

ICC Profiles Guide

English Version 1.0

Dedicated ICC Profile Types

Dedicated ICC profiles are provided for the following three media types:

- Photo Paper Pro
- Photo Paper Plus Glossy
- Matte Photo Paper

Compatible Printers

- A2200II models or later

Compatible Operating Systems

- Windows 95* / 98 / 98SE / Me / 2000 / XP

* "Enable ICM" is not available in Windows 95.

- Mac OS 9.x, Mac OS X Ver.10.2.1 or later

Compatible Printer Driver Versions

- Windows 95 / 98 / 98SE / Me Ver. 8.0 or later
- Windows 2000 / XP Ver.1.71 or later
- Mac OS 9.x Ver.4.5 or later, Mac OS X Ver.2.0 or later

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Print samples

All samples are simulated images. Samples were output on Photo Paper Pro from an i900D printer, then input using a scanner. Dedicated ICC profiles are used to ensure that image data recorded in Adobe RGB color space is reproduced correctly. Since Adobe RGB is a larger color gamut than CMYK or sRGB, the colors of the samples featured in this technology guide will differ from the actual samples provided.

Recommended output printers

To confirm that the dedicated ICC profiles give the desired results, we recommend printing the technology guide on Photo Paper Pro from an i860 or i900D printer.

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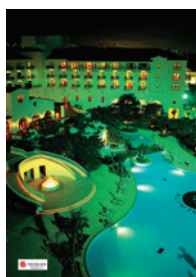
Inkjet Printer Products
Creative Communication
Dept. 1

Dedicated ICC profiles provided to allow accurate rendering of image data recorded in Adobe RGB color space.

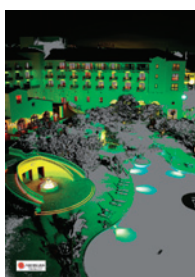
What is Adobe RGB color space?

The most widely used color space for digital camera image data is the sRGB color space. But in addition to sRGB, certain high-end cameras such as the EOS-1Ds/1D/10D are capable of recording image data in Adobe RGB color space, a color space commonly used for commercial printing applications. Adobe RGB color space provides a broader color gamut than sRGB, particularly for colors in the cyan to green region. The reproduction range of BJ printers is similarly extended beyond the sRGB range in the cyan to green region. In other words, Adobe RGB provides a better match of the color reproduction ranges between these digital cameras and BJ printers than sRGB.

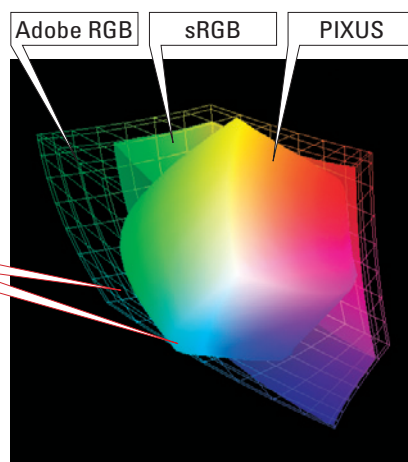
The Adobe RGB and BJ printer color space together extend the range of vivid color beyond the sRGB color space, particularly in the regions from cyan to green. The difference is especially noticeable for the greens of foliage and aqua tones of the sea.



Adobe RGB image

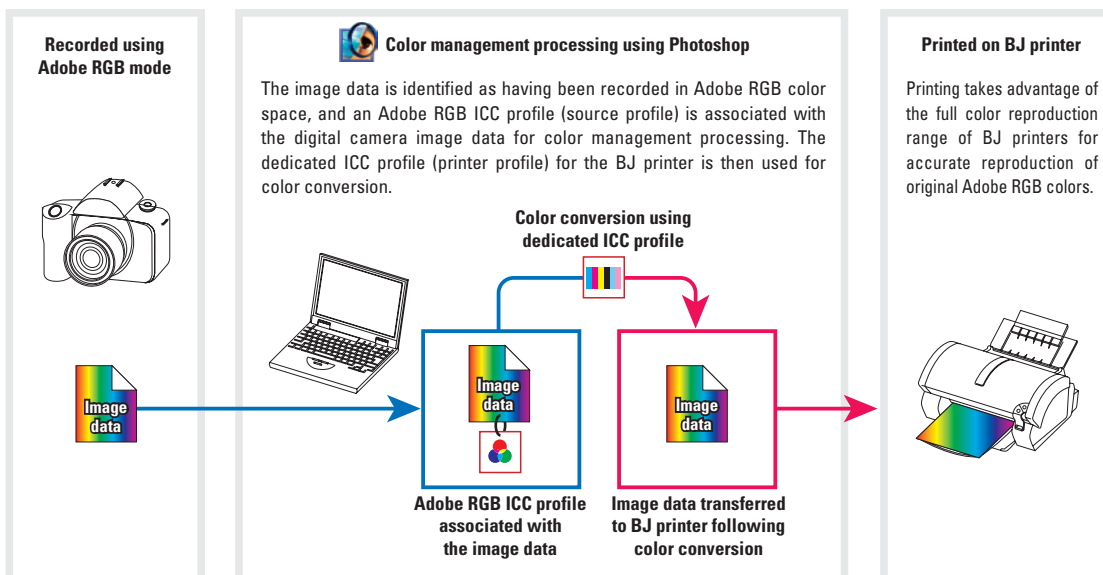


The shaded areas are color regions that cannot be reproduced in sRGB.



Dedicated ICC profiles allow images recorded with extended color gamut in Adobe RGB color space to be printed using the full color reproduction range of BJ printers.

Printing Adobe RGB images without the suitable adjustments would result in the substitution of color data outside the sRGB color range with sRGB colors, resulting in incorrect reproduction of colors on BJ printers, particularly for the colors in the gray region in the sample shown above. This is why dedicated ICC profiles are provided. These dedicated ICC profiles allow color reproduction information for image data to be transferred to the BJ printer with virtually no loss, allowing use of the full BJ printer color reproduction range.



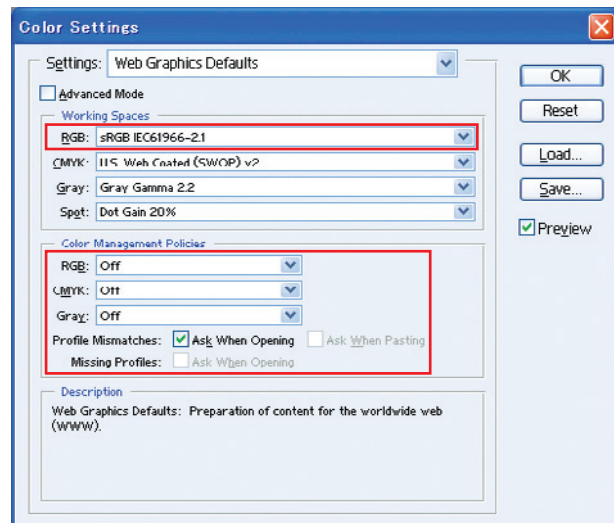
Printing with dedicated ICC profiles

Note 1:

The Canon digital camera was used for the examples and procedures described here. These settings are applicable to any Canon digital cameras using Adobe RGB color space. Procedures may differ slightly for digital cameras made by other manufacturers.

Note 2:

The examples described here apply for Photoshop 7.0 for Windows. The various setting screens may differ slightly for earlier or Mac versions of Photoshop. The color settings assumed are the default installation settings. While procedures may differ slightly if the settings have been customized by the user, the basic workflow will remain the same.



Color setting screen for Photoshop 7.0 as installed

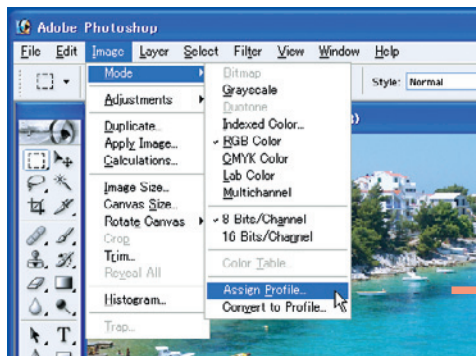
Printing Adobe RGB images with extended color gamut

Use the following settings to print Adobe RGB images with extended color gamut.

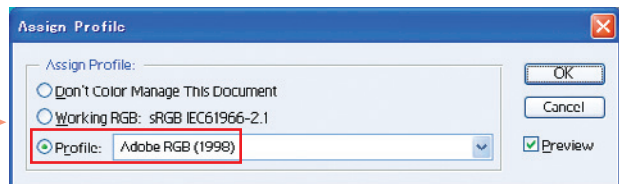
- 1 Open the image file recorded in Adobe RGB color space.

- 2 Associate the Adobe RGB ICC profile with the image.

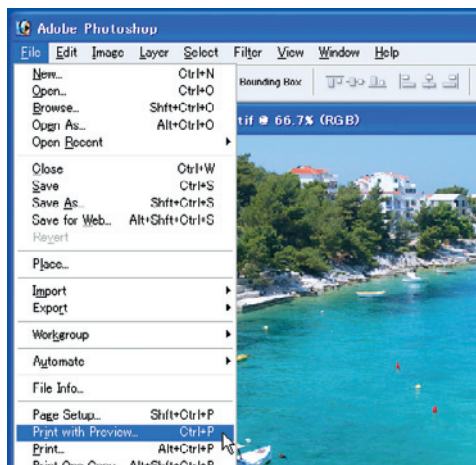
Check [Adobe RGB (1998)] in [Image] --> [Mode] --> [Assign Profile...], then click [OK].



Canon digital cameras do not embed Adobe RGB profile into images. Profiles must be assigned in Photoshop.



- 3 Set Color Management in Print with Preview.

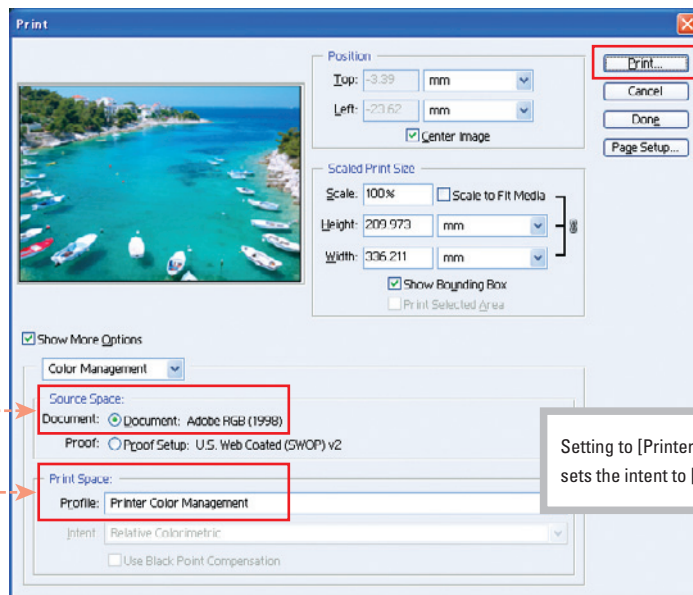


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3-1 Check that [Source Space] is set to [Adobe RGB (1998)].

3-2 Set [Print Space] to [Printer Color Management].

3-3 Click [Print...].



4 Set up the printer driver.

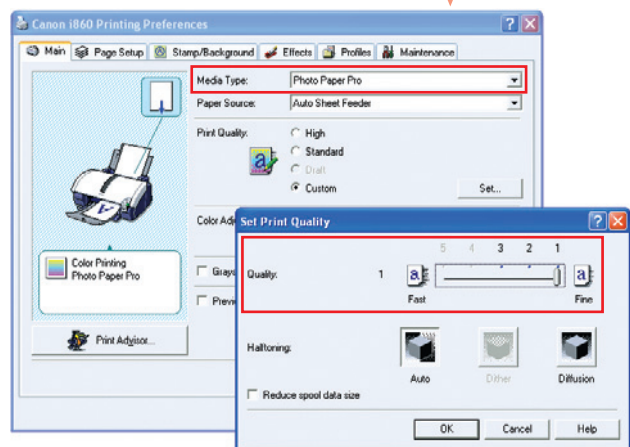
4-1 Set [Media Type] and [Print Quality].

Dedicated ICC profiles are provided for three different media types. For normal use, set [Media Type] to one of the following:

- Photo Paper Pro
- Photo Paper Plus Glossy
- Matte Photo Paper

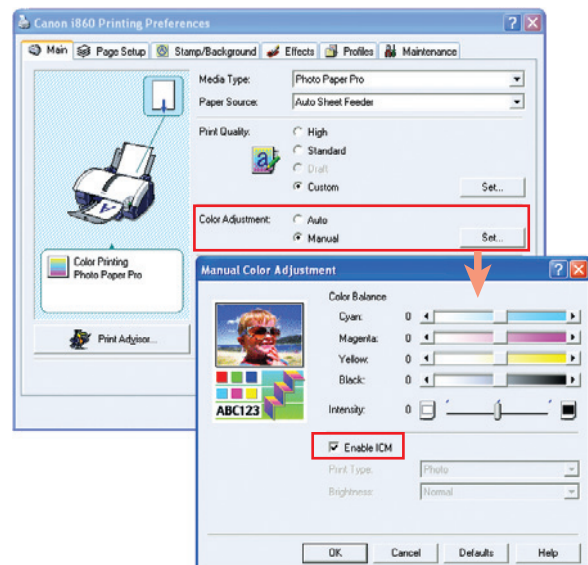
Set the desired [Print Quality].

* The procedures described here for entering settings also apply when using media types other than those listed here.



4-2 Select [Manual] in [Color Adjustment], then click [Set...]. Check [Enable ICM] in the [Manual Color Adjustment] window.

[Enable ICM] is not available in Windows 95. For Macintosh computers, select [ColorSync] in [Color Correction].



5 Print.

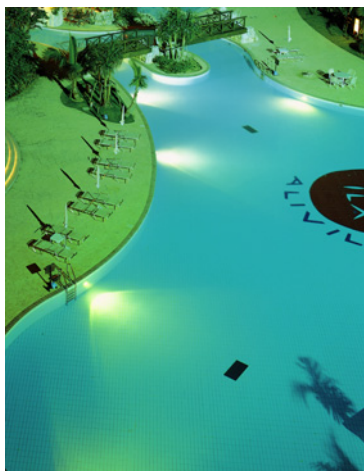
The image is printed with the print quality and on the media type set in [4-1].

Samples

These sample prints illustrate the differences between an Adobe RGB image printed using a dedicated ICC profile and an sRGB image. The color differences are particularly noticeable in the cyan to green regions, where the color spaces differ significantly.

* All samples are simulated images. The precise color differences of the sample images when viewed on a monitor will depend on the monitor and Acrobat or Illustrator color settings. The images on this page incorporate embedded sRGB or Adobe RGB profiles. For commercial printing tasks, carefully inspect sample output before proceeding.

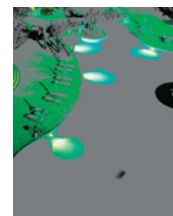
Data recorded using Adobe RGB mode



Data recorded using sRGB mode



The areas shaded gray indicate color regions that cannot be reproduced in sRGB.



The areas shaded gray indicate color regions that cannot be reproduced in sRGB.



The areas shaded gray indicate color regions that cannot be reproduced in sRGB.

Printing using intents to suit requirements

Photoshop includes four different intents. Using dedicated ICC profiles, modify the intents as follows for different print objectives:

1 Open an image recorded in Adobe RGB color space.

2 Associate the Adobe RGB ICC profile with the image.

Check [Adobe RGB (1998)] in [Image] --> [Mode] --> [Assign Profile...], then click [OK].

3 Set Color Management in Print with Preview.

3-1 Check that [Source Space] is set to [Adobe RGB (1998)].

3-2 Select [Profile] in [Print Space].

The following dedicated ICC profiles are available:

MP2

PR1

PR2

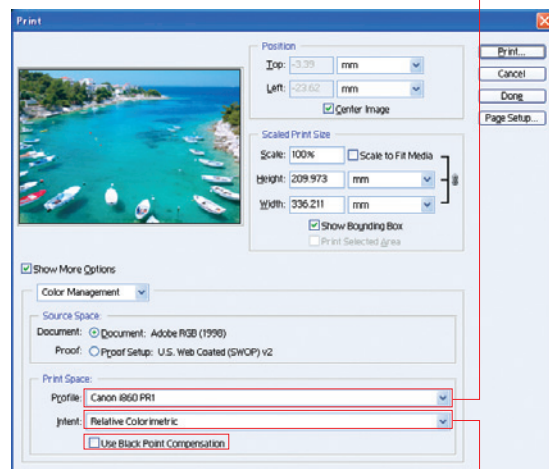
SP2

SP4

- The letters indicate media type.
 - MP = Matte Photo Paper
 - PR = Photo Paper Pro
 - SP = Photo Paper Plus Glossy
- The numbers indicate print quality.*

* If there is no ICC profile for a particular number available in the print quality bar, use a higher print quality number than the number currently selected. For example, SP3 is selectable in the print quality tool bar, but is not available in the ICC profile, so use SP2 instead.

Canon i860 MP2
 Canon i860 PR1
 Canon i860 PR2
 Canon i860 SP2
 Canon i860 SP4



3-3 Select [Intent] in [Print Space].

The following intents are available:

Perceptual

Saturation

Relative Colorimetric

Absolute Colorimetric

Perceptual

Suitable for photo images, giving attractive gradation reproduction. Matches colors to ensure that viewed colors are almost identical to original colors.

Saturation

Renders the vividness of the original data. Hue is not emphasized. Suitable for business documents.

Relative Colorimetric

Shifts colors based on the white point of the destination color space. Otherwise identical to Absolute Colorimetric.

Absolute Colorimetric

Emphasizes accurate retention of colors in both the original and converted color spaces.

Perceptual
 Saturation
 Relative Colorimetric
 Absolute Colorimetric

3-4 Uncheck [Use Black Point Compensation].

3-5 Click [Print..].

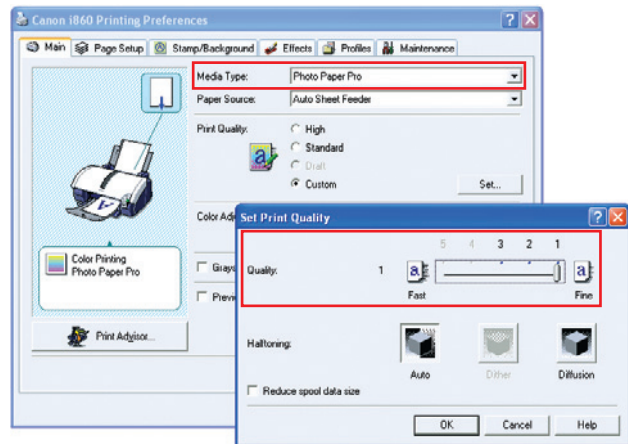
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4 Set up the printer driver

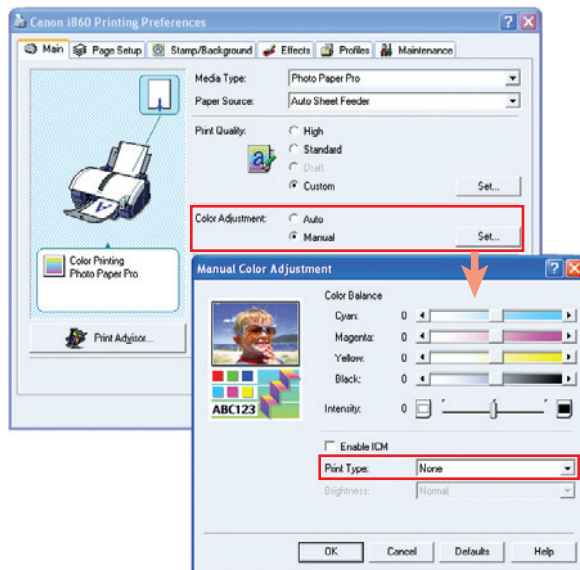
4-1 Set [Media Type] and [Print Quality].

Set the same dedicated ICC profile selected in [3-2].

In this example, [PR1] is selected for Photo Paper Pro and Print Quality 1.



4-2 Select [Manual] in [Color Adjustment] and click [Set]. Set [Print Type] to [None].



5 Print.

The image is printed using the dedicated ICC profile selected in [3-2] and the intent selected in [3-3].

Printing using original ICC profiles

When using original ICC profiles created by the user, make settings in the same way (except for the items below) as for "Printing using intents to suit requirements" on pages 5 to 6.

Setting differences

Page 5: [3-2] Profile selection

Select the original ICC profile.

Page 6: [4-1] Media type and print quality selection, [4-2] Intent

Set to the same conditions used when the ICC profile was created.