

FILE SIGNATURES TABLE

16 December 2017

This table of file signatures (aka "magic numbers") is a continuing work-in-progress. I had found little information on this in a single place, with the exception of the table in *Forensic Computing: A Practitioner's Guide* by T. Sammes & B. Jenkinson (Springer, 2000); that was my inspiration to start this list in 2002. See also Wikipedia's [List of file signatures](#). Comments, additions, and queries can be sent to Gary Kessler at gck@garykessler.net.

This list is not exhaustive. Interpret the table as the magic number generally indicating the file type rather than the file type always having the given magic number. If you want to know to what a particular file extension refers, check out some of these sites:

- [File Extension Seeker: Metasearch engine for file extensions](#)
- [FILExt.com](#)
- [FileInfo.com](#)
- [Wotsit.org](#), The Programmer's File and Data Resource
- [DOT.WHAT?](#)
- [File-Extensions.org](#)

Some other useful information:

- My [software utility](#) page contains a custom signature file based upon this list, for use with FTK, Scalpel, Simple Carver, Simple Carver Lite, and TrID.
- The [File Signatures](#) Web site searches a database based upon file extension or file signature.
- Tim Coakley's [Filesig.co.uk](#) site, with Filesig Manager and Simple Carver. Also, see Tim's [SQLite Database Catalog](#) page, "a repository of information used to identify specific SQLite databases and properties for research purposes."
- Marco Pontello's [TrID - File Identifier](#) utility designed to identify file types from their binary signatures.
- The National Archives' [PRONOM](#) site provides on-line information about data file formats and their supporting software products, as well as their multi-platform [DROID \(Digital Record Object Identification\)](#) software.
- Additional details on graphics file formats can be found at [The Graphics File Formats Page](#) and the [Sustainability of Digital Formats Planning for Library of Congress Collections](#) site.
- Additional details on audio and video file formats can be found at the [Sustainability of Digital Formats Planning for Library of Congress Collections](#) site.

- Another collection of many types of file format specifications can be found at Alex Kirk's [File Format Documentation Collection](#).
- Shaul Zevin's [Let's Solve the File Format Problem!](#) page presents an ontology on which his [Falstaff](#) tool is built, a Web-based tool to classify a file by signature.

If you are using a Linux/Mac OS X/Unix system, you can use the [file](#) command to determine the file type based upon the file signature, per the system's *magic* file.

And, one last and final item — if you are searching for network traffic in raw binary files (e.g., RAM or unallocated space), see [Hints About Looking for Network Packet Fragments](#).

[ACKNOWLEDGEMENTS & COPYRIGHT NOTICE](#)

Hex Signature	ASCII Signature
File Extension	File Description
TGA	Truevision Targa Graphic file
Trailer:	
54 52 55 45 56 49 53 49	TRUEVISI
4F 4E 2D 58 46 49 4C 45	ON-XFILE
2E 00	..
00	.
PIC	IBM Storyboard bitmap file
MOV	Apple QuickTime movie file
PIF	Windows Program Information File
SEA	Mac Stuffit Self-Extracting Archive
YTR	IRIS OCR data file
00 00 00 00 00	
00 00 00	.....
00 00 00 00 00	.....
00 00 00	
XXX	Compucon/Singer embroidery design file
[11 byte offset]	
00 00 00 00 00	[11 byte offset]
00 00 00	.....
00 00 00 00 00	.....
00 00 00	.....
00 00 00 00 00	
00 00 00	
PDB	Palmpilot Database/Document File

[512 (0x200) [512 (0x200) byte offset]
byte offset]
00 00 00 00 00
00 00 00

RVT Revit Project File subheader

00 00 00 00 14
00 00 00

TBI Windows Disk Image file

[8 byte offset]
00 00 00 00 62 [8 byte offset]
31 05 00b1..
09 00 00 00 00
20 00 00
00 09 00 00 00
00 00 00

DAT Bitcoin Core wallet.dat file

00 00 00 0C 6AjP
50 20 20
0D 0A ..

JP2 Various JPEG-2000 image file formats

00 00 01 00

ICO Windows icon file

SPL Windows NT/2000/XP printer spool file

00 00 01 Bx

MPEG, MPG MPEG video file

Trailer:

00 00 01 B7 (...·)

00 00 01 BA°

MPG, VOB DVD Video Movie File (video/dvd, video/mpeg) or DVD

MPEG2

Trailer:

00 00 01 B9 (...¹)

00 00 02 00

CUR Windows cursor file

WB2 QuattroPro for Windows Spreadsheet file

00 00 02 00 06
04 06 00
08 00 00 00 00
00

WK1 Lotus 1-2-3 spreadsheet (v1) file

00 00 03 F3 ...ó
n/a Amiga [Hunk](#) executable file

00 00 1A 00 00
10 04 00
00 00 00 00

WK3 Lotus 1-2-3 spreadsheet (v3) file

00 00 1A 00 02
10 04 00
00 00 00 00

WK4, WK5 Lotus 1-2-3 spreadsheet (v4, v5) file

00 00 1A 00 05
10 04

123 Lotus 1-2-3 spreadsheet (v9) file

00 00 49 49 58 ..IIXPR
50 52 **or**
00 00 4D 4D 58 ..MMXPR
50 52

QXD Quark Express document (Intel & Motorola, respectively)
NOTE: It appears that the byte following the 0x52 ("R") is
the language indicator; 0x33 ("3") seems to indicate English
and 0x61 ("a") reportedly indicates Korean.

00 00 FE FF ..þÿ
n/a Byte-order mark for 32-bit Unicode Transformation Format/
4-octet Universal Character Set (UTF-32/UCS-4), big-endian
files.
(See the [Unicode Home Page](#).)

[6 byte offset]
00 00 FF FF FF [6 byte offset]
FF ...ÿÿÿÿ

HLP Windows Help file

00 01 00 00 00
TTF TrueType font file

00 01 00 00 4D
53 49 53 MSIS
41 4D 20 44 61 AM Datab
74 61 62 ase
61 73 65

MNY Microsoft Money file

00 01 00 00 53
74 61 6E

64 61 72 64 20Stan
41 43 45 dard ACE
20 44 42 DB

ACCDB Microsoft Access 2007 file

00 01 00 00 53
74 61 6EStan
64 61 72 64 20 dard Jet
4A 65 74 DB
20 44 42

MDB Microsoft Access file

00 01 00 08 00
01 00 01
01 .

IMG Ventura Publisher/GEM VDI Image Format Bitmap file

00 01 01 ...

FLT OpenFlight 3D file

00 01 42 41 ..BA

ABA Palm Address Book Archive file

00 01 42 44 ..BD

DBA Palm DateBook Archive file

00 06 15 61 00
00 00 02 ...a....
00 00 04 D2 00 ...Ö....
00 10 00

DB Netscape Navigator (v4) database file

00 0D BB A0 ..»

n/a Mbox table of contents file. (**NOTE:** The next four bytes appear to be the number of e-mails in the associated *mbox* file.)

00 11 AF ..—

FLI FLIC Animation file

00 14 00 00 01
02 xx xx
03 .

n/a BIOS details in RAM images

00 1E 84 90 00
00 00 00 ...".....

SNM Netscape Communicator (v4) mail folder

00 20 AF 30 . 0

TPL Wii images container

00 5C 41 B1 FF .\A±ÿ
ENC Mujahideen Secrets 2 encrypted file

[512 (0x200) byte offset] [512 (0x200) byte offset]
n.ð
00 6E 1E F0
PPT PowerPoint presentation subheader (MS Office)

00 BF .¿
SOL Adobe Flash shared object file (e.g., Flash cookies)

00 FF FF FF FF
FF FF FF .ÿÿÿÿÿÿÿÿ
FF FF FF 00 00 ÿÿÿ.....
02 00 01
MDF Alcohol 120% CD image

01 00 00 00
EMF Extended (Enhanced) Windows Metafile Format, printer spool file
(0x18-17 & 0xC4-36 is Win2K/NT; 0x5C0-1 is WinXP)

01 00 00 00 01
PIC Unknown type picture file

01 00 09 00 00
03
WMF Windows Metadata file (Win 3.x format)

01 00 02 00
ARF Webex Advanced Recording Format files.

01 00 39 30 ..90
FDB, GDB Firebird and Interbase database files, respectively. See [IBPhoenix](#) for more information.

01 01 47 19 A4 ..G.#xA4...
00 00 00
00 00 00 00
TBI [The Bat!](#) secure e-mail Message Base Index file

01 0F 00 00
MDF Microsoft SQL Server 2000 database

01 10 ..
TR1 Novell LANalyzer capture file

01 DA 01 01 00 .Ú....
03

RGB Silicon Graphics RGB Bitmap

01 FF 02 04 03 .ÿ....
02

DRW Micrografx vector graphic file

02 64 73 73 .dss

DSS Digital Speech Standard (Olympus, Grundig, & Phillips)

03 .
DAT MapInfo Native Data Format
DB3 dBASE III file

03 00 00 00
QPH Quicken price history file

03 00 00 00 41APPR
50 50 52

ADX Approach index file

04 .
DB4 dBASE IV data file

04 00 00 00 xx
xx xx xx
xx xx xx xx 20
03 00 00 **or**
05 00 00 00 xx
xx xx xx
xx xx xx xx 20
03 00 00

n/a [INFO2 Windows recycle bin](#) file. NOTE: Bytes 12-13
indicate the size of each INFO2 record; the most common
value is 0x20-03 (0x0320 = 800 bytes).

06 06 ED F5 D8
1D 46 E5 ..íõø.Få
BD 31 EF E7 FE ½lïçþt..
74 B7 1D

INDD Adobe InDesign document

06 0E 2B 34 02
05 01 01 ..+4....
0D 01 02 01 01
02

MXF [Material Exchange Format](#) file

07	.	DRW	A common signature and file extension for many drawing programs.
07 53 4B 46	.SKF	SKF	SkinCrafter skin file
07 64 74 32 64 64 74 64	.dt2ddtd	DTD	DesignTools 2D Design file
08	.	DB	dBASE IV or dBFast configuration file
08 00 45	..E	n/a	Possibly, maybe, might be a fragment of an Ethernet frame carrying an IPv4 packet. See Hints About Looking for Network Packet Fragments .
[512 (0x200) byte offset]	[512 (0x200) byte offset]		
09 08 10 00 00 06 05 00	.....	XLS	Excel spreadsheet subheader (MS Office)
0A nn 01 01	....	PCX	ZSOFT Paintbrush file (where <i>nn</i> = 0x02, 0x03, or 0x05)
0A 16 6F 72 67 2E 62 69 74 63 6F 69 6E 2E 70 72	..org.bi tcoin.pr	WALLET	MultiBit Bitcoin wallet file
0C ED	.ı	MP	Monochrome Picture TIFF bitmap file (unconfirmed)
0D 44 4F 43	.DOC	DOC	DeskMate Document file
0E 4E 65 72 6F 49 53 4F	.NeroISO	NRI	Nero CD Compilation
0E 57 4B 53	.WKS	WKS	DeskMate Worksheet

[512 (0x200)	[512 (0x200) byte offset]
byte offset]	..è.
0F 00 E8 03	
	PPT PowerPoint presentation subheader (MS Office)
10 00 00 00	....
	CL5 Easy CD Creator 5 Layout file
1A 00 00	...
	NTF Lotus Notes database template
1A 00 00 04 00	.....
00	
	NSF Lotus Notes database
1A 0x	..
	ARC LH archive file, old version (where x = 0x2, 0x3, 0x4, 0x8 or 0x9 for types 1-5, respectively)
1A 0B	..
	PAK Compressed archive file (often associated with Quake Engine games)
1A 35 01 00	.5..
	ETH GN Nettest WinPharoah capture file
1A 45 DF A3	.Eß£
	MKV Matroska stream file
	WEBM WebM video file
1A 52 54 53 20	
43 4F 4D	
50 52 45 53 53	.RTS COM
45 44 20	PRESSED
49 4D 41 47 45	IMAGE V1
20 56 31	.0.
2E 30 1A	
	DAT Runtime Software compressed disk image
1D 7D	.}
	WS WordStar Version 5.0/6.0 document
1F 8B 08	.<.
	GZ, TGZ GZIP archive file
	VLT VLC Player Skin file
1F 9D	..
	TAR.Z

[Compressed tape archive](#) file using standard (Lempel-Ziv-Welch) compression

```
1F A0      .
           TAR.Z Compressed tape archive file using LZH (Lempel-Ziv-Huffman)
                compression

21          !
           BSB MapInfo Sea Chart

21 12       !.
           AIN AIN Compressed Archive

21 3C 61 72 63 !<arch>.
68 3E 0A
           LIB Unix archiver (ar) files and Microsoft Program Library
                Common Object File Format (COFF)

21 42 44 4E !BDN
           OST Microsoft Outlook Exchange Offline Storage Folder File
           PST Microsoft Outlook Exchange Personal Folder File

23 20       #
           MSI Cerius2 file

23 20 44 69 73
6B 20 44     # Disk D
65 73 63 72 69 escripto
70 74 6F
           VMDK VMware 4 Virtual Disk description file (split disk)

23 20 4D 69 63
72 6F 73
6F 66 74 20 44 # Micros
65 76 65      oft Deve
6C 6F 70 65 72 looper St
20 53 74      udio
75 64 69 6F
           DSP Microsoft Developer Studio project file

23 21 41 4D 52 #!AMR
           AMR Adaptive Multi-Rate ACELP (Algebraic Code Excited Linear
                Prediction)
                Codec, commonly audio format with GSM cell phones. (See
                RFC 4867.)

23 21 53 49 4C
4B 0A       #!SILK.
           SIL
```

[Audio compression format](#) developed by Skype; also used by other applications.

```
23 3F 52 41 44    #?RADIAN
49 41 4E          CE.
43 45 0A
```

HDR Radiance High Dynamic Range image file

```
23 50 45 43 30    #PEC0001
30 30 31          LA:
4C 41 3A
```

PEC Brother/Babylock/Bernina Home Embroidery file

```
23 50 45 53 30    #PES0
```

PES Brother/Babylock/Bernina Home Embroidery file

```
24 46 4C 32 40
28 23 29
20 53 50 53 53    $FL2@ (#)
20 44 41          SPSS DA
54 41 20 46 49    TA FILE
4C 45
```

SAV SPSS Data file

```
25 21 50 53 2D
41 64 6F
62 65 2D 33 2E    %!PS-Ado
30 20 45          be-3.0 E
50 53 46 2D 33    PSF-3.0
20 30
```

EPS Adobe encapsulated PostScript file
(If this signature is not at the immediate
beginning of the file, it will occur early
in the file, commonly at byte offset 30 [0x1E])

```
25 50 44 46      %PDF
```

PDF, FDF, AI Adobe Portable Document Format, Forms Document Format,
and Illustrator graphics files

Trailers:

```
0A 25 25 45 4F 46 (.%%EOF)
0A 25 25 45 4F 46 0A (%%EOF.)
0D 0A 25 25 45 4F 46 0D 0A (%%EOF..)
0D 25 25 45 4F 46 0D (%%EOF.)
```

NOTE: There may be multiple end-of-file marks within the
file. When carving, be sure to get the last one.

```
25 62 69 74 6D    %bitmap
61 70
```

FBM

Fuzzy bitmap (FBM) file

```
28 54 68 69 73
20 66 69
6C 65 20 6D 75    (This fi
73 74 20          le must
62 65 20 63 6F    be conve
6E 76 65          rted wit
72 74 65 64 20    h BinHex
77 69 74
68 20 42 69 6E
48 65 78
20
```

HQX Macintosh BinHex 4 Compressed Archive

```
2A 2A 2A 20 20
49 6E 73          ***  Ins
74 61 6C 6C 61    tallatio
74 69 6F          n Starte
6E 20 53 74 61    d
72 74 65
64 20
```

LOG Symantec Wise Installer log file

```
[2 byte offset] [2 byte offset]
2D 6C 68          -lh
```

LHA, LZH Compressed archive file

```
2E 52 45 43      .REC
```

IVR RealPlayer video file (V11 and later)

```
2E 52 4D 46      .RMF
```

RM, RMVB RealMedia streaming media file

```
2E 52 4D 46 00   .RMF....
00 00 12         .
00
```

RA RealAudio file

```
2E 72 61 FD 00   .raý.
```

RA RealAudio streaming media file

```
2E 73 6E 64      .snd
```

AU NeXT/Sun Microsystems μ -Law audio file

```
2F 2F 20 3C 21   // <!--
2D 2D 20          < mdb:mor
3C 6D 64 62 3A   k:z
```

6D 6F 72
6B 3A 7A

MSF Thunderbird|Mozilla Mail Summary File

30 0
CAT Microsoft security catalog file

30 00 00 00 4C 0...LfLe
66 4C 65
EVT Windows Event Viewer file

30 26 B2 75 8E
66 CF 11 0&²u.fï.
A6 D9 00 AA 00 |Û.ª.bîl
62 CE 6C
ASF, WMA, WMV Microsoft Windows Media Audio/Video File
([Advanced Systems Format](#))

30 31 4F 52 44
4E 41 4E
43 45 20 53 55 01ORDNAN
52 56 45 CE SURVE
59 20 20 20 20 Y
20 20 20

NTF National Transfer Format Map File

30 37 30 37 30 07070.
nn
n/a Archive created with the cpio utility (where *nn*
values 0x37 ("7"), 0x31 ("1"), and 0x32 ("2") refer to the
standard ASCII format, new ASCII (aka SVR4) format, and
CRC
format, respectively. (The [swpackage\(8\)](#) page has additional
information.) (Thanks to F. Webber for this....)

31 BE *or* 1¾
32 BE 2¾
WRI Microsoft Write file

32 03 10 00 00
00 00 00 2.....
00 00 80 00 00ÿ.
00 FF 00

PCS Pfaff Home Embroidery file

34 CD B2 A1 4Í²;
n/a Extended tcpdump (libpcap) capture file (Linux/Unix)
7z¼¯'.

37 7A BC AF 27
1C

7Z 7-Zip compressed file

37 E4 53 96 C9 7äs-ÛÖ.
DB D6 07

n/a zisofs compression format, recognized by some Linux kernels.
See the
[libburnia](#) page for additional information.

38 42 50 53 8BPS
PSD Photoshop image file

3A 56 45 52 53 :VERSION
49 4F 4E
SLE Surfplan kite project file

3C <
ASX Advanced Stream redirector file
XDR BizTalk XML-Data Reduced Schema file

3C 21 64 6F 63 <!doctype
74 79 70
DCI AOL HTML mail file

3C 3F 78 6D 6C
20 76 65 <?xml ve
72 73 69 6F 6E rsion=
3D
MANIFEST Windows Visual Stylesheet XML file

3C 3F 78 6D 6C
20 76 65 <?xml ve
72 73 69 6F 6E rsion="1
3D 22 31 .0"?>
2E 30 22 3F 3E
XUL XML User Interface Language file

3C 3F 78 6D 6C <?xml ve
20 76 65 rsion="1
72 73 69 6F 6E .0"?>..
3D 22 31 MMC_Con
2E 30 22 3F 3E oleFile
0D 0A 3C ConsoleV
4D 4D 43 5F 43 ersion="
6F 6E 73
6F 6C 65 46 69
6C 65 20
43 6F 6E 73 6F

6C 65 56
65 72 73 69 6F
6E 3D 22

MSC Microsoft Management Console Snap-in Control file

3C 43 54 72 61
6E 73 54 <CTransT
69 6D 65 6C 69 imeline>
6E 65 3E

MXF Picasa movie project file

3C 43 73 6F 75
6E 64 53 <CsoundS
79 6E 74 68 65 ynthesiz
73 69 7A

CSD Csound music file

3C 4D 61 6B 65 <MakerFi
72 46 69 le
6C 65 20

FM, MIF Adobe FrameMaker file

3C 67 70 78 20
76 65 72 <gpx ver
73 69 6F 6E 3D sion="1.
22 31 2E 1
31

GPX [GPS eXchange file \(v1.1 schema\)](#)

3C 7E 36 3C 5C <~6<\%_0
25 5F 30 gSqh;
67 53 71 68 3B

B85 [ASCII85](#) (aka BASE85) encoded file, sometimes used with PostScript and PDF.

Trailer: 7E 3E 0A (~>.)

[24 (0x18) byte
offset] [24 (0x18) byte offset]
3E 00 03 00 FE > ...þÿ..
FF 09 00 .
06

WB3 Quatro Pro for Windows 7.0 Notebook file

3F 5F 03 00 ?_..
GID Windows Help index file
HLP Windows Help file

[32 (0x20) byte
offset]

```

40 40 40 20 00 [32 (0x20) byte offset]
00 40 40      @@@ ..@@
40 40        @@

```

ENL EndNote Library File

```

41 43 31 30      AC10

```

DWG Generic AutoCAD drawing

NOTES on AutoCAD file headers: The 0x41-43-31-30 (AC10) is a generic header, occupying the first four bytes in the file. The next two bytes give further indication about the version or subtype:

- 0x30-32 (02) — AutoCAD R2.5
- 0x30-33 (03) — AutoCAD R2.6
- 0x30-34 (04) — AutoCAD R9
- 0x30-36 (06) — AutoCAD R10
- 0x30-39 (09) — AutoCAD R11/R12
- 0x31-30 (10) — AutoCAD R13 (subtype 10)
- 0x31-31 (11) — AutoCAD R13 (subtype 11)
- 0x31-32 (12) — AutoCAD R13 (subtype 12)
- 0x31-33 (13) — AutoCAD R14 (subtype 13)
- 0x31-34 (14) — AutoCAD R14 (subtype 14)
- 0x31-35 (15) — AutoCAD R2000
- 0x31-38 (18) — AutoCAD R2004
- 0x32-31 (21) — AutoCAD R2007

```

41 43 76      ACL

```

SLE Steganos Security Suite virtual secure drive

```

41 43 53 44      ACSD

```

n/a Miscellaneous AOL parameter and information files

```

41 45 53      AES

```

AES [AES Crypt](#) file format. (The fourth byte is the version number.)

```

41 4D 59 4F      AMYO

```

SYW Harvard Graphics symbol graphic

```

41 4F 4C 20 46    AOL Feed
65 65 64          bag
62 61 67

```

BAG AOL and AIM buddy list file

```

41 4F 4C 44 42    AOLDB

```

ABY, IDX AOL database files: address book (ABY) and user configuration data (MAIN.IDX)

```

41 4F 4C 49 44    AOLIDX
58

```


IND AOL client preferences/settings file (MAIN.IND)

41 4F 4C 49 4E AOLINDEX
44 45 58

ABI AOL address book index file

41 4F 4C 56 4D AOLVM100
31 30 30

ORG, PFC AOL personal file cabinet (PFC) file

NOTE: See [PFC-Details.zip](#) for PFC file format information.

41 56 47 36 5F
49 6E 74
65 67 72 69 74 AVG6_Int
79 5F 44 egrity_D
61 74 61 62 61 atabase
73 65

DAT AVG6 Integrity database file

41 72 43 01 ArC.
ARC FreeArc compressed file

42 41 41 44 BAAD
n/a NTFS Master File Table (MFT) entry (1,024 bytes)

42 45 47 49 4E BEGIN:VC
3A 56 43 ARD..
41 52 44 0D 0A
VCF vCard file

42 4C 49 32 32 BLI223
33

BLI, RBI Thomson Speedtouch series WLAN router firmware

NOTES on BLI/RBI file headers: The signature above is correct for the generic first six bytes.

Reportedly, the 7th & 8th bytes vary by version, and the 9th byte is always 0x30.

- v6.0.7.1 (.bli) — 0x42-4C-49-32-32-33-51-4B-30 (BLI223QK0)
- v7.4.1.7 (.bli) — 0x42-4C-49-32-32-33-51-48-30 (BLI223QH0)
- v8.2.2.5 (.bli) — 0x42-4C-49-32-32-33-55-46-30 (BLI223UF0)
- v8.4.3 (.bli/.rbi) — 0x42-4C-49-32-32-33-57-31-30 (BLI223W10)

42 4D BM

BMP, DIB Windows (or device-independent) bitmap image

NOTE: Bytes 2-5 contain the file length in little-endian order.

42 4F 4F 4B 4D BOOKMOBI
4F 42 49

PRC Palmpilot resource file

42 50 47 FB BPG#xFB;
BPG [Better Portable Graphics](#) image format

42 5A 68 BZh
BZ2, TAR.BZ2, TBZ2, [bzip2](#) compressed archive
TB2

42 65 67 69 6E
20 50 75 Begin Pu
66 66 65 72 20 ffer Dat
44 61 74 a..
61 0D 0A

APUF [Puffer](#) ASCII-armored encrypted archive

42 6C 69 6E 6B
20 62 79 Blink by
20 44 2E 54 2E D.T.S
53

BLI BLINK compressed archive

43 23 2B 44 A4 C#+DαCM¥
43 4D A5 Hdr
48 64 72

RTD RagTime document file

43 41 54 20 CAT
IFF Electronic Arts' [Interchange Format Files \(IFF\)](#) format.

43 42 46 49 4C CBFILE
45

CBD WordPerfect dictionary file (unconfirmed)

43 44 30 30 31 CD001
ISO ISO-9660 CD Disc Image
This signature usually occurs at byte offset 32769 (0x8001),
34817 (0x8801), or 36865 (0x9001).
More information can be found at [MacTech](#) or at [ECMA](#).

43 49 53 4F CISO
CSO Compressed ISO (CISO) CD image

43 4D 4D 4D 15 CMMM....
00 00 00

DB Windows 7 thumbcache_sr.db or other thumbcache file
(except thumbcache_idx.db)

43 4D 58 31 CMX1
CLB

Corel Binary metafile

43	4F	4D	2B	COM+
				CLB COM+ Catalog file
43	4F	57	44	COWD
				VMDK VMware 3 Virtual Disk (portion of a split disk) file
43	50	54	37	46
49	4C	45	CPT7FILE	
				CPT Corel Photopaint file
43	50	54	46	49
4C	45	CPTFILE		
				CPT Corel Photopaint file
43	52	45	47	CREG
				DAT Windows 9x registry hive
43	52	55	53	48
20	76	CRUSH v		
				CRU Crush compressed archive
43	57	53	CWS	
				SWF Macromedia Shockwave Flash player file (zlib compressed, SWF 6 and later).
				See SWF File Format Specification .
43	61	6C	63	75
6C	75	78	Calculux	
20	49	6E	64	6F
6F	72	20	Indoor	
				CIN Calculux Indoor lighting design software project file
43	61	74	61	6C
6F	67	20	Catalog	
33	2E	30	30	00
				3.00.
				CTF WhereIsIt Catalog file
43	6C	69	65	6E
74	20	55		
72	6C	43	61	63
68	65	20	Client U	
4D	4D	46	20	56
65	72	20	rlCache	
				MMF Ver
				DAT Microsoft Internet Explorer cache file (index.dat) file
43	72	65	61	74
69	76	65	Creative	
				Voice F

20 56 6F 69 63
65 20 46

VOC Creative Voice audio file

44 41 58 00

DAX.

DAX DAX Compressed CD image

44 42 46 48

DBFH

DB Palm Zire photo database

44 4D 53 21

DMS!

DMS Amiga DiskMasher compressed archive

44 4F 53

DOS

ADF Amiga disk file

44 53 54 62

DSTb

DST DST compressed file

44 56 44

DVD

DVR DVR-Studio stream file

IFO DVD info file

45 4C 49 54 45

20 43 6F

ELITE Co

6D 6D 61 6E 64

mmander

65 72 20

CDR Elite Plus Commander saved game file

45 4E 54 52 59

56 43 44

ENTRYVCD

02 00 00 01 02

.....X

00 18 58

VCD VideoVCD (GNU VCDImager) file

45 52 46 53 53

41 56 45

ERFSSAVE

44 41 54 41 46

DATAFILE

49 4C 45

DAT Kroll EasyRecovery Saved Recovery State file

45 50

EP

MDI Microsoft Document Imaging file

45 56 46 09 0D

0A FF 00

EVF...ÿ.

Enn (where *nn* are Expert Witness Compression Format (EWF) file, including numbers) EWF-E01 and EWF-S01, as used in EnCase and SMART evidence files.

See the [EWF specification](#).

45 56 46 32 0D EVF2...
0A 81

Exnn (where nn are EnCase® Evidence File Format Version 2 (Ex01).
numbers) See the [EVFv2 specification](#).

45 6C 66 46 69 ElfFile.
6C 65 00

EVTX Windows Vista event log file

45 86 00 00 06 E†....
00

QBB Intuit QuickBooks backup file

46 41 58 43 4F FAXCOVER
56 45 52 -VER
2D 56 45 52

CPE Microsoft Fax Cover Sheet

46 44 42 48 00 FDBH.
FDB Fiasco database definition file

46 45 44 46 FEDF
SBV (Unknown file type)

46 49 4C 45 FILE
n/a NTFS Master File Table (MFT) entry (1,024 bytes)

46 4C 56 01 FLV.
FLV Flash video file

46 4F 52 4D FORM
IFF Electronic Arts' [Interchange Format Files \(IFF\)](#) format.

46 4F 52 4D 00 FORM.
AIFF Audio Interchange File
DAX DAKX Compressed Audio

46 57 53 FWS
SWF Macromedia Shockwave Flash player file (uncompressed). See
[SWF File Format Specification](#).

46 72 6F 6D 20 From
20 20 **or**
46 72 6F 6D 20 From ???
3F 3F 3F **or**
46 72 6F 6D 3A From:
20

EML A common file extension for e-mail files. Signatures shown here are for Netscape, Eudora, and a generic signature, respectively. EML is also used by Outlook Express and QuickMail.

47 G
TS, TSA, TSV [MPEG transport stream](#) file. (This is not a lot to go on, but MPEG-2 Part 1 Transport (MP2T) files are reportedly broken into 188-byte packets and the 0x47 byte is the sync byte, so should repeat every 188 bytes in the file.)

47 46 31 50 41 GF1PATCH
54 43 48

PAT Advanced Gravis Ultrasound patch file

47 49 46 38 37 GIF87a
61 **or**
47 49 46 38 39 GIF89a
61

GIF Graphics interchange format file
Trailer: 00 3B (. ;)

47 50 41 54 GPAT
PAT GIMP (GNU Image Manipulation Program) pattern file

47 58 32 GX2
GX2 Show Partner graphics file (not confirmed)

47 65 6E 65 74
65 63 20 Genetec
4F 6D 6E 69 63 Omnicast
61 73 74

G64 Genetec video archive

48 45 41 44 45
52 20 52 HEADER R
45 43 4F 52 44 ECORD***
2A 2A 2A

XPT SAS Transport dataset file format

48 48 47 42 31 HHGB1
SH3 Harvard Graphics presentation file

49 20 49 I I
TIF, TIFF Tagged Image File Format file

49 44 33 ID3

MP3 MPEG-1 Audio Layer 3 (MP3) audio file

49 44 33 03 00 ID3....
00 00

KOZ Sprint Music Store audio file (for mobile devices)

49 49 1A 00 00
00 48 45 II....HE
41 50 43 43 44 APCCDR..
52 02 00

CRW [Canon digital camera RAW file](#)

49 49 2A 00 II*.
TIF, TIFF Tagged Image File Format file (little
endian, i.e., LSB first in the byte; Intel)

49 49 2A 00 10 II*.....
00 00 00 CR
43 52

CR2 Canon digital camera RAW file ([Ref. 1](#) | [Ref. 2](#))

49 4D 4D 4D 15 IMMM....
00 00 00

DB Windows 7 thumbcache_idx.db file

49 53 63 28 ISc(
CAB, HDR Install Shield v5.x or 6.x compressed file

49 54 4F 4C 49 ITOLITLS
54 4C 53

LIT Microsoft Reader eBook file

49 54 53 46 ITSF
CHI, CHM Microsoft Compiled HTML Help File

49 6E 6E 6F 20
53 65 74
75 70 20 55 6E Inno Set
69 6E 73 up Unins
74 61 6C 6C 20 tall Log
4C 6F 67 (b)
20 28 62 29

DAT Inno Setup Uninstall Log file

49 6E 74 65 72
40 63 74 Inter@ct
69 76 65 20 50 ive Page
61 67 65

IPD

Inter@ctive Pager Backup (BlackBerry) backup file
(See also [IPD File Format](#) page or [IPD File for BlackBerry](#))

4A 41 52 43 53 JARCS.
00

JAR JARCS compressed archive

4A 47 03 0E **or** JG..
4A 47 04 0E JG..

ART AOL ART file

Trailers:

For 0x4A-47-03-0E: D0 CB 00 00 (ÐË..)

For 0x4A-47-04-0E: CF C7 CB (ÏÇË)

4B 44 4D KDM

VMDK VMware 4 Virtual Disk (portion of a split disk) file

4B 44 4D 56 KDMV

VMDK VMware 4 Virtual Disk (monolithic disk) file

4B 47 42 5F 61 KGB_arch
72 63 68 -
20 2D

KGB KGB archive

4B 49 00 00 KI..

SHD Windows 9x printer spool file

4B 57 41 4A 88 KWAJ^ð'Ñ
F0 27 D1

n/a KWAJ file format used by DOS COMPRESS.EXE and
EXPAND.EXE commands.

This command compresses a single file, replacing the last
character in the file name
with an underscore or dollar sign, e.g., FOO.BAZ would be
renamed FOO.BA_ or
FOO.BA\$. (See the [SZDD/KWAJ](#) page for more information.)

4C 00 00 00 01 L.....
14 02 00

LNK [Windows shell link \(shortcut\) file](#). See also [The Meaning of Linkfiles in Forensic Examinations](#)
and [Evidentiary Value of Link Files](#).

4C 01 L.

OBJ Microsoft [Common Object File Format \(COFF\)](#) relocatable
object code file for an Intel 386 or later/compatible processors

4C 41 3A LA:

DST Tajima embroidery sticj image file

4C 49 53 54 LIST
IFF Electronic Arts' [Interchange Format Files \(IFF\)](#) format.

4C 4E 02 00 LN..
GID Windows Help index file
HLP Windows Help file.

4C 56 46 09 0D LVF...ÿ.
0A FF 00
Enn (where *nn* are Logical File Evidence Format (EWF-L01) as used in later
numbers) versions of
EnCase evidence files. See the [EWF specification](#).

4D 2D 57 20 50
6F 63 6B M-W Pock
65 74 20 44 69 et Dicti
63 74 69
PDB Merriam-Webster Pocket Dictionary file

4D 41 52 31 00 MAR1.
MAR Mozilla archive

4D 41 52 43 MARC
MAR Microsoft/MSN MARC archive

4D 41 54 4C 41
42 20 35 MATLAB 5
2E 30 20 4D 41 .0 MAT-f
54 2D 66 ile
69 6C 65
MAT MATLAB v5 workspace file (includes creation timestamp)

4D 41 72 30 00 MAr0.
MAR MAr compressed archive

4D 43 57 20 54
65 63 68 MCW Tech
6E 6F 67 6F 6C nogolies
69 65 73
MTE TargetExpress target file

4D 44 4D 50 93 MDMP`\$
A7
HDMP Windows heap dump file
DMP Windows minidump file

4D 49 4C 45 53 MILES

					MLS	Milestones v1.0 project management and scheduling software (Also see "MV2C" and "MV214" signatures)
4D	4C	53	57		MLSW	
					MLS	Skype localization data file
4D	4D	00	2A		MM.*	
					TIF, TIFF	Tagged Image File Format file (big endian, i.e., LSB last in the byte; Motorola)
4D	4D	00	2B		MM.+	
					TIF, TIFF	BigTIFF files; Tagged Image File Format files >4 GB
4D	4D	4D	44	00	MMMD..	
00					MMF	Yamaha Corp. Synthetic music Mobile Application Format (SMAF) for multimedia files that can be played on hand-held devices.
4D	52	56	4E		MRVN	
					NVRAM	VMware BIOS (non-volatile RAM) state file.
4D	53	43	46		MSCF	
					CAB	Microsoft cabinet file
					PPZ	Powerpoint Packaged Presentation
					SNP	Microsoft Access Snapshot Viewer file
4D	53	46	54	02	MSFT....	
00	01	00			TLB	OLE, SPSS, or Visual C++ type library file
4D	53	57	49	4D	MSWIM	
					WIM	Microsoft Windows Imaging Format file
4D	53	5F	56	4F	MS_VOICE	
49	43	45			CDR, DVF	Sony Compressed Voice File
					MSV	Sony Memory Stick Compressed Voice file
4D	54	68	64		MThd	
					MID, MIDI	Musical Instrument Digital Interface (MIDI) sound file
					PCS	Yamaha Piano sound file
4D	56				MV	
					DSN	CD Stomper Pro label file
4D	56	32	31	34	MV214	
					MLS	

Milestones v2.1b project management and scheduling software
(Also see "MILES" and "MV2C" signatures)

4D 56 32 43 MV2C

MLS Milestones v2.1a project management and scheduling software
(Also see "MILES" and "MV214" signatures)

4D 5A MZ

COM, DLL, DRV, Windows/DOS executable file
EXE, PIF, QTS, QTX, (See [The MZ EXE File Format](#) page for the structure of an EXE
SYS file,
with coverage of NE, TLINK, PE, self-extracting archives, and
more.)

Note: MZ are the initials of Mark Zbikowski, designer of the
DOS executable file format.

ACM MS audio compression manager driver

AX Library cache file

CPL Control panel application

FON Font file

OCX ActiveX or OLE Custom Control

OLB OLE object library

SCR Screen saver

VBX VisualBASIC application

VXD, 386 Windows virtual device drivers

4D 5A 90 00 03 MZ.....
00 00 00

API Acrobat plug-in

AX DirectShow filter

FLT Audition graphic filter file (Adobe)

4D 5A 90 00 03
00 00 00 MZ.....
04 00 00 00 FFÿÿ
FF

ZAP ZoneAlarm data file

4D 69 63 72 6F
73 6F 66 Microsof
74 20 43 2F 43 t C/C++
2B 2B 20

PDB Microsoft C++ debugging symbols file

4D 69 63 72 6F Microsof
73 6F 66 t Visual
74 20 56 69 73 Studio
75 61 6C Solution
20 53 74 75 64 File
69 6F 20

53 6F 6C 75 74
69 6F 6E
20 46 69 6C 65

SLN Visual Studio .NET Solution file

[84 (0x54) byte
offset]

4D 69 63 72 6F [84 (0x54) byte offset]
73 6F 66
74 20 57 69 6E Microsof
64 6F 77 t Window
73 20 4D 65 64 s Media
69 61 20 Player -
50 6C 61 79 65 -
72 20 2D
2D 20

WPL Windows Media Player playlist

4D 73 52 63 66 MsRcf
GDB VMapSource GPS Waypoint Database

4E 41 56 54 52 NAVTRAFF
41 46 46 IC
49 43

DAT TomTom traffic data file

4E 42 2A 00 NB*.
JNT, JTP MS Windows journal file

4E 45 53 4D 1A NESM..
01
NSF NES Sound file

4E 49 54 46 30 NITF0
NTF National Imagery Transmission Format (NITF) file

4E 61 6D 65 3A Name:
20
COD Agent newsreader character map file

4F 50 43 4C 44 OPCLDAT
41 54
attachment 1Password 4 Cloud Keychain encrypted attachment

4F 50 4C 44 61
74 61 62 OPLDatab
61 73 65 46 69 aseFile
6C 65
DBF

Psion Series 3 Database file

4F 54 54 4F 00 OTTO.
OTF OpenType font file

4F 67 67 53 00
02 00 00 OggS....
00 00 00 00 00
00
OGA, OGG, OGV, Ogg Vorbis Codec compressed Multimedia file
OGX

4F 7B O{
DW4 Visio/DisplayWrite 4 text file (unconfirmed)

50 00 00 00 20 P... ..
00 00 00
IDX Quicken QuickFinder Information File

50 35 0A P5.
PGM Portable Graymap Graphic

50 41 43 4B PACK
PAK Quake archive file

50 41 47 45 44
55 36 34 PAGEDU64
DMP Windows 64-bit memory dump

50 41 47 45 44
55 4D 50 PAGEDUMP
DMP Windows memory dump

50 41 58 PAX
PAX PAX password protected bitmap

50 45 53 54 PEST
DAT PestPatrol data/scan strings

50 47 50 64 4D
41 49 4E PGPdMAIN
PGD PGP disk image

50 49 43 54 00
08 PICT..
IMG ADEX Corp. ChromaGraph Graphics Card Bitmap Graphic file

50 4B 03 04 PK..
ZIP PKZIP archive file ([Ref. 1](#) | [Ref. 2](#))
Trailer: *filename* 50 4B 17 characters 00 00 00

Trailer: (*filename* PK 17 characters . . .)

Note: PK are the initials of Phil Katz, co-creator of the ZIP file format and author of PKZIP.

ZIP Apple Mac OS X Dashboard Widget, Aston Shell theme, Oolite eXpansion Pack,
Opera Widget, Pivot Style Template, Rockbox Theme package, Simple Machines
Forums theme, SubEthaEdit Mode, Trillian zipped skin, Virtual Skipper skin
JAR Java archive; compressed file package for classes and data
KMZ Google Earth saved working session file
KWD KWord document
ODT, ODP, OTT OpenDocument text document, presentation, and text document template, respectively.
OXPS Microsoft Open XML paper specification file
SXC, SXD, SXI, SXW OpenOffice spreadsheet (Calc), drawing (Draw), presentation (Impress),
and word processing (Writer) files, respectively.
SXC StarOffice spreadsheet
WMZ Windows Media compressed skin file
XPI Mozilla Browser Archive
XPS XML paper specification file
XPT eXact Packager Models

```
50 4B 03 04 0A    PK.....
00 02 00
```

EPUB Open Publication Structure eBook file. (Should also include the string:
mimetypeapplication/epub+zip)

```
50 4B 03 04 14
00 01 00          PK.....
63 00 00 00 00   c.....
00
```

ZIP ZLock Pro encrypted ZIP

```
50 4B 03 04 14    PK.....
00 06 00
```

DOCX, PPTX, XLSX Microsoft Office Open XML Format (OOXML) Document
NOTE: There is no subheader for MS OOXML files as there is with
DOC, PPT, and XLS files. To better understand the format of these files,
rename any OOXML file to have a .ZIP extension and then unZIP the file;
look at the resultant file named *[Content_Types].xml* to see the content
types. In particular, look for the *<Override PartName=* tag, where you

will find *word*, *ppt*, or *xl*, respectively.

Trailer: Look for 50 4B 05 06 (PK. .) followed by 18 additional bytes at the end of the file.

```
50 4B 03 04 14   PK.....
00 08 00         ..
08 00
```

JAR Java archive

```
50 4B 05 06      PK..
50 4B 07 08      PK..
```

ZIP PKZIP empty and multivolume archive file, respectively

```
[30 (0x1E) byte
offset]          [30 (0x1E) byte offset]
50 4B 4C 49 54   PKLITE
45
```

ZIP PKLITE compressed ZIP archive (see also PKZIP)

```
[526 (0x20E)
byte offset]      [526 (0x20E) byte offset]
50 4B 53 70 58   PKSFX
```

ZIP PKSFX self-extracting executable compressed file (see also PKZIP)

```
50 4D 43 43      PMCC
```

GRP Windows Program Manager group file

```
50 4E 43 49 55   PNCIUNDO
4E 44 4F
```

DAT Norton Disk Doctor undo file

```
50 4D 4F 43 43   PMOCCMOC
4D 4F 43
```

DAT Microsoft® Windows® User State Migration Tool (USMT).

[USMT 3.0](#)

applies to Windows XP and Windows Vista®, and [USMT 4.0](#) is for Windows 7.

```
50 55 46 58      PUF
```

PUF [Puffer](#) encrypted archive

```
[92 (0x5C) byte
offset]          [92 (0x5C) byte offset]
51 45 4C 20      QEL
```

QEL Quicken data file

51 46 49 FB QFIû
IMG QEMU Qcow Disk Image

51 57 20 56 65 QW Ver.
72 2E 20
ABD, QSD Quicken data file

[512 (0x200)
byte offset] [512 (0x200) byte offset]
52 00 6F 00 6F R.o.o.t.
00 74 00 .E.n.t.
20 00 45 00 6E r.y.
00 74 00
72 00 79 00
MSG Outlook/Exchange message subheader (MS Office)

52 41 5A 41 54 RAZATDB1
44 42 31
DAT Shareaza (Windows P2P client) thumbnail

52 44 58 32 0A RDX2.
RDATA R (programming language) saved work space

52 45 47 45 44 REGEDIT
49 54
REG, SUD Windows NT Registry and Registry Undo files

52 45 56 4E 55 REVNUM: ,
4D 3A 2C
ADF Antenna data file

52 49 46 46 RIFF
ANI Windows animated cursor
CMX Corel Presentation Exchange (Corel 10 CMX) Metafile
CDR CorelDraw document
DAT Video CD MPEG or MPEG1 movie file

DS4 Micrografx Designer v4 graphic file
4XM 4X Movie video

52 49 46 46 xx
xx xx xx RIFF....
41 56 49 20 4C AVI LIST
49 53 54
AVI Resource Interchange File Format -- [Windows Audio Video Interleave file](#), where xx xx xx xx is the file size (little endian)

52 49 46 46 xx RIFF....
xx xx xx CDDAfmt

43 44 44 41 66
6D 74 20

CDA Resource Interchange File Format -- Compact Disc Digital Audio (CD-DA) file, where *xx xx xx xx* is the file size (little endian)

52 49 46 46 xx
xx xx xx RIFF....
51 4C 43 4D 66 QLCMfmt
6D 74 20

QCP Resource Interchange File Format -- Qualcomm PureVoice, where *xx xx xx xx* is the file size (little endian)

52 49 46 46 xx
xx xx xx RIFF....
52 4D 49 44 64 RMIDdata
61 74 61

RMI Resource Interchange File Format -- [Windows Musical Instrument Digital Interface file](#), where *xx xx xx xx* is the file size (little endian)

52 49 46 46 xx
xx xx xx RIFF....
57 41 56 45 66 WAVEfmt
6D 74 20

WAV Resource Interchange File Format -- [Audio for Windows file](#), where *xx xx xx xx* is the file size (little endian)

52 49 46 46 xx
xx xx xx RIFF....
57 45 42 50 WEBP

WEBP Google [WebP image file](#), where *xx xx xx xx* is the file size

52 54 53 53 RTSS

CAP Windows NT Netmon capture file

52 61 72 21 1A Rar!....
07 00

RAR RAR (v4.x) compressed archive file

52 61 72 21 1A Rar!....
07 01 00

RAR [RAR \(v5\)](#) compressed archive file

52 65 74 75 72 Return-P
6E 2D 50 ath:
61 74 68 3A 20

EML A common file header for e-mail files.

[4 byte offset]	[4 byte offset]	
53 43 43 41	SCCA	
	PF	Windows prefetch file . The first four bytes indicate the OS: 0x11-00-00-00 = XP, 0x17-00-00-00 = Vista/Win7, and 0x1A-00-00-00 = Win8.1 (and probably Win8, as well).
53 43 48 6C	SCH1	
	AST	Need for Speed: Underground Audio file
53 43 4D 49	SCMI	
	IMG	Img Software Set Bitmap
53 44 50 58	SDPX	
	DPX	Society of Motion Picture and Television Engineers (SMPTE) Digital Picture Exchange (DPX) image file (big endian)
53 48 4F 57	SHOW	
	SHW	Harvard Graphics DOS Ver. 2/x Presentation file
53 49 45 54 52		
4F 4E 49	SIETRONI	
43 53 20 58 52	CS XRD S	
44 20 53	CAN	
43 41 4E		
	CPI	Sietronics CPI XRD document
53 49 4D 50 4C		
45 20 20		
3D 20 20 20 20	SIMPLE	
20 20 20	=	
20 20 20 20 20		
20 20 20	T	
20 20 20 20 20		
54		
	FITS	Flexible Image Transport System (FITS), Version 3.0 file
53 49 54 21 00	SIT!	
	SIT	StuffIt compressed archive
53 4D 41 52 54		
44 52 57	SMARTDRW	
	SDR	SmartDraw Drawing file
53 50 46 49 00	SPFI.	
	SPF	StorageCraft ShadowProtect backup file
53 50 56 42	SPVB	
	SPVCHAIN	MultiBit Bitcoin blockchain file

53 51 4C 4F 43 SQLOCONV
4F 4E 56 HD..1.0.
48 44 00 00 31
2E 30 00

CNV DB2 conversion file

53 51 4C 69 74
65 20 66 SQLite f
6F 72 6D 61 74 ormat 3.
20 33 00

DB SQLite database file

53 5A 20 88 F0 SZ ^ð'3Ñ
27 33 D1

n/a QBASIC SZDD file header variant. (See the SZDD or KWAJ
format entries
for additional information.)

53 5A 44 44 88 SZDD^ð'3
F0 27 33

n/a SZDD file format used by DOS COMPRESS.EXE and
EXPAND.EXE commands.
This command compresses a single file, replacing the last
character in the file name
with an underscore or dollar sign, e.g., FOO.BAZ would be
renamed FOO.BA_ or
FOO.BA\$. (See the [SZDD/KWAJ](#) page for more information.)

53 6D 62 6C Smb1

SYM (Unconfirmed file type. Likely type is Harvard Graphics
Version 2.x graphic symbol or Windows SDK graphic symbol)

53 74 75 66 66
49 74 20 StuffIt
28 63 29 31 39 (c)1997-
39 37 2D

SIT StuffIt compressed archive

53 75 70 65 72 SuperCal
43 61 6C c
63

CAL SuperCalc worksheet

54 48 50 00 THP.
THP [Wii/GameCube video](#) file

54 68 69 73 20 This is
69 73 20

INFO

UNIX GNU Info Reader File

55	43	45	58		UCEX
				UCE	Unicode extensions
55	46	41	C6	D2	UFAÆÒÁ
C1					
				UFA	UFA compressed archive
55	46	4F	4F	72	UFOOrbit
62	69	74			
				DAT	UFO Capture v2 map file
56	43	50	43	48	VCPCH0
30					
				PCH	Visual C PreCompiled header file
56	45	52	53	49	VERSION
4F	4E	20			
				CTL	Visual Basic User-defined Control file
56	65	72	73	69	Version
6F	6E	20			
				MIF	MapInfo Interchange Format file
57	4D	4D	50		WMMP
				DAT	Walkman MP3 container file
57	53	32	30	30	WS2000
30					
				WS2	WordStar for Windows Ver. 2 document
[29,152					
(0x71E0)	byte				[29,152 (0x71E0) byte offset]
offset]					WinZip
57	69	6E	5A	69	
70					
				ZIP	WinZip compressed archive
57	6F	72	64	50	WordPro
72	6F				
				LWP	Lotus WordPro document.
58	2D			X-	
				EML	A common file extension for e-mail files. This variant is for Exchange.
58	43	50	00		XCP.
				CAP	

Cinco NetXRay, Network General Sniffer, and
Network Associates Sniffer capture file

58	50	43	4F	4D	XPCOM.Ty
0A	54	79			peLib
70	65	4C	69	62	
					XPT XPCOM type libraries for the XPIDL compiler
58	50	44	53		XPDS
					DPX Society of Motion Picture and Television Engineers (SMPTE)
					Digital Picture Exchange (DPX) image file (little endian)
58	54				XT..
					BDR MS Publisher border
5A	4F	4F	20		ZOO
					ZOO ZOO compressed archive
5A	57	53			ZWS
					SWF Macromedia Shockwave Flash player file (LZMA compressed,
					SWF 13 and later).
					See SWF File Format Specification .
5B	47	65	6E	65	
72	61	6C			
5D	0D	0A	44	69	[General
73	70	6C			]..Displ
61	79	20	4E	61	ay Name=
6D	65	3D			< Display
3C	44	69	73	70	Name
6C	61	79			
4E	61	6D	65		
					ECF MS Exchange 2007 extended configuration file
5B	4D	53	56	43	[MSVC
					VCW Microsoft Visual C++ Workbench Information File
5B	50	68	6F	6E	[Phone]
65	5D				
					DUN Dial-up networking file
5B	56	45	52	5D	[VER]
or					
5B	76	65	72	5D	[ver]
or					
					SAM Lotus AMI Pro document
5B	56	4D	44	5D	[VMD]
or					

VMD VocalTec VoIP media file

[2 byte offset] [2 byte offset]
5B 56 65 72 73 [Version
69 6F 6E

CIF (Unknown file type)

5B 57 69 6E 64
6F 77 73 [Windows
20 4C 61 74 69 Latin
6E 20

CPX Microsoft Code Page Translation file

5B 66 6C 74 73 [fltsim.
69 6D 2E 0]
30 5D

CFG Flight Simulator Aircraft Configuration file

5B 70 6C 61 79 [playlis
6C 69 73 t]
74 5D

PLS WinAmp Playlist file

5D FC C8 00]üÈ.

HUS Husqvarna Designer I Embroidery Machine file

5F 27 A8 89 _'""%

JAR Jar archive

5F 43 41 53 45 _CASE_
5F

CAS, CBK EnCase case file (and backup)

60 EA `ê

ARJ Compressed archive file

62 65 67 69 6E begin
n/a UUencoded files start with a string:
begin *mode path*
where *mode* is the set of permissions as used in
Linux/Unix and *path* is the name given to the decoded
file. (See this [uuencode](#) page for more information.)

62 65 67 69 6E begin-ba
2D 62 61 se64
73 65 36 34

b64 UUencoded BASE64 file

Trailer: 0A 3D 3D 3D 3D 0A (.===.)

62 70 6C 69 73 bplist

74

plist Binary property list (plist)

(NOTE: Next two bytes are the version number, currently 0x30-30, or "00")

63 61 66 66 caff

CAF [Apple Core Audio File](#)

63 6F 6E 65 63
74 69 78 conectix

VHD Virtual PC Virtual HD image

63 75 73 68 00
00 00 02
00 00 00
cush....
...

CSH Photoshop Custom Shape

64 00 00 00 d...

P10 Intel PROset/Wireless Profile

64 65 78 0A dex.

dex Dalvik executable file (Android)

64 6E 73 2E dns.

AU Audacity audio file

64 73 77 66 69
6C 65 dswfile

DSW Microsoft Visual Studio workspace file

66 49 00 00 fI..

SHD Windows NT printer spool file

66 4C 61 43 00
00 00 22 fLaC..."

FLAC Free Lossless Audio Codec file

[4 byte offset]
66 74 79 70 33 [4 byte offset]
67 70 ftyp3gp

3GG, 3GP, 3G2 3rd Generation Partnership Project 3GPP multimedia files

[4 byte offset]
66 74 79 70 4D [4 byte offset]
34 41 20 ftypM4A

M4A Apple Lossless Audio Codec file

```
[4 byte offset] [4 byte offset]
66 74 79 70 4D  ftypM4V
34 56 20
```

FLV, M4V ISO Media, MPEG v4 system, or iTunes AVC-LC file.

```
[4 byte offset] [4 byte offset]
66 74 79 70 4D  ftypMSNV
53 4E 56
```

MP4 MPEG-4 video file

```
[4 byte offset] [4 byte offset]
66 74 79 70 69  ftypisom
73 6F 6D
```

MP4 ISO Base Media file (MPEG-4) v1

```
[4 byte offset] [4 byte offset]
66 74 79 70 6D  ftypmp42
70 34 32
```

M4V MPEG-4 video|QuickTime file

```
[4 byte offset] [4 byte offset]
66 74 79 70 71  ftypqt
74 20 20
```

MOV QuickTime movie file

```
67 49 00 00      gI..
                SHD Windows 2000/XP printer spool file
```

```
67 69 6d 70 20
78 63 66          gimp xcf
20
```

XCF GNU Image Manipulation Program (GIMP) eXperimental
Computing Facility (XCF)
image file

```
68 49 00 00      hI..
                SHD Windows Server 2003 printer spool file
```

```
6C 33 33 6C      l33l
                DBB Skype user data file (profile and contacts)
```

```
[4 byte offset] [4 byte offset]
6D 6F 6F 76      moov
```

MOV QuickTime movie file

.MOV files have a complicated file signature. The string "moov" is the most
common but I have also seen:

```
0x66-72-65-65    free
0x6D-64-61-74    mdat
```


0x77-69-64-65 wide

And the following have been reported to me:

0x70-6E-6F-74 pnot

0x73-6B-69-70 skip

Furthermore, if you look at byte position `xxxxxxxx+4` (where `xxxxxxxx` is bytes 0-3 of the header), you will find one (or more!) of these strings repeated; the string "free" **seems** to be the most common. For more information, see the [QuickTime File Format](#) page. (Thanks to D. Wright for getting me started on this!)

6D 73 46 69 6C msFilter
74 65 72 List
4C 69 73 74

TPL Internet Explorer v11 Tracking Protection List file

6D 75 6C 74 69 multiBit
42 69 74 .info
2E 69 6E 66 6F

INFO MultiBit Bitcoin wallet information file

6F 3C o<
n/a Short Message Service (SMS), or text, message stored on a
Subscriber Identification Module (SIM).

6F 70 64 61 74 opdata01
61 30 31
n/a 1Password 4 Cloud Keychain encrypted data

72 65 67 66 regf
DAT Windows NT registry hive file

72 69 66 66 riff
ACD Sonic Foundry Acid Music File (Sony)

72 74 73 70 3A rtsp://
2F 2F
RAM RealMedia metafile

73 6C 68 21 **or** slh!
73 6C 68 2E slh.
DAT Allegro Generic Packfile Data file (0x21 = compressed,
0x2E = uncompressed)

73 6D 5F sm_
PDB PalmOS SuperMemo file

73 6F 6C 69 64 solid
STL ASCII [STL \(STereoLithography\) file](#) for 3D printing.

73 72 63 64 6F srcdocid
63 69 64 :
3A
CAL CALS raster bitmap file

73 7A 65 7A size
PDB PowerBASIC Debugger Symbols file

[60 (0x3C) byte
offset] [60 (0x3C) byte offset]
74 42 4D 50 4B tBMPKnWr
6E 57 72
PRC PathWay Map file, used with GPS devices

74 72 75 65 00 true.
TTF TrueType font file

[257 (0x101)
byte offset] [257 (0x101) byte offset]
ustar
75 73 74 61 72
TAR Tape Archive file
(<http://www.mkssoftware.com/docs/man4/tar.4.asp>)

76 2F 31 01 v/1.
EXR OpenEXR bitmap image format

76 32 30 30 33 v2003.10
2E 31 30 ..0..
0D 0A 30 0D 0A
FLT Qimage filter

78 01 73 0D 62 x.s.bb`
62 60
DMG Mac OS X Disk Copy Disk Image file

78 61 72 21 xar!
XAR [eXtensible ARchive](#) file

7A 62 65 78 zbex
INFO ZoomBrowser Image Index file (ZbThumbnail.info)

7B 0D 0A 6F 20 {..o
LGC, LGD Windows application log

7B 5C 70 77 69 {\pwi
PWI

Microsoft Windows Mobile personal note file

7B 5C 72 74 66
31 { \rtf1

RTF Rich text format word processing file

Trailer: 5C 70 61 72 20 7D 7D (\par }})

7C 4B C3 74 E1
C8 53 A4 | KÃtáÈS¤
79 B9 01 1D FC y¹ ..üOÝ.
4F DD 13

CSD Huskygram, Poem, or Singer embroidery design file

7E 42 4B 00 ~BK.

PSP Corel Paint Shop Pro image file

7E 74 2C 01 50
70 02 4D
52 01 00 00 00 ~t, .Pp.M
08 00 00 R.....
00 01 00 00 311...
00 00 00 1...C.ÿ.
31 00 00 00 43
01 FF 00 ~t, .
01 00 08 00 01
00 00 00
7e 74 2c 01

IMG Reportedly a proprietary recording system, possibly a Digital Watchdog DW-TP-500G unit.

7F 45 4C 46 .ELF
n/a [Executable and Linking Format executable file \(Linux/Unix\)](#)

80 .
OBJ Relocatable object code

80 00 00 20 03
12 04

ADX Dreamcast audio file

80 2A 5F D7 .*_.
CIN Kodak Cineon image file

81 32 84 C1 85
05 D0 11 .2„Á...Đ.
B2 90 00 AA 00 ²..ª.<öV
3C F6 76

WAB Outlook Express address book (Win95)

81 CD AB	.Í«	WPF WordPerfect text file
86 DD 6x	†Ÿ{ lower_case letter }	n/a Possibly, maybe, might be a fragment of an Ethernet frame carrying an IPv6 packet. See Hints About Looking for Network Packet Fragments .
89 50 4E 47 0D 0A 1A 0A	%PNG....	PNG Portable Network Graphics file Trailer: 49 45 4E 44 AE 42 60 82 (IEND®B`,...)
8A 01 09 00 00 00 E1 08 00 00 99 19	Š.....á. ..™.	AW MS Answer Wizard file
91 33 48 46	`3HF	HAP Hamarsoft HAP 3.x compressed archive
95 00 <i>or</i> 95 01	•. •.	SKR PGP secret keyring file
97 4A 42 32 0D 0A 1A 0A	—JB2....	JB2 JBOG2 image file. Trailer: 03 33 00 01 00 00 00 00 (.3.....)
99	™	GPG GNU Privacy Guard (GPG) public keyring
99 01	™.	PKR PGP public keyring file
9C CB CB 8D 13 75 D2 11 91 58 00 C0 4F 79 56 A4	œËË...UÒ. 'X.ÀOyV¤	WAB Outlook address file
[512 (0x200) byte offset] A0 46 1D F0	[512 (0x200) byte offset] F.ð	PPT PowerPoint presentation subheader (MS Office)
A1 B2 C3 D4	¡²ÃÔ	

n/a tcpdump (libpcap) capture file (Linux/Unix)

A1 B2 CD 34 ; ² Í 4

n/a Extended tcpdump (libpcap) capture file (Linux/Unix)

A9 0D 00 00 00 ©
00 00 00

DAT Access Data FTK evidence file

AC 9E BD 8F 00 ¬ . ½ . . .
00

QDF Quicken data file

AC ED ¬ í

n/a Java serialization data (see [Object Serialization Stream Protocol](#))

AC ED 00 05 73
72 00 12 ¬ í . . s r . .
62 67 62 6C 69 b g b l i t z .
74 7A 2E

PDB BGBlitz (professional Backgammon software) position database file

B0 4D 46 43 ° M F C

PWL Windows 95 password file

B1 68 DE 3A ± h P :

DCX Graphics Multipage PCX bitmap file

B4 6E 68 44 ´ n h d

TIB Acronis True Image file

B5 A2 B0 B3 B3 µ ¢ ° ³ ³ ° ¥ µ
B0 A5 B5

CAL Windows calendar file

BE 00 00 00 AB ¾ . . . « . . .
00 00 00
00 00 00 00 00

WRI MS Write file

BE BA FE CA 0F
50 61 6C ¾ ° p Ê . P a l
6D 53 47 20 44 m S G D a t a
61 74 61

DAT Palm Desktop DateBook file

C3 AB CD AB Ñ « Í «

ACS

MS Agent Character file

C5 D0 D3 C6 ÅÐÓÆ

EPS Adobe encapsulated PostScript file

C8 00 79 00 È.y.

LBK Jeppesen FliteLog file

CA FE BA BE Êþ^¾

CLASS Java bytecode file (also used by Apple iOS apps)

CD 20 AA AA 02 Í a a
00 00 00

n/a Norton Anti-Virus quarantined virus file

CE CE CE CE ÎÎÎÎ

JCEKS [Java Cryptography Extension keystore](#) file

CE FA ED FE Ìúíp

n/a Apple [OS X ABI Mach-O](#) binary file (32-bit, where target system has reverse byte ordering from host running compiler)

CF 11 E0 A1 B1 Ì.à;±.á.
1A E1 00

DOC Perfect Office document
[Note similarity to MS Office header, below]

CF AD 12 FE Ì.p

DBX Outlook Express e-mail folder

CF FA ED FE Ìúíp

n/a Apple [OS X ABI Mach-O](#) binary file (64-bit, where target system has reverse byte ordering from host running compiler)

D0 CF 11 E0 A1 ÐÌ.à;±.á
B1 1A E1

[DOC](#), [DOT](#), [PPS](#), [PPT](#), An Object Linking and Embedding (OLE) Compound File (CF)
[XLA](#), [XLS](#), [WIZ](#) (i.e., [OLECF](#))

file format, known as *Compound Binary File format* by Microsoft, used by Microsoft Office 97-2003 applications (Word, Powerpoint, Excel, Wizard).
[See also Excel, Outlook, PowerPoint, and Word "subheaders" at byte offset 512 (0x200).]

- There appear to be several subheader formats and a dearth of documentation.

- There have been reports that there are different subheaders for Windows and Mac versions of MS Office but I cannot confirm that.]
- Password-protected DOCX, XLSX, and PPTX files also use this signature those files are saved as OLECF files.
- *[Note the similarity between D0 CF 11 E0 and the word "docfile"!]*

AC_ CaseWare Working Papers compressed client file
ADP Access project file
APR Lotus/IBM Approach 97 file
DB MSWorks database file
MSC Microsoft Common Console Document
MSG Microsoft Outlook/Exchange Message
MSI Microsoft Installer package
MTW Minitab data file
MXD ArcMap GIS project file
OPT Developer Studio File Workspace Options file
PUB MS Publisher file
QBM QuickBooks Portable Company File
RVT Revit Project file
SOU Visual Studio Solution User Options file
SPO SPSS output file
VSD Visio file
WPS MSWorks text document

D2 0A 00 00 ò . . .
FTR GN Nettest WinPharoah filter file

D4 2A ô *
ARL, AUT AOL history (ARL) and typed URL (AUT) files

D4 C3 B2 A1 ô ã² ;
n/a WinDump (winpcap) capture file (Windows)

D7 CD C6 9A × í Æ š
WMF Windows graphics metafile

DB A5 2D 00 û ¥ - .
DOC Word 2.0 file

DC DC ü ü
CPL Corel color palette file

DC FE ü þ
EFX eFax file format

E3 10 00 01 00 ã
00 00 00

INFO Amiga Icon file

E3 82 85 96 ã, ...-
PWL Windows 98 password file

E4 52 5C 7B 8C
D8 A7 4D äR\{EØ\$M
AE B1 53 78 D0 ®±SxÐ) -Ó
29 96 D3

ONE Microsoft OneNote note

E8 **or** è
E9 **or** é
EB ë

COM, SYS Windows executable file

EB 3C 90 2A ë<.*
IMG GEM Raster file

EB 52 90 2D 46 ëR.-FVE-
56 45 2D FS-
46 53 2D

n/a Header of boot sector in BitLocker protected volume (Vista)

EB 58 90 2D 46 ëX.-FVE-
56 45 2D FS-
46 53 2D

n/a Header of boot sector in BitLocker protected volume (Windows 7)

[512 (0x200)
byte offset] [512 (0x200) byte offset]
EC A5 C1 00 ì¥Á.

DOC Word document subheader (MS Office)

ED AB EE DB í«îÛ
RPM RedHat Package Manager file

EF BB BF ï»¿
n/a Byte-order mark (BOM) for 8-bit Unicode Transformation
Format
(UTF-8) files.
(See the [Unicode Home Page](#).)

[At a cluster
boundary] [At a cluster boundary]
F0 FF FF õÿÿ

n/a FAT12 File Allocation Table

[At a cluster boundary] [At a cluster boundary]
øÿÿÿ
F8 FF FF FF

n/a FAT16 File Allocation Table

[At a cluster boundary] [At a cluster boundary]
F8 FF FF 0F FF øÿÿ.ÿÿÿ.
FF FF 0F

n/a FAT32 File Allocation Table

[At a cluster boundary] [At a cluster boundary]
F8 FF FF 0F FF øÿÿ.ÿÿÿÿ
FF FF FF

n/a FAT32 File Allocation Table

F9 BE B4 D9 ù¾´Ù

DAT Bitcoin-Qt blockchain block file

FD 37 7A 58 5A
00 ý7zXZ.

XZ XZ archive file

[512 (0x200) byte offset] [512 (0x200) byte offset]
FD FF FF FF 02 Ýÿÿÿ.

PUB MS Publisher file subheader

[512 (0x200) byte offset] [512 (0x200) byte offset]
FD FF FF FF 04 Ýÿÿÿ.

QBM QuickBooks Portable Company File

SUO Visual Studio Solution User Options subheader (MS Office)

[512 (0x200) byte offset] [512 (0x200) byte offset]
FD FF FF FF nn Ýÿÿÿ....
nn 00 00

PPT PowerPoint presentation subheader (MS Office)

[512 (0x200) byte offset] [512 (0x200) byte offset]
FD FF FF FF nn Ýÿÿÿ..
00

or

[512 (0x200) byte offset] [512 (0x200) byte offset]
FD FF FF FF nn Ýÿÿÿ..
02

XLS Excel spreadsheet subheader (MS Office)

```
[512 (0x200)
byte offset]      [512 (0x200) byte offset]
FD FF FF FF 20   ŸŸŸŸ ...
00 00 00
```

OPT Developer Studio File Workspace Options subheader (MS Office)

XLS Excel spreadsheet subheader (MS Office)

```
[512 (0x200)
byte offset]      [512 (0x200) byte offset]
FD FF FF FF xx   ŸŸŸŸ....
xx xx xx         .....
xx xx xx xx 04   .....
00 00 00
```

DB Thumbs.db subheader (MS Office)

```
FE ED FA CE      þíúî
n/a Apple OS X ABI Mach-O binary file (32-bit)
```

```
FE ED FA CF      þíúï
n/a Apple OS X ABI Mach-O binary file (64-bit)
```

```
FE ED FE ED      þíþí
JKS JavaKeyStore file
```

```
FE EF            þï
GHO, GHS Symantex Ghost image file
```

```
FE FF            þŸ
n/a Byte-order mark (BOM) for 16-bit Unicode Transformation
Format/
2-octet Universal Character Set (UTF-16/UCS-2), big-endian
files.
(See the Unicode Home Page.)
```

```
FF              Ÿ
SYS Windows executable (SYS) file
```

```
FF 00 02 00 04   Ÿ.....T
04 05 54         ..
02 00
```

WKS Works for Windows spreadsheet file

```
FF 0A 00         Ÿ. .
QRP QuickReport Report file
```

```
FF 46 4F 4E 54   ŸFONT
```

CPI Windows international code page

FF 4B 45 59 42 ÿKEYB
20 20 20

SYS Keyboard driver file

FF 57 50 43 ÿWPC
WP, WPD, WPG, WordPerfect text and graphics file
WPP, WP5, WP6

FF D8 ÿØ
JPE, JPEG, JPG Generic JPEGImage file
Trailer: FF D9 (ÿÛ)

NOTES on JPEG file headers: The proper JPEG header is the two-byte sequence, 0xFF-D8, aka *Start of Image (SOI)* marker.
JPEG files end with the two-byte sequence, 0xFF-D9, aka *End of Image (EOI)* marker.

Between the SOI and EOI, JPEG files are composed of *segments*. Segments start with a two-byte *Segment Tag* followed by a two-byte *Segment Length* field and then a zero-terminated string identifier (i.e., a character string followed by a 0x00), as shown below with the JFIF, Exif, and SPIFF segments.

Segment Tags of the form 0xFF-Ex (where x = 0..F) are referred to as APP0-APP15, and contain application-specific information. The most commonly seen APP segments at the beginning of a JPEG file are APP0 and APP1 although others are also seen. Some additional tags are shown below:

- 0xFF-D8-FF-E0 — [Standard JPEG/JFIF file](#), as shown below.
- 0xFF-D8-FF-E1 — Standard JPEG file with Exif metadata, as shown below.
- 0xFF-D8-FF-E2 — Canon Camera Image File Format (CIFF) JPEG file (formerly used by some EOS and Powershot cameras).
- 0xFF-D8-FF-E8 — [Still Picture Interchange File Format \(SPIFF\)](#), as shown below.

FF D8 FF E0 xx ÿØÿà..JF
xx 4A 46 IF.
49 46 00

JFIF, JPE, JPEG, JPG [JPEG/JFIF graphics file](#)
Trailer: FF D9 (ÿÛ)

FF D8 FF E1 xx ÿØÿá..Ex
xx 45 78 if.
69 66 00

JPG Digital camera JPG using [Exchangeable Image File Format \(EXIF\)](#)

Trailer: FF D9 (ÿÛ)

See ["Using Extended File Information \(EXIF\) File Headers in Digital Evidence Analysis"](#) (P. Alvarez, *IJDE*, 2(3), Winter 2004) and [ExifTool Tag Names](#)

FF D8 FF E8 xx ÿØÿè..SP
xx 53 50 IFF.
49 46 46 00

JPG [Still Picture Interchange File Format \(SPIFF\)](#)

Trailer: FF D9 (ÿÛ)

FF Ex ÿ.
FF Fx ÿ.

MPEG, MPG, MP3 MPEG audio file frame [synch pattern](#)

FF F1 ÿñ
AAC MPEG-4 Advanced Audio Coding (AAC) Low Complexity
(LC) audio file

FF F9 ÿù
AAC MPEG-2 Advanced Audio Coding (AAC) Low Complexity
(LC) audio file

FF FE ÿþ
REG Windows Registry file
n/a Byte-order mark (BOM) for 16-bit Unicode Transformation
Format/
2-octet Universal Character Set (UTF-16/UCS-2), little-endian
files.
(See the [Unicode Home Page](#).)

FF FE 00 00 ÿþ..
n/a Byte-order mark for 32-bit Unicode Transformation Format/
4-octet Universal Character Set (UTF-32/UCS-4), little-endian
files.
(See the [Unicode Home Page](#).)

FF FE 23 00 6C
00 69 00 ÿþ#.l.i.
6E 00 65 00 20 n.e. .l.
00 31 00

MOF Windows MSinfo file

FF FF FF FF ÿÿÿÿ
SYS DOS system driver

The following individuals have given me updates or suggestions for this list over the years: Devon Ackerman, Nazim Aliyev, Vladimir Benko, Arvin Bhatnagar, Jim Blackson, Sam Brothers, David Burton, Alex Caithness, Erik Campeau, Björn Carlin, Tim Carver, Michael D Cavalier, Per Christensson, Oscar Choi, JMJ.Conseil, Cornelis de Groot, Jeffrey Duggan, Tony Duncan, Ehsan Elhampour, Jean-Pierre Fiset, Peter Almer Frederiksen, Tim Gardner, Chris Griffith, Linda Grody, Andis Grosšteins, Paulo Guzmán, Rich Hanes, George Harpur, Brian High, Eric Huber, Allan Jensen, Broadus Jones, Matthew Kelly, Axel Kessler, Nick Khor, Art Kocsis, Bill Kuhns, Andreas Kyrmegealos, Jeremy Lloyd, Anand Mani, Kevin Mansell, Davyd McColl, Par Osterberg Medina, Michal, David Millard, Bruce Modick, Lee Nelson, Mart Oskamp, Dan P., Jorge Paulhiac, Carlo Politi, Hedley Quintana, Stanley Rainey, Cory Redfern, Bruce Robertson, Ben Roeder, Thomas Rösner, Anli Shundi, Erik Siers, Mike Sutton, Matthias Sweertvaegher, Frank Thornton, Erik van de Burgwal, Øyvind Walding, Jason Wallace, Daniel Walton, Franklin Webber, Douglas White, Mike Wilkinson, Gavin Williams, David Wright, and Shaul Zevin. I thank them and apologize if I have missed anyone.

I would like to give particular thanks to Danny Mares of [Mares and Company](#), author of the [MaresWare Suite](#) (primarily for the "subheaders" for many of the file types here), and the people at [X-Ways Forensics](#) for their permission to incorporate their lists of file signatures.

Finally, Dr. Nicole Beebe from The University of Texas at San Antonio posted samples of more than 32 file types at the Digital Corpora, which I used for verification and additional signatures. These files were used to develop the [Sceadan File Type Classifier](#). The file samples can be downloaded from the [Digital Corpora](#) website.

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