

## Exiv2 - Bug #1064

### exiv2 -iX <file.jpg> deletes Makernote

24 Apr 2015 19:12 - Alan Pater

<b>Status:</b>	Closed	<b>Start date:</b>	24 Apr 2015
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Robin Mills	<b>% Done:</b>	100%
<b>Category:</b>	xmp	<b>Estimated time:</b>	5.00 hours
<b>Target version:</b>	0.26		

**Description**

exiv2 -iX <file.jpg> is used to import metadata from an XMP sidecar file which was typically created with the command: exiv2 -eX <file.jpg>.

If the jpg file contains a makernote, -iX deletes that makernote. This was tested on images with both Nikon makernotes and on images with Olympus makernotes.

The XMP sidecar file created by -eX does not contain any makernote information. The XMP specification does not say anything about storing makernotes in XMP sidecar files, so that behaviour is normal and correct.

Importing metadata from XMP sidecar file should not delete makernotes.

#### Associated revisions

##### Revision 4220 - 09 Mar 2016 07:51 - Robin Mills

#1057, #1064, #922, #1148. Work in progress. This is a composite patch of several matters in development. None are totally complete at this time.

##### Revision 4427 - 23 Aug 2016 19:40 - Robin Mills

#1064 Fix -iX to merge (not replace) metadata from source to destination.

#### History

##### #1 - 24 Apr 2015 20:05 - Robin Mills

- Status changed from New to Assigned

- Target version set to 0.26

I'm going to push this one to v0.26. If this is a bug, it's been there a long time and nobody has mentioned it. If this a feature request to preserve the Makernote in the image being edited, I want to defer it to 0.26.

I feel that exiv2 -eX should export the Makernote as the attribute `exif.Makernote="..base64.."` and exiv2 -iX should recreate the Makernote. There are at least three reasons:

1. It's symmetrical
2. It's consistent with `exiv2 -e{tgt}` and `exiv2 -i{tgt}` which create and read `.exv` "sidekick files"
3. It's clean. Preserving the Exif.Makernote when updating other Exif takes is ugly. It might even be difficult to implement.

##### #2 - 25 Apr 2015 03:24 - Alan Pater

Lot's of people will be happy if we can figure out a reliable way to store makernotes in XMP. But also, some say no, not possible, don't go there. So not everyone will be happy ...

Phil Harvey, exiftool: "... the MakerNote tag existed in the early Adobe XMP specification, they never defined an encoding method for the data, so the tag is essentially useless ..." <http://u88.n24.queensu.ca/exiftool/forum/index.php?topic=1878.0>

Leonard Rosenthol, Adobe Systems: "I've discussed this the XMP team and they do NOT recommend the inclusion of a "binary blob" of data inside of XMP, and ESPECIALLY NOT the MakerNote data." <http://lists.freedesktop.org/archives/create/2007-June/000835.html>

Perhaps a -eMX option to export the makernote to a separate "binary blob" file alongside the xmp sidecar file? Then -iMX would re-import them both.

##### #3 - 02 May 2015 08:59 - Robin Mills

Thanks for digging into this, Alan. We mustn't put the makernote into the XMP. Adobe, undoubtedly for very good reasons, have said "No. Don't go there!". We don't need to add an **M** flag to say "Do a Microsoft and ignore the standard" We already have the `.exv` file that preserves the makernote. We don't need a sidecar to the sidecar!

So that brings us back to the original topic which is to retain the image's makernote when reading in a sidecar. What happens if the side car contradicts the makernote. We don't have an code to rewrite/update the makernote.

We could compromise and retain the makernote if it doesn't contradict the sidecar. However when there's conflict, we remove the makernote. That's a mess. Somebody will report a bug saying, sometimes the makernote is deleted and sometimes it isn't.

So, how about an `m` import tgt to say "retain the makernote". We can put out a warning if we think it's conflicted.

We could have import tgt `m` or `M`:

`m` = retain makernote when not conflicted

`M` = retain makernote unconditionally

#### #4 - 02 May 2015 13:31 - Alan Pater

Robin Mills wrote:

So that brings us back to the original topic which is to retain the image's makernote when reading in a sidecar. What happens if the side car contradicts the makernote. We don't have an code to rewrite/update the makernote.

I don't think there are any conflicts between information in the makernote and in XMP, IPTC or Exif. I thought makernotes are completely separate tags in a completely different location inside the file.

For instance, all the Nikon makernote tags are under Exif.Nikon...

<http://www.exiv2.org/tags-nikon.html>

All the Exif tags are under Exif.Image or Exif.Photo or Exif.GPSInfo. There is no overlap.

#### #5 - 02 May 2015 13:43 - Robin Mills

Oh, the makernote tag is safely stored in the file. If information for the XMP is derived from the MakerNotes, it could be edited in XMP. When we read the XMP back, it could conflict. Example:

```
725 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pa -g eed ~/R.jpg
Exif.Photo.ISOSpeedRatings          Short      1  400
Exif.Nikon3.ISOSpeed                Short      2  400
Exif.Nikon3.CropHiSpeed              Short      7  0 6016 4016 6016 4016 0 0
726 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

The XMP looks like this:

```
727 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -eX -f ~/R.jpg
728 rmills@rmillsmbp:~/gnu/exiv2/trunk $ grep -i -B 2 -A 2 speed ~/R.xmp
</rdf:Alt>
</exif:UserComment>
<exif:ISOSpeedRatings>
  <rdf:Seq>
    <rdf:li>400</rdf:li>
--
    <rdf:li>400</rdf:li>
  </rdf:Seq>
</exif:ISOSpeedRatings>
<exif:Flash
  exif:Fired="False"
731 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

So if we modify the 400 to 200 and read it back into the image, we have 2 values for the ISOSpeedRatings. I think a warning is all that required.

#### #6 - 02 May 2015 13:55 - Alan Pater

Agreed. ISO speed is not something anyone should be modifying after the fact.

#### #7 - 02 May 2015 14:03 - Alan Pater

Besides, we probably will not be able to edit Xmp.exif.ISOSpeedRatings.

"Editing existing XMP properties in XMP sidecars does not work"

<http://dev.exiv2.org/issues/639>

#### #8 - 23 May 2015 08:35 - Robin Mills

- Assignee deleted (Robin Mills)

## #9 - 12 Oct 2015 08:59 - Robin Mills

- Assignee set to Robin Mills

## #10 - 04 Jan 2016 10:53 - Robin Mills

- % Done changed from 0 to 10

- Estimated time set to 10.00 h

I'm adding a SWAG to my outstanding issues for v0.26 to get a more accurate assessment of the status of v0.26. I can't remember anything about this - so I'll guess about a day's work.

## #11 - 23 Aug 2016 16:50 - Robin Mills

- % Done changed from 10 to 30

Here's my view of this issue. -ie replaces the Makernote, -iX does not. It feels like a bug in -iX. However -iX reads from foo.xmp (not foo.exv). The Sidecar (foo.xmp) does not have the makernote. I think the fix for -iX to update the Exif data from the Sidecar and not to replace it. Here's my analysis:

### 1 Setup the test data:

```
810 rmills@rmillsmbp:~/gnu/exiv2/trunk $ curl -O --silent http://clanmills.com/Stonehenge.jpg
811 rmills@rmillsmbp:~/gnu/exiv2/trunk $ mv Stonehenge.jpg S.jpg
812 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pR S.jpg | grep -i makernote
    416 | 0x927c MakerNote          | UNDEFINED |    3152 |          914 | Nikon.....II*.....9.....
...0211 ...
813 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pa --grep MakerNote S.jpg
Exif.Photo.MakerNote          Undefined 3152 (Binary value suppressed)
Exif.MakerNote.Offset        Long      1 914
Exif.MakerNote.ByteOrder     Ascii     3 II
814 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -ea --verbose --force S.jpg
File 1/1: S.jpg
Writing Exif data from S.jpg to ./S.exv
Writing IPTC data from S.jpg to ./S.exv
Writing XMP data from S.jpg to ./S.exv
815 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pR S.jpg | grep -i makernote
    416 | 0x927c MakerNote          | UNDEFINED |    3152 |          914 | Nikon.....II*.....9.....
...0211 ...
816 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pa --grep MakerNote S.exv
Exif.Photo.MakerNote          Undefined 3152 (Binary value suppressed)
Exif.MakerNote.Offset        Long      1 820
Exif.MakerNote.ByteOrder     Ascii     3 II
817 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

### 2 -ie works

```
820 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pR S.jpg | grep -i makernote
    416 | 0x927c MakerNote          | UNDEFINED |    3152 |          914 | Nikon.....II*.....9.....
...0211 ...
821 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pa S.jpg | grep -i makernote
Exif.Photo.MakerNote          Undefined 3152 (Binary value suppressed)
Exif.MakerNote.Offset        Long      1 914
Exif.MakerNote.ByteOrder     Ascii     3 II
822 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

### 3 -iX requires S.xmp

```
829 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -iX --verbose --force S.jpg
File 1/1: S.jpg
./S.xmp: Failed to open the file
830 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

### 4 The man page states

```
-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.
```

## 5 Create S.xmp with -eX

This is xmp and does not contain the makernote (as explained above).

```
831 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -eX --verbose --force S.jpg
File 1/1: S.jpg
Writing Exif data from S.jpg to ./S.xmp
Writing XMP data from S.jpg to ./S.xmp
832 rmills@rmillsmbp:~/gnu/exiv2/trunk $ grep -i maker S.xmp
833 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

## 6 -iX destroys the makernote

```
833 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -iX --verbose --force S.jpg
File 1/1: S.jpg
Writing Exif data from ./S.xmp to S.jpg
Writing IPTC data from ./S.xmp to S.jpg
Writing XMP data from ./S.xmp to S.jpg
834 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pa S.jpg | grep -i makernote
835 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pR S.jpg | grep -i makernote
835 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

## 7 Conclusion

I think -iX should "merge" the metadata from S.xmp into S.jpg. It currently replaces it. I'm going to investigate how to achieve that.

If a user wishes to retain the existing behaviour, it can be easily achieved by deleting the Exif metadata with -de before using -iX. For example:

```
$ exiv2 -de -iX S.jpg
```

## #12 - 23 Aug 2016 19:41 - Robin Mills

- Status changed from Assigned to Closed
- % Done changed from 30 to 100
- Estimated time changed from 10.00 h to 5.00 h

Fix submitted: [r4427](#)

Brilliant analysis, Robin. The code in src/actions.cpp+1993 did not handle the preserve flag correctly.

```
int metacopy(const std::string& source,
             const std::string& tgt,
             int targetType,
             bool preserve);
```