LCD screen, in file managers, or in photo manipulation software.
- Descriptions and copyright information.

Introduction

This tech note introduces a component as a wrapper for the open source (GPL) console application ExifTool. It allows using a subset of the provided features with some simple to use methods. As the source code is provided, it could be easily expanded for future needs.

ExifTool by Phil Harvey

Read, Write and Edit Meta Information!

ExifTool is a platform-independent Perl library plus a command-line application for reading, writing and editing meta information in image, audio and video files. ExifTool supports many different types of metadata including EXIF, GPS, IPTC, XMP, JFIF, GeoTIFF, ICC Profile, Photoshop IRB, FlashPix, AFCP and ID3, as well as the maker notes of many digital cameras by Canon, Casio, FujiFilm, HP, JVC/Victor, Kodak, Leaf, Minolta/Konica-Minolta, Nikon, Olympus/Epson, Panasonic/Leica, Pentax/Asahi, Ricoh, Sanyo, Sigma/Foveon and Sony.

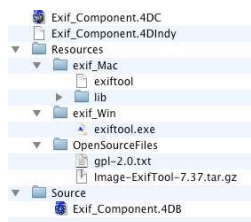
<http://owl.phy.queensu.ca/~phil/exiftool/index.html>

Exif_Component

Component Structure

The component is delivered as 4D v11 SQL component. If you are still in v2004, you can copy the method contents into a 4D v2004 structure with some minor changes. Mainly you need to rewrite the file path for ExifTool from using the resources folder to the extras folder. The code cannot be used with v2003.

For usage with 4D v11 SQL simply drag&drop the bundle (on Windows displayed as folder) Exif_Component.4dbase inside the Components folder beside your structure. It contains the compiled component, ExifTool, the GPL license and ExifTool source code and the source code of the component itself:



Component folder content

Exif_ReadAllTags

The command reads all available Tags from a given File/Path. The document could be an image, an audio file or movie, following the supported formats from ExifTools.

It returns in two text arrays a list of all included tags and their corresponding values.

Call it like:

```
$err := Exif_ReadAllTags(Path; ->ArrayTextTagNames; ->ArrayTextTagValues)
```

Parameter	Description
Path	Full file path, on Mac as HFS Path
ArrayTextTagNames	Pointer to Text Array, on return contains list of all included Tags
ArrayTextTagValues	Pointer to Text Array, on return contains list of values, corresponding to Tag Names (always same size)

With possible error codes:

Error number	Description
-1	Wrong number of parameters
-2	Resource folder of component invalid (ExifTool missing, reinstall component)
-3	Invalid parameters (\$2 or \$3 not pointer to text array)

-4	Invalid file path (\$1)
-5	Invalid answer from ExifTool – Unknown error

Exif_WriteTags

The command writes (or removes) specified Tags to a given File/Path. The document could be an image, an audio file or movie, following the supported formats from ExifTools.

Call it like:

```
$err := Exif_WriteTags(Path; ->ArrayTextTagNames; ->ArrayTextTagValues; 1; false)
```

Parameter	Description
Path	Full file path, on Mac as HFS Path
ArrayTextTagNames	Pointer to Text Array with name of tags to be written or modified
ArrayTextTagValues	Pointer to Text Array, on return contains list of values, corresponding to Tag Names (always same size)
Action	1=add; 2=modify; 3=remove
No Backup	True=do not create a backup copy of the file, false=create one (default)

With possible error codes:

Error number	Description
-1	Wrong number of parameters
-2	Resource folder of component invalid (ExifTool missing, reinstall component)
-3	Invalid parameters (\$2 or \$3 not pointer to text array)
-4	Invalid file path (\$1)
-5	Invalid answer from ExifTool – Unknown error

Pass only tags/values you want to change, there is no need to pass values which should stay unchanged. To add keywords you need to use for each keyword another array element (with tag="keyword" for each). Not all tags can be modified.

Action=1 adds tags to the existing list. Use it only for none existing tags or for tags which allows multiple values, such as keyword, to modify existing tags use Action=2. 3 allows to remove tags from the list, normally you pass as value an empty string (""). If the value has a content, only tags with this value are removed, this is useful for tags such as keyword="vacation".

Special tags/action for date/time to shift/correct.

For dates there are special tags and for these tags Action has a special meaning. The tag "AllDates" addresses all date/time fields. "DateTimeOriginal" is the original date, "CreateDate" the creation date and "ModifyDate" the modification date.

Date/Time tags often needs to be corrected, such as wrong time zone settings or time difference of a camera to a GPS device.

Action=1 is a positive time shifting (add time), 3 is a negative time shifting (decrease time) and 2 set's to a new value. The value can be passed as a time duration or as full string. Examples for time duration is "1" for one hour or "1.5" for 90 minutes. As full string date and time is expected, such as "0:0:1 0:0:0" for one full day or "0:0:0 0:2:30" for 150 minutes/2 hours and 30 minutes.

The command automatically creates a copy/backup of the original file, so even with bad tags/handling the image stays untouched. You can disable this behavior (\$5=true) if you already have a backup of the file. The backup is named "name of the file.original". The Backup is created only once, so not for every change but to keep the original version.

The current version of ExifTool supports Images for writing, not mp3 files (ID3 tags), but can read them. See:

<http://owl.phy.queensu.ca/~phil/exiftool/index.html>
for a full list of supported features and updates.

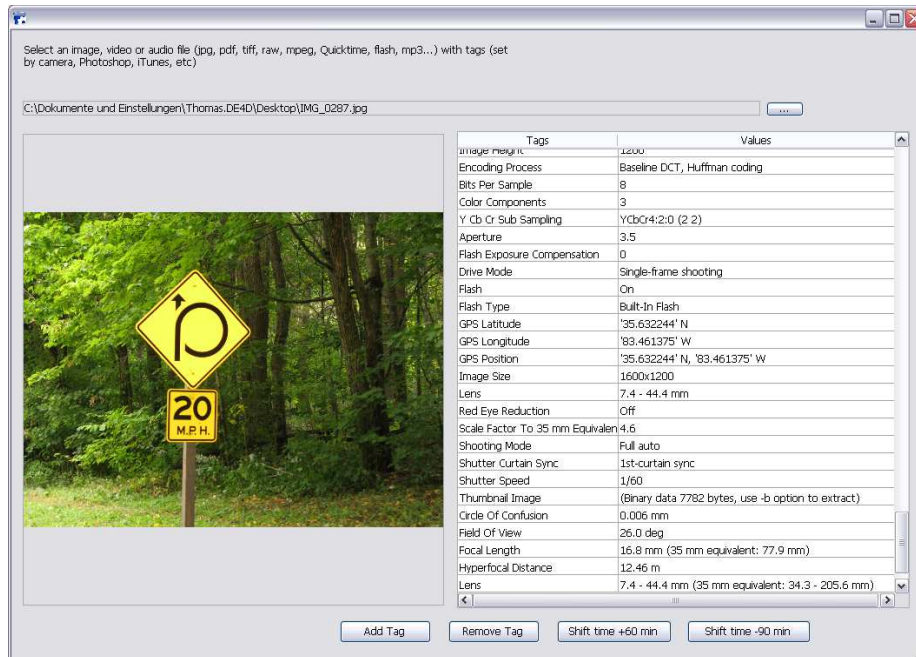
Test dialog in component source

The component includes a test method "Exif_test" which allows easy testing of the component. It allows to quickly check the content of a file and the available/used tag names, which helps coding. Tag names are not fully standardized, as example Picasa and Photoshop uses "Keywords" while Windows XP uses "XP Keywords" to store user keywords. Browsing through typical files gives an idea about the practical used tags.

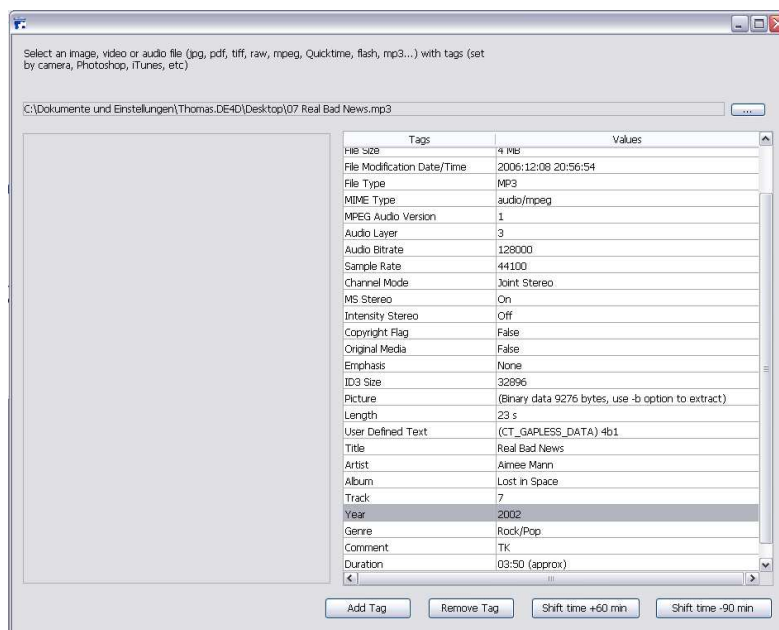
This dialog should not be used in your final application accessible by the customer...

Example application

The sample database is very simple; it shows the usage of the commands, by rebuilding the test dialog already included in the component.



Typical tags in an image made with a digital camera, tagged with GPS data



Typical tags in an mp3 audio file

To modify an existing tag simply do a long click in the value field and type the new value. The Buttons Add Tag allows to add while Remove Tag deletes the selected line. The two Shift Buttons are examples for time shifting (+60 minutes or -90 minutes).

Note that the current version of ExifTool can only write image files (not MP3/ID3 tags, etc), while it can read also other media files.

GPL license

ExifTool is published under the GPL license. While the license allows you to use and distribute the tool without charge, it also includes some rules to respect. The license agreement (and the source code of ExifTool) is included in the resource folder of the component.

If you want to use this component, you must ship this parts with your application, it is strongly advised that you include into your documentation/license agreement the information that you use with ExifTool a gpl-2 application which is called as command line tool (not embedded into your application) and that both the tool and it's source can be freely used and distributed from your user following the enclosed gpl-2 license agreement.

Extract from the gpl-2 license:

"If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works."

Please read closely the gpl-2 license agreement and make sure that your own license agreement does not give the feelings that your full application is covered by that, you must make sure that the user knows that he can freely use/distribute ExifTool and that this is not part from your application.