

# IFFMaster

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An IFF Browser  
Version 1.5

March 23, 1996

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This document was created using T<sub>E</sub>X3.14, 'texinfo.tex', and 'makeinfo'.

# 1 Introduction

IFFMASTER is a program that allows you to have a view inside the structure of IFF files. It is *not* yet another picture viewer or sound sample player, but it displays the internal entities (*chunks*) of a file. For example, the headers of pictures (**ILBM**) or sound samples (**8SVX**) are displayed in clear, so you can directly read the size and depth of the image or the sampling rate.

From time to time you will find an unknown file on your hard disk, let's say a preference file. Since preference files are often stored in IFF format, there is a chance you can directly examine the contents. There are some programs which write incorrect IFF files (e.g. the **ILBM.CAMG** chunk is a likely candidate), or which write additional information (e.g. copyright or author chunks). With IFFMASTER you can easily verify such cases.

During the last time I implemented some ways to manipulate files, e.g. delete and move chunks. Chunk contents can be edited using a text or binary editor depending on the content type. In future versions (see Appendix A [History], page 15) there will be options to add new chunks like a DPI chunk for images.

Current features include:

- MUI application
- localized GUI (with AmigaOS 2.1 or later)
- online help, bubble help (with MUI 3.0 or later)
- Extensive chunk type library (currently 51 form types, 333 known chunks, 94 of these with comprehensive structure description)
- Chunk contents are presented alternatively as structure, text or hex dump
- Bit fields and enumeration types are displayed in clear
- Fixed point values are printed in decimal (e.g. **8SVX.VHDR.VOLUME**)
- Callback hooks for special attributes, e.g. the Mode-ID inside the **CAMG** chunk is de-referenced (e.g. 'PAL: Hires').
- ARexx interface. E.g. extract Term phonebook entries to the DFA data base.

IFFMASTER is distributed under the concept of *freeware*. Standard disclaimer applies to this program.

## 2 Installation

Nothing to it: just leave all files and the catalogs directory as they are in one directory, or alternatively copy the appropriate `'iffmaster.catalog'` to into the system's locale directory (i.e. `'LOCALE:Catalogs/yourlanguage/'`). By the way: if you mixed up catalog files for different languages, just use IFFMASTER to discover the catalog's language... :)

System requirements are:

- AmigaOS 2.0 (V37)
- AmigaOS 2.1 (V38) for localized GUI
- AmigaOS 3.0 (V39) for some extended features, like displaying colors in ILBM/CMAP chunks.
- MUI version 2.1 (`'muimaster.library'` v8), See Section 6.1 [MUI], page 13.

If you wish to start IFFMASTER inside the `user-startup`, you should do this with `'runback IFFMaster ICONIFIED'`. This will cause IFFMASTER to start as an *AppIcon*, so that Icons may be dragged onto this Icon.

## 3 Usage

### 3.1 Main Window

The main window consists of 3 groups. The topmost one is the *file specification* group, the middle part is the *chunk list* and below there are the *action buttons*.

The current version has some capabilities to manipulate files, but adding chunks is still not implemented. So the ‘Add’ button is always inactive. However, moving (‘Up’, ‘Down’), deleting (‘Del’), and editing (‘Edit’) chunks is possible. Be warned that files may become unreadable to some applications if you delete mandatory chunks, i.e. if you delete the ILBM/BMHD chunk of a picture it will become undecodeable. To activate the manipulation buttons select ‘Prefs/Editable file’ from menu. If that menu item is inactive (it can be locked if you are still unsure about the program’s functions) you can activate it by opening the preferences window and setting the ‘File editable switch’ to be ‘off for new files’ or to be ‘left unchanged’, see Section 3.3.2 [Safety], page 6.

#### 3.1.1 File Specification

There are different ways to open a file. The most common one is by selecting ‘Project/Open...’ from the menu, or by clicking on the popup gadget beside the string gadget for getting a file requester. Alternatively, you can simply drag an icon on IFFMASTER’s main window (*AppWindow*). Furthermore, you can open the file which is currently in the clipboard by using the menu item ‘Project/Open Clip’.

#### 3.1.2 Chunk List

The chunk list can show several types of information: the left column shows the *chunk ID* (e.g. BMHD), then there is the *chunk type* (e.g. ILBM), and at the right side there is the size of the chunk. Below the action buttons there is a cycle gadget labeled ‘Show’ that specifies the format of the chunk list. If it states ‘Description’ you will get a description of the chunk’s purpose (e.g. ‘Bitmap Header’), and ‘Contents’ will display a *short* summary of the chunk’s contents. You can advance the cycle gadget by pressing the SPACE key.

Because it is impossible to display the entire contents of a chunk in a single line you can get a comprehensive list by first selecting a chunk in the chunk list and then pressing ‘Info’ (you can as well double-click on the chunk). A new window containing the chunk’s contents will appear. You can display the contents either as structure, plain text or as a hex dump. Change the presentation by using the register above the contents list, or by pressing `CURSOR LEFT` and `CURSOR RIGHT`.

You need not close the contents window to display the contents of another chunk. Just click on that chunk in the chunk list or press `CURSOR UP` or `CURSOR DOWN` after having activated the chunk list via the `TAB` key. The new contents are displayed using the appropriate data type.

### 3.1.3 Action Buttons

Each of the buttons in this group performs an action on the currently active chunk, i.e. the one that is marked by the cursor in the chunk list.

The buttons that are used to modify a file are inactive if the menu item (switch) ‘File Editable’ is turned off. This is for safety reasons, so that the file structure or contents cannot be damaged unintentionally. Depending on the experience of the user there are different locking modes for that switch, see Section 3.3.2 [Safety], page 6.

<b>Info</b>	The contents window will be opened, and additional information about the chunk is displayed in it.
<b>Edit</b>	Depending on the chunk’s contents (text or binary data) a text or binary editor is called to let you edit the chunk’s contents. See Section 3.3.1 [General], page 6.
<b>Add</b>	This action is not implemented yet due to extremely low user feedback. So this button is always disabled.
<b>Delete</b>	The active chunk is entirely deleted.
<b>Up</b>	The chunk is moved before its predecessor. Because chunks can not be moved out of their containers, this action will only succeed if the preceding chunk is not one of the type <code>FORM</code> , <code>CAT</code> or <code>LIST</code> . Furthermore, only chunks containing data can be moved, i.e. container chunks (type <code>FORM</code> , <code>CAT</code> or <code>LIST</code> ) are not moveable.
<b>Down</b>	The chunk is moved behind its successor. The same restrictions as in ‘Up’ apply.
<b>Top</b>	The chunk is moved up as far as possible. The same restrictions as in ‘Up’ apply.
<b>Bottom</b>	The chunk is moved up as down as possible. The same restrictions as in ‘Up’ apply.

## 3.2 Contents Window

The contents window displays the contents of the active chunk, see Section 3.1.2 [Chunk List], page 3. Depending on the type of the contents one of the following three display types is (automatically) used.

**Structure** This is the most sophisticated method to display the chunk's contents. All parts of the content are decoded and displayed line by line together with a description. Example: A sampled sound (FORM 8SVX) has a header chunk (VHDR) that is 20 bytes long. Displayed as a sequence of hex numbers it would read: 00021432 00000000 00000020 41560100 00010000. Displayed as a structure it reads like this:

OneShot HiSamples	136,242
Repeat HiSamples	0
Samples / HiCycle	32
Samples / s	16,726
# Octaves	1
Compression Technique	None
Volume [0,1]	1.00000

**Text** Some chunks contain plain text, e.g. ANNO chunks. Texts are formatted block-justified, but no other processing is done.

**Hex Dump** If a chunk contains neither structured data nor text the contents are displayed using a hex dump. There are some ways to customize the appearance of the dump, see Section 3.3.4 [Hexdump], page 7.

You can also switch between some display styles by hand, using the register gadgets. For example you can have the above mentioned VHDR chunk displayed as a hex dump instead of a structure. To switch between the display styles you can also use the `CURSOR LEFT` and `CURSOR RIGHT` keys, even if the active window is the main window and not the contents window. This way you can control all display functions from the main window.

## 3.3 Preferences Window

The preferences are grouped on four pages: *General*, *Safety*, *Layout* and *Hexdump*. They are described in the following sections.

After having edited the preferences you may choose to

<b>Save</b>	For storing the settings on disk. All future invocations of IFFMASTER will use that settings.
<b>Use</b>	For storing the settings in RAM only, so they will only last until you reboot your computer.
<b>Cancel</b>	For aborting the adjustments you made and use the previously stored settings.

Closing the window with the close gadget has the same effect as clicking on ‘Cancel’.

### 3.3.1 General

On this page you can specify the editors.

<b>Text Editor</b>	specifies the editor that is used for chunks containing plain text, e.g. ANNO-Chunks. You have to make sure that the editor does not spawn itself from the shell, but runs synchronously. If you are using e.g. the CYGNUSED you may enter ‘ed -sticky’. If you leave this gadget empty the editor specified in the environment variable EDITOR is used.
<b>Binary Editor</b>	specifies the editor that is used for chunks containing binary data. A common name for these editors is <i>file zapper</i> , and are likely to be available on the aminet. This editor has also to run synchronously. If you leave this gadget empty the editor specified in the environment variable BINEDITOR is used.

### 3.3.2 Safety

The following settings are used to prevent inintentional damage to files. Since numerous ‘okay to do...?’ requests by the program are evenly unacceptable you can adjust between the two extremes safety and ease of use. Beginners and casual users should always use the safe settings.

#### File Editable switch

In the menu ‘Settings’ there is a switch ‘File Editable’ which turns on or off the file manipulation gadgets, see Section 3.1.3 [Action Buttons], page 4. You can set here the behaviour of that switch.

**off and locked** is the safest setting. The switch is off and disabled, effectively preventing you from accidentally turing on the editing buttons.



**off for new files**

turns off the manipulation gadgets each time a new file is opened. If you want to edit files only infrequently this is a good setting.

**left unchanged**

leaves the switch always in the state you switched it to. If you want to edit many files in a row you have to turn on the manipulation gadgets only once.

**Overwrite files**

If you want to edit many files without keeping backups you can turn the prompting off. Otherwise it is recommended to leave this gadget always on the safe ‘prompt’ position, because since IFFMASTER can be fully driven by keyboard it just needs two keypresses like DEL and S (for ‘Save’) to possibly destroy a file.

### 3.3.3 Layout

The layout page currently features the following settings:

- Bubble help** If you are familiar with the program’s functions you may wish to turn off the bubble help. (NB: Bubble help is only supported in MUI 3.0 or later.)
- Hex indicator** lets you choose your favourite pre- or postfix string to indicate hexadecimal numbers in the structure page of the contents window. For an example file which contains hex numbers open ‘ENV:Sys/locale.prefs’ and select the LCLE chunk. The first 4 numbers (16 Bytes) are reserved and displayed as hex numbers.
- NB: This setting does not affect the hex dump, see Section 3.3.4 [Hexdump], page 7.

### 3.3.4 Hexdump

This page contains gadgets that affect the appearance of the hex dump in the contents window.

- Limit # bytes** Building hex dumps of very large chunks (e.g. ILBM.BODY) can take a long time. Therefore the number of bytes in a hex dump can be limited to a certain amount. The default limit is 512 bytes. Since in most cases hex dumps are not very meaningful you may wish to leave this value reasonably low. To adjust the value

you can use the slider or the string gadget to the right of it. With the check mark button you can turn the limit off, but this is not recommended.

**Offset format** The leftmost column of the hex dump shows the offset of the first byte in each row. Use this gadget to specify if that offset should be displayed in decimal or hexadecimal.

#### **Dump characters**

If the (fixed-width) font used in the hex dump contains all 256 characters you can turn on to print even normally non-printable characters like LineFeed, `0x0A`, which will then be displayed as an inverse 'J' or something like that. If only a rectangle appears then your font supports only printable characters and you will have to turn on 'printable only'. Then all non-printable characters are displayed as a dot.

A good way to test this feature is to load a 24 bit ILBM picture. These pictures normally contain three CLUT chunks. Normally these chunks contain all byte values in increasing order.

## 4 ARexx Interface

Since version 1.5 of IFFMASTER many functions can be accessed via an ARexx port. This allows you to gain access to internal IFF data from inside scripts. For example you could list all image (ILBM) files (or sort them into a directory) whose depth is up to 8 planes. Or you could save some space if you remove all ANNO chunks from the files in your sample (8SVX) directory. A few example scripts are in the rexx directory of the distribution. The port name of IFFMASTER is IFFMASTER.1. You can get a quick list of IFFMASTER's REXX commands by running 'rexx/ShowREXXCommands.rexx'.

### load FILE/A

Loads a file into IFFMASTER.

### loadclip

Loads the clipboard's contents.

### saveas FILE/A

Saves the project under the given file name. You may wish to turn `overwrite ON` to prevent a requester popping up.

### save

Saves the project under the same name as displayed in the string gadget, i.e. under the load file name.

### saveclip

Copies the project to the clipboard.

### savechunk FILE/A

Saves the chunk marked by the cursor under the given file name.

### saveform FILE/A

Saves the sub-FORM marked by the cursor under the given file name. The cursor must be over a FORM, LIST or CAT chunk.

### saveformclip

Copies the sub-FORM marked by the cursor to the clipboard.

### entries

Gives the number of chunk list entries as the RESULT.

### cursorpos ENTRY/N

Gives the cursor position in the chunk list as the RESULT.

### chunkid

Gives the chunk ID of the chunk marked by the cursor as the RESULT.

### chunktype

Gives the chunk type of the chunk marked by the cursor as the RESULT.

**chunksize**

Gives the chunk size of the chunk marked by the cursor as the **RESULT**.

**chunkdepth**

Gives the chunk's nesting depth of the chunk marked by the cursor as the **RESULT**.

**chunkinfo**

Gives short information about the chunk marked by the cursor as the **RESULT**. The information is the same as the 'contents' column in the chunk list.

**chunkstruct SEPSTRING**

Gives the information as in the 'structure' page of the chunk contents window on a line-by-line basis. Since the list has two columns (description and contents) you can specify a separator string (**SEPSTRING**) for the two entries. The default **SEPSTRING** is " | ". See 'rexx/ImportTERMpbook.rexx' for an example usage.

**chunktext**

Gives the chunk's contents as a string in **RESULT**. This makes only sense if the chunk is really a text chunk, like **ANNO** or **AUTH**.

**delete**

Removes the chunk under the cursor from the chunk list. Note that you have to turn **editable ON** to successfully perform a chunk deletion. See 'rexx/RemoveANNO.rexx' for an example usage.

**infowindow ON/S,OFF/S**

If you have a non-interactive REXX script which does not require user supervision you may close (**OFF**) open (**ON**) the chunk contents window.

**mainwindow ON/S,OFF/S**

Same as above, but closes the main window. Note to turn the window back on or quit **IFFMASTER** if your script terminates, otherwise **IFFMASTER** will stay open with no user interface to quit it. Of course the user can quit **IFFMASTER** by hand by using **CommoditiesExchange** or by sending a break signal to **IFFMASTER**'s task or by using the **quit REXX** command.

**editable ON/S,OFF/S**

Turns the editing facilities on or off.

**overwrite ON/S,OFF/S**

Turns quiet overwriting of files on or off.

**showformat FORMAT/A/N**

Changes the state of the 'Show' cycle gadget that affects the format of the chunk list. Following values are possible:

0. 'Id - Type - Size'
1. 'Id - Type - Description'
2. 'Id - Type - Description - Size'
3. 'Id - Type - Contents'

## 4. 'Id - Type - Contents - Size'

**limithex** ON/S,OFF/S,BYTES/N

Specify the size limit of the hex dump buffer. **OFF** turns limitation off, **ON** limits size to value set in the preferences, **BYTES/N** changes the preferences to the specified value. Use **limithex BYTES 16** if you don't need to display hex dumps and want to gain speed when processing chunk contents (i.e. moving the cursor).

**editor** EDITORNAME

Specifies the editor to use when editing text chunks.

**bineditor** BINEDITORNAME

Specifies the editor to use when editing binary chunks.

There are some standard MUI REXX commands that are also useful:

**quit** FORCE/S

Terminates IFFMASTER. If you specify **FORCE** then no requester pops up when there is an unsaved project.

**hide**

Iconifies IFFMASTER.

**show**

Uniconifies IFFMASTER.

**info** ITEM/A

Gives information about various items (e.g. title). Refer to 'MUI.guide/ARexx'.

**help** FILE/A

Lists all REXX commands to 'FILE'. See 'rexx/ShowREXXCommands.rexx' for an example usage.

## 5 Problems?

Building hex dumps of very large chunks (e.g. `ILBM.BODY`) can take a long time. Therefore the number of bytes in a hex dump can be limited to a certain amount. The default limit is 512 bytes, it can be adjusted or turned off in the Preferences, see Section 3.3.4 [Hexdump], page 7.

Some chunks (e.g. `FORM`) are container chunks with no contents, and therefore there is no presentation. Some other chunks (e.g. `BODY`) contain raw data, presentation of these chunks is limited to hex dump.

## 6 Credits

I like to thank:

Stefan Stuntz	for MUI, see Section 6.1 [MUI], page 13.
Eric Totel	for his great MUIBUILDER, and for keeping MUIBUILDER up with the needs of IFFMASTER :). This program would not exist without it.
Francesco Dipietromaria	for the italian translation
Marcin Orłowski	for the polish translation
Alessandro Zummo	for fixing the de-iconify problem with the AppIcon
Andreas Mixich	for all ARexx scripts
Kai Iske and Walter Dörwald	for support and betatesting
Thomas Reinhardt, Harald Drangmeister and Ralph Wermke	for their IFF descriptions
H. Phil Duby, Bryan Ewert, Martin Pfungstl and Klaus Seistrup	for bug reports, support and comments

### 6.1 MUI

This application uses

MUI - MagicUserInterface

(c) Copyright 1993/94 by Stefan Stuntz

MUI is a system to generate and maintain graphical user interfaces. With the aid of a preferences program, the user of an application has the ability to customize the outfit according to his personal taste.

MUI is distributed as shareware. To obtain a complete package containing lots of examples and more information about registration please look for a file called "muiXXusr.lha" (XX means the latest version number) on your local bulletin boards or on public domain disks.

If you want to register directly, feel free to send

DM 30.- or US\$ 20.-

to

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## Appendix A History

### Version 1.0

First release

### Version 1.1

- FIX version 1.0 was compiled with option 68030 - sorry!
- NEW many new chunk types
- NEW menu (moved 'about' and 'prefs' into the menu, gaining some space)
- NEW specifying file names at command line
- NEW loading files directly from clipboard
- NEW improved keyboard handling

### Version 1.2

- NEW fully localized GUI
- NEW chunk contents can be saved
- NEW AppWindow and AppIcon, command line option **iconified**
- NEW improved formatting capabilities for structure entries
- NEW sophisticated IFF parser, even brain-dead formats like **EMOD.EMIC** are handled appropriately
- NEW chunks now have nominal length, a message is displayed if a chunk is too short or too long
- BUG Beta testers reported problems with de-iconify function when an icon was dropped onto the AppIcon. I removed the said call, so you have to double-click the AppIcon after dropping an icon.

### Version 1.3

- FIX prefs window: close gadget now functioning, see Section 3.3 [Preferences Window], page 5.
- FIX cycle chain (TAB) now works in all windows
- NEW new chunk IDs: **IAND**, **IANM**, **DR2D**, **RGB8**, **RGBN**, **SPLT**
- NEW hex numbers get a user-chosen indicator, construction of hex dumps is now more than 3 times faster, see Section 3.3.4 [Hexdump], page 7.
- NEW IFFs can be saved, even nested **FORMs**, e.g. images inside animations
- NEW implemented some editing capabilities (delete chunks), see Section 3.1.3 [Action Buttons], page 4.

NEW preferences can be saved, see Section 3.3 [Preferences Window], page 5.

#### Version 1.4

NEW Completely changed to GNU-C. Differences are: new startup code, no more ANSI-C functions like `sprintf()` used, enabling some things like localized output of floating point numbers.

FIX should finally run without `'locale.library'`

NEW Online help

NEW new chunk IDs: `AMBA`, `AMDE`, `AMIN`, `AMHU`, `AMUN`, `EQE1`, `RESO`, `VARs`, ...

NEW complete structure descriptions of system preference files, some new hooks. Be sure to try out e.g. `'IFFMaster ENV:sys/locale.prefs'`.

NEW color descriptions (RGB values) are now also displayed as a colorfield, if you have WB 3.0. Check out `'IFFMaster ENV:sys/palette.prefs'` or any `ILBM/CMAP`. NOTE: You need some free pens for this feature, so you may need to specify a deep screen for `IFFMASTER` inside `MUIPREFS`.

FIX `'<Clipboard>'` is now accepted as a name for the clipboard. So `'Save'` now works as `'Save Clip'` when working on a clipboard file. As a side-effect you can now enter `'IFFMaster "<Clipboard>"` at the command line to load directly from the clipboard.

FIX button key definitions did overlap

NEW 'non-printable' characters can now be displayed in the hex dump, if the font comprises 256 characters, see Section 3.3.4 [Hexdump], page 7. (Requested by Walter Dörwald)

NEW some more editing capabilities (move chunks), see Section 3.1.3 [Action Buttons], page 4.

NEW Chunks containing text or binary data can be edited via text or binary editors, see Section 3.1.3 [Action Buttons], page 4.

NEW new icon, which is also used as `AppIcon` now

#### Version 1.5

NEW ARexx interface. E.g. extract Term phonebook entries to the DFA data base.

NEW Bubble help available (MUI 3.0).

FIX `'File editable'` switch now also enables/disables `'edit'` button.

NEW New Chunks: MUI Prefs,

NEW Support for IEEE 96 bit floats (`ILBM.MAND`)

FIX Key 0 works again (activates string gadget)

FIX AppIcon problem hopefully solved (thanks to Alessandro Zummo)

I would greatly appreciate new ideas and enhancement requests. If you discover any chunk unknown to IFFMASTER, please let me know (i.e. try to send me that (short) file or even a description of the chunk's structure, if known). If you dare to translate the catalog to your language, please have a look at `'translators.readme'` first.

## Appendix B Chunks

Following chunks are currently known to IFFMASTER:

[anywhere]

	CSET, FVER, ANNO, AUTH, CHRS, HLID, NAME, TEXT, (c)
3DDD	OBJE
8SVX	ATAK, BODY, CHAN, FADE, PAN , RLSE, SEQN, VHDR
ANIM	ANSQ
AVCF	AVFH, GDAT
AVCO	CDAT, FLAG, IMAG
AVEV	ACTS, CDAT, FLAG, IMAG, PARS, REFL
CDAF	BODY, FILE
CDVR	VARs
COPR	COPI, WAIT, MOVE
CPRO	3DIM, GFRA, SFRA
CTLG	LANG, STRS
CYBR	CMON, MD08, MD16, MD24, VER
DECK	RESO
DEEP	DBOD, DGBL, DLOC, DPEL
DR2D	ATTR, CMAP, CPLY, DASH, DRHD, FONS, OPLY, PPRF
DTYP	DTHD, DTCD
EMOD	8SMP, EMIC, PATT
ENVL	LFOI, COEN, VOEN, PIEN, NOEN, REEN, PHEN
EQED	EQE1
FAX3	FXHD, GPHD, PAGE
FAXX	FXHD, GPHD, PAGE
FTXT	CYGD, FONS
GXGA	GADA
GXMN	MEDA

GXUI	GGUI
GXWD	WDDA
IAND	BPCT, CMAP, BODY
IANM	BMHD, CAMG, BODY
ILBM	3DIM, ANHD, ASDG, BHCP, BHSI, BMHD, BODY, CAMG, CCRT, CLUT, CMAP, COLC, CRNG, DEST, DLTA, DMMY, DPAN, DPI, DPPS, DPPV, DRNG, EQE1, FCMP, FFEX, FITR, FXCO, FXD2, FXPL, GFRA, GRAB, IMRT, JUNK, MAND, SFRA, SPRT
ISTG	MAXF, SOBJ
KCXM	VERS, PREF
LWOB	PNTS, POLS, SRFS, SURF
MCXB	PREF, VERS
MCXP	PREF, VERS
MTRX	ARRY, BODY, DTYP, STRU
NAIL	NBDY, NDSC, NHDR
PREF	ALRT, AMBA, AMDE, AMIN, AMHU, AMUN, CONF, CTRY, DFSS, EVNT, ETXT, FLOP, FONT, GENA, GENC, GTCO, GUI, ICTL, INPT, JFIF, KEYS, LCLE, MENU, MIDI, MUIC, MUIW, OPER, OSCN, PALT, PATH, PDAT, PGFX, PNTR, PRHD, PSPD, PTRN, PTXT, PUNT, SCRML, SERL, SHMN, SOND, TMAC, TMDO, TMEX, TMIC, TMIM, TMMO, TMSO, VERS, WBCF, WBPC, XDOS
PTCH	INPF, OUTF, PSEQ, VERS
REAL	RANI, RATT, RMTR, ROBJ, RSCR, RSET, RVRS, RWIN
RGB8	BMHD, BODY, CAMG, CMAP, IMRT
RGBN	BMHD, BODY, CAMG, CMAP, IMRT
SC3D	EDGE, FACE, HIER, LAMP, LNAM, OBSV, PATH, VERT, VNAM, WRLD
SMUS	SHDR, INS1, INST, SNX1, TRAK
SPLT	INFO, BODY
SWRT	ASCI, ATTR, BIBD, BIBH, BIBP, BOXP, DINF, DOC, DSP2, ENDP, FDTA, FNTD, FNTH, GINF, GRMR, HFDA, HYPH, IDX, IDXH, IDXP, LINP, LMST, OUTD, OUTH, OUTP, OVLP, PAG3, PASD, PASH, PICP, PNDA, PRGH, PRN3, RMST, RULE, SAVP, SEC1, SHD1, SHPP, SPEL, SWCL, TABS, TBYD, TBLK, TOCD, TOCH, TOCP, TOID, TOIH, TOIP, TSSD, TSSH, TXOB
TACF	TPAR, TPBR, TPCA, TPCM, TPMA, TPP1, TPPA, TPPX, TPSC, TPSE, VERS
TAKE	TFRM, THDR
TDDD	INFO, OBJ

TERM CLIP, COMD, CPTR, DATE, DIAL, EMLN, FAST, FILE, MISC, MODM, PATH, PHON, RECV, SCRN,  
SEND, SERL, SOUN, SPEK, TRML, TRNS, VERS, WINF, WIND, XFER

TVP2 TVRX

VILL CRC , MODE, MONI, VER

I am still looking for descriptions for the chunks in smaller print.

## Appendix C Author

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PGP Fingerprint = 5A 88 30 0F BF D7 0F F3 F9 31 A0 88 AB E4 38 66

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