

exrtoppm: Convert OpenEXR files to Portable Pixmap files

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created Sunday, 2006 September 10
updated Thursday, 2006 September 14

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1 What is this?

I needed a program to convert image files in the OpenEXR format to files in the Portable Pixmap format.

So I wrote a program called `exrtoppm`. It resembles some of the other conversion programs which are part of the Netpbm suite of Portable (Bit, Gray, Pix)map programs. It is a command line program. I use it on Microsloth Winders; it should also work on unix-like systems, though I haven't compiled it there, much less used it.

This document includes the user documentation for the program, links to download the executable &/or the source code, installation instructions, & build instructions.

2 License

One of the source code files, `getopt.c`, is in the public domain. I downloaded it from the T_EX User's Group web site.

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My `exrtoppm` program links with the OpenEXR library from Industrial Light & Magic. That library is covered by its own license.

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3 exrtoppm user manual

NAME `exrtoppm.exe` – convert an OpenEXR image file to a PPM image file

SYNOPSIS `exrtoppm -h`

`exrtoppm [-i input] [-o output]`

DESCRIPTION `exrtoppm.exe` is a command line program which eats image files in the OpenEXR format & excretes image files in the Portable Pixmap (PPM) format.

The output is always in PPM “plain” format with 24 bits per pixel.

It performs γ colour correction. I copied the colour correction technique from the `exrdisplay` program which is included in the OpenEXR suite from Industrial Light & Magic.

OPTIONS `-h` Print brief usage instructions.

- i *filename* Specifies *filename* as the name of the input file. It must be in OpenEXR format. By default, the input is read from `stdin`, which doesn't work well on Microsloth Winders because that operating system distinguishes between text & binary data.
- o *filename* Specifies *filename* as the name of the output file. It will be in Portable Network Graphics (PNG) "plain" format. If there is a previously existing file, it will be trashed. By default, output goes to `stdout`. This works fine, even with Microsloth Winders's distinction between text & binary, because PNG plain is a text format.

AUTHOR `exrtoppm` was created by Gene Michael Stover.

It uses an OpenEXR library from Industrial Light & Magic.

BUGS There's always one more bug.

SEE ALSO The executable, full documentation, & source code are available at <http://cybertiggyr.com/exrtoppm/>.

4 Installing the executable

If you just want to run `exrtoppm` & you don't want to build it yourself, here is how you can install it.

I apologize for the shared libraries¹. I tried linking with the static libraries for OpenEXR, but that gave me run time errors with some of the Standard C I/O functions. (`fflush` & `setbuf` are two such functions.) It works fine with the shared libraries, so that's how I'm distributing it. I don't know if the problem with static libraries had to do with how Industrial Light & Magic linked the OpenEXR library or with how I was linking it.

For Microsloth Winders on x86 (which is the only binaries I'm distributing for now), do this:

1. Download `exrtoppm.exe`² & save it into some directory that's in your path. If you don't already have a directory & path for such things, save it into your `%windir%\system32`, which is usually `C:\windows\system32`.
2. Obtain the OpenEXR DLLs. I used the ones from `openexr-1.4.0-vsnet2003.zip`. It is available in the *Downloads* section of the OpenEXR web site.
3. Into your `%windir%\system32` directory, copy these files from that `openexr-1.4.0-vsnet2003.zip` distribution:
 - `Half_dll.dll`
 - `Iex_dll.dll`
 - `IlmImf_dll.dll`

¹Shared library means "DLL" in Microsloth Winders land.

²<http://cybertiggyr.com/gene/exrtoppm.exe>

- `IlmThread_dll.dll`
- `Imath_dll.dll`

4. `exrtoppm.exe` is now installed on your computer. In other words, you can open a command line window & run `exrtoppm`. You might try running “`exrtoppm -h`” as a quick test.

I’ve neither compiled nor used `exrtoppm` on other operating systems, but here’s how you’d install it in general if you did:

1. Obtain the OpenEXR shared libraries for your system. You can surely do that by compiling them yourself, & they might already be available. Either way, look on the OpenEXR web site.
2. Install the OpenEXR shared libraries in whatever way is usual for your system. There will probably be six such files, & their names will be variations of “Half”, “Iex”, “IlmImf”, “IlmThread”, & “Imath”.
3. Download the source code for `exrtoppm`. Instructions for doing that are in Section 5.
4. Build `exrtoppm`. On unix-like systems, you’ll need to make your own Makefile. You can copy the `Makefile.w32`. On Microsloth Winders, run `build.bat` from the command line to build the thing. (You’ll need to edit `build.bat` & maybe also `Makefile.w32`.)
5. Copy the `exrtoppm` executable to some directory in your path.

5 Source code & executable

If you just want the executables, download them from the links in the `bin` directory, below.

If you want the source code so you can compile it yourself, create a subdirectory tree like the one below & download all of the files into it.

After downloading all of the source code files & creating the directories (even the ones which are empty before you compile), you can build all of the programs from the command line by CDing into the same directory with `Makefile.w32` & then running `build.bat`.

On Microsloth Winders, you will probably have to edit the pathname in `build.bat` for your system.

- COPYING
- bin/
 - `exrtoppm.exe`
 - `test0000.exe`

- test0001.exe
- test0002.exe
- build.bat
- lib/
- Makefile.w32
- src/
 - exrtoppm.cpp
 - getopt.c
 - pixel.cpp
 - ppmpixel.h
 - test0000.c
 - test0001.c
 - this.h
 - types.h
- tmp/

6 Notes

1. OpenEXR is a graphics file format created by Industrial Light & Magic. `exrtoppm` requires the OpenEXR library at both compile time & run time.
2. The OpenEXR library’s source code is really nice. The peeps at ILM know their business (which is exactly what I would expect from ILM).
3. For the gamma correction in `exrtoppm`, I copied code from the `exrdisplay` program included in the OpenEXR library.
4. “Plain” Portable Pixmap (PPM) is one of the formats in a suite of image file formats by Jef Poskanzer & others. Plain PPM is a purely text format.
5. An implementation, maybe the official implementation, of the Portable (Bit, Gray, Pix)map formats is Netpbm.
6. `exrtoppm` does not use the Netpbm library at all.

Q: Why didn't you use the Netpbm library?

I tried to use the Netpbm library, but I ran into compilation problems. Basically, it’s designed for a compile-time POSIX environment, & Microsoft Winders ain’t that. You can download support libraries so that you can eventually compile Netpbm on Winders, but I was too lazy.

That's okay, though, because the Portable (Bit, Gray, Pix)map formats are so simple that it's really easy to write code which writes those types of files. So that's what I did.

The lesson learned was that the *portable* in Portable (Bit, Gray, Pix)map refers to the file format itself, not the library implementation. And that's fine.

7. *Why don't you supply a Makefile for unix-like systems?*

Normally, most of my programming is on unix(-like) systems, so normally I'd be supplying a Makefile for unix & not for Winders. I specifically needed this program on Winders, so I wrote it there, & I'm too lazy to compile it on a unix(-like) system until I need it there.

That said, it should compile just fine on a unix(-like) system. It just takes a Makefile. Oh, & you must install the OpenEXR libraries on the system.

A Other File Formats

- This document is available in multi-file HTML format at <http://cybertiggyr.com/gene/exrtoppm/>.
- This document is available in Pointless Document Format (PDF) at <http://cybertiggyr.com/gene/exrtoppm/exrtoppm.pdf>.

References

- [1] Free Software Foundation. General public license. world wide web. <http://www.gnu.org/licenses/licenses.html#GPL>.