

# **MyMPEG**

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**COLLABORATORS**

	<i>TITLE :</i> MyMPEG		
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## Chapter 1

# MyMPEG

### 1.1 MyMPEG

MyMPEG  
Bartels, 1997

© Marc ↔

Build up your MPEG animations with a single mouseclick. This tool will help you to do it from within Real3D version 3 and above by offering a nice GUI.

Of course it is for Amiga computers and it is freeware.

Requirements  
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I hope you like this and find it useful.

### 1.2 Requirements

To use this tool you need:

- Real3D version 3.x AMIGA (not included, the archive would outgrow)  
It uses the GUI functions and the ability to write to files, which were introduced with V3.

(I wrote and tested it with v3.3 and v3.5)

- mpeg\_encode (is included here)  
The freely distributed Berkeley MPEG-1 Video Encoder.  
Read the original readme files about the amiga or unix version.  
If your interested have a look at the template.param file.
- ixemul.library (not included, because there are many, for each CPU)  
mpeg\_encode won't work without it.
- An MPEG player (not included, choose the one you like best)  
I am using aMiPEG by Michael Rausch & Miloslaw Smyk and built up the code for that player.  
Also tested with Osiris v1.06, the new MPEG player included in CyberGraphX 3. Might be useful for people having a CyberVision64/3D. But it has problems with MPEGs only consisting of I-frames and with files which length is not dividable by the number of frames in a GOP.
- The commands delete, protect and stack must be available in c:.
- Make sure you have Arexx installed and started properly if you want to use MyMPEG with version 3.3 of Real3D.

## 1.3 Installation

I think it's handy to put an entry in the custom menu of Real3D.

The package consists of the following files:

- The main program for Real3D v3.5 MyMPEG.gui-3.5  
and for v3.3 MyMPEG.gui-3.3
- The readme MyMPEG\_gui.readme
- This help file MyMPEG\_gui.guide
- The installation script MyMPEG\_gui.install
- Two small files called MyMPEG-array-Pat.rpl  
and MyMPEG-array-View.rpl
- An Arexx script called MyMPEGparam.rexx  
(only needed with v3.3 of Real3D)
- A textfile to append to your r3d3:Startup/menus.rpl  
called MyMPEG\_menu.rpl
- mpeg\_encode from the AmiNet incl. docs and example param file
- The script mpeg\_encodes

After using the installation script to copy the files, you have to edit two of them in a text editor. Look at figures

6  
and  
7  
below.

To install it manually:

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1. Copy either MyMPEG.gui-3.5 or MyMPEG.gui-3.3 to r3d3:gui/MyMPEG.gui
2. Copy MyMPEG-array-Pat.rpl and MyMPEG-array-View.rpl to r3d3:rpl/
3. Copy MyMPEGparam.rexx to r3d3:rexx/ (if you still use Real3D v3.3)
4. Copy MyMPEG\_gui.guide to r3d3:help/
5. Copy mpeg\_encode#? and template.param to r3d3:Accessories/
6. Open the file r3d3:Startup/menus.rpl in a text editor and append the file MyMPEG\_menu.rpl to it. (You can put the entry "MyMPEG" under the Misc submenu like I did or choose a different one, e.g. Animation.)
7. Open the program source file r3d3:gui/MyMPEG.gui in a text editor and perform some changes.
  - Set up the right path and command for your favorite mpeg player.
  - You can also change the default settings for the pictures and MPEG filenames.

You will find a sections that looks like this (line 67-76) :

```
( ##### )
( ##### Change the following to your needs: ##### )

15          CONSTANT FONTSIZE
"RAM:t/preview."          sDefPic      CPY
"ram:"                   sDefMPEG      CPY
"rEaL:anim/"              sDefMPEG2    CPY
"dh0:viewer/mpeg_play dither cybergfx LOOP quiet" sDefPlayer CPY

( ##### )
```

FONTSIZE is a constant value to adjust the GUI elements to the font you are using for screen and window titles.

I use the font Helvetica 15 thus I entered 15 here.

sDefPic is the string that is used as default for picture files, if there is no name defined in the View window you select via the cyclegadget.

sDefMPEG describes the default path for the MPEG file. This path will be used to build up the full MPEG name by adding the picture filename without path to it and append "mpg".

I use "ram:" here to make it quick.

sDefMPEG2 is the path which appears in the MPEG filerequester when you hit the «/\» button for the first time.

I use it to choose a destination for the MPEG file on disk.

sDefPlayer holds the path and commands for the MPEG player.

Choose the one you like best.

## 1.4 Introduction

What are all those buttons and gadgets about ?

First a brief introduction - it's quiet easy :)

- Set up your animation in Real3D.
- Open the MyMPEG window by selecting its entry from the Custom Menu.
- Select the View window you want to use for rendering from the Window  
cyclegadget ( the lower stringgadgets will be enabled ).
- Select one of the predefined framesizes  
from the cyclegadget or type  
the desired values in the X and Y stringgadgets, if you chose custom.
- Change filenames for the pictures  
and/or the MPEG file  
, if you like.
- Hit the Start  
button.
- Activate the Ray Trc. option in the Drawing Settings.
- Wait until the MPEG animation is generated and wants to be played.

That's it !

Detailed descriptions of every button are available  
here  
.

## 1.5 Details

A closer look at it.

All buttons are explained here one after the other.

Memory

Size

Quality

Window

Pictures

---

MPEGfile

Start

Cancel

Help

Close

## 1.6 Memory

Memory

- You find two options under this first topic. The two buttons behave like radiobuttons - selecting one will deselect the other.

The default setting is to «use GOPs», which means that after there are enough frames rendered mpeg\_encode will generate a Group Of Pictures and delete the

picture files

. In the end it will combine

these GOPs to the final

MPEG file

. You can use this function, when

you don't have the space for all pictures on your disk or in your RAM.

If you select «DO NOT use GOPs», all the frames will be rendered, and after that they will be encoded to the

MPEG file

. At the end you

are asked whether the pictures shall be deleted. This method could be faster because no GOPs have to be generated, but you have to provide the space to store all the

pictures

.

## 1.7 Size

Size

- You can select one of the predefined values from the cyclegadget:
  - 128  $\times$  96 (4:3)
  - 160  $\times$  112
  - 160  $\times$  128
  - 352  $\times$  240 (NTSC)
  - 320  $\times$  256

The default resolution is 160  $\times$  112.

If you choose custom, you are asked to enter the sizes for X and Y in the stringgadgets, which will then be enabled. The entered values are truncated to multiples of 16 (mpeg\_encode will do that anyway).

## 1.8 Quality

Quality

- In this section the pattern for the encoding of the MPEG file has to be entered. You also have the chance to choose a value from the cyclegadget or type them in manually. Such a pattern determines the way the MPEG file is generated. There are three types of frames possible:
  - I frames which are used to predict motion of objects
  - B frames are predicted from both - previous and following frames
  - P frames are predicted from previous I frames

Note: The pattern has to begin with an "I" and must not end with a "B"! (This is checked automatically and you will be warned.) Enter only capital letters I, B or P or you will get errors in the end! (This is not checked by the program.)

The length of that pattern is used to define the number of pictures in each GOP. And be aware of the fact that the longer your pattern, the more memory is used by mpeg\_encode.

To make fast moving objects look alright use I frames instead of P and B. It will result in larger MPEG files, because P and B frames are compressed higher, but it looks better.

The stringgadgets below the pattern gadget show the Quantization Scale for each type of frame. The higher the number, the higher the compression, but the lower the quality. You can type values between 1 and 31 or leave the default 2, 4, 6 as it is.

## 1.9 Window

Window

- This is the first, and if you want to, the only gadget you have to select. You can leave all the default settings as they are, but have to choose one View window to render the animation in. Be careful with opening or closing View windows while the MyMPEG window is open. Windows opened afterwards aren't recognized and closed windows will lead to strange names in the cyclegadget.

Only View windows are listed. Superbitmap, Borderless and of course DoubleBuffered windows are ignored.

---

After having selected one View window its rendersettings are changed to PPM output and width and height as chosen. The default picture name is put to the stringgadget « Pictures », or if there was a name defined in the rendersettings before MyMPEG was activated that name will be displayed in this stringgadget.

## 1.10 Pictures

### Pictures

- Leave the default picture name as it is or type in a new one. You can also select the «/\» button to open a standard file requester, with the given name in it.

Note: Be careful with names containing spaces. It always leads to trouble. A name "RAM Disk:t/picture." will not work. The full name must contain at least one "/". If you type in "ram:picture." you will get an error message. The program mpeg\_encode would look for the picture files in a directory called "ram:" which does not exist. A "/" is always appended to the pathname, because of its UNIX roots. End your filenames with a "." will make it look nicer.

After pressing RETURN or TAB the MPEG filename will change automatically. The name without the path is taken over to the MPEG file stringgadget.

## 1.11 MPEG file

### MPEGfile

- Similar to the one above, but you don't have to provide a subdirectory. The default path is taken from the MyMPEG.gui RPL file, but when you hit the «/\» button there is different default path entry in the file requester. I use this to choose a directory on the harddisk quickly to store an animation permanently.

You can change both defaults in the source code. Have a look at the

Installation  
part of this help file.

## 1.12 Start

Start

- This button starts the rendering from the current frame upto the end of the animation.

The Drawing setting of the relevant

View window

has to be set to

«Ray Tracing», so check the box in the window that will be opened.

A special Framecommand is inserted in the Animation window, it is either FCGOPs or FCnoGOPs. It depends on the button you selected in the

memory setting

.

The command mpeg\_encode expects a parameter file which is generated automatically by MyMPEG.gui and will be deleted after the MPEG file was encoded. There is an example file template.param available.

After the MPEG file was created the MPEG player you

defined

in the

program code will show the animation.

To set the animation system back to the beginning you can use Undo, useful especially with particales and forces.

If you cancel the animation via the CANCEL button of the Animation window, no MPEG file is encoded and you will see some files ( pictures, MPEG GOPs and param file ) lying around in the concerned directories. Use the «

Cancel

» button of the MyMPEG window instead !

## 1.13 Cancel

Cancel

- This button is enabled as soon as you hit «

Start

».

It allows you to interrupt the rendering ( the menu entry "Extras/Cancel All" is executed ) and gives you a requester with three choices.

"Create MPEG, Pause or Delete everything?"

«MPEG»

«Pause»

«Delete»

If you select «MPEG», the so far rendered frames or respectively GOPs are used to build up the animation, just like the way as if the last frame was reached. Useful while you are generating particle animations and you want keep the results upto that point.

(Frames that don't fit in the last GOP are deleted.)

The middle button will let you «Pause» the session. It keeps the current framenumber in mind and you can continue rendering by pressing «

Start  
» again.

But be careful: Don't change anything in the settings, because mpeg\_encode would be confused by that and probably the MPEG file will be not generated at all.

Choosing «Delete» will erase all pictures, GOPs and param files.

## 1.14 Help

Help

- This AmigaGuide document is opened at the Introduction part.

## 1.15 Close

Close

- Guess!

The MyMPEG window will close as if you clicked at the closegadget in the upper left corner of the window.

The

View window will be set back to the output mode that was selected before MyMPEG was activated and also the Framecommand of the Animation window (you have to close and reopen an active one to refresh it). The

picture name  
and  
size  
are not set back to original

values.

## 1.16 Background

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Why did I write this tool ?

- With my old GForce030 I used the program MainActor to build up animations, but since the shareware version seems not to support the 68060 CPU of my new Blizzard2060 (the Broadcast version is supposed to, but IMHO quite expensive), I came to the conclusion to use MPEG instead of MainActor's special Picasso format for truecolor anims.
- On the AmiNet I found an archive called Easy\_MPEG105.lha by Scott Tribbey which offers a GUI for easy input and the ability to wait for pictures generated by e.g. a raytracer and combine those pics to MPEG files in the end via mpeg\_encode.  
But why use an external program in the background when you can use RPL and its GUI instead ?
- One other inspirations came from the feature found in the Windows version of Real3D to preview animations just by hitting a button in the Animations window.

## 1.17 Author

If you want to contact me, here is my address:

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Any suggestions for improvement or bug reports are welcome.  
If you have problems with this stuff, send me a mail.  
Voluntary donations would also be nice.

My System consists of:

- Amiga 500 in a towercase
- Blizzard2060 50MHz with 24 MB
- PicassoII running CyberGraphX
- Kickstart and Workbench 3.1

I used GoldED 4.5 by Dietmar Eilert to write either the RPL code and this AmigaGuide file. Especially the ability of GED to autocase words you put in the dictionary is very useful while writing RPL programs.

## 1.18 History

The is the history of MyMPEG.

- MyMPEG 1.0 (16 Mar 1997)
-

First public release to ftp.win.net/readable/real3d/ and the Aminet.

- MyMPEG 1.1 (23 Apr 1997)  
Version 1.0 didn't work with Real3D v3.3, due to a bug in the RPL word `SPRINTF`. I managed to use `Arexx` instead of RPL for the writing of the parameter file to make it work. (This bug was reported by Willem Dinslage.)  
The `AmigaGuide` file is updated and has a history part now.  
The installation script will try to find out which version of Real3D you are using (by controlling the size of the file `r3d3:real`, there is no version string in `real`, why?) and copy the right files automatically.

## 1.19 Limitations

There are some thing that could be improved:

- It is necessary to set the «Ray Trc.» switch on in the Drawing Settings by hand. I didn't managed to figure out how to do it via RPL, but I think as soon as the RPL include files for the Amiga version are ready I could put that in the code.
- Another thing that annoys me is the fact that arrays can't be used inside `WORD` definitions. To fetch the value of a slot of an array I used an external file via the `LOAD` command. It works, but it doesn't look very elegant.
- If you choose the pictures to be rendered into the directory `"ram:t/"` you should make sure that there are no important or still needed files of other programs inside it having the same basic name as the frames, because they could be deleted by `MyMPEG.gui`. I prevent the files, put in there by the program, from being deleted by removing the `"d"` flag (deletable) via the command `"protect d sub"` and finally erase them with `"delete ... force"`.  
You may choose a different directory, if problems arise from that.
- Make sure the string in the frame format in the Animation window is something like `%03d`. I realized that entries like `%3d.pic` lead to failures.

## 1.20 Index

You want to reach a point quickly - here you are.

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mpeg\_encode (unix)

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