

## Exiv2 - Feature #1153

### Sony ILCE-6000 + Sony E 50mm F1.8 OSS .JPG files without lens model.

11 Jan 2016 16:37 - Anonymous

<b>Status:</b>	Closed	<b>Start date:</b>	11 Jan 2016
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Robin Mills	<b>% Done:</b>	100%
<b>Category:</b>	lens	<b>Estimated time:</b>	5.00 hours
<b>Target version:</b>	0.26		
<b>Description</b>			
Hey! The lens model is recognized from .ARW, but not in .jpg.(Files from camera, camera in RAW+JPG mode) Exiftool is able to recognize the lens model in the .jpg. The exact .jpg is attached.  LOG from exiv2 (0.25) and exiftool(9.46):  tim@tim-ESPRIMO-Mobile-U9210 ~/Bilder/Fotosammlung/2016/01/Mezaparks \$ exiv2 -pt DSC01769.ARW   grep -ai lens Exif.Sony2.LensID                   Long     1 Manual lens Exif.Photo.LensSpecification       Rational 4 500/10 500/10 18/10 18/10 Exif.Photo.LensModel               Ascii    16 E 50mm F1.8 OSS tim@tim-ESPRIMO-Mobile-U9210 ~/Bilder/Fotosammlung/2016/01/Mezaparks \$ exiv2 -pt DSC01769.JPG   grep -ai lens Error: Offset of directory Sony1, entry 0x2001 is out of bounds: Offset = 0x003ec076; truncating the entry Exif.Sony1.LensID                   Long     1 Manual lens tim@tim-ESPRIMO-Mobile-U9210 ~/Bilder/Fotosammlung/2016/01/Mezaparks \$ exiftool DSC01769.JPG   grep -ai lens Lens Type                   : E-Mount, T-Mount, Other Lens or no lens Lens Spec                   : Unknown (e8 300 1 0 0 00) Lens Type 2                 : Unknown (24576) Lens Mount                 : Unknown Lens Format                 : Unknown Lens ID                     : Sony E 50mm F1.8 OSS			
<b>Related issues:</b>			
Related to Exiv2 - Support #1151: Small raw images size		<b>Closed</b>	<b>10 Jan 2016</b>
Related to Exiv2 - Bug #1143: Unable to extract embedded preview from jpg for...		<b>Closed</b>	<b>24 Dec 2015</b>

#### Associated revisions

##### Revision 4181 - 12 Jan 2016 10:18 - Robin Mills

#1153 Fix submitted. Thank You, Tim for reporting this and providing test data.

##### Revision 4182 - 13 Jan 2016 12:21 - Robin Mills

#1153 Fixes for "Sony E PZ 16-50mm F3.5-5.6 OSS"

##### Revision 4183 - 13 Jan 2016 12:42 - Robin Mills

#1153 test files

##### Revision 4208 - 27 Feb 2016 15:02 - Robin Mills

#1153. Added missing file to test suite

#### History

##### #1 - 11 Jan 2016 17:31 - Robin Mills

- Category set to lens
- Status changed from New to Assigned
- Assignee set to Robin Mills
- Target version set to 0.26
- % Done changed from 0 to 20
- Estimated time set to 4.00 h

Tim

Please ignore the message: **Error: Offset of directory Sony1, entry 0x2001 is out of bounds: Offset = 0x003ec076; truncating the entry** I dealt with that recently: [#1145](#) so I don't see that message when I run your command on a build from the trunk.

There is information in the metadata of the ARW:

```
$ exiv2 -pt DSC01769.ARW | grep -ai lens
Exif.Sony2.LensID Long 1 Manual lens
Exif.Photo.LensSpecification Rational 4 500/10 500/10 18/10 18/10
Exif.Photo.LensModel Ascii 16 E 50mm F1.8 OSS
```

that has been removed in the JPG:

```
$ exiv2 -pt DSC01769.JPG | grep -ai lens
Exif.Sony1.LensID Long 1 Manual lens
```

Did the JPG come from the camera, or was it created by desktop software? I am wondering "who removed Exif.Photo.LensSpecification" and "Exif.Photo.LensModel" ?

What is the LensID in the .ARW? Can you share the .ARW with me, or run the following command:

```
$ exiv2 -pv --grep Lens DSC01769.ARW
```

I can modify the lens detection code to examine the following and deduce the lens:

```
$ exiv2 -pv --grep lens/i --grep apertu/i --grep focal/i --grep model/i http://dev.exiv2.org/attachments/download/882/DSC01769.JPG
0x0110 Image          Model          Ascii      10  ILCE-6000
0x9205 Photo          MaxApertureValue Rational    1  434/256
0x920a Photo          FocalLength   Rational    1  500/10
0xb001 Sony1         SonyModelID   Short       1  312
0xb027 Sony1         LensID        Long        1  65535
0xa405 Photo          FocalLengthIn35mmFilm Short       1  75
0x0110 Thumbnail     Model          Ascii      10  ILCE-6000
$
```

I had another idea (which didn't work). I copied the Lens Specification from the .ARW to the .JPG with:

```
exiv2 -M"set Exif.Photo.LensSpecification 500/10 500/10 18/10 18/10" DSC01769.JPG
```

That updated the file, however we still reports LensID == -1 as "Manual Lens" (and ignores the LensSpecification data).

So four questions:

- 1) Can you share the ARW with me please (attach it, or dropbox it, or something)
- 2) Can you run the command: **exiv2 -pv DSC01769.ARW**
- 3) Did the JPG come from the Camera or Desktop Software?
- 4) Can you check with Sony for a firmware upgrade for your camera. The user on [#1145](#) believes that a future firmware upgrade may fix this. I think you may be able to detect the firmware version with a command such as:

```
$ exiv2 -pa --grep firm/i DSC01769.ARW
```

## #2 - 11 Jan 2016 21:55 - Anonymous

- File DSC01769.ARW.7z added

Robin Mills wrote:

So four questions:

- 1) Can you share the ARW with me please (attach it, or dropbox it, or something)
- 2) Can you run the command: **exiv2 -pv DSC01769.ARW**
- 3) Did the JPG come from the Camera or Desktop Software?
- 4) Can you check with Sony for a firmware upgrade for your camera.

1) Attached the ARW file compressed in .7z

2) <http://pastebin.com/9Y3T2ENK>

3) It came straight from the Camera by using RAW+JPG mode. I use Geeqie + Darktable. Darktable doesn't change files, and I don't change anything when using Geeqie

4) My ILCE-6000 is on Version 2.00 which is also the newest firmware.

## #3 - 11 Jan 2016 23:06 - Robin Mills

Thanks for sending this. It's 11pm in England. I'll look at this on Tuesday and I hope to get it fixed. I'd like to extract the metadata from your image and use it in our test suite as a regression detector. If you can provide more images (at different focal lengths), that would be very helpful.

Geeqie was mention in an issue yesterday: [#1151](#). I thought it was a spelling mistake. Apparently not. [#1151](#) is unlikely to be resolved without more information. If you know Geeqie and understand [#1151](#), I'd appreciate any assistance you can give. <http://dev.exiv2.org/issues/1151>

#### #4 - 11 Jan 2016 23:37 - Anonymous

Robin Mills wrote:

Thanks for sending this. It's 11pm in England. I'll look at this on Tuesday and I hope to get it fixed. I'd like to extract the metadata from your image and use it in our test suite as a regression detector. If you can provide more images (at different focal lengths), that would be very helpful.

Geeqie was mention in an issue yesterday: [#1151](#). I thought it was a spelling mistake. Apparently not. [#1151](#) is unlikely to be resolved without more information. If you know Geeqie and understand [#1151](#), I'd appreciate any assistance you can give. <http://dev.exiv2.org/issues/1151>

Thanks for the support!

The used lens is a prime lens ;) But I could provide sample shots with the kit lens (16-55mm). Which focal lengths? ARW or JPG or both? Same behaviour for the kit lens; exiftool recognizes it properly.

About [#1151](#): Resolution is not a problem. Geeqie is not a RAW converter and simply displays the JPG thumbnail in RAW files. For my files the cameras .JPGs are 6000x4000 whereas the thumbnails in RAW files get displayed in Geeqie with 1616x1080. Everything working perfect. (exiv2 0.23 + geeqie 1.1 <http://geeqie.sourceforge.net/>)

You should try Geeqie ;) Very very fast and powerful image viewer with features like RAW+JPG+XMP file grouping, color management by .icc profiles, etc!

#### #5 - 12 Jan 2016 11:03 - Robin Mills

- Status changed from Assigned to Resolved

- % Done changed from 20 to 80

Tim

Fix submitted: [r4181](#). Thanks for providing the test data. I've extracted the metadata from DSC01769.JPG and added it as test/data/exiv2-1153.exv to our test suite.

Thanks for offering to provide more test data. Let me explain how the fix works and then you'll understand what kind of test file would be helpful. There's a long discussion about this in [#1145](#) which I won't repeat here. Every camera and lens should have a unique ID.

```
1284 rmills@rmillssmbp:~/gnu/exiv2/ttt $ exiv2 -pv --grep id/i http://dev.exiv2.org/attachments/download/882/D
SC01769.JPG
0xb001 Sony1      SonyModelID      Short      1      312
0xb027 Sony1      LensID           Long       1      65535
1285 rmills@rmillssmbp:~/gnu/exiv2/ttt $
```

*Exif.Sony1.SonyModelID == 312 ==> ILCE-6000Good.*  
*LensID == 65535 == 0xffff == "Manual Lens". Not good.*

LensID is not unique to your lens. In fact, 0xffff says "I don't know anything about the lens!". So the code then inspects FocalLength and MaxAperture to say "Could this be Tim's Lens?". You can read the code to see how I do this. <http://dev.exiv2.org/projects/exiv2/repository/revisions/4181/diff/trunk/src/minoltamn.cpp>

This is pure guesswork. It's quite likely that Sony will upgrade their firmware to provide a unique LensID and you'll be back to say "Fix [r4181](#) isn't working any more."

Exiv2 and ExifTool are tramping the same ground. I'm working on a cunning plan to enable Phil and I to discover and share knowledge about new lens/cameras. Work in progress: [#1034](#).

And thanks for providing the .ARW. There are lots of differences in the Metadata between the .JPG and the .ARW. I've been working on Exiv2 for almost 8 years, however I only started supporting MakerNotes a few months ago. *Niels (our wonderful MakerNote Engineer)* has gone back to college (*while continuing his very demanding day job*) and I've taken on support for the MakerNote code. I'm on a learning curve and one day I'll will understand all those differences. Very illuminating.

Thanks for your help with [#1151](#). You can read my comments in that issue, so I won't repeat them here. I couldn't build geeqie on MacOS-X because I don't have GTK+, however I installed it on kubuntu. For sure it's fast. I use Picasa to manage my photo library on the Mac. I think it's possible that Wil, who reported [#1151](#), has discovered something here. However, I want the geeqie team to investigate and, if necessary, raise an issue with us. I believe our thumbnail/preview code is working well. As I don't know geeqie, I don't know what to expect when working with DNG and RAW files.

I've updated this issue to say "80% resolved". Can you test with other cameras/lens combinations and let me know if you discover other stuff that requires attention.

Exiv2Logo.png

#### #6 - 12 Jan 2016 21:19 - Anonymous

Thank you!

So it basically checks for camera model + settings/capabilities of the lens and then checks what is the most likely lens? Sounds like a mess... So there is no other Tag? Does Exiftool use a similar strategy?

Just think of the electronic adapters for Canon/Nikon lenses which also support most of the settings.. Those would normally not leave a trace of the name in the EXIF, but will maybe be recognized false positive.

I also tried the patch. I downloaded trunk, but as there was no .configure, so I got that from 0.25 and compiled with that. Same like before, the Lens Model is still not listed.

Was the recognition successful for you with my sample files?

#### #7 - 12 Jan 2016 21:27 - Anonymous

I could just point out to the exiftool documentation for sony. Maybe this helps you understanding how Sony tags work. I don't get anything honestly speaking :D

<http://www.sno.phy.queensu.ca/~phil/exiftool/TagNames/Sony.html>

#### #8 - 12 Jan 2016 22:06 - Robin Mills

Tim

To build use:

```
$ make config ; ./configure ; make -j ; sudo make install ; make -j samples ; make tests
```

\$ **make config** generates the ./configure script. It's been this way since before I joined the project.

[http://dev.exiv2.org/projects/exiv2/wiki/How\\_do\\_I\\_build\\_Exiv2\\_on\\_the\\_XYZ\\_platform](http://dev.exiv2.org/projects/exiv2/wiki/How_do_I_build_Exiv2_on_the_XYZ_platform)

I agree that this style of Lens recognition is hackery. When LensID is unambiguously defined, we don't need that nonsense. I got this method from Phil himself. There's his code: <http://dev.exiv2.org/issues/1143#note-11>. Could you convert that into C++ please?

Here's the output from the trunk:

```
$ exiv2 -pa --grep lens/i http://dev.exiv2.org/attachments/download/882/DSC01769.JPG
Exif.Sony1.LensID          Long          1   Sony E 50mm F1.8 OSS
$
```

I suspect the scenario is that your camera's firmware predates the lens and thinks "Don't know what lens this is, so I'll set LensID=0xffff" However, it's quite likely that a firmware upgrade to your camera will set LensID correctly and unambiguously.

Uncle Robin and Uncle Phil have to fixed for it for now. A simple "Thank You, Robin and Phil" would be appreciated.

#### #9 - 12 Jan 2016 22:55 - Anonymous

Aaahh.. Im sorry. I used -pv instead of -pa :/  
Works good for me now!

About the thank you: I said that before, but maybe it didn't come over in the right way as I had further questions.

So here I go: Thank You, Robin and Phil! :) I really appreciate the hard work you are putting into Tags, making life easier for people :)

I had another look at the code and checked pictures of my kit lens, to understand what the code is doing.

It is calculating a number from the used focal length, taking the APS-C sensor in account by also using the 35mm equivalent and this focal length max aperture on this focal length.

That means that I have to provide: The steps of MaxAperture and the range of focal length it is available for.

Did I understand that correct?

#### #10 - 12 Jan 2016 23:22 - Anonymous

Ok. So I figured now that the calculation is always 150, as it just recalculates the crop factor, doesn't it? :D  
So I still don't understand it :/

But I created a table with all the F-Stops for "Sony E PZ 16-50mm F3.5-5.6 OSS":

```
MaxApertureValue: FocalLength(FocalLengthIn35mmFilm)
F3.5: 16mm(24mm)-18mm(27mm)
F4 : 18mm(27mm)-23mm(34mm)
F4.5: 24mm(36mm)-29mm(43mm)
F5 : 30mm(45mm)-34mm(51mm)
F5.6: 35mm(52mm)-50mm(75mm)
```

I will upload all the samples, but I have a very poor upload, so it will take the night :D

## #11 - 12 Jan 2016 23:39 - Robin Mills

Thanks for the files which will arrive overnight. I'm off to bed (it's 11:36pm). I'll look at them tomorrow.

It think the ratio will always be 1.5, however there could be a little rounding - so I test 1.48 .. 1.52 (but not in floating point). I throw in a 100 multiplier to use range 148 .. 152

---

Yes. I know you said thanks up front. However the pissing and moaning about the solution blunted your appreciation!

---

The bummer in all of this is that it depends on the Camera/Lens combination what must be computed to make an intelligent guess. MaxAperture and FocalLength are important ingredients in the "heuristic" code. However, you'll see that he calculates log-log stuff at times! Non trivial.

Here are my current thoughts about how to fix this (in [#1034](#))

- 1) I'm going to have a web service running exiftool.
- 2) When exiv2 doesn't recognise the lens, I'll generate a .exv file (metadata only JPG) and send it to the web service.
- 3) If exiftool doesn't recognise it, I'll log that. It's something new (however we have a metadata file for analysis)
- 4) If exiftool recognises it, I'll log that. I can analyse the metadata and update our C++ code

Other ideas that I am not pursuing:

**1:** Rewrite the Perl code in C++

Not impossible. Not trivial.

**2:** Execute exiftool on the user's computer

I think that will throw up a DOS box on Windows

**3:** To write the Lens recognition in a scripting language that can be executed by exiv2.

A sufficiently rich PostScript or Lisp interpreter/run-time can be implemented in 1000-2000 lines of code

The scripting code would be in libexiv2.14.script in the same directory as libexiv2.14.so

The scripting code could be modified without recompiling libexiv2.14.so

The scripting code would only run when the C++ is unable to recognise the lens, so it wouldn't impose much overhead

**4:** To have an SQLite database of lens/camera metadata

So the code would ask the database (stored in libexiv2.14.sqlite

SELECT "LensType when LensID=0xffff and Camera\_Model=ILCE-6000 bla bla"

If it fails, it could use exiftool as a web service and update the database on the local computer

**5:** To have an 'overflow' file which is consulted when the lens isn't recognised

We didn't make progress beyond arguing about the language of that file (XML, Json, CSV)

We made no progress on what should be in the 'overflow' file

Please remember, we're only doing this when the LensID is not uniquely set. It's the Camera/Lens manufacturers who have donated this issue to their customers. As always with firmware/hardware issues, it's the software people who have to clean up and endure the criticism for the deficiency of the firmware.

Thanks again for your help with geeqie ([#1151](#)). I haven't heard from Wil since Sunday. I suspect that will close with "cannot reproduce/insufficient information".

## #12 - 13 Jan 2016 06:21 - Anonymous

<https://www.dropbox.com/s/jkgacshdt4r1kq/Sony%20E%20PZ%2016-50mm%20F3.5-5.6%20OSS.7z?dl=0>

## #13 - 13 Jan 2016 12:44 - Robin Mills

Fix submitted: [r4182](#). Test output below. I've extracted the metadata from all your test files (both .ARW and .JPG) and added them to our test suite.

Original test files submitted: [r4183](#). I copied your original test files to `svn://dev.exiv2.org/svn/testdata/trunk/1153` for future use. I don't expect to visit those file again as we have the metadata in the test suite. To constrain the size of the test suite, we avoid adding large JPG and RAW files to code branches. Thank You for sharing those files. You may remove your .7z file from Dropbox.

There is conflict concerning the naming of this lens. The .ARW (1775-1784) files contain the Ascii string "E 50mm F1.8 OSS" and I've adopted that name for the associated JPG files. Similarly, 1769 is consistently named "Sony E 50mm F1.8 OSS" by exiv2.

```
1590 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pa --grep Lens/i ../testdata/trunk/1153/*.ARW
../testdata/trunk/1153/DSC01769.ARW Exif.Sony2.LensID Long 1 Sony E 50mm F
1.8 OSS
../testdata/trunk/1153/DSC01769.ARW Exif.Photo.LensSpecification Rational 4 500/10 500/10
18/10 18/10
../testdata/trunk/1153/DSC01769.ARW Exif.Photo.LensModel Ascii 16 E 50mm F1.8 O
SS
../testdata/trunk/1153/DSC01775.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01775.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
```

```

../testdata/trunk/1153/DSC01775.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01776.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01776.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01776.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01777.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01777.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01777.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01778.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01778.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01778.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01779.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01779.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01779.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01780.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01780.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01780.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01781.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01781.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01781.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01782.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01782.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01782.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01783.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01783.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01783.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01784.ARW Exif.Sony2.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01784.ARW Exif.Photo.LensSpecification Rational 4 160/10 500/10
35/10 56/10
../testdata/trunk/1153/DSC01784.ARW Exif.Photo.LensModel Ascii 26 E PZ 16-50mm
F3.5-5.6 OSS
1591 rmills@rmillssmbp:~/gnu/exiv2/trunk $ exiv2 -pa --grep Lens/i ../testdata/trunk/1153/*.JPG
../testdata/trunk/1153/DSC01769.JPG Exif.Sony1.LensID Long 1 Sony E 50mm F
1.8 OSS
../testdata/trunk/1153/DSC01775.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01776.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01777.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01778.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01779.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01780.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01781.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01782.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS

```

```
../testdata/trunk/1153/DSC01783.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
../testdata/trunk/1153/DSC01784.JPG Exif.Sony1.LensID Long 1 E PZ 16-50mm
F3.5-5.6 OSS
1592 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

#### #14 - 13 Jan 2016 18:49 - Robin Mills

- Tracker changed from Bug to Feature  
- % Done changed from 80 to 100  
- Estimated time changed from 4.00 h to 5.00 h

#### #15 - 14 Jan 2016 22:39 - Anonymous

I had an exam, so just now had the time to test it. Thank you very much! Works perfectly! :)  
If I get a new lens(could take some time.. testing out some old russian lenses recently; obviously without any electronics :D), should I open a new ticket or reuse this one?

Again, Thank you very much :)

#### #16 - 14 Jan 2016 22:45 - Robin Mills

Tim: It's nice to work with you. You can update this ticket, or raise a new one. I'm sure you'll find camera/lens combinations that are broken. You know I will investigate and try to fix things.

#### #17 - 14 Jan 2016 23:10 - Anonymous

Ok. I didnt expect such a quick update :D  
Im using Darktable for RAW editing. Built the new exiv2 and tried, without sucess. I went to the darktable IRC to ask, and they said that I'll have to buid it against the new library. Now I didnt do that till now as some dependencies are missing for me, but I discovered that the .ARWs are tagged at Exif.Sony2.LensID and the JPGs at Exif.Sony1.LensID.  
I asked if that is going to be a problem and houz replied:

```
[00:52] <houz> $ grep Sony exif.cc | grep Lens
[00:52] <houz> if(FIND_EXIF_TAG("Exif.Sony2.LensID") && pos->toLong() != 65535 && pos->print().find('!') == std::string::npos)
[00:52] <houz> we only look at Sony2
```

So I guess because of this and for consistency also the JPGs should get interpreted as Exif.Sony2.LensID.

#### #18 - 14 Jan 2016 23:49 - Robin Mills

Gosh, Tim. It's 23:48 in England. I'll look at this tomorrow.

#### #19 - 15 Jan 2016 11:07 - Robin Mills

Tim

I can't understand your message. I assume exif.cc is darktable code. I don't know the difference between Sony1 and Sony2 because I didn't write exiv2. I'm the project build engineer. However in your test files, the metadata in the .ARW files is Sony2 and in the .JPG files it is Sony1.

What is your question?

#### #20 - 16 Jan 2016 10:27 - Robin Mills

Tim

Concerning your russian lenses. Simon recently asked about a couple of "Manual Lenses" and that has been discussed in [#1141](#) and [#1142](#) As you can see from the discussion, it's generally not possible to determine anything about those lenses. If you have one, look at metadata such as LensSpecification - if it's almost empty (almost entirely 0s), exiv2 can do nothing to help you. I believe it's possible to set the lensID in the metadata with exiv2 in every file in a directory with a command such as:

```
$ exiv2 -M'set Exif.Photo.LensModel my old Russian lens' *.jpg
```

Dedicated Linux Warriors will use **find** to traverse trees of images.

#### #21 - 16 Jan 2016 20:07 - Anonymous

Robin Mills wrote:

What is your question?

In the .ARW files the lens is specified in the tag "Exif.Sony2.LensID". Now the recognition for the correct lens that you created here for .JPGs

basically adds the missing tag of the lens as "Exif.Sony1.LensID". But why as "Exif.Sony1.LensID" when we could simply put it as "Exif.Sony2.LensID", so it has the lens name in the same tag as the .ARW files for consistency.

I assume exif.cc is darktable code

Correct. It is just looking for the "Exif.Sony2.LensID" tag. So a tag defined in "Exif.Sony1.LensID" will not show up as lens in darktable. I'm not sure what consequences an addition of "Exif.Sony1.LensID" for lens recognition would have for other sony users in darktable. I guess it has less impact if we define the lens for .JPGs in "Exif.Sony2.LensID".

Concerning your russian lenses.

That's why I wrote "obviously without any electronics" ;D But still thanks for the hint how I can do that manually!

#### #22 - 16 Jan 2016 21:18 - Robin Mills

My guess about Sony1 and Sony2 is the MakerNote decoder. The Exif Spec allows the manufacturer to add a blob of binary data into the tag "MakerNote". We have reverse engineered that. I suspect the decoder for the .ARW is Sony2, and his JPG brother is Sony1. I'll have a read in the code and find out more.

Probably a better fix is for us to define the tag: Exif.Photo.LensModel from the Sony1 and Sony2 decoders. Then, the DarkTable guys should test that tag. I don't know what DarkTable is doing, however it shouldn't really have to know about Sony1 and Sony2 - that sounds a little odd.

Tim: I think I've said this before: I am the Exiv2 build engineer. Niels has been looking after the MakerNote code. I've only taken this on in the last few months. I'm a volunteer sitting at home. There's nobody here with whom to discuss any of this. However I have worked on the project for 8 years, so I know my way around the code and have solved many puzzles. Be gentle on me. I am not a guru. I'm a little old retired engineer.  
[http://dev.exiv2.org/projects/exiv2/wiki/\\_Robin\\_Mills](http://dev.exiv2.org/projects/exiv2/wiki/_Robin_Mills)

#### #23 - 16 Jan 2016 21:47 - Alan Pater

My limited understanding is that there are 2 distinct Sony FirmWares. Some cameras use the Sony1 firmware, other models use Sony2. The same applies to other camera manufactures.

#### #24 - 16 Jan 2016 21:54 - Robin Mills

Thanks for popping up here, Alan. I'll have a crawl through the code tomorrow. This metadata business is an enchanted garden. Around every corner lies something new and mysterious. When I extract the metadata from one of my favourite test files:

```
543 rmills@rmillsmbp:~/gnu/exiv2/trunk $ exiv2 -pa --grep Lens/i http://clanmills.com/Stonehenge.jpg
Exif.Nikon3.LensType          Byte          1   D G VR
Exif.Nikon3.Lens              Rational      4   18-250mm F3.5-6.3
Exif.Nikon3.LensFStops        Undefined     4   4.58333
Exif.NikonLd3.LensIDNumber    Byte          1   Sigma 18-250mm F3.5-6.3 DC OS Macro HSM
Exif.NikonLd3.LensFStops      Byte          1   F4.6
544 rmills@rmillsmbp:~/gnu/exiv2/trunk $
```

What is Nikon3 and NikonLd3? Ah ..... the metadata garden fairy is at work!

#### #25 - 01 Feb 2016 11:44 - Robin Mills

- Status changed from Resolved to Closed

I'm closing this to help me to focus and concentrate on getting v0.26 finished on schedule.

#### #26 - 14 Mar 2016 12:07 - Anonymous

Hi!

Today an update for many Sony Cameras has been released. (  
[http://esupport.sony.com/US/p/swu-download.pl?mdl=ILCE6000&upd\\_id=10716&os\\_group\\_id=29](http://esupport.sony.com/US/p/swu-download.pl?mdl=ILCE6000&upd_id=10716&os_group_id=29))

Excerpt from the changelog:

"- The lens name will be correctly recorded in the EXIF"

I will install this update, test it and report back. But it could turn out that the extra code you created may become obsolete.

Thank you very much for your efforts!

#### #27 - 14 Mar 2016 12:42 - Robin Mills

Tim

I'll be **really happy** if my code for lens recognition is obsolete. I'm a retired Adobe Senior Computer Scientist and my happiest projects have been compilers and interpreters. The compiler is a 100% accurate deterministic software machine. It doesn't guess anything. It converts source into code. I strongly dislike guessing anything. The lens should be 100% defined by the manufacturer in the metadata. Anything else is a bodge or hacking.

Thanks for the update.

**#28 - 14 Mar 2016 13:07 - Anonymous**

- File DSC02521.JPG added

The issue is fixed by Sony.  
Firmware upgrade from 2.0 to 3.1 on A6000 fixes it.  
I attached a .JPG for reference.

Again, thank you for the efforts you made!

**#29 - 14 Mar 2016 13:09 - Robin Mills**

You've made my day. Thanks for letting me know. And thanks for using exiv2.

**#30 - 09 Jul 2016 07:17 - Anonymous**

I actually have to revoke what I said. I guess back then I did not properly revert the exiv2 version and checked with the patched one.

I set up a new system and figured that I was wrong. Nothing changed.

So the patch should be inserted again :/

Thanks!

**#31 - 24 Jul 2016 09:27 - Robin Mills**

Tim. I can't compute your message. Do you want me to do something?

**#32 - 24 Jul 2016 14:01 - Anonymous**

Consider comment #28 as wrong. The issue was not fixed by Sony. The patch unfortunately is still required for correct lens recognition.

**#33 - 24 Jul 2016 19:46 - Robin Mills**

Right. I think you're saying that the Sony Firmware upgrade is not effective and that we should retain patch r4181/r4182/r4208 in the exiv2 code base. That's fine. Thanks for updating this issue with this information.

**#34 - 28 Jul 2016 11:18 - Anonymous**

It seems that the behavior is not the same for all lenses. I just tested some other lenses:

Here the results without the patch:

```
@exiv2 -pv --grep Lens /home/tim/Bilder/Fotosammlung/2016/07/27/DSC07171.JPG
```

```
0xb027 Sony1      LensID          Long           1 65535
0xa432 Photo     LensSpecification Rational      4 350/10 350/10 18/10 18/10
0xa434 Photo     LensModel       Ascii         16 E 35mm F1.8 OSS
```

```
tim@Tims-Laptop ~ $ exiv2 -pv --grep Lens /home/tim/Bilder/Fotosammlung/2016/07/27/DSC07178.JPG
```

```
0xb027 Sony1      LensID          Long           1 65535
0xa432 Photo     LensSpecification Rational      4 300/10 300/10 28/10 28/10
0xa434 Photo     LensModel       Ascii         12 E 30mm F2.8
```

```
tim@Tims-Laptop ~ $ exiv2 -pv --grep Lens /home/tim/Bilder/Fotosammlung/2016/07/27/DSC07177.JPG
```

```
0xb027 Sony1      LensID          Long           1 65535
0xa432 Photo     LensSpecification Rational      4 300/10 300/10 14/10 14/10
0xa434 Photo     LensModel       Ascii         35 30mm F1.4 DC DN | Contemporary 016
```

```
tim@Tims-Laptop ~ $ exiv2 -pv --grep Lens /home/tim/Bilder/Fotosammlung/2016/04/Burger/DSC03880.JPG
```

```
0xb027 Sony1      LensID          Long           1 65535
```

```
tim@Tims-Laptop ~ $ exiv2 -pv --grep Lens /home/tim/Bilder/Fotosammlung/2016/04/Burger/DSC03880.ARW
```

```
0xb027 Sony2      LensID          Long           1 65535
0xa432 Photo     LensSpecification Rational      4 500/10 500/10 18/10 18/10
0xa434 Photo     LensModel       Ascii         16 E 50mm F1.8 OSS
```

```
exiv2 -pv --grep Lens /home/tim/Bilder/Fotosammlung/2016/05/Stipro\ Skrejiens/DSC04924.ARW
```

```
0xb027 Sony2      LensID          Long           1 65535
0xa432 Photo     LensSpecification Rational      4 160/10 500/10 35/10 56/10
0xa434 Photo     LensModel       Ascii         26 E PZ 16-50mm F3.5-5.6 OSS
```

```
tim@Tims-Laptop ~ $ exiv2 -pv --grep Lens /home/tim/Bilder/Fotosammlung/2016/05/Stipro\ Skrejiens/DSC04924.JPG
```

```
0xb027 Sony1      LensID          Long           1 65535@
```

As you can see, the Lens is correctly detected in JPG files for photos with "Sony E 35mm F1.8 OSS", "Sigma 30mm F1.4 DC DN" and "Sigma E 30mm F2.8" (I also added the output of the 50mm and 16-50mm, so you see the difference). All photos were shot with A6000 with firmware 3.10. I hope that the patch you included does not interfere with the correct recognition of those lenses.

Thanks again!

### #35 - 28 Jul 2016 13:33 - Robin Mills

I can't recall if we've had this conversation already. I really dislike the idea that Exiv2 does lens recognition. Our mission is to read/write/update meta data in images files. We support many camera manufacturers makernotes, several formats (Exif, IPTC and XMP) and many platforms.

I believe the Exif standard uses a LensID (and integer) and combined with the manufacturer's id, we can recognised the lens. However the manufacturers often use the same LensID for many different lenses. Exiv2 attempts to guess the lens by inspecting other metadata. I don't know how this feature was added to the library, however it's very time consuming to maintain this as new lenses are introduced.

I've added a new feature for v0.26 to use a file ~/.exiv2 (or /Users/username/exiv2.ini) to translate the lensID for a manufacturer into a lens definition. By updating that file on your computer, all applications using exiv2 will know your lens.

### Files

---

DSC01769.JPG	3.92 MB	11 Jan 2016	Anonymous
DSC01769.ARW.7z	18.8 MB	11 Jan 2016	Anonymous
DSC02521.JPG	5.72 MB	14 Mar 2016	Anonymous