

TUGAS KEAMANAN JARINGAN KOMPUTER

JPEG FORENSIC



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Forensic foto dengan format JPEG dapat dilakukan melalui website forensic yang tersedia di internet. Terdapat beberapa situs website yang dapat digunakan. Diantaranya adalah :

1. Fotoforensic (<http://fotoforensics.com>)

Pada percobaan ini, dilakukan 2 input yaitu foto pertama merupakan foto asli dan foto kedua yaitu foto yang telah di edit menggunakan tool paint.

Berikut adalah foto yang akan di forensic :

a. Foto asli



Berikut ini adalah hasil forensic dari kedua foto diatas :

- Digest

Filename:	IMG_20171224_165152_HDR.jpg
Filetime:	2018-04-08 11:42:19 GMT
File Type:	image/jpeg
Dimensions:	4208x2368
Color Channels:	3
File Size:	1,768,475 bytes
MD5:	50ec20544ac39c915b17b7b2cda4f1cb
SHA1:	317c5c57452e8966af7912f2e918ba5cbe6aa8ce
SHA256:	9ce540d0861ce30aa910db419a50dd96b0bda2bd0ee8745b57c59a927748c675

- Metadata

File	
File Type	JPEG
File Type Extension	jpg
MIME Type	image/jpeg
Exif Byte Order	Little-endian (Intel, II)
Image Width	4208
Image Height	2368
Encoding Process	Baseline DCT, Huffman coding
Bits Per Sample	8
Color Components	3
Y Cb Cr Sub Sampling	YCbCr4:2:0 (2 2)

EXIF**Image Description**

Make	Xiaomi
Camera Model Name	Redmi Note 4X
Orientation	Horizontal (normal)
X Resolution	72
Y Resolution	72
Resolution Unit	inches
Software	MediaTek Camera Application
Modify Date	2017:12:24 16:51:52
Y Cb Cr Positioning	Co-sited
Exposure Time	1/1189
F Number	2.0
Exposure Program	Not Defined
ISO	100
Exif Version	0220
Date/Time Original	2017:12:24 16:51:52
Create Date	2017:12:24 16:51:52
Components Configuration	Y, Cb, Cr, -
Exposure Compensation	0
Metering Mode	Center-weighted average
Light Source	Other
Flash	No Flash
Focal Length	3.5 mm
Sub Sec Time	59
Sub Sec Time Original	59
Sub Sec Time Digitized	59
Flashpix Version	0100

Color Space	sRGB
Exif Image Width	4208
Exif Image Height	2368
Interoperability Index	R98 - DCF basic file (sRGB)
Interoperability Version	0100
Exposure Mode	Auto
White Balance	Auto
Digital Zoom Ratio	1
Scene Capture Type	Standard
Compression	JPEG (old-style)
Thumbnail Offset	1280
Thumbnail Length	44288
Thumbnail Image	(Binary data 44288 bytes)

Composite

Aperture	2.0
Shutter Speed	1/1189
Create Date	2017:12:24 16:51:52.59
Date/Time Original	2017:12:24 16:51:52.59
Modify Date	2017:12:24 16:51:52.59
Focal Length	3.5 mm
Image Size	4208x2368
Light Value	12.2
Megapixels	10.0

- JPEG%

JPEG last saved at 89% quality (estimated)

Quality determined from the quantization tables that encoded the JPEG:

JPEG Q0: Luminance								JPEG Q1: Chrominance							
4	2	2	4	4	8	10	12	4	4	4	10	20	20	20	20
2	2	2	4	6	12	12	12	4	4	6	14	20	20	20	20
2	2	4	4	8	12	14	12	4	6	12	20	20	20	20	20
2	4	4	6	10	18	16	12	10	14	20	20	20	20	20	20
4	4	8	12	14	22	20	16	20	20	20	20	20	20	20	20
4	8	12	12	16	20	22	18	20	20	20	20	20	20	20	20
10	12	16	18	20	24	24	20	20	20	20	20	20	20	20	20
14	18	20	20	22	20	20	20	20	20	20	20	20	20	20	20

- b. Foto yang telah di edit



Foto diatas telah di crop menggunakan aplikasi paint.

- Digest

Filename:	Untitled.jpg
Filetime:	2018-04-08 11:04:18 GMT
File Type:	image/jpeg
Dimensions:	3944x2272
Color Channels:	3
File Size:	1,567,655 bytes
MD5:	a2c6e0fd6190317f51386a8e435dbc4b
SHA1:	d7a632380f6784d9e2c760300a7712448064d556
SHA256:	a433839d8fa0bf90666cfd1d083297b58bddcc69cf921912218d5195e74c0f14

- JPEG%

JPEG last saved at 94% quality (JPEG Standard)

Quality determined from the quantization tables that encoded the JPEG:

JPEG Q0: Luminance								JPEG Q1: Chrominance							
2	1	1	2	3	5	6	7	2	2	3	6	12	12	12	12
1	1	2	2	3	7	7	7	2	3	3	8	12	12	12	12
2	2	2	3	5	7	8	7	3	3	7	12	12	12	12	12
2	2	3	3	6	10	10	7	6	8	12	12	12	12	12	12
2	3	4	7	8	13	12	9	12	12	12	12	12	12	12	12
3	4	7	8	10	12	14	11	12	12	12	12	12	12	12	12
6	8	9	10	12	15	14	12	12	12	12	12	12	12	12	12
9	11	11	12	13	12	12	12	12	12	12	12	12	12	12	12

- Metadata

File	
File Type	JPEG
File Type Extension	.jpg
MIME Type	image/jpeg
Image Width	3944
Image Height	2272
Encoding Process	Baseline DCT, Huffman coding
Bits Per Sample	8
Color Components	3
Y Cb Cr Sub Sampling	YCbCr4:2:0 (2 2)
JFIF	
JFIF Version	1.01
Resolution Unit	inches
X Resolution	96
Y Resolution	96
Composite	
Image Size	3944x2272
Megapixels	9.0

2. Forensically Beta (<https://29a.ch>)


Foto yang digunakan sama dengan foto pada percobaan pertama

a. Foto Asli

- Clone Detection



- Metadata

ImageDescription	
Make	Xiaomi
Model	Redmi Note 4X
Orientation	1
XResolution	72
YResolution	72
ResolutionUnit	2
Software	MediaTek Camera Application
ModifyDate	2017:12:24 16:51:52
YCbCrPositioning	2
ExposureTime	0.0008
FNumber	2
ExposureProgram	0
ISO	100
DateTimeOriginal	Sun Dec 24 2017 23:51:52 GMT+0700 (SE Asia Standard Time)
CreateDate	Sun Dec 24 2017 23:51:52 GMT+0700 (SE Asia Standard Time)
ExposureCompensation	0
MeteringMode	2
LightSource	255
Flash	0
FocalLength	3.5000
SubSecTime	59
Hasn	0
FocalLength	3.5000
SubSecTime	59
SubSecTimeOriginal	59
SubSecTimeDigitized	59
ColorSpace	1
ExifImageWidth	4208
ExifImageHeight	2368
ExposureMode	0
WhiteBalance	0
DigitalZoomRatio	1
SceneCaptureType	0
InteropIndex	R98
HasThumbnail	true
ThumbnailWidth	256
ThumbnailHeight	144
ThumbnailType	image/jpeg
Thumbnail	

- String Extraction

```
Exif
Xiaomi
Redmi Note 4X
MediaTek Camera Application
2017:12:24 16:51:52
0220
0100
2017:12:24 16:51:52
2017:12:24 16:51:52
0100
JFIF
%&'()*456789:CDEFGHIJSTUVWXYZcdefghijstuvwxyz
&'()*56789:CDEFGHIJSTUVWXYZcdefghijstuvwxyz
kE37
ioud
Wmw$8DUB
X@7Kss H
lDRccl
Z&?<WQ(V
IRIm
Wgta
cnI4
kCSO
PTH3
6YXg
XKgc
```

- b. Foto yang telah di edit

- Clone Detection



- Metadata

No Metadata Found

- String Extraction

```
JFIF
%&'()*456789:CDEFGHIJSTUVWXYZcdefghijstuvwxz
&'()*456789:CDEFGHIJSTUVWXYZcdefghijstuvwxz
rWG4
83sG
WssN
QAAG
Sytyt
Mhvw
GEIG
njEj
edbO
7u5W
jfRM
QG0r
sM2P
PPQE
8VIw
w7SA
Whww
euRE8
9aNe
SYI5y
rM9c
O4yt
NCsRn
IE7w
```