

COLORGRINDER

ICC Batch Converter **Handbook**

Contents

Overview

What is ICC Batch Converter?	Page 1
------------------------------	--------

Getting Started

System Requirements	Page 1
Installation	Page 2
License	Page 2
Quick Start	Page 2

Using ICC Batch Converter

Step 1 – Configuring the Source Directory Settings	Page 3
Step 2 – Configuring the Converted File Settings	Page 3
Step 3 – Rendering Intents.	Page 4
Step 4 – Converting the images	Page 4
Default Settings	Page 5

Support

How to get help	Page 5
Frequently Asked Questions	Page 6

Appendixes

Appendix 1: How ICC Color Management works	Page 11
Appendix 3: License Agreement	Page 13

Overview

What is ICC Batch Converter?

ICC Batch converter is a utility that is designed to take some of the '*grind*' out of working with large numbers of images. As it's name suggests, the program is designed for converting batches of TIFF or JPEG images from one color space to another using industry standard ICC profiles.

If you regularly have to convert images from scanners or digital cameras to make print-ready files then you will know what a chore it can be. ICC Batch converter will...

- Allow you to convert whole batches of TIFF or JPEG images using your choice of ICC profiles.
- Recognize and use ICC profiles that your customers have embedded in their images. This removes the guesswork out of your service bureau operations and saves an awful lot of time that you would otherwise have spent color correcting the images by trial and error.
- Embed ICC profiles in your converted images. This ensures that they are correctly identified and 'processed' later on in your imaging workflow.

Getting Started

System Requirements

ICC Batch Converter will run under any version of Microsoft Windows from Win 98SE onwards. For professional 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 ICC Batch Converter 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

ICC Batch Converter 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 ICC Batch Converter you are required to agree to the terms of the software license reproduced later in this handbook.

Quick Start

If you have a working knowledge of ICC color management then you can probably forget the rest of this handbook and jump right in and start using ICC Batch Converter. It was designed to be very simple to use. Specify where the images are that you want to convert, tell the program where to put them and what profiles to use and let it do the rest.

If however you have a few minutes to spare, we recommend reading through the rest of the handbook. It isn't very long and might just give you some food for thought.

Using ICC Batch Converter

Typically a conversion job consists of the following four main steps....

Step 1

Use the 'Source directory' panel to select the directory where the images that you want to convert are located. If this directory contains subdirectories that you also want to include in the conversion process then click the 'Look in subdirectories' checkbox.

Now you need to specify which input profiles will be used for the color conversions. The first step is to select an RGB and a CMYK default profile which will be used if there are no embedded profiles in the images. The default profile will also be used if you have not checked the 'Use embedded profiles if present' checkbox. Normally it makes sense to use embedded profiles, especially if you do not know where the images have come from. For more about using embedded profiles see the FAQ section.

Finally in Step 1 you need to decide whether you want to delete the original images after they have been converted. It goes without saying that you should use this option with caution. Note: If the originals are write protected, or on a read-only medium such as a CD-R then they can not be deleted in this way.

Step 2

Use the 'Converted files' panel to select the folder where the converted files should be saved to. You must select an ICC profile which will determine the color space of the converted images. Use the appropriate checkbox to determine whether or this profile should be embedded in the converted files.

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.

Use the 'Output Graphic Format' radio buttons to specify the format of the converted images. JPEG images are compressed using a 'lossy' compression scheme. This means that users can trade off file size against image quality by selecting a compression level. Use the slider bar to set the JPEG compression level.

Step 3

When converting images between color spaces of varying sizes it is necessary to make some choices about what happens to colors that are present in the original file but can not be accurately represented by the output device. The ICC defines a number of 'rendering intents' which specify how 'out of gamut' colors are handled. Use the 'Rendering intents' panel to select between:

- Perceptual (sometimes called photographic) rendering. This is the best choice if you are converting RGB images from scanners or digital cameras for printing on any type of printer. Perceptual Rendering will produce the most 'pleasing images from photographs under most circumstances.
- Relative Colorimetric rendering. Use this if you are converting CMYK images into another CMYK color space for proofing purposes but do not want to simulate the paper white of the printing press. An example might be if you had a batch of files that had been created for offset printing and you wanted to simulate the finished prints on a desktop CMYK printer.
- Absolute Colorimetric if you are converting CMYK images into another CMYK color space for proofing purposes AND you want to show the paper color of the printing press on your proofing printer.

There is one more rendering intent that you may see in other ICC compatible software and that is 'Saturation'. Theoretically this would be used for printing business graphics (charts, logos etc.) where color saturation is the most important characteristic. In practice this rendering intent is little used and is not supported by ICC Batch Converter.

Step 4

Now that you have set all of the options you are ready to move to the 'Convert' panel and actually convert the files. This is a two stage process:

Firstly click the 'Update list' button and wait while the program searches through the source directories that you selected in Step 1. All compatible images will be shown in the 'Input Image List'. If they have an embedded ICC profile they will be listed in blue.

Now click the 'Convert' button and wait for the images to be converted - the progress bar will give you a rough idea of how long the process is going to take. Messages describing the conversion process will be shown in the bottom panel.

Support

How to get help

If you get an error working with ICC Batch Converter 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 ICC Batch Converter?
2. Which file formats can ICC Batch Converter handle?
3. What is the point of embedding profiles in images?
4. Should I always embed profiles?
5. Where do I get profiles for my printer?
6. Are generic profiles good enough?
7. How do I make custom ICC profiles for my workflow?
8. Can I simply add/strip profiles from my images without converting the colors?
9. Can't I just convert the files in Photoshop (or other program)?
10. What can I do to work more effectively with my customers?
11. Where can I get more help with color management?

Q. What sort of computer will I need to run ICC Batch Converter?

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 ICC Batch Converter handle?

A. ICC Batch converter 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. Where do I get profiles for my printer?

- A. You have two choices if you want to use ICC color management with a particular output device. The easiest (but probably least satisfactory) is to obtain a 'generic' profile from the equipment manufacturer. The better way is to make a custom profile for your device.

Q. Are generic profiles good enough?

- A. Using generic profiles is better than using no color management however whether they will be good enough depends on your workflow and the particular output devices that you are using. Typically if you are using a well calibrated, stable photographic type printer you will get good results with a generic profile BUT you will always get better results with a custom made profile.

Q. How do I make custom ICC profiles for my workflow?

- A. You will need specialist profiling software, test targets and measuring devices. The web sites of manufacturers such as Kodak, Heidelberg and X-Rite are a good place to start looking for product information. Another method is to use the services of a freelance color specialist who for a fee will make profiles for your devices.

Q. Can I add/strip profiles from my images ?

- A. Certainly. If all of your images are in the same color space then all you need do is to select the same source and output profiles and to check or uncheck the 'Embed ICC Profile' checkbox as appropriate.

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 ICC Batch Converter. 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 ICC Batch Converter is much more productive and doesn't require you to open each image separately.

Q. What can I do to work more effectively with my customers?

- A. If you are working in a service bureau type environment where you are taking images from customers and then printing them then it is vital that you know how the images were created. The simplest way of doing this is to make sure that your customers understand the importance of embedding the appropriate ICC color profiles in their images. If they do this correctly then it will make your job MUCH easier because you will not have to guess how the customer would like their images to look.

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 CIE Lab 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-CIE Lab and CIE Lab-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 ICC Batch Converter. Theoretically it would be used to maximize color saturation when preparing business graphics (graphs, charts etc.)

Helping your customers

The most important thing that you can do to make sure that your customers keep coming back is to help them to help you produce great results from their images. If you show them how to setup their image editing application properly and make sure that they ALWAYS embed color profiles in their images then you will be able to print their images the way they saw them on their (hopefully calibrated and profiled) monitor.

Appendix 2: License Agreement

The ICC Batch Converter 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

ColorGrinder has the right to terminate this agreement if the “licensee” fails to comply with any term or condition of this agreement . No title to intellectual property in “the software” is transferred to the “licensee”. You do not acquire any rights to “the software”) except as described in this license.

Restrictions

“The licensee” may not distribute, sell, rent or otherwise transfer “the software”) , or any modification or derivative thereof, to any individual or group for any reason.

The “licensee” may only make copies of “the software” for backup purposes as are granted by law.

Limitations of liability and disclaimer of warranty

There are no warranty rights granted to the “licensee” regarding “the software”) and accompanying materials. ColorGrinder does not guarantee, warrant or make representations, either expressed or implied, regarding the use, reliability, correctness or otherwise of “the software”).

“The licensee” assumes the entire risk regarding the results and the performance of “the software”) . ColorGrinder shall not be liable under any circumstances for any damage arising from the use or the inability to use “the software”) , even if ColorGrinder has been advised of the possibility of such damages.