

# Aperture Metadata Handling

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Tested with Aperture 3.3.2

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## Date Information in Aperture

Aperture exposes 3 date fields in its interface. The information below was determined from tests carried out using both JPEG and TIFF files.

### (1) Image Date

This is determined on import based on EXIF, XMP, or filesystem metadata. Aperture looks for metadata in the image file in the following order and uses the first valid metadata field it finds to set the ‘Date’ field in the resulting imported image:

- I. EXIF Date/Time Original
- II. XMP Date/Time Original, *but with seconds removed (set to :00)*
- III. EXIF Create Date
- IV. XMP Date/Time Digitized, *but with seconds removed (set to :00)*
- V. EXIF Modify Date
- VI. XMP Modify Date, *but with seconds removed (set to :00)*
- VII. File’s filesystem modification date

*Details of the tests carried out to determine this list can be found in [Appendix A](#).*

### (2) Last Modified Date

This is internal to Aperture. It's not based on the file's modification date – it is based on any operations you have performed on a photo within Aperture.

### (3) IPTC Date Created

This is set to the contents of the *DateCreated* and *TimeCreated* fields stored in the image file’s legacy [IIM/IPTC](#) metadata (if present). It will not use any contents of the *DateCreated* field stored in the image file using the current [XMP/IPTC Core](#) metadata standard. And neither the IIM or XMP *DateCreated* fields are considered when setting the Aperture ‘Date’ field (as can be seen in the [list above](#)). Note that the (separate!) XMP *CreateDate* field is also not used for anything on import.

If the 'IPTC Date Created' field is empty, Aperture will suggest setting it to the same as the Aperture '[Date](#)' field. You can click in the IPTC Date Created field to accept this (turning the grey date text to black).

When using the "Write IPTC Metadata to Original..." command, exporting an Original, or exporting a Version, the value of Aperture's 'IPTC Date Created' field is written to the IIM/IPTC *DateCreated* and *TimeCreated* fields and the XMP/IPTC Core *DateCreated* field (*not to be confused with the XMP CreateDate field*). For information on how Aperture handles other IPTC metadata, see the [section below](#).

## Date Information in Files

The Original files on the hard drive (can) store dates in the EXIF standard. They can also store dates using the newer XMP standard, though this is less well supported by applications (including Aperture). However, even if the EXIF & XMP dates are set properly in an Original file before being imported into Aperture, "Adjust Date and Time..." and "Write IPTC Metadata to Original..." commands can alter or remove dates in unexpected ways. The actions and results in the table below apply to both managed and referenced images. The table notes where the results vary depending on whether the image file is a JPEG or TIFF. Results that are potentially problematic are **highlighted**.

| Action  | Metadata Present in Original File on Hard Drive after completing Action   |   |  |                  |                |                |                |
|---|---|---|--|------------------|----------------|----------------|----------------|
|   | EXIF Dates  |   |  | XMP Dates        |                |                |                |
|   | Original  | Create  | Modify   | Original         | Digitized      | Create         | Modify         |
| Import file   | no change   | no change   | no change  | no change        | no change      | no change      | no change      |
| "Batch Change: Adjust Time Zone"                    | no change   | no change   | no change  | no change        | no change      | no change      | no change      |
| "Batch Change: Rename Originals"                    | no change   | no change   | no change  | no change        | no change      | no change      | no change      |
| "Batch Change: Add Metadata"                        | no change   | no change   | no change  | no change        | no change      | no change      | no change      |
| "Adjust Date and Time..."                           | no change   | no change   | no change  | no change        | no change      | no change      | no change      |
| "Adjust Date and Time...:Also change original file" | if already present in file, set to Aperture <a href="#">Date</a> field (as modified by date/time adjustment); <b>otherwise blank (as in Original)</b> | <b>if already present in file, set to Aperture <a href="#">Date</a> field</b> (as modified by date/time adjustment); otherwise blank (as in Original) | if already present in file, set to Aperture <a href="#">Date</a> field (as modified by date/time adjustment); otherwise blank (as in Original) | <b>no change</b> | no change      | no change      | no change      |
| "Write IPTC Metadata to Original..."†               | JPEG  | no change   | no change  | no change        | no change      | no change      | no change      |
|   | TIFF  | no change   | no change  | no change        | <b>removed</b> | <b>removed</b> | <b>removed</b> |

†**NB:** There are further date fields not shown in this table: this command will write the contents of the 'IPTC → Image → Date Created' field to the IIM/IPTC *DateCreated* and *TimeCreated* fields and the XMP/IPTC Core *DateCreated* field as described [above](#).

## Date Information in Exported Files

The results in the table below apply to exports of both managed and referenced images. The IIM/IPTC *DateCreated* and *TimeCreated* fields XMP/IPTC Core *DateCreated* field (*not to be confused with the XMP CreateDate field*) in exported files are always set to the value of the [IPTC Date Created](#) field in Aperture (as described above). Version exports behave the same whether the Original file is a JPEG or TIFF, but Original exports behave differently.

| Action           |  | Metadata Present In Exported File  |  |   |                |                |                |                |
|------------------|--|--|--|---|----------------|----------------|----------------|----------------|
|                  |  | EXIF Dates   |  |   | XMP Dates      |                |                |                |
|                  |  | Original   | Create   | Modify  | Original       | Digitized      | Create         | Modify         |
| Export a version |  | Aperture <a href="#">Date</a> field  | Aperture <a href="#">Date</a> field  | Aperture <a href="#">Date</a> field   | <i>removed</i> | <i>removed</i> | <i>removed</i> | <i>removed</i> |
| JPEG             | Export an Original   | if present in Original, set to Aperture <a href="#">Date</a> field in exported file; <b>otherwise blank (as in Original)</b> | <b>if present in Original, set to Aperture <a href="#">Date</a> field</b> in exported file; otherwise blank (as in Original) | if present in Original, set to Aperture <a href="#">Date</a> field in exported file; otherwise blank (as in Original) | no change      | no change      | no change      | no change      |
| TIFF             | Export an Original that has at least one EXIF date field set   | if present in Original, set to Aperture <a href="#">Date</a> field in exported file; <b>otherwise blank (as in Original)</b> | <b>if present in Original, set to Aperture <a href="#">Date</a> field</b> in exported file; otherwise blank (as in Original) | if present in Original, set to Aperture <a href="#">Date</a> field in exported file; otherwise blank (as in Original) | <i>removed</i> | <i>removed</i> | <i>removed</i> | <i>removed</i> |
|                  | Export an Original that does not have any EXIF date fields set | no change (not set)  | no change (not set)  | Aperture <a href="#">Date</a> field   | <i>removed</i> | <i>removed</i> | <i>removed</i> | <i>removed</i> |

## “Adjust Time Zone” Command

When using the “Adjust Time Zone” command in the “Batch Change” dialogue, Aperture associates a time zone with the photo, as well as changing the time displayed in the *Date* field if necessary. (Note, this command never changes any dates in the Original file itself, see the table in [Date Information in Files](#), above.) This can produce some confusing behaviours. When using the “Adjust Date and Time...” command, if you choose to “Also change original file”, the image’s time zone information will be removed and the time adjusted back into your home time zone (in addition to any adjustment you make in the dialogue). For instance if your home time zone is GMT, the image has a time of 12:00:00 GMT, and you use “Adjust Time Zone” to set the image to CET, the Aperture *Date* field will now display as 13:00:00 CET. If you now use the “Adjust Date and Time...” command, set the time in the dialogue to 14:00:00, and choose “Also change original file”, after pressing the Adjust button the Aperture *Date* field will be change from 13:00:00 CET to 13:00:00 GMT, and 13:00:00 will be written to the relevant EXIF date fields in the Original file.

Additionally, if you **export an Original** from an image that has a time zone set other than your home time zone, any dates that are to be set to the “Aperture Date field” according to the table [above](#) will be set to the time in the *Date* field but adjusted to your time zone. So if the image has a time of 11:00:00 CET and you are in GMT, the exported Original will have its EXIF *Modify Date* set to 10:00:00. If, however, you **export a version**, the time in the export is set to the value of the Aperture *Date* field with no adjustment for time zones. So in the example just given, the exported version will have its EXIF *Modify Date* set to 11:00:00 even though you are in GMT. **Note that the time zone information is not included in any exported files.**

## IPTC Metadata

When using the “Write IPTC Metadata to Original...” command, exporting an Original, or exporting a Version, all the values contained in the IPTC Core fields in Aperture’s ‘Metadata’ inspector are stored as appropriate XMP tags in the file. Many of the fields also get stored as legacy IIM/IPTC tags in the file, but the following fields are **not** stored in legacy IIM/IPTC tags:

**Contact:** Address, City, State/Province, Postal Code, Country, Phone, Email, Website  
**Image:** IPTC Scene  
**Status:** Usage Terms

## EXIF Metadata

For files with pre-existing EXIF tags, exporting both a Version or an Original includes the tags, with the exception of the dates as described [above](#) and GPS tags as described [below](#). When exporting a Version, relevant tags are updated (e.g. *Software* is set to *Aperture 3.3.2*, *Color Space* is set to *sRGB*).

## GPS Information

Aperture reads existing GPS tags as expected. **When exporting a version the following EXIF GPS tags are altered slightly:** *GPS Latitude*, *GPS Longitude*, *GPS Img Direction*, *GPS Dest Distance*. It is not clear why they are altered or along what logic, but the alterations seem to be very, very small in terms of their effect on the location data. For instance, in one image the following alterations were made:

|                       | GPS Latitude            | GPS Longitude          | GPS Img Direction    |
|-----------------------|-------------------------|------------------------|----------------------|
| <b>original</b>       | 55° 56' 33.17"          | 3° 11' 29.32"          | 0.1614050002         |
| <b>version export</b> | 55° 56' 33. <b>00</b> " | 3° 11' 29. <b>40</b> " | 0.16140500 <b>57</b> |

For files with that are geotagged within Aperture, exporting a version includes the location tags (subject to the bizarre alterations described above, compared with what is displayed in Aperture’s GPS fields). **Exporting an Original does not include the tags** and using the ‘Write IPTC Metadata to Original...’ command has no impact on GPS tags (which are stored as EXIF).

*[The following section applied to version 3.2.x of Aperture and is no longer relevant as version 3.3.x allows Aperture and iPhoto to use the same library, so no importing is necessary. However, we have not yet deleted the section as some of the behaviours described below may be present in this new world of shared Aperture and iPhoto libraries. Once we have had time to experiment with the using a single library in both Aperture and iPhoto, this section will be updated with the relevant information.]*

## **iPhoto Import**

### *Metadata*

When importing images from iPhoto using the “File → Import → iPhoto Library...” command, no metadata is modified in the underlying Original files (including dates, which are treated as with ‘Import file’ shown in the table in [‘Date Information in Files’](#)). Any photos that have been modified in iPhoto are imported either as the original image with Aperture adjustments applied (if possible, noted by the keywords ‘iPhoto Original’ and ‘iPhoto Converted’) or as two images in a stack: the original (with keyword ‘iPhoto Original’) and the edited copy (with keyword ‘iPhoto Edited’ or ‘iPhoto Externally Edited’).

### *Keywords*

On import, Aperture will retain iPhoto keywords assigned to images. Aperture places all the iPhoto keywords as a flat list under an ‘iPhoto’ top-level keyword. If any keywords exist in Aperture before the import under an ‘iPhoto’ top-level keyword, iPhoto images that use them will be assigned to the existing keywords. Otherwise Aperture will create new keywords for every iPhoto keyword assigned to an image, even if the ‘same’ keywords already exist elsewhere in the Aperture hierarchy. In Aperture’s Keyword HUD, you can drag a keyword into the same position as another identical keyword, and Aperture will offer to merge them. This works even if the keyword you are dragging contains child keywords – the entire hierarchy is merged.

As iPhoto has no concept of hierarchical keywords, all keywords are explicitly listed for an image. To restore flexibility, once you have created your keyword hierarchy in Aperture’s Keyword HUD, you can then remove the parent keywords assigned to an image in its Metadata inspector. The image will still show up in filters specifying the parent keyword, but if you move the child keyword, the image will then inherit the new parent. When parent keywords are explicitly listed for an image (as happens after an iPhoto import), moving a child does not remove the old parent keyword from an image.

## Appendix A: Tests carried out to determine what EXIF or XMP date is used to populate Aperture's "Date" field on import

Files were created with the following metadata set (using 'Exiftool') and then imported into Aperture, producing the results shown in the last column. All test were conducted with JPEGs and where noted TIFFs were tested too.

| Metadata Present in File Before Import |        |        |           |           |        |        | Date Used Within Aperture's "Date" field |
|--|--------|--------|-----------|-----------|--------|--------|--|
| EXIF Dates                             |        |        | XMP Dates |           |        |        |  |
| Original                               | Create | Modify | Original  | Digitized | Create | Modify |  |
| Yes                                    | Yes    | Yes    | No        | No        | No     | No     | EXIF Date/Time Original †                |
| Yes                                    | Yes    | No     | No        | No        | No     | No     | EXIF Date/Time Original                  |
| Yes                                    | No     | Yes    | No        | No        | No     | No     | EXIF Date/Time Original                  |
| Yes                                    | No     | No     | No        | No        | No     | No     | EXIF Date/Time Original                  |
| No                                     | Yes    | Yes    | No        | No        | No     | No     | EXIF Create Date                         |
| No                                     | Yes    | No     | No        | No        | No     | No     | EXIF Create Date                         |
| No                                     | No     | Yes    | No        | No        | No     | No     | EXIF Modify Date                         |
| No                                     | No     | No     | No        | No        | No     | No     | Filesystem modification date             |
| No                                     | No     | No     | Yes       | Yes       | Yes    | Yes    | XMP Date/Time Original :00s †            |
| No                                     | No     | No     | Yes       | Yes       | Yes    | No     | XMP Date/Time Original :00s              |
| No                                     | No     | No     | Yes       | Yes       | No     | Yes    | XMP Date/Time Original :00s              |
| No                                     | No     | No     | Yes       | No        | Yes    | Yes    | XMP Date/Time Original :00s              |
| No                                     | No     | No     | Yes       | Yes       | No     | No     | XMP Date/Time Original :00s              |
| No                                     | No     | No     | Yes       | No        | Yes    | No     | XMP Date/Time Original :00s              |
| No                                     | No     | No     | Yes       | No        | No     | Yes    | XMP Date/Time Original :00s              |
| No                                     | No     | No     | Yes       | No        | No     | No     | XMP Date/Time Original :00s              |
| No                                     | No     | No     | No        | Yes       | Yes    | Yes    | XMP Date/Time Digitized :00s             |
| No                                     | No     | No     | No        | Yes       | Yes    | No     | XMP Date/Time Digitized :00s             |
| No                                     | No     | No     | No        | Yes       | No     | Yes    | XMP Date/Time Digitized :00s             |
| No                                     | No     | No     | No        | Yes       | No     | No     | XMP Date/Time Digitized :00s             |
| No                                     | No     | No     | No        | No        | Yes    | Yes    | XMP Modify Date :00s †                   |
| No                                     | No     | No     | No        | No        | Yes    | No     | Filesystem modification date †           |
| No                                     | No     | No     | No        | No        | No     | Yes    | XMP Modify Date :00s †                   |
| Yes                                    | Yes    | Yes    | Yes       | Yes       | Yes    | Yes    | EXIF Date/Time Original                  |
| Yes                                    | Yes    | No     | Yes       | Yes       | Yes    | Yes    | EXIF Date/Time Original †                |
| Yes                                    | No     | No     | Yes       | No        | No     | No     | EXIF Date/Time Original                  |
| No                                     | Yes    | Yes    | Yes       | Yes       | Yes    | Yes    | XMP Date/Time Original :00s †            |
| No                                     | No     | Yes    | Yes       | Yes       | Yes    | Yes    | XMP Date/Time Original :00s              |
| No                                     | Yes    | No     | Yes       | No        | No     | No     | XMP Date/Time Original :00s              |
| No                                     | Yes    | Yes    | No        | Yes       | Yes    | Yes    | EXIF Create Date †                       |
| No                                     | Yes    | No     | No        | Yes       | No     | Yes    | EXIF Create Date                         |
| No                                     | Yes    | No     | No        | Yes       | No     | No     | EXIF Create Date                         |
| No                                     | No     | Yes    | No        | Yes       | Yes    | Yes    | XMP Date/Time Digitized :00s †           |
| No                                     | No     | Yes    | No        | Yes       | No     | Yes    | XMP Date/Time Digitized :00s             |
| No                                     | No     | Yes    | No        | Yes       | Yes    | No     | XMP Date/Time Digitized :00s             |
| No                                     | No     | Yes    | No        | No        | Yes    | Yes    | EXIF Modify Date †                       |
| No                                     | No     | Yes    | No        | No        | Yes    | No     | EXIF Modify Date                         |
| No                                     | No     | Yes    | No        | No        | No     | Yes    | EXIF Modify Date                         |

† Tested with TIFF as well as JPEG.