```
...."'Exif.. JPEC header APP1 header Exif header
                      ff d8 ff
                                       22 27 45 78 69 66 00 00
-000c
 0000
                  00 08
                                     0a 00
                                                                                       IFD0-00 Make
                                     86 00 00 00
 000a
        0f 01 02 00 06 00 00 00
        10 01 02 00 0e 00 00 00
                                     8c 00 00 00
                                                                                       IFD0-01 Model
 0016
                                                                  . . . . . . . . . . . .
        1a 01 05 00 01 00 00 00
                                      9a 00 00 00
                                                                                       IFD0-02 XResolution
 0022
        1b 01 05 00 01 00 00 00
                                                                                      TFD0-03 VResolution
 0026
                                     a2 00 00 00
        28 01 03 00 01 00 00 00
                                      02 00 00 00
                                                                                       IFD0-04 ResolutionUnit
 003a
                                                                  (......
 0046
        31 01 02 00 2a 00 00 00
                                     aa 00 00 00
                                                                  1...*.....
                                                                                      TFD0-05 Software
                                                                                       TFD0-06 ModifyDate
 0052
        32 01 02 00 14 00 00 00
                                     d4 00 00 00
                                                                  2..........
        3b 01 02 00 14 00 00 00
                                      e8 00 00 00
                                                                                       IFD0-07 Artist
 005e
                                                                   . . . . ! . . . . . . .
 006a
        98 82 02 00 21 00 00 00
                                      fc 00 00 00
                                                                                      IFD0-08 Copyright
IFD0-08 ExifOffset
 0076
        69 87 04 00 01 00 00 00
                                      1e 01 00 00
                                     6e 6f 6e 00 43 61 6e 6f
44 0 f0 00 00 00 01 00
                                                                   N...Canon.Cano Next IFD Make value
EOS 60D..... Model value
 0082
               4e 03 00 00 43 61
        4e 03 00 00 43 61
6e 20 45 4f 53 20 36 30
00 00 f0 00 00 00 10 00
50 68 6f 74 6 73 68 6f
6f 6f 6d 20 35 2e 30 20
                                                                  n EOS 60D.....
 0090
                                     00 00 1 64 6f 62 65 20
70 20 4c 69 67 68 74 72
                                                                  .....Adobe
Photoshop Lightr
 00a0
                                                                                       XResolution value YResolution value
 00b0
                                                                                      Software value
                                     70 20 46 69 67 68 74 72 Photoshop Lightr 28 4d 61 b; 69 6e 74 6f osm 5.0 (Macinto sh).2013:10:19 1 47 72 65 67 6. 72 79 20 65 61 75 00 32 30 39 Charbonneau.2009 53 6f 6d 65 20 12 69 67 -2013 - Some rig 72 76 65 64 60 00 00 1e 00 hts reserved...
 00c0
 00d0
        73 68 29 00 32 30 31
                                33
                                                                                       ModifyDate value
                         0 30 00
 00e0
        30 3a 32 37 3a
                                                                                      Artist value
        43 68 61 72 62 cf 6e 6e
2d 32 30 31 33 2 2d 20
68 74 73 20 72 65 73 65
 00f0
                                                                                       Copyright value
 0100
                                                                                       [pad byte] ExifIFD entries
 0110
        9a 82 05 00 01 00 00 00 00 9d 82 05 00 01 00 00 00 22 88 03 00 01 00 0 00 00 27 88 03 00 01 00 00 00
                                     8c 02 00 00
                                                                                       ExifIFD-00 ExposureTime
 0120
                                                                                       ExifTFD-01 FNumber
 012c
                                     94 02 00 00
                                                                  . . . . . . . . . . . .
 0138
                                      03 00
                                                                                       ExifIFD-02 ExposureProgram
                                                                   ' . . . . . . . . . . . .
 0144
                                     80 02 00 00
                                                                   ExifIFD-03 ISO
        30 88 03 00 01 00 00
                                     02 00 00 00
                                                                                       ExifIFD-04 SensitivityType
 0150
                                                                  0.....
                                0.0
 015c
        32 88 04 00 01 00 00
                                 0.0
                                      80 02 00 00
                                                                                       ExifIFD-05 RecommendedExposureIndex
 0168
        00 90 07 00 04 00 00
                                     30 32 33 30
                                                                  .....0230
                                                                                       ExifTFD-06 ExifVersion
        03 90 02 00 14 00 00 0
                                                                                       ExifIFD-07 DateTimeOriginal
                                      9c 02 00 00
 0174
                                                                  . . . . . . . . . . . .
                                                                                       ExifIFD-08 CreateDate
 0180
        04 90 02 00 14 00 00 0
                                     b0 02 00 00
        01 92 0a 00 01 00 00 00
                                                                                      ExifIFD-09 ShutterSpeedValue
                                     c4 02 00 00
 018c
                                                                  . . . . . . . . . . . .
                                                                                       ExifIFD-10 ApertureValue
 0198
        02 92 05 00 01 00 00 00
                                      cc 02 00 00
                                                                                      ExifIFD-11 ExposureCompensation
ExifIFD-12 MaxApertureValue
 01a4
        04 92 0a 00 01 00 00 00
                                      d4 02 00 00
        05 92 05 00 01 00 00 00
                                         02
 01b0
                                            00 00
        07 92 03 00 01 00 00 00
                                         00 00 00
                                                                                      ExifIFD-13 MeteringMode
 01bc
 01c8
        09 92 03 00 01 00 00 00
                                         00 00 00
                                                                   . . . . . . . . . . . .
                                                                                       ExifTFD-14 Flash
                                                                                       ExifIFD-15 FocalLength
 01d4
        0a 92 05 00 01 00 00 00
                                         02 00 00
                                                                  . . . . . . . . . . . . .
                                     38 33 00 00
38 3 00 00
01 0 00 00
ec 02 00 00
f4 02 00 00
                                                                  .....83..
 01e0
        91 92 02 00 03 00 00 00
                                                                                       ExifIFD-16 SubSecTimeOriginal
                                                                                      ExifIFD-17 SubSecTimeDigitized
        92 92 02 00 03 00 00 00
                                                                  .......83..
 01ec
        01 a0 03 00 01 00 00 00
                                                                                       ExifIFD-18 ColorSpace
 01f8
                                                                                      ExifIFD-19 FocalPlaneXResolution
 0204
        0e a2 05 00 01 00 00 00
                                                                  . . . . . . . . . . . .
                                                                                       ExifIFD-20 FocalPlaneYResolution
 0210
        Of a2 05 00 01 00 00 00
                                                                   . . . . . . . . . . . .
                                     02 00 00 00
00 00 0 00
 021c
        10 a2 03 00 01 00 00 00
                                                                                      ExifIFD-21 FocalPlaneResolutionUnit
        01 a4 03 00 01 00 00 00
                                                                                       ExifIFD-22 CustomRendered
 0228
                                                                  . . . . . . . . . . . .
                                     00 00 0
                                                                                       ExifIFD-23 ExposureMode
 0234
        02 a4 03 00 01 00 00 00
                                                00
 0240
        03 a4 03 00 01 00 00 00
                                     01 00 00
                                                00
                                                                                       ExifIFD-24 WhiteBalance
 024c
        06 a4 03 00 01 00 00 00
                                     00 00 00 00
                                                                                      ExifIFD-25 SceneCaptureType
                                                                  . . . . . . . . . . . .
 0258
        31 a4 02 00 0b 00 00 00
                                      fc 02 00
                                                                                      ExifIFD-26 SerialNumber
ExifIFD-27 LensInfo
        32 a4 05 00 04 00 00 00
                                     08 03 00
                                                                  2.....
 0264
                                      28 03 00 0
                                                                                       ExifIFD-28 LensModel
 0270
        34 a4 02 00 19 00 00 00
                                                                  4......
 027c
        35 a4 02 00 0b 00 00 00
                                     42 03 00 00
                                                                  5....B...
                                                                                      ExifIFD-29 LensSerialNumber
 0288
                                      00 00 00 00
                                                    01 00 00 00
                                                                                       Next IFD
                                                                       . . . . .
                                     0a 00 00 00 2 30 31 33
36 3a 30 32 31 33 37 00
32 34 20 31 3 3a 30 32
 0290
        40 1f 00 00 1c 00 00 00
                                                                                      ExposureTime value FNumber value
 02a0
        3a 30 38 3a 32 34 20 31
                                                                  :08:24 16:02:37.
                                                                                      DateTimeOriginal value
        32 30 31 33 3a 30 38 3a
                                                                  2013:08:24 16:02
                                                                                       CreateDate value
 02b0
                                     40 42 0f 00 e6 54 2d 00 01 00 00 00 03 00 00 00
 0200
        3a 33 37 00 98 d7 c5 00
                                                                  :37.....@B...T-.
                                                                                      ShutterSpeedValue value
        40 42 0f 00 00 00 00 00
                                                                                       ApertureValue value ExposureCompensation value
 02d0
                                                                  @B.....
                                                                                      MaxApertureValue value FocalLength value
                                     01 00 00 00 00 a 53 02 00 00 31 3
        01 00 00 00 c8 00 00 00
                                                          4f 00
                                                                  02e0
 02f0
        89 03 00 00 00 bc 34 00
                                                          38 30
                                                                  .....4.S...1380
                                                                                      FocalPlaneXResolution value FocalPlaneYResolution value
                                     46 00 00 00 01 01 00 00
00 00 00 00 00 00 00 00
45 46 37 30 2d 32 30
                                                                  960177..F.....
 0300
               30 31 37
                             00
                                                                                       SerialNumber value [pad byte]
 0310
        C8 00 00 00 01 00 00 00
                                                                  LensInfo value
        00 00 00 00 00 00 00 00
                                                                  ......EF70-200
mm f/2.8L IS USM
 0320
                                                                                       LensModel value
        6d 6d 20 66 2f 32 2e 38
                                      4c 20 49 53 20 55
 0330
 0340
        00 00 30 30 30 30 30 30
                                     30 30 30 30 00 00 06 00 ..0000000000....
                                                                                       [pad byte] LensSerialNumber value [pad byte] IFD1 entries
 0350
        03 01 03 00 01 00 00 00
                                      06 00 00 00
                                                                                       IFD1-00 Compression
                                                                   . . . . . . . . . . . .
                                      9c 03 00 00
 035c
        1a 01 05 00 01 00 00 00
                                                                                       IFD1-01 XResolution
        1b 01 05 00 01 00 00 00
                                                                                      IFD1-02 YResolution
                                     a4 03 00 00
 0368
                                                                  . . . . . . . . . . . .
 0374
        28 01 03 00 01 00 00 00
                                      02 00 00 00
                                                                  IFD1-03 ResolutionUnit
 0380
        01 02 04 00 01 00 00 00
                                     ac 03 00 00
                                                                  . . . . . . . . . . . . .
                                                                                      TFD1-04 ThumbnailOffset
 038c
        02 02 04 00 01 00 00 00
                                      73
                                        1e 00 00
                                                                  ....s...
                                                                                       IFD1-05 ThumbnailLength
                                                                                      Next IFD
 0398
                                      00 00 00 00 48 00 00 00
 03a0
        01 00 00 00 48 00 00 00
                                     01 00 00 00 ff d8 ff ee
                                                                  . . . . H . . . . . . . . . . .
                                                                                      XResolution value YResolution value
        00 0e 41 64 6f 62 65 00
                                      64 00 00 00 00 01 ff db
                                                                  ..Adobe.d.....
                                                                                       (IFD1:Thumbnail data)
 03b0
 03c0
        00 84 00 06 04 04 04 05
                                     04 06 05 05 06 09 06 05
                                                                  06 09 0b 08 06 06 08 0b
                                     0c 0a 0a 0b 0a 0a 0c 10
 03d0
        0c 0c 0c 0c 0c 0c 10 0c
                                     0c 0c 0c 0c 0c 0c 0c 0c
 03e0
 03f0
        0c 0c 0c 0c 0c 0c 0c 0c
                                     0c 0c 0c 0c 0c 0c 0c 0c
                                                                  . . . . . . . . . . . . . . . . . . .
        0c 0c 0c 01 07 07 07 0d
                                     0c 0d 18 10 10 18 14 0e
 0400
 0410
        0e 0e 14 14 0e 0e 0e 0e
                                     14 11 0c 0c 0c 0c 0c 11
                           [snip 472 lines]
                                                                        [snip]
                                                                  ../.C.w^O.:...
        04 15 2f f7 43 7f 77 5e
                                     4f f6 3a fd af f8 97 fb
 21b0
        f3 fc ac 9e 4f al 11 fa
                                     9e 77 e6 aa fe 93 db 97
                                                                  ....O....w....
                                     cc 5f 48 43 c7 5e 49 f6
                                                                  ..s..$..._HC.^I.
        fb 1a 53 f1 cd 24 f9 bb
 21c0
 21d0
        ba f6 a6 53 26 d0 b3 cf
                                     bf f2 8d c5 d7 fd e8 4e
                                                                  ...S&....N
        bd 7a 37 4c bb 13 81 ad
                                     fa 7e 2c 32 de bc 0f da
 21e0
                                                                  .z7L....~,2....
        fc 33 20 3a a2 b2 f2 be
                                      99 eb 93 0a c4 b5 7a d1
                                                                  .3 :....z.
 21f0
        ba fe 19 60 62 58 8d f7 77 c5 55 17 af 7c 05 51
                                     db 3d 7a e4 c2 10 63 ed
11 76 eb 81 2f ff d9 ff
                                                                  ...`bX...=z...c.
w.U..|.Q.v../...
 2200
 2210
                                                                                      APP13 Photoshop segment
        ed 1f 6c 50 68 6f 74 6f
                                     73 68 6f 70 20 33 2e 30 00 00 00 00 10 00 f0 00
                                                                  ..lPhotoshop 3.0
 2220
        00 38 42 49 4d 03 ed 00
                                                                  .8BIM....
 2230
 2240
        00 00 01 00 01 00 f0 00
                                     00 00 01 00 01 38 42 49
                                                                  .....8BI
 2250
        4d 04 04 00 00 00 00 00
                                     7c 1c 01 5a 00 03 1b 25
                                                                  M.....
                                     1c 02 37 00 08 32 30 31
 2260
        47 1c 02 00 00 02 00 04
                                                                  G.....7..201
 2270
        33 30 38 32 34 1c 02 3c
                                     00\ 06\ 31\ 36\ 30\ 32\ 33\ 37
                                                                  30824..<..160237
 2280
        1c 02 3e 00 08 32 30 31
                                     33 30 38 32 34 1c 02 3f
                                                                  ..>..20130824..3
                           [snip 488 lines]
                                                                       [snip]
        97 fb la 53 fl cd 24 f9 bb cc 5f 48 43 c7 5e 49 f6 ba f6 a6 53 26 d0 b3 cf bf f2 8d c5 d7 fd e8
 4110
                                                                  ...s..$..._HC.^I
 4120
                                                                  ....S&.....
        4e bd 7a 37 4c bb 13 81
                                            7e 2c 32 de bc 0f
                                                                  N.z7L....~,2...
 4130
                                     ad fa
                                                                  ....`bX...=z...c
 4140
        da fc 33 20 3a a2 b2 f2
                                     be 99 eb 93 0a c4 b5 7a
                                     f7 db 3d 7a e4 c2 10 63
 4150
        d1 ba fe 19 60 62 58 8d
 4160
        ed 77 c5 55 17 af 7c 05
                                     51 11 76 eb 81 2f ff d9
                                                                  .w.U..|.Q.v../..
                                                                  .8BIM.%....v
        00 38 42 49 4d 04 25 00
                                     00 00 00 00 10 f4 db 76
 4170
        47 8b aa 3a 51 60 c9 d5
58 49 43 43 5f 50 52 4f
                                     40 76 21 71 a0 ff e2 0c
                                                                  G..:Q`..@v!q....
 4180
                                                                                      APP2 ICC_Profile segment
 4190
                                     46 49 4c 45 00 01 01 00
                                                                  XICC PROFILE....
```

```
00 0c 48 4c 69 6e 6f 02 10 00 00 6d 6e 74 72 52 ...HLino....mntrR
 41a0
        47 42 20 58 59 5a 20 07
                                   ce 00 02 00 09 00 06 00 GB XYZ ......
 41b0
 4100
       31 00 00 61 63 73 70 4d 53 46 54 00 00 00 00 49
                                                              1..acspMSFT....]
        45 43 20 73 52 47
                                                              EC sRGB....
                           42 00
                                   00 00 00 00 00 00 00 00
 41d0
                                                              Р .....
 41e0
        00 00 00 00 00 f6 d6 00
                                   01 00 00 00 00 d3 2d 48
       50 20 20 00 00 00 00 00
 41f0
                                   00 00 00 00 00 00 00 00
                         [snip 183 lines]
                                                                   [snip]
        af e0 36 e0 bd e1 44 e1 cc e2 53 e2 db e3 63 e3 eb e4 73 e4 fc e5 84 e6 0d e6 96 e7 1f e7 a9 e8
 4d70
                                                              ..6...D...S...c.
 4d80
                                                              ..S.......
 4d90
        32 e8 bc e9 46 e9 d0 ea
                                   5b ea e5 eb 70 eb fb ec
                                                              ....(...@...X.
..r....4...
P...m....8.
..W...w...).
K..m...'khttp:
 4da0
        86 ed 11 ed 9c ee 28 ee
                                   b4 ef 40 ef cc f0 58 f0
 4db0
        e5 f1 72 f1 ff f2 8c f3
                                   19 f3 a7 f4 34 f4 c2 f5
                                   8a f8 19 f8 a8 f9 38 f9
07 fc 98 fd 29 fd ba fe
 4400
        50 f5 de f6 6d f6 fb f7
       c7 fa 57 fa e7 fb 77 fc
 4dd0
 4de0
        4b fe dc ff 6d ff ff ff
                                   el 27 6b 68 74 74 70 3a
                                                                                 APP1 XMP segment
                                   62 65 2e 63 6f 6d 2f 78
3c 3f 78 70 61 63 6b 65
                                                              //ns.adobe.com/x
 4df0
       2f 2f 6e 73 2e 61 64 6f
                                                              ap/1.0/.<?xpacke
t begin="..." id
="W5M0MpCehiHzre
        61 70 2f 31 2e 30 2f 00
 4e00
                                   22 ef bb bf 22 20 69 64
43 65 68 69 48 7a 72 65
 4e10
        74 20 62 65 67 69 6e 3d
        3d 22 57 35 4d 30 4d 70
 4e20
 4e30
        53 7a 4e 54 63 7a 6b 63
                                   39 64 22 3f 3e 0a 3c 78
                                                              SzNTczkc9d"?>.<x
                                                              :xmpmeta xmlns:x
="adobe:ns:meta/
 4e40
       3a 78 6d 70 6d 65 74 61
                                  20 78 6d 6c 6e 73 3a 78
       3d 22 61 64 6f 62 65 3a
                                   6e 73 3a 6d 65 74 61 2f
 4e50
                         [snip 616 lines]
                                                                    [snip]
       74e0
       20 20 20 20 20 20 20 20
                                   20 20 20 20 20 20 20 20
 74f0
 7500
       20 20 20 20 20 20 20 20
                                   0a 20 20 20 20 20 20 20
       20 20 20 20 20 20 20 20
                                   20 20 20 20 20 20 20 20
 7510
 7520
        20 20 20 20 20 20 20 20
                                   20 20 20 20 20 20 20 20
 7530
       20 20 20 20 20 20 20 20
                                   20 20 20 20 20 20 20 20
 7540
        0a 3c 3f 78 70 61 63 6b
                                   65 74 20 65 6e 64 3d 22
                                                              .<?xpacket end='
 7550
       77 22 3f 3e ff ee 00 0e 00 00 00 01 ff db 00 84
                                   41 64 6f 62 65 00 64 40 00 01 01 01 01 01 01 01
                                                              w"?>....Adobe.d@
                                                                                 APP14 Adobe segment
 7560
                                                                                 [JPEG Image Data]
 7570
        01 01 01 01 01 01 01 01
                                   01 01 01 01 01 01 01 01
 7580
       01 01 01 01 01 02 01 01
                                   01 01 01 01 02 02 02 02
 7590
        02 02 02 02 02 02 02 02
                                   02 02 03 03 03 03 03 03
                                                              . . . . . . . . . . . . . . . . .
 75a0
       03 03 03 03 03 03 03 03
                                   03 01 01 01 01 01 01 01
       02 01 01 02 03 02 02 02
                                   03 03 03 03 03 03 03 03
                                                              .....
 75b0
       03 03 03 03 03 03 03 03
                                   03 03 03 03 03 03 03 03
 75d0
       03 03 03 03 03 03 03 03
                                   03 03 03 03 03 03 03 03
                       [snip 699039 lines]
ab1fd0 25 3b 3c 0a 17 ee 04 a4
ab1fe0 66 67 d0 c4 5b dd 58 92
                                   fe f3 53 c2 02 b0 91 c0 2a 47 57 06 bf 2e b3 89
                                                              fg..[.X.*GW....
ablff0 a6 a5 bc 91 54 99 40 8d
                                   cc 35 ab 43 25 24 f3 4a
                                                              ....T.@..5.C%$.J
ab2000 cb e4 92 3a 28 e6 21 cc
                                   47 52 9b eb 3e a2 6d e9
                                                              ...:(.!.GR..>.m.
                                   15 eb 90 40 b2 c7 39 9e
       17 f6 8c 82 4f 4f al a0
ab2010
                                                              ab2020 9c 4f 2c 68 69 d2 58 a5
                                   8f ec e9 a7 04 55 cb 15
                                                              .O,hi.X.....U..
ab2030 62 59 20 e4 93 67 d5 66
                                                              bY ..g.fV?_m. ..
                                  56 3f 5f 6d 85 20 e7 a7
ab2040 cf c3 d7 ff d9
                                                                                 JPEG EOI
```