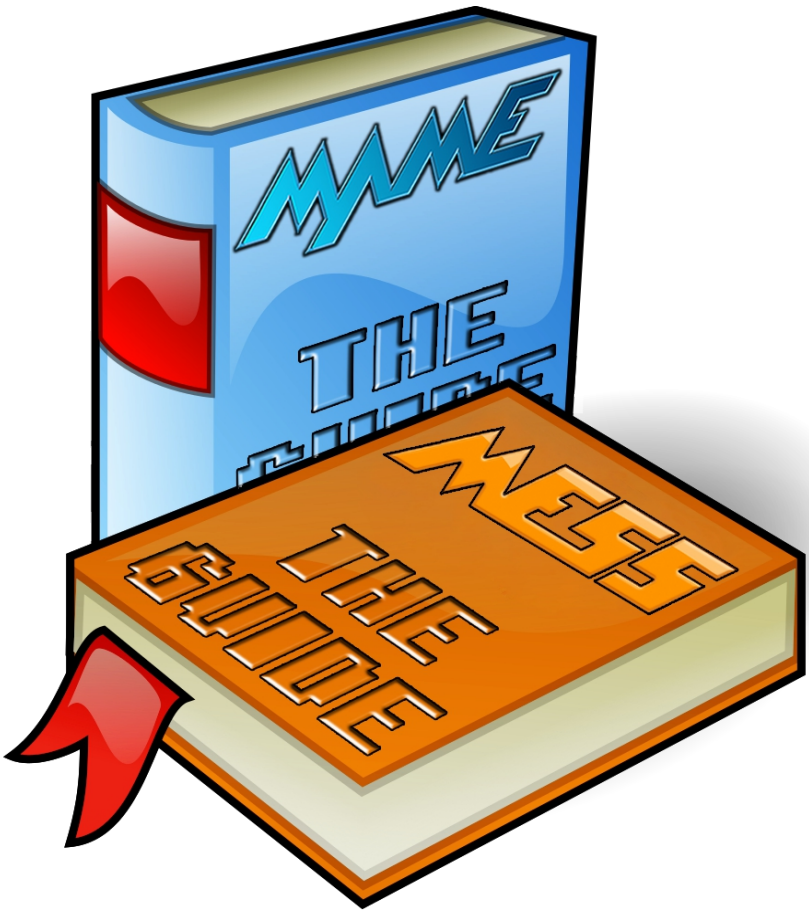
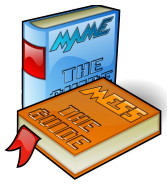


MAME/MESS - The Guide

by
Mucci

Logo created by JackC

© 2015 by Mucci



Contents

Introduction.....4

The man behind this book.....4
Thanks goes to.....5
Important Note.....5

Chapter 1: Environment.....6

Chapter 2: MAME.....8

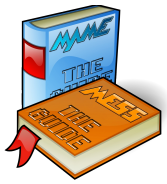
Installing MAME (Windows).....8
Using MAME.....20
Installing MAMEui (Windows).....34
Installing add-ons for MAMEui.....44
Using MAMEui.....56
Installing MAME (Linux).....61
Using MAME (Linux).....65

Chapter 3: MESS.....67

Installing MESS (Windows).....67
Using MESS (Windows).....79
Installing MESSui (Windows).....89
Using MESSui (Windows).....95

Chapter 4: ROMs.....105

What are ROMs and their status?.....105



Split vs merged vs non-merged ROMs.....107
What are CHD files?.....117
Download ROMs.....120
Download CHD from Retroroms.net.....121
About the versions number.....141

Chapter 5: Other Tools.....142

Installing a front-end.....142
Using a front-end.....150
Installing torrentzip.....153
Using torrentzip.....158
Installing torrent7zip.....161
Using torrent7zip.....164

Chapter 6: ROM-Tools.....166

Dat-file XML-Structure.....166
DFC- Dat-File-Creator by ARMAX.....170
Installing Dat-File-Creator DFC.....171
Using Dat-File-Creator DFC.....172
CLRMAME - Cool little ROM manipulation and management engine by Roman Scherzer.....187
Installing CLRMAME.....187
Using CLRMAMEPRO.....191

Chapter 7: Compiling MAME/MESS.....380

Compiling with full source code.....380
Updating source with TortoiseGIT (GUI).....399

Chapter 8: Appendix.....412

Used web-sites and more.....412
Document History.....414

Introduction

Why do I write this book? Are there not enough information available? Short answer: Yes there are! But have you found your desired information in time? Some weeks ago I was thinking about how this batch mode works in CLRMAME again. Did it use several time before but forgotten how it works. I had this information seen in a forum but where? This was the time when I was thinking about this guide and it would be helpful also for others. A guide that covers the main topics. Give an answer to many questions. I hope this guide will help some users to get into compiling, using CLRMAME for keeping up their sets and having fun as much I have.

As you may have notice English is not my mother language, excuse some wrong expressions/word that I'm using. I hope you will enjoy this guide as much as I have enjoyed it writing it :-)

The man behind this book

My first contact was at around 1999 with MAME. Never tough that I can play my loved Donkey Kong on a PC that I have spend so much time/coins some years ago on a real arcade machine. That was the time I started collecting everything for MAME. With no knowledge how does it work with ROMs I have completed my small set with run each game, see what was missing and tried to download somewhere those missing. It was a really adventure to go on with my set. Later I have burned my first “public” CD set for some friends (V0.59).

My knowledge was better with each version that followed. After some complete sets I have decided to help others as a “MAME burner”. This time frame was only short it was the time that available bandwidth has increased rapidly. My next step was offering my set on a private FTP. And with the help of torrentzip it was possible to share everything much quicker than downloading from my ftp. I have also done the MAMEtitles for some time (0.97-0.145) but after the loose of the domain MAMEtitles.com I have decided to step back from that project. I have still a FTP, co-assist at Retroroms.net and I am around a lot of time on IRC-channels as well.

Thanks goes to

I would like to thank everyone that I know. Especially MAMEdev team for the emulator. There are so many I should mentioned here, thank you all that made this guide possible.

Important Note

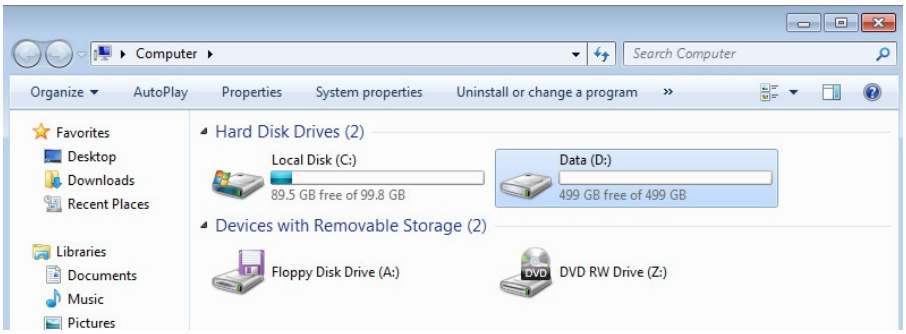
Do always a backup of your files. I have tested everything in my own environment but I can not give you 100% guarantee that nothing worse can happen!

Chapter 1: Environment

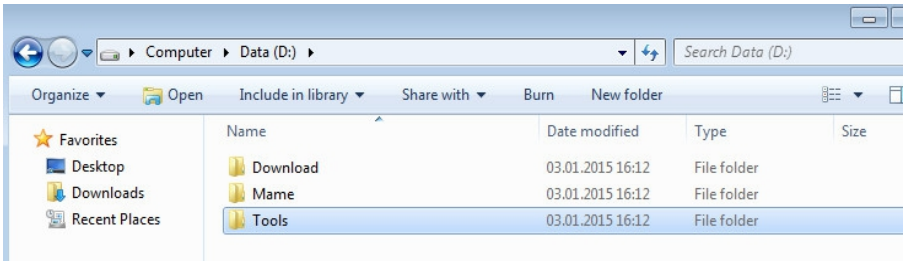
In this guide I'm using a Windows 7 environment in a VM (VMWARE). It is not the best solution for gaming but for taking pictures for this guide it is perfect. Sometimes I'm switching to my “real” environment because I have there more items for covering a topic.

My environment, Windows 7 64.bit

Installed two discs in my environment, one system drive and another for my emulator stuff. All emulator related stuff is on my D-drive.



I have created the following folder structure on the data disc.



This folder structure will grow in the future if you plan to have more emulators than MAME/MESS.

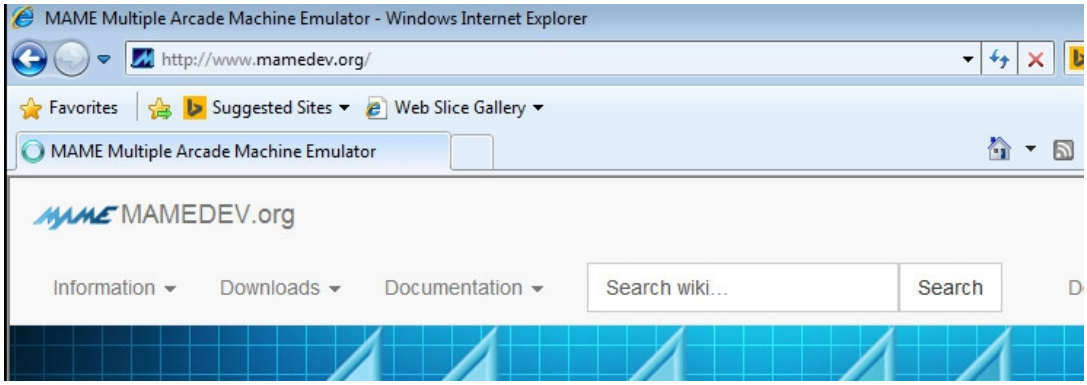
! Creating a folder structure helps you organizing your files.

Chapter 2: MAME

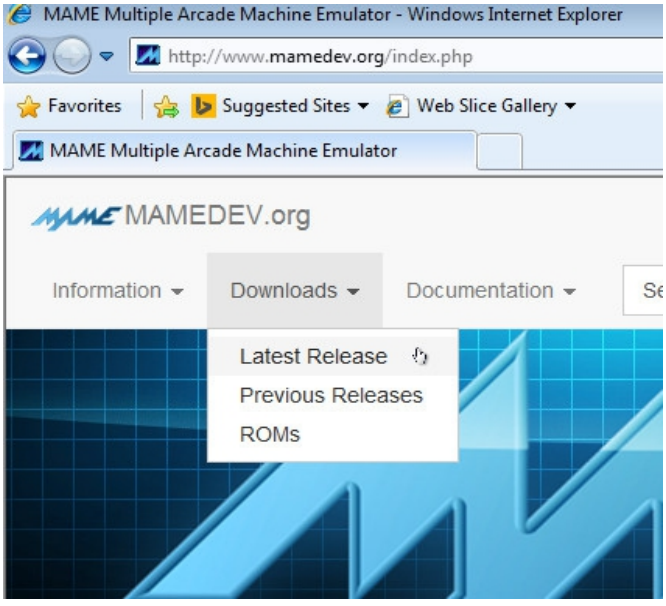
In this chapter we are looking into installing MAME (**M**ultiple **A**rcade **M**achine **E**mulator) and how to have fun with it. This chapter does only covers the default official emulator.

Installing MAME (Windows)

We start a web browser and visit the MAMEdev website:



Under download we choose “latest release”

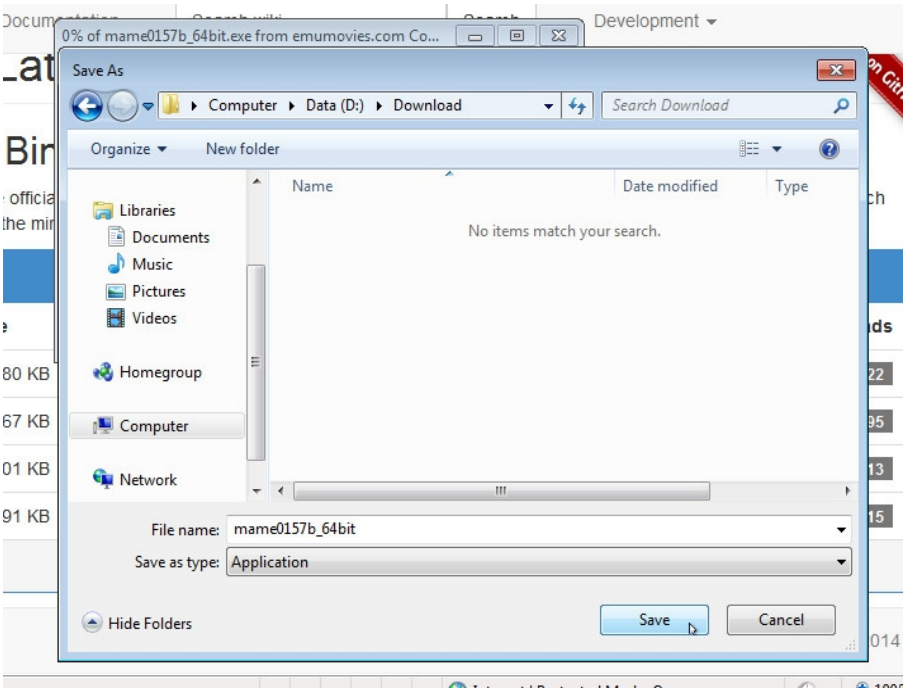


As we have a 64-bit version (Windows) we choose this file for downloading

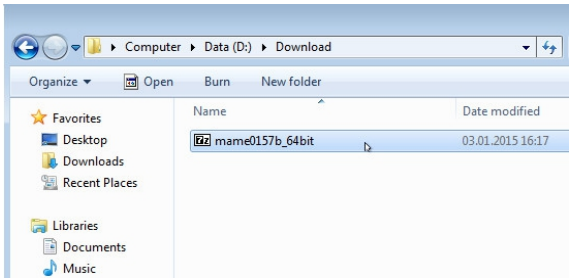
MAME 0.157 Official Binaries

File	Size	Description
mame0157b.exe	18680 KB	MAME 0.157 Windows command-line binaries.
mame0157b_i686.exe	19167 KB	MAME 0.157 Windows command-line binaries (I686 optimized).
mame0157b_64bit.exe	20101 KB	MAME 0.157 64-bit Windows command-line binaries.
mame0157b_debug.exe	20391 KB	MAME 0.157 Windows command-line binaries (debug build).

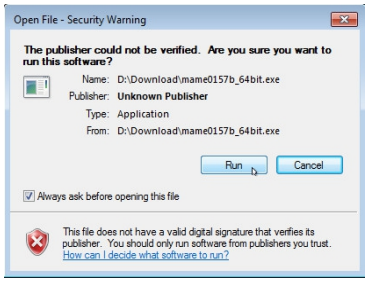
In the future we download everything in the same folder. I have created a folder “download” on my data drive and we save the file there.



After the download has finished we have an executable file there.

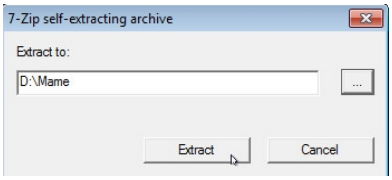


We start the installation with double-clicking it



It is not really an installing program. It is only a self extracting executable.

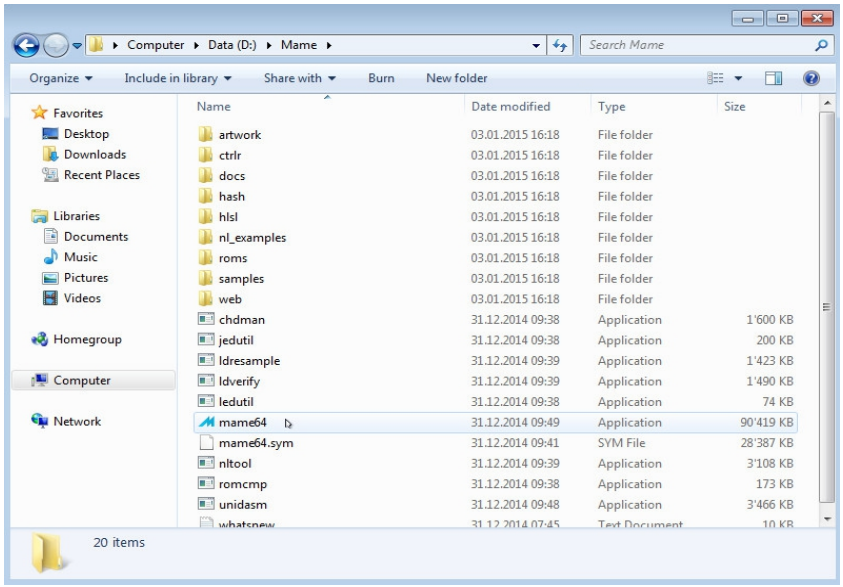
We want to extract it to the folder “mame” on the data drive.



After the extracting we have a lot of files and folders in the “d:\mame”

The emulator itself is called “mame64.exe”.

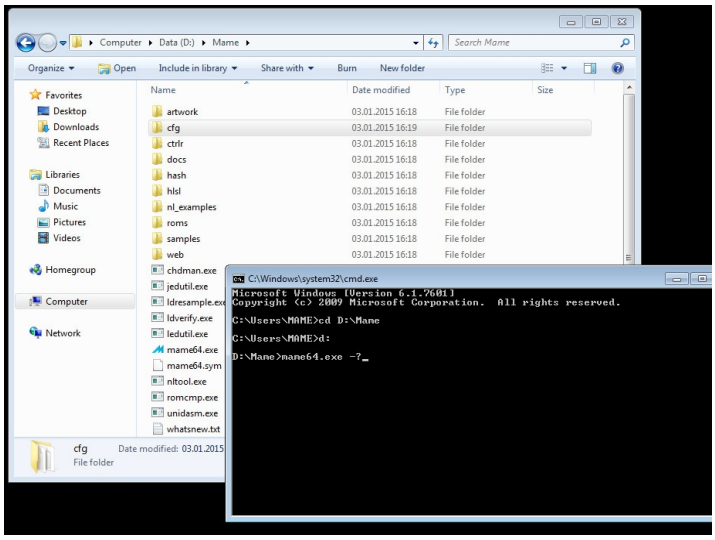
! Remember we have installed now the 64-bit version.



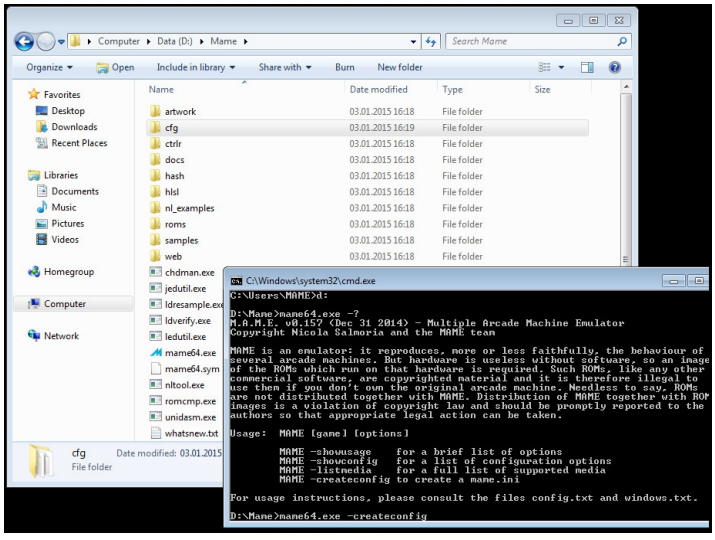
We start it and ….

..yes sure we have nothing else installed. The emulator has no games included.

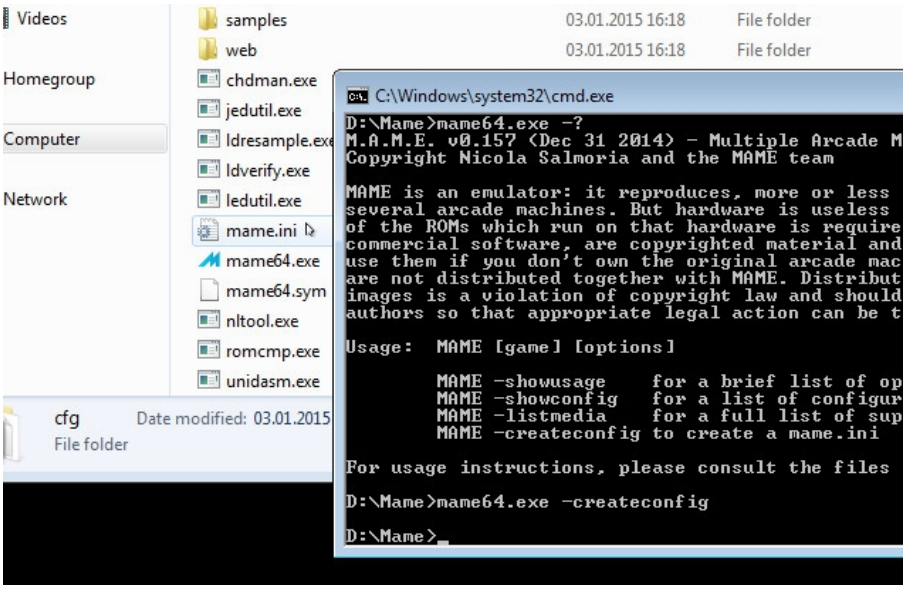
As this emulator is a command-line tool we open a cmd-window and execute “mame64.exe -?”



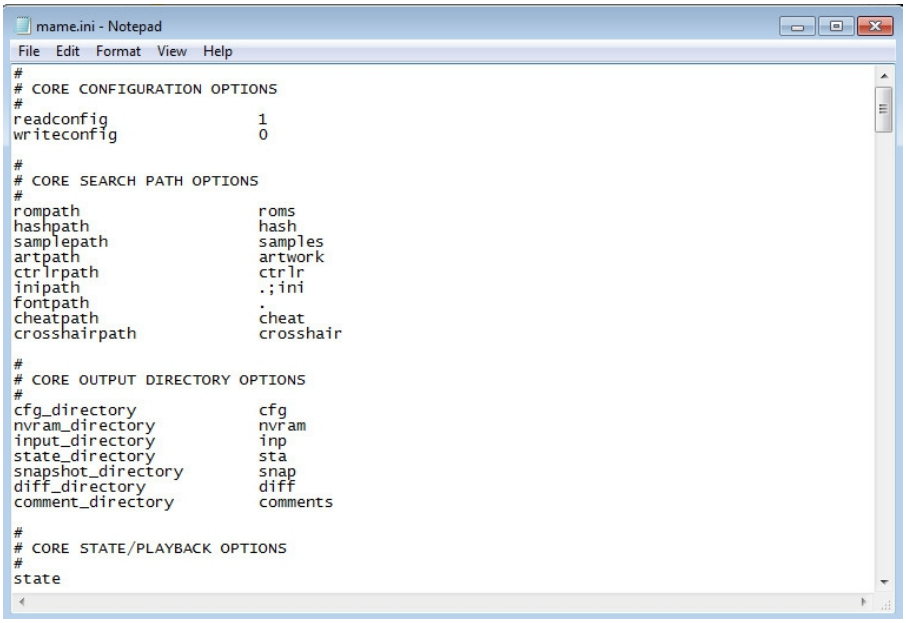
It shows use the version and some additional usage information



This emulator uses a ini-file to set some settings. At the beginning we must create this file “mame.ini” with the command “mame64.exe -createconfig”

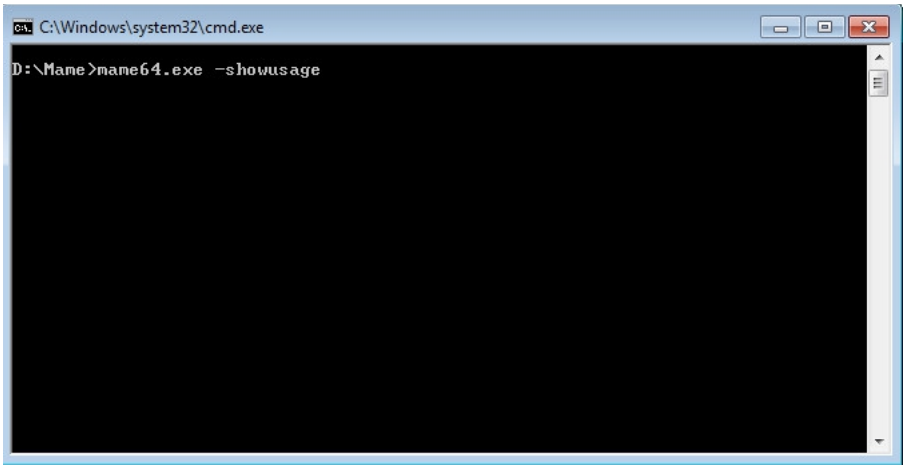


We open this file with notepad

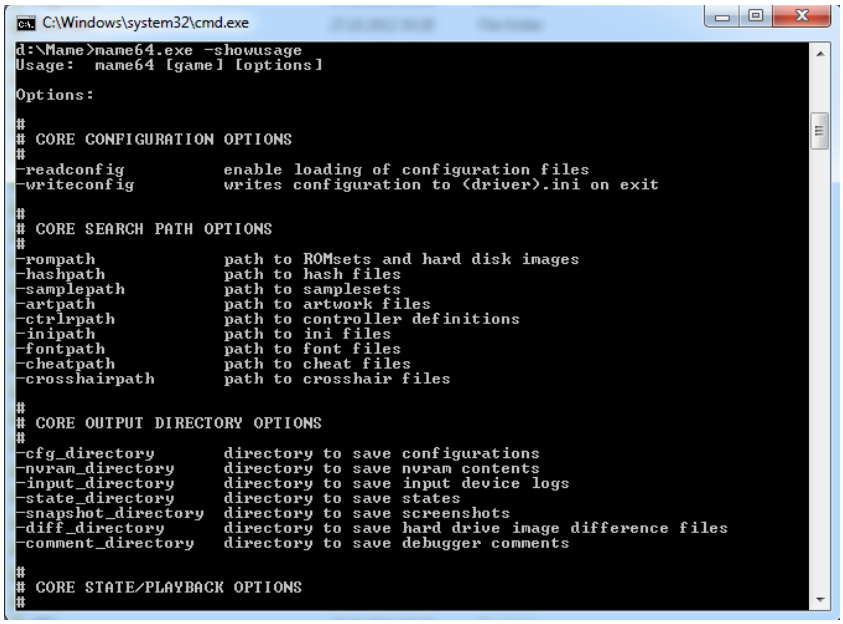


At the moment we do not change it, leave it as it is. There you could set some settings you want for each “run” of the emulator.

With the command “mame64.exe -showusage” …

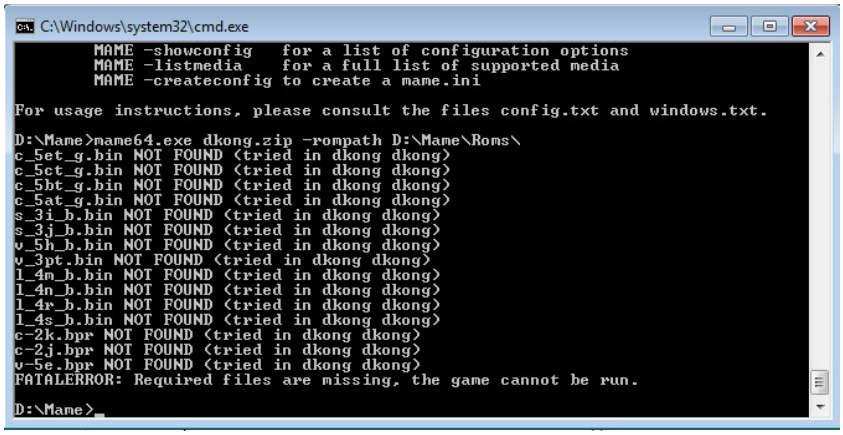


… we get the information how we can use this emulator with all the options that are available.



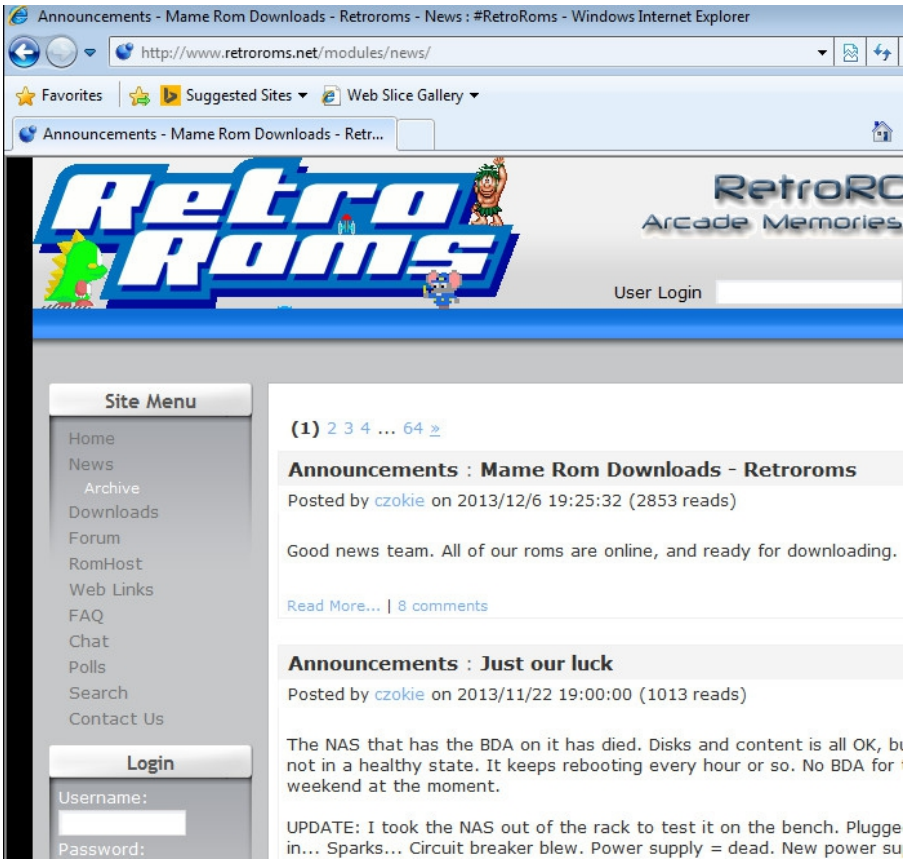
As a test we want to start the emulator with my favourite game “Donkey Kong”

We have not installed/downloaded this game and that's why we get an error complaining about missing files.

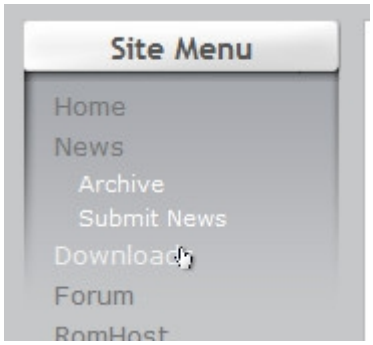


We want now test MAME if it does work or not with a game ;-)

Go to the Retroroms.net website, register there an account (free) and login with the new created account.



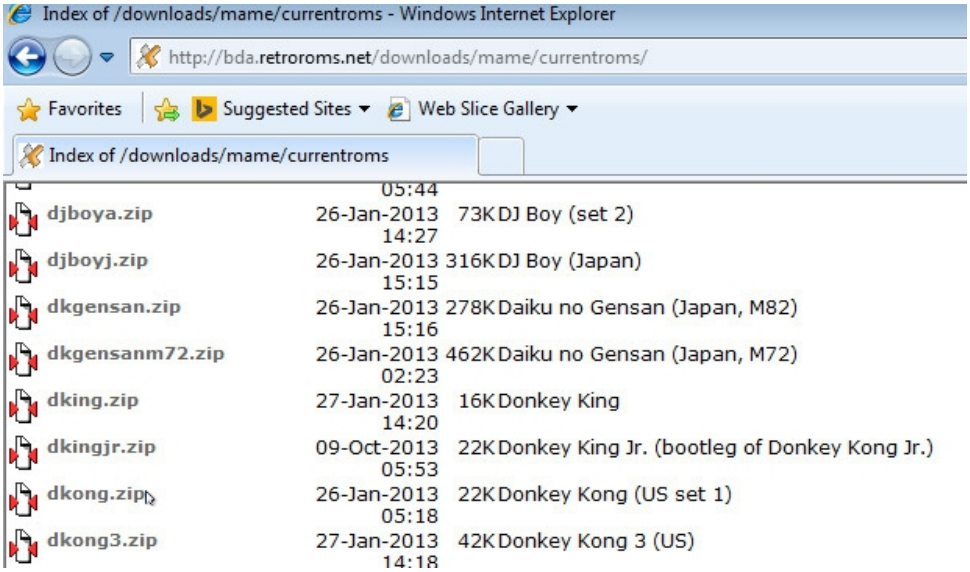
On the left panel choose “Downloads”



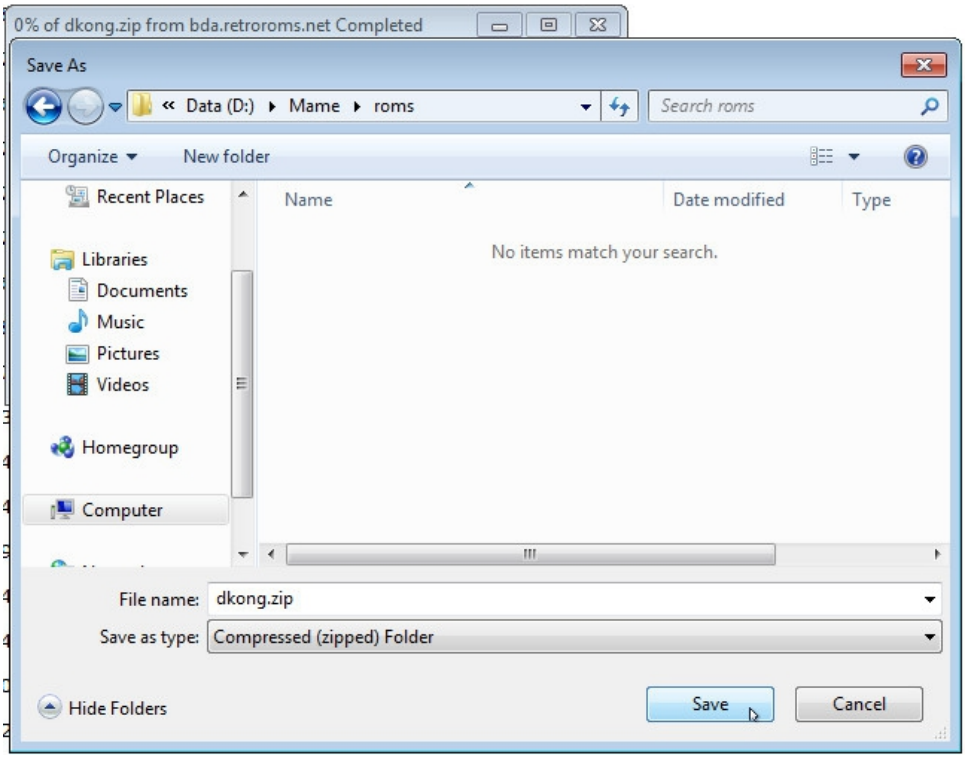
For downloading you need a registered account, fill in your details.

Go to the folder mame\currentroms ...

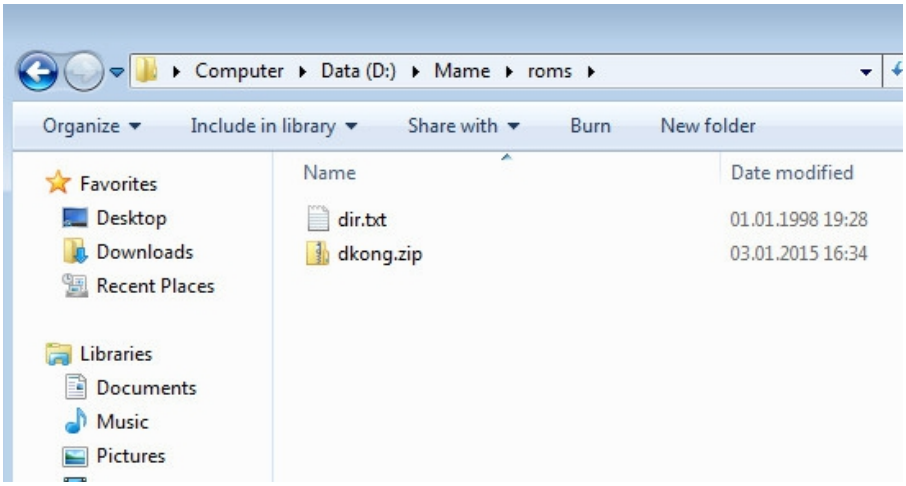
search for the file “dkong.zip”



and download it directly in your mame\roms folder.

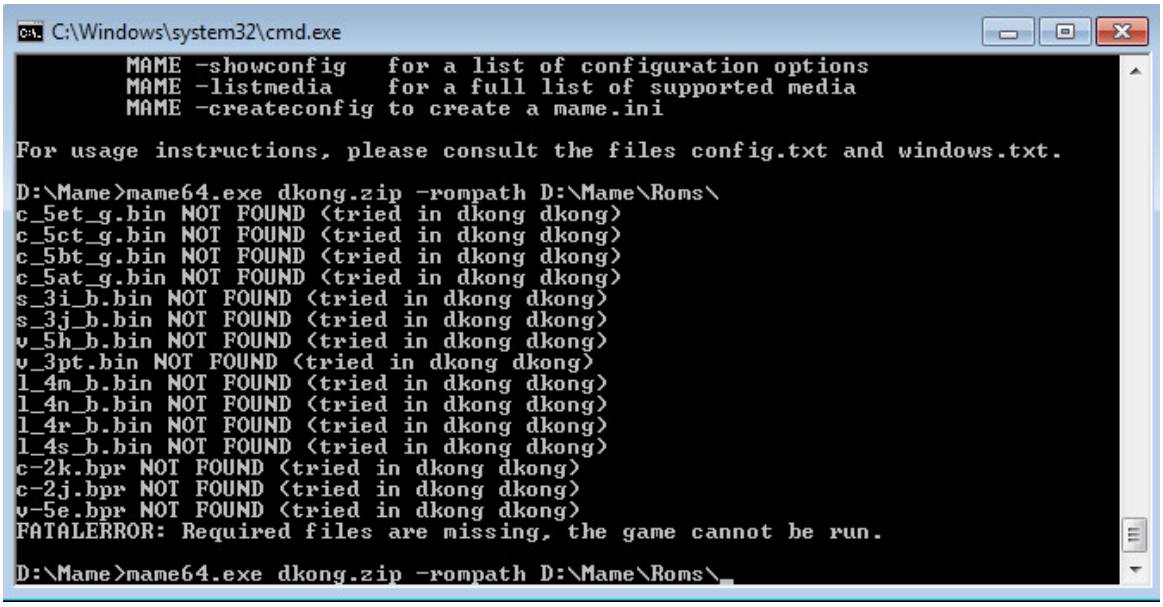


After the download the folder should looks like that

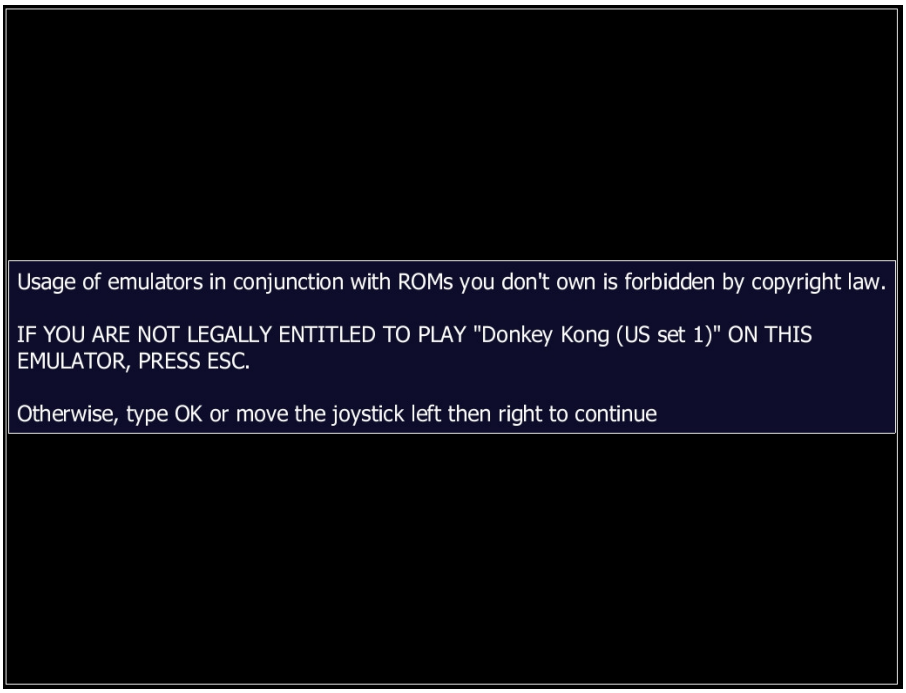


! Do not extract this file. A lot of emulator does support zip-Files

We start the same command again in the cmd-window

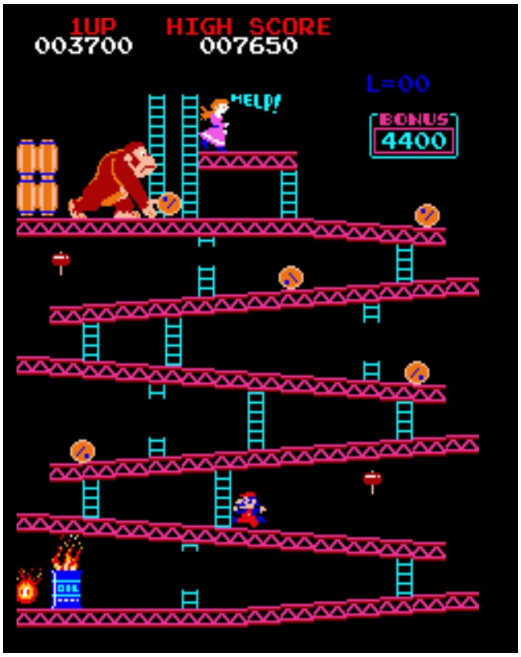


Ahhhhh no error this time. It displays us now a copyright message. Confirm this by typing “o” and “k” on the keyboard (yes sure we have the original arcade at home).

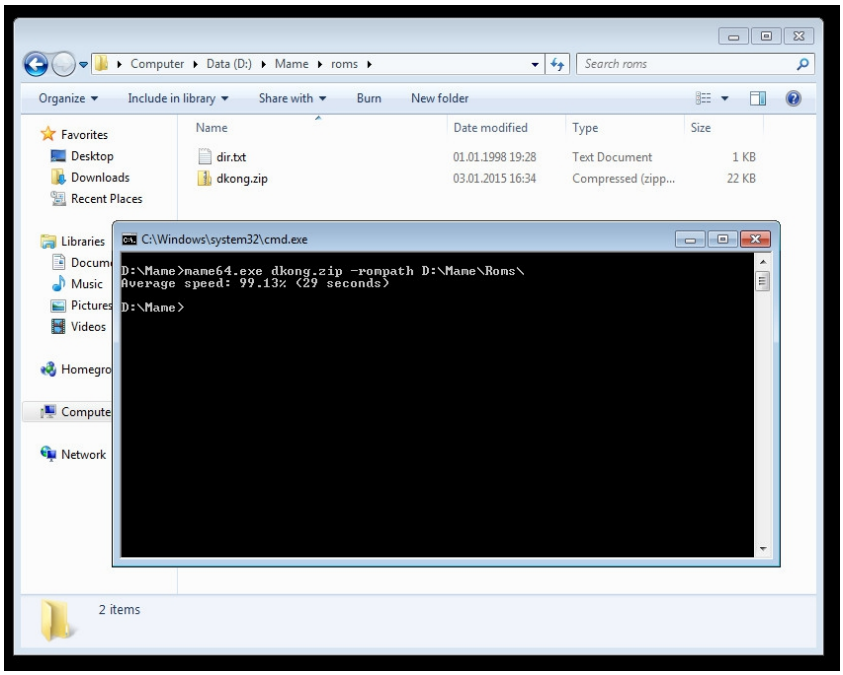


Now it displays us some information about the hardware of this original arcade cab

Press a key and now the game starts :-)



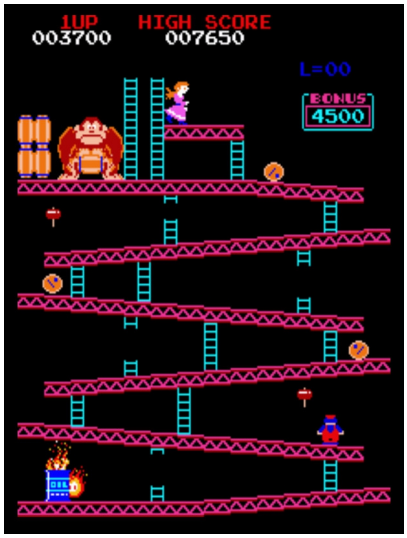
We can play now but for now we quit the game by pressing the “ESC” key



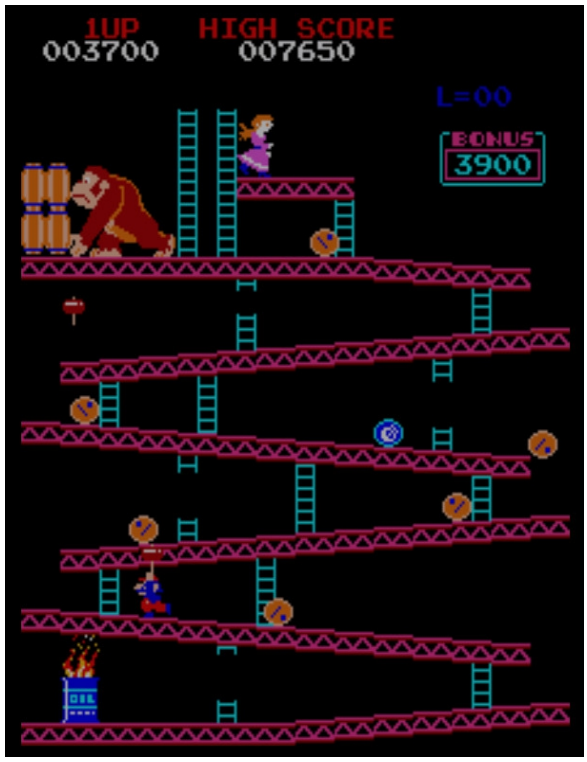
We are now ready to use that emulator with its default settings

Using MAME

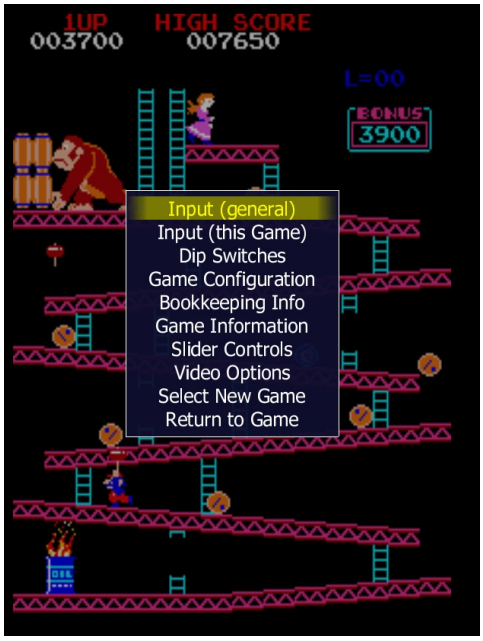
Let's start my favourite game again with MAME.



Everything you want to do in the configuration → pause the game with “p”

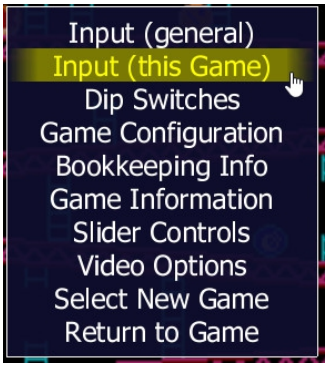


We can now go to eat something or we press the “tab” key. It will opens a menu.

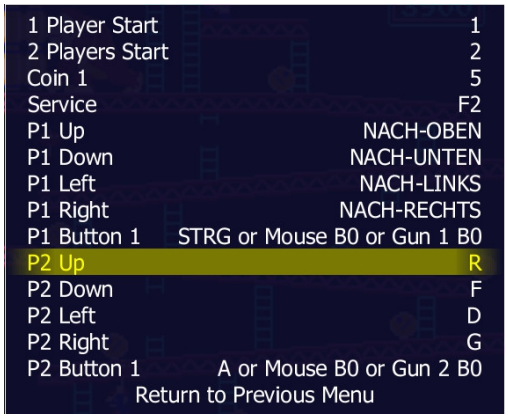


Within this menu you use the “up” and “down” cursor for choosing and for changing the highlighted entry press “enter”.

Let's choose “Input (This Game)” and press “enter”



This are all available settings for this game (Donkey Kong). Here you can see which keys are used for moving Mario or let him jump. Can you remember what the first action is when you want to play it on an arcade cab? Yes right you have to insert a coin → Key “5” does simulate that. And for choosing a one player game you have to press “1”.

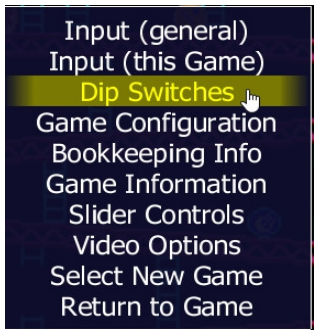


If you want to change something → Highlight it and press “enter”. Now press the key that you want to have, that's it.

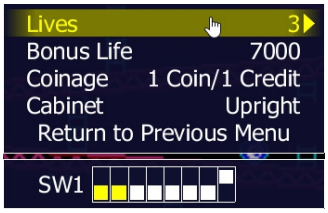
You can go back in the menu with the last entry or press “ESC”.

! Be aware that when you press to much “ESC” you will also quit the game.

Let's have a look at another entry. Choose “Dip Switches”

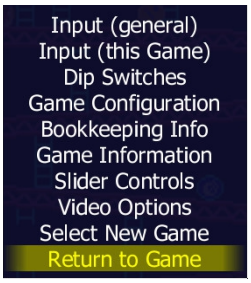


Each game has different settings and as a real arcade game some of the settings are enabled with a Dip switch on the motherboard. This entry does simulate that. For Donkey Kong we can set for example how many lives you have at the start.

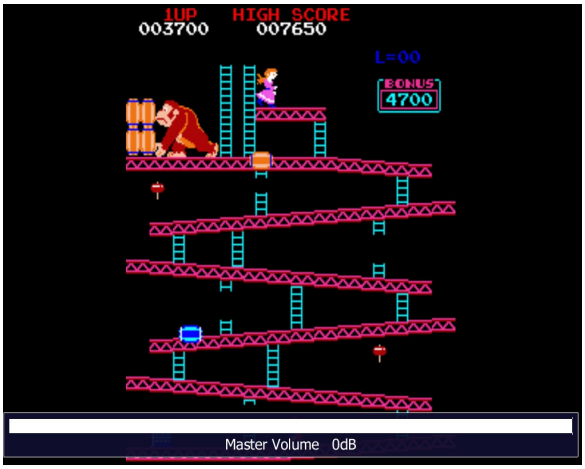


There are other items you can change for example Video options. Look around and see what is available. Normally you don't have to change it.

Let's go back to the game. Choose “Return to game “ or press “ESC”.

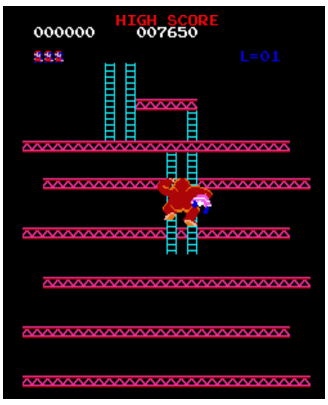


With the key “§” you can set the volume (use the cursor keys). Press again “§” or use “ESC” for leaving this option.

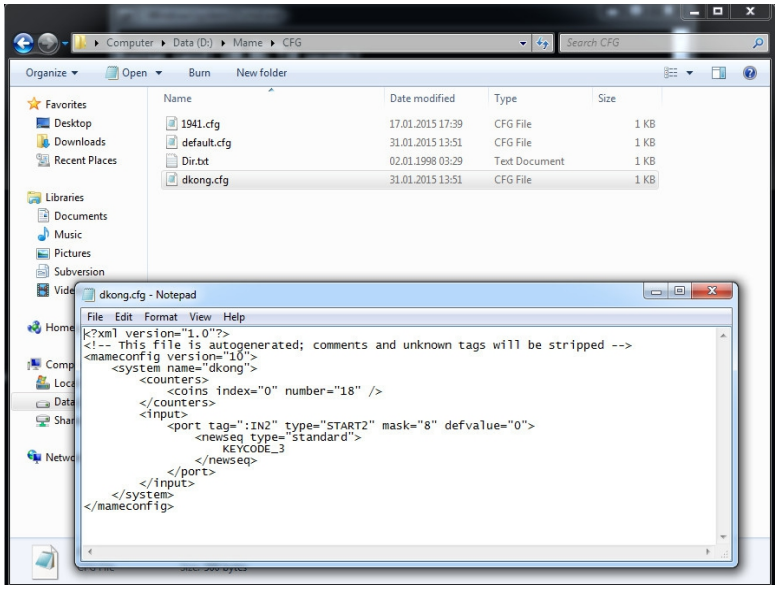


As we have seen in the menu insert coin is simulated with the key “5”. Lets try it several time ...and yes you have now 15 credits ;-)

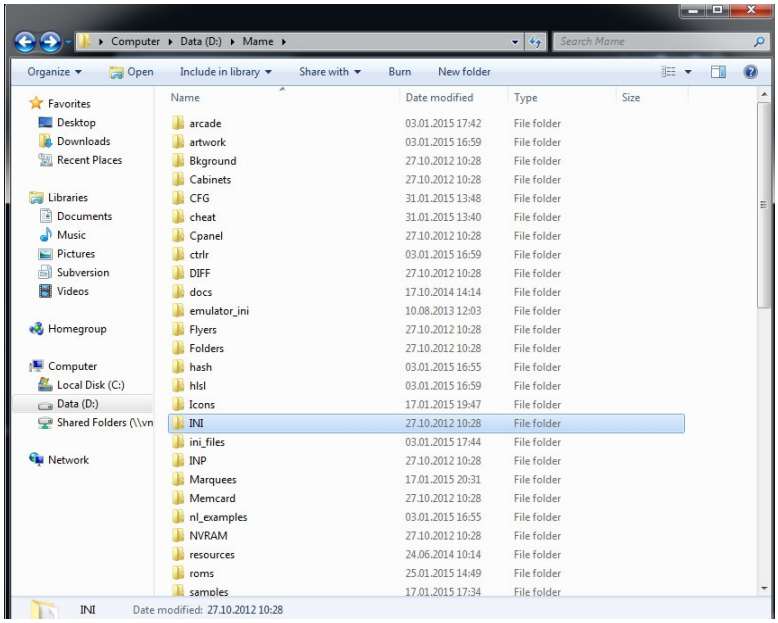
What's the next key you must use? Yeah right the key “1” is for a single player. After pressing “1” the game will start and you can move Mario around ….forgotten the keys you must use? Pause the game with “p” and hit the “Tab” key for entering the menu and look in “Input (this game)” what is defined.



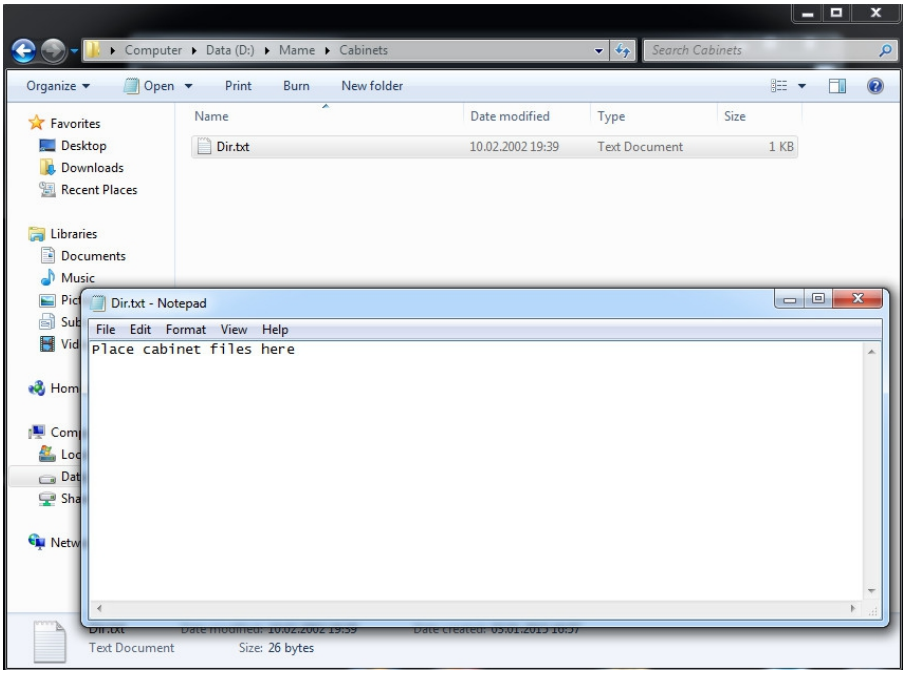
Yeah after you have lost all your lives quit the game with “ESC”. The settings we have changed in the menu is saved to a cfg-file in a folder called Mame\cfg. There is now a cfg-file for the game “dkong”. It contains the setting we have changed. If you have changed a lot and can't remember all the default settings → delete this cfg-file and you're fine.



By the way the MAME folder structure is like that:



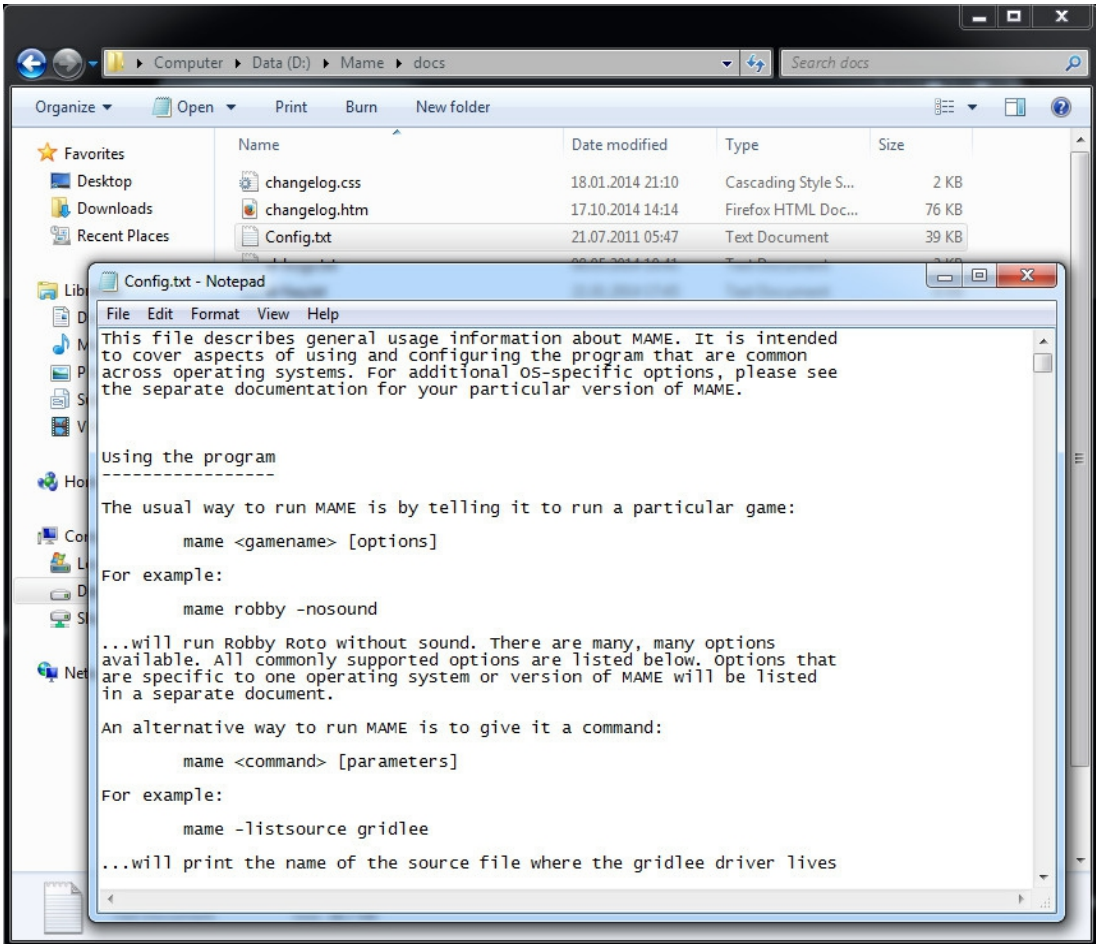
In each folder is a txt-file that describes the use of that folder. In the Cabinet folder for example you can store picture for cabinets. A lot of this folders are used within the MAMEui program for displaying the additional stuff (see next chapter).



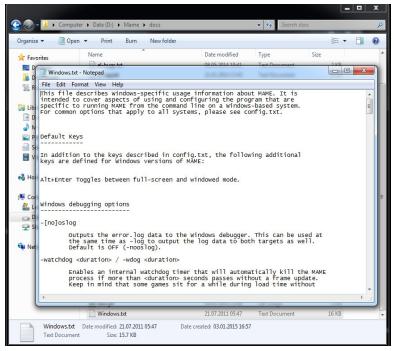
Two files are included in MAME as a help. They are stored in the mame\docs folder and are named config.txt and windows.txt.

In the config.txt is described how you can use the command-line version of MAME. There are a lot of option that can be used to start a game. Please check this file yourself for more information I don't want to describe everything here again.

What is important to look at are the additional keys you can use within a game. For example “reset a game (F3)” or “take a snapshot (F12)”.


Computer ▸ Data (D:) ▸ Mame ▸ docs
Search docs
Organize
Open
Print
Burn
New folder
Favorites
Desktop
Downloads
Recent Places
Name
Date modified
Type
Size
changelog.css
18.01.2014 21:10
Cascading Style S...
2 KB
changelog.htm
17.10.2014 14:14
Firefox HTML Doc...
76 KB
Config.txt
21.07.2011 05:47
Text Document
39 KB
Config.txt - Notepad
File Edit Format View Help
This file describes general usage information about MAME. It is intended
to cover aspects of using and configuring the program that are common
across operating systems. For additional OS-specific options, please see
the separate documentation for your particular version of MAME.
Using the program
The usual way to run MAME is by telling it to run a particular game:
mame <gamename> [options]
For example:
mame robby -nosound
...will run Robby Roto without sound. There are many, many options
available. All commonly supported options are listed below. Options that
are specific to one operating system or version of MAME will be listed
in a separate document.
An alternative way to run MAME is to give it a command:
mame <command> [parameters]
For example:
mame -listsource gridlee
...will print the name of the source file where the gridlee driver lives

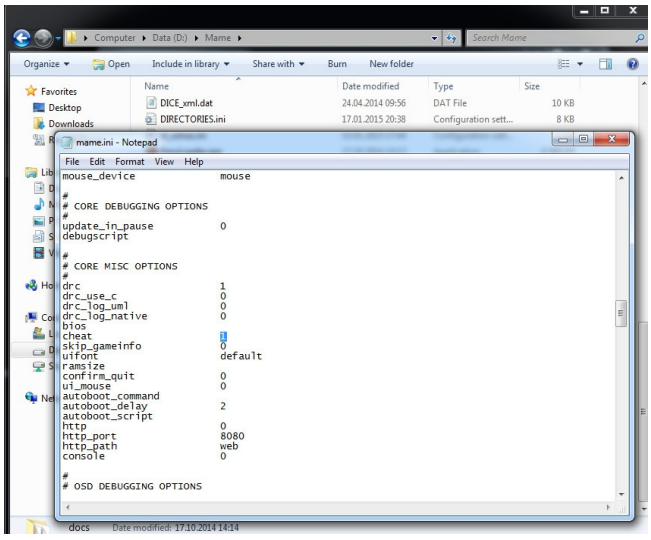
The other file is called “Windows.txt” and it contains additional information/possibilities for windows based computers.



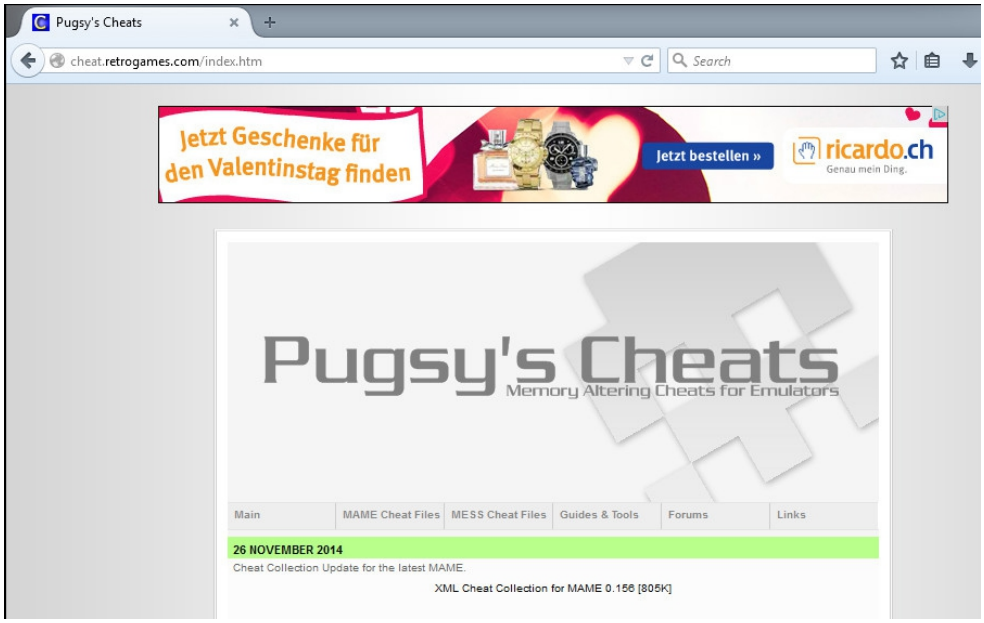
Have you read everything? For sure not everything in details. There are so many options available and a lot of them you will never use. Don't worry about that but it is good to know where to look at when you need information.

Let's show you now how you can enable the cheat mode within MAME. Sometimes maybe you want to play a round to the end without being all the time dead ….

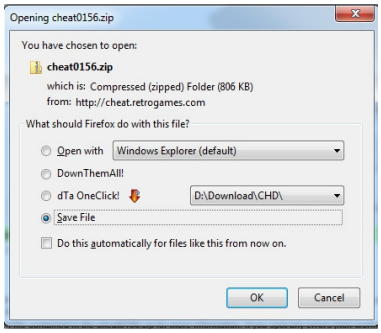
Open the mame.ini file with notepad. Search for the option “Cheat” and change that value to “1”



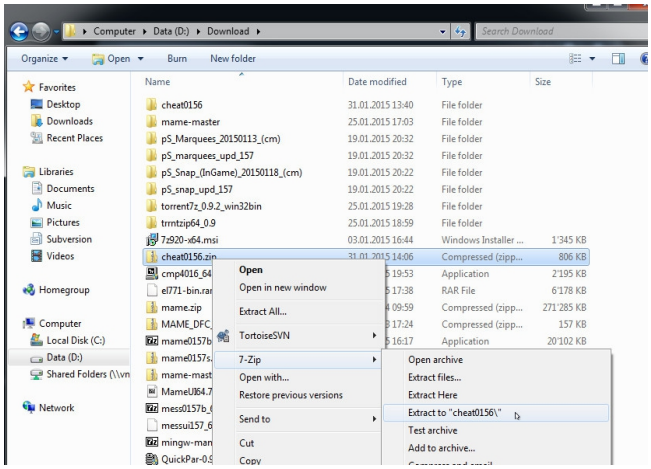
Open a web-browser and navigate to “Pugsy's Cheats”



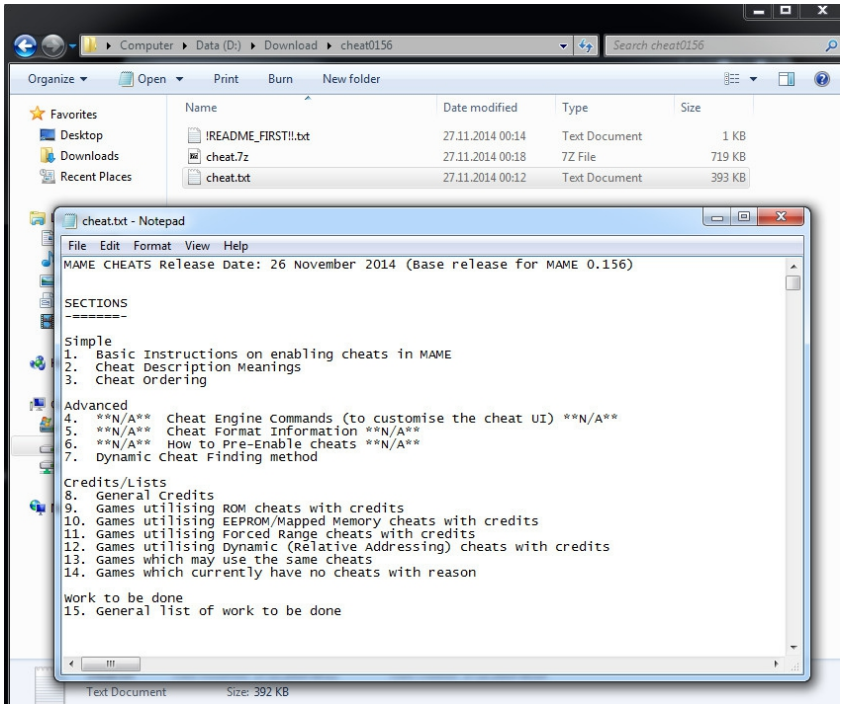
Download the cheat-file for MAME



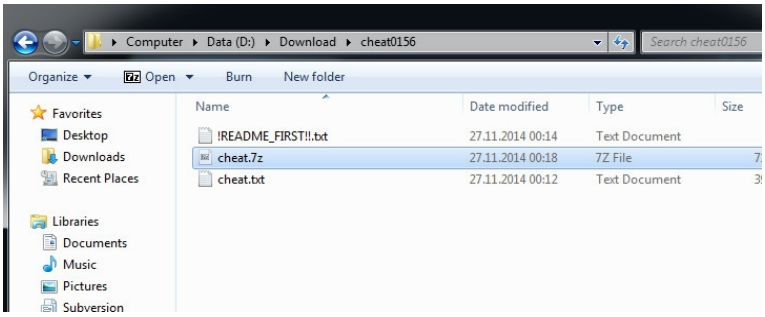
Extract the downloaded file to a separate folder



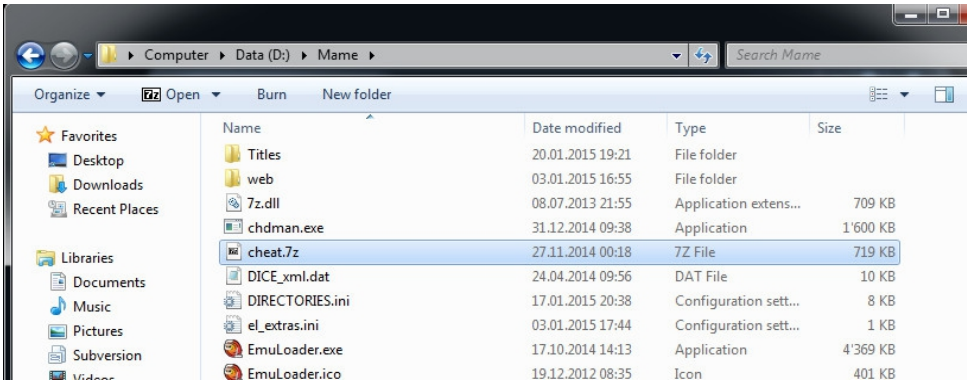
In this folder is a txt-file that describes everything.



Copy that cheat.7z file ….

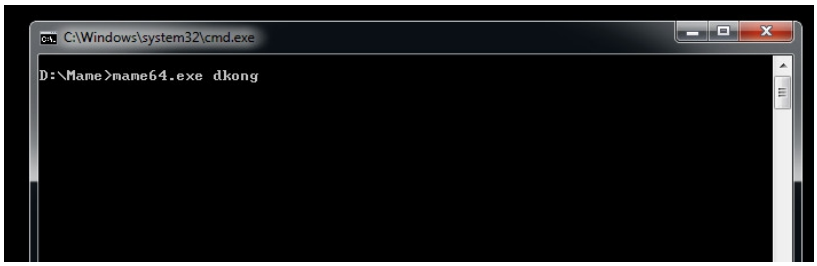


...to the MAME folder.

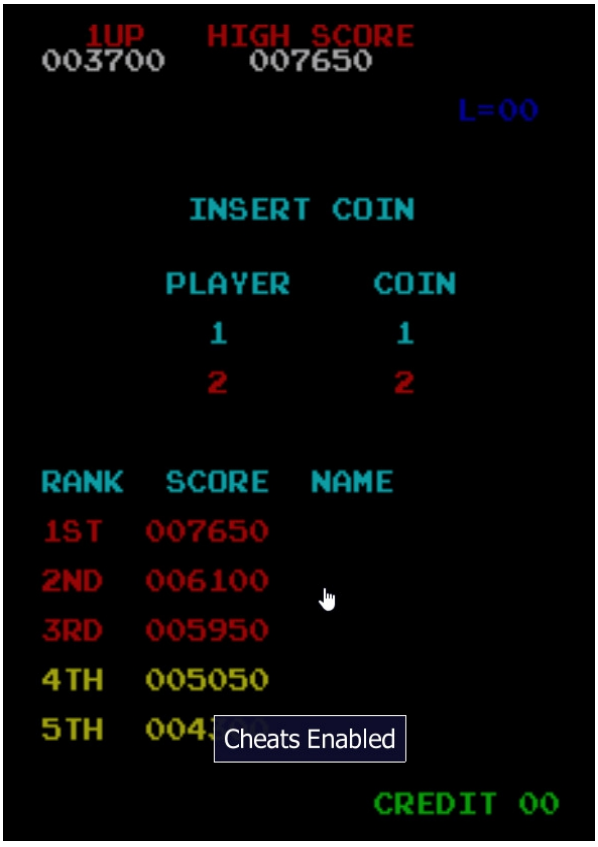


Why not in the “cheat” folder there is one? You could do it but you have to extract that cheat.7z first to this folder and there are a lot of cheat-files inside that file. It is better to have that file in a zipped format. It is also easier to replaced that with a newer version.

We are now ready for cheating. The cheat-option is enabled in our mame.ini and we have a cheat.7z as our database. Let's start again the game.

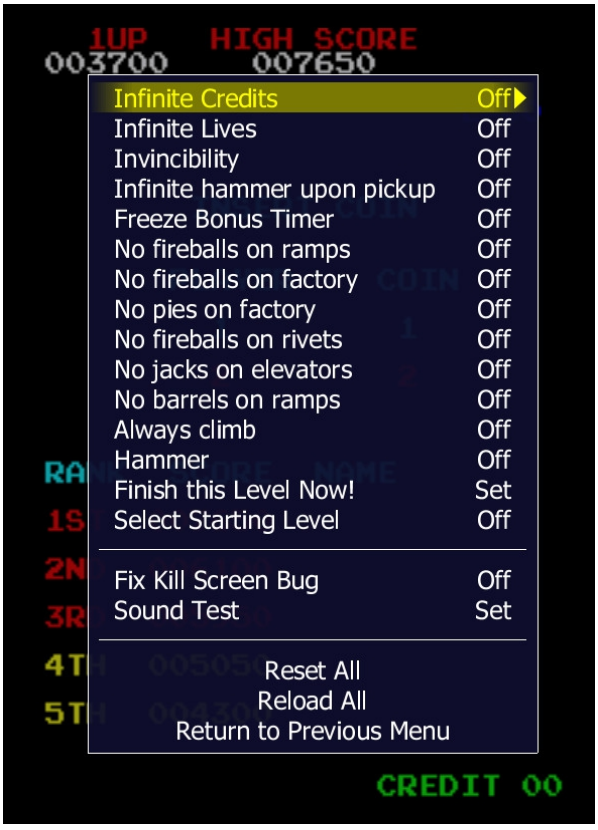


We can press “F6” for enabling or disabling the cheat-mode.

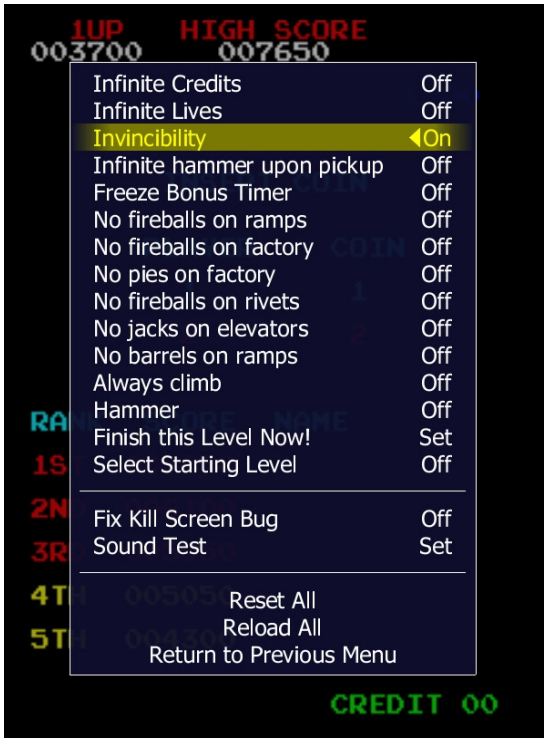


What you can cheat is inside the menu “cheat” available.

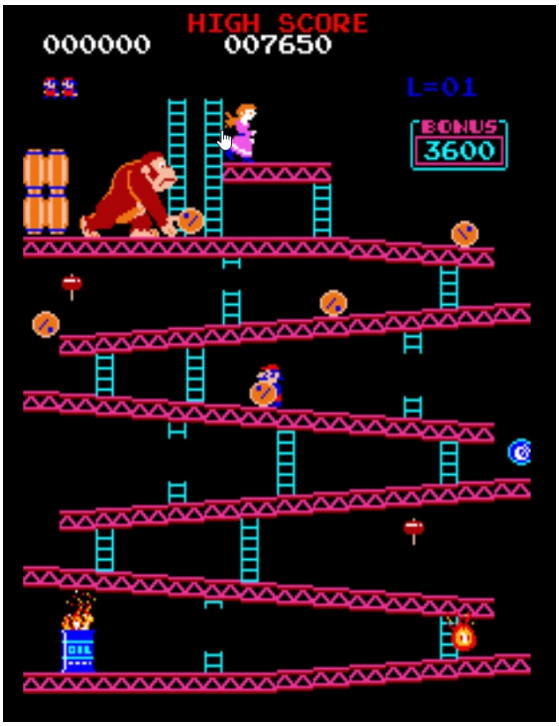
For Donkey Kong are a lot of possibilities available.



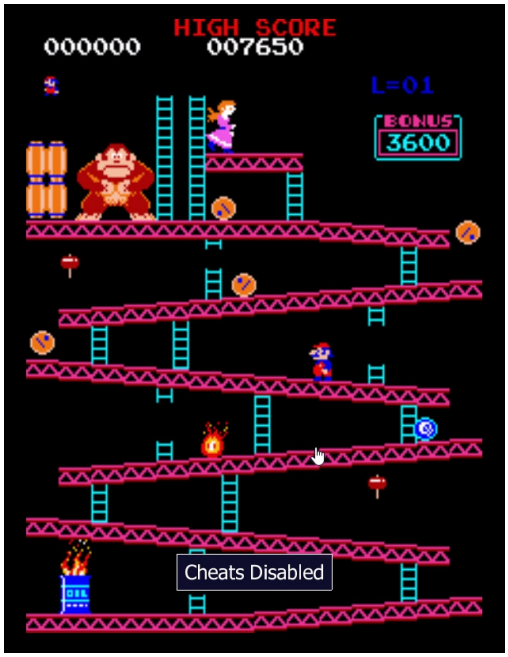
We enable for “testing” the entry “Invincibility”



Let's close that menu with “ESC” and start the game. And you will notice that Mario can go up the level without a jump.



With pressing “F6” again you can disable the “cheat-mode”.



There are for a lot of games cheats available but not for ever game. Visit the Pugsy web page and update your database (cheat.7z) with each MAME version.

I think that you have now enough information how you can play games with MAME. Keep in mind that you also in MAMEui or with a frontend must know how MAME operates. You must know how you can set your keys or what is available. Each game has settings or Dip options that maybe are not available in another game.

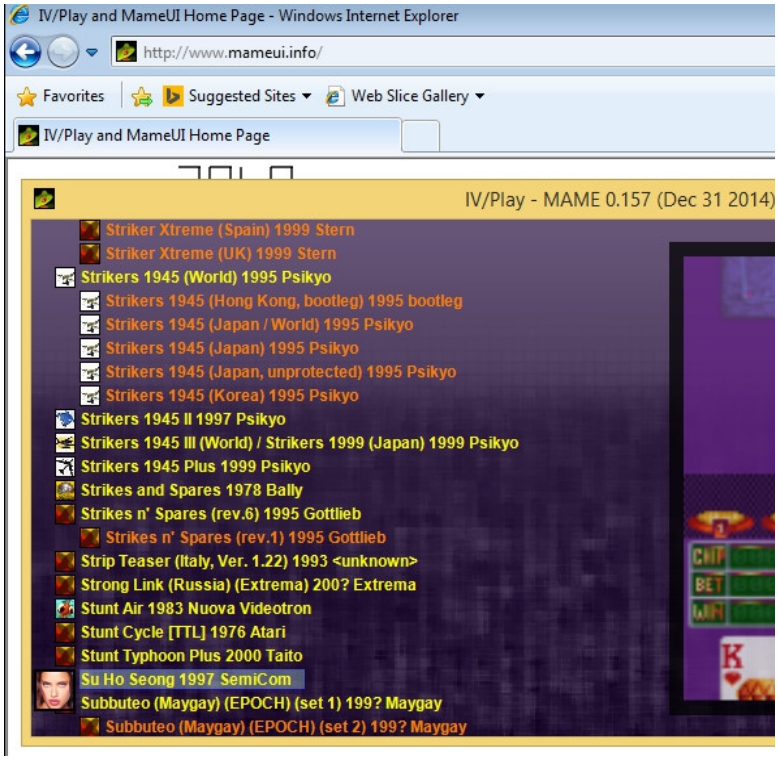
Visit http://wiki.mamedev.org/index.php?title=Frequently_Asked_Questions for more information and tips.

The command-line version is more used by advanced users or in combination with a front-end. Beginners should start with the MAMEui version, it is easier to handle ;-)

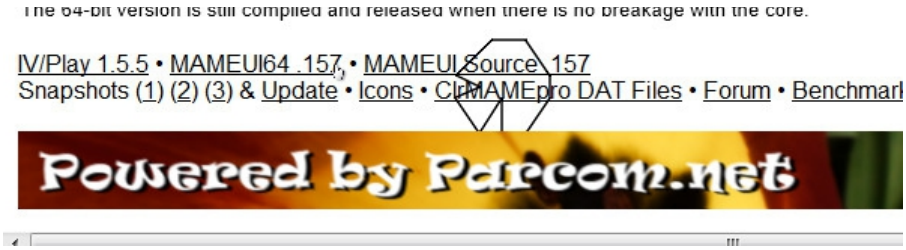
Installing MAMEui (Windows)

We have now installed our first emulator and can use it. But for a lot of people this command line program is not the first choice in usability. There are some MAME-Emulators around that has a graphical user interface (UI) but we use here the official windows MAMEui.

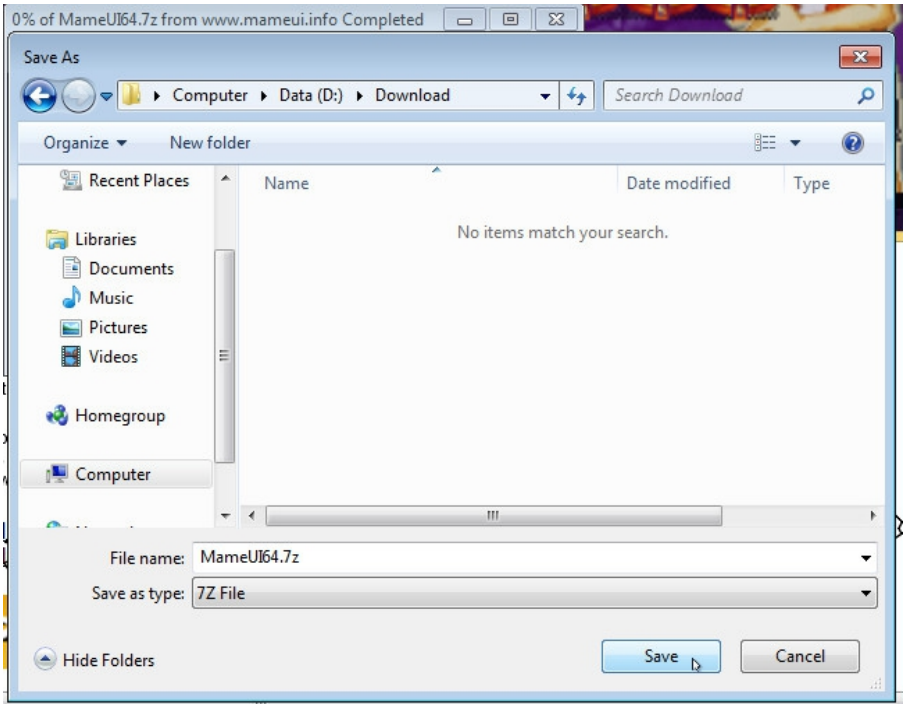
Open the following web-page on the web-browser



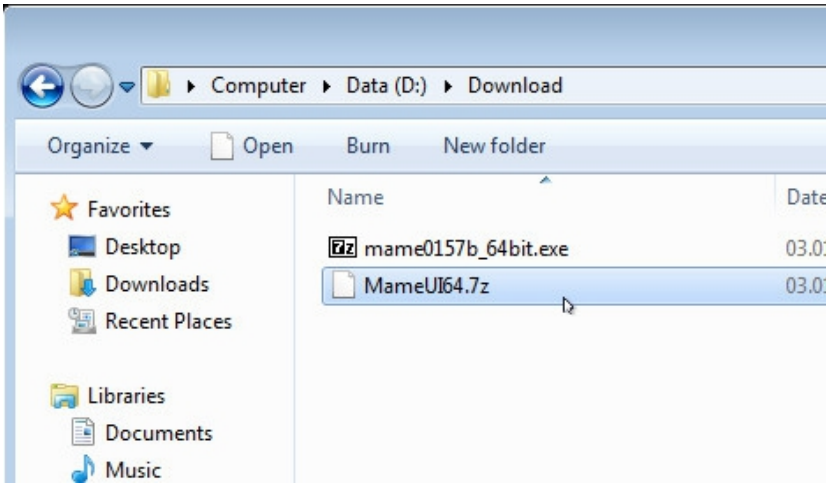
Scroll to the bottom and download the “MAMEui64”



Save it to our download folder

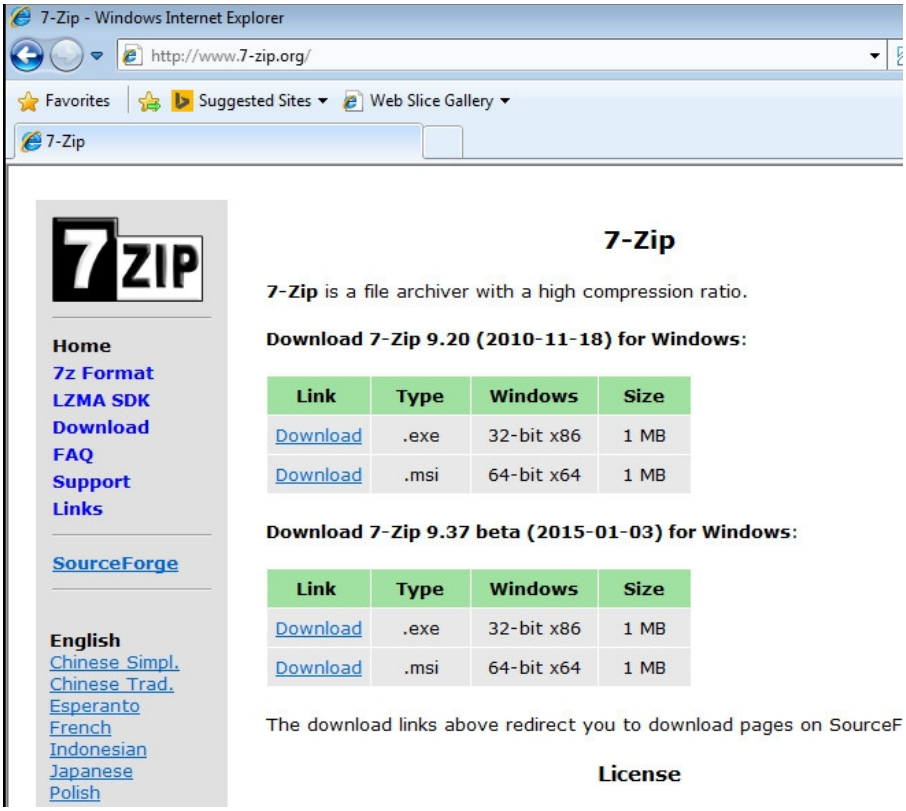


After downloading change to the download folder

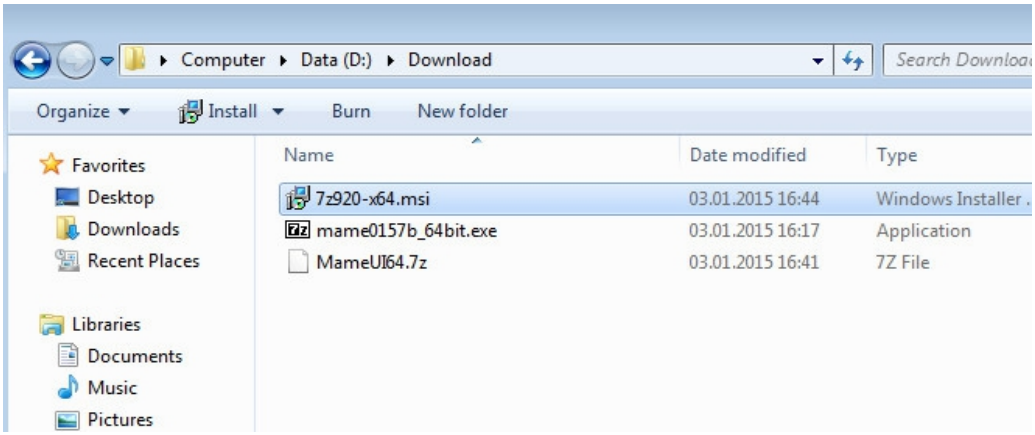


The file is packed with 7-zip. We must first install 7zip on this machine to handle that file-type.

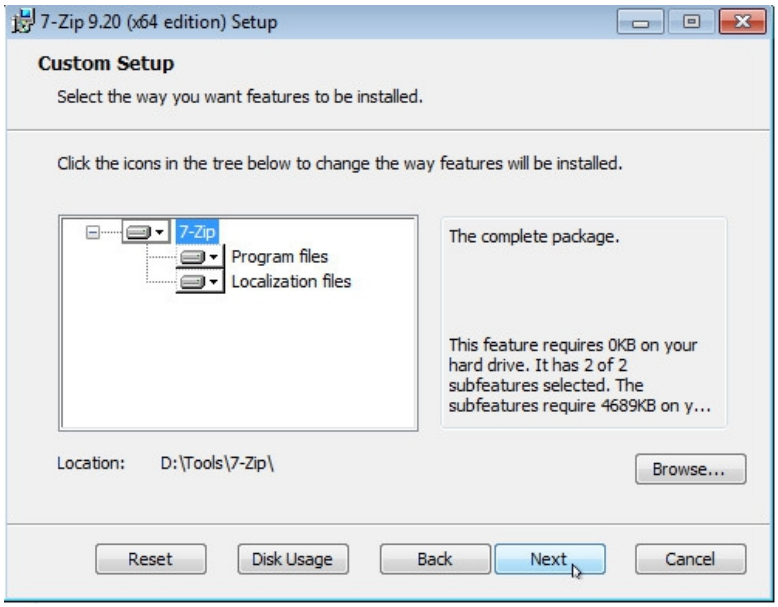
Download it from here (64-bit version)



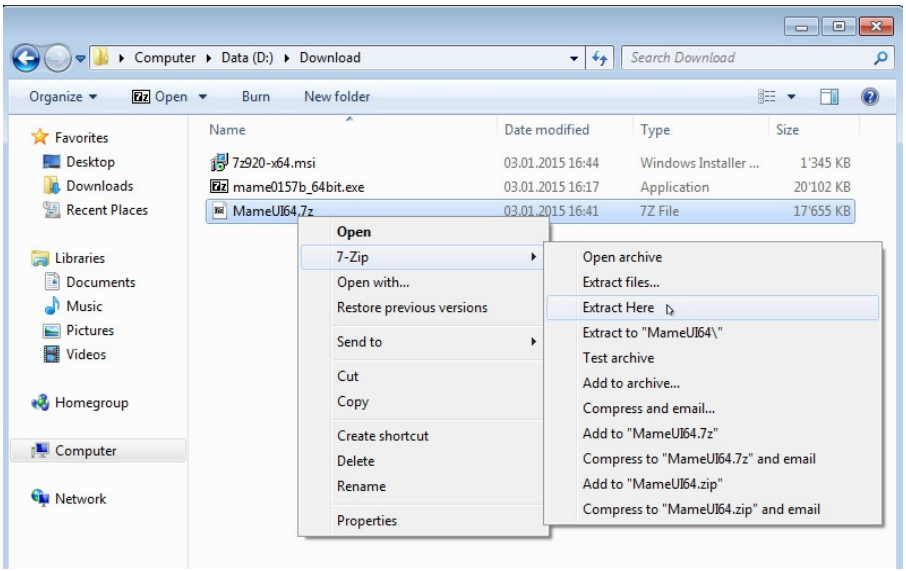
After downloading we must install the program



Start the installation and install it to the d:\tools\ folder

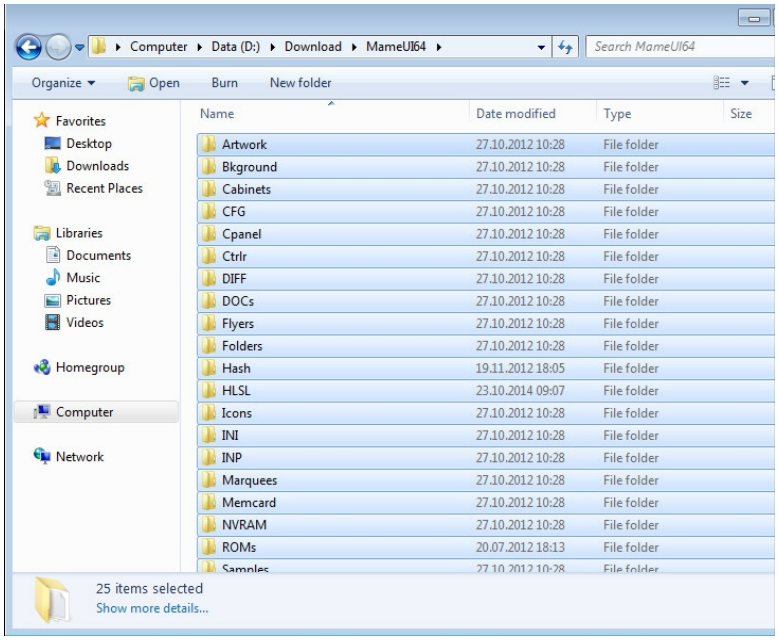


After 7-Zip is installed we can extract the downloaded MAMEUI64 file by pressing the right mouse button and choose “extract here”

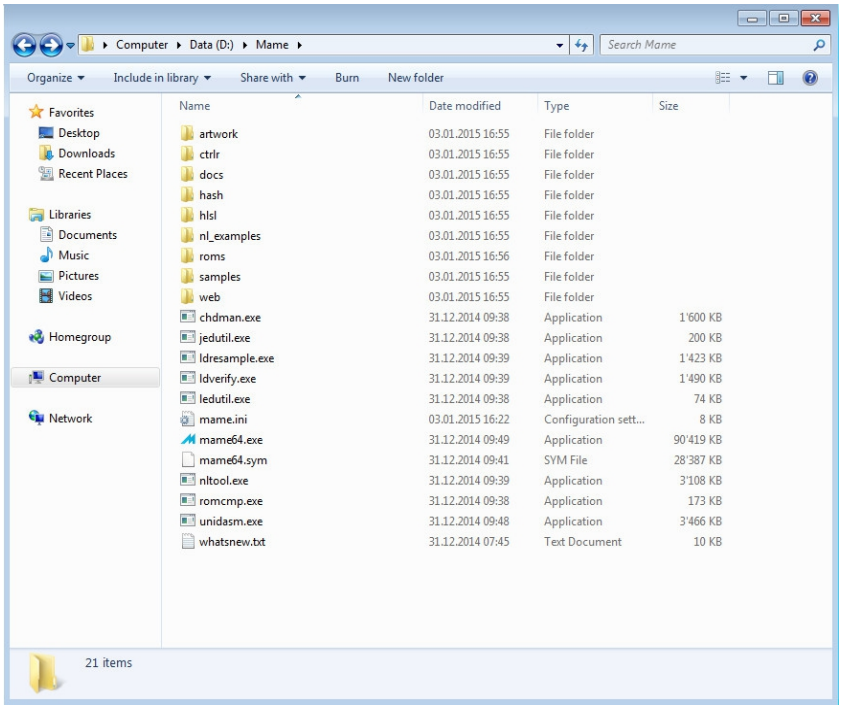


! This archive-file has a folder name “MAMEUI64” inside the file. That's the reason we extract it not directly to the MAME folder.

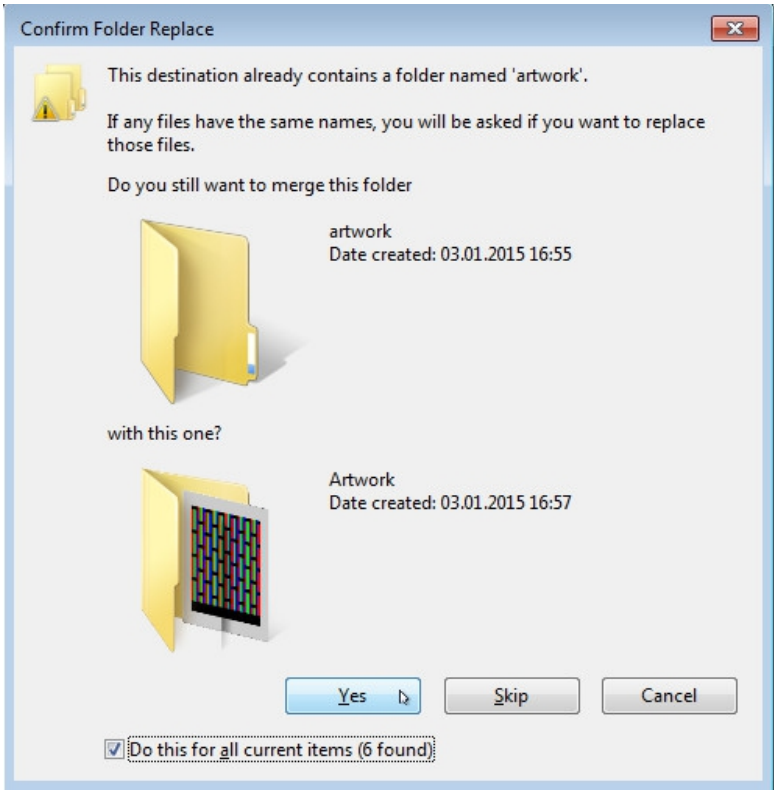
Move the hole content from this folder ….



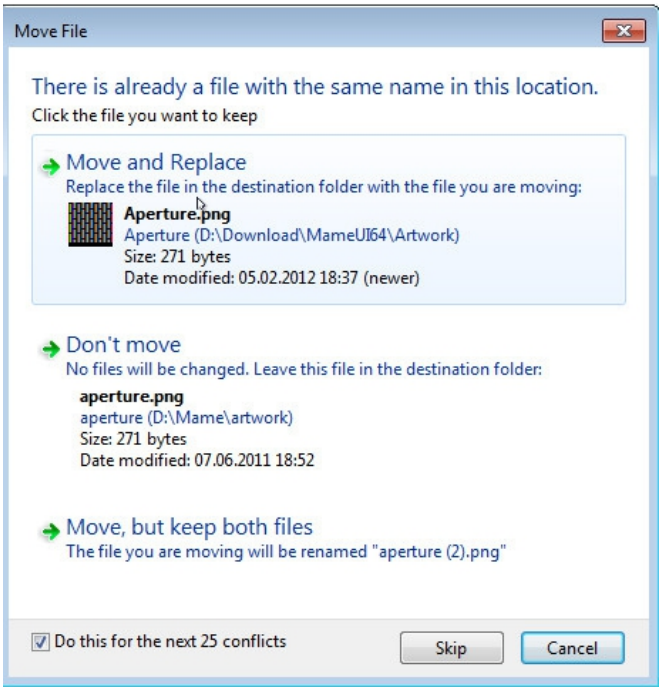
…to this place



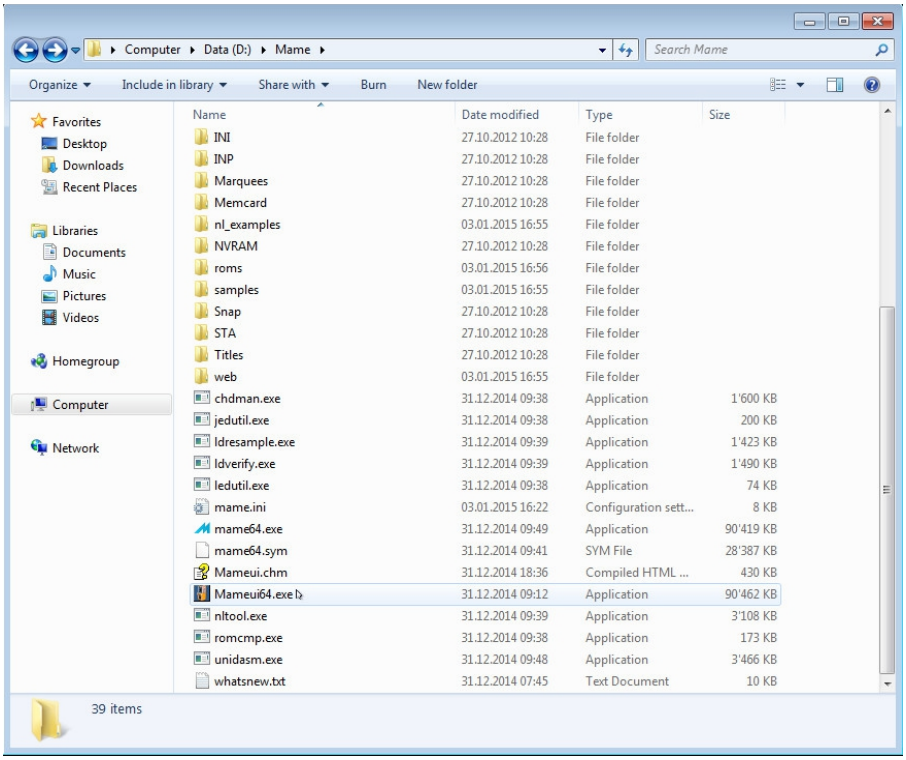
Overwrite the existing folders, say “yes” to the following folder question



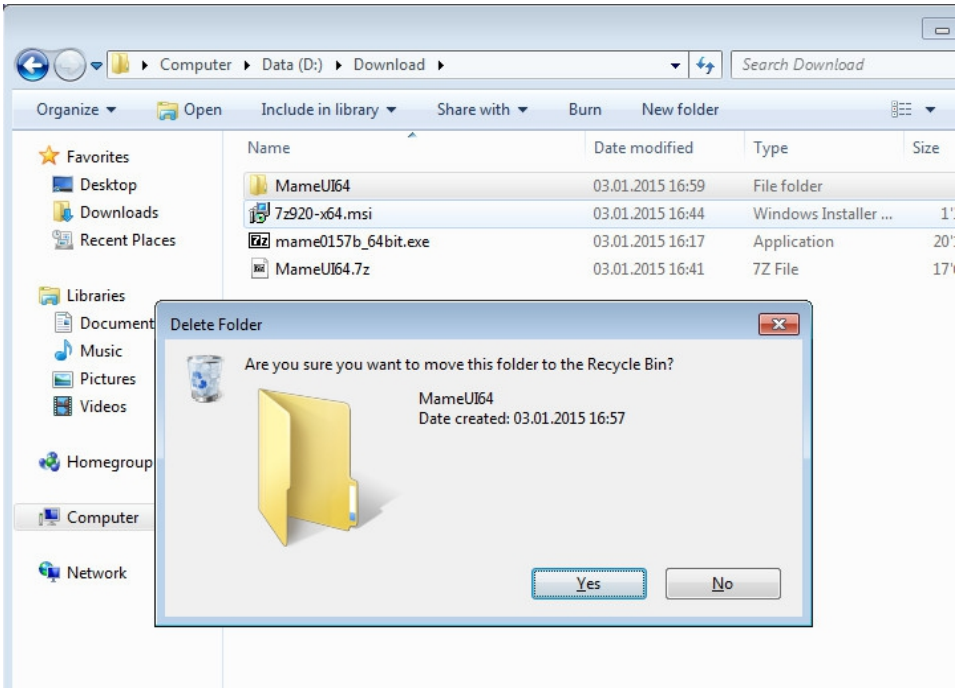
Do the same for the files



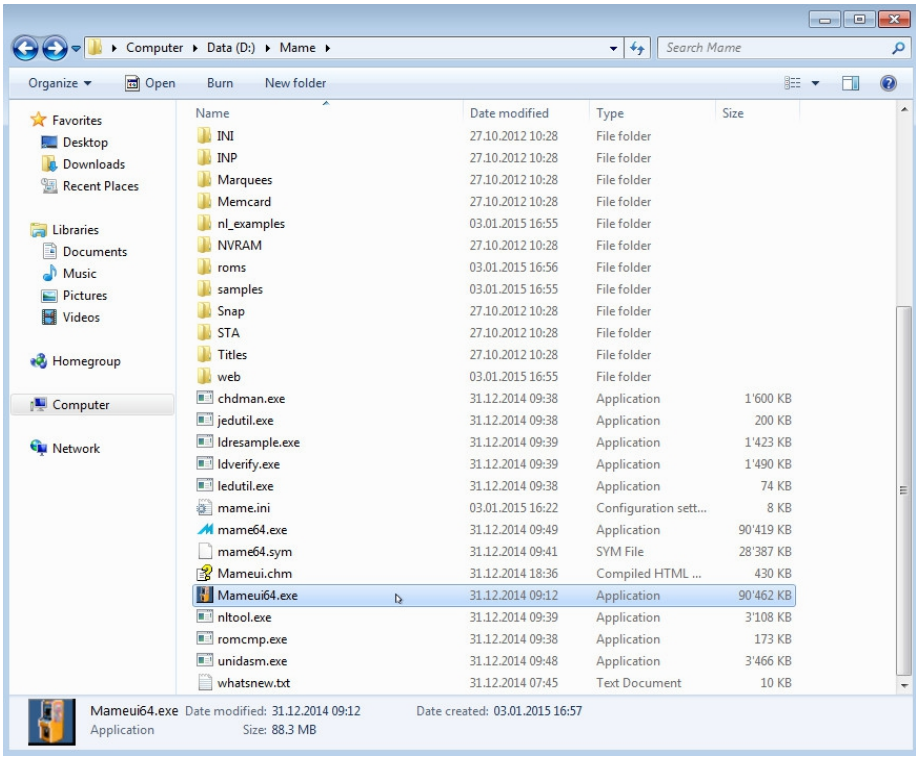
Your folder should looks like that



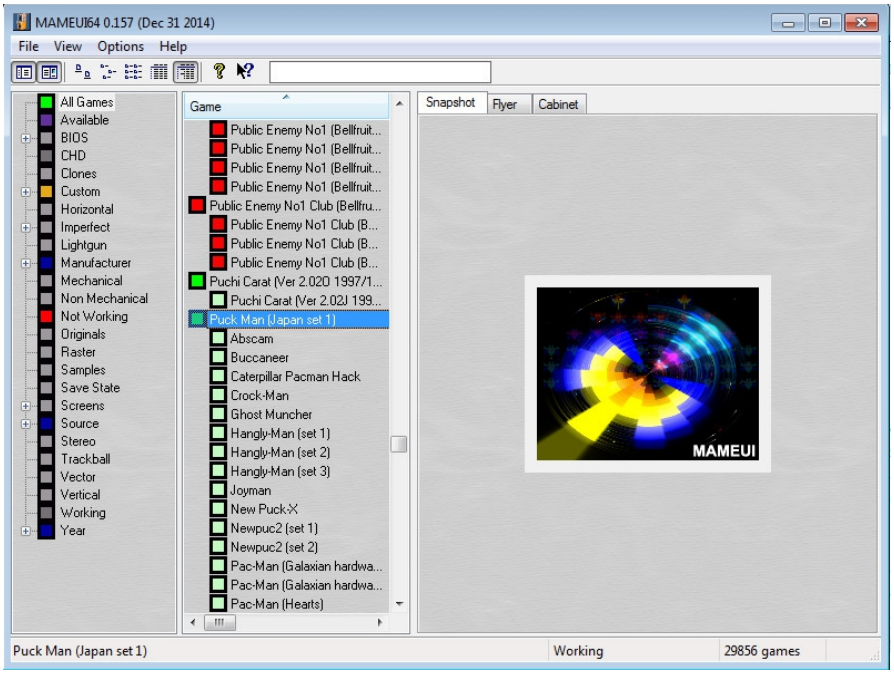
Please remember that you delete the original folder in the download



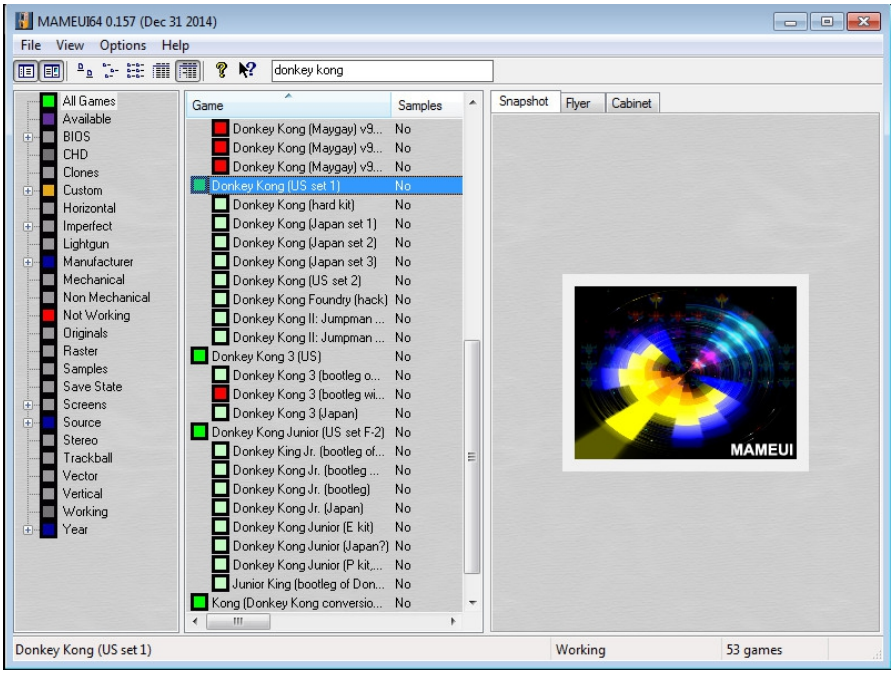
We start now the MAME with the MAMEui64.exe in the MAME folder



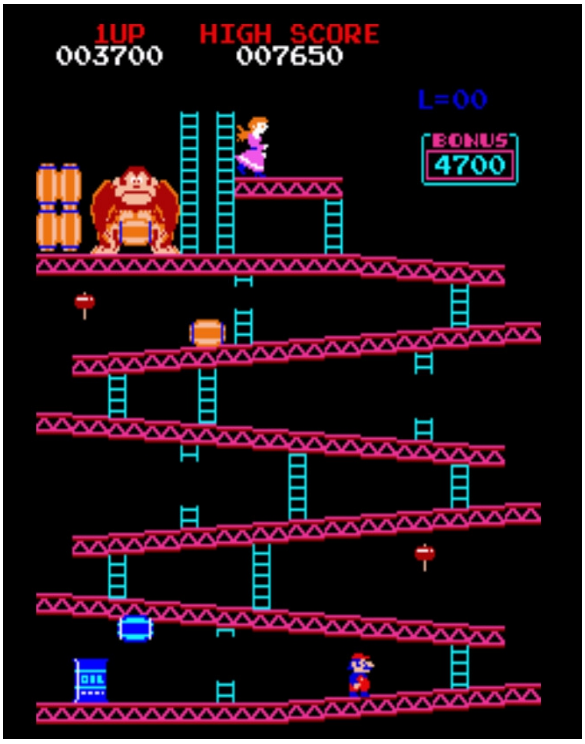
The program starts



Search for the “Donkey Kong” (dkong.zip is (US set1) version)

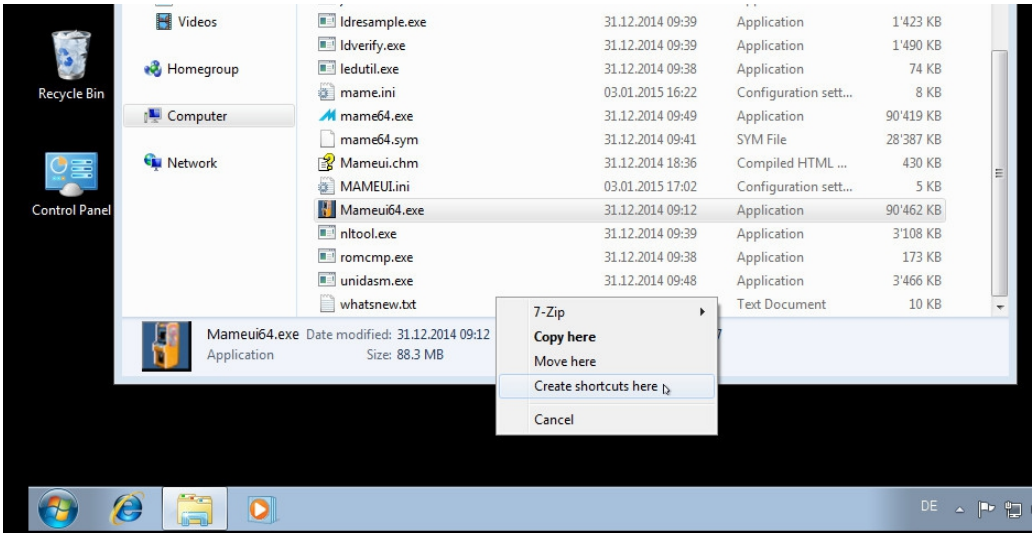


Double-clicking it and the game starts

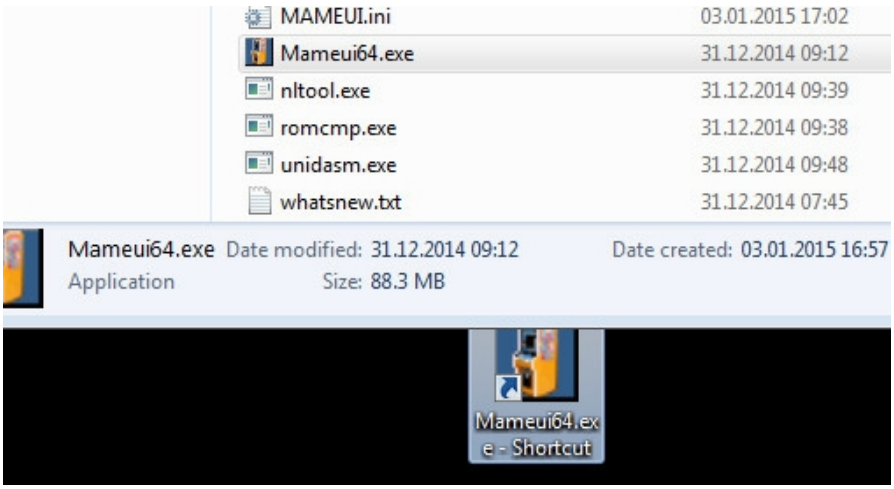


Escape the emulator by pressing “ESC”

As this installation was not windows like we have no shortcuts on the desktop. Drag-and-drop the “mameui64.exe” by pressing the right mouse button to the desktop. In the appearing menu choose “create shortcuts here”

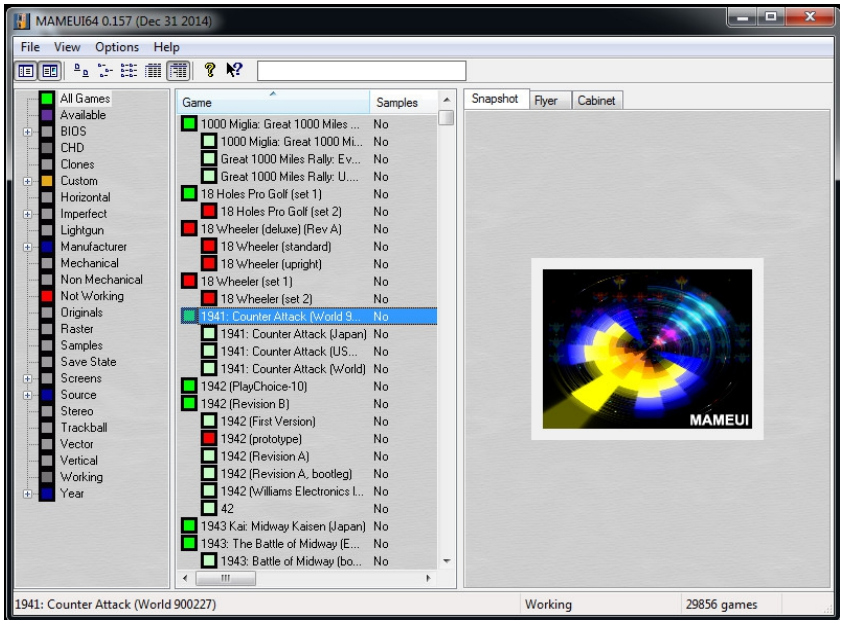


We have now a shortcut on the desktop.

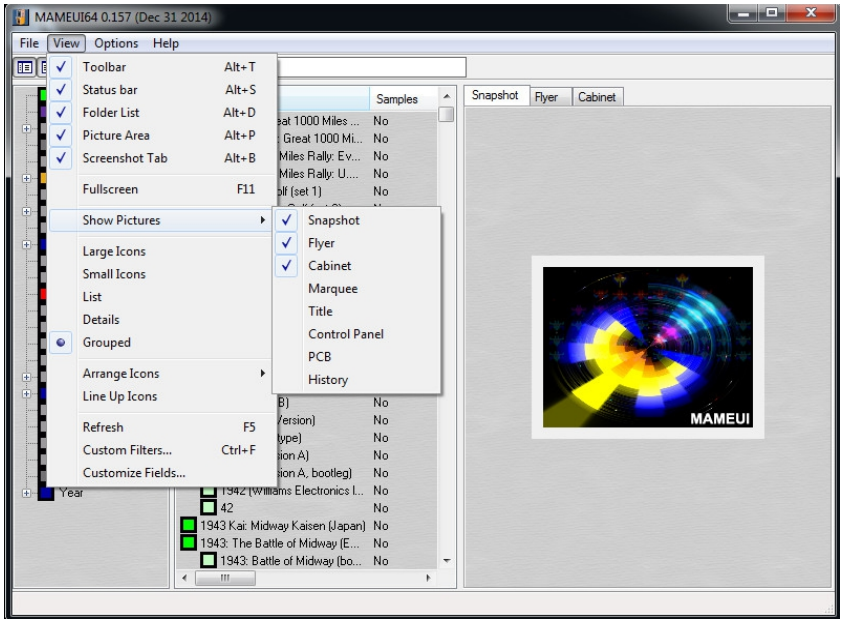


Installing add-ons for MAMEui

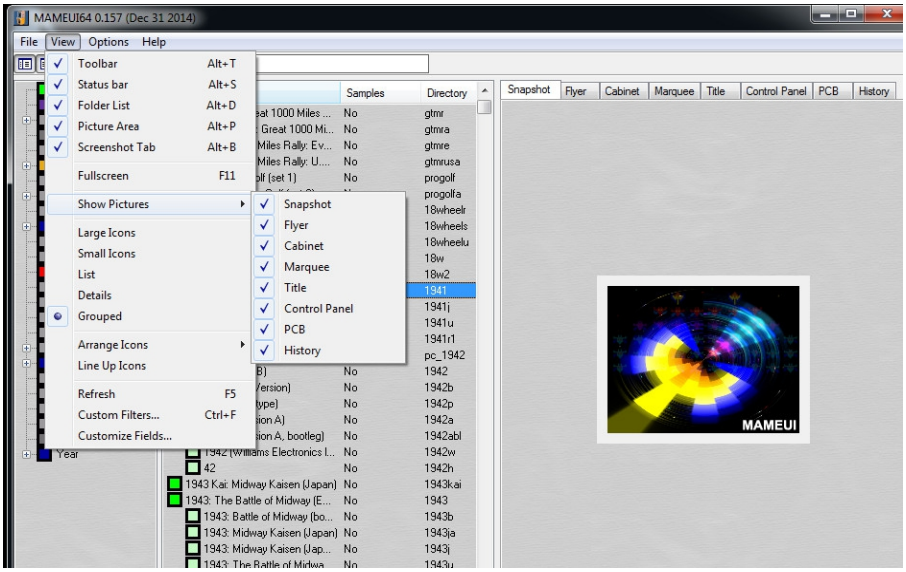
We have installed MAMEui and it looks ugly, isn't it?



Can we do things like displaying snapshots or do we have to create them ourself with “F12”? We can enable in the view more snapshots but how do we get them?



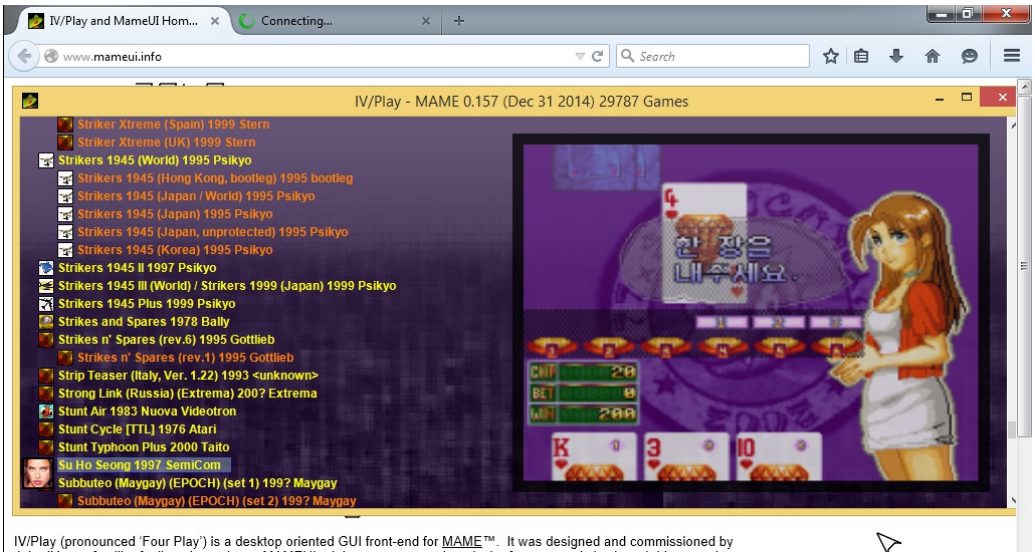
We enable all available options.



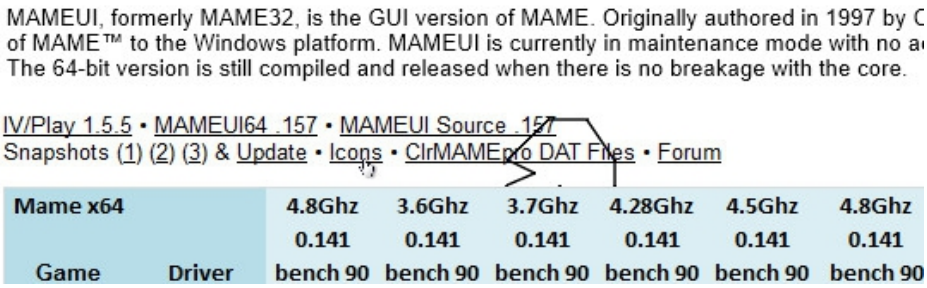
The answer is yes and I will show you where you can download additional stuff for MAMEui or using a Front-end.

> **Yes you could also do it yourself within MAME. Start a game and press F12. It saves you a screen snapshot. But we are lazy and download them all.**

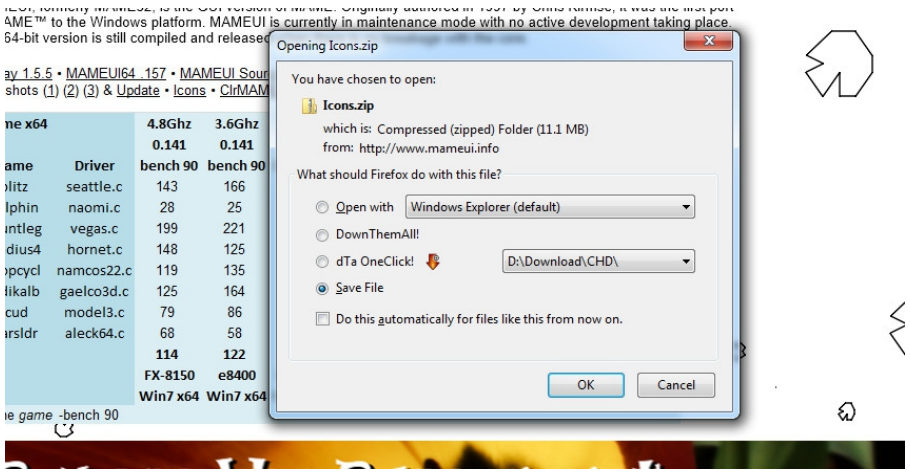
Start a web-browser and navigate to the MAMEui home



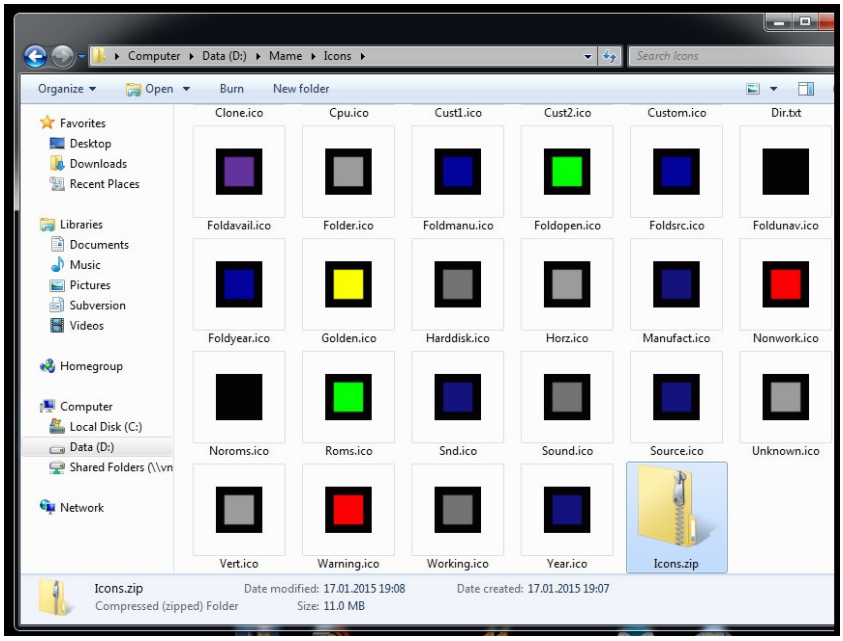
Scroll down and download the icons.zip that is available.



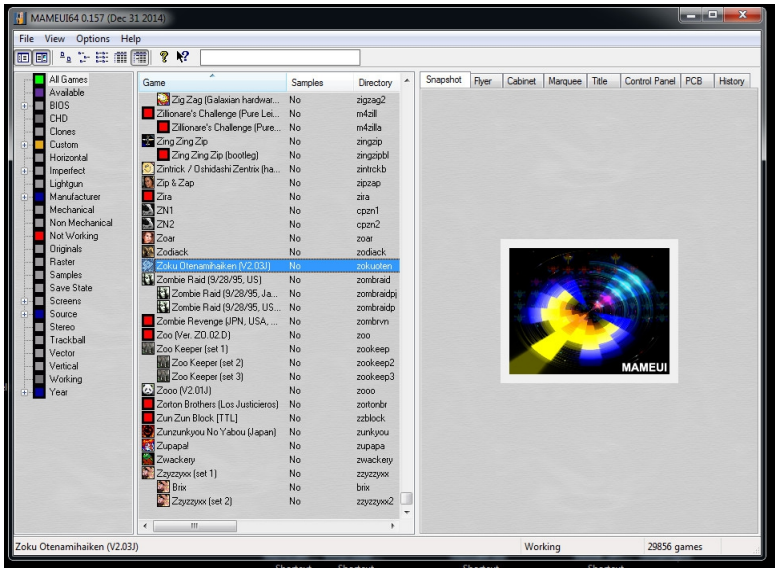
Save it to the download folder.



And move it afterwards to the mame\icons folder.



Now look at the MAMEui → it has changed and displays entries with little icons :-)

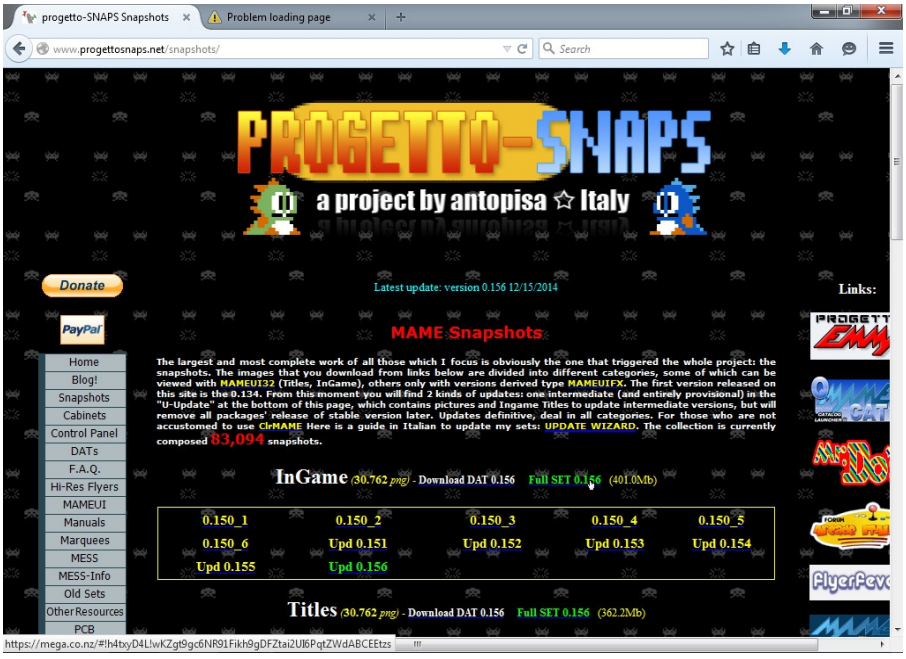


We want now to download snapshots. AntoPISA is providing them all for a long time and updates them when a new MAME version appears (Great Work AntoPISA).

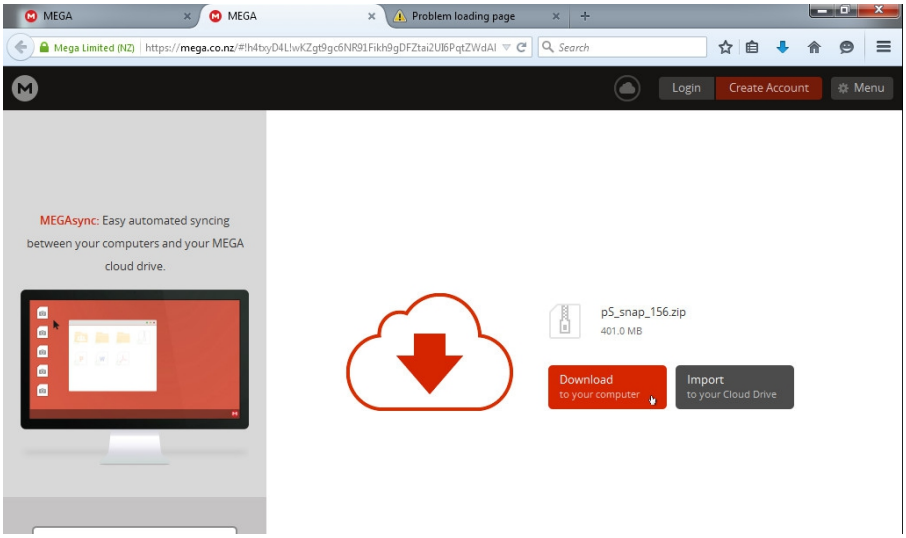
We open a web-browser and navigate to the Progetto-Snaps homepage.

We choose “Snapshots” from the left menu

We are now in the Snapshots section



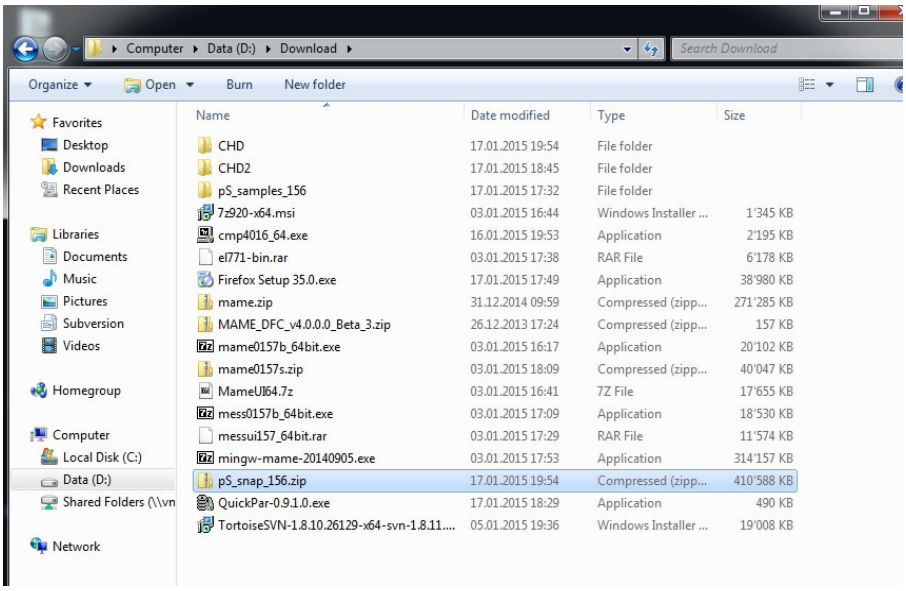
We are looking for the snapshots. Normally it is describe as InGame snapshots so we choose to download the hole-package (as we have nothing in our MAME environment). Click it ...



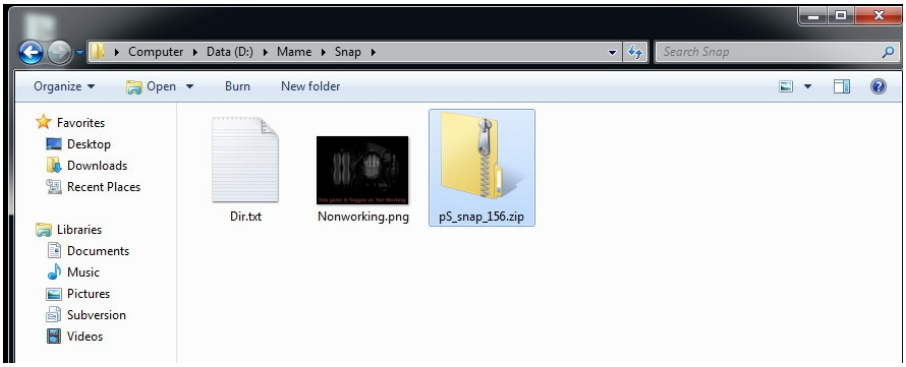
..and it brings you to a filehoster. Click “download” and save it to the download folder.

! Keep in mind that this addon-packages can be very big in size.

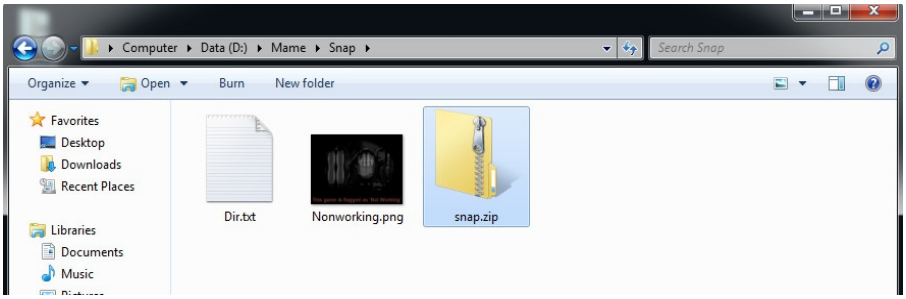
Open the download folder and move the file ….



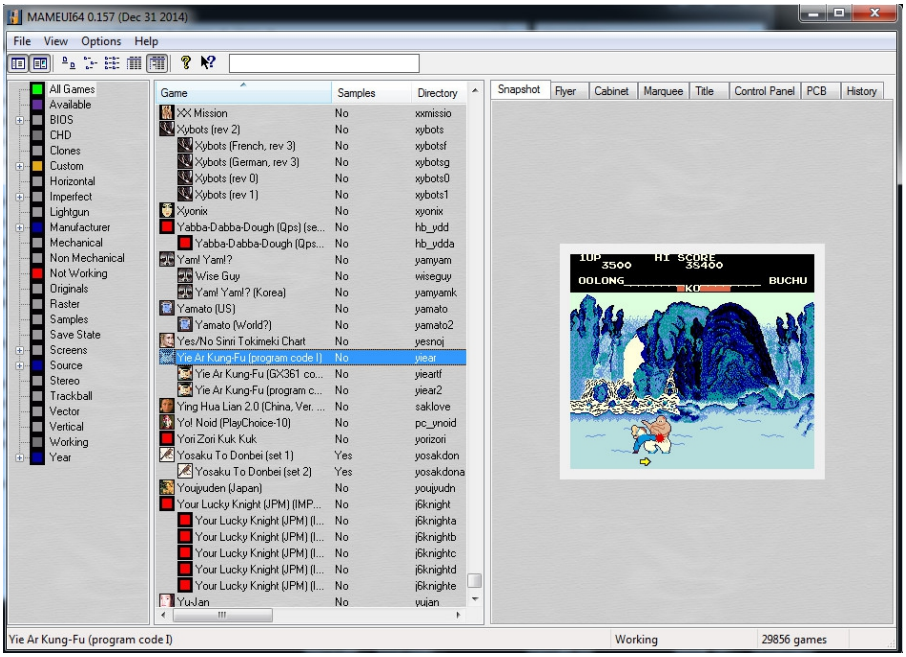
… to the mame\snaps folder



We must rename this zip-file that it should named like the folder name

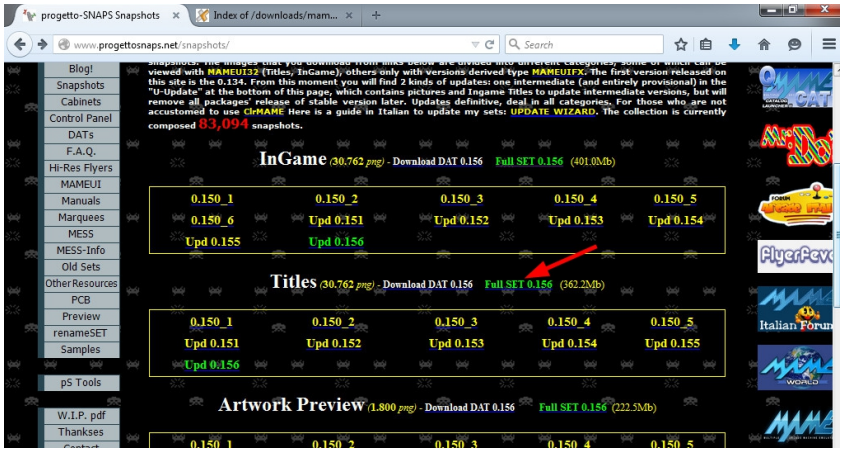


Now switch over to MAMEui and check if the snapshots are visible ..

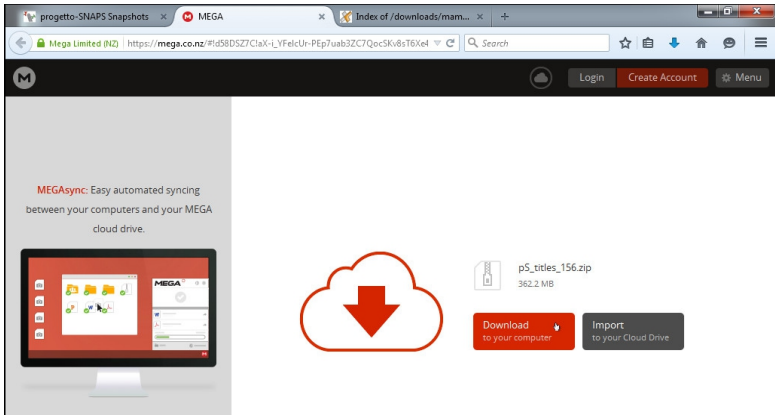


Great stuff AntoPISA thanks for that :-)

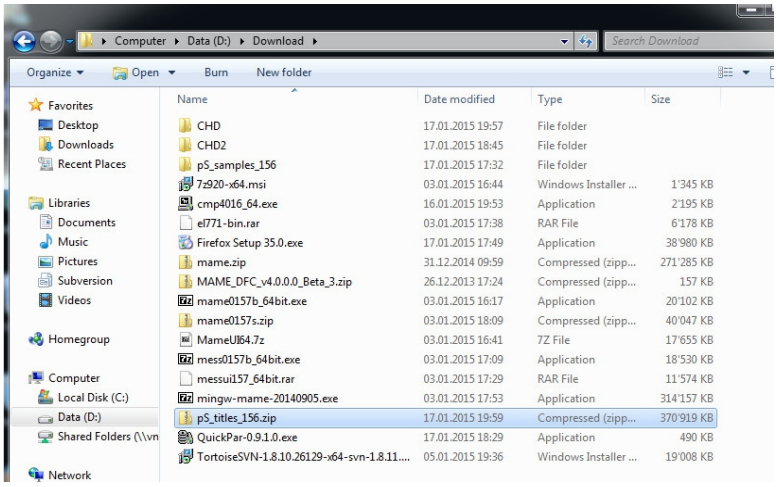
We are doing now another category named “Titles”. Use the web-browser again and download the hole-package from the site.



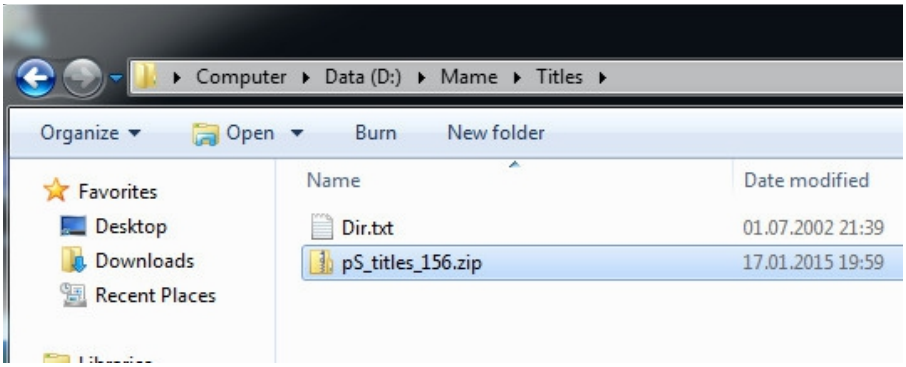
And save it to the download folder.



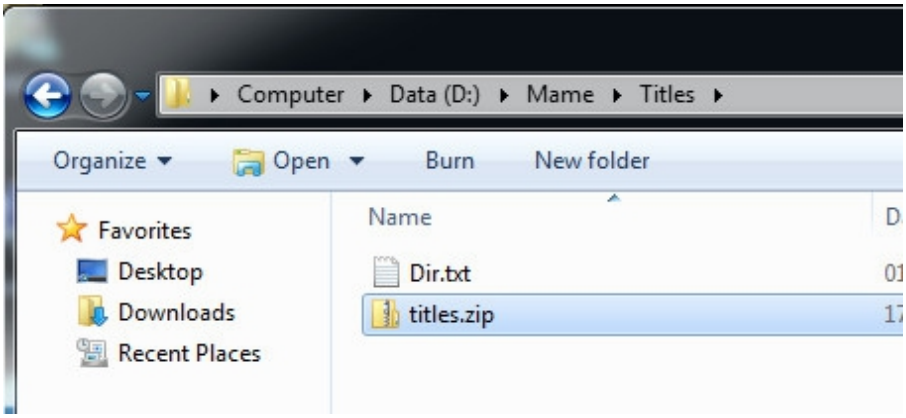
We do the same for this zip file: move it …



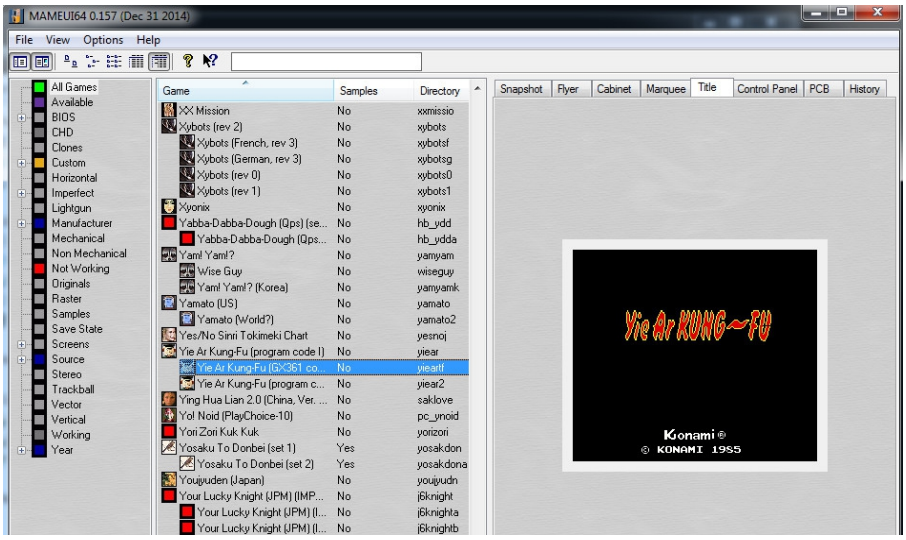
..to the mame\Titles folder.



And rename it to “titles.zip” (same as the folder name).

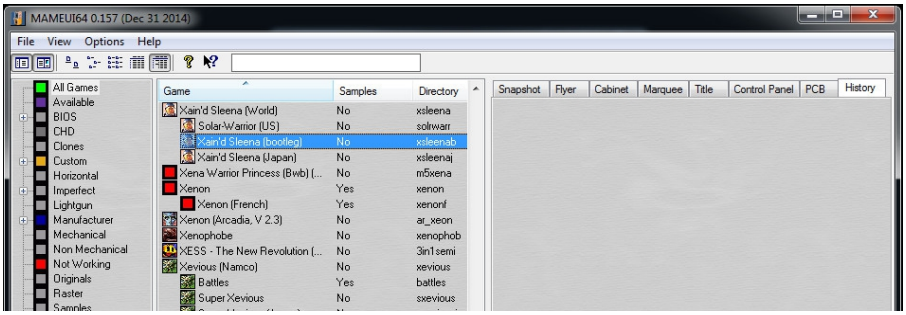


Look in MAMEui under “Title” →you can see now the picture.



We have now Ingame and Titles done. Do that with all the other available add-on you want. Please note that not all of them have the complete set for downloading. I have made an example in the CLRMAME section how to download all parts and rebuilds it to one packages. But that needs knowledge of a ROM-Manager and how-to-use-it.

There is also an item called “History”, what's that ?

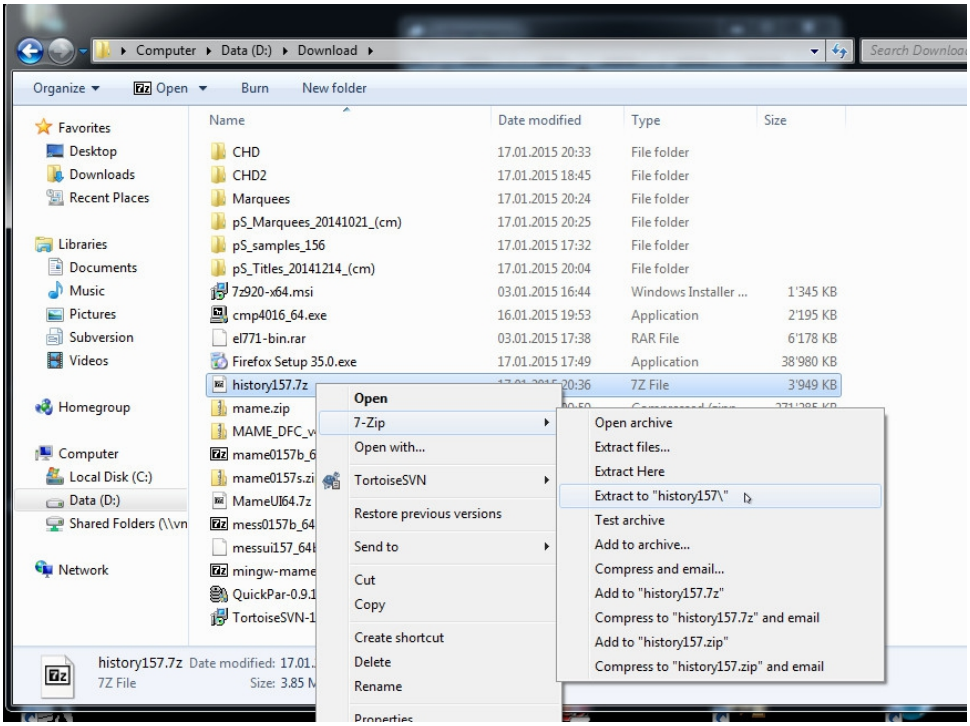


Let's solve this item first and we do get an answer for “what is that for”.

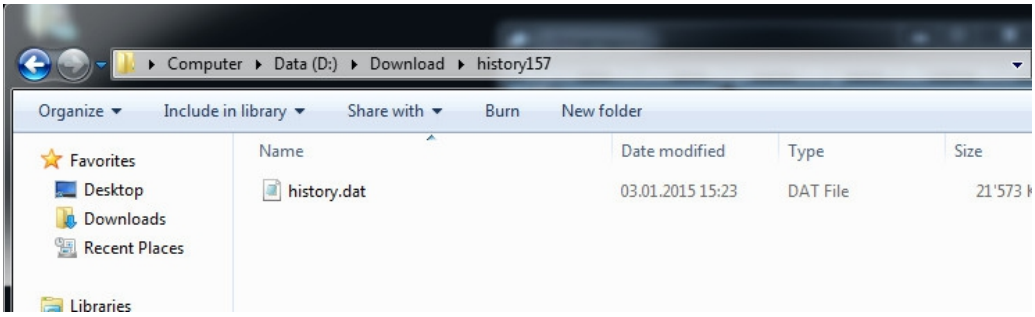
Open a web-browser and navigate to …

Download the 7z-file to the download folder.

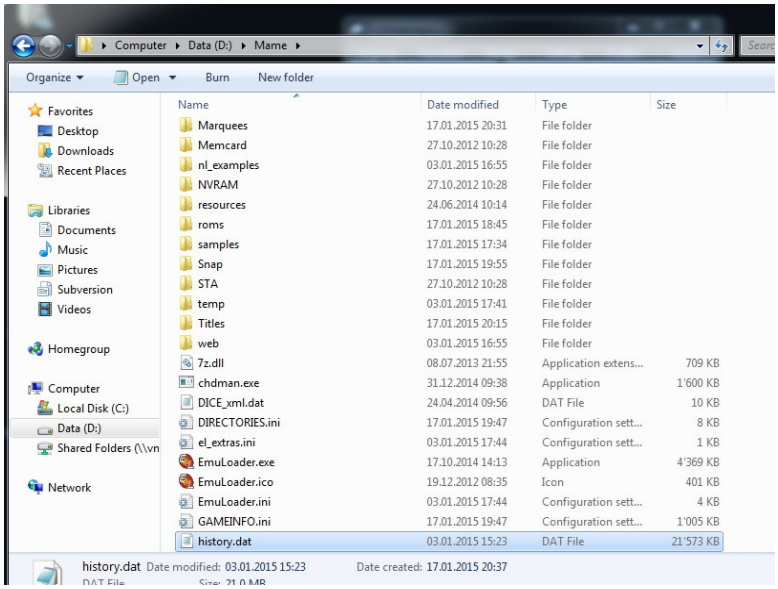
We extract the downloaded file to a folder called “history157”.



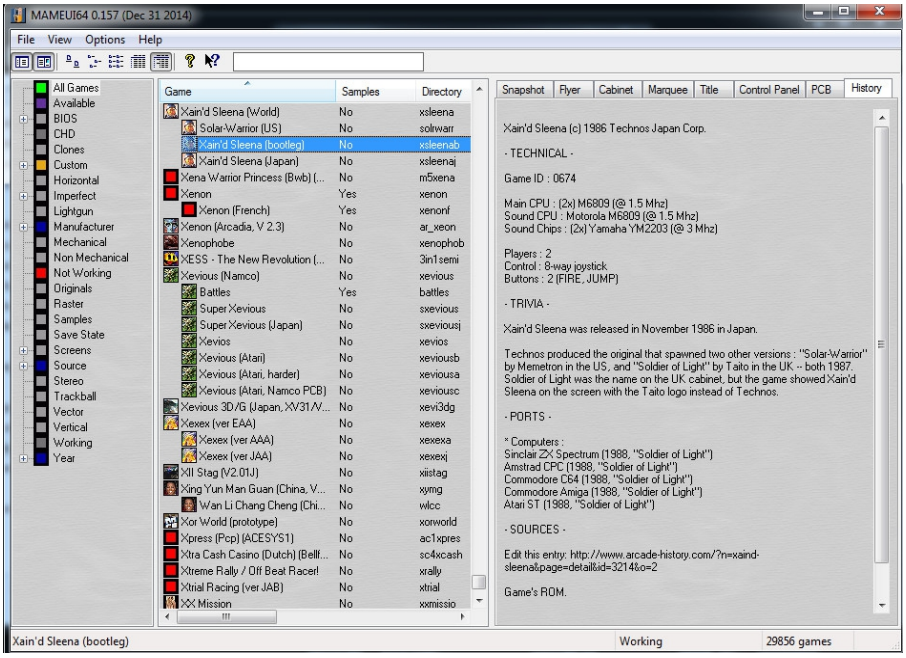
Move the extracted file from the folder “history157” ….



.. to the mame folder.



Now we are looking in MAMEui what is the value from this file.

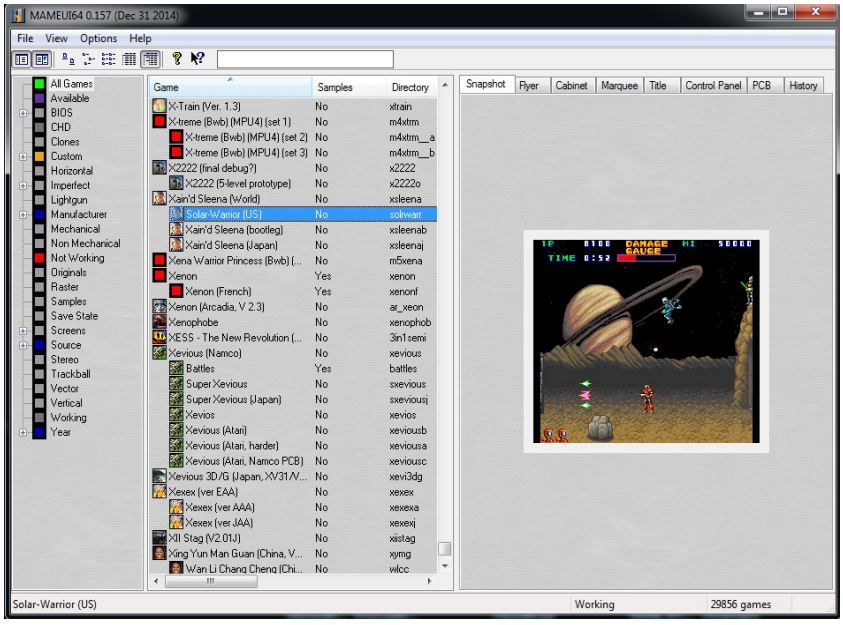


It displays now information about the game, nice thing.

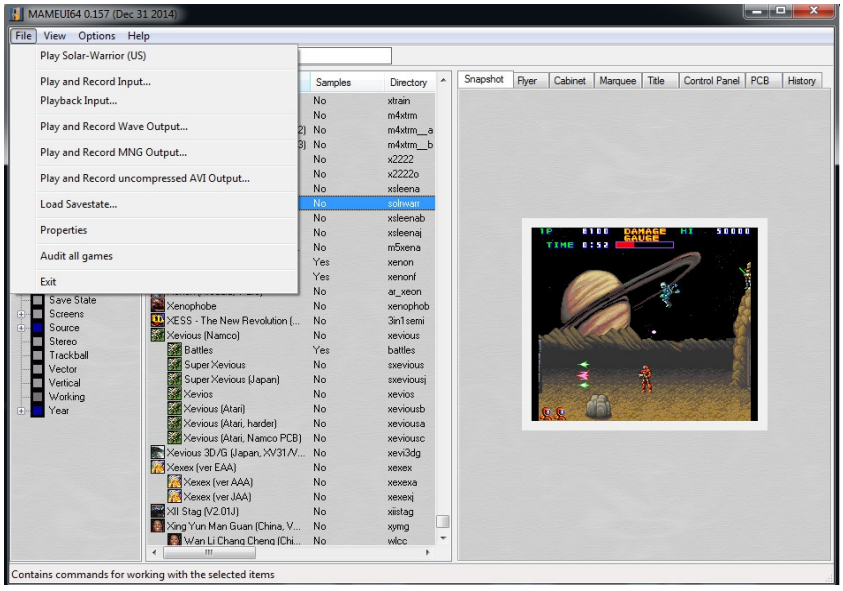
There are a lot of more files /add-on available in the web. If you are into MAME and have spend some more time you will get the information sooner or later……

Using MAMEui

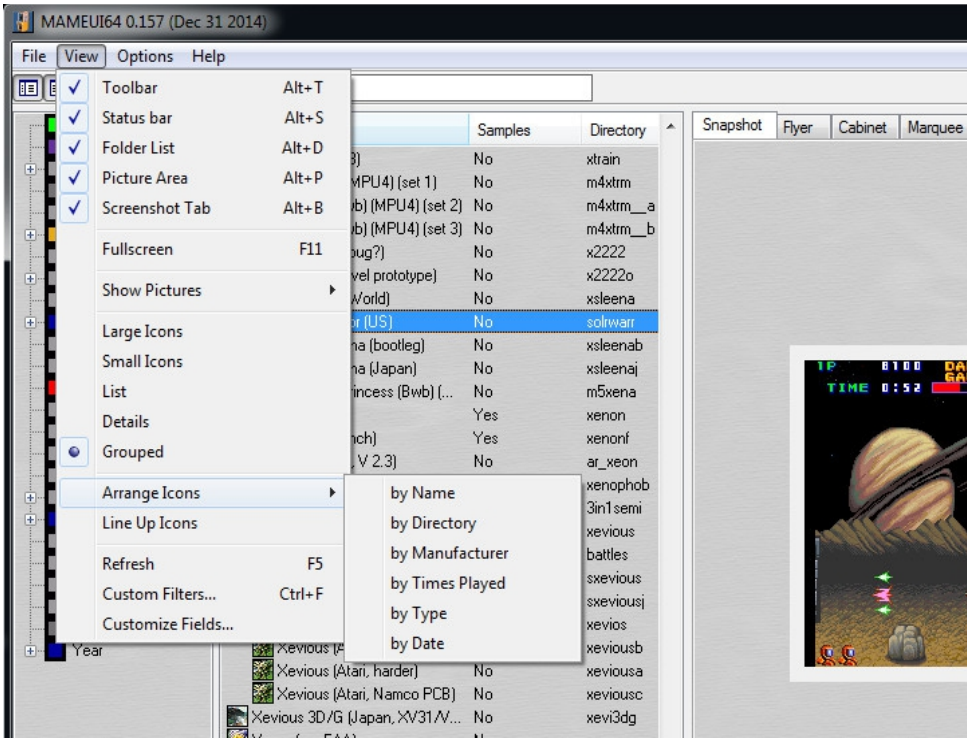
Start MAMEui ....



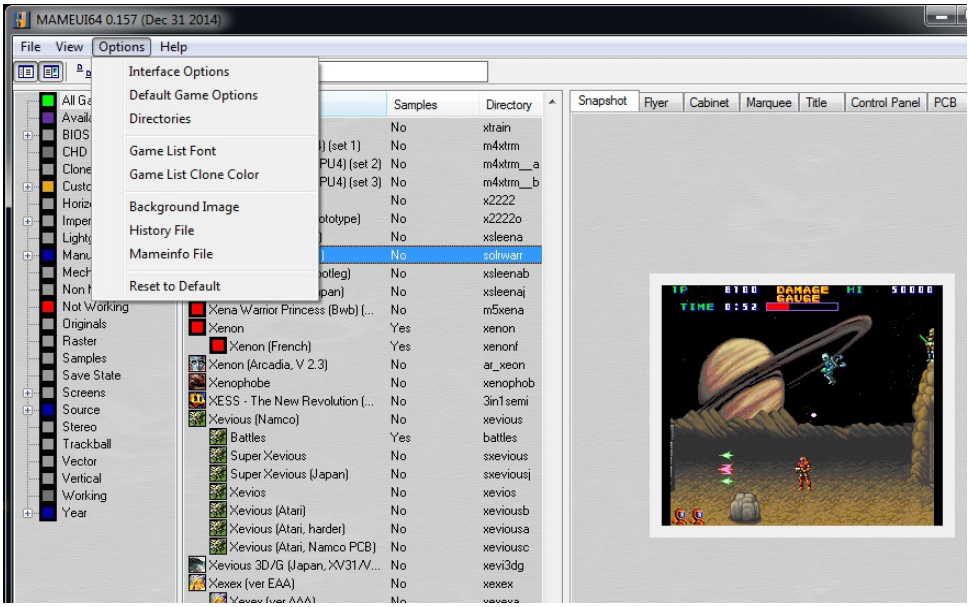
As you may have seen in the “config.txt” in the Mame\docs folder the command-line version of MAME has a lot of option to start a game with a special configuration. With MAMEui you can do this easily within the User Interface (Ui).



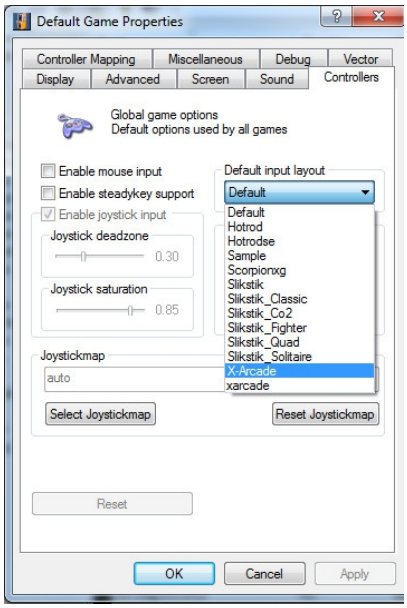
Under view is everything to configure how MAMEui is presented to you. Play around with all the available options.



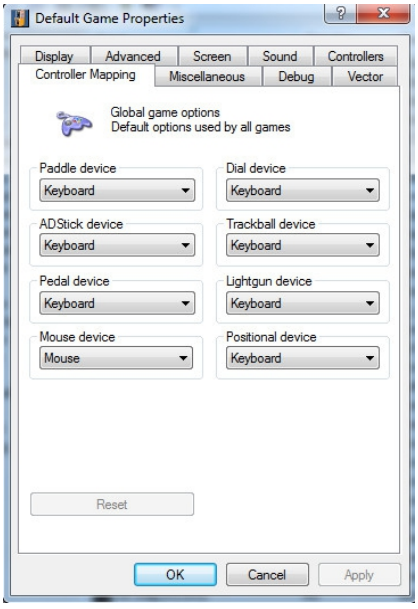
In the “options sections is everything for the emulator itself.



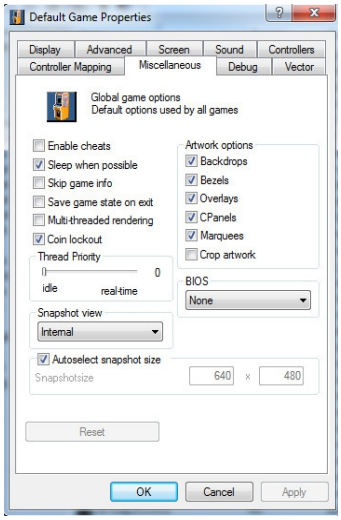
Go to “Options – Default Game Options”. We are looking at some settings there. Under “Controllers” you can set a special layout when you have for example a X-Arcade controller (http://shop.xgaming.com/) or set the joystick the right way there.



If you have additional devices you should enable that under “Controller Mapping”



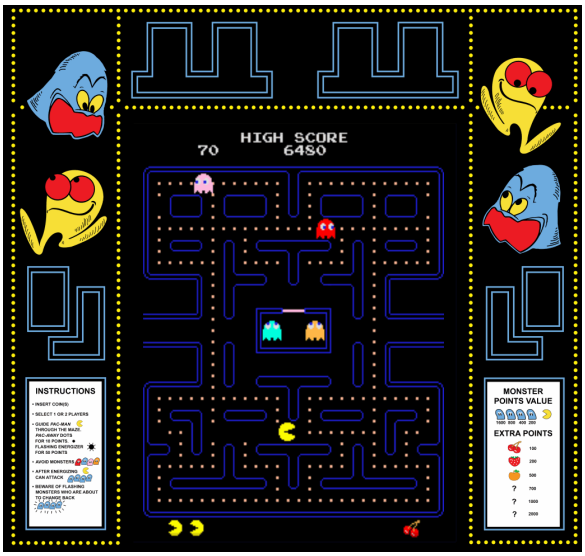
Under “Miscellaneous” are for example the “enable cheats” or the artwork options.



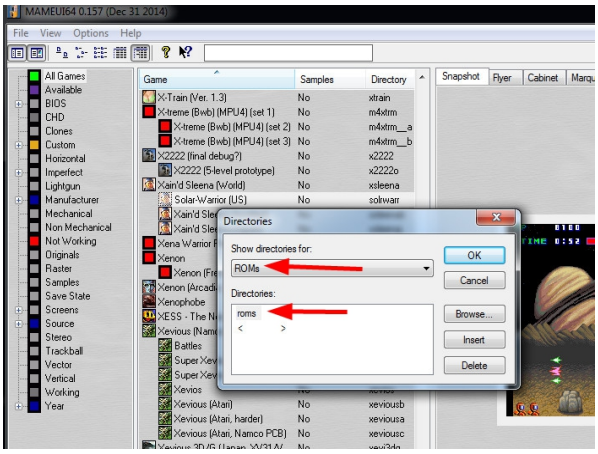
Artworks are add-on that you can use for MAME. You must download them from Mr.Do website. There is also a good FAQ that explain everything about Artworks. Download them to your mame\artwork folder and enable it in this setting. Bezels contains additional graphics or instructions of a game.

http://mrdo.mameworld.info/mame_artwork_faq.php

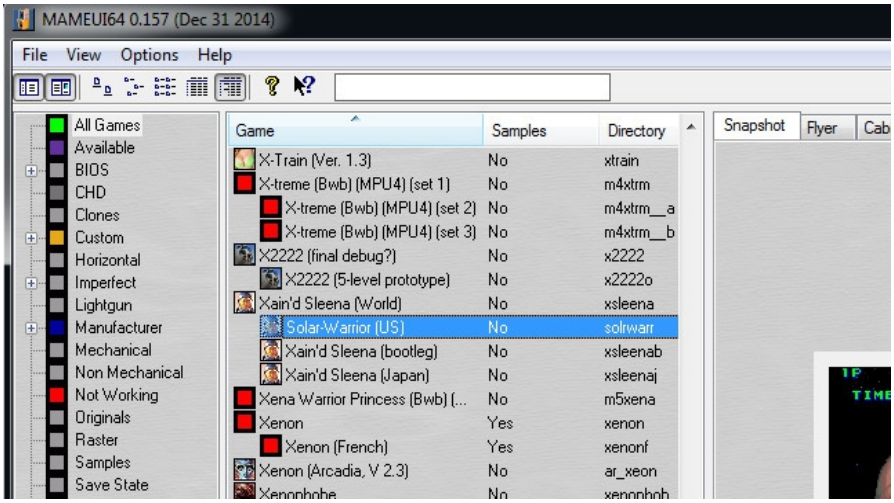
Here is an example for playing Pac-Man with the “Bezels” enabled.



Under “Options – Directories” you can change the default path for everything is available. For example when you have your ROMs and CHDs not in the same folder you can add the CHD-Folder as a second path under “ROMs”. All the settings are default that means when you have all your ROMS in the MAMUI folder “ROMs” you must change nothing. Let's look at the picture for showing you.



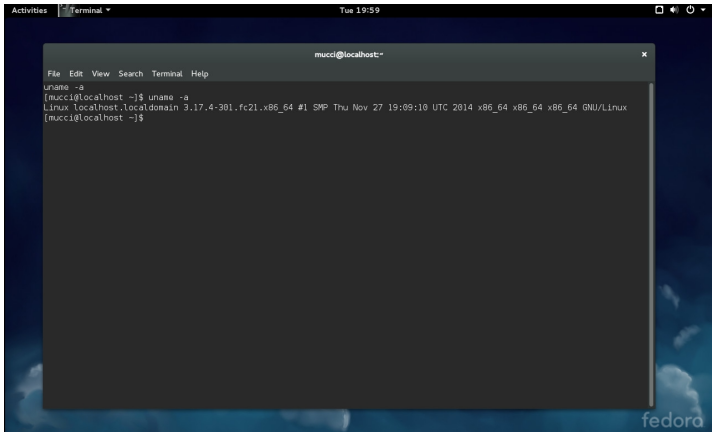
That was it for the MAMEui. Keep in mind that when you have started a game you need to know how to handle the emulator itself as discussed in the MAME section.



Installing MAME (Linux)

I have only limited Linux knowledge but I have installed successfully MAME on Fedora 21. I hope you will get enough information to install MAME on your distro.

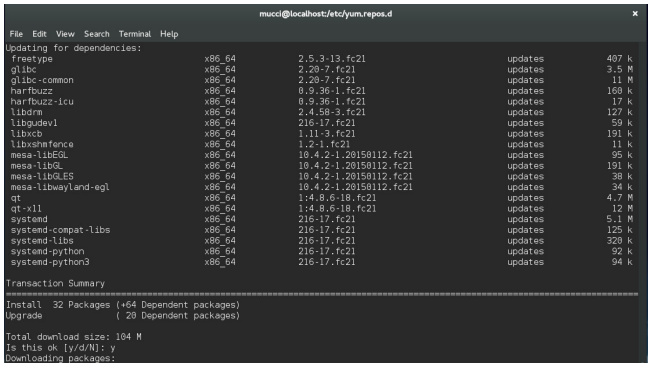
As mentioned before my example is a fedora 21 box.



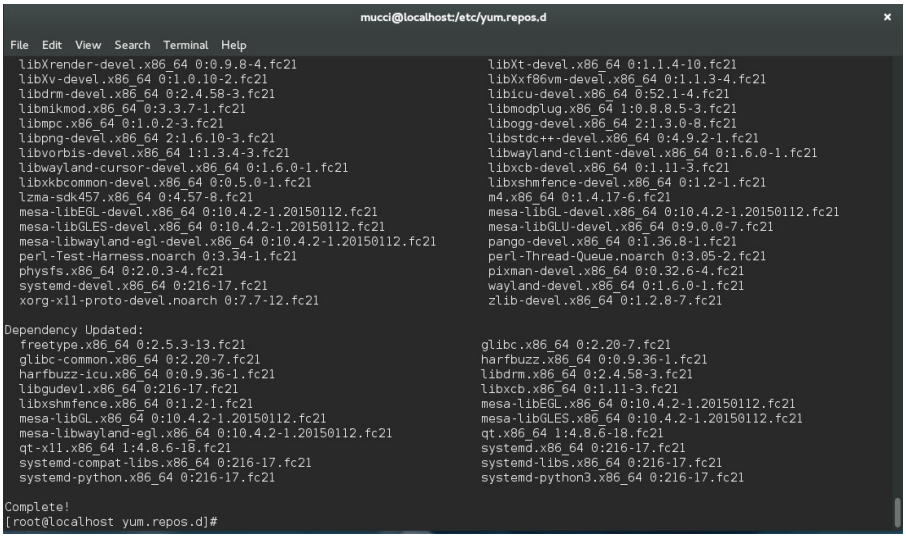
You need the following software/libraries to run/compile MAME under Linux.

```
mucci@localhost:/home/mucci
File  Edit  View  Search  Terminal  Help
uname -a
[mucci@localhost ~]$ uname -a
Linux localhost.localdomain 3.17.4-301.fc21.x86_64 #1 SMP Thu Nov 27 19:09:10 UTC 2014 x86_64 x86_64 x86_64 GNU/Linux
[mucci@localhost ~]$ su
Password:
[root@localhost mucci]# yum install make gcc gcc-c++ qt-devel SDL*
```

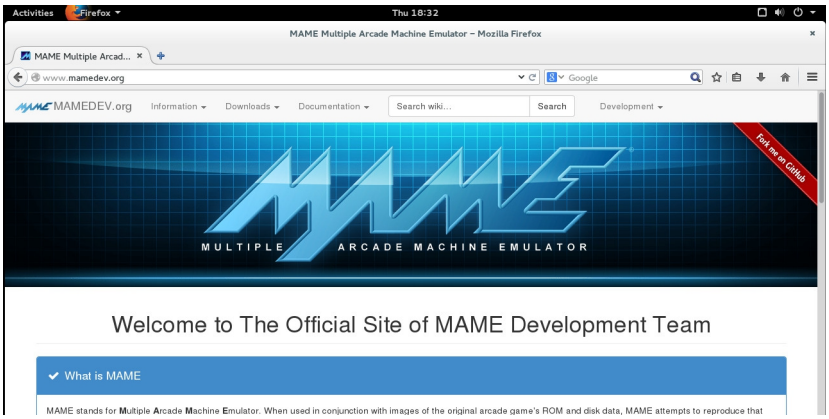
Let's install those packages.



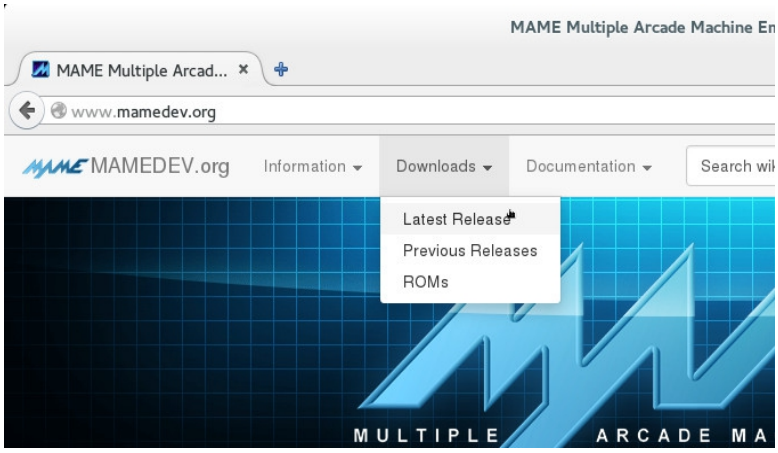
The installation is done …..



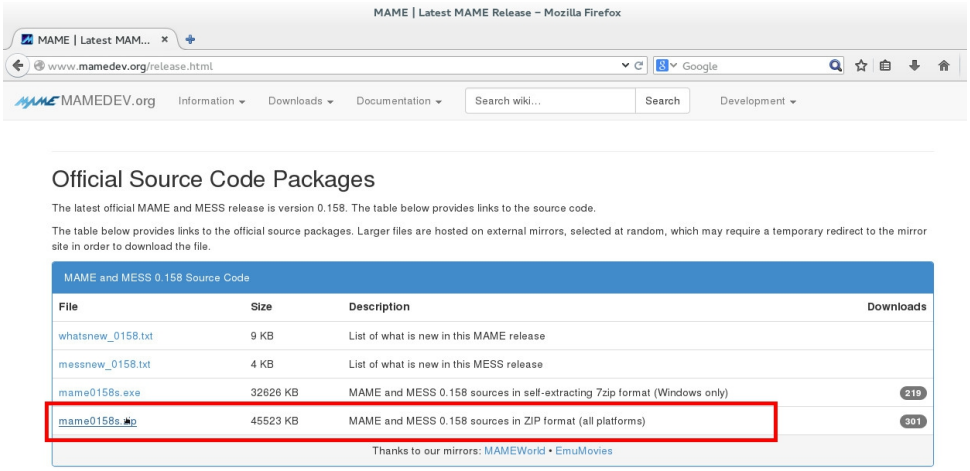
Open a web-browser and navigate to MAMEdev.org



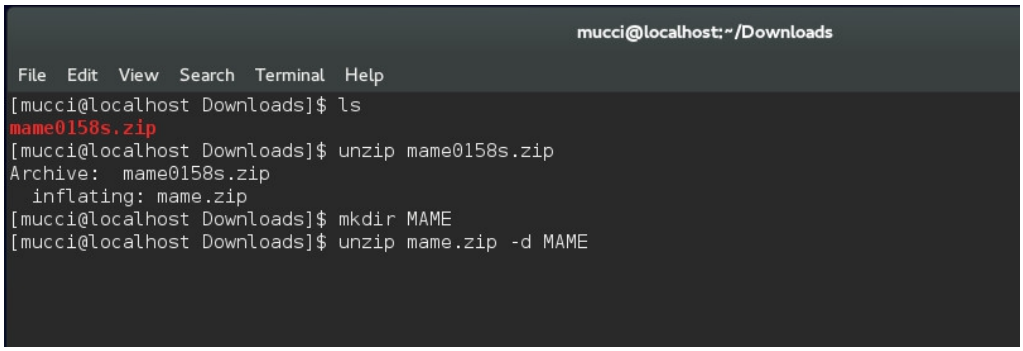
Under “Latest Release” ..



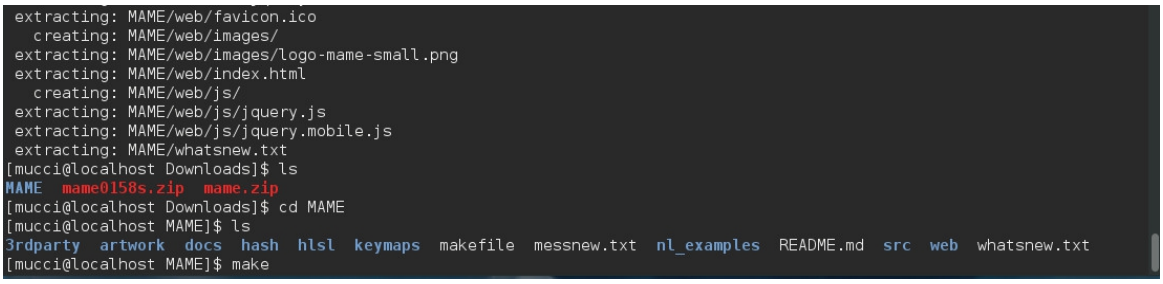
Download the “Offical Source” as a zip-file.



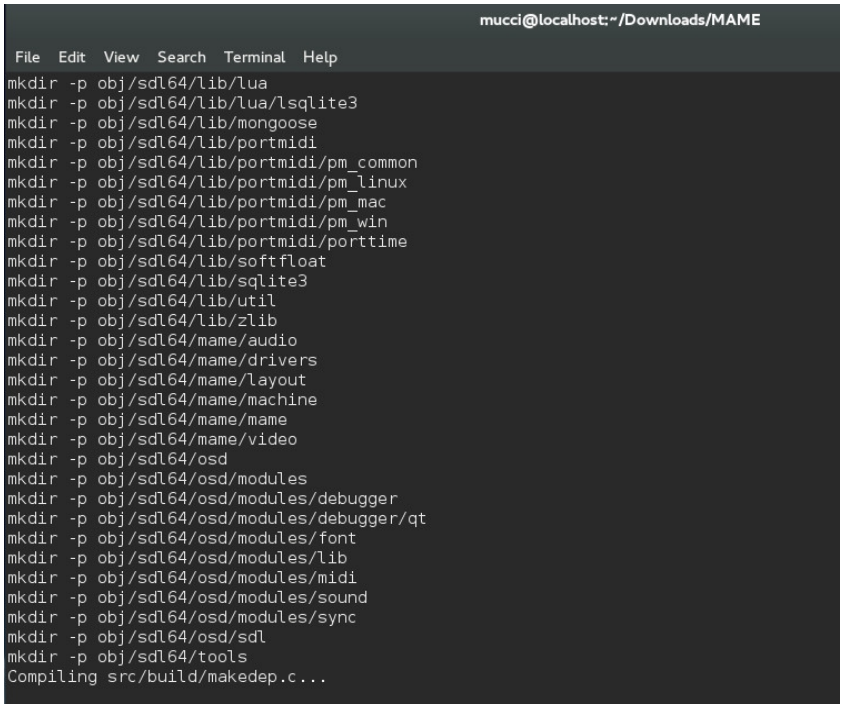
Make a folder “MAME” and extract the downloaded file. You have to do it twice (double packed). Be sure that you extract the mame.zip file into the created folder MAME.



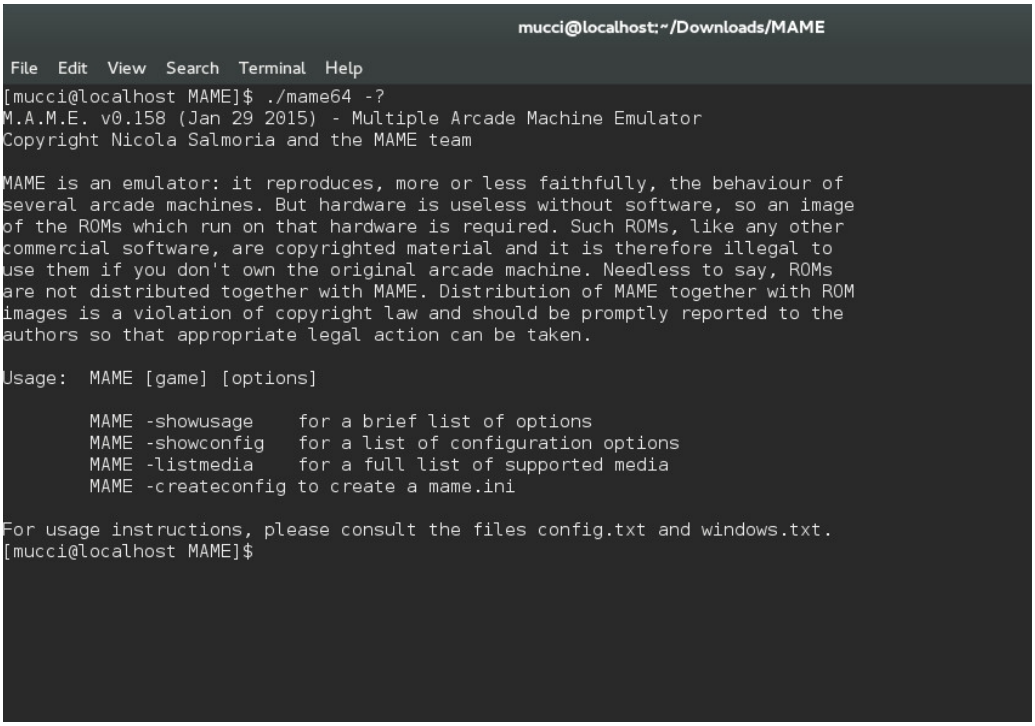
Everything is now ready for compiling. Change to the MAME folder and execute “make”.



Compile is starting and after a while it should be finished without an error.

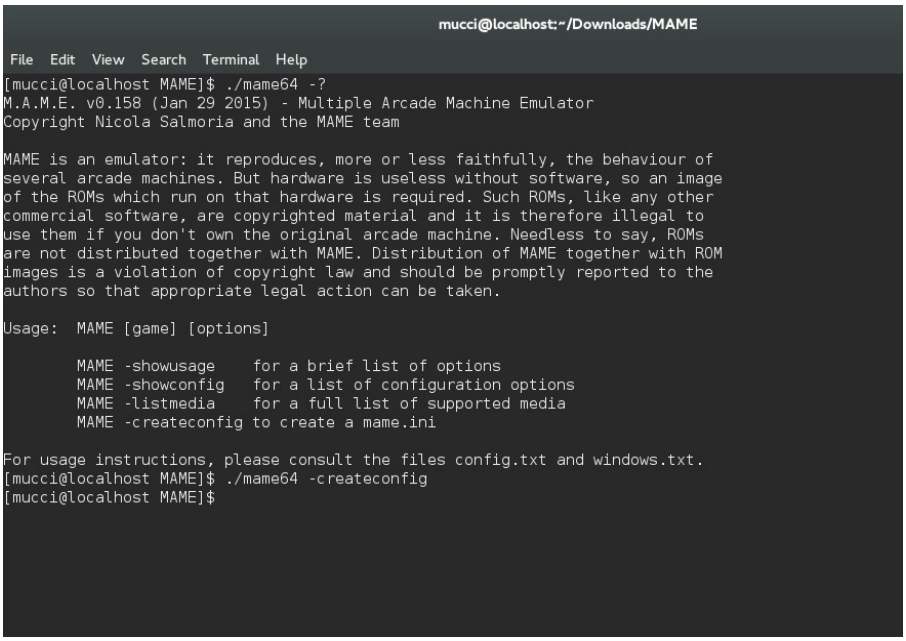


For verifying that the compilation process was a success we start the mame64 executable with the option “-?”

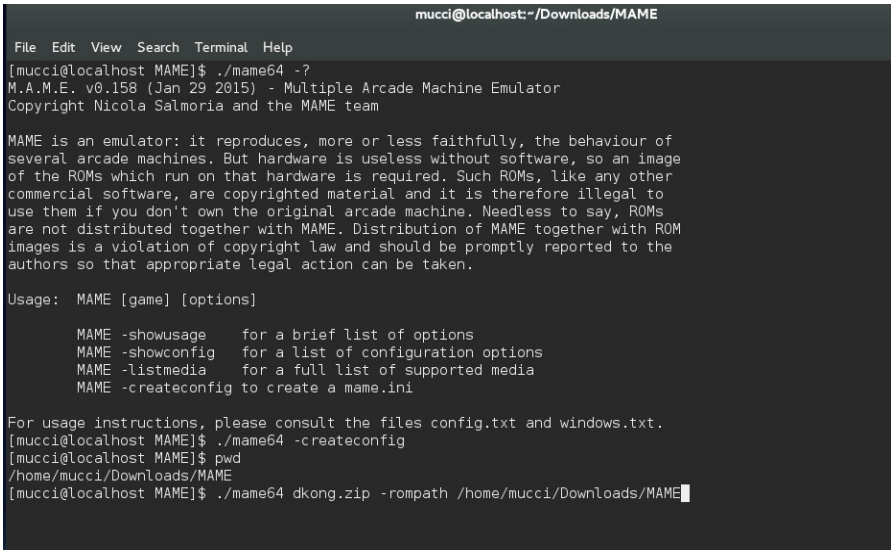


Using MAME (Linux)

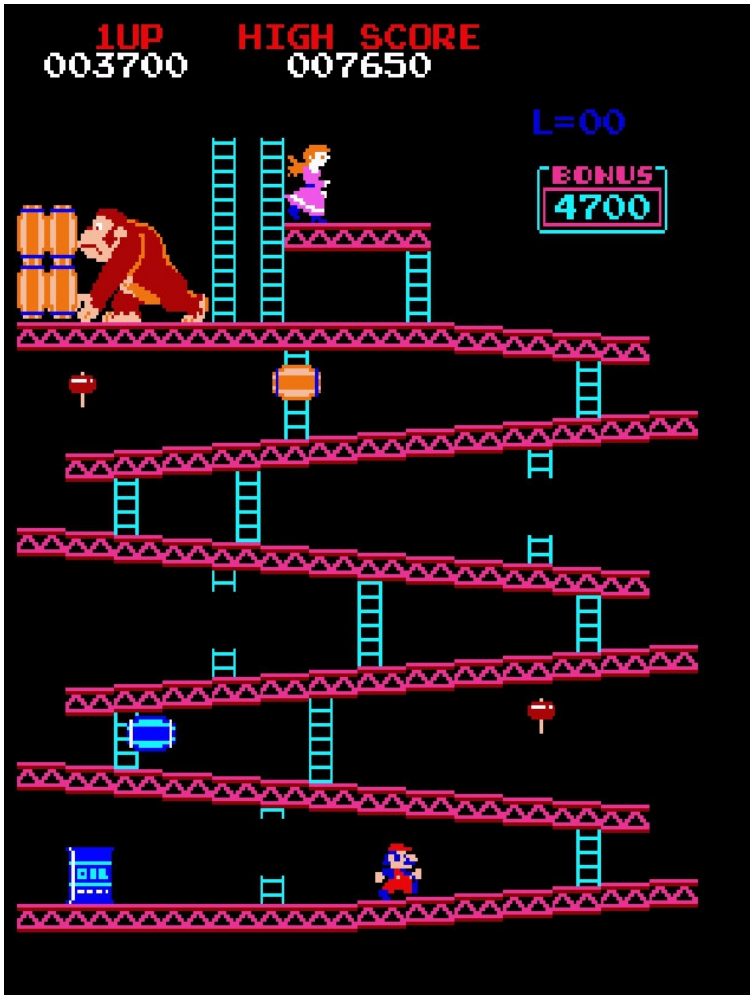
Using MAME under Linux is the same as using it under Windows. First create the mame.ini config-file.



Downlad the “dkong.zip” from Retroroms.net into that folder. We try now to run that game...



And yes it works :-)



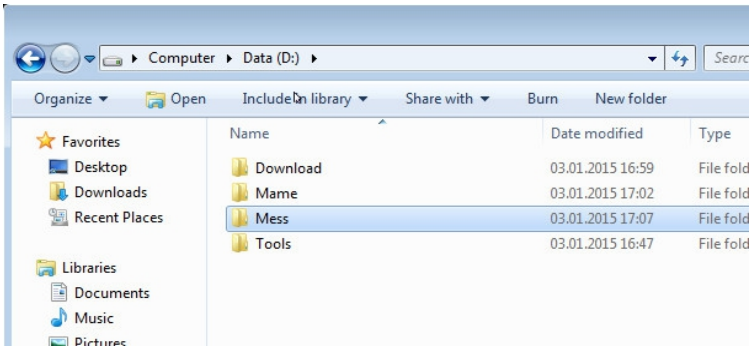
I know that we have installed MAME not in a perfect way. But I'm sure that you as a Linux expert will do it much better and have seen how we can install/use MAME in a Linux environment :-)

Chapter 3: MESS

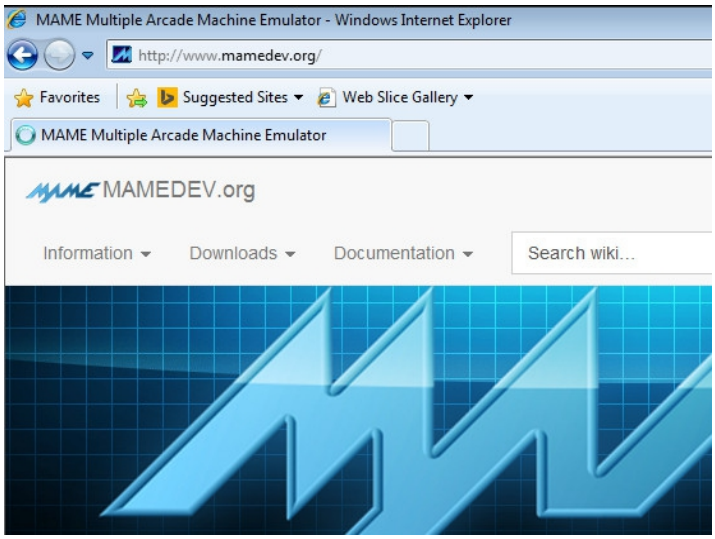
In this chapter we look into MESS (**M**ulti **E**mulator **S**uper **S**ystem) how to install and using it. As it shares the same source-code you can create from the MAME-Source-code also the MESS binaries. You will see that the handling is similar to MAME.

Installing MESS (Windows)

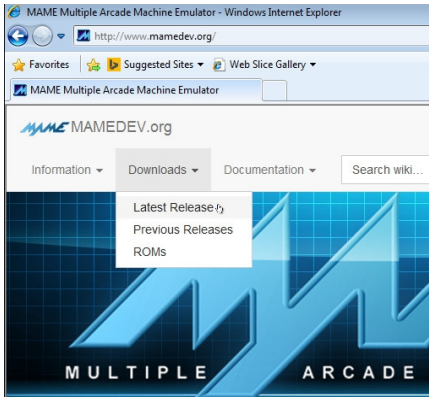
First we create a folder called “Mess” on the data drive



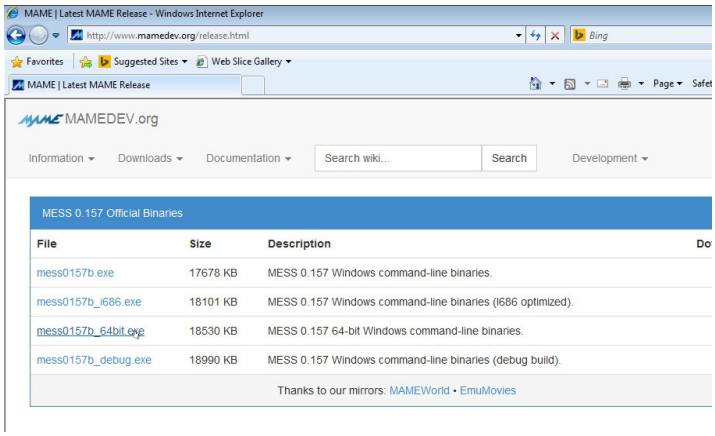
From the MAMEdev website we download the packages



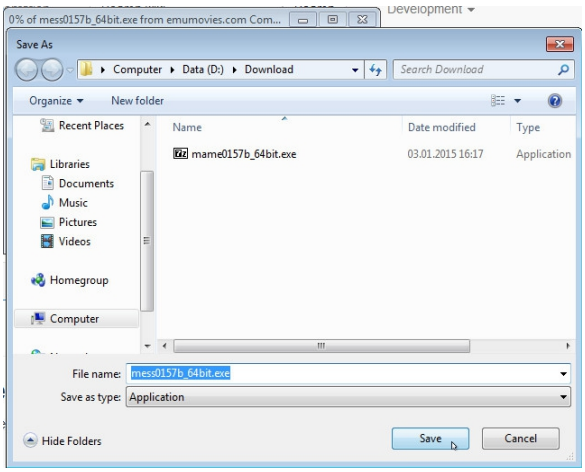
Under “Latest Release” you will find the download



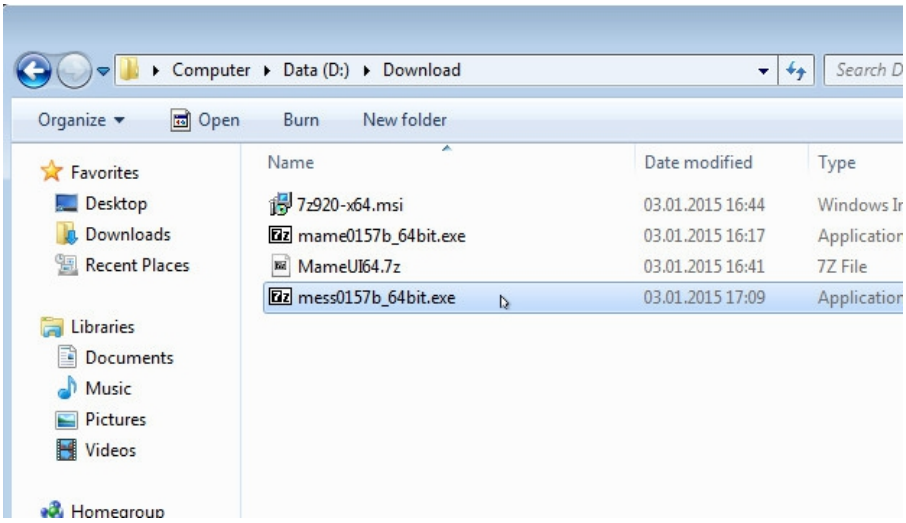
Scroll down to the MESS-Section and choose the 64bit version to download

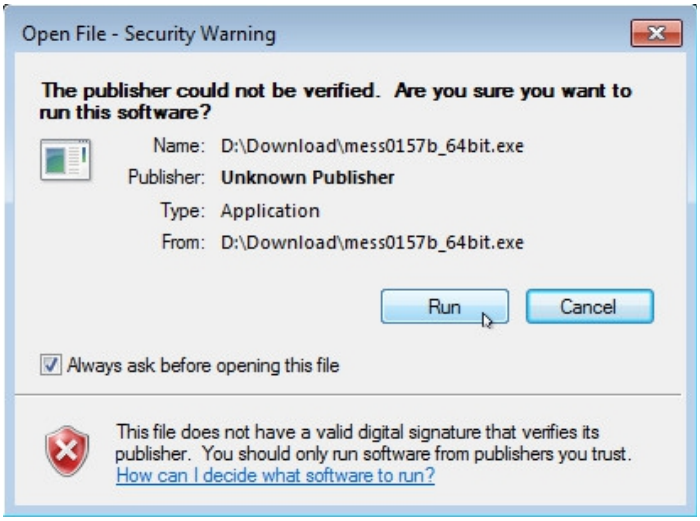


Safe it to our download folder

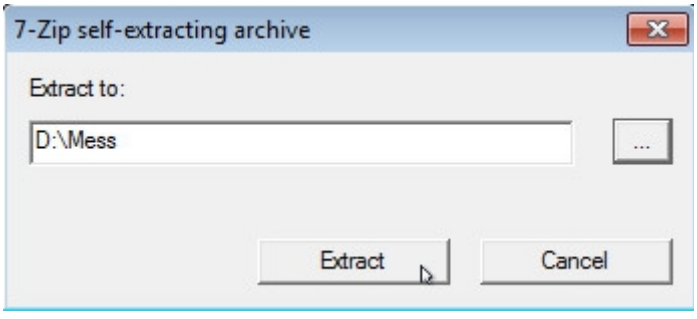


Start the installation by double-clicking the exe

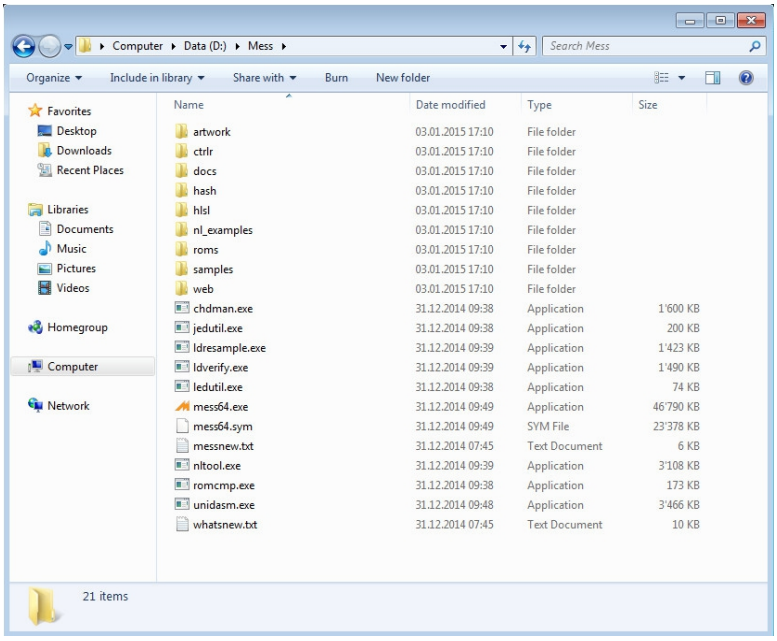




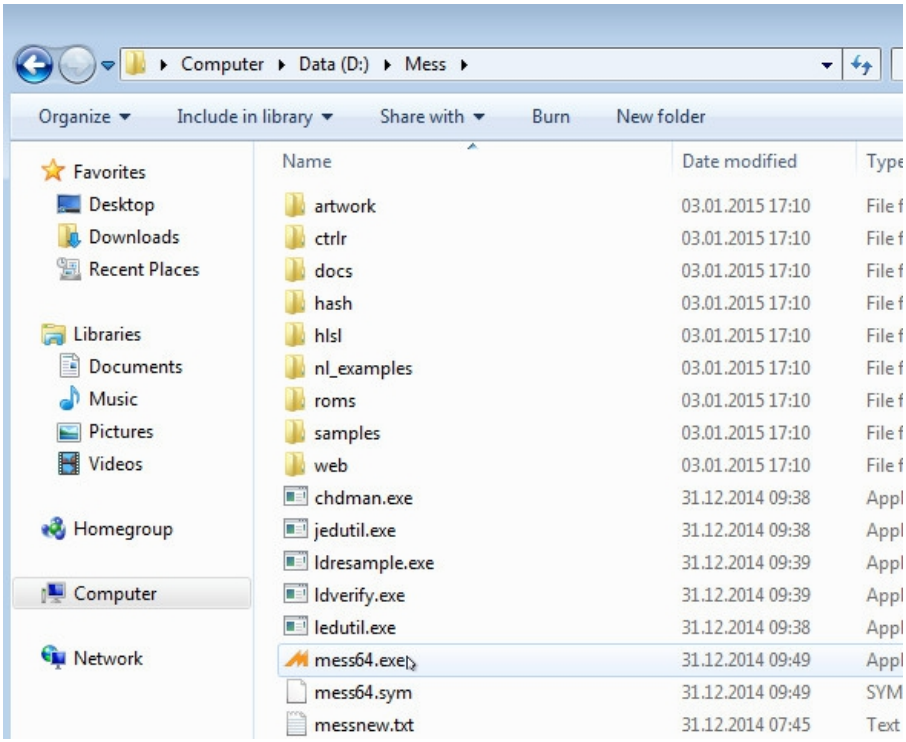
Extract it to the mess folder



Your MESS folder should looks like that

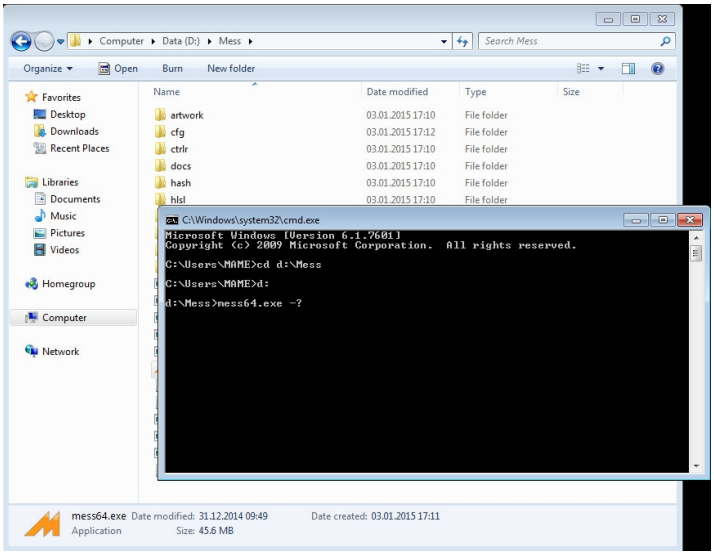


Start the emulator mess64.exe

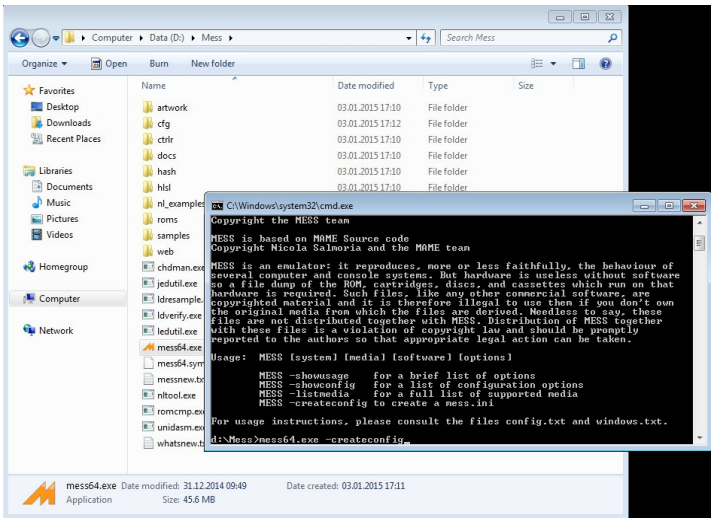


As we have not installed anything else (BIOS/ROMs) this message appears

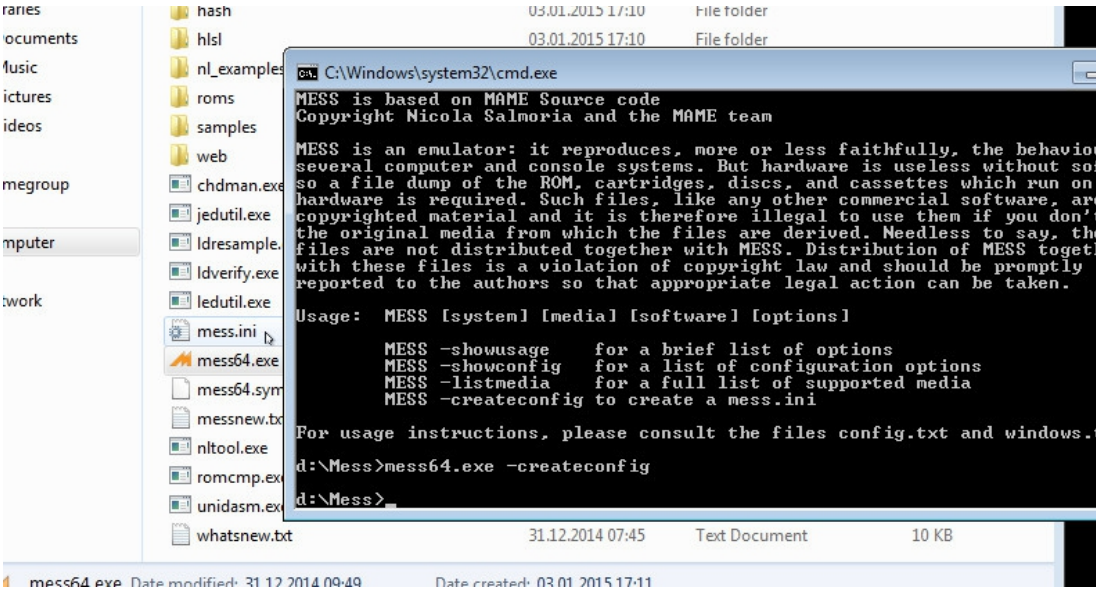
We open a cmd-window and navigate to the mess folder



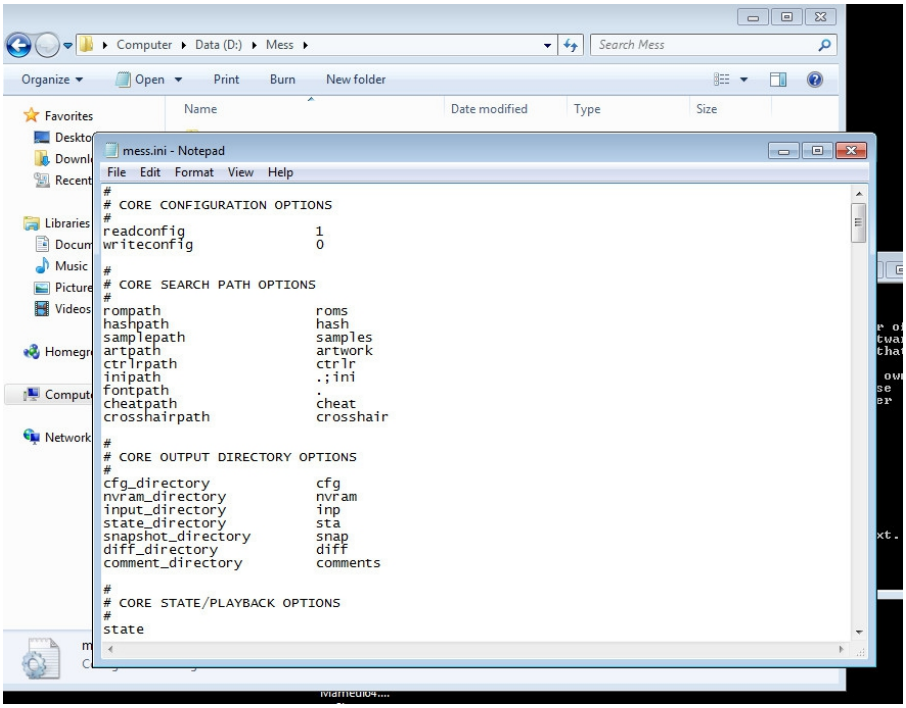
The handling is the same as MAME. “Mess64.exe -?” shows us the version and some information.



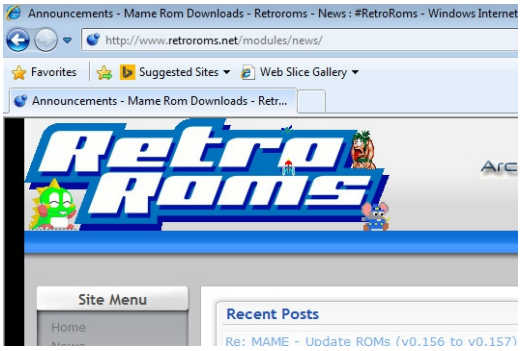
We create a default mess.ini for this emulator by typing “mess64.exe -createconfig” (yeah right exactly as we did it for MAME)



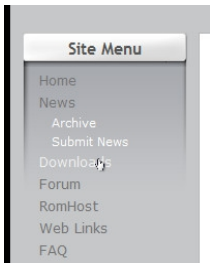
This ini-file contains the settings. Leave it as it is for now.



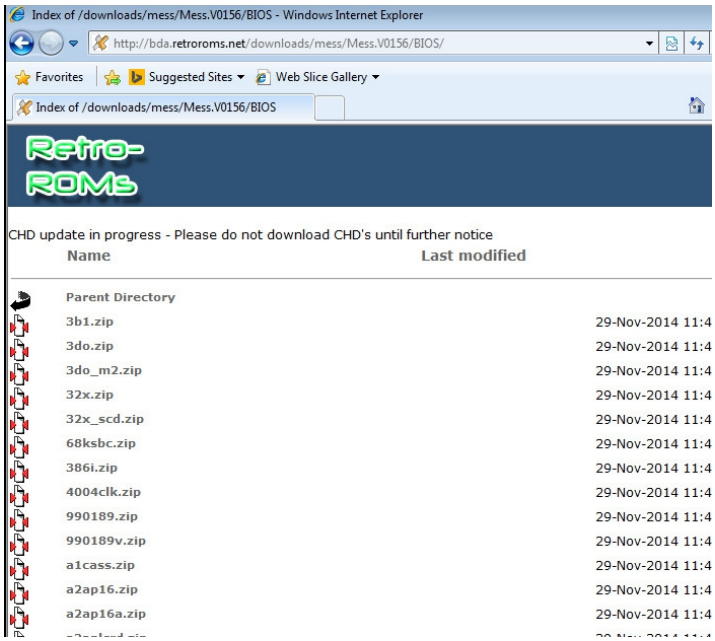
Now after the installation we want to test it. Again go to Retroroms.net



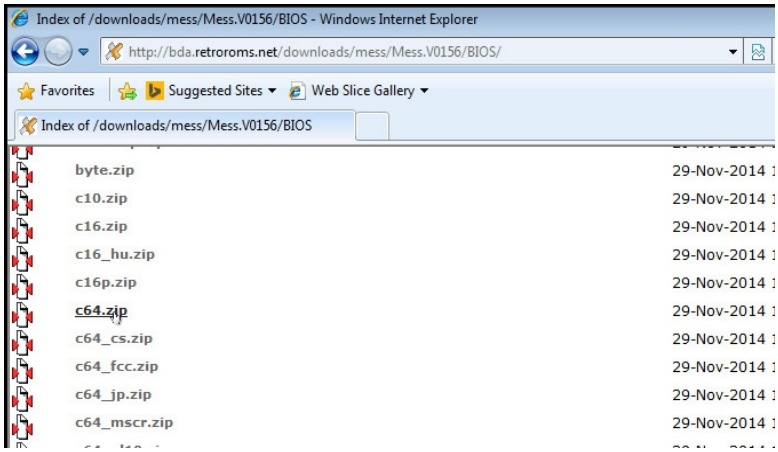
Under “Download”



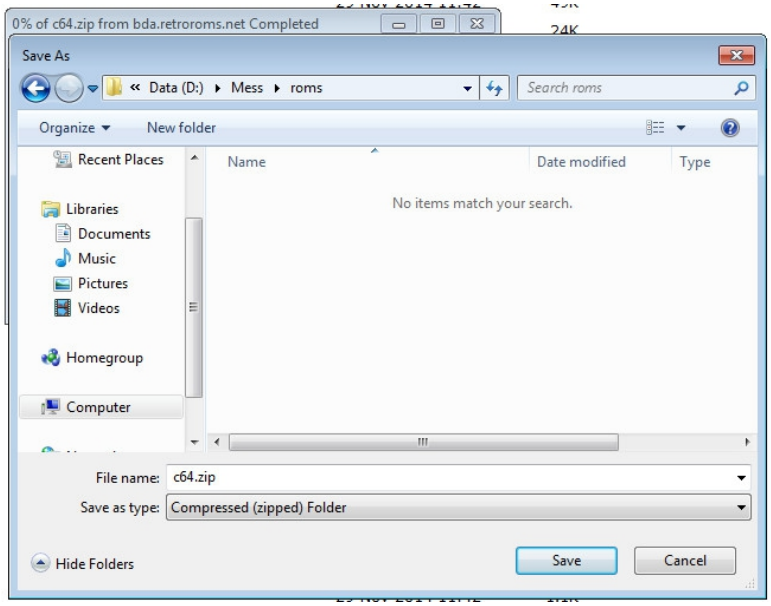
Switch to the Mess-Section



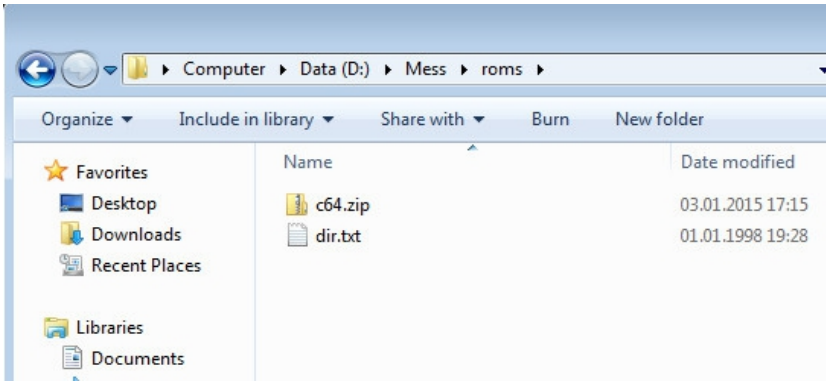
And download the BIOS for the c-64



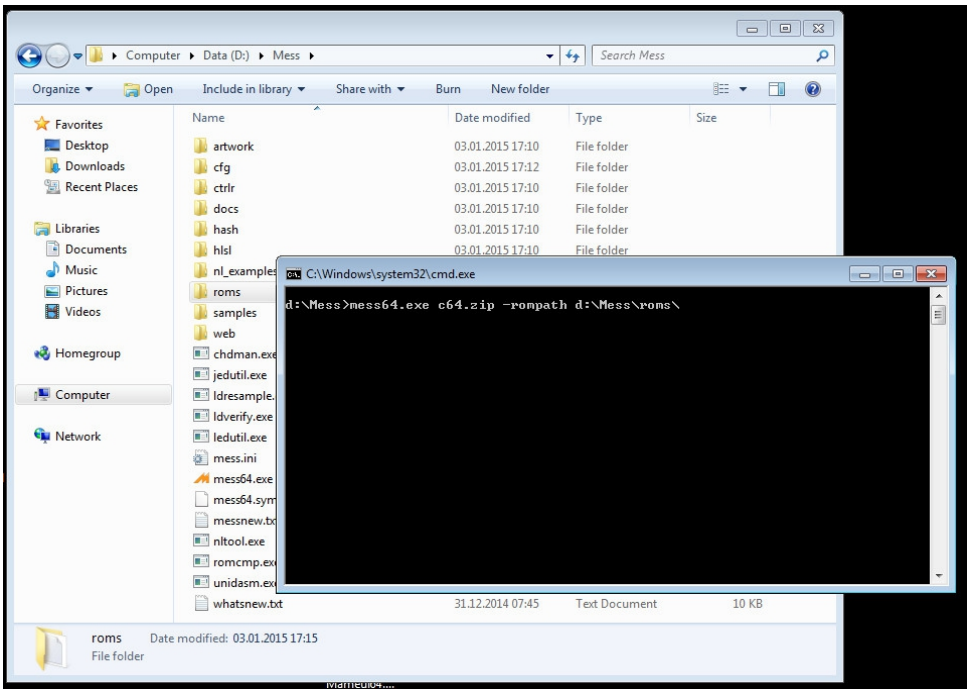
Download it to the Mess/roms folder



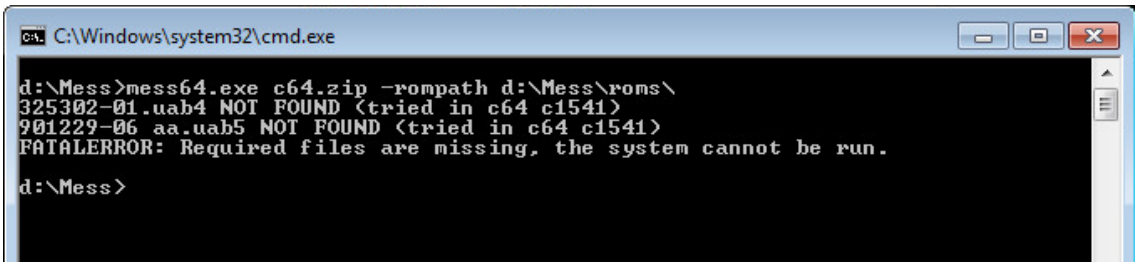
And as we did it for MAME leave the zip-file untouched..



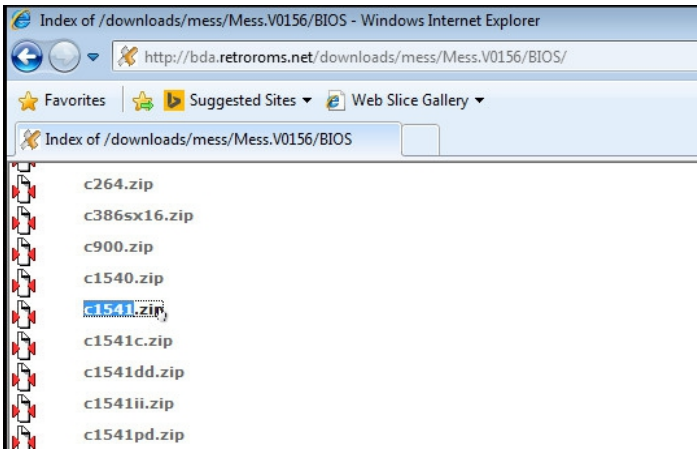
We try now to start the emulator with the C-64 BIOS



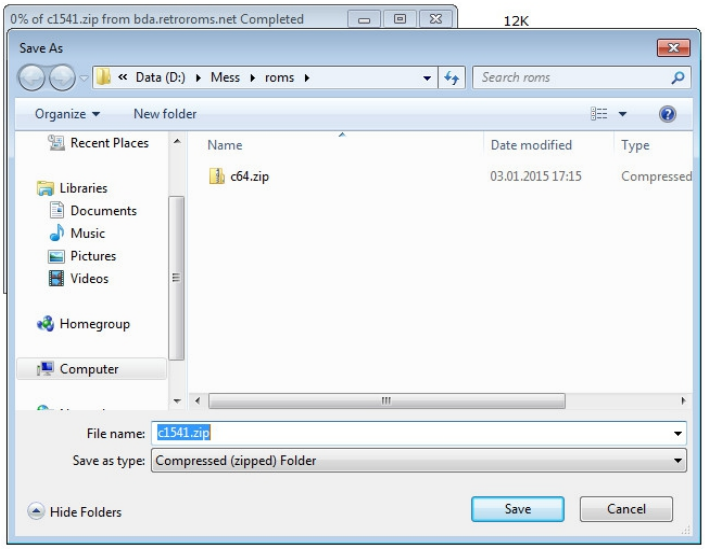
Upps seems that we have a missing file → c1541



Download from Retroroms.net this c1541.zip



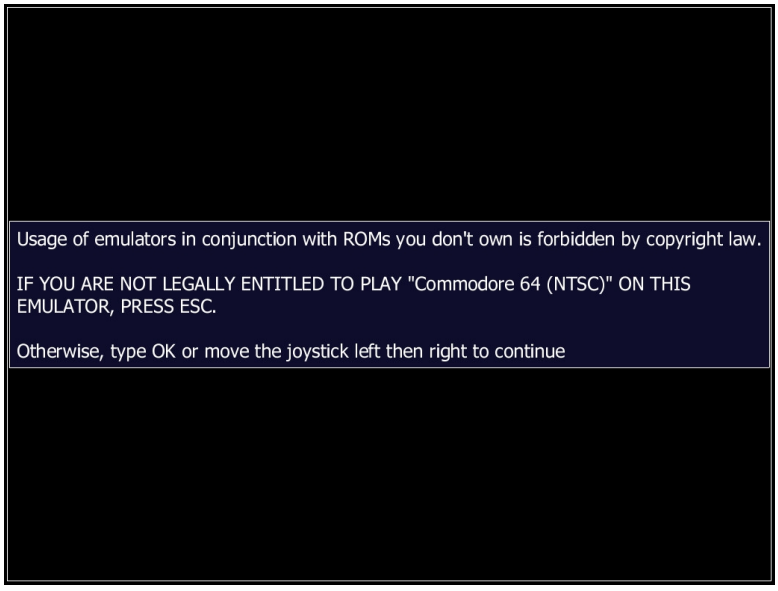
And place it to the MESS/ROMs folder..



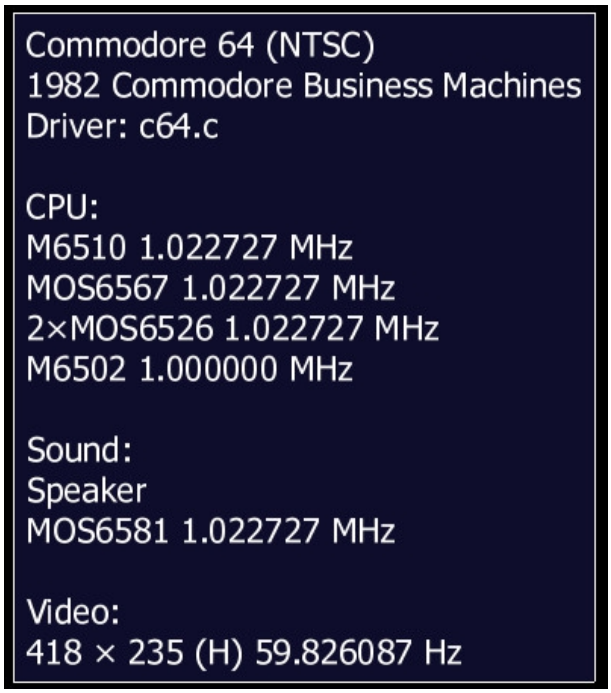
Now we start the same command again

```
d:\Mess>mess64.exe c64.zip -rompath d:\Mess\roms\_
```

Yes the emulator starts. The following message must be confirmed by pressing “o” and “k” → be sure that you own that system!



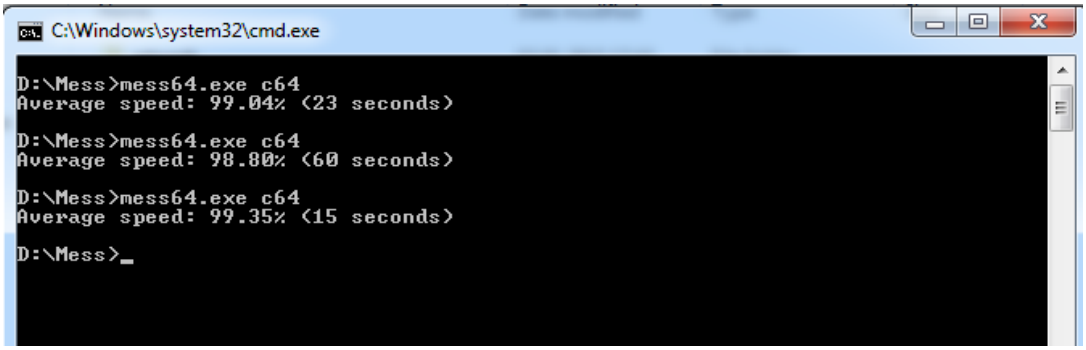
Now it displays the hardware specification that the C-64 have.



The Emulator starts the C-64 emulation

When you want to quit the emulator you will see that “ESC” does not work. But how can we exit it? Press the key “Scroll lock” and you will see a pop-up that tells you that the keyboard emulation status is changed.

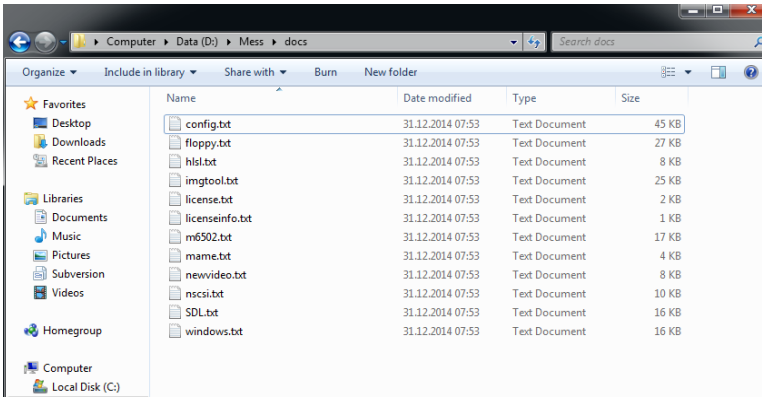
And now you can quit the emulator by pressing the “ESC”



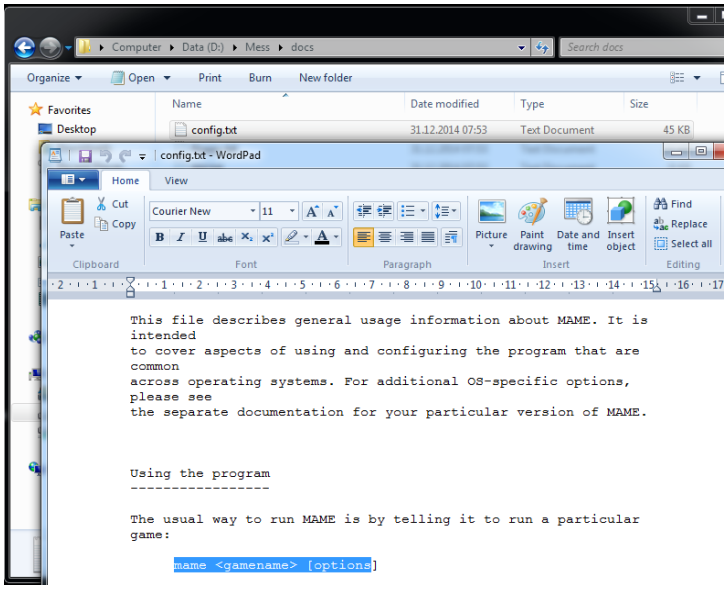
Using MESS (Windows)

We have installed MESS and started to emulate a C-64, that was quite easy. Mess is a little bit complicated than MAME. You have to load first the system you want to use and after that you have to choose from which media a game should be loaded. Sounds not easy, let's try it step by step.

Hmm MAME had some txt-file in the doc folders as a help. Maybe MESS has that too …..

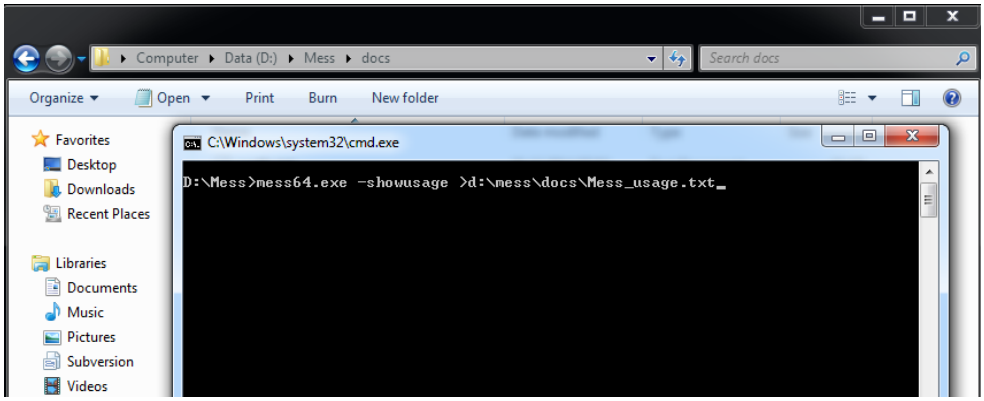


What's that? MAME?

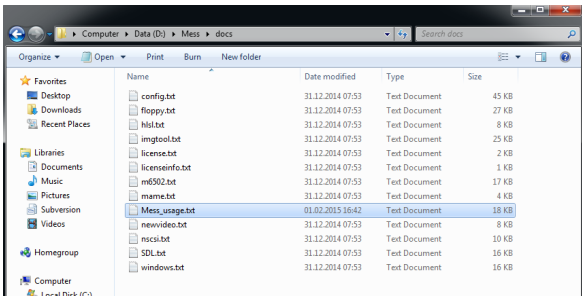


Yeah a little disappointed only MAME information is available. But no worry we will create a txt-file with MESS information ourself.

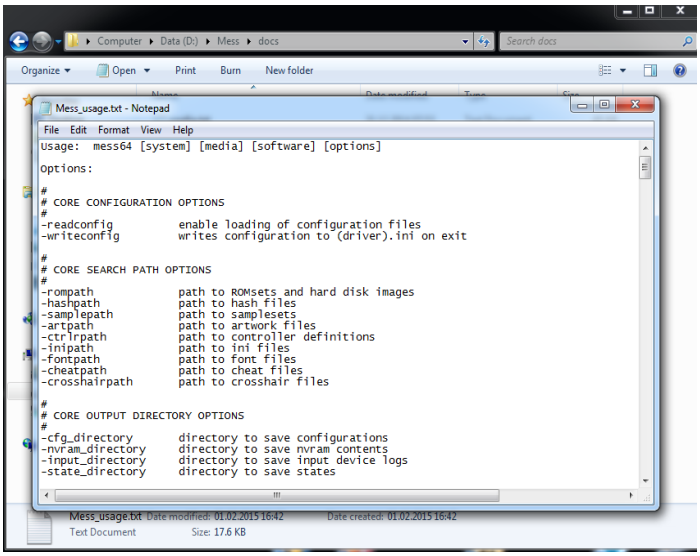
We use the emulator itself to write some information to a text file.



We have now an information text file.

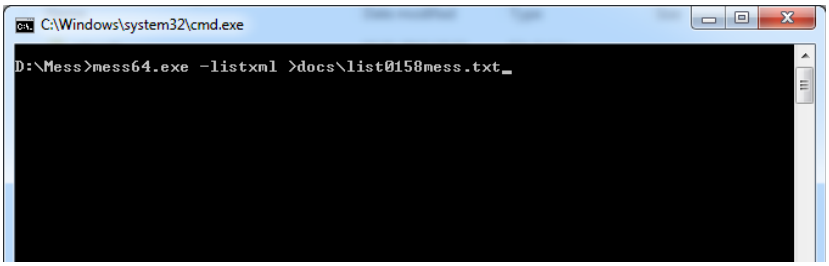


In this text file are all available options listed.

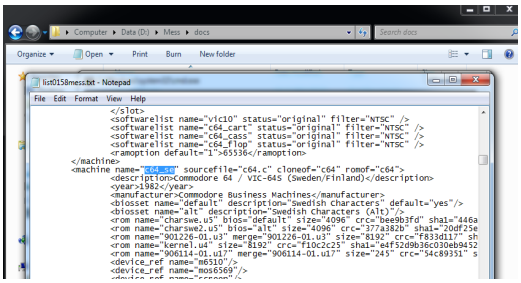


Okay so good so far but this command “mess.exe <system> <media> <software> <options>” gives us more questions than answer.

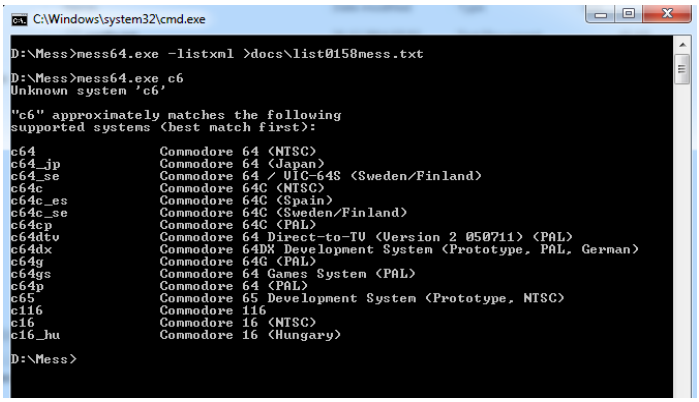
How do I know what system is available? Let's dump the emulated software into a file (also known as a DAT-file).



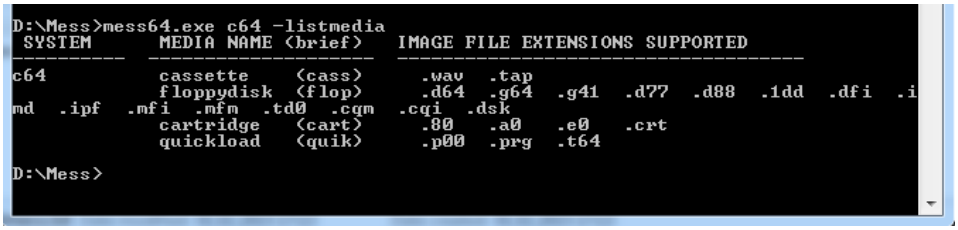
When we open that file in Notepad we can find systems but it is not a perfect way to find out if a system is supported or not.



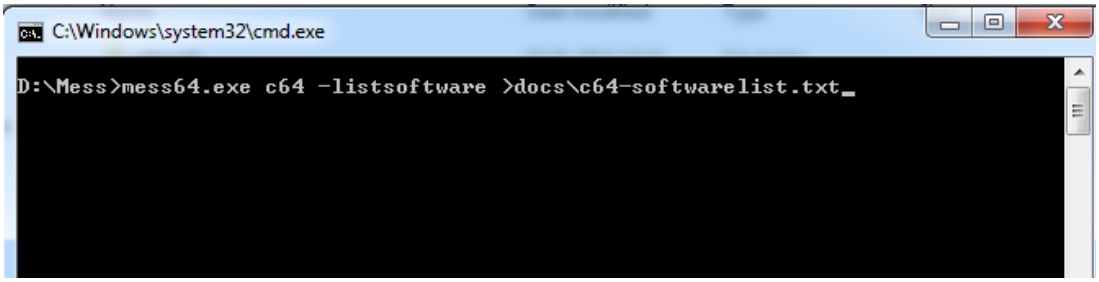
But is there not an easy way to find out what we are looking for? Yes it is and it is so simply, just type in “mess64.exe” and followed by some letters. If the emulator can not find this entry it will displays systems that could be used instead. Okay let's display now what c64 systems are available …



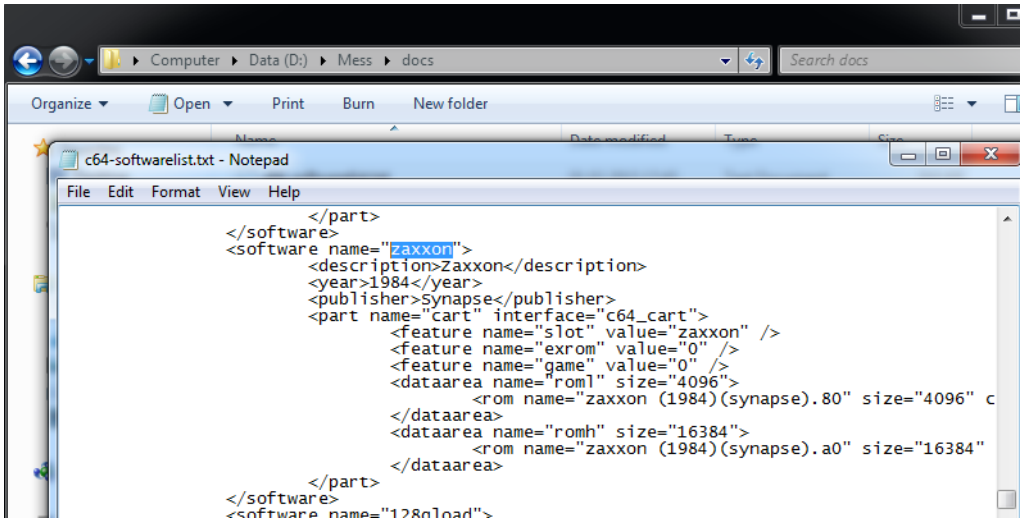
One step done we know now what system we can use. We will pick up the c64 as our example. And what was the next question, ah yes what “media” you want to use. This can be different for each system. You can find it out by typing this command:



That makes sense. Okay we know now what media we want to load, but how do I know what game could be loaded? There is an option called “softwarelist” that could helps us. Let's dump that information into a file.

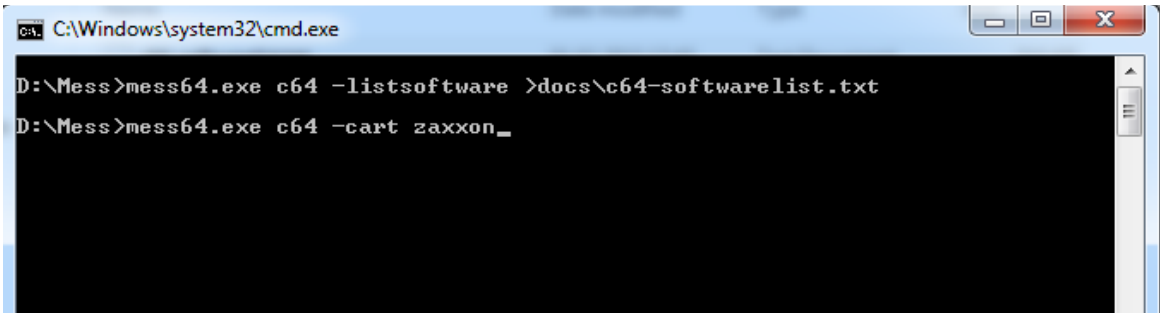


In this generated txt-file you will find the games which are supported and with what media.

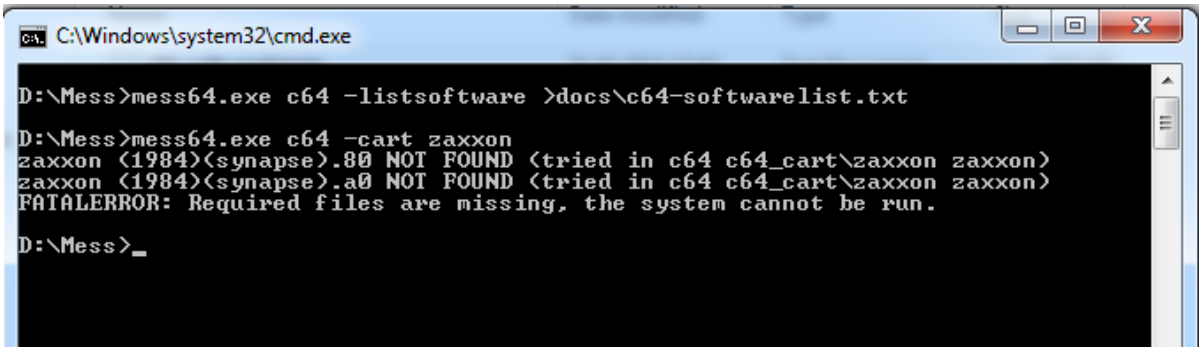


! In the mess\hash folder are all softwarelists already available as an XML-file

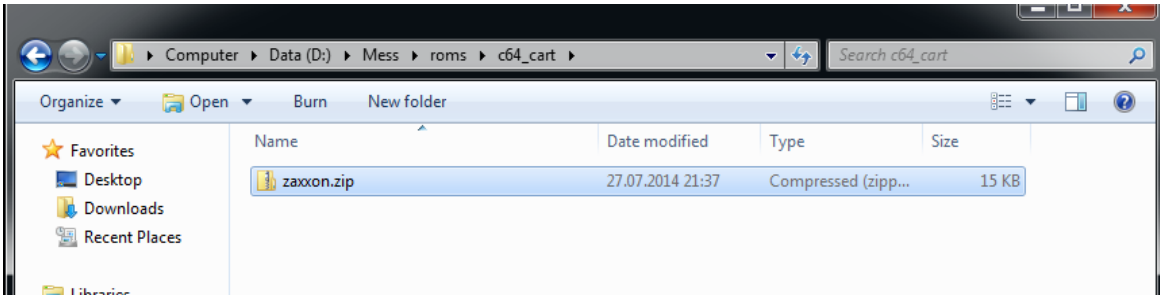
We what to load “zaxxon” within our c-64 emulator. We see in that txt-file that the media for this game is a cartridge (cart). Let's start the game..



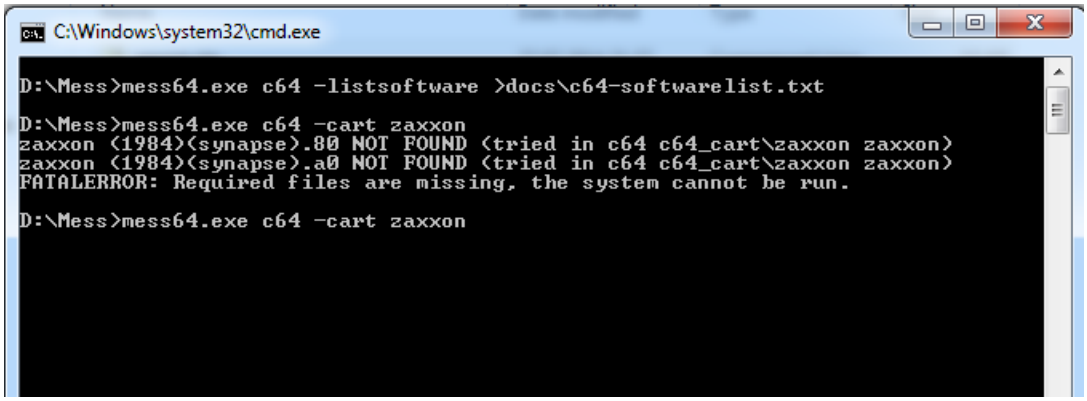
Ah sure we have not the software for it.



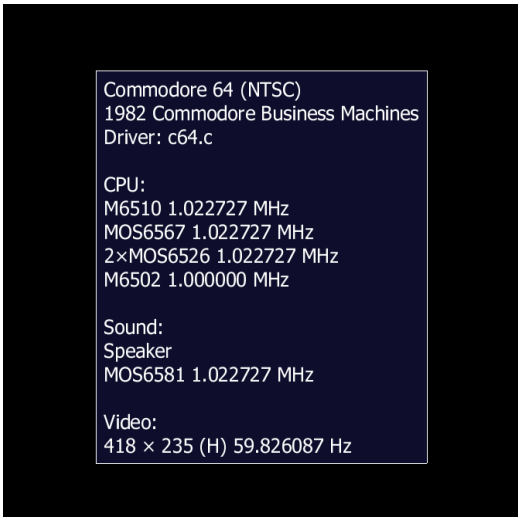
We download the zaxxon from the internet and put it into a folder called “c64_cart” in the mess\roms folder. Why? See the pic above it search for this game in c64_cart\zaxxon. And the ROMs folder is already in the mess.ini defined.



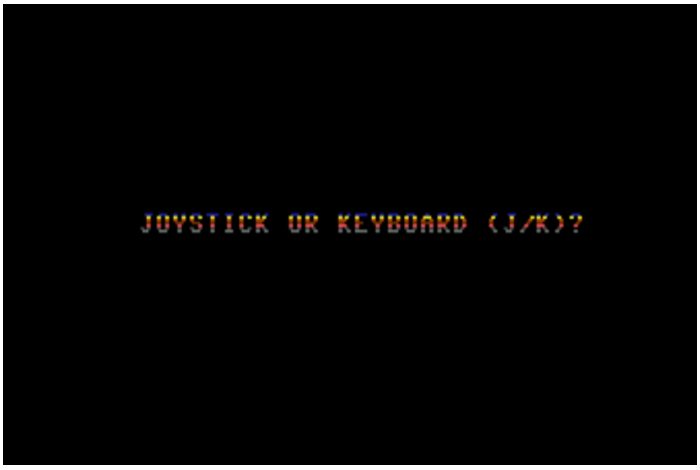
Start the command again

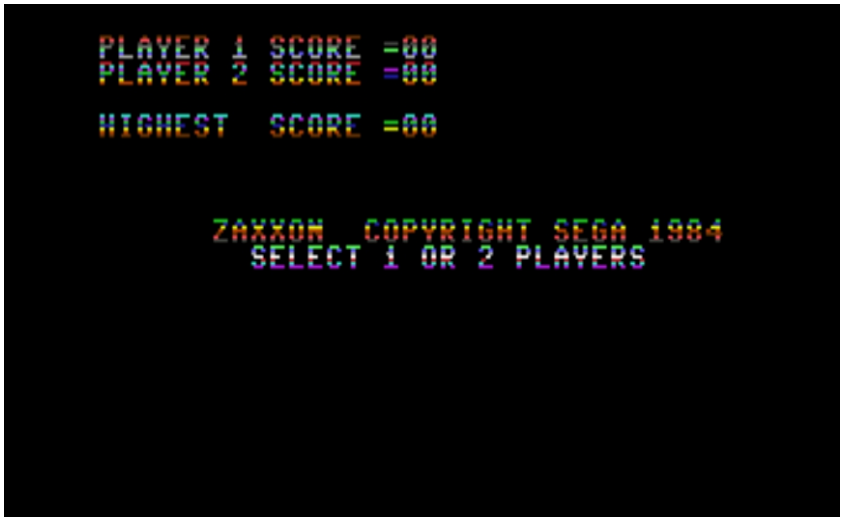


The emulator starts …

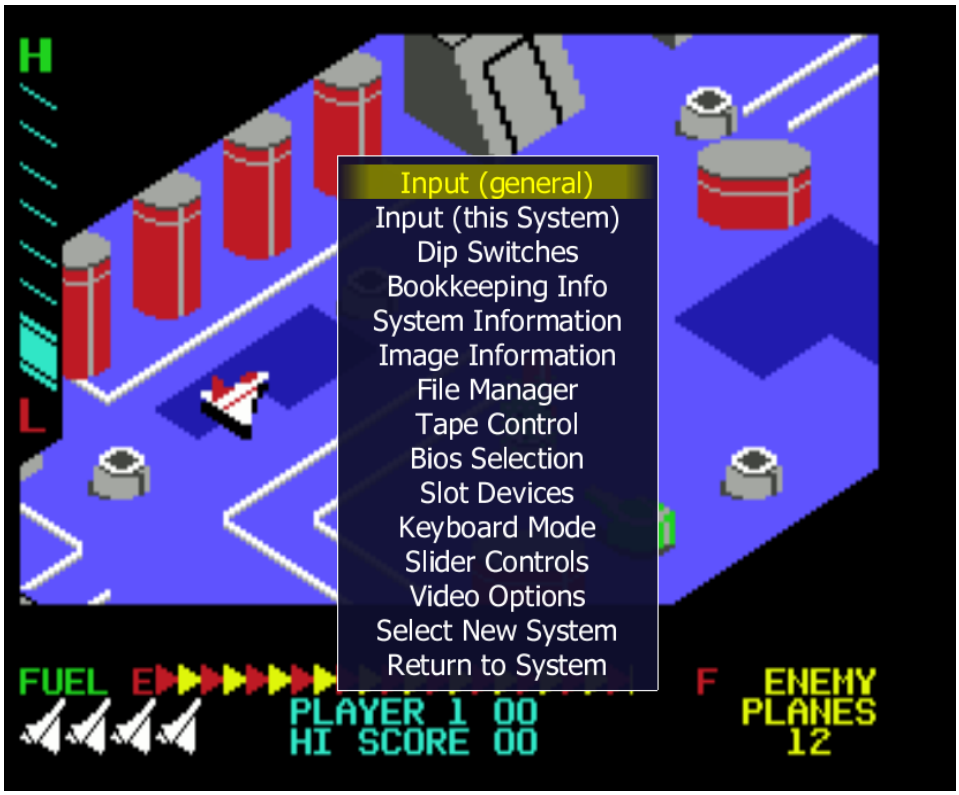


..and the wanted game too





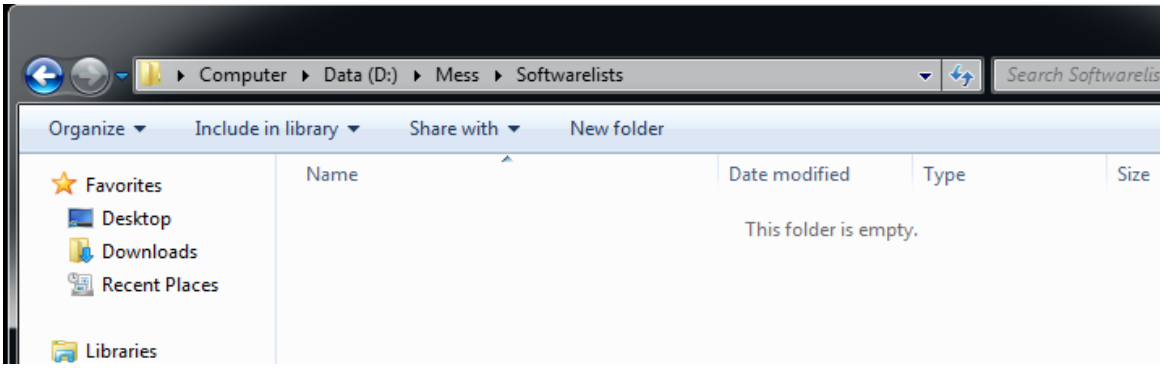
We press “Scroll lock” and the “tab” key. It will brings up a similar menu as we have it in MAME.



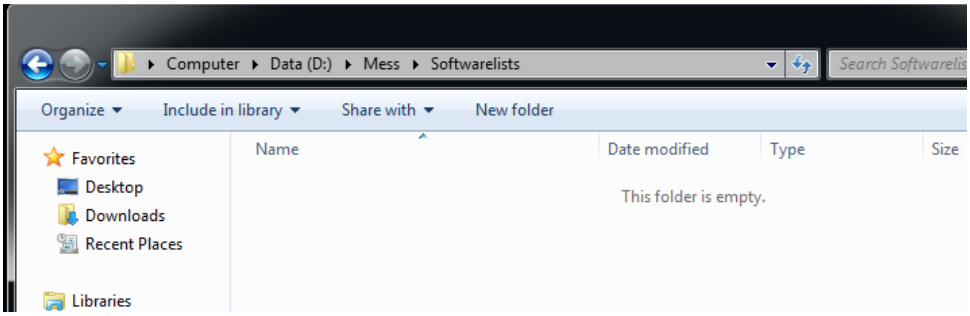
The operating is the same as it is in MAME so I will not describe it here again.

When we want to pause the game with “p” remember that this is a command that the system does not know. You have to press the “scroll lock” key first to have the option “p” available. It is a little tricky to change that keyboard mode. Now we are ready to fly with “zaxxon” …

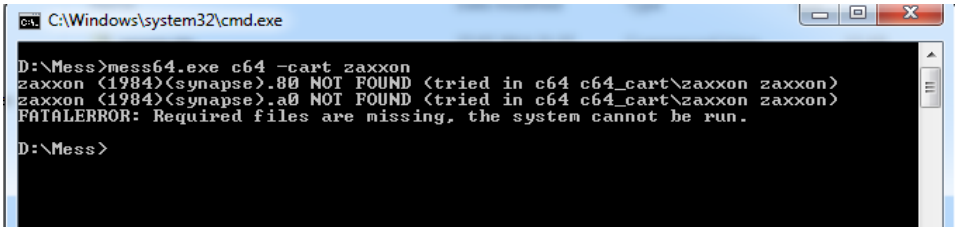
The software could also be stored outside the ROM-folder for a better organisation. Let's say we want the software here:



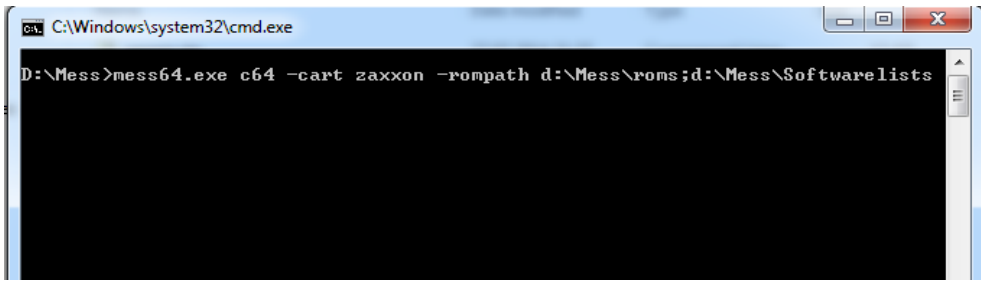
Move the c64_cart folder to this location.



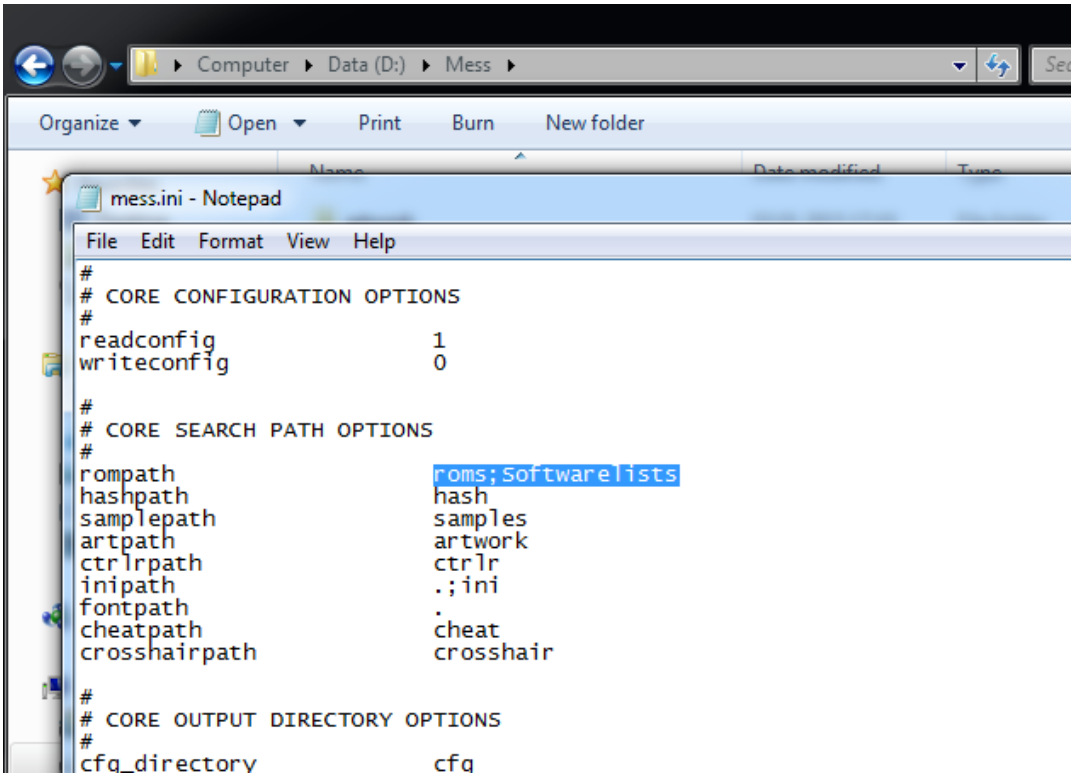
Start zaxxon again with the last commando and yes it will fails.



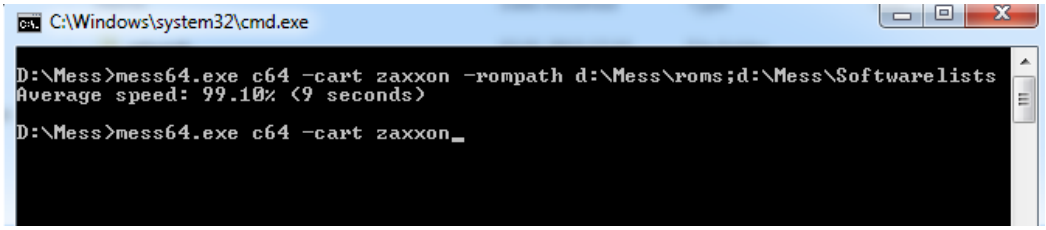
There are now two options to start it again. First is that you describe in your command where the carts and ROMs are:



The second option is that you write that into your mess.ini under [ROMpath]



Start the game again and you will see that it does now work with a separate software folder.

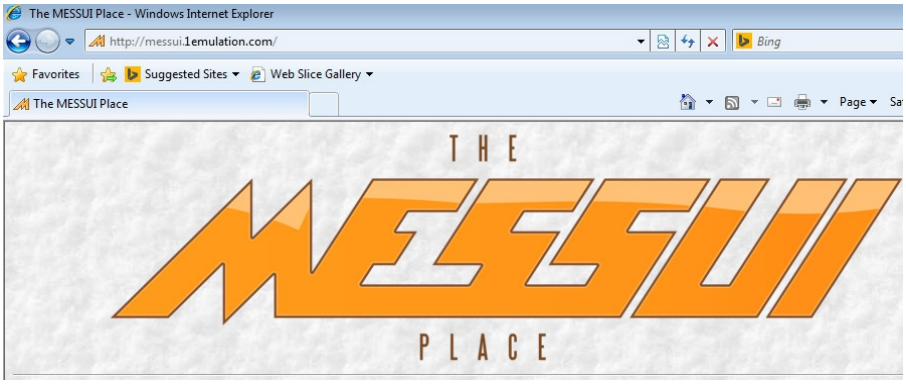


The structure within this software folder e.g. “c64_cart” is hard-coded in MESS. You can't change that the emulator search for the c64 carts below in a folder called c64_cart.

We have now seen how does MESS operates. Let's see if the MESSui is not a better way for playing a game …...

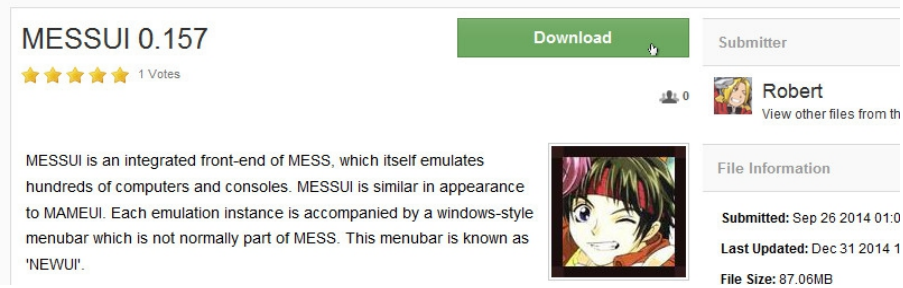
Installing MESSui (Windows)

Start a web-browser and navigate to :

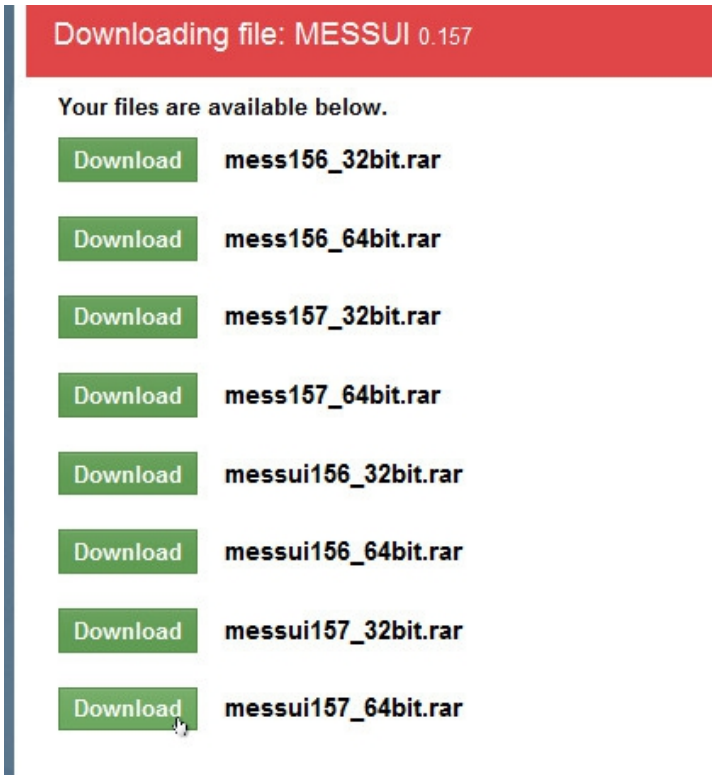


Look for the download section

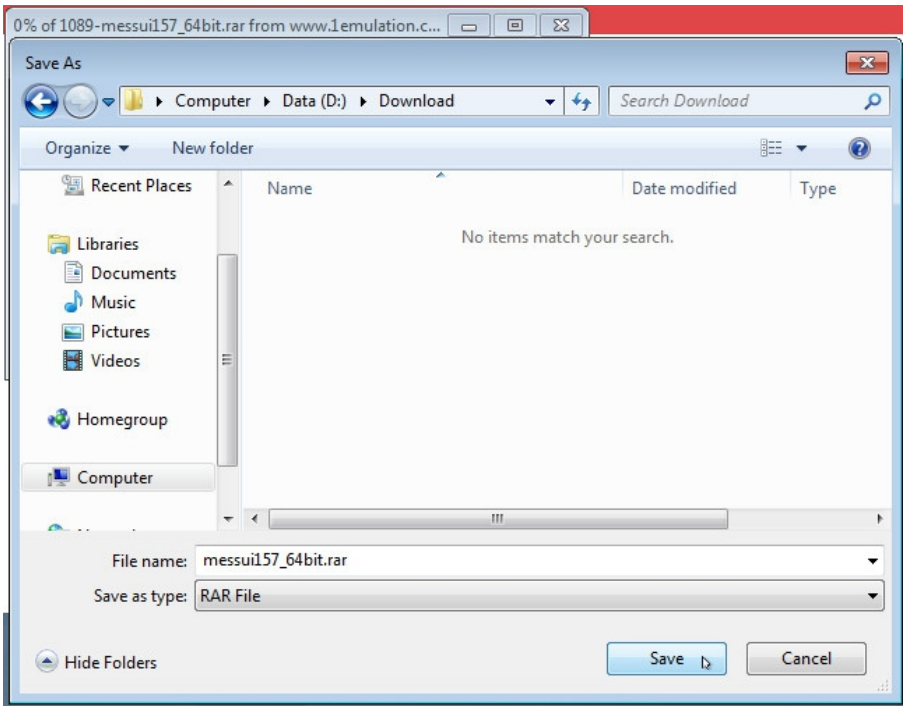
There you can download it



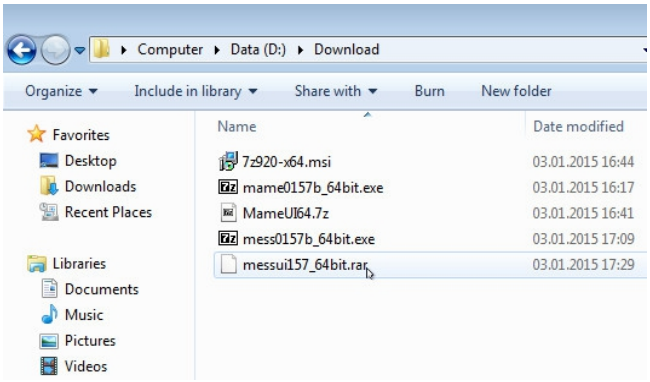
As we want the 64-bit version we choose the latest version number



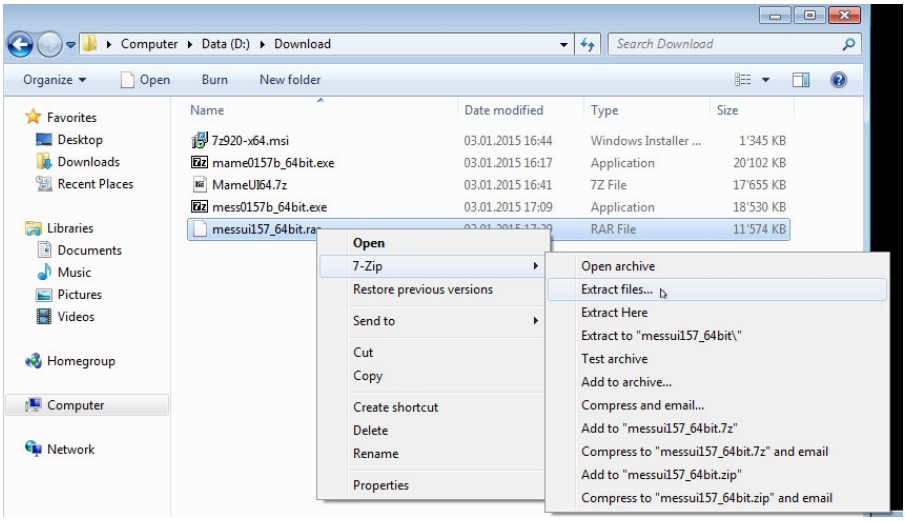
Save it to the download folder



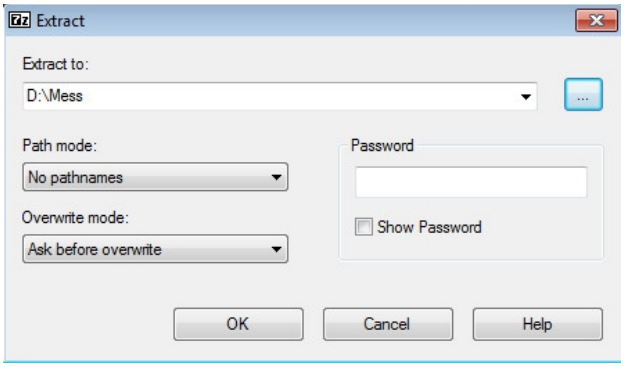
The file is packed with RAR



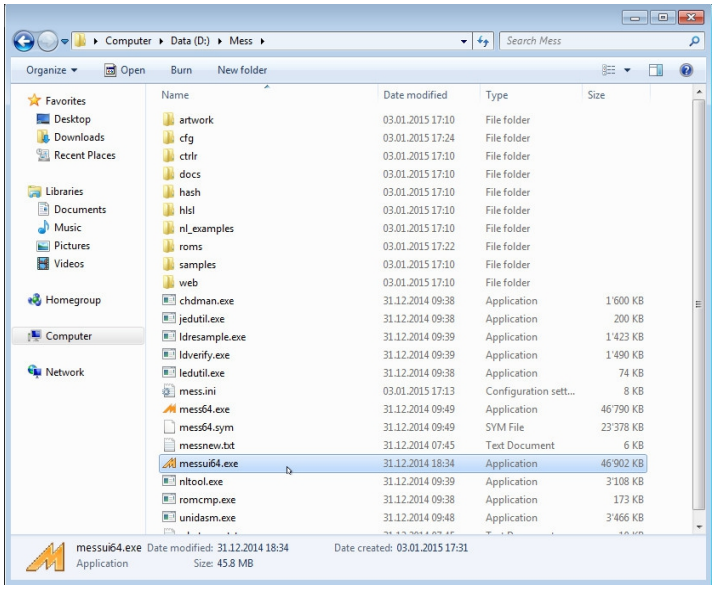
Right click the file and choose “extract files”



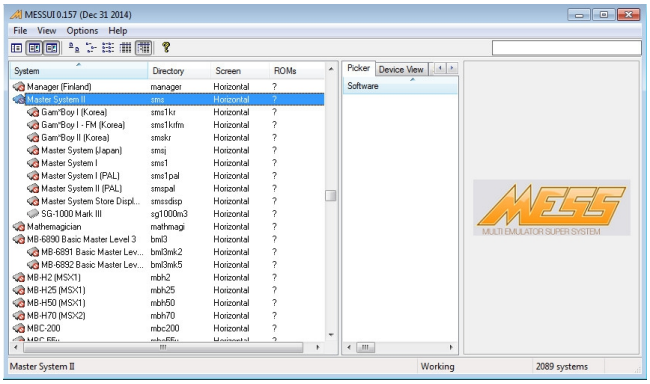
Point it to the mess folder



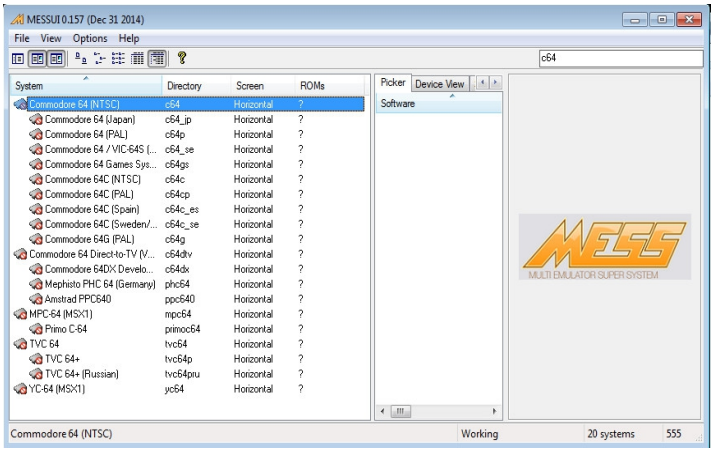
Now should be all files extracted and the folder looks like that



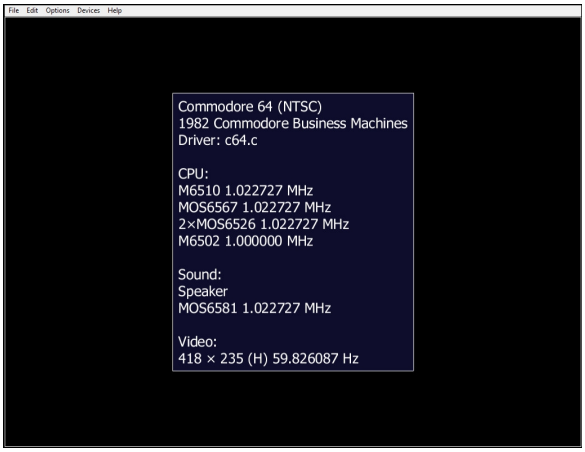
we start the emulator by executing “messui64.exe”. The emulator starts..



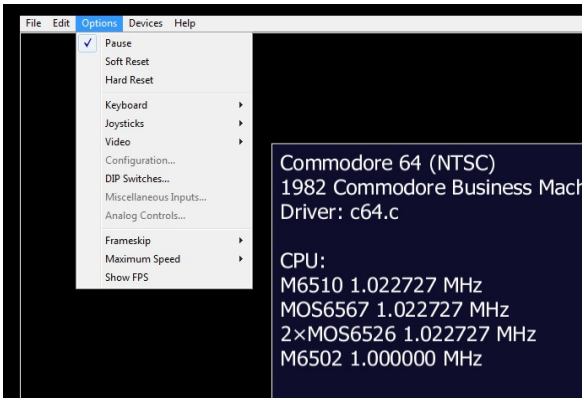
Let's test if we can start with this Ui the C-64 too. Search for the c64



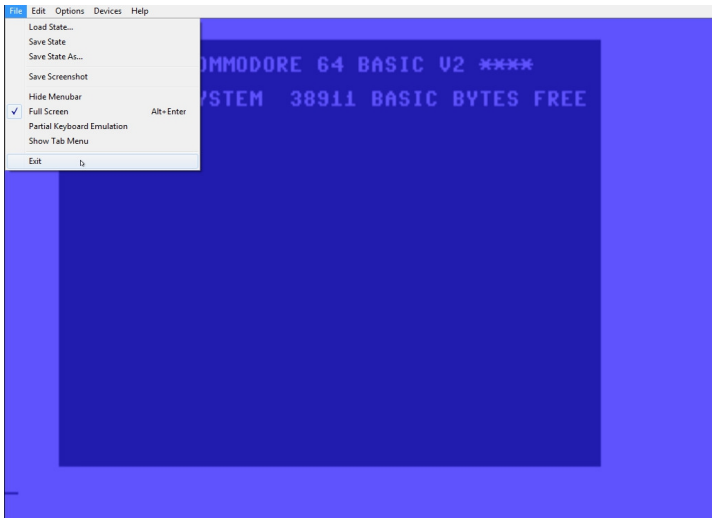
Yes it does start

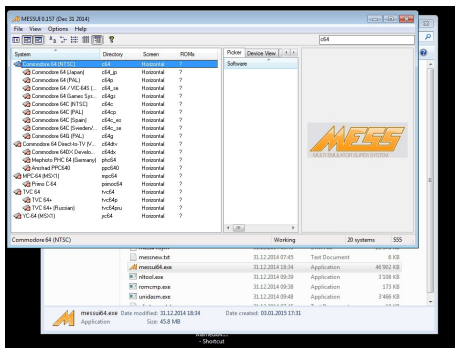


Note that we have now with this Ui-version comfortable menu drop-down lists available.

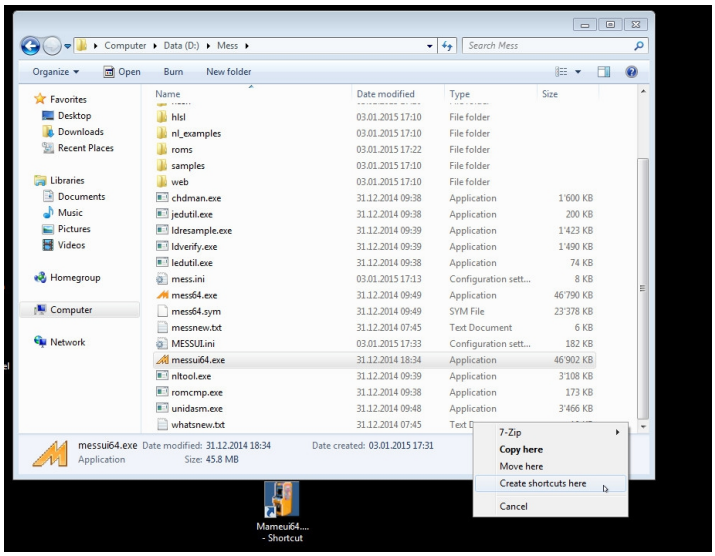


The emulator starts the C-64. We exit this emulation with “exit”

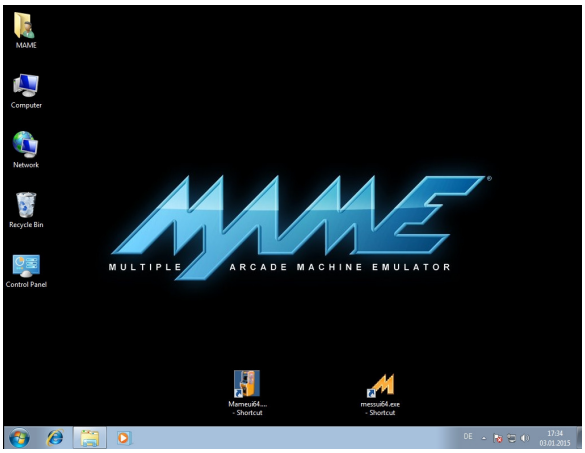




We create now a shortcut on the desktop. Drag-and-drop with the right mouse-button the exe to the desktop. From the menu you choose “Create shortcuts here”

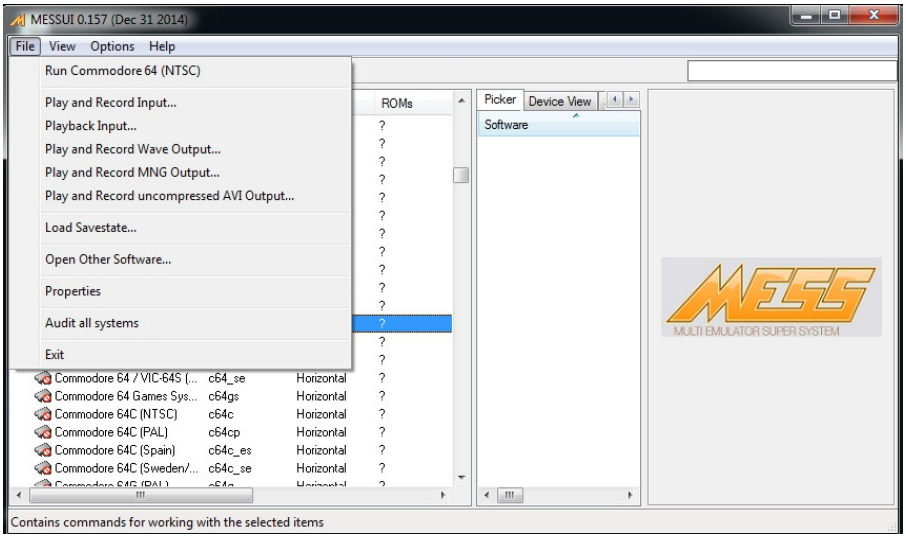


We have now a shortcut on the desktop for MESSui

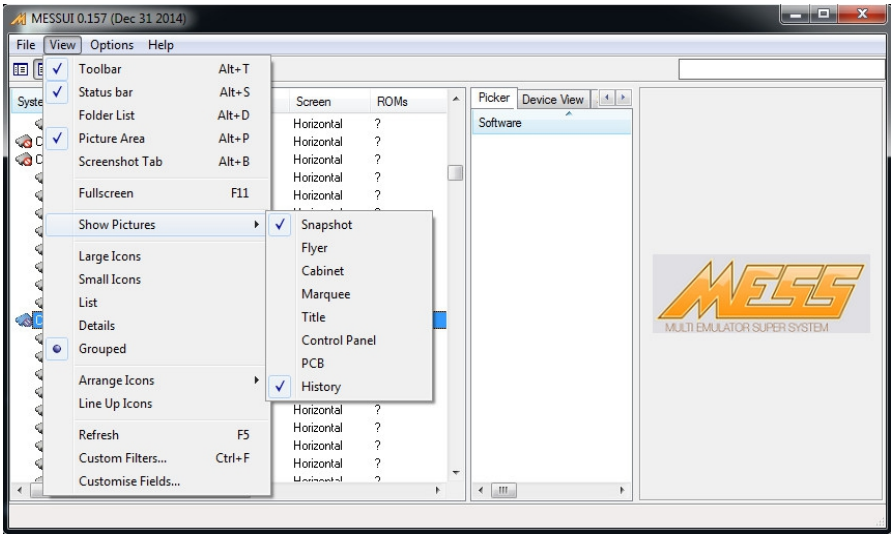


Using MESSui (Windows)

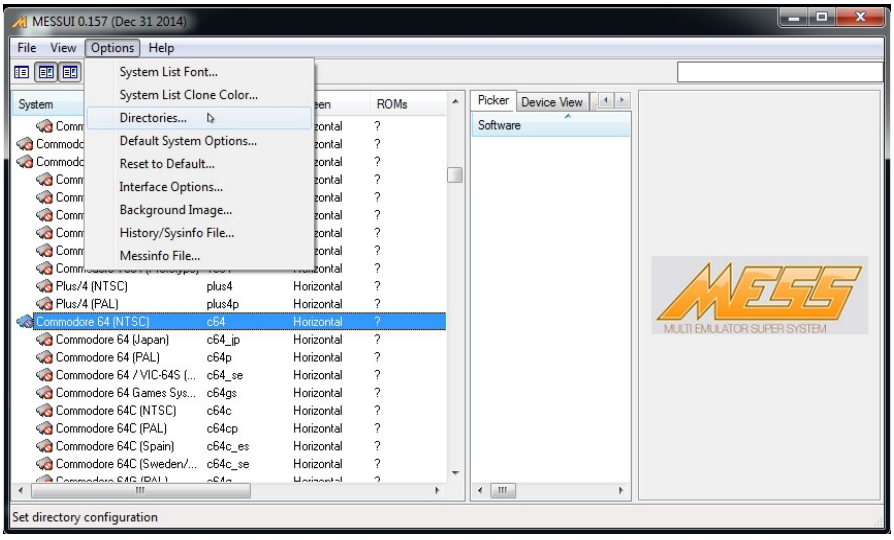
The program is more ore less the same as MAMEui. Under “file” you have the opportunity to start the emulator, to record a gameplay or to audit all systems.



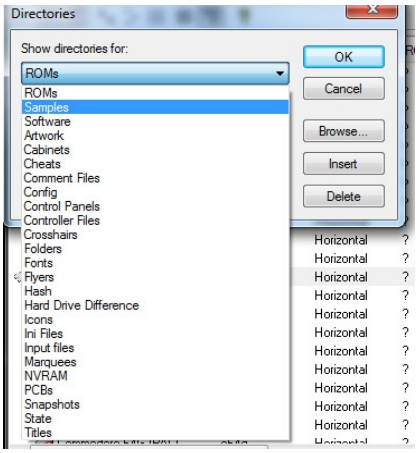
Under “view” you can customize how MESSui should looks like.



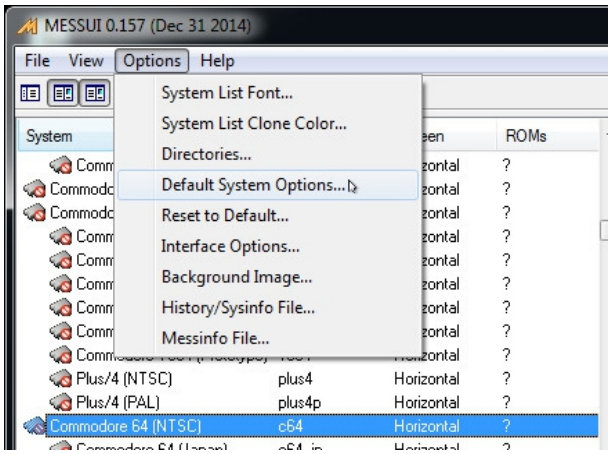
With the “options” you can change settings for MESSui or the emulator.



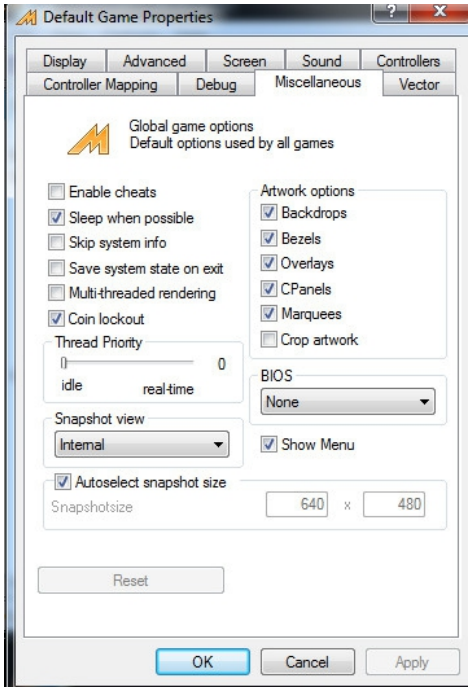
In “Directories” we can set additional folder-path.



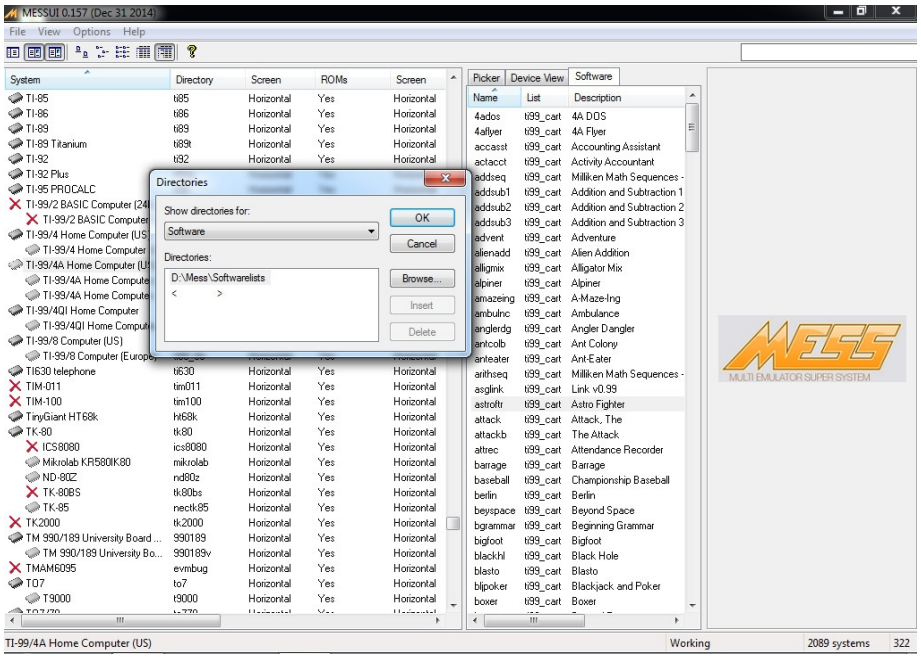
With the “Default Systems Option” we can define settings for all systems.



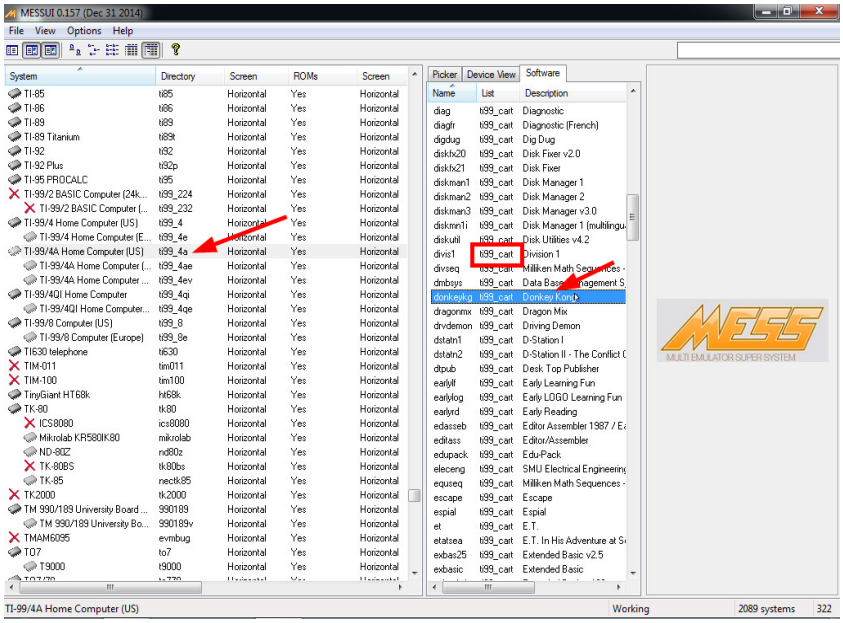
In this Default options we can for example set display settings or controllers.



We quit this options and don't forget to add the “Softwarelists” as an additional path to the “Directories”.

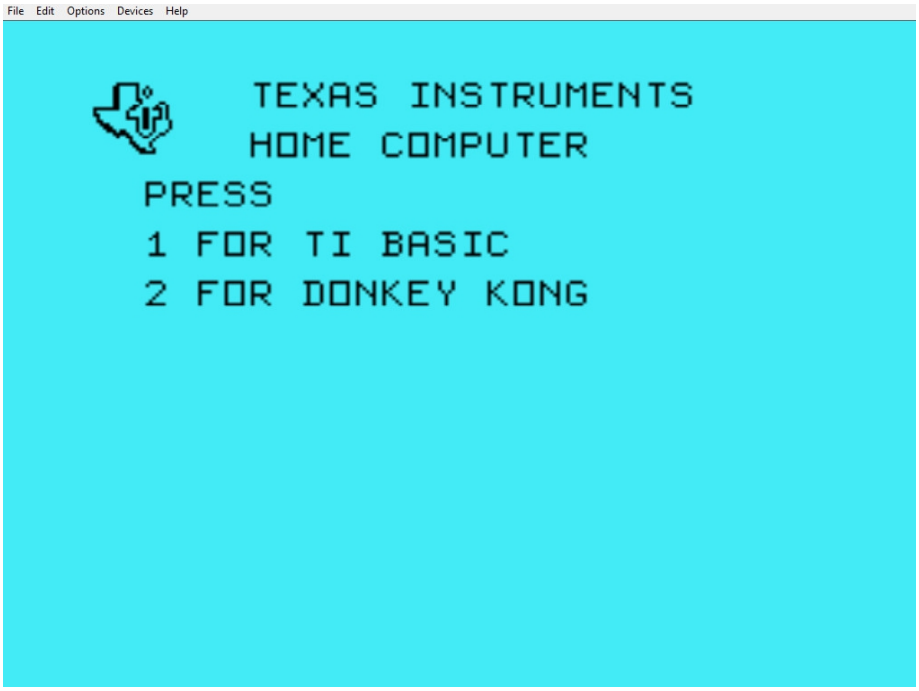


We have downloaded some games for the TI99-4a Home-computer and saved them to the softwarelists folder under “ti99_cart”. Remember this sub-folder must have this name as it it shown in this list.



We double-click “Donkey Kong” from the Software view for the system “ti99_4a”. The Emulator starts the home-screen that appears all the time you power on the system.

Press “any key” hmmm where is it? Yeah press a key and we can choose the game from the list as number 2.

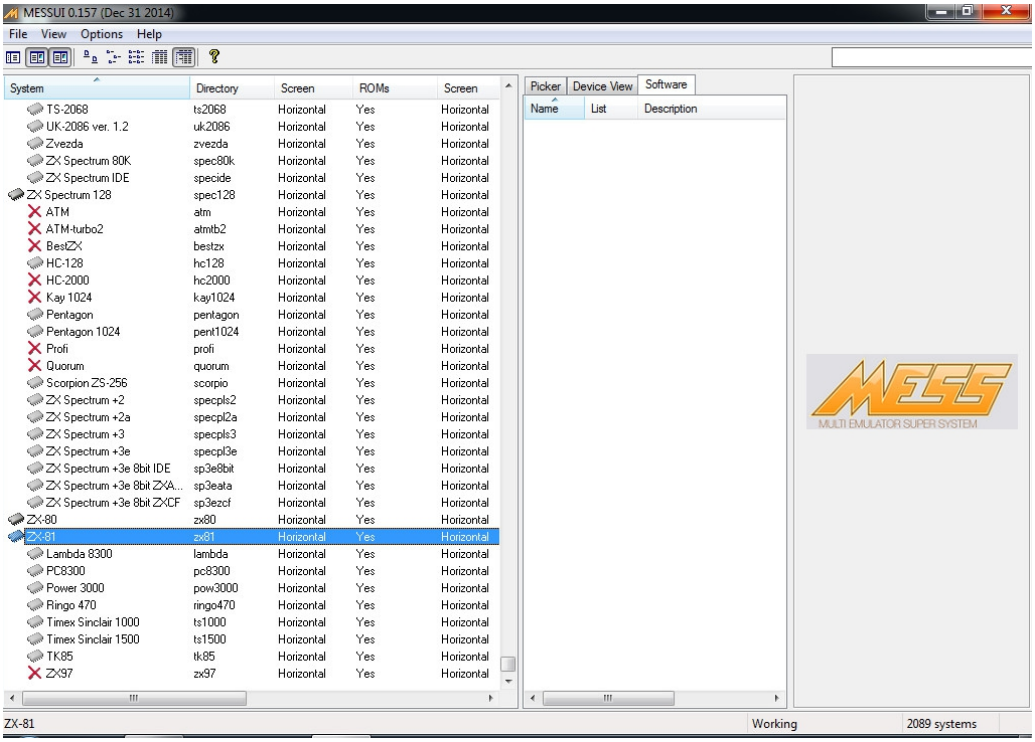


The game starts...

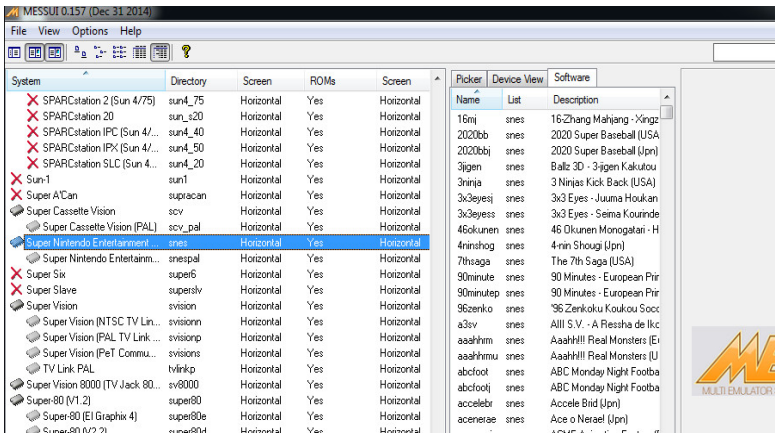
Yeah it looks not the same as the original but it does work.

Quit the Emulator and go back to MESSui.

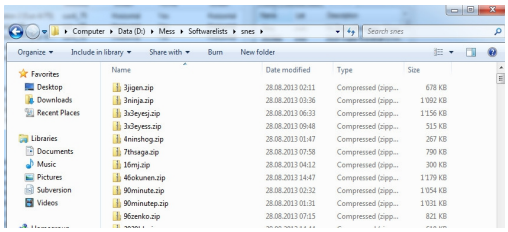
There are systems listed there that have no games available. You can see it in the “Software” view for example ZX81 has no software available.



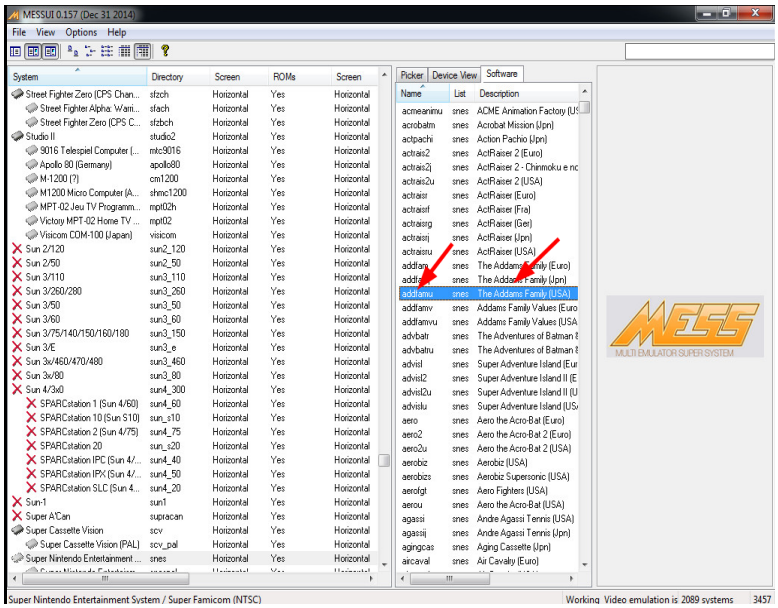
You can only start the system (Operating system). We try now another systems maybe SNES?



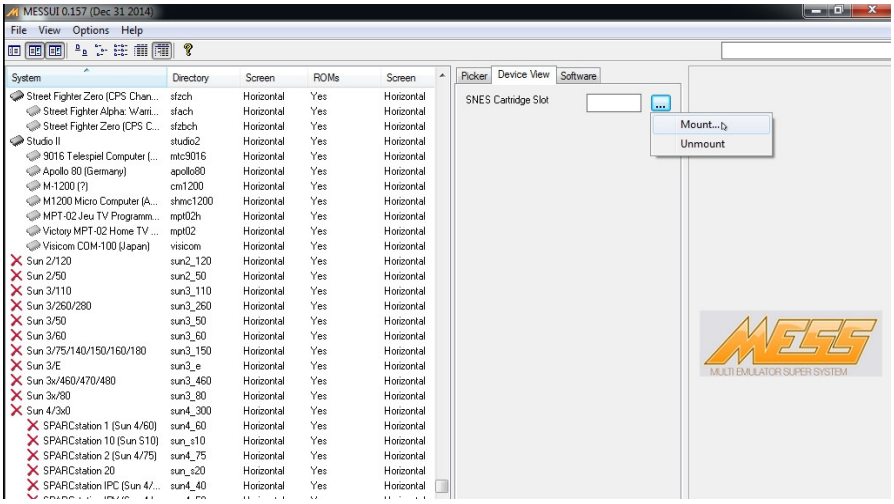
We have the software in a folder “snes” stored.



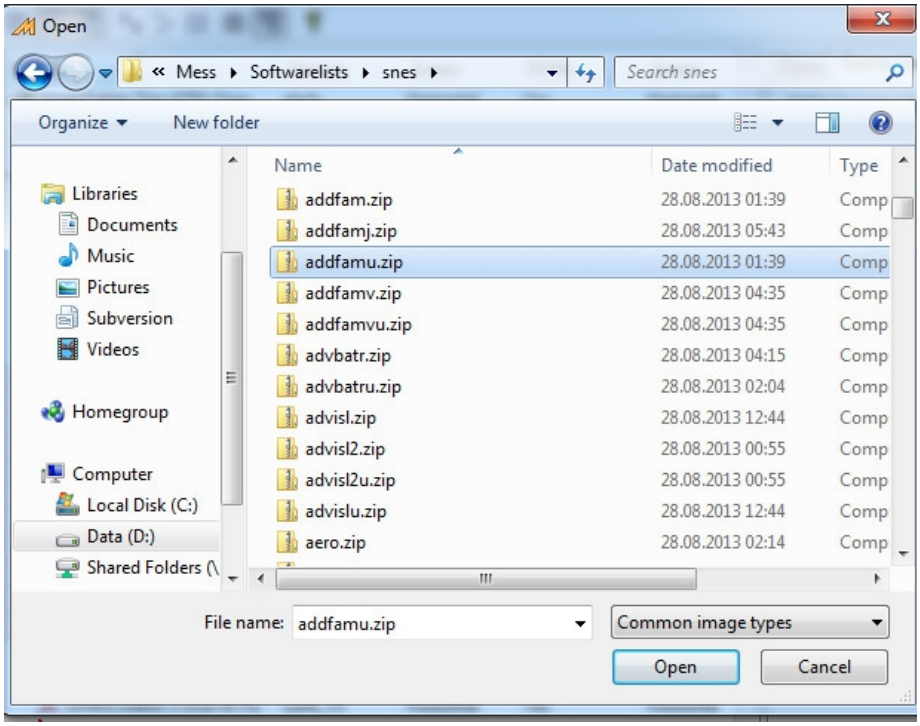
Each system you have to try how you can start the software. Let's choose “The Addams Family” from the list. It has the name “addfamu”.



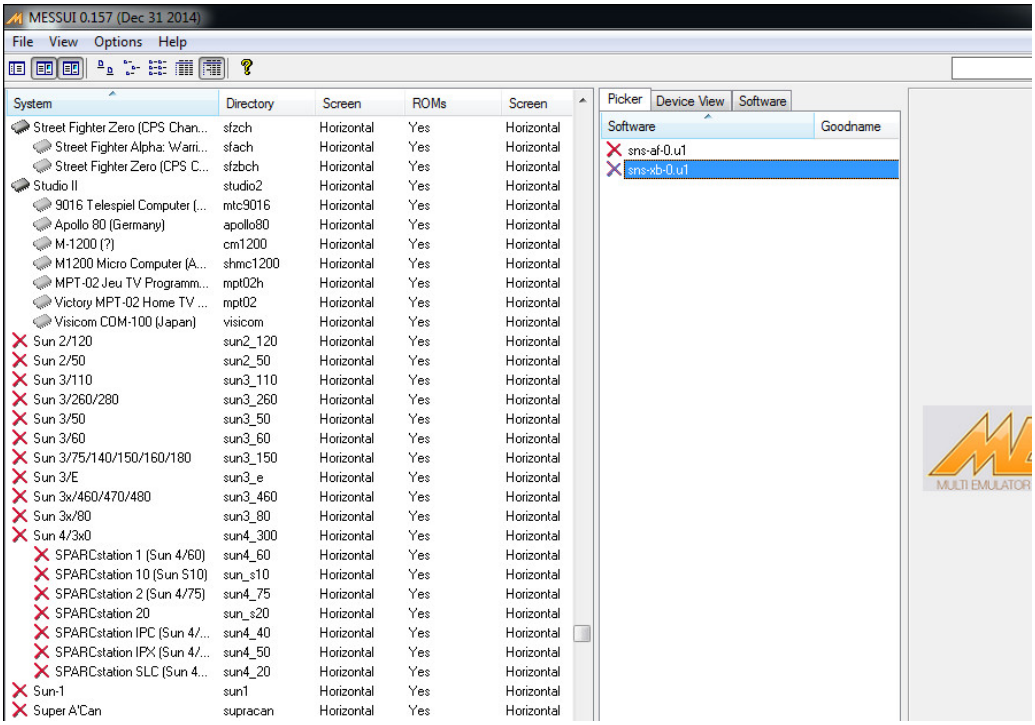
We change now to the “device view” and try to mount that game “addfamu”

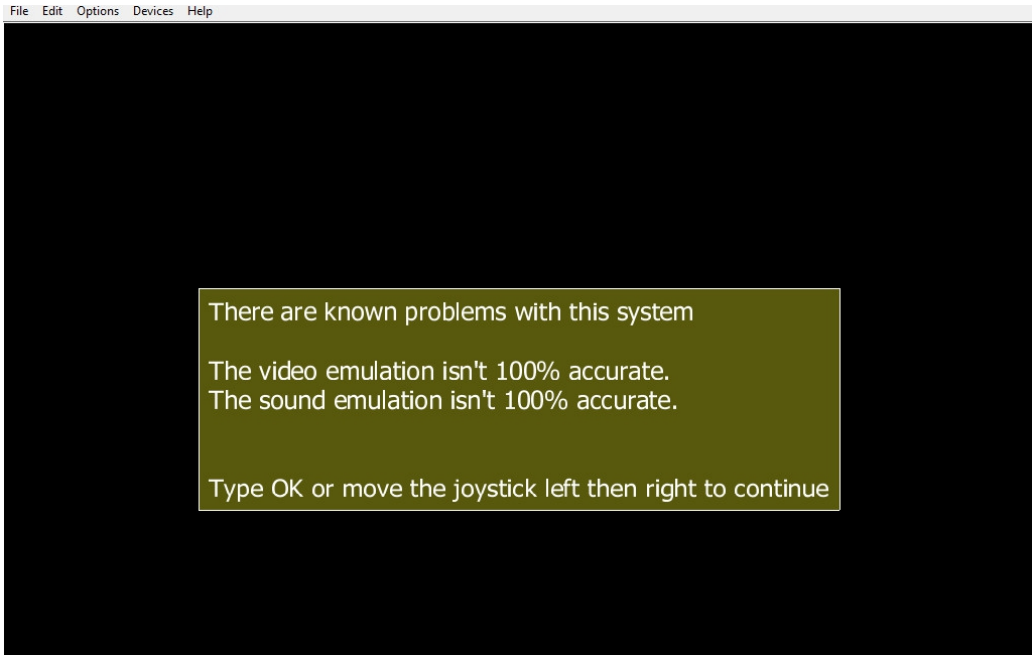


And choose the file “addfamu.zip” from the “softwarelists/snes” folder.

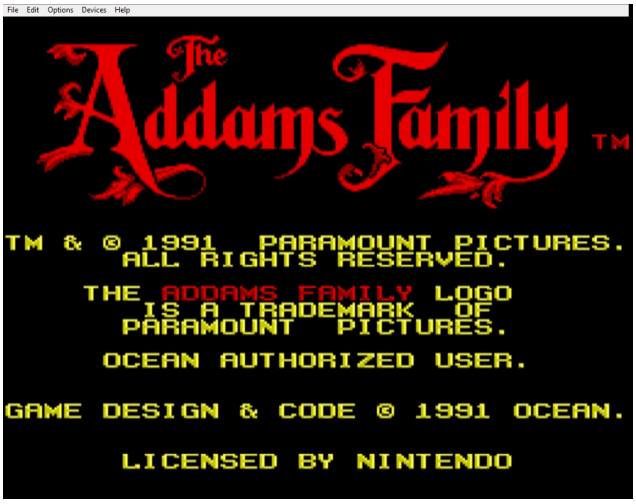


We have now mounted the game and in the “Picker” we double-click the second entry.





This message tells us that the emulation is not perfect. After “OK” the system starts the game “Addams Family”



Yeah and we can play it too :-)

That was our little excursion into MESS. It is different than MAME. Each system has it own handling. I can not give you an advice that is for every system because a calculator for example is easier to handle than a Apple system. You have to investigate yourself. Try to find some help in the internet. Maybe you want to start a system you had in the past than it is easier for you to understand what you can do with it. In my case it was a TI99-4a. Yes I know you had those cartridges to load first and also for programming you have needed that “Extended Basic” cartridge :-)

Chapter 4: ROMs

In this chapter we are looking what ROMs are and how they are collected. There are several ways to organize his ROM-set and we are looking at the difference. Also special items are covered like CHD-files.

What are ROMs and their status?

ROMs (Read only memory) is a class of storage medium used in computers and other electronic devices to store a game or an operating system. Those ROMs are dumped with special software or hardware devices into files what we call ROM images. With that process we have a copy of the hardware ROMs that MAME/MESS are using. The industry tries to avoid that dumping and adds sometimes copy-protection to their ROMs.

Game: the title of a game

Set:each of the versions of a game.

Clone:version of a game different from the original.

Let's try to explain that with the game 1941:

Name	Description
1941	1941: Counter Attack (World 900227)
1941j	1941: Counter Attack (Japan)
1941r1	1941: Counter Attack (World)
1941u	1941: Counter Attack (USA 900227)

We have the game “1941” with 4 sets and 3 clones. “1941” is the main set.

The game-set “1941” has the following ROMs:

Data

Version Added: .145u5

Last Change(s):

Roms:

Name	Set	Size	Flags	CRC
41em_30.11f	1941	131072	good	4249ec61
41em_35.11h	1941	131072	good	ddbee5eb
41em_31.12f	1941	131072	good	584e88e5
41em_36.12h	1941	131072	good	3cfc31d0
41-32m.8h	1941	524288	good	4e9648ca
41-5m.7a	1941	524288	good	01d1cb11
41-7m.9a	1941	524288	good	aeaa3509
41-1m.3a	1941	524288	good	ff77985a
41-3m.5a	1941	524288	good	983be58f
41_9.12b	1941	65536	good	0f9d8527
41_18.11c	1941	131072	good	d1f15aeb
41_19.12c	1941	131072	good	15aec3a6
buf1	1941	279	good	eb122de7
ioa1	1941	279	good	59c7ee3b
prg1	1941	279	good	f1129744
rom1	1941	279	good	41dc73b9
sou1	1941	279	good	84f4b2fe
yi24b.1a	1941	279	good	3004dcdf
iob1.11e	1941	279	good	3abc0700

Those ROMs (see under “Name” above) are stored in a single zip-file with the name of the set, in our example “1941.zip”. You can also have them unpacked in a subfolder called “1941” but nobody stores it like that ;-)

The clone-set “1941r1” has/needs the following ROMs.

Roms:

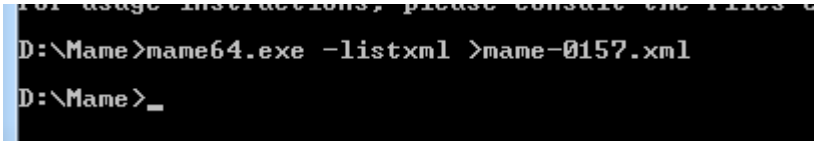
Name	Set	Size	Flags	CRC	SHA1
41e_30.11f	1941r1	131072	good	9deb1e75	68d9f91bef6a5c9e1bcbf286629aed6b37b4acb9
41e_35.11h	1941r1	131072	good	d63942b3	b4bc7d06dcefbc075d316f2d31abbd4c7a99dbae
41e_31.12f	1941r1	131072	good	df201112	d84f63bffeb9255cbabc02f23d7511f9b3c6a96c
41e_36.12h	1941r1	131072	good	816a818f	3e491a30352b71ddd775142f3a80cdde480b669f
41-32m.8h	1941	524288	good	4e9648ca	d8e67e6e3a6dc79053e4f56cfd83431385ea7611
41-5m.7a	1941	524288	good	01d1cb11	621e5377d1aaa9f7270d85bea1bdeef6721cdd05
41-7m.9a	1941	524288	good	aeaa3509	6124ef06d9dfdd879181856bd49853f1800c3b87
41-1m.3a	1941	524288	good	ff77985a	7e08df3a829bf9617470a46c79b713d4d9ebacae
41-3m.5a	1941	524288	good	983be58f	83a4decdd775f859240771269b8af3a5981b244c
41_9.12b	1941	65536	good	0f9d8527	3a00dd5772f38081fde11d8d61ba467379e2a636
41_18.11c	1941	131072	good	d1f15aeb	88089383f2d54fc97026a67f067d448eee5bd0c2
41_19.12c	1941	131072	good	15aec3a6	8153c03aba005bab62bf0e8b3d15ec1c346326fd
buf1	1941	279	good	eb122de7	b26b5bfe258e3e184f069719f9fd008d6b8f6b9b
ioa1	1941	279	good	59c7ee3b	fbb887c5b4f5cb8df77cec710eaac2985bc482a6
prg1	1941	279	good	f1129744	a5300f301c1a08a7da768f0773fa0fe3f683b237
rom1	1941	279	good	41dc73b9	7d4c9f1693c821fbf84e32dd6ef62ddf14967845
sou1	1941	279	good	84f4b2fe	dcc9e86cc36316fe42eace02d6df75d08bc8bb6d
yi24b.1a	1941	279	good	3004dcdf	a73d86d1545af1d99a03d88af83449ec82b03c5c
iob1.11e	1941	279	good	3abc0700	973043aa46ec6d5d1db20dc9d5937005a0f9f6ae

We see now that this set has also all ROMs included from the main-set “1941”

When we store the ROMs we can decide how they should looks like.

Split vs merged vs non-merged ROMs

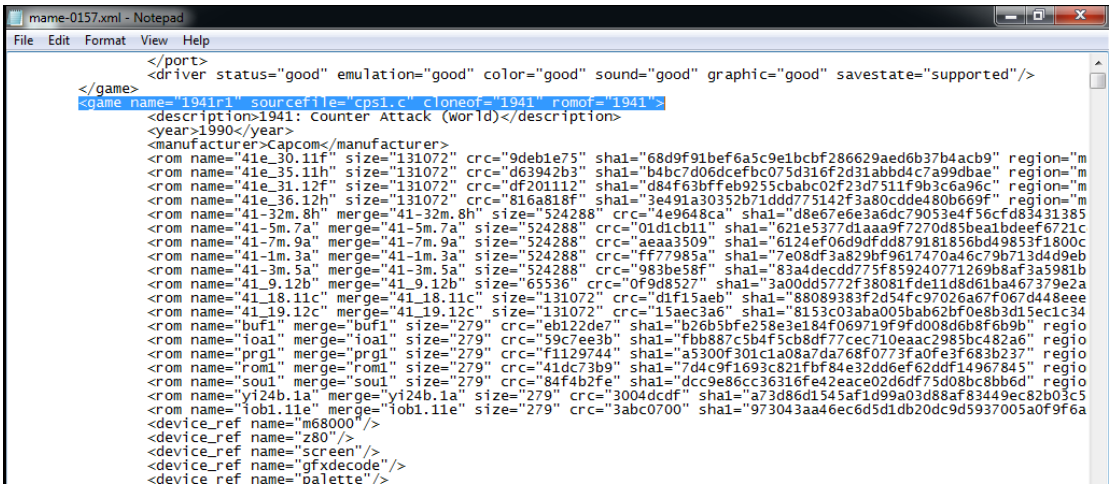
Where is this information stored ? It seems that MAME knows this and complains if a ROM is missing. With the option “-listxml” we can show us that information. For a better reading we save it into a file called “mame-0157.xml” (btw this is our first created DAT-file ;-))



And open it into notepad and search for “1941”. Here we go …

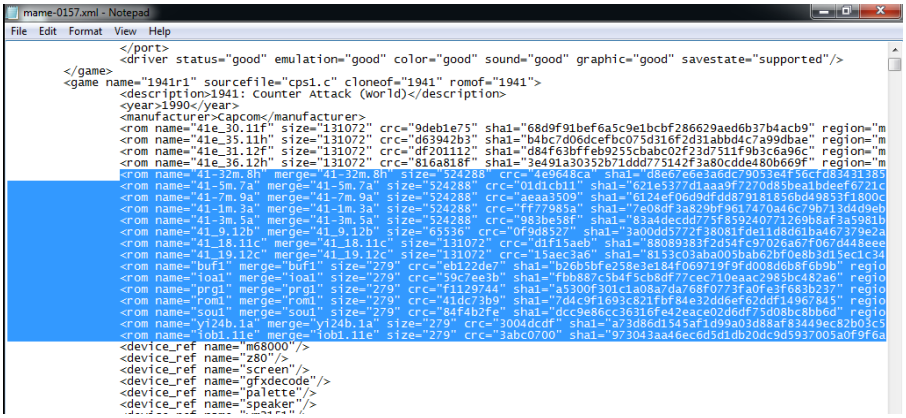
There are all ROMs listed (with checksum) that are needed for “1941”.

Let's move on and look into the “1941r” set



We see now the big difference that “1941r1” is a clone of “1941” and has ROMs from “1941”

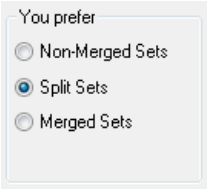
All the ROMs that has the flag “merge” are from the main-set (including the name that they have in the main-set).



Okay so far so good. What it is now the difference between merged, not merged and split sets?

If you are using a ROM-Manager like CLRMAMEPRO you have to decided how you want to organize your ROMs. For MAME it doesn't matter if it doesn't find it ROMs in the chosen clone-set it will looks for it in the parent set.

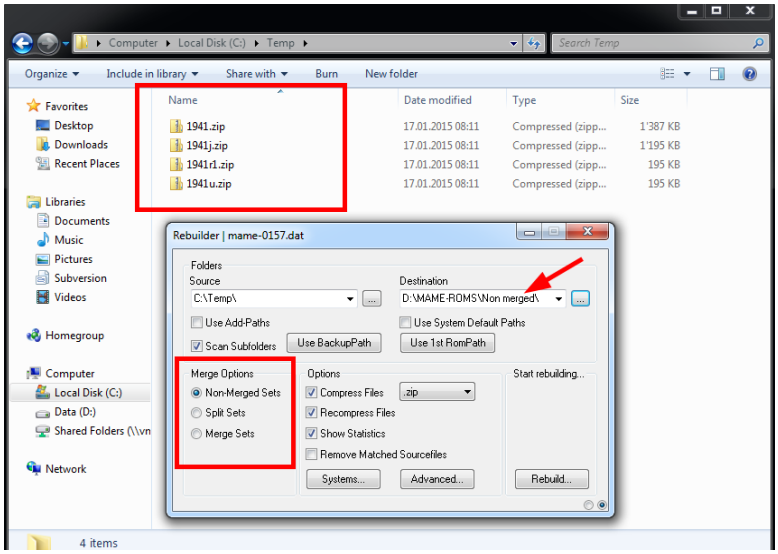
We have three possibilities:



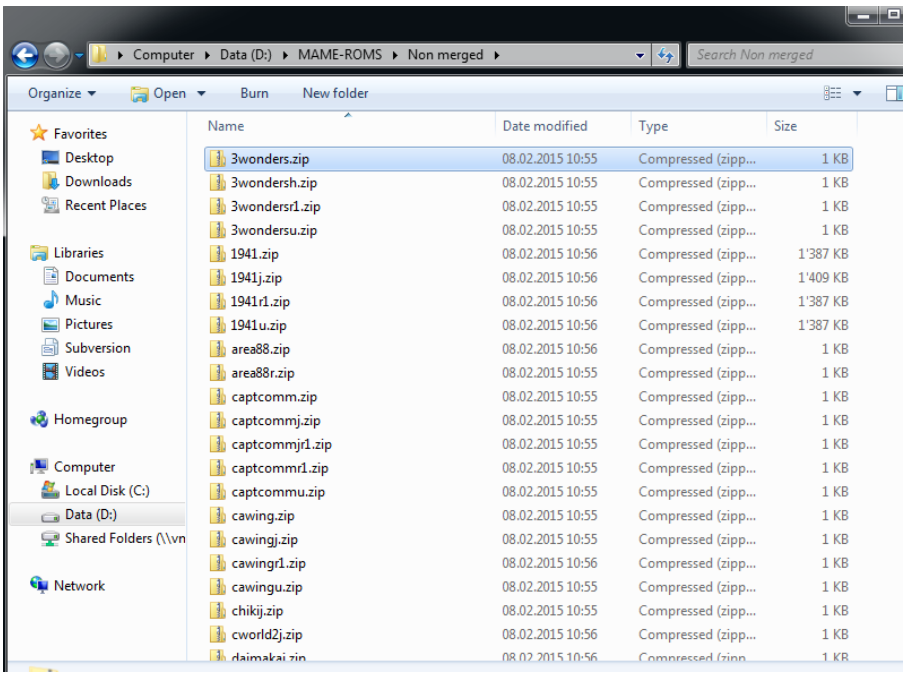
I will show you with CLRMAMEPRO how those “1941” sets looks like with all three possibilities. We are looking at this ROM-Manager in a later chapter.

Non-Merged sets (or unmerged)

I have copied all the 1941 sets to a temp folder. I'm doing now a rebuild with the option “Non-Merged Sets”....

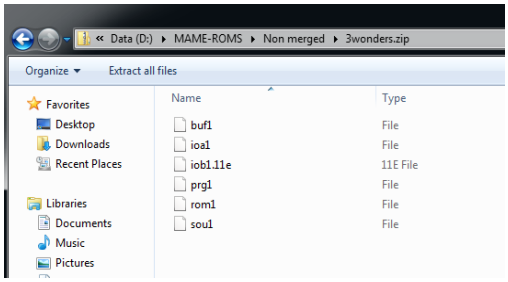


We find the following ROMs in this rebuilded folder:

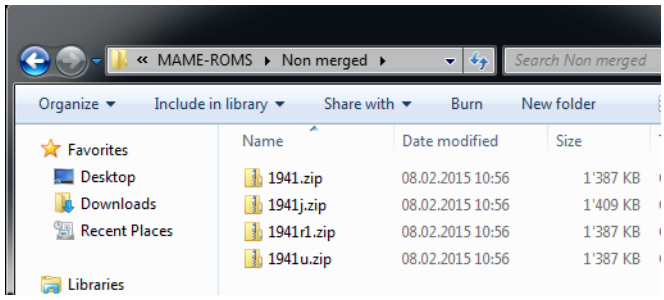


It seems that a lot of other games have some of the ROMs too in their sets.

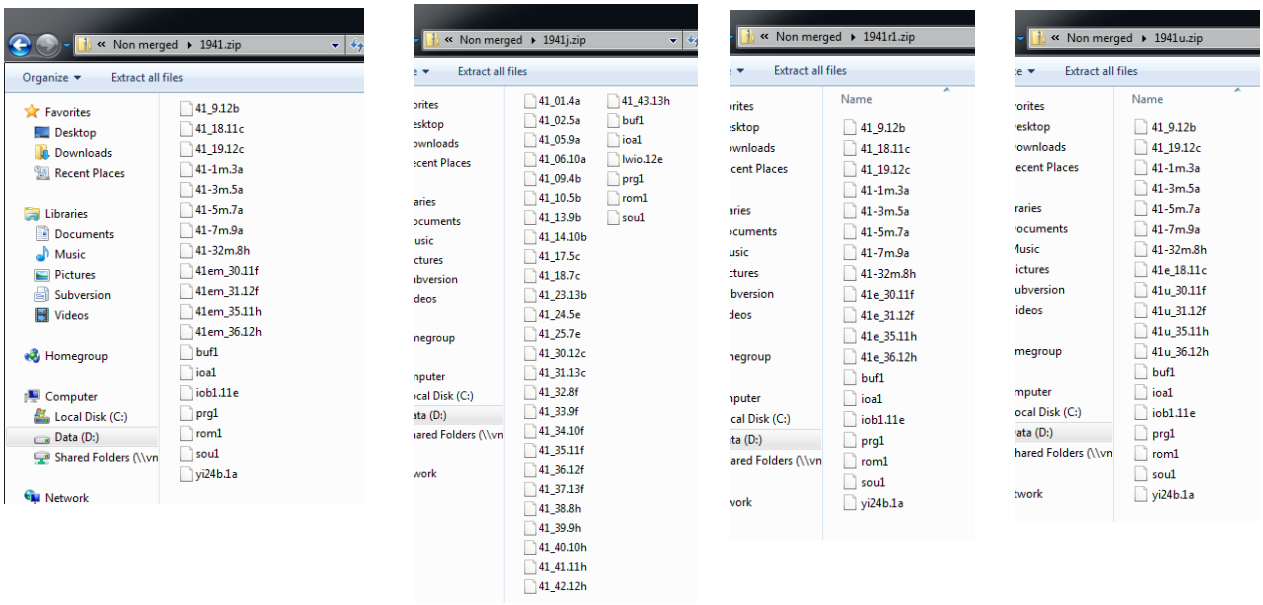
Yeah right ...



Let's forget about all those other sets → I delete them we want only those "1941" sets for investigation. We have those 4 sets available.



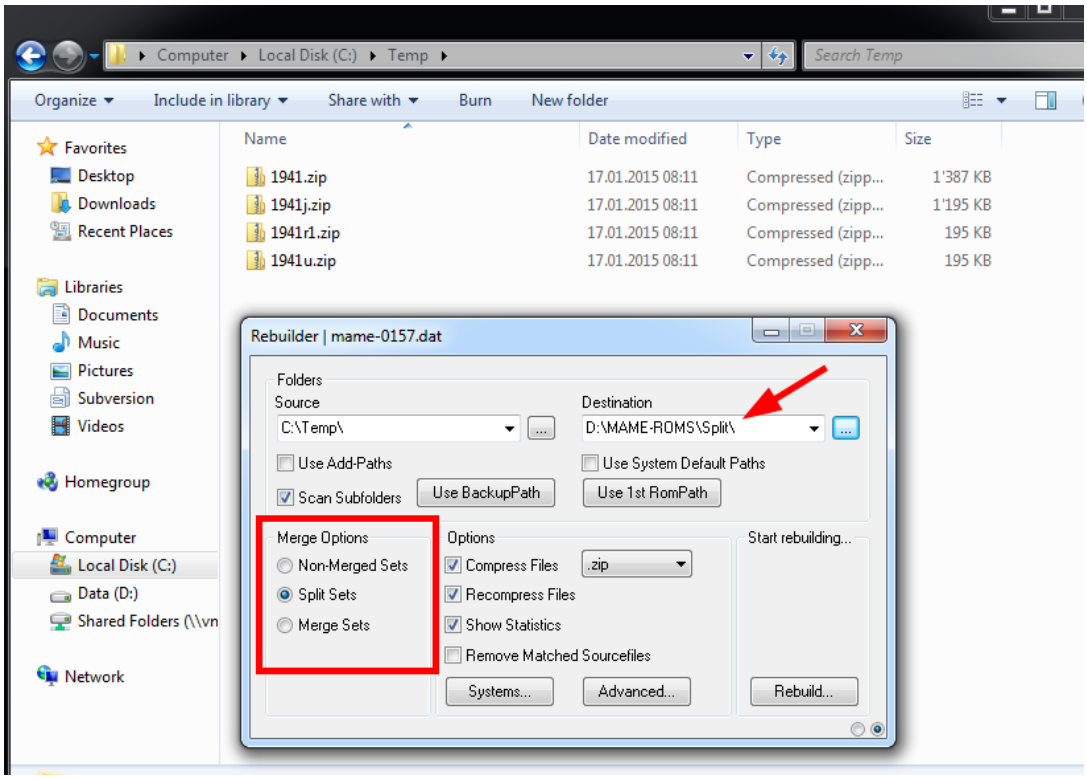
Lets open all 4 sets:



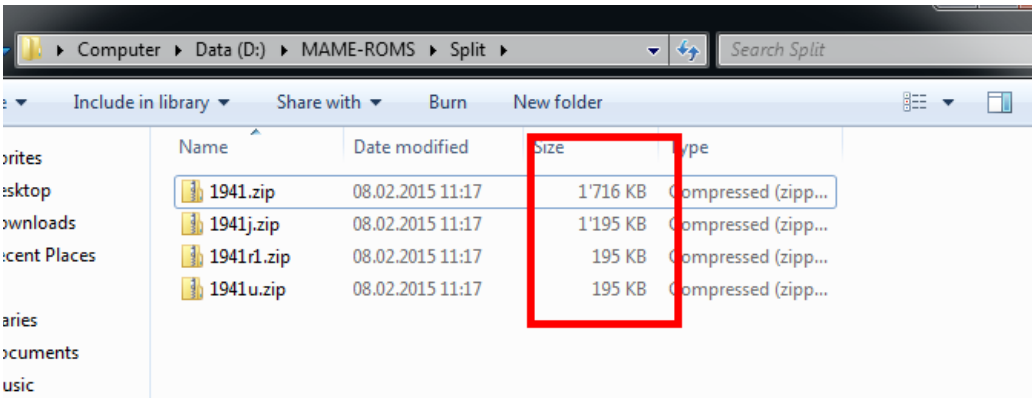
Each set has all the needed ROMs inside including the ROMs that are from the parent set "1941". You can start each game even when you don't have the parent!

Split-sets

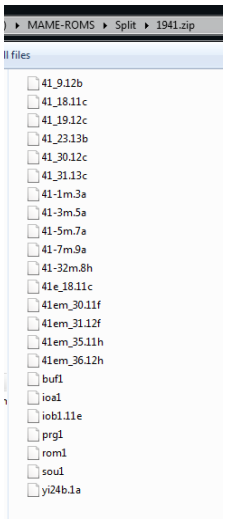
Let's do this rebuilding again with the option “Split sets”

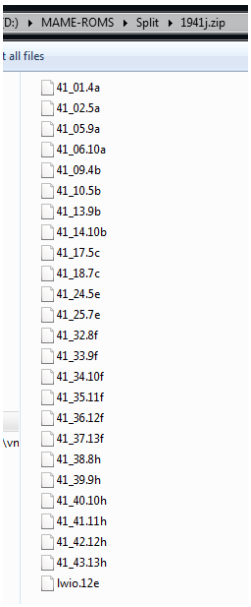


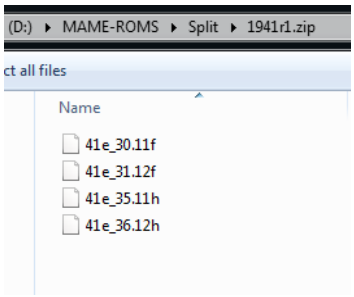
Again we have those 4 sets in our rebuilded folder but wait look at the size of each file (compared to “Non-Merged Sets”).

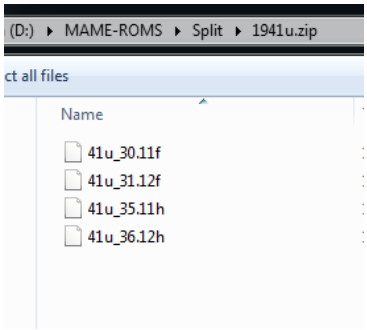


Open those 4 sets again





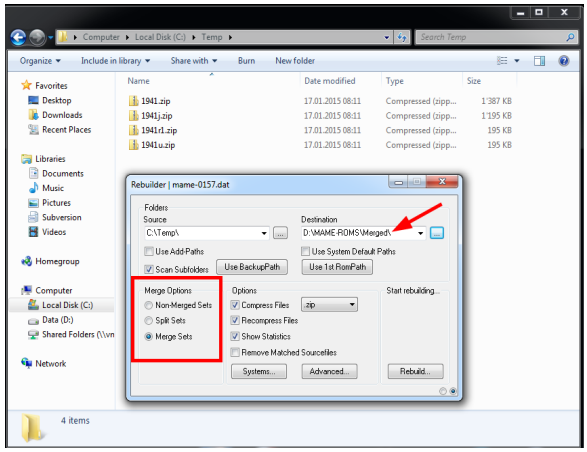




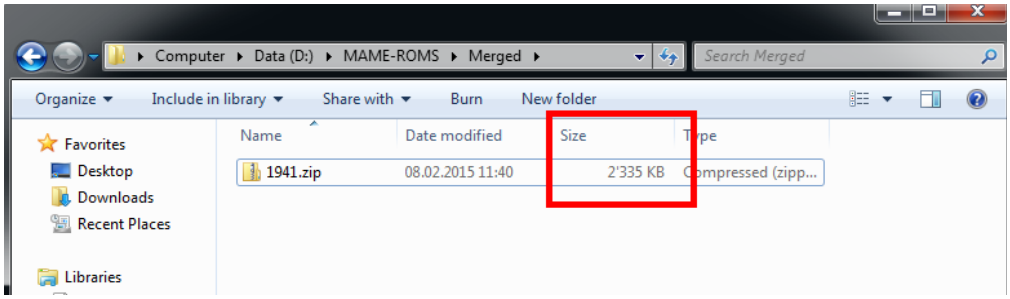
We see that we have only the ROMs inside a set that is from that set. That means that we NEED the parent ROMs when we want to play a clone (because only with clone + parent we have a complete set).

Merge sets

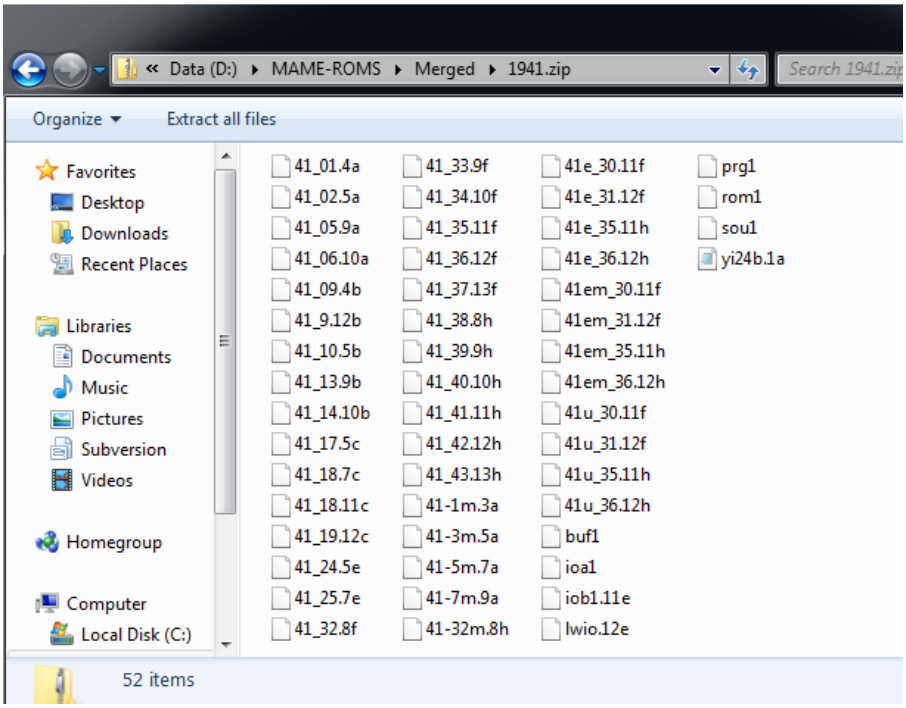
Let' do our rebuilding again with the option “Merge sets” chosen.



Yeah wow what's this?



Only one file and a little big in size? Open this zip file and you will find the answer.



The parent set “1941” has ALL the ROMs including all clone-sets inside this “1941.zip” file.

Compared all three possibilities

Each way to store the ROMs has advantages as well as disadvantages. It's your decision how you store the ROMs.

Non-Merges-Sets

- + Each set is complete and can be used for gaming
- + It has no dependencies → if one zip is corrupt the other sets are working
- - Needs more space because all clone have also the parent ROMS inside

Split Sets

- + This needs less space than Non-merged sets
- + all clone are in separate zip-files and have only the needed ROMs inside
- - It has dependencies → it needs all the time the parent set

Merge Sets

- + needs less space
- + has the minimum of files in the ROM folder
- + If two sets shares a common file it include it once.
- + no dependencies → everything is in one zip-file
- - file handling is difficult → no clone-file exists only the parent set exist as one zip-file
- - if you only want to collect parent games you have wasted disc space → it included all the clone sets too inside this zip-file.

I store my ROMs as split-sets. Be always sure before you rebuild/scan or join a torrent that you have the SAME wanted option set.

Status of ROMs/Games

You have maybe noticed that ROMs or games have status information available.

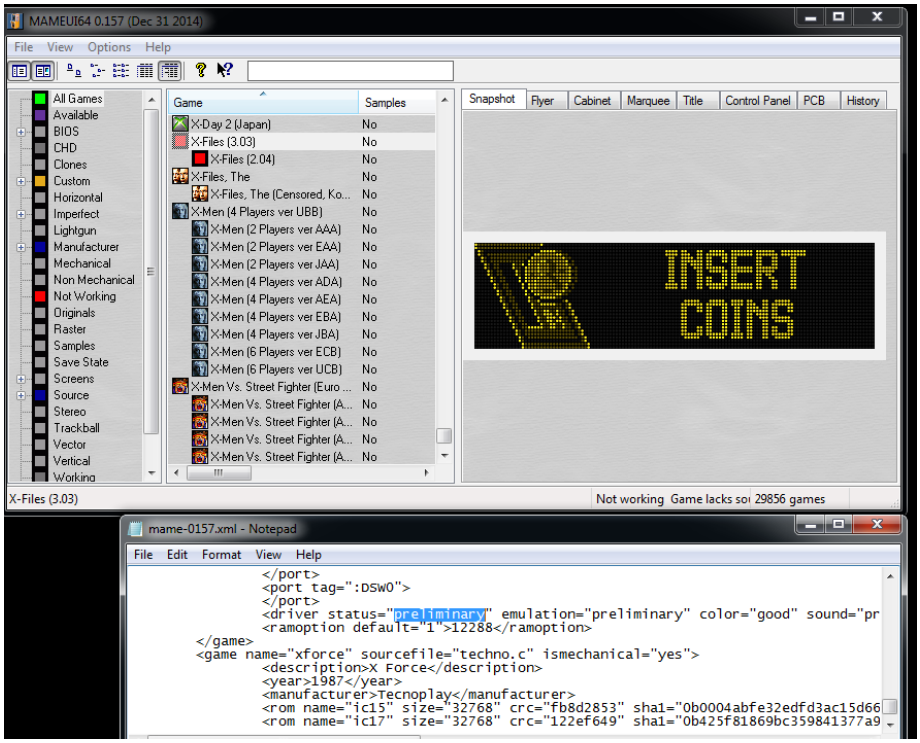
For example “1941” has this status in the emulation.

```
        <port tag=":IN0">
        </port>
        <port tag=":IN1">
        </port>
        <port tag=":DSWA">
        </port>
        <port tag=":DSWB">
        </port>
        <port tag=":DSWC">
        </port>
        <driver status="good" emulation="good" color="good" sound="good" graphic="good" savestate="supported"/>
</game>
<game name="1941j" sourcefile="cps1.c" cloneof="1941" romof="1941">
        <description>1941: Counter Attack (Japan)</description>
        <year>1990</year>
        <manufacturer>Capcom</manufacturer>
```

It is noticed as “good” and it works very well. Others are flagged as “imperfect” or “preliminary” (not working).

```
        </port>
        <port tag=":DSW2">
        </port>
        <driver status="imperfect" emulation="good" color="good" sound="good" graphic="imperfect" savestate="supporte
</game>
<game name="7mezzo" sourcefile="magicfly.c">
        <description>7 e Mezzo</description>
        <year>198?</year>
```

In MAMEui you see this status at the bottom in the status bar.



Information about a ROM is also in the XML-File available.

For example “baddump” means that the ROM was dumped but not perfect.

```
om name="5105.prom-u14" size="2048" crc="17807a05" sha1="bd99f5beab0155f6e4d2fab2fa5f4e147c5730d5" region="maincpu" offset="
om name="5106.prom-u15" size="2048" crc="c7cdfa9d" sha1="6ab7adc60ac7bb53a7175e8de51924008737c9ac" region="maincpu" offset="
om name="5107.prom-u16" size="2048" crc="95f8a2e6" sha1="89c92e000b3e1630380db779370cf9f5b13e5719" region="maincpu" offset="
om name="5108.prom-u17" size="2048" crc="d371cacd" sha1="8f2cdcc0b4e3b77e0958d257e37accefc5749cde" region="maincpu" offset="
om name="5109.prom-u18" size="2048" crc="48a20617" sha1="5b4bc3beda0404ff0a61bb42751b87f71817f363" region="maincpu" offset="
om name="5110.prom-u19" size="2048" crc="7d26111a" sha1="a6d3652ae606a5b75026e524c9d6aaa78300741e" region="maincpu" offset="
om name="5111.prom-u20" size="2048" crc="a888e175" sha1="4c0af94441bf51dfc852372a5b90d0830df81363" region="maincpu" offset="
om name="epr-1286.sound-16" size="2048" crc="fbe0d501" sha1="bfa277689790f835d8a43be4beee0581e1096bcc" region="005" offset="
om name="6331.sound-u8" size="32" crc="1d298cb0" sha1="bb0bb62365402543e3154b9a77be9c75010e6abc" status="baddump" region="pr
evice_ref name="z80"/>
evice_ref name="gfxdecode"/>
evice_ref name="palette"/>
```

“nodump” means that it was not successfully dumped → no file is available.

In our “1941” is one ROM that is flagged as “nodump”:

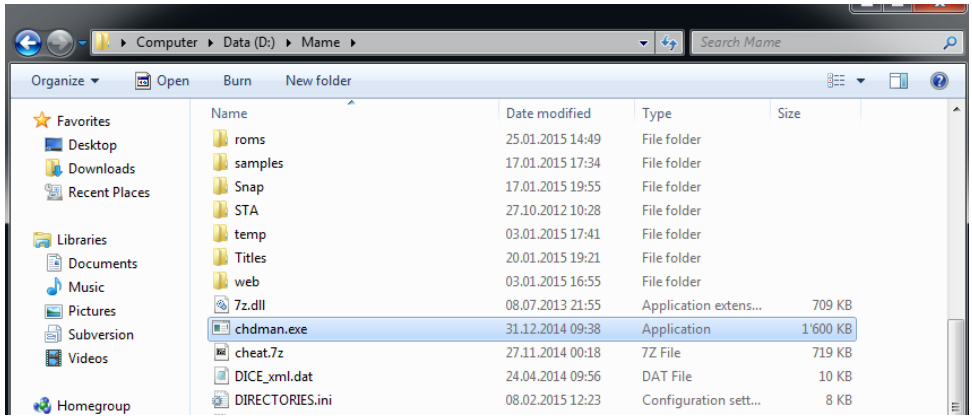
```
        </port>
        <driver status="good" emulation="good" color="good" sound="good" graphic="good" sa
</game>
<game name="1941j" sourcefile="cps1.c" cloneof="1941" romof="1941">
        <description>1941: Counter Attack (Japan)</description>
        <year>1990</year>
        <manufacturer>Capcom</manufacturer>
        <rom name="41_36.12f" size="131072" crc="7fbd42ab" sha1="4e52a599e3099bf3cccabb891
        <rom name="41_42.12h" size="131072" crc="c7781f89" sha1="7e99c433de0c903791ae153a3
        <rom name="41_37.13f" size="131072" crc="c6464b0b" sha1="abef422d891d32334a858d495
        <rom name="41_43.13h" size="131072" crc="440fc0b5" sha1="e725535533c25a2c80a45a220
        <rom name="41_34.10f" size="131072" crc="b5f341ec" sha1="95c740332e9e05250979a098e
        <rom name="41_40.10h" size="131072" crc="3979837d" sha1="e35bca5cd6f7559447c553c78
        <rom name="41_35.11f" size="131072" crc="95cc979a" sha1="96a22d2accdcd1ed3829ab0e1
        <rom name="41_41.11h" size="131072" crc="57496819" sha1="fe705a25a2c6523c3bc0105f4
        <rom name="41_09.4b" size="131072" crc="be1b6bc2" sha1="0b11efb7adf6bb9c5fdef70217
        <rom name="41_01.4a" size="131072" crc="d8946fc1" sha1="e18d2bd5517a9a74973f5a505e
        <rom name="41_13.9b" size="131072" crc="2e06d0ec" sha1="b7c886dce6bc5eefa34e39faec
        <rom name="41_05.9a" size="131072" crc="d8ba28e0" sha1="dd1908166b32cf3bb3222f6d3f
        <rom name="41_24.5e" size="131072" crc="5aa43cee" sha1="15e1aa2fee8deb25eefba06739
        <rom name="41_17.5c" size="131072" crc="bbeff902" sha1="1bf421072387ab7d59b57ecd33
        <rom name="41_38.8h" size="131072" crc="8889c0aa" sha1="23b74cc78fe1057c1776ea1f73
        <rom name="41_32.8f" size="131072" crc="f0168249" sha1="1ce2330ea4460e7e72f16a1f7e
        <rom name="41_10.5b" size="131072" crc="b7eb6a6d" sha1="444b49e81cd46e90a9e1dfcf46
        <rom name="41_02.5a" size="131072" crc="802e8153" sha1="baf19220c53949dac0d0b75368
        <rom name="41_14.10b" size="131072" crc="5a33f676" sha1="96794463ddfae7ce4a7d7e6b6
        <rom name="41_06.10a" size="131072" crc="4e53650b" sha1="a5b19b1ce38f04296dee38d35
        <rom name="41_25.7e" size="131072" crc="94add360" sha1="6f3542f028bdc453d0254de599
        <rom name="41_18.7c" size="131072" crc="a5e1c1f3" sha1="1961ad3c8965c51da8a19a7283
        <rom name="41_39.9h" size="131072" crc="5b5c3949" sha1="485b1baecee6bb9a6667baf404
        <rom name="41_33.9f" size="131072" crc="7a31b0e2" sha1="f2eca12f4e89266d923a94d083
        <rom name="41_23.13b" merge="41_9.12b" size="65536" crc="0f9d8527" sha1="3a00dd577
        <rom name="41_30.12c" merge="41_18.11c" size="131072" crc="d1f15aeb" sha1="8808938
        <rom name="41_31.13c" merge="41_19.12c" size="131072" crc="15aec3a6" sha1="8153c03
        <rom name="buf1" merge="buf1" size="279" crc="eb122de7" sha1="b26b5bfe258e3e184f06
        <rom name="ioa1" merge="ioa1" size="279" crc="59c7ee3b" sha1="fbb887c5b4f5cb8df77c
        <rom name="prg1" merge="prg1" size="279" crc="f1129744" sha1="a5300f301c1a08a7da76
        <rom name="rom1" merge="rom1" size="279" crc="41dc73b9" sha1="7d4c9f1693c821fbf84e
        <rom name="sou1" merge="sou1" size="279" crc="84f4b2fe" sha1="dcc9e86cc36316fe42ea
        <rom name="yi22b.1a" size="279" status="nodump" region="bboardplds" offset="0"/>
        <rom name="lwio.12e" size="279" crc="ad52b90c" sha1="f0fd6aeea515ee449320fe15684e6
        <device_ref name="m68000"/>
        <device_ref name="z80"/>
```

→ And NOT available, so nobody has it.

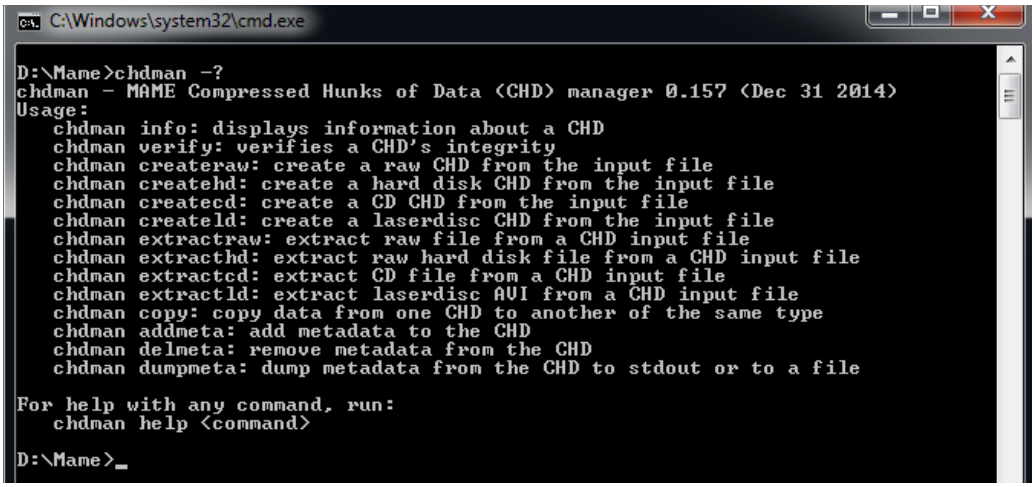
! Be sure that you are not asking in forums for playing games that are stated as “preliminary” or “not working”

What are CHD files?

Some games in MAME needs additional Hard-disc-files to run. A separate tool is available for handling them. It is in the MAME folder and called “chdman.exe”



With the command-line you can get some more info what is possible with it.



Just to be exact this tool is not used for playing but it is an add-on tool that can check your CHD-files for errors for example.

Store the CHD-file in a subfolder in ROM folder that is named like the game. For example:

```
roms\
   area51.zip
   area51\
      area51.chd
```

You need the corresponding ROMs for the game to work. The name of the CHD must not all the time be the same as the folder. For example, the CHD for Beatmania is named 753jaa11.chd. It would go in a directory called "bm1stmix".

Those CHD-files are already compressed and you don't have to zip them.

We have a CHD-file available for doing some “testing”

```
D:\Mame>cd roms\2spicy

D:\Mame\roms\2spicy>dir
 Volume in drive D is Data
 Volume Serial Number is A698-D03C

 Directory of D:\Mame\roms\2spicy

25.01.2015  14:43    <DIR>          .
25.01.2015  14:43    <DIR>          ..
07.12.2014  06:05     3'317'217'136 dvp-0027a.chd
               1 File(s)  3'317'217'136 bytes
               2 Dir(s)  469'963'558'912 bytes free

D:\Mame\roms\2spicy>
```

For showing some information about this CHD-File use the “info” parameter:

```
C:\Windows\system32\cmd.exe

D:\Mame>chdman info -i roms\2spicy\dvp-0027a.chd
chdman - MAME Compressed Hunks of Data (CHD) manager 0.157 (Dec 31 2014)
Input file:   roms\2spicy\dvp-0027a.chd
File Version: 5
Logical size: 3,321,888,768 bytes
Hunk Size:    4,096 bytes
Total Hunks:  811,008
Unit Size:    512 bytes
Total Units:  6,488,064
Compression:  lzma (LZMA), zlib (Deflate), huff (Huffman), flac (FLAC)
CHD size:     3,317,217,136 bytes
Ratio:        99.9%
SHA1:         da1aacee9e32e813844f4d434981e69cc5c80682
Data SHA1:    68aed9b52287fb2d060f3a98ed9db2e26c1b0e97
Metadata:     Tag='GDDD'  Index=0  Length=35 bytes
              CYLS:8448,HEADS:16,SECS:48,BPS:512.

D:\Mame>
```

There you can see what version is this CHD-File and some other information like the checksums for it.

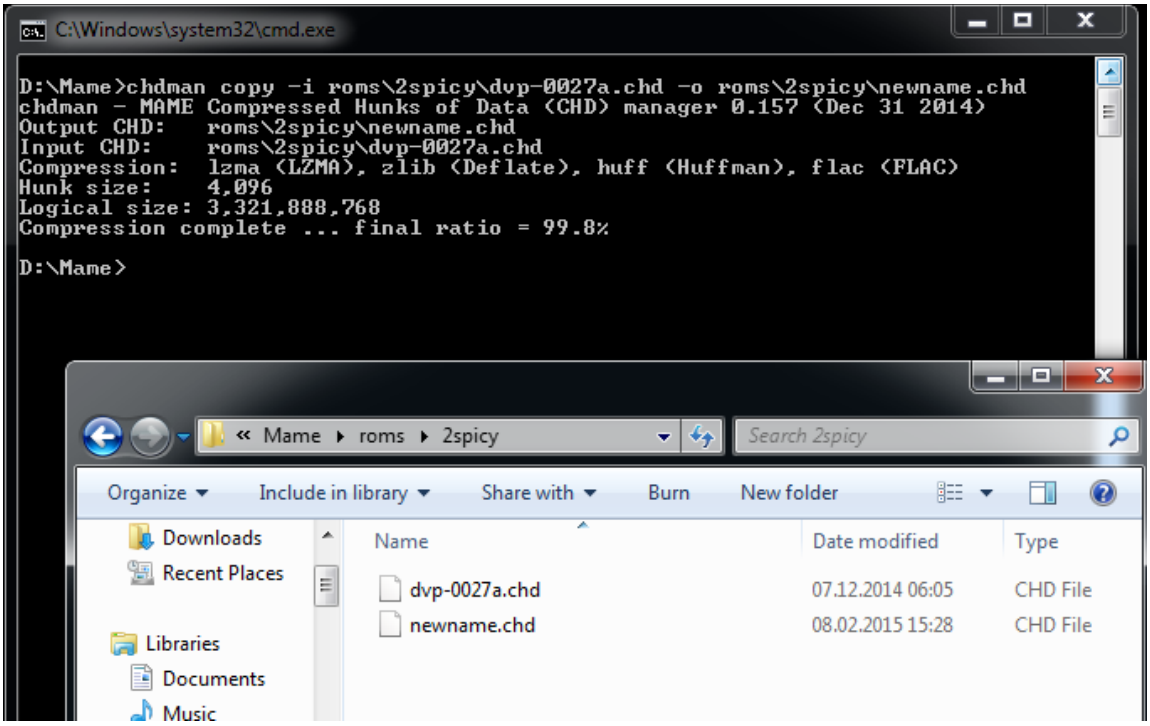
With the option “verify” we can check the integrity of this CHD-file.

```
D:\Mame>chdman verify -i roms\2spicy\dvp-0027a.chd
chdman - MAME Compressed Hunks of Data (CHD) manager 0.157 (Dec 31 2014)
Raw SHA1 verification successful!
Overall SHA1 verification successful!

D:\Mame>
```

Sometimes this tool “chdman.exe” gets an update and we must convert the CHD-files to the new format. At the moment we are at version 5.

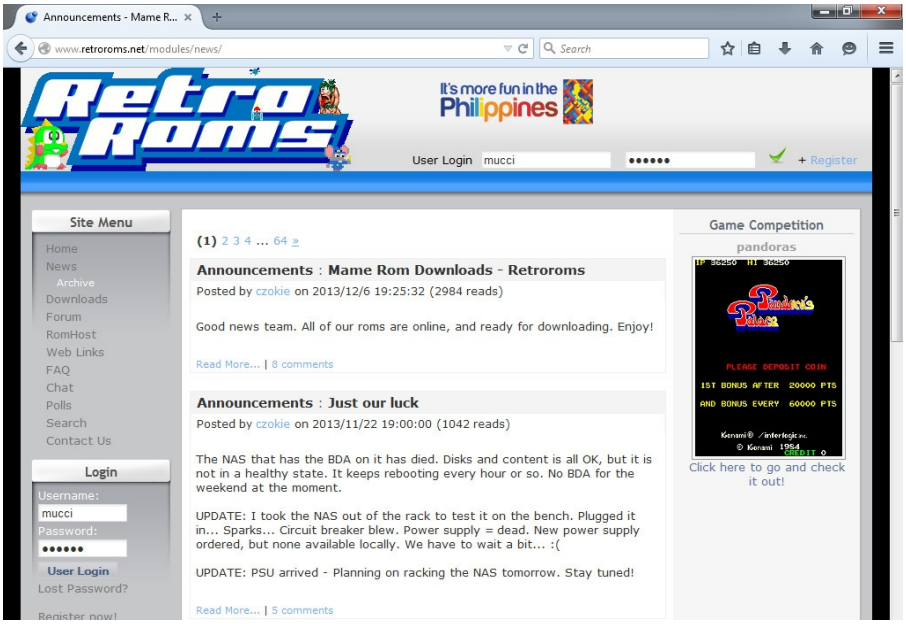
With this command you can update a CHD-File to a new one.



We have created a new CHD-file called “newname.chd” with the version number 5.

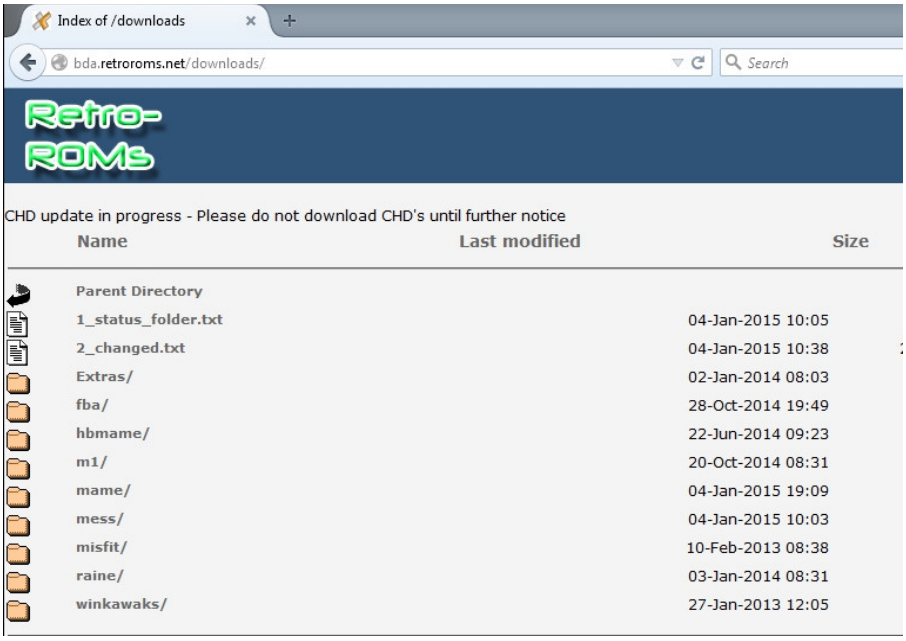
Download ROMs

There are different website where you can download ROMs. One of them is Retroroms.net.



You must create an account there for downloading ROMs. After you have logged on on the website you can download stuff by choosing Downloads in the navigation menu.

Now you are in the download section and can download what you want.

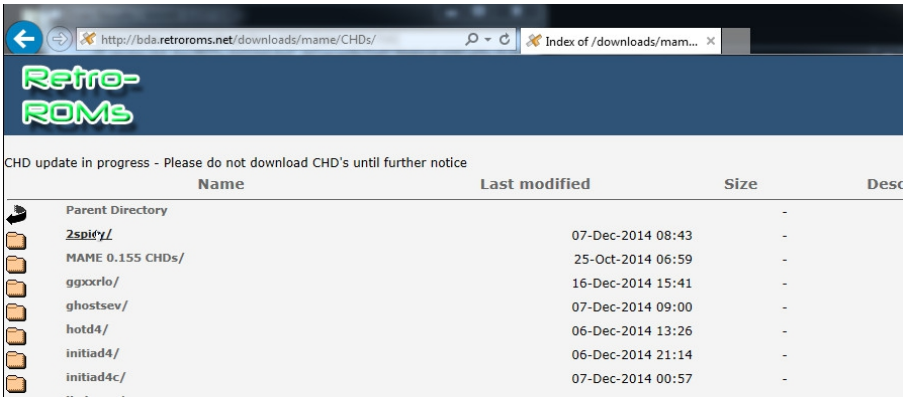


Please note: Retroroms.net permit 1 file at the time to download otherwise you are blocked. If you want to download a lot of files please use a download manager!

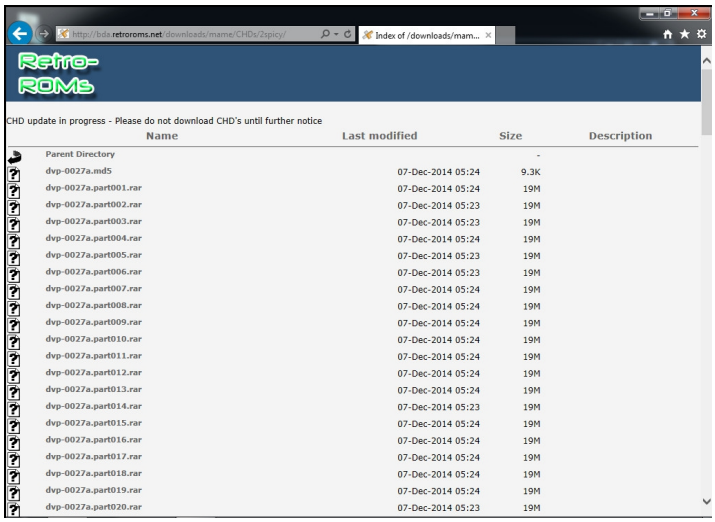
Download CHD from Retroroms.net

We can download also CHD-files from Retroroms.net. They have splitted those file into smaller RAR-pieces. The reason is simple, if you download a huge file and you have a disconnect you could maybe not “resuming” again and you have to start again from the beginning. That's the reason why they split those file into small 20MB RAR-pieces. If you have an interrupt you only have to download again the missing/corrupt parts again.

Lets have a look at a CHD-folder



For example “2spicy”

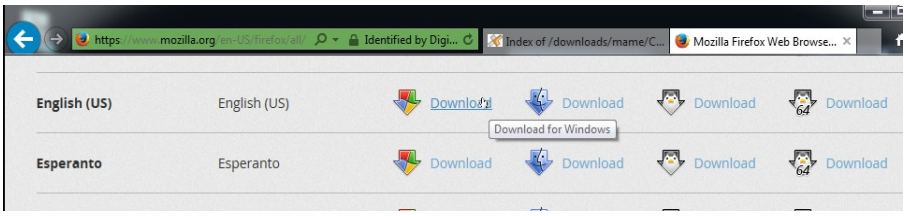


In this folder are a lot of RAR-pieces, a md5-file and a txt-file.

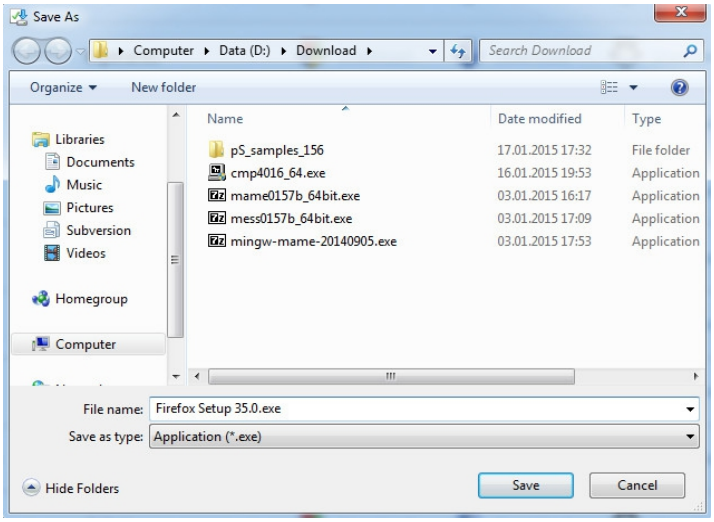
We can download them now with the web-browser but it takes a lot of time to click each file manual. That's not comfortable and I show you now how to download them with a Firefox plug-in.

I have not installed Firefox in my environment so let's do that first.

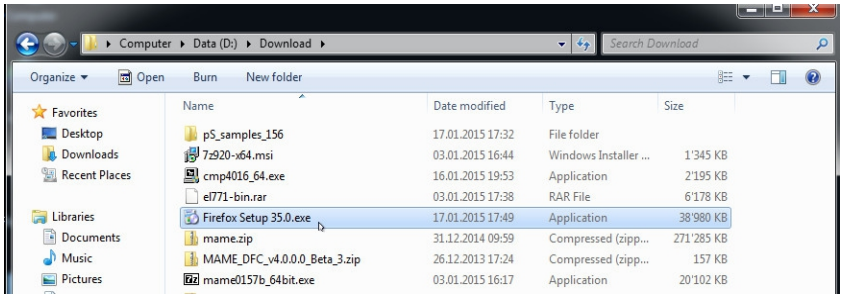
Download the installer from the Firefox-site



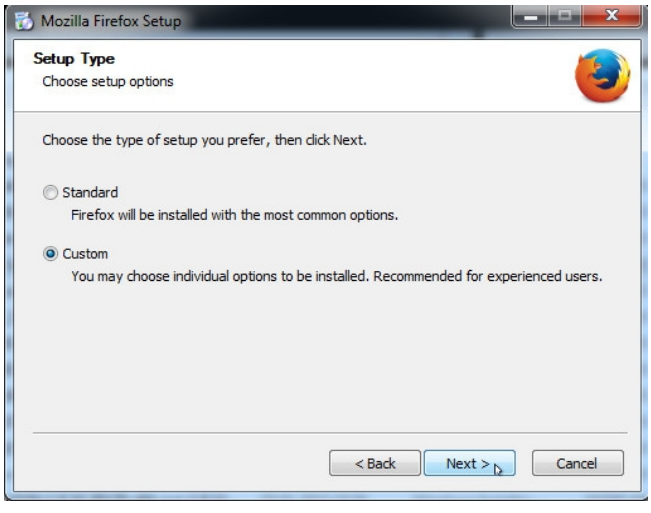
Save it to our download folder



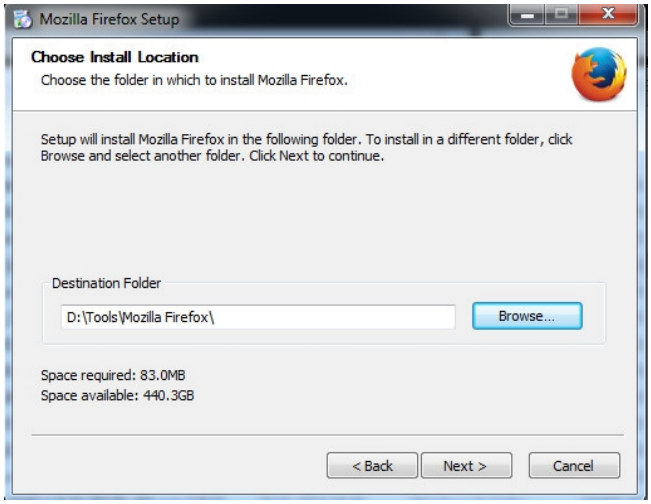
And start the installation ..



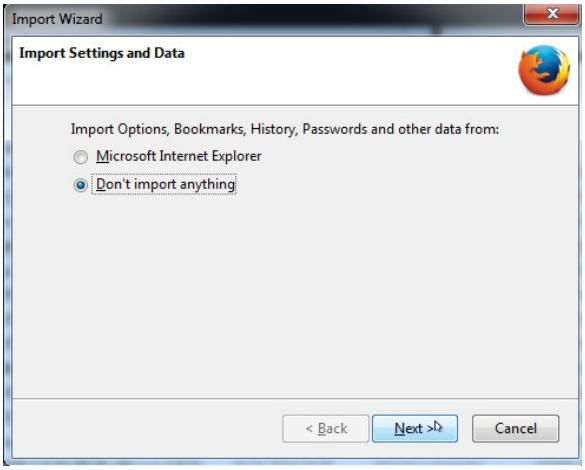
Choose “custom” …



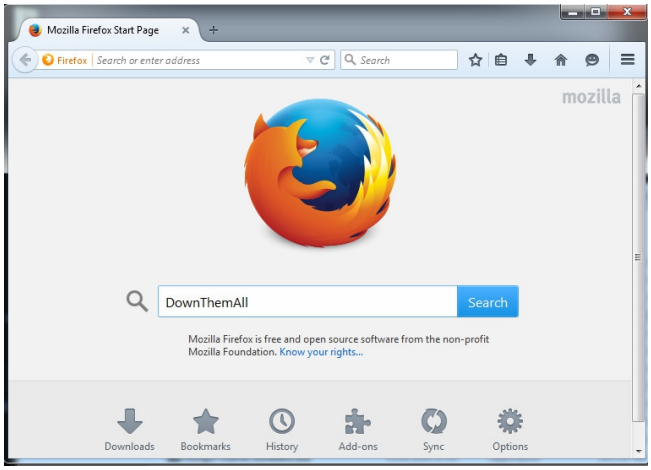
...because we want to install it to our data drive:



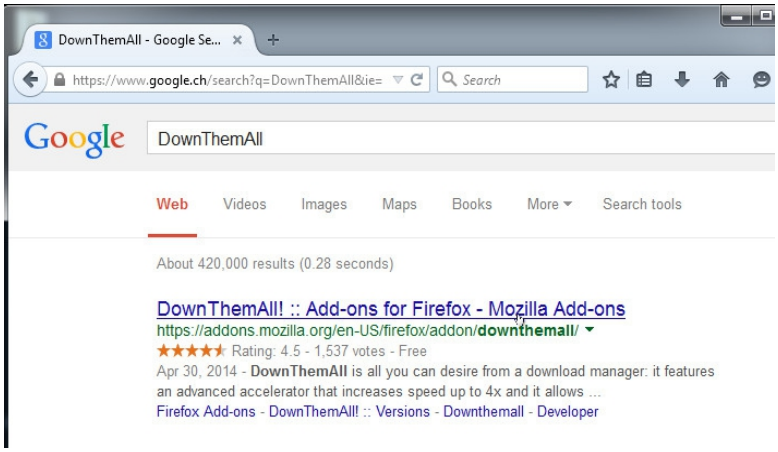
And import “nothing”



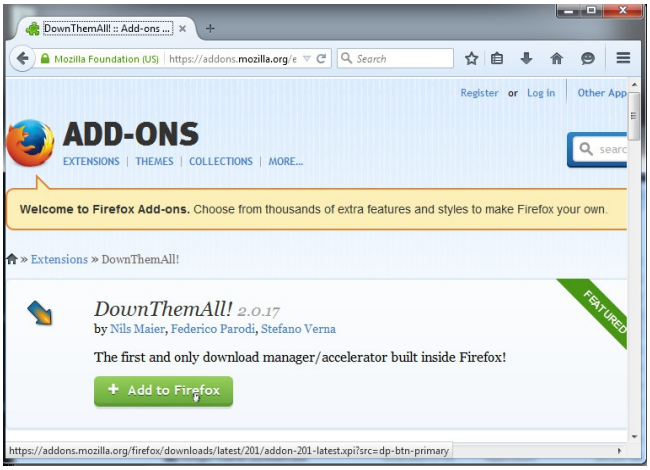
Now after the installation we start it and search for “DownThemAll”



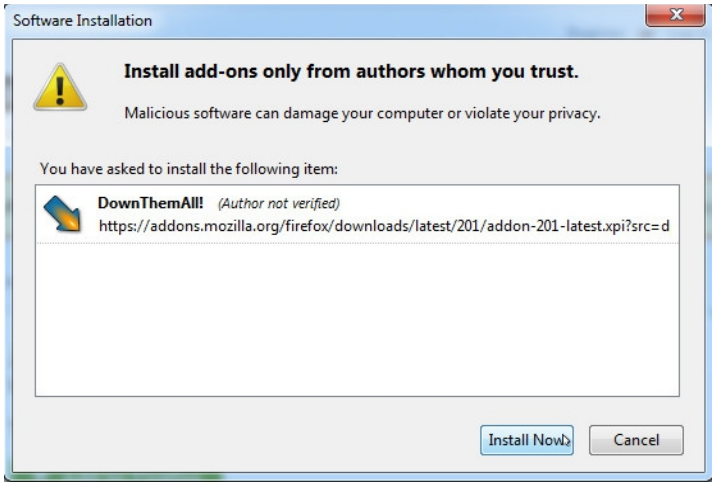
First link is where we can download the download-manager plug-in



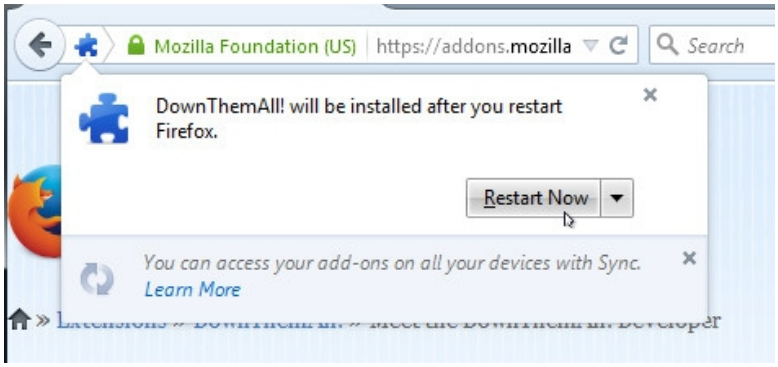
Choose "+ Add to Firefox"



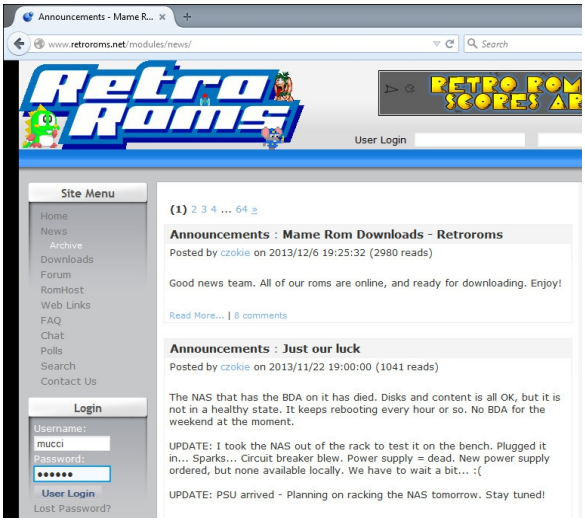
And install the plug-in



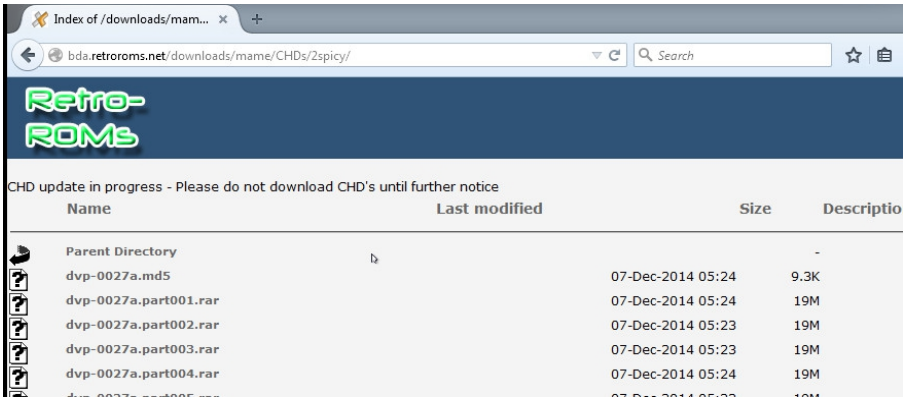
At the end you must restart the browser



Now we go to the Retroroms.net with the Firefox browser

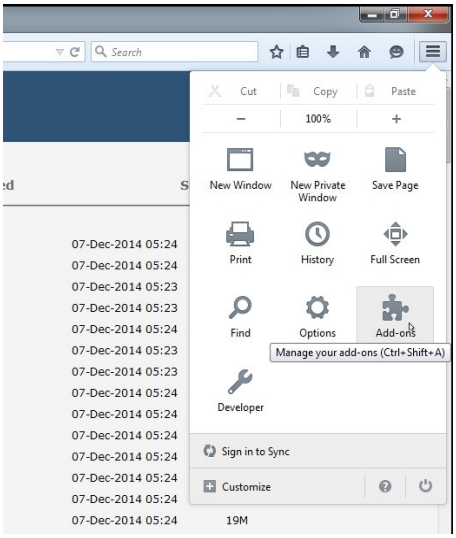


Open the download page and navigate to the 2spicy CHD folder

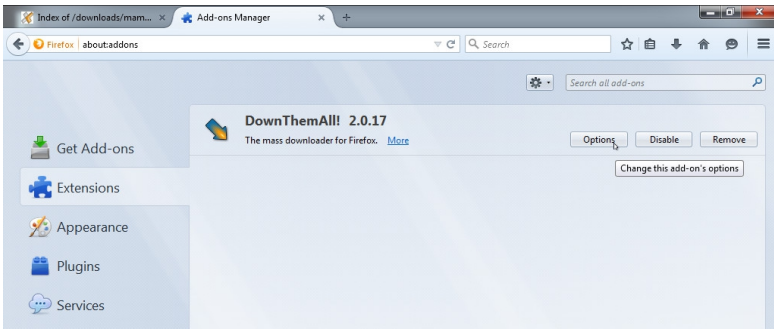


As I have already mentioned Retroroms.net does only permit download 1 file at the time. We must configure our plug-in to this limitation.

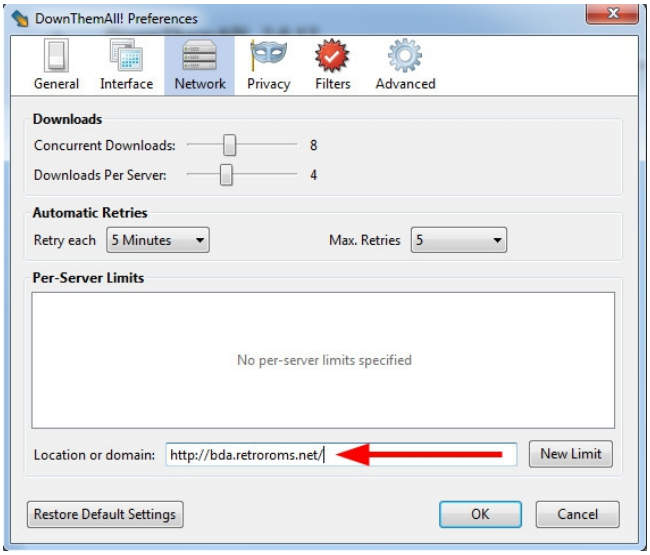
Open the Add-ons



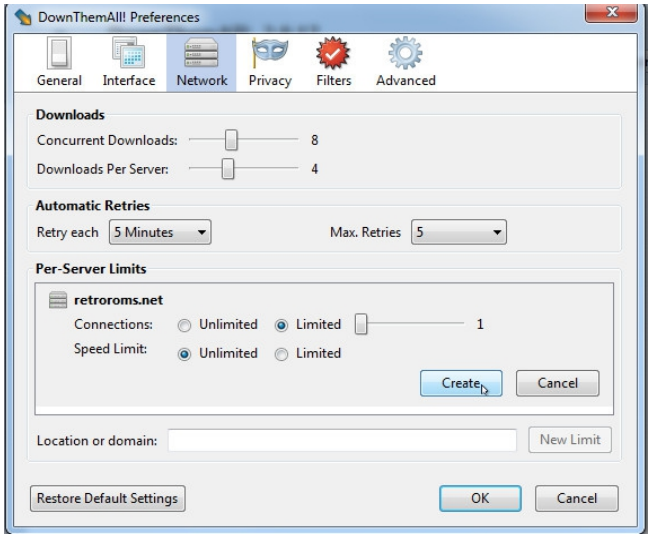
In the DownThemAll plug-in click the options



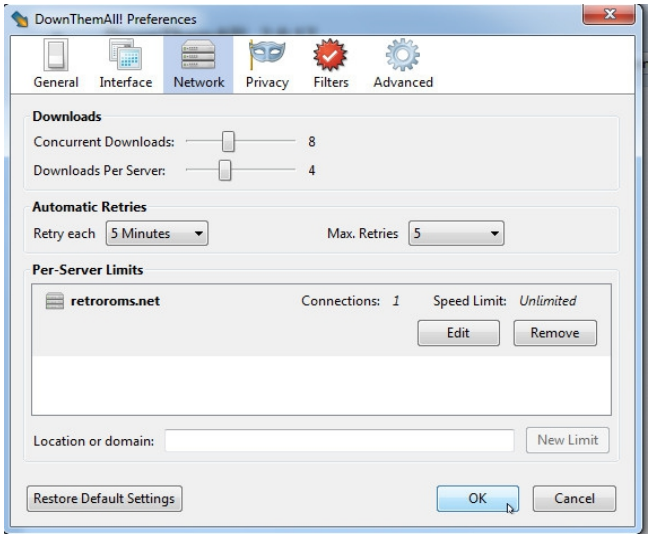
Add the address from the download folder into this field



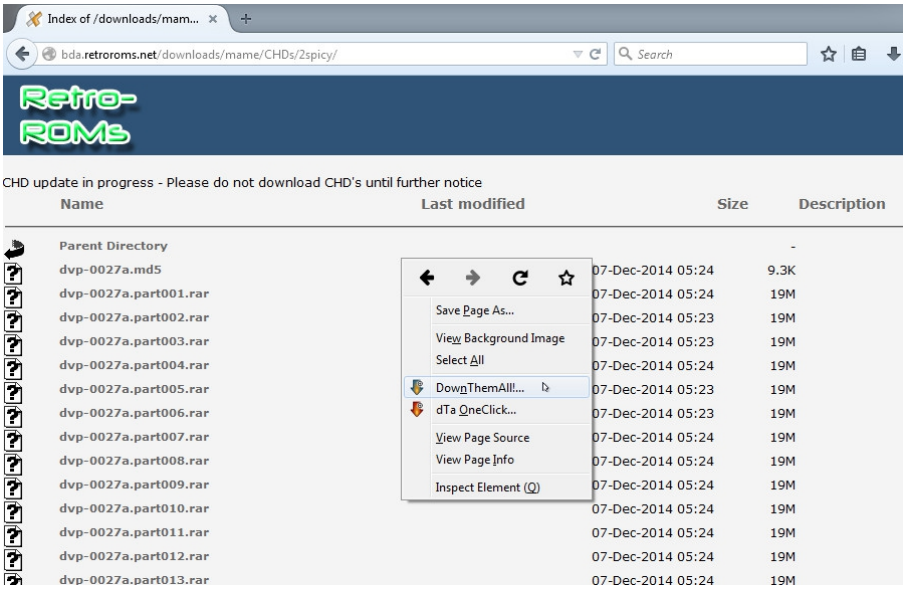
Click “New Limit” and set the “connections” to 1 for this Site. Click “create”



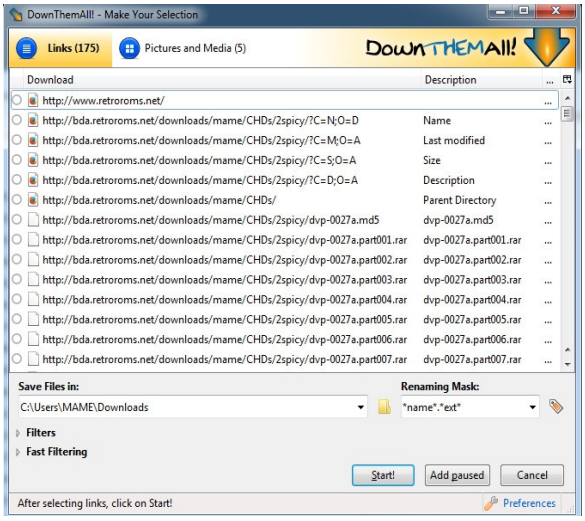
We have now configured the limitation for this site in the download-manager plug-in. (Click OK)



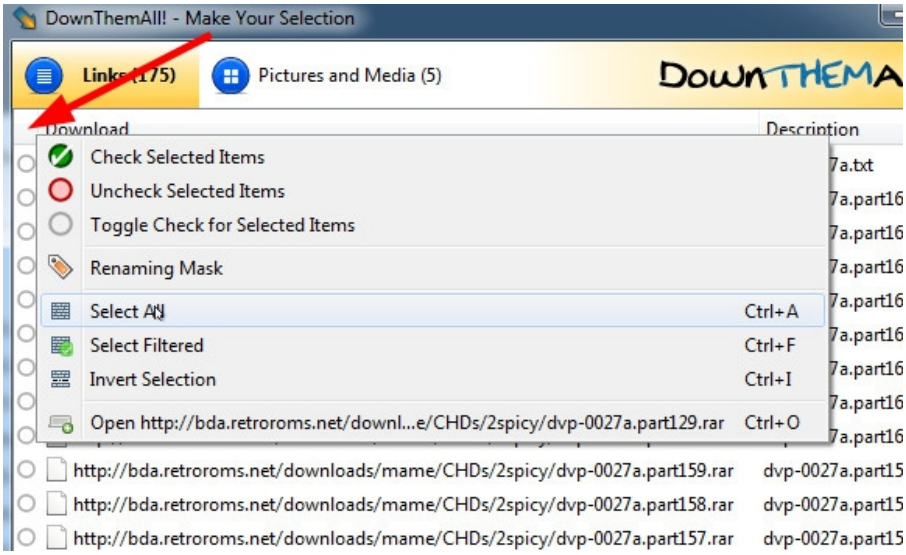
Let's go to the download page and do a right-click on this page. In the context menu choose “DownThemAll”.



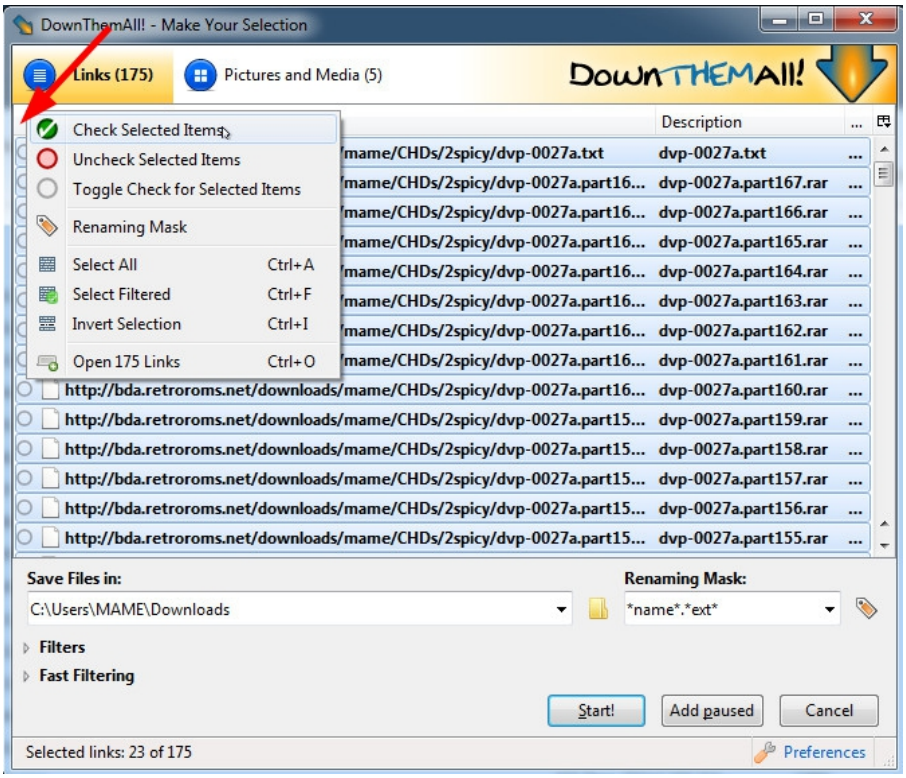
The download-manager should open with all the links.



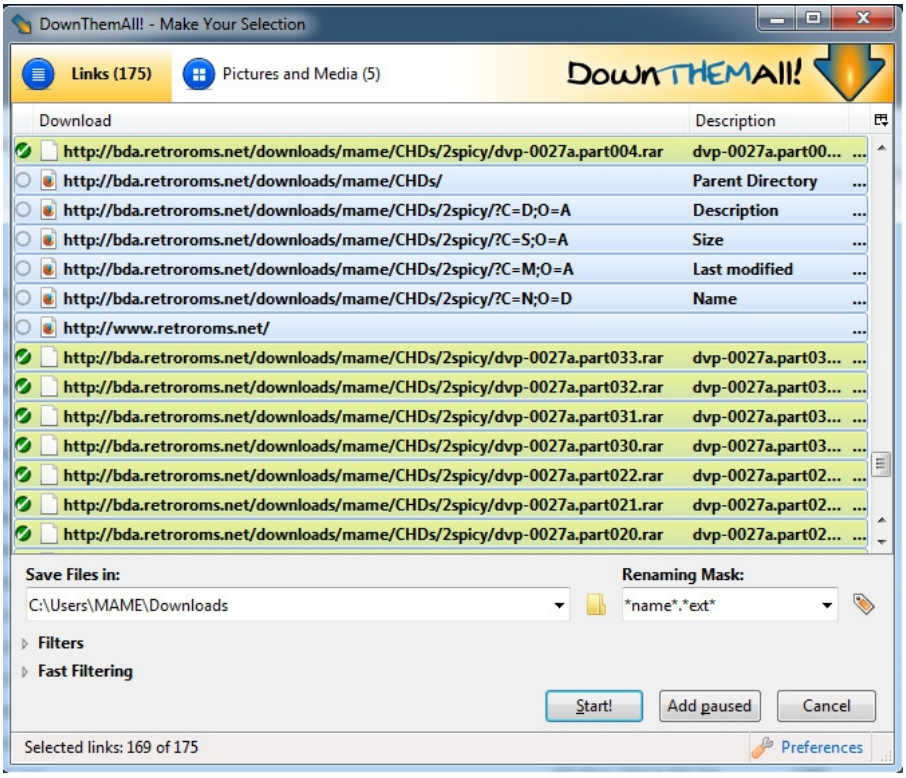
We must choose now all the files we want to download. Right-click on this place and choose “Select all”.



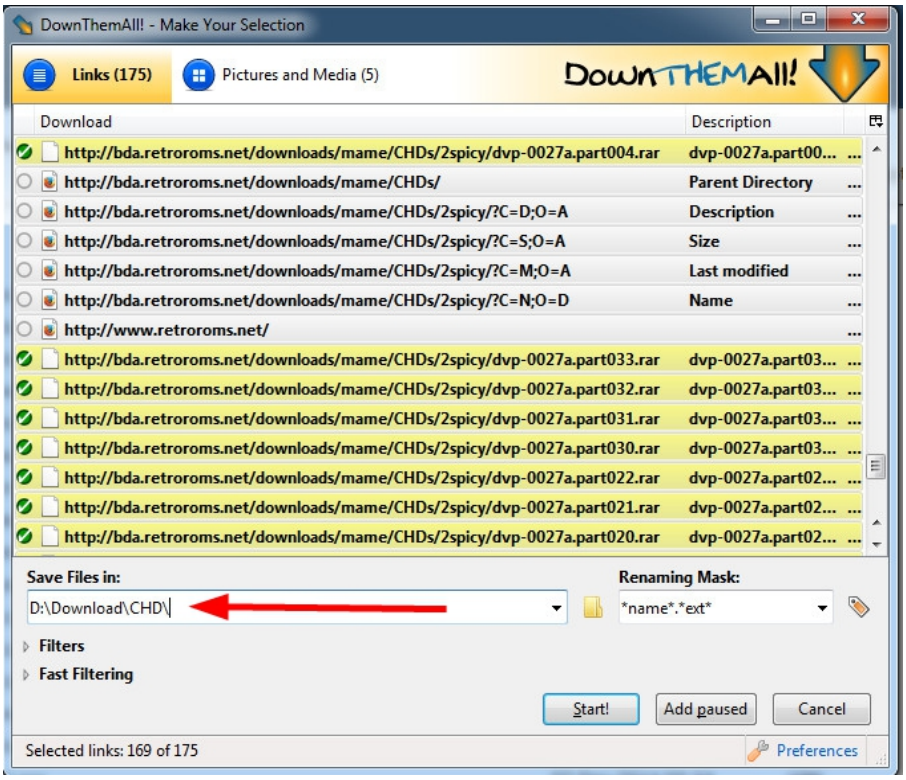
Click again on this place with the right mouse-button and choose “Check Selected Items”



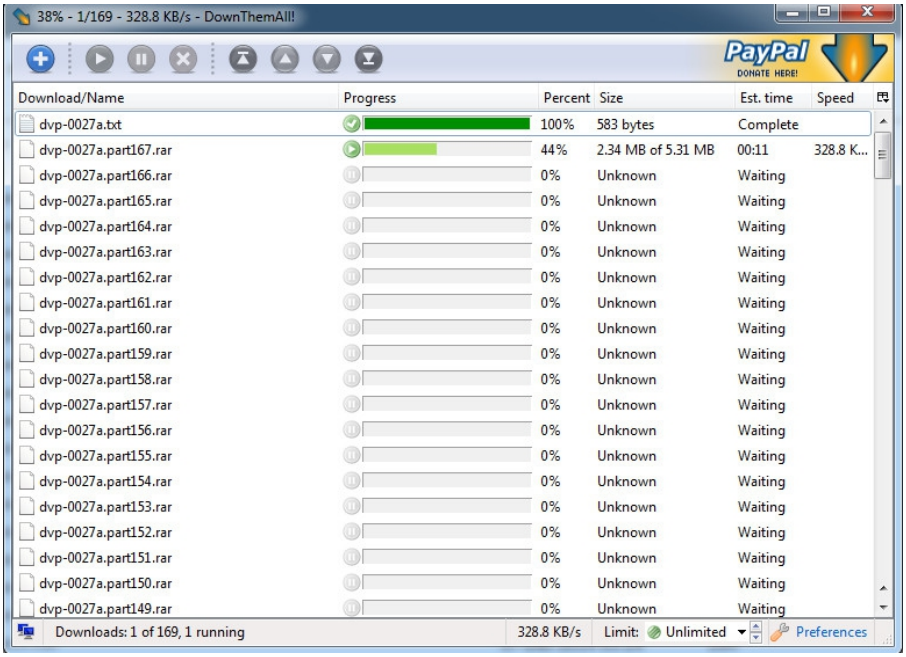
Now we have chosen all files for downloading. Note that this list has also some web-page related items there. De-Select this one we don't want to download them.



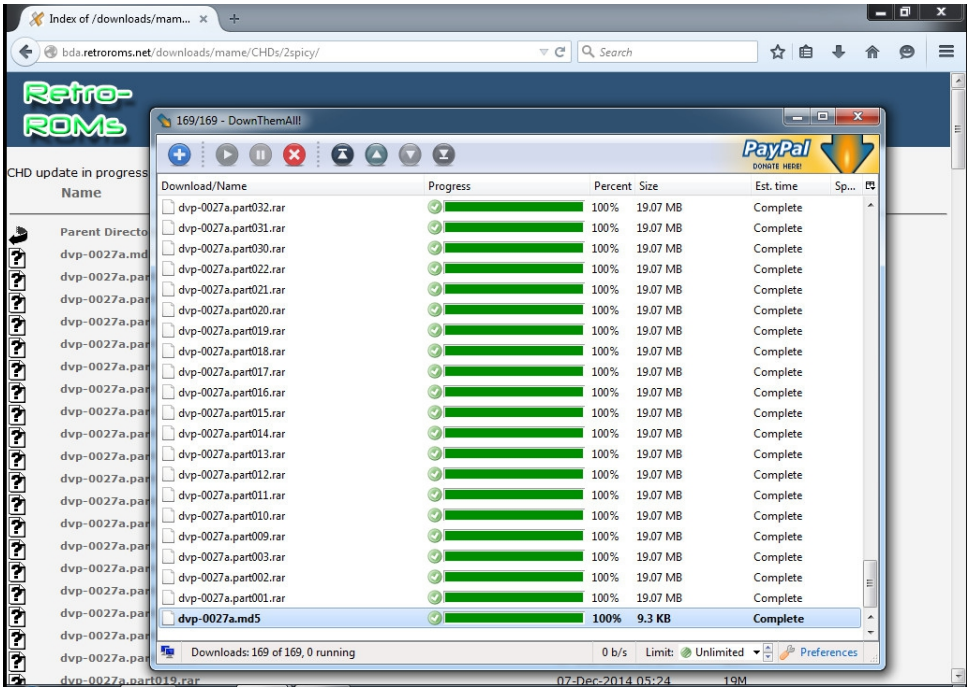
Set the download location to a new folder called “CHD”



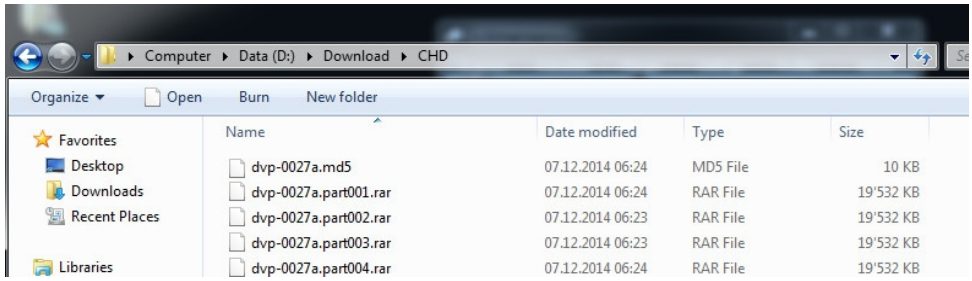
Now click “Start!” and it begins to download all this files. Note that 1 file is downloaded at the time :-)



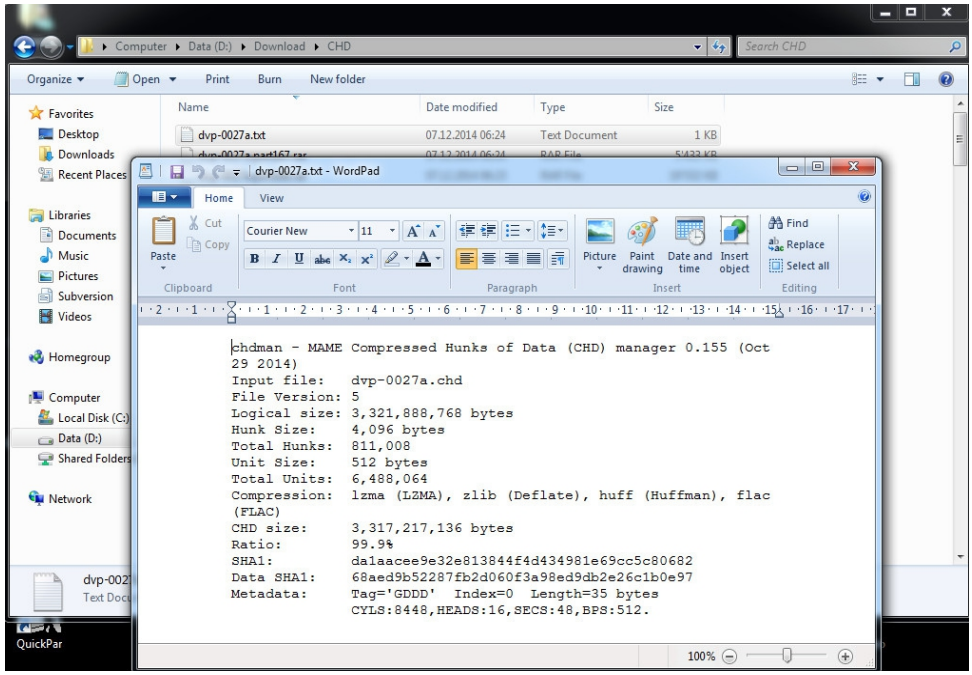
Because this CHD is big it takes a while to download all files. At the end every file should be downloaded.



In the download folder are now all files. A lot of RAR-pieces, a md5-file and also a txt-file.

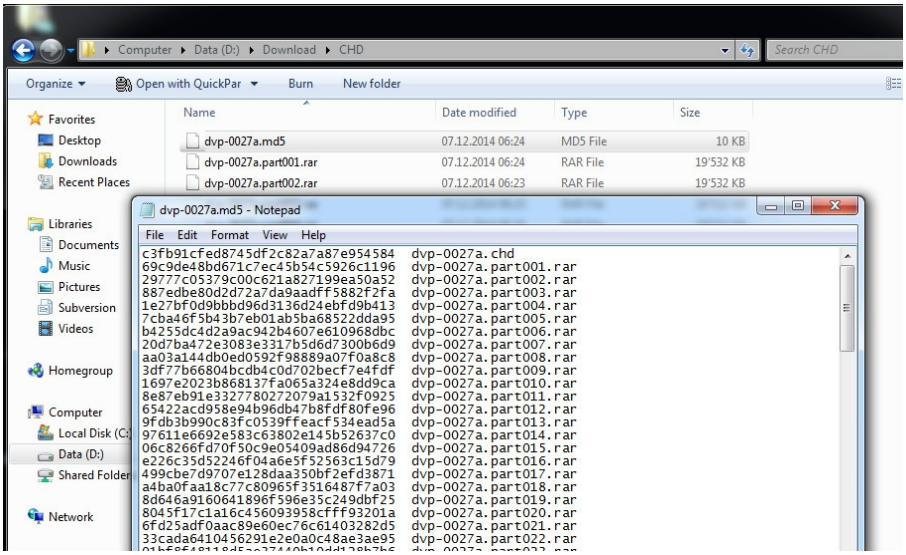


We open the txt-file for looking at the content.



It has information about the CHD-file. It was created with the MAME-tool “chdman.exe”.

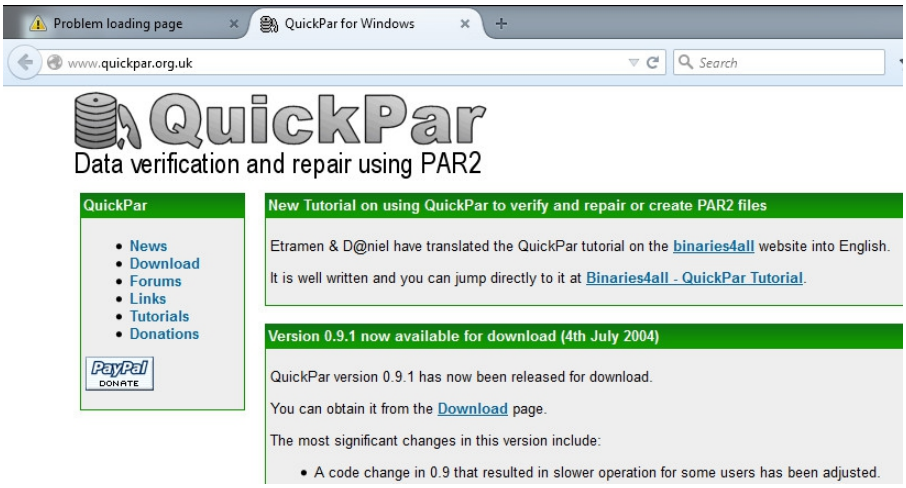
Now open the md5-file:



This file have for each file md5 checksum information. Each file has it own individual hash-code that is build with a algorithm. If you want to know more about the md5 algorithm visit http://en.wikipedia.org/wiki/MD5

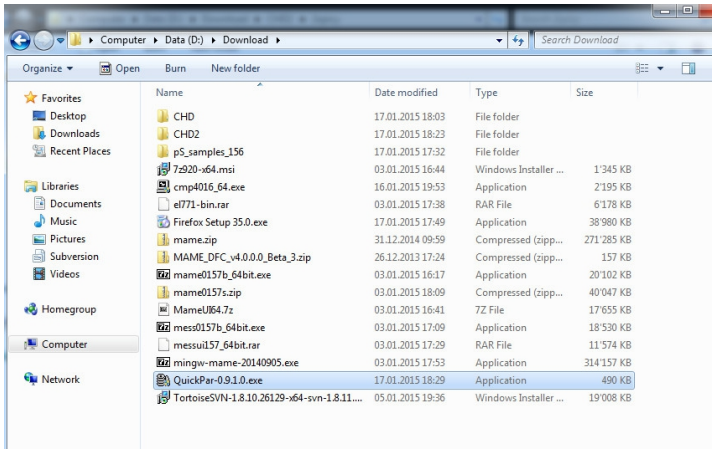
We can check now our downloaded files if they are the same as they are on the web server. We can verify if all the downloaded files are complete.

I'm using this little too for checking files with a md5-file. Open a browser and go to …

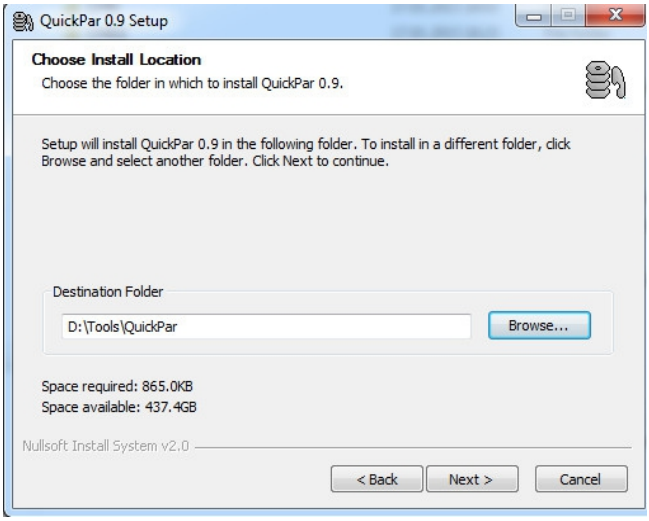


Download the installer

And install it

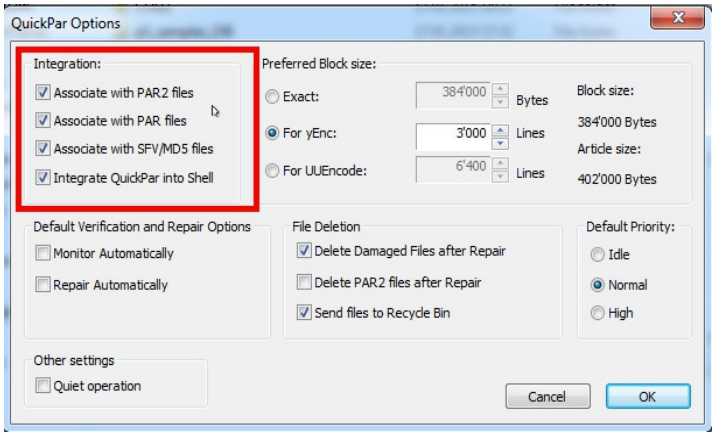


Choose our data-drive as the destination folder

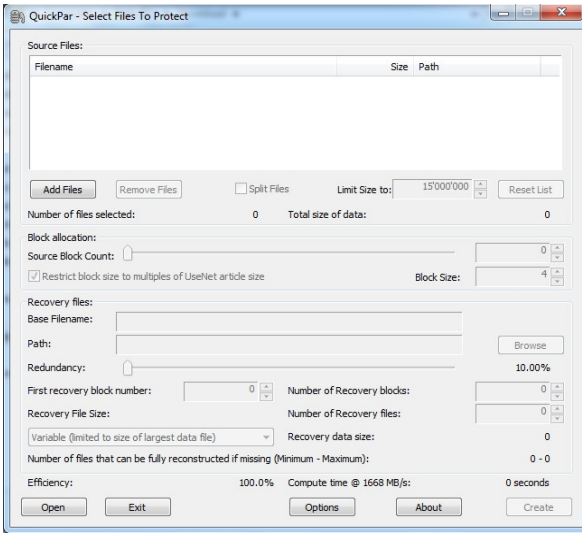


At the end of the installation we start the program.

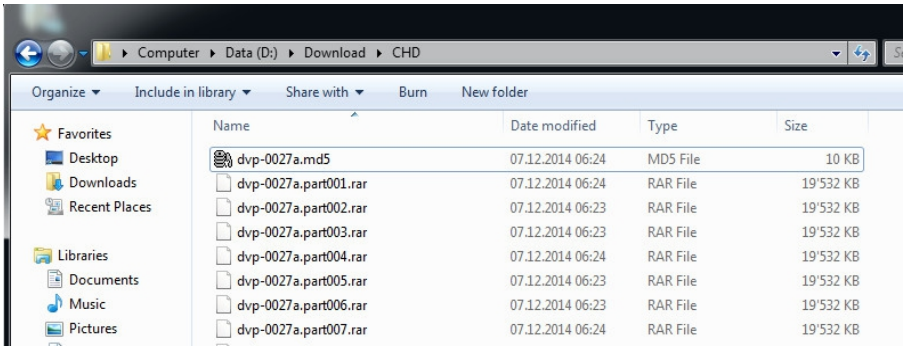
In the program options we select everything in the Integration section.



We can close now the program with “Exit”



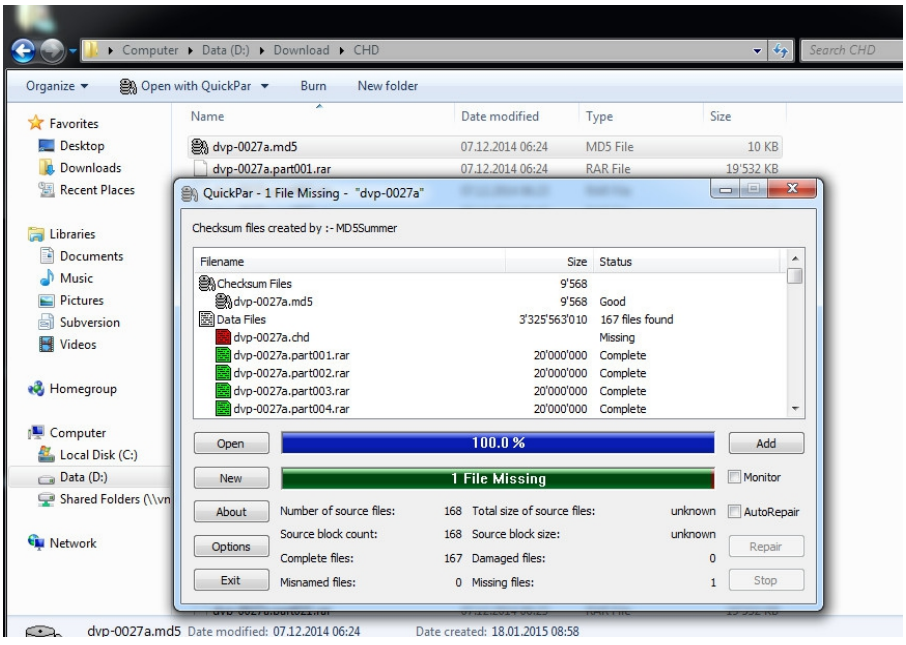
In the download folder we can now double-click the md5-file



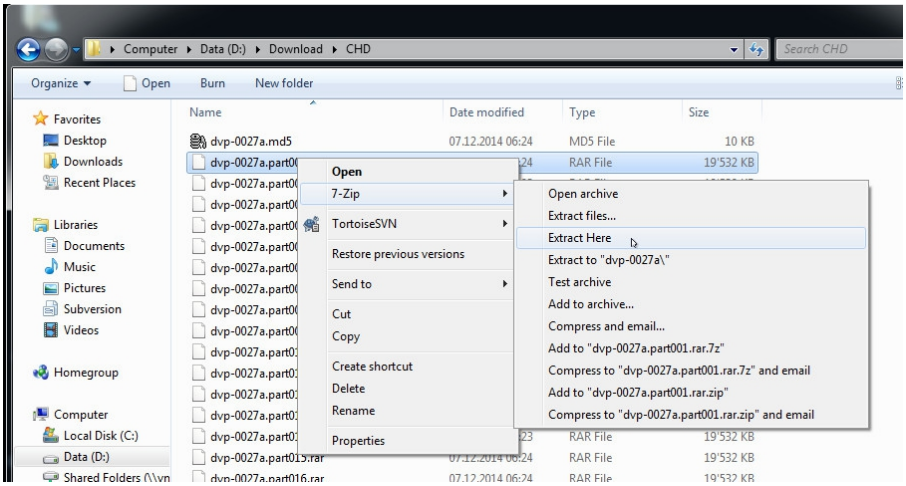
The program “QuickPar” should starts and begin to check all the files and compares them with the md5-checksum in the file.

After everything is checked you see that one file is “missing”, all the others should be green. Otherwise download the corrupt/parts again from the web page.

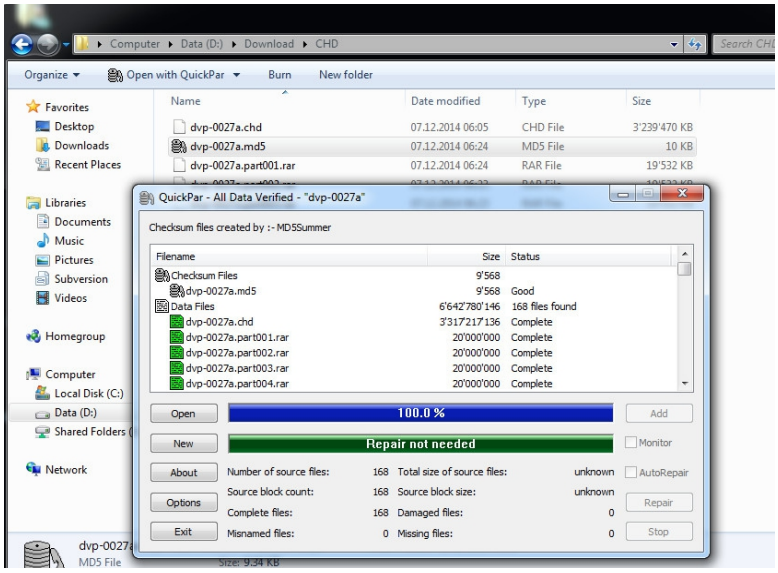
The md5-file has been created while the original CHD-file exists.



Let's choose the first RAR file with the name “dvp-0027a.part001.rar” and right-click it and choose “extract here”

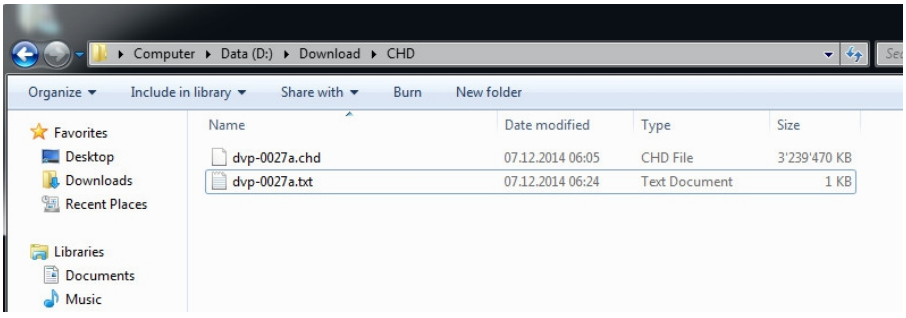


We have now extracted the CHD-file and now start the md5-file again by double-clicking. Now the result should be “Repair not needed”.

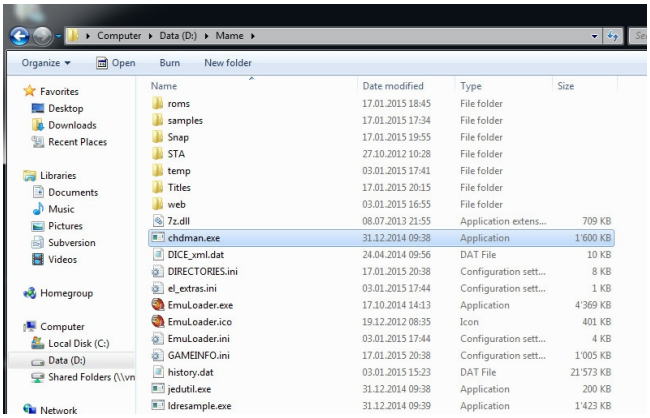


Everything is fine now we can delete now all rar-parts and the md5-file.

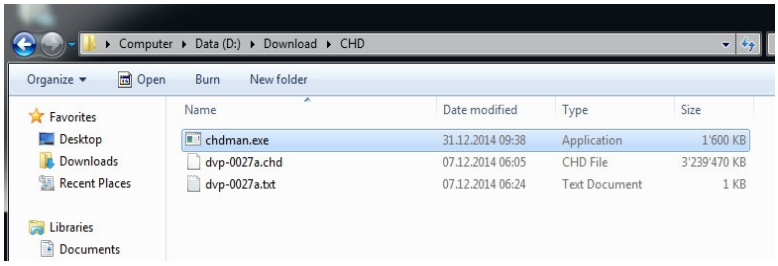
Do not delete the CHD and the txt-file!



We copy now the “chdman.exe” from the MAME folder …..

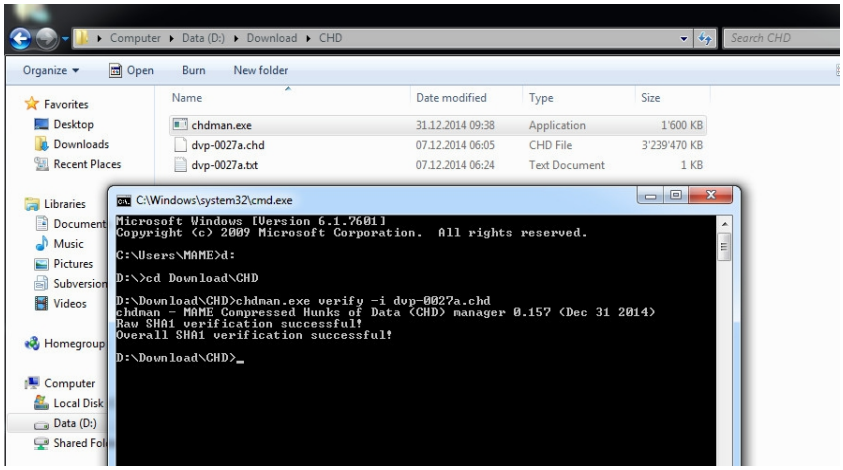


..to the download folder. We are now verifying the CHD-file with the chdman.exe.

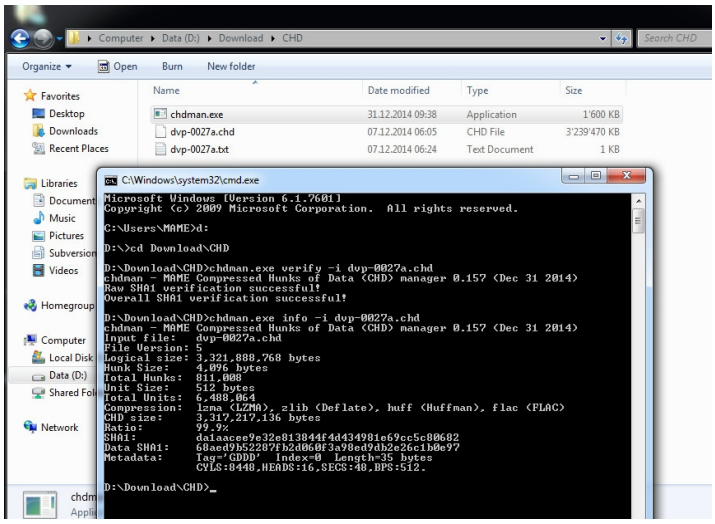


Open a cmd-window, navigate to this folder and execute the following command “chdman.exe verify -i dvp-0027a.chd”. The program “chdman.exe” checks the CHD-file for errors and verify the hash-code.

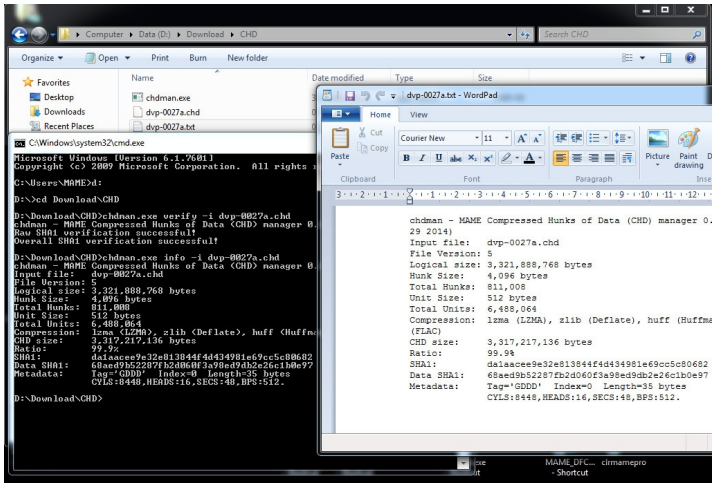
It should tells you “Successful”



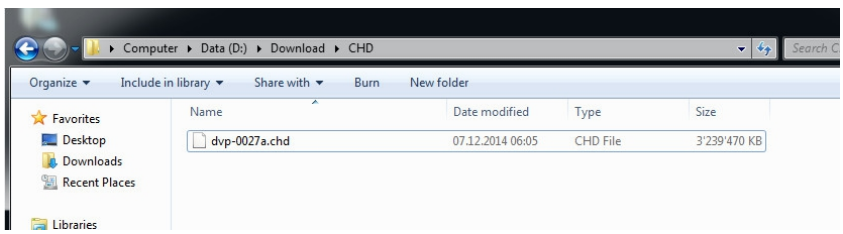
With the option “info” it displays you information about this CHD-file.



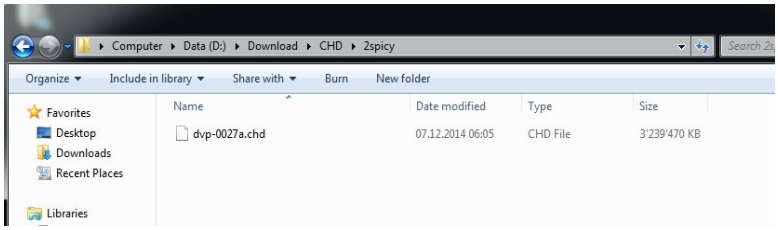
Yes sure you have already seen that information somewhere else. Right it is in the txt-file. It should have the same information as it is displays in the cmd-window:



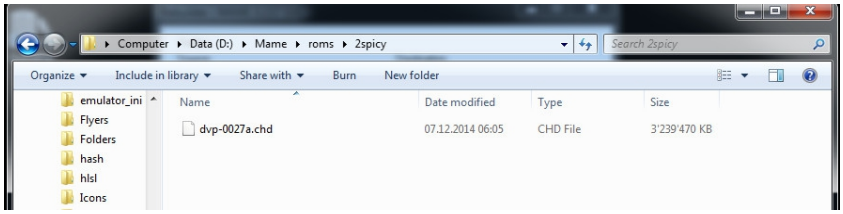
Let's close the WordPad and the cmd-window. We can delete now also the txt-file as it is not needed by MAME.



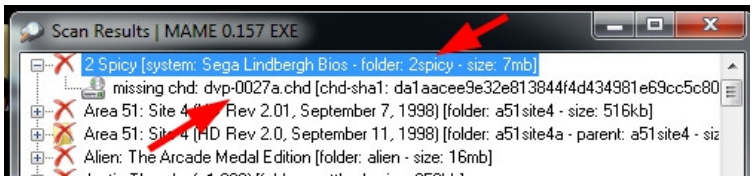
Now create a folder called “2spicy” and move the CHD-file into that folder.



Move that folder “2spicy” to the mame\rom folder if you want to use it with MAME.



How do we know how the folder name is? When you are scanning your set (See chapter “CLRMAME”) it will list the missing chd with the folder name:



That's it we have download our first CHD-file from Retroroms.net. If you need a lot of CHD-files it is maybe a better way to use torrent-files from other websites.

About the versions number

What does happens if we have MAME Version 0.158 installed and our ROMs are still at version 0.157? You should should try to have the same version. Otherwise some games does not work. Added or renamed ROMs would be listed as missed. It is the same also for the add-ons pictures. Sometimes also a set will be renamed and in this case no picture is displayed.

Chapter 5: Other Tools

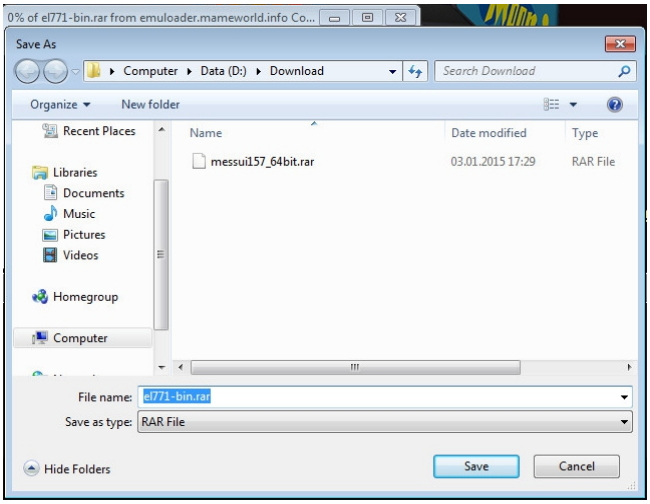
Installing a front-end

There are several front-end available for MAME/MESS. One of them is EmuLoader.

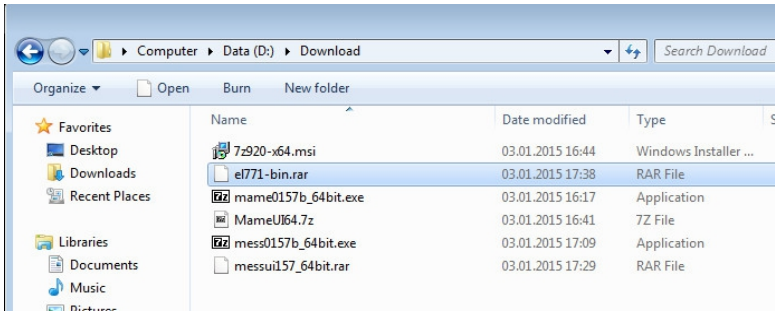
Start a web-browser and go to http://emuloader.mameworld.info/

Download the “binary full” version

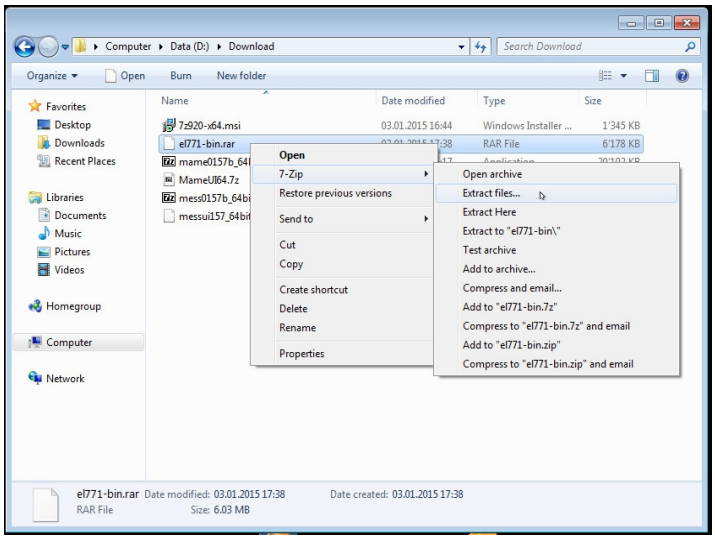
Save it to the download folder



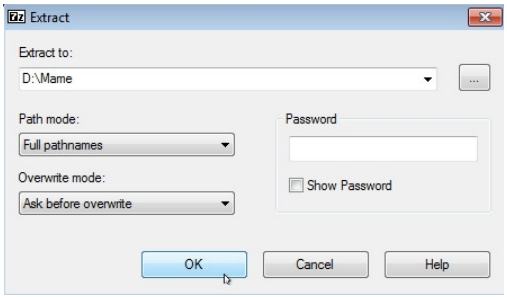
Here we are



Extract the RAR-File by pressing the right mouse-button and choose “Extract files”

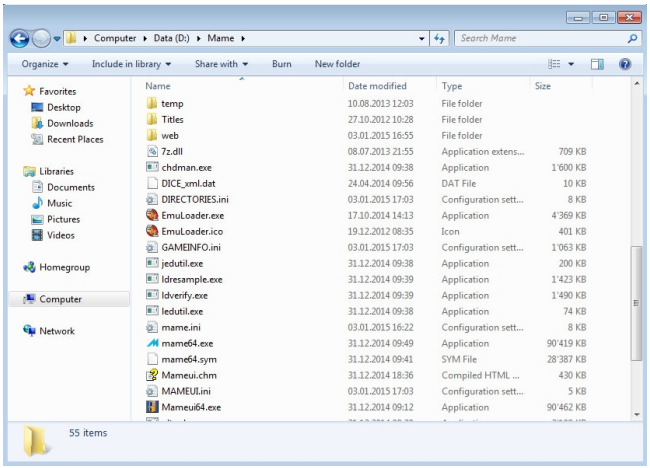


we want use it with the MAME and extract it to the mame folder.

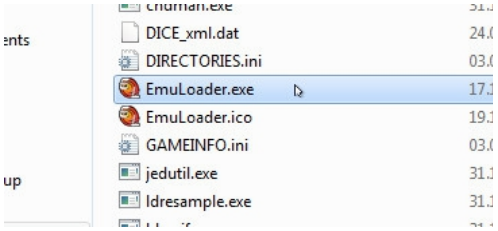


This front-end can handle different emulator like MAME and MESS. If you use it for other emulators it is better to install it to an own folder.

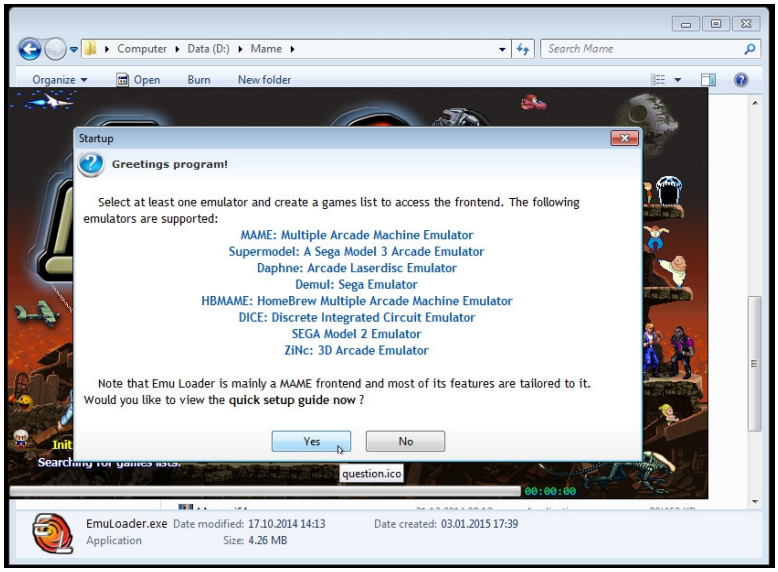
We have now the executable within the mame folder.



We start the front-end with the executable



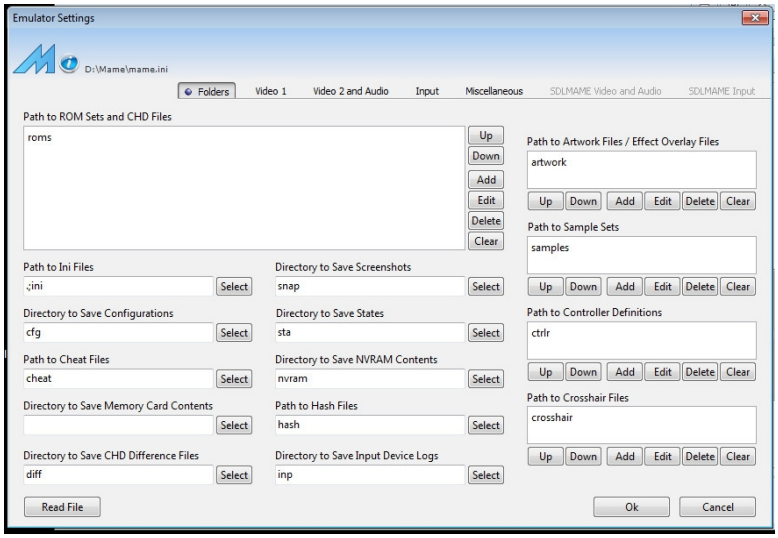
Starting the first time a wizard starts



As we want use it for the MAME Emulator point it to the executable

! This is a UI-program it is used for work only with command-line emulators.

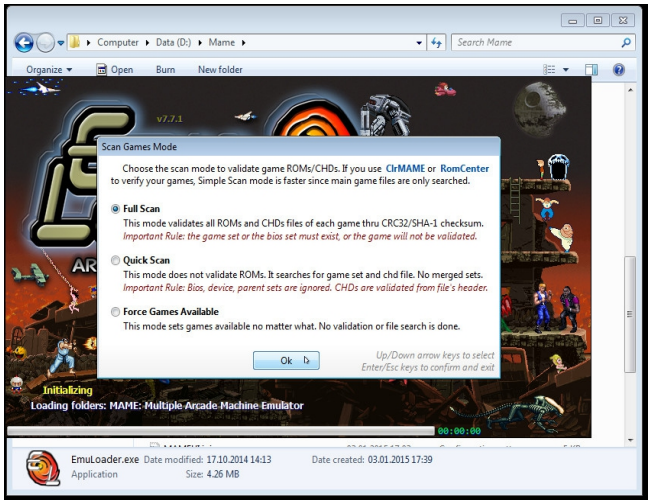
Leave the folders default for now.



! As we have installed the EmuLoader into the same directory as MAME we don't have to change all the folders. If you are going to use EmuLoader for different systems it would be better to extract it to a separate own folder.

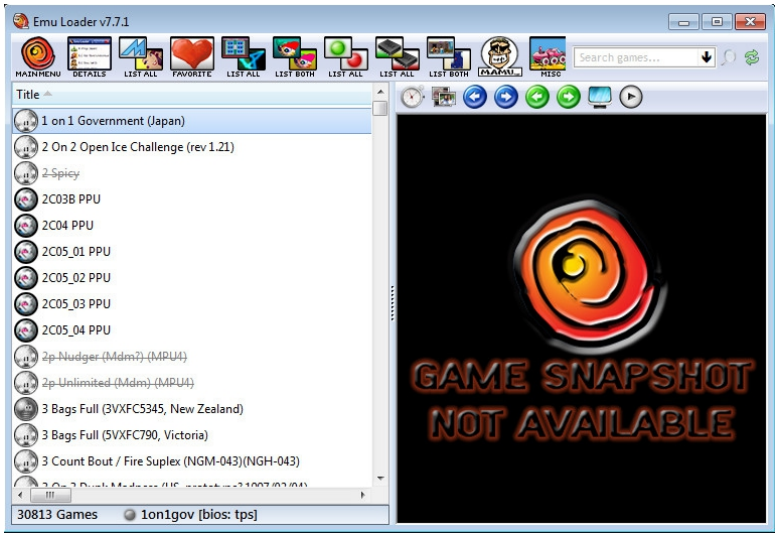
Click “OK”

For the first time it will scan the folders for available ROMs.



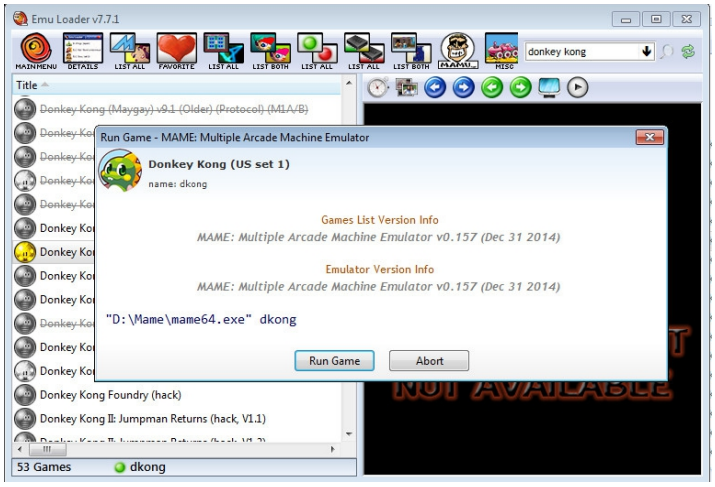
The scan can takes some time

The front-end has started

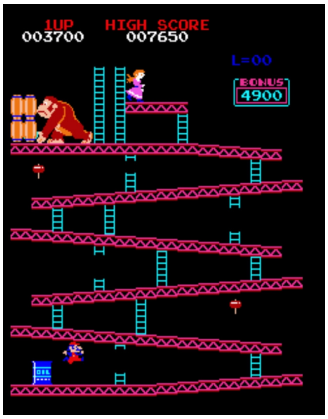


Testing? Yes sure. Search again for “Donkey Kong”

Start it

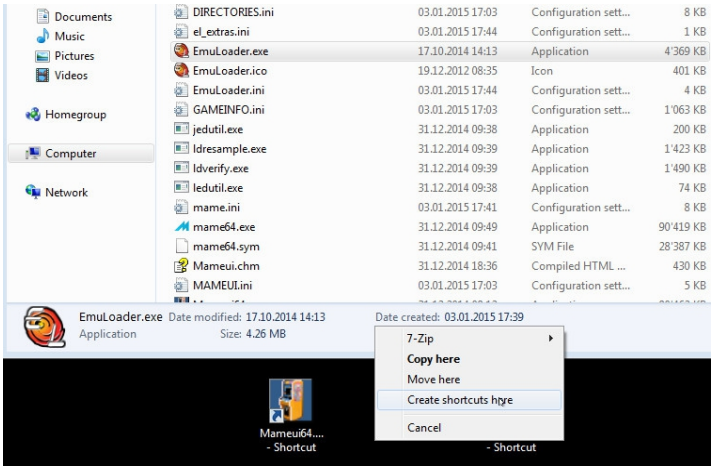


yeah it works

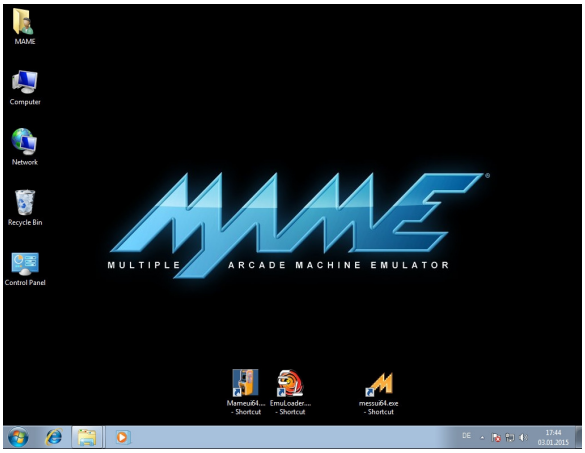


With “esc” you exit the game (MAME)

Okay lets create a shortcut for EmuLoader. Drag-and-drop the exe with the right mouse-button to the Desktop. Choose “Create shortcuts here”



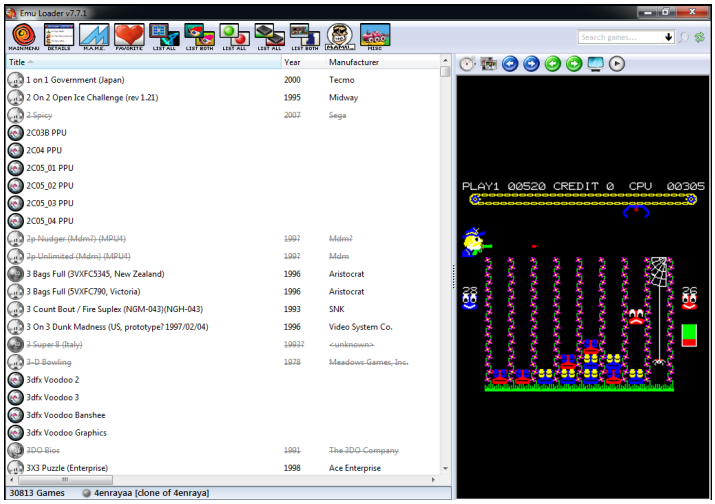
yeah great, ready for playing :-)



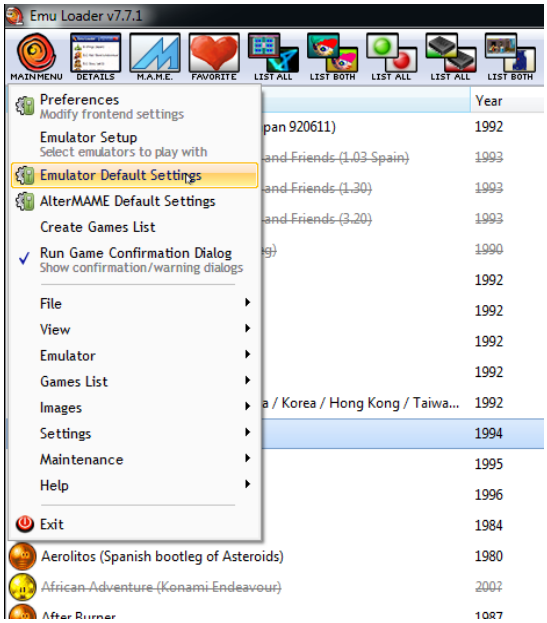
Using a front-end

In EmuLoader you can set a lot of options, some of them are for the emulator and others are only how the EmuLoader looks like.

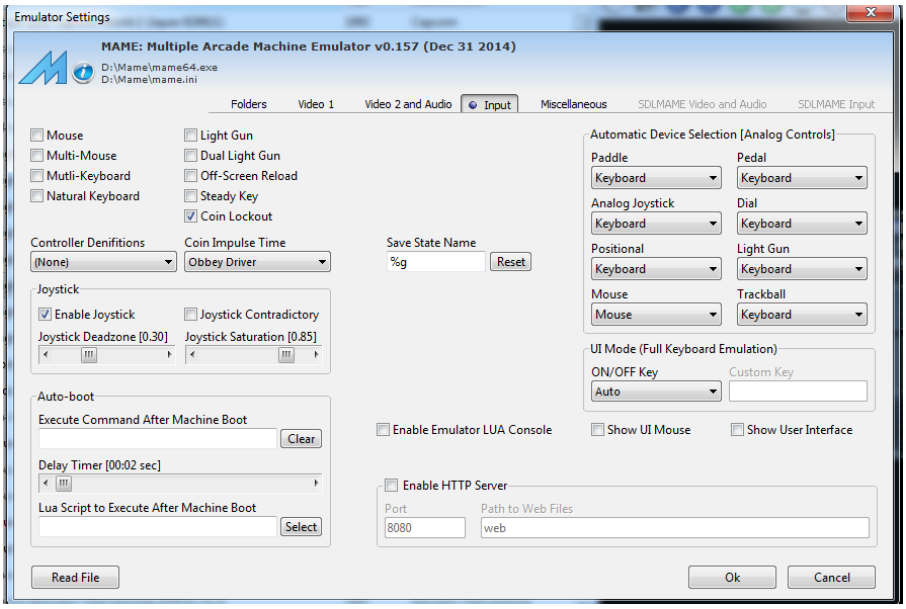
Start EmuLoader ….



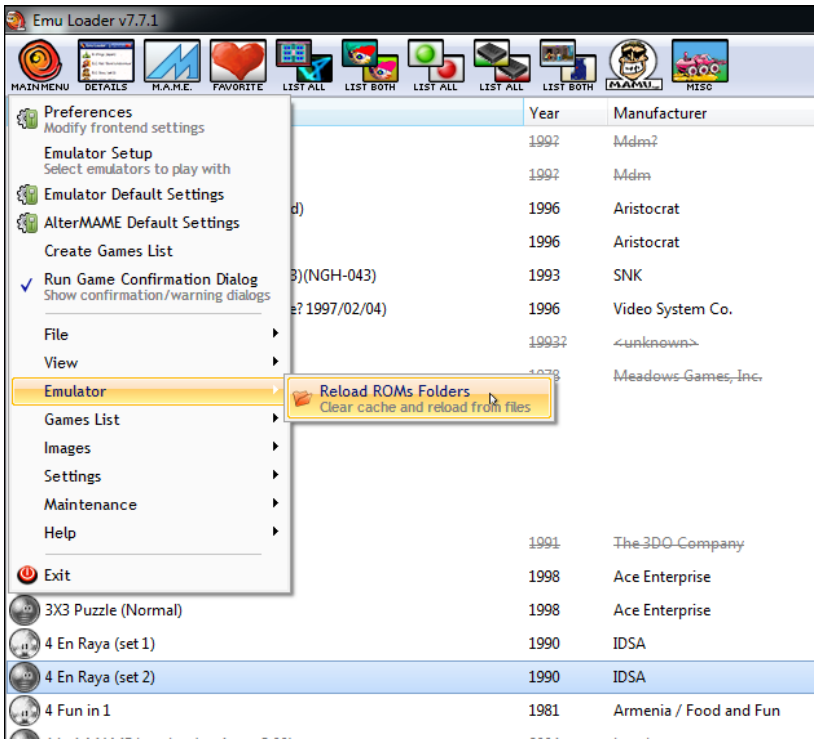
You can set a lot of details under “Main Menu”. One of them are the settings for the emulator itself (Default settings).



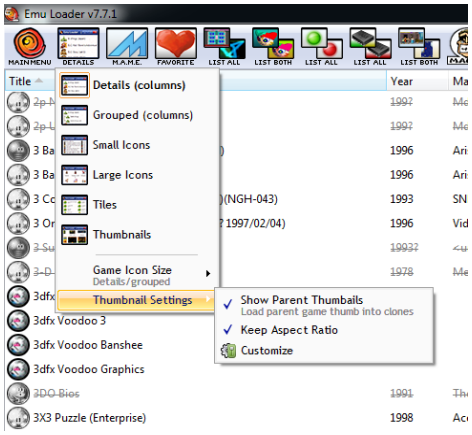
Here you can set for MAME all default-Settings.



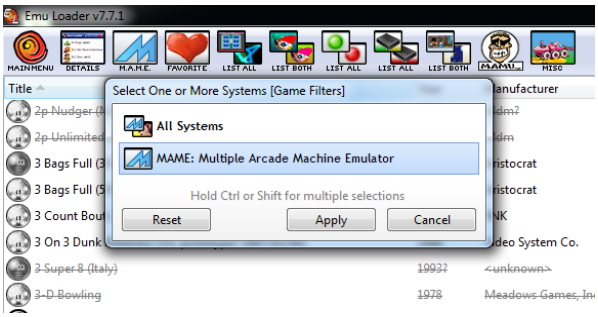
If you have updated your MAME, verify that the exe path is still the same. If you have updated/added ROMs to your ROM-folder be sure that you let EmuLoader do a new scan to refresh his cache.



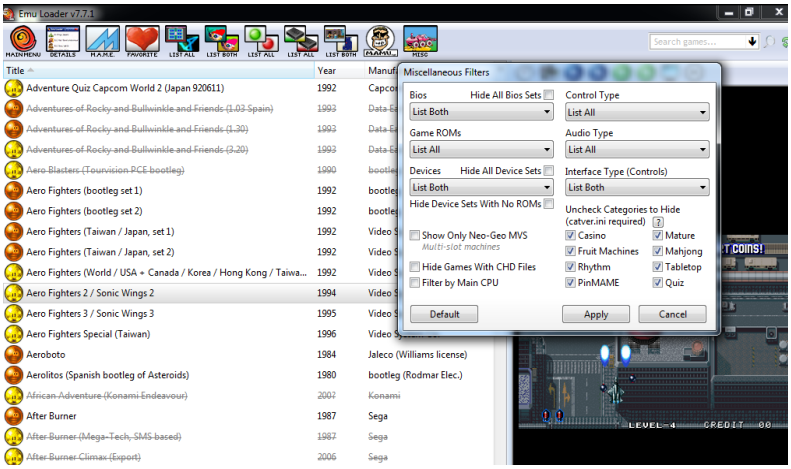
Under “details” you can change the EmuLoader view.



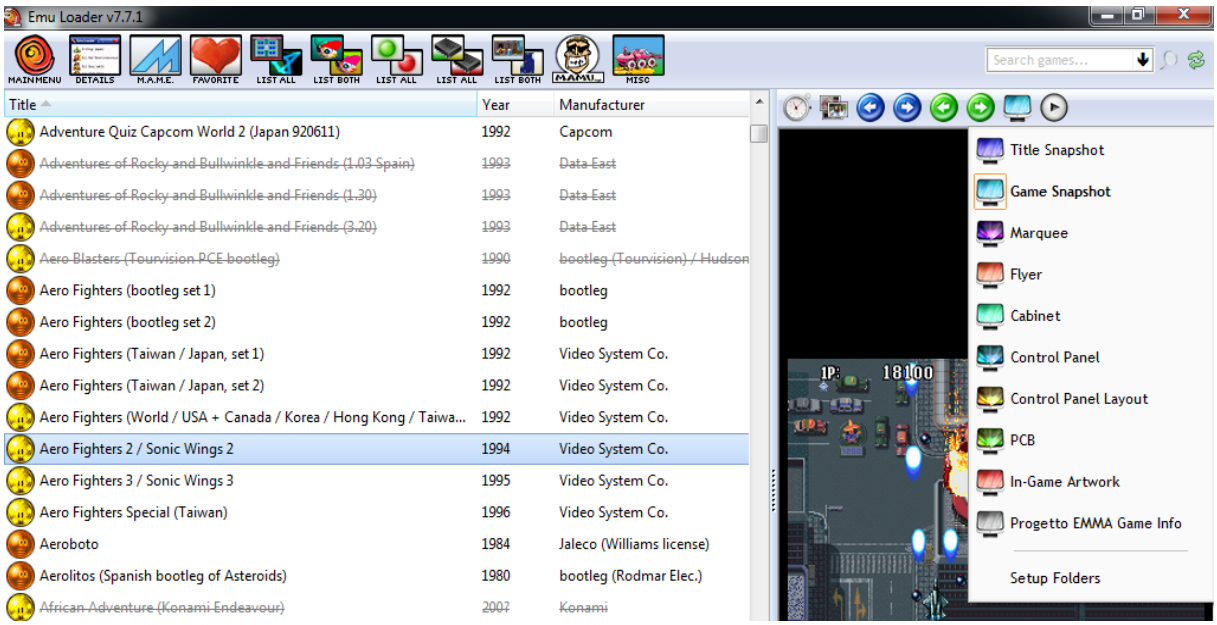
As this is a Front-end and can include more than one emulator (MESS) you can choose in this “Game Filter” which emulator it should displays.



All the other options are for setting up a custom view. You have to play around what you want to have listed. Under “Misc” you can also set some special “view” options :-)



With this EmuLoader it is also possible to display more picture of a system/game like a “control Panel” or a “PCB”.

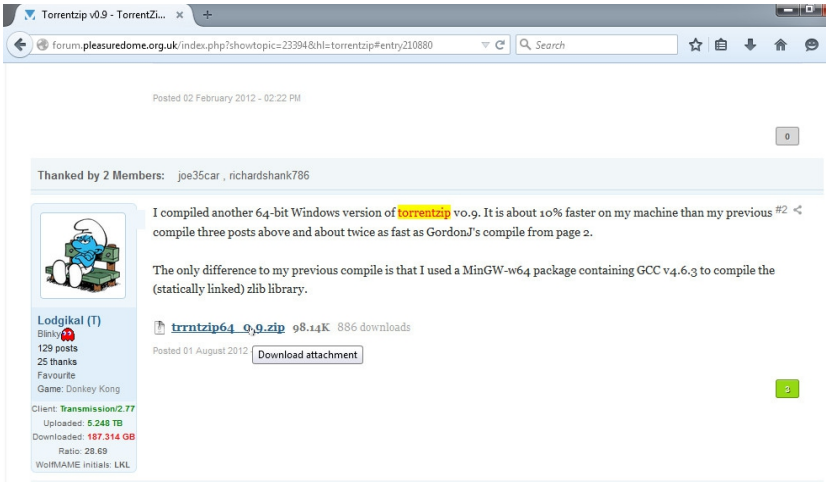


Installing torrentzip

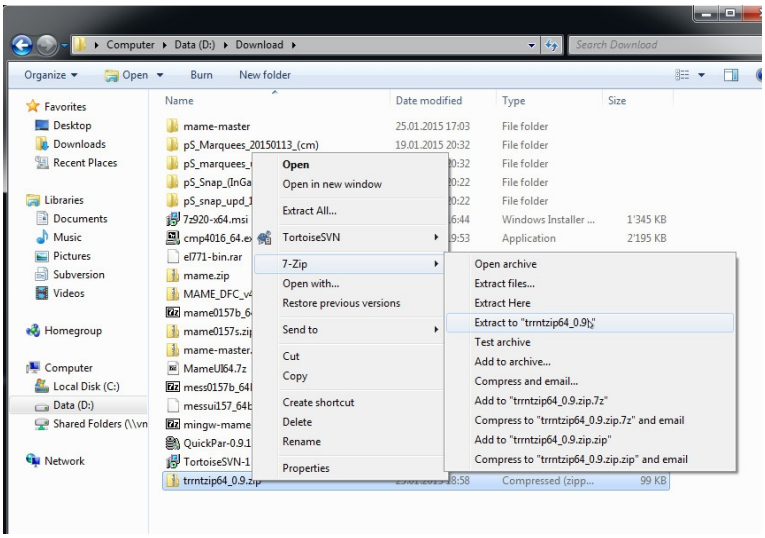
Sharing ROMs with a torrent is only possible since some nice people has developed torrentzip. With the normal ZIP it was not possible to share the same zip with the same ROMs inside to others without to download it again. With torrentzip it is possible that I can create a zip-file that use a machine independent algorithm to compress the file. The result is that this zip-file is 100% the same regardless on which machine it is created. So all the people who have this file can join the torrent without downloading it again.

Be sure that you rebuild your set to the same version that the torrent is for. Also keep in mind that it should have the same structure (merged/split/unmerged).

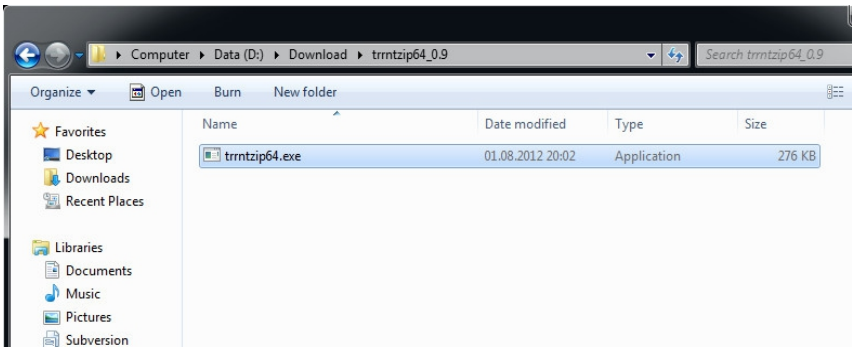
Let's download the torrent-zip program from the internet (do a search for it). I have a 64-bit Windows → in that case I need the 64-bit version



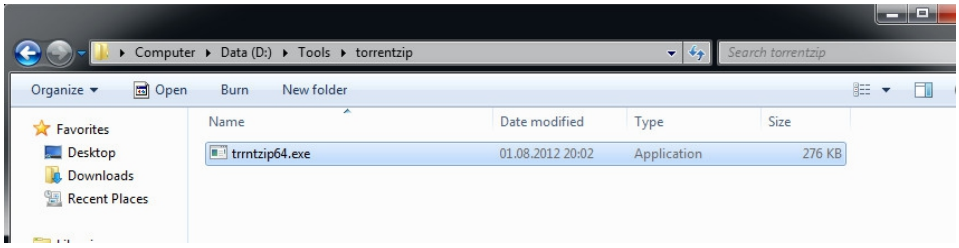
Extract the downloaded file to a folder



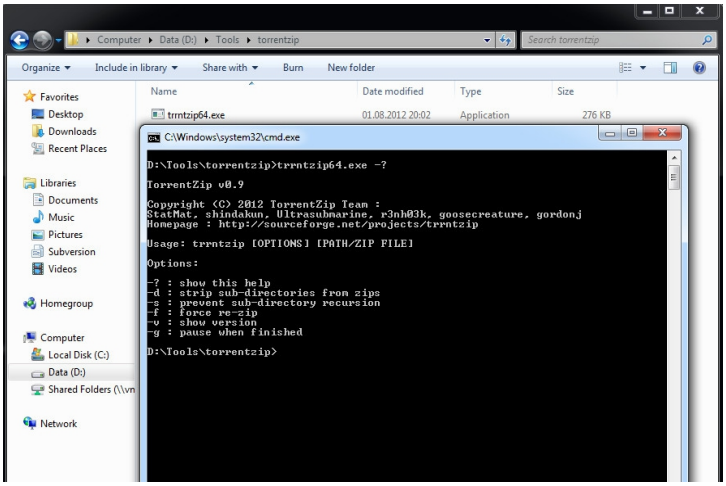
We move the extracted exe to …



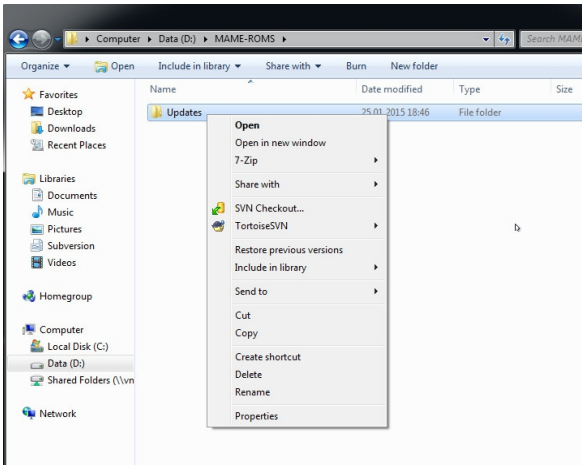
..to a new created folder “torrentzip” in our tools folder.



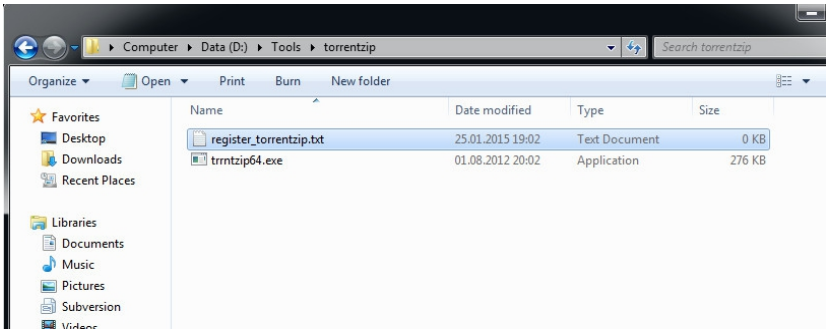
As this is also a command-line tool we can check if it does work with the option “-'?” to display the version.



And how to use it? I don't want to start a cmd-windows and execute it with the parameters. Would it be not nice to have it available in a context menu of a folder?



We want that! Create a file in the torrentzip-folder called “Register...txt”



Open the file and add the following lines into it:

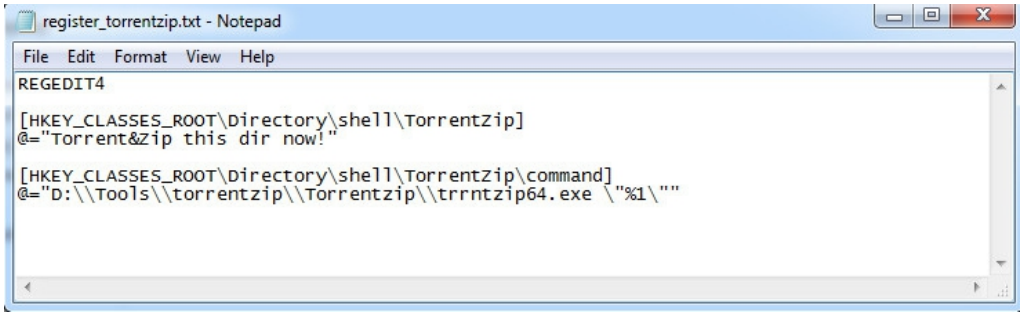
REGEDIT4

[HKEY_CLASSES_ROOT\Directory\shell\TorrentZip]

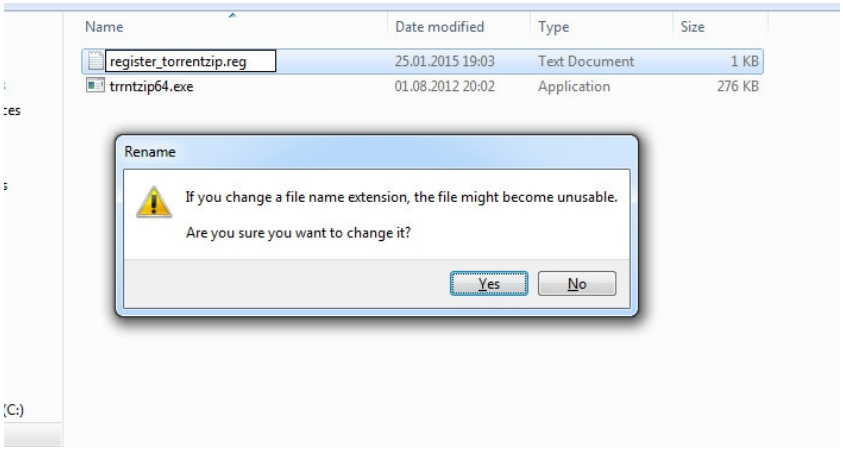
@="Torrent&Zip this dir now!"

[HKEY_CLASSES_ROOT\Directory\shell\TorrentZip\command]

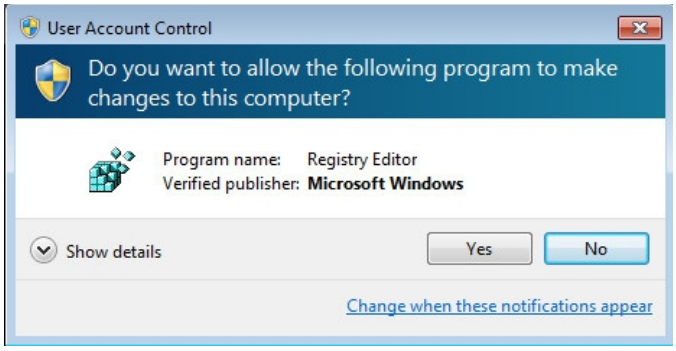
@="D:\\Tools\\torrentzip\\trrntzip64.exe \"%1\""

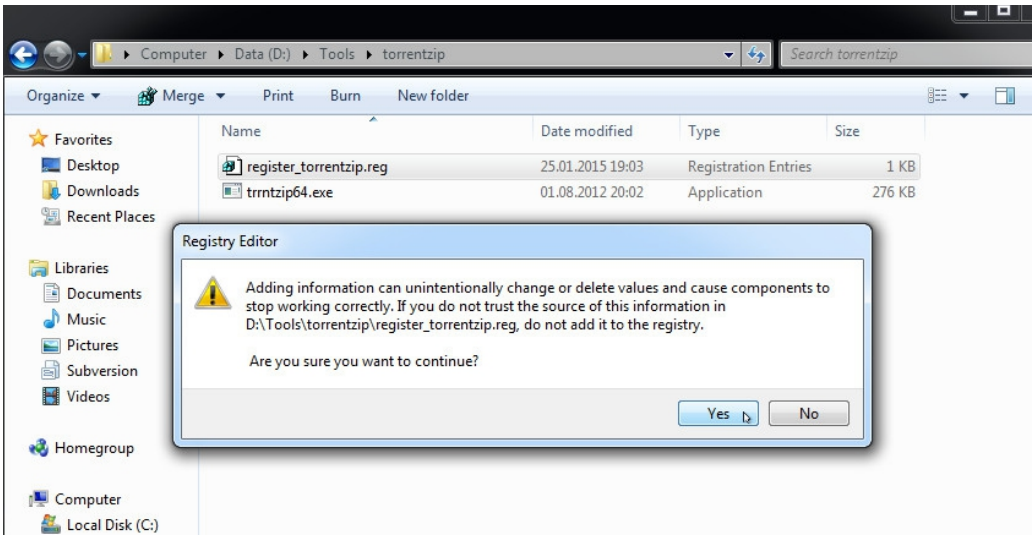


Save the file and rename it to a “.reg” file.

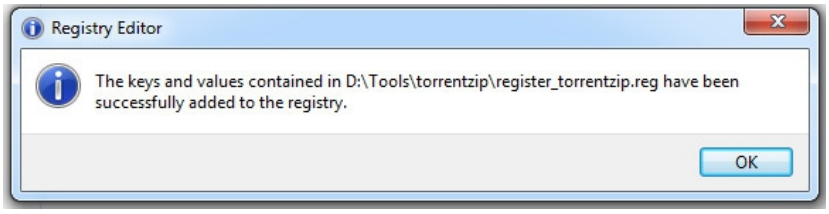


Now import this reg-file into your registry by double-clicking it. Say “yes”..





We have now imported those settings successful into our Registry (You need to have administrator rights for doing that)



Torrentzip is now ready for using.

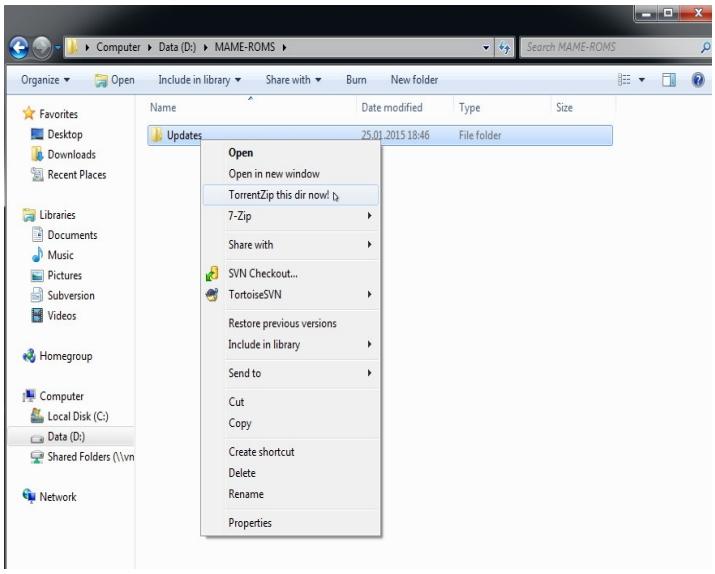
! If you are using a 32-bit Windows. Do the same but change the exe name in the reg-file to match your executable.

Using torrentzip

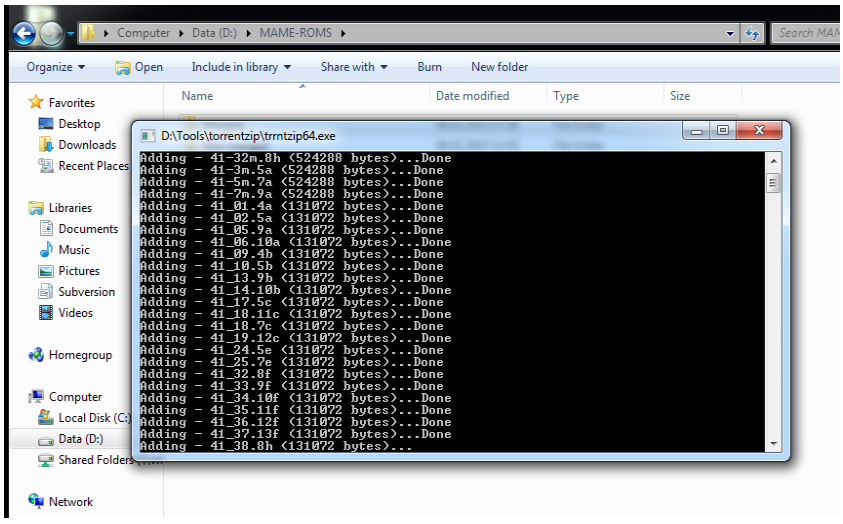
We have now “installed” torrentzip and it is available in the context menu.

We want to test if it does work. Go to a ROM-folder and do a right-click and choose “Torrentzip this dir now”

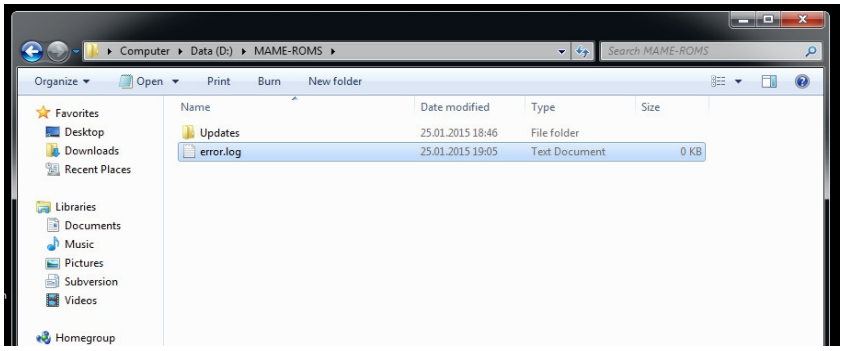
! Test it first with a test-folder and not with your only full ROM folder !!



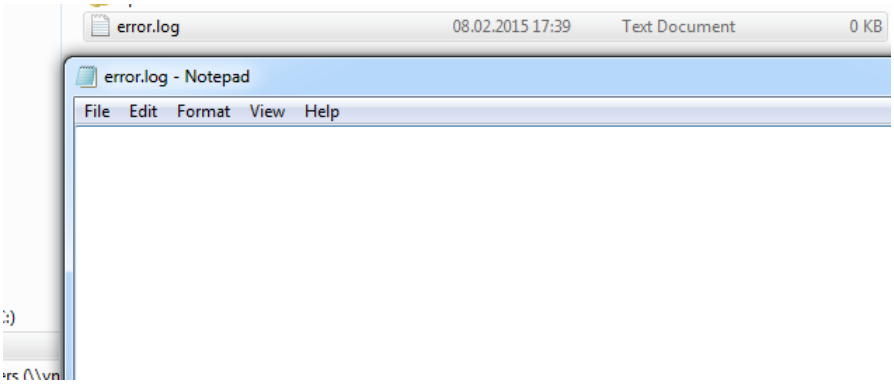
It will start a command-line windows with torrentzip all the files.



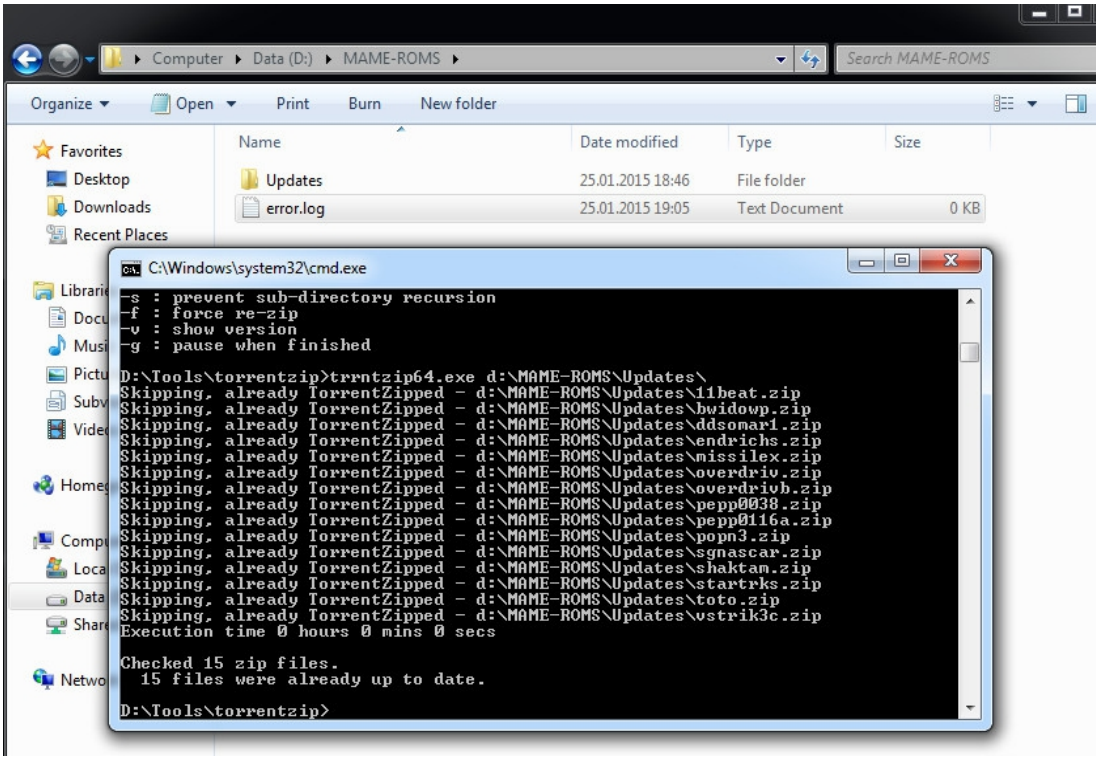
When it has finished it has has created an error.log



In our case it is empty because everything went smooth. If there are errors like “read-only” or corrupt zip-files it will save this information into this file.



For the first time we want to verify with torrentzip that it has done his work. We start a a cmd-windows and change to the torrentfolder and add the following command “trrntzip64.exe d:\MAME-ROMS\Updates\”



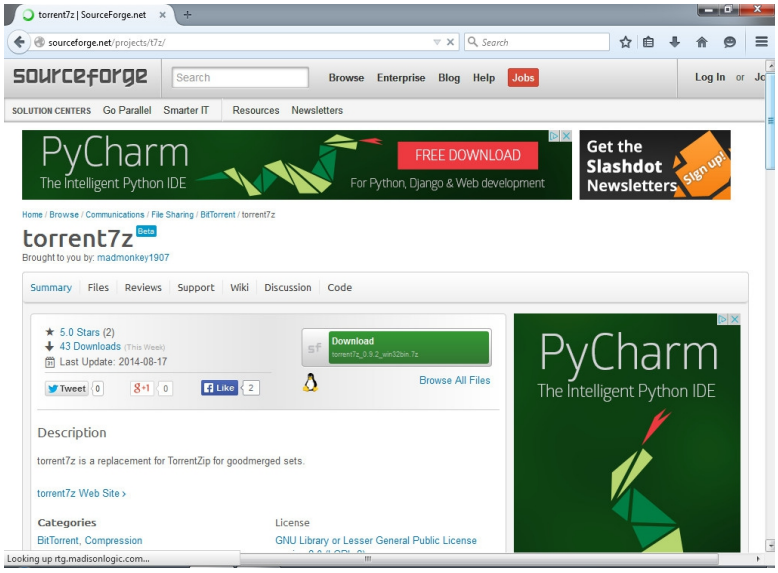
We see that everything is correct, no errors, good. We can now use it for all ROMs-folder that we want to update with a torrent. Be sure that you don't forget to torrentzipping it first before joining. I have set my torrent-client to not start the torrent after I have added a torrent. So you have the change to verify it first and see if you could start it or not at a hight percentage.

Torrentzip creates btw log-file in your d:\tools\ folder → delete them from time to time.

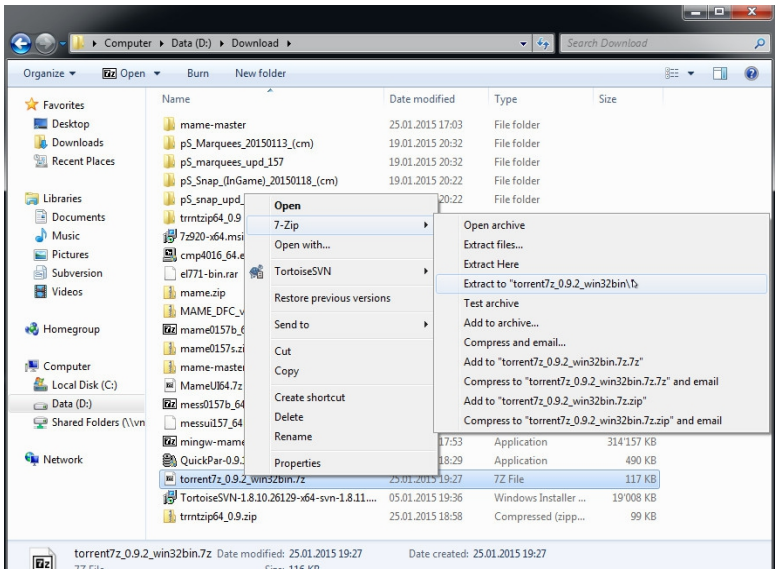
Installing torrent7zip

If you want/have to store your ROMs-zip with 7zip compressed you must use the torrentzip for 7zip ;-)

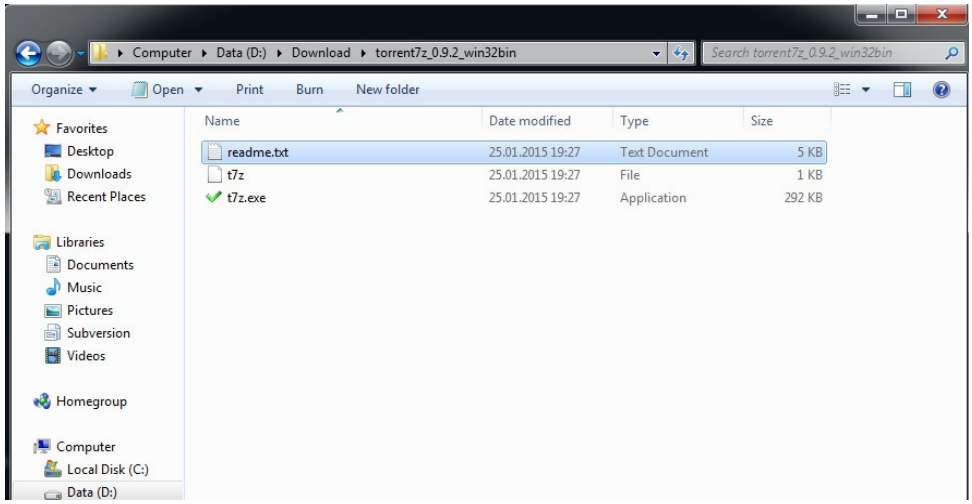
Download it from here: http://sourceforge.net/projects/t7z/



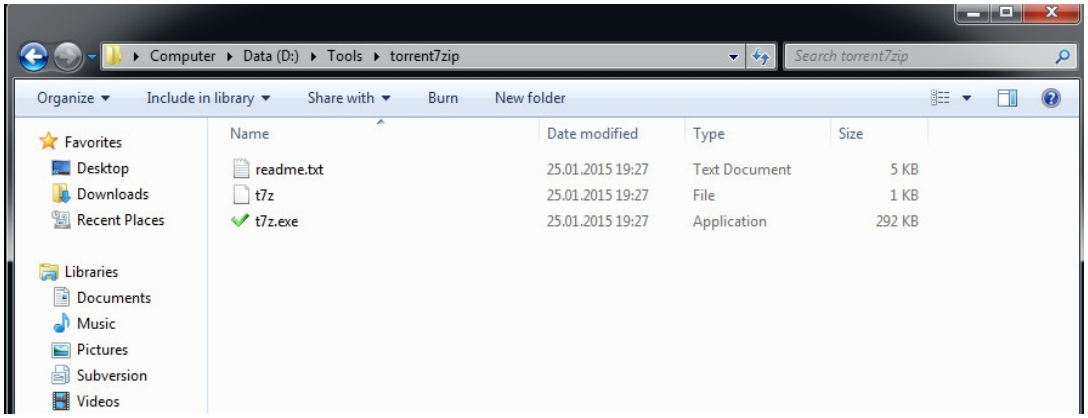
Download the 32-bit version as no 64-bit is available. Extract the downloaded file into a folder.



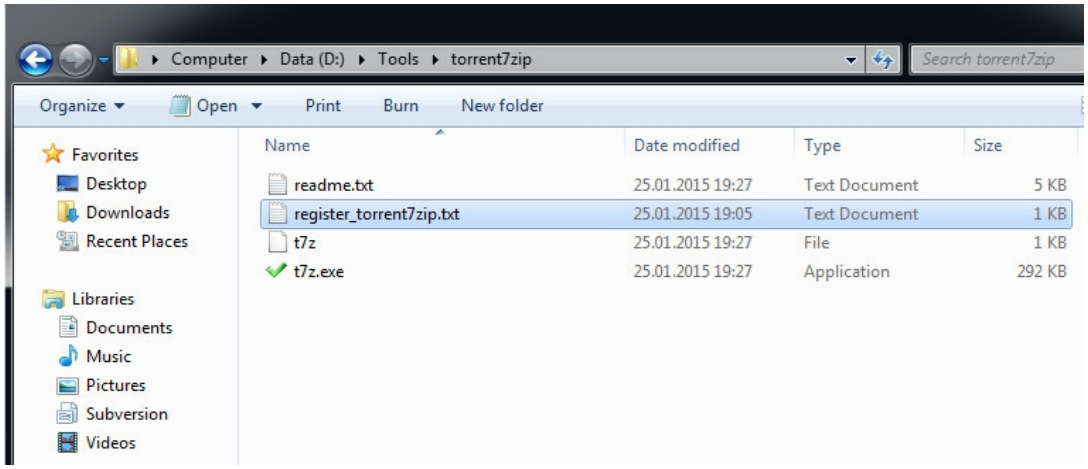
Move all extracted files …..



..to a folder called “torrent7zip” in your tools folder (create it first)



Create a “register_torrent7zip.txt” file in that folder.



Open it with notepad and add those line into it:

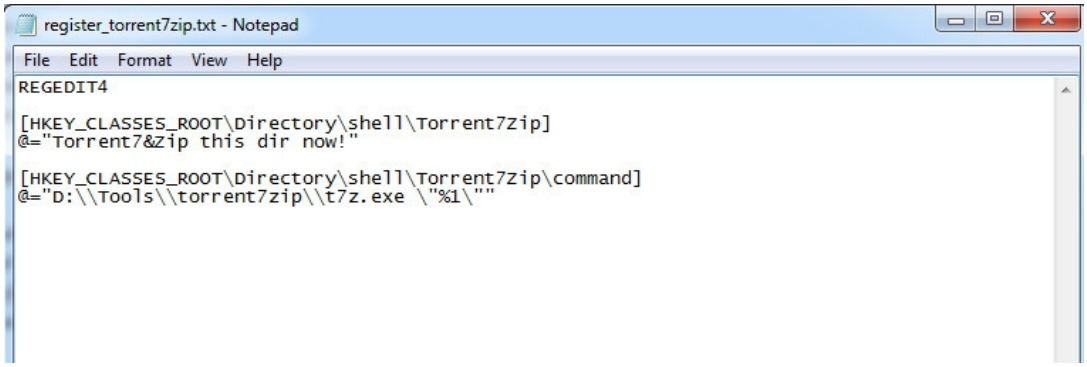
REGEDIT4

[HKEY_CLASSES_ROOT\Directory\shell\Torrent7Zip]

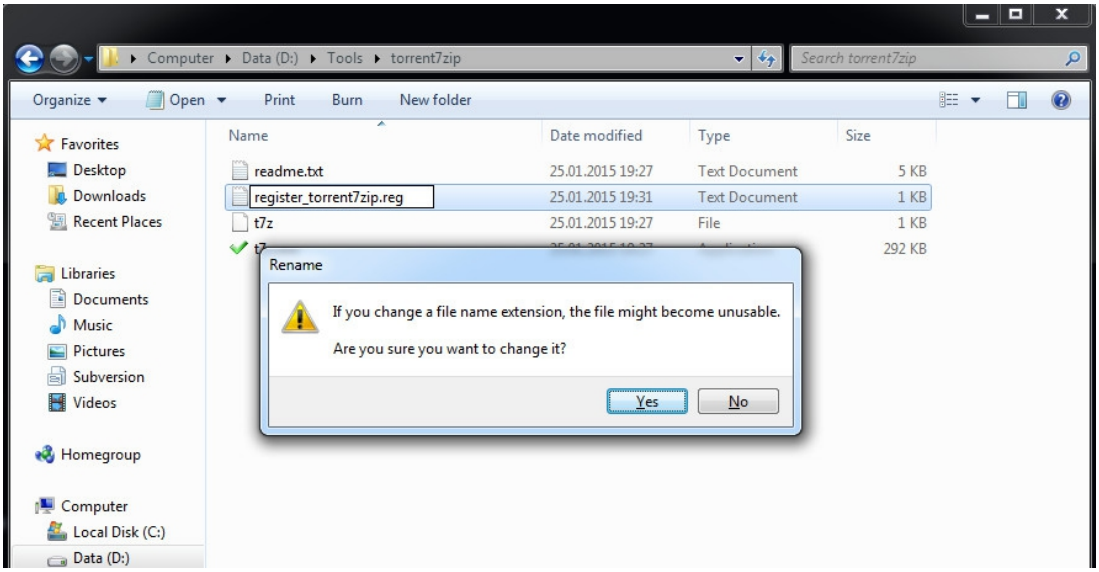
@="Torrent7&Zip this dir now!"

[HKEY_CLASSES_ROOT\Directory\shell\Torrent7Zip\command]

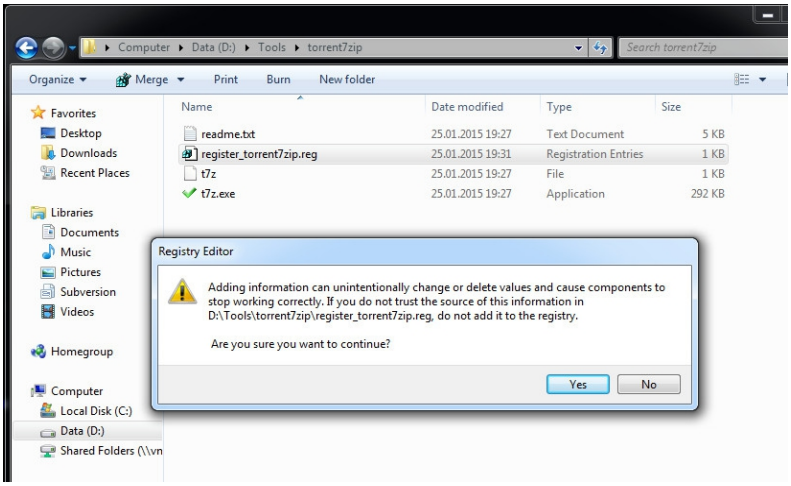
@="D:\\Tools\\torrent7zip\\t7z.exe -y \"%1\""



Save it and rename it to “register_torrent7zip.reg”



Import that settings into the registry → double-click it and say"yes"



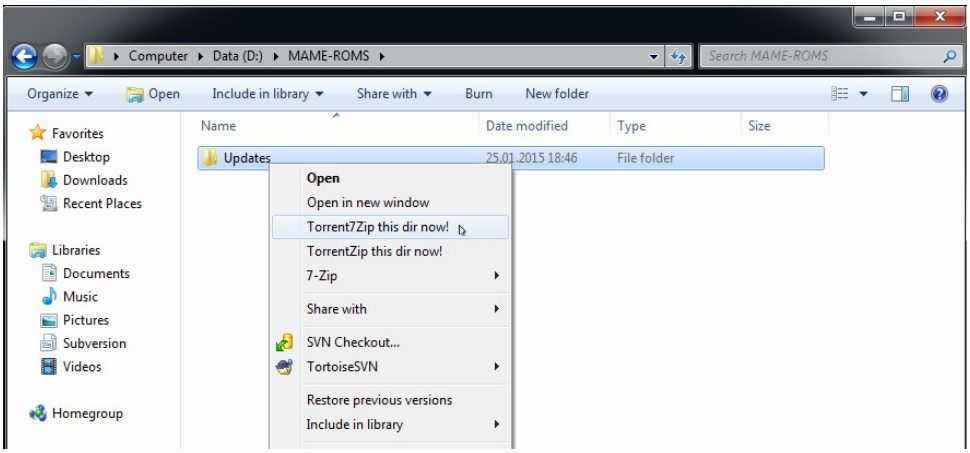
We are now ready to use it.

Using torrent7zip

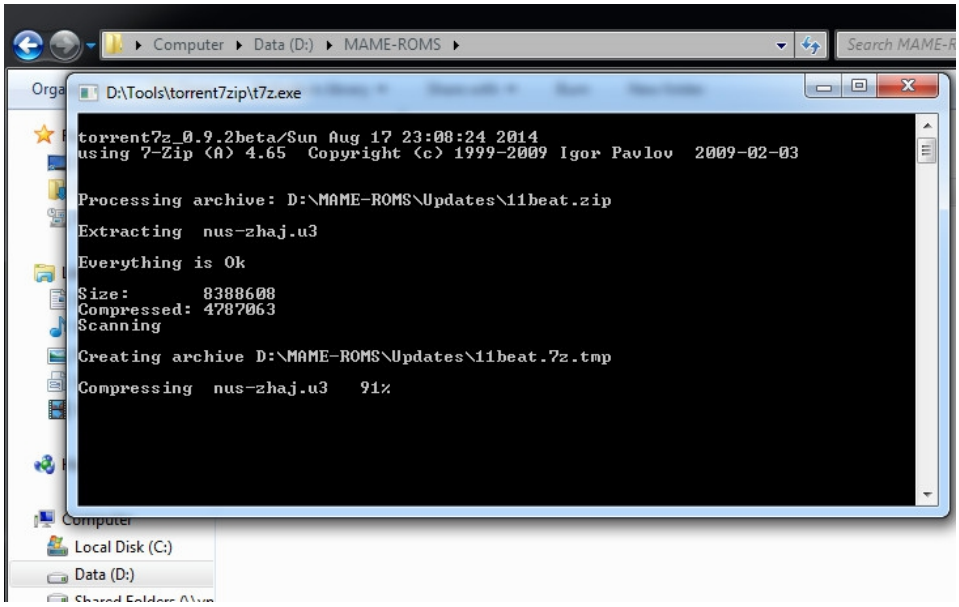
We want to use that on a folder that has 7zip-files !

! Be sure that you choose a folder with 7-zip files and NOT zip-files. Otherwise all zip-files will be converted to 7zip-files !!

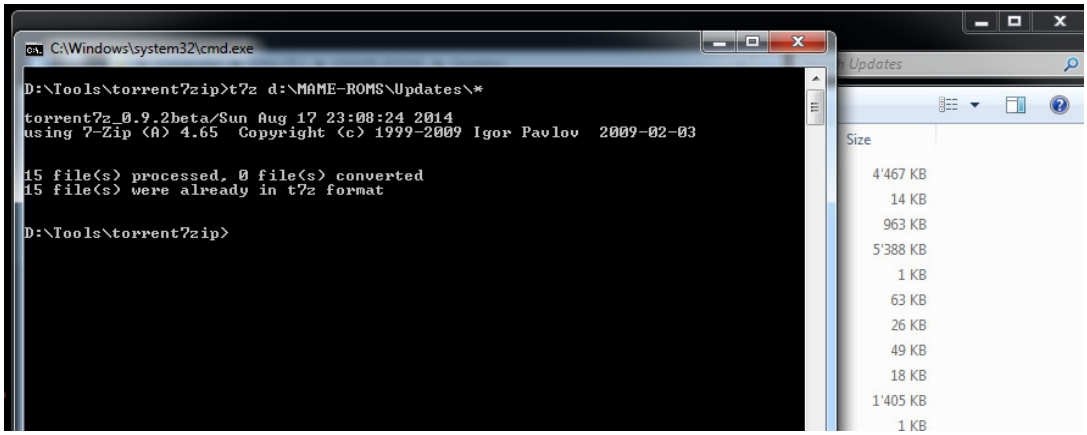
Right-click a folder that you want to torrent7zipping (test it first on a test folder!)



It starts to do it jobs (yeah I know in my example I am converting zip-files into torrent7zipped 7zip-files :-))



After it has finished we can test it manually with the command-line tool.



Everything is okay we are now ready to join a torrent.

Chapter 6: ROM-Tools

In this Chapter I am describing which ROM-tools I am using and how to handle it. There are a lot of other useful tools available that I have never or used in the past.

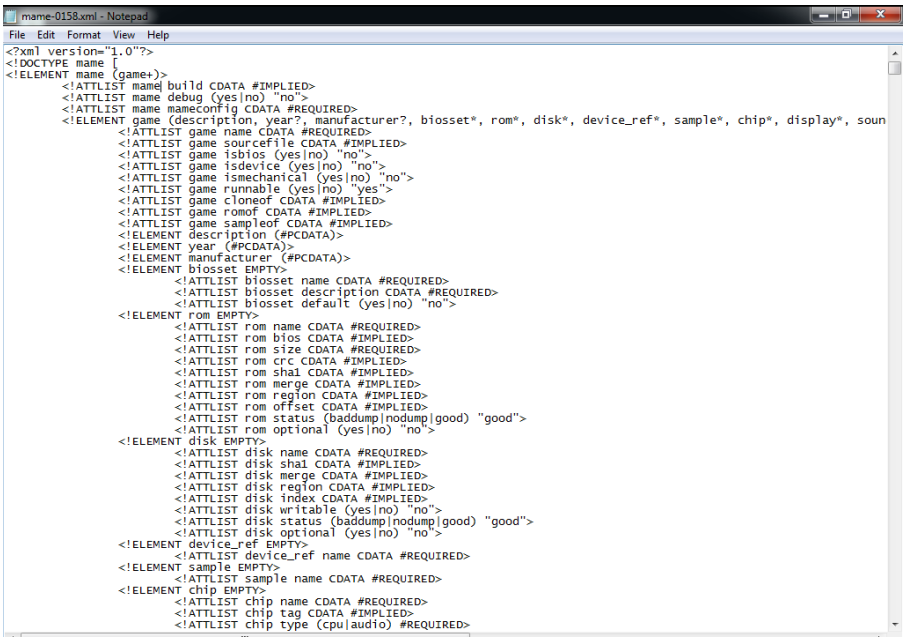
Dat-file XML-Structure

Let's have a look at a DAT-File. It has changed in the past to a XML-Structure. With MAME we can export the list into a XML-file with the following command:

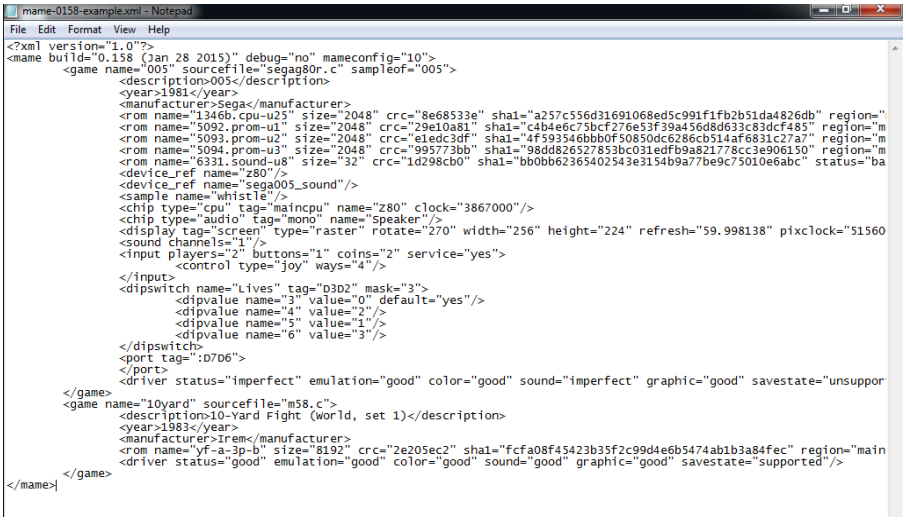
```
D:\Mame>mame64.exe -listxml >mame-0158.xml

D:\Mame>_
```

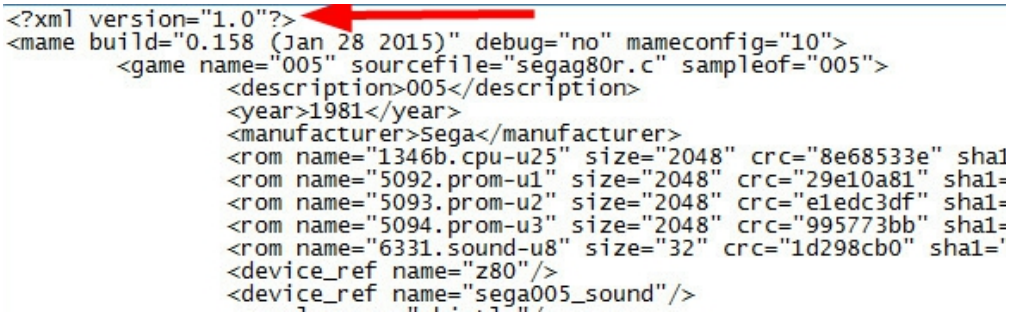
We have now our first XML-File containing the information of all games. Open the file with notepad:



There are a lot of information inside this file. We are now using a “cutted down” version for showing you how it is built.



The beginning of the XML-file was with this DOCTYPE and Attlist → This only describes fields/attribute for the list. The first line describes what XML version is used.



A set of opening and closing tags and the information in-between is called an element. The text below shows a complete element:

<description>005</description>

A tag is characterized by text surrounded by less than and greater than symbols: <tag>. Each tag must have a closing tag: </tag>. All text between the closing and opening tags belongs to the tag.

If there is no content between the tags we can combine opening and closing tag into one self-closing tag: <tag/>. This is done when either there is no content, or when the content of a tag is given as an attribute of the tag, for

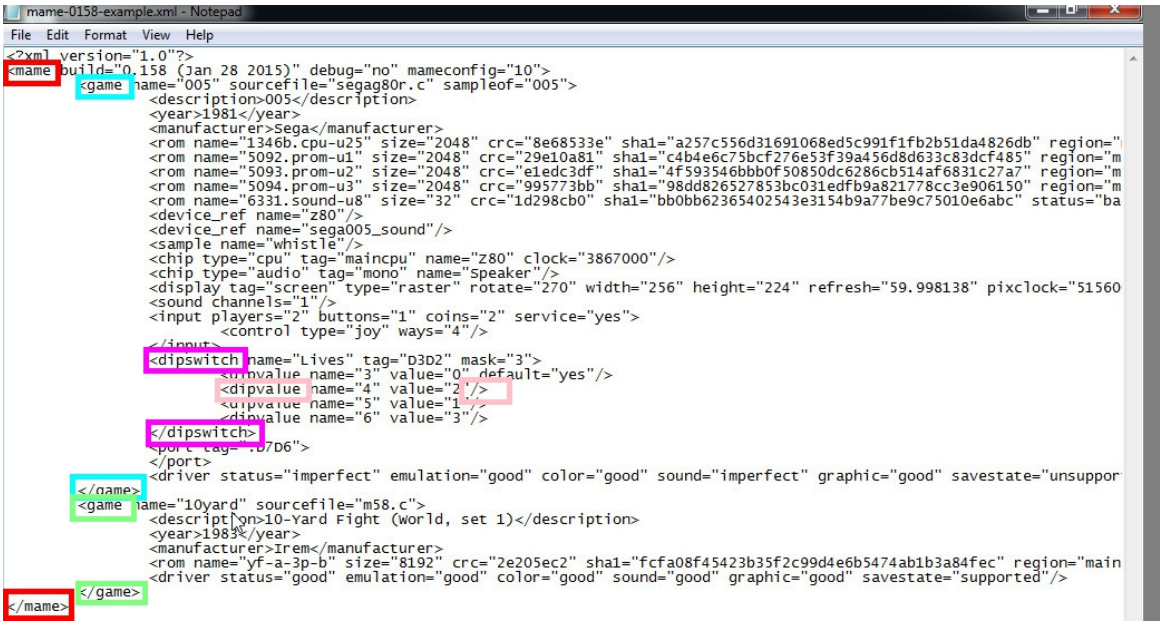
example::

<description description =”005”/>

is equivalent to

<description>005</description>

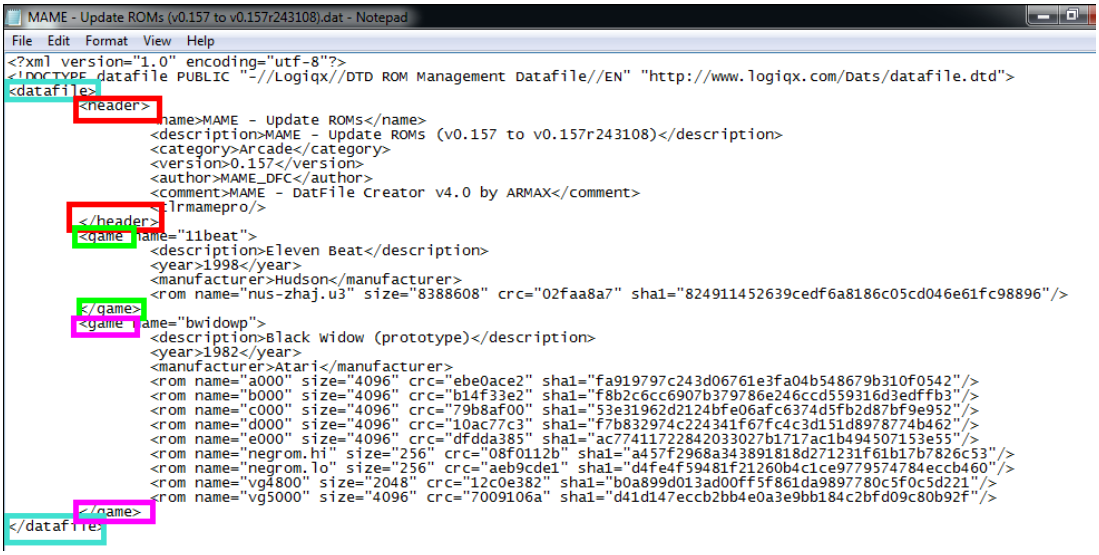
In our next picture I have coloured some of the tags. There is always a beginning tag <name> and an end tag </name>. For example everything between <mame> and </mame> are information about all available games in MAME. Between <game> and </game> are information for one game (for example 005). Now you can hopefully read the structure. When an ending tag is missing → the XML is invalid!



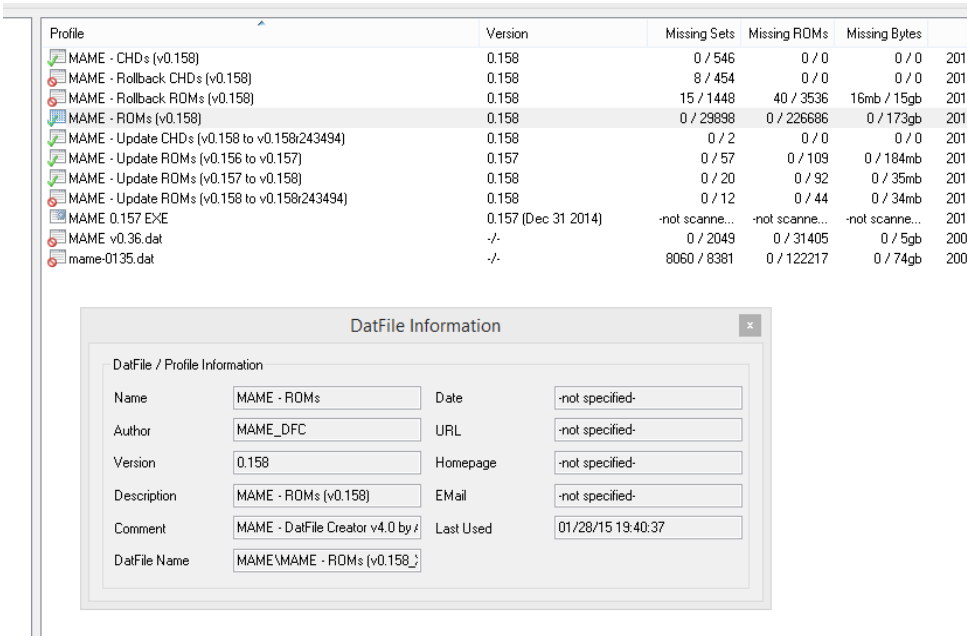
ROM-Manager does only read that elements that has ROM information in it or samples and uses that for verify that a ROM is valid. If you look at a created DAT-file from DFC (see next chapter) it has only the ROMs information inside (More or less) ;-)

It has the same structure beginning tag <tag> and ending tags </tag>

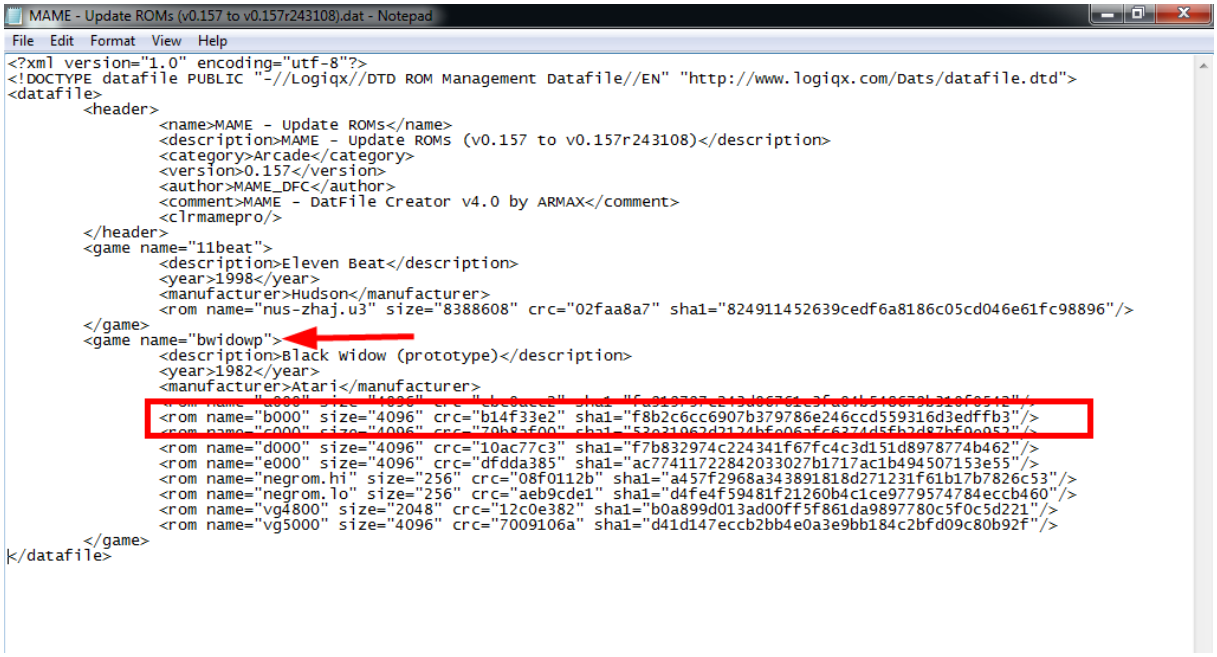
The block “header” has information about the DAT-File. ROM-Manager are using that tags for displaying it within the program.



It displays additional information about a DAT-File. The version number for example or a Homepage-URL of this DAT-File.



The game “bwidop” needs some ROMs. When we look at the Pic we see that the names of the ROMs is shown, the size and two hash-field for verifying the ROM that it is the correct one.

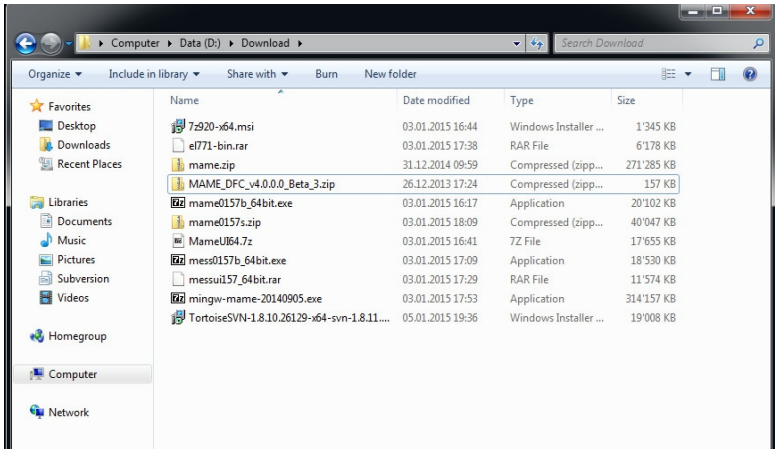


DFC- Dat-File-Creator by ARMAX

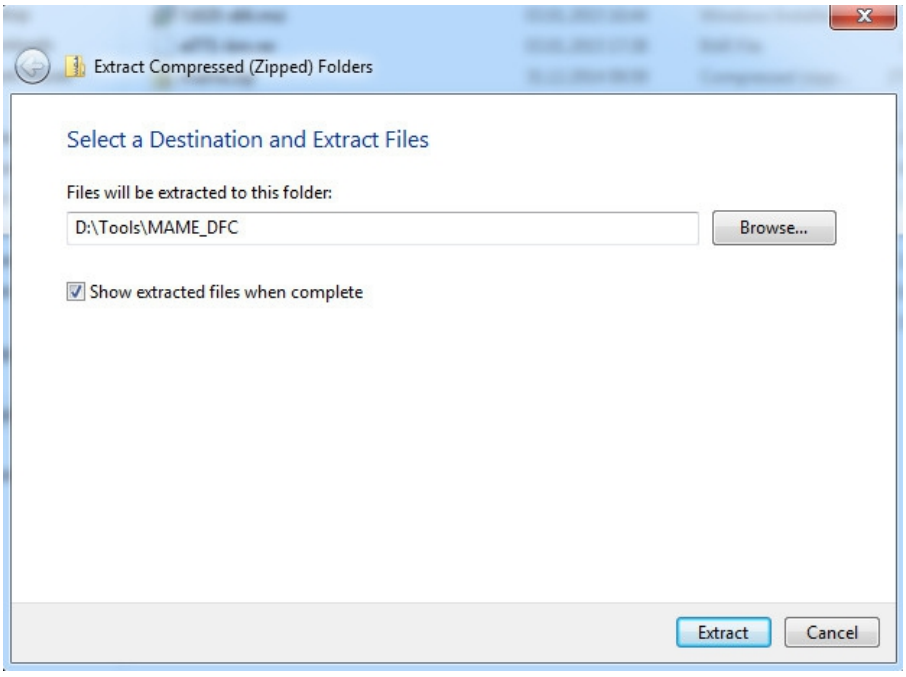
With this tiny little tool we can create easily MAME/MESS DAT-files. This tool was created by ARMAX as a request by Newuzer. It can create also real diff-DAT-files from two MAME executable. What does it mean “real”? It compares two DAT-files and creates a new diff-file containing only the difference. It lists missing ROMs only once depending on their hash-code. Sets created with a ROM-Manager and this diff-DAT-file can not be used for gaming. It needs another step creating the full-set with a ROM-folder and a folder that contains this diff-ROM-files.

Installing Dat-File-Creator DFC

Download the program from mameguide.info to the download folder.

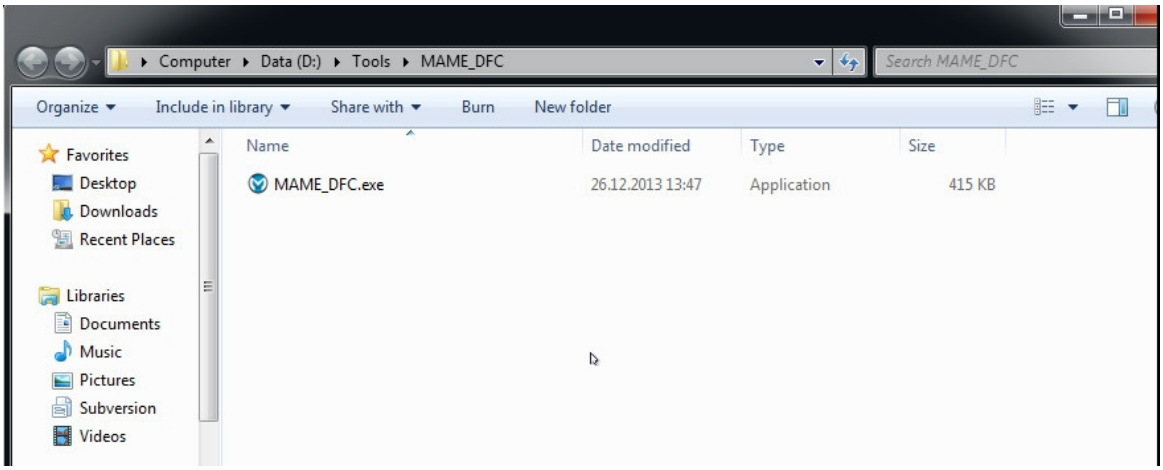


This program (Zip-File) has no installer. We extract it to our tools folder on the data-drive in a folder called “MAME_DFC”



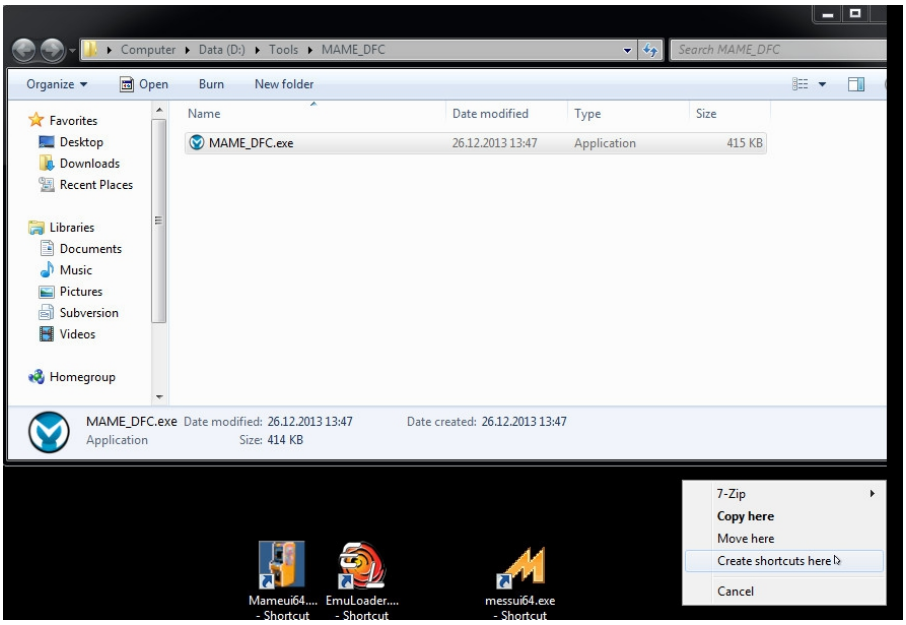
We have now the executable in this folder

Extract this tool not to the default “Program Files” folder when you have UAC enabled. This program writes the setting to a XML-file where the exe is. Otherwise you must start it as an administrator!



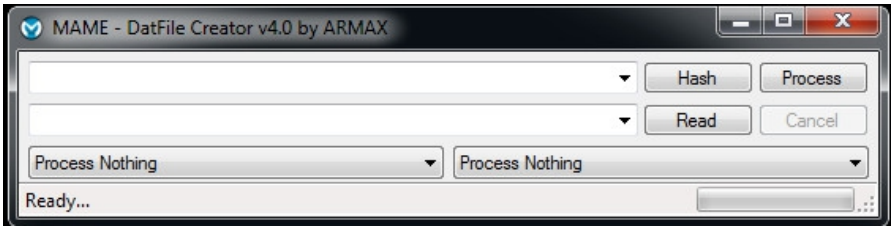
Using Dat-File-Creator DFC

Let's create first a shortcut on the Desktop. We drag-and-drop the executable with a right-click to the Desktop. We choose “Create shortcuts here” from the context menu.

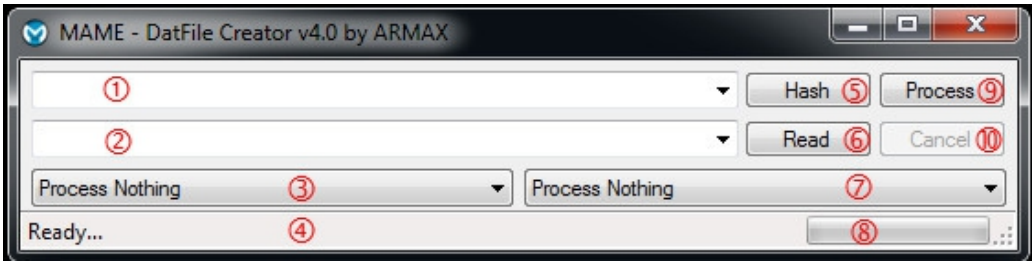


We have now a shortcut on the Desktop for starting the program.

Start the program...



Here is short overview of the program:



- ① Executable to hash values (old build). This is only needed when you want to create a diff-DAT-file. It has a history drop-down list.
- ② Executable to read values (new build). This field is required! It has a history drop-down list.
- ③ Process data and defines what kind of DAT you want to create. This field is valid for the executable set in ②
- ④ Status text info of the current process
- ⑤ Browse for the executable ① to hash values

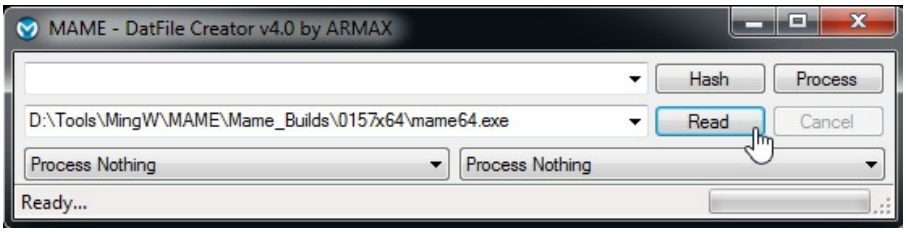
- ⑥ Browse for the executable for ② to read values
- ⑦ Process data and defines what kind of DAT you want to create for a diff-DAT-file.This field is valid for the executable set in ① and ②
- ⑧ Status progress bar info of current process. By right-click it enables us to safe information.
- ⑨ Run the process → creates the chosen DAT-files
- ⑩ Stop the running process

That's a short explanation of the functions. We will see how does it work when we use it in our examples.

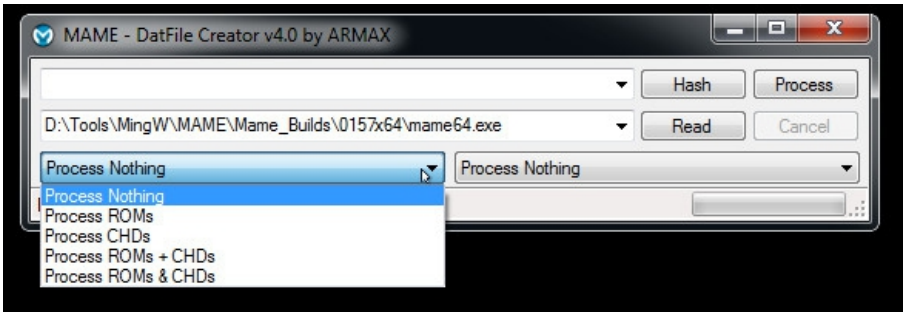
Create a DAT-file with DFC

We are now using DFC to create DAT-files that we can use later in a ROM-Manager for checking a ROM-folder.

We choose the MAME 0.157 executable and browser for it with the “read” button:



Be sure that you list the executable in this read-field (mandatory) and not in the field above.

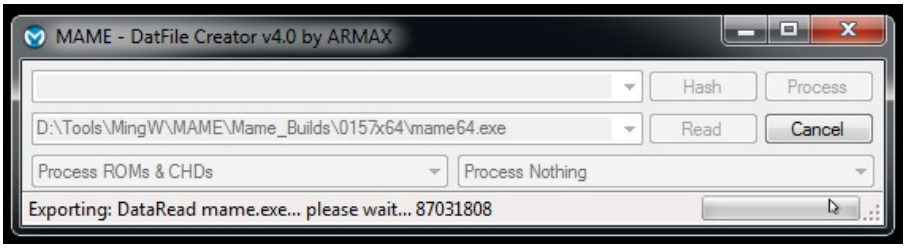


Now we have to define what data should be process that creates the DAT-files:

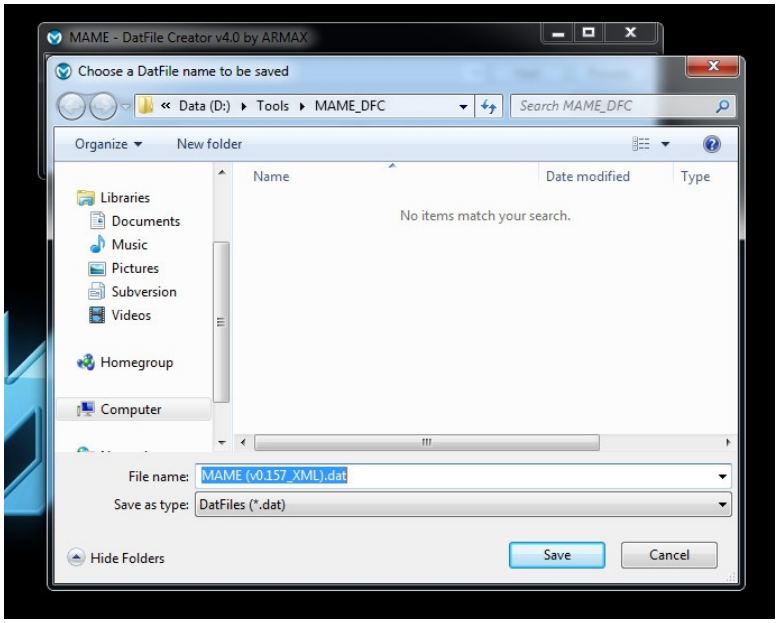
There are 5 options available:

- Process Nothing: Nothing will be process → nothing happens !
- Process ROMS: It creates a DAT-file that has only ROM-information
- Process CHDs: It creates a DAT-file that has only CHD-information
- Process ROMs + CHDs: It creates two DAT-files, one for the ROM-information and the other for the CHD-information
- Process ROMs & CHDs: It creates one DAT-file that have the ROM and CHD information included

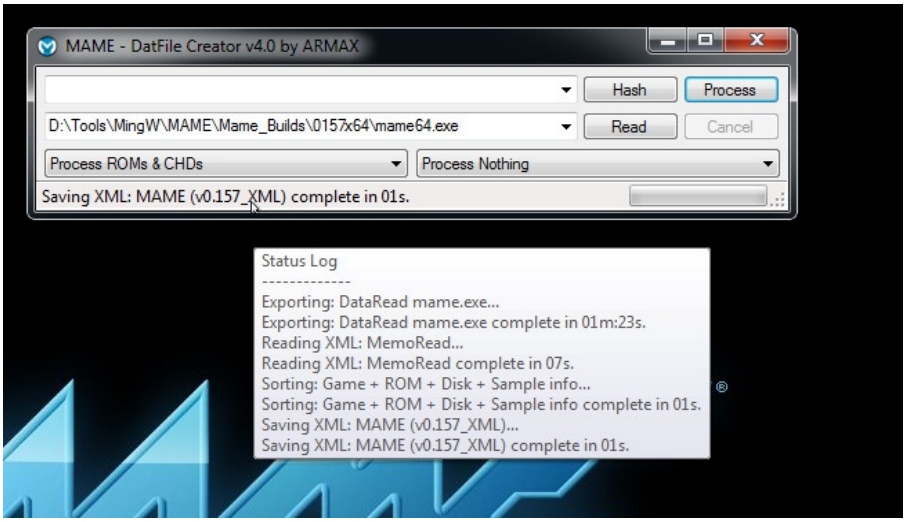
We choose “Process ROMs & CHDs” and click “Process” to start it.



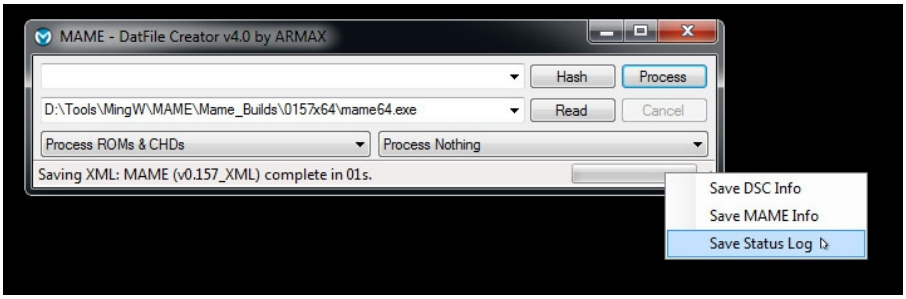
After a while it ask us for the name and where it should save the ROM-DAT-file. We save this file to the MAME_DFC folder with the name that is proposed.



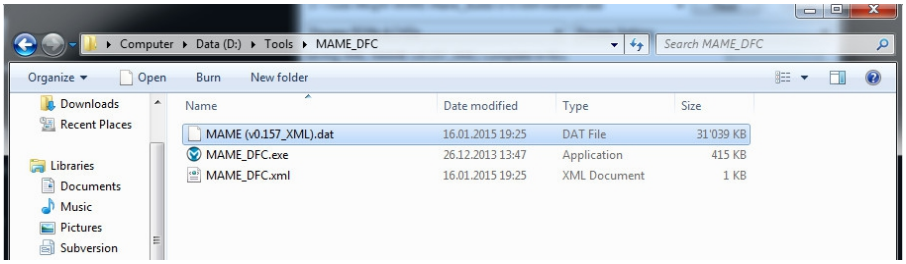
The process has completed and we can point our mouse to the status bar and it displays the status log of this finished process.



We can save this log by right-click in the status area (if needed).



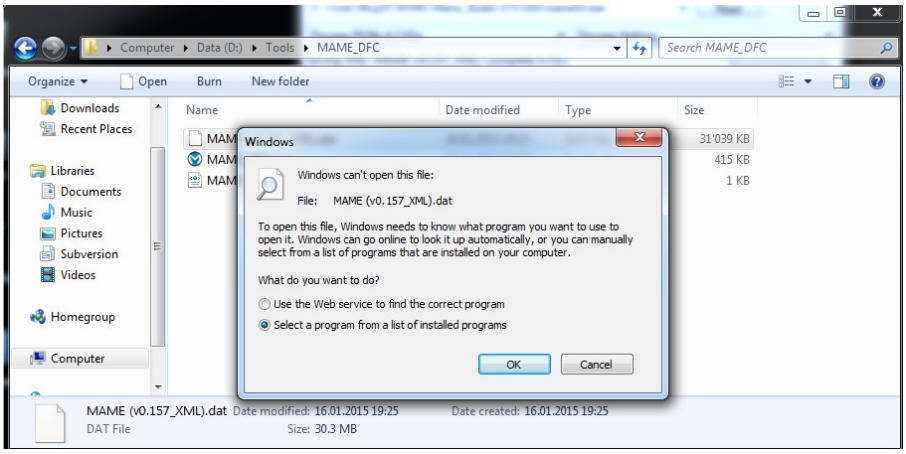
We have now a DAT-file in the program folder that contains ROM and CHD information.

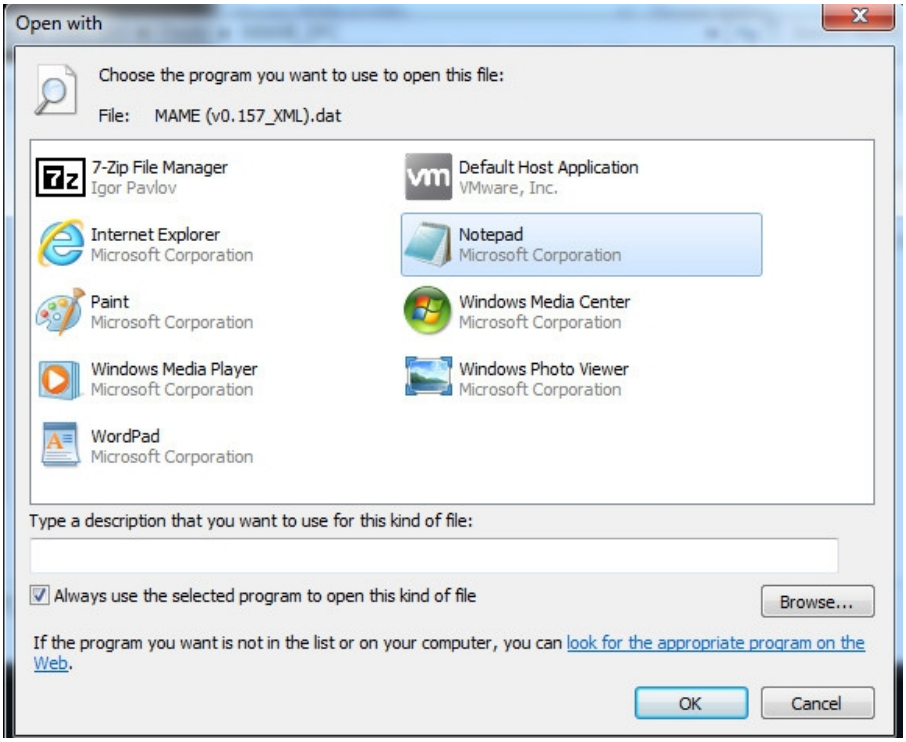


! After you have used the program for the first time it creates a XLM-file in the program folder that contains the settings and the history.

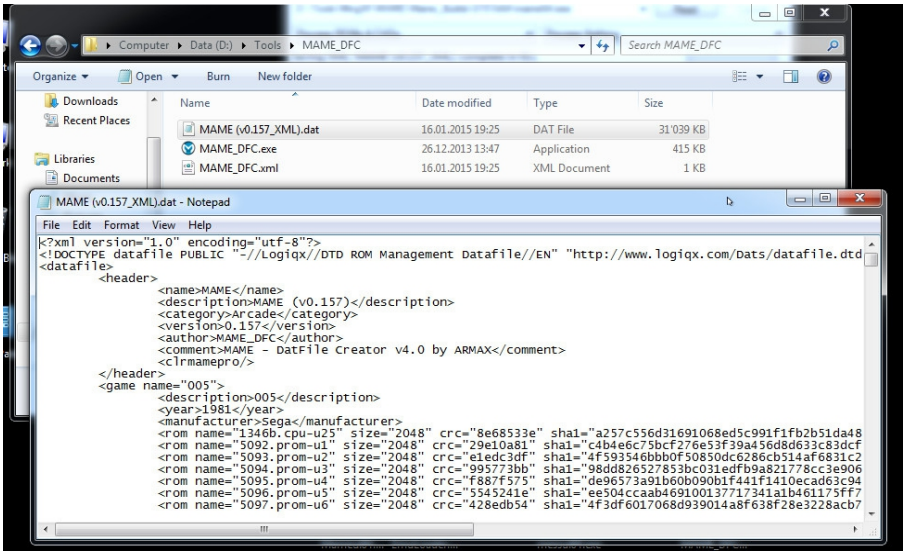
We open the created DAT-file and see what the content is.

Double-click the file and choose Notepad for opening.

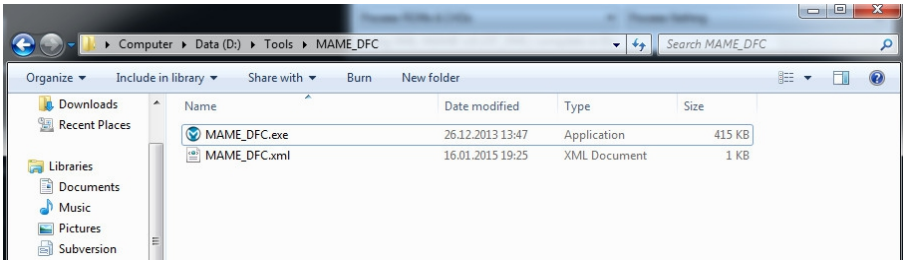




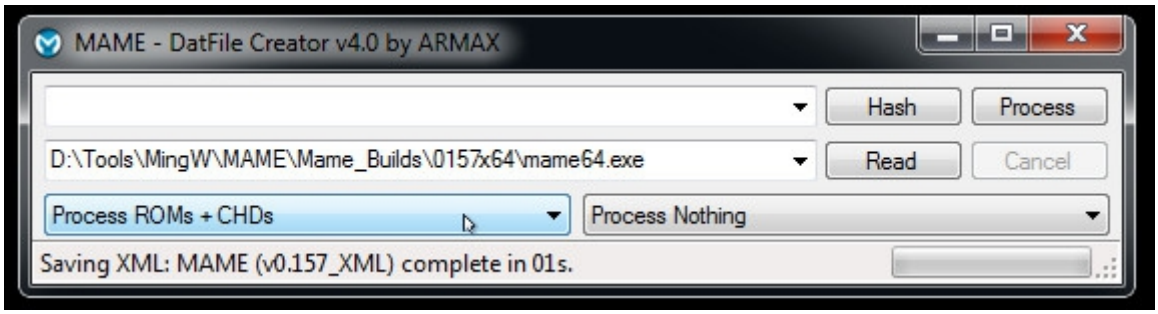
The created DAT-file looks like this:



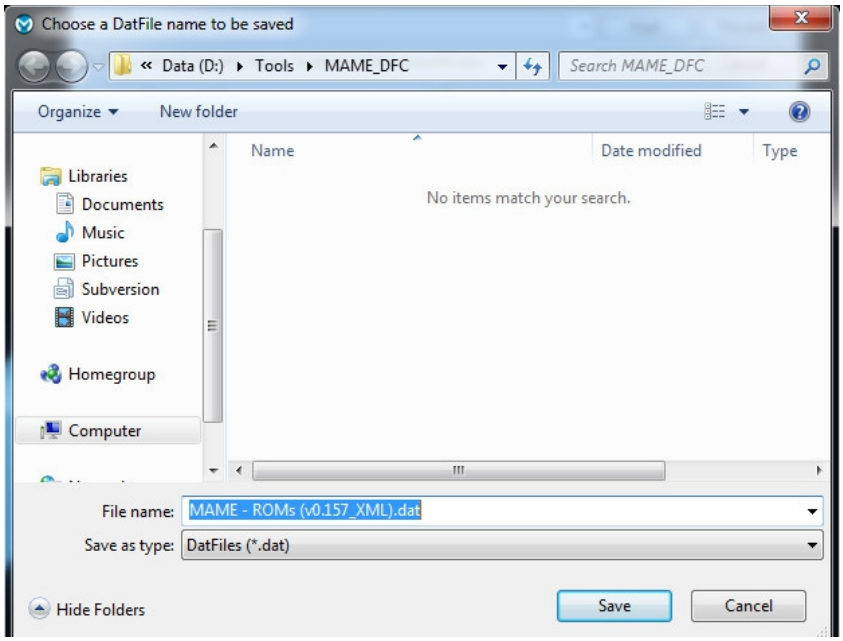
Okay close Notepad and delete the created DAT-file. We want to create again DAT-files but this time two separate, one for the ROM and one for the CHD information.



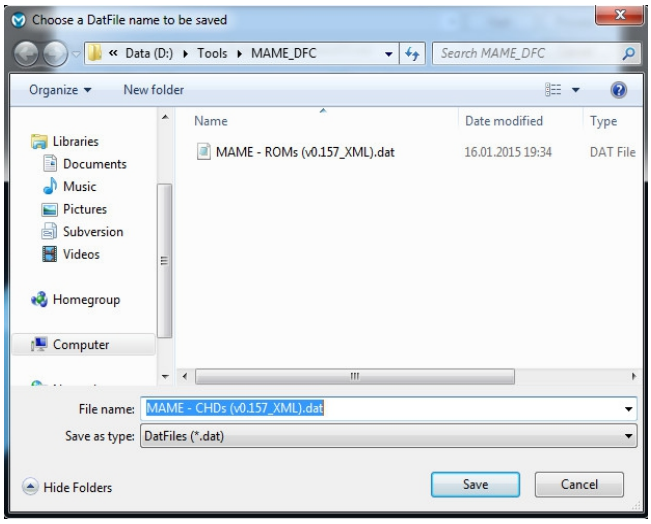
Let's go back to DFC and choose now “Process ROMs + CHDs”. Click “Process” to start it.



Again after it has read the values from the executable it will save the ROM-information. Choose again the DFC program folder for saving and let the name untouched.

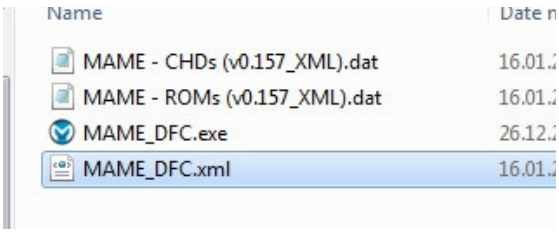


After you have save the ROM-file it will ask again for the saving information for the CHD-DAT-file. Choose the DFC program folder and leave the file name unchanged, save it.



If you have chosen “Process ROMs + CHDs” and the executable has no CHD-information the safe dialogue is appearing for the CHD-DAT-file but it will not save a CHD-DAT-file.

We now have two DAT-files in our DFC program folder that we can use for verifying a set with a ROM-Manager.

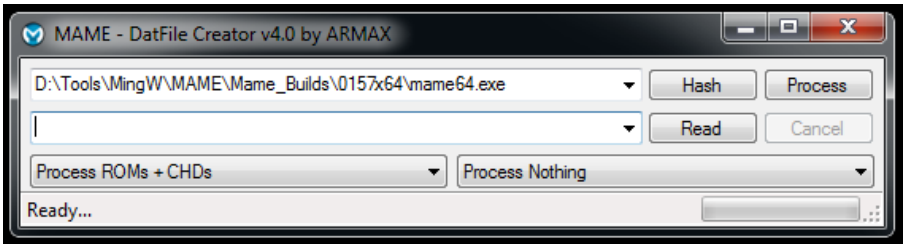


Create a diff-file with DFC

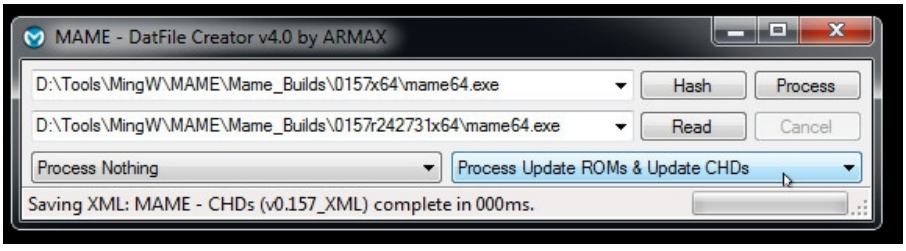
We are now creating diff-DAT-files from the official MAME 0.157 executable and MAME that we have created with a later release ourself (see Chapter Compiling).

> **Keep in mind that this function was not intended for "normal" users. It is used for people who collect ROMs and share them to others.**

We start DFC and set the hash-field to the official 0.157 MAME executable

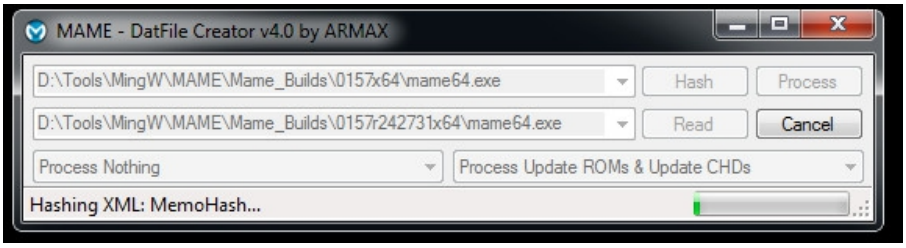


Now we choose and set the Read-field to one of our own compiled builds (be sure that the release number is higher than the official 0.157 build!)

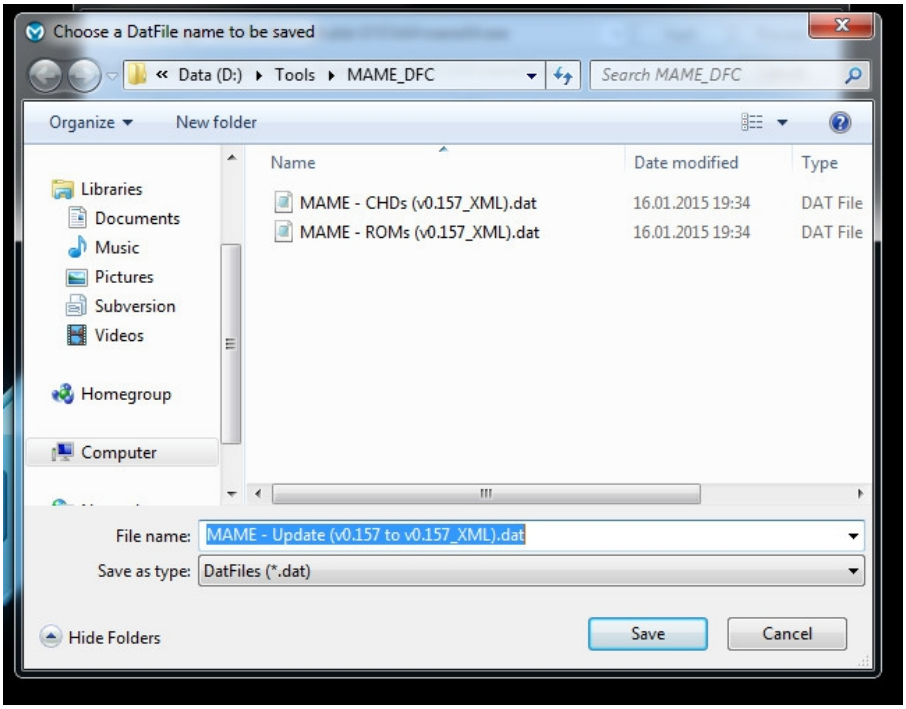


We set "Process nothing" in the left "processing bar" and on the right we set it to "Process Update ROMS & Update CHDs" as we want one update DAT-file with CHD and ROM-information to be created. The right "Process bar" has the same opportunity as the left one described a little earlier in this section.

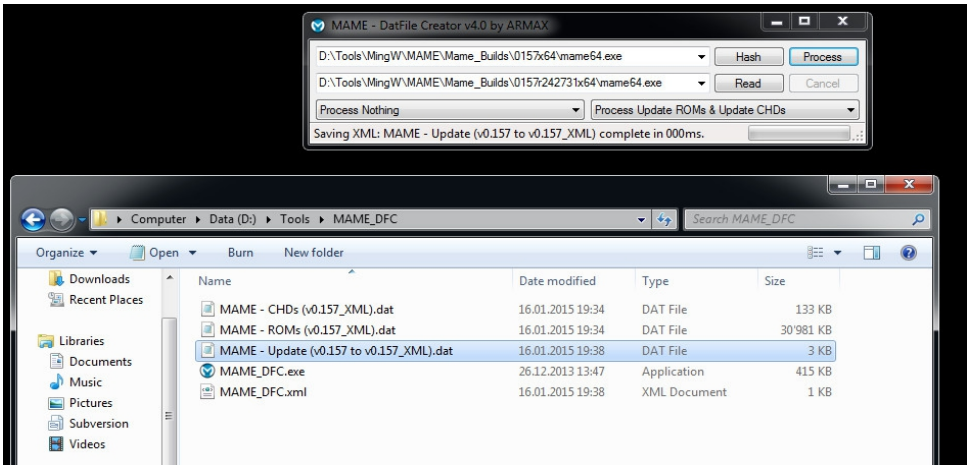
Let's start the process …..



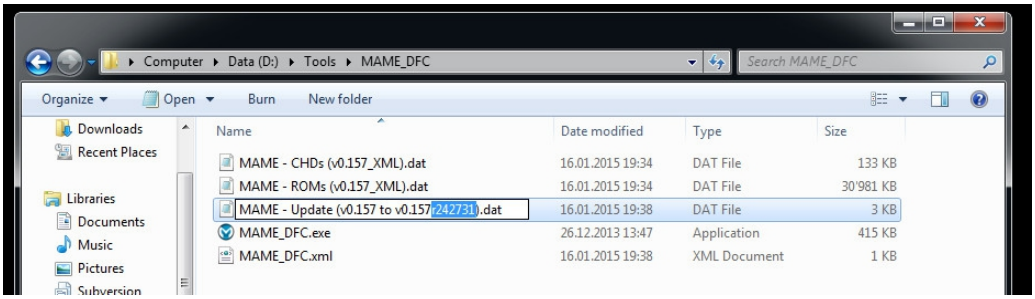
Save the file again to the DFC program folder



It saves the file to the folder and finishes the process.



I'm renaming the file to the release number (from to version) for identify it better.

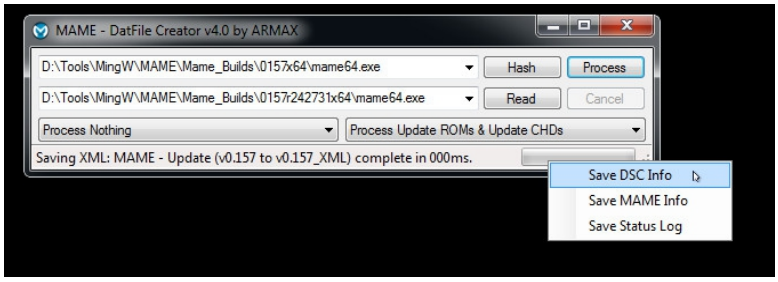


We open the created DAT-file with Notepad and change there also in the description the number to the release number.

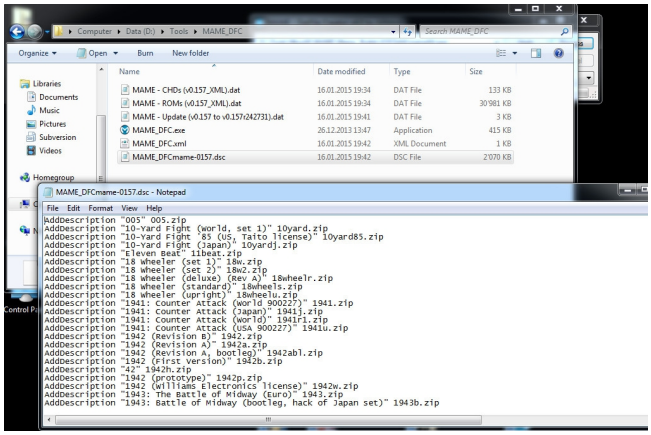
We have now created a DAT-file that has only the difference between two executable (MAME/MESS) and includes ROMs and CHDs information.

Additional functions DFC provide

When we have set in the read-field an executable we can right-click the progress bar and choose “Save DSC Info” from the context menu. This function has ARMAX build in only for Retroroms.net requested by me. The saved file is being used on the web server for displaying the game name of a zip-file.

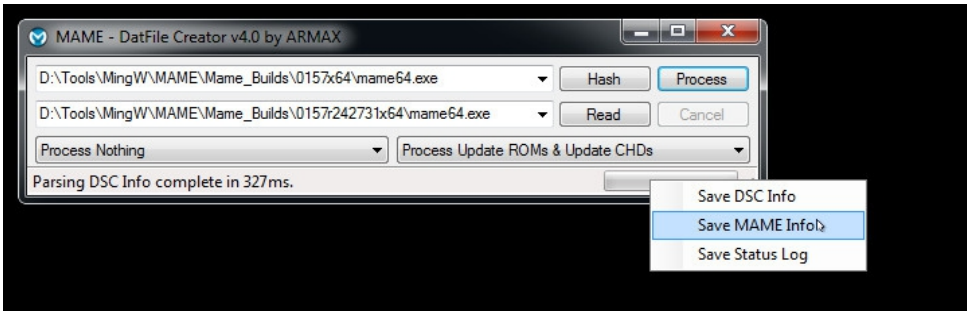


When you open the file it looks like that:

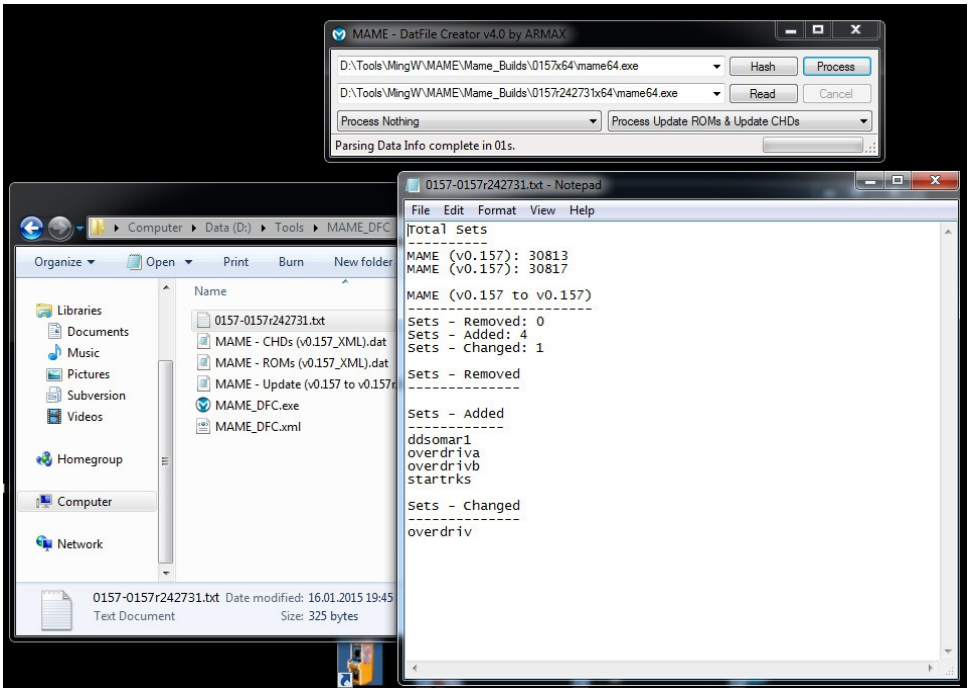


The second option in the context menu when you right-click the progress bar is “Save MAME Info”.

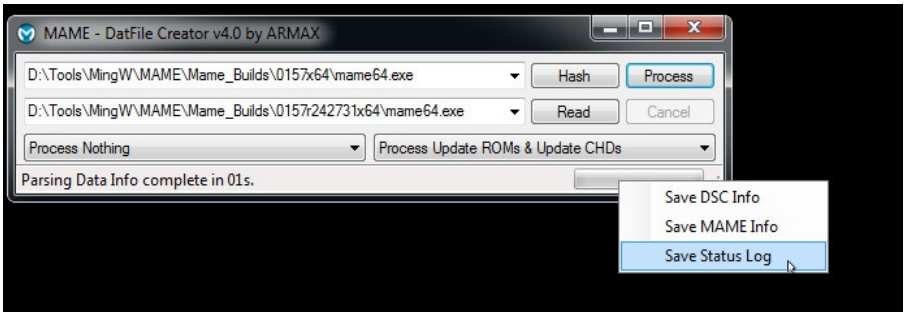
This information requires that you have chosen an executable in the read-field and hash-field.



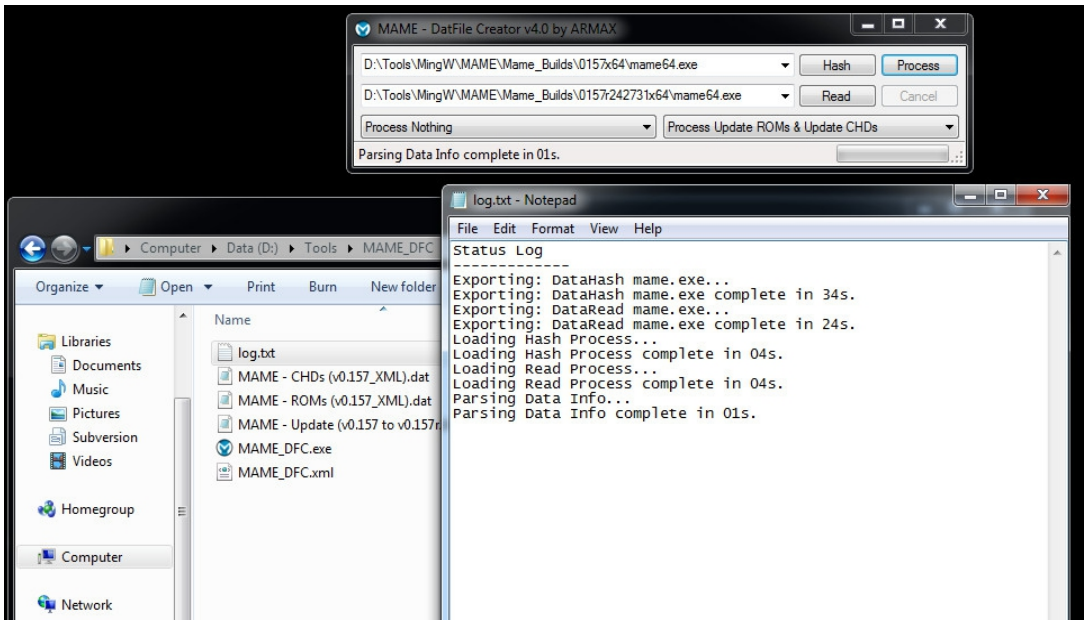
The saved txt-file contains information about the difference between those two executable. And it displays also the removed, added or changed ROM set by name. I have used this information for creating the MAMEtitles in the past. This function has ARMAX programmed for me only :-)



The third option in the context menu is saving the status of the process to a file.



The saved txt-file opened with Notepad.

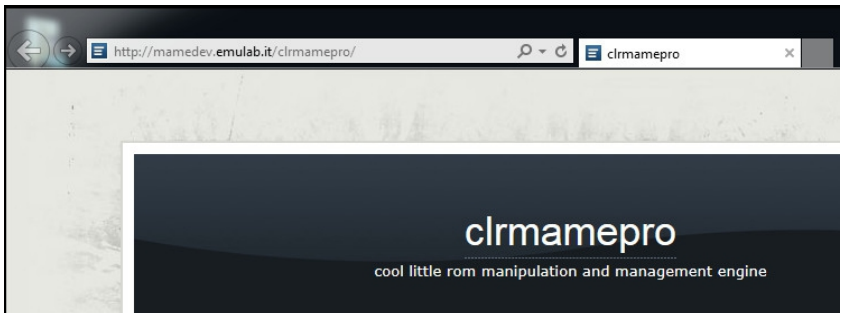


CLRMAME - Cool little ROM manipulation and management engine by Roman Scherzer

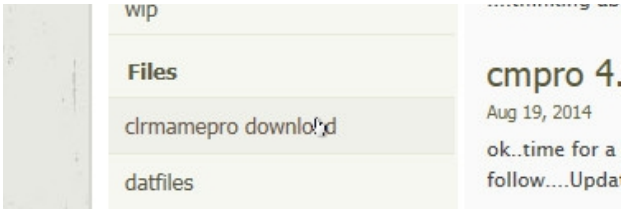
One of the powerful ROM-Manager tools that is available is CLRMAMEPRO. It is a tool that helps you organize your ROMs in a perfect way. You can scan, rename, delete and rebuild your ROMs with this tool easily. MAME/MESS has nothing build-in for organizing the ROMS, it does only complain when a ROM is wrong or missing. With CLRMAMEPRO and a DAT-File you can create and update your ROM-set easily. I will show you how we can do this and not only for ROMs, we are also scanning other files like snapshots with this amazing tool and keep them updated.

Installing CLRMAME

We are starting a web-browser and open the CLRMAMEPRO homepage.

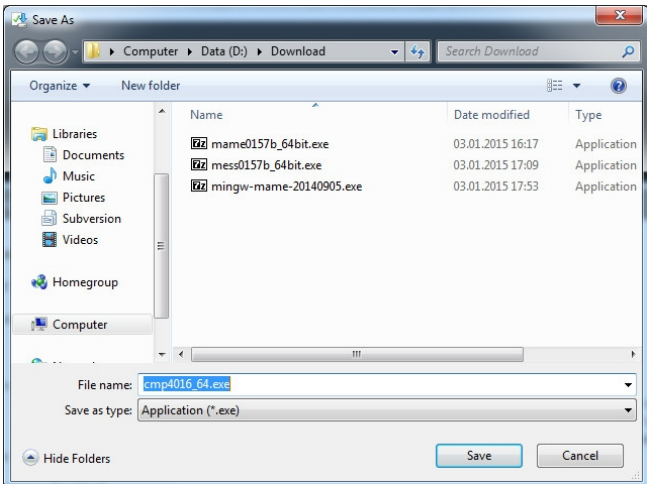


On the left choose “clrmamepro download”

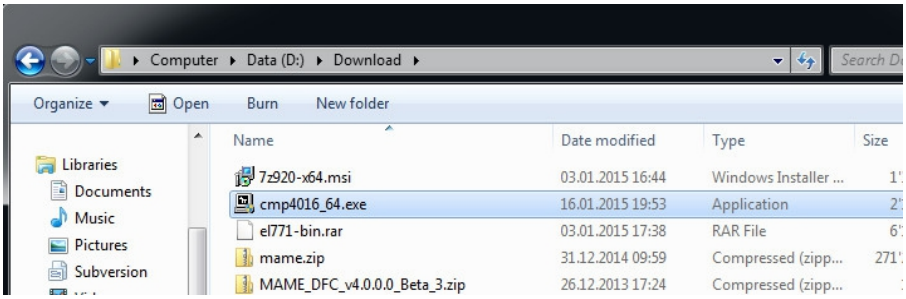


There are two available version there, a zip-file and an exe that has an installer. We choose the 64-bit installer version to download.

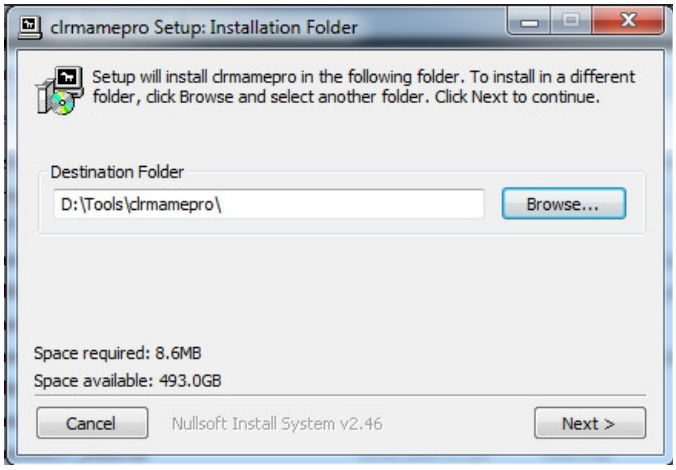
We save it to our download folder.



We start the setup …

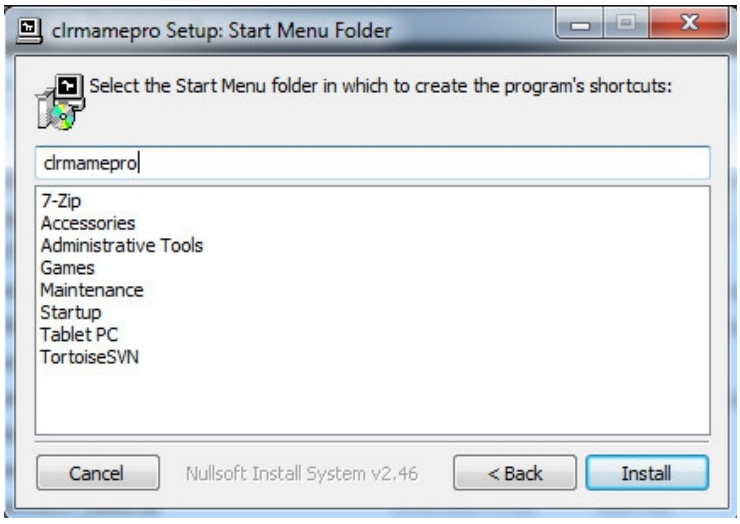


As our destination folder we choose the tool folder on our data-drive

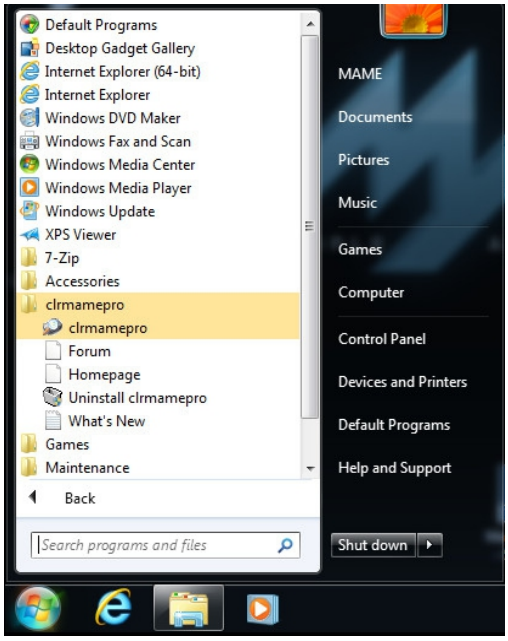


! Install CLRMAMEPRO not to the default "Program Files" folder when you have UAC enabled. This program writes the settings and logs into his folder where the exe is. Otherwise you must start it as an administrator!

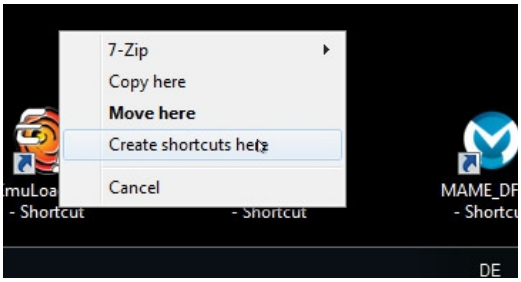
Click "install"



The installer has created an entry in the start menu.



We are lazy and want to have a shortcut on our desktop. Drag-and-drop the entry to the desktop and choose “Create shortcut here” from the context menu.

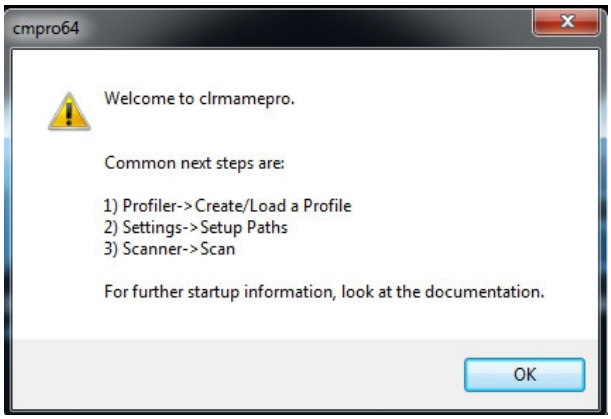


We have now a shortcut on our Desktop.

We have now installed the program. When a new version is available we can update with the build-in update function easily.

Using CLRMAMEPRO

When we start the first time CLRMAMEPRO it will shows you this “welcome” message and displaying the next few steps.

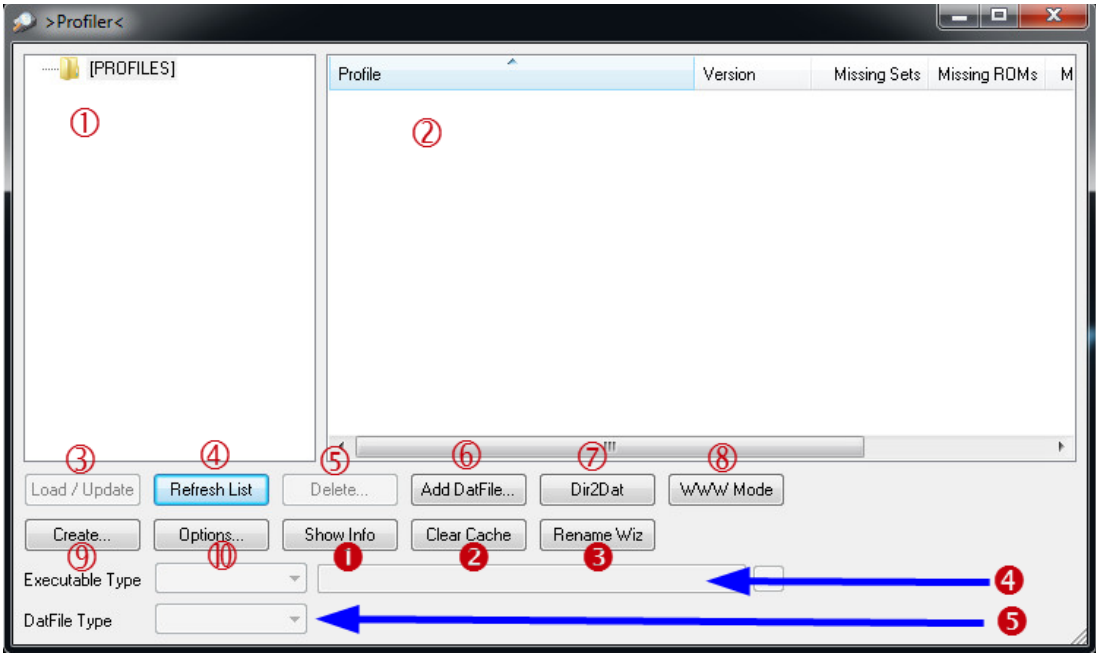


After “OK” the profiler is starting. This profiler is the start for every function CLRMAMEPRO does provide. With this we choose and load a DAT-file and do all next steps. We can scan, rebuild or merge the set with the loaded DAT. If we want to scan another set we have to go back to this profiler and load the wanted DAT-file into CLRMAMEPRO. It sounds very complicated but it isn't. I will show you how does it work.

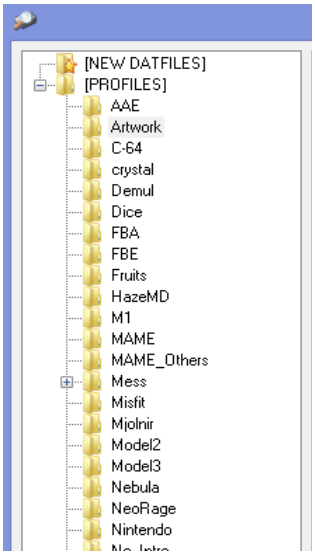
Default Settings (overview)

Let's describe all functions and buttons. We will learn how to use it later.

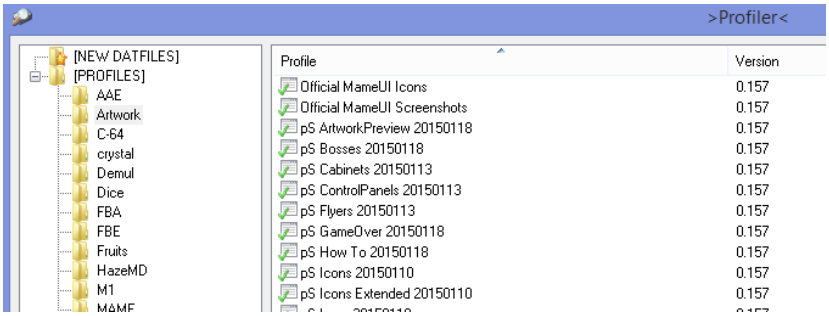
This is the profiler window.



① In this section you see the profiler folder structure



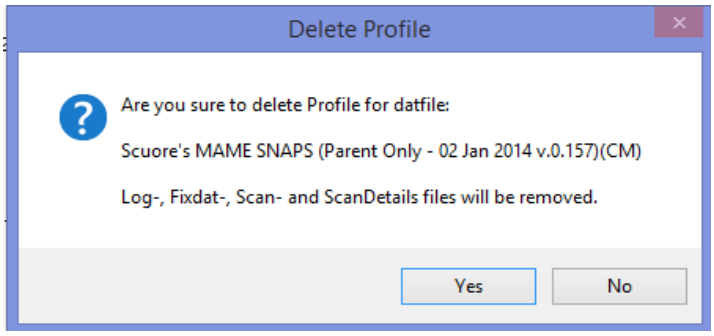
② There you see all added DAT-File in the chosen folder structure



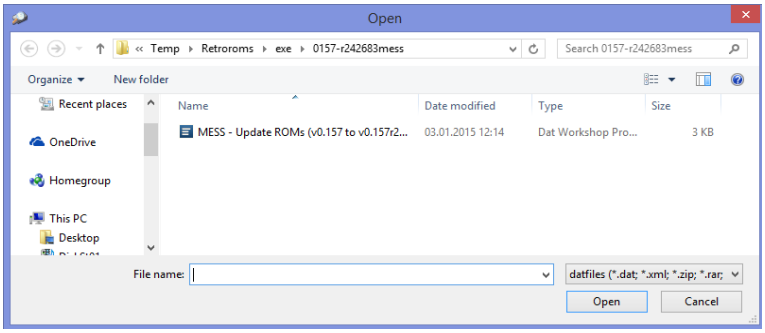
③ Loads/update a chosen DAT-File

④ Refresh the view → Scans for new DAT files in the folder structure

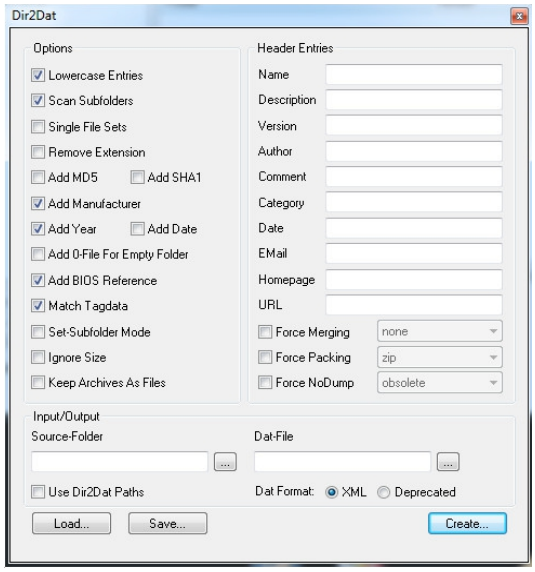
⑤ Deletes the DAT-file you have chosen



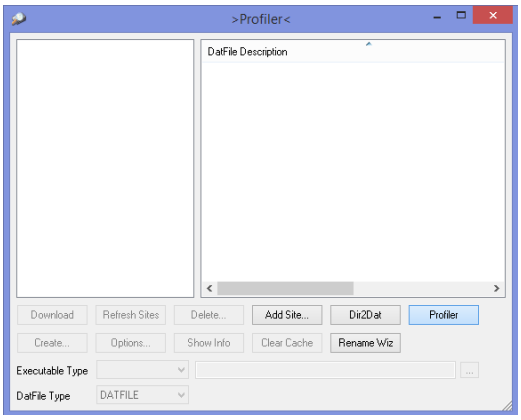
⑥ Adds a DAT-File using the file explorer



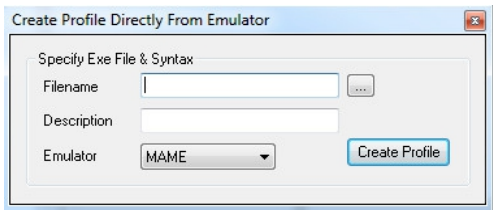
⑦ Dir2Dat → Creates a new DAT file based on a folder structure



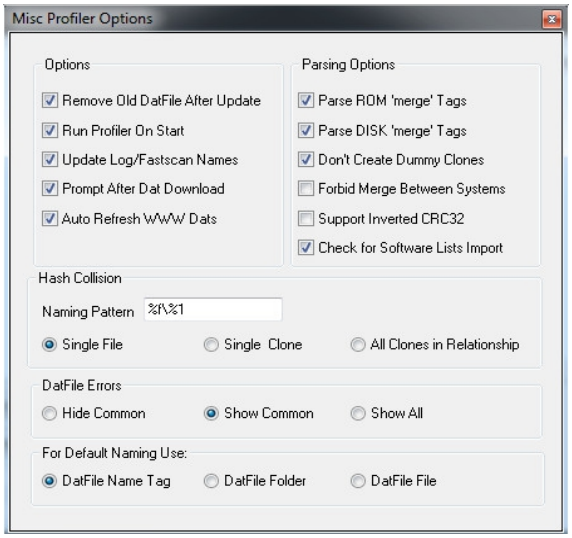
⑧ WWW Mode → Settings for updating added DAT-Files by the WWW



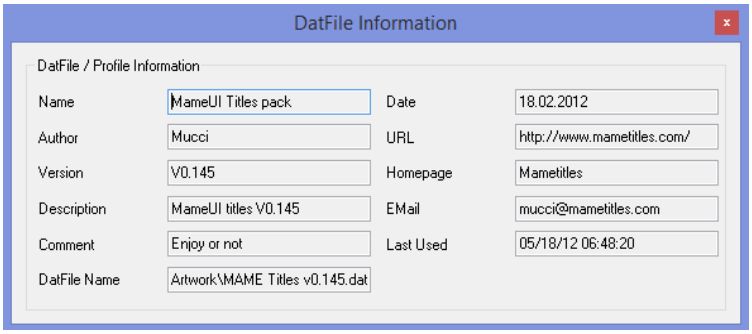
⑨ Create a DAT-File with an executable



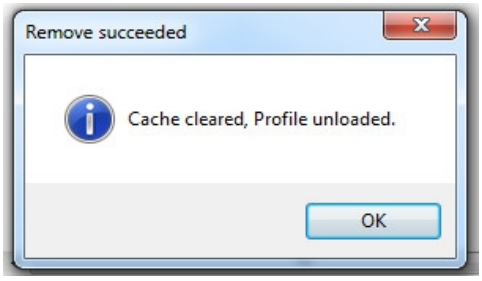
⑩ Profiler options



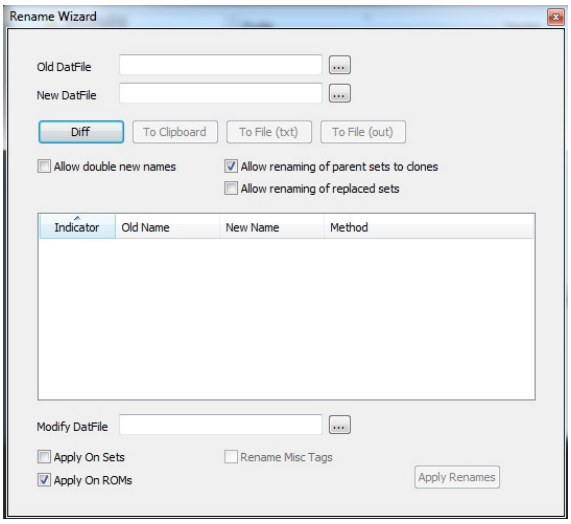
❶ Show info – displays information about a DAT-File



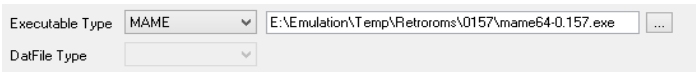
❷ Clear Cache → clears the cache of a chosen DAT-File



❸ Rename Wizard

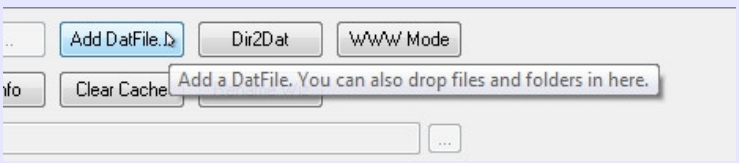


❹ When you have created a DAT-File with an executable it shows you the type and which EXE is used



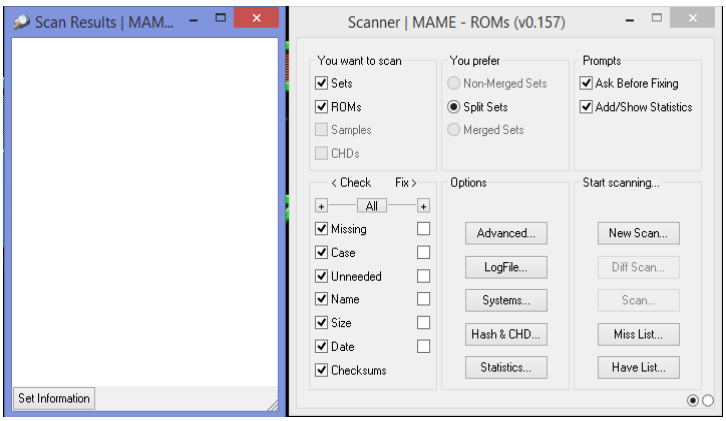
❺ Display the type of the chosen DAT-file

! Every button/field in the program displays additional information when you move your mouse pointer over it.

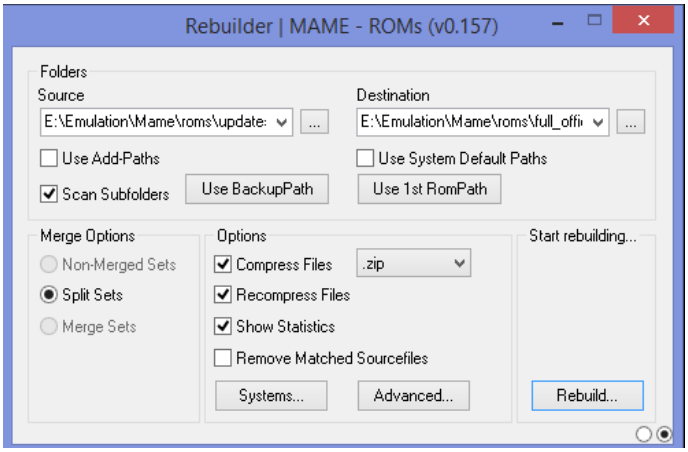


After we have loaded a DAT-File we see this main functions. Each function does it job based on the chosen DAT-File. If you want to scan a different set you must return to the profiler and chose there a new DAT-file.

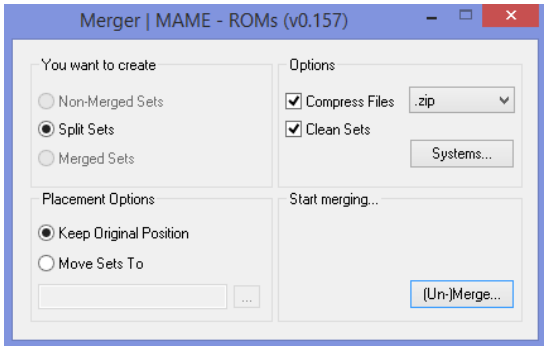
① Scanner → With that you can scan your set and see if it is complete.



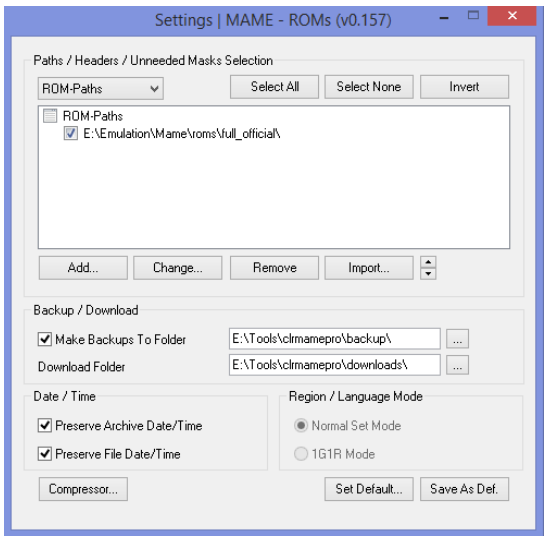
② Rebuilder → Rebuilds your set with the loaded DAT-file



③ Merger → Change the way you have stored your ROMs (See ROM Chapter)

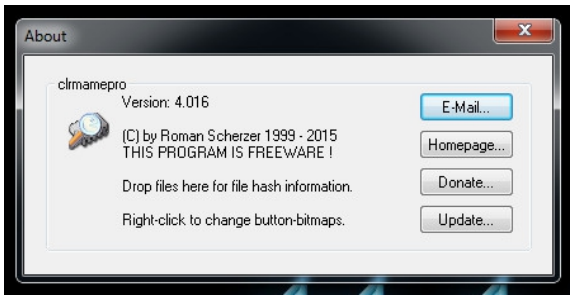


④ Scanner settings → Settings for the chosen DAT-File!



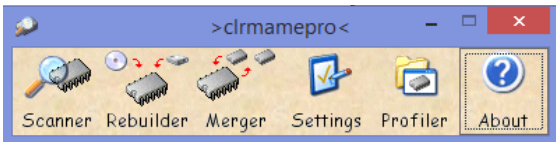
⑤ Profiler → Brings you back to the profiler

⑥ About → Information about the program/Author

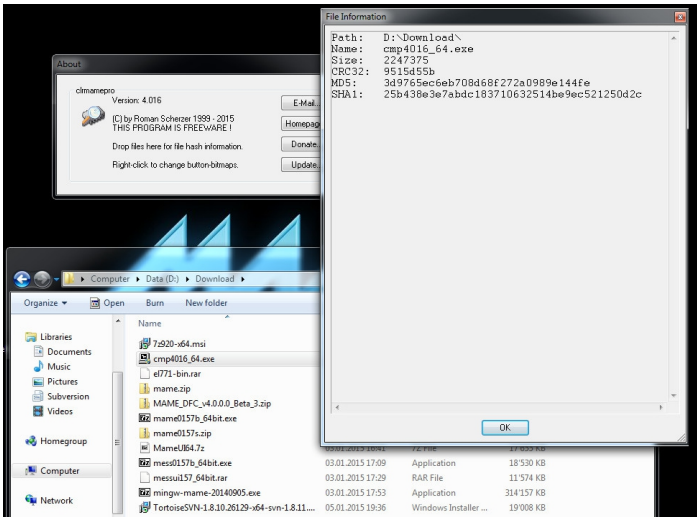


There is a “hidden” feature in this about windows. Right-click and it opens a context menu where you can change the appearance of the program.

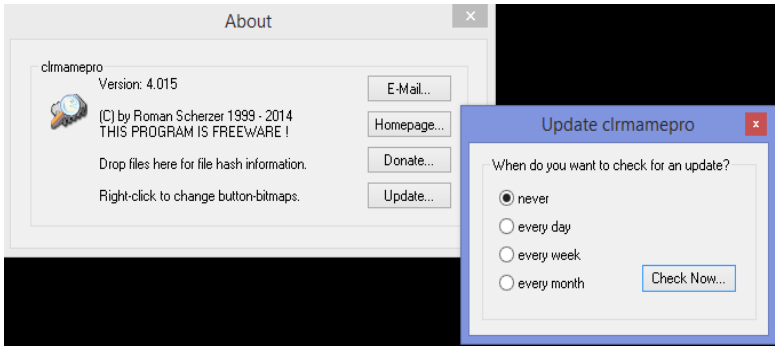
For example → I have changed the buttons layout with a downloaded one.



There is also a little feature that can displays you CRC32 hash information for a file.



If you want to update your CLRMAMEPRO there is a build-in update function in the about window.

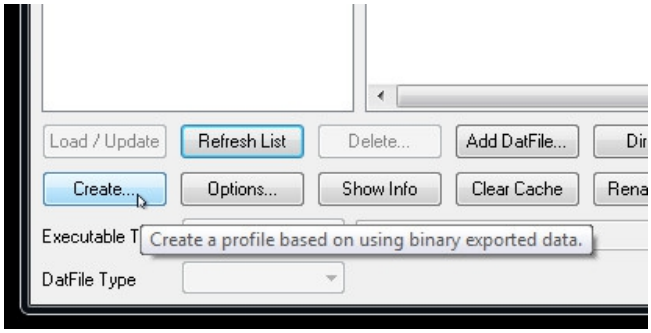


That was the first look at CLRMAMEPRO. We are looking now how does it work with the following examples.

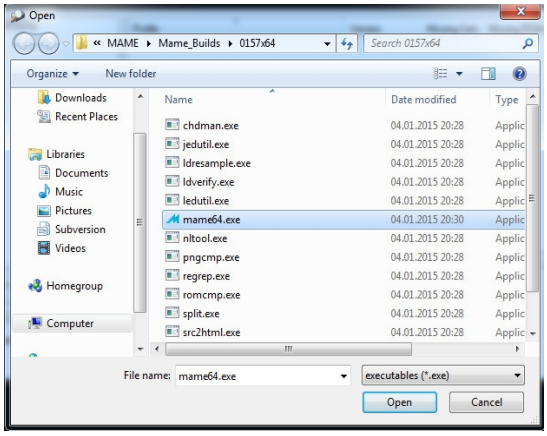
Scanning with an executable

Okay lets go back to the profile → click “Profiler”

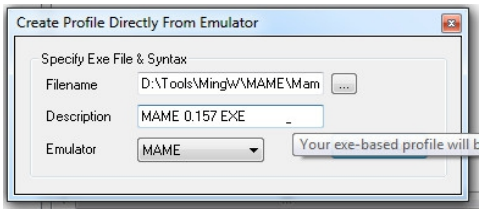
In the profiler we choose “create”



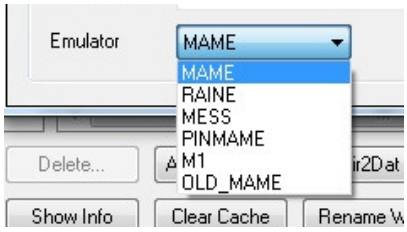
We choose the MAME-executable from our MAME-Folder or another location where you have downloaded or compiled another build.



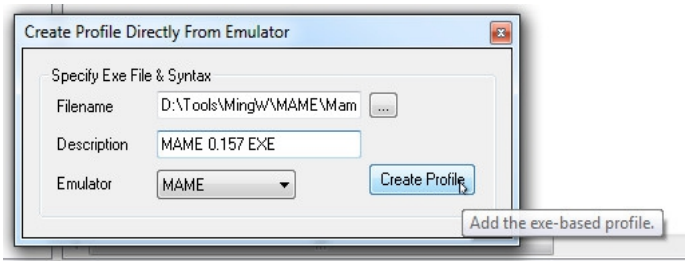
We write in the description field a name. This name is displayed in the profiler windows. So be aware that you choose a name that is unique.



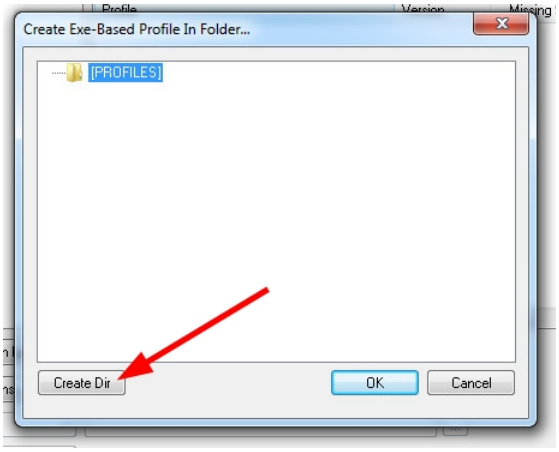
This creator can build DAT-files for the following Emulators



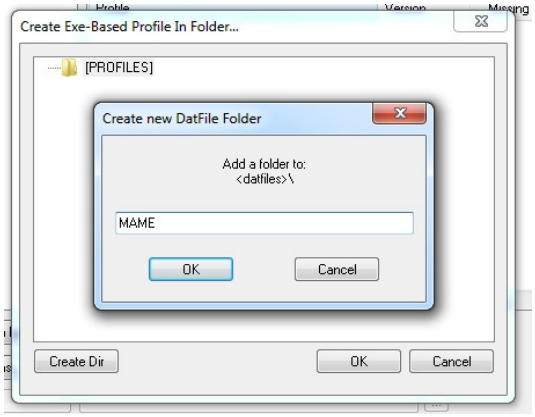
We choose MAME as our Emulator type. Click “Create Profile”



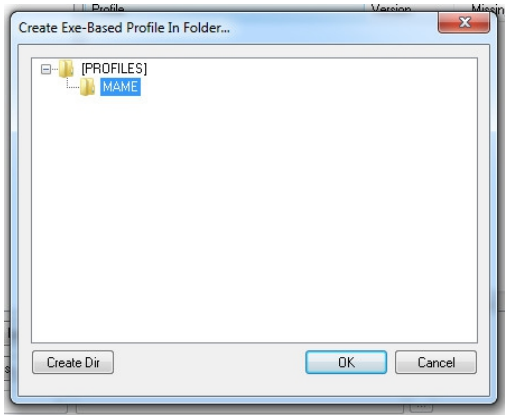
Now we must chose a folder where this created DAT-file should be stored. As we have not used CLRMAMEPRO before we create a folder first where we want to store the DAT-file.



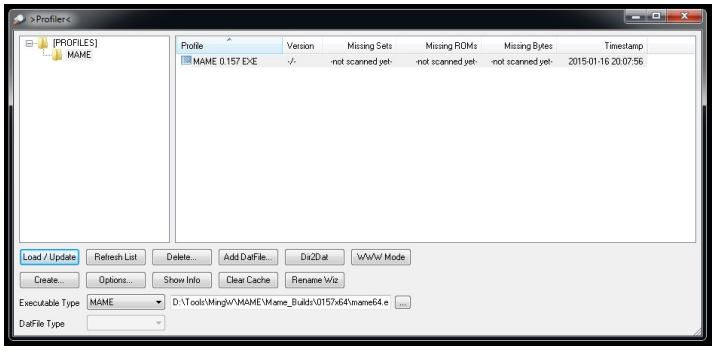
We choose “MAME” as the folder name.



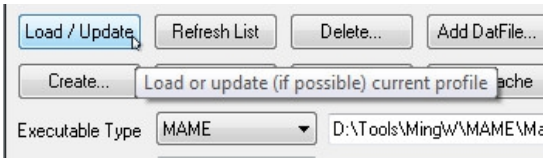
Now does it fit and we choose the new created folder and click “OK”



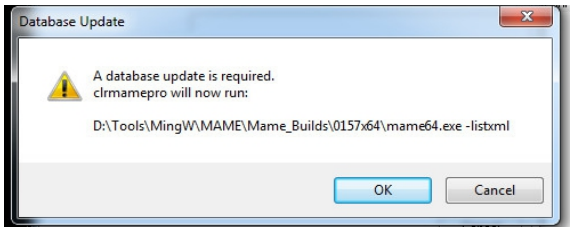
Now we see our first DAT-file in the profiler.



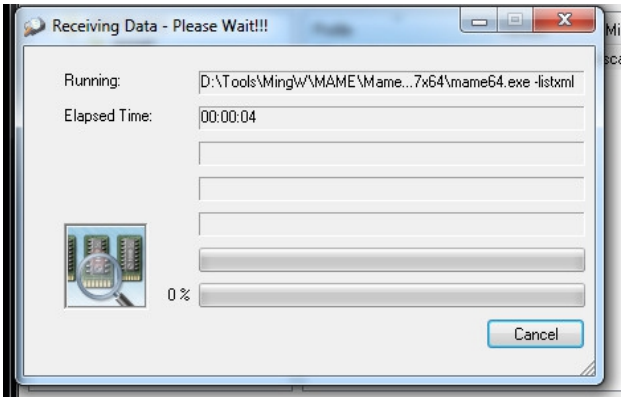
Highlight the DAT-File and click “load/update”. You could also double-click the entry.



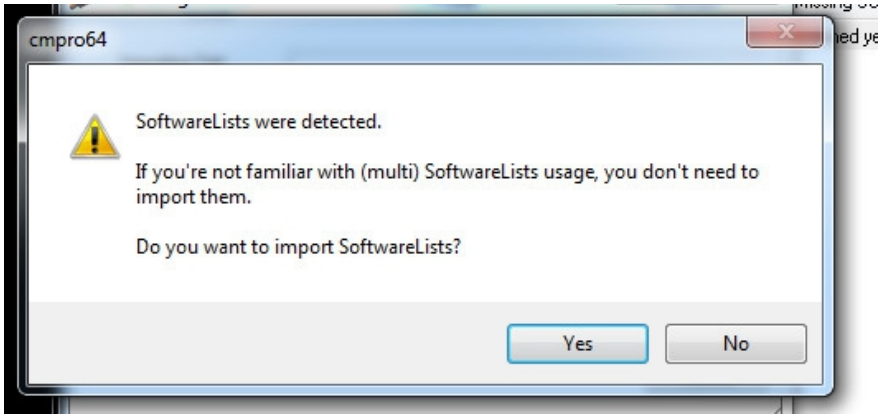
The first time you chose a created DAT-file the program builds the information in the background. It will start the MAME executable with the parameter “-listxml”.



While this process is running you will see this window



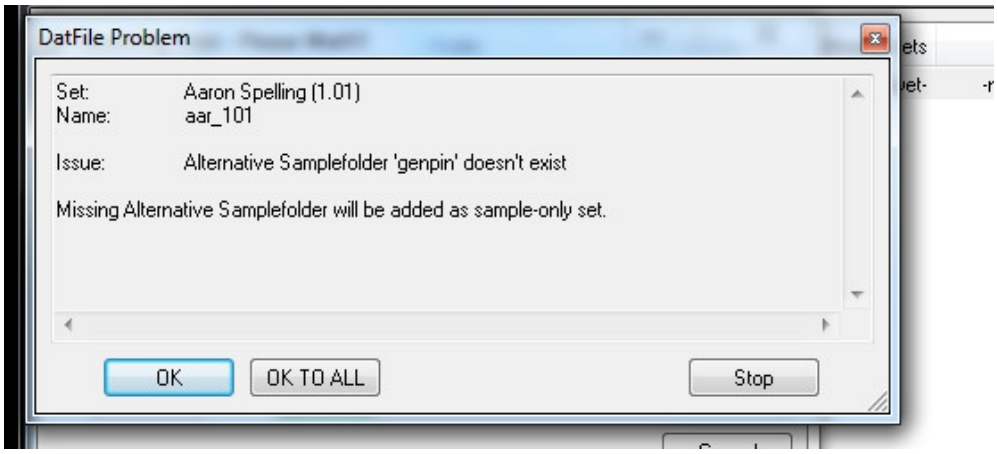
This question we answer with “no”.



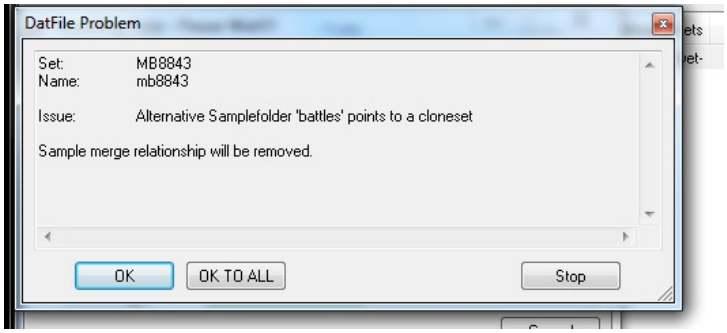
! For MAME this SoftwareLists don't really make sense since MAME simply double neogeo/stv/etc roms for it. For MESS it makes sense.

When a conflict appears while creating the DAT-file it will displays the problem and you must choose what you want to do.

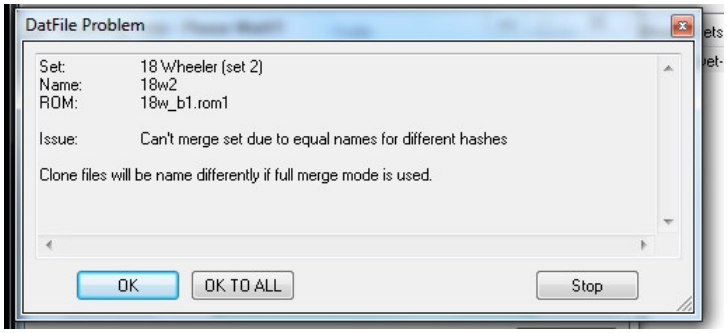
First conflict is about missing sample folder, choose “OK to all”. That means that on all conflict with this type “sample folder” the program will add it as a sample-only set.



Also on this question choose “OK to all”. This is more an information, you have not many possibilities to choose from ;-)

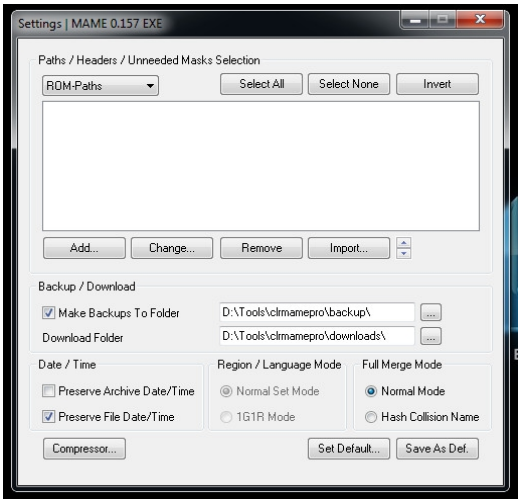


Choose “OK to All”

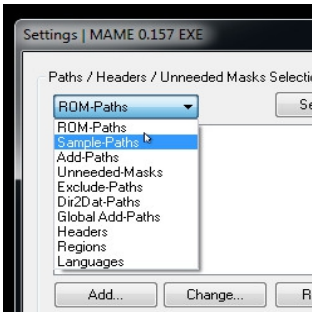


Okay the DAT-file is created and it opens the main window.

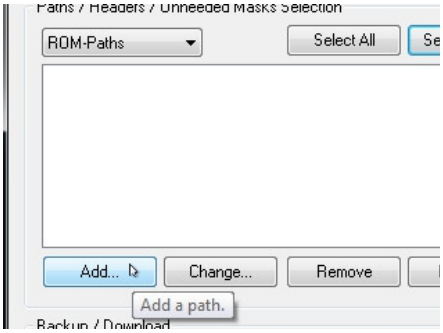
When you have loaded a DAT-File you must set the folder where you have stored your ROMs. You cat do that in the “Settings”



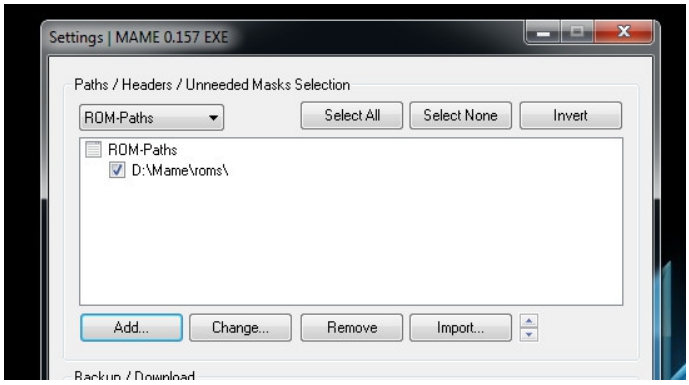
In the drop-down list of the path you have the ability to set different path for your Set that you want to scan. If your ROMs are in two different folder, for example CHD-files are not in the same location that ROMs, you can add under ROM-Path two folder-path.



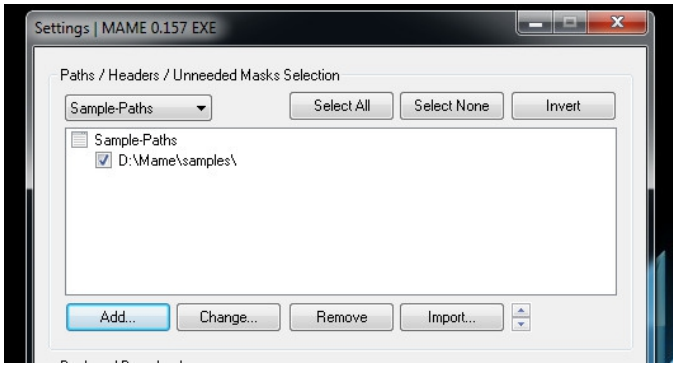
We choose ROM-Path and add the folder where our ROMs are for MAME.



That's our ROM-Folder.

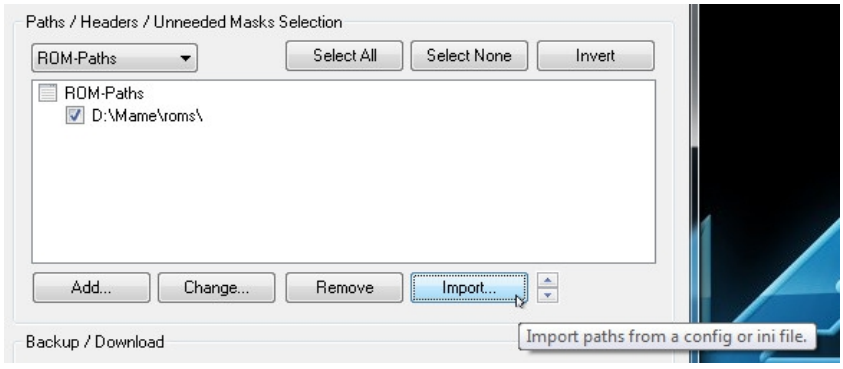


We add the path to our samples (choose Sample-Path from the drop-down)

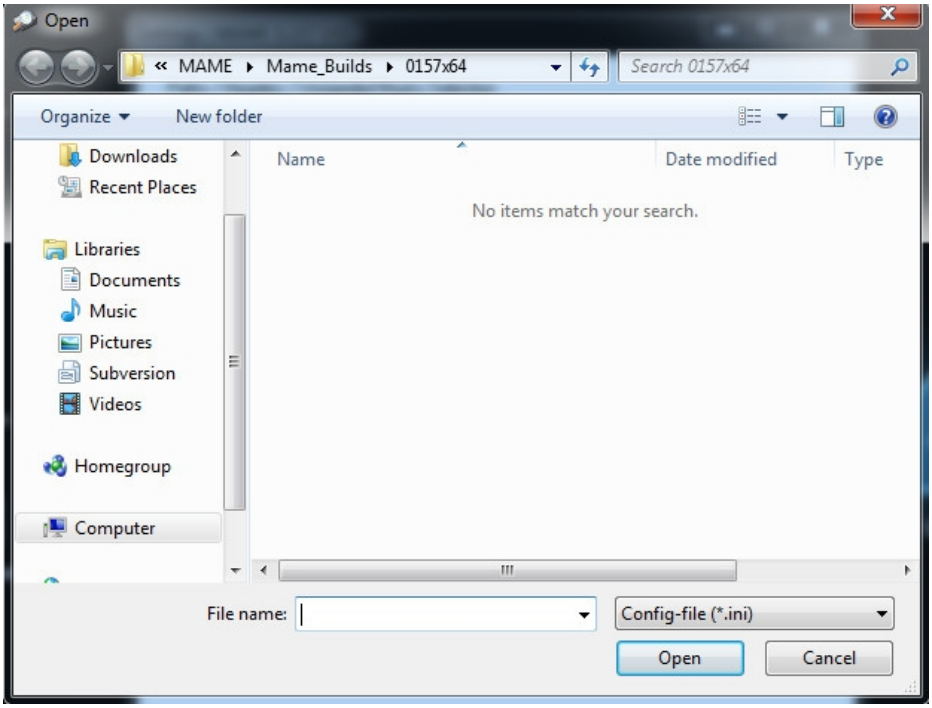


! Have you chosen the wrong directory? We can change or remove those path if needed → Button “Remove” or “Change”

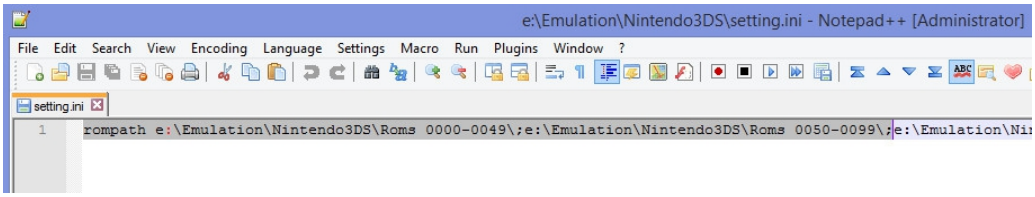
A special button is “Import”



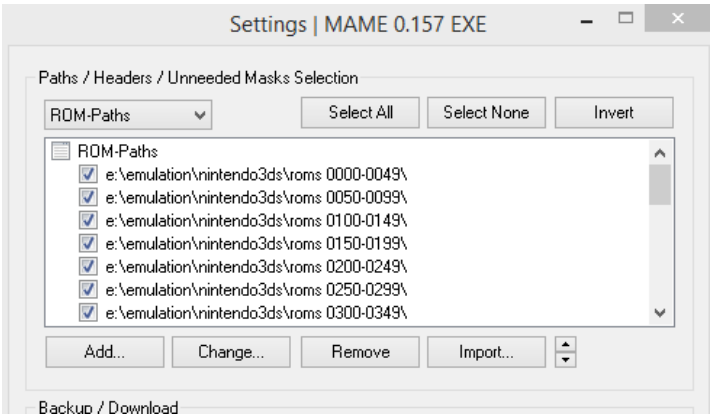
With that we can import a lot of path easy with the help of a ini-file.



The ini-file should looks like that example

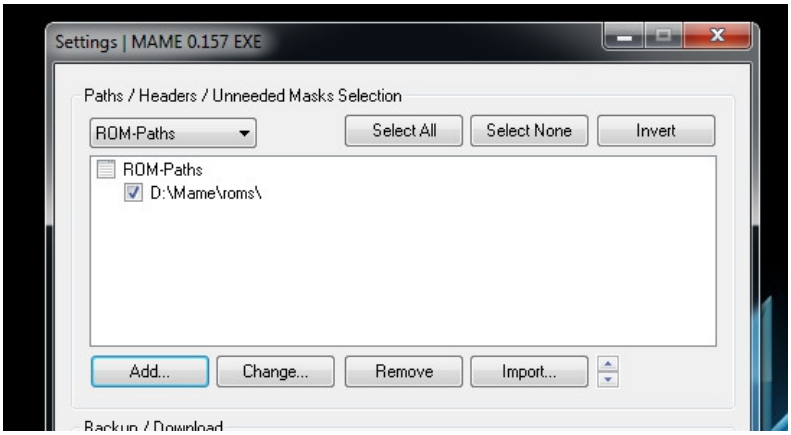


and after the import you have all the needed path



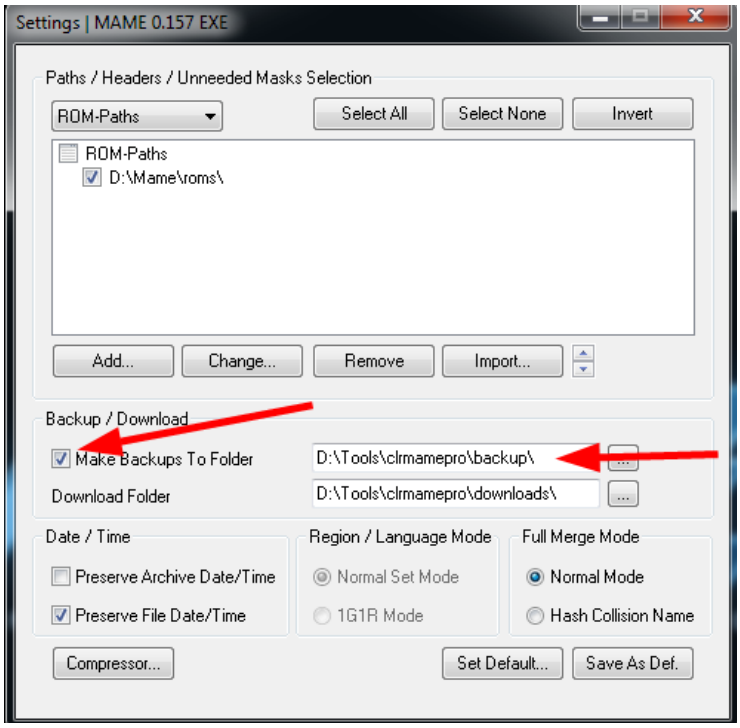
This was only an example we have only two path added and that is fine

(ROMs & Samples)

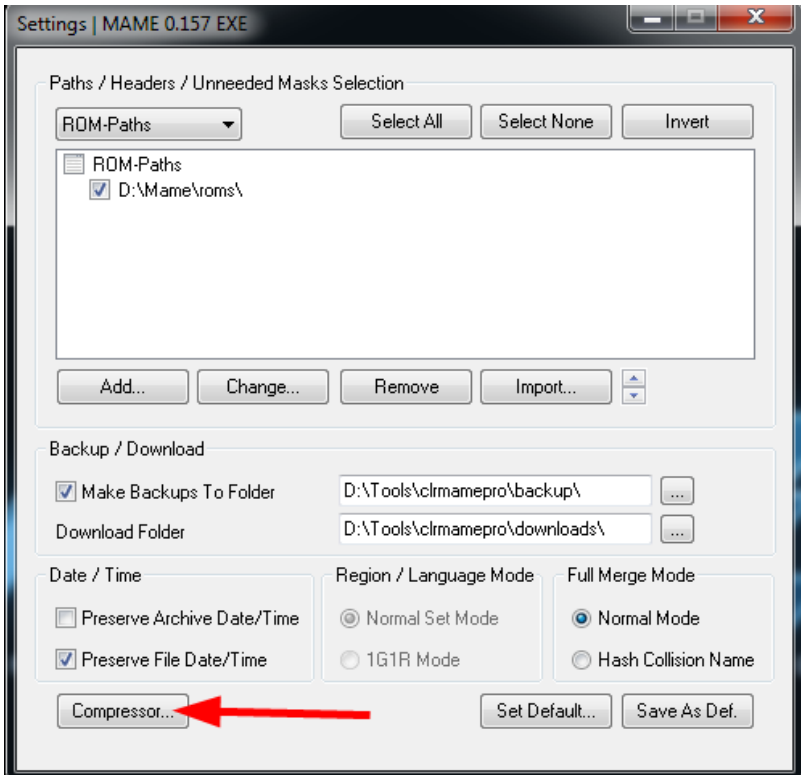


In this settings window are some other cool options we should looks at.

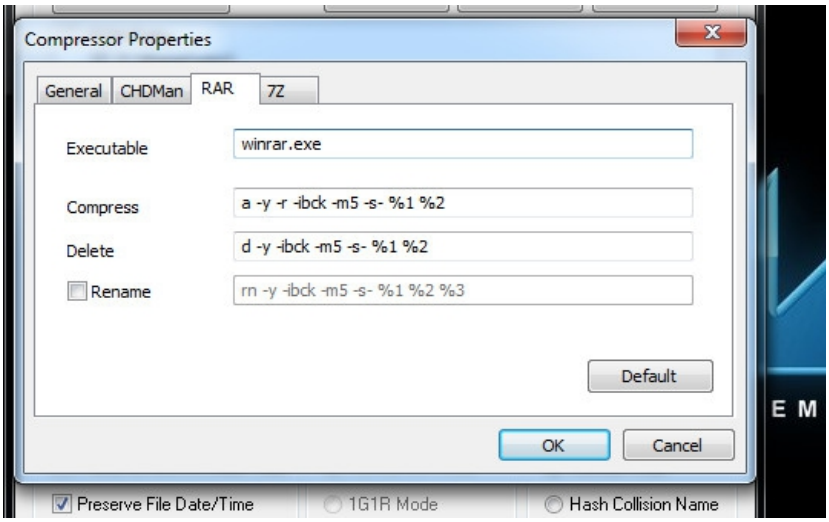
Be sure that you enable “Make Backups To Folder” otherwise the removed ROMs during a scan are lost. I have enabled it all the time and I use that backup folder as a depot for all unknown ROMs. I put them there for a later use and with each rebuild I do I scan this folder for finding ROMs.



Click on this button “Compressor”

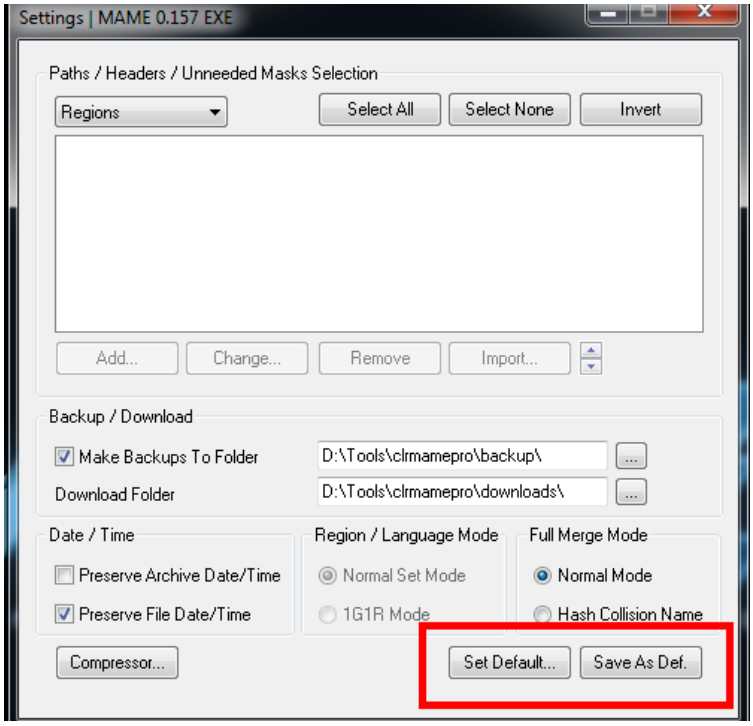


There you can set settings for 7-zip, CHDs and other settings that is used in the scan process.



We change nothing and close it with “OK”

We have at the bottom on the right side two buttons

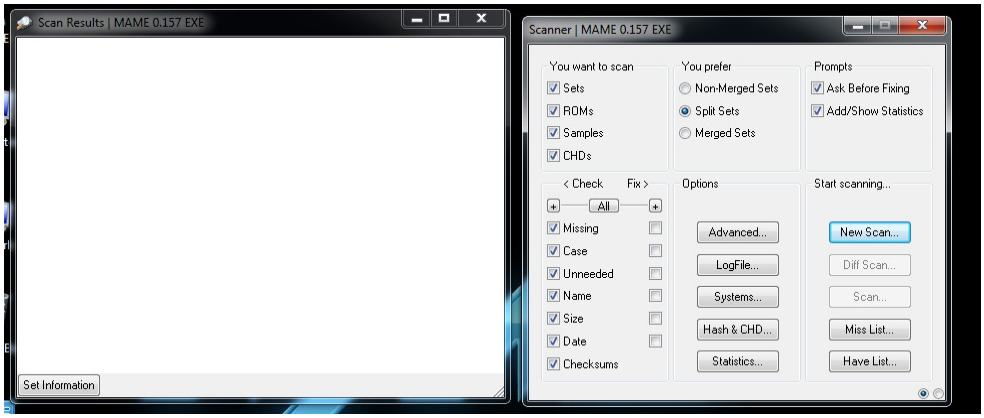


Save as default: You can save the settings you have done as default. It is used all the time when you choose a new DAT-file in the profiler and choose “default” for the settings. Should you have created a “wrong” default saving, you can correct it or delete "default.cmp" in your CLRMAMEPRO folder and you are fine.

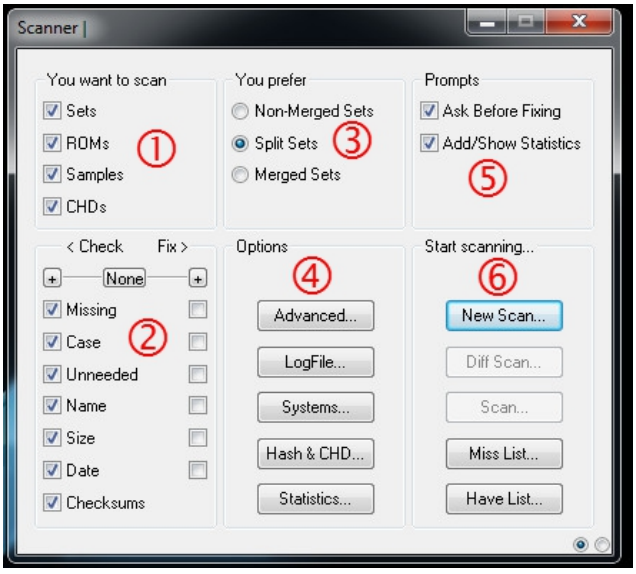
Set default: you can overwrite your settings and set it to the default setting again.

That's for now, we close the settings windows → press the “X” in the upper right corner of the window.

Okay everything is now set for this DAT-file and we want to do our first scan with CLRMAMEPRO. We choose “Scanner” from the main window.



Before we start let's look at some settings in the scanner window



① Here you can choose what you want to scan. It depends on the DAT-file you have loaded what type you can select. If in the loaded DAT-file are only ROM-information you can choose only “Sets” and “ROMs” for en-/disable.

② In this section you can set in detail what should be scanned and what CLRMAME should do when it finds an “error” (Fix). Be aware that when you enable something in the fix column it does change ROMs in your scanning folder when it finds something to fix!

③ You prefer → That's how we want the ROMs to be stored (See chapter ROMS)

④ Options → As the name tells us, here we can set additional settings

⑤ Prompts → I have enabled that two possibilities.

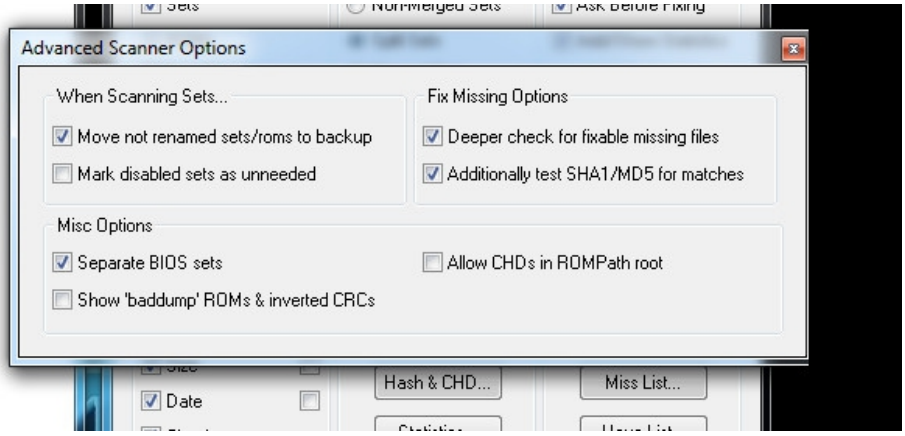
⑥ Start Scanning → here we can start the process.

– New Scan → When you have never done a scan with a DAT-file

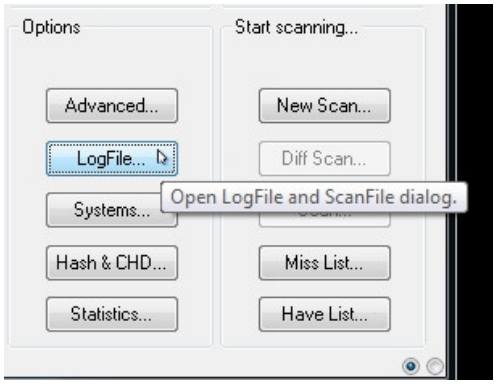
– Diff Scan → this one is only available when you have added a newer DAT-file and have chosen “upgrade” in the settings. It will takes the old information and do only a diff-scan, that means it will only scan for changed ROMs.

– Scan → If you have already done a first scan, this process will only scan the files that has reported an error.

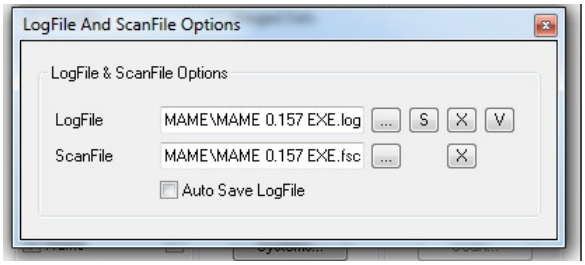
Let's look again the the “Options”. In the Advanced you can set additional settings.



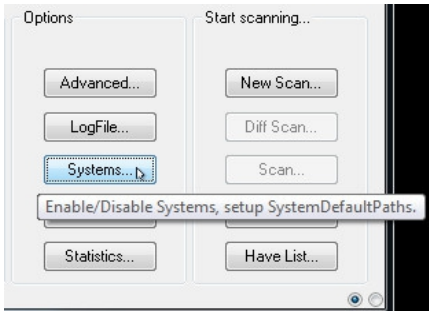
Under “LogFile”



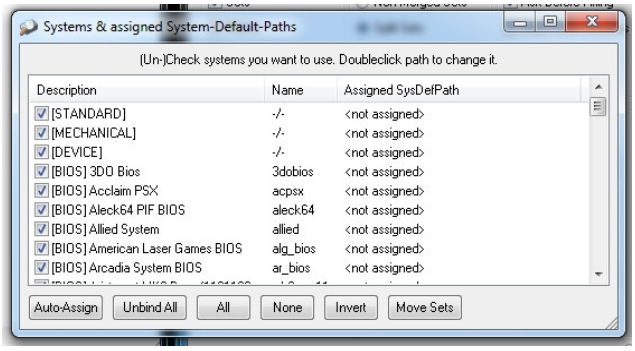
You can set the path for the Logfile and scanfile. You can change that if you need it ;-)



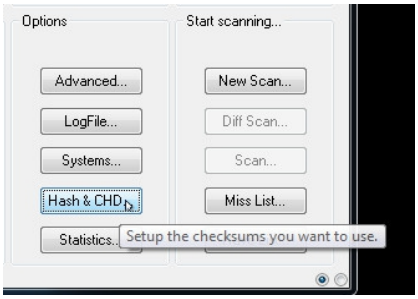
Under “Systems”



This entries vary depending on your loaded DAT-file. When you are loading the DAT-File with Notepad you will see ROMS that have an additional tag called “resource”. That is displayed here. Here you could do some tweaking for this, I have never used that myself.

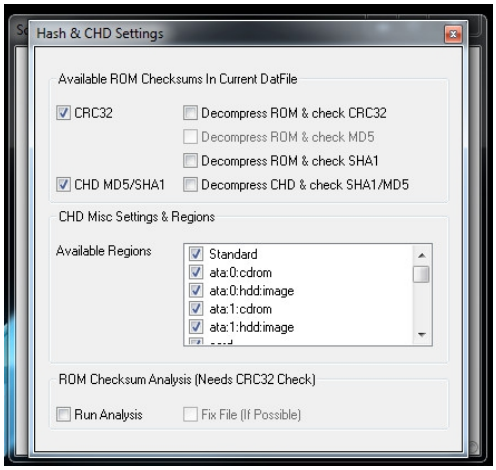


The next entry in the Options is “Hash & CHD”

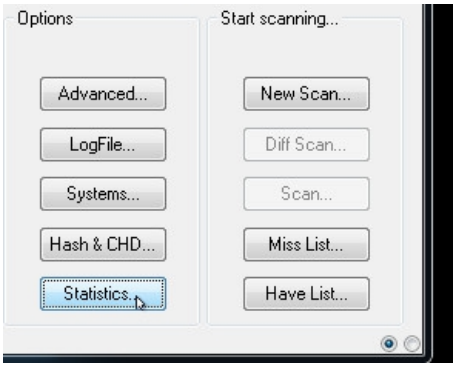


Here you can specify which checksum should be used to verify a ROM. It depends on the DAT-File what versions are available. When you create a DAT-File you can set what checksum should be generated and included in the DAT-file. We will see when we do a “Dir2Dat” later ….

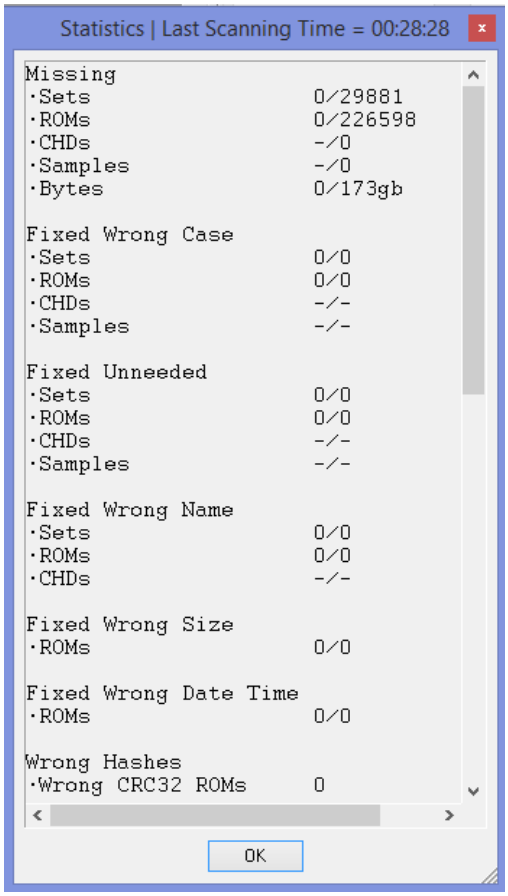
When you choose a setting “Decompress...” it will takes much longer to scan. The setting “Decompress CHD..” will read all blocks in a CHD and does an integrity check (that could takes also a long time).



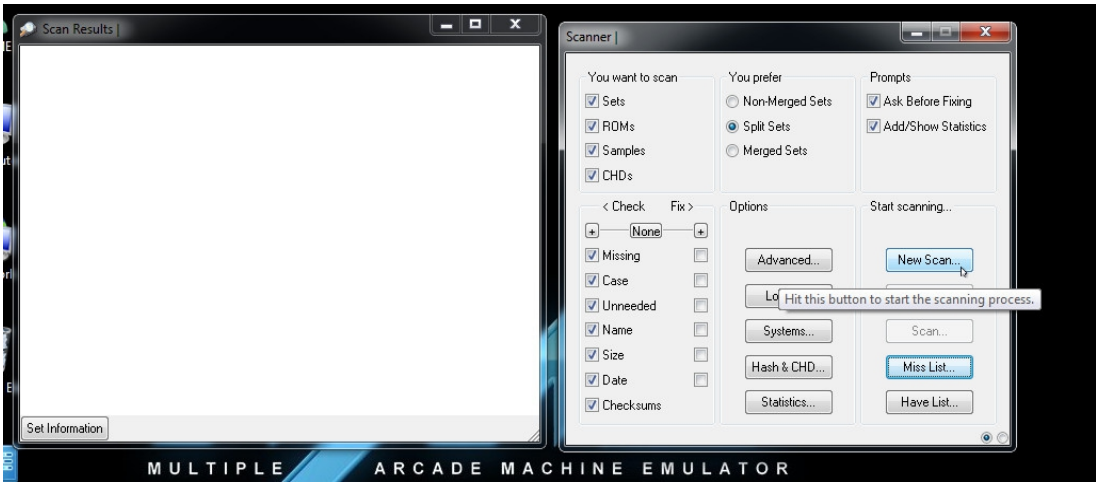
Let's go back to the Options and look at the last entry called “Statistics”



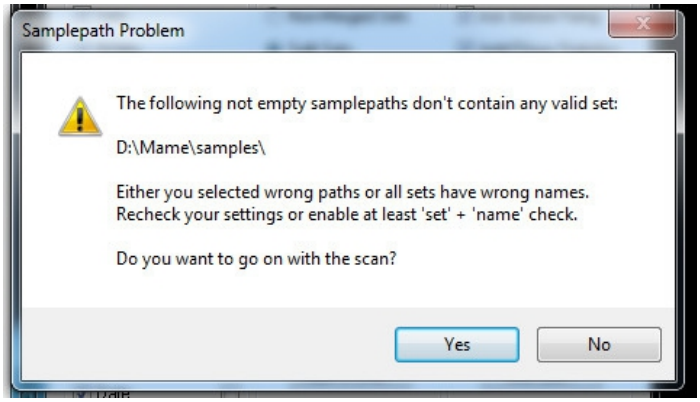
It will shows you the statistic again of the last scan.



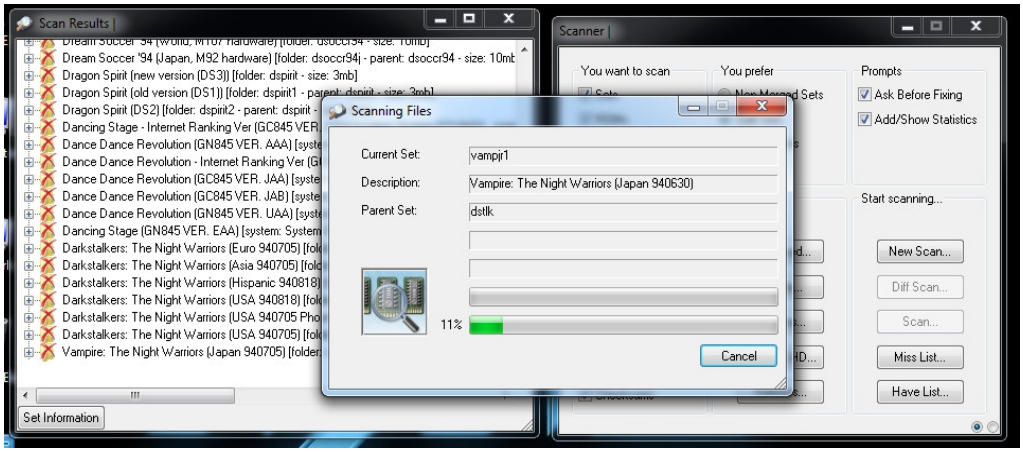
Stop talking let's do our first scan click “New scan”



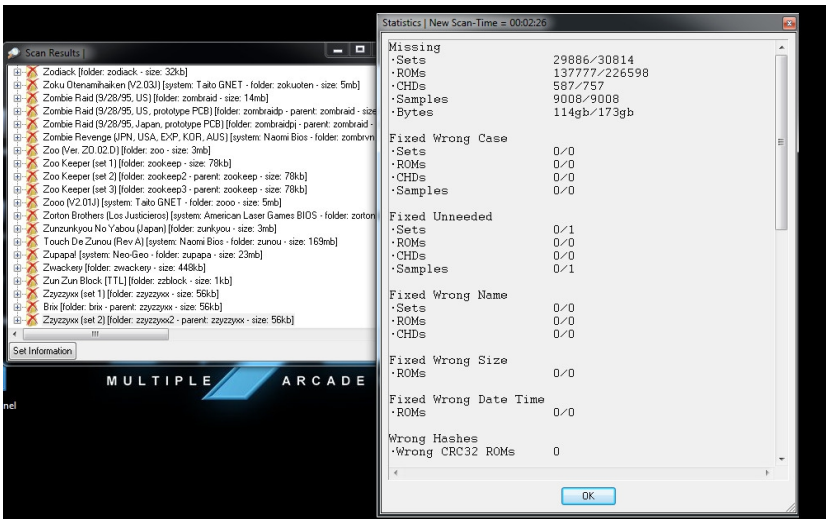
We are receiving a pop-up message. It tells us that the sample path is not valid. That is okay because we have no sample zip-file stored there …



Wow it's scanning. We can see how the progress is ….

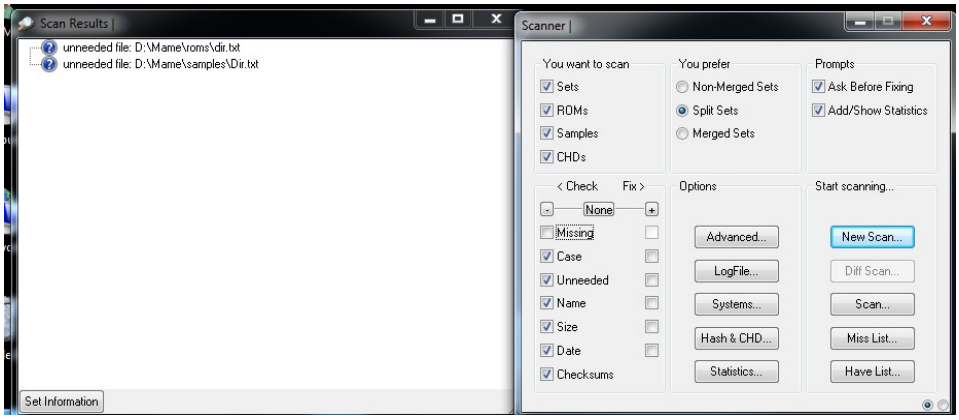


When it has finished it display a statistics window.



We have not many files in the ROM-folder (only dkong.zip) that's the reason why. We click “OK” on the statistic window. At the “Scan Results” window we see what is missing or wrong.

Can you remember what I have told you about the “Check” setting? Uncheck “missing” and see what happens.



Those “missing” are gone and not visible anymore. Indeed we still missing those but we have changed that they should not be included in the scan.

It has only two files left in the result, they are not in the DAT-file included and that's why the are marked as “unneeded”

That was our first scan. We have verified with a DAT-file that includes information for the hole MAME set and we have only dkong.zip in our ROM-folder. We want to change that. We could do now two things:

- Download ROMs and store them in the ROM-folder. After the download we must verify/correct it with CLRMAMEPRO
- The other way is to download all ROMs to another folder and use the Rebuild-function that CLRMAMEPRO provide.

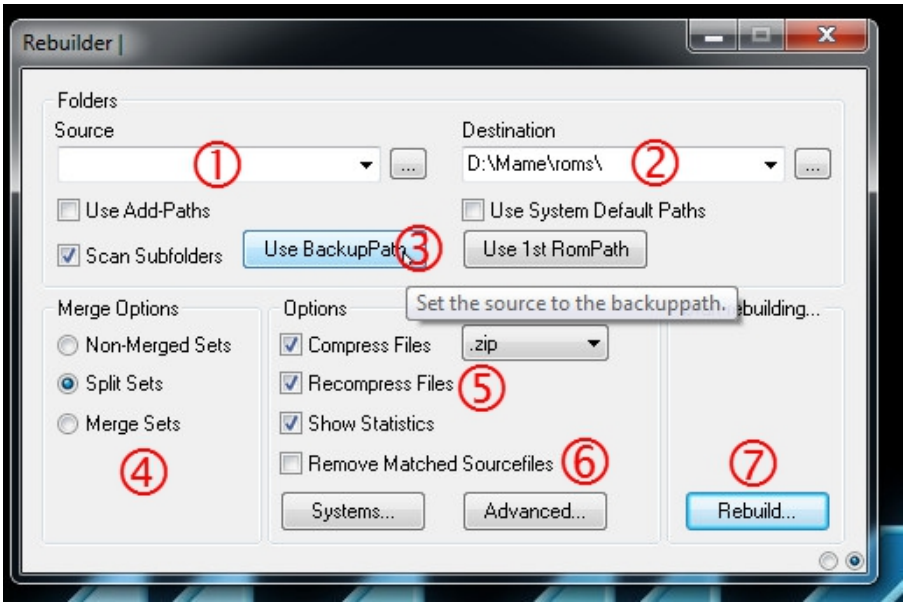
Let's choose the second way. We are seeing in other examples how we can use the scanning “fix” options to help us in creating a perfect set.

Start the “Rebuilder”

If you have clicked “Profiler” by mistake no worry just choose again our “MAME 0157 EXE” DAT-file. It will loads all settings and everything is available again for scanning/rebuilding.

We need now all MAME ROMs to download. Get them from the internet, I think the best choice is to have a torrent as a download-source. Download and store them in a folder “Roms” in your download folder.

When we look at the Rebuilder window we see some settings. The important are:



① Select the folder where your downloads are → from where you want to rebuild

② Select the destination → it points to the ROM-folder you have set in the DAT-settings. If you want to create the result not to your MAME/ROMs folder you can point it to a different location. Keep in mind that you have to move them manually to the MAME\ROMs folder after the rebuild.

③ "Use BackupPath" → you can rebuild also from the backup-folder that CLRMAMEPRO has. Remember I store all unused ROMs there and when I'm searching for new ROMs I do my first rebuild from this backup-folder :-)

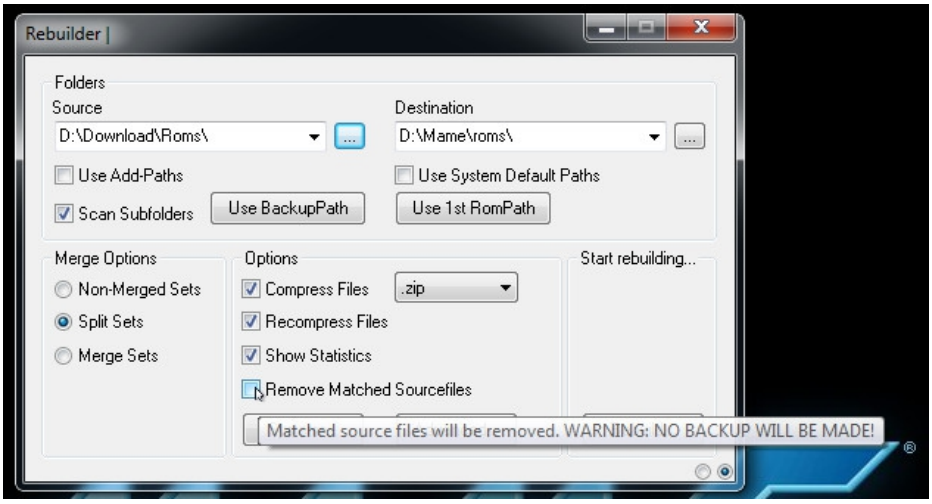
④ Merge options → see Chapter ROM for more information

⑤ Options → some options you can set/change

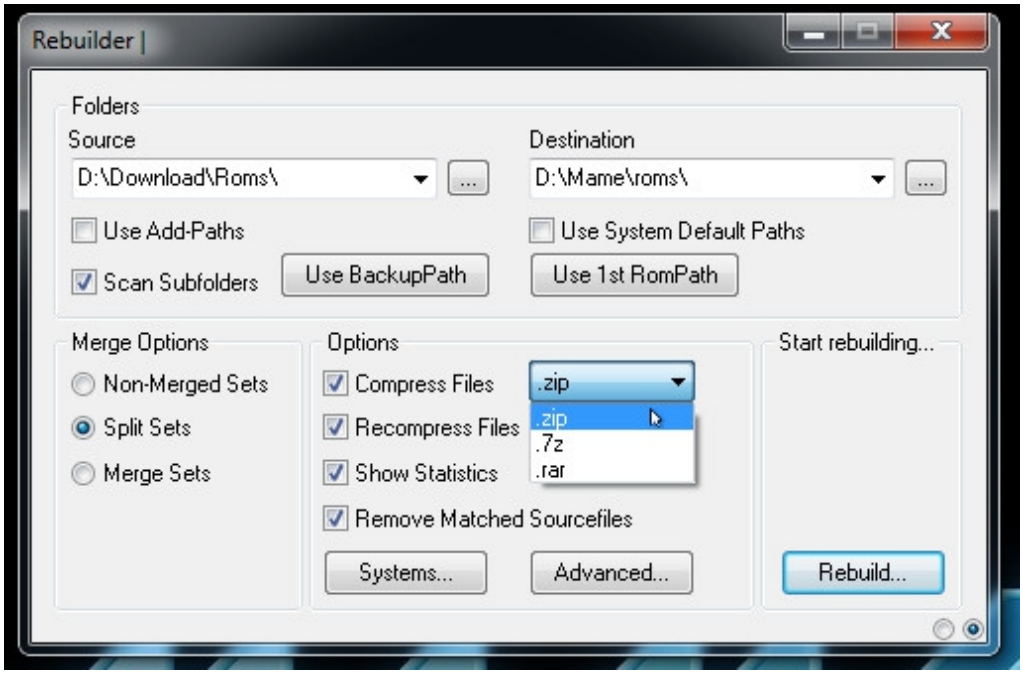
⑥ Option "Remove matched.." → when it is enabled the matched ROMs are removed after the rebuild from the source folder.

⑦ Rebuild → that starts the process

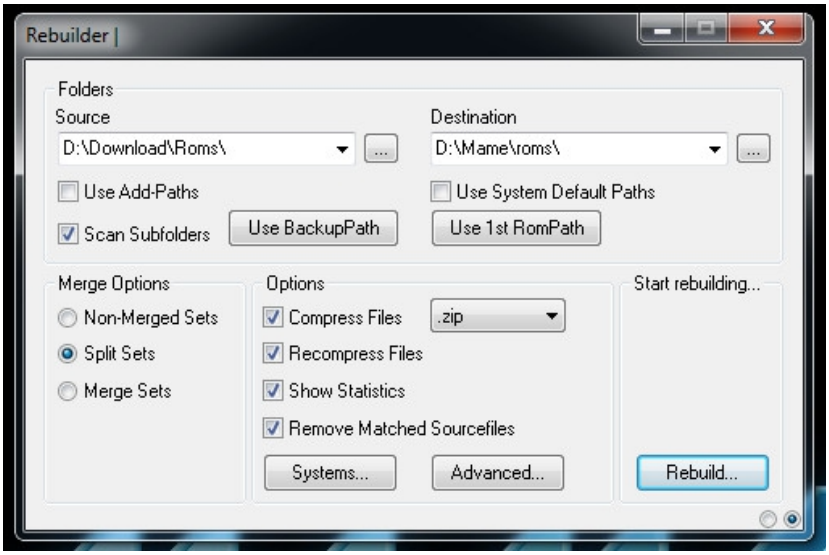
We set the source folder to our Download directory and enable “Remove matched..”



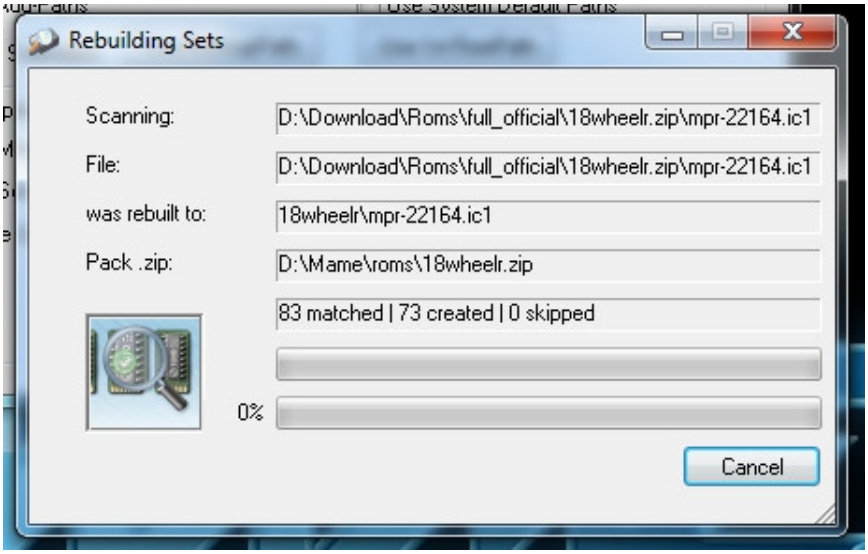
And we want to have the rebuilded sets in a zip-format.



Ready for take off? Yeah click “Rebuild”

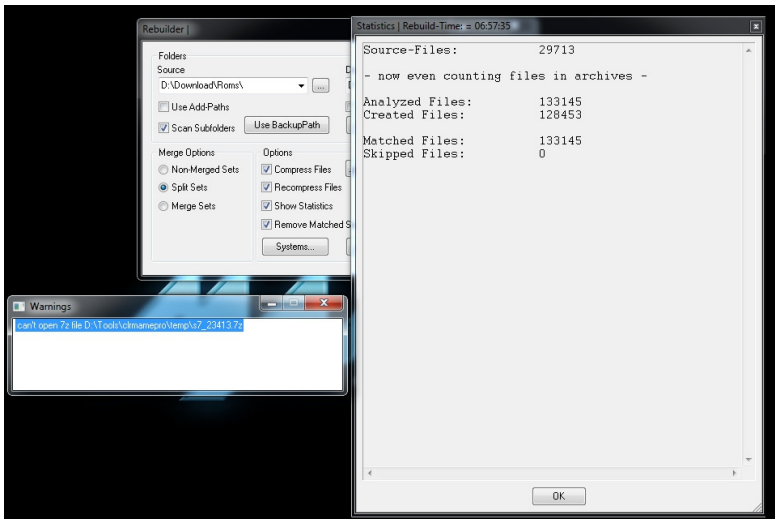


Rebuilding has started …..

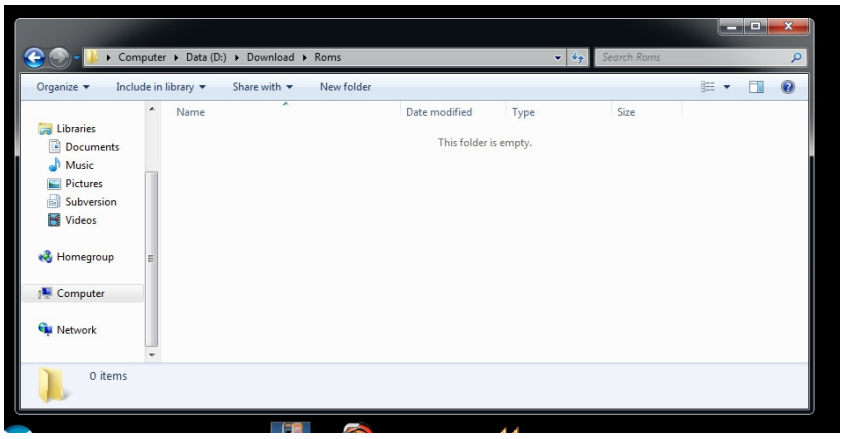


We see that it has already found 83 matched and has created 73.

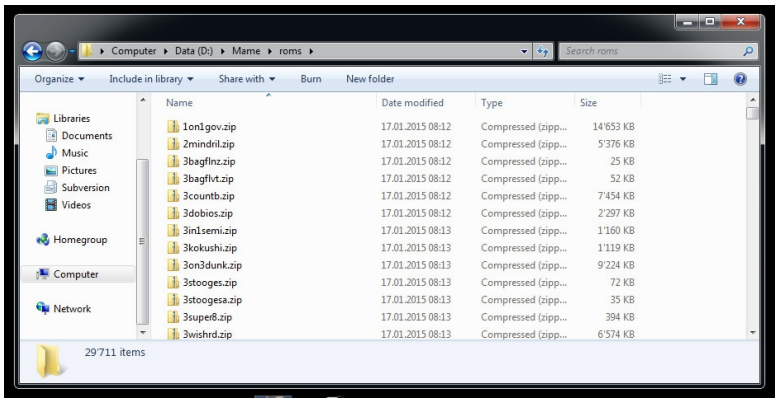
When it has finished again a statistics window appears.



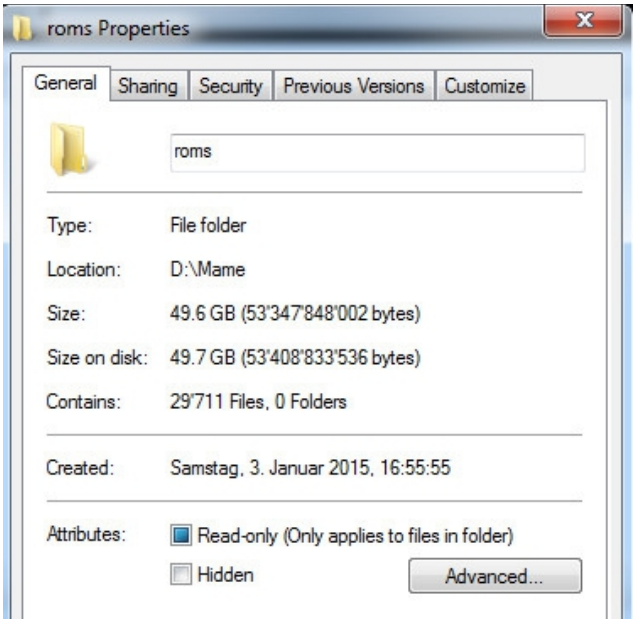
Lets look at our download folder ……its empty → remember we have enabled “Remove matched....”



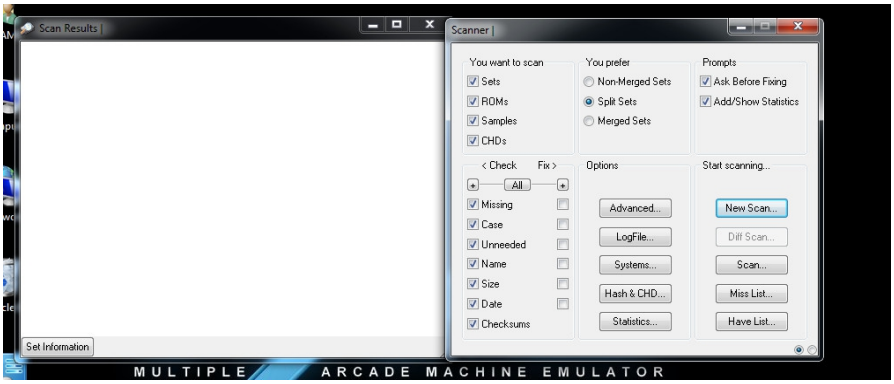
And in our MAME\Roms folder are now a lot of files :-)



Yeah we have now rebuild 50 GB of files, but are they perfect now?

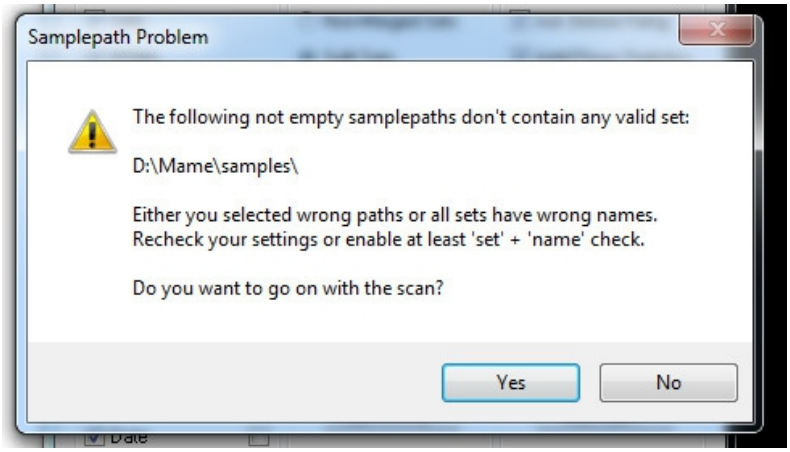


Is everything okay, do we have now a complete set? Let's use again the scanner option... and click “New scan”



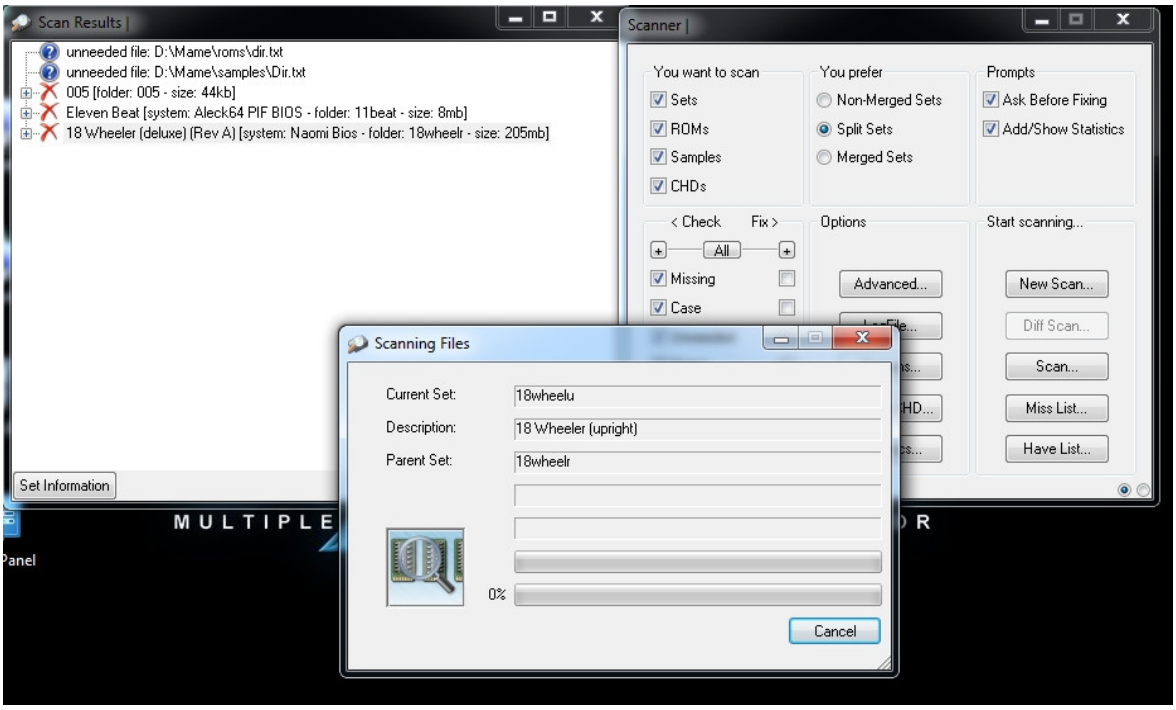
You can also choose now “Scan” because we have done already a first scan. Keep in mind when you choose “Scan” only reported bad/wrong/missing ROMs are scanned again.

Again we received this message, yeah we have only rebuild ROMs.

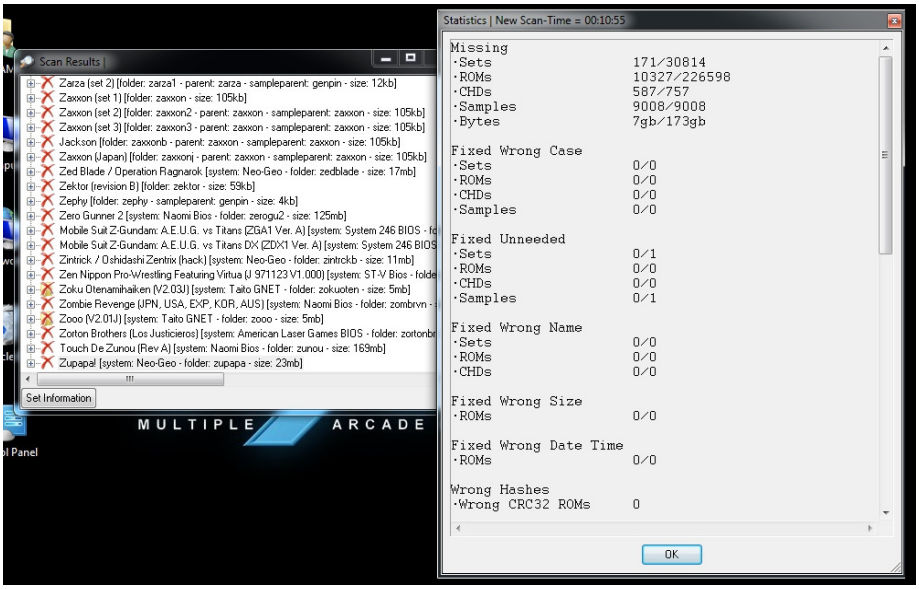


! Samples are stored in MAME only with their names and without a checksum. That's the reason why you can not rebuild the samples from a folder. You have to add them manually to the sample folder and verify if nothing is missing with the scanner.

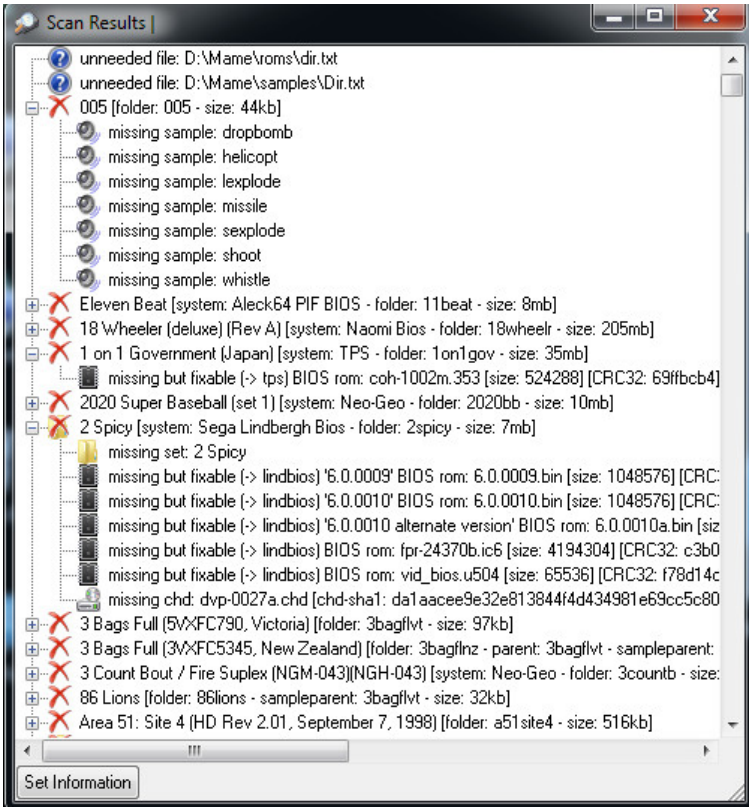
The scan has started. Still reporting some missing …..



It has finished but why we have not a complete set?

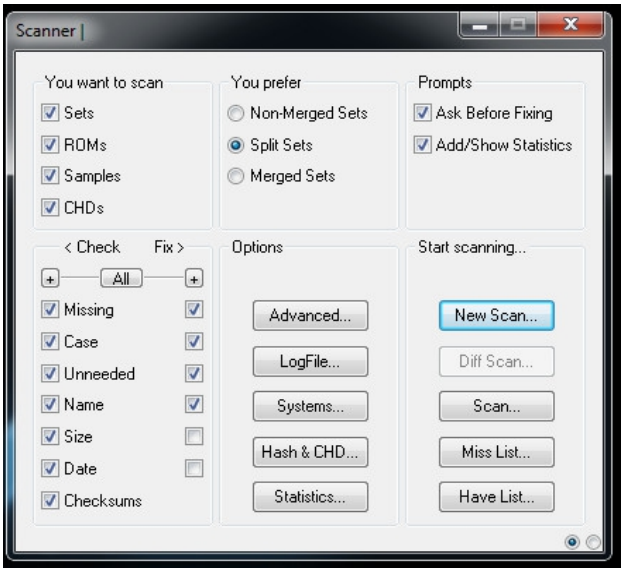


Let's check the details in the Scan Result window.

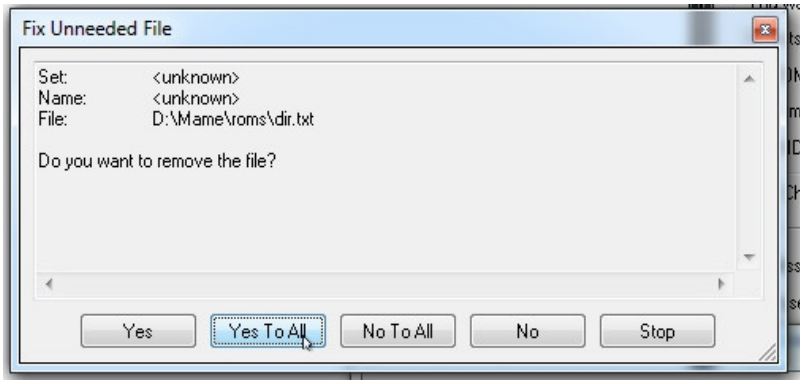


It lists the missing samples and CHD-files, some unneeded txt-files and some “missing but fixable”.

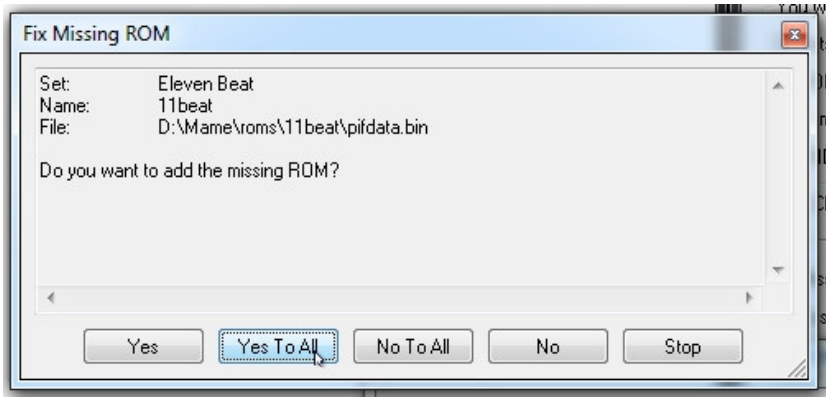
Now lets scan again and enable this fix options.



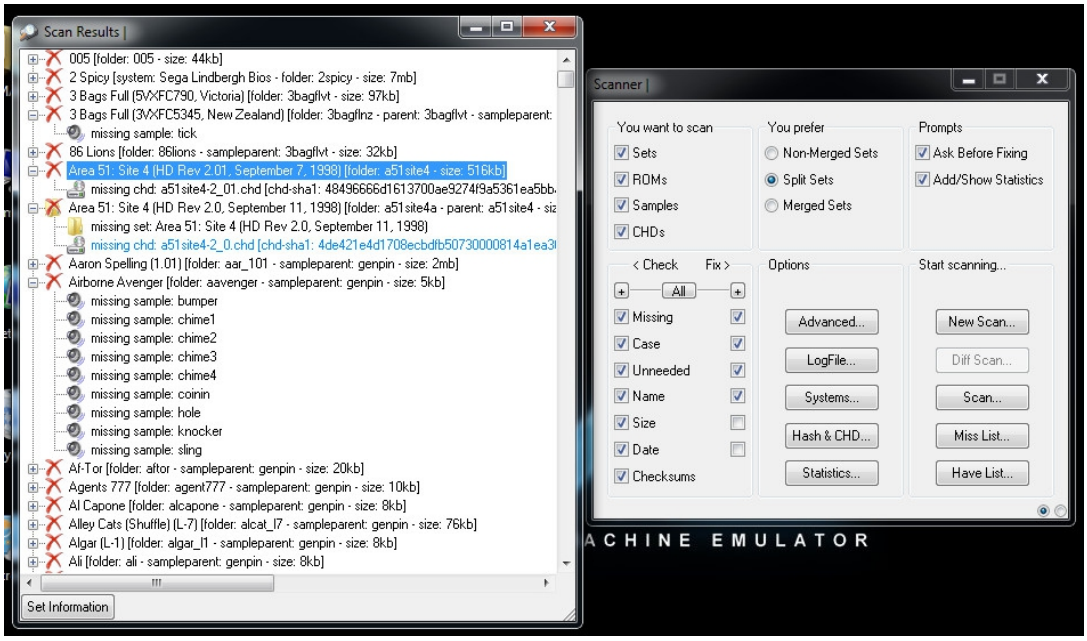
We have enabled “Ask before fixing” and now we received this question



Say “Yes to all”. Next question “add …. missing” for sure → “Yes to all”



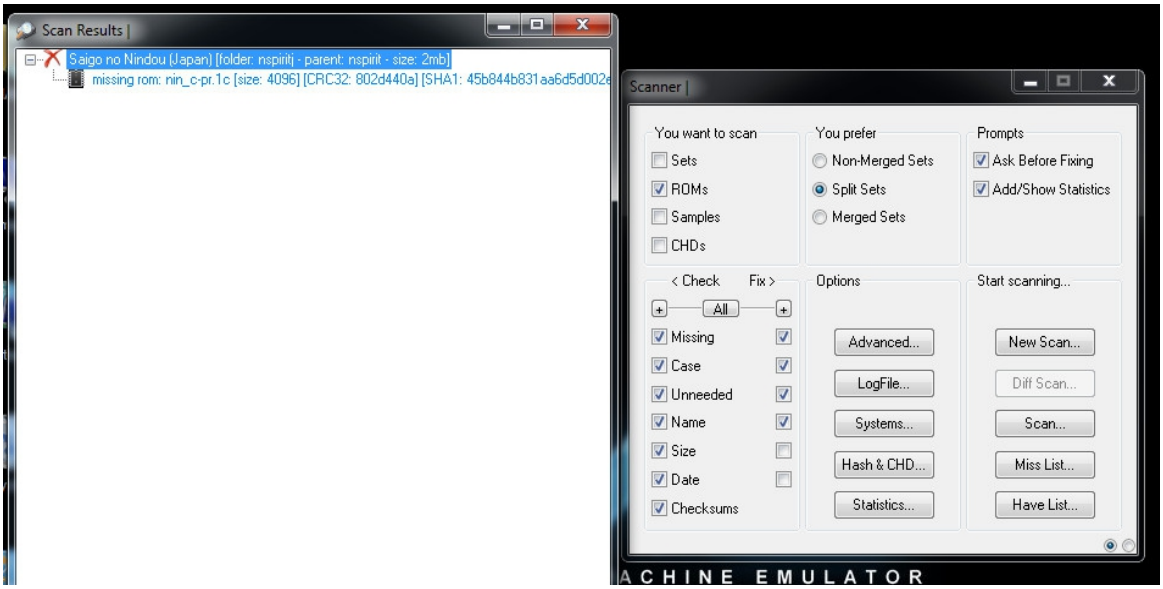
After the scan complete it shows us a better stats.



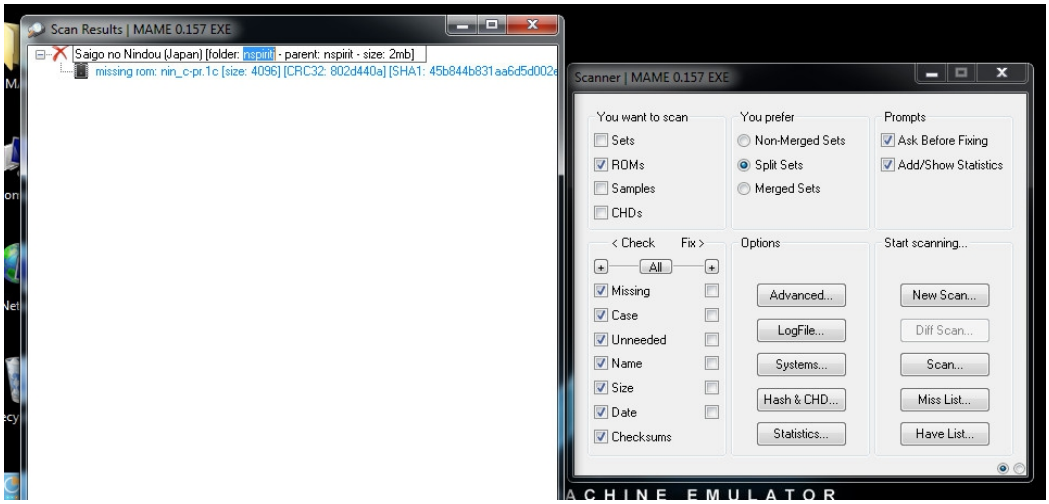
Missing Samples and CHD-files. Am I sure that nothing else is missing?

Untick “Sets”, “Samples” and “CHDs”. And there is still a ROM missing.

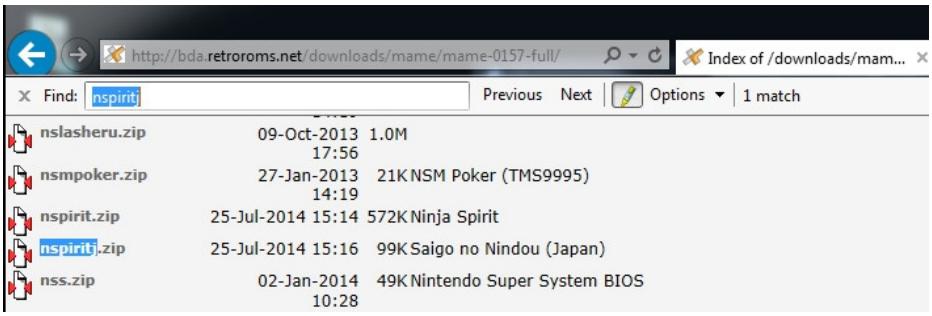
Strange seems that I have missed it to download :-)



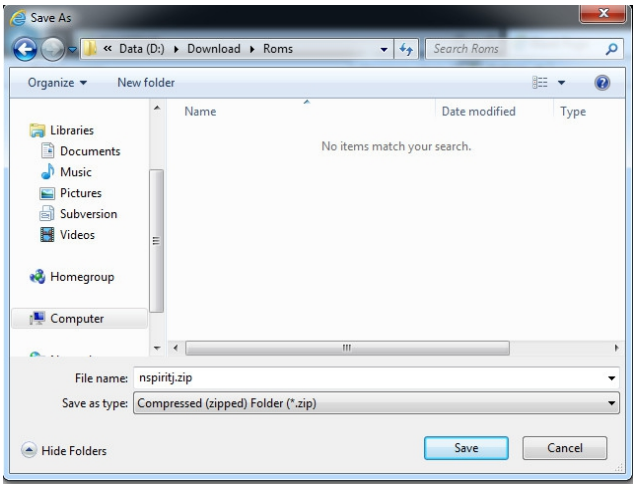
What is missing? A ROM inside a set called “nspiritj”.



Download this “nspiritj.zip” from Retroroms.net.....

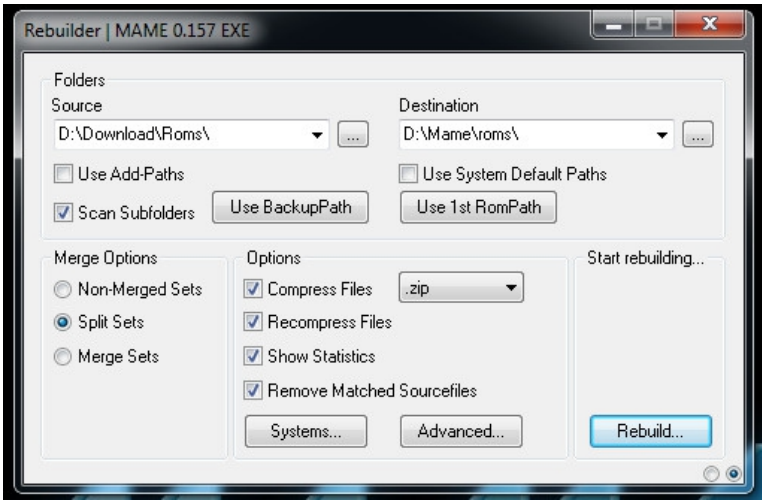


.. to the download folder into “roms”

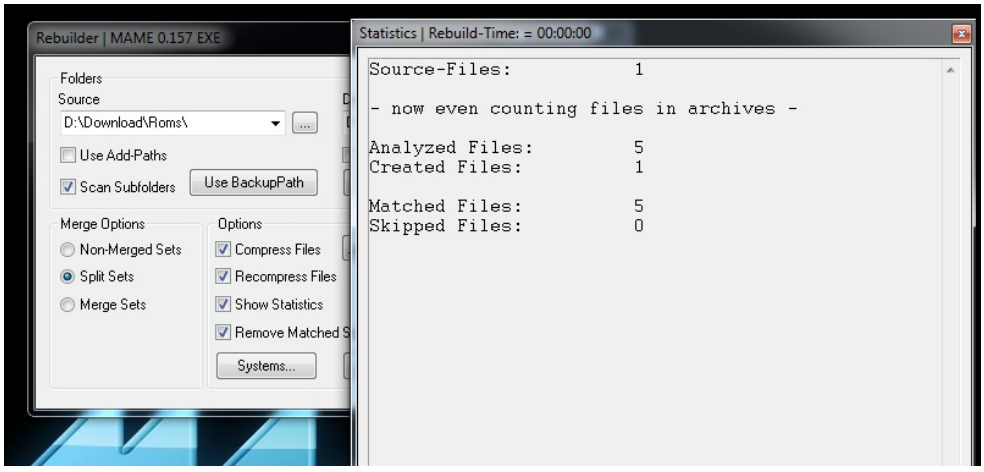


We must use the rebuilder again → choose rebuilder

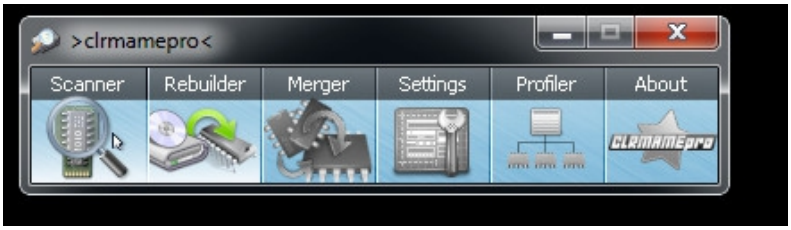
The settings are still the same, let's “rebuild”



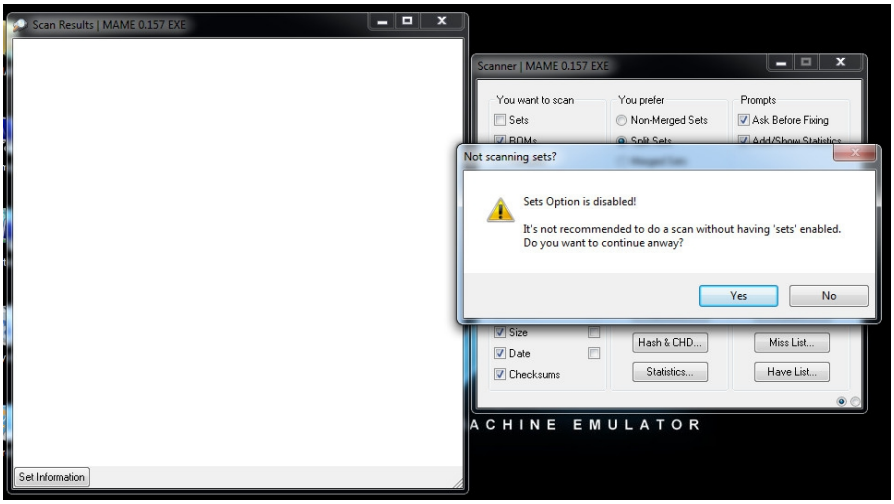
finished → it has created 1 file, looks good.



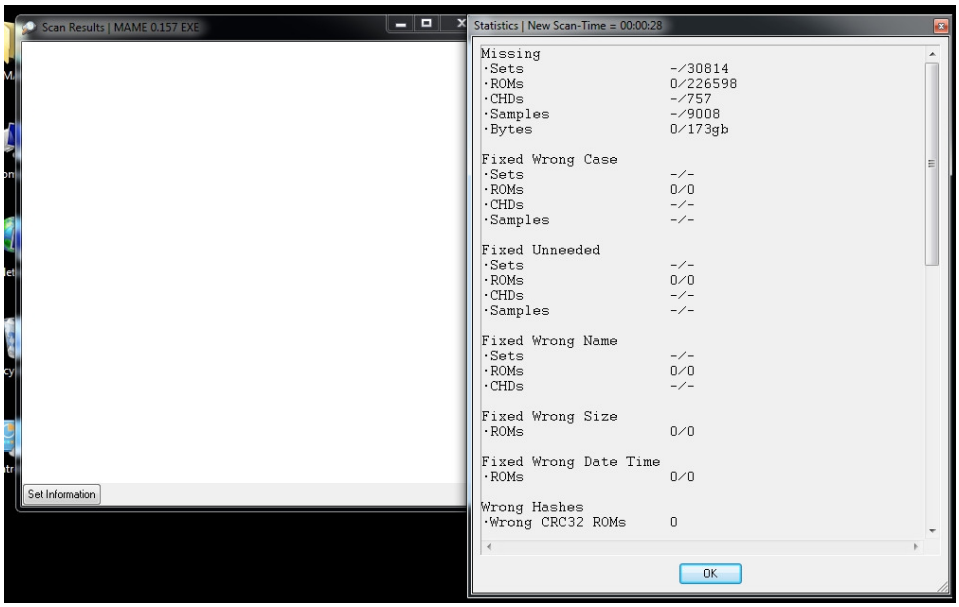
Now it is time for the scanner …..



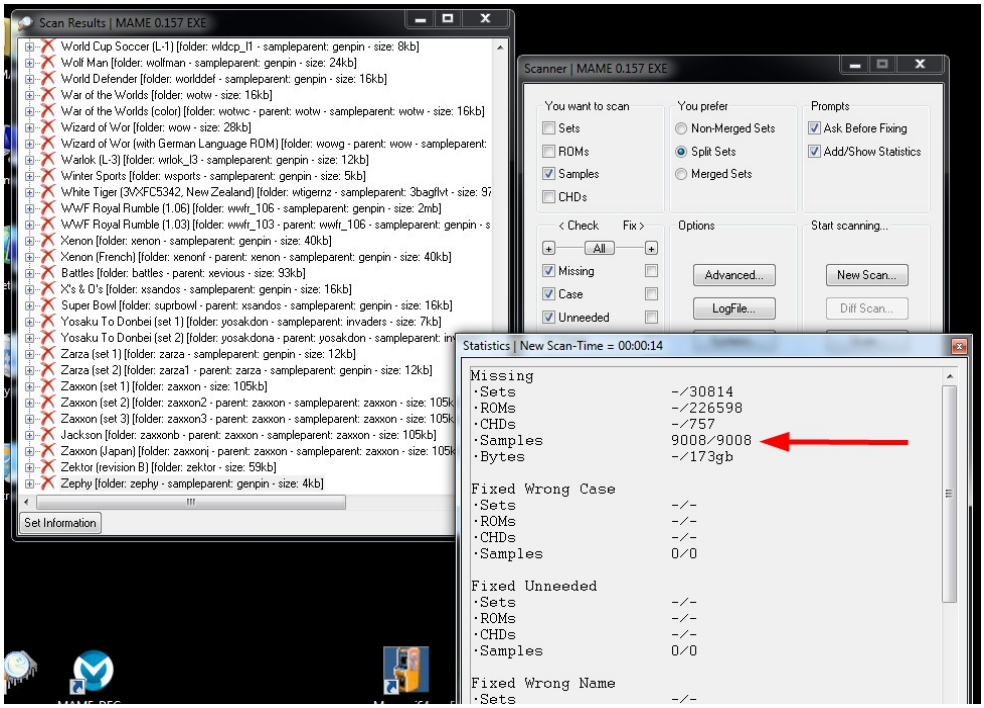
Let's start the scan and now it complains about the disabled “Sets”. Let's ignore that for now and click “Yes”



Yeah 0 ROMs missing



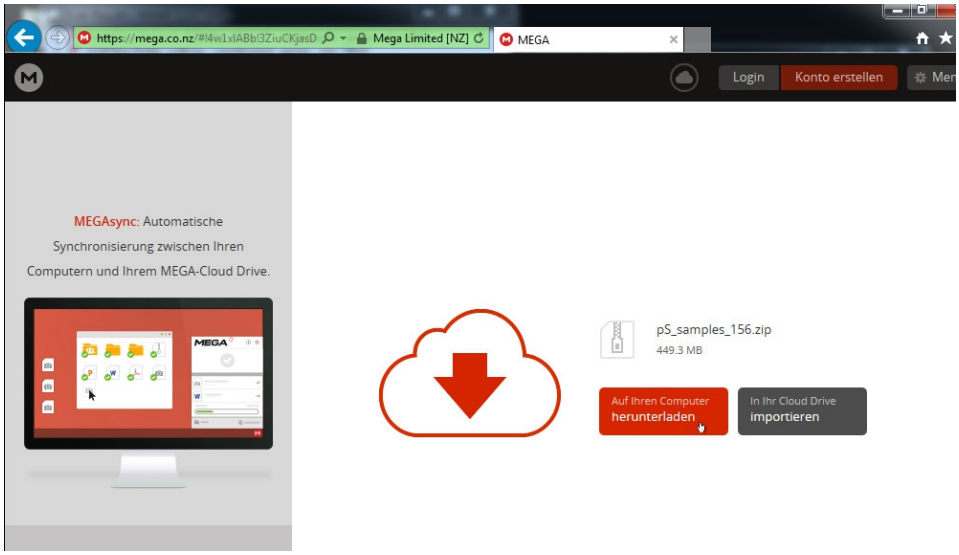
If you enables only “Samples” you see this stats



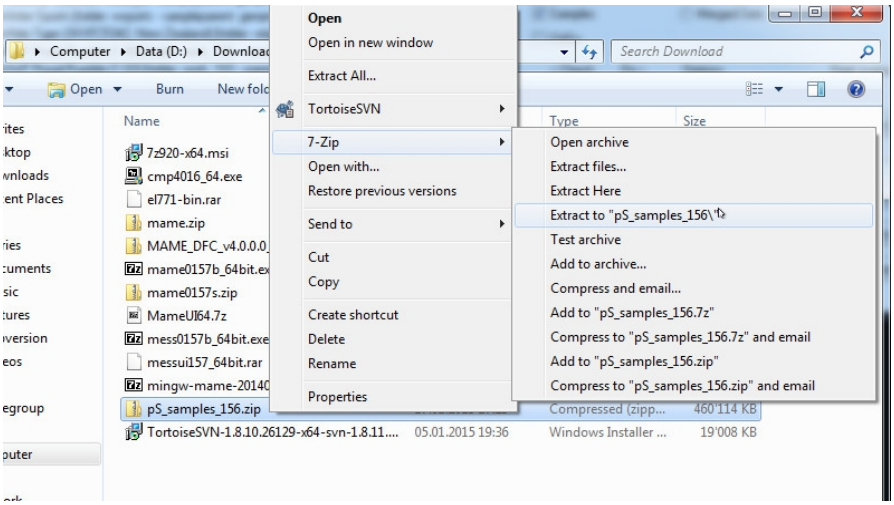
Lets fix that. Open a web-browser and navigate to the “Progetto-Snaps” site.

Under “samples” is at the bottom a link “Download Samples FullSet”.

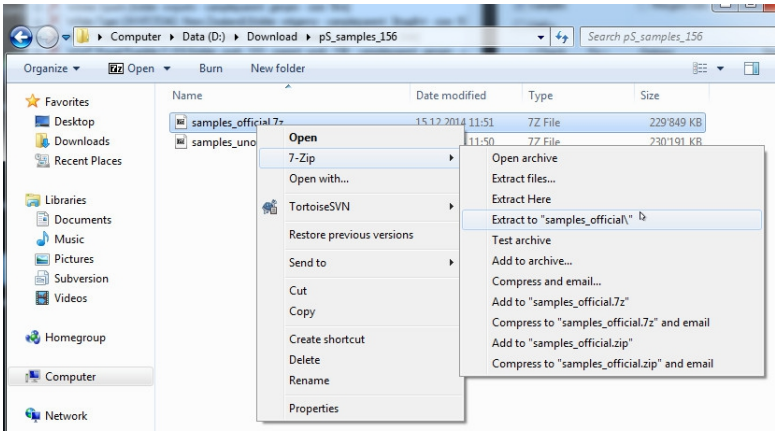
Download it to your download-folder



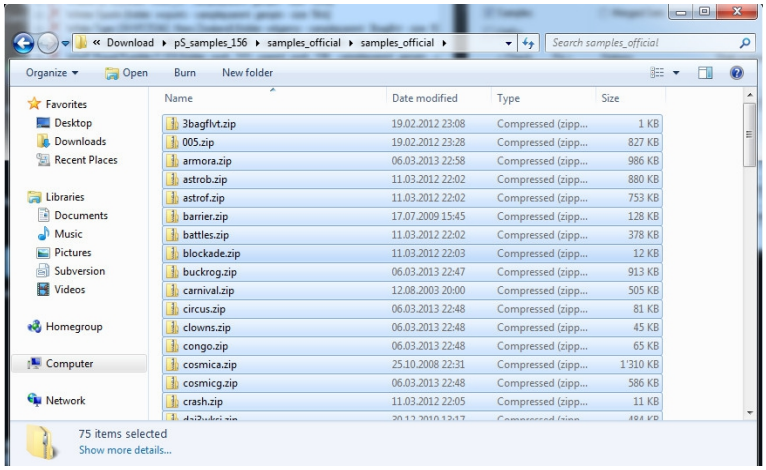
Extract the download file to a folder



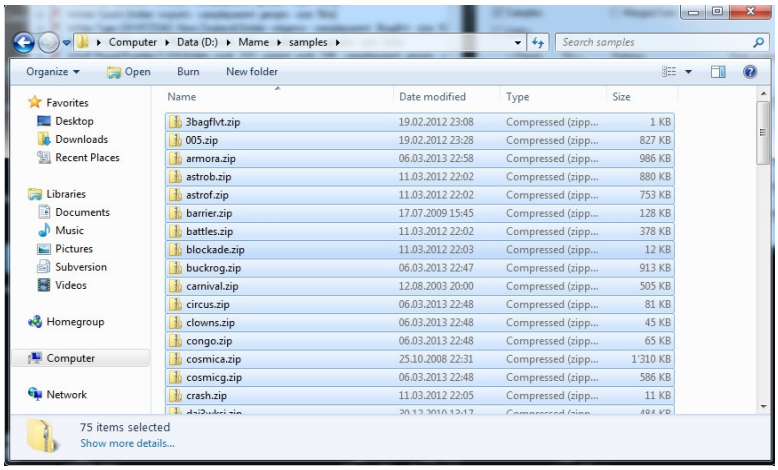
In this folder are now again two 7-zip files. Extract “samples_official.7z” to a folder …..



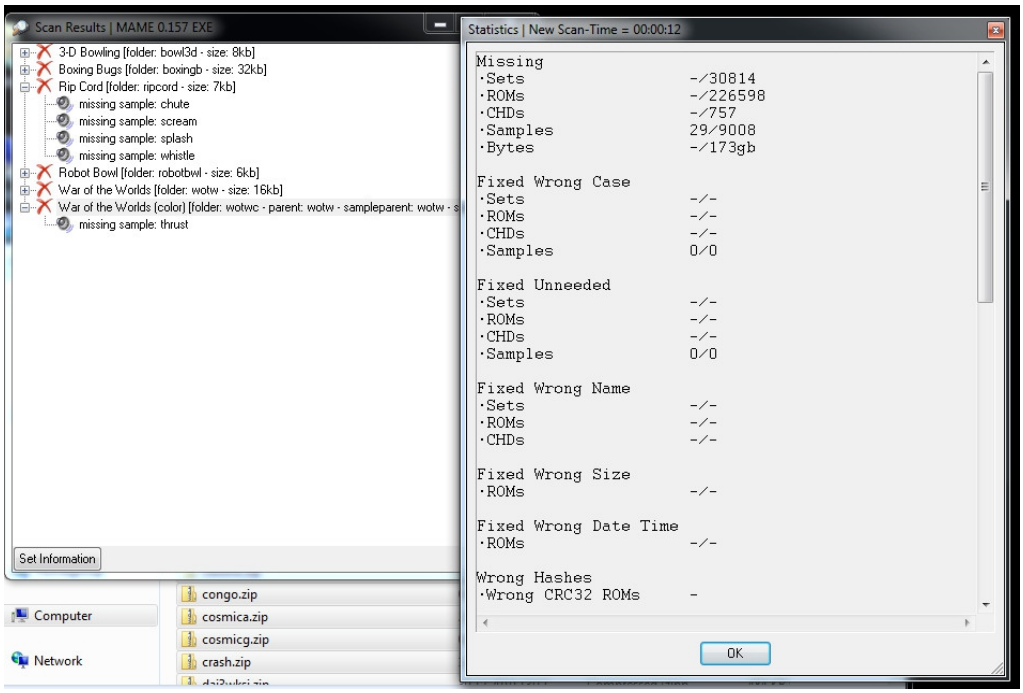
...and move the files from this folder “samples_official” to ….



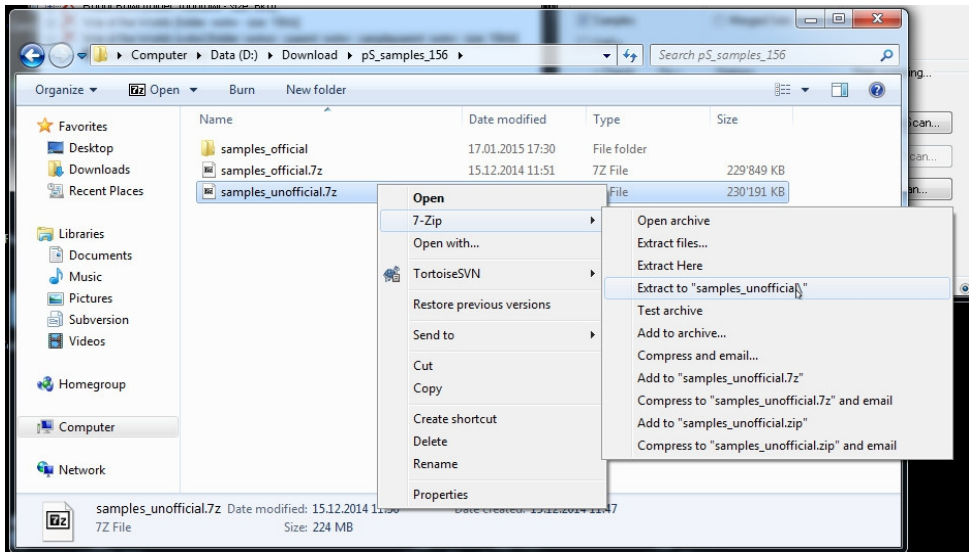
….the D:\Mame\Samples folder



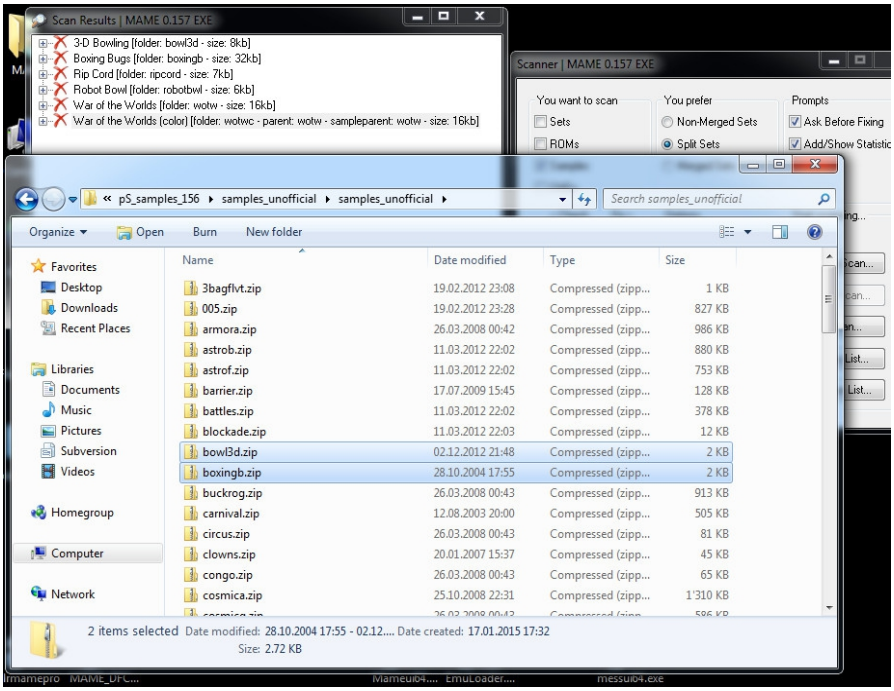
Scan again and wait we are still missing some samples :-(



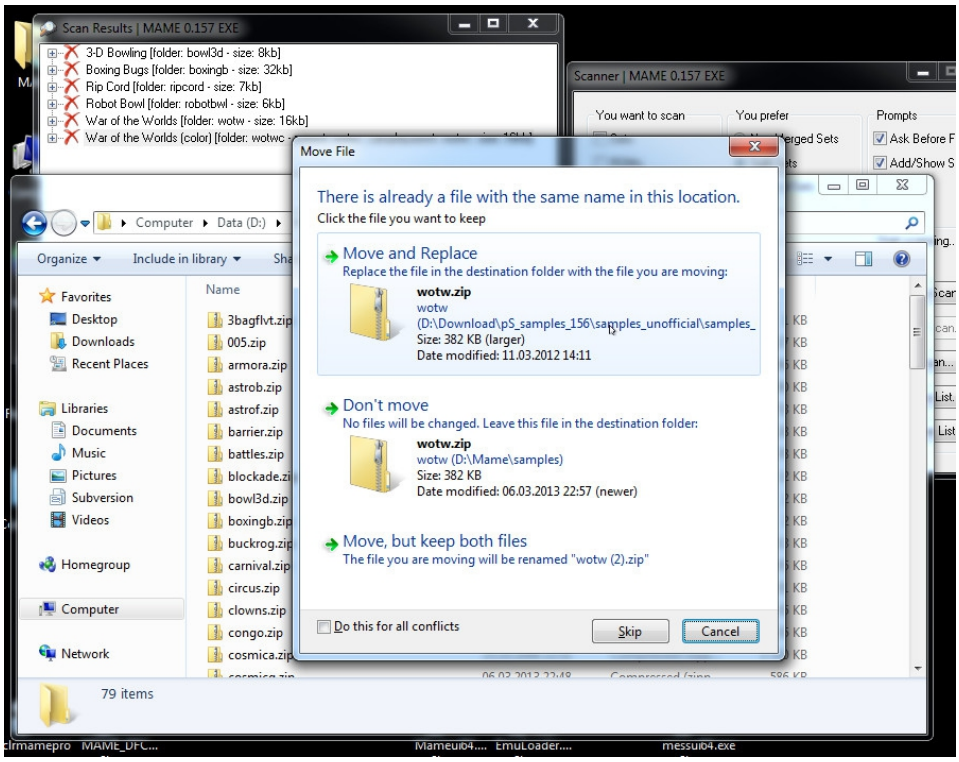
Extract the other downloaded sample-file in the download folder.



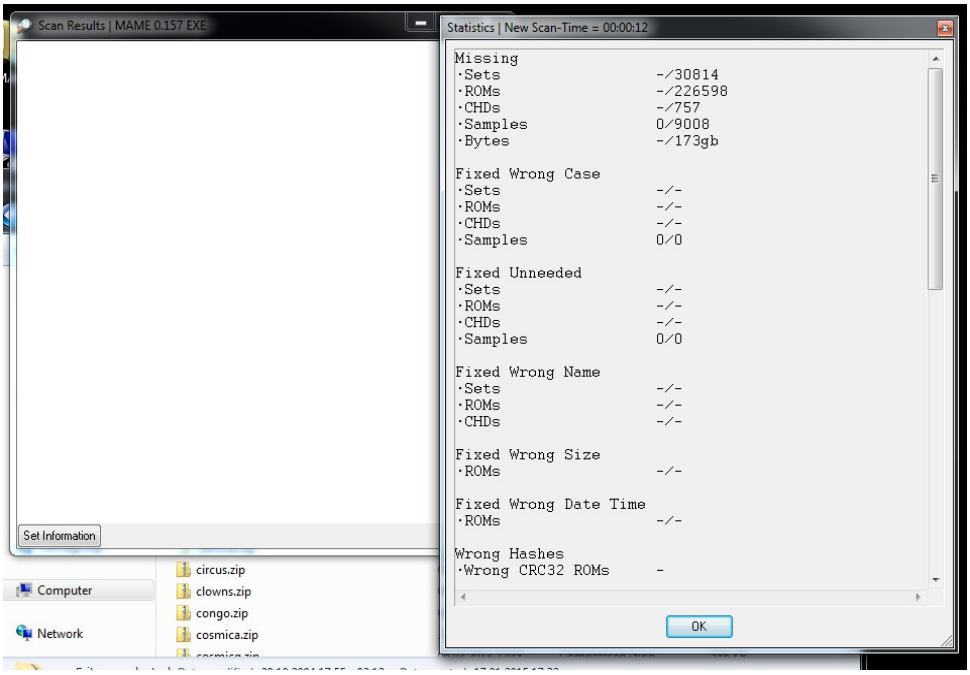
Search for the missing files in the extracted folder and move them to the d:\Mame\samples folder.



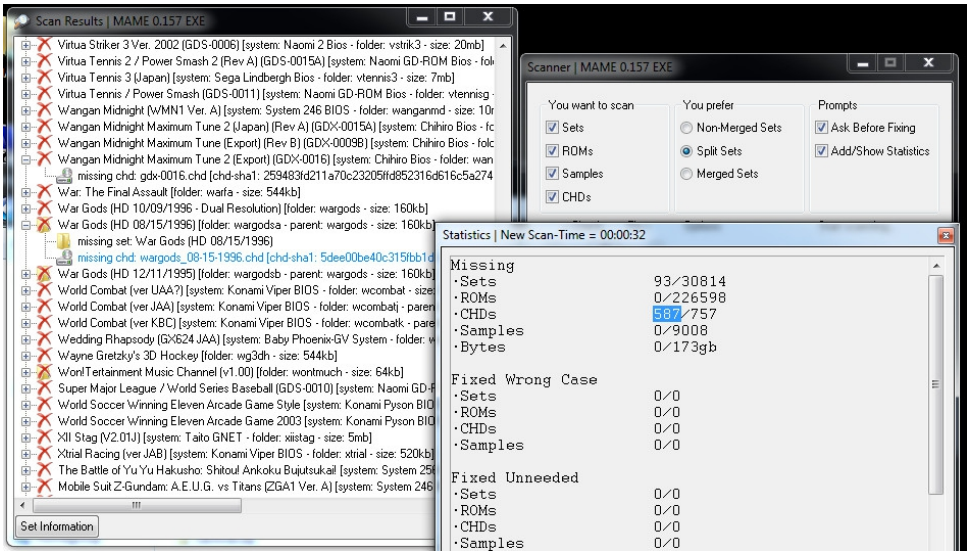
Say yes to “Replace”



Scan again and now you should have 0 missing samples.



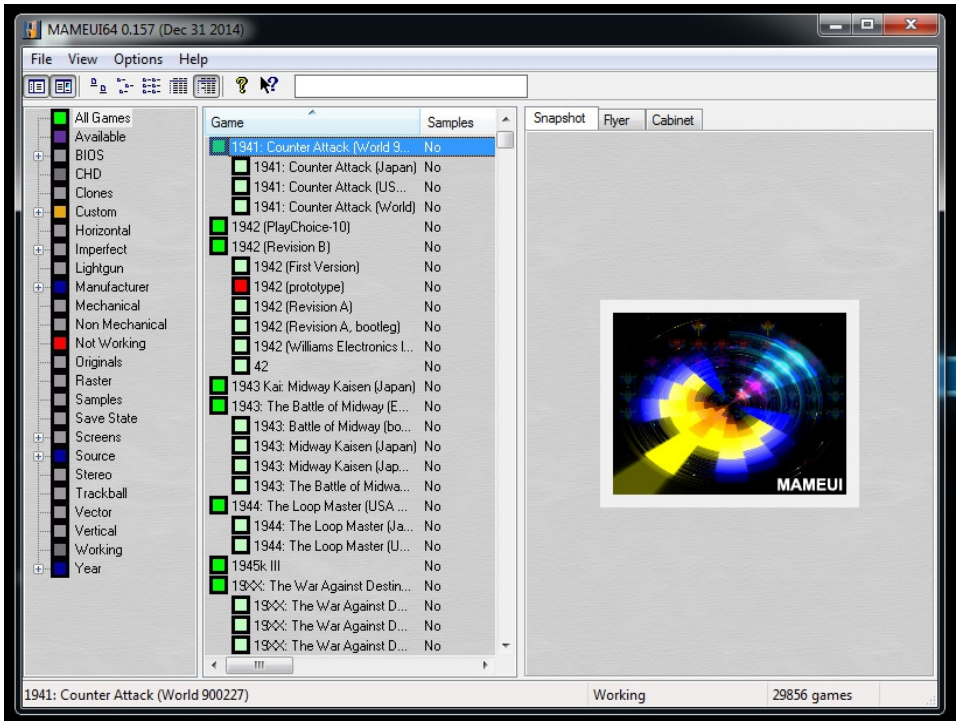
When you enable now again all 4 options in “You want to scan” you will see that only CHDs are missing.



That's okay we can now use MAMEui and verify if we can start each game. Only those games should not work that requires one of the missing CHD-Files.

Let's start MAMEui ….

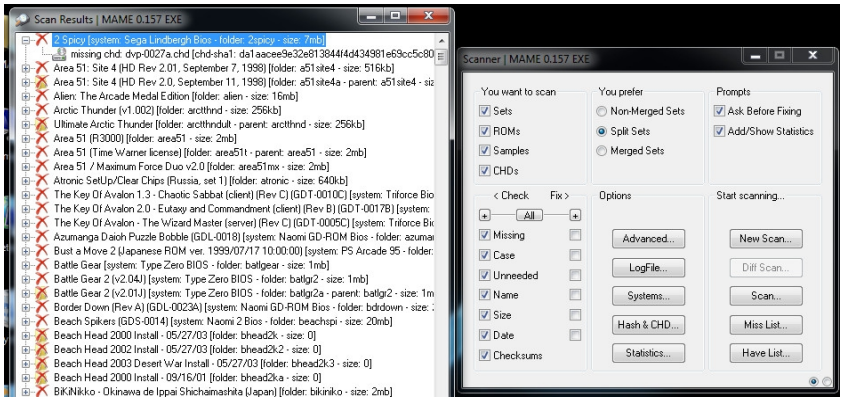
..and choose a game you like



Yeah the game starts without complaining …

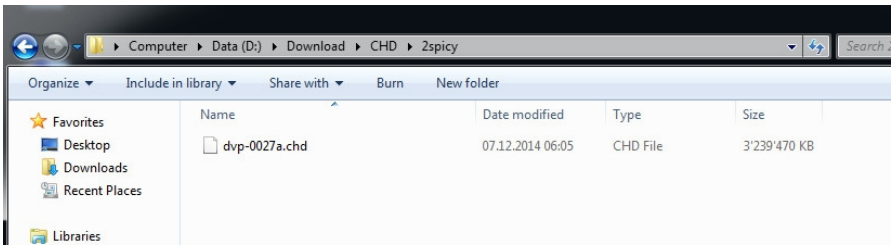
Great great now let's have a quick look at those CHD-files.

When we scan with everything enabled we see all those missing CHD-files



We are now trying to fix one CHD-file as an example. Download the "2spicy" CHD-file from the internet (Using a torrent or Retroroms.net).

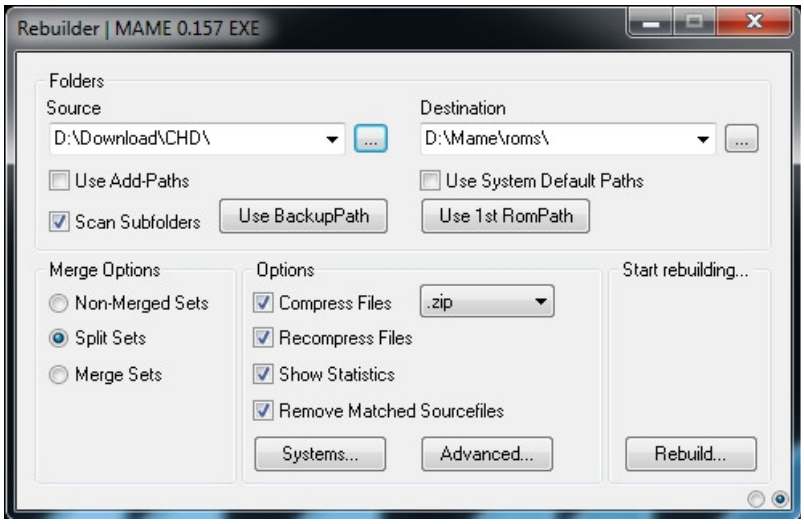
We have it now in our download folder.



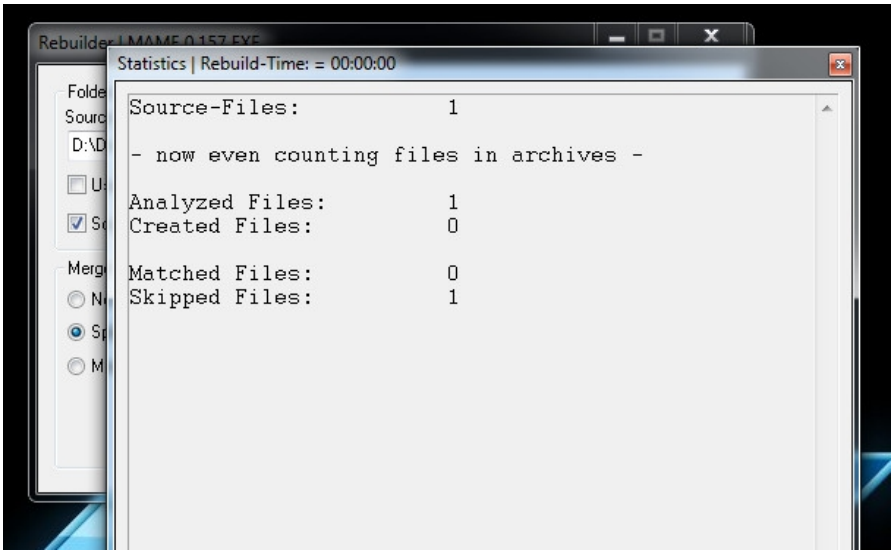
! Those CHD-files could be very big, the biggest are over 10 GB. A full CHD-set for 0.157 is around 380 GB.

We want to be sure that it is the correct version and we are using the rebuilder for that to prove.

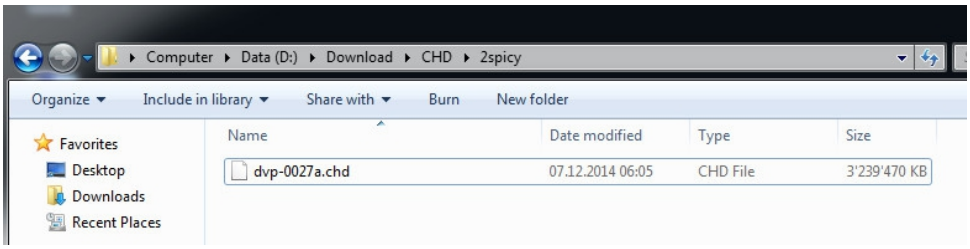
And start the rebuilder …..



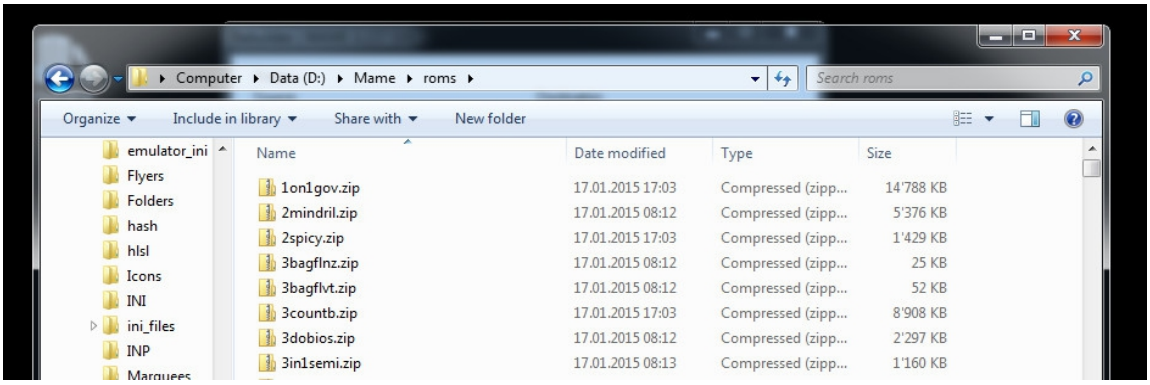
….What is that?



Nothing rebuild and it is still in the download folder

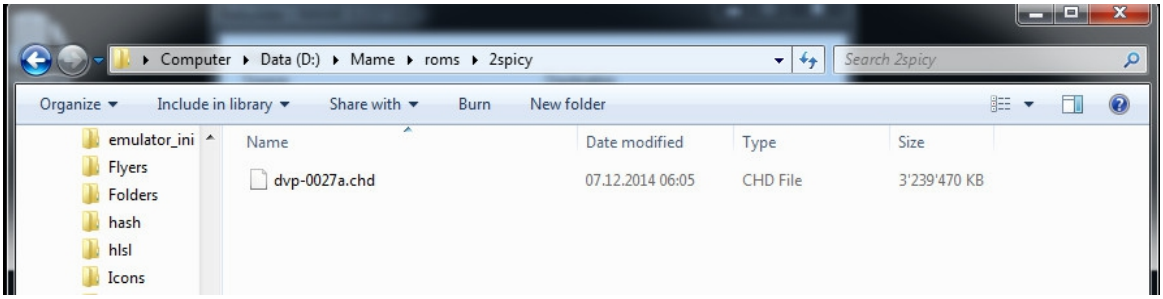


And not in the MAME folder ?

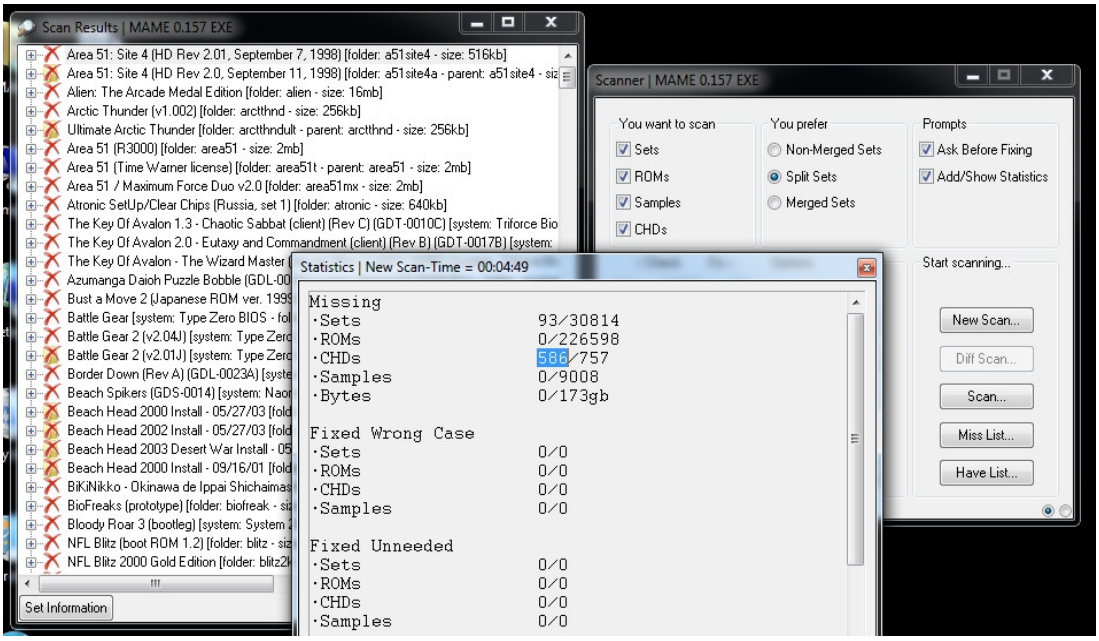


Note from Roman (CLRMAMEPRO): Rebuilder is (currently) ROMs only. However the scanner can not only warn you about all kind of CHD issues, it can also move wrong placed and wrong named CHDs to their correct place. So you can simply move a CHD with any name to a rompath root (assuming you don't use that weird storing mode) and CHD + name + unneeded check/fix will tell you they are wrong placed and moves them to their correct setsubfolder.

Okay in that case we have to move the downloaded CHD manually. Move the folder “2spicy” to the d:\mame\roms folder.



We have now added 1 CHD and after a scan it shows us that we have 1 good CHD.

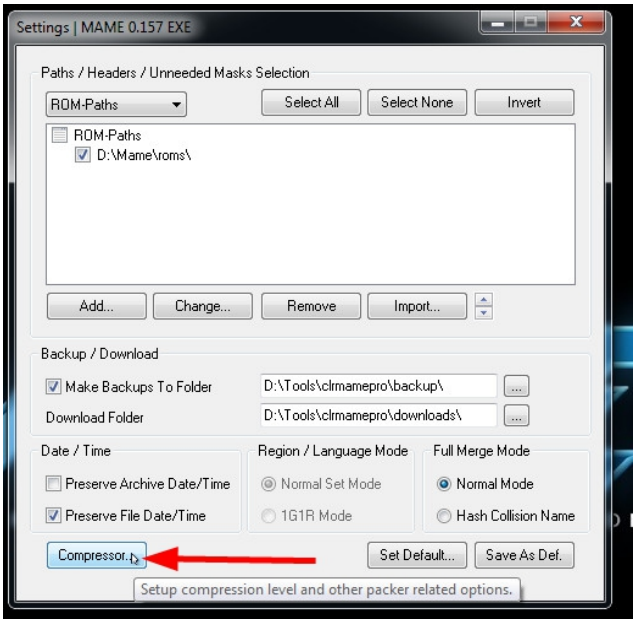


If you want to a have a complete set (including all CHD) you must download and add them to the ROM-folder. After a scan you will see if you have a complete set.

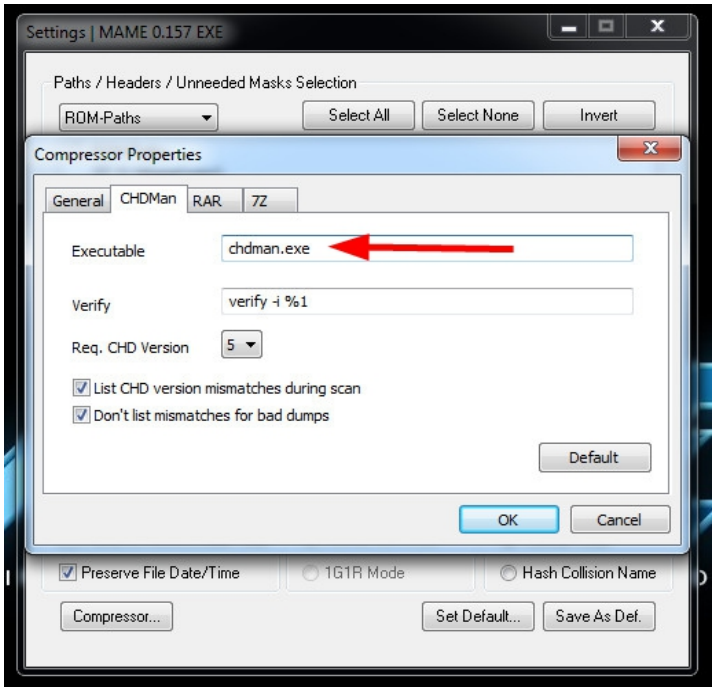
I have mentioned earlier that we can set some additional checksum verifying for the scanner. MAME has an own executable that can handle CHD-files (verify,upgrade,..). I will show you now how we can enable that executable within CLRMAMEPRO and how does it work.

Go to the “settings”

Under “Compressor”

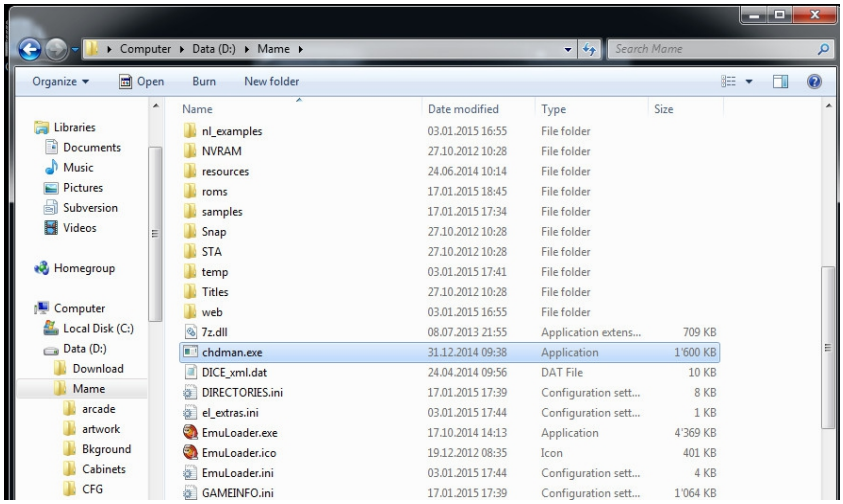


There is mentioned an executable “chdman.exe”. Yeah exactly this one is from MAME.

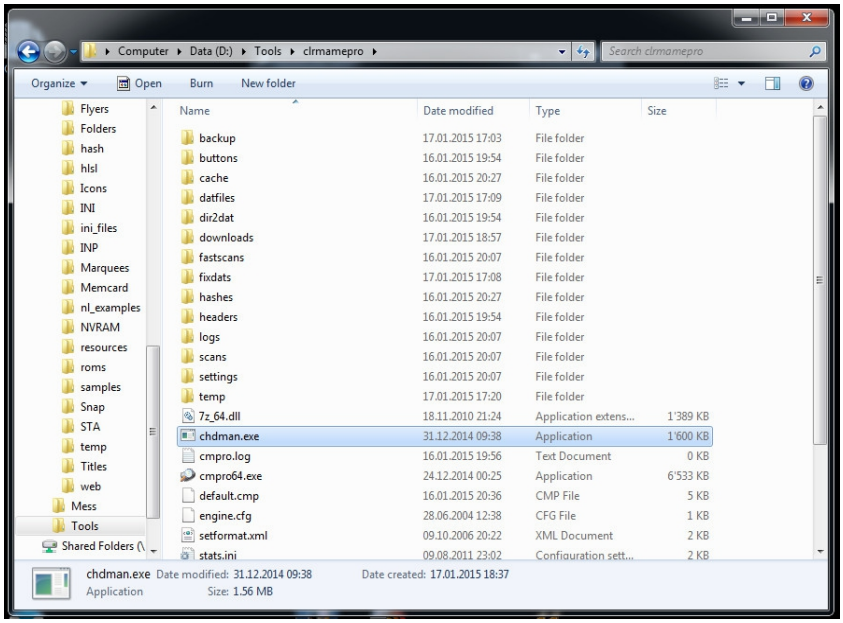


Before we can use it we have to copy it from MAME.

Copy the “chdman.exe” from the MAME folder to …..

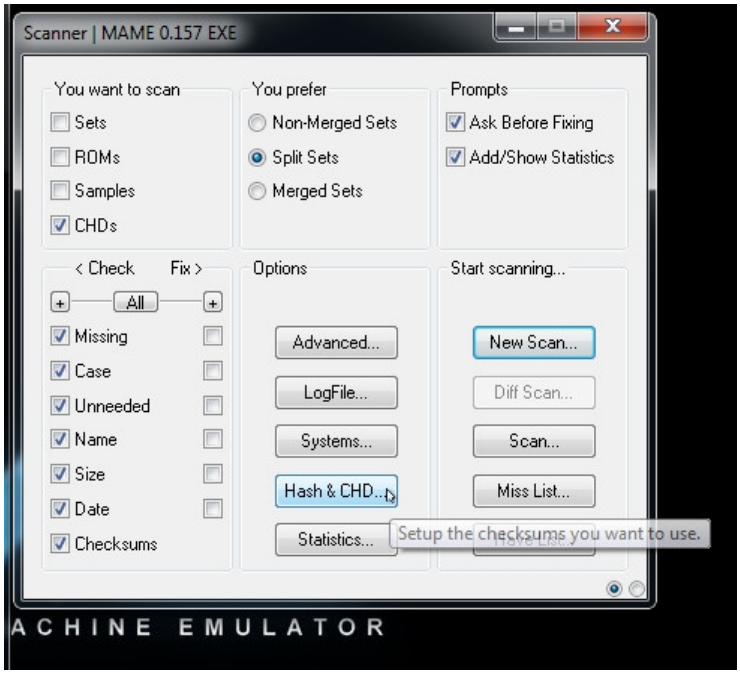


.. the CLRMAMEPRO folder.

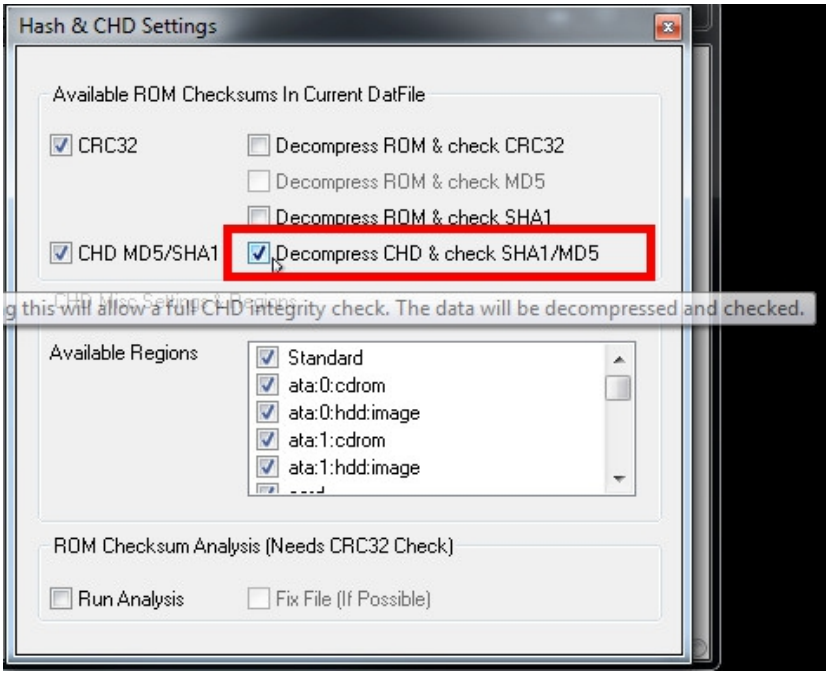


! Keep in mind to update this executable too when you have a new MAME build installed (if there are changes to the CHD handling!).

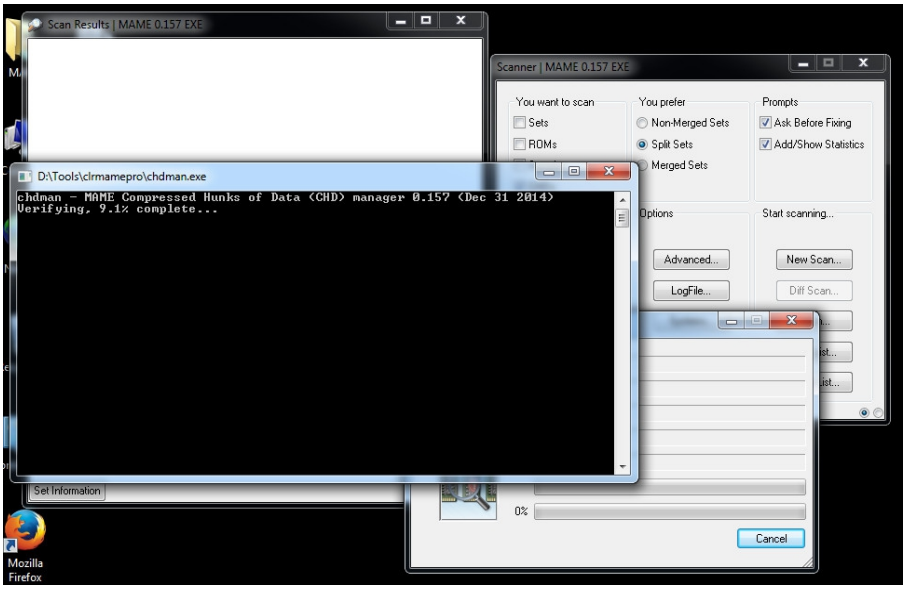
We have now this executable and we are enable it now in CLRMAMEPRO in the settings under “Hash & CHD”



enable “Decompress CHD & check SHA1/MD5”



When we do now again a scan it will check each block of the CHD for integrity with this external executable from MAME.

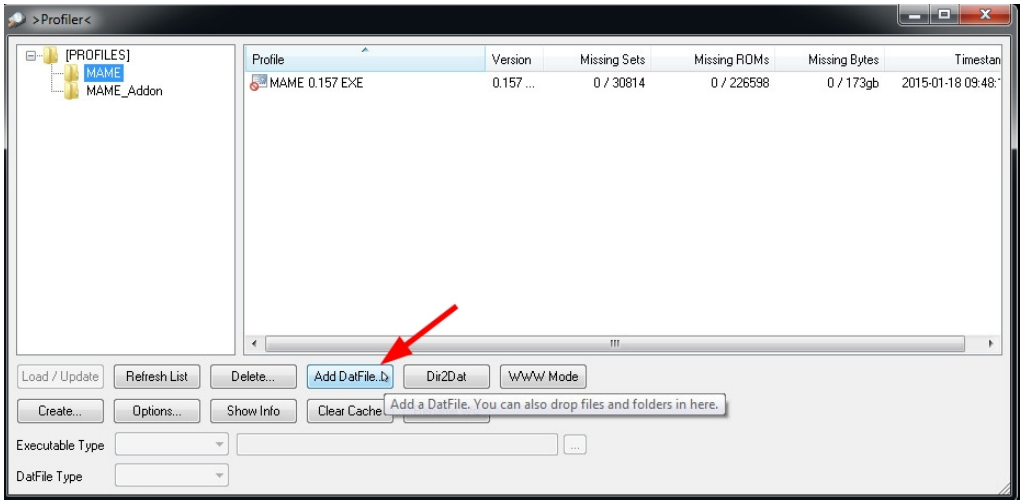


Please note that scan takes much longer but you are at the end 100% sure that everything is fine.

Scanning with DAT-files

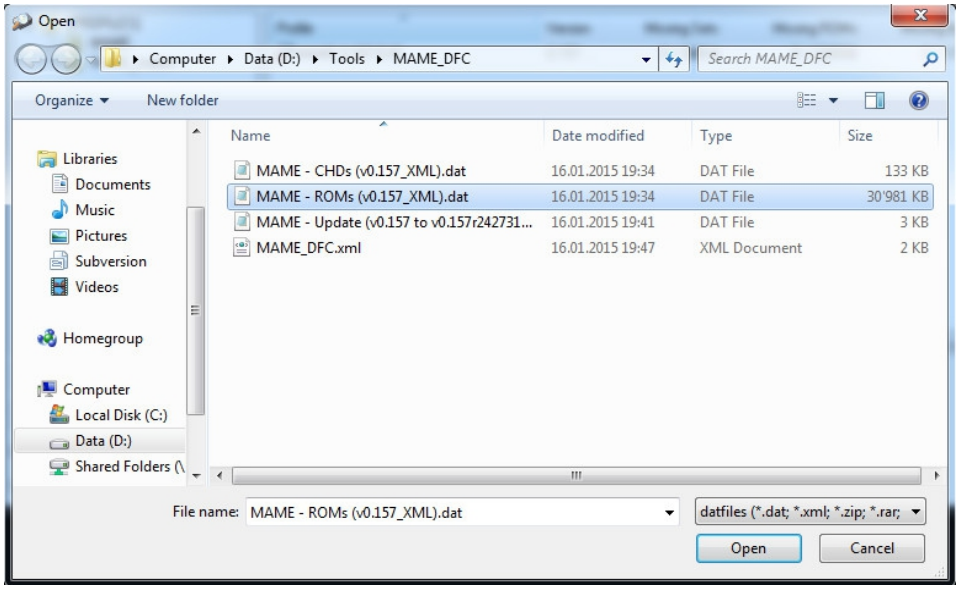
Next topic is when we have a DAT-file (downloaded from the Internet) for using in CLRMAMEPRO instead using the build-in “create DAT” function. We start CLRMAMEPRO

Choose “Add DatFile”

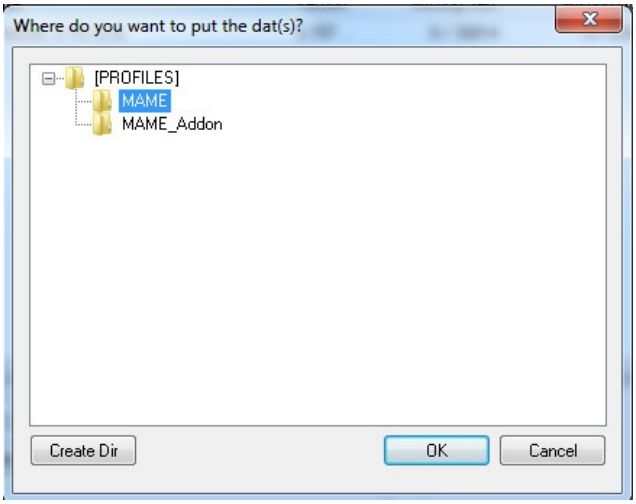


With DFC we have created a DAT-file, we want use that as our example.

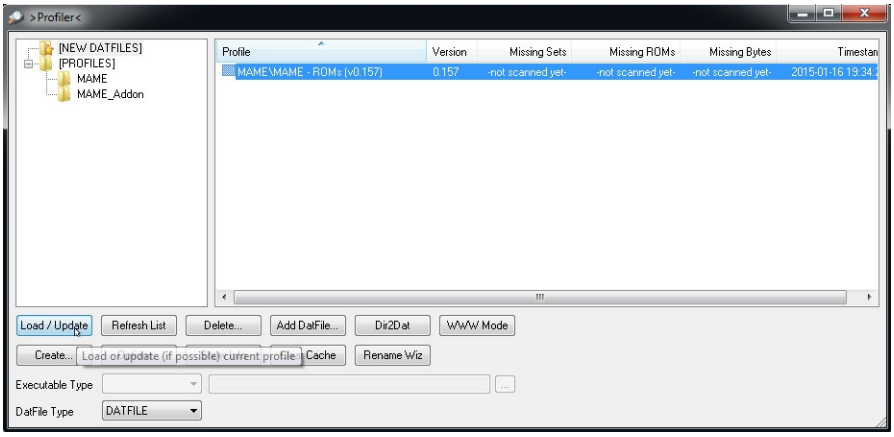
Load that DAT-File



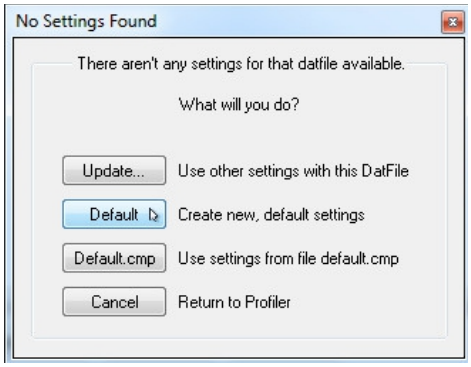
Stores it to the MAME profile path



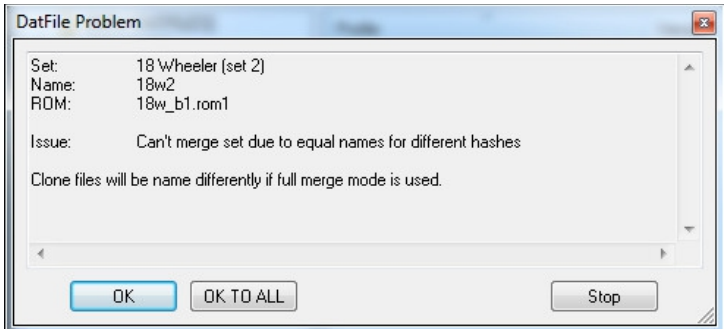
And load this added DAT-file



with “default” settings

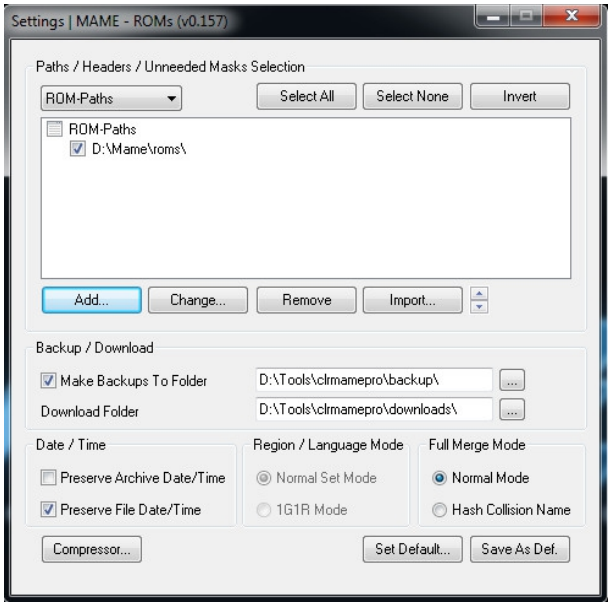


Click “OK to ALL”



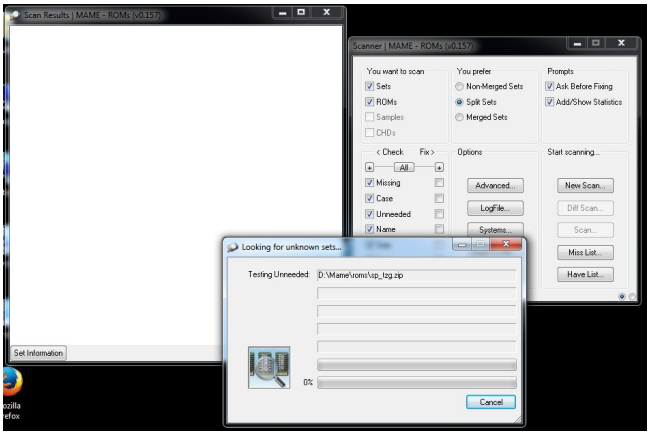
Go to the Settings

Set the source to our mame\roms folder

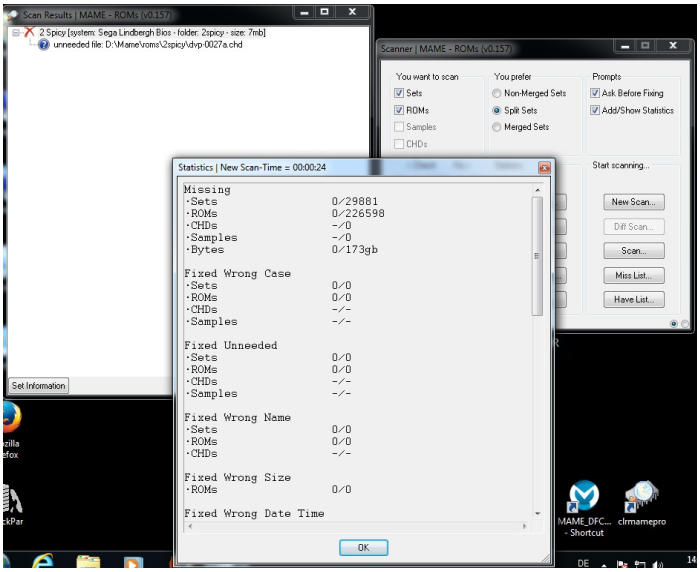


time for our scanner

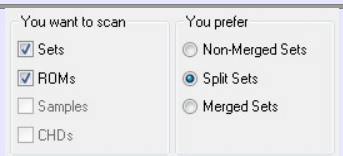
scanning scanning scanning ….



Yep nothing missing but why is our CHD listed as “unneeded”?



! Please note that we can scan only “Sets” and “ROMs” because in this DAT-file is nothing else available. We have used “Split Sets” in our mame\roms folder while we have created it. Be sure that you use the same in future scans, otherwise it will try to rebuild it …..



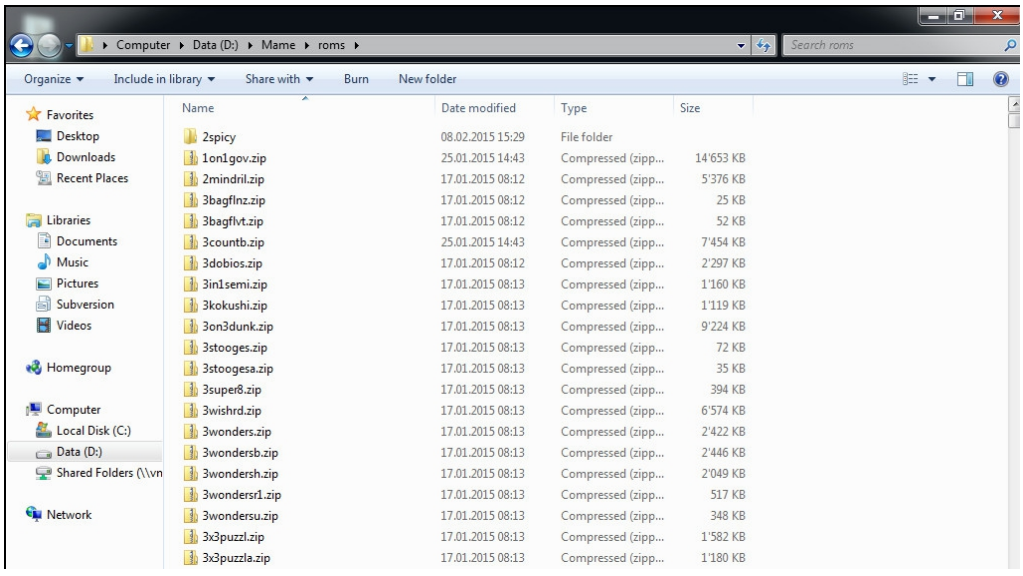
Going back to the question “Why is our CHD listed as unneeded”. We have scanned this ROM-folder with a DAT-file that has only ROM-information available. Be really sure that when you have enabled the fix-option for unneeded files that you are sure to remove only wanted files.

In that case I would have separate folder for ROMS and CHDs. You can set in MAME more than one folder for the ROMs it should looks for.

With available DATs it is easy to scan sets. Be aware where you download DATs and what they are for. Using a unknown DAT on your ROM-folder with fix-options enabled can damage your collection → be always sure that you have enabled “Backup” in the scanner settings.

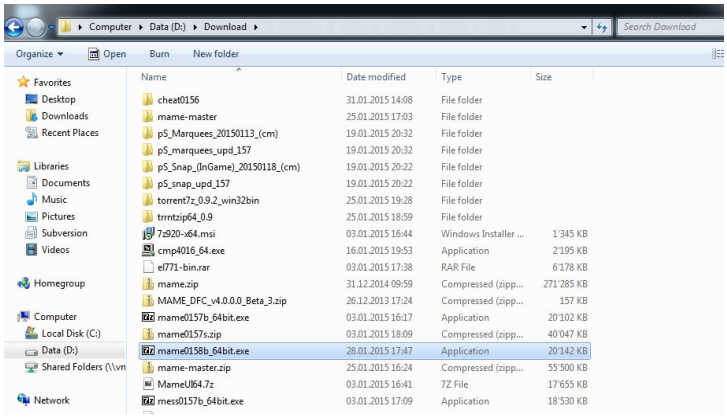
Rebuilding with DAT-files – doing a full update

We have all our MAME-ROMs for V0.157 in our ROM-folder

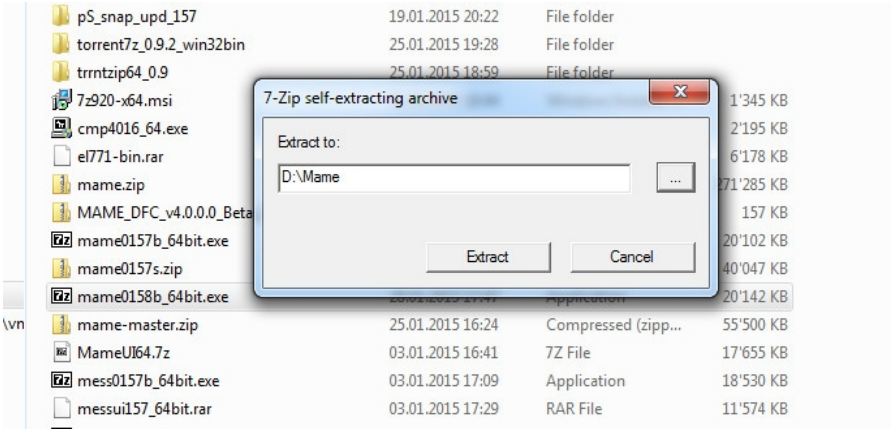


In the meantime a new MAME version is available. I will show you how we can update our set to match the new V0.158.

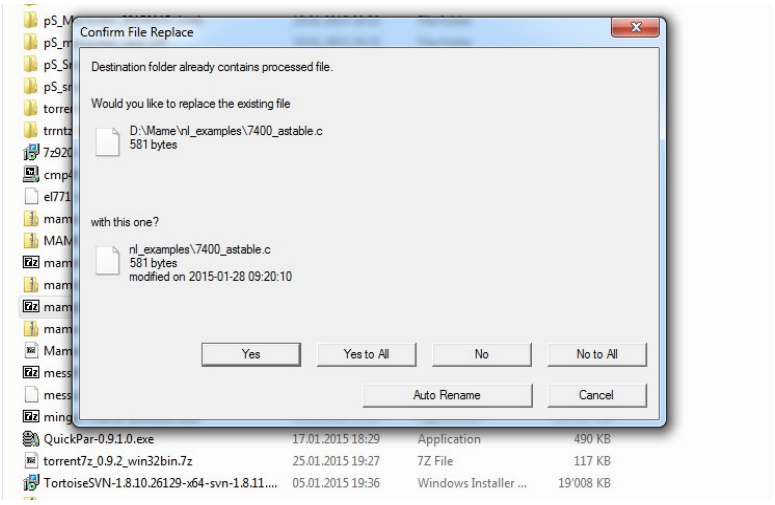
Download the new version from MAMEdev.com to our download-folder



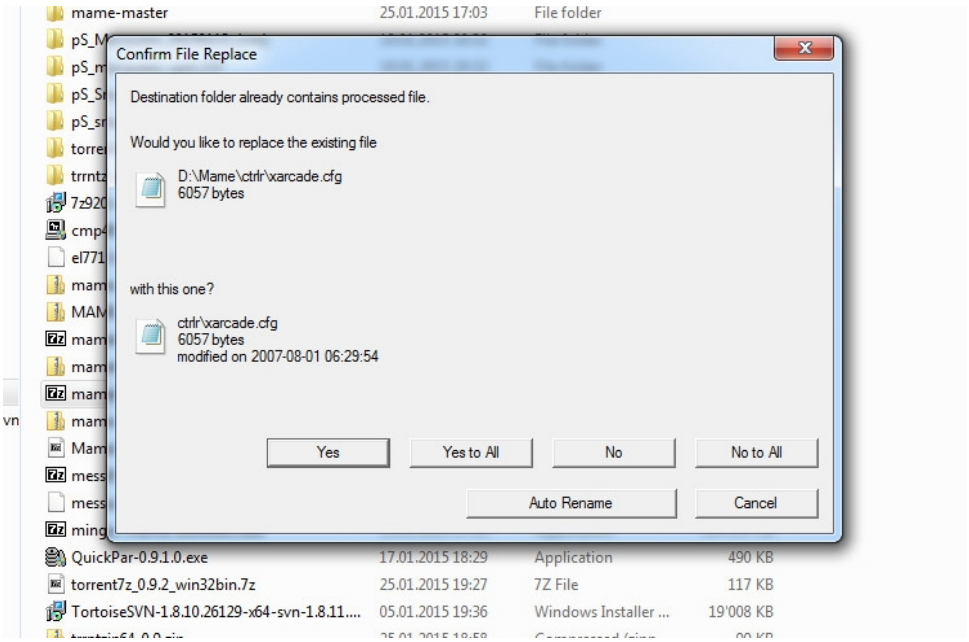
Double-click it for extracting and point it to our MAME-folder



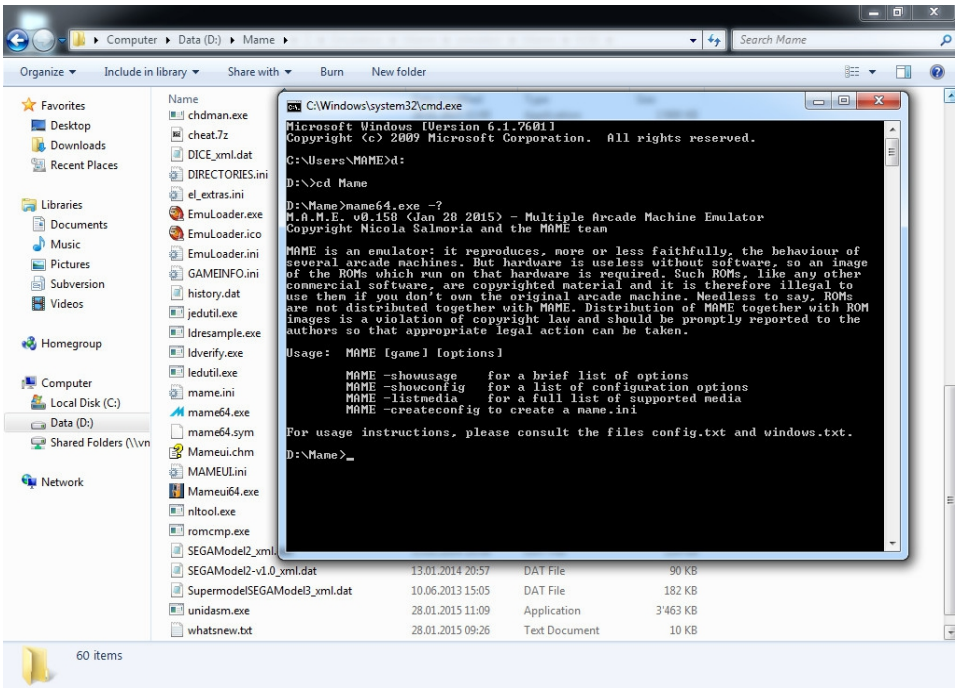
There are several files that needs to be overwritten (Included in the 0.157 release).



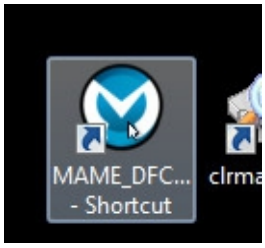
Normally you can overwrite them all. But when you have customize a file for example this X-Arcade cfg-file for a special reason then you should not overwrite it ;-)



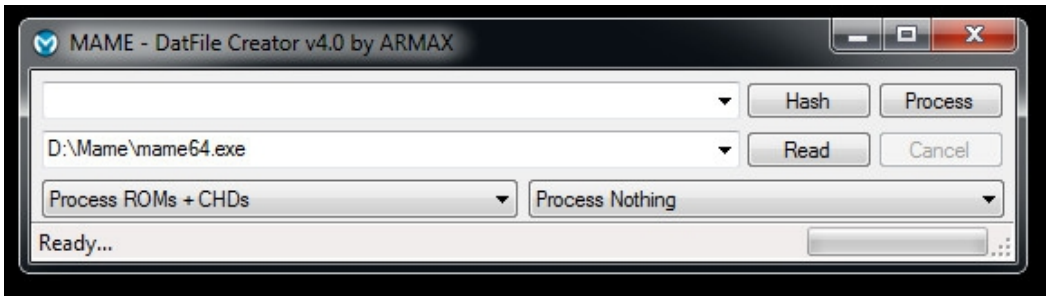
Change to the MAME-folder and check that the executable is for 0.158.



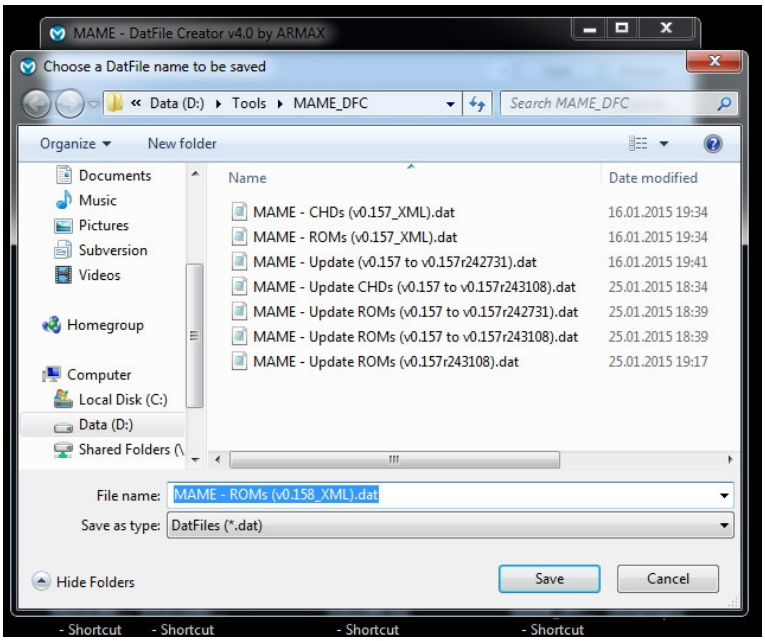
We have now updated our command-line version of MAME. We want now to update our ROM-folder to match this new version. Start DFC as we want to use that created DAT-file later.



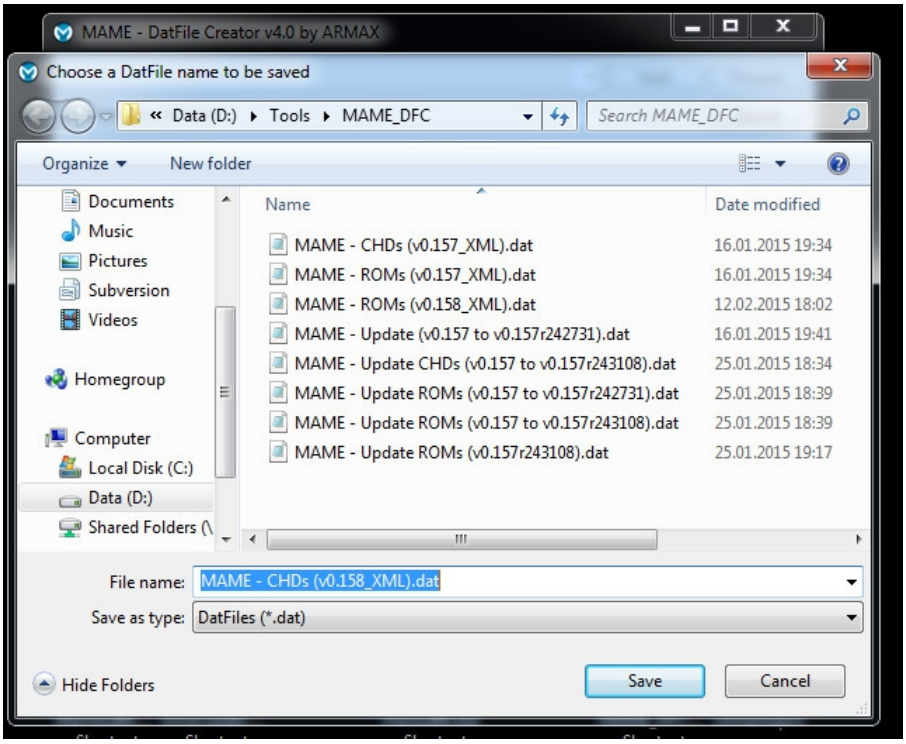
Point it to our MAME 0.158 executable in the read-field and select “Process ROMs + CHDs” in the left panel. Start “process” ...



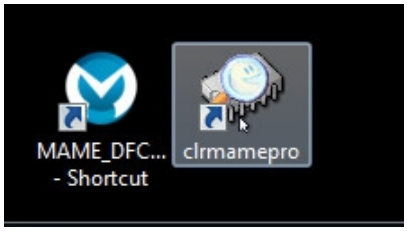
.. and save the “ROM-Dat”



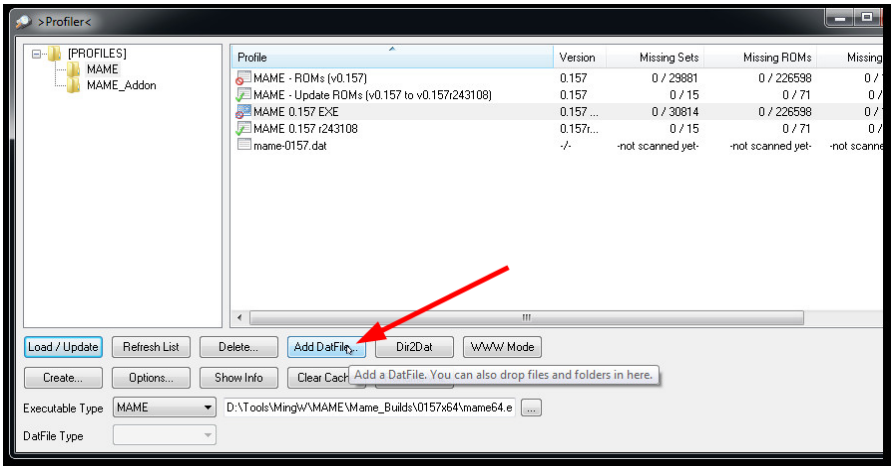
Do the same for the CHD-DAT-file



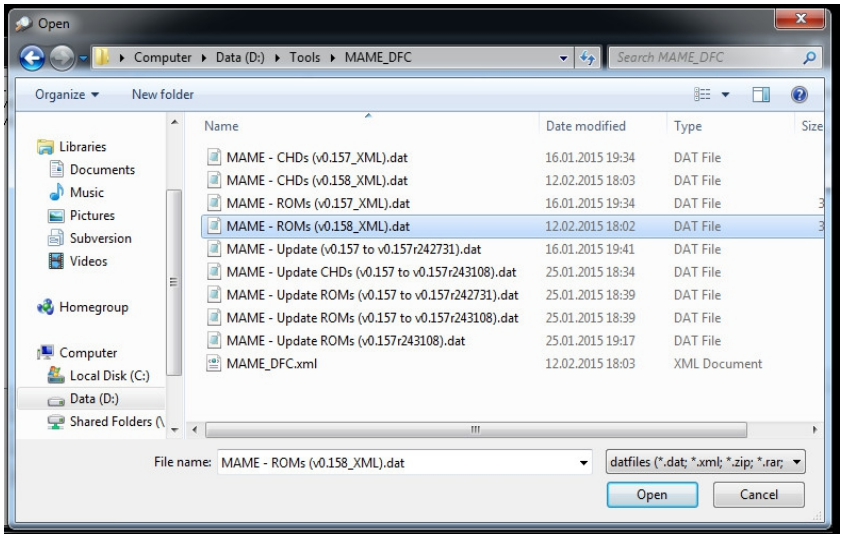
Now we have the DAT-File close DFC and start CLRMAMEPRO



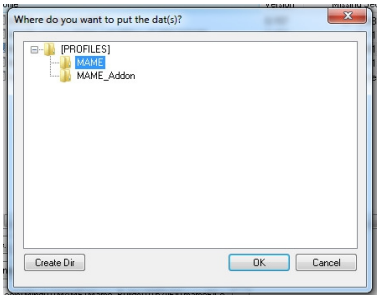
Add now the DAT-File in the profiler



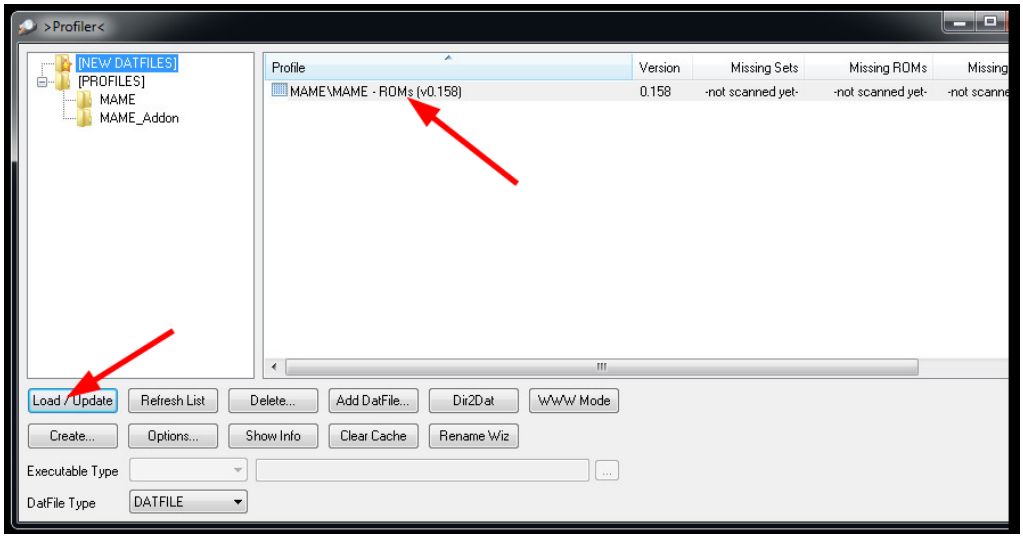
Choose the DAT-File “MAME - ROMs (v0158_XML).dat” from the DFC program folder.



Store the DAT into the “MAME” folder

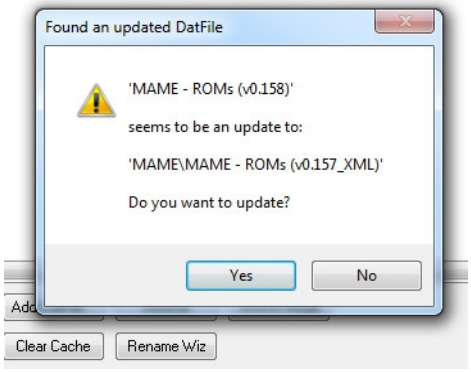


And load it into the profiler



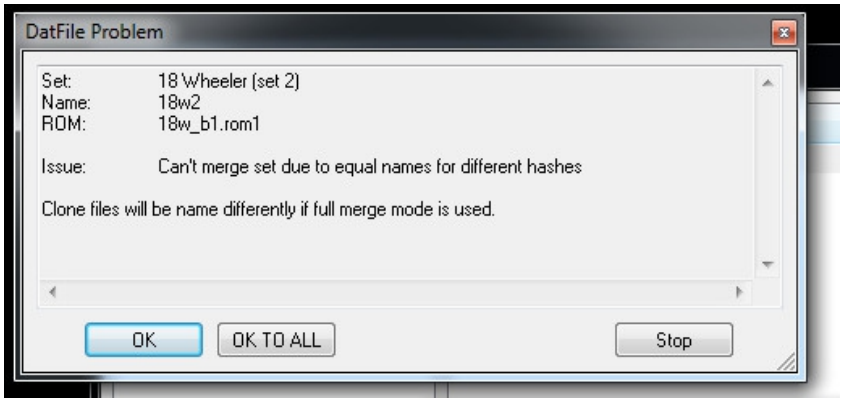
for CLRMAMEPRO it seems that this DAT is an update to an existing one.

Yeah that's right, we can choose “Yes”



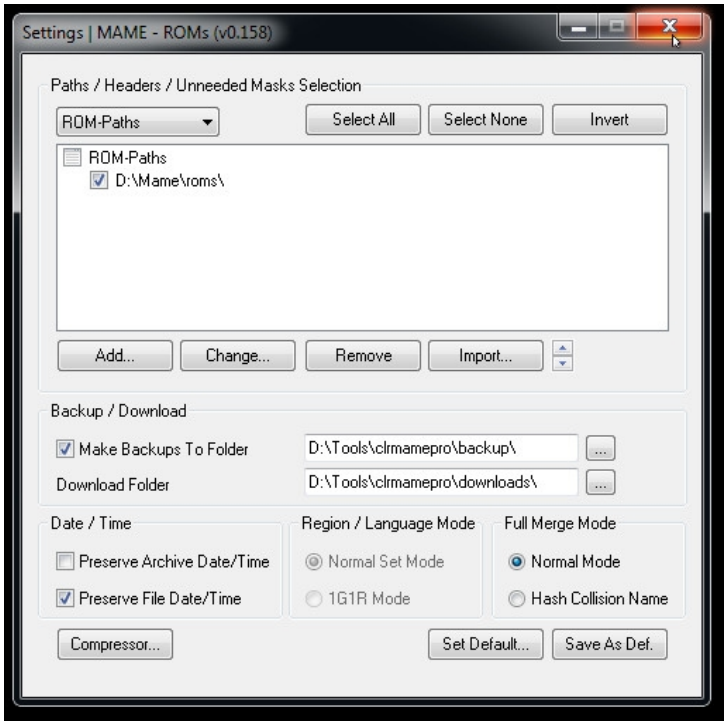
Update means that it copy all the settings from the old DAT-File and deletes the old one afterwards. Normally you don't need an old DAT when you have updated a ROM-Folder (it is useless).

Those DAT-file-Problem questions are coming, say “OK to all”

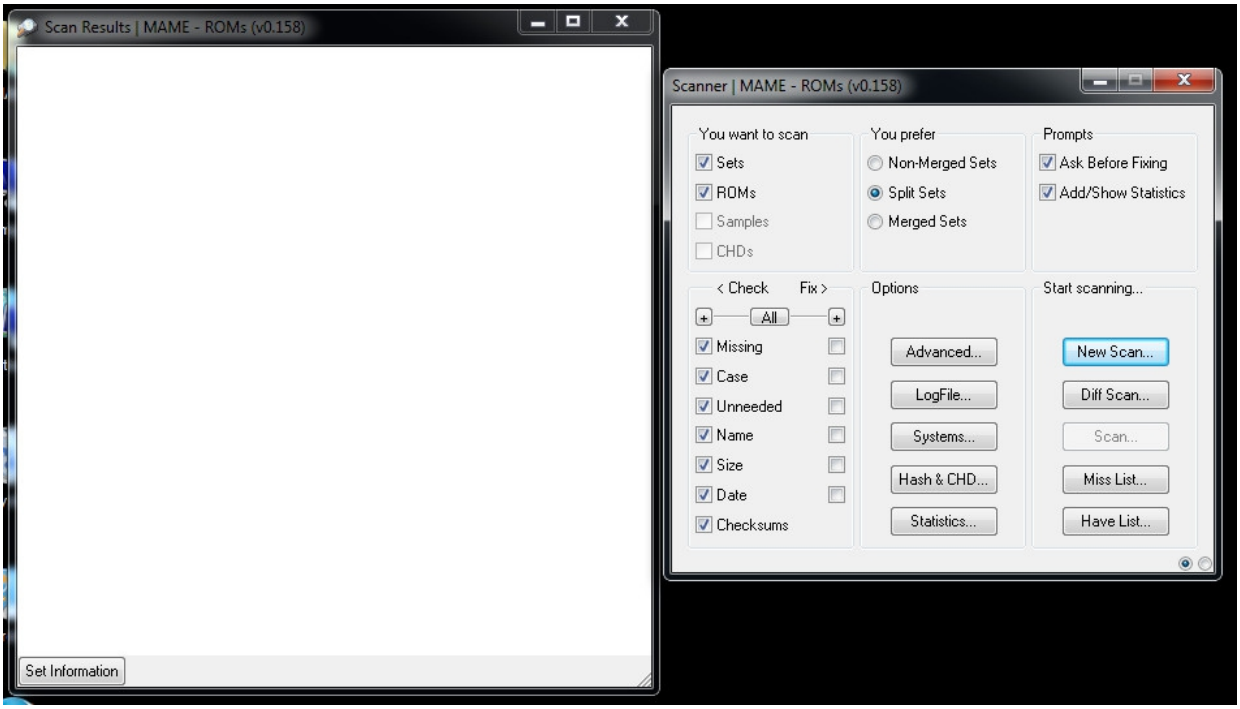


Go into the “Settings”

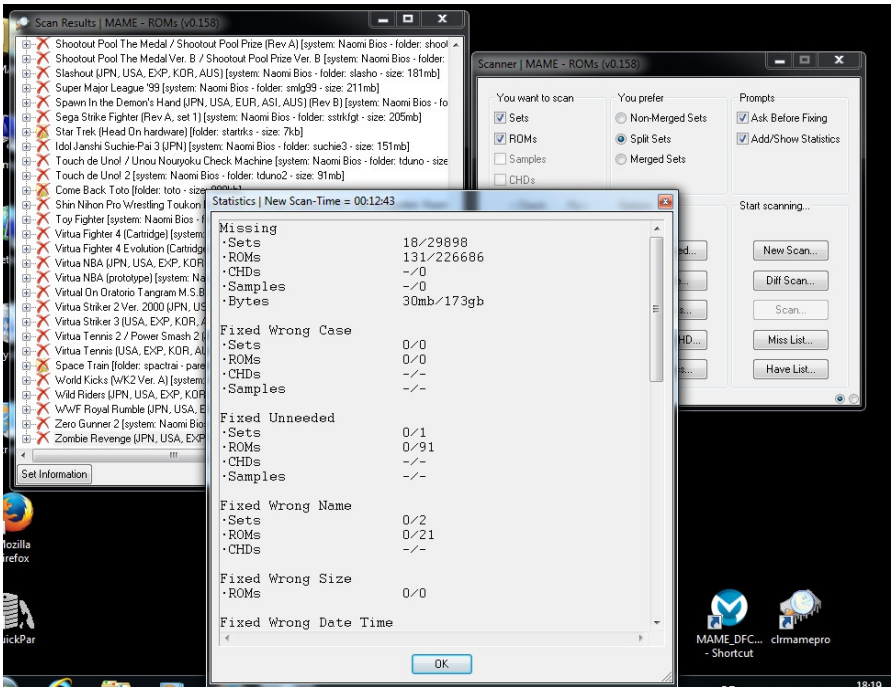
Verify the ROM-Paths, as it is an update it should be set correctly



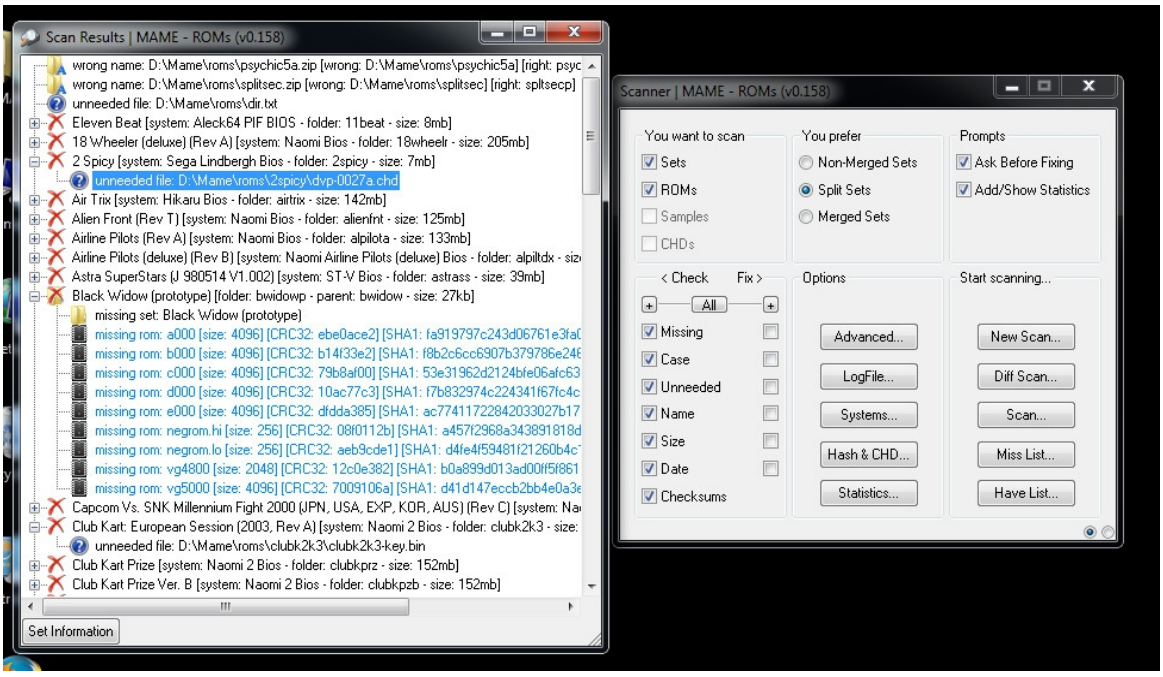
We use now the “New Scan” ..(and nothing is enabled under “Fix”)



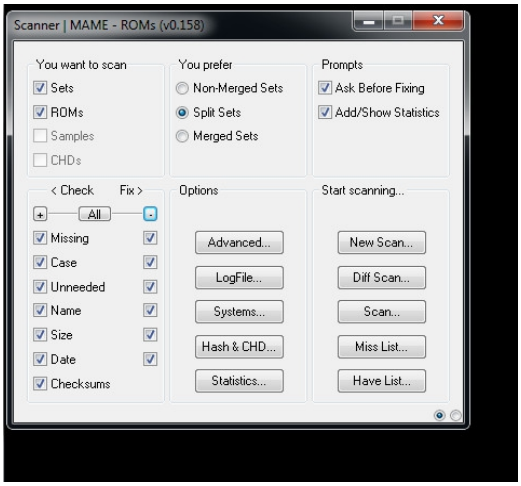
We have now the result, a scan with a DAT-file for 0.158 for our 0.157 ROM-folder.



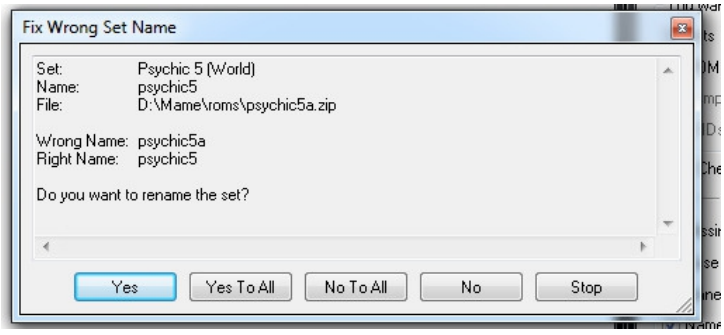
When we look at the result windows we can see which files are unneeded, missing or have a new name.

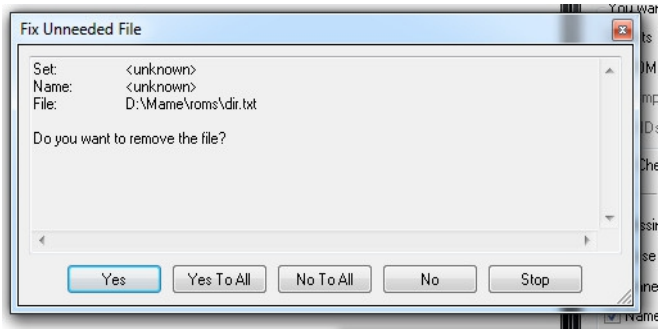


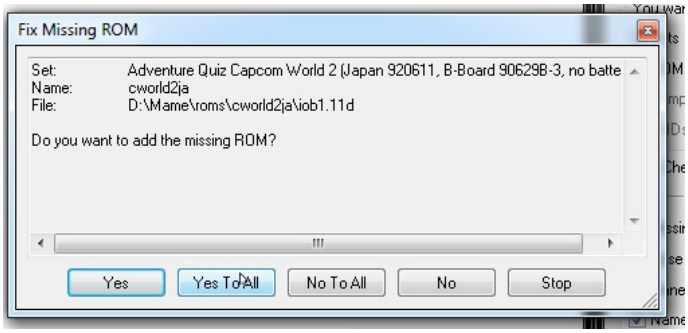
We do now a new scan with all the available “fix” option enabled! Yes we are doing now changes in our ROM-folder! Files are being renamed, repacked or deleted (if you have enabled “backup” → moved to the backup folder).

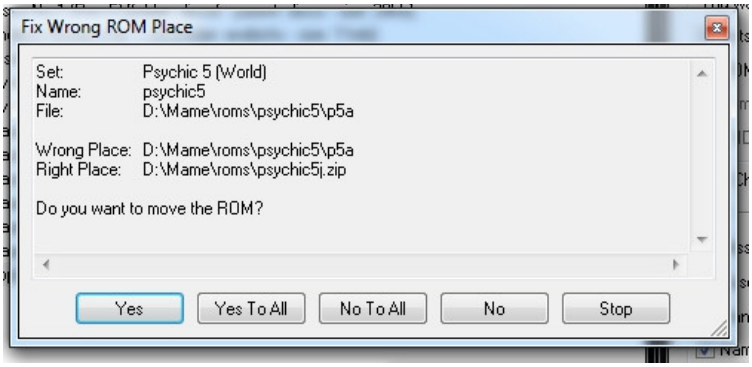


The following questions → say “yes to all” → we want to clean up and update our ROM-folder.

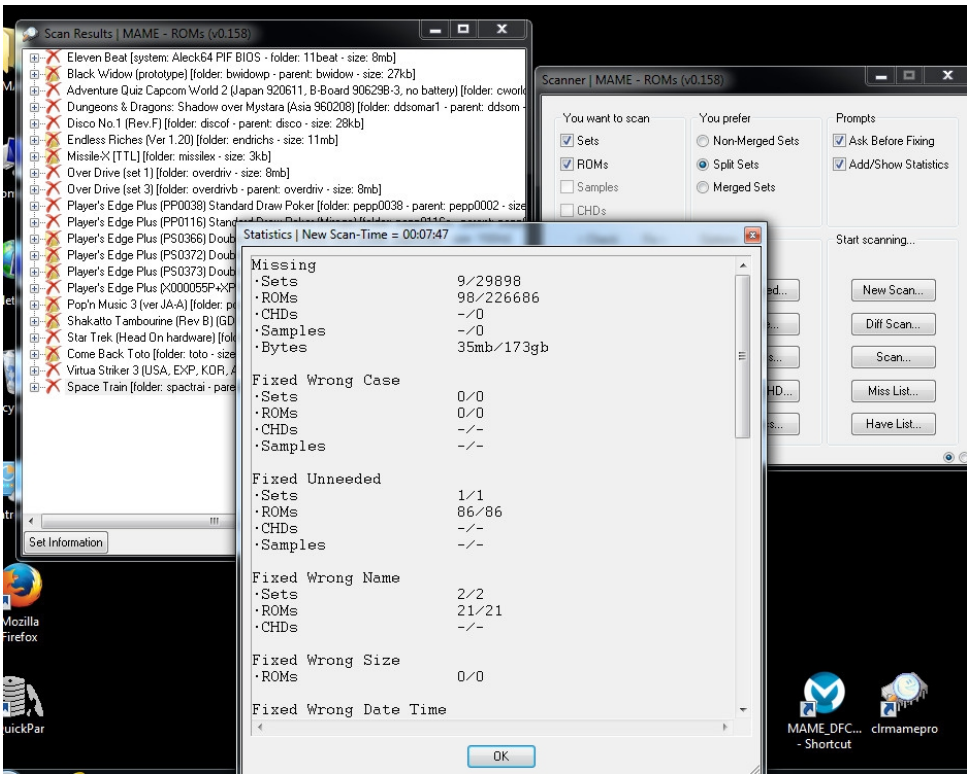




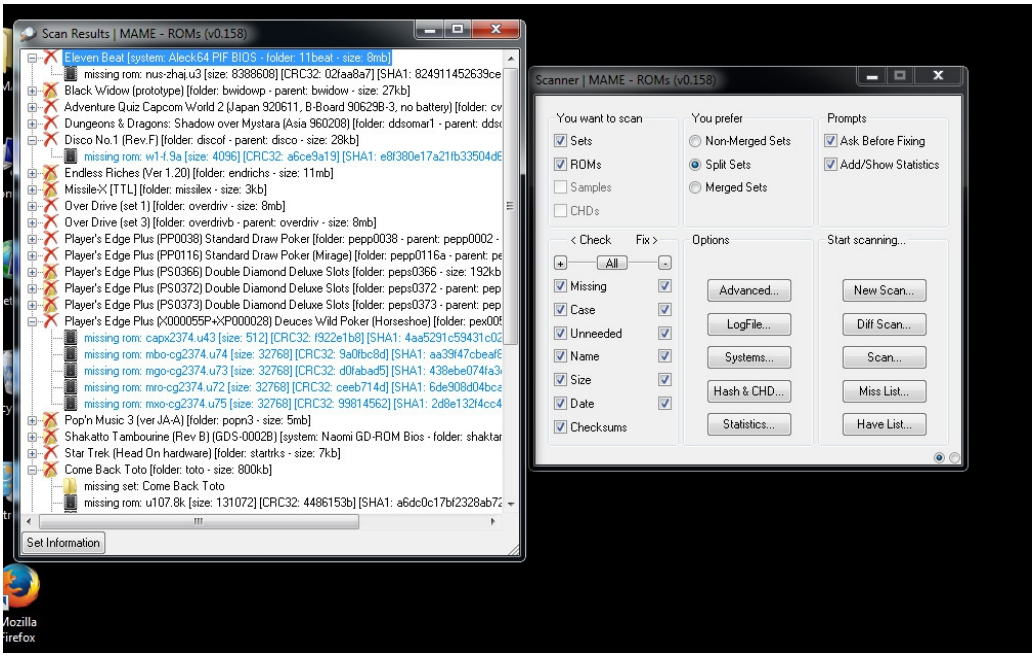




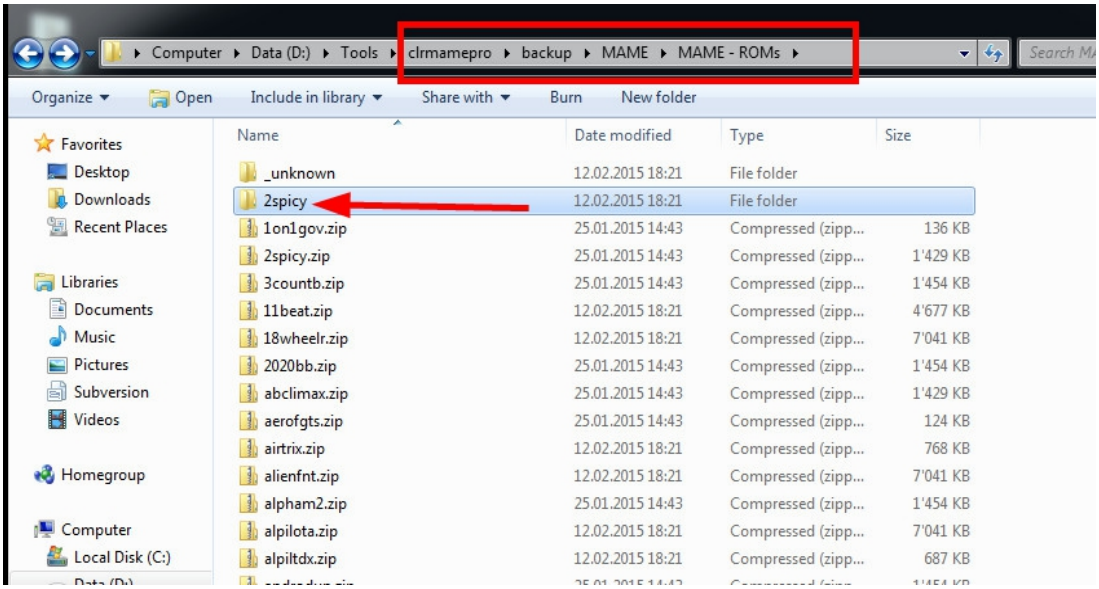
After the scan has finished our ROM-folder looks better ;-)



Now when you are looking into the result windows you should only find “missing” entries...

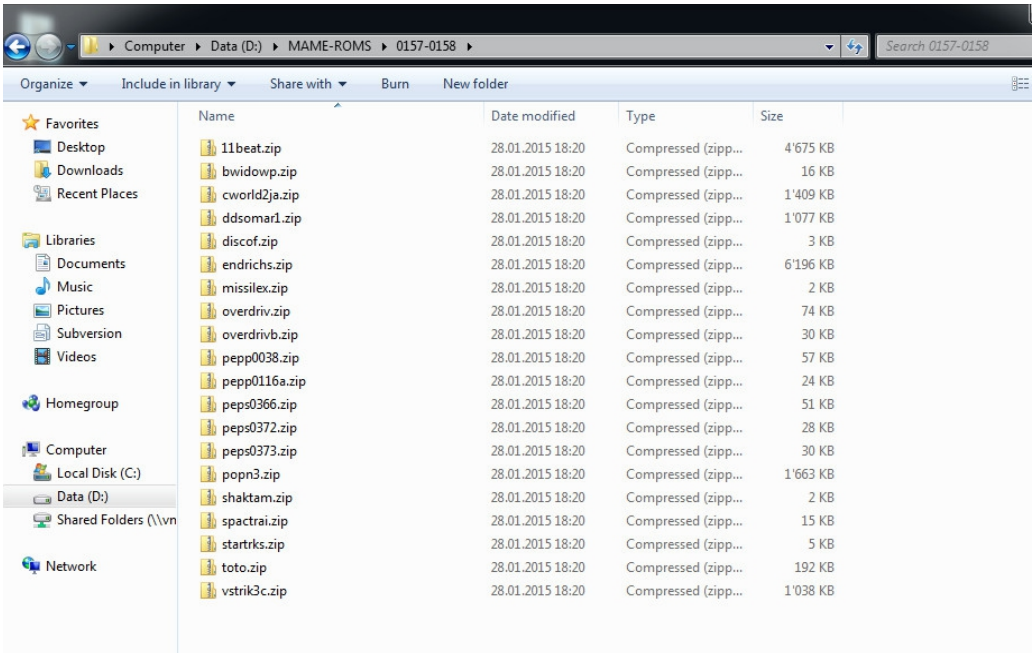


When we are looking into our ROM-folder it looks good. Wait wait wait a moment where is our CHD-file? Ahh yes we have a ROM-Dat file and scanned the folder with the fix-option “unneeded” enabled. CLRMAMEPRO has moved all unneeded files into his backup folder.



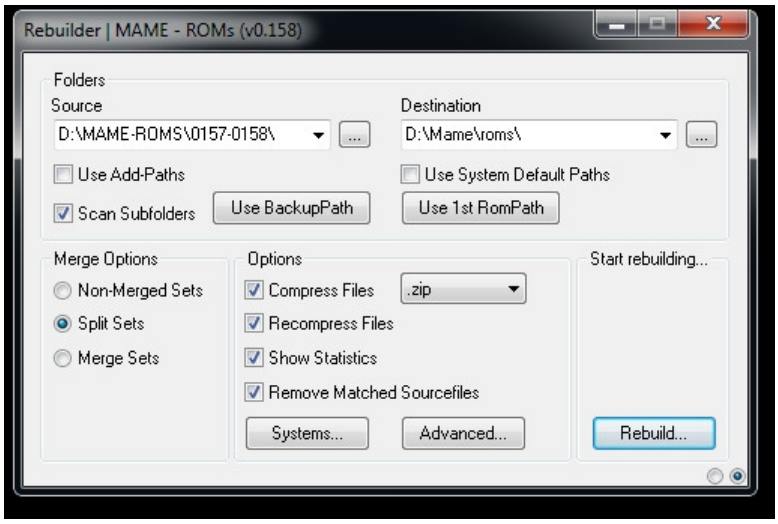
We leave this CHD-file there and want to correct that later that those CHD files are stored in another location.

For the updating we need the new/added ROMS. Download them from the Internet and we store it into this folder.

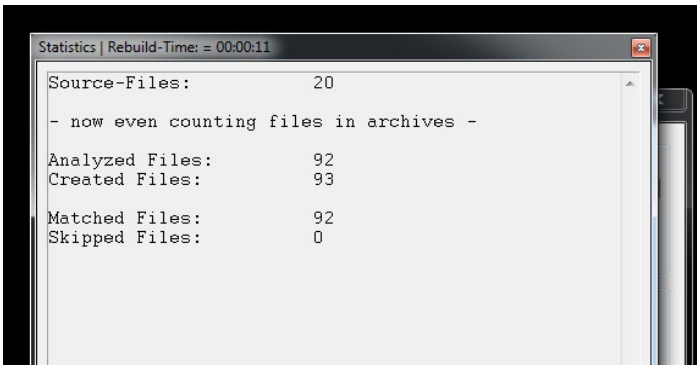


So we have everything, a cleaned up ROM-folder and the new ROMs in a separate folder. We need now the rebuilding function from CLRMAMEPRO again. Choose “Rebuilder” (still our “Mame – ROMs (v.0158_XML).dat” loaded)

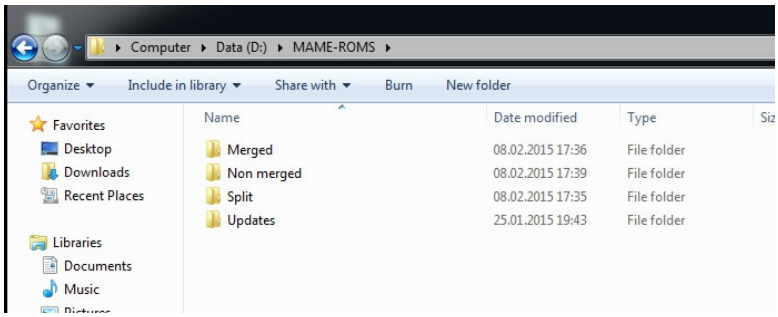
Point our source folder to the update ROMs and do a rebuild.



Scan result says 93 created, sound good.

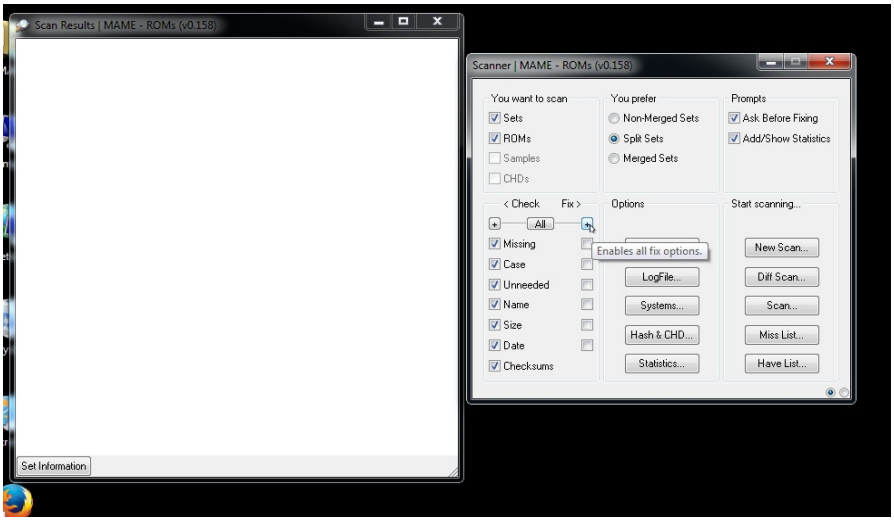


The rebuild process has used all ROMs that we have downloaded. The download folder with the update ROMs is gone ...(remember “Remove...)

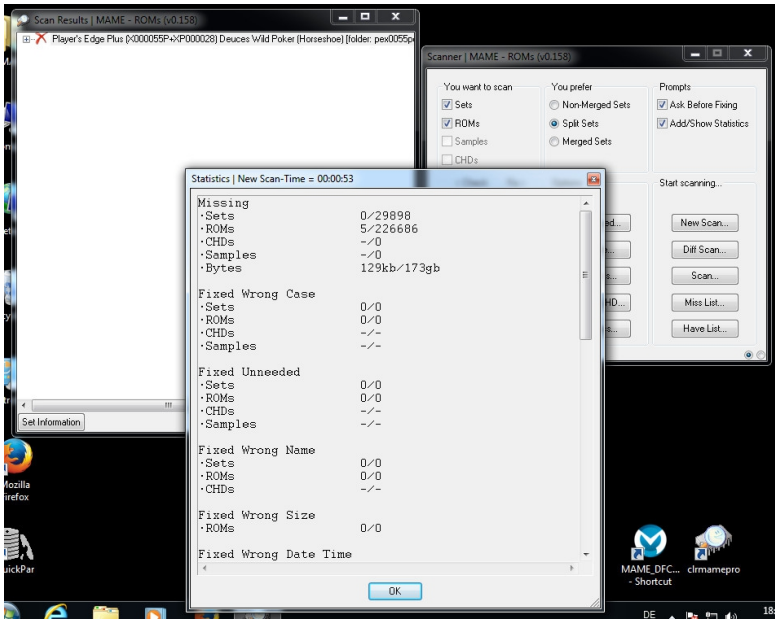


We scan our freshly rebuilded ROM-folder again …

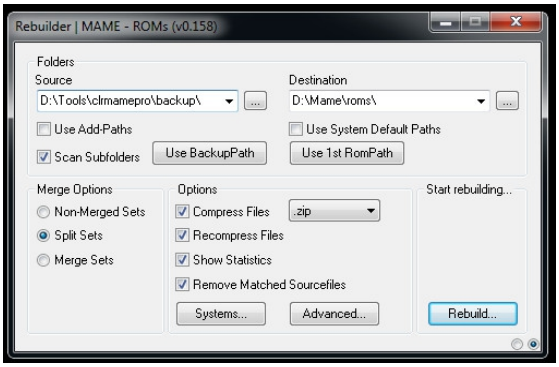
We disable all “fix”-options. And do a new scan.



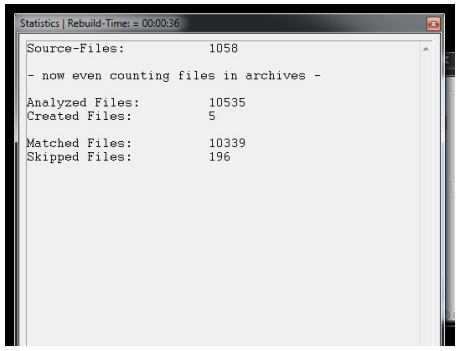
The result is not bad, but also not perfect. It seems that 5 ROMs are still missing.



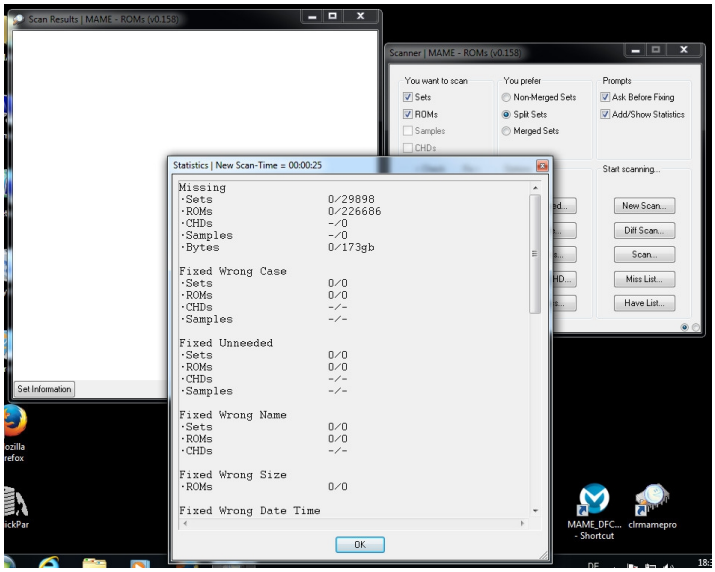
Hmmm strange strange. Let's search for the missing file in the “backup” folder of CLRMAMEPRO.



After the scan the result windows tells us that it has created 5 files :-)

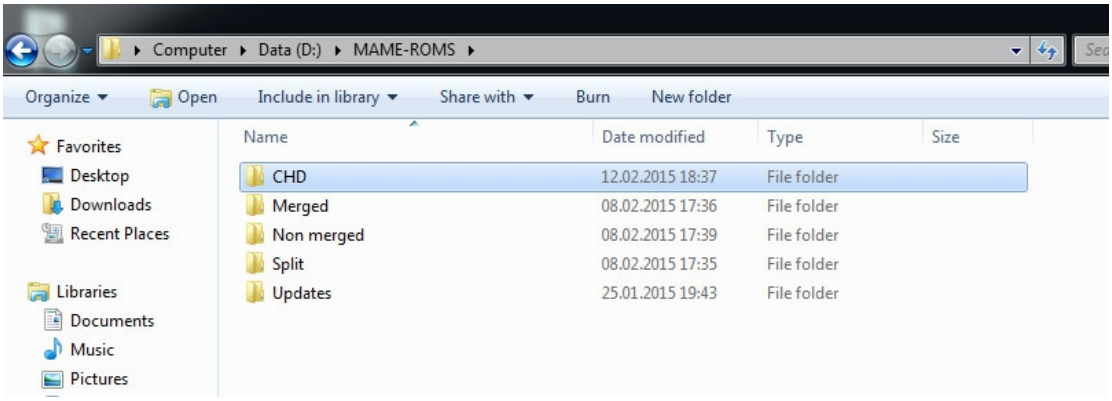


Scan again and wow we have now a complete 0.158 ROM Set.

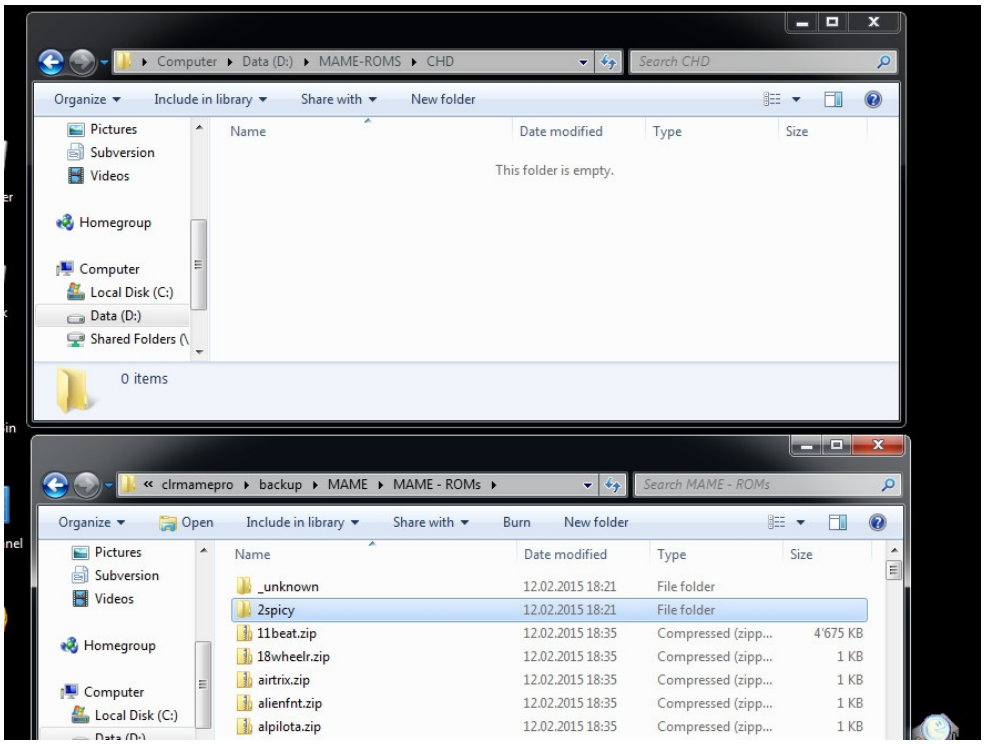


The ROMs are now perfect and we have our CHD-folder removed in the backup folder of CLRMAMEPRO. Let's change that for the future that It will never happen again.

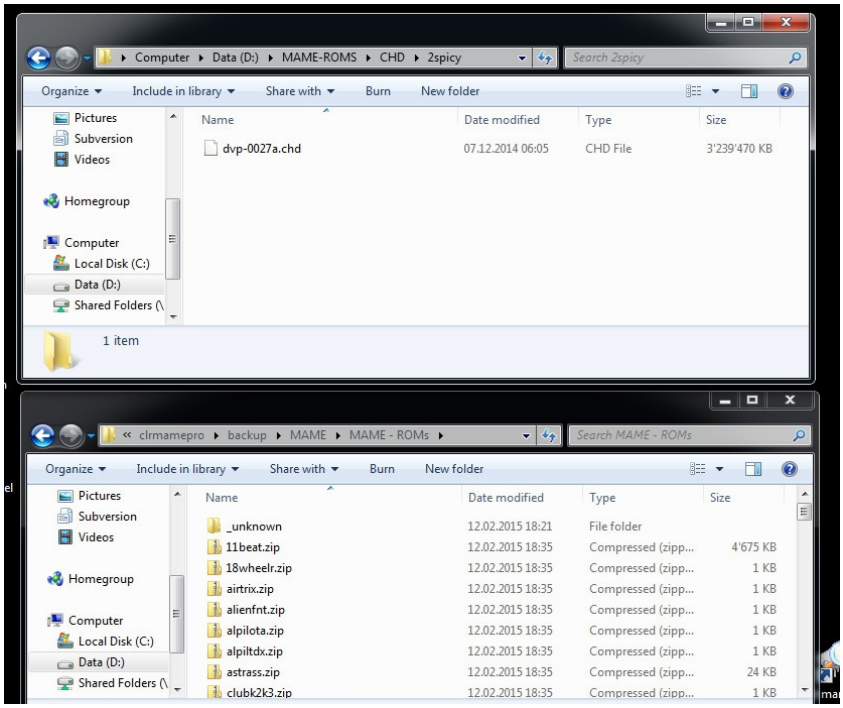
Create a folder “CHD” in our MAME-ROMS folder.



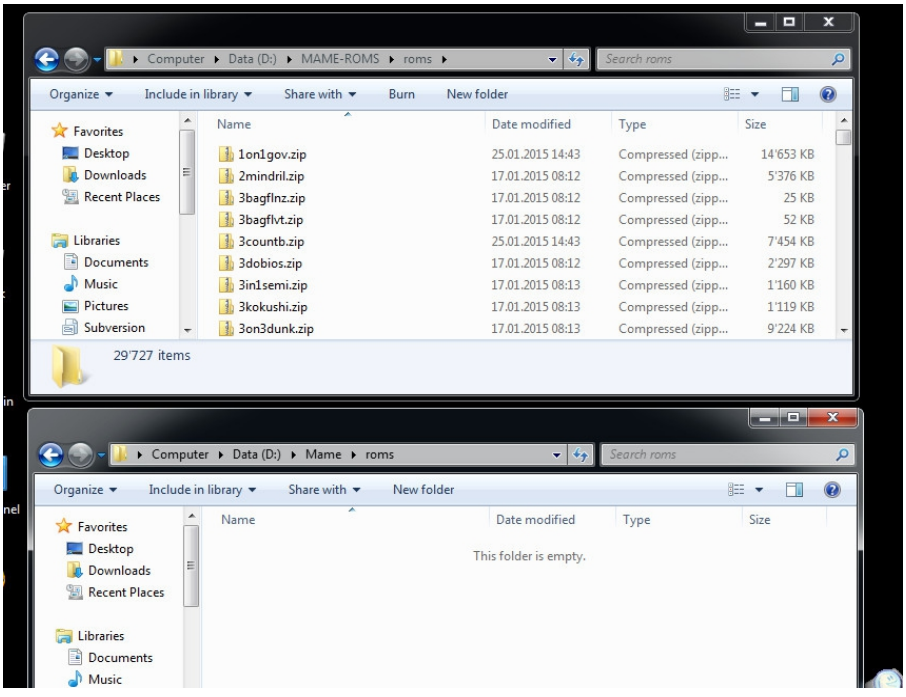
And move the CHD from the Backup folder in CLRMAMEPRO to this folder.



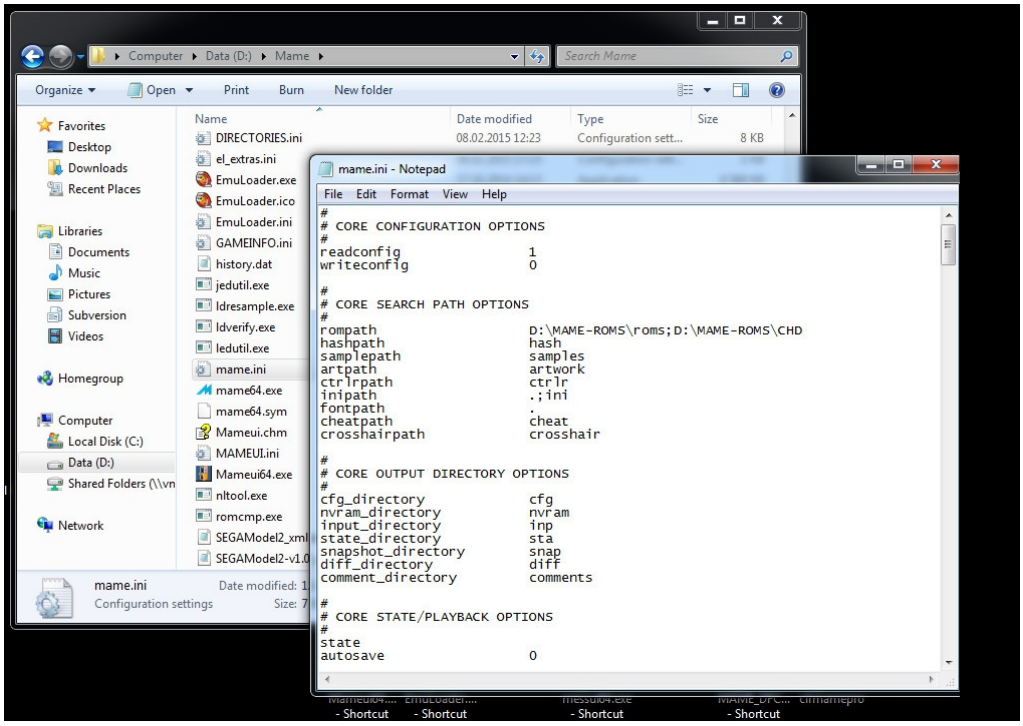
Good :-)



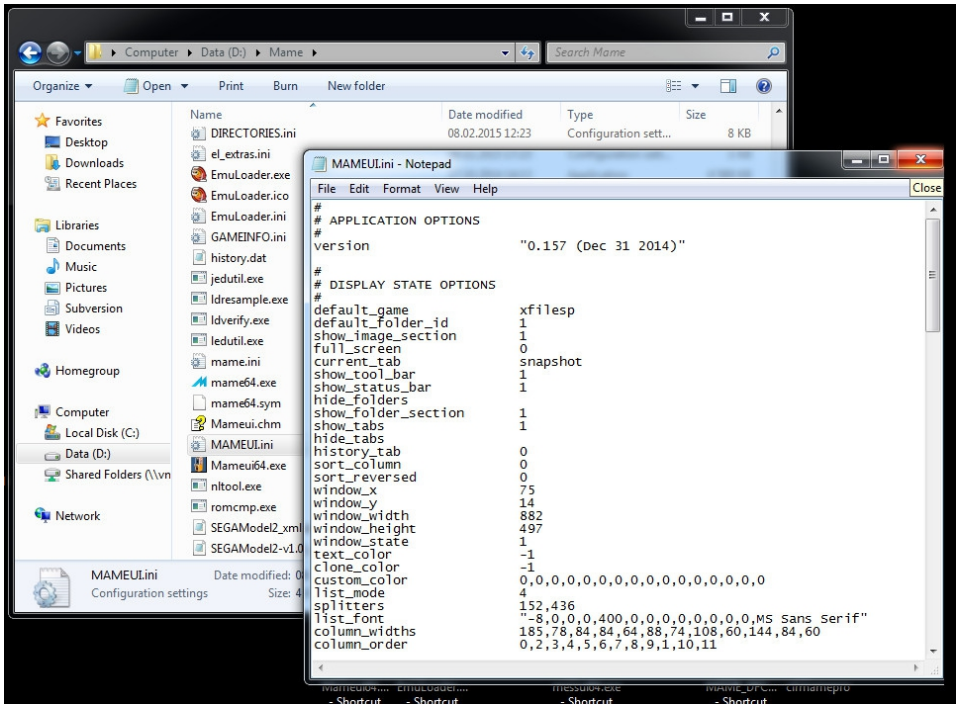
We move now also all MAME-ROMs away from the MAME-Program folder into an own ROM-folder. Sometimes it easier to have them stored outside the program folder ;-)



As we have now moved all the ROMs into another location we must edit the “mame.ini” file and add those two path under “rompath” (1 ROMs + 1 CHD).



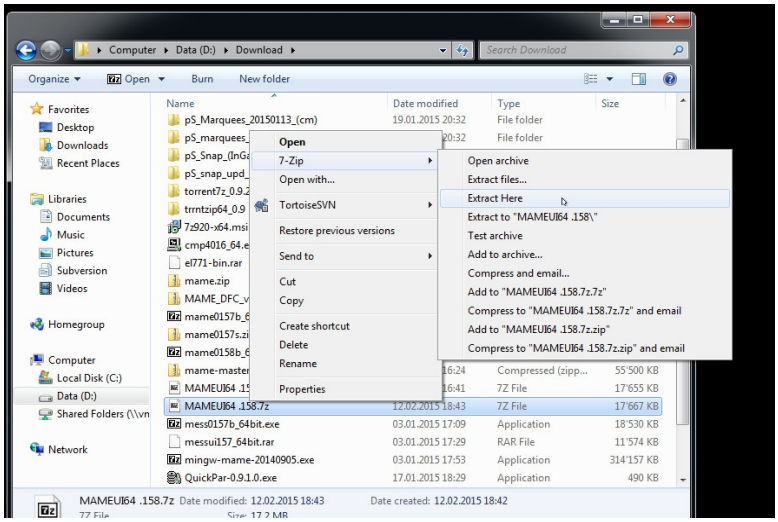
Let's look at this ini-file → 0.157



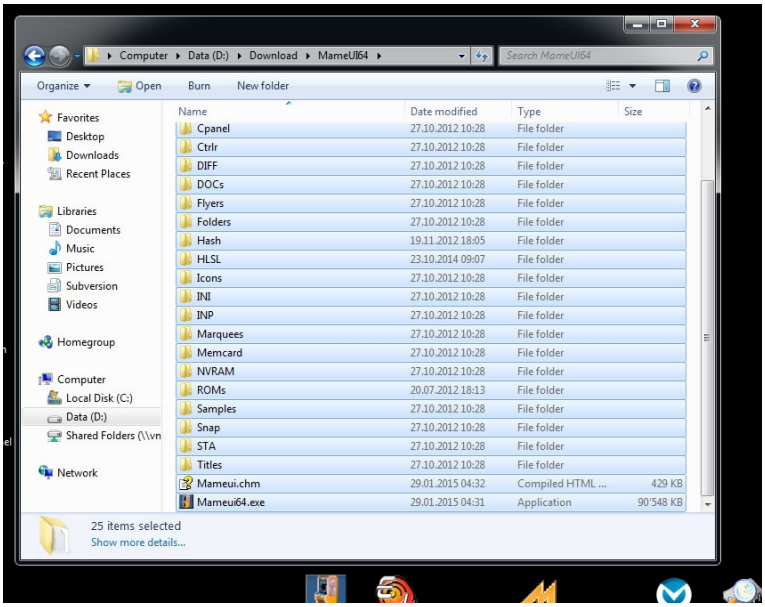
We have updated the command-line version of MAME and the ROM-folder. Be aware that we have still “old” program that should use the new ROM-folder. MAMEui and Emuloader are still not for V0.158 updated!

! Don't mix up emulators with different versions to share a single ROM-folder.

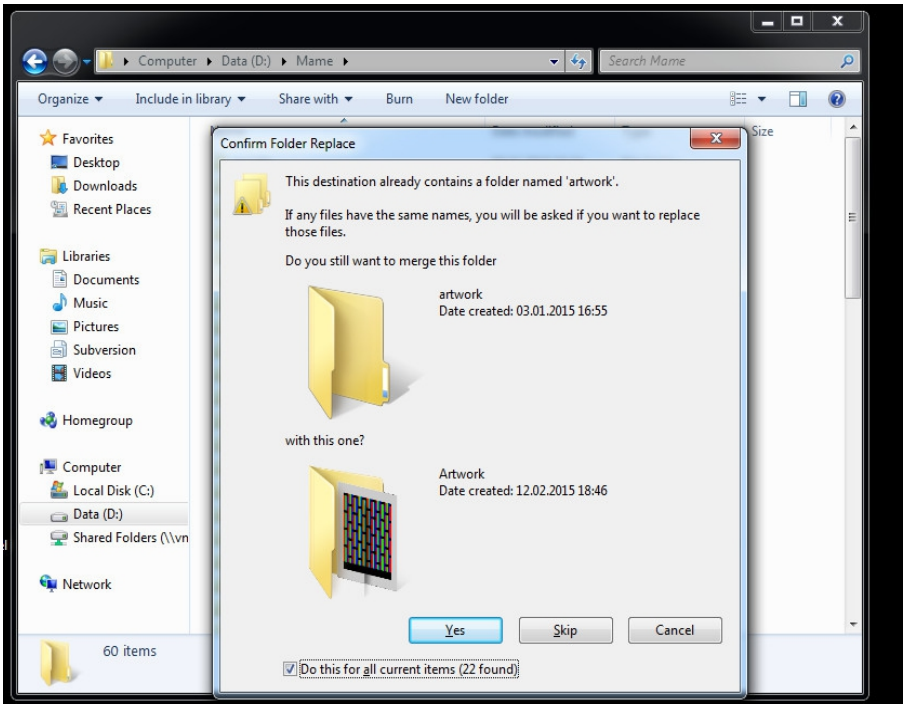
Download MAMEui from the website and extract it into a folder.

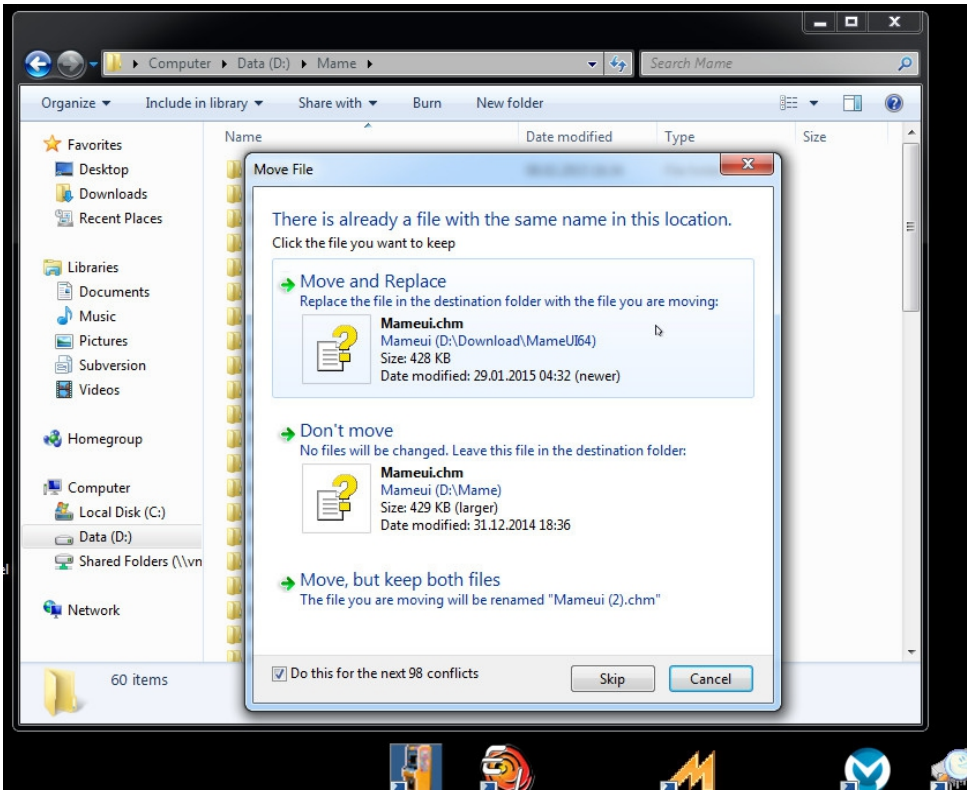


Move all the files from the extracted folder ….



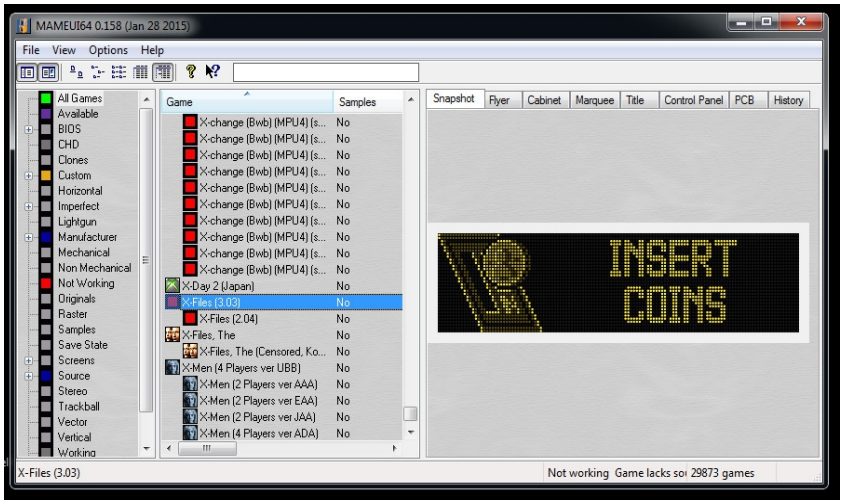
..to the MAME folder and overwrite duplicate files.





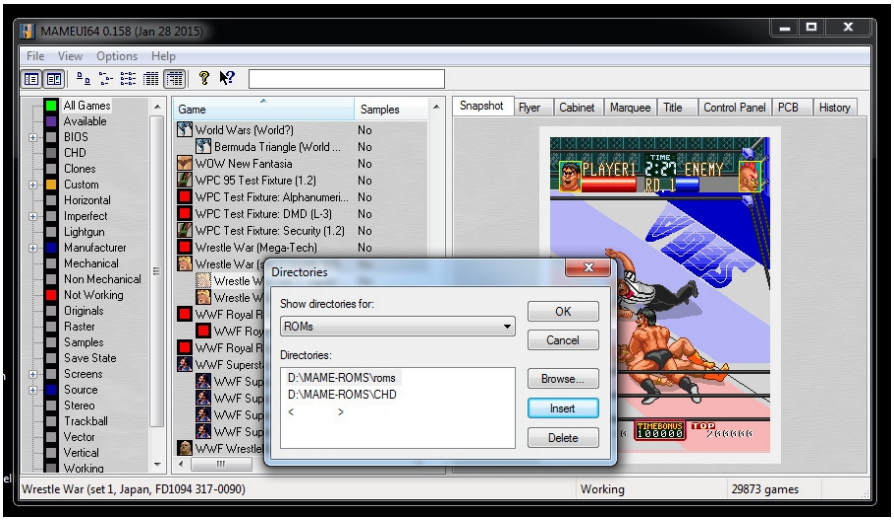
Finished “updating” MAMEui → start the program.

MAMEui starts ….

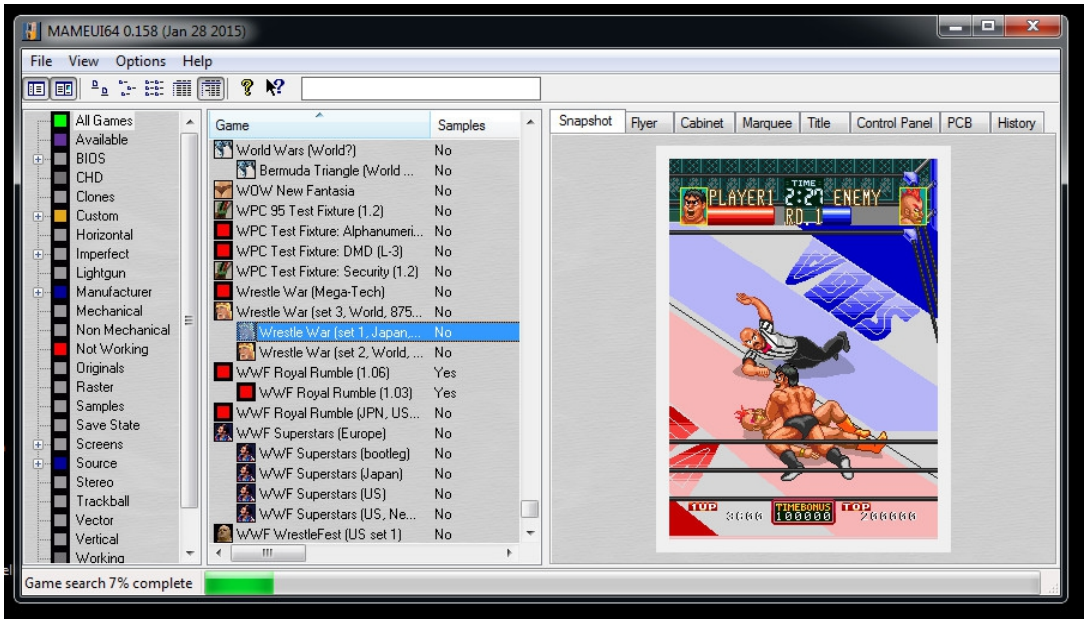


And have we not something changed that MAMEui needs to know? Yes sure we have moved our ROMs to an own folder and store the CHD separate.

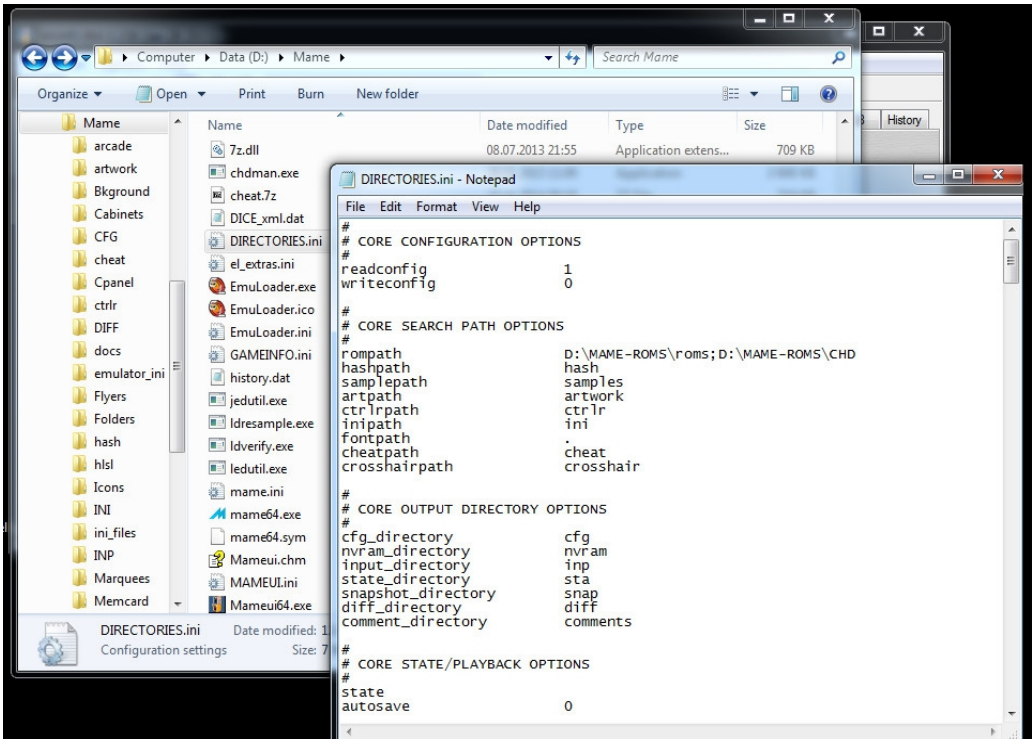
Change that under “Options – Directories” and add those two path.



Remember that you should hit “F5” (refresh) each time after an update that MAMEui could scan for changes within the ROM-folder.



MAMEui has btw stored that two path in the directories.ini.



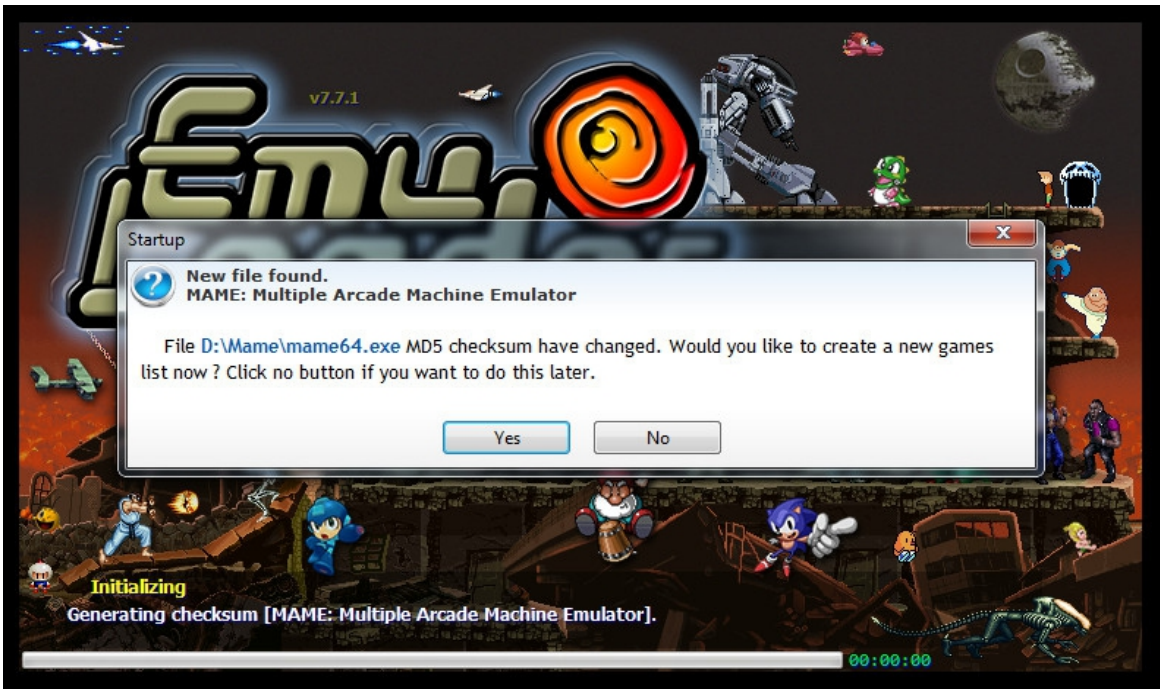
Let's try to run a game....

..and it does work.

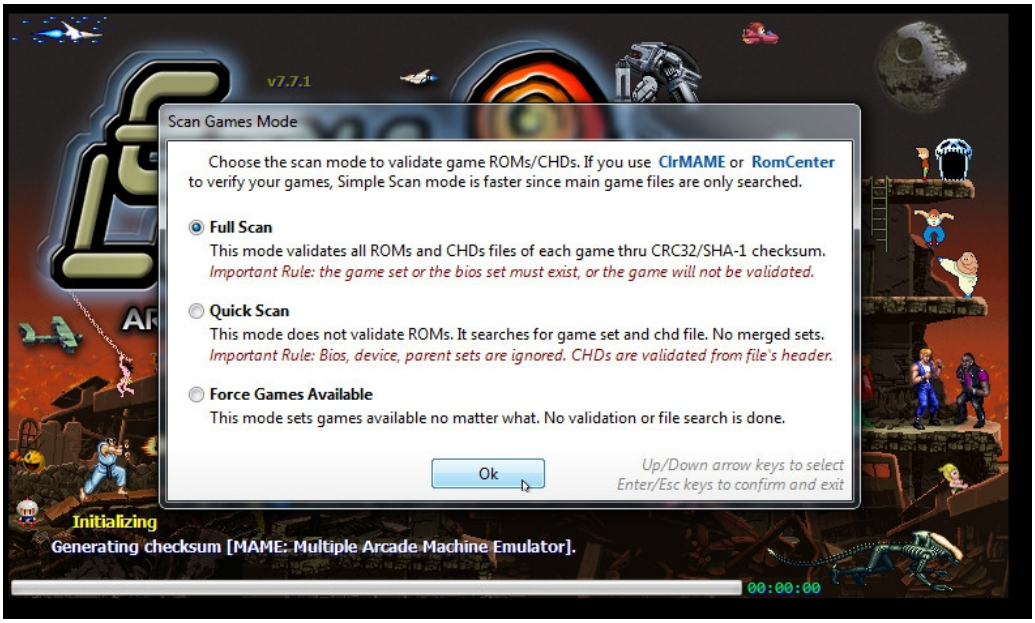
We have forgotten to test our command-line version of MAME if we can still start a game with the new path.

Yes and “Donkey Kong” is climbing again...

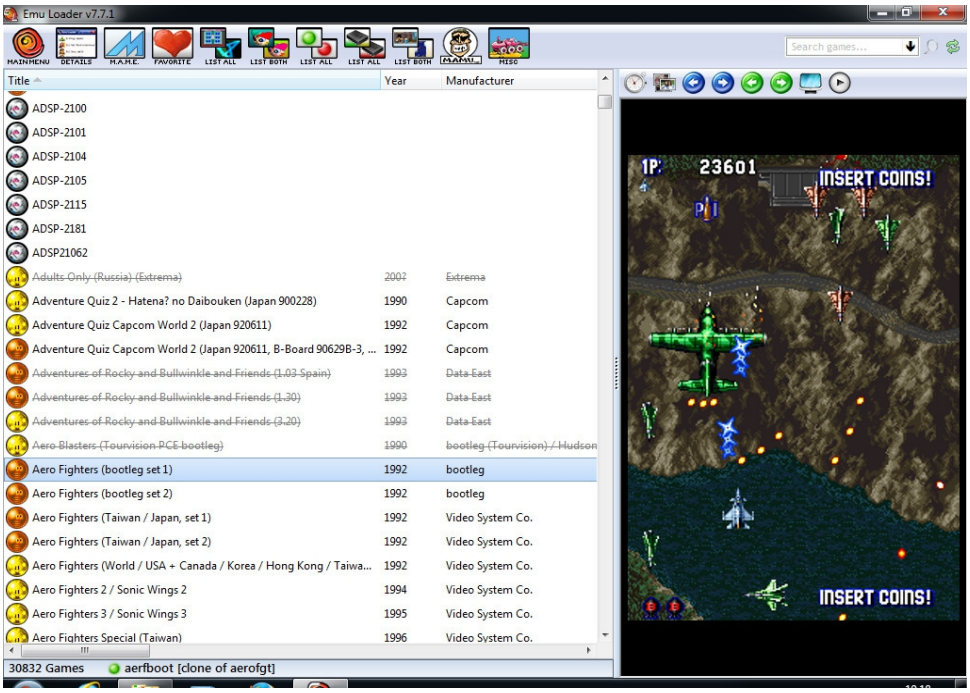
We have now MAME updated (command-line and MAMEui) and we need to “refresh” EmuLoader. When we start EmuLoader it has detected that the MAME.exe is a different one. Say “Yes” to this question.



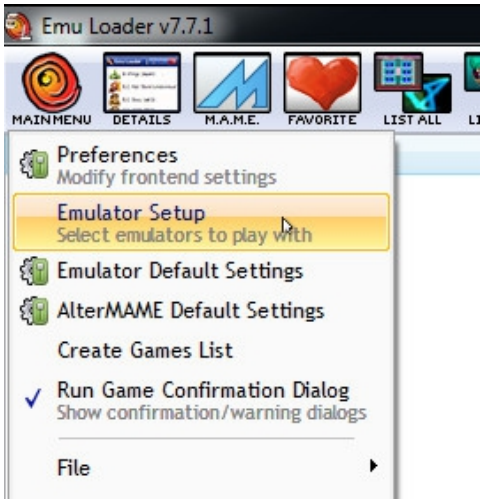
To be sure that everything is detected right we choose a “Full scan”



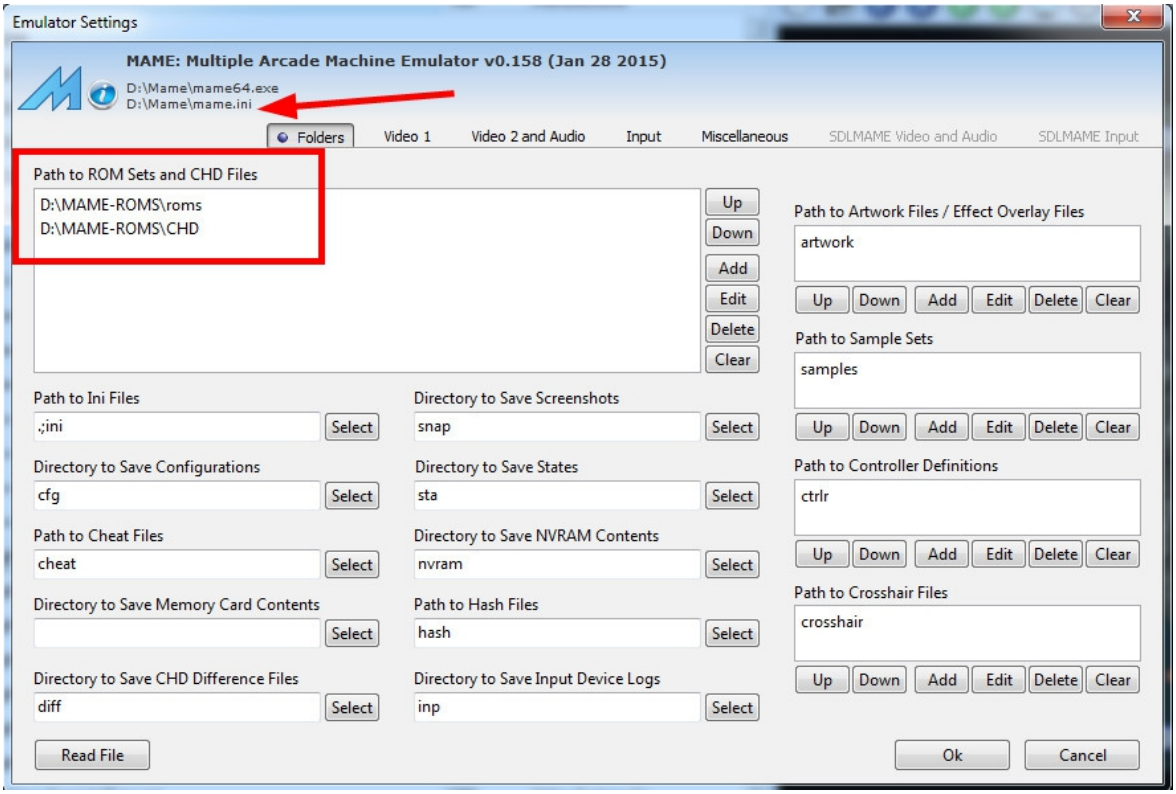
After the scan EmuLoader is ready.



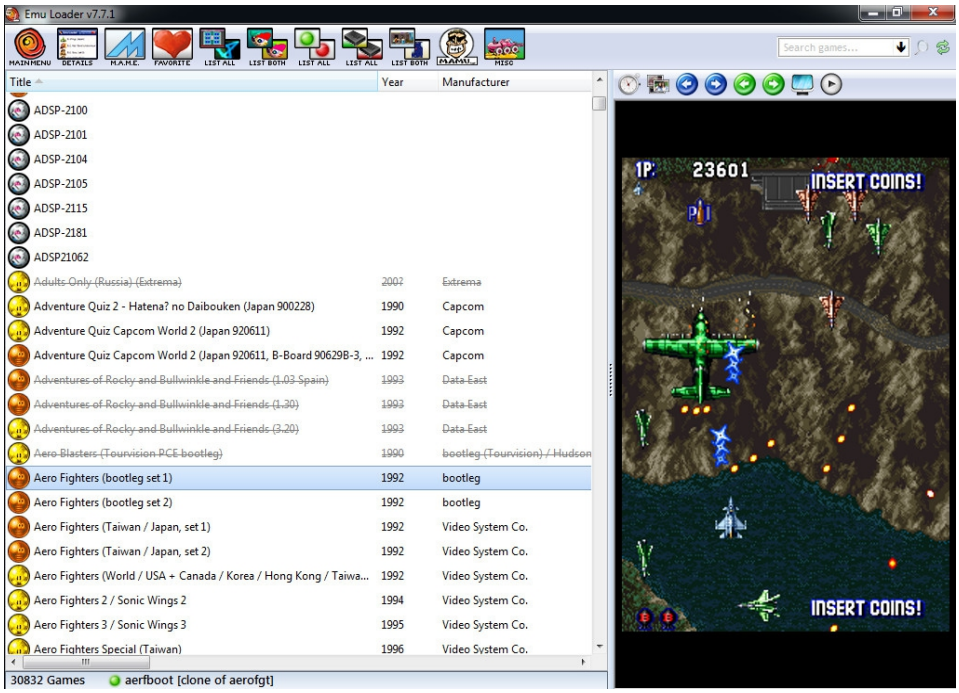
And yes we have changed our ROMs-folder …..open “Main menu – Emulator setup”



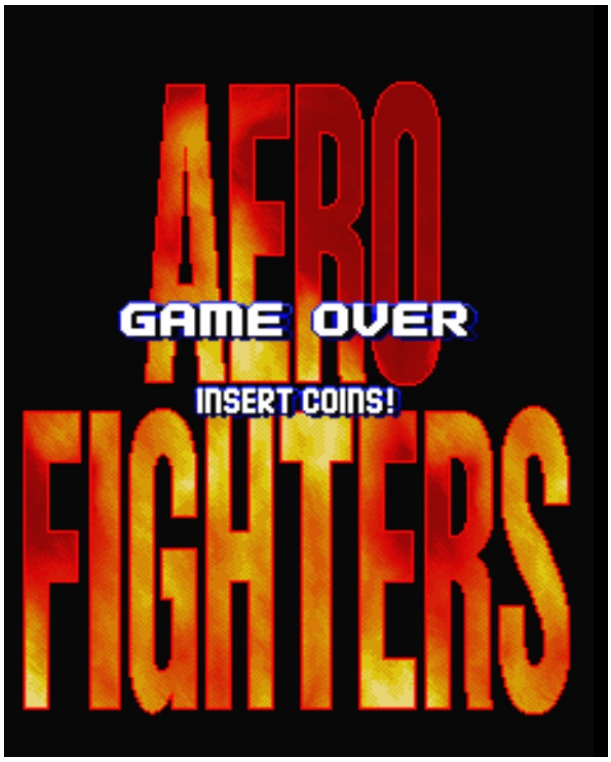
And we see that EmuLoader uses the “mame.ini” file for the settings.



And we test a game with EmuLoader...



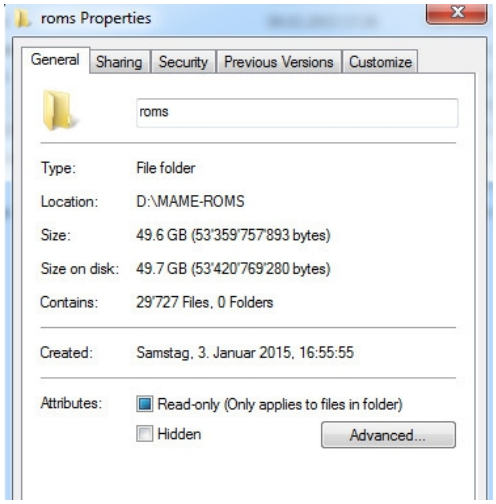
.. and it works.



Using the Merger

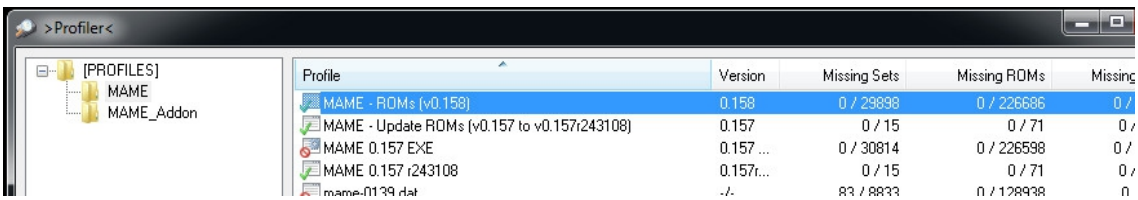
This function “Merger” I have never used before. I mean how often are you in this situation that you want to change your organisation of the ROMs. Normally this decision you made at the beginning of collecting ROMs. But anyway I have, for this guide, used the Merger to change my ROMs from a split-set to a merged set.

Let's look how much space it takes with a split-set. Keep also in mind how many files are in this folder ….

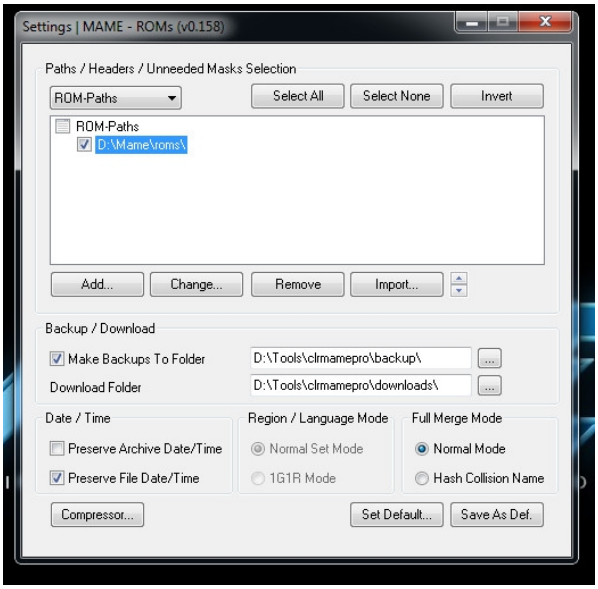


We need CLRMAMEPRO for doing this “Merging”

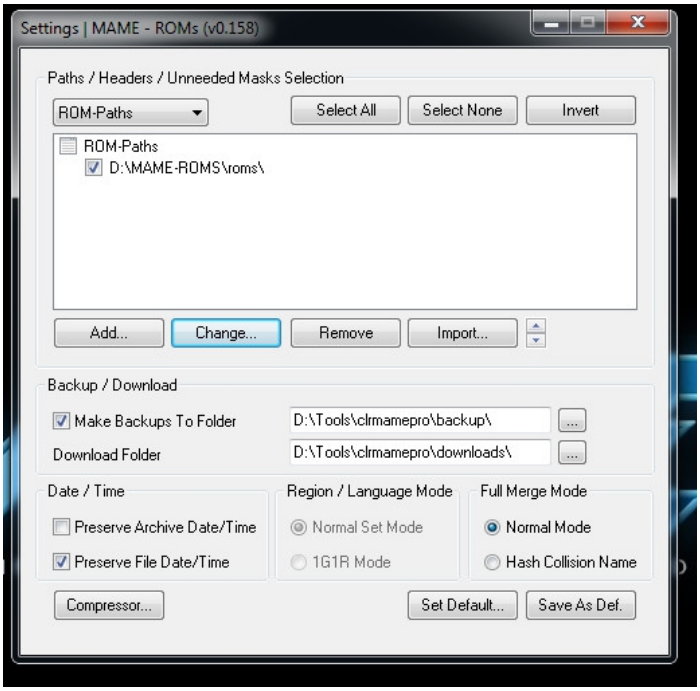
We choose the V0.158 ROM-dat as our set is at this version.



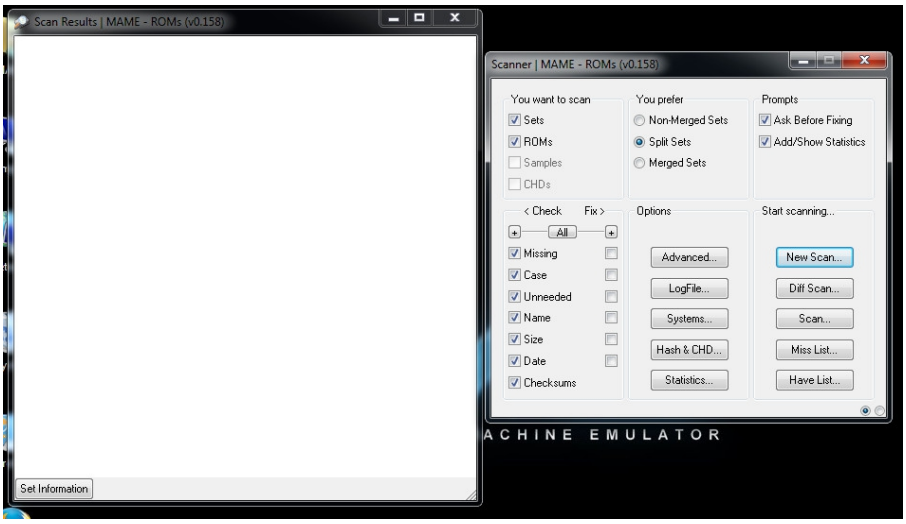
Verify the Settings → ROM-path we have changed in the past.



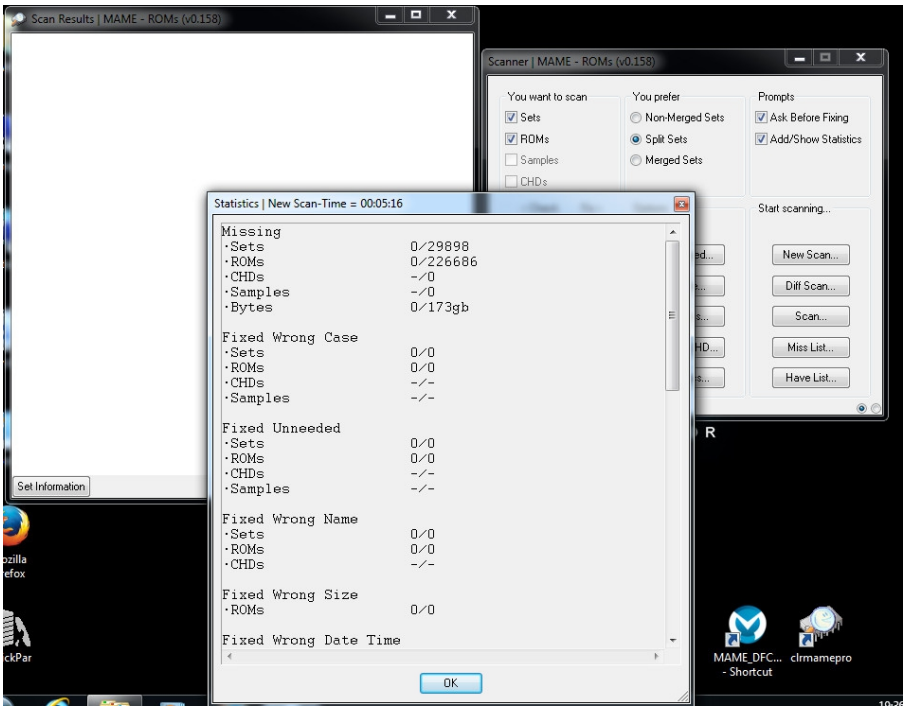
Correct that → we only need the ROM-path and not the CHD-path to add/change → This DAT-file is a ROM only file DAT!



Let's verify first that this set is perfect → with the option “Split sets”

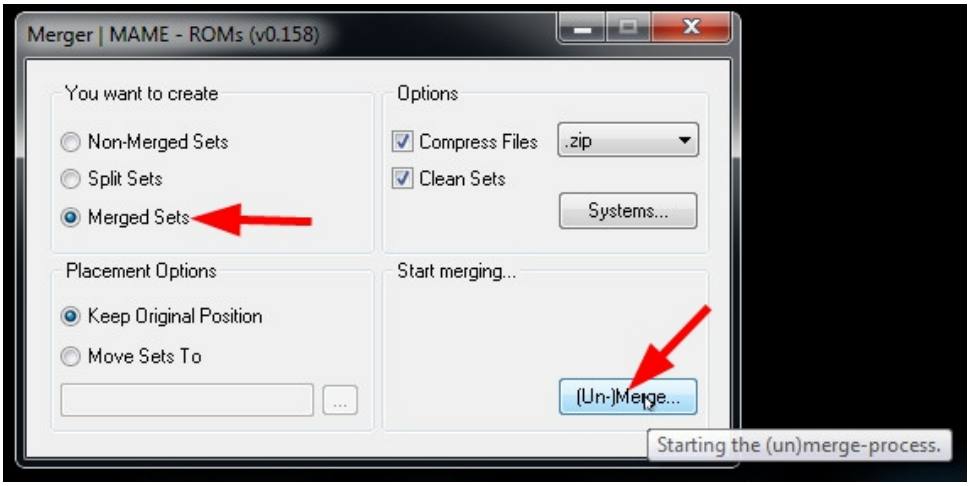


Yeah it is perfect.



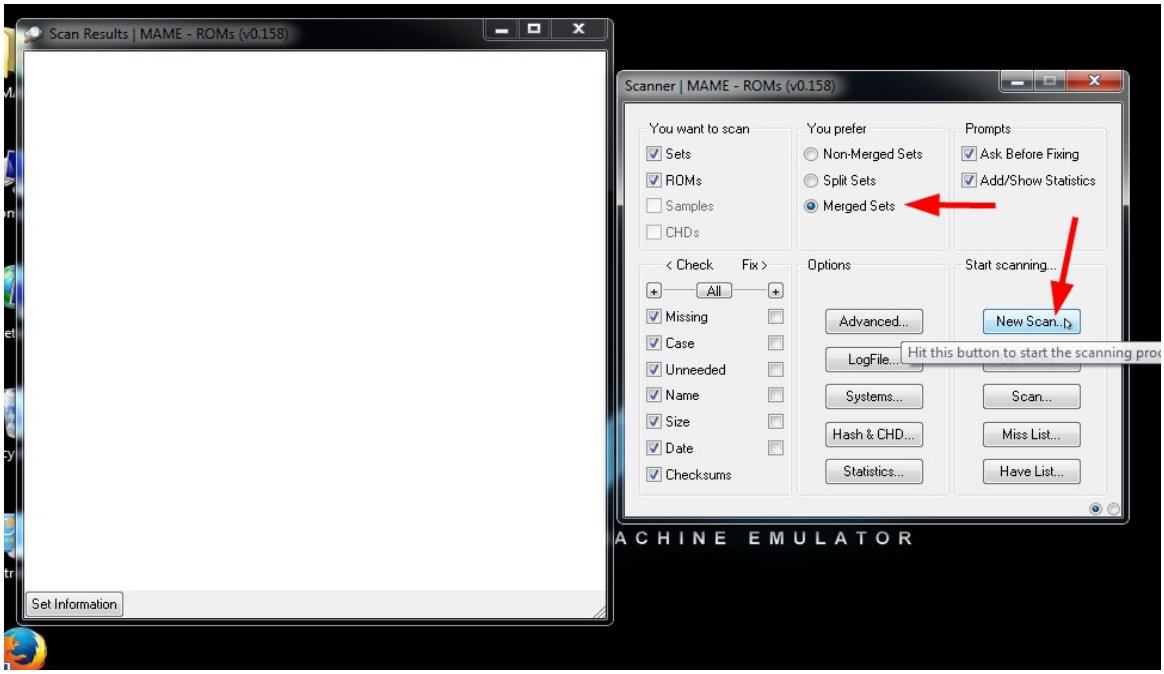
Now start the “Merger”

We change the settings to “Merged Sets” and do the rebuilding inside the folder.

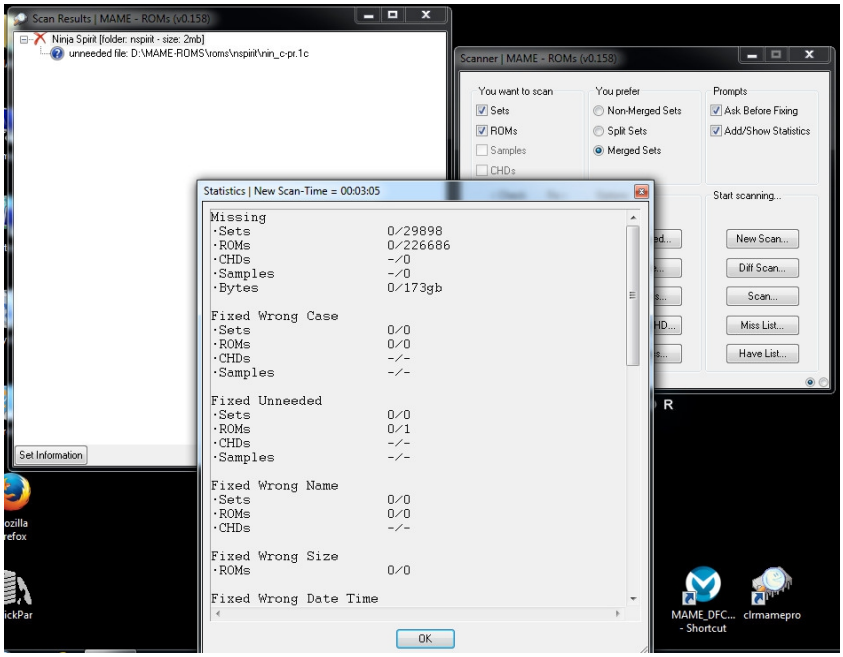


After some time it has finished his works and we go back to the scanner.

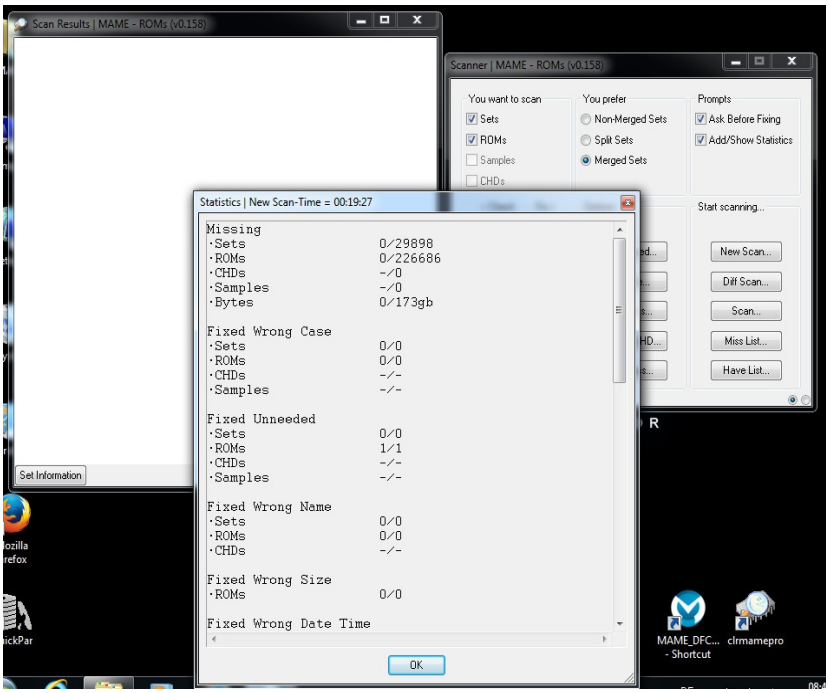
Change the “You prefer” to “Merged sets” and start a “New Scan”



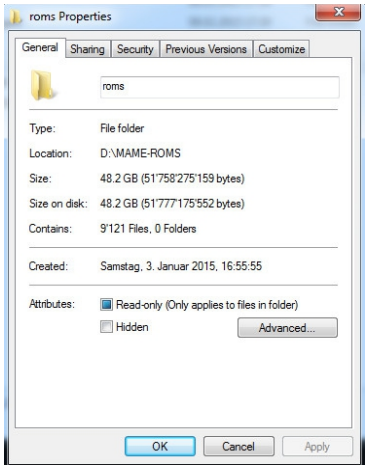
yeah perfect ….hmm or not perfect ;-)



One ROM is “unneeded”, do a new scan with the fix-option “unneeded” enabled. You should now have a perfect “merged” 0.158 MAME ROM set.



When we look at the folder stats. It takes less space and we see that with this merging “clone” and “parent” into one file that we have massive less files in this folder.

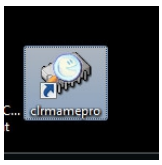


! This was a huge change to your ROM folder. I would suggest that you do it the next time with the “Rebuilder” from the original folder to a new folder (disable “Remove matched sourcefiles”). When everything is perfect you can delete the original folder.

Creating a fix-DAT-file

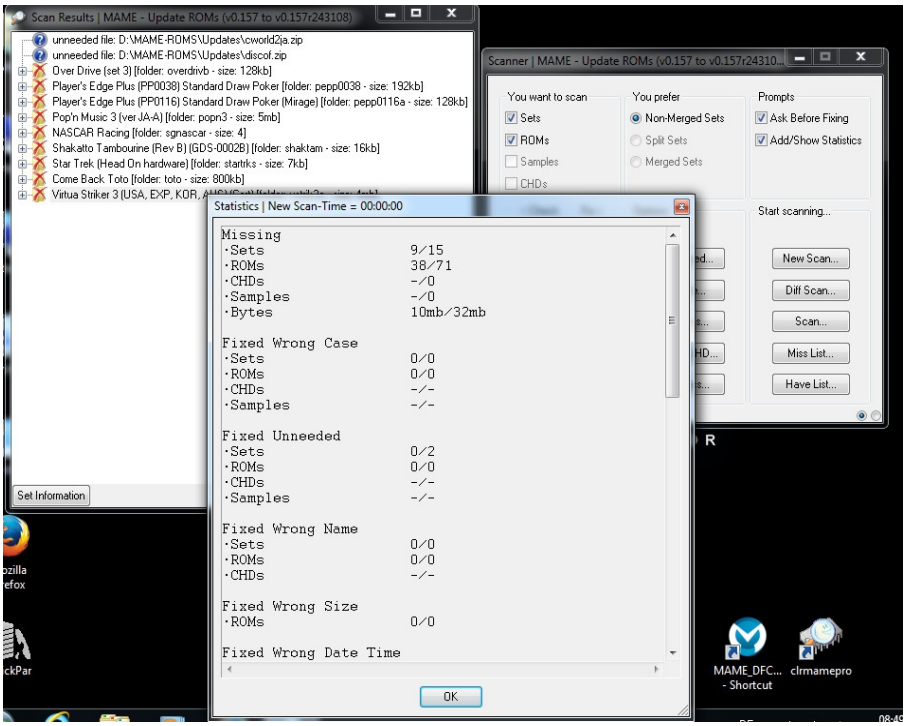
One of the important function CLRMAMEPRO does provide is creating a “fix-DAT”. When you are looking for missing ROMs and asking for help in forums it is recommended that you upload a fix-DAT for your missings. Nobody will help you when you post topics like that “missing some ROMs for my sets. The are xxx.bin, yyy.bin and sjdsdj.bin”. How can we do that?

Start CLRMAMEPRO

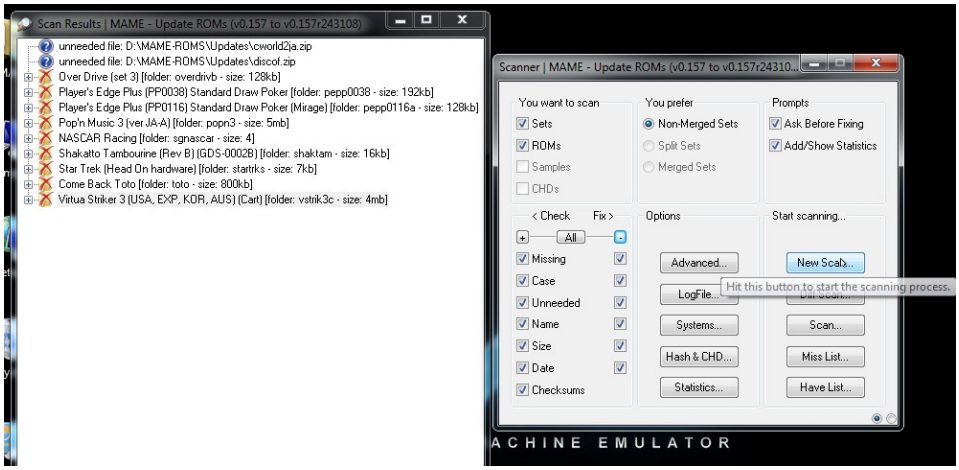


We have a new DAT for our update folder. Add them to CLRMAMEPRO and load it in the profiler.

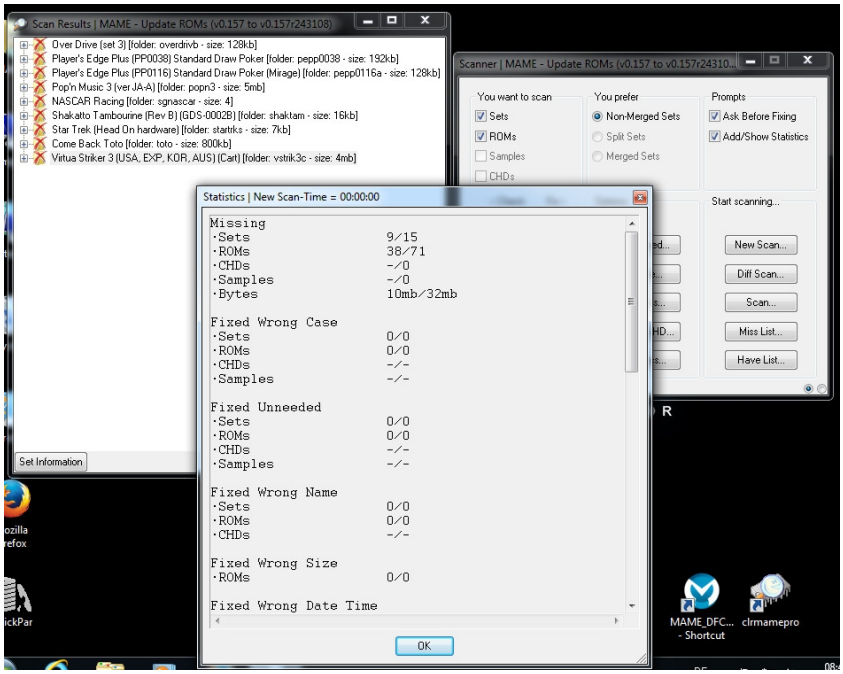
Do a scan with the new DAT on your update folder. We have some ROMs, some are unneeded and we miss 38 ROMs.



Do a new scan with all available “fix-options” enabled.

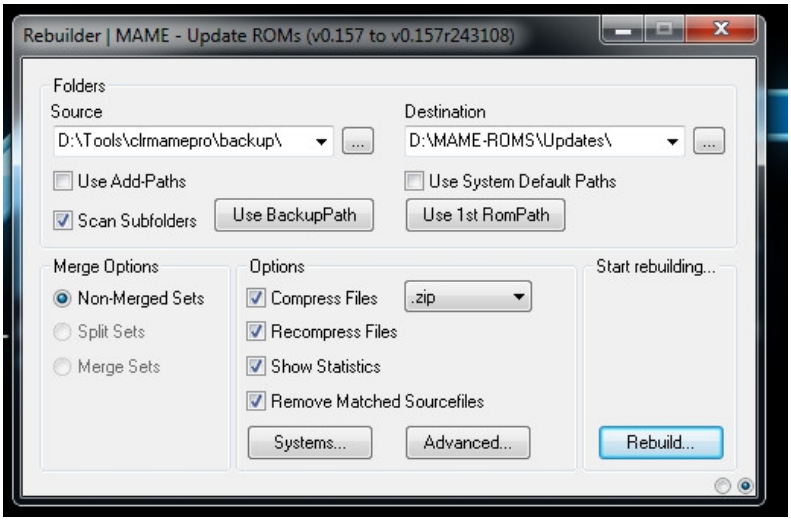


Now we have removed all unneeded stuff from our update-folder.

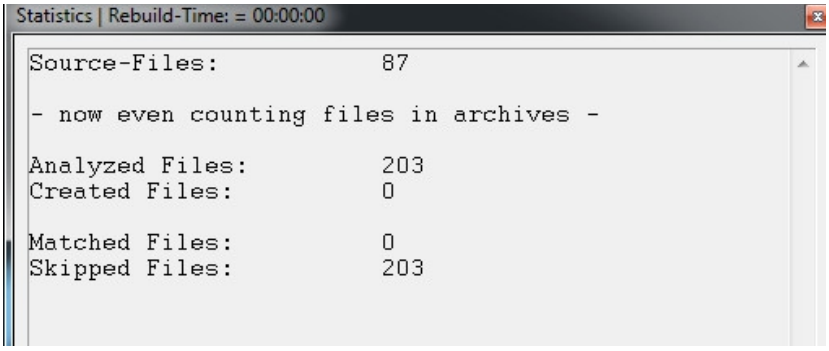


Before you ask for help you could search for the missing ROMs on your drive. Start the rebuilder

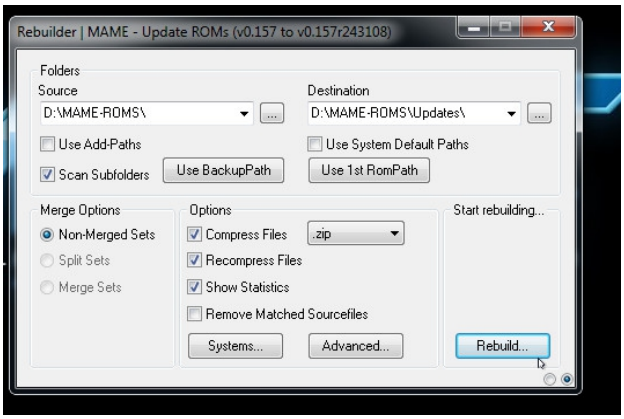
Search for the missing ROMS → Backup-folder → enable “Remove ...”



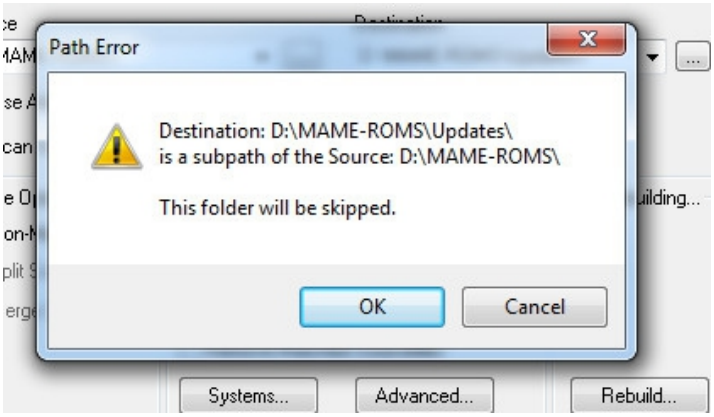
Nothing found ….



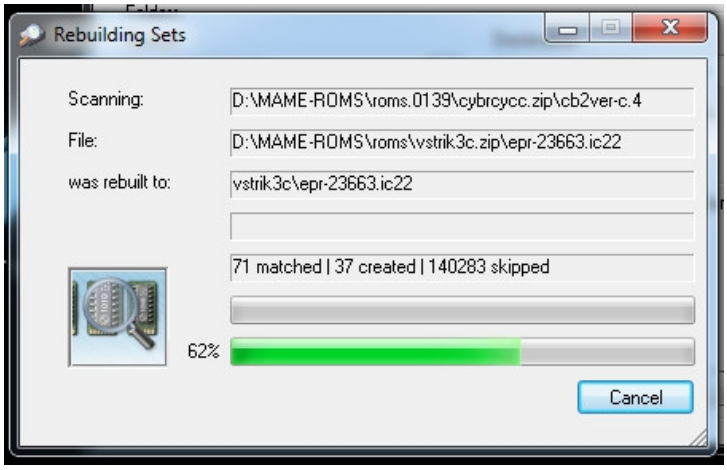
We scan now our other ROM-folders for our missing. Sometimes you have them already but in an other Set or for a another emulator like FBA or Raine. Point the “Source” to your ROM-location, be sure that you disable “Remove Matched Sourcefiles” → you don't want to “corrupt” a folder for a different emulator …



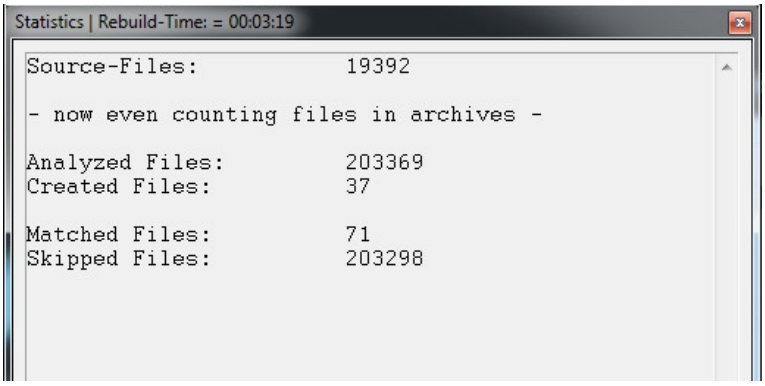
As our folder is a subfolder of our source folder this “message” pop-up.



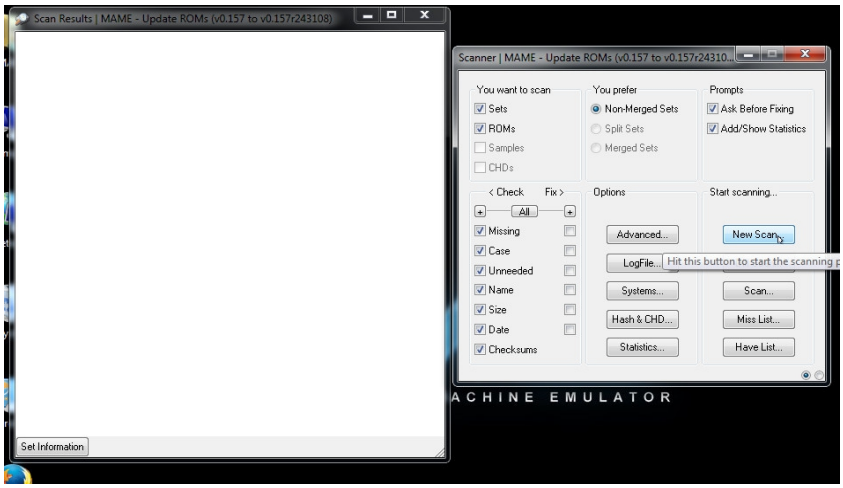
While scanning/rebuilding we see that it has found ROMs in an old MAME Set.



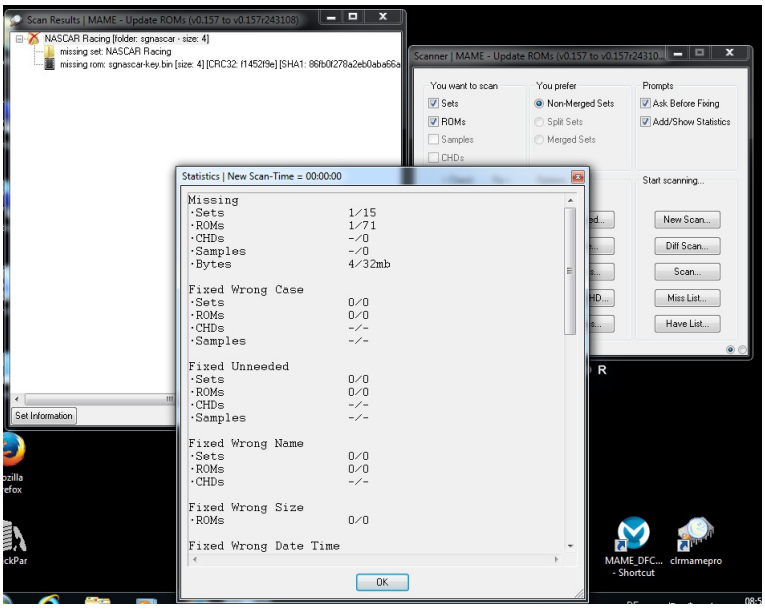
37 created files, fine.



Start a new scan...

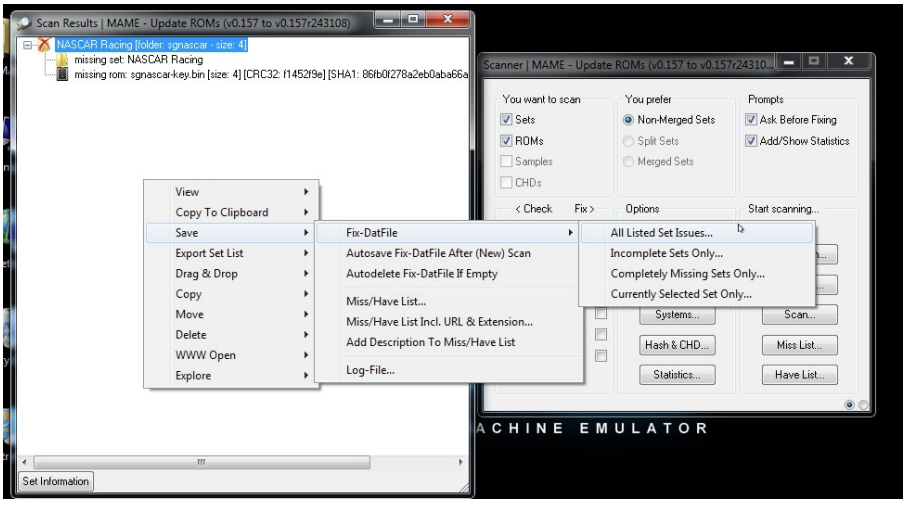


Great great we have now only one ROM missing.

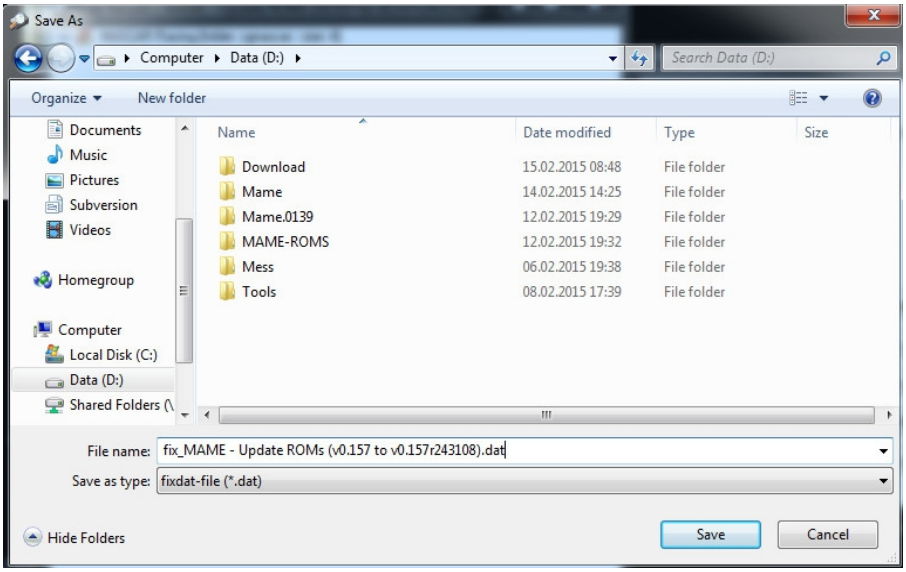


It is important that you do this rebuilding for each source-folder that you have. Your fix-DAT will be smaller and that person that helps you save some unneeded upload for nothing.

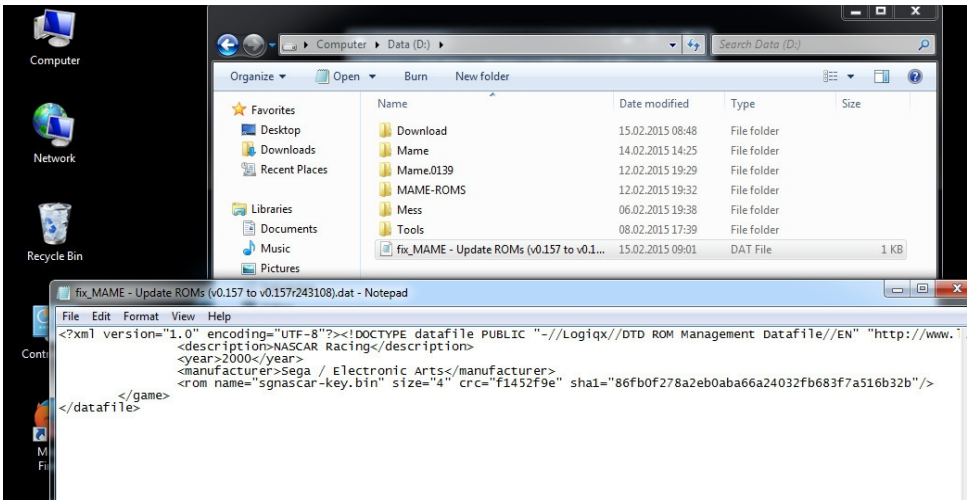
Now we have everything done and that result we want to save into a fix-DAT. Right-click into the result windows and choose “save – Fix-DatFile - All listed Set Issues”



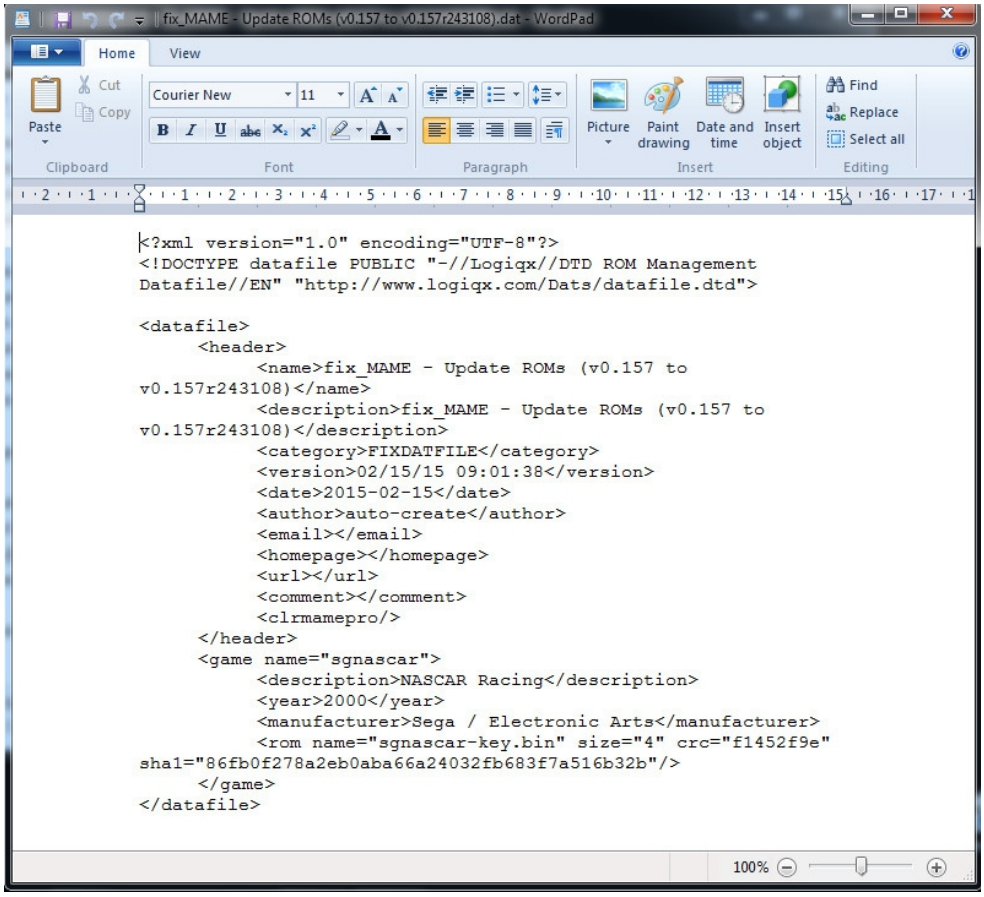
To a folder-path outside your CLRMAMEPRO. You could change the filename but I suggest leave it as it is with this “fix_*” at the beginning.



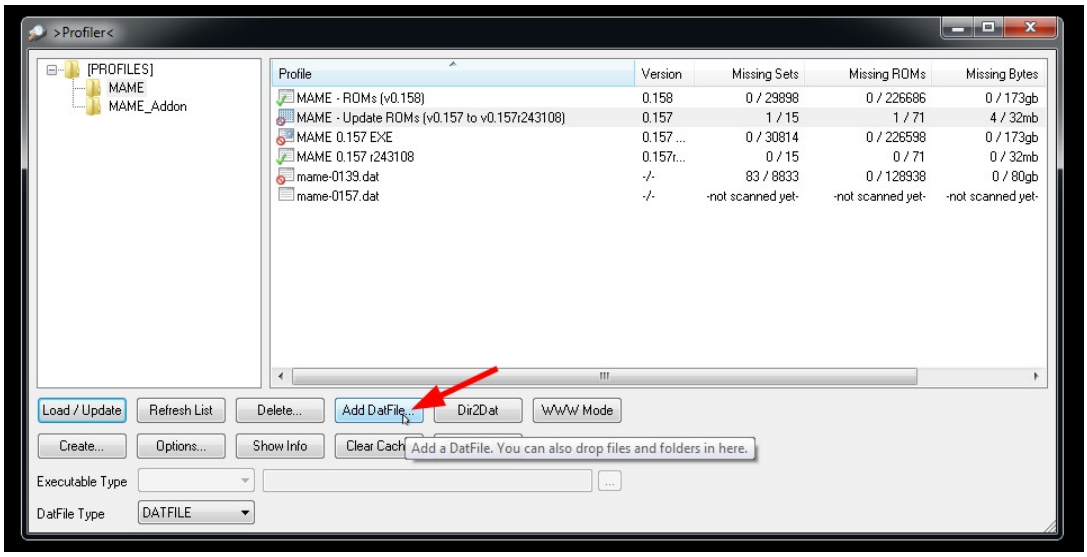
Open the save fix-DAT with Notepad. You see that only this missing ROM is listed with some …...damned there is something wrong, not a real XML-strucure …



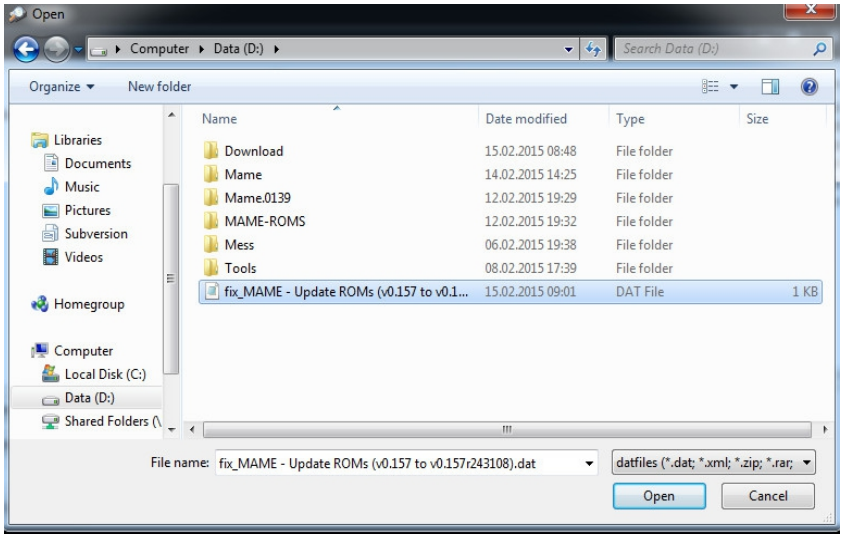
Open that file again with Wordpad. Now it looks like it should be ;-)



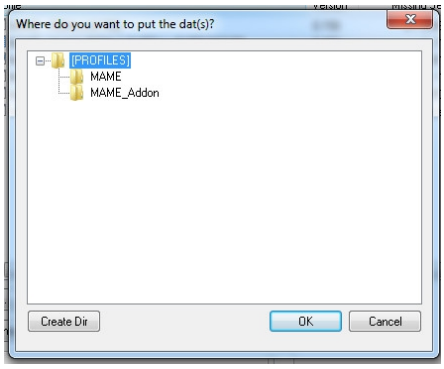
We have done our first fix-DAT and posted it in a forum. Now I show you what the “other” side will do with your fix-DAT. First load it into the profiler



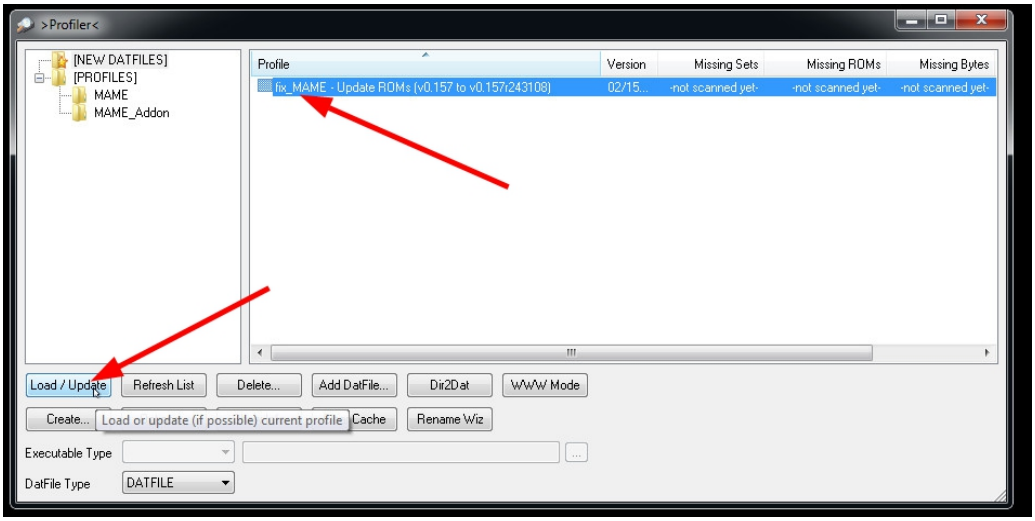
Select the fix-DAT to load.



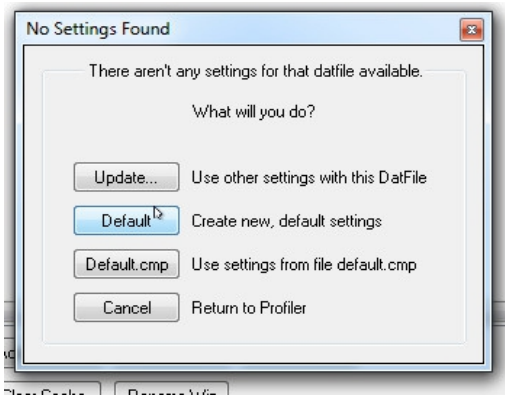
Place it to the root (or create a subfolder for that).



And load it into the profiler

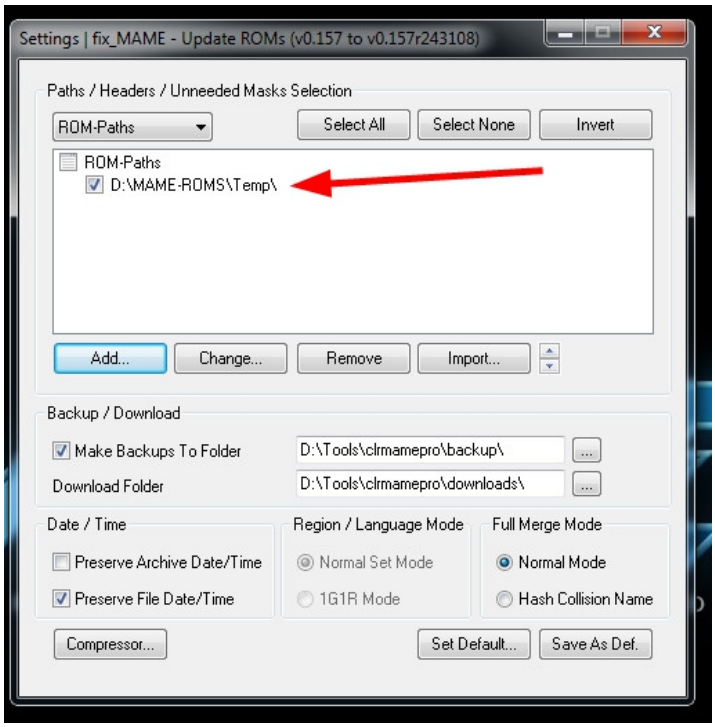


Choose “Default”



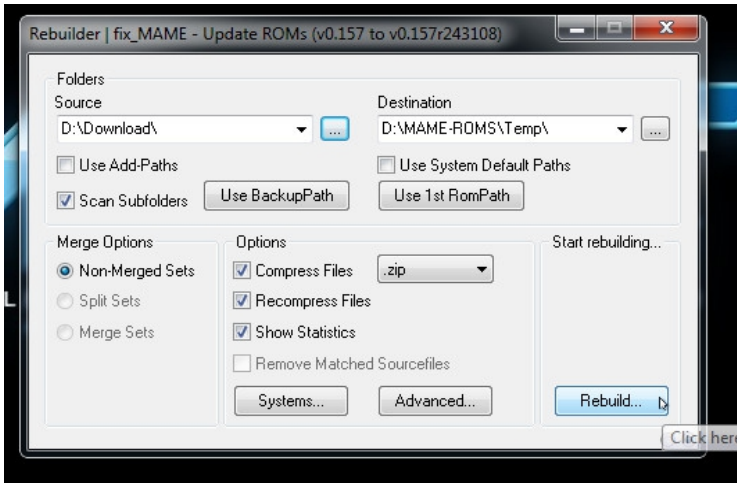
Go to the “Settings”

Set the ROM-path to a new temporary created folder. After we have send the ROMs for this fix-DAT we delete this folder.

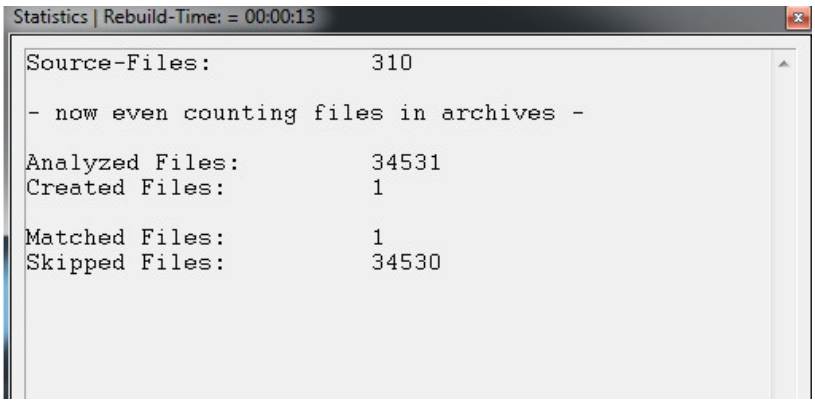


Now we scan for this missing ROMs and rebuild it to our temp folder.

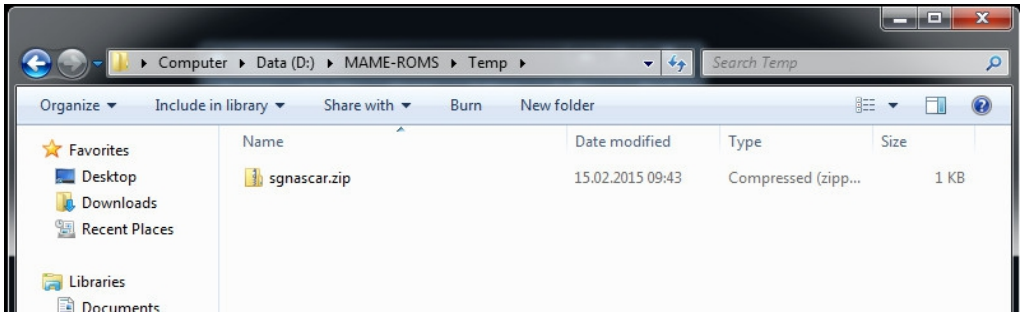
The option “Remove Matched Sourcefile” is greyed out and can not be activated → This option is disabled when using a fixdatfile (Look at the XML → Category “Fixdatfiles”)



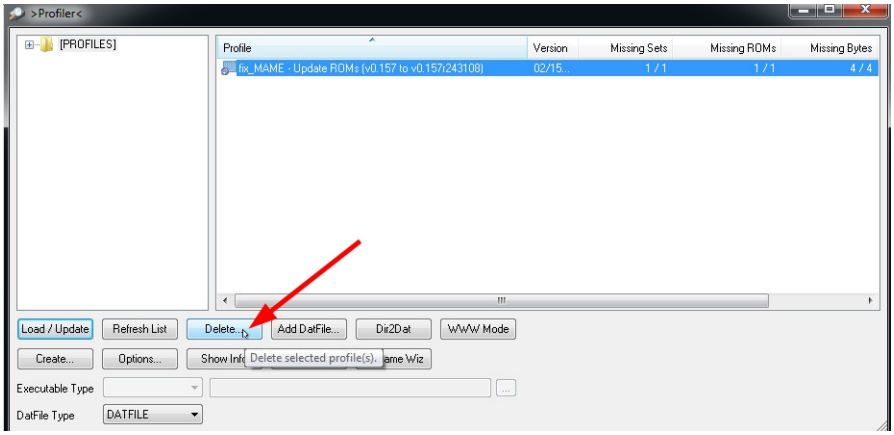
We have found the missing file in our source folder.



Yeah it is in our temp folder

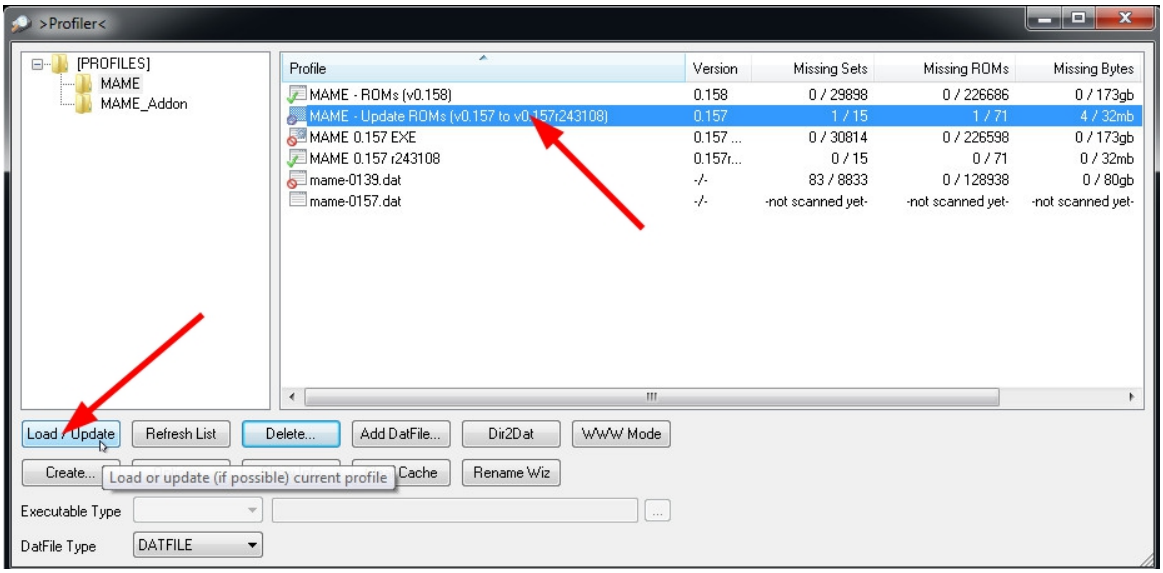


We can now delete this “fix-DAT” from our profiler as we don't need it for our set ;-)



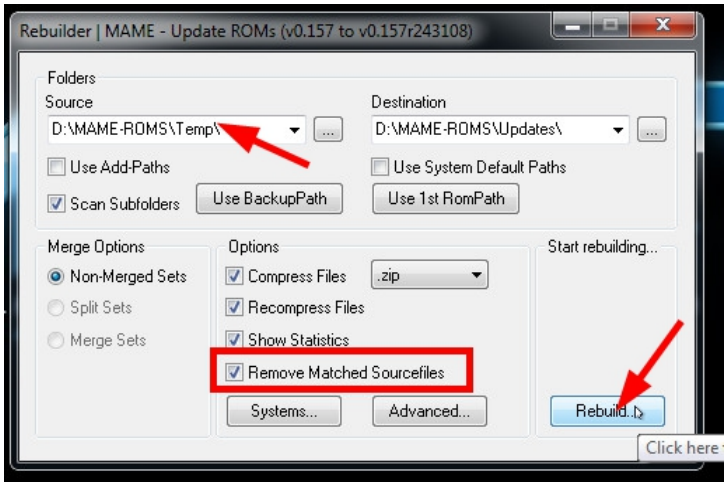
We have posted or sended that file to the one that has requested it. We switch now back to our set as we miss this file ;-)

Load the DAT-file for that set you have created this fix-DAT into the profiler.

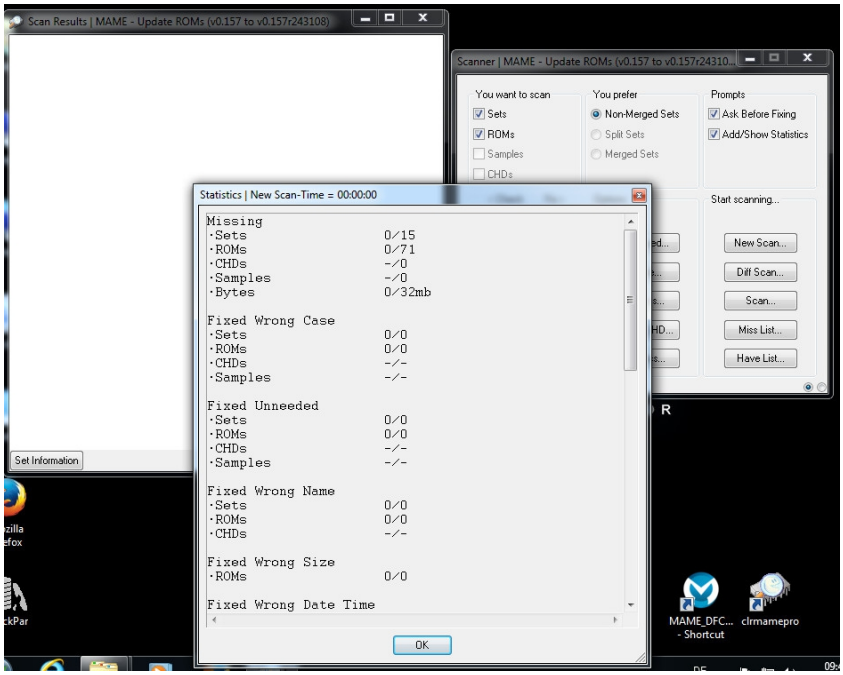


! As we are the person that is missing ROMs and has created a fix-DAT for others to help we don't need that fix-DAT ourself. Load the original DAT file and do a rebuilding with the files you have received.

The received ROMs we store on a temp folder. We set the source in the rebuilder to that temp folder and do a rebuilding. As this is not a fix-DAT we can enable “Remove Matched Sourcefiles”.



After a scan we see that we have now a complete update set.

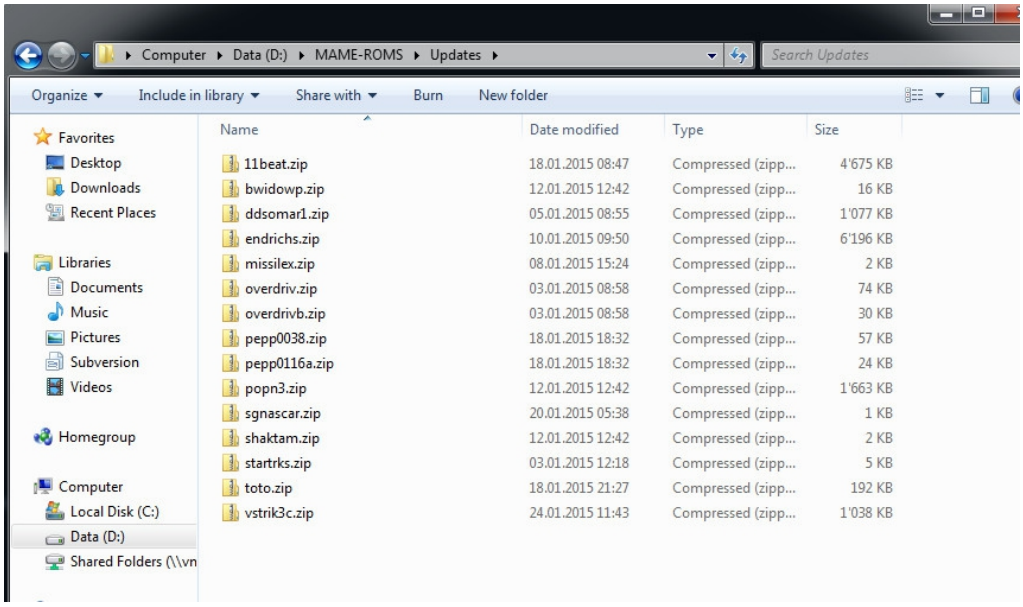


Please note that this “fix-DAT” option is a way to help others as well and receiving help. That's the reason that I have showed you both sides :-)

Creating a DAT-file with Dir2Dat

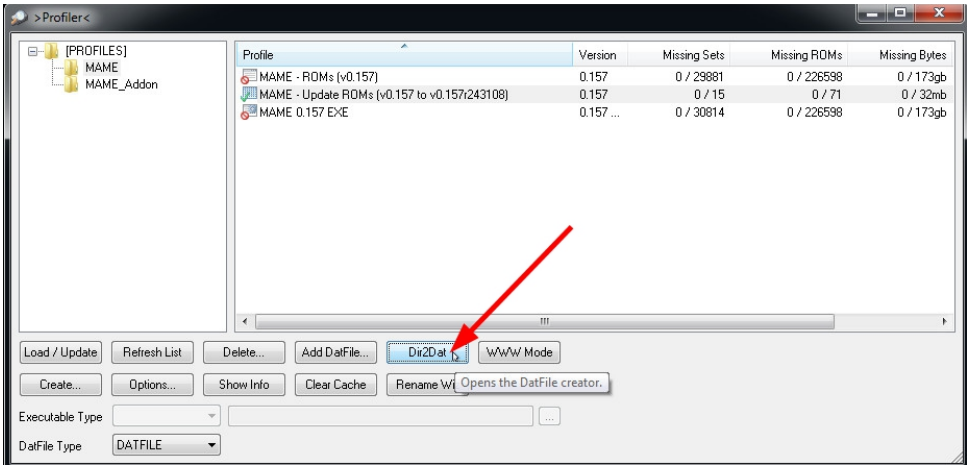
CLRMAMEPRO can create DAT-files from a folder-structure. Why do we need to create a DAT-file? I can create it from a executable or download it from the Internet to scan my set! This option is only used for stuff that you want to share and provide for that a DAT-file. I have used that option for my titles-snapshots to provide a DAT-file to others for scanning and rebuilding "my" set. I will show you how you can create a DAT-file with "Dir2Dat".

We have some special ROMS in our Update-folder and we want to provide them to others ….and creating a DAT-File for that :-)

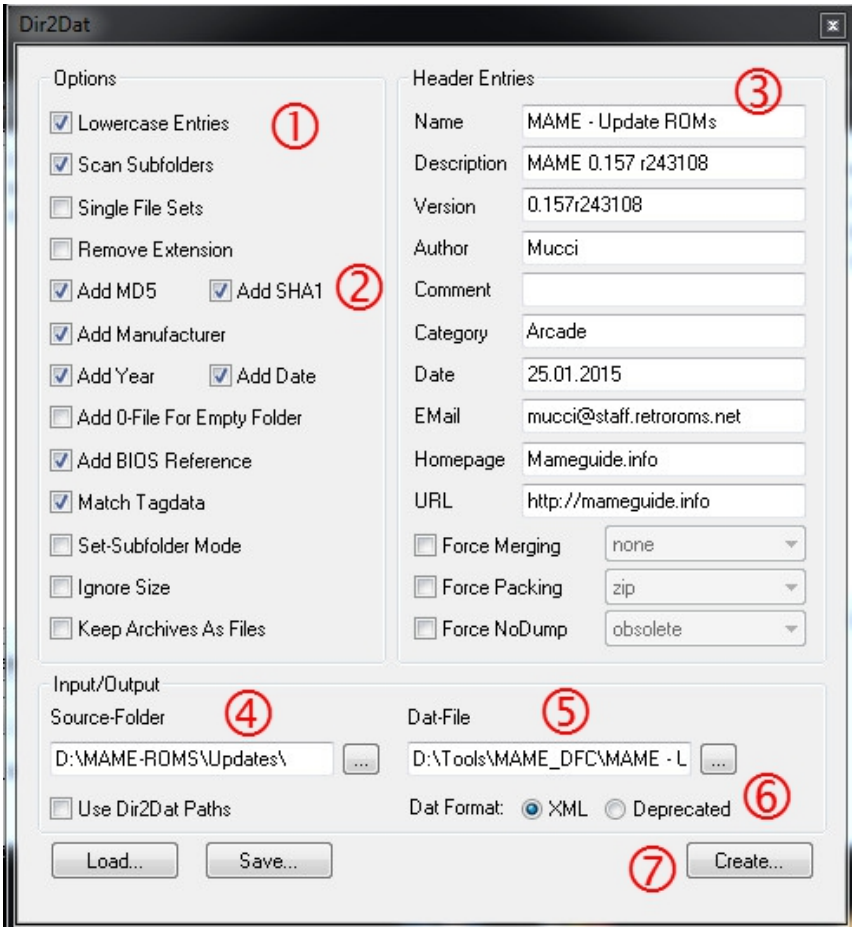


Start the engine CLRMAMEPRO

In the profiler we do not load a DAT-file, click “Dir2Dat”



We must fill in some information ...



① In this Option you can specify what should be included in the XML-file.

② This Options define which hash-code you want to have in the XML-file

③ In this “Header” section are information that are available in your XML-file. It is used for the ROM-manager to display this information.

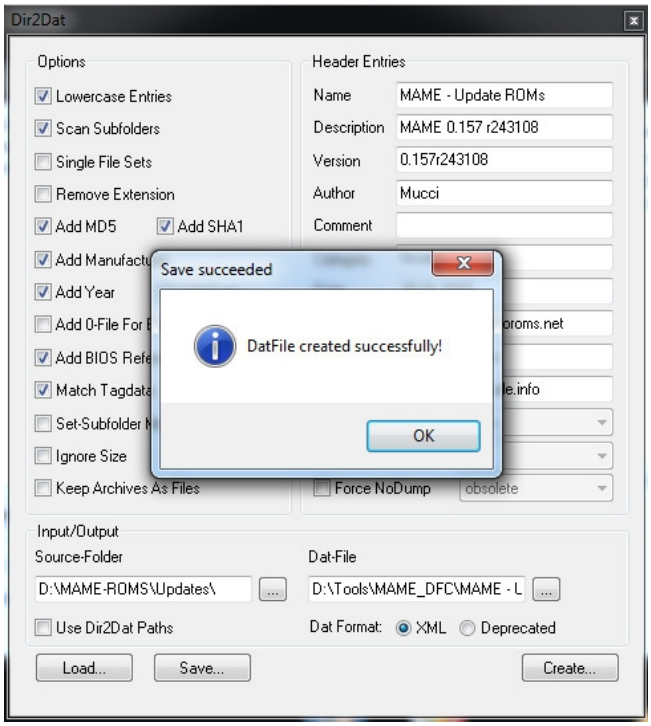
④ In the “Source-Folder” you are pointing it to the folder you have your files and want to create the DAT-file for

⑤ The destination where the DAT-file should be created

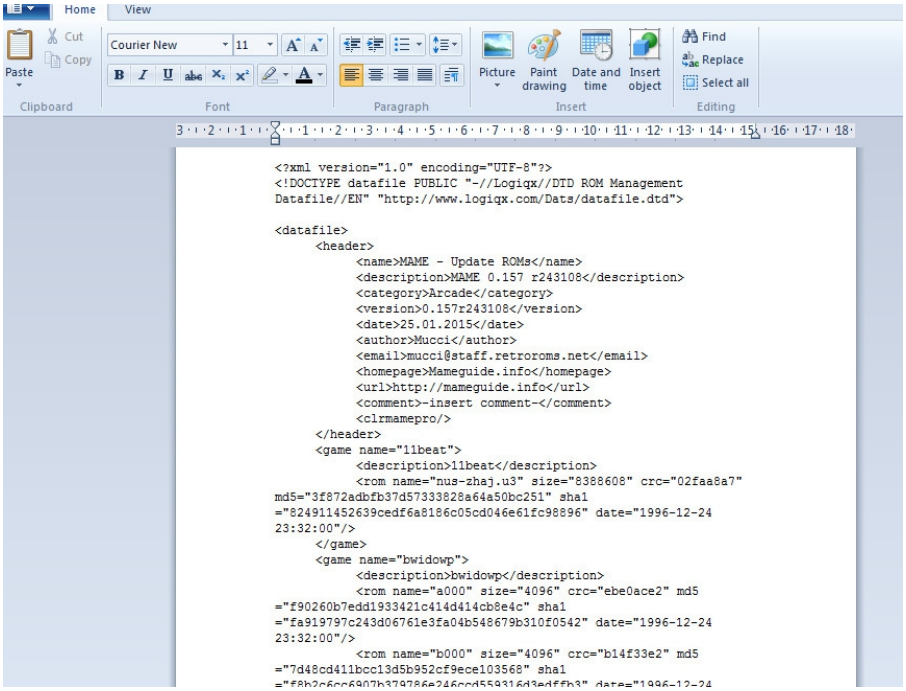
⑥ DAT format: Use XML when possible, all new ROM-Manager supports it.

⑦ Create-Button → starts the process

After the DAT-file is created it displays this message



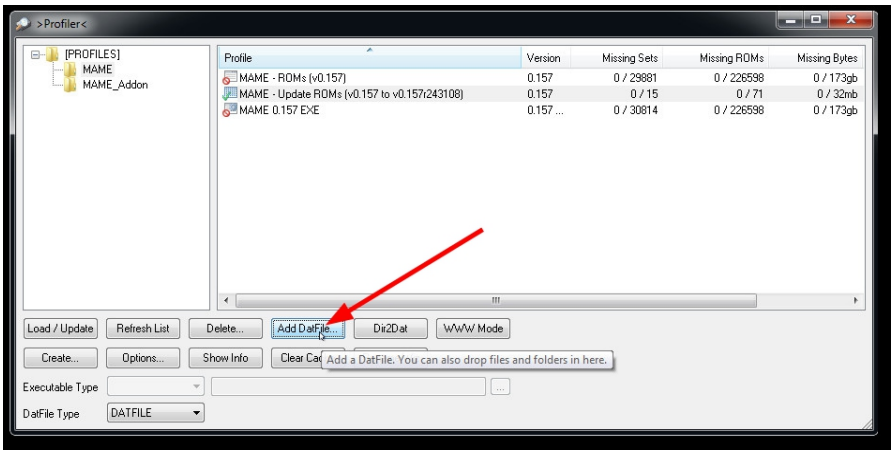
If we open that DAT-file with WordPad we see that all the information we have entered:



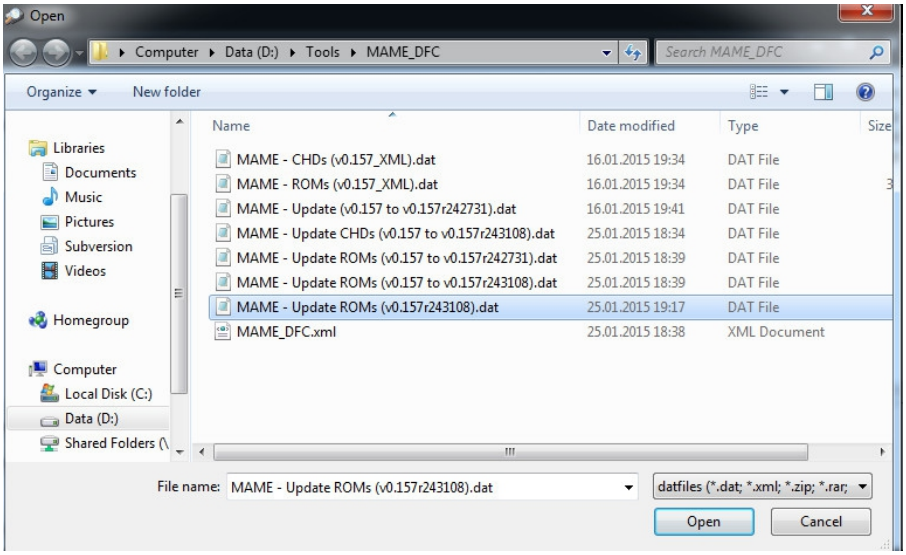
```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE datafile PUBLIC "-//Logiqx//DTD ROM Management
Datafile//EN" "http://www.logiqx.com/Dats/datafile.dtd">

<datafile>
      <header>
            <name>MAME - Update ROMs</name>
            <description>MAME 0.157 r243108</description>
            <category>Arcade</category>
            <version>0.157r243108</version>
            <date>25.01.2015</date>
            <author>Mucci</author>
            <email>mucci@staff.retroroms.net</email>
            <homepage>Mameguide.info</homepage>
            <url>http://mameguide.info</url>
            <comment>-insert comment-</comment>
            <clrmamepro/>
      </header>
      <game name="11beat">
            <description>11beat</description>
            <rom name="nus-zhaj.u3" size="8388608" crc="02faa8a7"
md5="3f872adbfb37d57333828a64a50bc251" sha1
="824911452639cedf6a8186c05cd046e61fc98896" date="1996-12-24
23:32:00"/>
      </game>
      <game name="bwidowp">
            <description>bwidowp</description>
            <rom name="a000" size="4096" crc="ebe0ace2" md5
="f90260b7edd1933421c414d414cb8e4c" sha1
="fa919797c243d06761e3fa04b548679b310f0542" date="1996-12-24
23:32:00"/>
            <rom name="b000" size="4096" crc="b14f33e2" md5
="7d48cd411bcc13d5b952cf9ece103568" sha1
```

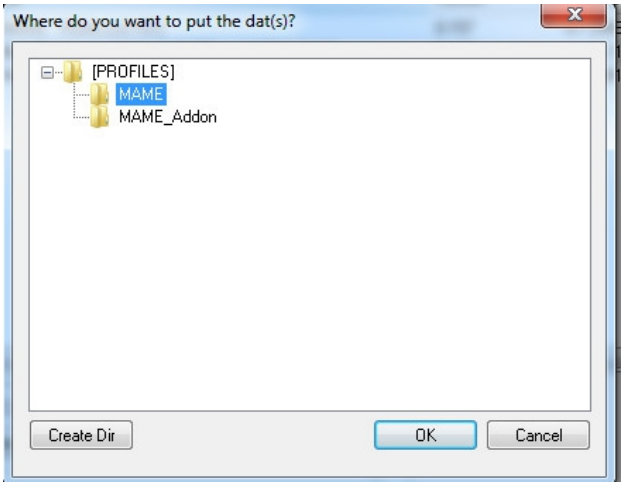
We have created the DAT-file and someone else uses it to verify that he has the same set of ROMs. Add the DAT-file into the profiler.



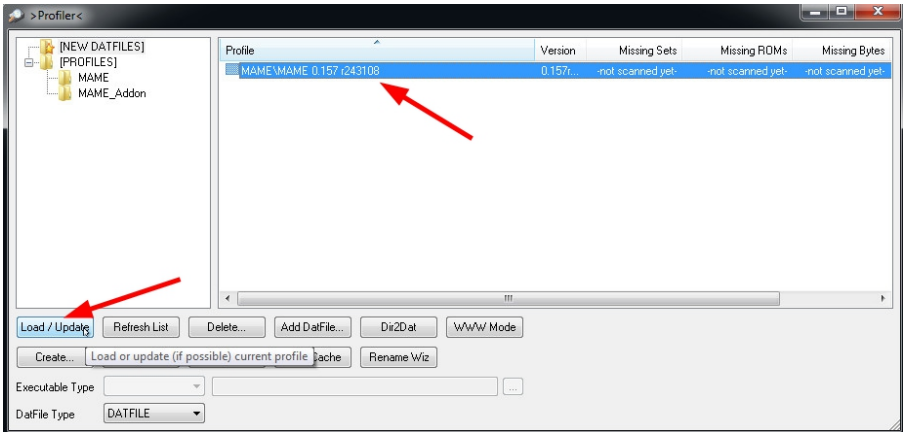
Choose the DAT-file.



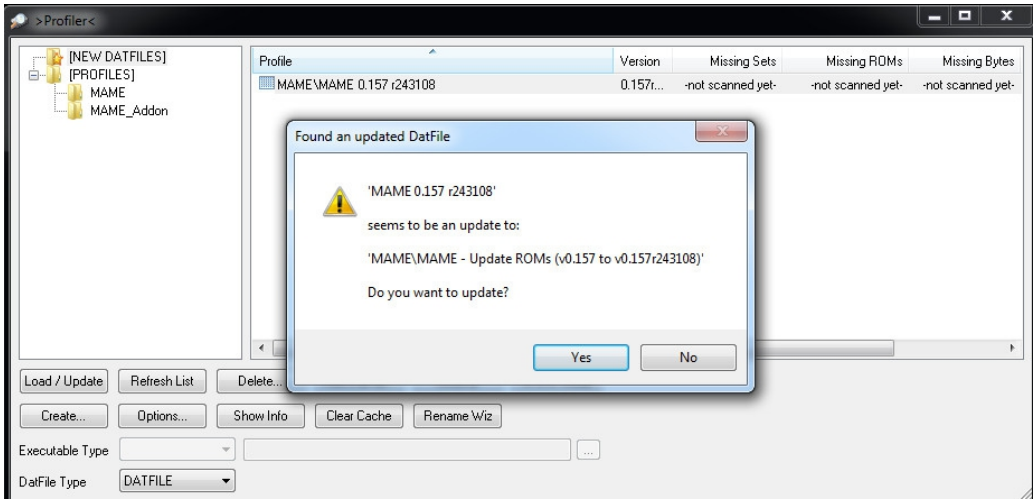
We store it in the “MAME” folder.



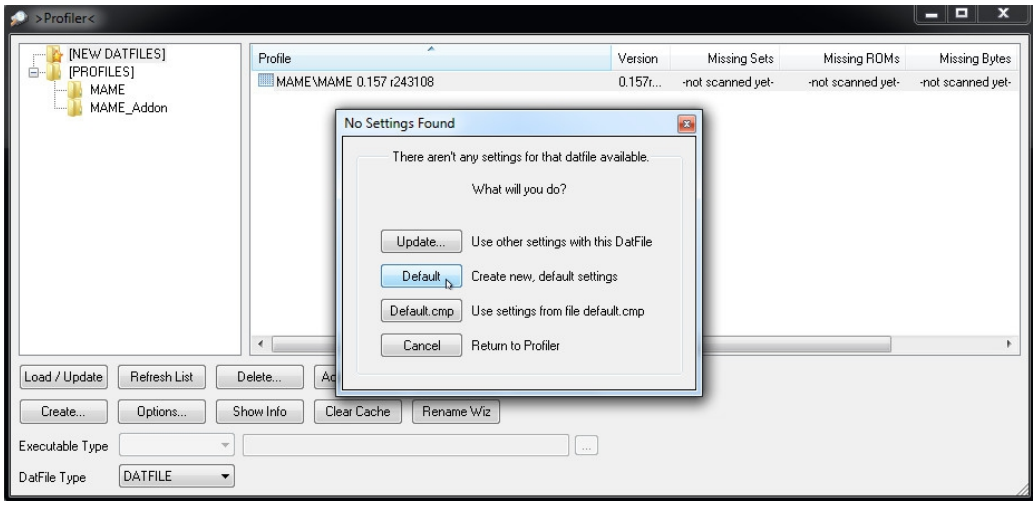
Load the DAT-file



This message appears. Why? Because we have set the name “MAME – Update ROMs” in the Header section. This is the default also DFC uses. That's why CLRMAMEPRO shows you this “update” suggestion. Click “no”

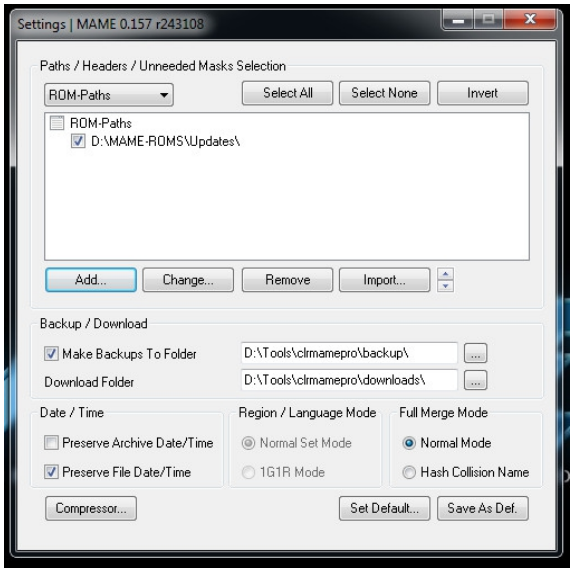


Click “Default”

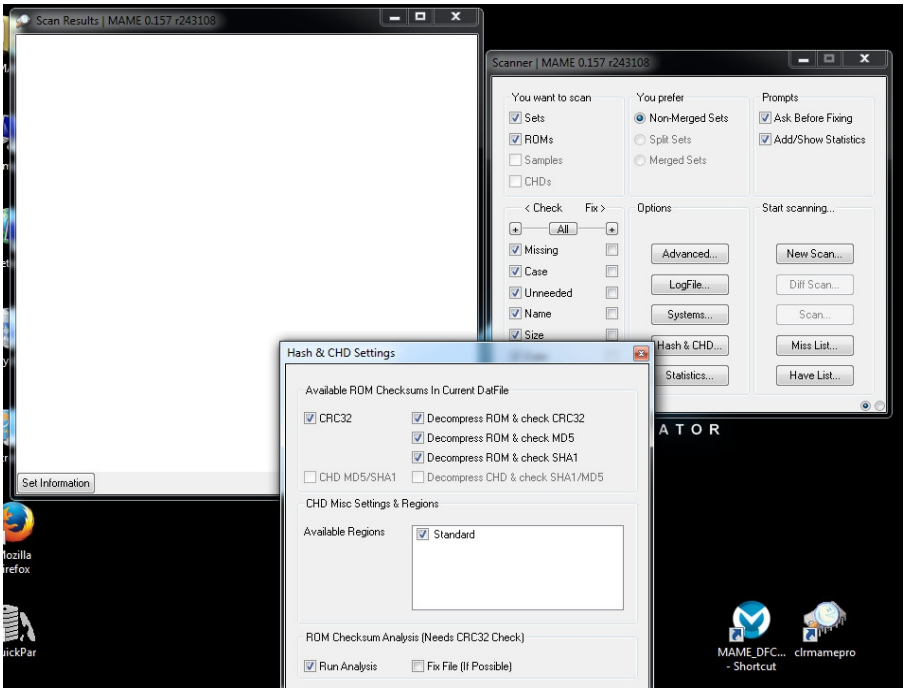


Go to the “Settings”

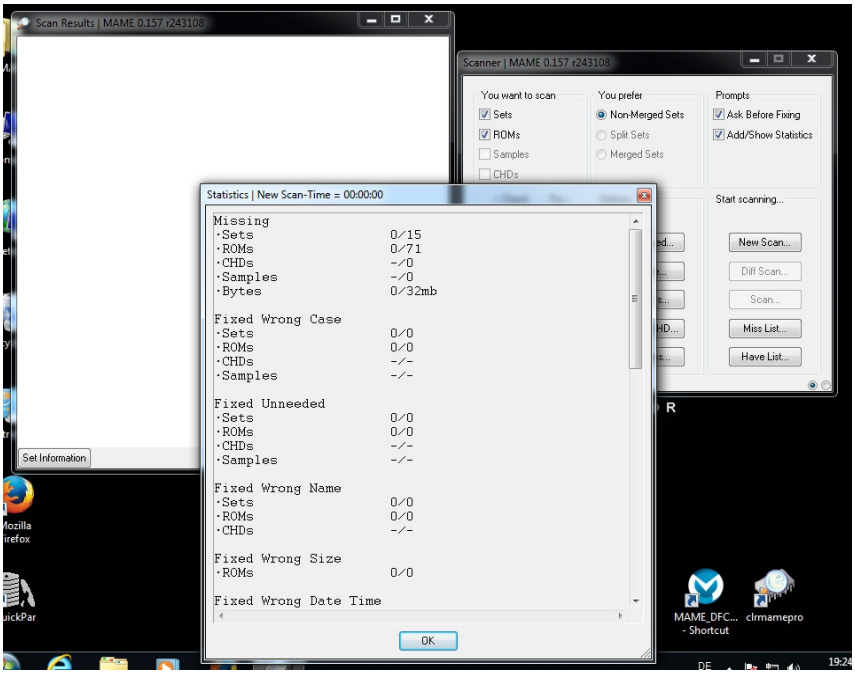
Set the ROM-Paths to your folder that holds that update ROMs.



Go to the scanner and check what is available under “Hash & CHD”. We have created the DAT-files and have enabled MD5 and SHA1. We see now that we can choose it for verifying our ROMs.



After the scan it shows us the report.

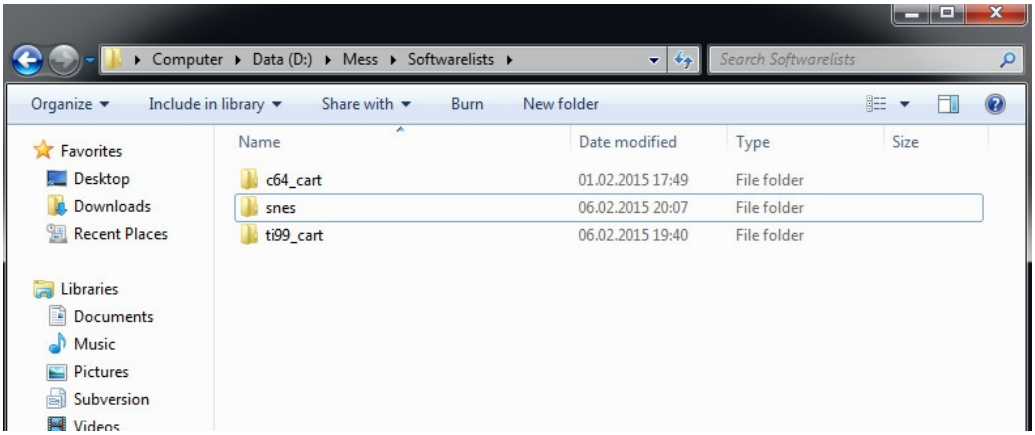


Using Batch-Mode

We have used CLRMAMEPRO for scanning/rebuilding one set at a time. But CLRMAMEPRO has more power inside it is called “batch-mode”. When you are looking at those softwarelist for MESS. Can you remember where the DATs are (xml)? Right they are under “D:\Mess\hash” and yes they are over 300. You now have two choices add 1 DAT, scan and rebuild it, add the next DAT and after some days of hard work you have reached hopefully the end ;-)

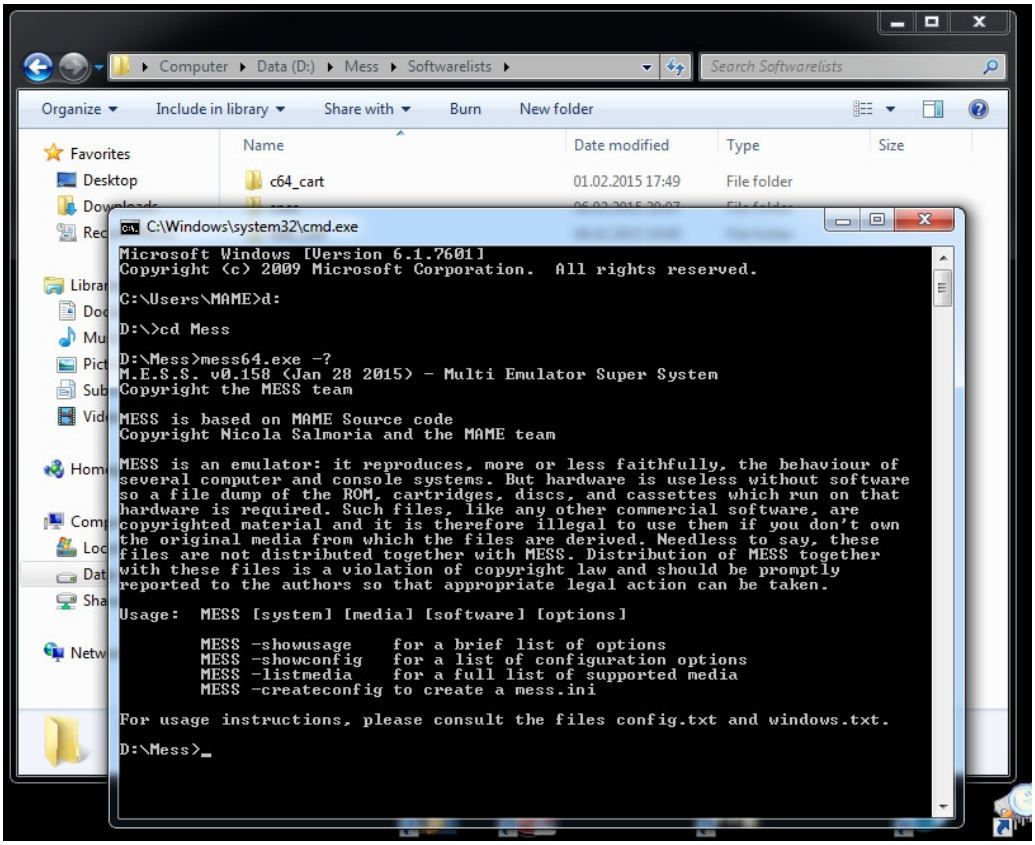
The other way is that we can automate that with CLRMAMEPRO.

Let's look first at our Softwarelists folder:

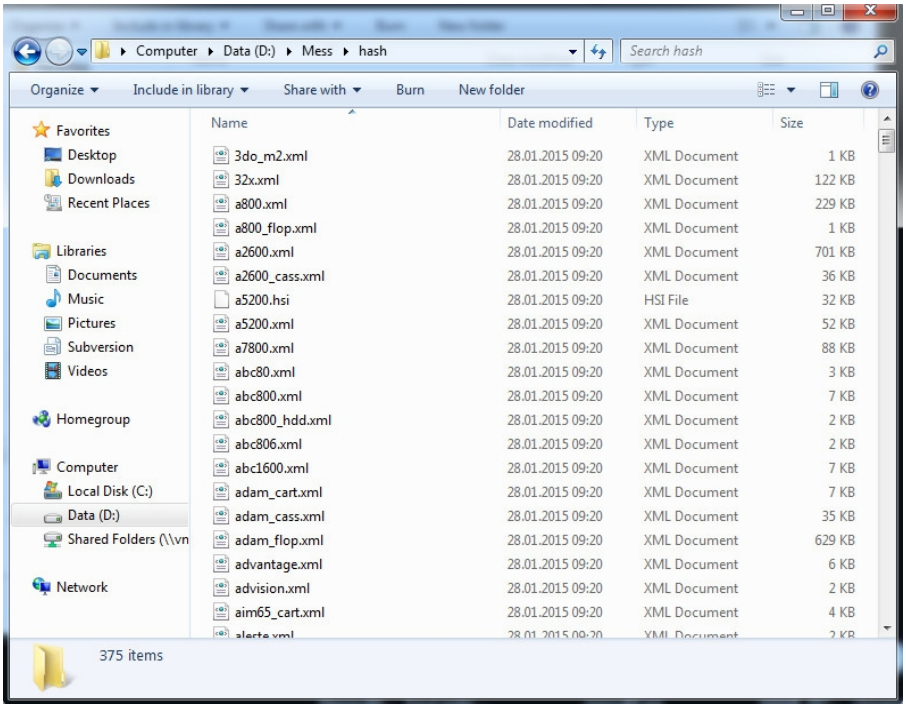


We have only a few there and we want that set complete.

We have our MESS emulator updated to V.0158

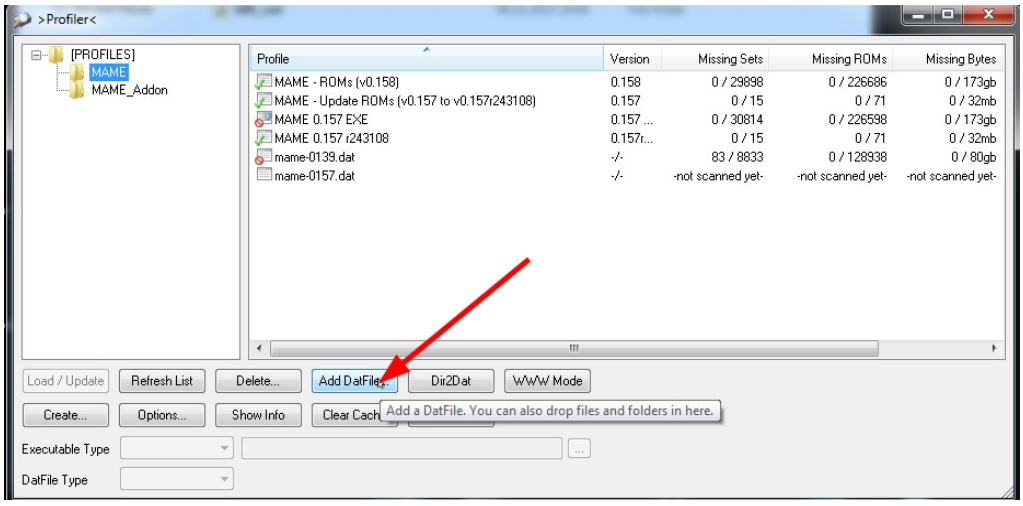


And in this hash folder are all DAT-files in a XML-format available.

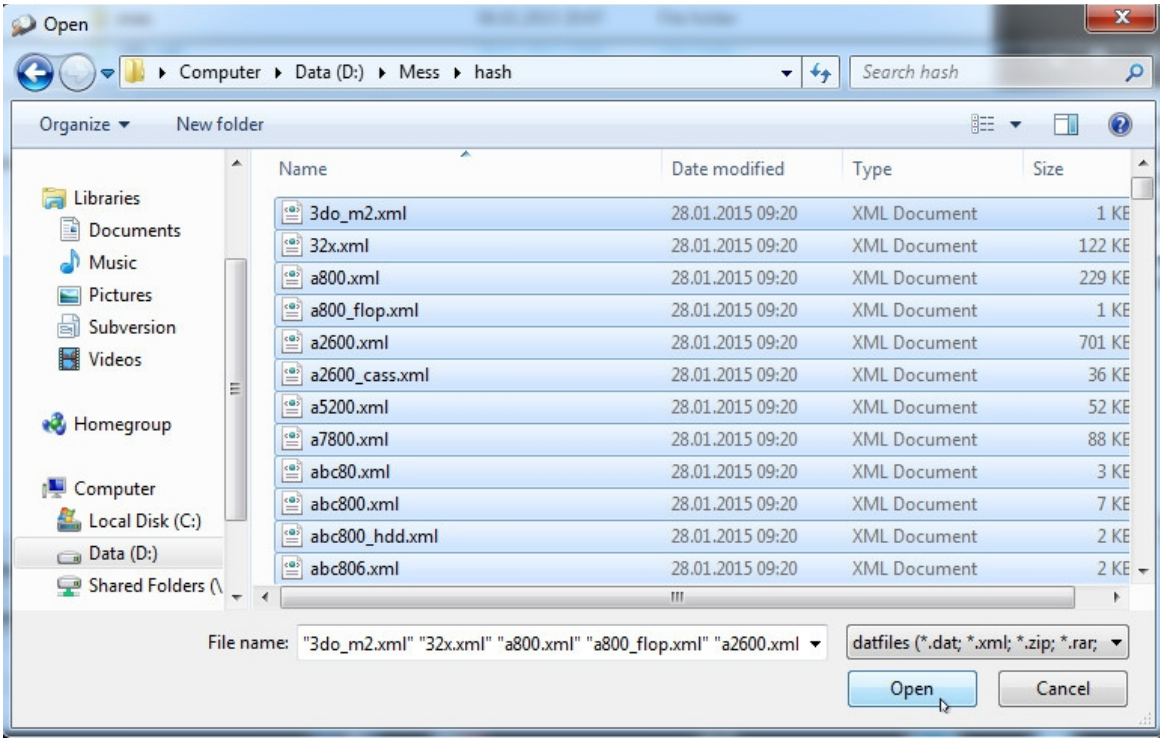


We start CLRMAMEPRO

In the profiler we click on “Add DatFile”

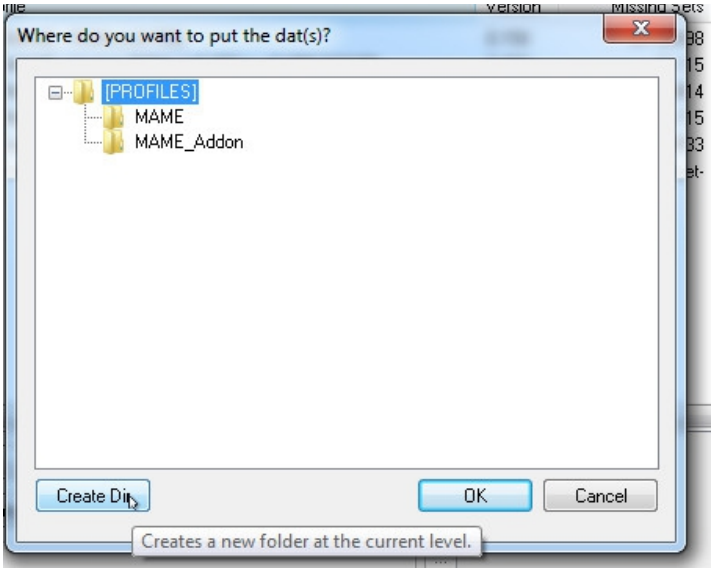


We change the folder-path to “d:\Mess\hash” and select all available XML-file (Ctrl+A). Click “Open”

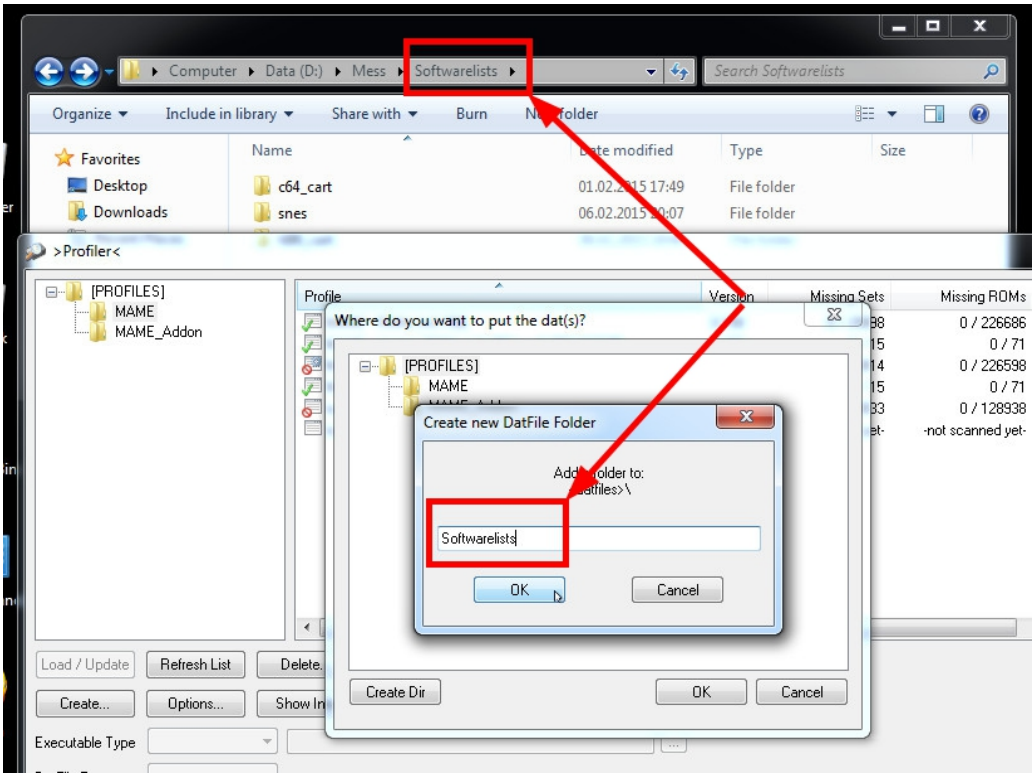


! In our example we do not separate SL ROMs (Softwarelists) and SL CHDs. All SL CHDs together needs 1.5TB and some torrent sites make for that reason two torrents for this SL: One for the ROMs and one for CHDs (check there if they have separated the DAT-files and use them)
Some XML does not represents ROMS, like iq128.xml and vreader.xml. They could be reported as an error within a ROM-Manager.
We are choosing all available XML and we will see what happens ;-)

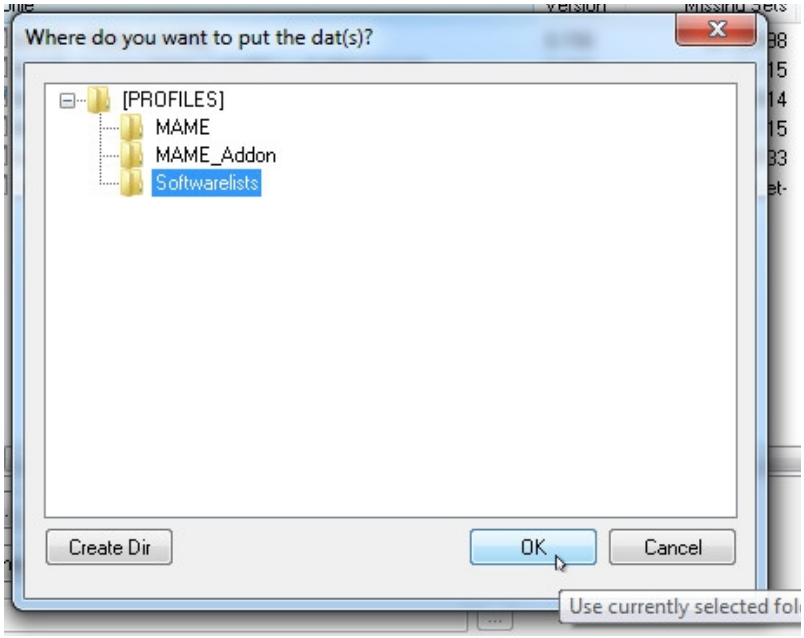
Click “Create Dir” (at the root of the Profiles)



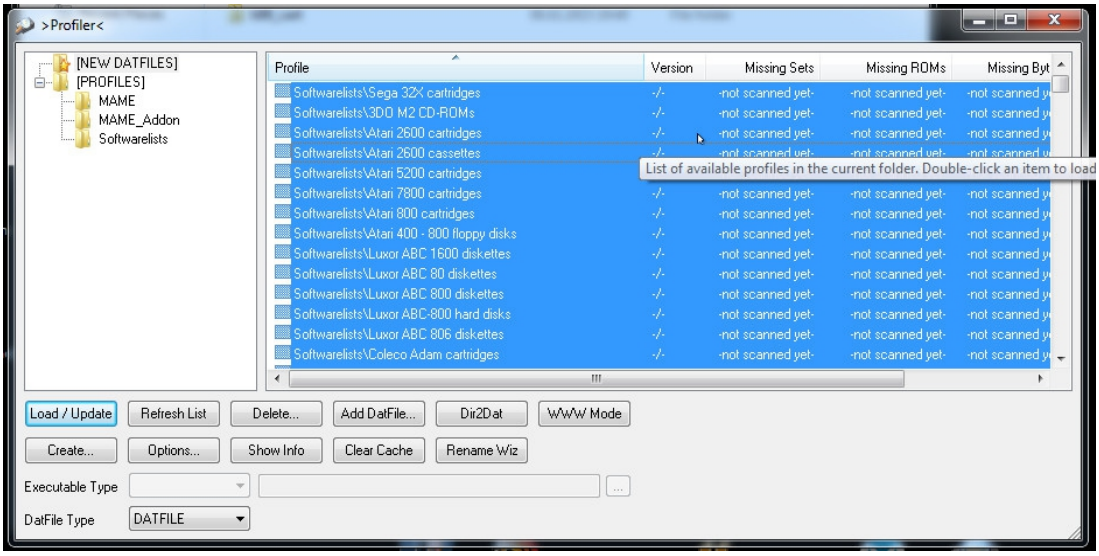
Enter the name of the folder to be created in profiles. This have to be the same name as the folder name where you want/have to store the files!



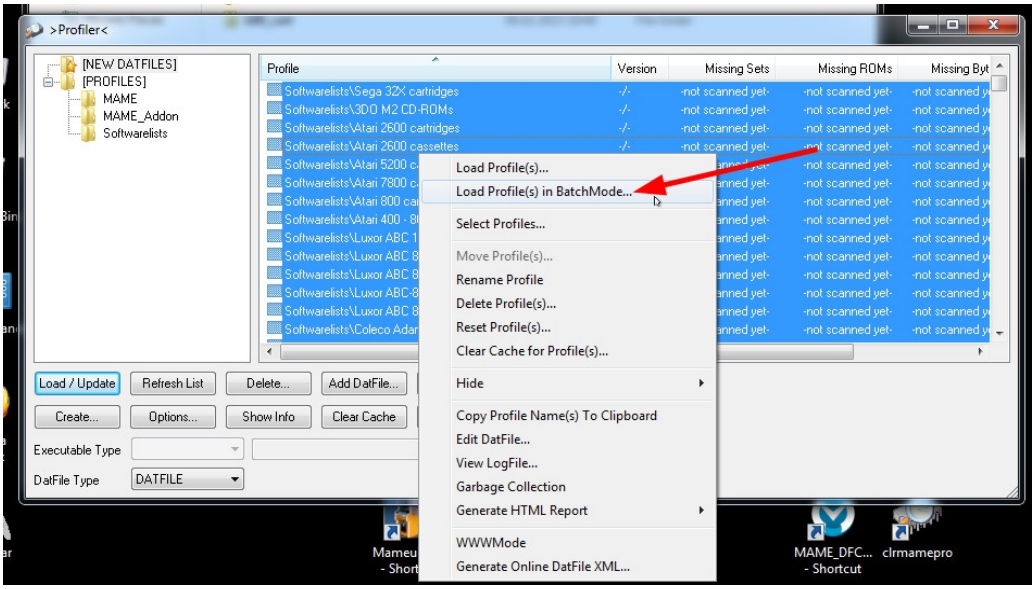
Click “OK” for the folder creation and “OK” for choosing it.



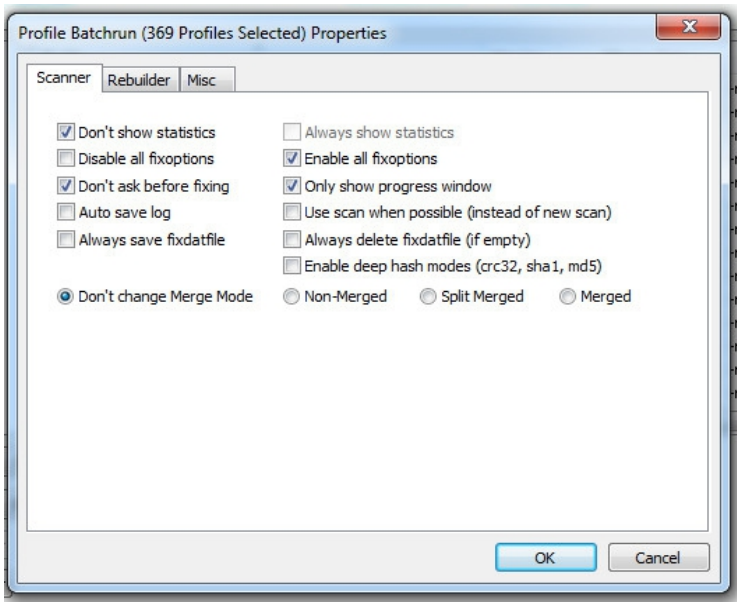
Now we have all DAT files under “NEW DATFILES”. Select all with “CTRL +A”



Now do a right-click and choose “Load Profile(s) in BatchMode” from the context-menu.

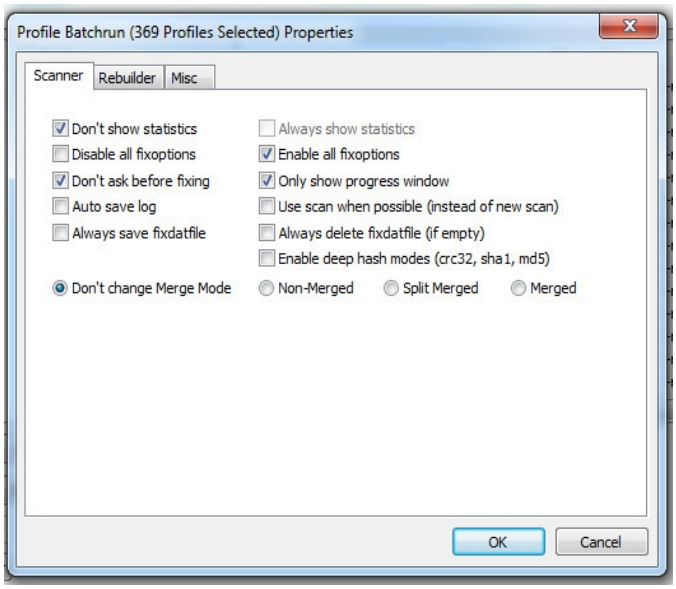


A new window appears called “Profile Batchrun (x Profiles selected)...”



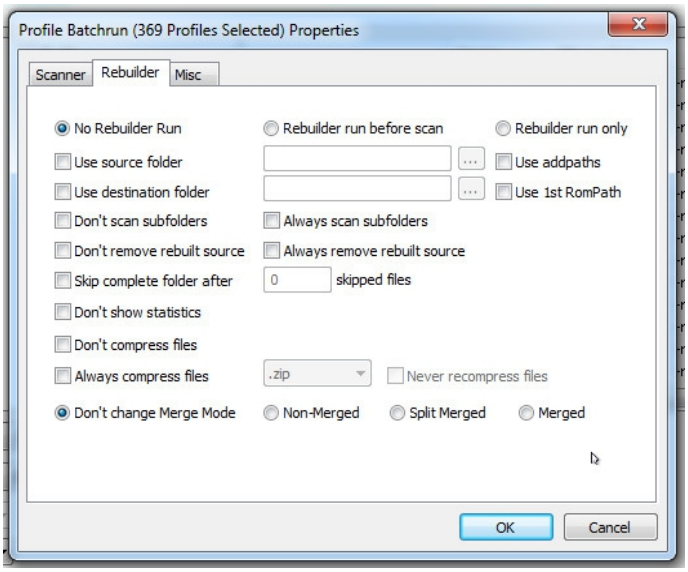
In this windows we have three tabs: Scanner, Rebuilder and Misc. Let's explain each.

In the Scanner tab you can choose all the settings that are being used for scanning. I have enabled “Don't show statistics” as I don't want to click over 300 times “ok” on the statistic report window. “Enable all fixoptions” should be enabled as well.



The tab “Rebuilder” we do not need for the first scan. We do need it later.

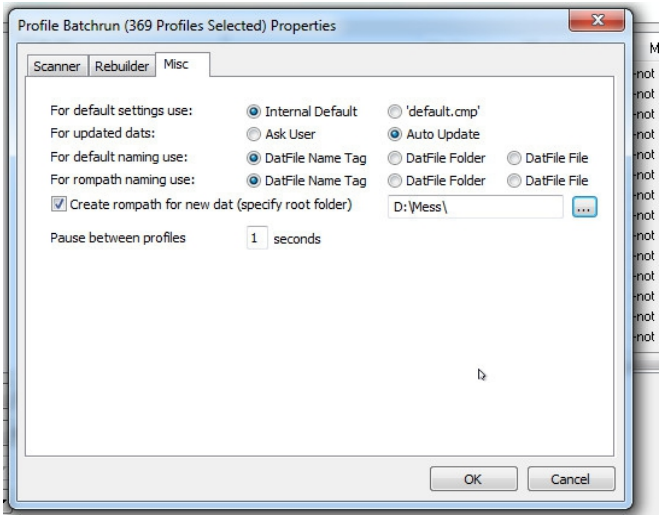
Be sure that you have chosen here “No Rebuilder Run”



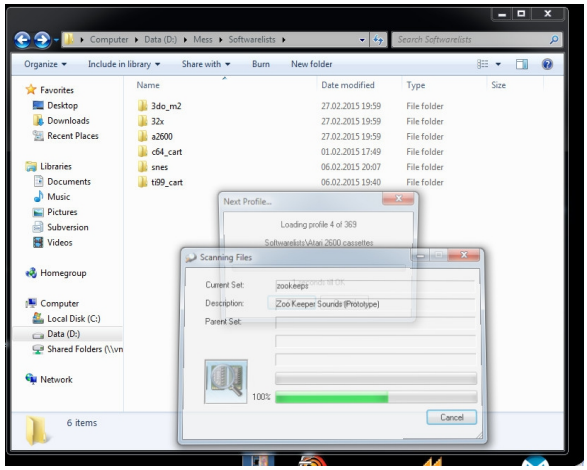
The last tab is called “misc”. We enable “create rompath for new DAT...” and choose the folder where your Softwarelists are. Be sure that you are NOT choosing the “D:\Mess\Softwarelists” → select the upper folder → “D:\Mess “

Don't worry it will scan below this “D:\Mess\Softwarelists” ;-)

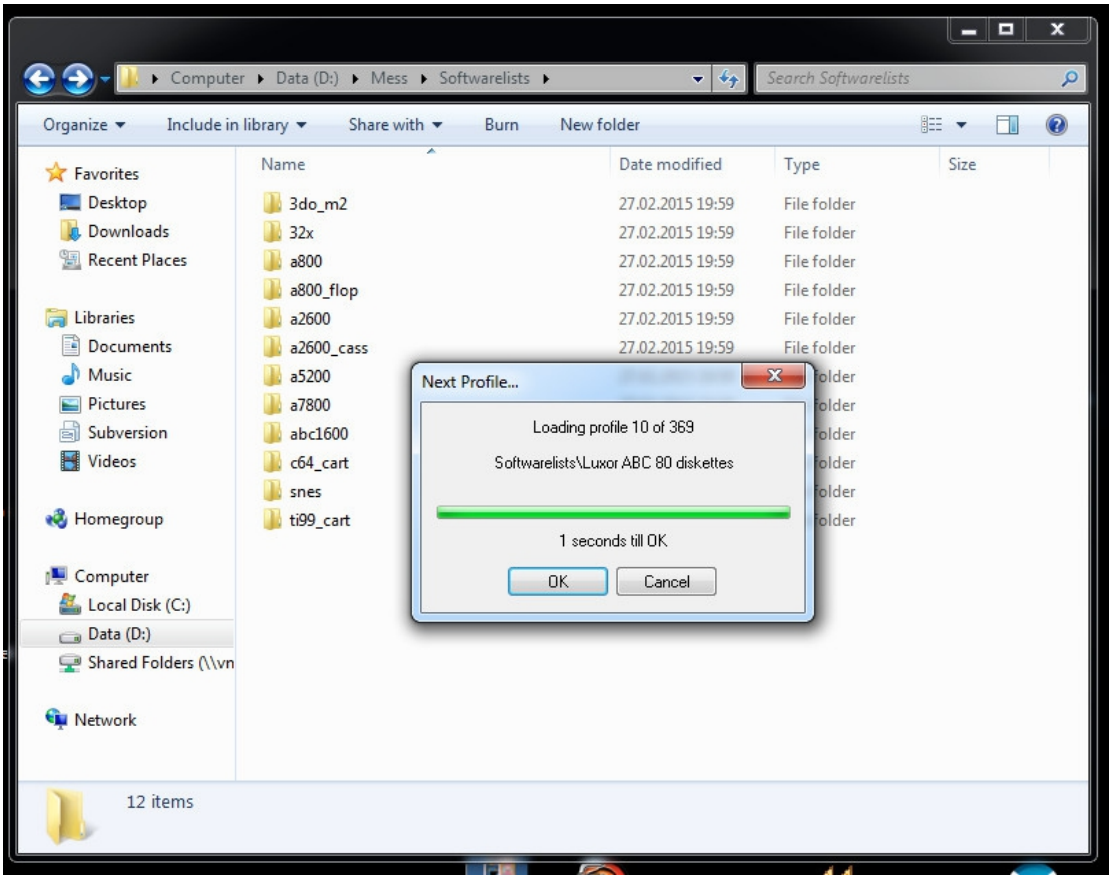
Set the Pause between profiles to 1 second.



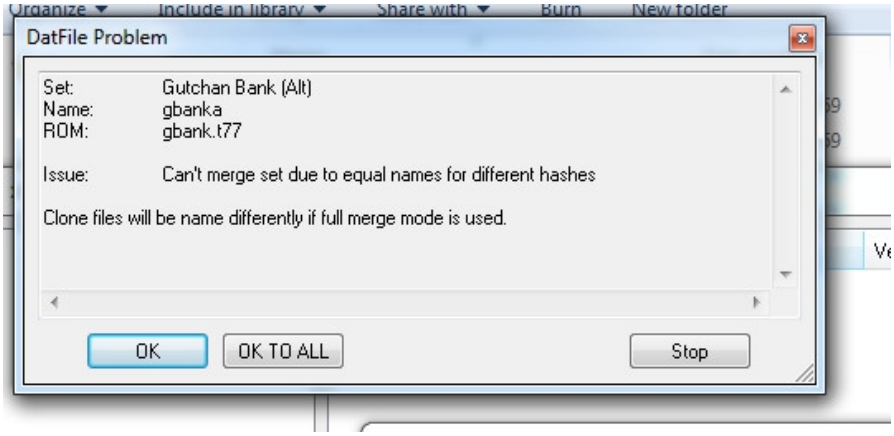
We can now scan in batch-mode for the first time. This first should always be started without “Rebuilder” enabled, be sure that you don't have enabled it before you click “OK”.



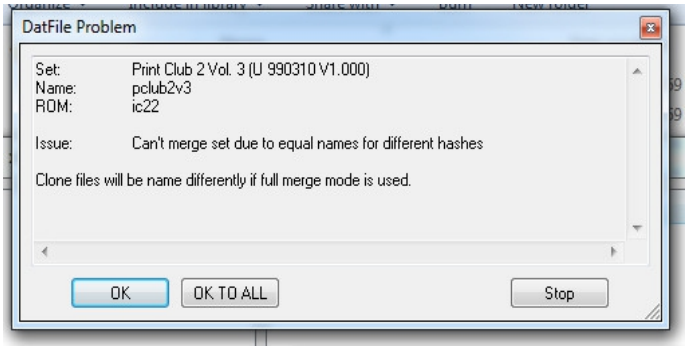
When the batch-mode scan change to the next DAT-file you can see the status where it is.



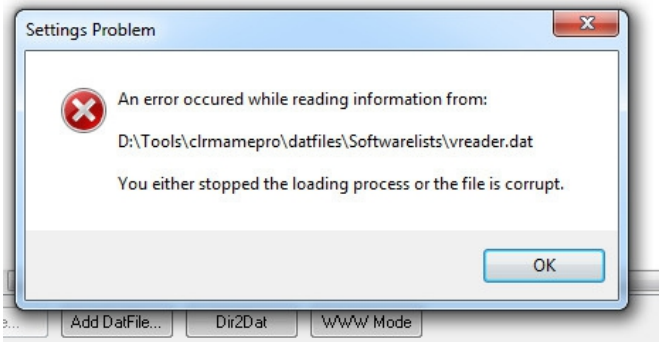
Same as in the normal scan process you could be asked for a decision when there is a conflict. Choose “OK to all”



Same here, click “OK to all”

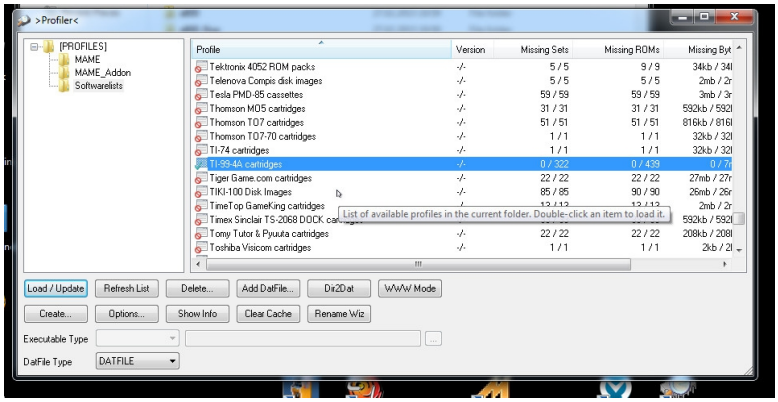


After a while we do get this error message:

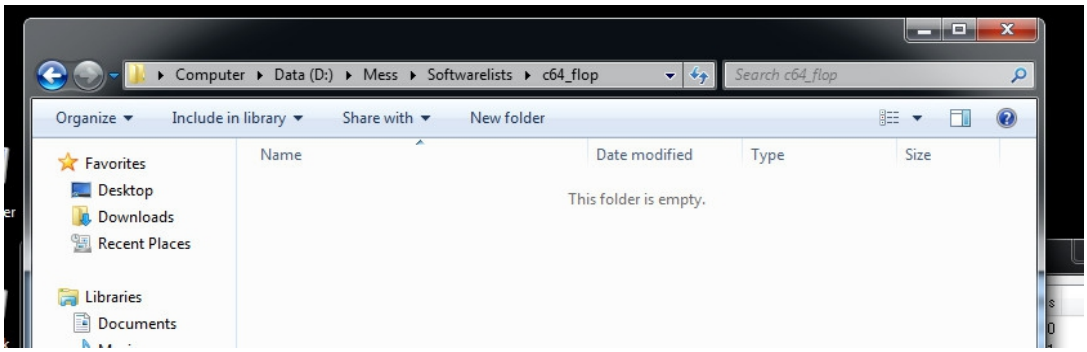


The batch-mode has stopped. I have mentioned earlier that this DAT-File “vreader.xml” has no ROM information inside and CLRMAME does not like it and show this stop message. Click “OK” and start the batch-mode scan again with the rest of the DAT-Files that are under “NEW DATFILES”.

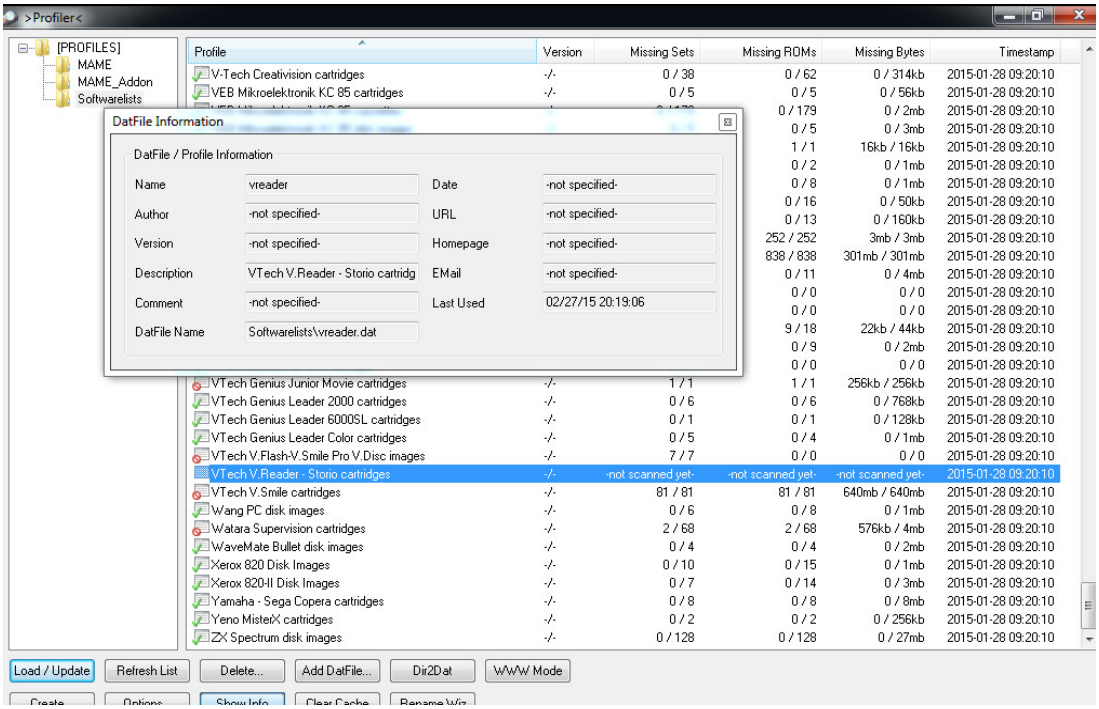
After the scan has finished you will see in profiler that we have a lot of missing. Yeah we have only a few added some time ago for testing MESS.



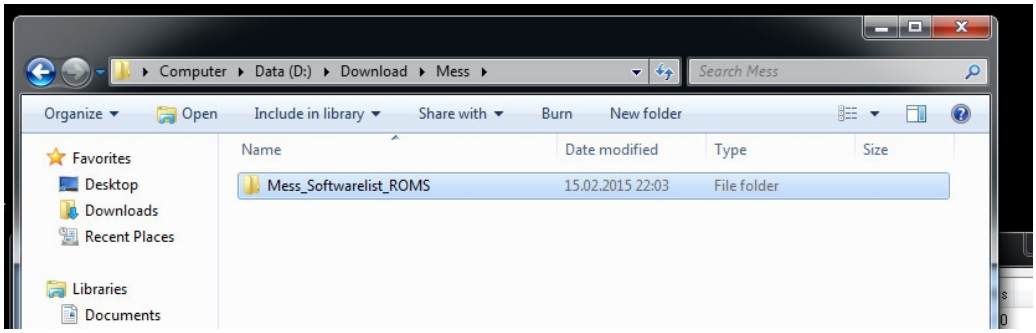
We see that we have now a lot of subfolders in our Softwarelists folder. Can you remember that we have enabled under misc “create rompath for new DAT”? That's the reason why we have now all this folders. Of course they are empty. We have only scanned what we have ;-)



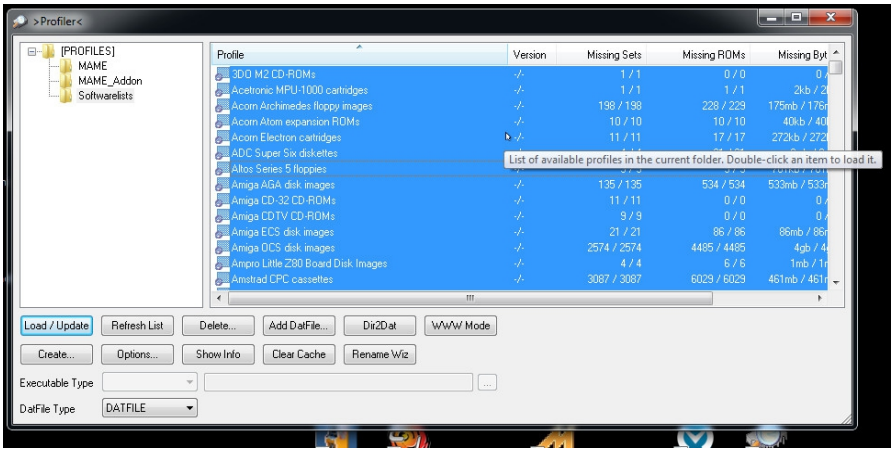
Now we want to rebuild our set with downloaded stuff ;-) But first we do delete this “vreader.dat” from our profiler. Search for this name “VTech V.Reader / Storio cartridges” and delete it. If you want more information about this DAT before deleting click ”show Info”.



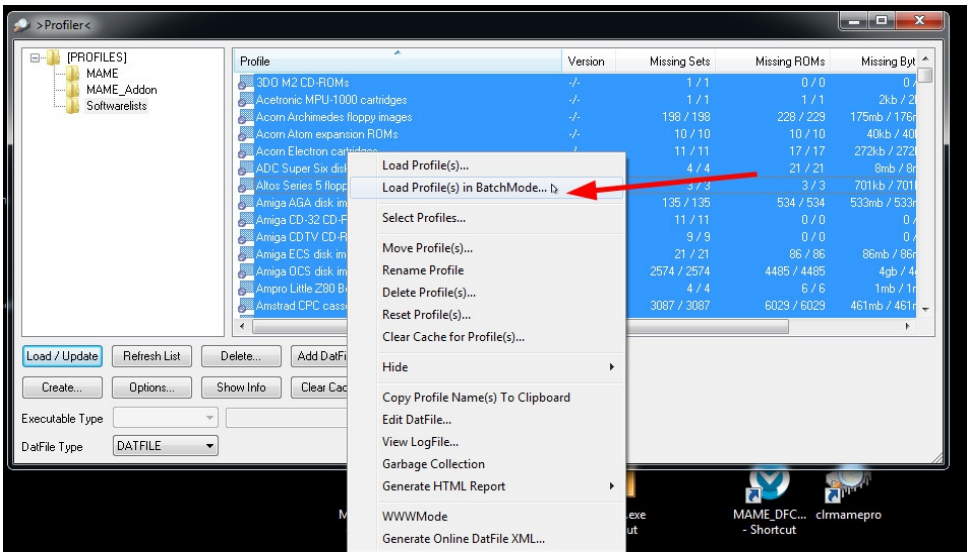
We have downloaded SL-ROMs from the Internet to our download-folder.



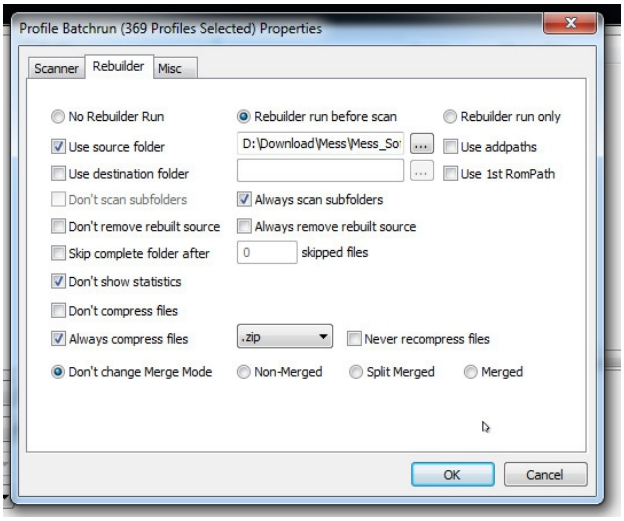
In the profiler choose all available profiles in the Softwarelists (CTRL + A).



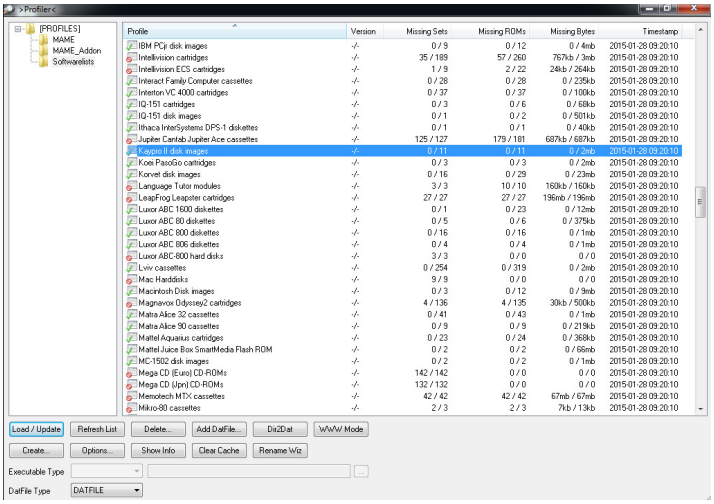
Do a right-click and load them into the batch-Mode



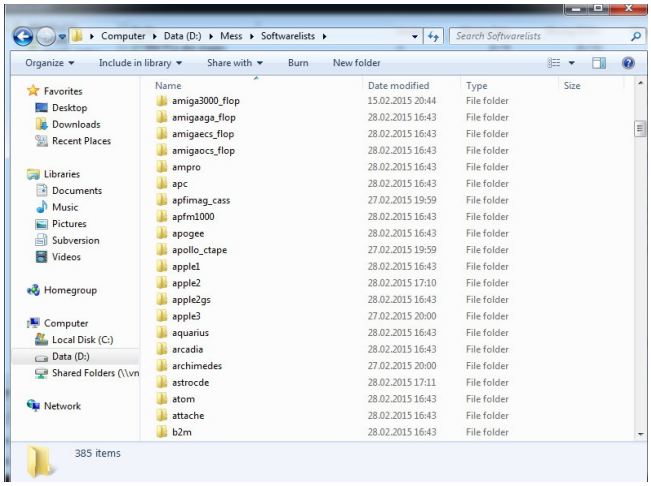
In the Batchrun window we leave the scanner tab as it is and enable “Rebuilder run before scan” in the “Rebuilder” tab. Activate “Use source folder“ and point it to your download-folder. Also here it is recommended that you enable “Don't show statistics”. The rebuild ROMs should be stored inside a zip-file → Enable “Always compress files” and choose zip-file. Start the process with “OK”....



The rebuilding and scan of all this profiles takes a while. After it has finished the profiles should shows now a better statistics which profile is complete or has missing sets.

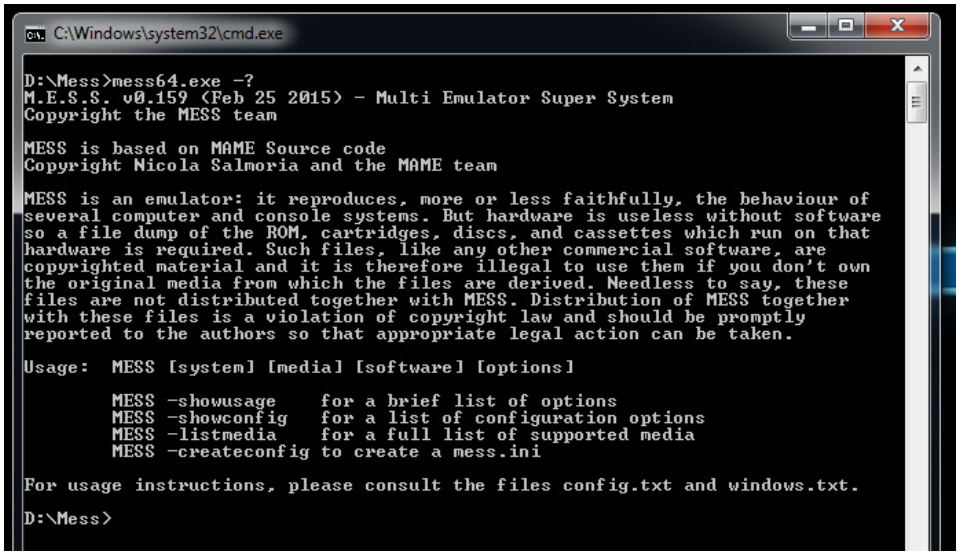


Now you should have more files inside those folder ;-)

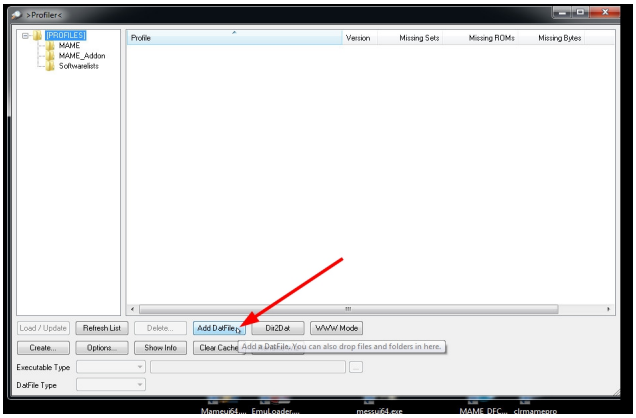


As I have not a complete set myself (It was an older SL-Set) you can now search for the missing sets yourself. Load only 1 set into the profiler, scan, rebuild and create a fix-DAT for the missing. Or use the batch-mode to perform more than 1 profile automated. By the way there is an option in the “Scanner” tab for saving a fixdat for uncompleted profiles, activate that and all fixdat are saved in the CLRMAMEPRO folder “fixdats”.

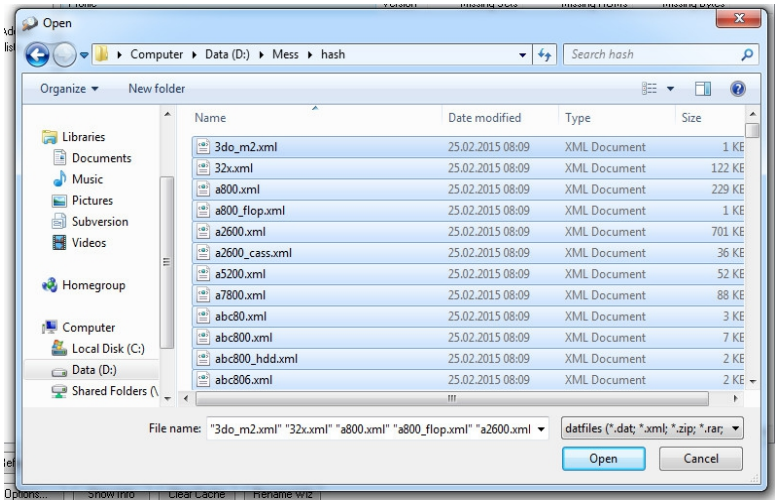
Now we have completed our SL and a new MESS is published. We have updated our emulator to V.0159 and it has new or changed SL-Lists ..



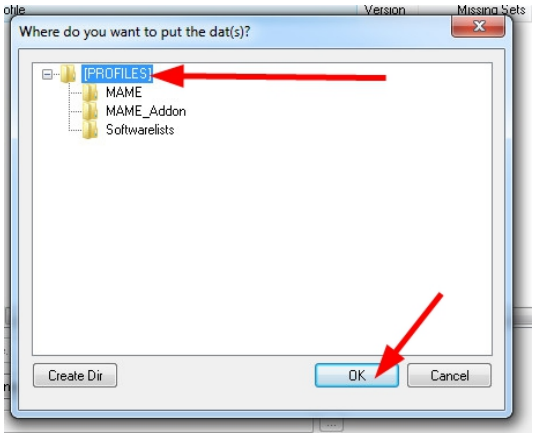
Start CLRMAMEPRO and click “Add DatFile” in the profiler.



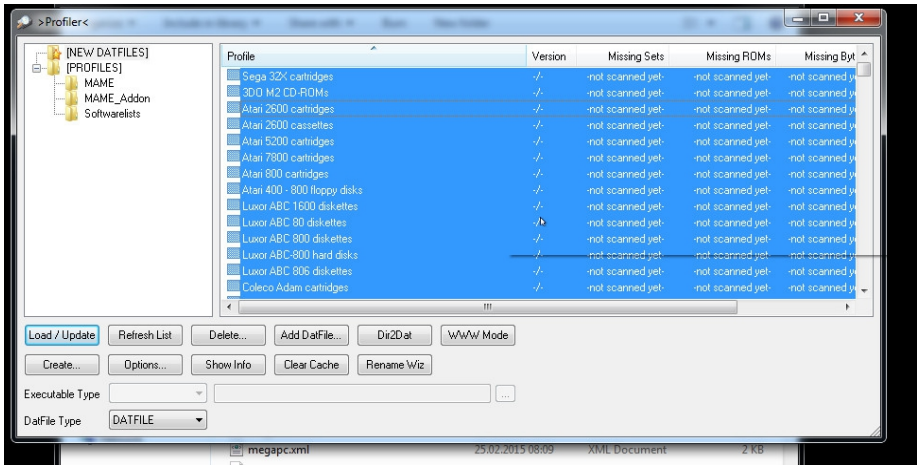
Again choose all XML-File from the hash-folder (D:\Mess\hash)



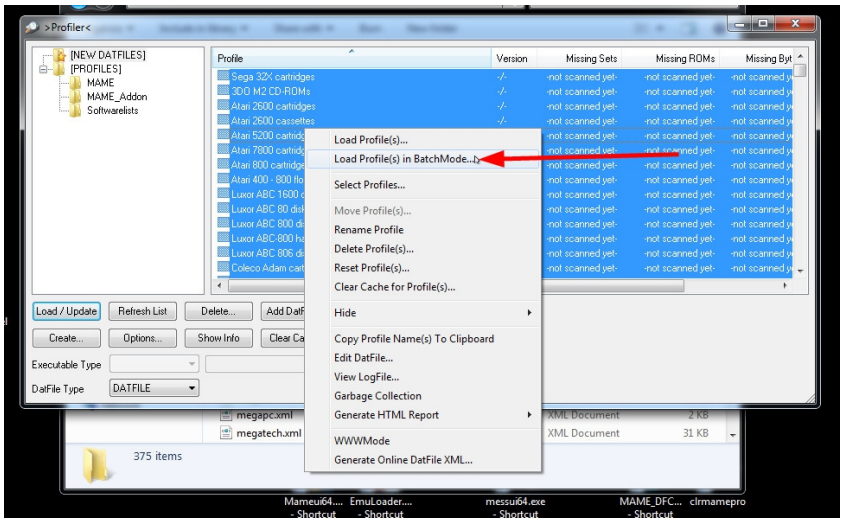
After you have clicked “OK” choose the Profiler root folder as your destination (and not “Softwarelists).



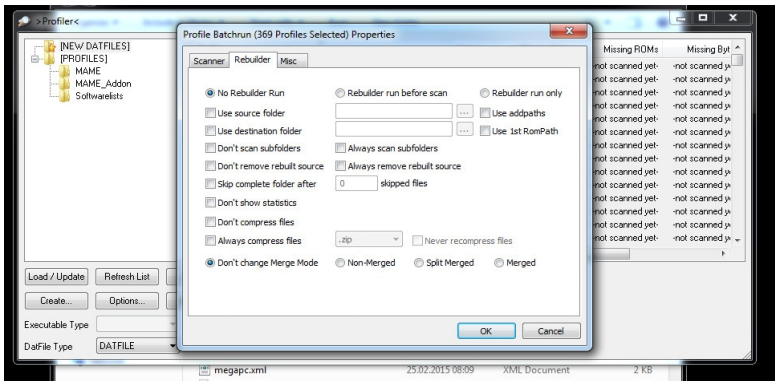
Choose all SL-Profile in the profiler that are under “NEW DATFILES”.



Do a right-click and choose “Load Profile(s) in BatchMode”



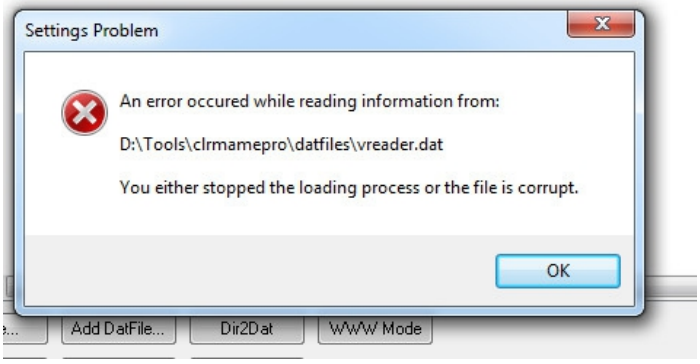
And again do the first run without “Rebuilding”. There are maybe new SL-Sets added and their directory has to be created first. Disable “Rebuilder”



Check all the other settings in the tab “Scanner” and “Misc” to be sure that they are correct before starting the process with “OK”.

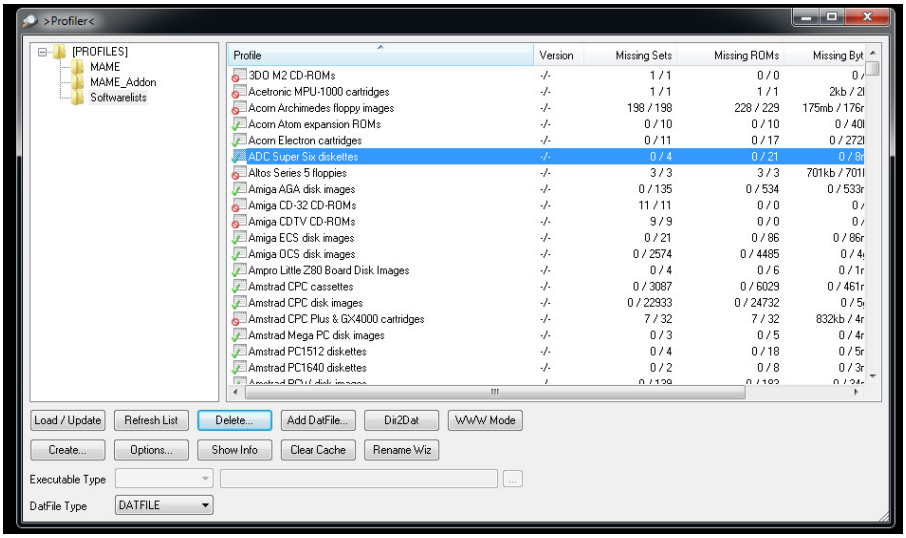
! You are wondering why we have stored this DAT file under the root and not under Softwarelists? The reason is simple CLRMAMEPRO does detect that you have a same DAT-File already in your DAT-Folder and replace is with the new one.

Again after a while we have this error from the “vreader.xml”

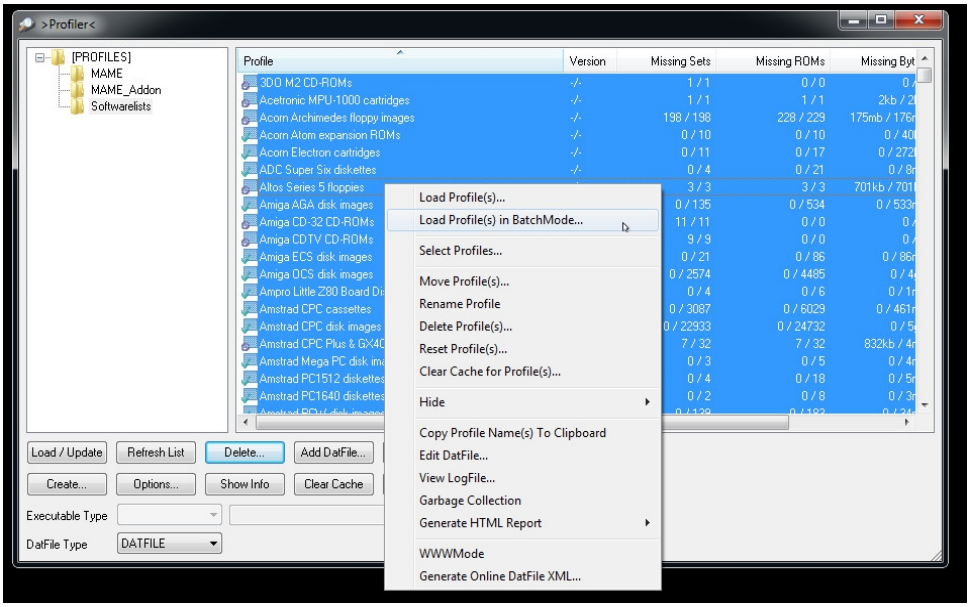


Click “OK” and do another Batch run with the rest of the SL-DATs in under “NEW DATFILES”. (And again DO NOT enable “Rebuilder” ;-))

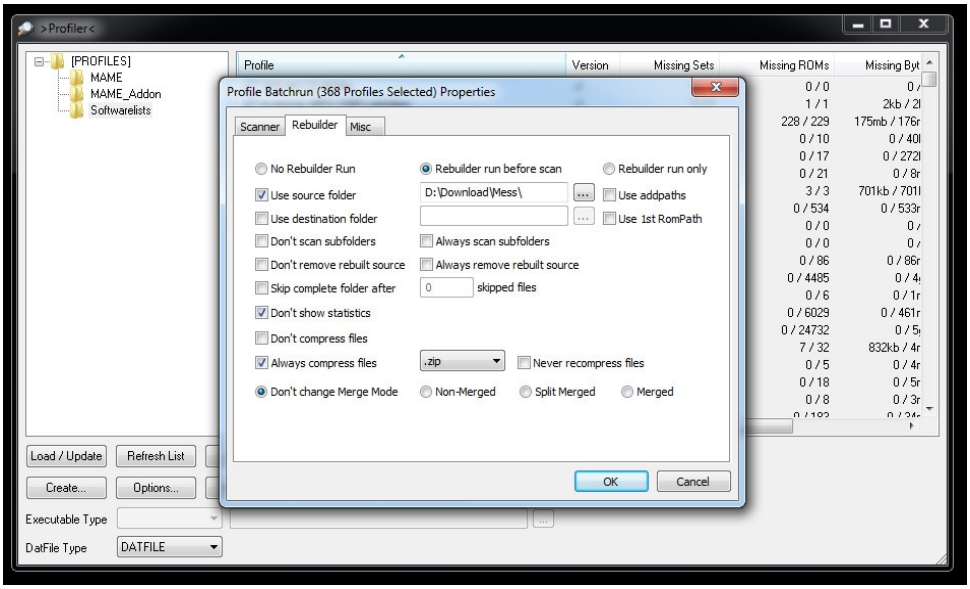
We have now updated our Softwarelists with the new SL-list from MESS.



Load them all again into the “BatchMode”



And activate now the “Rebuilder” and point it to a folder where you have downloaded new ROMs.



We have now our Softwarelists for MESS again complete.

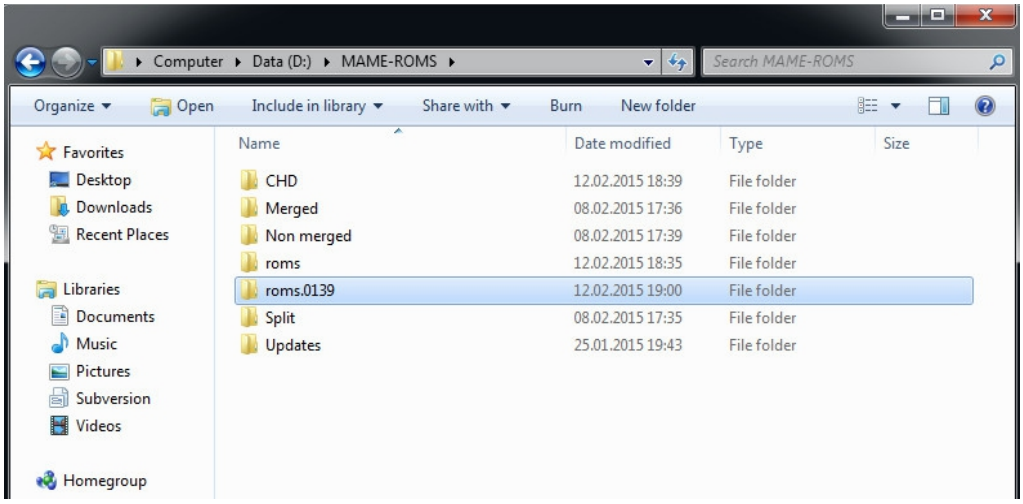
Remember: Rebuilder does not rebuild CHDs files. You have to move/copy them manually to the destination folder!

Creating a set for an older MAME version

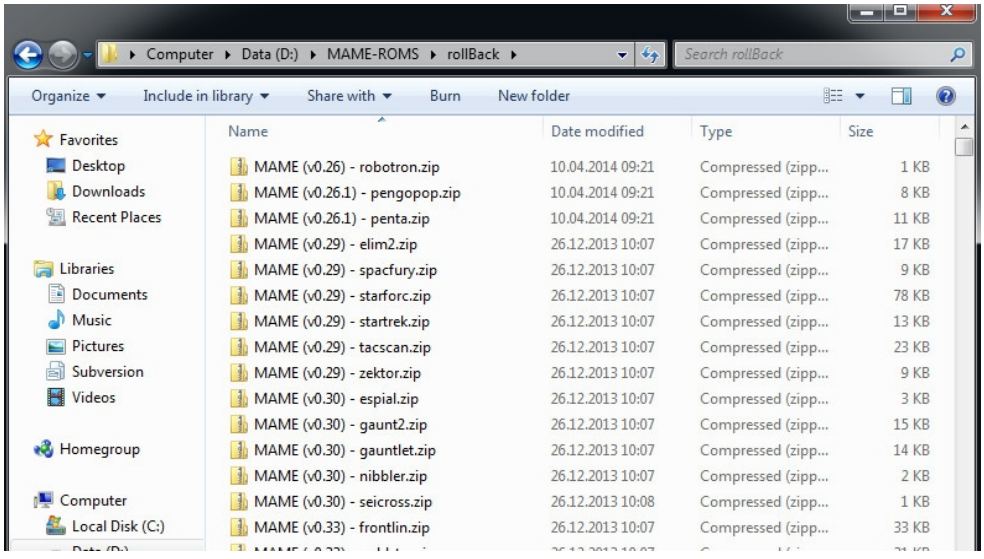
Normally you should not go back to an older version of MAME. Each new version of MAME does brings better emulation and eliminates errors. But there is a reason why you have to use an old set. For example in your "MAME Cabinet" is an old PC or you want to play it on a tablet/mobile that have not enough power to start the latest emulator (or it is not available for that model).

In our example we want to create a set for MAME Version 0.139.

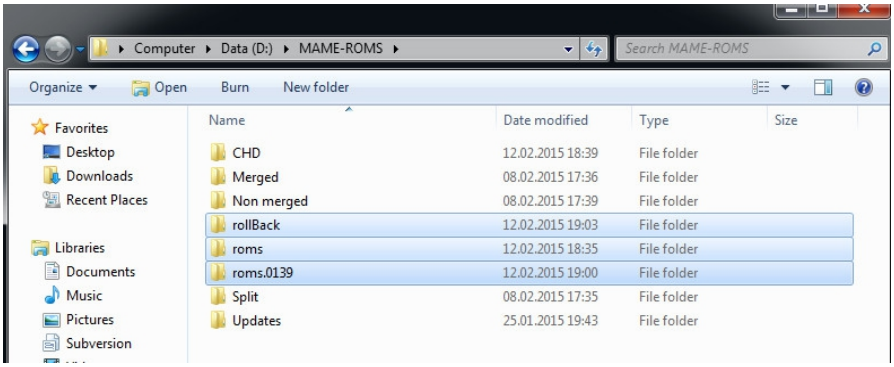
Create a folder in our MAME-ROMs folder called "roms.0139"



For going back in the version you might be need some files that have been removed or updated in a later set. There are download-sets available in the Internet that are called “MAME rollback set”. To have a perfect set for 0.139 you will have to need that as well. I have downloaded them in a separate folder called “rollBack”



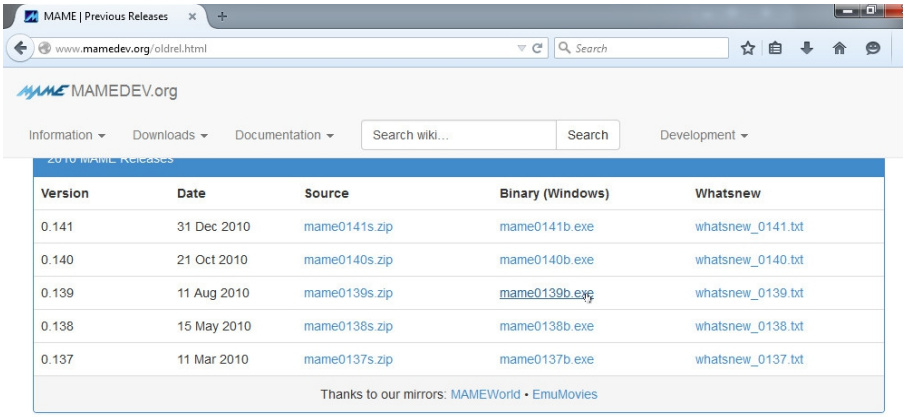
For rebuilding an old set you will need to have this three folders.



- rollBack: All removed old sets
- roms: That is the folder where your latest MAME ROMs are
- roms.0139: empty folder that we use for rebuild into it

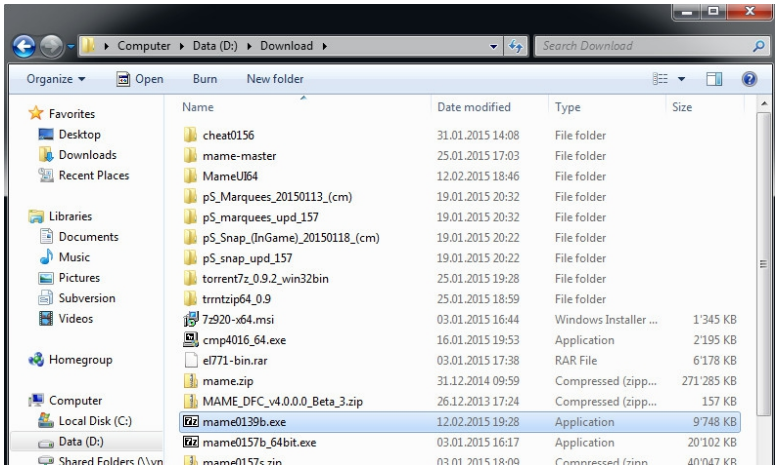
The first step is that we need a DAT-file for the V0.139 ROMS. If you have not such a DAT-File we can use an executable to have this information available. Open a web-browser and navigate to MAMEDEV and choose there “Downloads – Previous Releases”.

Scroll down and find the 0.139 executable.

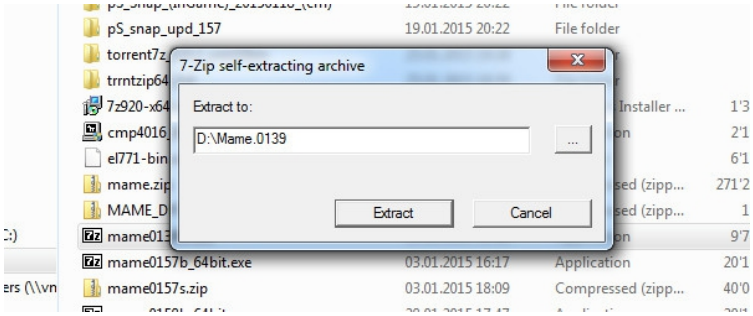


MAMEDEV does only provide official releases. When you need an executable for example for V0.139u1 you have to search somewhere else!

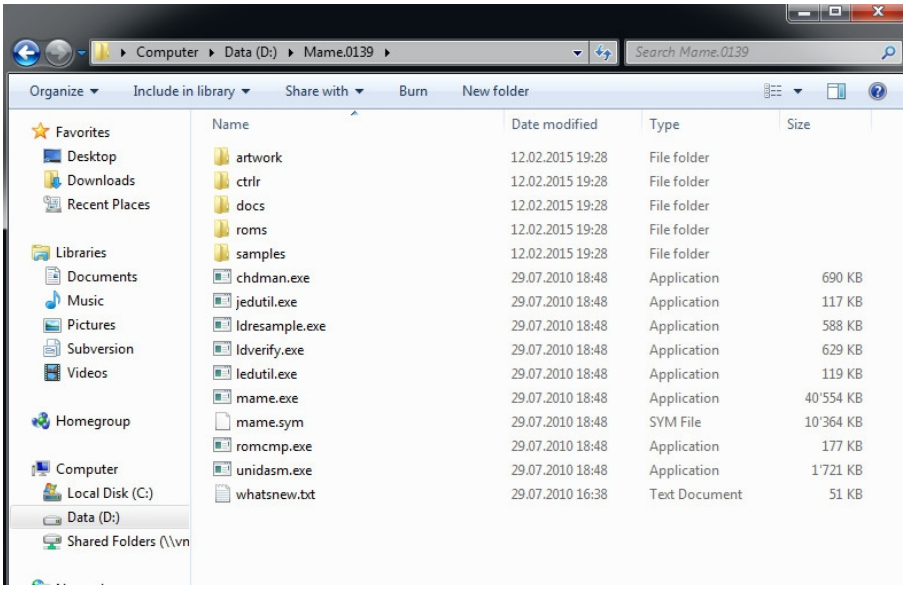
Download it to your download-folder



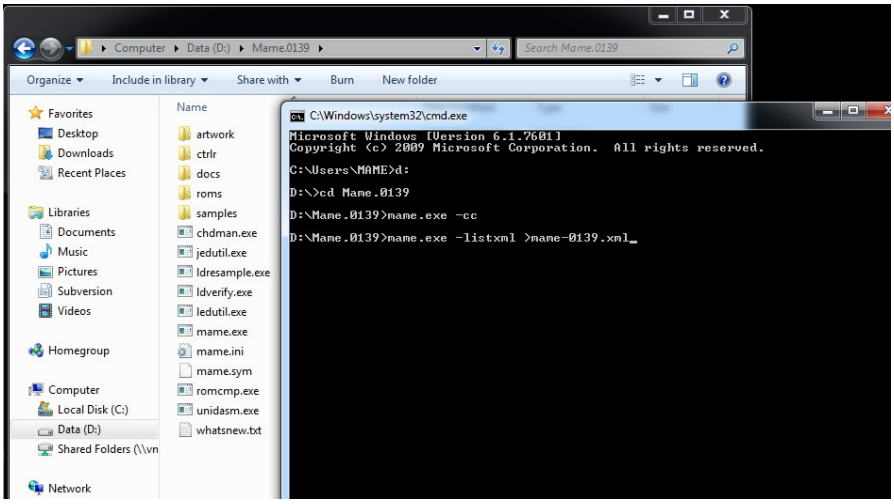
Starts it and extract it to a separate folder (not the ROM-folder)



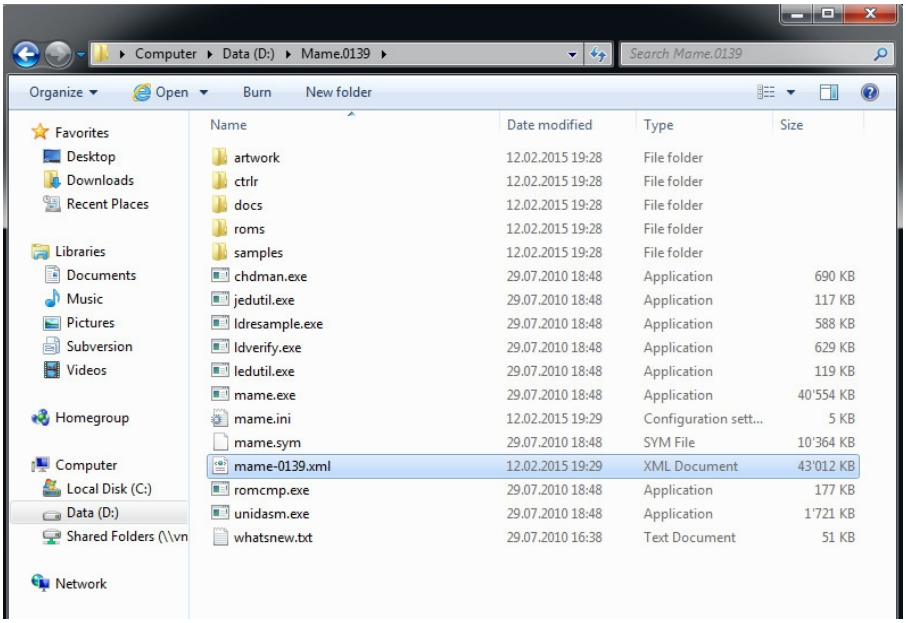
We have now the executable in that folder :-)



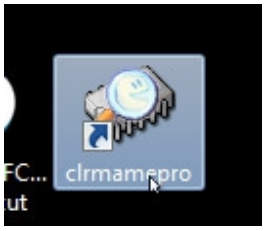
We start a command-line window and create the ini-file first with “mame.exe -cc”. We are doing this only because we want to test MAME 0.139 after we have rebuild the ROMs.



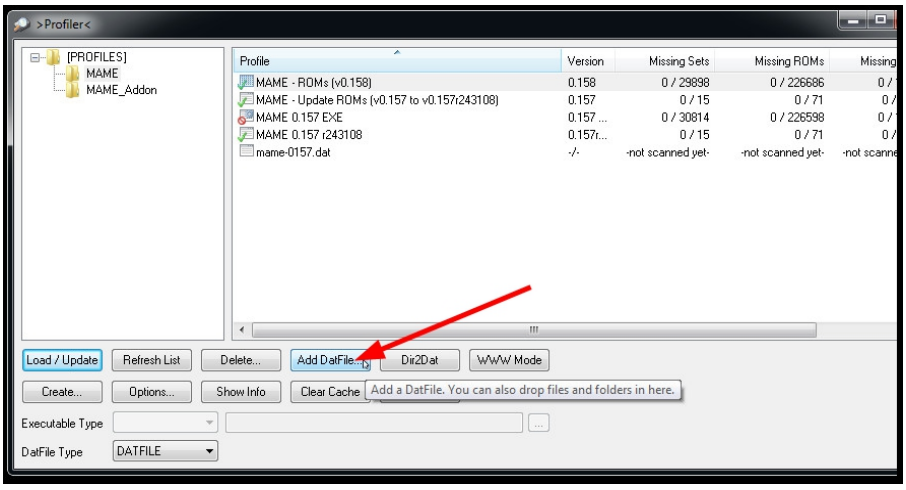
Start a second commando “mame.exe -listxml >mame-0139.xml”. That creates a XML-file (DAT) and safe it to a file that we can use in CLRMAMEPRO.



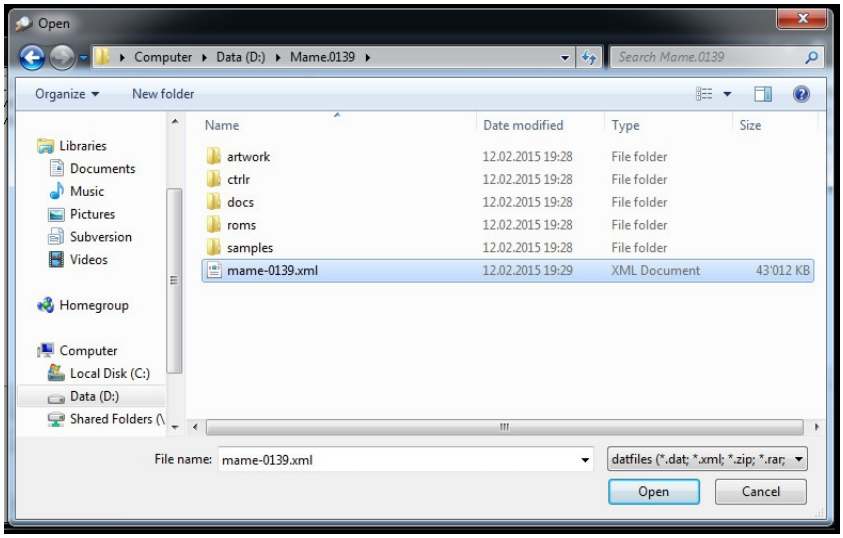
Start CLRMAMEPRO



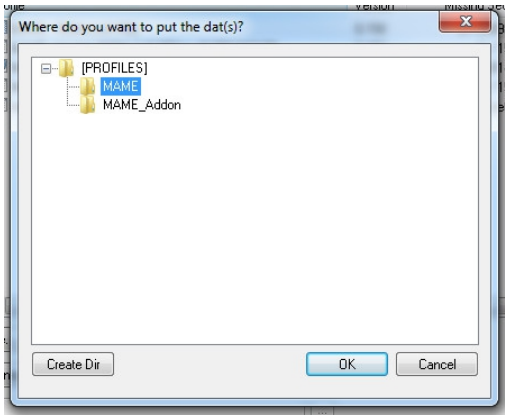
Click “Add DatFile” in the profiler



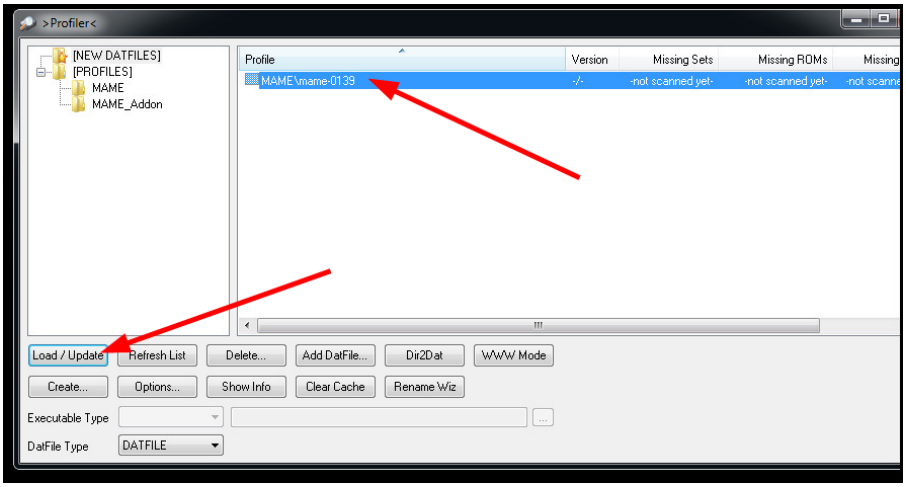
And load our XML-File that we have created …..



Place it in the “MAME” folder.

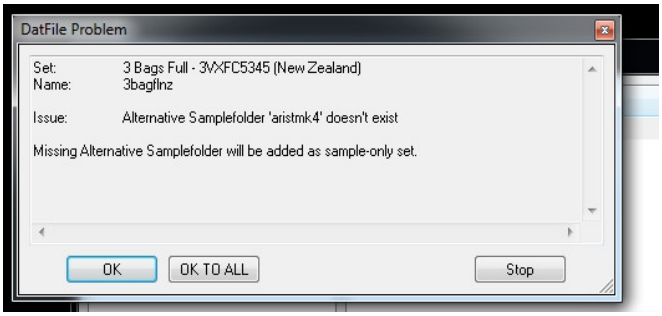


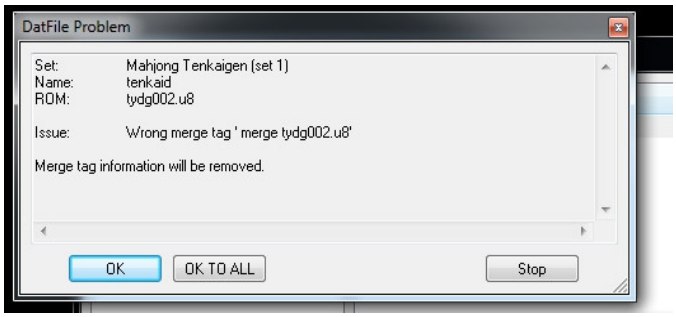
Load that created profile.

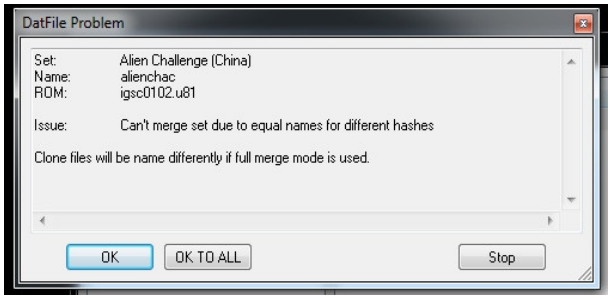


Use the “default” settings

We have some conflict during the load of the DAT-file. Click “OK to all”

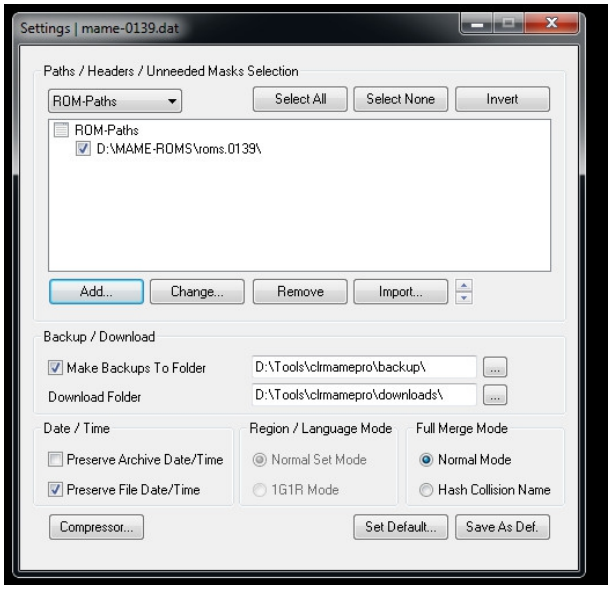




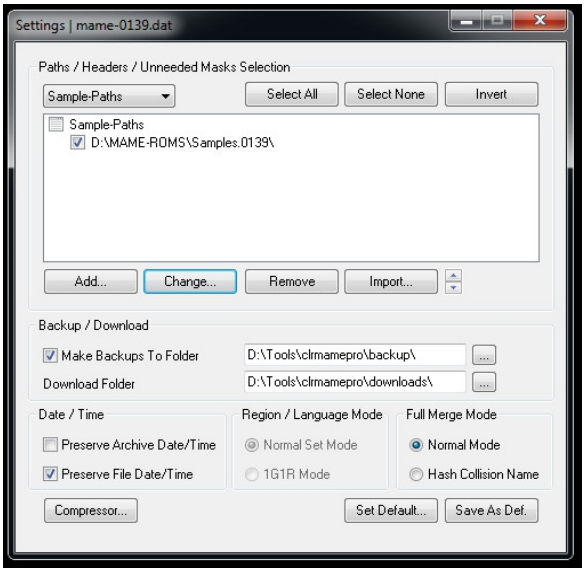


Go into the settings

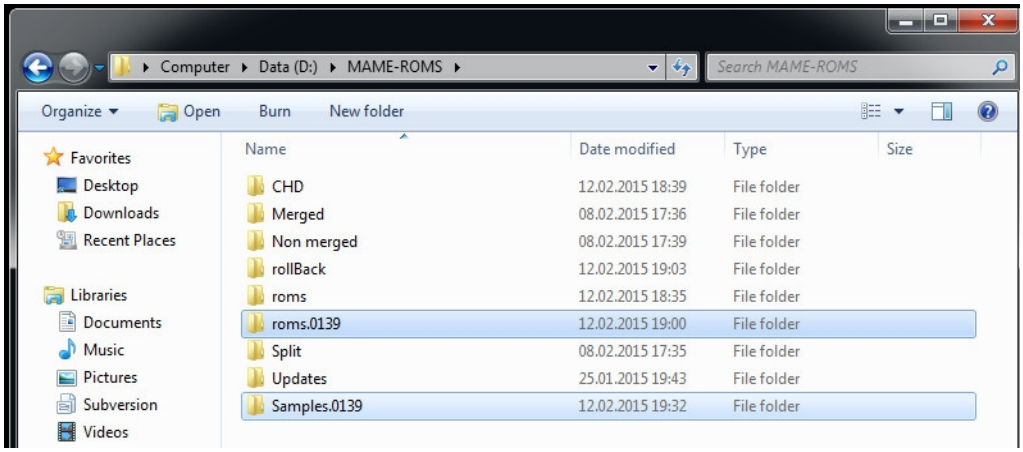
And set the ROM-path to the empty 0.139 folder.



And add the Sample-Path to a new folder. You can create it with the “add” dialog.

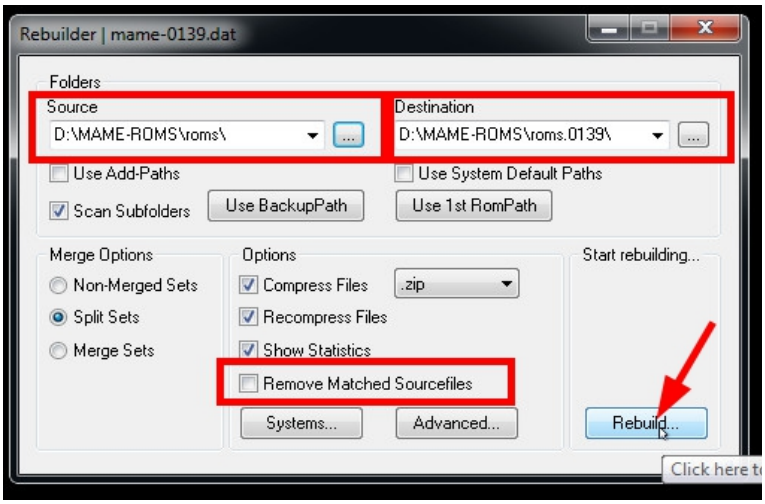


Just checking the file-system :-)



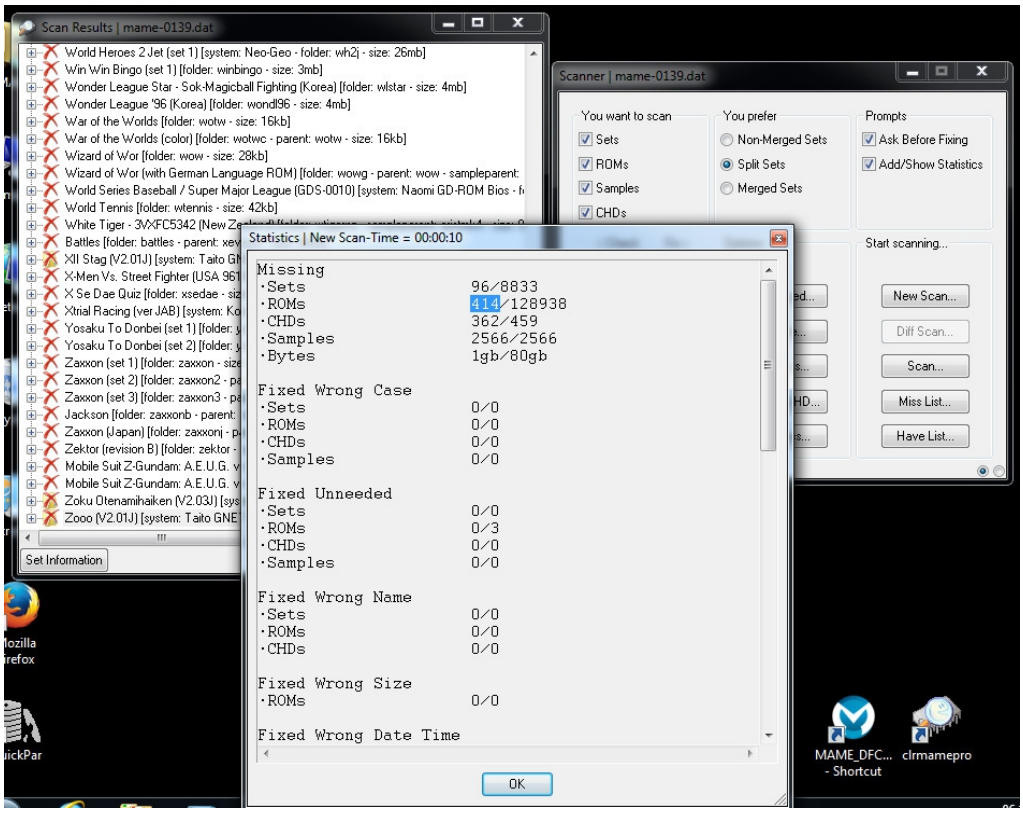
Close the setting window and we use now the rebuilder (scanning makes no sense because those two folder are empty).

Point the source to your MAME-ROMs folder. Do NOT enable “Remove Matched Sourcefiles” as they would be missing in your latest Set.



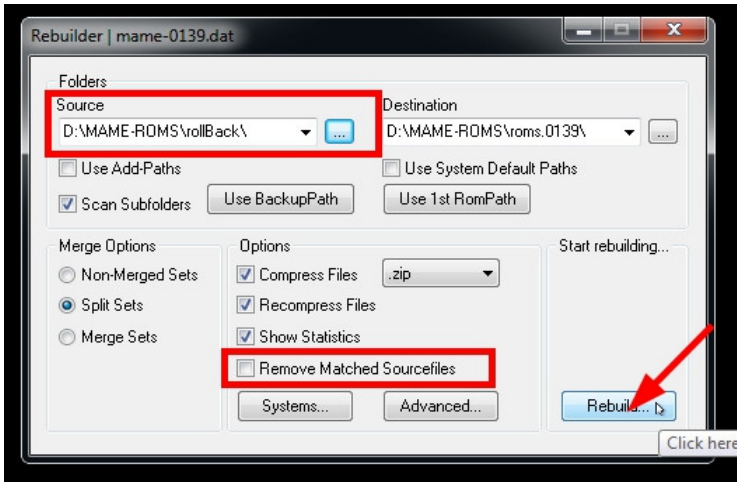
After the rebuild we are doing a scan to see what the status is.

Hmm not perfect …

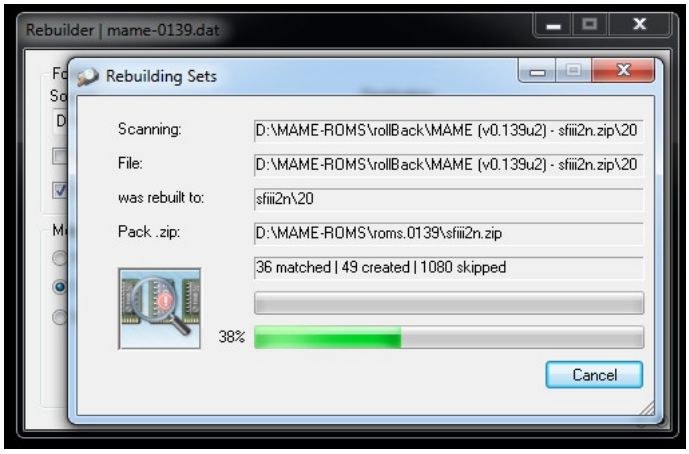


Going back to the rebuilder.

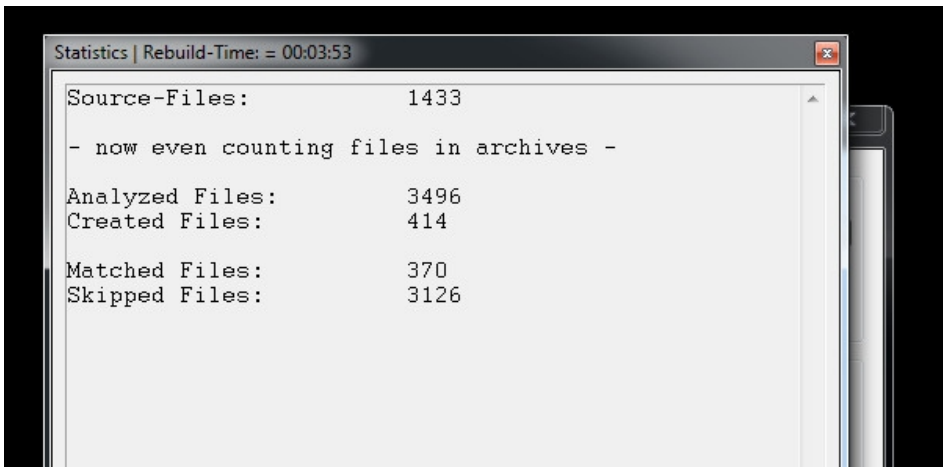
Do a second rebuild from the rollback folder (source)



And indeed it does rebuild from the rollback folder....

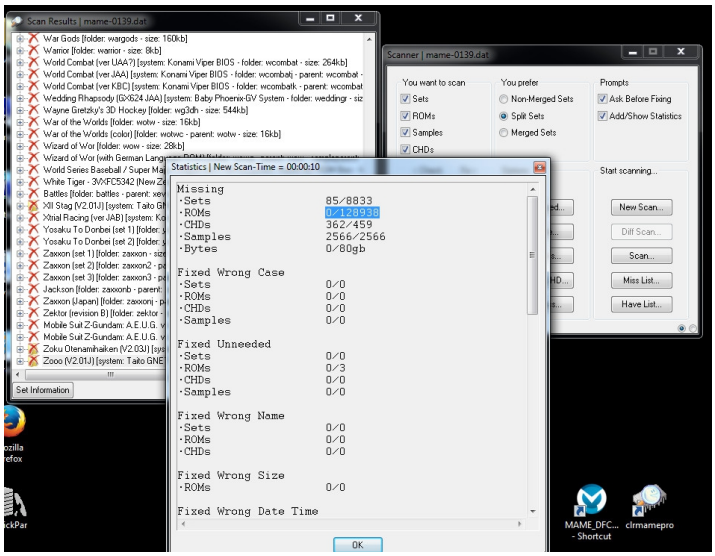


Statistic says 414 created ……..hmm we had 414 missing ….

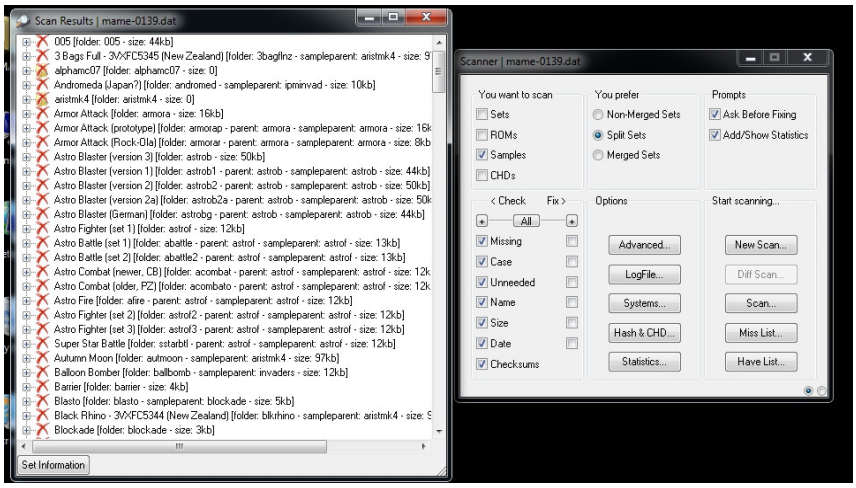


Hurry hurry do a new scan :-)

Yes we have 0 missing ROMS. We have now only missing Samples and CHDs.

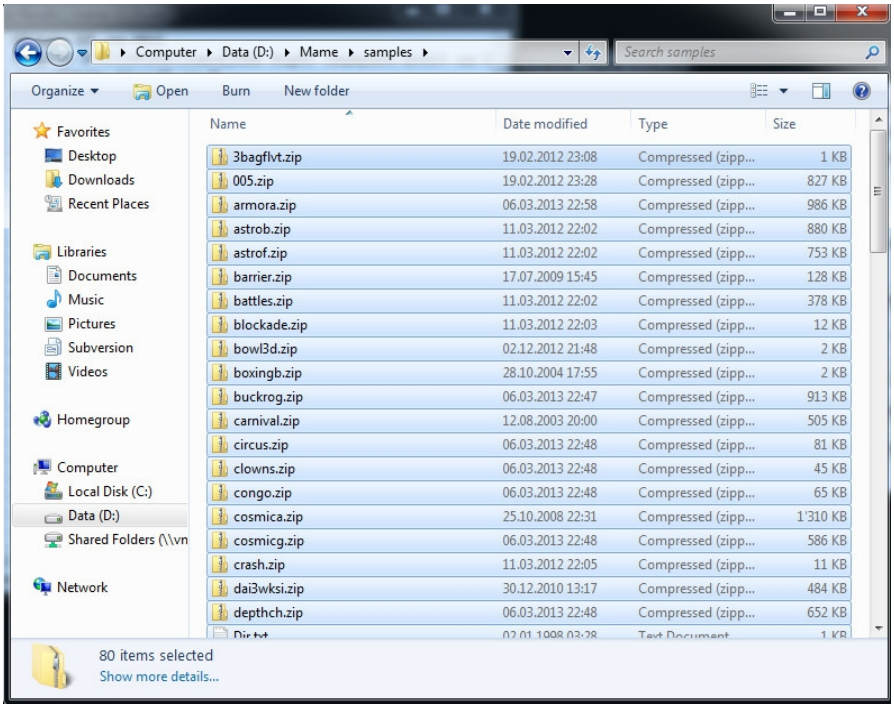


When you do a scan only with “samples” activated you see which one are missing.

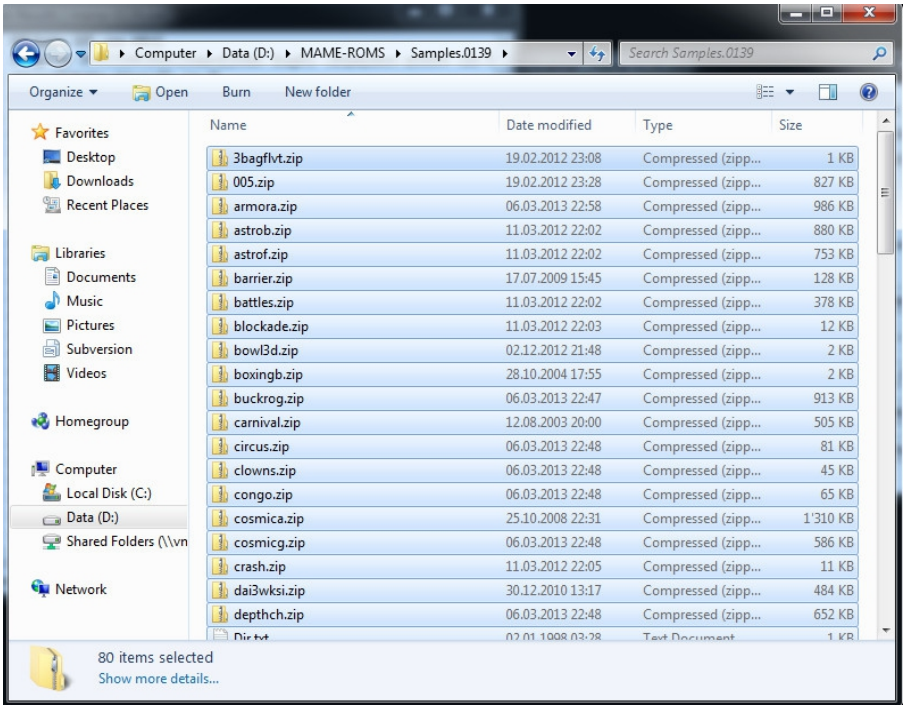


! Please note that the rebuilder does NOT rebuild samples!

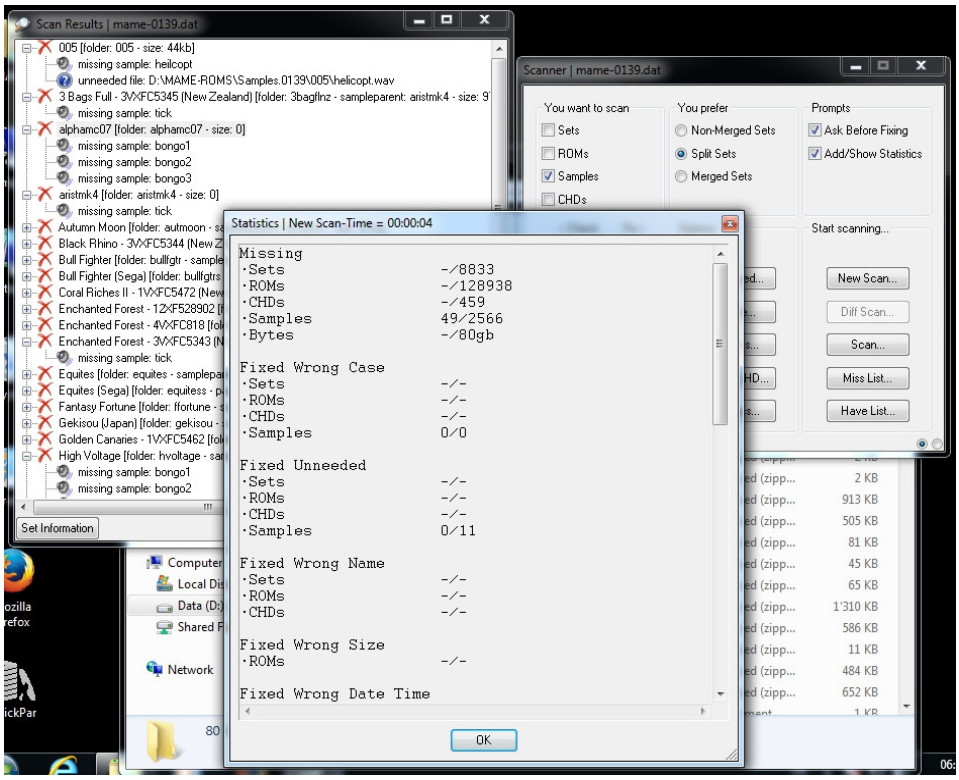
Not rebuild? Okay lets copy all samples from our current folder into that 0.139 sample folder. From …..



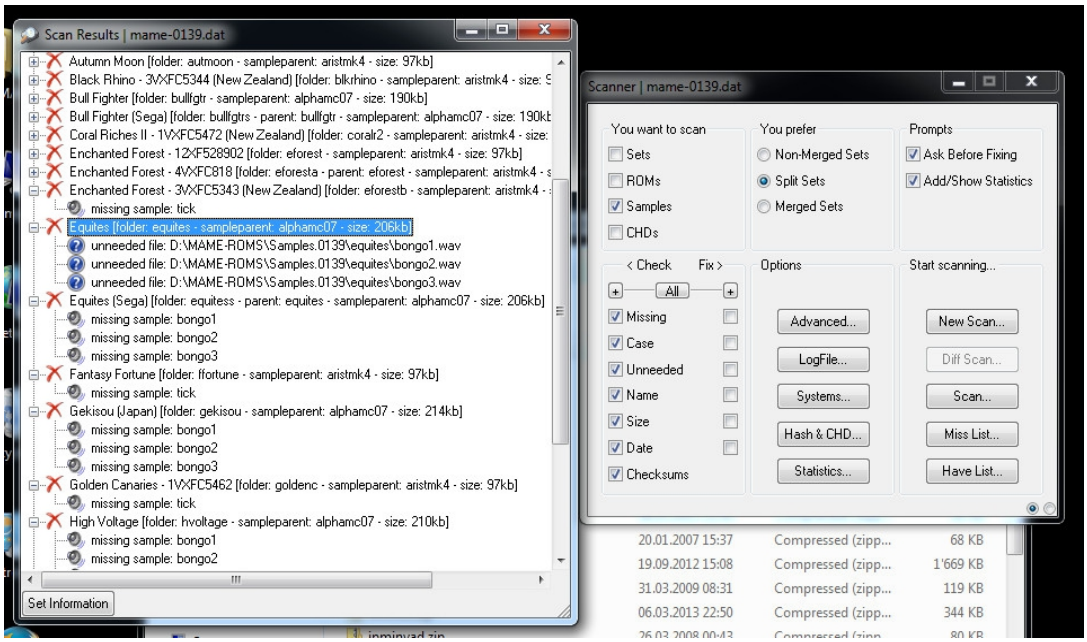
….to.



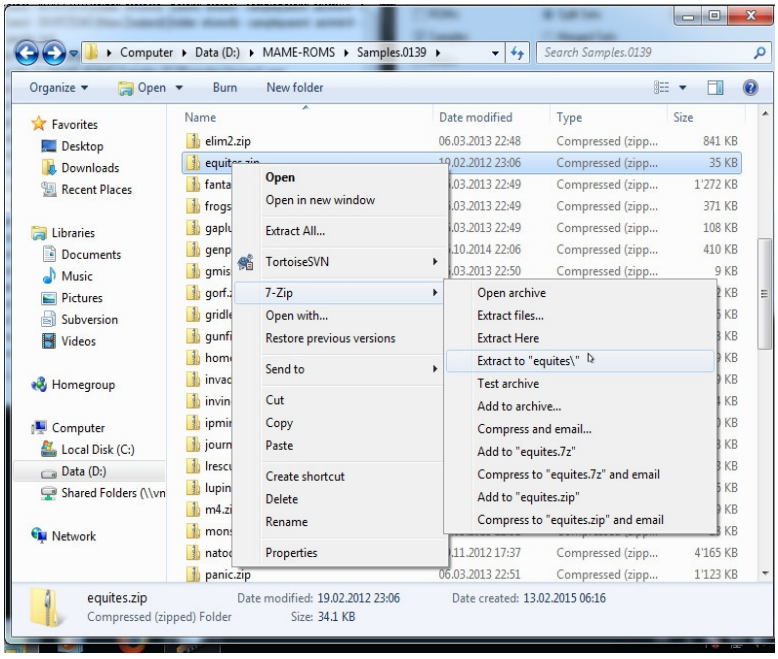
Do another scan and we have still missing and unneeded...



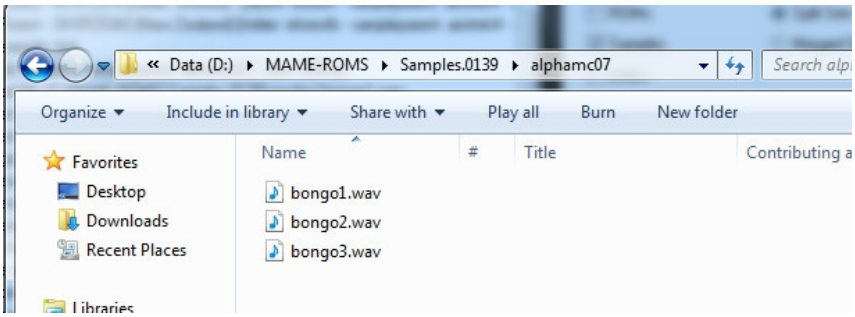
We look deeper to our missing and we see that “equites” has some samples that should be in “alphamc07”.



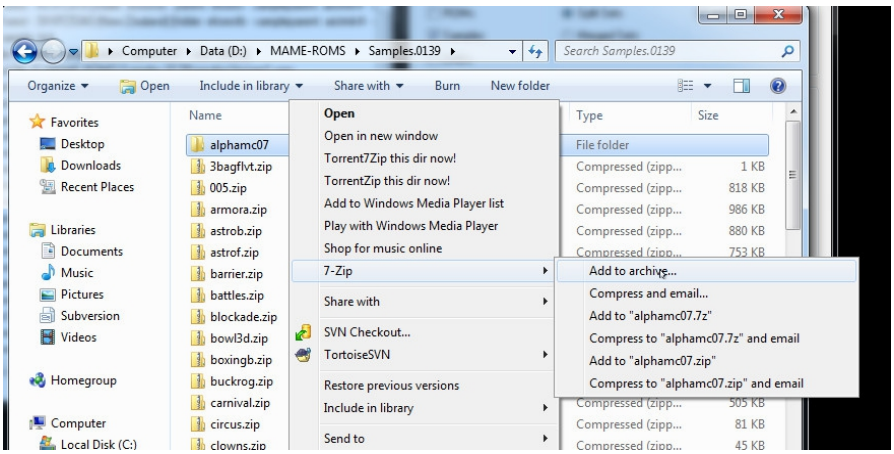
We extract this “equites.zip” into a folder.



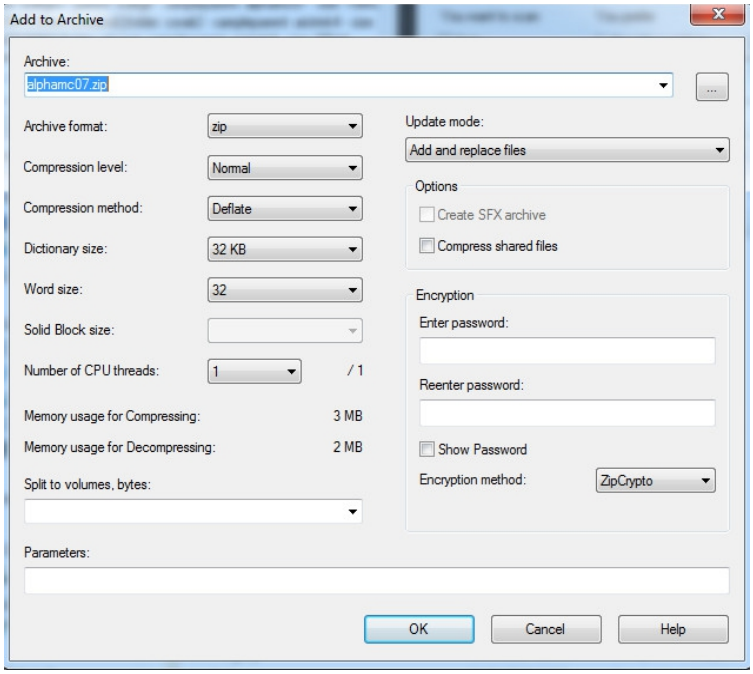
And rename this folder to “alphamc07”



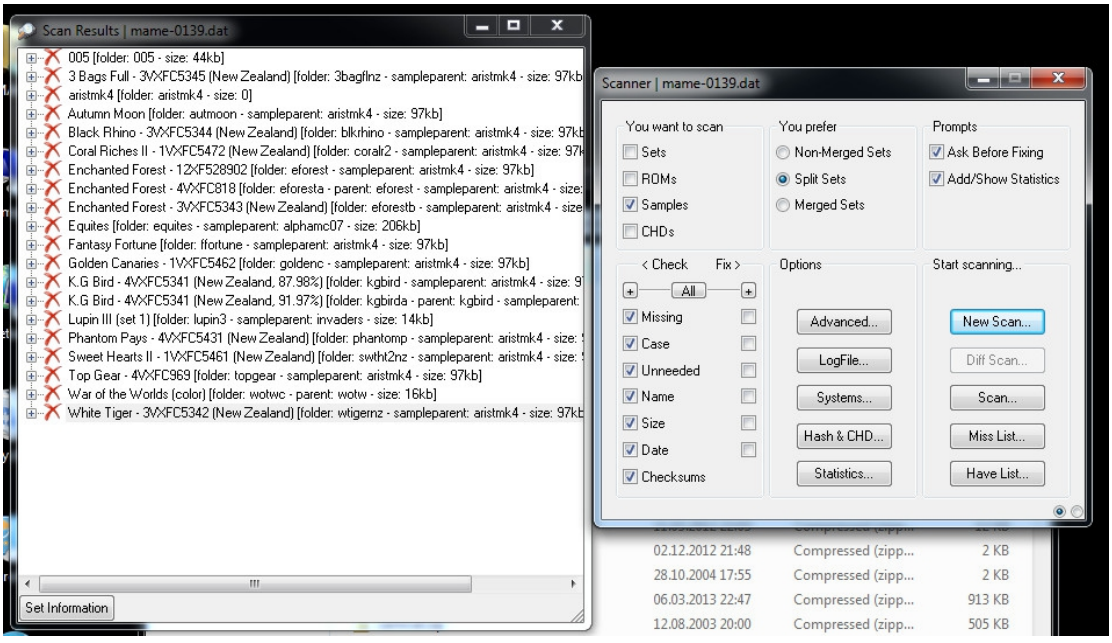
We zip this folder now …



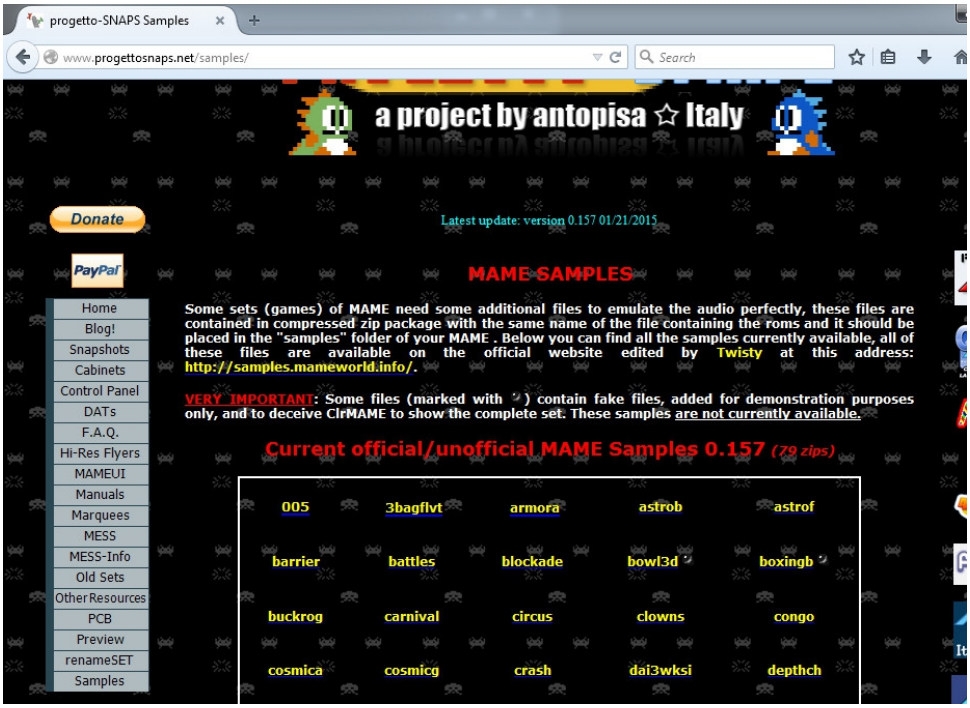
...into a file called “alphamc07.zip”



After we have created this zip-file delete the folder and do another scan.

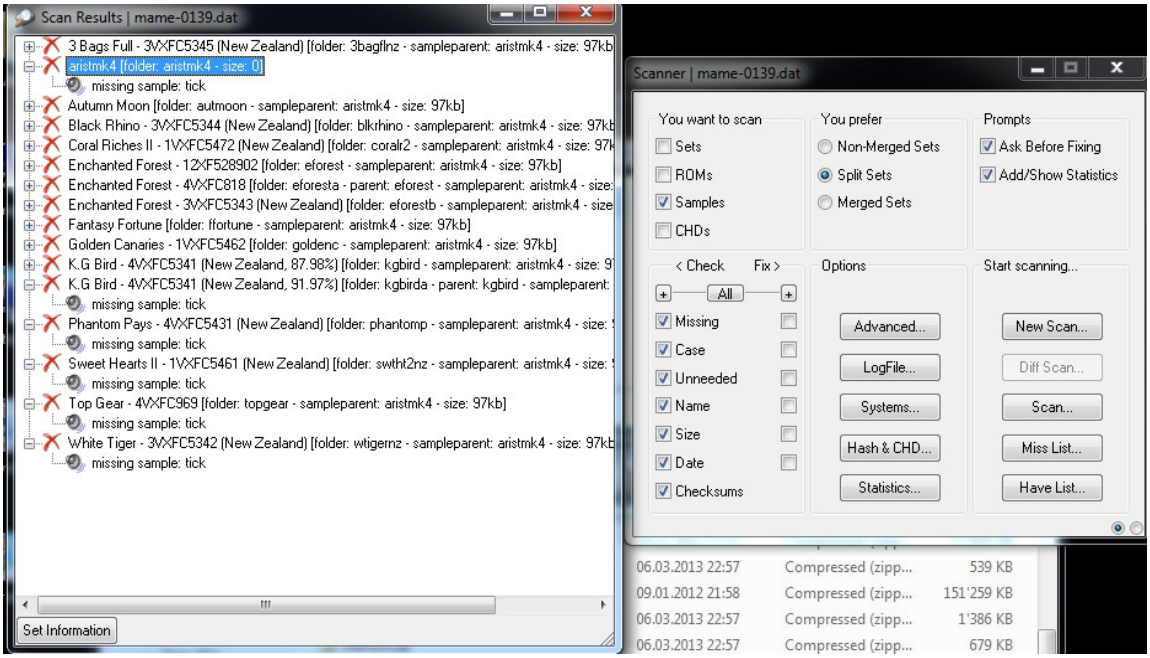


Search on the Internet for the missing sample, one of the source is AntoPISA.

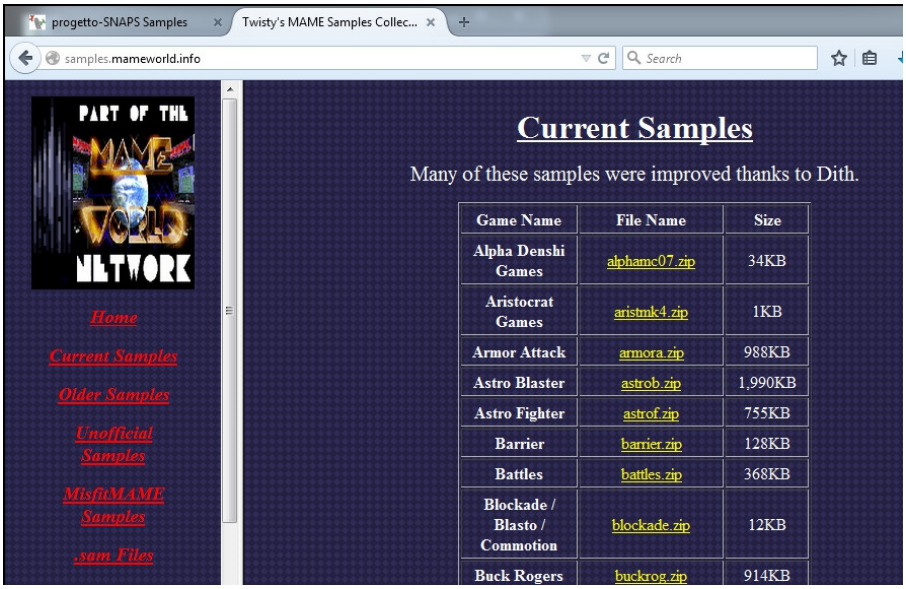


One of the sample we found there is “wotwc.zip” → place it into the 0.139 sample folder.

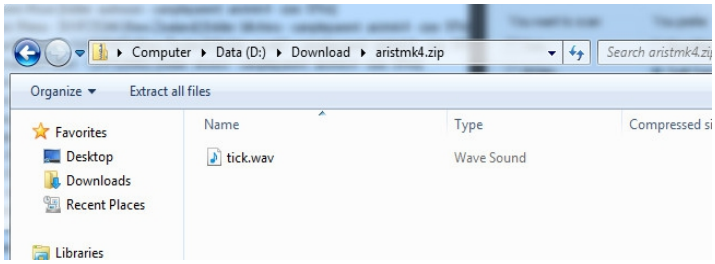
Do another scan. We see that this “tick.wav” is missing a lot.



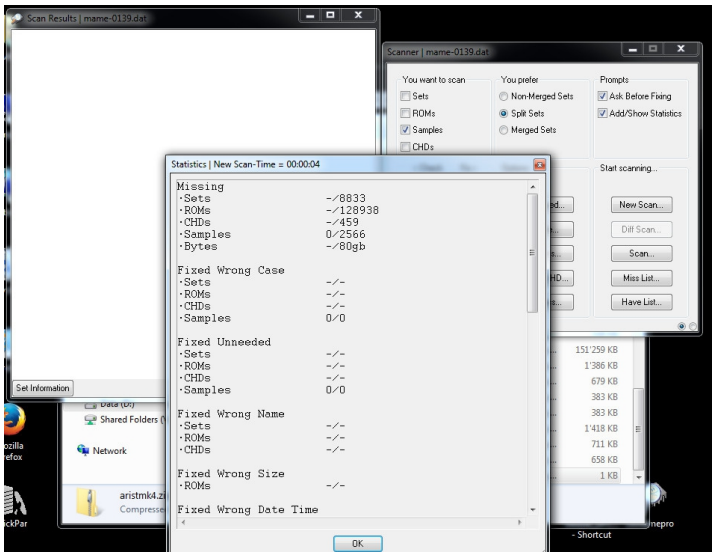
Go to Twisty's Sample page and download this “aristmk4.zip”



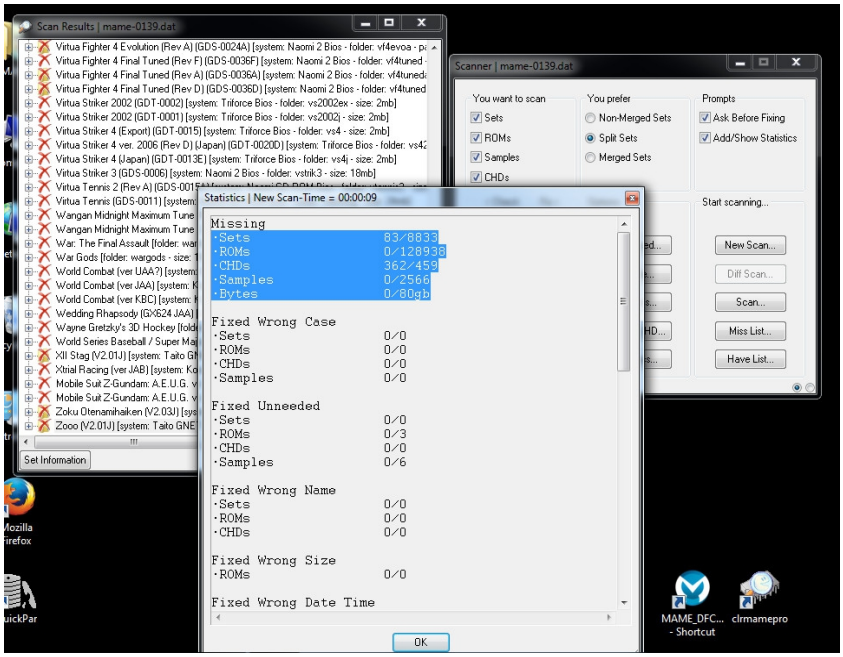
Yeah this sample have this “tick.wav” inside.



Move it to the 0.139 sample folder and do another scan.



We have now ROMs and Samples complete.



We miss only CHDs and those are very difficult to go back in version. To have a complete 0.139 CHD-set you may need some removed CHDs. They are also available in a set called “rollback CHD-set” on the Internet. And a lot of CHDs have to be downgraded their version to a lower number. We are now at Version 5 for the CHDs. There is no official way to go back in the version, I mean “chdman.exe” does not provide that.

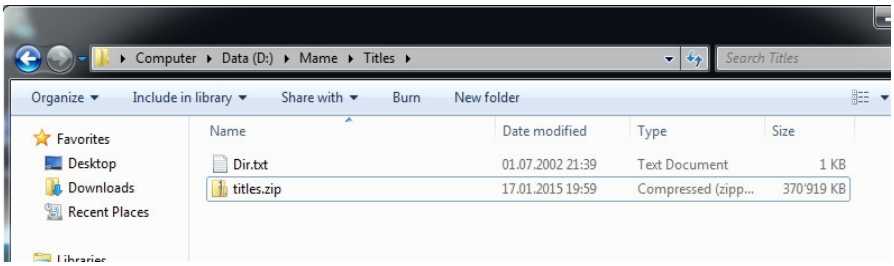
As CHD based games needs power on the running machine it does makes no sense for those few games to have them.

That's the reason I give you no answer to a “how-to CHD rollback”, sorry ;-)

Enjoy playing games with your 0.139 MAME emulator (you know how to handle it and find his ROMS/Samples)

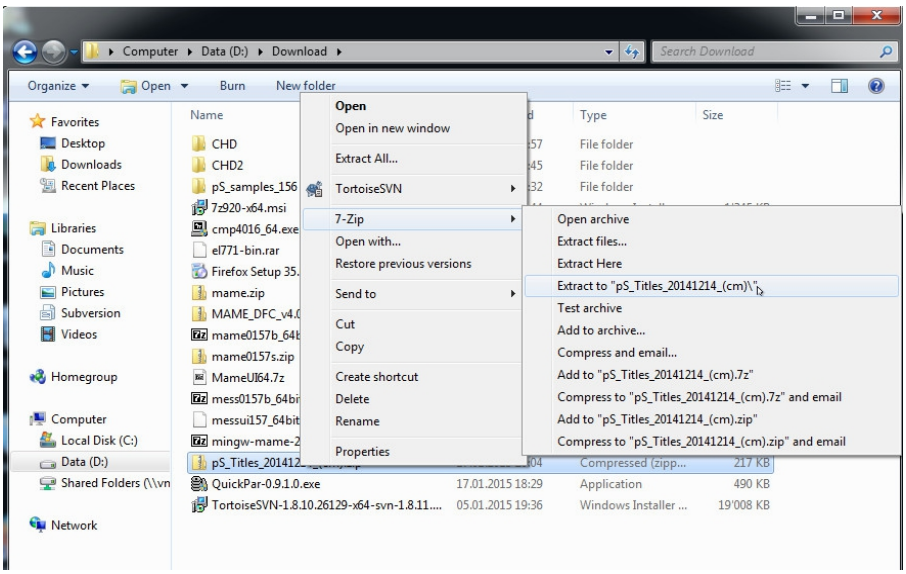
Scanning a set that has nothing to do with ROMs

If there is a DAT-file available we can use CLRMAMEPRO for checking other items than ROMs or CHDs (created for example with Dir2Dat). We have for example the titles-snapshots in our MAME folder.



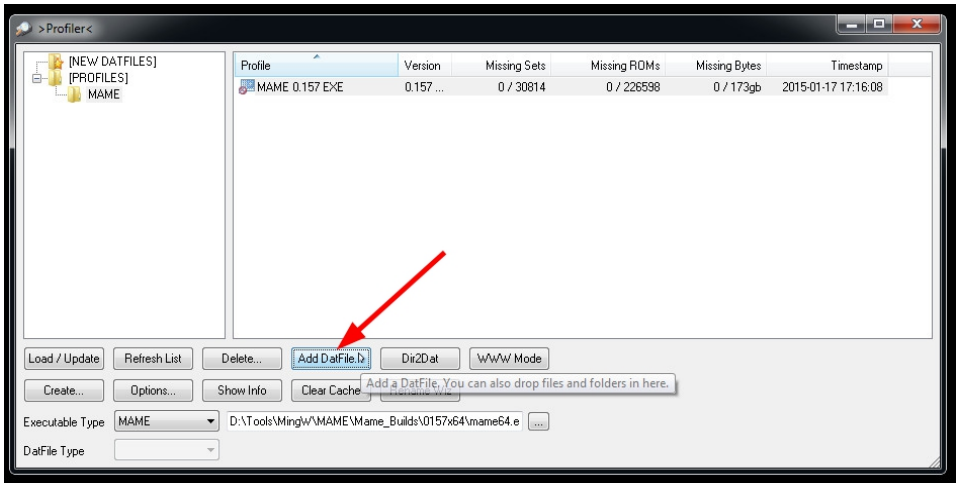
Maybe you have noticed at the “Progetto-Snaps” homepage provide also DAT-files for all his snapshots. Let's open a web-browser and go to the page. Under “Titles” you will find the DAT-file, download it.

Extract the downloaded zip-file.

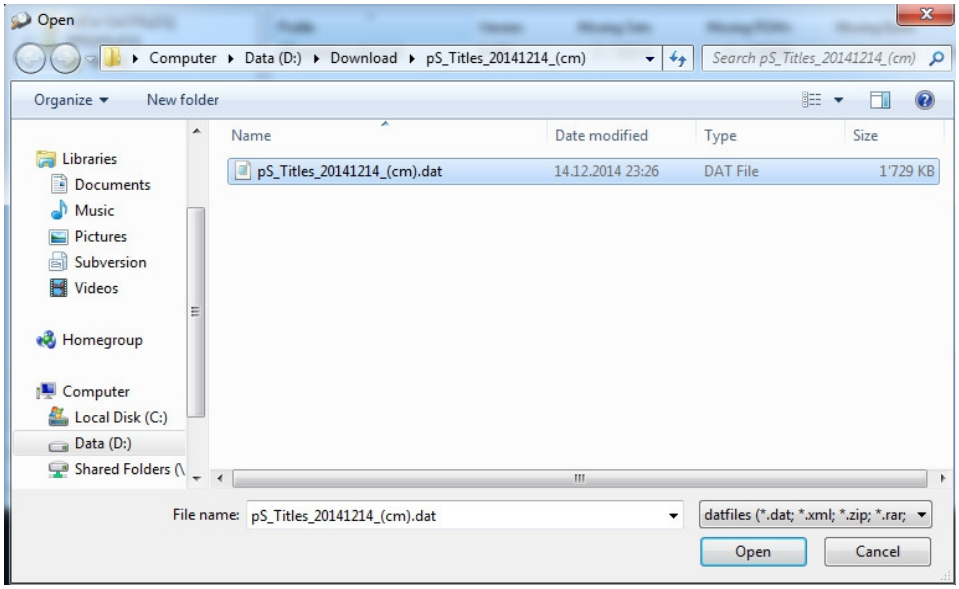


Start CLRMAMEPRO

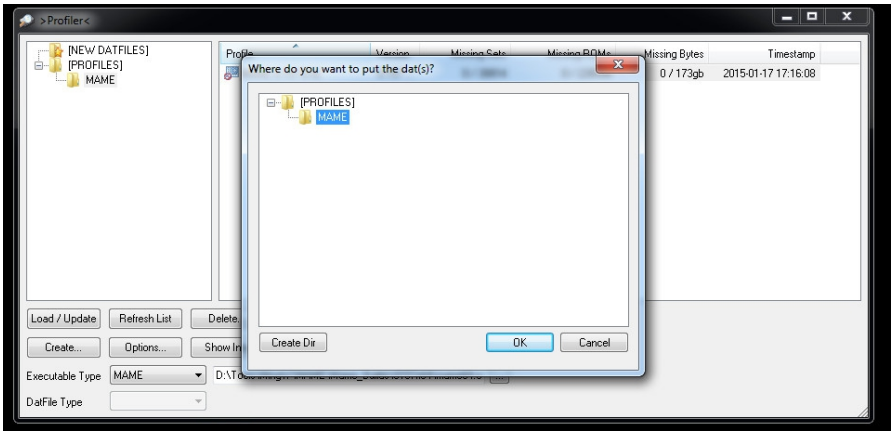
Click “Add DatFile” in the profiler



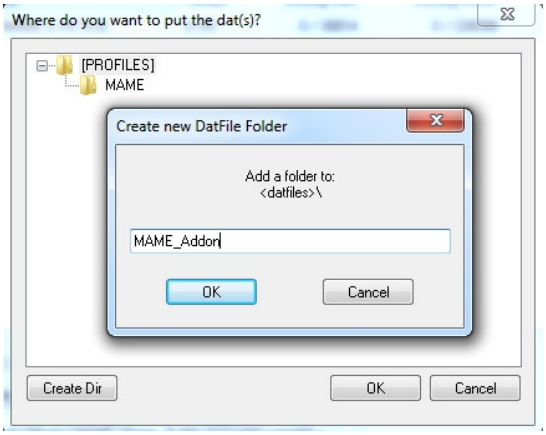
Navigate to your download folder where the DAT-file is located



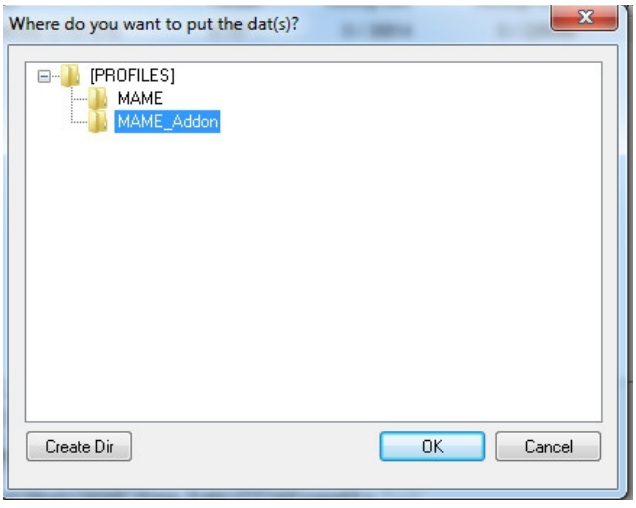
The question where to store the DAT file appears.



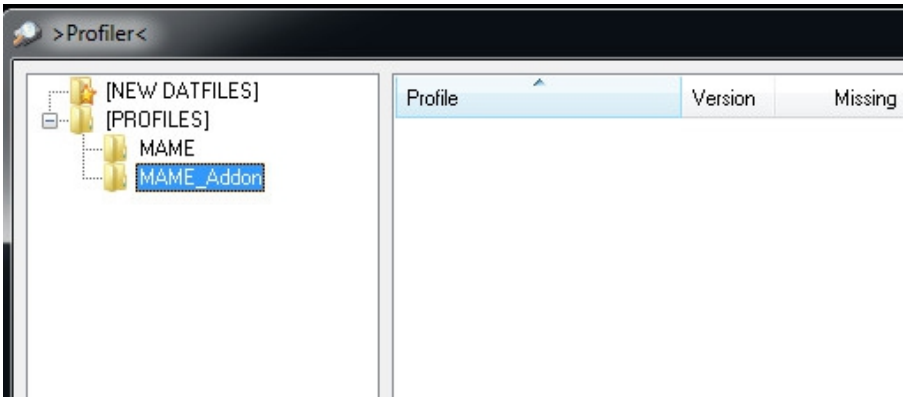
We create a new folder for that DAT called “MAME_Addon”



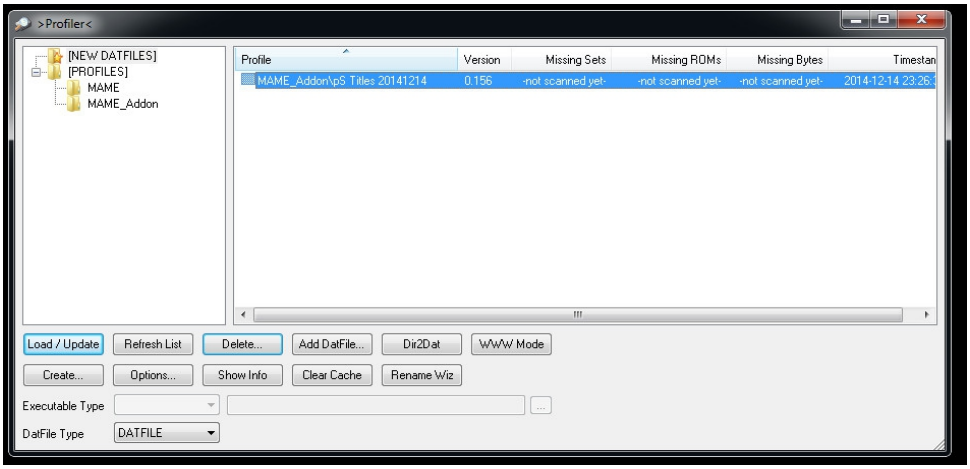
And choose that folder → OK



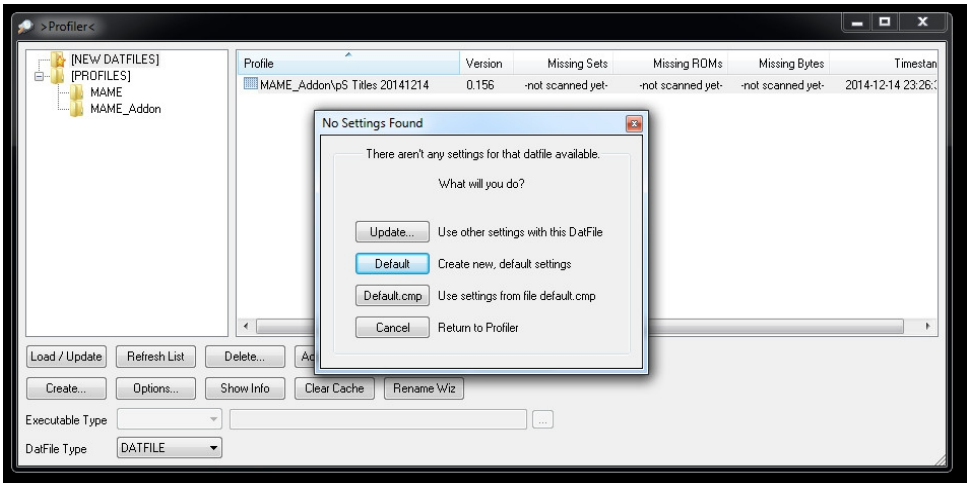
Where is the added DAT-file?



Yeah right, all not used DAT-files are under “New DATfiles”

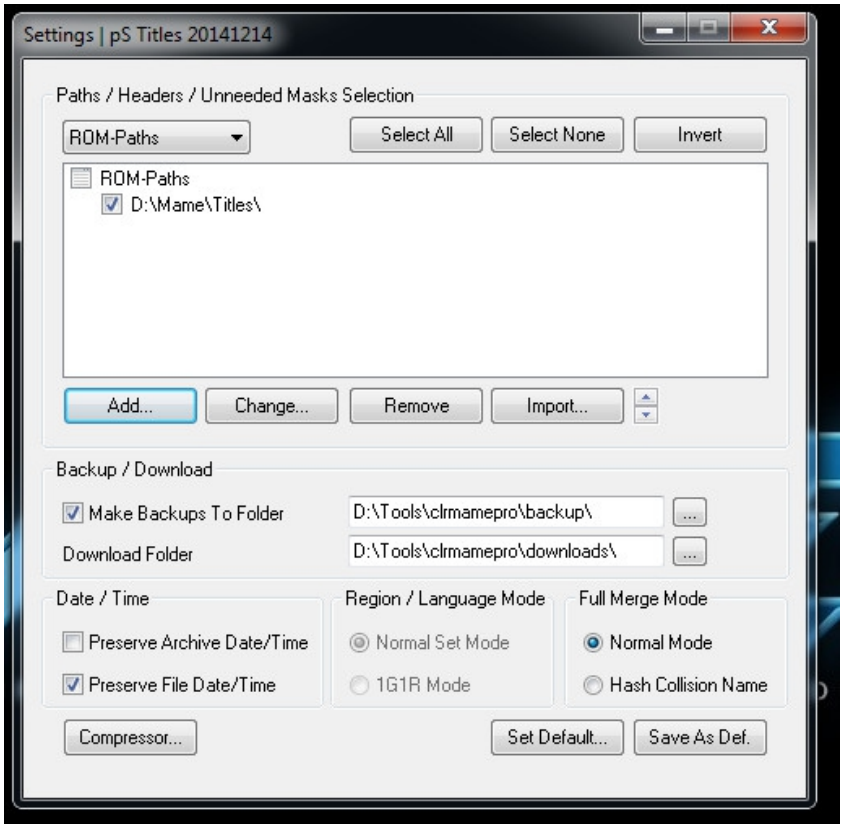


Load that DAT and choose “Default” settings



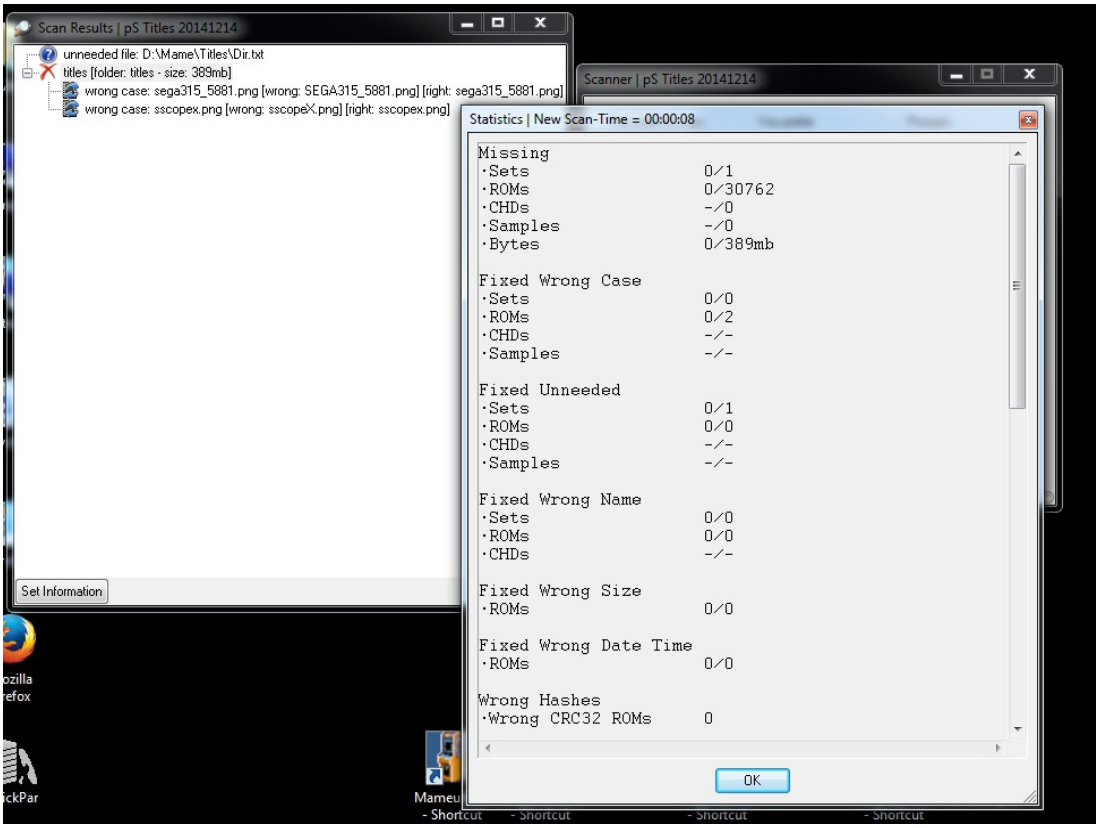
Open “Settings”

Add the path to your titles in the ROM-Path ;-)



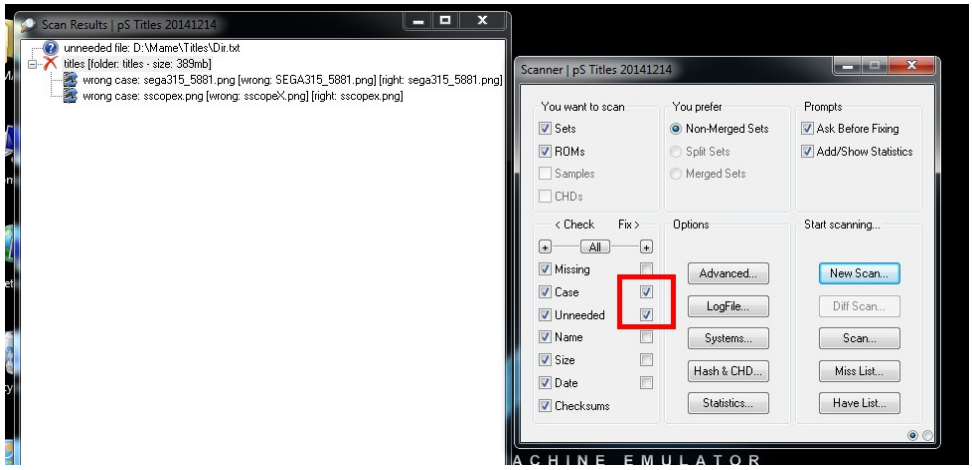
We start now the scanner

Start a “New scan” and at the end it will display the summary.

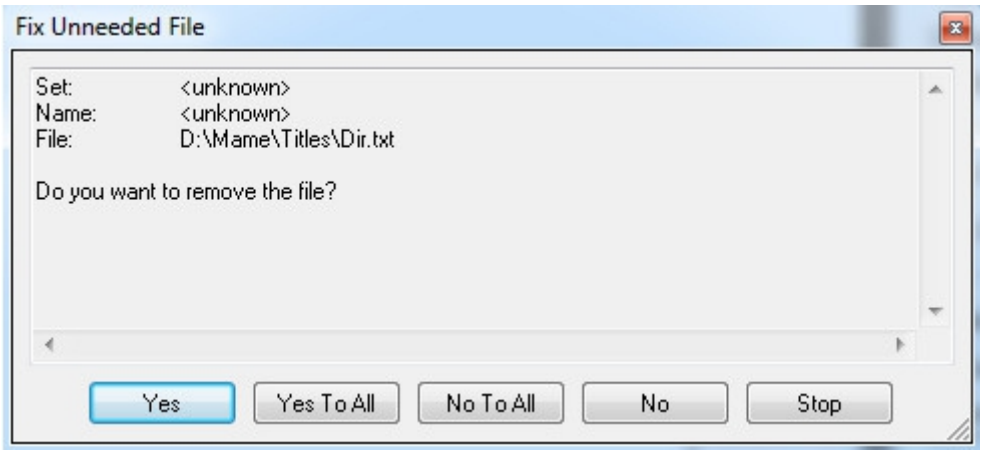


Okay nothing is missing but it is not perfect. It complains that it contains a unneeded txt-file and two snapshots has a wrong case.

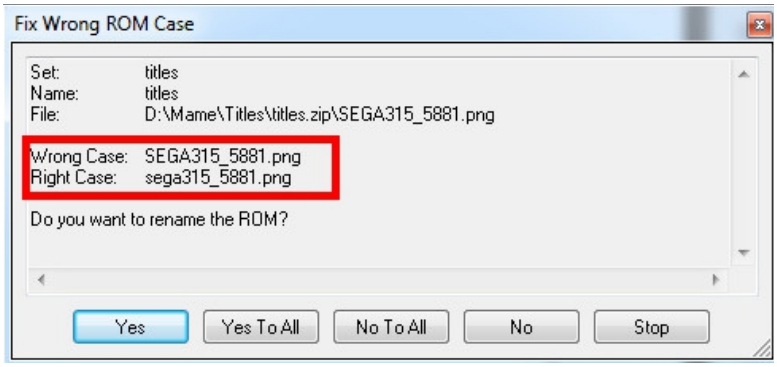
We have already learned how to correct ROMs with the scanner. We will do it too with the snapshots. Enable fix for “Unneeded” and “Case” and start again a scan.



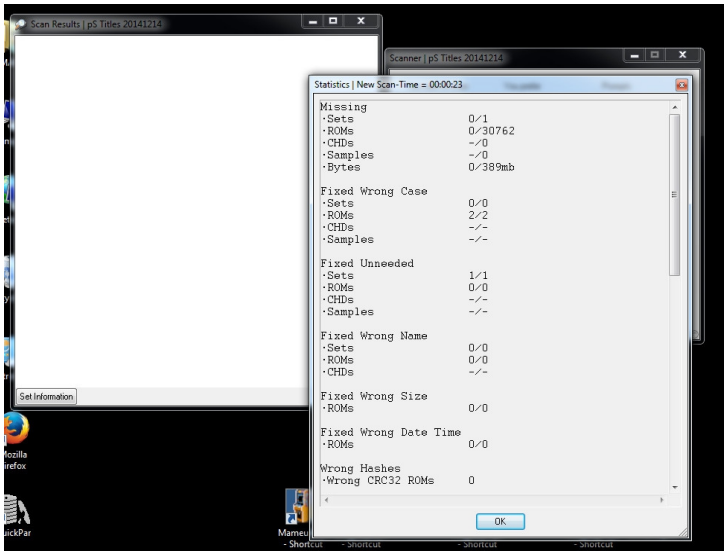
Click “Yes too all” … (yeah right it is only 1 file that needs to be removed)



Next question is about the Case. CLRMAMEPRO displays you details what it want to rename. If you want to have this question for each Case click “Yes” otherwise if you want all Case problems solved without asking click “Yes to All”. When you are unsure you can click “Yes” and see on each problem what CLRMAMEPRO will do. I think at the beginning it is good to do it step by step and see that CLRMAMEPRO does a fabulous job :-)



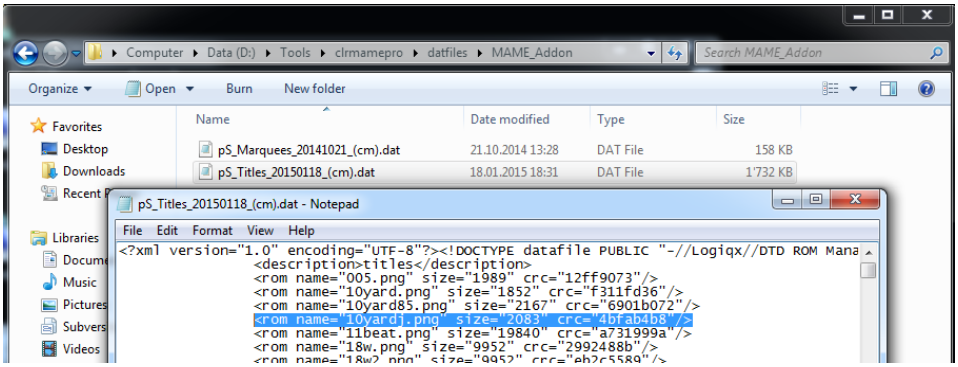
When it has finished the scan should looks like that.



We are now fine our titles-snapshots are verified with the DAT-file.

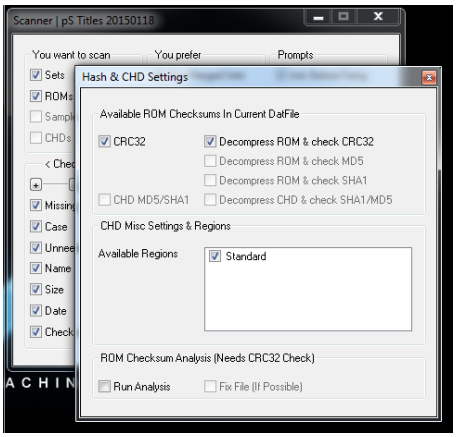
! Additional : I will give you some more information about scanning add-on files.

We are looking now into that DAT-File.

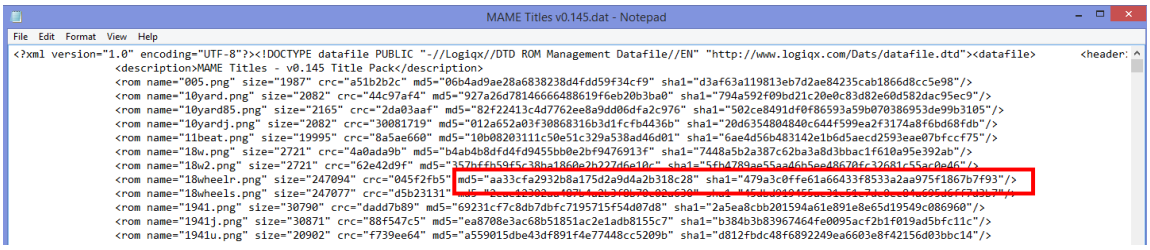


As we can see there is only one hash (CRC) available for the snapshot.

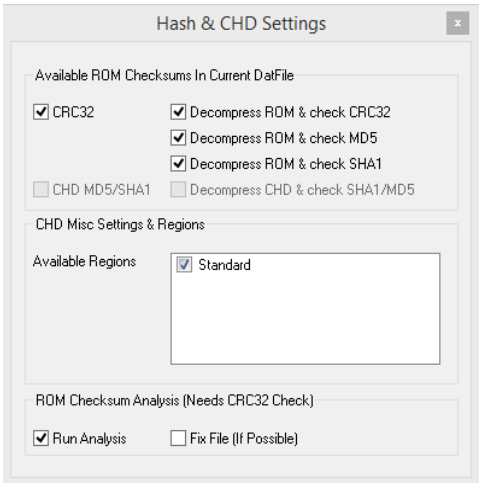
When we look into the “Hash & CHD” Settings we see that we can not enable for example MD5 or SHA1. That' the reason why, it is not included in the DAT-file.



I'm opening another DAT-file just for showing you the difference.



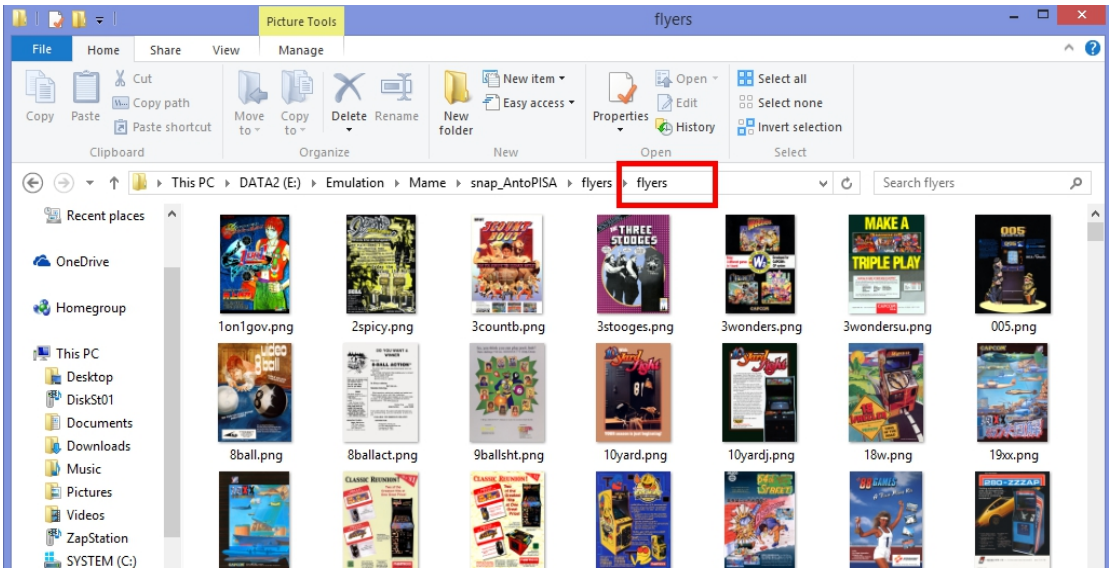
As we can see those snapshots has a CRC, MD5 and SHA1 hash. When we open the “Hash & CHD Settings” we can enable those for our scan.



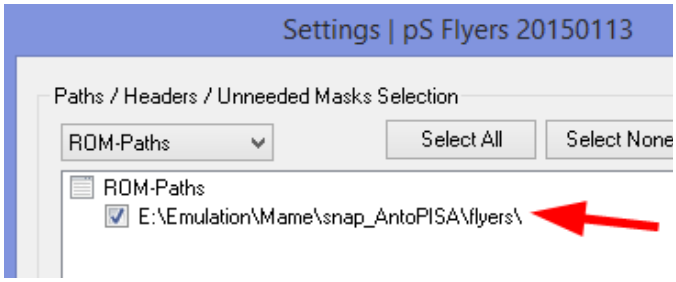
And another information. If we have add-on that are really big like the flyers (over 5 GB) it is maybe not the best solution to pack those into a Zip-file ;-)

Let's open this DAT-file and look for some details.

CLRMAMEPRO will looks for a flyers.zip or a flyers folder to where you have set your ROM-Path. If you want to have the flyers unzipped be sure that they are in a folder names “flyers”. For example:

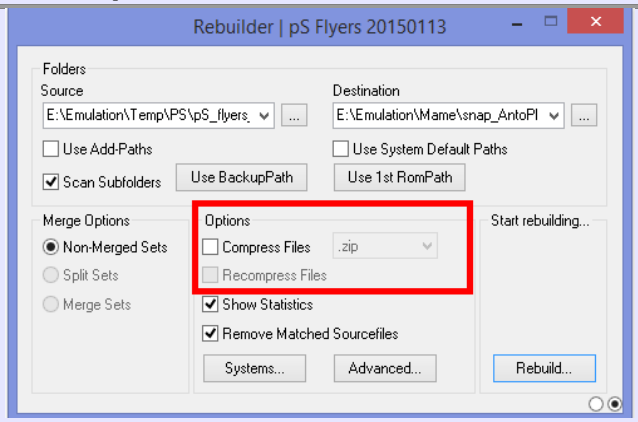


Set your ROM-Path in CLRMAMEPRO to the folder one up.



It will scan this folder for the flyers and found them in the subfolder "flyers".

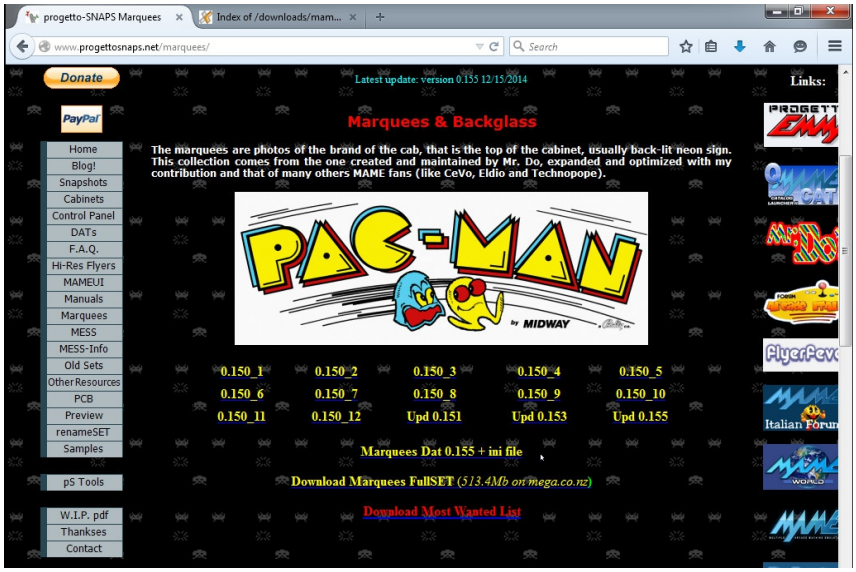
If you rebuild missing snapshots be sure that you disable this setting and point it to the folder where the snapshots are. Otherwise it will generate a "flyers.zip"



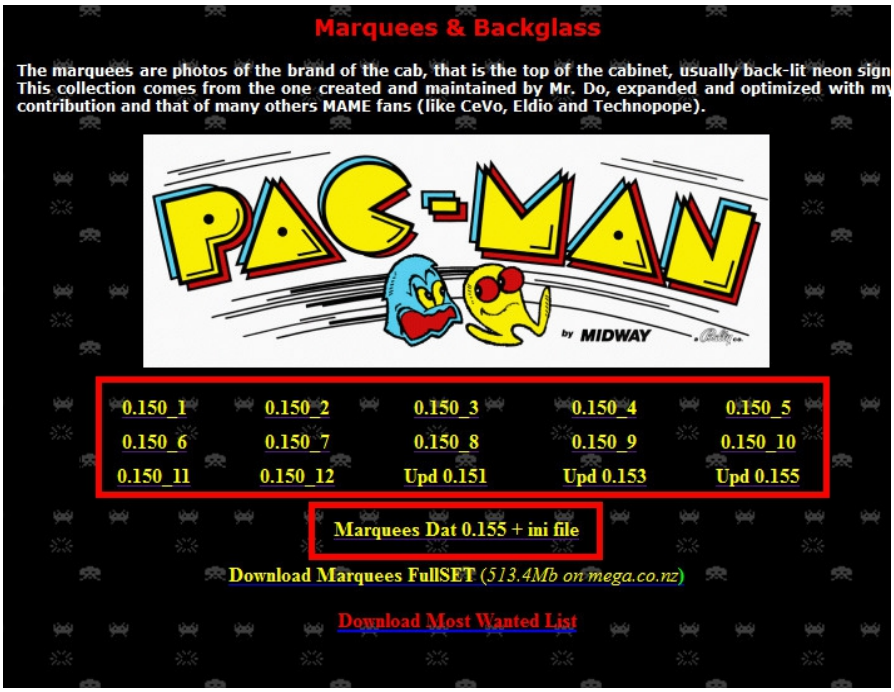
Create an add-on snapshot folder with the rebuild function

We have seen in the add-on section that downloading a complete snapshot packages is the easiest way to have the snapshots available in your MAMEui. Not for every category on the Progetto-Snaps homepage are complete packages available. We show you now how you can use the rebuilder to create a complete add-on set. In our example we take the marquees snapshots.

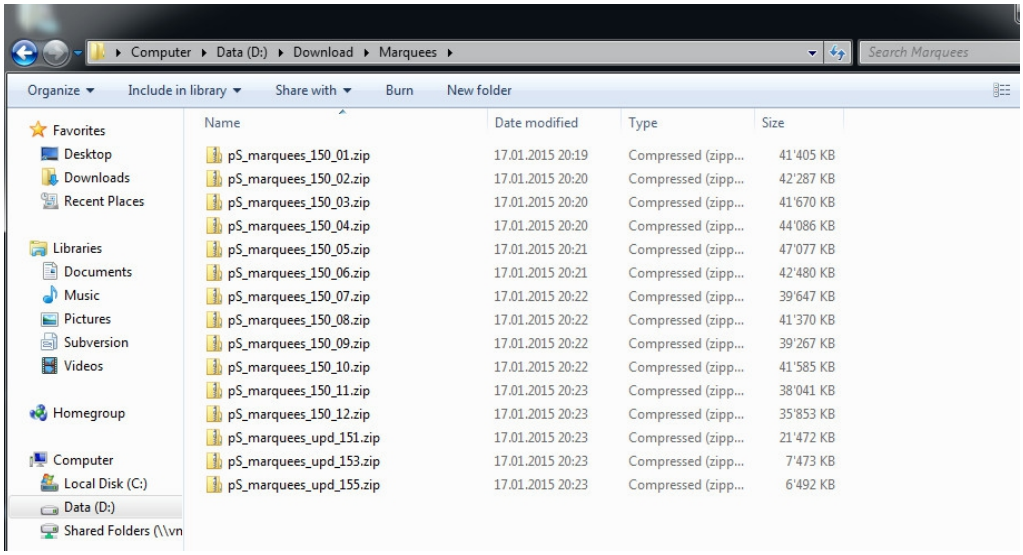
Open a web-browser and navigate to the category Marquees on the Progetto-Snaps site.



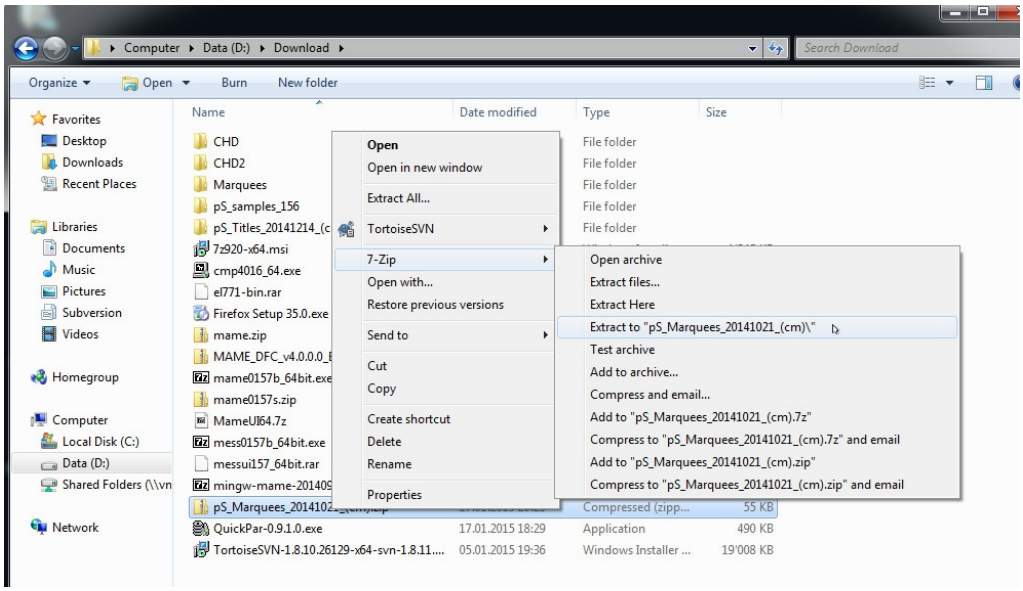
Download all parts that are available and the DAT-file.



Create a “Marquees” folder in your download. Move all downloaded files to this folder.

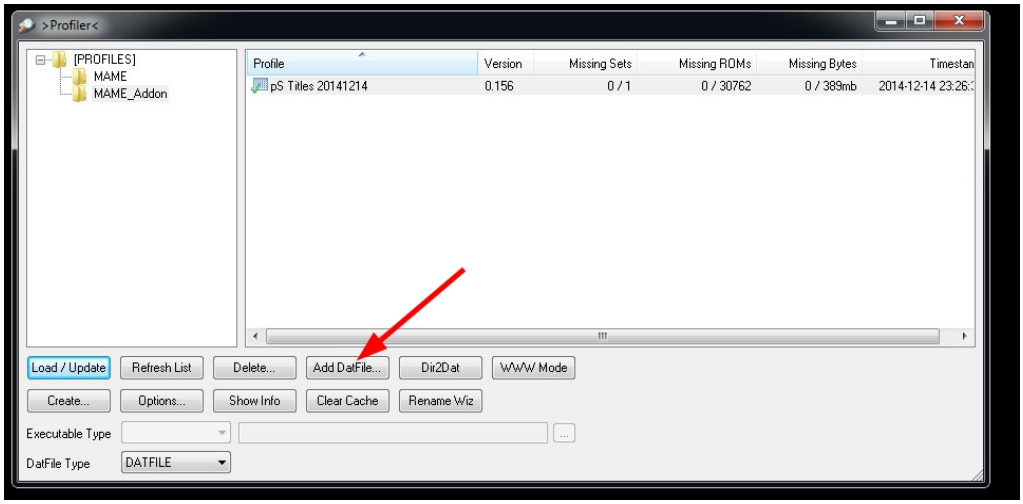


The DAT-file you must not move to this folder but extract it to a separate folder.

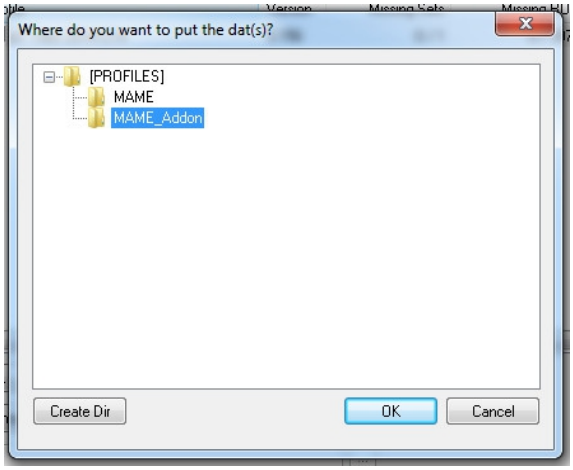


Start CLRMAMEPRO

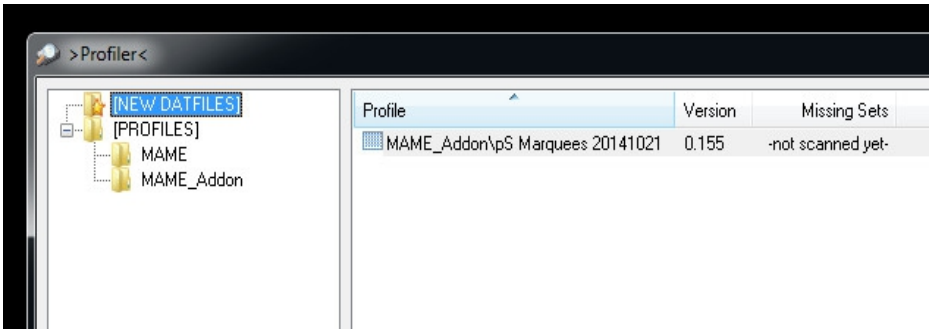
Add the extracted marquees DAT-file



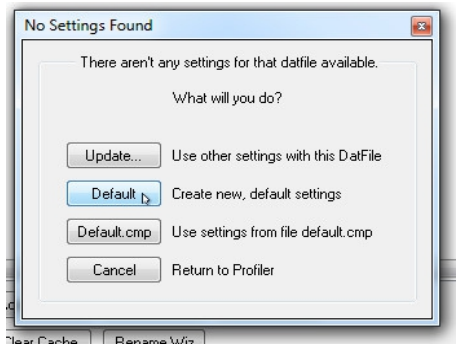
And put it to the “MAME_Addon” folder



Load the added file into the profiler

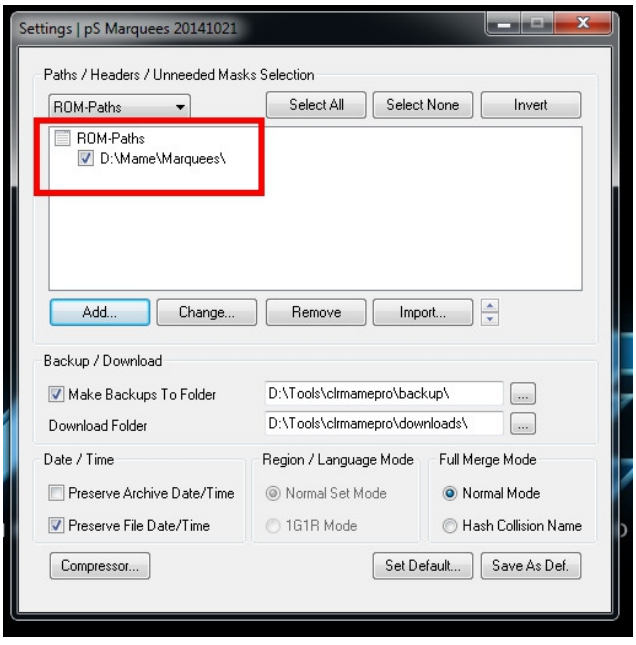


Load it with “default” settings



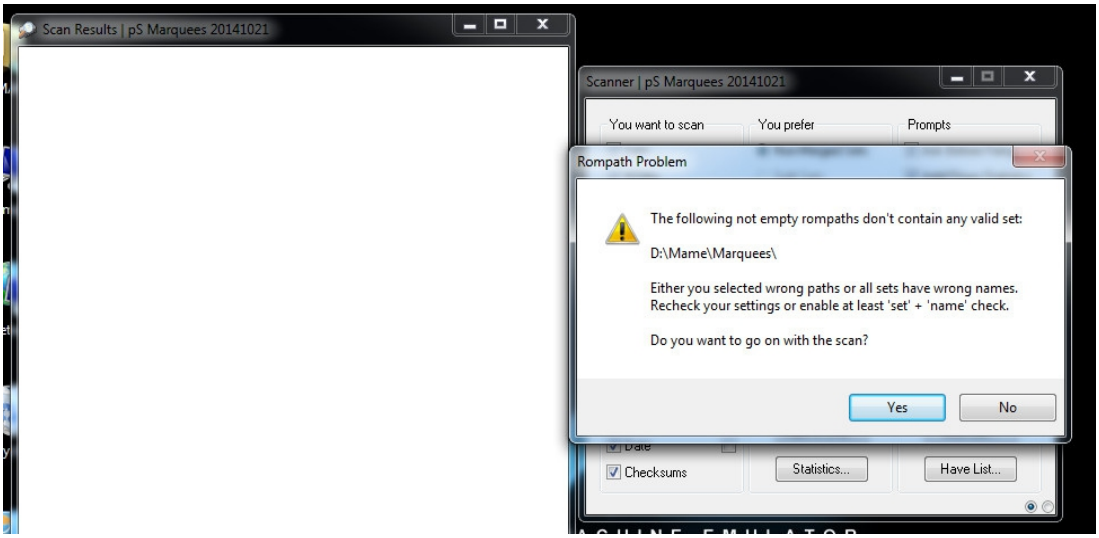
First task? Yes we must go to the “Settings” ….

.. and set the ROM-Path to our Marquees folder in MAME



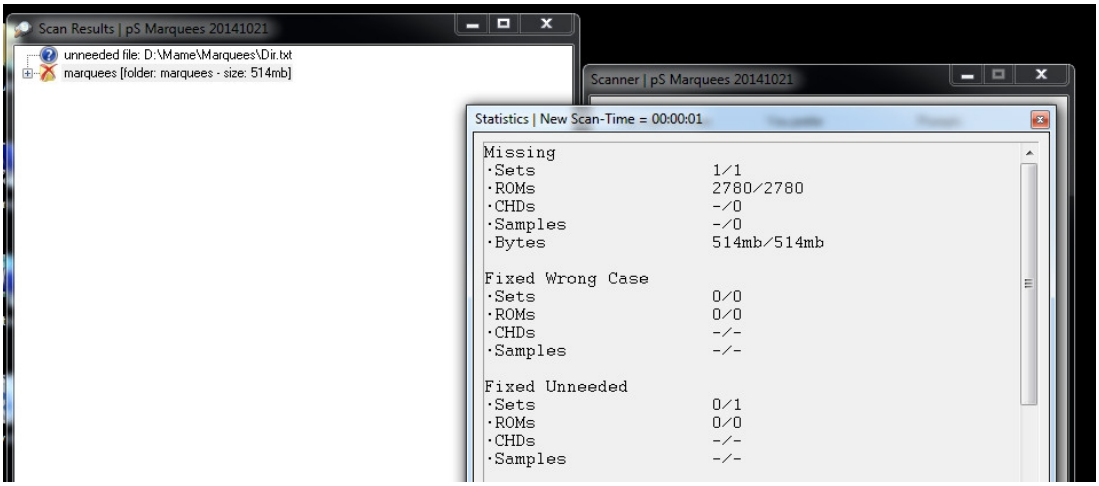
Start the scanner

It will complain that nothing is inside that folder, click “Yes”



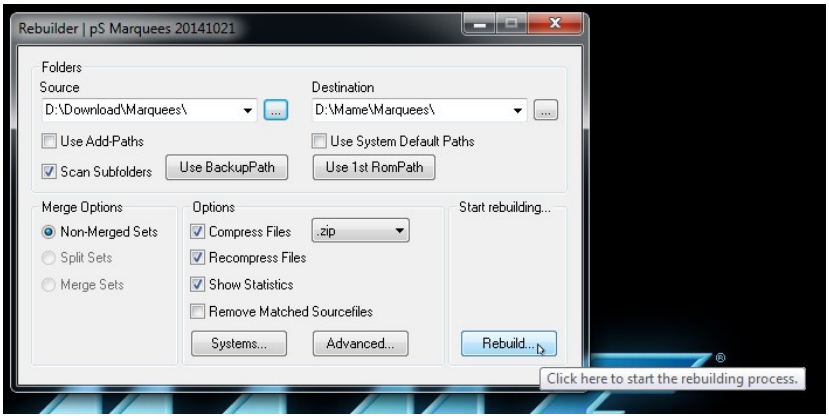
! CLRMAMEPRO will do a “quick scan” before the Scanner is available. That's the reason why we have received this message. Sometime it is good to have this information before you start the scan process. When you have for example pointed your ROM-folder to the wrong directory.

After the scan has finished we know now that we miss all marquees, fine ;-)

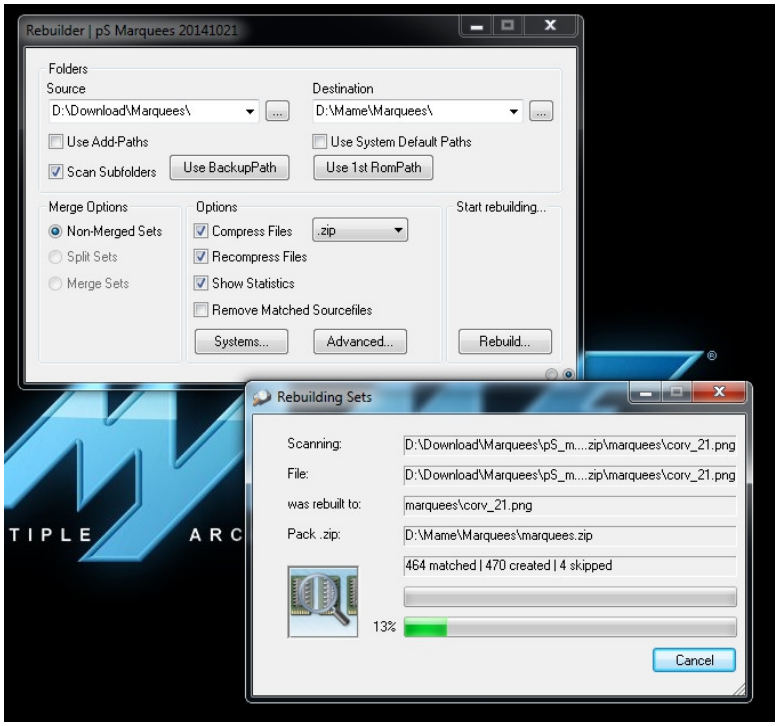


Close the scanner and start the rebuilder.

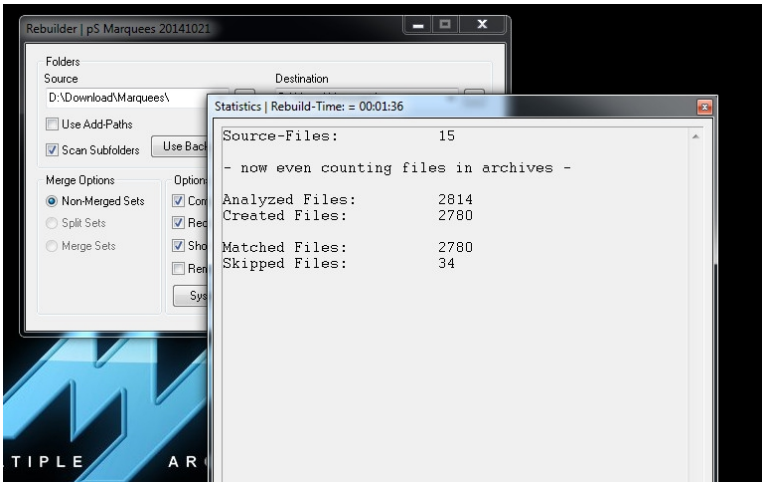
Point the “Source” folder to your marquees folder in downloads.



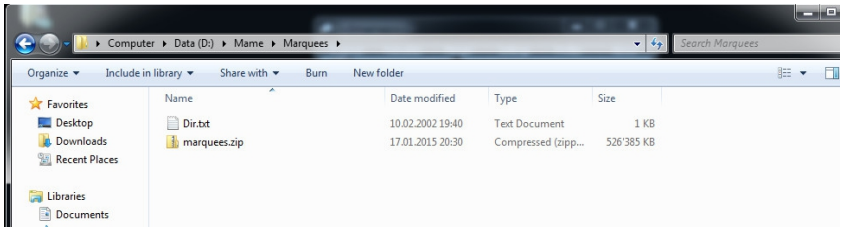
The rebuilding process has started ……



The rebuilding has finished and “Matched Files: 2780”, that's sound great.



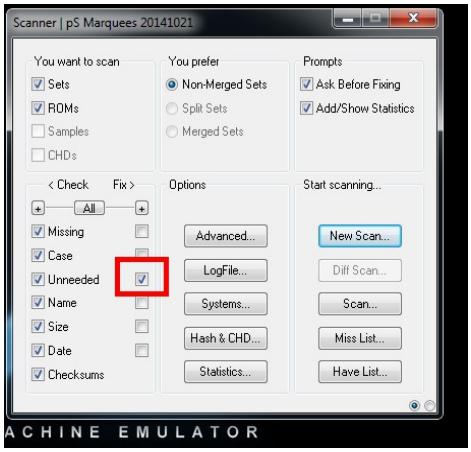
We have now a new created “marquees.zip” in this folder.



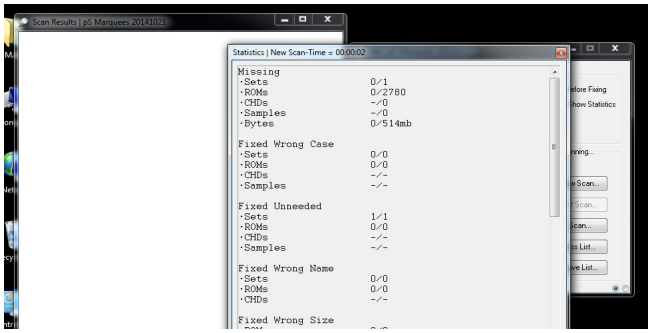
Start the scanner

We have now, oh yes, zero missing and an “unneeded”

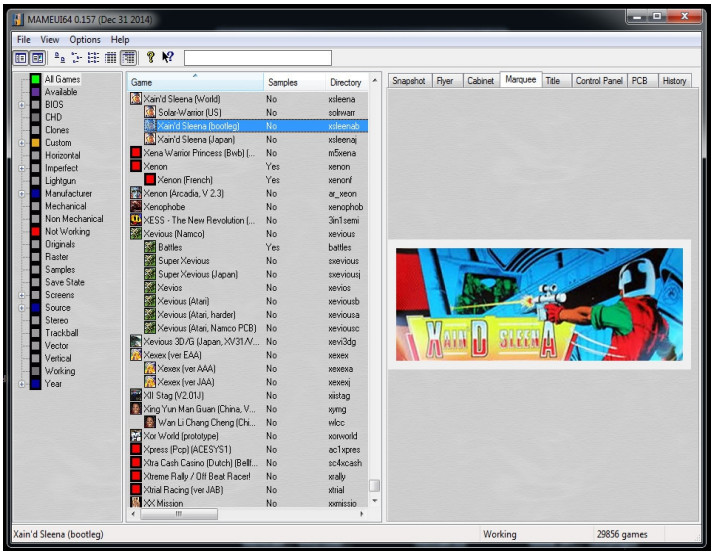
We can scan again with this “fix” enabled



And now we have a perfect complete marquees snapshot set.



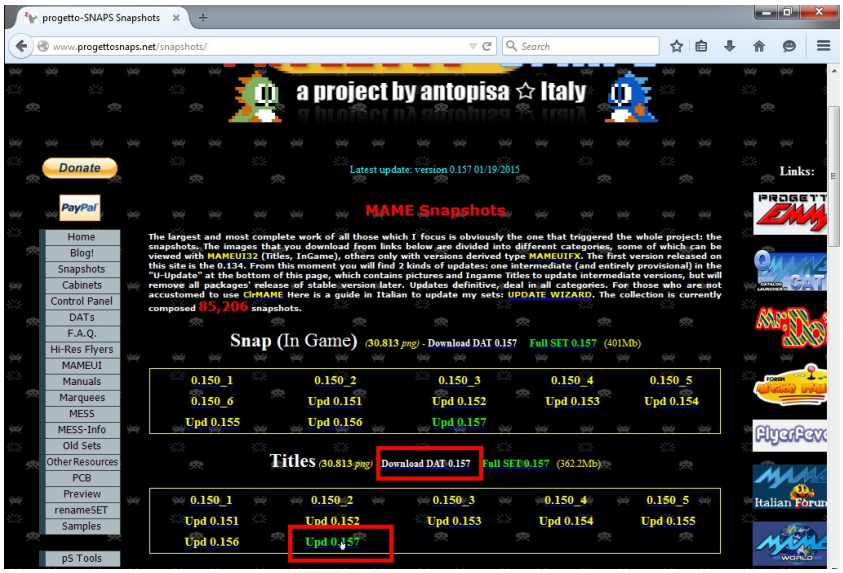
With MAMEui we see the marquees now.



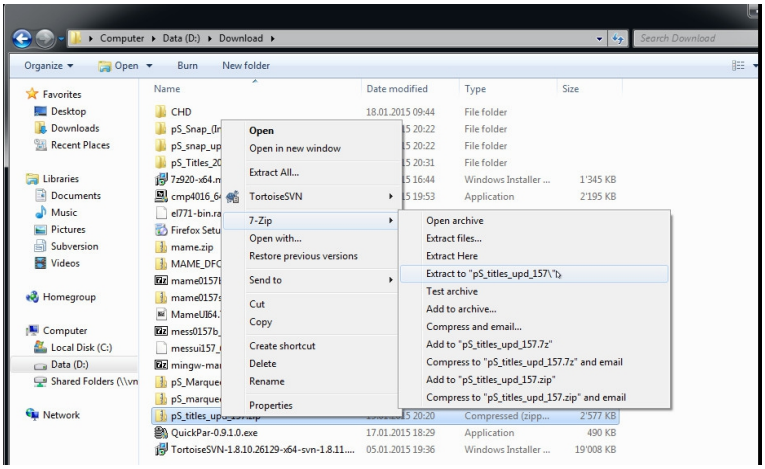
Updating an add-on folder with CLRMAME

As you may have seen we have installed MAME build version 0.157 and the add-on examples was for version 0.156. In the meantime AntoPISA has releases a 0.157 update to all his snapshots. We try now to update our titles-snapshots to version 0.157.

Open a web-browser and navigate to Progetto-Snaps and choose “Snapshots”. Download the update and the DAT-file for 0.157.

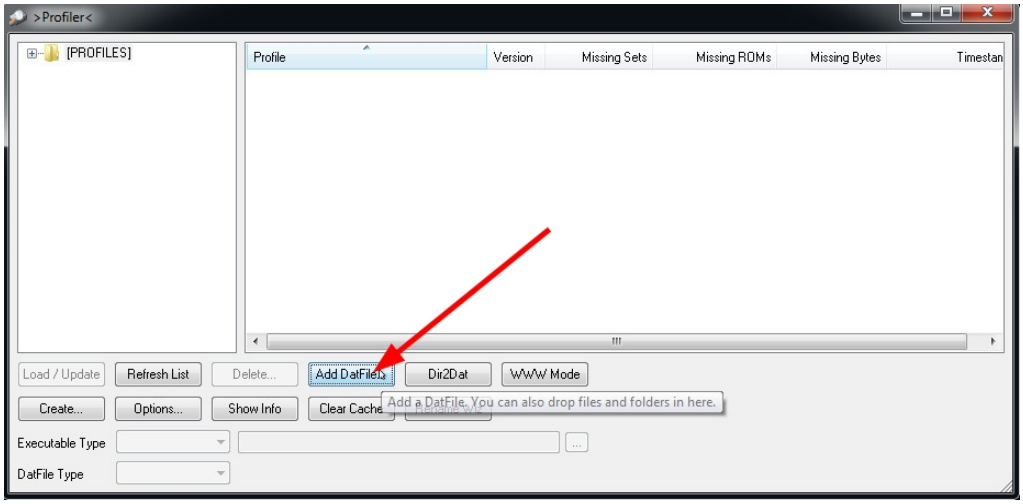


Extract both files to a subfolder within the download-folder

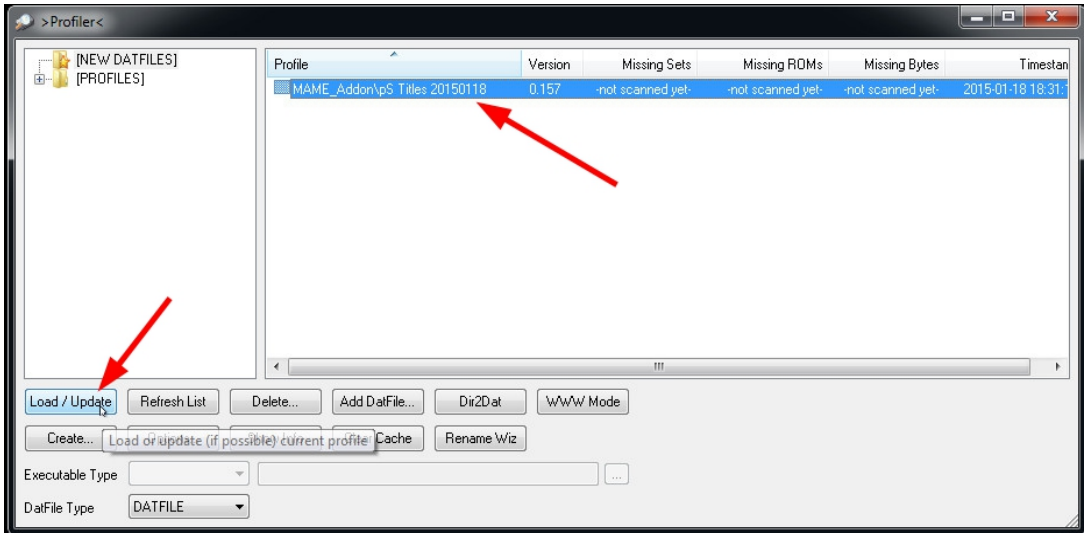


Start CLRMAMEPRO

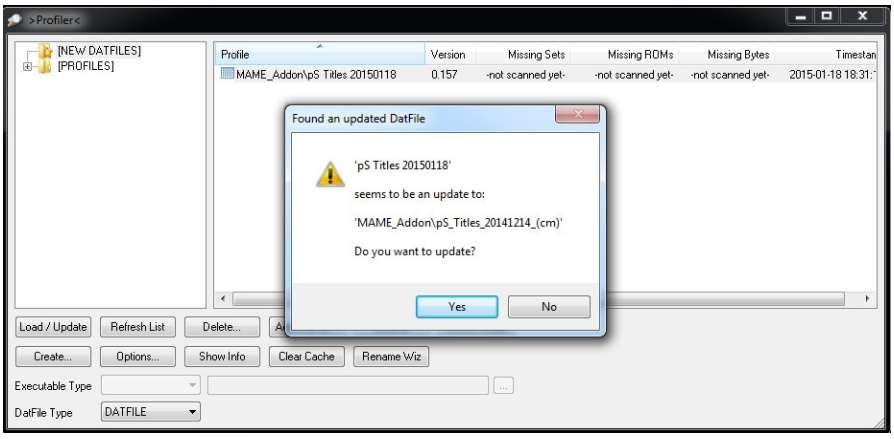
Add the downloaded DAT-file in profiler



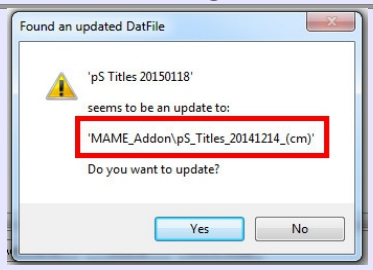
Add the “ps Titles 20150118” DAT-files to the “MAME_Addon” profile folder and load it into the profiler



What's that? Huh? It has checked that there is an old titles DAT-file already in CLRMAMEPRO. As this DAT-file should replace the old one we choose "Yes"



! When you choose "update" be sure that it displays the right old DAT-file. Otherwise it replace the wrong DAT-file.

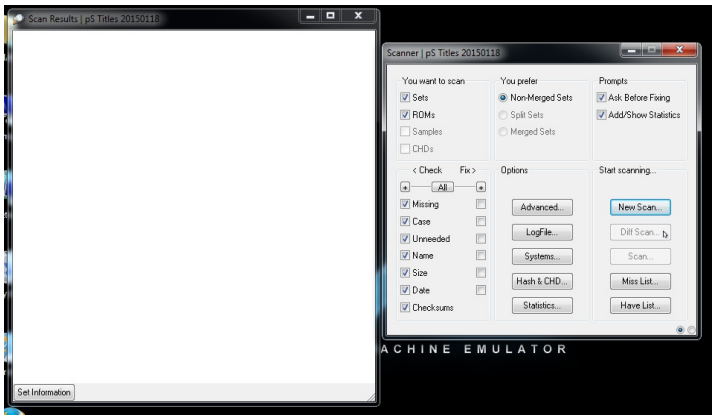


We choose "Settings" as our first step before scanning

Adds the titles ROM-Paths …..hmm it is already the right path there.... Can you remember we have chosen "update" and it has taken the settings from the old DAT-File.

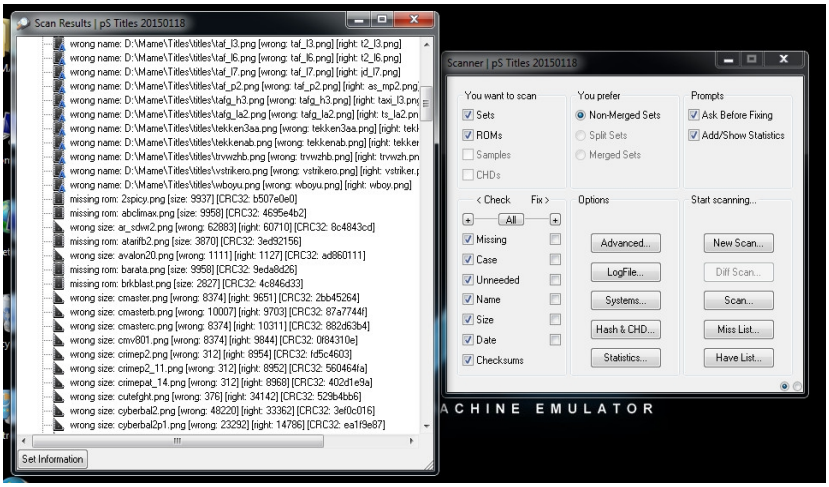
Okay we are heading now to the scanner

And choose “Diff Scan”, but it is not available, why? The reason is very simple. This DAT-File has only 1 Set called “titles” and it is “new” or “changed” → In that case we can only do a “New scan”

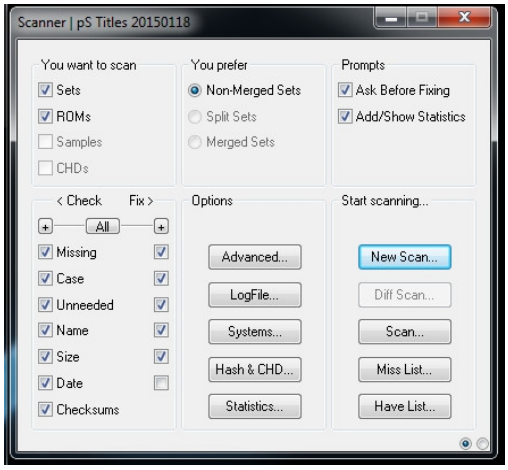


! We will see in a next chapter “update DAT...” more information for this update function.

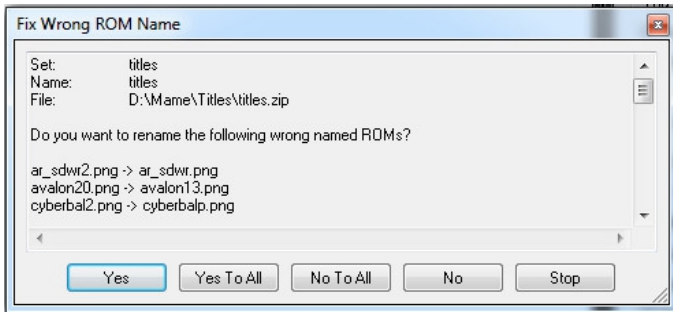
After the scan has finished we see in the “Scan Results” window hat there are missing, wrong named or wrong size messages.



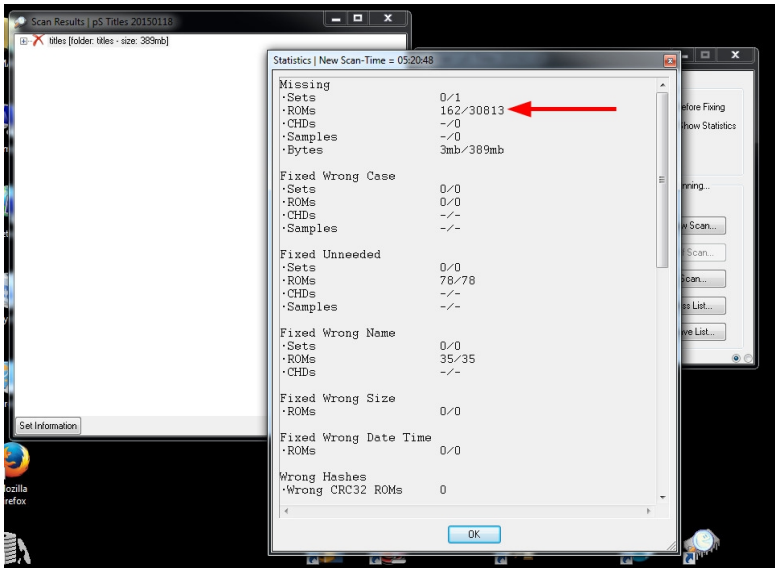
Let's do another scan with the fix options enabled.



We reply to each question “Yes to all” → let's fix CLRMAMEPRO everything that is possible.

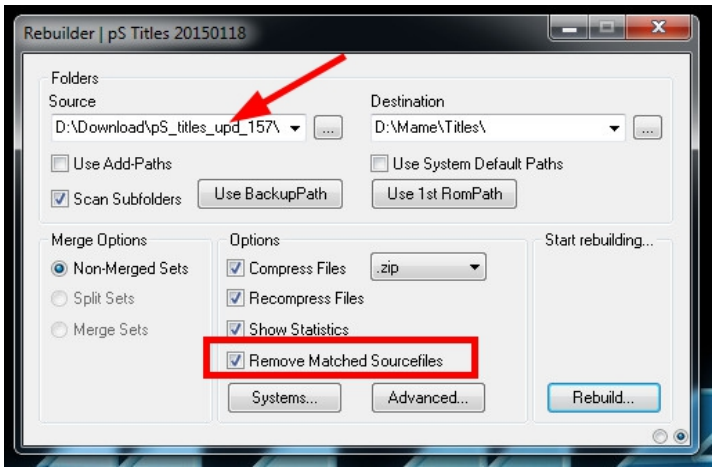


And we have now a “clean” set but with missing snapshots.

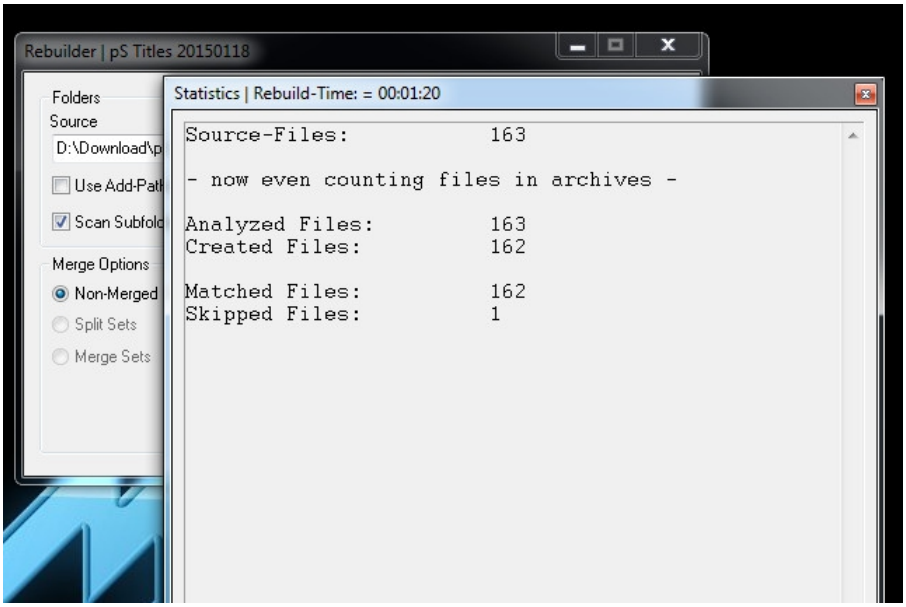


Use the rebuilder now

Point the source to the folder in the downloads where you have your extracted titles-snapshots. Enable “Remove Matched Sourcefiles”.

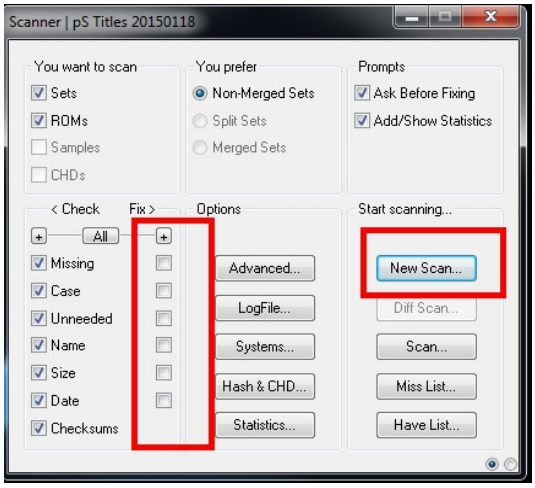


After the rebuild it displays the statistics

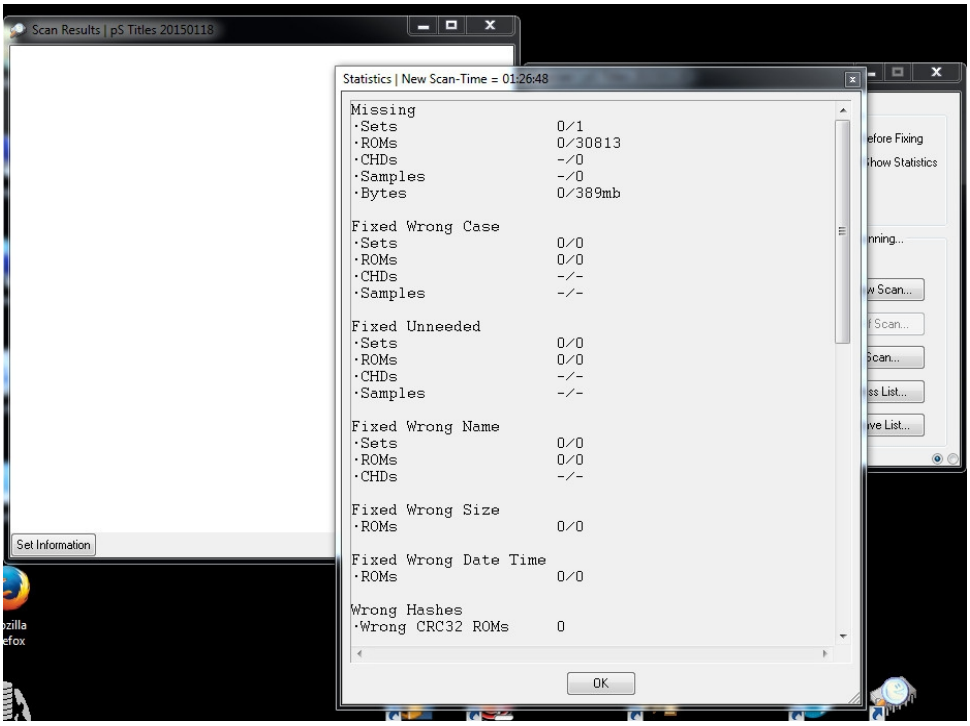


Use the scanner again

We disable all enabled fix options and start a “new scan”



and and and? Yes we have now again a complete set for 0.157

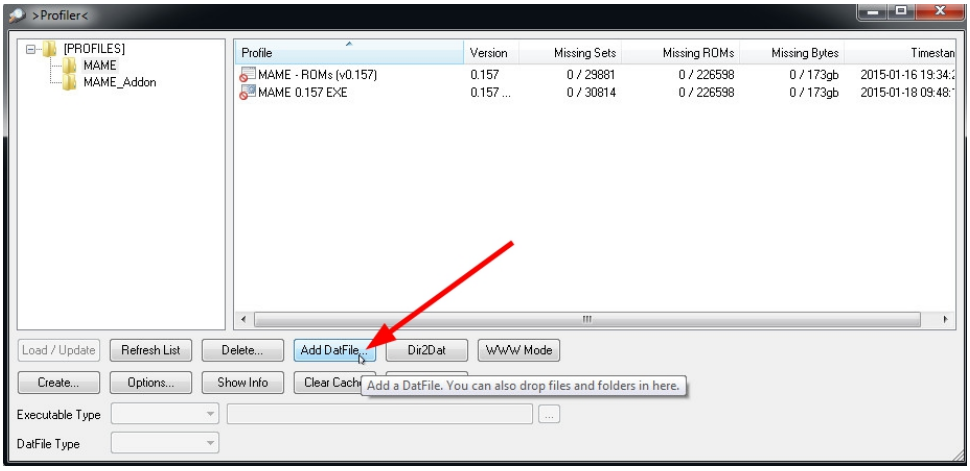


Using a DAT-file as an update for an existing DAT-file

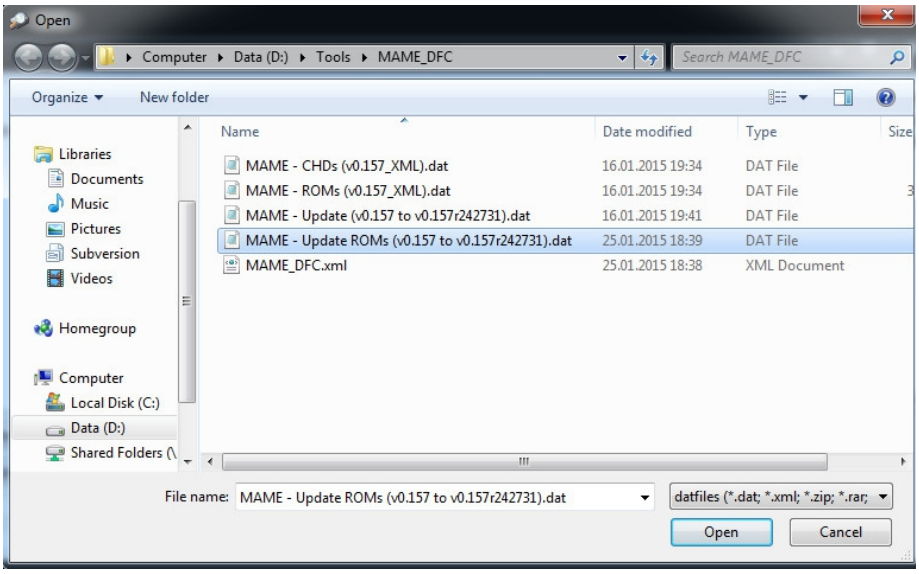
We look again in the “update” procedure with existing DAT-files.

Start CLRMAMEPRO

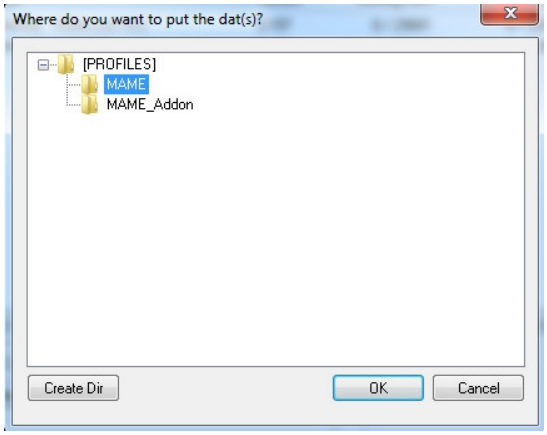
We add now a new DAT file, click “Add DatFile”



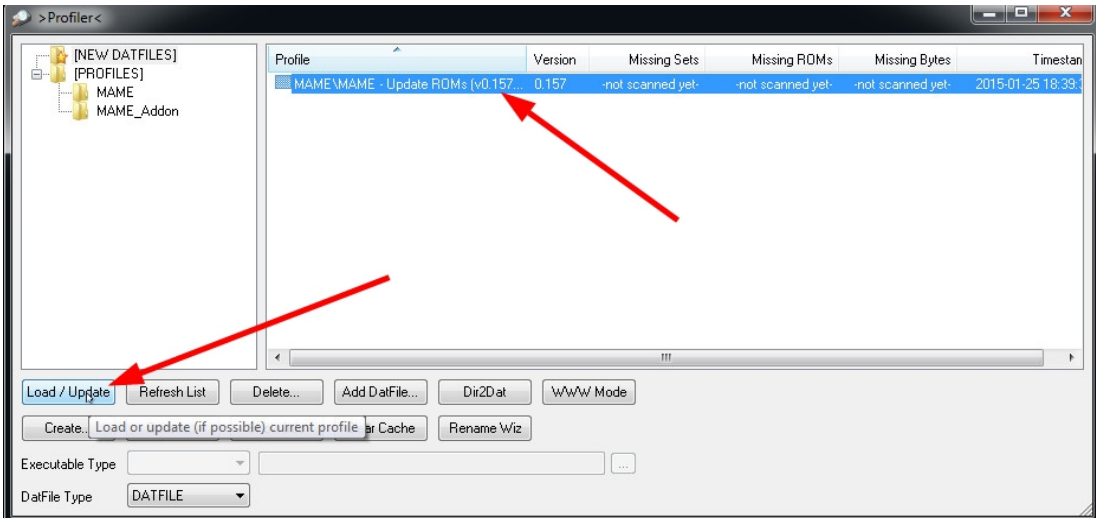
We choose one of the DAT-File we have created with DFC.



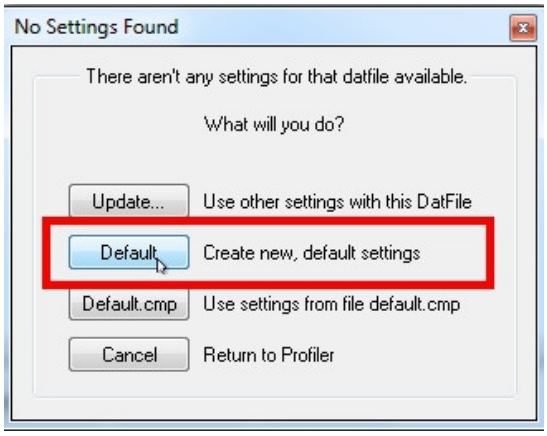
Place it in “MAME”



Load that added DAT-file

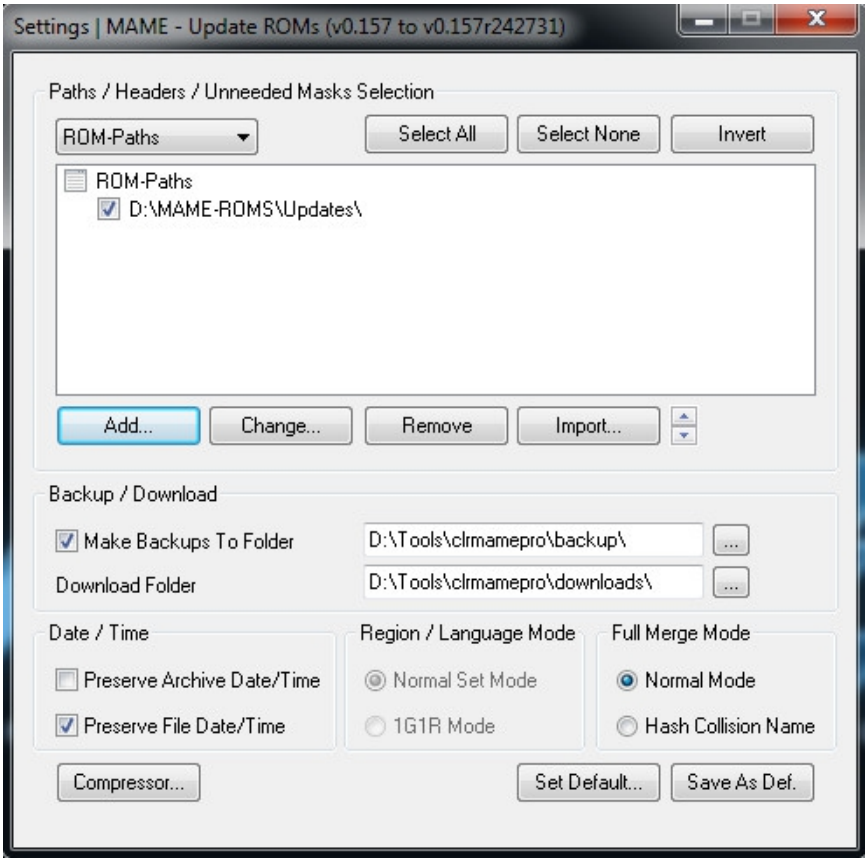


Choose “default” settings



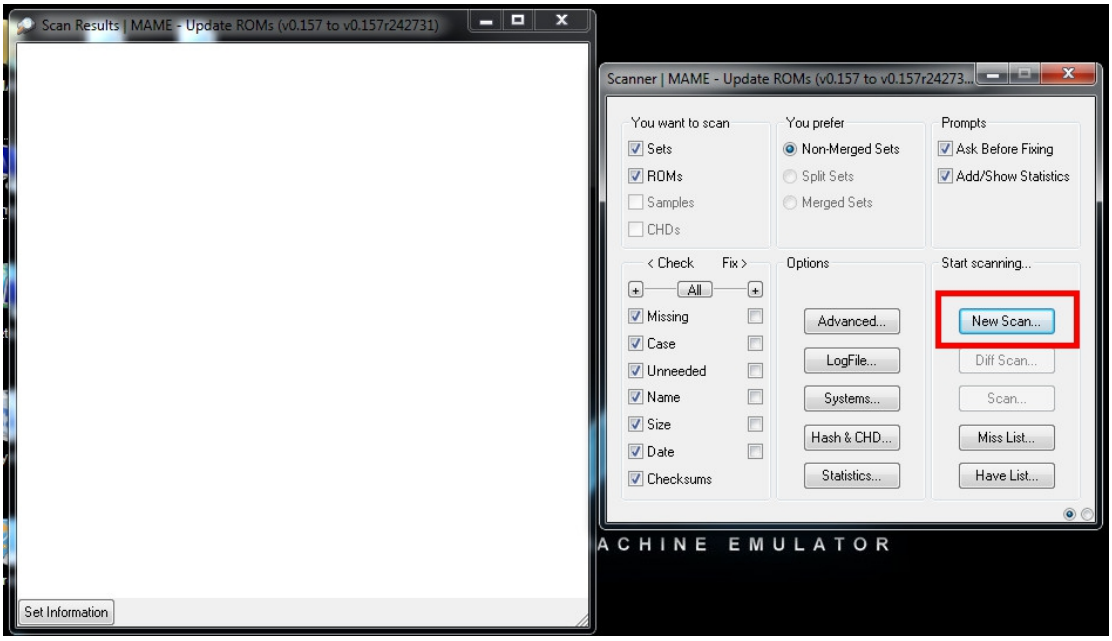
Go to “Settings”

Set the ROM-folder....

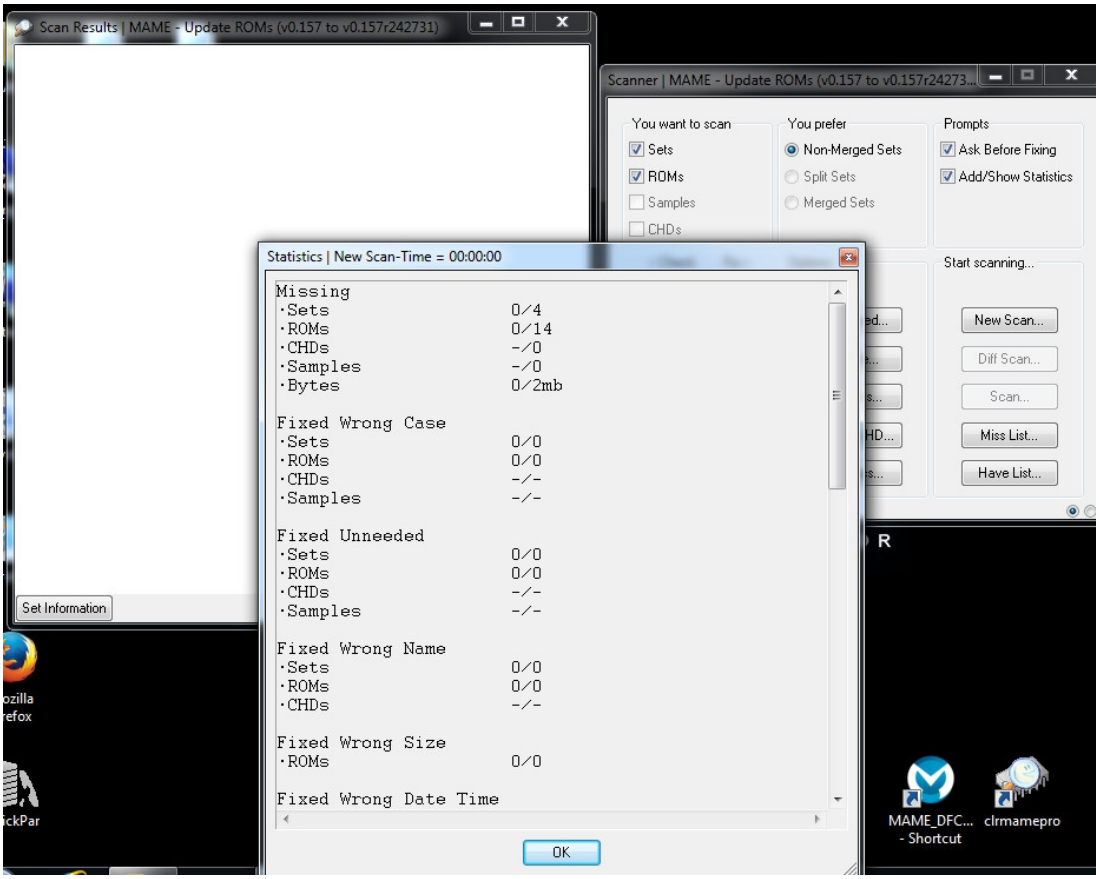


And start “Scanner”

Start a “New Scan”



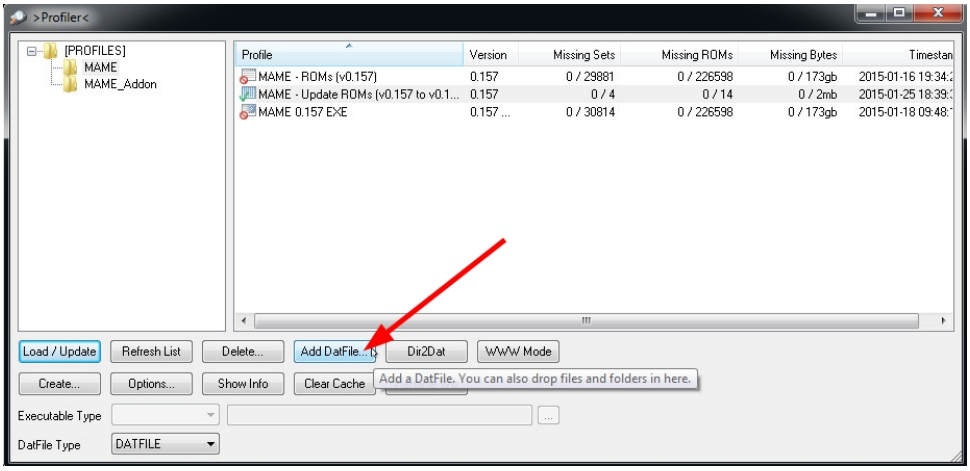
Our update ROM-Folder is complete.



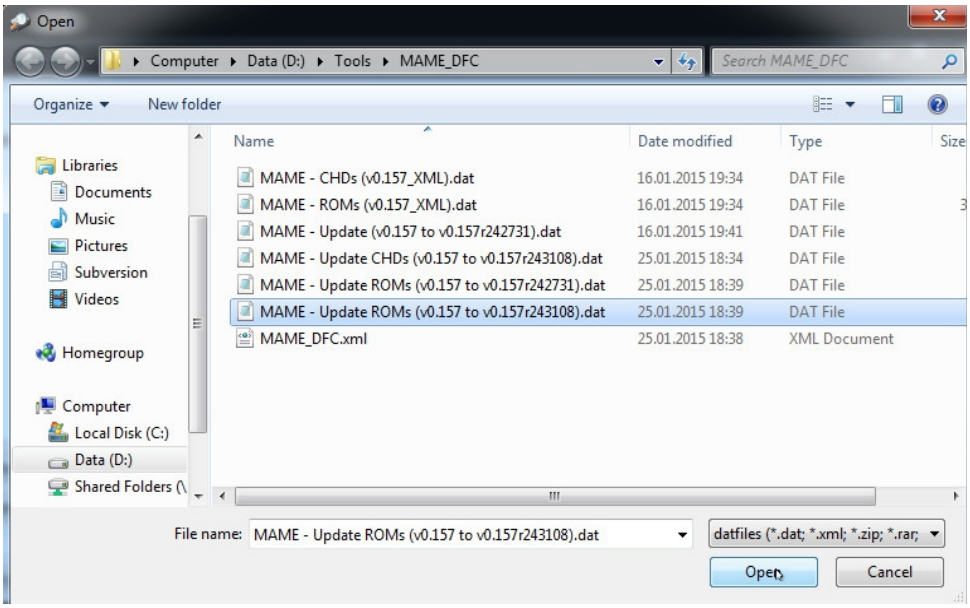
In the meantime there is a new MAME build available (update between V0.157 and 0.158) and we do have created a new update DAT-File.

Go to Profiler (that brings you back).

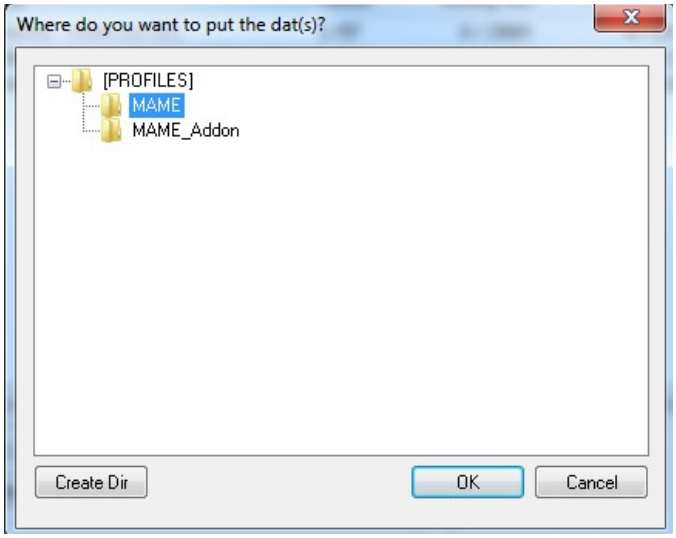
And we want to add this new update DAT-file ….



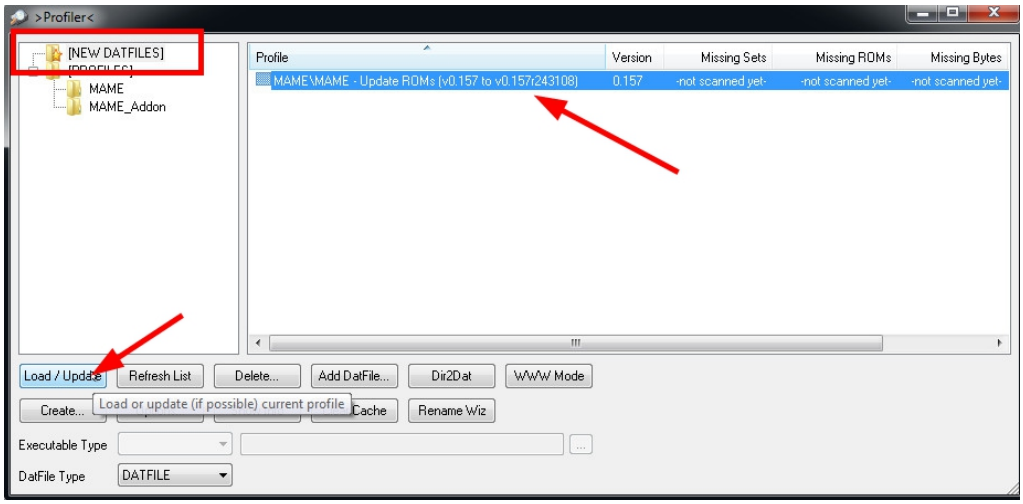
Choose the new DAT-File ..



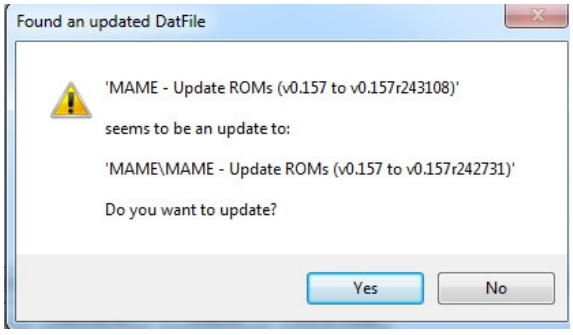
And place it to our “MAME” profile folder.



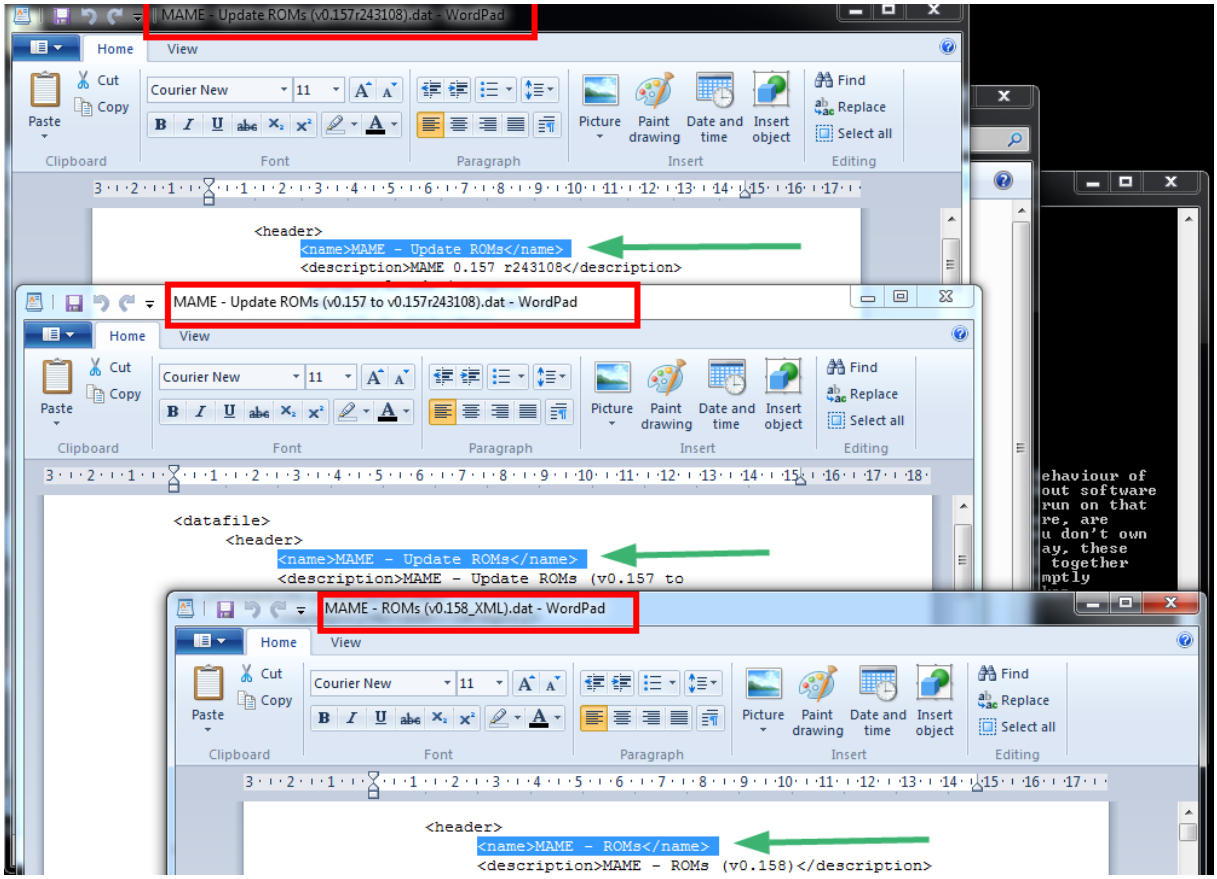
We load now this new added DAT-file.



As inside the DAT-file is the same description CLRMAMEPRO does scan that and does offer an “update procedure”.

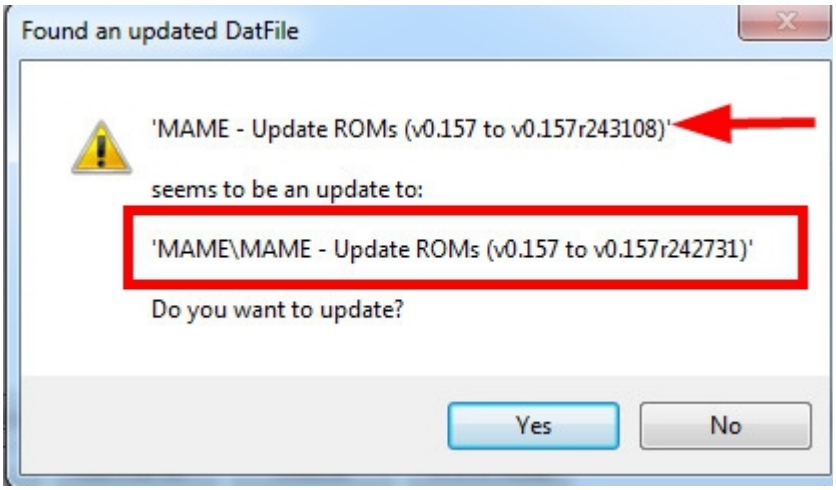


Why does CLRMAMEPRO knows that we have already a DAT-file that can be updated? The answer is simple, let's look inside three DAT-files.



In the “header” section we have this tag “name”. For this update ROMs-DAT-file it is called “MAME Update ROMs” in both files. When we look into the full ROMs-DAT-file it is called “MAME - ROMs”. That's why CLRMAMEPRO think that this new added DAT-file should replace the other one. Be warned that when you are creating a lot of DAT-files for example for MAME-FX or MAME-ASH you don't want to remove/update the DAT-File.

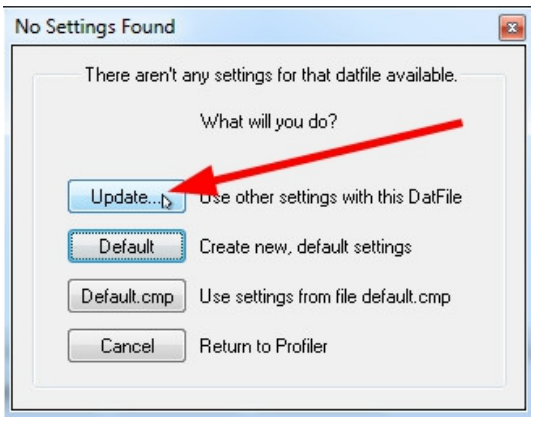
We see now that the new “Description” is displayed and the DAT-file that CLRMAMEPRO has detected as an update. Also the “Description” is displayed. You now have to choose “yes this is true” or “no this is not true or the wrong DAT-file is displayed for an update”



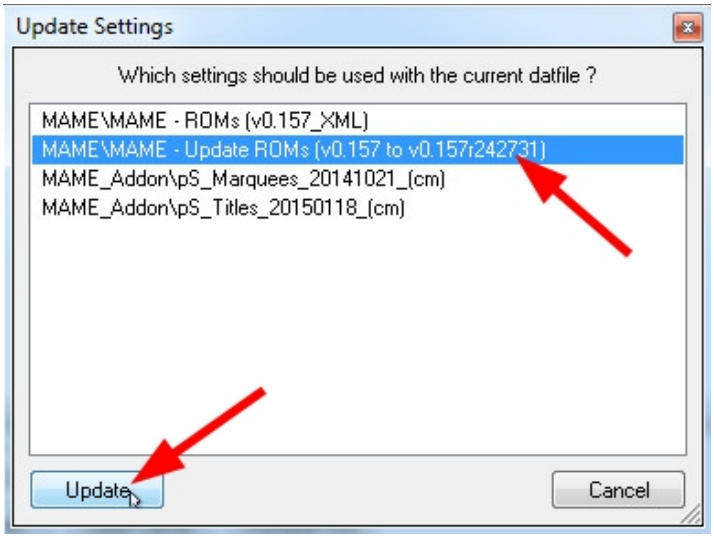
! When you do an update all settings/cache from the previous DAT are copied to the new one. The old DAT file will be deleted.

In our case it is true, we could click “yes” but I will show you what to do if a wrong DAT-file is displayed for an update. Click “NO”.

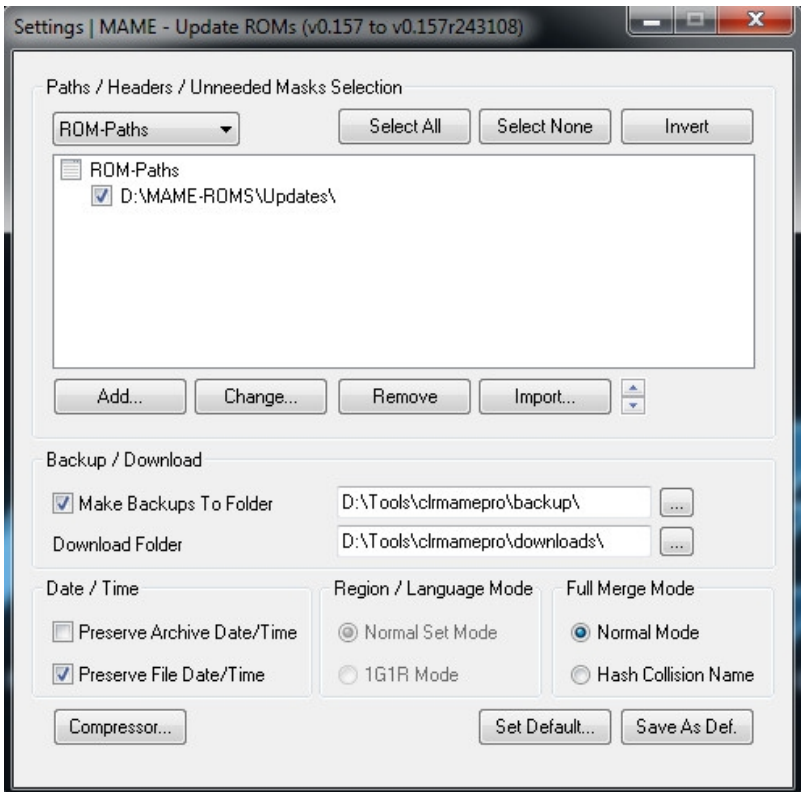
Now we see the normal “no settings found” window. Now choose “update”



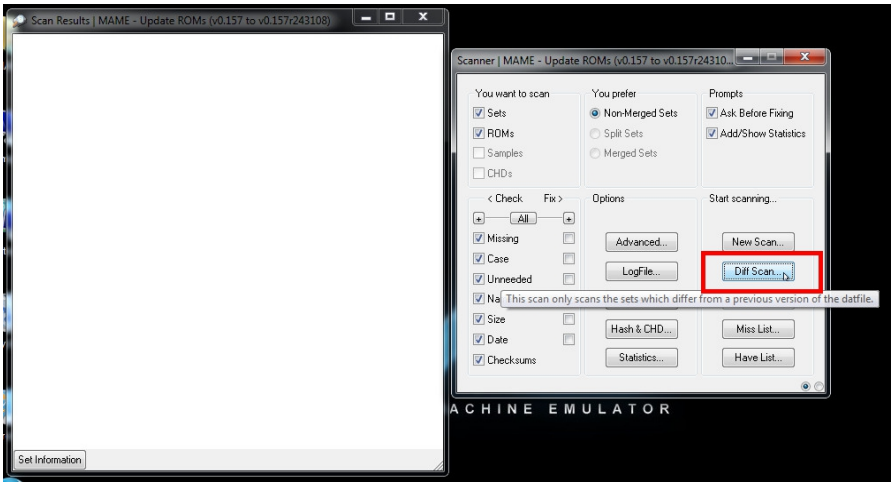
A new windows is opening. There you see all available DAT. Choose the right one and click “update”.

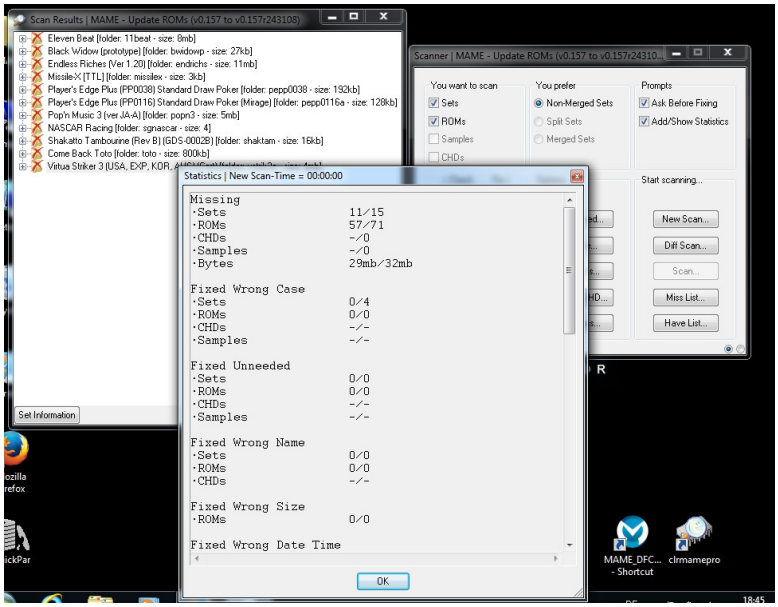


We have no replaced the old one with the new one. When you are going now to the “Settings” you see that the ROM-path is already set (yes its was copied from the old one).



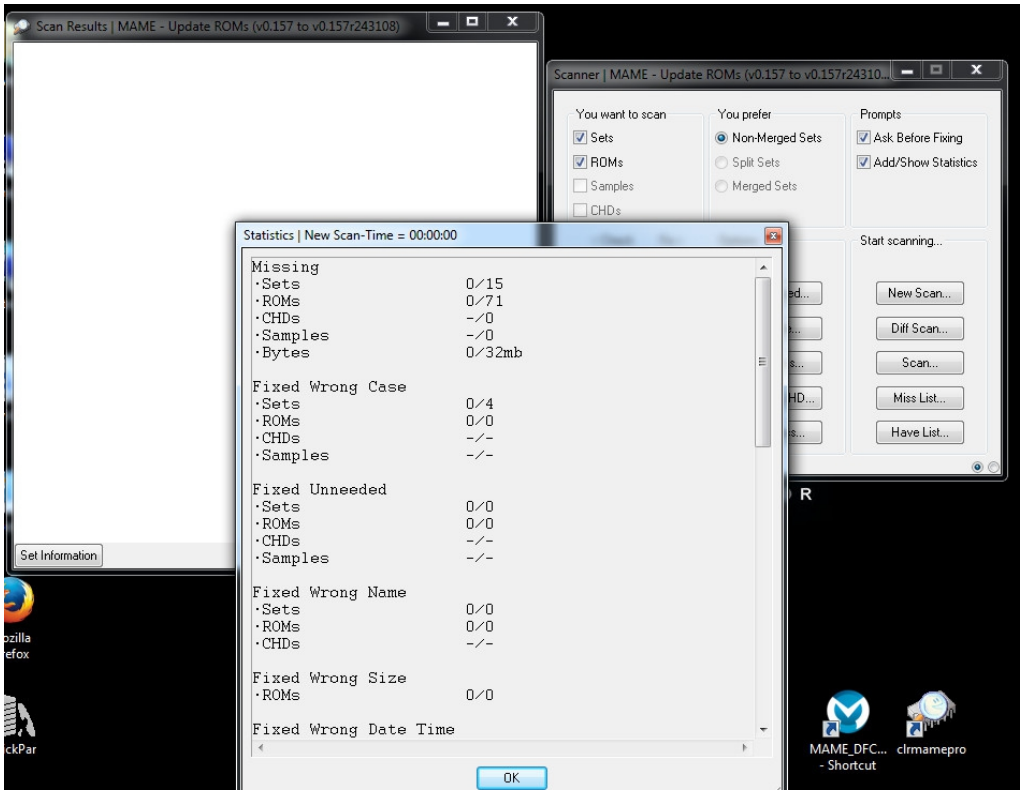
In the “Scanner” you have now also the choice to do a “Diff scan”. This function does detect what has changed from the old-DAT to the new one.



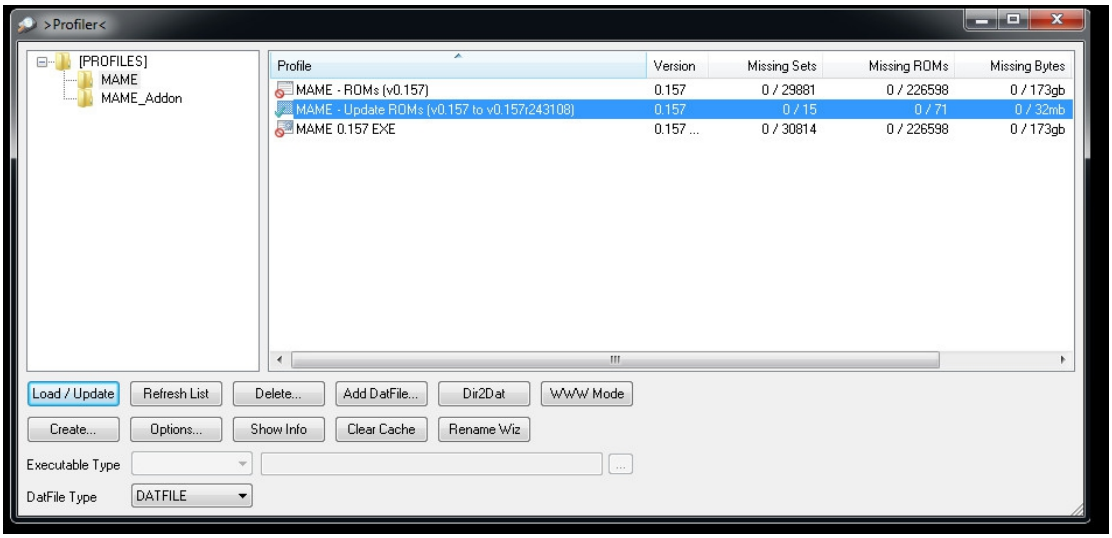


Attention: When you have missing sets in the previous DAT-file and you are doing now this “Diff Scan” with the new update DAT-file they are NOT being displayed. Do in that case a “New Scan” to be sure that you have everything reported.

We update our update ROM-folder and do a “New Scan”.



Note that in the profile is the old DAT-file not more available (yes it has been replaced by the newer DAT ;-))



Chapter 7: Compiling MAME/MESS

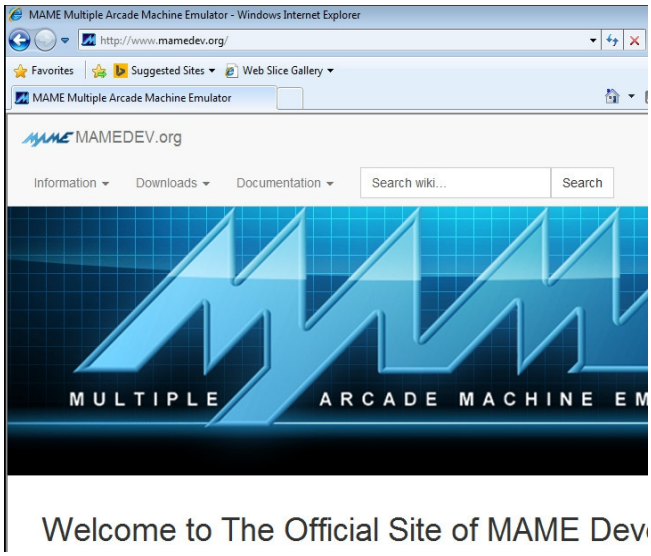
A lot of people are now happy. Playing their games and never updating their systems. MAME/MESS is an ongoing project, new systems are being added, added are updated. There are two way to have the latest emulator installed. Waiting for a new version to install or compile their own version with the source code. Compiling MAME/MESS have again two ways to do it: download the source-code, compile it or using the online repository for downloading the latest source-code and compile it afterwards.

At the moment every month is a new official MAME version published. The need for doing an own compile is only when you need a special version or when you are hunting for new ROMz yourself ;-)

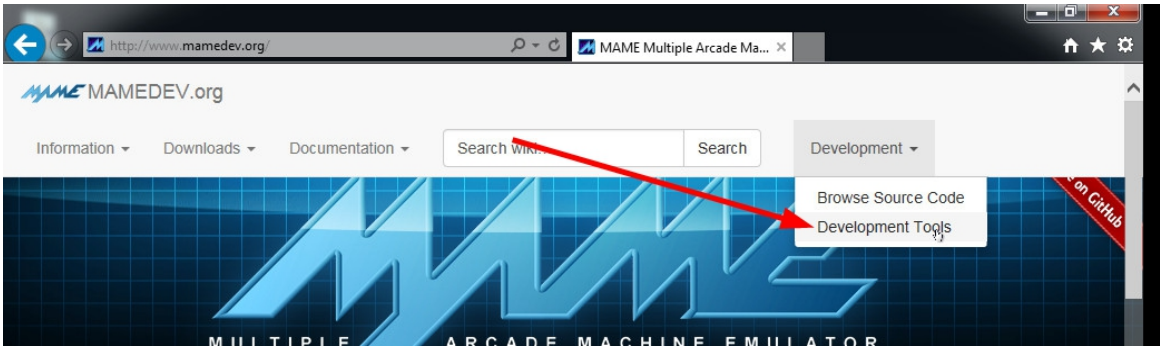
Compiling with full source code

Installing the needed Compiling tools

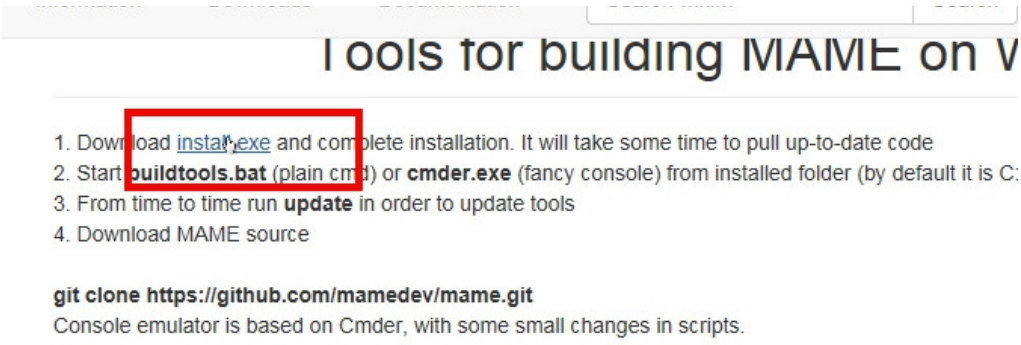
Open a web-browser and navigate to the MAMEdev.org site.



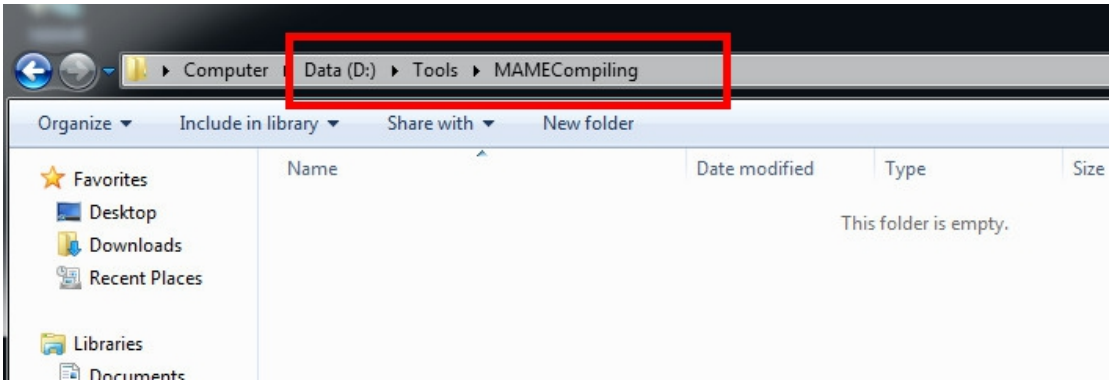
Under Development choose “Development Tools”



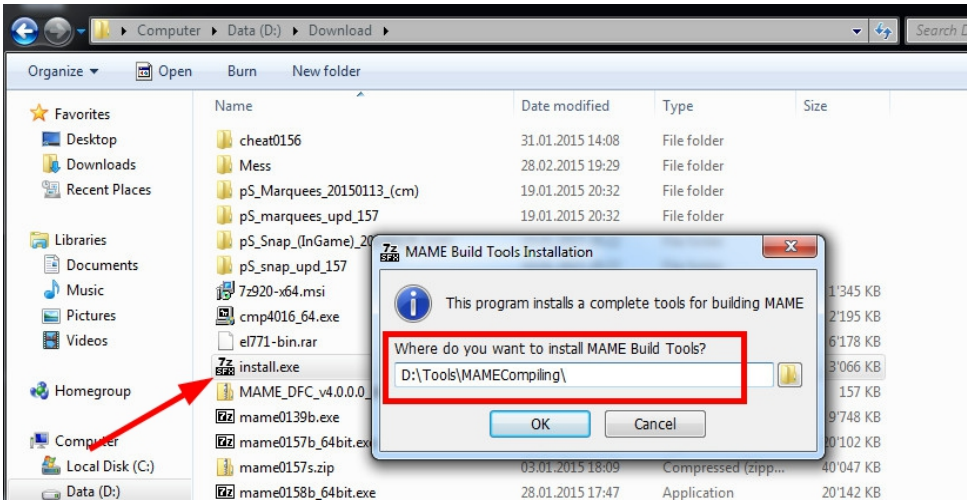
There is an “install.exe” for downloading.



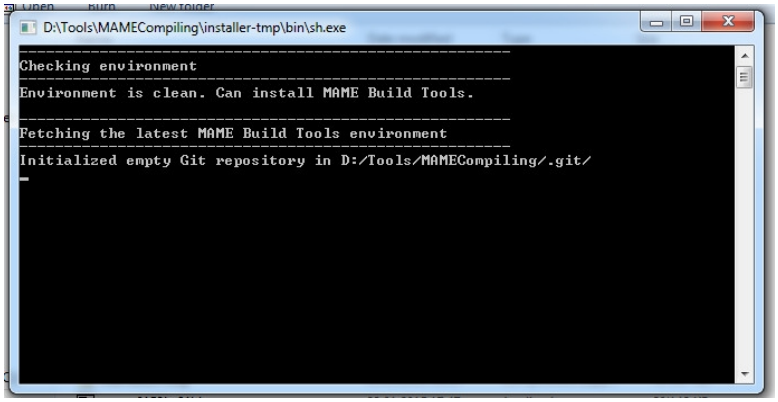
Save it to our Download-folder. Create a new folder “MAMECompiling” under “D:\Tools\”



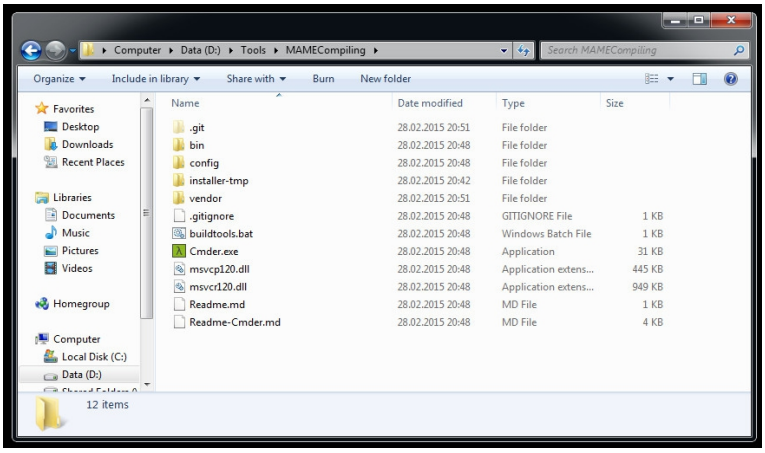
Start the “install.exe” and choose the new created folder.



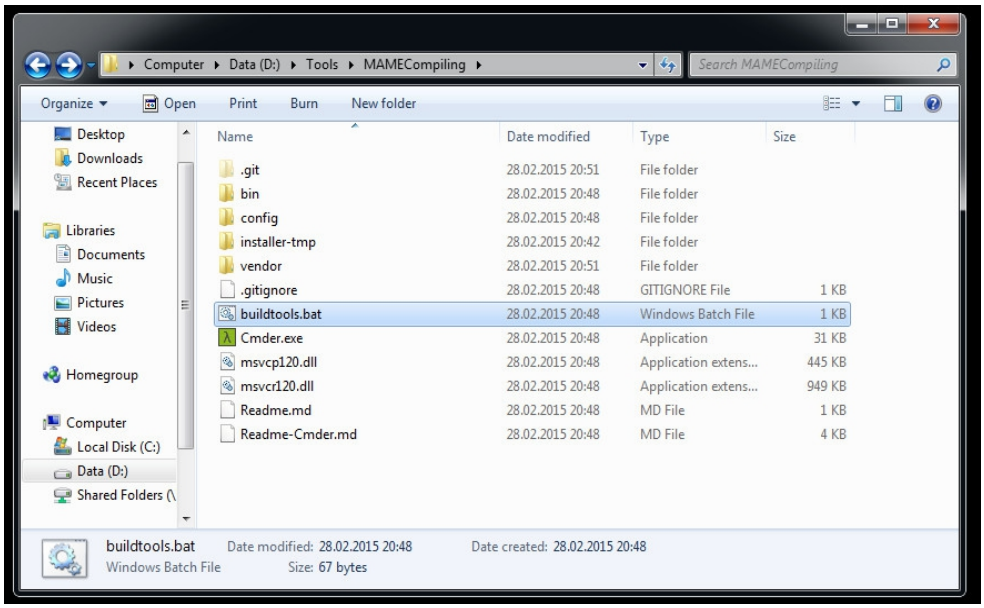
This install tool will download now from the MAME repository (Where the MAME program source is) all needed compiling files.



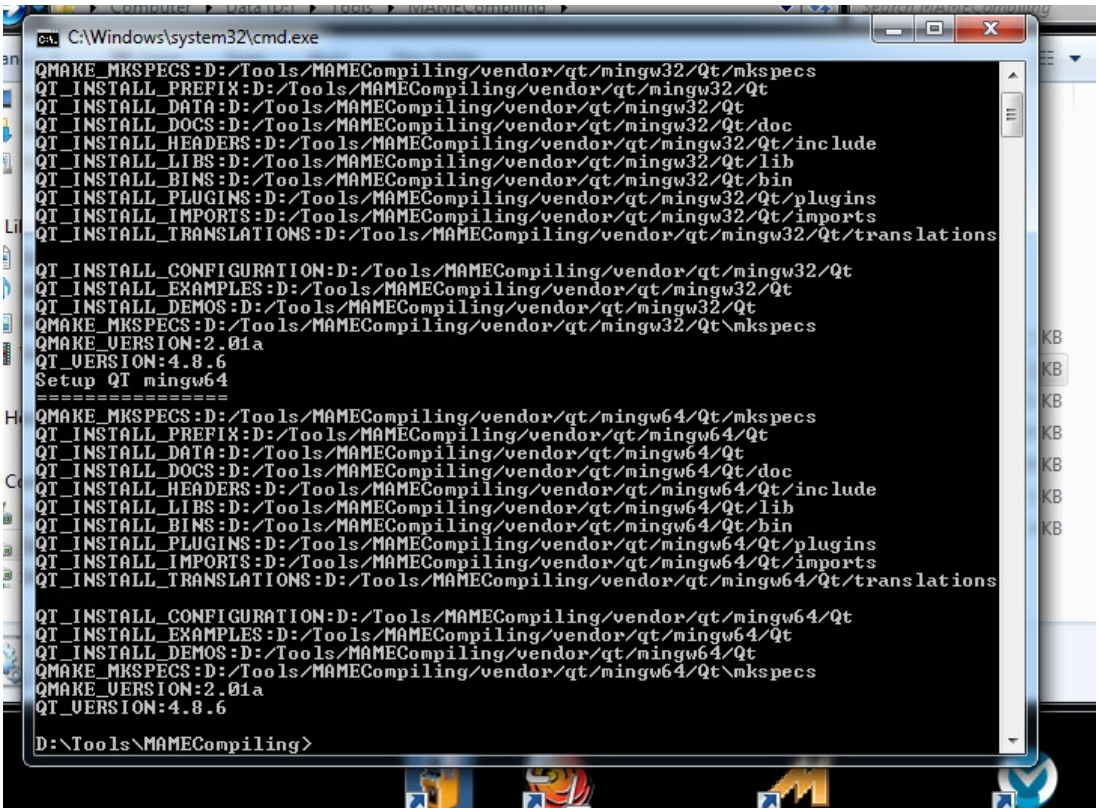
After it has finished there are all required files in that folder.



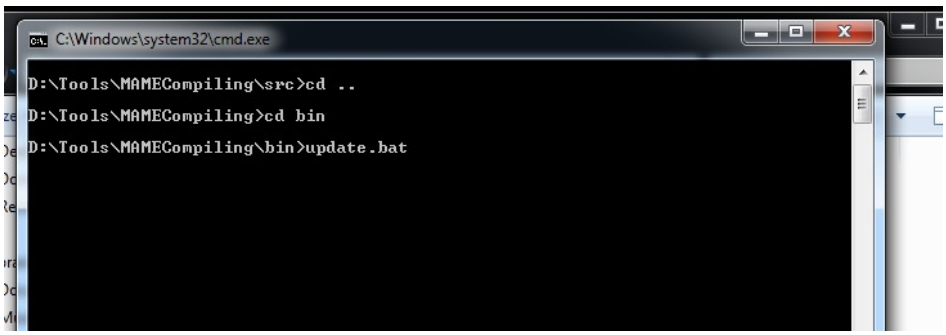
Start the “buildtools.bat” and ….



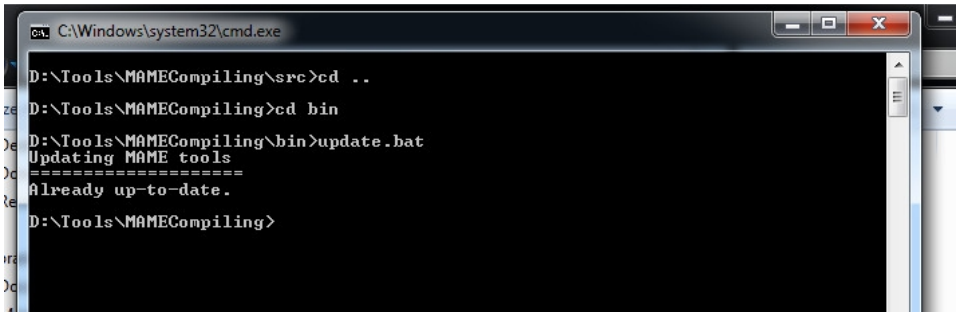
.. it does do set some settings once in your environment.



We change to the “bin” folder. There is an “update.bat” that you can start. It does check if there are newer tools available and does download it. I don't know how often this will happens. Execute that “update.bat” from time-to-time”



Okay not a surprise we are “up-to-date”



Do NOT use a command-line window that you have started somewhere else than starting it with this “buildtools.bat”. Otherwise the update and compiling function does NOT work!

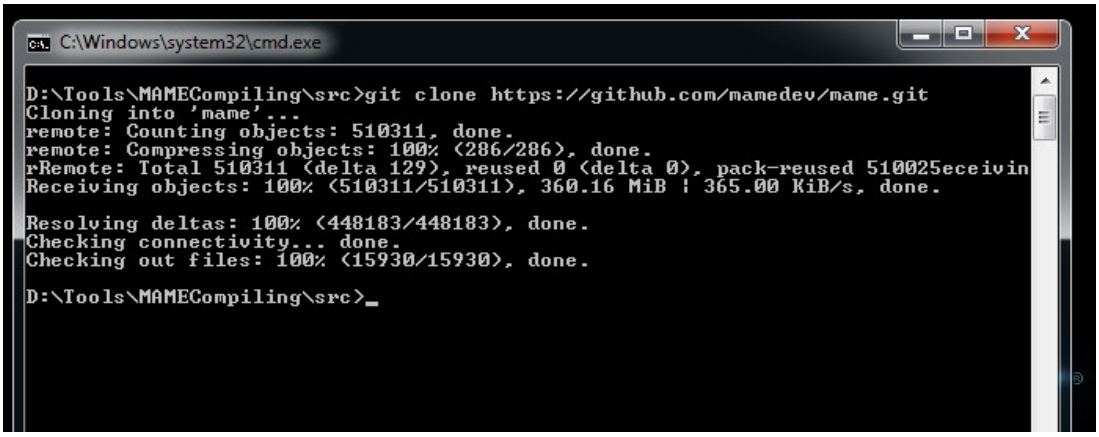
We have now installed all required compiling tools and what do we need next? Ah yes we need the full source-code for MAME. This new compiling tools have everything available, also downloading the source-code without the need of a web-browser.

Change to the “src” folder. In that folder we want to download the source-code under “mame”. Execute this command:

“git clone https://github.com/mamedev/mame.git“

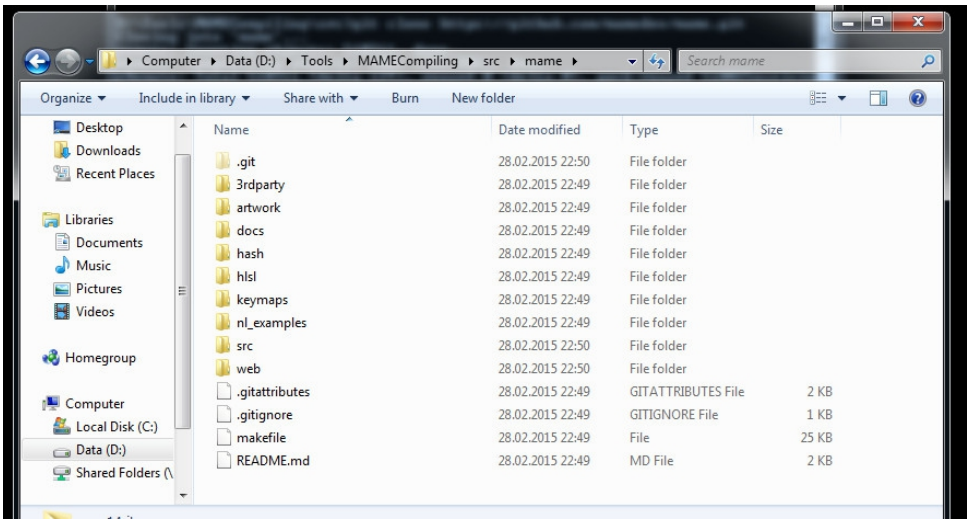
The “git” executable is able to download source-files from a repository. Option “clone” means that a 1:1 version should created on our local drive (=full source code) and the second option is the address where the MAME source code is available.

After some minutes it has downloaded all source-files and has stored it under the folder “mame”.



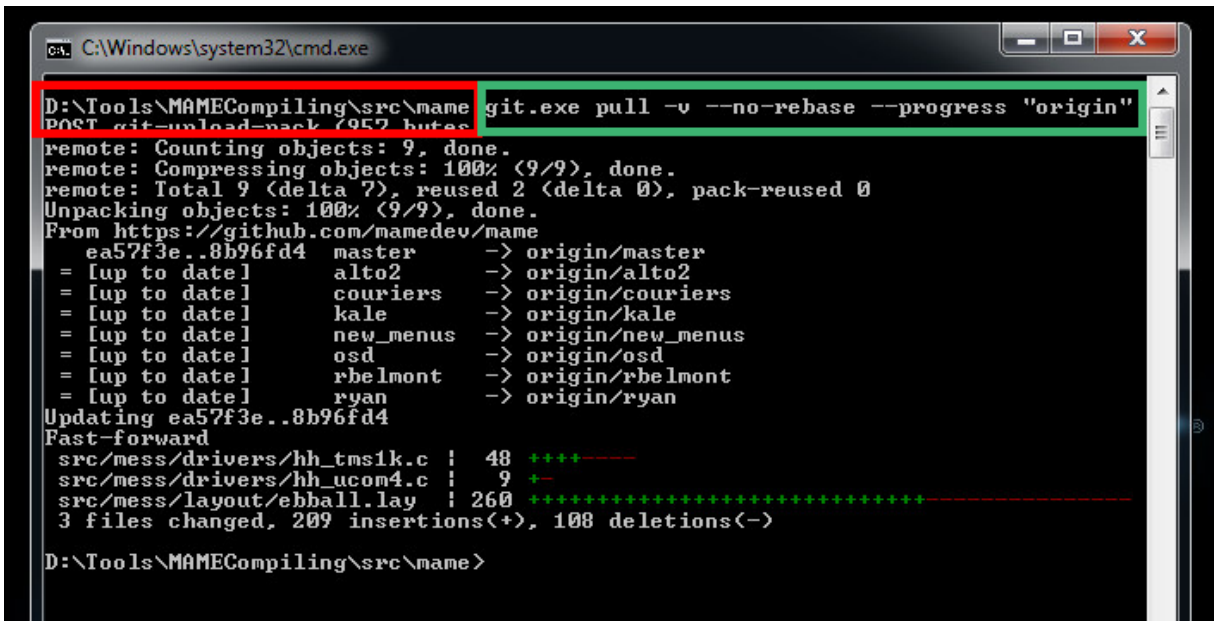
! We can again download the full-source later when we do delete this folder “mame” and execute the above command. Be sure before you delete the “mame” folder that you have all custom script or needed folder removed from there. We are going to create some custom scripts and folder inside this “mame” folder in the next steps!

Here we are all source-files have been downloaded.

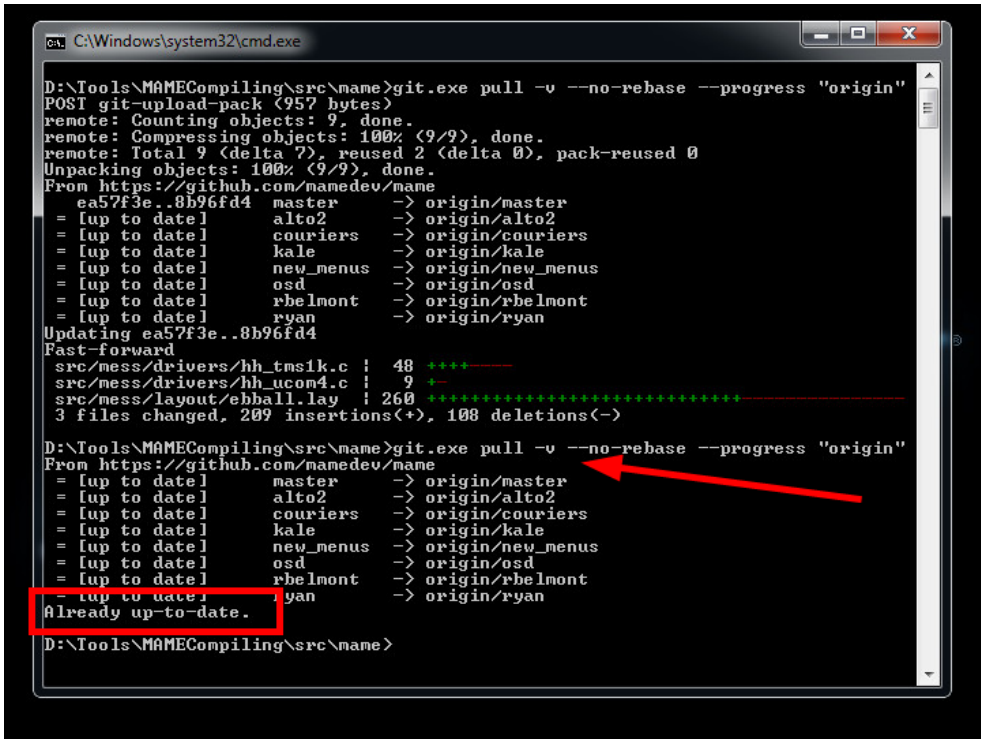


If you would like to update that source folder yourself from time-to-time you can execute the following command. Be sure that you are in the mame folder while execute it:

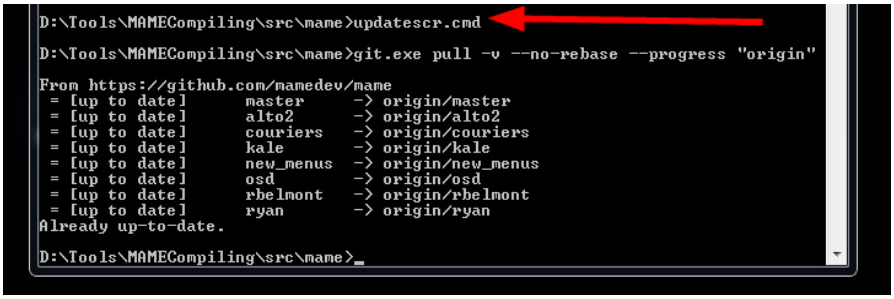
git.exe pull -v --no-rebase --progress "origin"


C:\Windows\system32\cmd.exe
D:\Tools\MAMECompiling\src\mame git.exe pull -v --no-rebase --progress "origin"
remote: Counting objects: 9, done.
remote: Compressing objects: 100% (9/9), done.
remote: Total 9 (delta 7), reused 2 (delta 0), pack-reused 0
Unpacking objects: 100% (9/9), done.
From https://github.com/mamedev/mame
ea57f3e..8b96fd4 master -> origin/master
= [up to date] alto2 -> origin/alto2
= [up to date] couriers -> origin/couriers
= [up to date] kale -> origin/kale
= [up to date] new_menus -> origin/new_menus
= [up to date] osd -> origin/osd
= [up to date] rbelmont -> origin/rbelmont
= [up to date] ryan -> origin/ryan
Updating ea57f3e..8b96fd4
Fast-forward
src/mess/drivers/hh_tms1k.c | 48 ++++----
src/mess/drivers/hh_ucom4.c | 9 +-
src/mess/layout/ebball.lay | 260 ++++++

Execute the commando again and now it displays “Already up-to-date”


C:\Windows\system32\cmd.exe
D:\Tools\MAMECompiling\src\mame>git.exe pull -v --no-rebase --progress "origin"
POST git-upload-pack (957 bytes)
remote: Counting objects: 9, done.
remote: Compressing objects: 100% (9/9), done.
remote: Total 9 (delta 7), reused 2 (delta 0), pack-reused 0
Unpacking objects: 100% (9/9), done.
From https://github.com/mamedev/mame
ea57f3e..8b96fd4 master -> origin/master
= [up to date] alto2 -> origin/alto2
= [up to date] couriers -> origin/couriers
= [up to date] kale -> origin/kale
= [up to date] new_menus -> origin/new_menus
= [up to date] osd -> origin/osd
= [up to date] rbelmont -> origin/rbelmont
= [up to date] ryan -> origin/ryan
Updating ea57f3e..8b96fd4
Fast-forward
src/mess/drivers/hh_tms1k.c | 48 ++++----
src/mess/drivers/hh_ucom4.c | 9 +-
src/mess/layout/ebball.lay | 260 ++++++

We can now start the update easy with “updatescr.cmd”



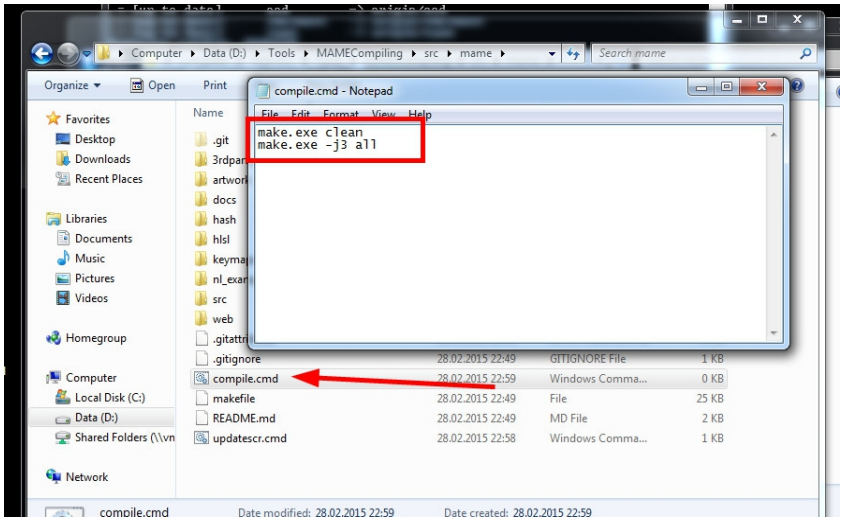
We have now compiled with the downloaded source-code from the repository. That was the actual build that is online. If you need the official latest version you have to download the full source from the MAMEdev site and extract it to this “mame” folder.

Compiling for the first time - MAME

Okay we have now our source-code available and we want to compile it to have all those exe-files at the end. We can do this by typing a command and we are lazy and before we start we save those commands into a cmd-file called “compile.cmd”.

```
make.exe clean
make.exe -j3 all
```

First line will clean up the source before compiling (remove temporary compiling files). Second line will start the compiling. The parameters “-j3” does speed up your compiling when you have a dual core processor and the parameter “all” means with the tools.
- j3 → if your computer has a dual core
- jx → CPU core+1
>>> find more option in http://www.gnu.org/software/make/manual/



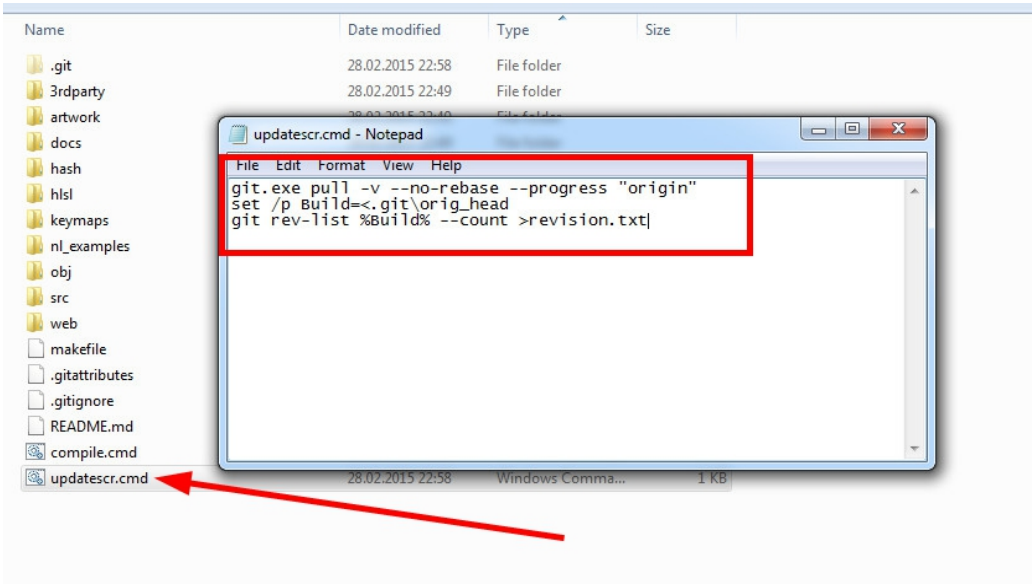
Ahhh I must extend our “updatescr.cmd” to save after an update the revision number to a file called “revision.txt”. Otherwise we have no information what revision-number the local source-code has ;-)

Add the following lines:

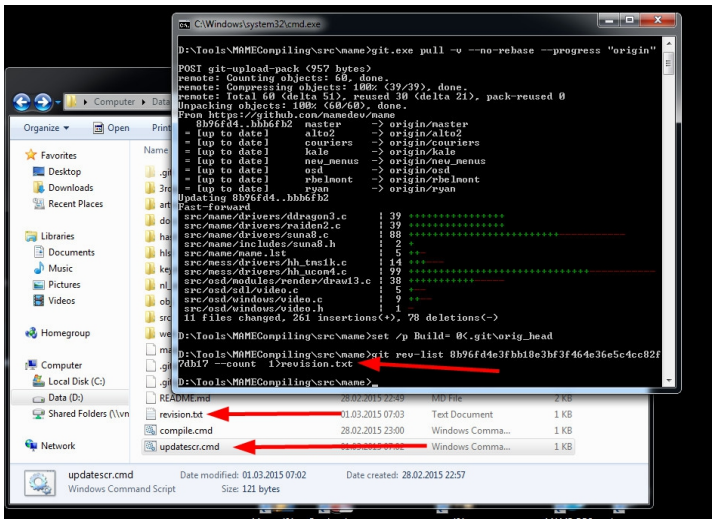
git.exe pull -v --no-rebase --progress "origin"

set /p Build=<.git\orig_head

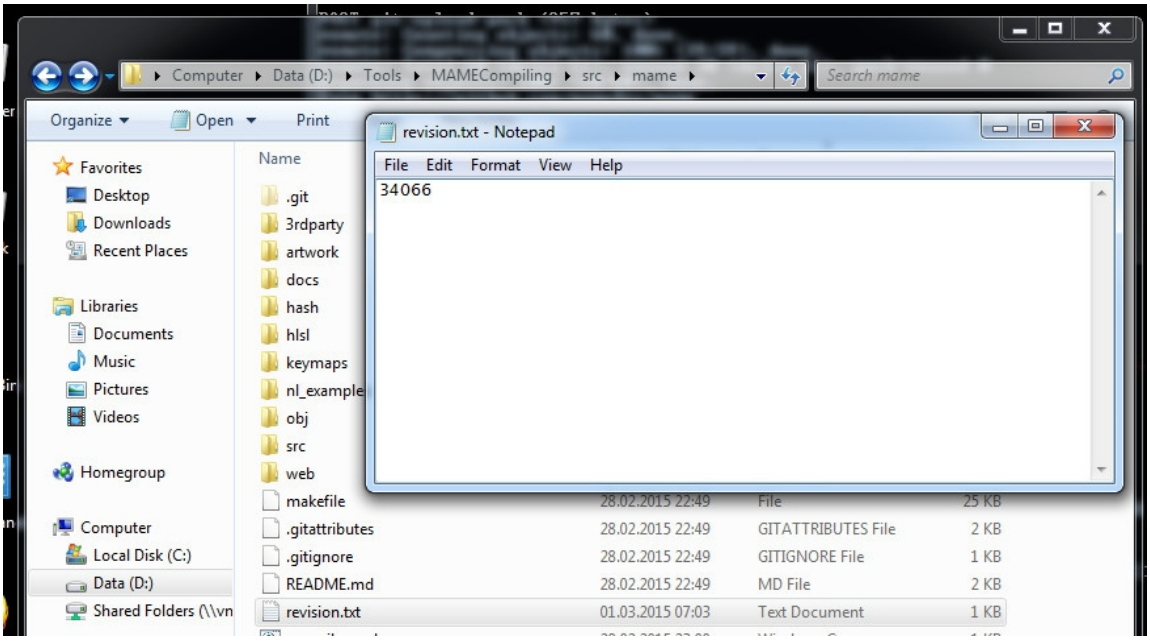
git rev-list %Build% --count >revision.txt



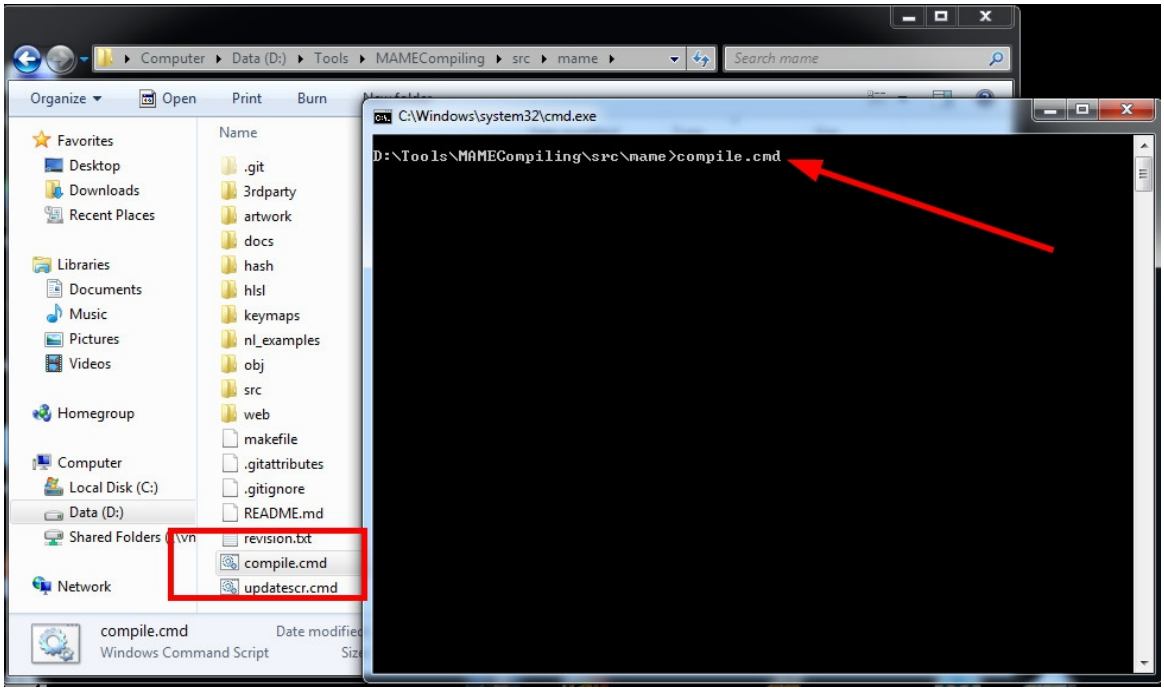
start another “updatescr.cmd”



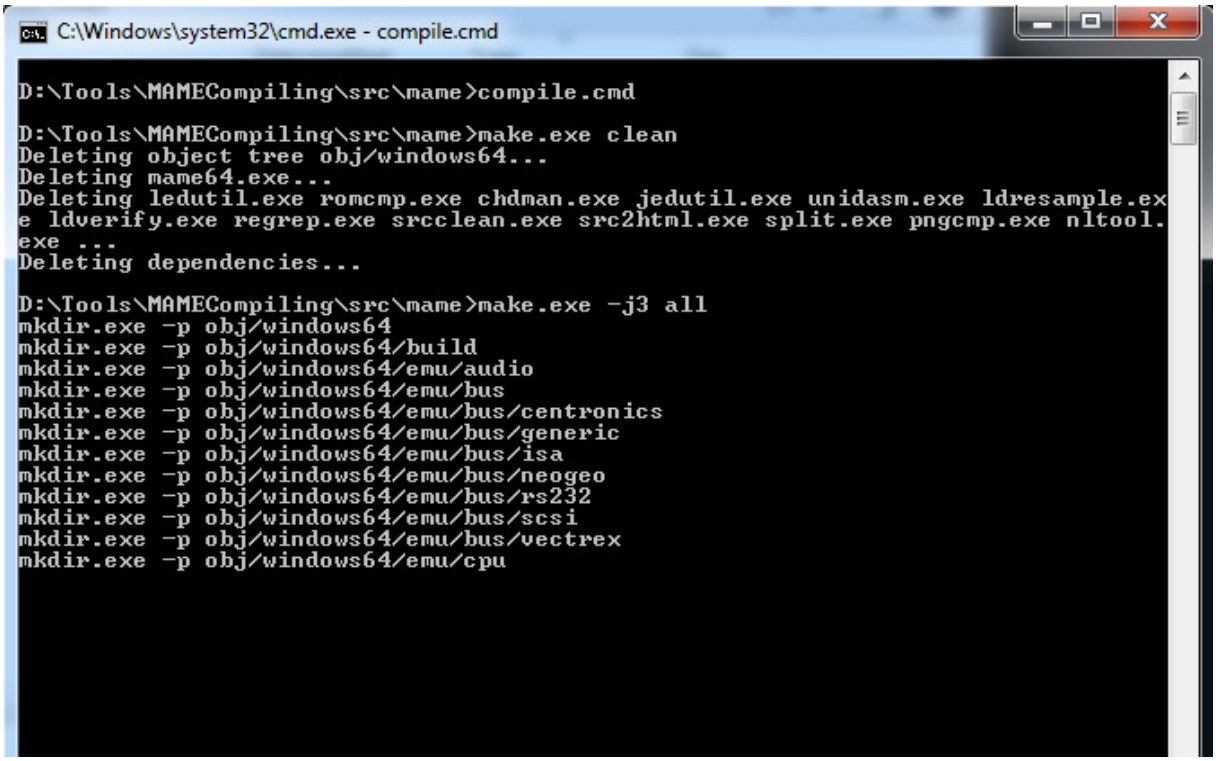
Yes great in this “revision.txt” is now the number written.



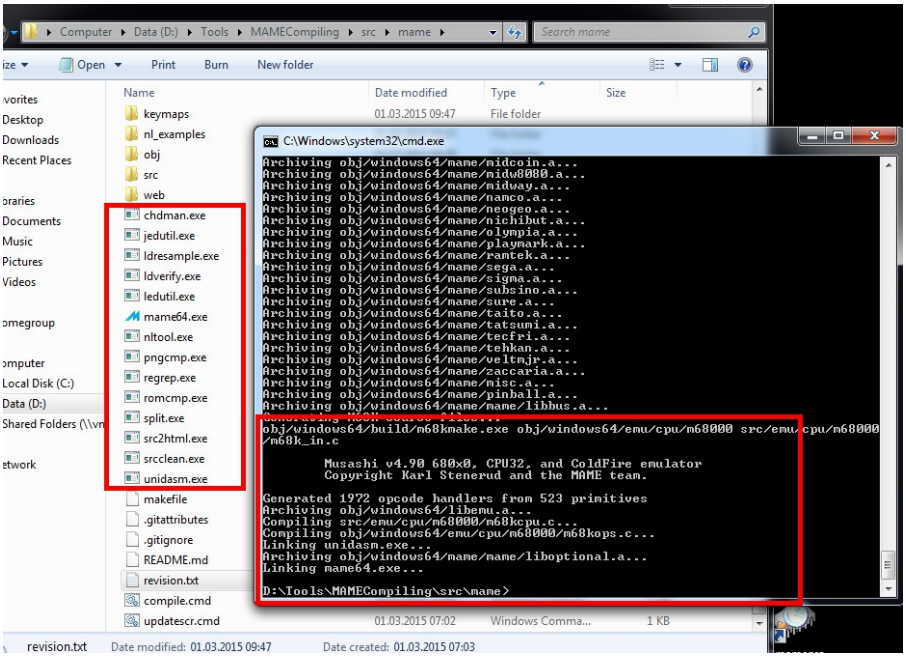
Lets close that file and we have already created the “compile.cmd” and we start the compiling process with “compiling.cmd”



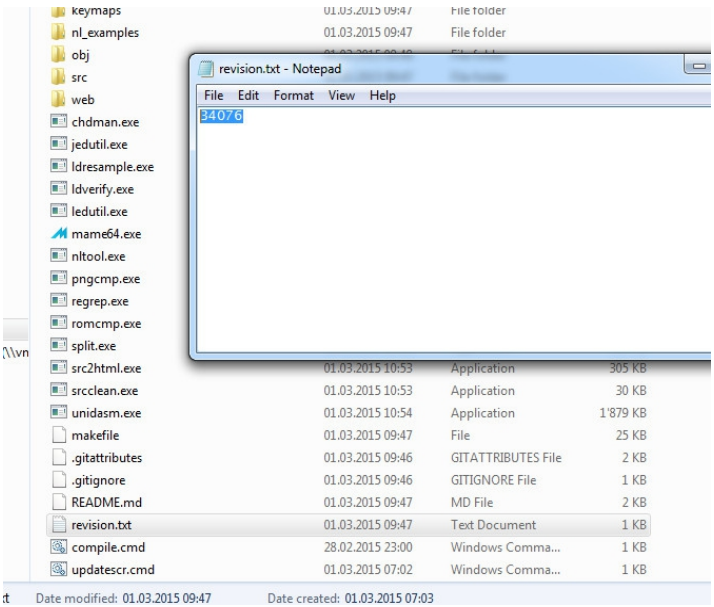
Compiling has started …..



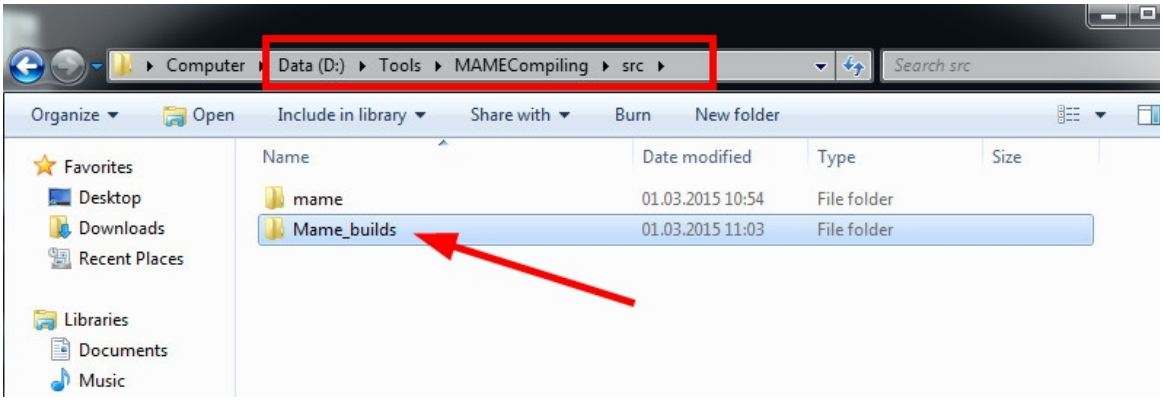
When compiling is done you should NOT receive any error and you will see all the created exe-files in this folder → then your compiling was a success.



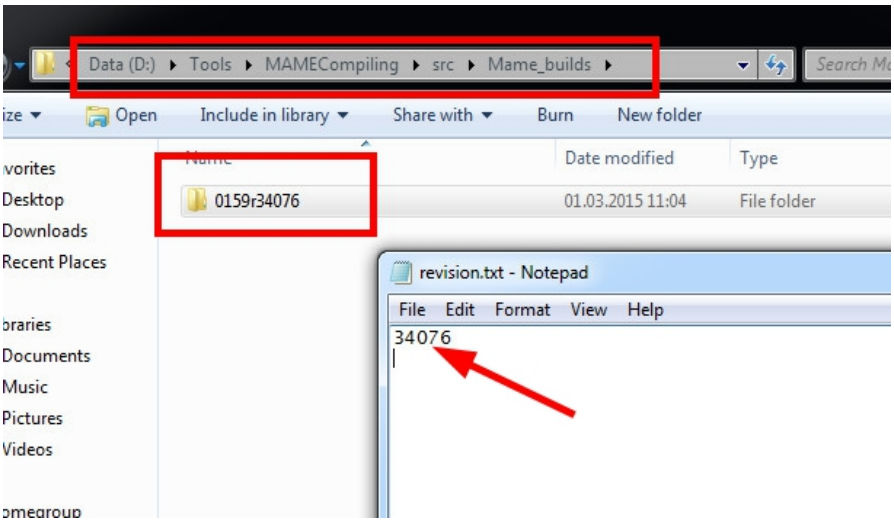
We move now all created executables to a different folder (I do not let them inside the source-folder). Copy the revision number from the “revision.txt”.



Create a new folder under “src” called “Mame_builds”



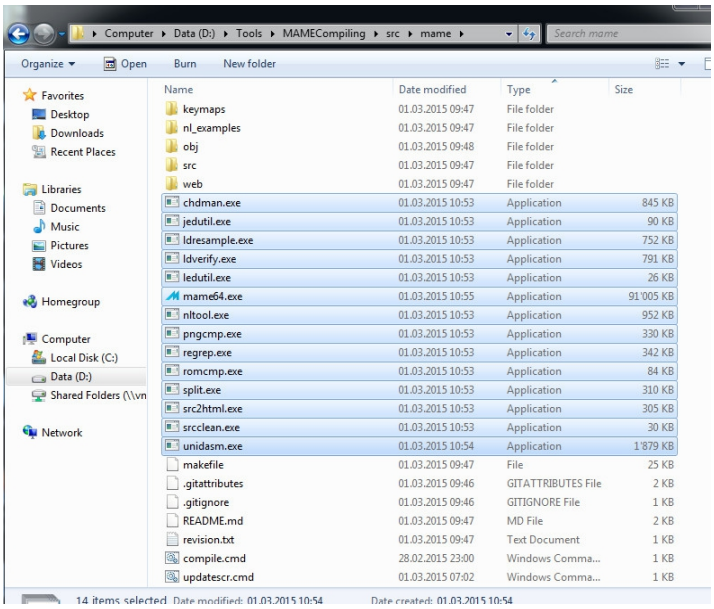
Under “Mame_Builds” create a new folder called “0159r34076”.



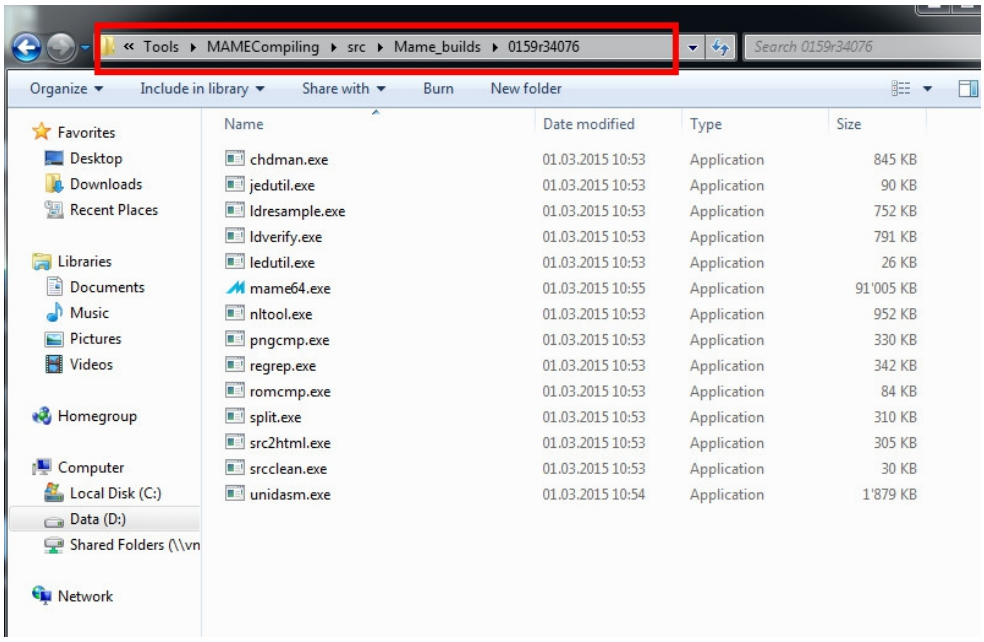
At the moment the latest offical MAME build is 0.159 and we have created a newer version with the revision number “r34076”.

Why are you not creating a folder name with the date? You could do whatever you like but it could also be possible that within a day after you have updated/compiled your build new changes have been made to the source tree!

Now move all created executable ……..



..to this “0159r34076” folder.



Yeah great you have compiled your own executable for the first time.

! Be sure that you really do move only the executables to the “build” folder and nothing else.

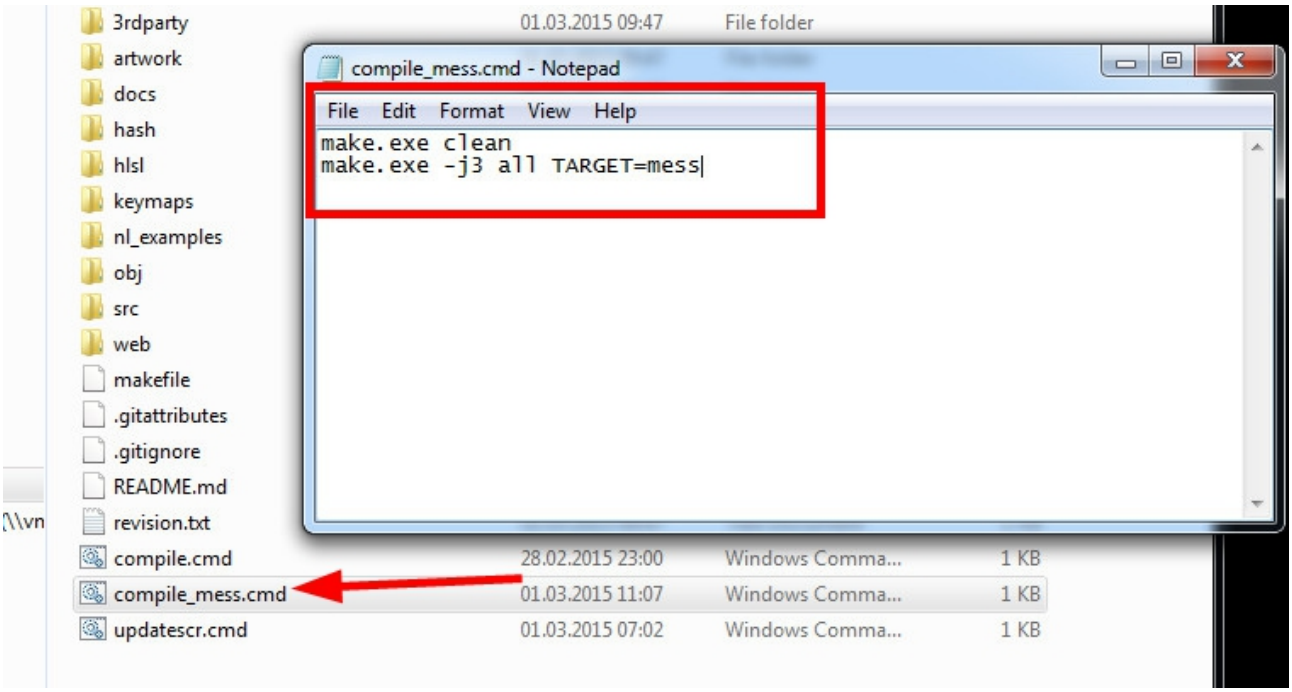
Compiling for the first time - MESS

Okay MAME have been compiled, lets move on and compile MESS.

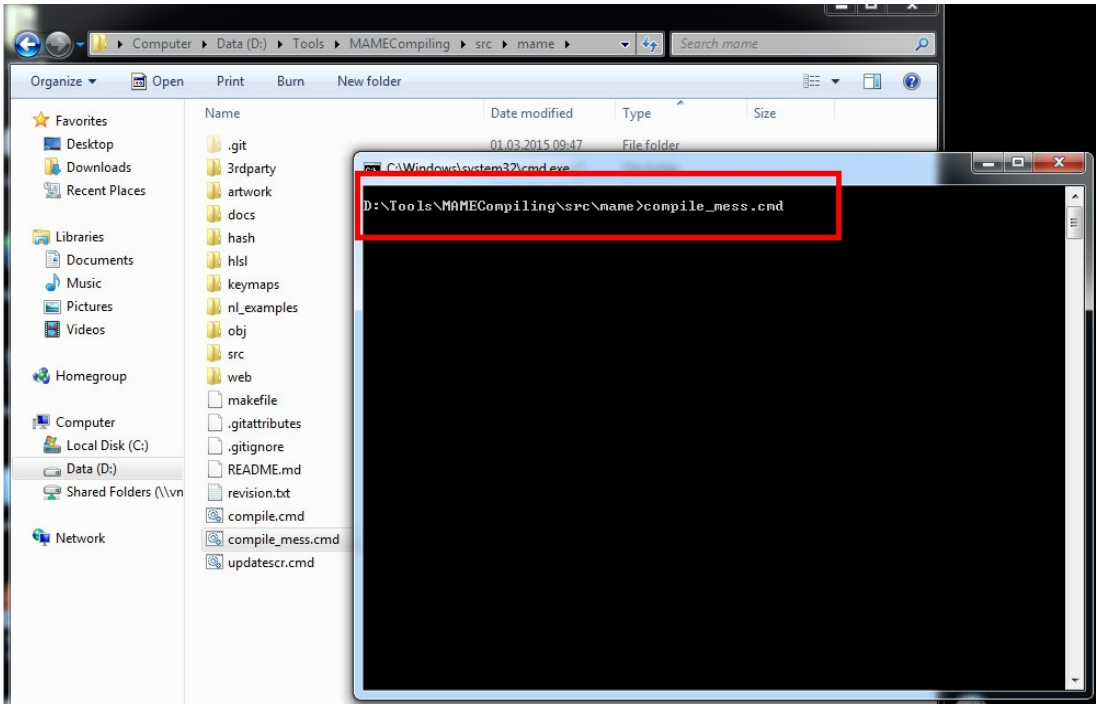
Create a new cmd-file called “compile_mess.cmd” and add the following lines:

```
make.exe clean
make.exe -j3 all TARGET=mess
```

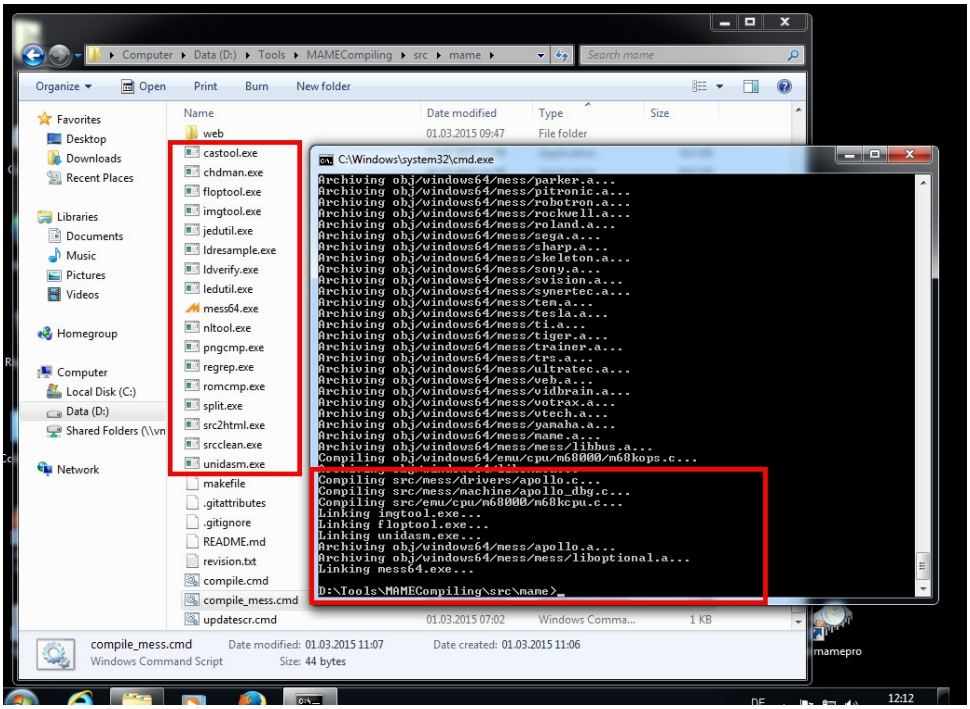
First line will clean up the source before compiling (remove temporary compiling files). Second line will start the compiling. The parameters “-j3” does speed up your compiling when you have a dual core processor, the parameter “all” means with the tools and “TARGET=mess” will compile the exe for MESS.



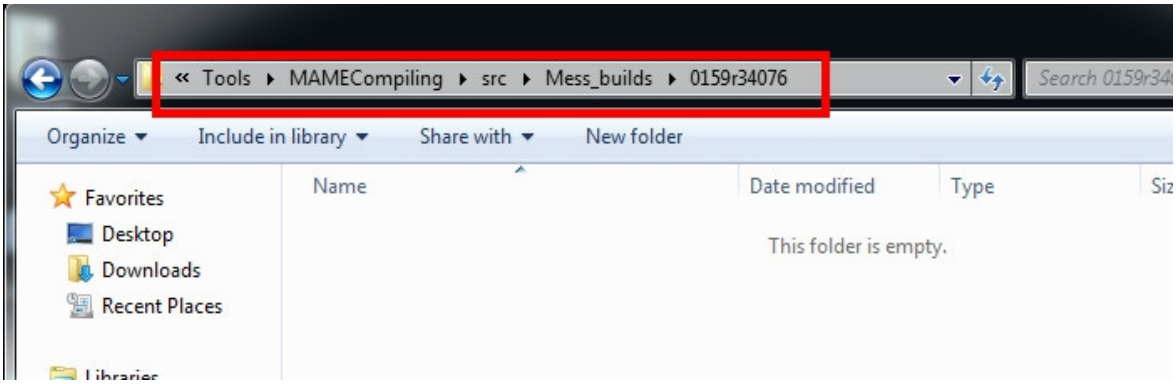
After saving the file execute it :



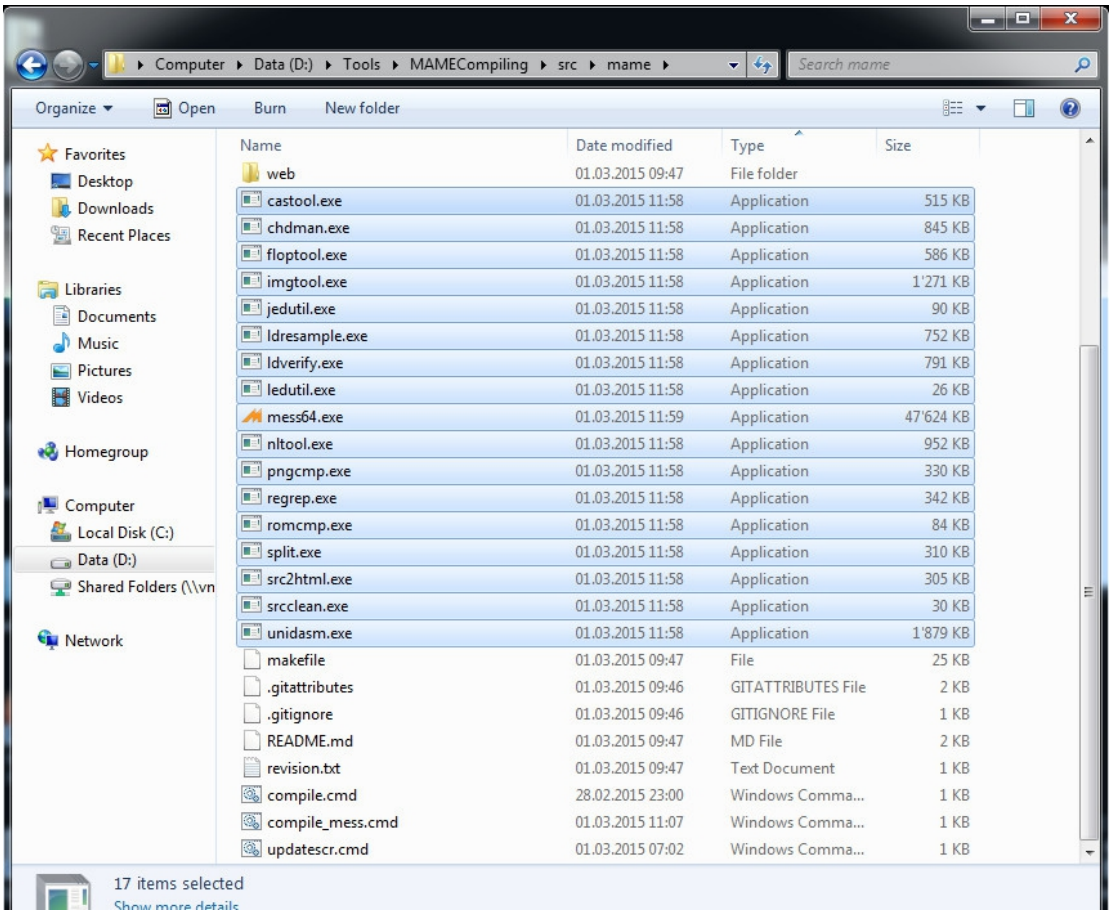
After the compile NO errors should be displayed and the MESS executable have been created.



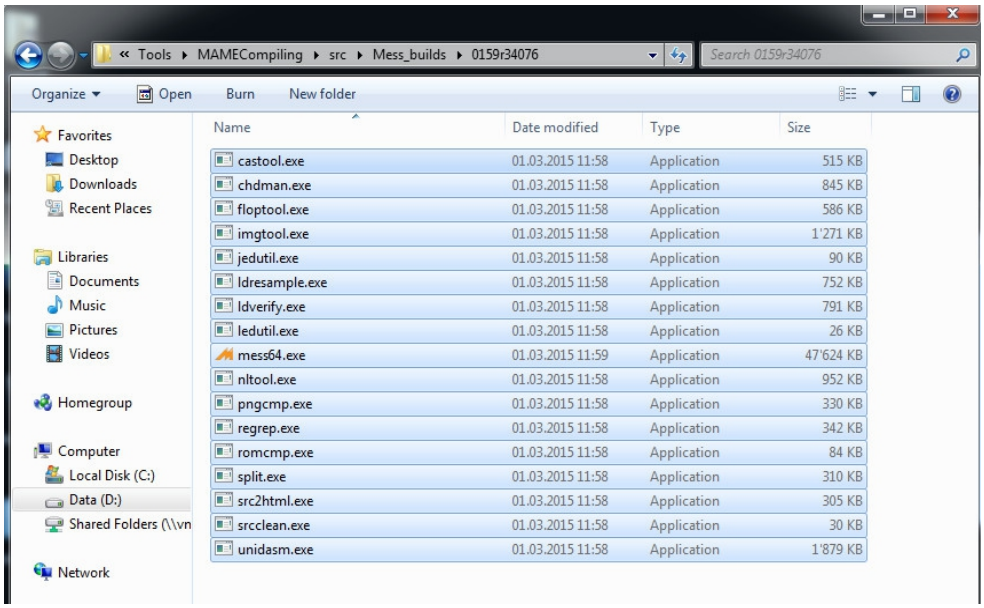
Copy the revision number (34076) from the “revision.txt” and create a folder “Mess_builds” in the “src” folder. Create a subfolder called “0159r34076” below ….



Move now all executable from the src/mame/ folder …..

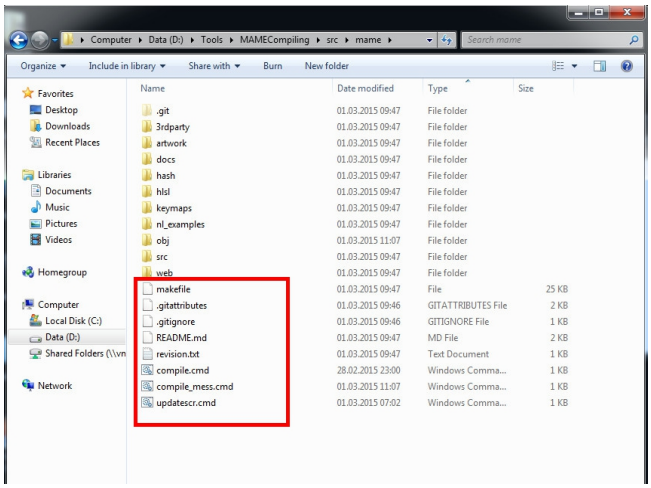


...to the new folder “0159r34076”



You have now compiled your own MESS-executable for the first time.

! Be sure that you really do move only the executables to the “build” folder and nothing else.



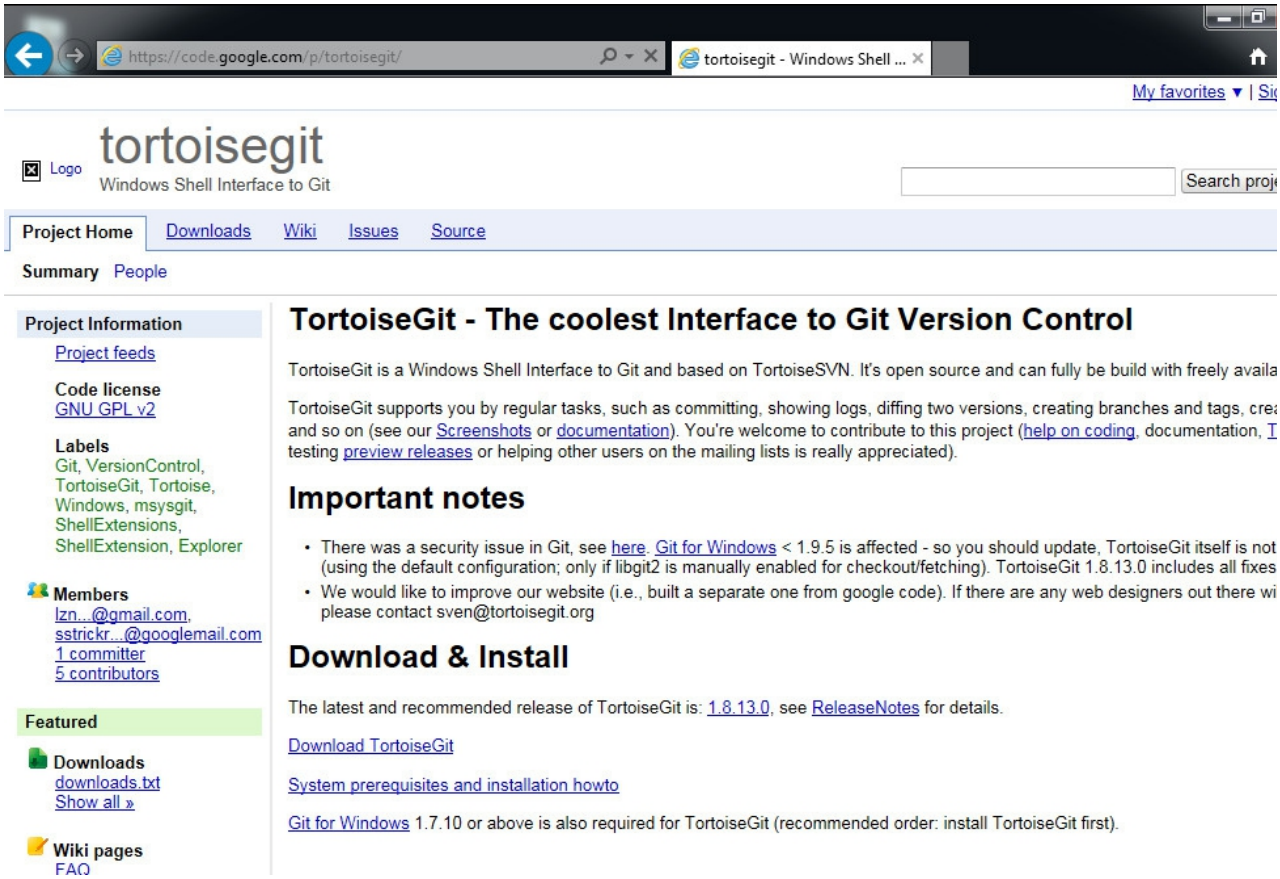
! I will upload my batch-file that Im using daily to mameguide.info. It has more options and is more advanced.

Updating source with TortoiseGIT (GUI)

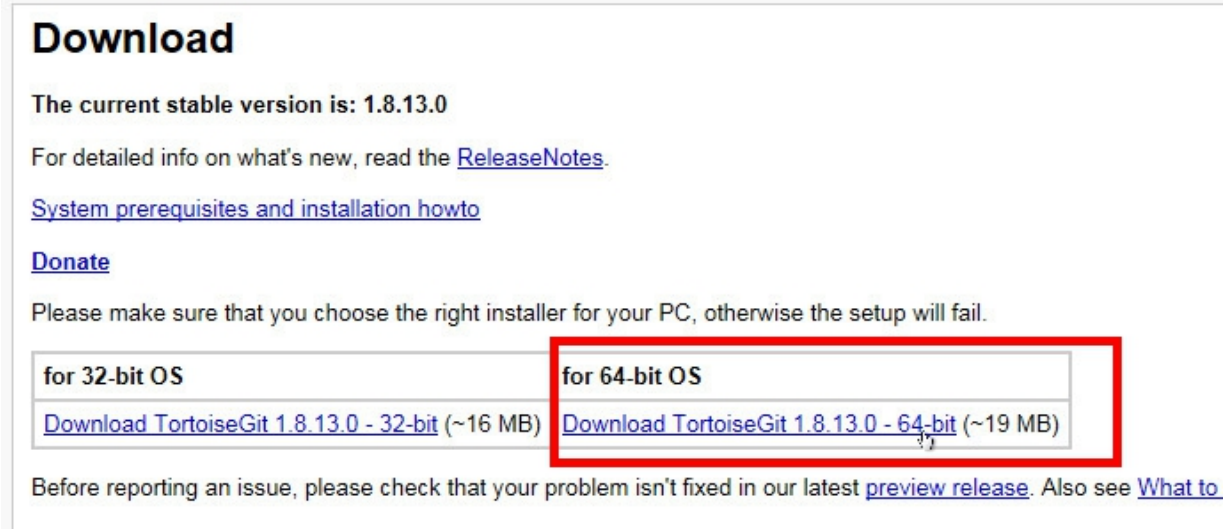
MAMEdev compiling tools has everything included also updating the source-code with git.exe from the online repository. Sometimes it is better to have a GUI available for example to read the log-files what have changed in the code. I do recommend that you update your local source with the build-in function that git.exe does provide (see last chapter). But for those that needs it here is it “how-to” ;-)

Installing TortoiseGIT

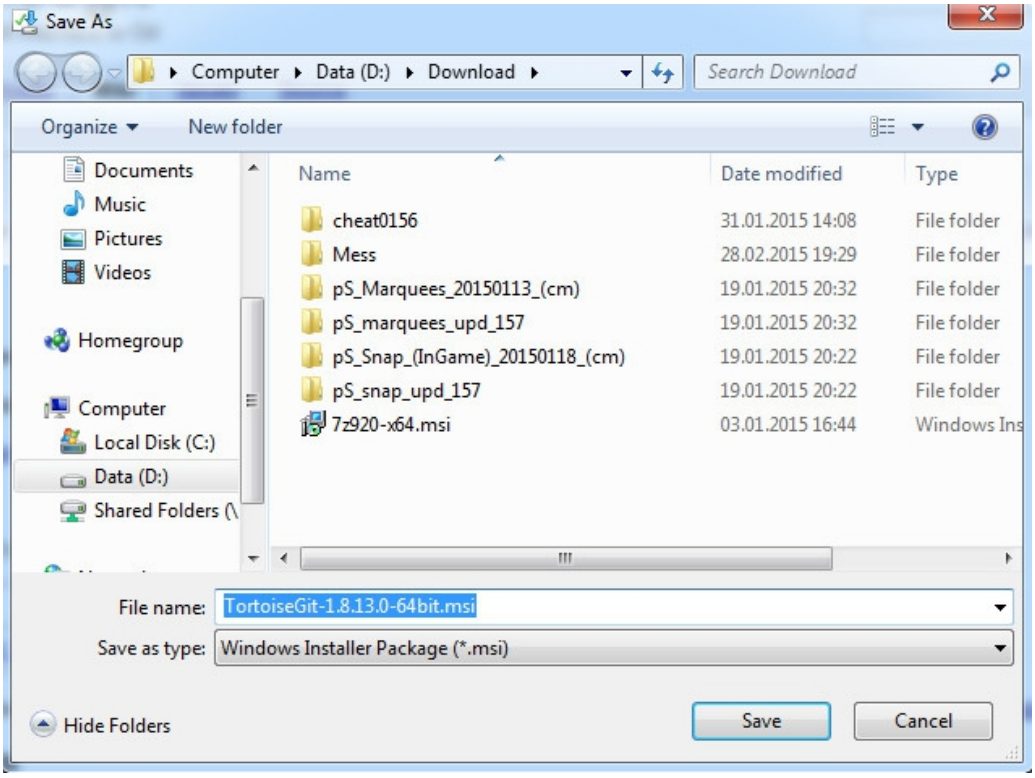
Open a web-browser and navigate to :



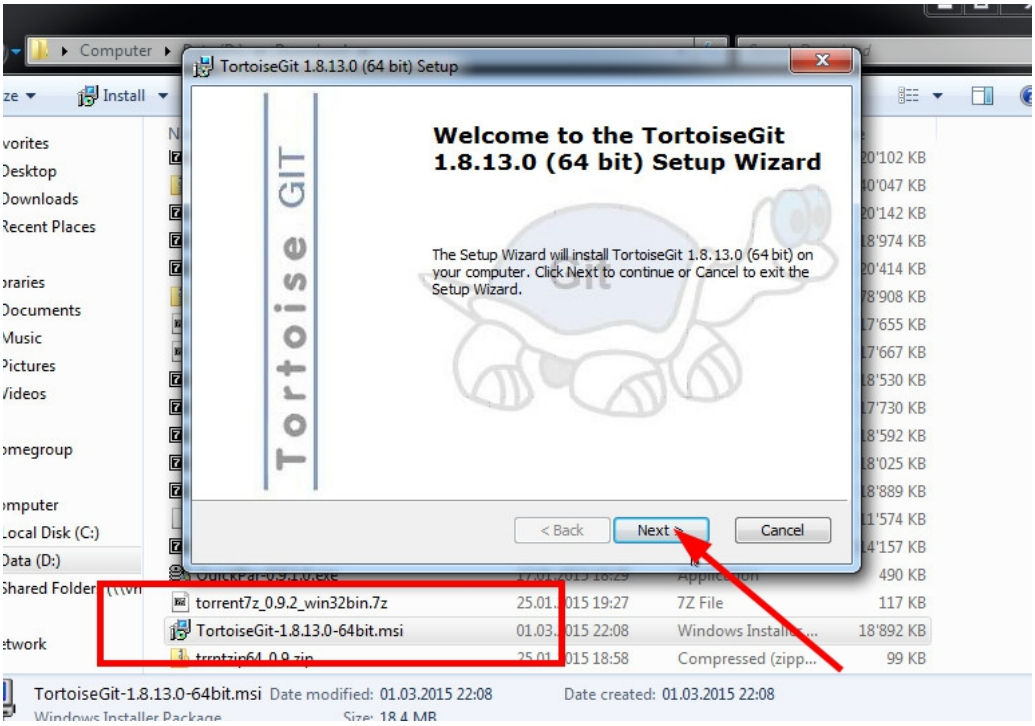
In the download section choose the x64 version to download.



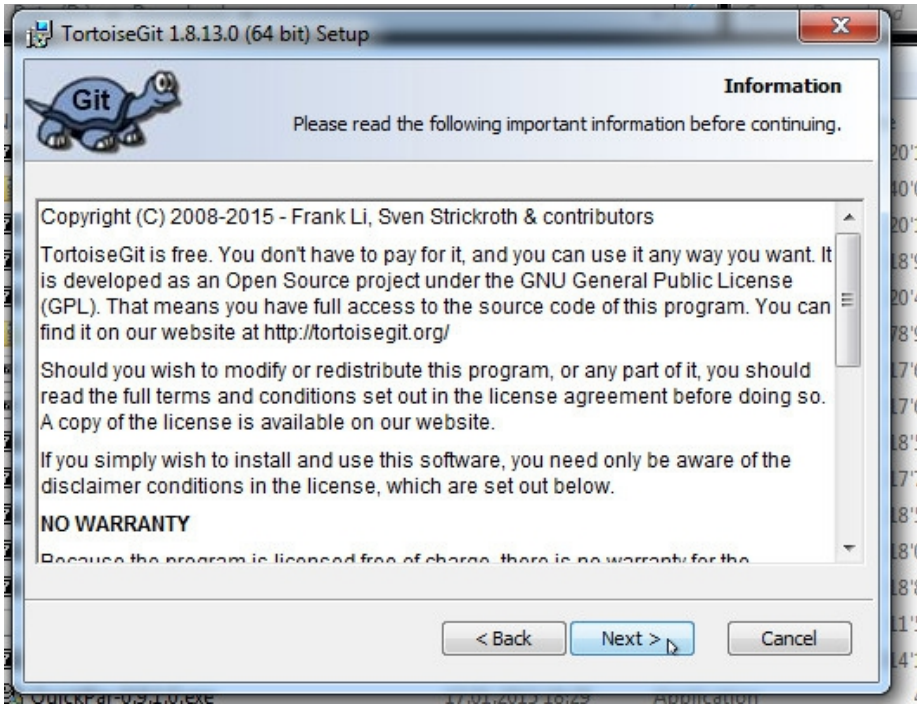
Save it to the download-folder



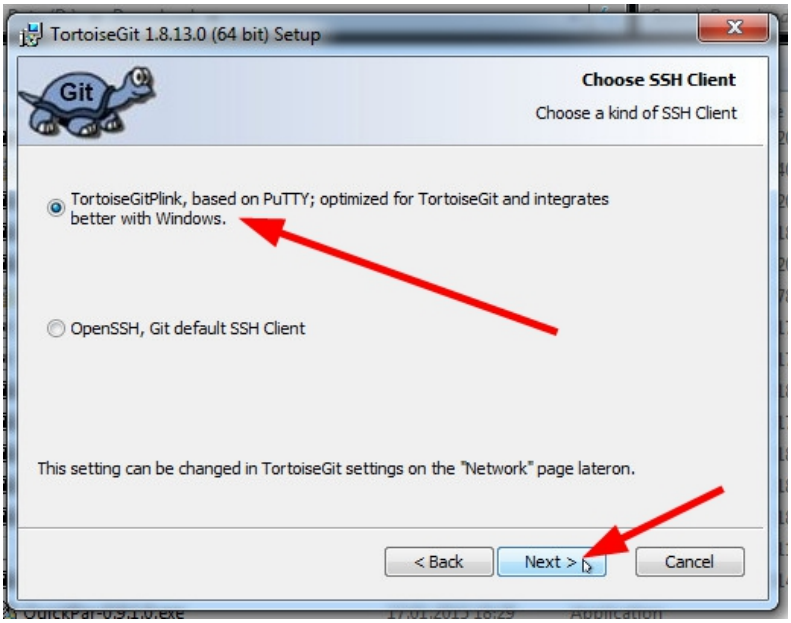
Start the installation ….



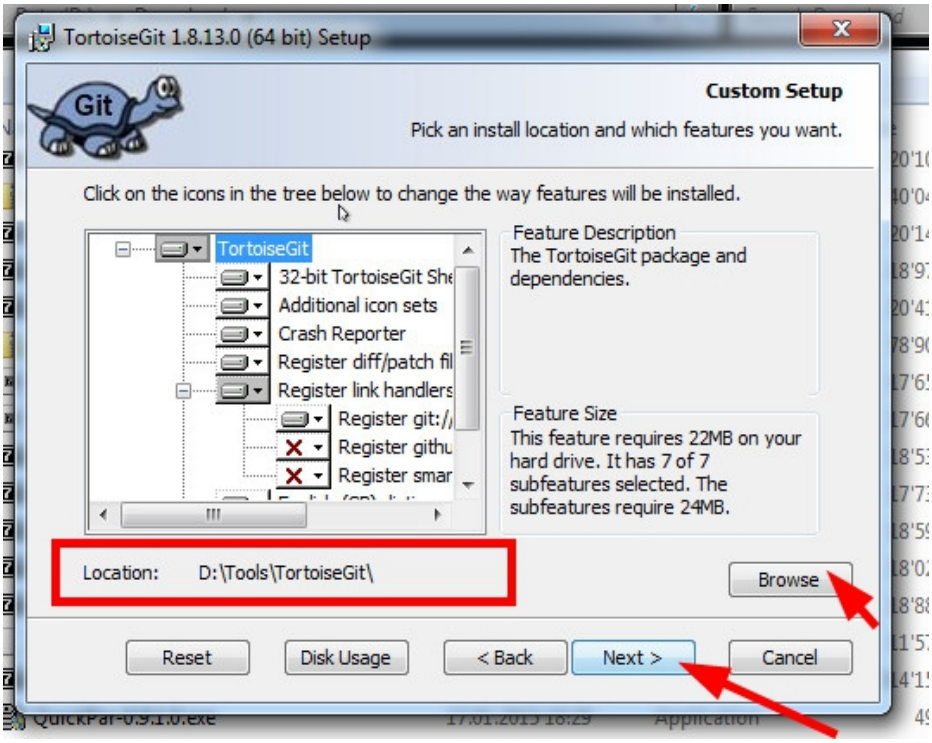
Read the information and click “next”



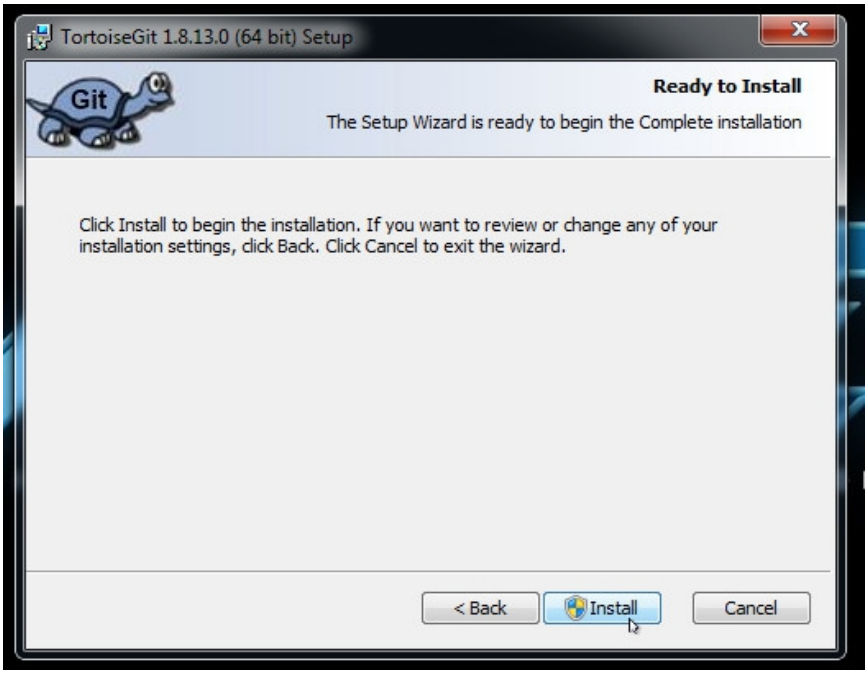
We leave the default choice and click “next”



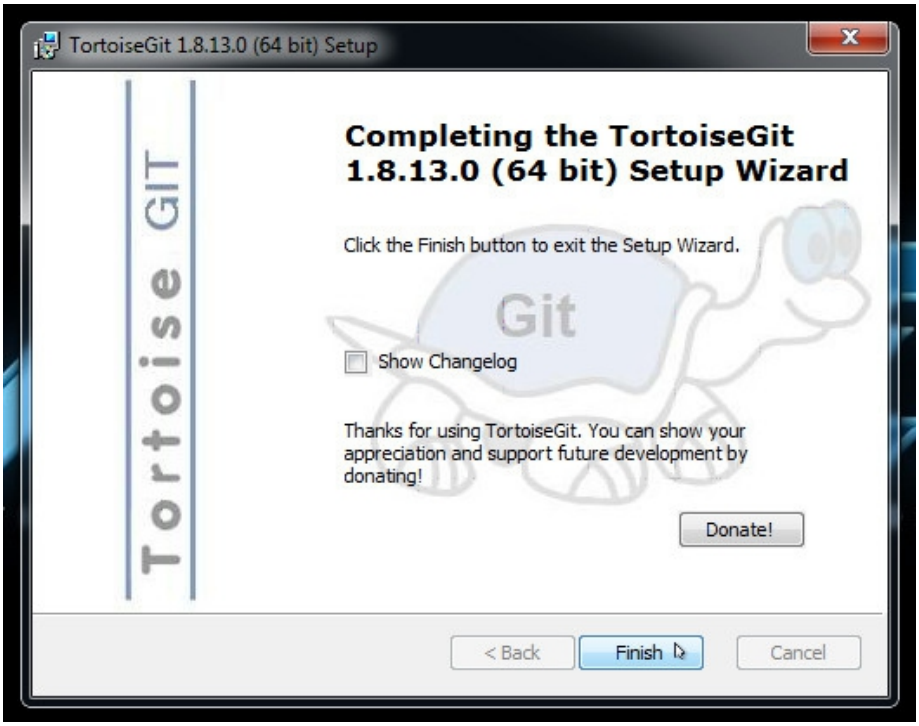
Change the location where the program should be installed. The other Option we have not to change. Click “next”



Click “install”

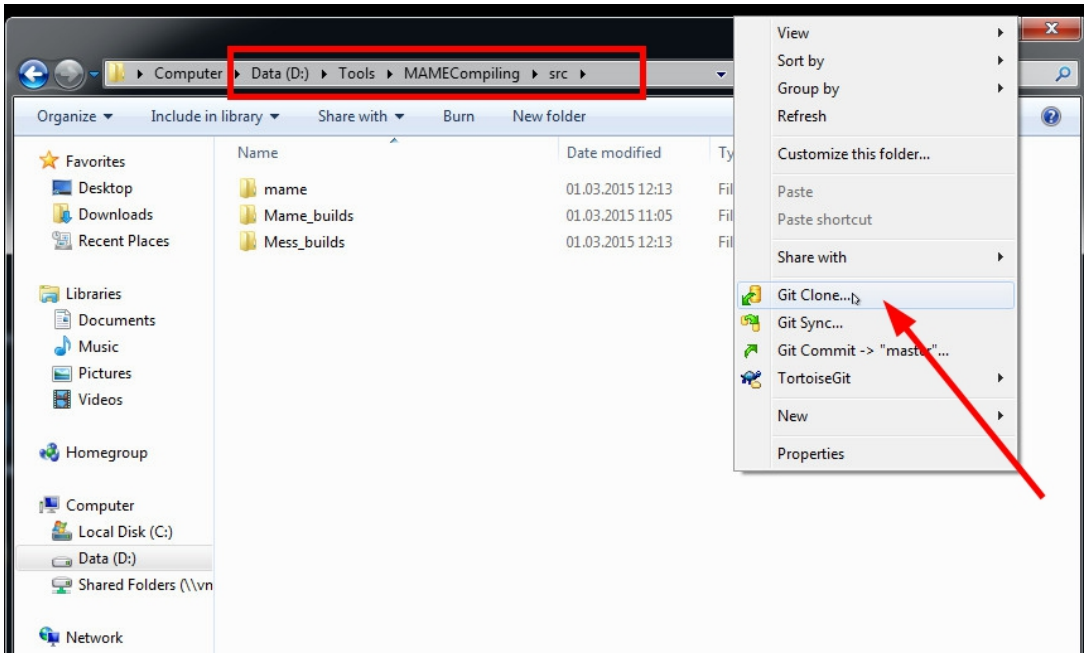


We have installed it :-)

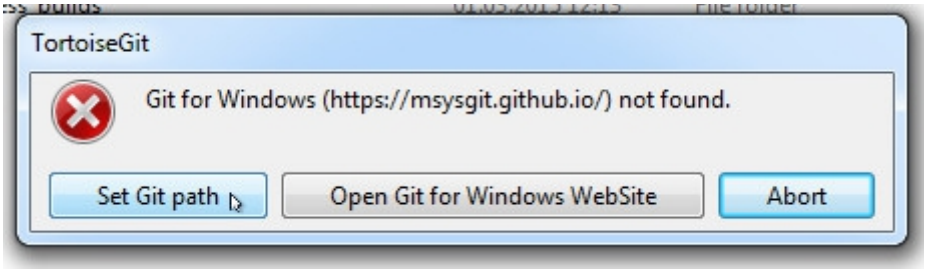


Download full MAME source with TortoiseGIT

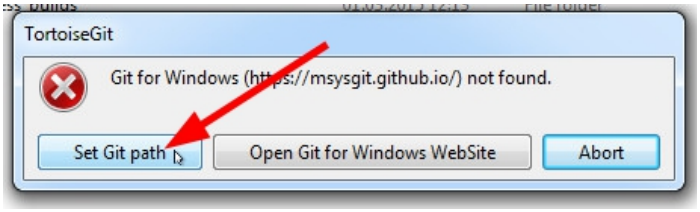
Go to our “MAMECompiling/src” folder and do a right-click and choose “Git Clone”



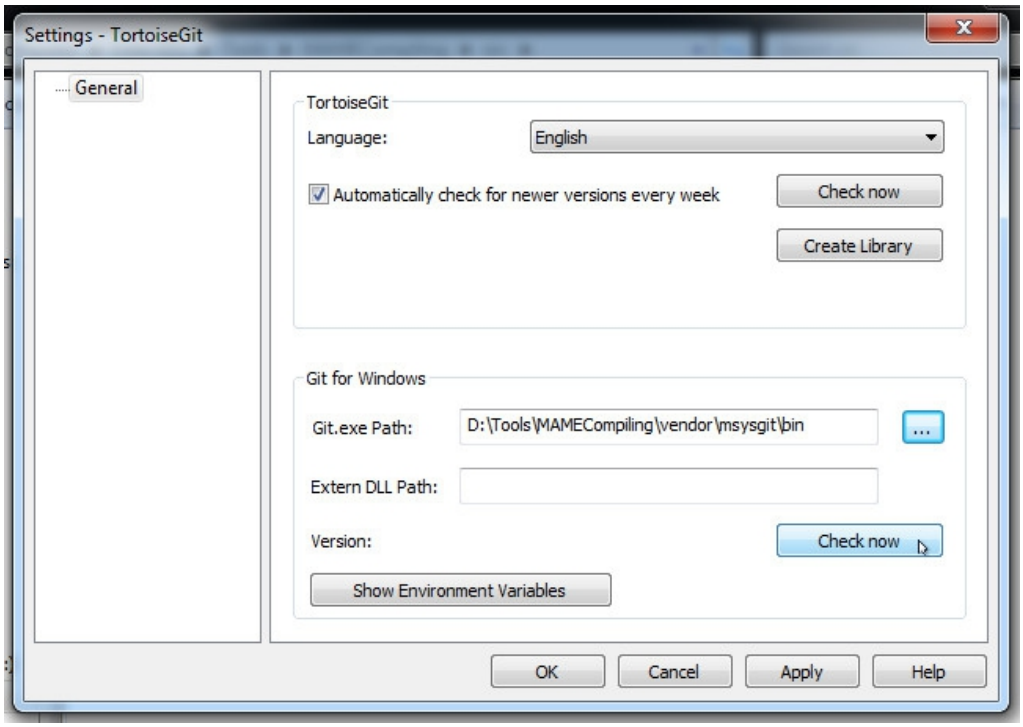
And if you have read on the webpage it does say that it TortoiseGIT needs “git” for function properly. That's why we receive this error message.



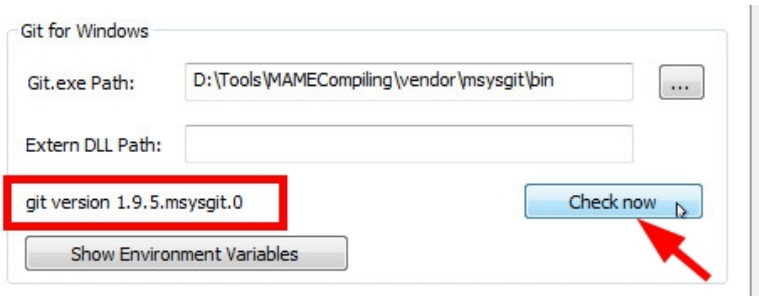
We click “Set Git path” (we have git already in our MAMEdev Compiling folder).



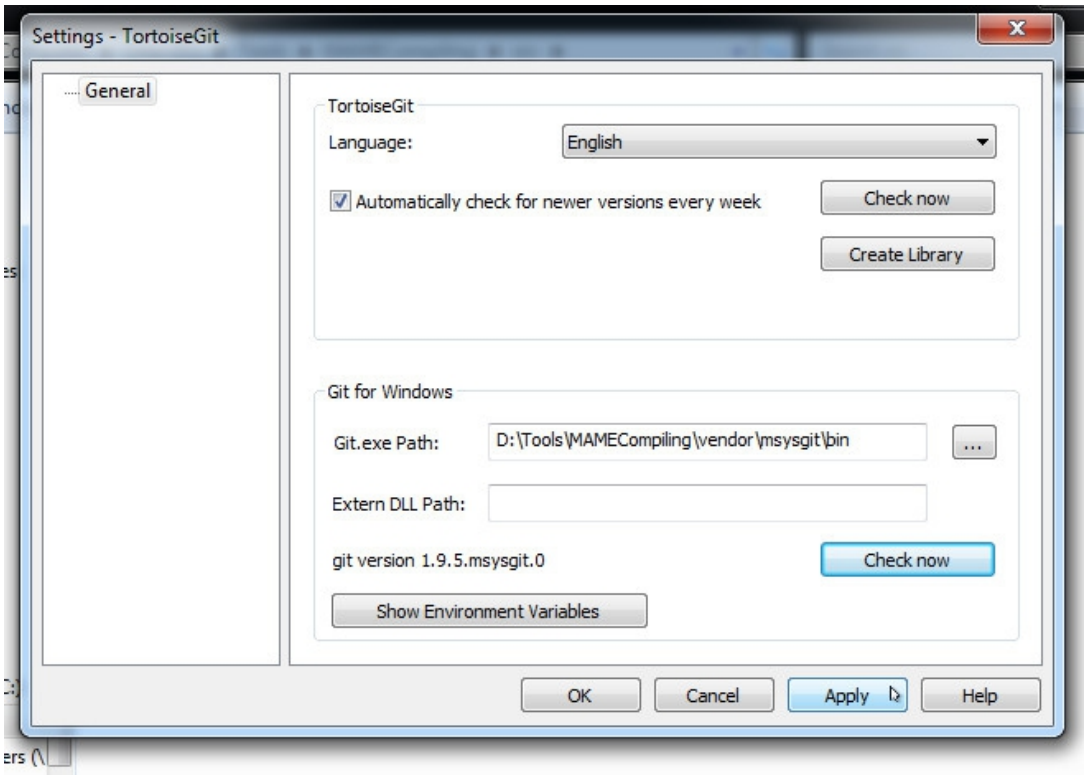
Set the “git.exe Path” to this folder where you have installed MAMEDev Tools:



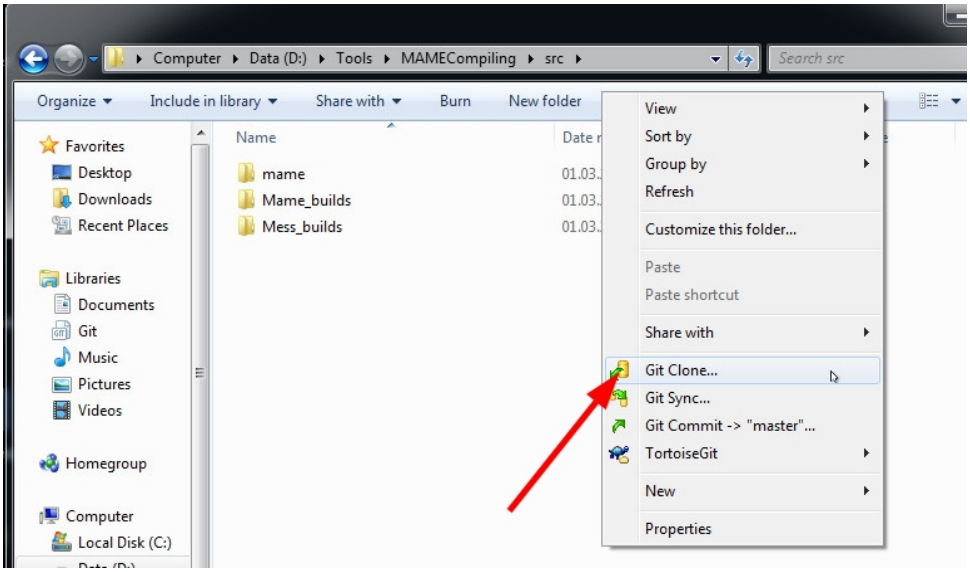
Click “Check now” and the version number should appears.



Click Apply/OK.

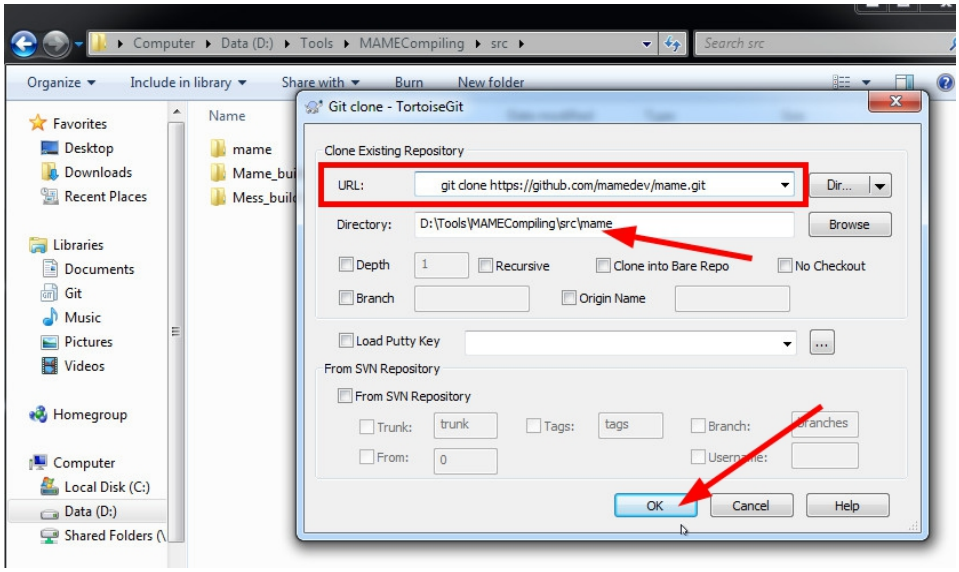


Now let's try it again.



Now a window should appears. We fill in the URL and point it to our destination:

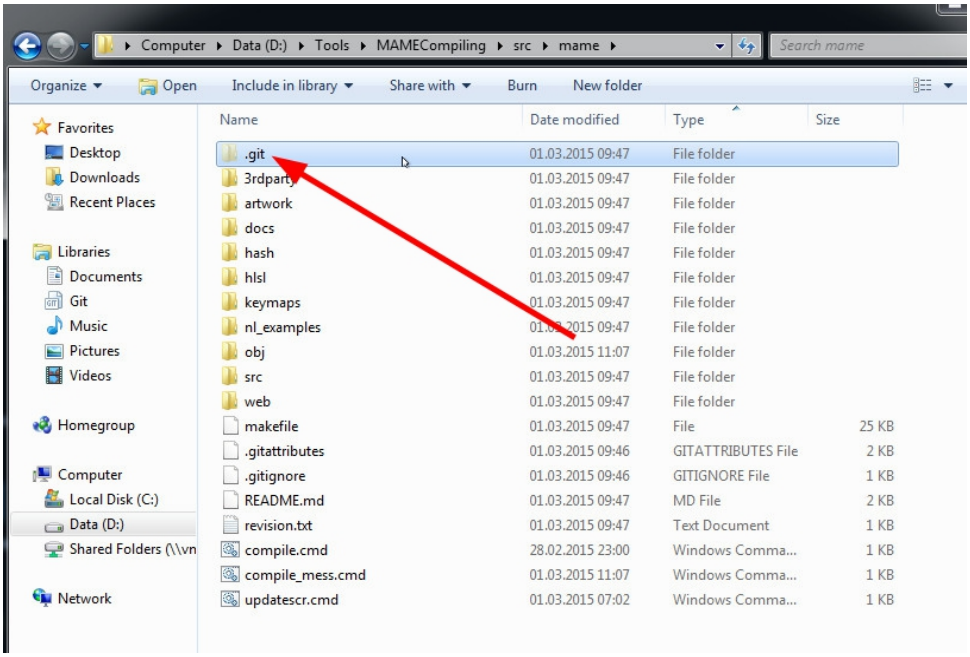
git clone https://github.com/mamedev/mame.git



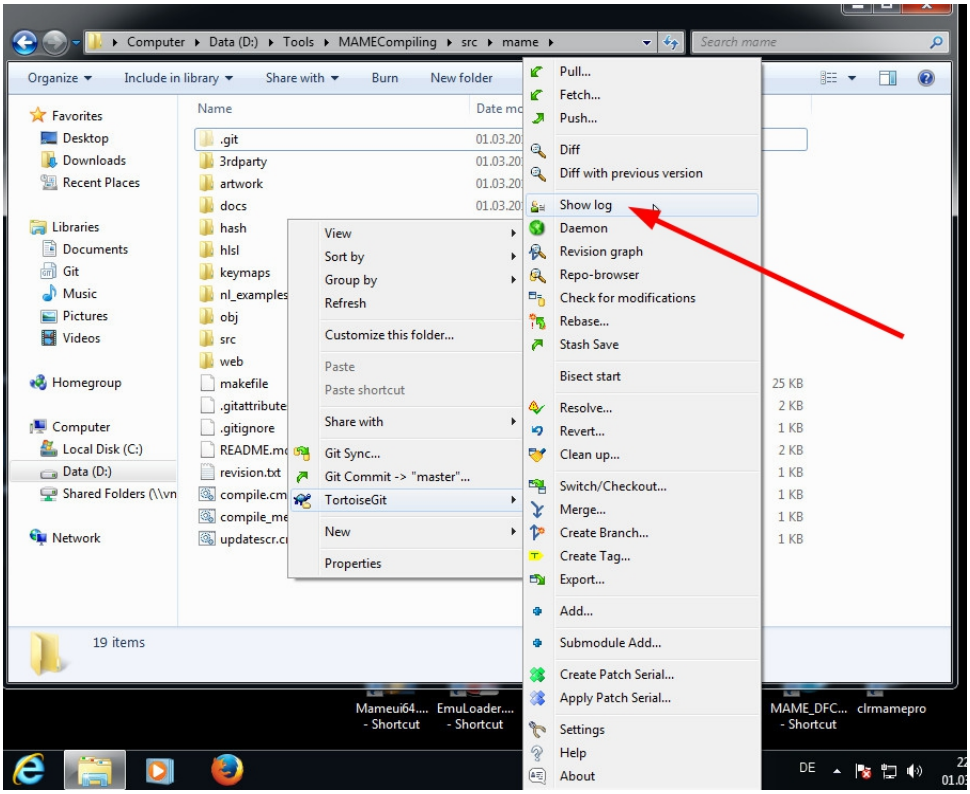
We do not click “OK” and cancel this operation here because we have already download the full-source code earlier. This was only to demonstrate how we should do it with TortoiseGIT ;-)

Update source with TortoiseGIT

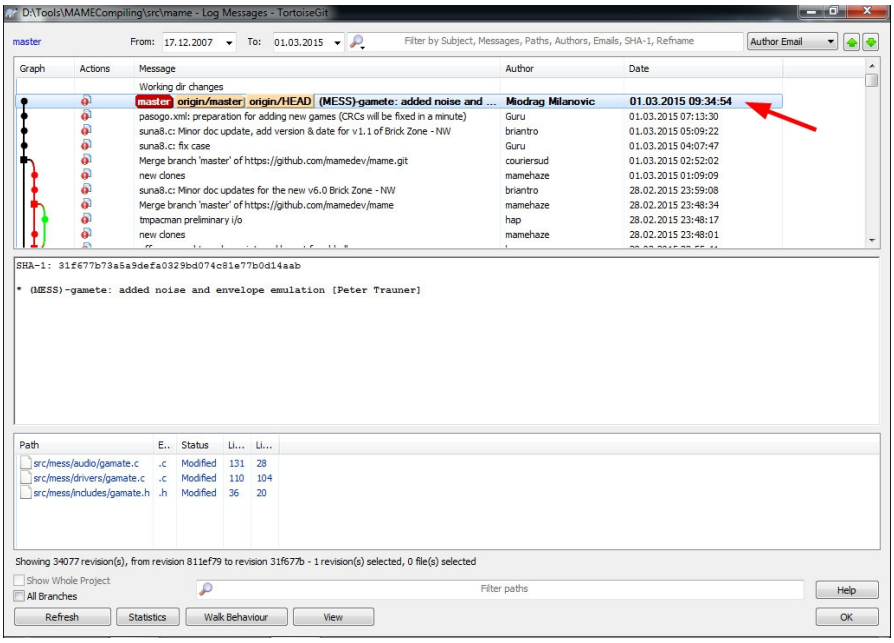
We navigate into our “mame” folder. How does TortoiseGit or git.exe knows that this folder has the downloaded source-code? There is a hidden folder called “.git”. There are all information stored like what version has been downloaded and which local file have been replaced or edited. No worry we do NOT upload some files to the repository. It is also not possible when you have not an account there ;-)



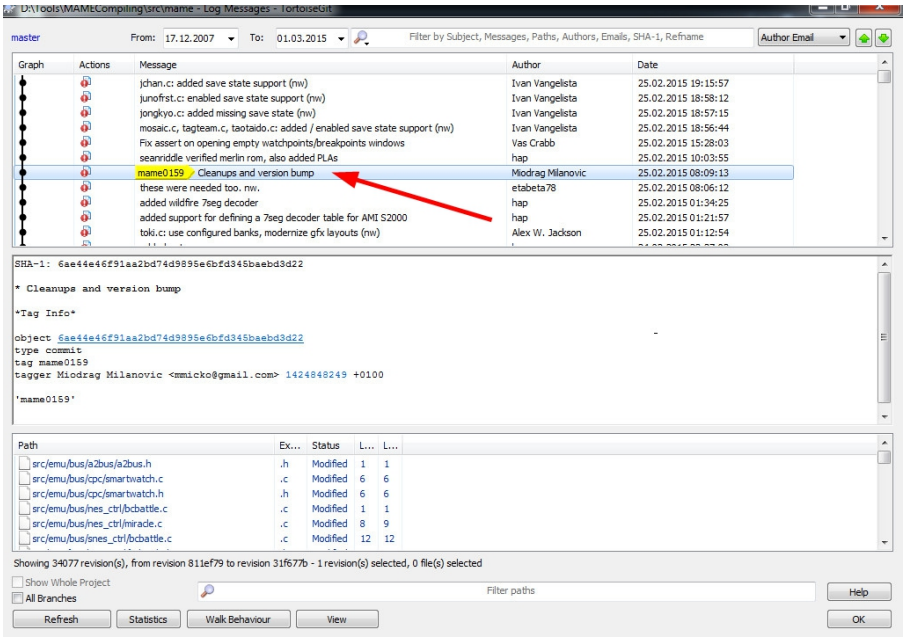
We right-click a free part of the folder and choose “Show log” from the context-menu.



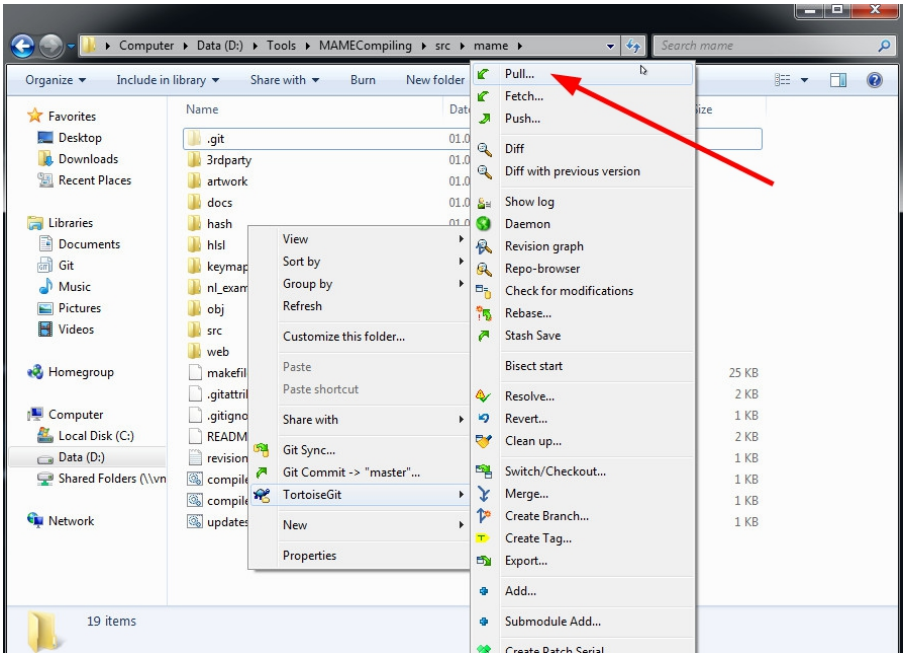
The Log-Browser is starting and does connect to the repository and reads the local ".git" information. It displays now the latest changes and you see in the bold line where your local source is (revision). In our case we are up-to-date.



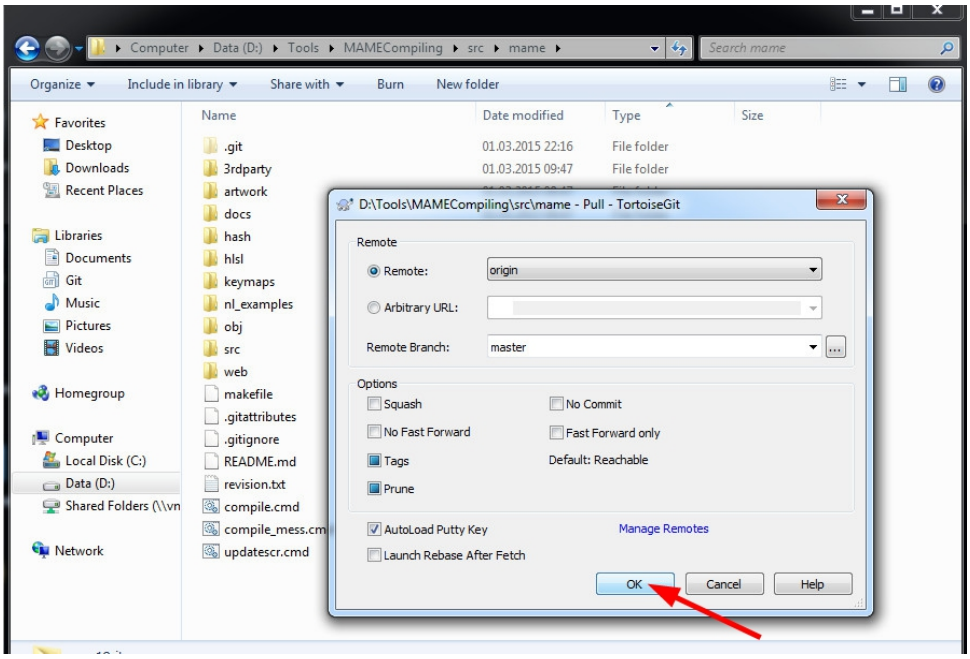
When you are scrolling down the changes you will find out where the official 0.159 version was compiled :-)



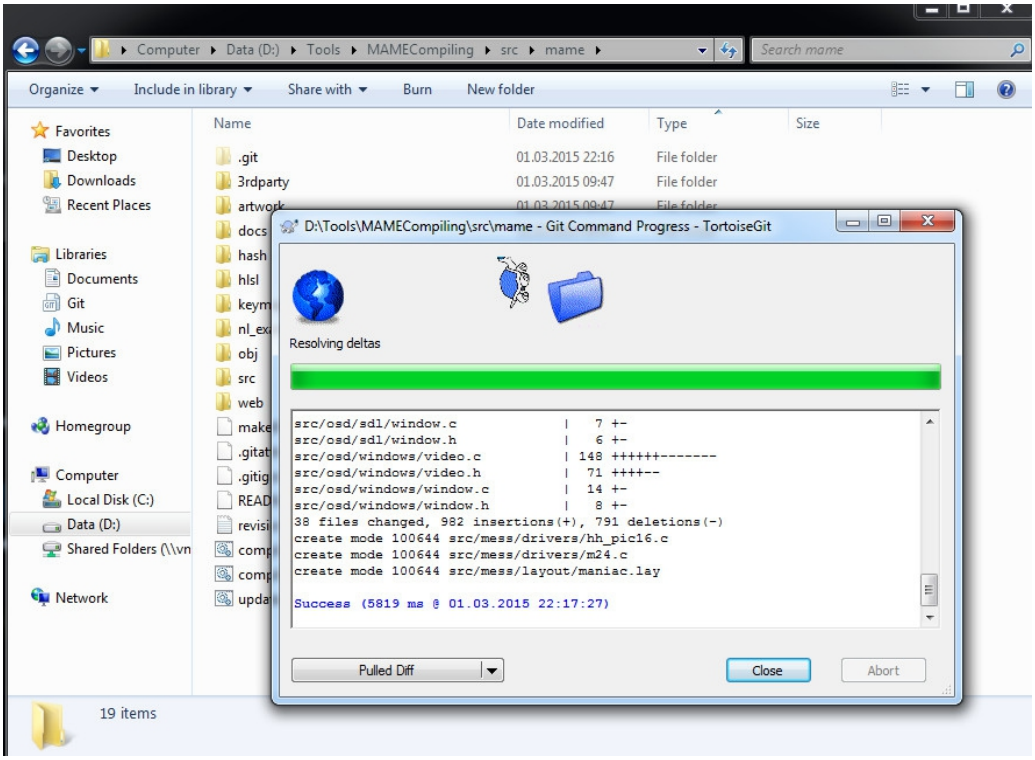
For doing an update to the local source-code you have to execute “pull” from the context-menu



A new windows is opened. Let everything as it is and start the update process with “ok”



hmmmm it seems that in the meantime a new change was added ;-)



We have now updated our local source-code with the latest from the repository.

Something we can not do here → I have not found out how we can calculate the Revision-number we have done in our cmd-file :-)

Chapter 8: Appendix

Used web-sites and more

Mame

http://www.mamedev.org/
http://www.mameui.info/
http://wiki.mamedev.org/index.php/Main_Page
http://mamedev.org/misc/cax2009.pdf
http://strategywiki.org/wiki/MAME/Configure
http://www.xente.mundo-r.com/mame/
http://wiki.mamedev.org/index.php?title=Frequently_Asked_Questions

MESS

http://www.mess.org/
http://www.progettoemma.net/mess/
http://www.ninerpedia.org/index.php/Installing_MESS
https://psmame.googlecode.com/hg/docs/windows/choice.htm

Addon

http://www.progettosnaps.net
http://www.arcade-history.com/
http://mrdo.mameworld.info/mame_artwork_faq.php
http://www.mamecheat.co.uk/forums/
http://cheat.retrogames.com/
http://wayder.web.fc2.com/
Create a cheat file with the debugger https://www.youtube.com/watch?v=A0iYxuEj6d4
http://highscore.mameworld.info/
http://www.progettoemma.net/history/catlist.php
http://www.flyerfever.com/
http://www.progettoemma.net/?series
http://mameinfo.mameworld.info/
http://nplayers.arcadebelgium.be/
http://samples.mameworld.info/
http://highscore.mameworld.info/

Front-end

http://emuloader.mameworld.info/
http://wiki.batcom-it.net/index.php?title=The_%27ultimate%27_guide_to_QMC2
http://www.gameex.com/
http://www.mgalaxy.com/

http://attractmode.org/

Compiling

http://www.mamedev.org/tools/
http://www.mess.org/compiling_mess
http://www.headsoft.com.au/?category=mame&page=mc64
http://git.redump.net/mame
https://github.com/mamedev/mame
http://mame.dorando.at/svn/
http://www.headsoft.com.au/?category=mame&page=mc64
http://www.mess.org/subversion
https://code.google.com/p/tortoisegit/
http://tortoisesvn.net/
http://en.wikipedia.org/wiki/Make_%28software%29
http://www.gnu.org/software/make/manual/
http://www.hyperspin-fe.com/forum/showthread.php?15103-Simple-Mame-Compiling-Handbook

CLRMAME (see also in local Documentation clrmamepro\docs\)

http://mamedev.emulab.it/clrmamepro/
http://www.emulab.it/forum/index.php?board=6.0
http://www.cphsolutions.f2s.com/guides/cmprotutorial.htm
http://www.mameworld.info/easyemu/clrmameguide/clrmame-guide.html
http://www.emulab.it/rommanager/

Others

http://shop.xgaming.com/
http://www.romvault.com/
http://www.emu-france.com/
http://www.jkp-ads.com/Articles/XMLAndExcel03.asp
http://de.selfhtml.org/xml/dtd/attribute.htm
http://www.xmlfiles.com/dtd/dtd_attributes.asp
http://xmlwriter.net/xml_guide/attlist_declaration.shtml
http://forum.pleasuredome.org.uk/index.php?showtopic=22376
http://www.quickpar.org.uk/
http://sourceforge.net/projects/t7z/
http://easyemu.mameworld.info/
http://www.gametronik.com/
http://www.mameworld.info/
http://www.progettoemma.net/
http://www.emucr.com/
http://arcade.gameex.com/
https://archive.org/details/internetarcade
http://www.emulab.it/
http://www.romvault.com/
romcenter.com

Document History

0.9	2015-03-01	Initial version