SAFE SOFTWARE

Custom reader for Exchangeable Image File Format (Exif) metadata tags

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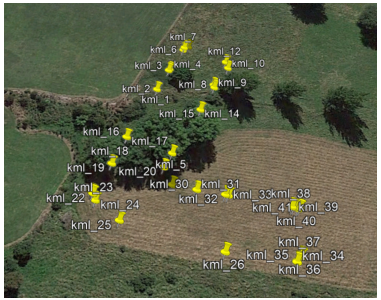
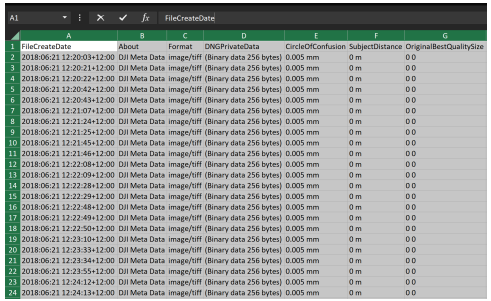
Context

- What are Exchangeable Image File Format (Exif) metadata tags?
- Field teams capturing site photos
- Keep a record of the Exif metadata as spreadsheet
- Convert the lat/long coordinates to local projections
- Load the data into GIS or Google Earth





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1	FileCreateDate	About	Format	DNGPrivateData	CircleOfConfusion	SubjectDistance	OriginalBestQualitySize
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3	2018:06:21 12:20:21+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
4	2018:06:21 12:20:22+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
5	2018:06:21 12:20:42+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
6	2018:06:21 12:20:43+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
7	2018:06:21 12:21:07+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
8	2018:06:21 12:21:24+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
9	2018:06:21 12:21:25+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
10	2018:06:21 12:21:45+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
11	2018:06:21 12:21:46+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
12	2018:06:21 12:22:08+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
13	2018:06:21 12:22:09+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
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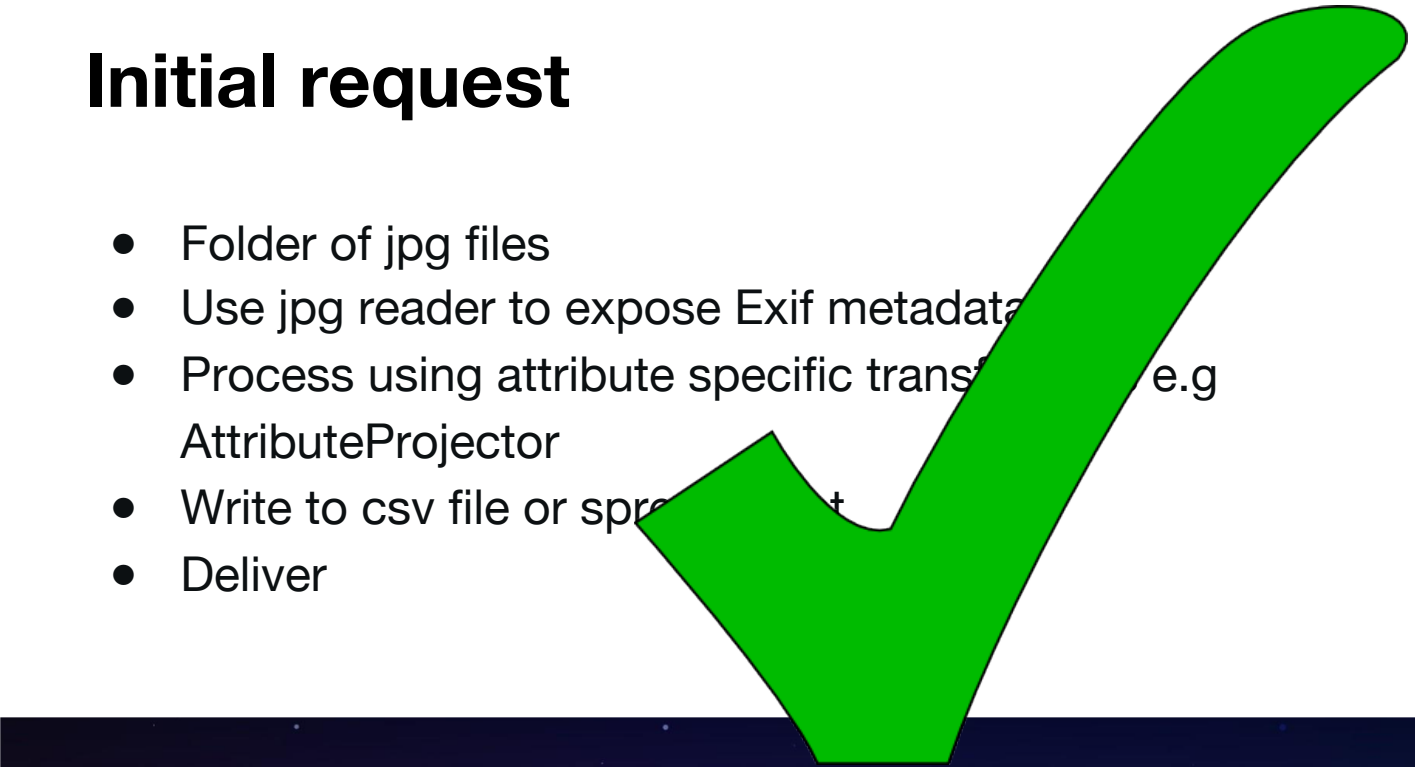
15	2018:06:21 12:22:29+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
16	2018:06:21 12:22:48+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
17	2018:06:21 12:22:49+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
18	2018:06:21 12:22:50+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
19	2018:06:21 12:23:10+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
20	2018:06:21 12:23:33+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
21	2018:06:21 12:23:34+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
22	2018:06:21 12:23:55+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
23	2018:06:21 12:24:12+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0
24	2018:06:21 12:24:13+12:00	DJI Meta Data	image/tiff	(Binary data 256 bytes)	0.005 mm	0 m	0 0

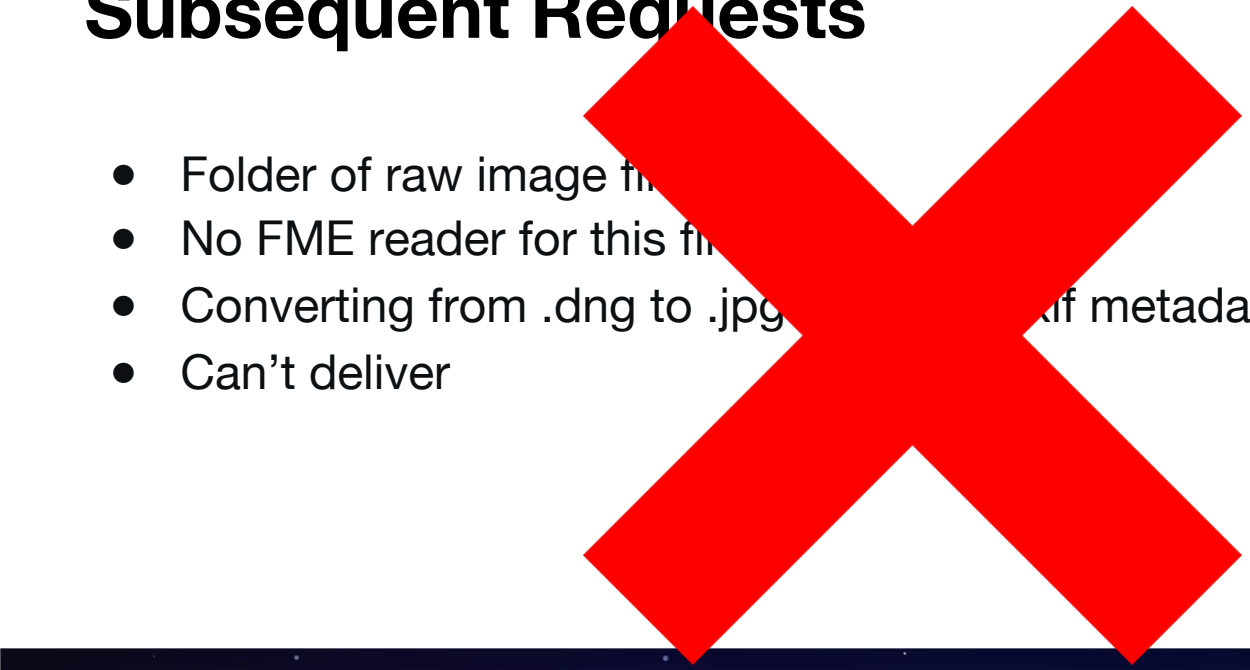
Initial request

- Folder of jpg files
- Use jpg reader to expose Exif metadata
- Process using attribute specific trans e.g AttributeProjector
- Write to csv file or spr t
- Deliver



Subsequent Requests

- Folder of raw image fi
- No FME reader for this fi
- Converting from .dng to .jpg if metadata tags
- Can’t deliver

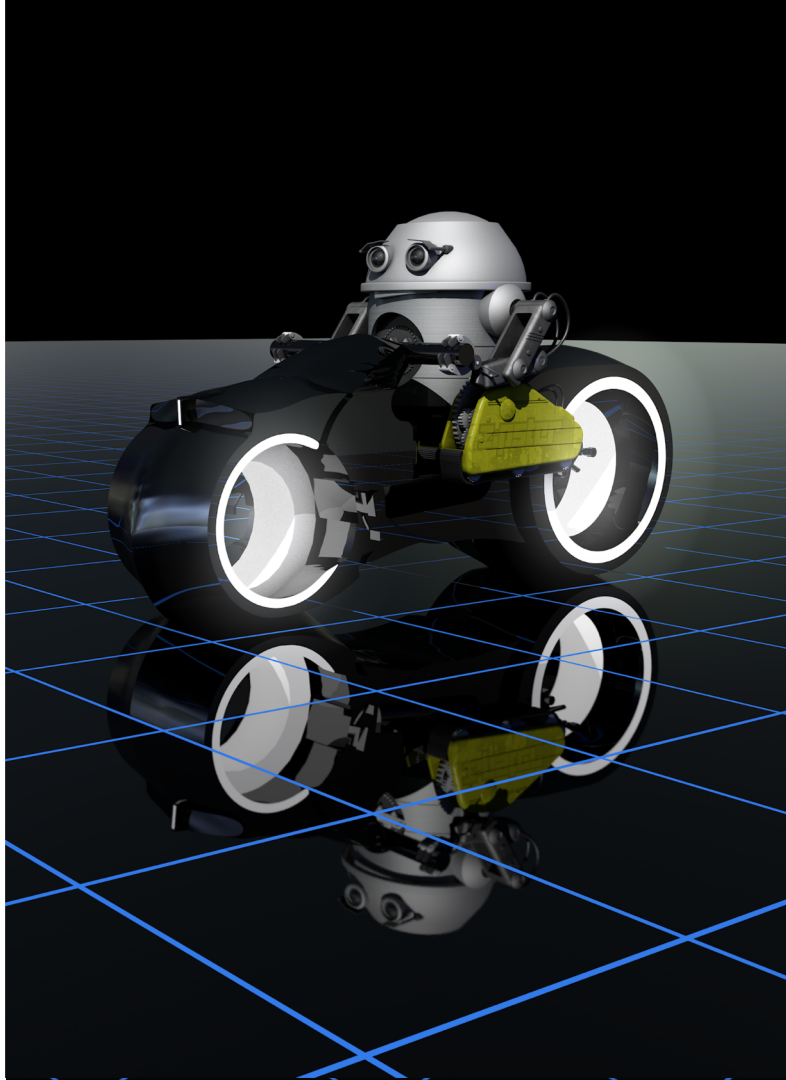


Options

- Code a tool in Python e.g. Piexif
- Call tool using the PythonCaller

Or…

- Command line tool
- ExifTool by Phil Harvey (https://www.sno.phy.queensu.ca/~phil/exiftool/)
- Should I build a custom reader?

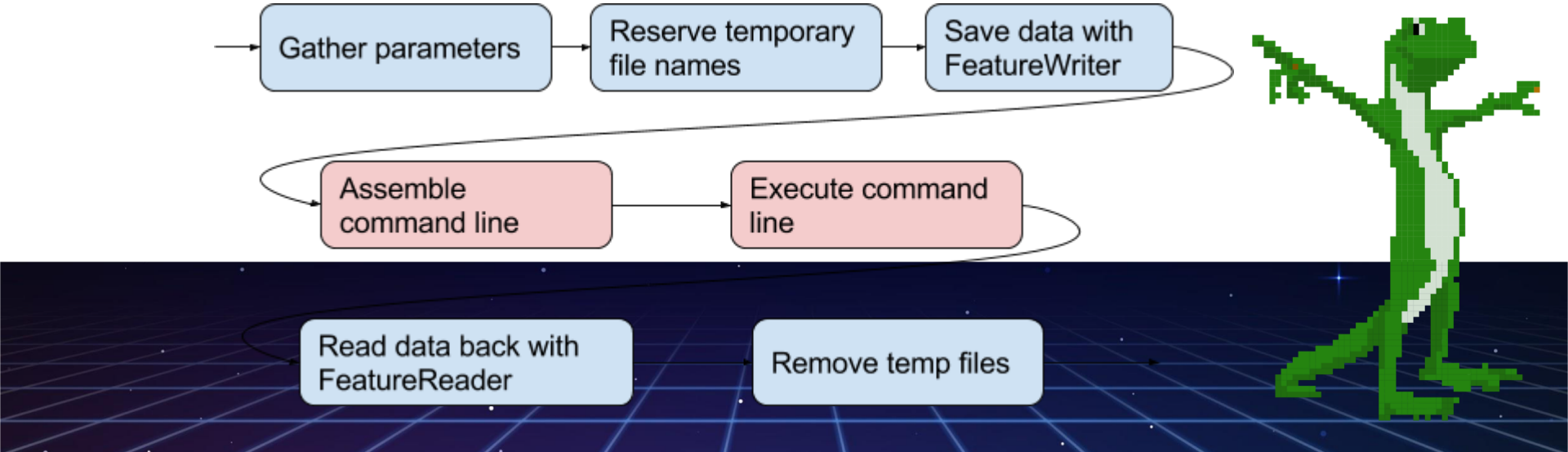


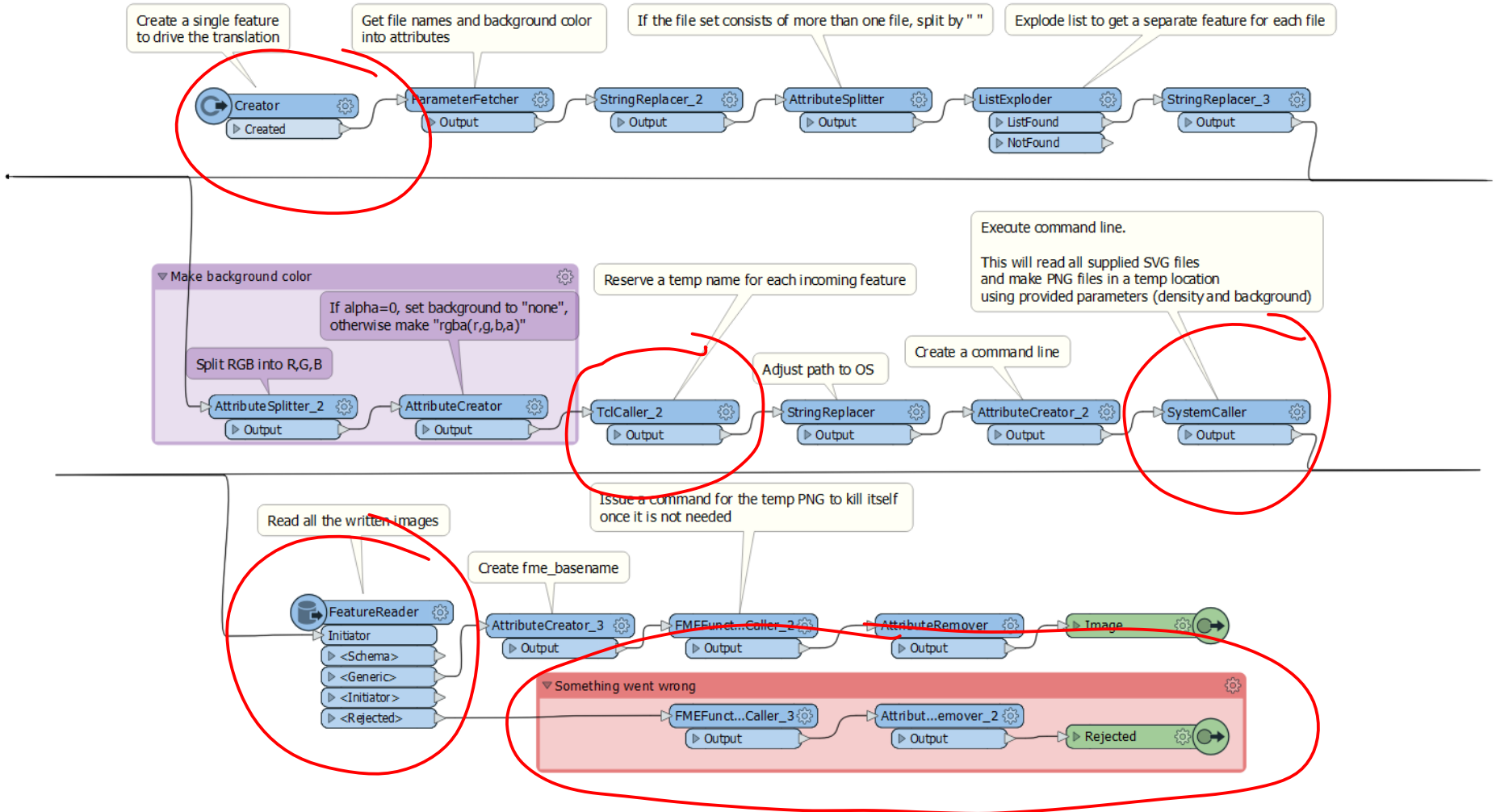
What is the ExifTool?

- Platform independent Perl library and command line tool
- Reading, writing and editing Exif metadata information
- Supports a wide variety of file types including .dng
- Numerous output formatting options including csv and JSON
- Loads of extra bonus features
- Free software that can be redistributed

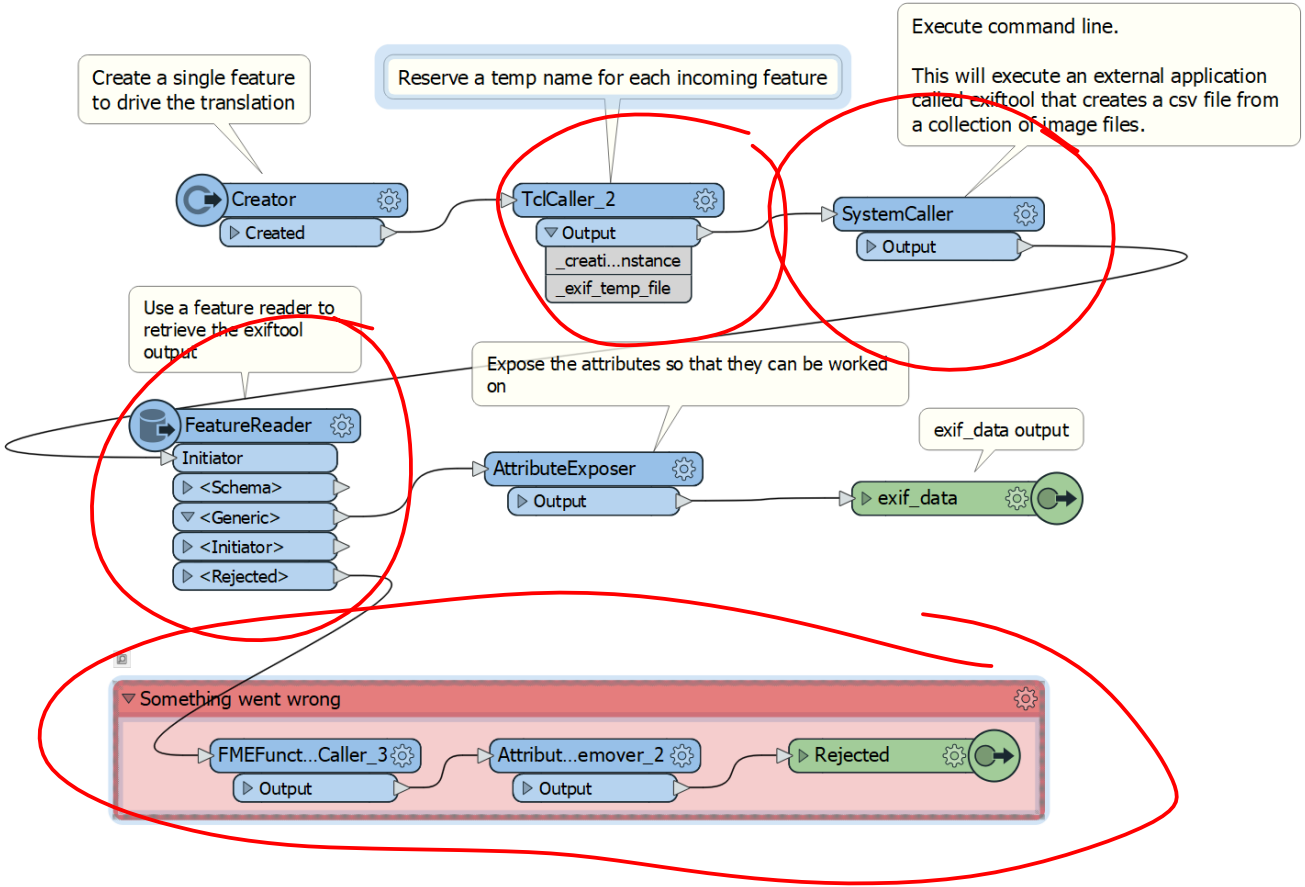
How do you make a custom reader?

- Search the FME Knowledge Base or Google for “FME Custom Reader”
- Find article by Dimitri Bagh titled **Command Line Tools Integration**
- Review example FME workspaces



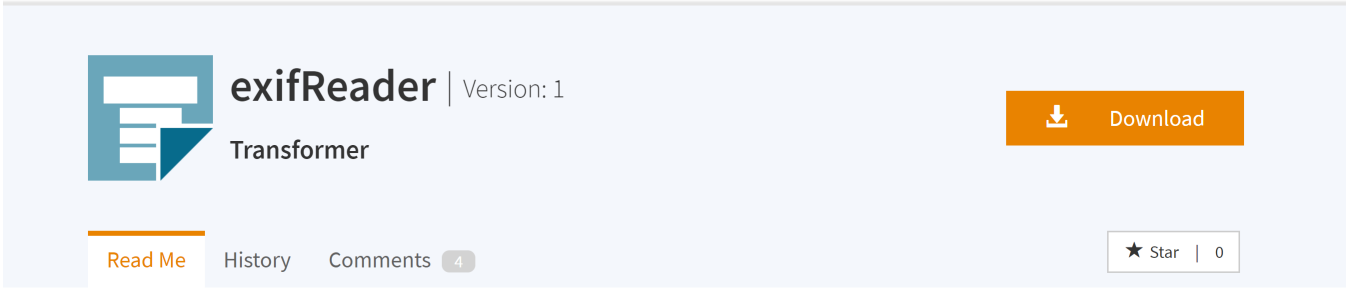

Create a single feature to drive the translation
Get file names and background color into attributes
If the file set consists of more than one file, split by " "
Explode list to get a separate feature for each file
Creator
Created
ParameterFetcher
Output
StringReplacer_2
Output
AttributeSplitter
Output
ListExploder
ListFound
NotFound
StringReplacer_3
Output
Make background color
If alpha=0, set background to "none", otherwise make "rgba(r,g,b,a)"
Split RGB into R,G,B
AttributeSplitter_2
Output
AttributeCreator
Output
Reserve a temp name for each incoming feature
Execute command line.
This will read all supplied SVG files
and make PNG files in a temp location
using provided parameters (density and background)
Adjust path to OS
Create a command line
TclCaller_2
Output
StringReplacer
Output
AttributeCreator_2
Output
SystemCaller
Output
Read all the written images
Issue a command for the temp PNG to kill itself once it is not needed
Create fme_basename
FeatureReader
Initiator
<Schema>
<Generic>
<Initiator>
<Rejected>
AttributeCreator_3
Output
FMEFunct...Caller_2
Output
AttributeRemover
Output
Image
Something went wrong
FMEFunct...Caller_3
Output
Attribut...emover_2
Output
Rejected

To use this transformer first download the exiftool and set your path environment variable so that the system can find the exiftool.exe executable. You can download the tool from https://www.sno.phy.queensu.ca/~phil/exiftool/



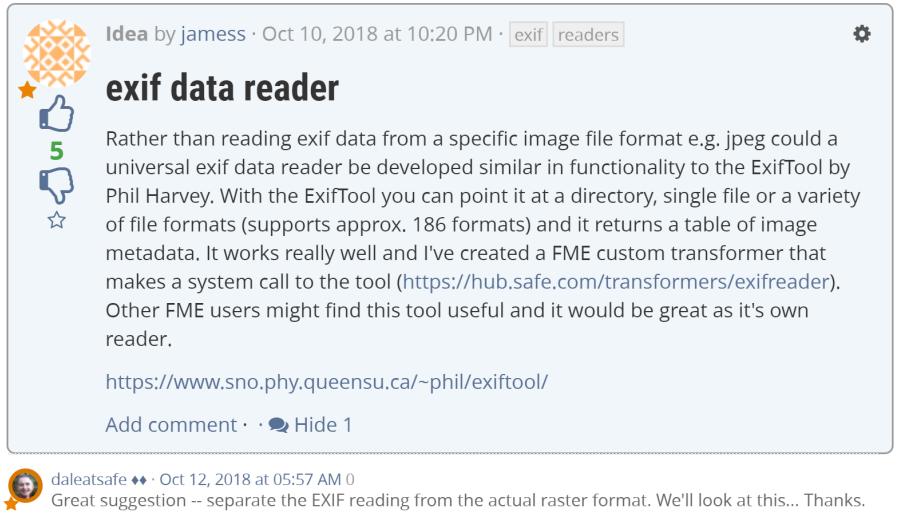
Upload to FME Hub

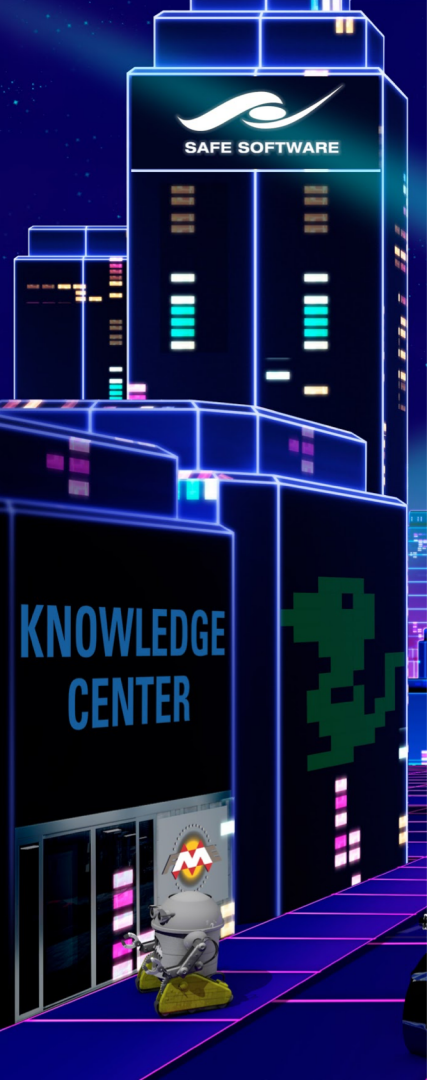
- Tool shared on FME Hub
- Contribute to FME user community
- 121 downloads so far



Generic exif metadata reader idea

- Submitted idea in the FME Knowledge Base
  - https://knowledge.safe.com/idea/80259/exif-data-reader.html





What's next?

- Additional functionality
- Exif metadata writer
- Perhaps a generic WMTS reader

https://knowledge.safe.com/idea/73983/web-map-tile-service-reader-wmts-reader.html

https://knowledge.safe.com/questions/1694/wmts-reading.html

https://knowledge.safe.com/idea/49606/maptiler-wmts-reader.html

THANK YOU!

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