

qt

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Chapter 1

qt

1.1 Who's qt?

qt 2.0

- A QuickTime player for fast Amigas -

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Freely distributable

"We're not bees and we're not cats
or bugs or horses or things like that.
What we are is clear and absolute.
What we are, dear doctor, is CUTE!"
/ The Warner sibs

Overview	Why? When? How?
Installation	How to install qt
Using~qt	Basic principles of operation
Options	Command line switches & ToolTypes
License~	Legal stuff
Bug~reports	Bugs? Who me? Naah...
The~author	The man, the myth, the concept
History	What has been
Future	What may yet become

1.2 Overview

"Moral #4: Never ask what hot dogs are made of."
/ Yakko

qt (pronounced cute) is a QuickTime movie player for the Amiga. I wrote this program because I wanted something CPU-intense to run on my 68060, so it's main purpose is to eat computrons, the fact that it also plays movies rather nicely is just a side effect. :)

The requirements for running qt are:

- 68020 CPU or better
- AmigaOS 2.04 or better

Depending on the actual movie, and the replay mode selected, an 020 may very well be a tad under specced...

QuickTime animation formats currently supported are:

- RLE
- Cinepak
- Road Pizza
- JPEG
- SMC
- RAW

Audio codecs supported are:

- MACE
- IMA4

1.3 Installation

Brain: "Pinky, are you pondering what I'm pondering?"

Pinky: "I think so, Brain, but where will we find a duck and a hose at this hour?"

Not much to say here really. Either run the installer-script, or just copy the binary that best matches your CPU to some convenient place.

There are 5 binaries to select from:

qt - Any CPU from 68020 and up
qt.020fpu - Like above but with 68881/68882 FPU
qt.030 - 68030 and up without FPU
qt.030fpu - 68030 and up with FPU
qt.040fpu - 68040 with FPU

There is no principal difference between the 5 versions, they are just compiled with different compiler flags.

1.4 Using qt

```
"Moral #2: If at first you don't succeed, blame your parents!"  
  / Yakko
```

qt can now be used both from CLI and Workbench. CLI usage will follow next, and Workbench usage further down on the page.

To play a movie from CLI, run the command qt with the filename of the movie and any options that you feel appropriate. If no filename is specified, a standard ASL file requester will appear.

The metadata for the movie will now be loaded into RAM. qt no longer loads the entire movie into RAM, so replay should start much quicker than earlier versions. If you like, you can get the old behaviour back with the BUFFERED option.

If the loading completes without errors, a screen with a (hopefully) appropriate resolution and color-depth will appear and the movie will begin playing. (See also the section on true color replay at the bottom of this page.) After the entire animation has been played (both video and audio) the program will quit automatically, unless the LOOP option is given in which case it starts all over again, or the NOQUIT option is given in which case the player will pause and wait for user interaction.

To manually terminate the program, press Ctrl-C in the CLI window, or either Ctrl-C or ESC in the replay window.

The following keys can be used to control the actual replay:

SPACE	- Start/stop playback
LEFT	- Seek one second backward
RIGHT	- Seek one second forward
Alt-LEFT	- Seek to beginning of movie
Alt-RIGHT	- Seek to end of movie

If the PUBSCREEN option is used, the window showing the movie will have the normal window gadgets. Clicking on the close gadget will terminate the program as well. On a CyberGraphX screen it is possible to resize the window using the size gadget at the bottom right of the window. Press 'N' in the window to return it to its normal size.

There is also a set of gadgets controlling replay, that per default are shown when using a public screen, and not when using a private screen. These defaults can be overridden using the GUI option. The five buttons on the left have the same function as the keyboard controls described previously. The slider shows the current timeline position of the movie, and can be used to seek to an arbitrary position.

To play a movie from Workbench, you can use any of three methods:

- * Set the DefaultTool for a movie file to qt and double click on the movie's icon.
- * Click on the icon of a movie file, then shift-double click on qt's icon.
- * Double click on qt's icon, and select a movie from the file requester that appears. (When using this method, the movie file won't get checked for ToolTypes.)

There's a number of ToolTypes that can be set for either qt itself or the movie (the movies ToolTypes take precedence) to affect the mode of replay.

After qt has been launched, loading and replaying will proceed in the same manner as for CLI operation, described above.

True color replay

If the selected movie has true color video, several replay options exist. These options can be controlled by several command line switches and ToolTypes, which are listed in the Options section. The exact mode used will be determined by the following rules:

- * if the GRAY switch is given, the movie will be replayed in grayscale.
- * otherwise, if the target screen is true color, the movie will be replayed in true color.
- * otherwise, if the target screen is a HAM screen, HAM mode will be used. The HAM switch can be used to open a HAM screen for replay.
- * otherwise, if the DITHER switch is given, the movie will be dithered to a color cube.
- * otherwise, the color cube will be used without dithering.

Starting with qt2, these rules basically apply to non-true color movies as well. GRAY can always be used to make the replay grayscale, and DITHER always has effect if the number of available colours are too few, and the screen mode is not HAM. DITHER and GRAY can be combined to enable dithering when less than 256 grays are available.

1.5 Options

"That's a finger. You have five of them on each hand.
Unless you're in a circus. Then it's negotiable."
/ Yakko

CLI Options:

FILE, EVERY/K/N, GRAY/S, HAM/S, DITHER/S, CYBERGFX/T,
MODEID/K, WCP=WriteChunkyPixels/T, NOSOUND/S, NOWAIT/S,
LOOP/S, VERBOSE/S, PUBSCREEN/K, WCENTER/S, AHI/T, FILTER/T,
SOUNDONLY/S, PAUSE/S, NOQUIT/S, BUFFERED/S, GUI/T,
SAVEVIDEO/K, SAVEAUDIO/K, NODOUBLEBUFFER/S, NOATTACHEDSCREENS/S

FILE

The filename of the animation to play. If none is given,
a file requester will be presented.

EVERY/K/N

A numeric argument limiting the programs desire to skip
displaying frames in order to be able to keep up with the
intended replay rate (and thus the soundtrack, if any).
For example, EVERY=3 will make sure that no more than two
subsequent frames are skipped at a time, meaning that at
least every 3:rd frame will be displayed. EVERY=1 will
cause all frames to be displayed no matter what.

GRAY/S

A switch causing animations to be replayed in 256 grays,
or at least as close to grays as the screen allows in
the case of public or HAM screens.

HAM/S

(Previously known as HAM8) A switch causing true color
animations to be replayed in HAM mode on non-CyberGraphX
screens. The conversion from true color to HAM is done
"on the fly", so the CPU load will increase dramatically
in this mode. 68060 recommended.

DITHER/S

A switch adding a Floyd-Steinberg dithering step to the
color cube replay mode. Even slower than the HAM mode.

CYBERGFX/T

A toggle to indicate whether you want the program to select
a CyberGraphX screenmode or not. The default is to use
CyberGraphX screenmodes if cybergraphics.library is present,
and AGA screenmodes if it is not. So normally there is
no need to specify this switch.

MODEID/K

A screenmode that you want to use. You can either specify a numeric mode ID (prefix with "0x" for hexadecimal), or an AmigaDOS pattern that should match the name of the mode. If several modes match, a screenmode requester will be displayed. If you select a CyberGraphX screenmode, but have selected NO for the CYBERGFX switch, true color replay will not be available. For this case, you should make sure to use the WCP option as well.

WCP=WriteChunkyPixels/T

A toggle to indicate whether the program should use its own chunky to planar code, or use the system routines. A value of "on" will cause graphics.library/WriteChunkyPixels() to be used (AmigaOS3.1+ required), and a value of "off" means that the builtin routine should be used. The default is to use WriteChunkyPixels() only if there is chunky to planar hardware present in the system. (This switch has no effect for CyberGraphX screens, the appropriate CyberGraphX calls will always be used, unless CyberGraphX awareness is explicitly turned off using the CYBERGFX switch.)

NOSOUND/S

A switch turning off sound replay. It does not affect the timing of video playback in any other way than that it reduces the load on the CPU.

NOWAIT/S

Ignore timing information for video playback and display all frames as quickly as possible. No frames will be skipped, and no waiting will be done. See also EVERY.

LOOP/S

Specify this switch to play the animation over and over and over again... (Press Ctrl-C in the CLI window to abort.)

VERBOSE/S

Selecting this option will present information and statistics on stdout. The following items will be displayed:

Information on type, name, resolution and bit depth for all loaded codecs.

Selected screenmode - the name of the screenmode selected

and the dimensions of the opened screen.

Expected duration - the number of seconds during which the animation is supposed to play.

Total replay time - the actual time during which the animation is played, including loops and pauses.

For each track that was replayed will be showed:

Total number of samples - the number of samples in the track.

Nominal samplerate - an average samplerate calculated from the total number of samples and the expected duration.

Total idle time - the amount of time that the program has spent just waiting for the right time to display the next sample.

Total samplerate - the average rate at which the program has actually advanced the samples.

Visual samplerate - as above, but not counting samples that were skipped.

Virtual samplerate - a theoretical benchmark indicating the samplerate that could have been achieved if the NOWAIT switch had been given.

Samples activated - total number of samples delivered to screen or speakers.

Samples skipped - total number of samples that were skipped.

Note: All sps figures are truncated to integer values.

PUBSCREEN/K

The name of a public screen to replay the movie on. There are no restrictions on the video or screen mode associated with this option anymore.

WCENTER/S

When selected, causes the window to be centered on the screen if replaying on a pubscreen.

AHI/T

Use `ahi.device` instead of `audio.device` to replay audio. Use only on machines which don't have a working `audio.device` (Draco?), or if you need 16bit output. I don't know how it sounds with a sound card, but it sure sounds crappy with the

Paula driver...

FILTER/T

Turn on/off the builtin low pass filter during replay.

SOUNDONLY/S

Don't show any video, just play the audio track. This switch can now be combined with the NOSOUND switch...

PAUSE/S

Don't start playing the movie automatically. The movie will appear paused at time = 0. Use SPACE or the Play gadget to start playback.

NOQUIT/S

Don't exit after playing is completed. qt will remain running with the movie paused at the end. Use ESC, Ctrl-C, or the close gadget to quit qt.

BUFFERED/S

Read all data chunks into memory before starting replay. Default is to read them in asynchronously as needed. Make sure you have sufficient memory if using this option.

GUI/T

Enable/disable GUI for movie transport control. Default is GUI enabled when using a window on a public screen, and disabled when using a private screen. Keyboard controls are always available regardless of the GUI setting.

SAVEVIDEO/K

Store the video frames as a sequence of ILBM files instead of displaying them. The value of the option is used as the filename of the first picture. Subsequent filenames are generated by incrementing the index number at the end of the filename. If the specified filename does not end with a number, ".001" is appended to it.

SAVEAUDIO/K

Store the sound track as an 8SVX file instead of playing it. The value of the option is used as the filename for the

sample.

NODOUBLEBUFFER/S

Disable double buffering on AGA screens under OS3.0+.

NOATTACHEDSCREENS/S

Disable use of attached screens for GUI under OS3.0+.

Note that attached screens are neccessary to get
double buffering on private screens when GUI is on.

Workbench ToolTypes:

All CLI options described above can also be used as ToolTypes,
with the exception of FILE (as the file is specified more
directly). Options of type /S are activated by their mere
presence as a ToolType, the other options take values just like
the CLI counterparts.

ToolType examples:

WRITECHUNKYPIXELS=ON
EVERY=2
GRAY

1.6 License

"Ehhhh, but let's not be anal."
/ Slappy

qt may be freely distributed in its unmodified archived form.
The program may not however be sold for profit.

The program is provided on an as-is basis, and there is no guarantee
of functionality of any sort.

The author can not be held responsible for any physical or mental
damage incurred directly or indirectly from the use or misuse this
program.

Now, go ahead and have fun fun fun! :)

1.7 Bug reports

"The hotel of your mind has many vacancies"
/ Yakko

If you find something which you consider an obvious bug or misfeature you may send me a bug report and perhaps I will actually fix the problem for future releases. :)
My address can be found in the next section.

If you do decide to send a bug report, please make it as detailed as possible. Especially, if the problem is that qt won't play a particular animation, a pointer to where that animation can be found would be mostly appreciated. Please don't write about not being able to play Intel Indeo or Sørensen Video movies unless you have the specifications and want to share them with me. :-)

Also, check with the following list of known bugs that it is not a bug of which I am already well aware.

Known bugs:

Some people (with Al200:s, I may add) have experienced problems with some movies when enabling the GUI on a private screen. Should this happen, first try the NOATTACHEDSCREENS option. If that doesn't work either, simply disable the GUI.

1.8 The author

"Woah! Dumber than advertised..."
/ Dot

Here is my address and such:

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Feel free to drop a line if you have comments or suggestions. See also the section on Bug reports.
If you want to snail-mail me CD-R/DVD-R discs full of movies then that's OK too. ;-)

1.9 History

```
"Ehhhhh, that snake doesn't have a leg to stand on.  
Hey! It's the dawn of time. What did you expect -- new jokes?"  
/ Slappy
```

V1.0 1996-08-05

- First official release

v1.1 1996-08-14

- Fixed a bug in the startup code of all FPU versions.
- Added the VERBOSE switch
- The window is now automatically centered on non-CyberGraphX screenmodes
- The MODEID switch is now much more versatile
- Cleanup is now executed correctly if loading is aborted with Ctrl-C
- Code to reject files that are not quicktimes improved.
- Removed some Enforcer hits when opening the screen

v1.2 1996-11-18

- Fixed some more FPU bugs.
- Replay in a window on a public screen is now possible with CyberGraphX.
- Replay can be aborted with ESC/Ctrl-C/close gadget in the replay window, and not just from the CLI.
- Now manages to recognize most nonstandard file layouts.
- Added support for JPEG movies. Fast CPU required...
- Fixed a bug that caused 16 bit sound to be replayed incorrectly.
- Added some kludges to work around the bug in cybergraphics.library which caused the "no appropriate screenmode" problem.

v1.3 1997-02-15

- Support for compressed audio added (both MACE and IMA).
- SMC video support implemented.
- Added a resize gadget to the public screen window.
- Added a Floyd-Steinberg dithering option
- qt now supports the Workbench interface, complete with ToolTypes. (And there was much rejoicing.)

v1.4 1997-03-23

- Fixed a bug that produced incorrect video timing for some movies.
 - Implemented audio resampling for frequencies over 28kHz, so that replay will be the correct speed even when not using doublescan videomodes.
 - Added (limited) support for AHI.
 - Added a switch to turn on/off the audio LP filter.
 - Added a SOUNDONLY switch for people not wanting to be bothered by all this video nonsense... :)
 - Recompiled with SAS/C 6.57
 - Included the "flatten" program.
-

v2.0 2000-07-11

- Complete rewrite; all XAnim based code has been tossed out the window, player now uses a module based software architecture, all video codecs faster than before, audio/video synchronization much improved.
- qt now defaults to playing directly from disk, heavily reducing memory requirements and upstart time.
- Added support for AmigaOS 2.04.
- Added support for OCS and ECS (68020+ still required).
- Public screen replay is now possible for all screen modes.
- Video can be saved as a sequence of ILBM images.
- Audio can be saved as an 8SVX file.
- Interactive transport control (pause and seek) added.
- Nice GUI for improved transport control added.
- New switches: PAUSE, NOQUIT, BUFFERED, GUI, SAVEVIDEO, SAVEAUDIO
- HAM8 switch renamed to HAM, due to OCS/ECS support.
- Stereo sound now possible with both audio.device and AHI.
- 16bit sound implemented for AHI audio mode.
- Proper implementation of stereo IMA4 sound.
- GRAY switch now always enables grayscale playback.
- Dither/HAM replay now possible for palette based movies as well.
- Double buffering now used for native screenmodes.
- MacBinary files can now be played directly.

1.10 Future

Pinky: "Where are you going, Brain?"

Brain: "Back to our cage, Pinky. We must plan for tomorrow night."

Pinky: "Why? What are we going to do tomorrow night?"

Brain: "Same thing we do every night, Pinky. Try to take over the world!"

Although I am pretty pleased with the program the way it is now, here are some improvements that I may decide to implement:

- More video codecs
- PPC support

And here are some suggestions from other people which might or might not get implemented. I'm just listing them here so that you don't have to suggest them too... :)

- Providing a Datatype as well
 - Support for AVIs
-