ColorGrinder

EmbedThis! Handbook

Version 1.1 May 2003

Contents

Overview

What is EmbedThis!

EmbedThis! is a program that is designed to take some of the '*grind'* out of working with large numbers of images. It is a simple utility to embed industry standard ICC profiles in your TIFF or JPEG images. Only by embedding the appropriate color profile in your image files can you be sure that the next person who works on them knows how the colors should appear. This is vital if you are working in a color managed workflow and are passing your images on to a third party such as a printer, color lab or multimedia service provider.

If your scanning program or digital camera software does not allow you to embed profiles in images then you will know what a chore it can be to add them later.

EmbedThis! will allow you to process whole batches of TIFF or JPEG images by embedding the appropriate ICC profile

Getting Started

System Requirements

EmbedThis! will run under any version of Microsoft Windows from Win 98SE onwards. For serious use we recommend either Windows NT4, 2000 or XP as these operating systems will give you more productivity and stability than their 'consumer cousins'. As an absolute minimum you will need a Pentium II 300 MHz machine with at least 128MB RAM but to be able to work productively with large images, we recommend the following minimum specifications:

- Windows 2000
- Pentium III 600 MHz Processor
- 256 MB RAM
- 300 MB free disk space

Installation

If you have received EmbedThis! on a CD then simply double click the setup.exe icon and follow the instructions. If you have downloaded the program from the Internet you will need to unzip it first to a directory of your choice and then start the installation by double clicking setup.exe.

If you have bought a license from www.colorgrinder.com then enter this number together with your name and e-mail address in the Help/Register dialog box.

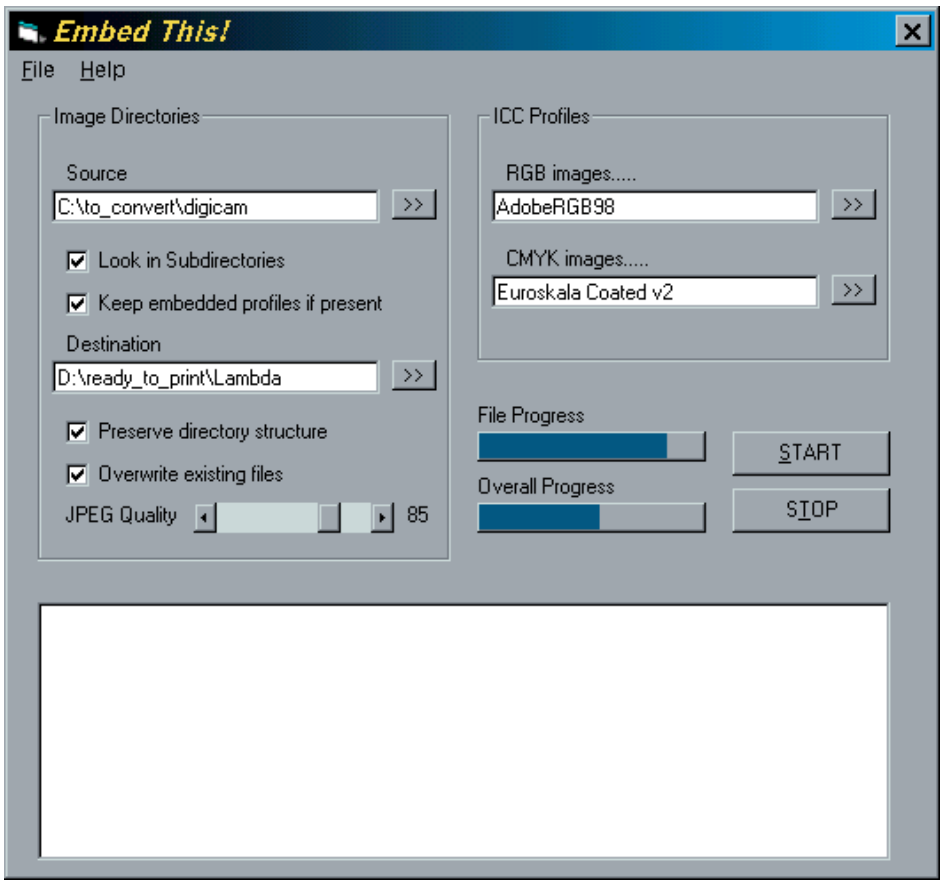
License

EmbedThis! is not free. If you have an evaluation copy of the software then you will be able to use all of the program functions BUT all converted images will be 'watermarked' with a series of parallel lines. If you like the program and want to remove the 'watermark' then you will need to buy a license and obtain a serial number from www.colorgrinder.com.

In order to use EmbedThis! you are required to agree to the terms of the software license reproduced later in this handbook.

Using EmbedThis!

EmbedThis! does not actually embed profiles in existing images. Instead it creates new images with your choice of profile embedded. This means that there is no danger of ruining your original files – they remain untouched in the original image directory or directories.



Step 1

To get started you must select the directory where your original images are located. If this directory contains subdirectories that you also want to include then click the 'Look in subdirectories' checkbox.

Now you have to decide how you want the program to deal with images that already have embedded profile. Your options are:

1. If you DO NOT check the 'keep embedded profiles if present' checkbox then the program will embed a new profile in each and every image even if a different profile is already embedded in the image.

2. If you DO check the 'keep embedded profiles if present' checkbox then the program will only embed a new profile in images that do not have embedded profiles .

Step 2

Now choose the destination folder where the new images will be saved into. This may not be the same folder (or a subdirectory of) the source directory.

There is a checkbox to determine whether existing files should be overwritten if their names are identical to the new ones being saved. If this is not checked then the image will be skipped in case of a conflict.

You should also decide whether you want the directory structure where the source files are located to be preserved or not, and set the checkbox accordingly. If the 'Preserve directories structure' checkbox is not activated then all converted files will be placed in the same directory.

Step 3

Select the ICC profiles which should be embedded in the new images. You will need to choose a profile to embed in RGB images and one to embed in CMYK images.

Step 4

Now that you have set all of the options you are ready to press START and create the new files - the progress bars will give you a rough idea of how long the process is going to take. Messages describing the process will be shown in the bottom panel.

Support

How to get help

If you get an error working with EmbedThis! please get in touch with ColorGrinder by e-mail at support@colorgrinder.com. We will do our best to help you in a timely fashion. Please describe the problem fully and do not forget to tell us what sort of machine you are running the program on. If you are having a problem with a particular ICC profile then it would probably help if you included the profile as an attachment to your e-mail.

Before you contact our support line, please take a look through the list of Frequently Asked Questions.

Frequently Asked Questions

1. What sort of computer will I need to run EmbedThis!?
2. Which file formats can EmbedThis! handle?
3. What is the point of embedding profiles in images?
4. Should I always embed profiles?
5. Can't I just convert the files in Photoshop (or other program)?
6. Why are my new JPEG files larger than the originals?
7. Where can I get more help with color management?

Q. What sort of computer will I need to run EmbedThis!?

A. You will need a computer running Microsoft Windows. Any version from Windows 98SE onwards will work but for best results we recommend Windows 2000 or Windows XP. As an absolute minimum you will need a Pentium II 300MHz machine with at least 128MB RAM but to be able to work productively with large images, we recommend the following minimum specifications:

- Windows 2000
- Pentium III 600 MHz Processor
- 256 MB RAM
- 300 MB free disk space

Q. Which file formats can EmbedThis! handle?

A. EmbedThis! supports TIFF (Tagged Image File Format) and JPEG (Joint Photographic Experts Group) file formats. Both of these formats support embedded ICC profiles and are ideal for exchanging images where predictability of color is important.

Q. What is the point of embedding profiles in images?

A. Color Management is all about color communication. It is a way of allowing an input device (a scanner or digital camera) to communicate information to an output or display device (a printer or a monitor) about what actual colors are represented. Embedding ICC profiles in image files is the only way of communicating information about where images have come from. The color profile describes how colors in the image should appear when reproduced.

Q. Should I always embed profiles?

A. Normally you should always try to embed profiles in your images. The only exception is when using images with older software products which may have trouble reading images with embedded profiles. Examples include certain older software RIPs.

Q. Can't I just convert the files in Photoshop (or other program)?

A. You could do but it would be a lot more work than if you used EmbedThis!. Versions 5.0 and above of Adobe Photoshop allow you to make color conversions using ICC profiles on individual images but If you have multiple images to convert you will find EmbedThis! is much more productive and doesn't require you to open each image separately.

Q. Why are my new JPEG files larger than the originals?

A. EmbedThis! needs to open each file and re-save it in order to embed the ICC profile. Because jpeg compression algorithms are inherently lossy (repeated compression/decompression of images will significantly degrade their quality) EmbedThis! always uses a very low level of compression when creating new jpeg files. This may result in an increase in file size when compared to the original.

Q. Where can I get more help with color management?

A. The best place to get more information is probably the Internet. You can use the common search engines to find thousands of interesting sites but here are a couple to get you started.

http://www.color.org/

http://www.adobe.com/support/techguides/color/colormanagement/main.htm

Appendix 1: How ICC Color Management works

There are many books and online resources that you can use to learn about ICC color management. It can be a complex subject and it is not possible within the scope of this handbook to turn you into an instant color management expert. We can however summarize the problems and give you some hints about how to solve them.

Color Communication

The goal of a working color management system is to provide a method of communicating color information between different software programs and hardware devices. This is not as straightforward as it seems because in order to be able to communicate we must first find a suitable ‘language’.

Typically color information is represented in digital files as RGB (red, green and blue) or CMYK (cyan, magenta, yellow and black) pixels but unfortunately the colors created by printing RGB or CMYK pixels are unique to a particular printer. They are ‘device specific’. To prove this to yourself you simply need to take an RGB (or CMYK) file and print it on a couple of different printing devices. On each device we will get different colors depending on the inks, paper and technology used to make the print.

Because they are device specific RGB or CMYK values are not suitable for communicating color information. In order to get prints that look the same (or at least similar) on a variety of printers we need to change the recipe of RGB (or CMYK) that was used to make the prints. The question is how?

The CIE, an international organization charged with the development of standards for illumination, has spent the last seventy years or so developing unambiguous methods of describing colors. Among these standards are the CIEXYZ and the CIELab systems and it is these so called device independent color spaces that color management systems use when communicating information about how particular colors should appear.

Profiles

The ICC have defined a file format for linking device specific color data from scanners, printers and monitors to device independent CIE color spaces. It is an oversimplification but nevertheless a useful analogy to think of ICC profiles in the same way as foreign language dictionaries which always have a real-world language on one side (German, French or English for example) and a universal language such as Latin on the other side.

In order to translate between French and German it is simply necessary to use a French-Latin and a Latin-German dictionary together. Similarly converting images from scanner RGB to a CMYK printing process can be done using the appropriate RGB-CIELab and CIELab-CMYK profile.

Different sized gamuts

One of the challenges that you have when trying to reproduce color accurately on various devices is the issue of color gamut. If a device can record or reproduce very saturated colors then it is said to have a large color gamut. Photographic transparencies for example have a large color gamut. At the other extreme, if a device can only reproduce poorly saturated colors it is said to have a small color gamut. Newspaper printing systems have a small color gamut.

Obviously if you want to print an image that originated on color transparency film in a newspaper you will not be able to reproduce the full color gamut of the original. It is one of the functions of a color management system to 'compress' the color gamut in source files to fit within the color gamut of an output device. The ICC specifies three ways in which this can be done.

1. Perceptual rendering: This rendering intent moves the most saturated colors in source files to the gamut boundary of the output device allows. It then maintains a saturation difference between these 'most saturated colors' in the source files and other less saturated colors even if they lie outside the color gamut of the output device. The result is that photographic images look better but absolute color accuracy may be sacrificed.
2. Colorimetric (absolute and relative) rendering: Like perceptual rendering, colorimetric rendering moves the most saturated colors in source files to the gamut boundary of the output device. Other less saturated colors are printed as accurately as possible with the result that all 'out of gamut' colors of a particular hue are reproduced identically. This type of rendering is suitable for conversions between similarly sized color gamuts where color accuracy rather than pleasing results is the top priority. The difference between absolute and relative colorimetric rendering is that the former attempts to simulate the white point of the source color space. A typical use of this is to show the color of the paper when making contract proofs.
3. Saturation rendering: This intent is very seldom used and is not currently supported by EmbedThis!. Theoretically it would be used to maximize color saturation when preparing business graphics (graphs, charts etc.)

EmbedThis! does not enable you to convert images between different color spaces. If you need this functionality then please look at one of ColorGrinder's other products such as ICC Batch Converter.

Appendix 2: License Agreement

The EmbedThis! program (referred to here as “the software”) is owned by ColorGrinder and is protected by copyright laws. Upon your agreement to and compliance with the terms of this license agreement, ColorGrinder grants you (referred to here as the “licensee”) a certain non-transferable rights to use “the software” for personal or business purposes. By using this software you are deemed to have accepted the provisions of this license agreement

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