Easy1541

COLLABORATORS			
	TITLE : Easy1541		
ACTION	*NAME*	*DATE*	*SIGNATURE*
WRITTEN BY		August 5, 2022	

REVISION HISTORY			
NUMBER	DATE	DESCRIPTION	NAME

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Easy1541

1.1   Easy 1541. Really? Yes, it's easy!

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                    Easy1541 v 1.1.1 (15-Oct-96)
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```

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            Disclaimer

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1.2   DISCLAIMER:

```
DISCLAIMER
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acceptance of the above rules.

- Long live and prosperity to the Amiga.
     Unknown Vulcan

- Commodorians, the force was with us!
     Michael S. Tomczyk

1.3   WHAT THE HELL IS EASY1541 ???

                    DESCRIPTION

Easy1541 is designed to provide EASY access to the Commodore 1541 drive
(and compatibles) to manage old 5.25" disks formatted using standard CBM
DOS 2.6 filesystem. Using the provided command set you can read and write
disks created using a Commodore 1541 drive and an 8-bit Commodore home
computer (C64, C16/+4 and C128).

Just plug the
                cable
                  in your standard Amiga Parallel Port to connect a
Commodore 1541 and enjoy the Easy1541 potentiality. You can't connect the
cable to a non-standard parallel port (as the one in the BSC Multiserial
Card).

WHY TO USE EASY1541 ?

In the Internet (aminet, funet...) you can found many "Amiga To 1541"
projects, interfaces, software and so on. Well, I tried most of them, and
I got all kind of problems!

- Interfaces doesn't iterface properly.

- Cables are hard to build (and doesn't work!)

- Provided utilities are crap.

- You need the same Amiga of the auhor to avoid crashes...

There's only a software available (unfortunately it's not freeware) that
works properly, the old but good "ReadySoft Transfer Utility".

A BIT OF HISTORY

In late '80, the great software house "ReadySoft", published a Commodore 64
emulator for the Amiga 500/1000/2000. It was sold with a little program
that allowed (using a provided cable) to copy files from/to a real 1541
drive connected to your Amiga. The cable was very easy to build too. You
need no components at all, just solder some wires... The bad news was that
you need a 68000 7.14 Mhz Amiga and Kickstart 1.x to run the transfer
utility.

Thanks to Easy1541, you will be able to do on any Amiga the same thing you
did using the ReadyTransfer utility on your old Amiga 500.

Unfortunately a GUI is not yet provided...

Note for the programmers:
The old ReadySoft code was full of "busy loops", and it crashed trying to
use it on a 68020+ and OS 2.x / 3.x based Amiga.

1.4   WHAT I NEED TO USE EASY1541 ?

                 REQUIREMENTS

Easy1541 needs any Amiga system, but it requires at least AmigaDos 2.04.
Hard Disk or a lot of memory is not required.

- It works fine using an A500 2.04 with 512K of Ram and 1 Drive...

- It works better using an A4000 3.1 with 6Mb of Ram and Hard Disk!

You need a Commodore 1541 Drive and a
                cable
                 to connect it. The cable is
the same used by the ReadySoft Commodore 64 emulator, so if you own it, use
it. If you don't, you'll find a electric scheme to build it yourself.

If you like you can

order
 a cable from the author.

If you own the special IEC cable by Christian Bauer, used by the Frodo C64
Emulator, you can use it but you have to install the special "f" version of
my iec.library. Refer to the
                installation
                 chapter for further information.

I tested several Commodore drives, and all worked:

- Commodore 1541 Dark Grey
- Commodore 1541 Light Grey
- Commodore 1541-II

I tested them in conjunction with the following Amiga's:

- Amiga 4000/40 OS 3.1
- Amiga 500   OS 2.04

If you find some incompatibilities please report them to the author.

1.5 TO INSTALL EASY1541 IS EASY.

                INSTALLATION

To install Easy1541, just copy the file libs/iec.library in your libs:
directory.

If you plan to use a Frodo Cable (the one used by the C64 Frodo Emulator by
Christian Bauer), you have to copy the proper iec.library version:
libs/frodo/iec.library

Now you can use the
                ToolKit
                 commands. If you like you can copy them in your
c: directory.

If you like to write an installation script (using the standard Commodore
installer), please do it and send it to me. I'll include it in the next
Easy1541 release!

Thank you.

1.6 HOW TO USE THE PROVIDED COMMANDS

```
                    EASY1541 TOOLKIT
----------------
```

Several useful commands are provided with Easy1541 and constitute the
foundamental toolkit.   You'll find them in the root of the installation
directory (usually "Easy1541").   They are listed below:

            IECCmd

            IECDir

            IECLoad

            IECReadD64

            IECSave

            IECStatus

            IECUnit

            IECWriteD64
            These commands allow you to accomplish all the basic ←
                operations working
with a Commodore 1541 drive.

At least a brief knowledge of the main commands and of the functional
character of a Commodore 1541 Drive are required to use Easy1541.

For advanced (e.g. low-level) management of a 1541 unit or CBM DOS disks,
you need to take advantage of the iec.library.

Note: don't issue any command to the 1541 if it is turned off. This will
      lock up the Amiga!

1.7 HOW TO SEND A COMMAND TO THE 1541

```
IECCmd
-------
```

```
Format:        IECCmd <command> [device]
Template:      COMMAND/A,DEVICE/N
Purpose        To send a command string to the 1541 Drive
```

Specification: IECCmd is used to issue a command to the 1541
Drive Unit through the Command Channel (15). Commands must be in standard
1541 format and UPPERCASE.   If you use special characters as space ( ),
equals (=), plus (+) and other, you must enclose the entire command string
within double quotes.   [device] is the ID number (usually 8) of the 1541
drive connected to the Amiga.   If no device is given, IECCmd send the
command to the drive unit 8. A list of useful 1541 Commands
1541CMD} is included.

Examples:

    1> IECCmd I

Initializes disk driver 8 to power up condition. A disk must be inserted.

    1> IECCmd "N:TEST,AA"

formats the disk in the drive unit 8. The disk name will be "TEST" and the
DIskID AA.

    1> IECCmd "S0:PROVA" 9

erases files PROVA, from disk in drive unit 9

Be careful using commands. IECCmd asks no confirm.

Using Commodore Basic 2.0, this is the same of:

OPEN 15,<device>,15,"<command>" : CLOSE 15

1.8   THE 1541 COMMANDS QUICK REFERENCE

                1541 Commands

I
                Initialize
                 Initializes disk driver to power up condition
N
                New
                 Formats new disk or re-formats used one
S
                Scratch
                 Erase a file or files from the disk
C
                Copy
                 Duplicate an existing file
R
                Rename
                 Change the name of existing file

V

```
             Validate
              Removes wasted spaces on disk
```

1.9 INITIALIZE

```
Initialize
----------
```

  PURPOSE: Initializes disk driver to power up condition.

  FORMAT: IECCmd "I"

Sometimes, an error condition on the disk will prevent you from performing
an operation. INITIALIZE returns the disk drive to its original state when
power is turned on.

1.10 NEW

```
New
---
```

  PURPOSE: Formats new disk or re-formats used one.

  FORMAT: IECCmd "N0: disk name, id#"

This command formats a new disk. It is also useful to erase an already-
formatted disk, as it erases the entire disk, puts timing and block markers on,
and creates the directory and the BAM. The disk name is for user convenience
while the id# is a 2 digit alphanumeric identifier that is placed in the
directory a every block on the disk. If you switch disks while writing data,
the drive will know by checking the id#.

  EXAMPLES: IECCmd "N0: TEST DISK, A1"

      IECCmd "N0: MY DISK, MY"

If the disk needs erasing but not reformatting, the same
command is used, but leave out the id#.

  EXAMPLE: IECCmd "N0: NEW INFO"

1.11 SCRATCH

```
Scratch
-------
```

  PURPOSE: Erase a file or files from the disk.

```
    FORMAT:   IECCmd "S0: filename"
```

This command erases one or more files from the disk, making room for new or
longer files. Groups of files can be erased at one time by naming all of them
in one scratch command.

EXAMPLES: IECCmd "S0: TEXT" (erases file called TEXT)

```
    IECCmd "S0: TEXT, 0:TEST, 0: MUSIC"
    (erases files TEXT, TEST and MUSIC)
```

1.12 COPY

```
Copy
————
```

  PURPOSE: Duplicate an existing file.

  FORMAT: IECCmd "C0:newfilename=0: oldfilename"

COPY allows you to make a copy of any program or file on the disk. The new
file's name must be different from the old one. COPY can also combine up to
four files into one new one.

  EXAMPLES: IECCmd "C0:BACKUP=0: ORIGINAL"

```
      IECCmd "C0: NEWFILE=0: OLD1,0: OLD2,0"
        (combines OLD1 and OLD2 into NEWFILE)
```

1.13 RENAME

```
Rename
——————
```

  PURPOSE: Change Che name of existing file.

  FORMAT: IECCmd "R0: newname=0: oldname"

This command lets you change the name of a file once it's in the disk
directory. RENAME will not work on any files that are currently open.

  EXAMPLE: IECCmd "R0:GOODNAME=0: DUMBNAME"

1.14 VALIDATE

```
Validate
————————
```

  PURPOSE: Removes wasted spaces on disk.

```
    FORMAT: IECCmd "V0:"
```

After a disk has had many files saved and erased, small gaps in the data begin
to accumulate and waste memory space on the disk. VALIDATE reorganizes your
disk so you can get the most memory from the available space. Also, this
command removes files that were OPENed but never properly closed.

CAUTION! VALIDATE erases random files. If your disk contains
random files, DO NOT use this command!

1.15 HOW TO DISPLAY A DIRECTORY

```
IECDir
-------


Format:        IECDir [device]
Template:      DEVICE/N
Purpose        To display the list of files in a disk
Specification: IECDir displays the file names contained in the
current  disk  inserted  in the drive.  If no device is given, IECDir
displays the directory of the disk inserted in drive unit 8.


Examples:

   1> IECDir

Displays a list of files contained in the disk inserted in drive unit 8

   1> IECDir 9

Displays a list of files contained in the disk inserted in drive unit 9


------------------------------------------------
Using Commodore Basic 2.0, this is the same of:

LOAD "$",<device>

LIST
------------------------------------------------
```

1.16 HOW TO COPY A FILE FROM 1541 TO AMIGADOS

```
IECLoad
-------


Format:        IECLoad <name> [ [TO] <newname>] [device]
Template:      FROM/A,TO,DEVICE/N
Purpose        To copy a file from 1541 to AmigaDos
Specification: IECLoad copies the file specified with the <name>
argument  from  the  disk  put  in  the  1541 drive to the current AmigaDos
```

directory. If <newname> is given, IECLoad copies the file to the AmigaDos
file and directory specified. If no device is given, IECLoad copies the
file from drive unit 8. On 1541 disks, filenames are up to 16 characters
long and case-sensitive (and usually they are uppercase).

Examples:

   1> IECLoad TEST

copies file "TEST" from disk inserted in 1541 drive unit 8 to current
AmigaDos directory.

   1> IECLoad TEST RAM:test.c64 9

copies file "TEST" from disk inserted in 1541 drive unit 9 to AmigaDos
directory RAM: using the name "test.c64".

1.17   HOW TO READ A 1541 DISK IMAGE

                    IECReadD64

Format: IECReadD64 <filename> [device]
Template: TO/A,DEVICE/N
Purpose   To create a
                D64
                 image from the disk in the 1541 drive
Specification: IECReadD64 creates a disk image in
                D64
                 format
from the disk inserted in the drive 1541.   If no device is given,
IECReadD64 generate the image from drive unit 8.

Examples:

   1> IECReadD64 test.D64

Create a
                D64
                 image named "test.D64" from the disk inserted in
drive unit 8

   1> IECReadD64 test.D64 9

Create a
                D64
                 image named "test.D64" from the disk inserted in
drive unit 9

1.18 HOW TO COPY A FILE FROM AMIGADOS TO 1541

```
IECSave
-------
```

```
Format:        IECSave <name> [ [TO] <newname>] [device]
Template:      FROM/A,TO,DEVICE/N
Purpose        To copy a file from AmigaDos to 1541
Specification: IECSave copies the file specified with the <name>
argument  from AmigaDos to the disk put in the 1541 drive.  If <newname> is
given,  IECSave  copies the file to the 1541 using the name specified.  If
no device is given, IECSave copies the file to drive unit 8.
```

Examples:

```
   1> IECSave TEST
```

copies file "TEST" from current AmigaDos directory to disk inserted in 1541
drive 8.

```
   1> IECSave ram:test.c64 TEST 9
```

copies file "test.c64" from AmigaDos directory RAM to disk inserted in 1541
drive unit 9 using the name "TEST".

```
   1> IECSave ram:test.c64 @0:TEST
```

Overwrite file "TEST". You need to put "@0:" before the filename, to
overwrite files on the 1541. Don't use @: (without the 0) due to an odd bug
of some Commodore Drives.

1.19 HOW TO DISPLAY THE STATUS OF THE DRIVE 1541

```
IECStatus
----------
```

```
Format:        IECStatus [device]
Template:      DEVICE/N
Purpose        To display the status of the drive 1541.
Specification: IECStatus displays the status message of the 1541
drive.  If  no device is given, IECStatus display the status of the drive
unit 8.
```

Examples:

```
   1> IECStatus
```

displays the status message of the drive unit 8

```
   1> IECStatus 9
```

displays the status message of the drive unit 9

1.20   HOW TO CHANGE THE DRIVE UNIT NUMBER

```
IECUnit
-------


Format:        IECUnit <newdevice> [device]
Template:      NEWDEVICE/N/A, DEVICE/N
Purpose        To change the drive Device Number
Specification: All  drives  need  an unique device numbers so the
computer  can  identify  which  one  you  want to transfer data to or from.
Normally  the 1541 drive is preset inside the hardware with a device number
of 8, drive number 0.  The disk knows its own device number by looking at a
hardware  jumper  on  the circuit board and writing the number based on the
jumper into a section of its RAM. Using IECUnit you can change the
DeviceNumber.
First, turn on one drive and change its device number, then the next drive,
until all the drives are on.


Examples:

   1> IECDir 9

Changes the device number of drive 8 to 9

   1> IECUnit 10 9

Changes the device number of drive 9 to 10




-------------------------------------------------
Using Commodore Basic 2.0, this is the same of:

OPEN 15,<device>,15
PRINT15,"M-W:"CHR$(119)CHR$(0)CHR$(2)CHR$(<newdevice>+32)CHR$(<newdevice>+64)
CLOSE 15

-------------------------------------------------
```

1.21   HOW TO WRITE A D64 FILE TO A 1541 DISK

```
               IECWriteD64
-------


Format:        IECWriteD64 <filename> [device]
Template:      FROM/A,DEVICE/N
Purpose        To write a
                D64
                 file to the disk in the 1541 drive
Specification: IECWriteD64 writes a disk image in
                D64
                 format
to  the  disk  inserted  in  the 1541 drive.  The disk have to be formatted
```

before. If no device is given, IECWriteD64 writes the disk image to the
drive unit 8. Writing a disk image, you erase all the previous contents of
the disk.

Examples:

    1> IECWriteD64 test.D64

Writes the
                D64
                  image "test.D64" to the disk inserted in drive unit 8

    1> IECWriteD64 test.D64 9

Writes the
                D64
                  image "test.D64" to the disk inserted in drive unit 9

1.22   D64? WHAT IS THIS?

WHAT ARE .d64 DISK IMAGES?

.d64 files are the sector-by-sector contents of a Commodore 1541 formatted
disk.
These files are commonly used by PeeCee C-64 emulators to store C-64 files,
and to xfer 1541 disks into a convenient method of storage for use by the
emulators. The Amiga C64 Emulator "Frodo" by Christian Bauer supports D64
images.

1.23   MY IRON-SOLDER IS HOT!

                THE CABLE

IMPORTANT

If you already own a "Frodo IEC Cable", you can use it! Just install the
special "libs/frodo/iec.library" version!

To build a cable to connect the Amiga to a Commodore 1541 is fairly simple.
It connects the parallel port of the Amiga with the round 6-pin connector
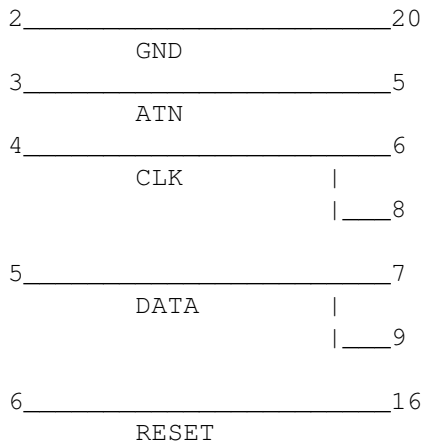on the drive 1541.

Simply connect the pins 2, 3, 4, 5 and 6 of the serial 1541 connector
to the pins 20, 5, 6, 7, and 16 of the parallel Amiga connector
respectively. Don't forget to connect the pin 8 to the pin 6 and the pin 9
to the pin 7, both on the Parallel Amiga connector side. That's all!
No electronic components are required!

If you are not skilled in building cables, you can
                  buy
                   it directly from
the author.

 Serial 1541   Parallel Amiga
male connector   male connector
  6-pin DIN   25-pin DSUB

     2_____20
              GND
     3_____5
              ATN
     4_____6
              CLK |
                           |___8

     5_____7
              DATA |
                           |___9

     6_____16
              RESET

Important note: If you plan to build and connect such a cable, please
remember that you do it on your own risk. I will not take any
responsibility if there is blue smoke coming out from the back of your
computer!

1.24   ARE YOU A PROGRAMMER? I'M A PROGRAMMER!

                 THE IEC.LIBRARY

Easy1541 is the first Amiga<->1541 interface including support for
developers.   A special iec.library allows you to write your own program to
manage the Commodore 1541 Drive. The iec.library provides the interface to
the 1541 for C, assembly, and other programming languages. It is an
Exec-style library that - like all shared libraries - must be jumped to
with A6 holding the pointer to the base address of the library.
You can find the description of all the public functions in the
"dev/iec.guide" file of your Easy1541 directory.
The iec.library follows the CBM Kernal calling convention. It reproduces
the same serial bus functions of the Kernal ROM you can find in the 8-bit
Commodore computers.

This make simple to apply old 8-bit Commodore procedures or routines to the
Amiga. Isn't this Easy1541?

All the provided utilities of the

```
                    Easy1541 Toolkit
                    use the iec.library, and
the C sources are available in the "dev/examples/" directory.
```

Please refer to the iec.library Autodocs for further information.

1.25   COMMODORE... THE NAME BECAME HISTORY!

1.1.1 (15-Oct-1996)
Another annoying maintenance upgrade... "IECWriteD64" 1.1 didn't work
properly. Fixed now.

1.1 (06-Oct-1996)
Fixed a little bug in the timer routine. Now Easy1541 works fine on 68000
based machines (A600, A500...) and doesn't generate "Enforcer Hits"
anymore.

Now, the CIA timer is released each time a call to CloseLibrary() occur.
This improve compatibility with other programs like "PlaySid".

Two tasks can't share iec.library anymore. This produced odd bugs.

Toolkit commands "IECReadD64", "IECWriteD64" and "IECDir" now handle Ctrl+C
break sequence better (they didn't closed the iec.library).

1.0.1 (17-Sep-1996)
This is only a maintenance upgrade. I forgot to put the IECLoad command in
the previous release and now it is finally available. I improved the docs
adding a 1541 Command list too.

1.0 (26-Aug-1996)
This is the first Easy1541 release...   I started this project in the early
1995, but I met with several difficulties sending data from the Amiga
Parallel port to the 1541. Finally, on June 1996, a full working version
of my Amiga->1541 code was on my Hard Disk, so I started to write the
library and to create the Easy1541 package.

Expect great things from the future...

1.26   WHO ARE YOU? - SAID THE CLERK OF THE COMMODORE HQ

```
                    THE AUTHOR
----------
```

Who am I?

My name is Fabrizio Farenga, and I'm a loyal Commodore user and programmer since years... I started using a little Commodore 16, and I proceeded in the yers buying a Commodore 64, a Commodore Amiga 500, and a Commodore Amiga 4000.

Currently I'm a Commodore computers collector, and I own several 8-bit models, pheriperals and other Commodore things. If you are interested visit my internet home page. If you have old Commodore things or documents about Commodore, and you want to trade or sell them, please contact me!

I'm Technical Editor of the Italian "Amiga Magazine", Amiga Editor of "K Magazine" and Director of Holodream Software (r), but mainly, I'm the Software Developer Manager of the Grapho Marketing & Communications company.

On the 1992 I written "Top Wrestling" (Amiga) for the Italian Software House "Genias", and in 1993 "F17 Challenge" (Amiga and CD32) for the British Team 17 Software.

I like very much code on old Commodore machines. I think this keep them alive... If nobody write new code for a computer it is dead! I just bought a Commodore Vic 20 Reference Programmers Guide and an 3K expansion cartridge. So I'll start to write code for the Commodore Vic 20 too.

Future plans include to write a turbo for Amiga<->1541 communications, and a full AmigaDOS device to use the 1541 as a standard Amiga diskdrive. I'd like to connect a Commodore Datassette(tm) to the Amiga too.

If you like to contact me, to exchange ideas, to report bugs, or just for fun, please use one of the following address:

email   - f.farenga@agora.stm.it

World Wide Web - http://www.agora.stm.it/F.Farenga

Snail Mail   - Fabrizio Farenga
                  Via C. De Fabritiis 55
                  00136 Roma
                  ITALY

Fax   - +39/6/6869648

If you want to buy a Easy1541 cable,
              click here
              _____

I would like to thank the following people:

Christian Bauer
   for the many hints and good suggestions

The Unknown Ready Soft Programmer

    for the cable and the old "A64 Transfer"

Francesco Simula
    for the moral support during the debugging sessions and for the proof
    reading of this document

The Commodore Engineers
    for the Commodore 8-bit technology

The following guys for bug reports and useful suggestions!
    Richard Smedley
    Enrico Vidale

1.27 SO, YOU ARE NOT A SKILLED TECHNICIAN?

HOW MUCH IS IT FOR A CABLE?

If you don't like to build a cable yourself, I can do it for you. You'll
have to pay only for the cable components and for the shipping.

The cable is not expensive, and as soon as I'll receive your money, I'll
send the cable back to you in few days.

The standard prices are the following:

- 10,000 Italian lires for Italy
- 10.00 US Dollars for Europe (except Italy)
- 15.00 US Dollars outside Europe

Please note:
I DON'T MAKE MONEY SELLING CABLES. THE COSTS ABOVE COVER STRICTLY THE
COMPONENTS AND THE SHIPPING.

HOW CAN I ORDER A CABLE?

The easier and cheaper method is to put the exact amount in an envelope
(e.g. a $10 banknote), together with your full address. Please state
clear what Amiga system you own and that you want a Easy1541 cable.

Note:
In some country is illegal to put money in an envelope and to mail it, so
you do this at your own risk. Put the banknote inside a folded paper, so
nobody knows what you're sending.

Send money to:

Fabrizio Farenga
Via C. De Fabritiis 55
00136 Roma

ITALY

If you want to use a different way of payment, please contact me:

Email: f.farenga@agora.stm.it

1.28 "

1.29 unnamed.1

1.30 unnamed.2

ITALY