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# SetGoldPro User Manual

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*SetGoldPro User Manual*

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# Getting Started with SetGoldPro

To ensure the best possible colour reproduction from your printing devices you should produce colour calibration profiles for each paper type, output resolution and ink type combination that you use. SetGoldPro can help with this process by producing Input, Output, and Emulation profiles that are optimized for the Torrent RIP.

## 1.1 SetGoldPro profiles

The colour profiles created by SetGoldPro have a number of uses in the colour-managed workflow:

- To improve colour quality and accuracy of your printed output, especially when used with Torrent ColorPro, HighWater Designs' full featured colour solution for the Torrent RIP. For more information on ColorPro see the *Torrent ColorPro User's Guide*.
- To build Gray Balance reference profiles—also known as *golden state* profiles. These adjust the printer's raw state to a repeatable optimized gray-balance state. Once the printer is in this state you can use it to produce a print-colour characterization target.
- Gray Balance profiles improve colour output quality without the use of colour management in the Torrent RIP. Results are greatly improved when using a Gray Balance profile which, after the initial setup, is mainly used to compensate for the day-to-day variation of the output device. It is also possible for multiple users to calibrate their printers to match the reference, or Golden State. That is, Gray Balance profiles can be created for various printers.
- To build Input, Emulation and Output profiles for use in ColorPro. By using these various profile types you can build sophisticated workflows that handle various types of incoming data including RGB, CMYK, LAB, Named Colours and Gray.

### SetGoldPro and ICC profiles

The profiles created by SetGoldPro contain Gray Balance, calibration, and colour characterization data—but no CRDs, as these are only generated by the RIP on demand. SetGoldPro profiles are *not* ICC compliant. ICC profiles, on the other hand, contain measurement data and CRDs based on parameters set in the profiling package, but no Golden State (Gray Balance) or calibration data.

For optimum colour-accurate printing results, merge your ICC profiles with any Gray Balance profiles you create with SetGoldPro. For details, see page Section 5.3 on page 38.

## 1.2 System requirements

The following system components and items are required to run SetGoldPro:

- Mac OS X 10.2.6 (minimum) or Windows 2000/2003/XP.
- Torrent RIP (version 5.5 and later) with the appropriate printer plugin and colour management software installed and enabled.
- A printing device to calibrate, with the same paper and ink installed that subsequent print runs will use.
- A spectrophotometer capable of producing Lab and Status T measurements.

**Note:** All references to a GretagMacbeth device relate to either the Gretag or GretagMacbeth Sepctroscan spectrophotometer. In addition, all references to a hand-held device relate to the GretagMacbeth Eye-One models.

## 1.3 Installing SetGoldPro

SetGoldPro is supplied on the Pre-Press Solutions Volume 3 CD-ROM. To install SetGoldPro, copy the SetGoldPro program files into a folder on your system, as follows:

1. On your PC, create a folder called `SetGoldPro` that will be used to store the SetGoldPro program files. The folder may be located anywhere on your system, for example, `C:\SetGoldPro`.
2. Insert the Pre-Press Solutions Volume 3 CD-ROM and close the browser window that opens. Using Windows Explorer to view the contents of the CD, navigate to the following folder:

*Windows:* `<CD_Drive>:\Additional Tools\SetGoldPro v3.3\win_32-pentium`

*Mac OS X:* `<CD_Drive>:/Additional Tools/SetGoldPro v3.3/macOS_x-ppc`

3. From this folder, copy all files and folders to your SetGoldPro installation folder.
4. To facilitate starting SetGoldPro, create a shortcut for `setgold.exe` and place it on the Windows desktop.

## 1.4 Starting SetGoldPro

To start SetGoldPro, navigate to the SetGoldPro installation folder and double-click `setgold.exe` (Windows) or `setGold` (Mac OS X).

The first time you start SetGoldPro you will be prompted for a password to enable the program.



**Figure 1.1** The Password Entry dialog box

Entering an invalid password will put the application in *demonstration* mode, which allows you to run through the profiling procedures, but does not produce any output. Demonstration mode will also be automatically invoked if the RIP dongle is not present. You can also enter demo mode by selecting **Demonstration mode active** in the Options screen.

## 1.5 Preparing to make profiles

This section describes the recommended preparations for producing accurate and consistent SetGoldPro profiles. When making profiles, remember to leave sufficient time for the printed target sheets to dry *completely* before taking readings with your spectrophotometer.

### List of items you will need to create profiles

- A printing press or proofing printer to calibrate. When calibrating a press, ensure it is loaded with plates made with the screening and resolution of future pre-press work.
- A spectrophotometer which produces IT8 files.
- The Torrent RIP, installed with the correct printer plugin for your output device.
- SetGoldPro.

### Checking the print device

- Produce a test print with areas of solid colour, fine lines and patterns. Check that all colourants appear correctly and check that all jets (or the equivalent in non-inkjet devices) are delivering colourants evenly. Check for banding effects in areas of solid colour and correct, if necessary.
- Output aligns correctly. Produce a print alignment test page (refer to your printer manual for instructions on how to do this) and recalibrate, if needed.
- Print heads are clean and delivering ink freely. Run through the printer's cleaning cycle a few times if the ink appears not to be printing evenly.
- The correct paper and ink is being used to print the target sheets. To ensure correct results, you must use the same paper and ink type that future proofing work is intended to use.
- Printer has reached correct operating temperature.

### Checking the spectrophotometer

- Calibrate the spectrophotometer with the correct calibration plaque provided by the manufacturer.
- It has been shown that proofs viewed in a standard 5000K viewing box are more often visually accurate if a white backing is used during measurement of the colour characterization target for non-opaque substrates. This white backing should meet the description for opacity and whiteness found in the standards document CGATS.5—Graphic technology — Spectral measurement and colorimetric computation for graphic arts images.
- Sufficient time has been allowed for the ink to dry completely before measurements are taken. Accurate or consistent results cannot be obtained if the inks are still in the process of drying when measurements are taken.

## Selecting device configuration options

Before you can make any profiles with SetGoldPro, you must select the appropriate device configuration options for your current hardware setup, as follows:

1. Launch SetGoldPro and click **Options**  to open the window shown in Figure 1.2



**Figure 1.2** Device configuration options

The following device configuration options are now available to you:

**Device** From the list, select the type of reader you will be using to measure your target strips. Or choose None if you intend to import the data from an IT8 file.

**Port** Choose the port your reading device is attached to. SetGoldPro will attempt to communicate with the reader through this port, so make sure you select it correctly. If you have a GretagMacbeth Eye-One device choose `custom` from the port list. This will allow SetGoldPro to interface correctly with the GretagMacbeth supplied driver library.

### Import data from IT8 file for Gray Balance profile

If you intend to use IT8 files to add target data to SetGoldPro, select this check box. Selecting this option does not preclude you from using the attached reader as well. Both sets of data, from the reader and imported IT8 files, will be amalgamated to produce a single colour profile.

### **Install profiles in RIP**

When this is selected, SetGoldPro adds the Input and Emulation profiles to the RIP, whose path has been entered in the adjoining text box—for example:

`C:\Program Files\HighWater Designs\TORR7.2\HIGHWI.exe`

However, for this option to work correctly, you must ensure the RIP is not running, otherwise SetGoldPro may stop working and require a restart. This option does not apply to Output profiles. Instead, install Output profiles manually, as described in Section 5.2 on page 37.



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# Input Profiles

Input profiles capture colour characterization data from a controlled press run and build input transforms for analog proofing systems and other high resolution digital printing devices and are used by colour management software, such as Torrent ColorPro. This chapter describes how to create Input profiles with SetGoldPro, and how to use the profiles with Torrent ColorPro to obtain colour accurate results from your printing device.

## 2.1 Procedure for creating Input profiles

Input profiles are usually obtained from target sheets produced from a printing run that is representative of the type of printing that future proofs are intended to match. Typically, sample readings are obtained every five or so sheets, to obtain data that is representative of a complete job run.

Before starting, ensure your output device and spectrophotometer have been properly prepared, as described in Section Preparing to make profiles on page 6.

### Notes for calibrating a press or imagesetter

If you are calibrating a press or an imagesetter, plan and execute a job run that includes at *least* one of the targets supplied with SetGoldPro. The target files are installed in your SetGoldPro installation folder, as follows.

Patch target files:

```
\Data\Target_Files\754_patch.ps  
\Data\Target_Files\845_patch.ps  
\Data\Target_Files\928_patch.ps
```

Randomized target files:



```
\Data\754_patch_random.zip  
\Data\845_patch_random.zip
```

**Note:** The patch random zip files (when uncompressed) become `754_patch_random.eps` and `845_patch_random.eps`. These files can be placed into a page using a desktop publishing application and output through your normal workflow.

If you are using a press with ink keys we recommend that you use a random target, otherwise use any of the supplied targets.

After the press run, confirm that your process control aims were met in terms of CMYK ink densities, dot gain, plus any other metrics used for process control at your site. Then measure the targets with your GretagMacbeth reader and save the resulting IT8 data files.

## Creating an Input profile

1. Launch SetGoldPro, click the **Options**  button and ensure the settings are correct. See Section Selecting device configuration options on page 7 for more information.
2. If you have not previously created and selected a working folder you should do so before building profiles. When you create Emulation and Output profiles you are requested to select a working folder. If you have not already created an Emulation or Output profile, you must create a working folder somewhere on the computer. Now select either the **Create Emulation Profile** or **Create Output Profile** option and in the first setup screen, in the **Output Folder** option, select the working folder you have just created. Now select the **Home**  button. By doing this when the Input profile is made and the additional copy is generated for installs into other RIPS, the file is placed in a known location.
3. Click the **Create Input Profile** button on the home screen, which is shown in Figure 2.1.



**Figure 2.1** SetGoldPro home screen

4. At this point you should decide whether you will import IT8 files from a GretagMacbeth device or read the targets using a hand held reader.
5. If you are using a GretagMacbeth device, print one or more IT8 press targets (you may have already done this if you are calibrating a press or imagesetter. See “Notes for calibrating a press or imagesetter” on page 9 for details).

If you are using a hand held reader as specified in the **Device** field of Options screen, print the supplied strip targets (for example 754strip.ps).

6. Click **Next**  to continue.

7. Choose how you would like to measure your characterization targets. You have the option to either read one of the strip targets using the reader device specified in the **Device** field of the Options screen, or select **Import measurements from IT8 files** to import data from files created on another type of spectrophotometer that SetGoldPro is unable to read from directly, such as the GretagMacbeth Spectroscan.



**Figure 2.2** Choose a strip target reader

8. Click **Next** (▶) to read the IT8 files or scan the target with the specified reader. When reading IT8 files you are presented with a browse dialog to locate the file. When scanning a target you are presented with a number of screens to guide you through the process.
9. After reading all the patches on the target or importing the IT8 file, you can read other targets/IT8 files by clicking the **Iterate** (↺) button.



**Figure 2.3** Input target read successful screen

10. When SetGoldPro has read all the targets, click the **Gold** (▶) button to produce the final Input profile. Save the profile to disk with a name synonymous with its intended use. For example, a suitable name for a profile that calibrates GRACol solid ink densities on 24 pound gloss paper would be **GRACol SID (24 Gloss)**.  
**Note:** SetGoldPro automatically adds a **.ps** extension to the name.
11. If in the Options screen you chose the **Install profiles in RIP** option, the Input profile will be automatically installed into the selected RIP and a copy is placed into your selected working folder. If, however, you chose not to install the profiles into the RIP or you want to install the profiles in a pre-v6 SP3 RIP, use the following procedure.

## 2.2 Installing the Input profile in the RIP

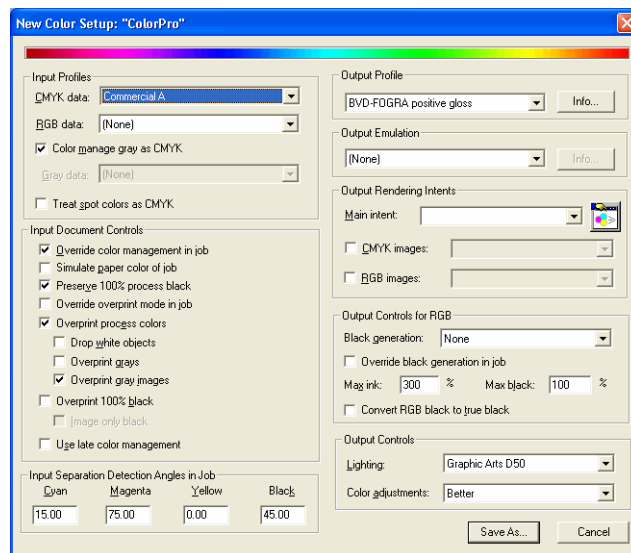
If you have chosen not to automatically install the Input profiles into the RIP or you want to install the profile in a pre-v6 SP3 RIP, you must run the Input profile through the RIP so it can be installed correctly and used in a colour management plugin:

1. Create a page setup in the Torrent RIP that uses the *Preview* device and has no colour management, calibration or page features selected.
2. Print the Input profile you created above using the new page setup. The profile is a PostScript language file. The profile will be Output to the [RIP folder]\SW\colorspaces\DeviceCMYK, with the same file name but minus the extension.

## 2.3 Using the Input profile in the RIP

You have now created an Input profile and installed it in the RIP so that it can be used with Torrent RIP colour management software, such as ColorPro. For details on how to do this use the following procedure:

1. Open the Colour Setup Manager in the RIP, and select the device for which you would like to create a colour setup. Click **New 'ColorPro' Setup** to open the window shown in Figure 2.4.



**Figure 2.4** The ColorPro Setup dialog

2. Select the profile you have just installed from the **CMYK data** list, and select the other options in the setup window to suit your colour management requirements.
3. To save the settings, click **Save as** and enter an appropriate name for your new colour setup.

The colour setup is now available for selection from the Color list in your RIP page setups when the correct device is selected.

---

# Emulation Profiles

SetGoldPro can be used to create Torrent RIP optimized Emulation profiles that are used to provide the best colour possible on a proofing device when dealing with RGB to CMYK rendering in circumstances where the intended press is known. Emulation profiles can also be used to repurpose CMYK data.

Note that in order for the RIP to have all the colour transforms available for file processing, you will need to make an Input profile with the same name as the new Emulation profile. It is not necessary to select this in a ColorPro setup, but it may be appropriate to select it for a mixed colour space digital pages.

## 3.1 The need for Emulation profiles

In today's digital environment the RGB image format is quickly replacing the traditional CMYK format. Many magazine and newspaper pages are created using a combination of copy, CMYK adverts, editorial graphics and RGB images, all on the same page. The only way to make a digital proof of such a page on a proofing device, and maintain colour accuracy, is to use an Emulation profile in the colour stream.

When an Emulation profile is used, the CMYK and RGB content are treated separately to produce a proof that accurately represents the press. This is done by selecting an Input profile, Emulation profile and an Output profile as follows:

- CMYK data follows this route: through the Input profile selected such as for web offset (fogra BVD, for example); via absolute colorimetric rendering for CMYK data, through the Emulation profile and then the Output profile that meets the parameters of the inkjet printer being used for proofing; namely ink, paper, resolution and screening.
- RGB data follows this route: through the RGB Input profile via perceptual rendering intent to the Emulation profile space (which should define the gamut of the press and is often the same space as the CMYK data from above); then through the Output profile selected above.

In essence, this process maps RGB images to the gamut of the intended press, via the Emulation profile using perceptual rendering to achieve the best colour for the pictorial image, within the intended press gamut. The CMYK data is then mapped colorimetrically to achieve the most accurate colour match throughout the process. Finally, once the CMYK and RGB data have all been mapped to the press gamut, the data is then all mapped colorimetrically to the proofing device allowing for a colour accurate proof for all page elements.

Note that this is just one example of Emulation. Other Emulation processes, such as CMYK to CMYK transforms, make it possible to print the same page on slightly different presses, or on more than one paper stock.

## 3.2 Creating an Emulation profile

Follow these procedures to create an Emulation profile. To get started, click **Create Emulation Profile** in SetGoldPro.

### Entering press conditions

To create a properly labeled profile, SetGoldPro needs to know your press conditions. In the dialog box (shown in Figure 3.1), enter details of your press setup and choose an output folder for the Emulation profile.

**SetGoldPRO**

**Overview**

SetGoldPro needs to know the printing conditions and an output folder to create a properly labeled profile.

Please enter details of your printer setup and select a folder, then click NEXT. If no NEXT button is displayed, ensure that your output folder differs from your SetGoldPro application folder.

Press:

Serial No.:

Media:

Resolution:

Screening:

Ink Set:

Comments:

Output Folder:

HOME NEXT

**Figure 3.1** Press conditions dialog



Complete the details in the fields as follows:

<b>Press</b>	Enter the press device you will enter IT8 data from, for example Heidelberg 2100 Web Press.
<b>Serial No</b>	Enter the device's serial number to ensure the correct profile is used with the appropriate printer.
<b>Media</b>	Enter the substrate used on the press.
<b>Resolution</b>	From the menu select the correct printing resolution for your setup. This field must be completed.
<b>Screening</b>	From the menu select the appropriate screening method for your setup. This field must be completed.
<b>Ink Set</b>	Enter the manufacturer's inks codes.

<b>Comments</b>	Enter any general press run data.
<b>Output Folder</b>	<p>Select an Output folder for the Emulation profile, but do not choose the SetGoldPro application folder. To keep your profiles separate, use a different folder for each profile that you create. This field must be completed.</p> <p>The Output Folder is where all the files to be printed are located as well as where folders for Input Profiles, Output Profiles and Emulation Profiles are created. It is a good idea to copy to this folder the IT8 files that you will later import.</p> <p>A file called <b>Data</b> is also located here. This file contains all the details you have entered for the profile you are making. If you change the working folder, this information is updated if there is already a <b>Data</b> file in the new working folder, otherwise it will create a new <b>Data</b> file.</p> <p>The current working folder is remembered from a previous session.</p>

**Restore defaults**

If you would like to restore the system defaults click the restore option .

Click **Next**  when you have entered all the details. If **Next**  is not displayed, ensure your Output folder is different from the SetGoldPro application folder.

**Printing and measuring IT8 Press targets**

To create an Emulation profile SetGoldPro needs to take measurements from one or more IT8 press targets. Suitable press targets have been installed in the SetGoldPro installation folder. These targets should be added to a test page that is going to be run on press and are found in the folders:

The patch target files are:

```
\Data\Target_Files\754_patch.ps
\Data\Target_Files\845_patch.ps
\Data\Target_Files\928_patch.ps
```

The randomized target files are:

```
\Data\754_patch_random.zip
\Data\845_patch_random.zip
```

At this point you should decide whether you will import IT8 files from a GretagMacbeth device or read the targets using a hand held reader.

If you are using a GretagMacbeth device, print one or more IT8 press targets (you may have already done this if you are calibrating a press or image setter. See “Notes for calibrating a press or imagesetter” on page 9).

If you are using a hand held reader as specified in the **Device** field of Options screen, print the supplied strip targets (for example **754strip.ps**).

Click **Next**  to continue.



Figure 3.2 Read an IT8 target

### Importing or reading the IT8 data files

The next step is to either import the IT8 data files or read the strip targets into SetGoldPro so the Emulation profile can be created.

1. Chose how you would like to measure your characterization targets. You have the option to either read one of the strip targets using the reader device specified in the **Device** field of the Options dialog, or **Import measurements from IT8 files** to import data from files created on another type of spectrophotometer that SetGoldPro is unable to read from directly, such as the GretagMacbeth Spectroscan.



Figure 3.3 Import the IT8 file into SetGoldPro

2. Click **Next**  to advance to the next procedure.



3. Click **Next** (▶) to read the IT8 files or scan the target with the specified reader. When reading IT8 files you are presented with a browse dialog to locate the file. When scanning a target you are presented with a number of dialogs to guide you through the process.
4. To import the IT8 files, click **Next** (▶) and in the dialog box select the target you want to import, and click **Import**. If you have more than one file to import, click **Back** (◀) and repeat this procedure. When you have finished, click **Next** (▶) and SetGoldPro will create the Emulation profile.
5. To read the targets, choose the target from the menu and click **Next** (▶). Print the target and then following the instructions in the dialogs, read each target using your selected device.
6. When the IT8 data is imported or the patches are read you have the option to either **Iterate** (↺) and repeat the process or click the **Gold** (▶▶) button to create the profile.

### Saving the Emulation profile

When the **Gold** (▶▶) button is selected the process is complete.

We recommend that you store the Emulation profile in the profile's working folder; then make a copy and store this in the Torrent RIP. To save the profile, click **Next** (▶) and enter a folder and file name (it is not necessary to specify a file name extension), and then click **Save** in the dialog box.

All operations are now complete and a Torrent RIP Emulation profile has been created.



Figure 3.4 Save the Emulation profile

If in the Options dialog you chose the **Install profiles in RIP** option, the Emulation profile will be automatically installed into the selected RIP. If, however, you chose not to install the profiles into the RIP or you want to install the profiles in a pre-v6 SP3 RIP, use the following procedure.

### Installing the Emulation profile in the Torrent RIP

If you have chosen not to automatically install profiles into the RIP or you want to install the profile in a pre-v6 SP3 RIP, it must be installed correctly before it can be used in a colour management plugin.

You will find your Emulation profile in your specified Output folder. Place a copy of the Emulation profile in the following location:

`[Torrent RIP folder]\SW\Config\Emulation\Profiles\CMYK\Emulation`

It should be noted that an Emulation profile will not work unless you have an Input profile with the same name and printed the resultant file in the RIP.

When an Emulation profile is created an Input profile is automatically created. You install this profile by running it through the RIP:

1. Create a page setup in the Torrent RIP that uses the *Preview* device and has no colour management, calibration or page features selected.
2. Print the Input profile using the new page setup. The profile is a PostScript language file.

The Input profile will be installed into the RIP.

---

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# Gray Balance Profiles

This chapter describes how to create Gray Balance profiles. The Gray Balance profile, also known as the *Golden State* profile, is a significant factor in determining the overall colour gamut of a printer.

In SetGoldPro, creating a Gray Balance profile is the first task when creating an Output profile.

## 4.1 Procedure for creating Gray Balance profiles

Before starting, ensure your output device and spectrophotometer have been properly prepared, as described in Section 1.5 on page 6.

1. Launch SetGoldPro, click the **Options**  button and ensure the settings are correct. See “Selecting device configuration options” on page 7 for more information.
2. Click the **Create Output profile** button. This opens the screen shown in Figure 4.1. This screen is where you enter information about the profile you are calibrating.

**Note:** You select the **Create Output profile** in SetGoldPro because creating the Gray Balance profile is part of the process of creating an Output profile.

Using the various fields and options, enter information about the printer, media, screening, ink set, and other details concerning the Input profile you are creating. The application will use this information while producing the profile, so it is important that you enter this information accurately.

Figure 4.1 Output profile details

Details for each field are as follows:

<b>Device</b>	The name of the Output device you are calibrating, for example, <b>Epson 5000</b> . This could be a printing press, imagesetter or ink jet printer.
<b>Serial No</b>	The serial number of the Output device.
<b>Media</b>	The media type being calibrated, for example <b>Glossy White Heavy</b> .
<b>Resolution</b>	The Output resolution being calibrated. This field must be completed.
<b>Screening</b>	Choose the screening type for which you are calibrating. This field must be completed.
<b>Backing Color</b>	Select the appropriate backing colour that is being used when the patch is measured. You have the choice of <b>Calibrate over black</b> or <b>Calibrate over white</b> . Backing colour refers to the backing used when measuring the golden state target, which in turn builds the calibration tables in the subsequent profile. The graphic arts industry generally recommends black for density measurements; however, white works just as well. The important thing is to enter in this field the backing colour which was used when building the calibration tables.

**Black generation**

Select the appropriate black generation option. When using ColorPro you can take the Black generation setting from either the ColorPro dialog or you can select a **From profile** option. The option chosen here defines the **From profile** setting.

**Ink Set**

Enter the manufacturer's inks codes that are being used in the printer.

**Comments**

Enter any additional comments you want to include with the profile.

**Output Folder**

You must choose a folder (called the *working* folder) for the Output from SetGoldPro. This folder must *not* be the same as the folder where the program files are located. This field must be completed.


The Output Folder is where all the files to be printed are located as well as where folders for the various profiles are created. It is a good idea to copy to this folder the IT8 files that you will later import.

A file called **Data** is also located here. This file contains all the details you have entered for the profile you are making. If you change the working folder, this information is updated if there is already a **Data** file in the new working folder, otherwise it will create a new **Data** file.

The current working folder is remembered from a previous session.

**Restore defaults**

If you would like to restore the system defaults click the restore option .

3. When you have filled in all the details for the profile, click **Next**  to proceed to the next step.

## 4.2 The Initialization process

SetGoldPro needs to record the printer state by either measuring an initial target or by importing an existing Gray Balance profile.


### Using an existing Gray Balance profile

This procedure assumes that the Gray Balance profile you intend to import meets the requirements. For example, a different colour characterization target has been printed using this Gray Balance profile and been measured and is ready for importing to build an additional profile.

**Note:** Using an existing Gray Balance profile may work for similar media from different vendors provided the inks, resolution, and screening remain constant. However, colour accuracy will, to some degree, be compromised.

Use this procedure to import an existing Gray Balance profile:

1. Click the **Select** button. This displays a dialog that allows you to select a Gray Balance profile.

2. When a valid Gray Balance profile is selected the screen will display Step 9 and a message indicating this will appear. Click **Next**  to continue.

The screen will display Step 10 to allow you to continue creating an Output profile. See Section 5.1 on page 34 for more information.

## Creating a Gray Balance profile

In the Initialization process (comprised of Steps 1–3), an initial target is printed and measured to determine the initial state of the printer. Ink limits. Tolerance levels are also entered here to prevent over-inking.



Figure 4.2 The Initialization process


## Step 1: Print the Initial target

An initial target must be printed and subsequently measured to determine the initial state of the printer.



Figure 4.3 The Print initial target screen

To print an initial target, do the following:

1. Print **CALIBRAT.PS** (available in your working folder) using a page setup that has Colour and Calibration set to **(None)**.
2. Trim the target to the lines marked on the paper, as shown in Figure 4.4.
3. Wait for the ink to dry. Depending on ink density and paper type, it can take as long as 30 minutes for the ink to dry completely.
4. Click **Next**  to advance to Stage 2.

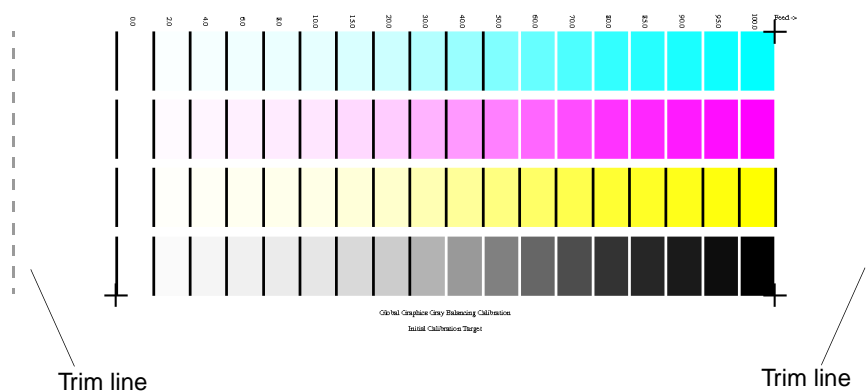


Figure 4.4 The Initial calibration target

## Step 2: Read the Initial target

In this step you read the Initial target. Depending on the options that you selected in the Options screen (see page 7), SetGoldPro will directly read the printed target, or will prompt you to supply an IT8 file.



Figure 4.5 The Read Initial target screen

To read the Initial target, do the following:

1. Wait until the ink is dry. Prepare the target for reading, and then click **Next** (▶).
2. SetGoldPro prompts you to read the target with instructions according to the method(s) you selected, as follows:
  - Using SetGoldPro: insert the target in the spectrophotometer so that 100% cyan is the first patch to be read. Click **Next** (▶) to read the patch. Then click **Next** (▶) to read the other patches in turn.
  - Using third-party software: measure the initial target and create a file called **CALIBRAT.IT8**. Put this file in your profile's working folder. Click **Next** (▶) in SetGoldPro and import **CALIBRAT.IT8**.
3. Click **Next** (▶) to save the initial profile setting, and advance to Stage 3.



### Step 3: Print the Chromaticity target

SetGoldPro can help you to evaluate the maximum ink limit for each colorant in print set up. In some setups ink limits are needed to prevent over-inking. For example, resin coated papers which do not absorb ink, need much less total ink. By setting maximum ink limits in the Input profile, over-inking can be curtailed or avoided completely.








Figure 4.6 The Ink Limits screen


SetGoldPro can automatically determine the maximum ink limits for cyan, magenta and yellow from chromaticity values measured in a target. Chromaticity is the aspect of colour that includes consideration of its dominant wavelength and purity. SetGoldPro can measure chromaticity and calculate the minimum amount of ink needed to achieve the maximum gamut for the inkset, paper, screening and resolution combination in use.

In some combinations, over-inking may still occur. However, reducing inking further reduces the gamut on the Output device, which in rare cases may reduce portions of the gamut inside the press gamut. This results in unprintable colours on the subsequent proof and, therefore, a potentially poor colour match for some colours. Through additional testing, you must decide whether a different paper or ink is required to meet the gamut requirements of the press condition you are proofing to.

### Using SetGoldPro to measure ink limits

To let SetGoldPro determine your printer's ink limits, do the following:

1. Print the file `chroma.ps` using a Torrent RIP page setup that has **Colour** and **Calibration** set to **(None)**.
2. In SetGoldPro, click **Next** .
3. Wait until the ink is dry then prepare the target for reading. Click **Next** .
4. Insert the cyan patch into the reader and click **Next**  to read it. Repeat for the magenta and yellow patches.
5. After reading the patches, click **Next** , or click **Back**  to re-read the previous patch. The printers inking limits are entered in the inking limits screen, shown in Figure 4.7.

6. After viewing the maximum ink limits, click **Next**  to advance to the iteration procedures.

### Manually entering ink limits

If you already know your ink limits you can enter them directly into SetGoldPro. Although most colour profiling packages include a Total Area Coverage (TAC) control, there are some cases where you may want to use the ink limiting functionality provided by SetGoldPro (refer to *Appendix A.1, "Introduction"* for more information on these cases).

To enter ink limit, do the following:

1. Click **Skip** to access the maximum ink limits screen, shown in Figure 4.7.



**Figure 4.7** The Inking Limits screen

2. Enter the maximum ink limits for cyan, magenta, yellow and black into the appropriate fields.
3. Enter values for tolerance and changeover into the **Tolerance** and **Changeover** fields. Tolerance determines the acceptable tolerance between an ideal grayscale and the measured values. A tolerance of 1.0 dE is just visible to most observers, while most measuring instruments show a variation of 0.2 or 0.3 dE when repeating a measurement of the same colour patch. (In general, the smaller the tolerance the more measurements you will need to make later in this procedure.) A higher tolerance setting (2.0 dE or more) may be required for some combinations of media, ink and printer. This tolerance setting is a guideline and you can choose, at a later stage, to create a Golden State profile that attains a larger or smaller tolerance. A value of about 1.00 dE is usually a good choice.

Changeover defines a percentage point on the Gray Balance target at which SetGoldPro will switch from producing as perfect a neutral colour as possible to progressively approaching the colour of the solid CMY overprint. A high value means the highlight and midtones remain neutral for longer. A lower value results in smoother midtones and shadow tones, at the expense of neutrality.

4. After entering details into the fields, click **Next**  to advance to Stage 4.

## 4.3 Refining the tonal range

In the Iteration process (comprised of Steps 4–6) in a series of repetitions, M & Y colourants are adjusted to achieve CMY gray-balance throughout the tonal scale. Eventually, defined tolerance levels are reached—or the profile cannot be improved further—at which point Gray-balancing is optimized.

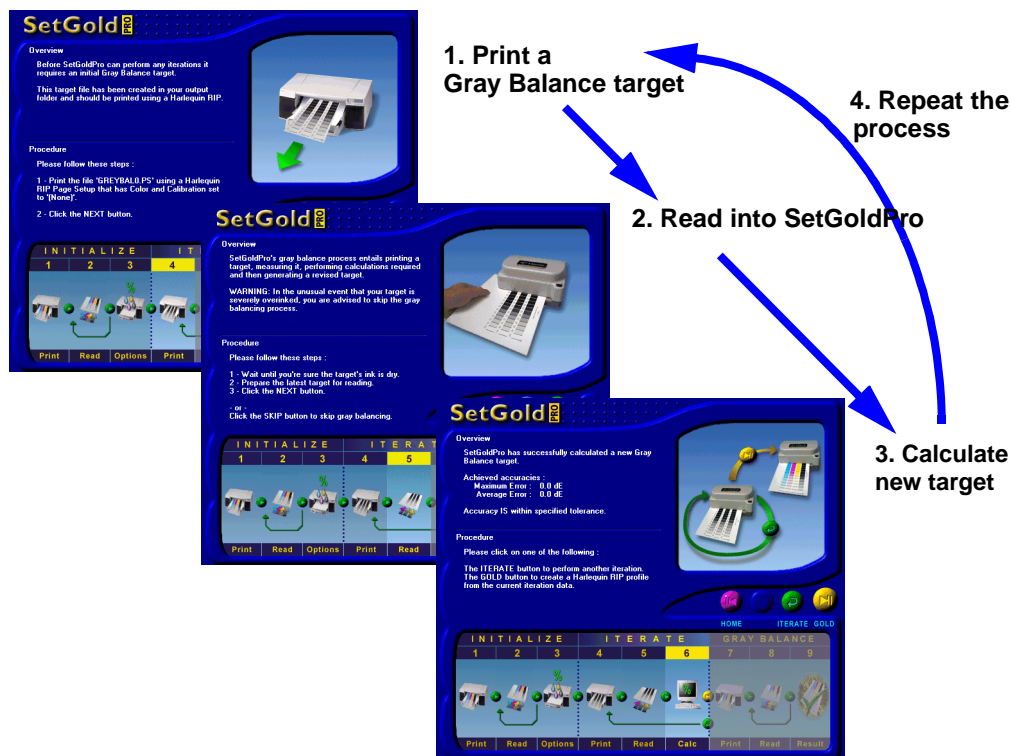


Figure 4.8 The Iteration process

In cases of severe over-inking, such as when the inks flows between patches on the target, there is little to be gained from Gray-balancing. In such cases, click the **Skip** button and proceed to Step 7 to create your Golden State profile. However, before doing this, we suggest that you investigate a lower resolution setting and/or different paper type, as a profile that has not been gray-balanced will severely limit the output quality that is produced by the printer.

### Step 4: Print the Gray Balance target

The Gray Balance target is used to determine the tonal range the printer is currently capable of delivering. Through a process of repeated measuring and refinement the accuracy and range of tones that the printer can produce will increase. At first, the target might contain a very limited

number of grays, consisting of magenta and yellow tones. However, as refinement of the profile progresses (through repeated iterations), the extent of the tonal range will improve, with coloured patches being replaced in the center ramp with Gray.



Figure 4.9 The Print Gray Balance target screen

To print a Gray Balance target, do the following:

1. Print the file **GREYBAL(x).PS** using a Torrent RIP page setup that has Colour and Calibration set to (None). Where (x) is the iteration number, starting at 0.
2. Click **Next** (▶) to advance to Step 5.



### Step 5: Read the Gray Balance target

In this step you read the Gray Balance target. Depending on the options that you selected in the Options screen (see page 7), SetGoldPro will directly read the printed target, or will prompt you to supply an IT8 file.



Figure 4.10 The Read Gray Balance target screen

To read the Gray Balance target, do the following:

1. Wait until the ink on the Gray Balance target is completely dry. Prepare the target for reading, and then click **Next** .
2. Follow the on-screen instructions to read the target and/or import the IT8 file into SetGoldPro.
3. Click **Next**  to advance to the next step.



### Step 6: Calculate a new target

After taking readings from the target, SetGoldPro calculates a new Gray Balance target and places it in the working folder. An accuracy report is also calculated and shown in SetGoldPro. Decide from the calculations if another print-read-calculate cycle is necessary, or if the accuracy is acceptable.



**Figure 4.11** The achieved accuracies screen

Based on the information in the achieved accuracies screen, decide how you want to proceed, as follows:

- If the achieved accuracies are within your acceptable tolerances, click **Gold**  to advance to the Gray Balancing process.
- If the achieved accuracies are not within your defined acceptable tolerances, click **Iterate**  and repeat the iteration process again, starting at Step 4.



## 4.4 The gray-balance process

In the gray-balance process (comprised of Steps 7–9), a Gray Balance Torrent RIP profile is created from a Golden State target.

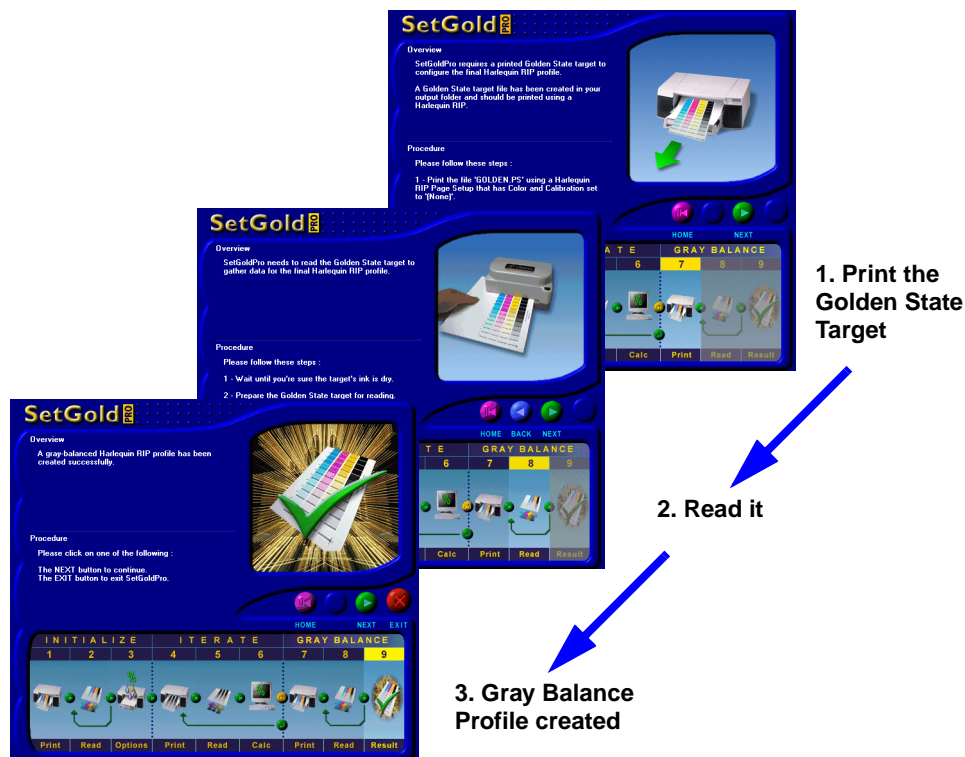


Figure 4.12 The gray-balance process


### Step 7: Print the Golden State target

The Golden State target represents the ideal inking for CMYK, gray-balance for CMY, while maintaining the full colour gamut of the device.



Figure 4.13 The Print the Golden State target screen

To print the Golden State target, do the following:

1. Print the file `GOLDEN.PS` using a Torrent RIP page setup that has **Colour** and **Calibration** set to **(None)**.
2. Click **Next**  to advance to the next step.




### Step 8: Read the Golden State target

To handle different density standards (Status T, Din) and measurement devices, SetGoldPro allows you to include up to four sets of measurements in your Golden State profile.



**Figure 4.14** The Read the Golden State target screen

To read the Golden State target, do the following (remember to make these measurements over the backing you declared during the set up):

1. Wait until the ink is completely dry before continuing. Prepare the target for reading, and then click **Next** .
2. Choose how you want to read the Golden State target, as follows:
  - **Read using selected device:** select if you have a spectrophotometer connected.
  - **Import measurements from a file:** select to import up to three IT8 files.
3. Click **Next**  and follow the on-screen instructions to read the target and/or import the IT8 files into SetGoldPro.
4. Click **Next**  to advance to the Result screen.

## Step 9: Using the Gray Balance (Golden State) profile

By this stage you will have created a Gray Balance (*Golden State*) profile that can be used to adjust the printer's raw state to an optimized gray-balance state when Outputting from the RIP.



Figure 4.15 Gray Balance profile created

To make the profile available to the RIP you must place it in your Torrent RIP *Profiles* folder, whose location is as follows:

```
RIP_folder\SW\devices\plugin\Profiles\device\
```

where:

- RIP\_folder** is the location of your Torrent RIP, for example:  
C:\Program Files\HighWater Designs\Torr7.2
- plugin** is the name of the plugin with which you want to apply the profile. For example **epson vsd**.
- device** is the name of the selected device/paper combination. For example:  
SP10000VSDSheet.

In the Torrent RIP 5.x and earlier versions, the profile can now be used immediately in your RIP page setups. In v6 and later version RIPs, you must create a new calibration set before the profile can be used, as described in Section 4.5.

You can now use the Gray Balance profile to produce a Torrent RIP Output profile. If you want to do this, click **Next** (▶) and advance to the Import process. Otherwise, click **Exit** (ⓧ) to quit SetGoldPro.

## 4.5 Using the Golden State/Gray Balance profile

After creating the Golden State/Gray Balance profile you copied it to the following location so it can be used in your Torrent RIP page setups:

```
RIP_folder\SW\devices\plugin\Profiles\device\
```



If you are using a v6 release RIP or later, you must also create a new calibration set to enable the new profile (this is not necessary with version 5.x RIPs).

To create a new calibration set in the v6 release RIP:

1. Open the Calibration Manager. Select the correct device then click **New**.
2. In the Name field enter the name of the profile (you can use the same name if you wish) and uncheck **Force Solid Colours**.
3. Select **OK** to close the dialogs.
4. You should now select this calibration set in a page setup in order to use it.

**Note:** You can also make this new calibration set while editing a page setup by pressing the Calibration Manager button in the Calibration & Dot Gain section as well as by using Output...Calibration Manager... on the main menu. (Deleting a Calibration Set can only be done by the latter method.)

# Output Profiles

## 5.1 Creating an Output profile

The Gray Balance profile you have created should now be used to create an Output profile, which in turn can be used in ColorPro to manage colour accuracy output in your printer.

In the Import process (comprised of Steps 10–12) colour characterization targets are printed using the Gray Balance profile and measured to create a Torrent RIP Output profile.

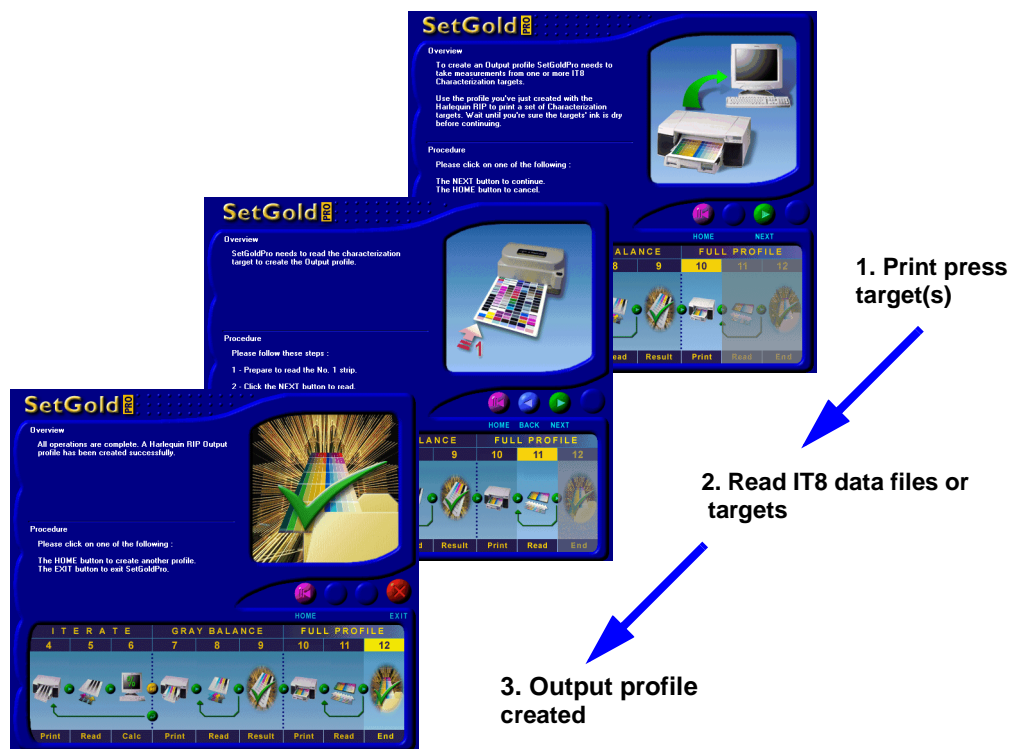


Figure 5.1 The Import process

## Step 10: Print Characterization targets


To create an Output profile SetGoldPro needs to take measurements from one or more colour characterization targets.



Figure 5.2 The Print press target screen


Once the Output profile has been added to the Torrent RIP plugin folder, a calibration setup has to be run so the SetGoldPro profile can be selected in the calibration pull down list.

1. Open the Torrent RIP Calibration Manager by clicking the **Output** menu and selecting the **Calibration Manager** command.
2. From the **Device** list, select your device and then click **New** to open the Edit Uncalibrated target dialog box.
3. From the **Profile** list, select the SetGoldPro Gray Balance profile that you have just added.
4. This step is important: whilst in the Calibration Manager dialog box for this calibration set, make sure the **Force solid colours** option is *not* selected.
5. In the **Name** field enter a meaningful name for the calibration set.
6. Click **OK** to save the settings and close the dialog box; then click **OK** to close the Calibration Manager and save your new profile.
7. Open the Page Setup Manager by clicking the **Torrent** menu and selecting the **Page Setup Manager** command.
8. From the list of page setups, select the page setup that you are using to print the targets and click **Copy** to create a copy of it.
9. From the **Calibration** list, select the calibration set you have just made.
10. Click **Save As** and enter a meaningful name for the new page setup; for example, **Epson96K-Gray-Gloss-720**.
11. Decide whether you are going to use a GretagMachbeth device to create IT8 files or read the target patches using a hand held device.

12. If you are using a GretagMacbeth device, print one or more of the colour characterization target that can be found in the targets' folder.
- If you are using a hand held reader as specified in the **Device** field of Options screen, print the supplied targets.
13. Click **Next**  until the following list appears:



**Figure 5.3** List of strip readers

14. Choose how you would like to measure your characterization targets. You have the option to either read one of the targets using the hand-held reader device specified in the **Device** field of the Options screen, or select **Import measurements from IT8 files** to import data from the GretagMacbeth Spectroscan.
- If you are using a GretagMacbeth device, measure the printed target using the **.csv** file with the same name in the targets folder with the GretagMacbeth SpectroScan and SpectroChart Lite software. See Step 11 below for reading the targets or importing the IT8 files.
15. Click **Next**  to advance to the next procedure.

### Step 11: Read the printer target(s)

At this point you are ready to read the targets or import the resulting IT8 data into SetGoldPro. The screen below appears when you choose to read the targets using a hand-held device.



**Figure 5.4** The Read the Press target(s) screen

To read the targets:

1. In SetGoldPro, click **Next** (▶) and follow the instructions for reading the target.
2. Continue to click **Next** (▶) until all the patches are read.
3. When the targets have been successfully read, click the **Gold** (⏸) button to create your Output profile.

To import the IT8 data into SetGoldPro:

1. In SetGoldPro, click **Next** (▶) and in the screen that opens navigate to the IT8 file that you want to import then click **Import**. If you have more than one IT8 file to import click **Back** (◀) and repeat this step.
2. Click **Next** (▶) to write the Output profile to your working folder.
3. When the target has been successfully imported click the **Gold** (⏸) button to create your Output profile.

## Step 12: Output profile created

You have now created an Output profile for your printer that you can use in the Torrent RIP.



Figure 5.5 The SetGoldPro completed screen

To create another profile click **Home** (◀) or click **Exit** (X) to quit SetGoldPro.

## 5.2 Using the Output profile in the RIP

After creating the Output profile it can be used in the RIP to calibrate your Output device, as follows:

1. Copy the Output profile you created from your profile working folder to the following location:

`RIP_folder\SW\devices\plugin\Profiles\device\`

2. To use the Output profile in the Torrent RIP copy it to the appropriate plugin folder and implement it in a Torrent RIP page setup.
3. This SetGoldPro Output profile is now ready for use in a ColorPro setup.
4. If you are using an v6 release Torrent RIP, or later, you must also create a new calibration set to enable the new profile (this is not necessary with version 5.x RIPs).

To create a new calibration set in a v6 Torrent RIP:

1. Open the Calibration Manager. Select the correct device then click **New**.
2. In the Name field enter the name of the profile (you can use the same name if you wish) and uncheck **Force Solid Colours**.

## 5.3 Creating an ICC profile

Before you create an ICC profile and import it into the RIP check that the TAC that you intend to implement in your profiling package is sufficient to limit the ink. The TAC that you should use may have changed because the SetGoldPro profile that you use to print has changed the response of the printer.

The exact procedure for creating an ICC profile varies between applications. However, the procedure described here is suitable for most applications:

1. Print the file `ProfileInkLimits.ps` which is located in the `misc` folder within SetGoldPro's application folder, using the page setup in which you have chosen your copied profile.
2. Inspect the Superblack patch on this target (C+M+Y+K) and choose the highest patch that produces acceptable Output. The TAC of this patch should be your new profiling package TAC, unless you discover the need for a lower TAC when examining the double overprints in the next step.
3. Examine the double overprints (C+M, C+Y, M+Y) on this target for signs of over-inking below the TAC that you intend to set in your profiling package.  
*For example, if your intended profiling package TAC is 160% and you see over-inking in the M+Y patch at 75% (a TAC of 150%), you need to change your intended profiling package TAC to 140%.*
4. If necessary, make a note of your new profiling package TAC.

**Note:** If you cannot reduce your profiling package TAC to this new limit, you need to create a new Golden State profile with lower ink limits. See Appendix A.5, "Method C" for details.

Once you have checked your intended profiling package TAC, print the colour profiling target using the page setup in which you have chosen the copied SetGoldPro profile.

If the colour profiling target is still subject to over-inking, you may be able to use the special page feature `CMYKInkLimit`.

**Note:** This page feature can only be used when printing targets that use the `setcmykcolor` PostScript language operator: it cannot be used when printing colour profiling targets that contain images. It limits the TAC of patches so that they do not exceed the TAC that you intend to use in your profiling system. This means that patches that would have been ignored by your profiling system are prevented from over-inking and ruining neighbouring patches.

If necessary, follow the steps below to edit your page setup so that it uses the **CMYKInkLimit** page feature:

1. Move the **CMYKInkLimit** file from the **misc** folder within the SetGoldPro application folder into the **Page Features** folder within the Torrent RIP application folder.
2. Open this file and edit the value for the key **/InkLimit** so that it matches your intended profiling package TAC.  
For example, if you intend to implement a TAC of 140%, change the value to **1.4**.
3. Open the Page Setup Manager and select the page setup that you wish to edit and click **Edit**.
4. Select the **Enable Feature** check box in the Processing section and choose **CMYKInkLimit** from the accompanying menu.
5. Click **OK** twice to close the dialog boxes.
6. Use this edited page setup to print a target that can be successfully measured.

Once you have generated the ICC profile using an appropriate TAC control, install it using the RIP menu option, **Colour > Install ICC Profile**. In the **Linear Calibration From** list in the Install ICC Profile dialog box, you must select the Golden State profile that you have created with SetGoldPro. All the important data from the Golden State profile is now associated with the installed ICC profile.

# 6

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## Troubleshooting

### 6.1 Error messages



The following is a list of possible error messages and symptoms that you may encounter when using SetGoldPro. Suggestions are also made for how you can overcome these errors.

You can inspect the `setGoldPro.log` file, created in the SetGoldPro application folder or your chosen Output folder, for details of error messages, such as those relayed from the reading device.

**Error Bad reading**

You should re-read the first patch again.

**Error the strip last read is not correct**

You have the choice to continue by either selecting **Next**  or selecting **Back**  to try again.

**Error the selected RIP does not support profile install**

You have selected a RIP which is not capable of supporting automatic profile install. You should reselect the RIP ensuring it is a Torrent RIP v6 SP3 release or later.

**Error creating setup data**

**Error writing setup data**

**Failed to save setup data**

SetGoldPro creates a `setup` file in the `data` sub-folder of your application folder. This file records your choice of reading device and Output folder. These messages appear if there is insufficient disk space to write to this file or if the disk or file is read-only. To prevent this error, ensure that enough disk space is available or change the disk and file properties.

**Error creating Print-State data file**

**Error writing Print-State data**

**Error saving Print-State data file**

SetGoldPro creates a `data` file in your chosen Output folder. This file records printer setup information as well as your print options, such as inking limits. These messages appear when there is insufficient disk space to write to this file or if the disk or file is read-only. To prevent this error, ensure that enough disk space is available or change the disk and file properties.



**Warning - Some default Print-State values used.**

This message occurs when default values are used in place of missing information for the **data** file in your Output folder. Inspect the file to see if the default values are applicable. If necessary, edit the values.

**Error creating file 'C:\...\...\ANYFILE.ps'.**

This message appears when the named file is read-only. To prevent this error change the properties of the file so that it is no longer read-only.

**Status T Read error 'Bad reading'.**

**Status T Read error 'LAB read error'.**

These messages occur if the reader is unable to correctly read the patch that it is measuring. To prevent this error, ensure that you feed the target into the reader at the correct angle. If necessary, re-align the target so that the middle of the patch that you are reading is in line with the alignment markings on your reader.

You may need to change the dividing lines on the target so that the reader can distinguish between neighboring patches. See Appendix B.3, "Editing the dividing lines on all targets" for details.

**Status T Read error 'Device needs calibrating'.**

This message occurs if your device needs re-calibrating. When re-calibrating, ensure that you use the correct calibration plaque for the reader.

**N point(s) corrected to make Output curve monotonic**



This message occurs if SetGoldPro has modified the curve to ensure that ink saturation values increase rather than decrease for increasing percentage levels. **n** is the number of points on the curve that SetGoldPro has modified.


**Invalid min/max points in adjustment curve**  
**End points of adjustment curve are invalid**

These messages appear when the curve for any of the channels is non-monotonic. If this message appears, SetGoldPro has been unable to correct the tone curve. This means that you will get an error if you try to use this profile in the Torrent RIP. In the rare event that you see this message, you will need to create another profile.

## 6.2 Symptoms

### *Difficulty in reading calibration patches*

- You may have trimmed the target too much. The dashed lines used as trim marks must remain on the patch. Try adding a backing piece of the same type of paper and re-read the patch, or print another target.
- You may have selected the wrong model of DTP41. When you click **Options**  it is important to select the exact model that you are using.
- You may have loaded the patch wrongly. Offer the patch up to the alignment mark on the spectrophotometer, inserting the target as far as it will go before you meet firm resistance. Then click **Next**  to start the reading.

- There may be insufficient contrast between the patches and the dividing lines. This is most likely to happen in the black patch of the Initial target, but is possible elsewhere. To cure the problem, you must edit the `defaults.lg` file to make the dividing lines turn from black to white. See Appendix B.3, “Editing the dividing lines on all targets” for details.
- Your reader may need re-calibrating if you repeatedly get read error messages. Ensure that you use the correct calibration plaque for the reader.
- SetGoldPro may not be able to communicate with the reader due to the re-configuration of the communications port by another application. Use the Task Manager to close SetGoldPro and then close the application that you suspect is causing the conflict. If necessary reboot your computer. You can then restart SetGoldPro and configure the communications port by clicking **Options** .

### ***Difficulty in achieving the required error tolerance***

- You may have specified too small a tolerance. Try a larger value. For example, you may not be able to achieve a tolerance of 1.0 dE for the combination of media, ink and printer that you are using.
- You may have read the same patch twice or you may have read the patches in the wrong order. If you think this is the case, try re-reading the patches.
- You may be allowing inadequate drying and stabilization time before measuring targets.

### ***Difficulty seeing the created profile in the RIP***

- A small number of names seem to cause the name to be unlisted in the **Profile** list in the Edit Calibration dialog box. You may also see problems with names similar to the plugin device, but differing only in the use of uppercase or lowercase letters.

If you see this problem, try renaming the profile to a dissimilar name then close and re-open the Edit Calibration dialog box. Please report any such problems to HighWater Designs.

### ***Edit Calibration reports a problem with the profile***

- This may happen when you exit the repeated printing and measuring of `greybalN.ps` files with a large error. The error may have led to invalid curves in the profile file, such as non-monotonic values.

Check that you intended to end the iterative measurements in SetGoldPro at the point that you did. It is possible to resume measurements from a previous session and it may be worth trying one iteration or more to reduce the reported error values.

# Appendix A

---

## Inking limits

### A.1 Introduction

This appendix contains details on why you may wish to set ink limits in SetGoldPro and some guidelines on how to decide on these limits. Before examining the individual cases where you may need to use SetGoldPro's ink limiting functionality, it may be helpful to consider the following questions and answers.

#### **Why are inking limits necessary?**

It is sometimes necessary to limit the TAC (Total Area Coverage) to prevent paper from becoming oversaturated. Oversaturated paper may tear and signifies wastage of ink. In some extreme cases the ink may run and ruin an image or patches on a target.

#### **Why not limit the TAC in your colour profiling package?**

Two main methods exist for creating a colour profile. One method uses an RGB colour profiling target as its starting point. The user then specifies the TAC as part of the conversion process from an RGB to a CMYK colour profiling target. If using a suitable TAC, this method should result in a target that does not overink. However, if your profiling package cannot provide a low enough TAC limit, you may need to use SetGoldPro to help limit inking.

The second and more common method of creating a colour profile uses a CMYK colour profiling target as its starting point. This colour profiling target may exhibit over-inking. In most cases, patches on an over-inked target that are above the specified TAC are ignored. However, severe over-inking may mean that it is not possible to measure some neighbouring acceptable patches of the colour profiling target.

#### **Why not limit the TAC in SetGoldPro?**

If you used just SetGoldPro to limit the TAC, you would prevent your colour profiling package from producing saturated colours. For example, if you wanted to implement a TAC of 240% in SetGoldPro, each colour component would be limited to approximately 60%. Your colour profiling package cannot then use 80% Cyan and 90% Yellow to produce a bright green, even though this would require only 170% ink coverage. Instead your colour profiling package must use the absolute limits set in SetGoldPro of 60% which would produce a much paler green.

Having considered the limitations of using just SetGoldPro or just your colour profiling package to limit inking, let us look at some methods for determining ink limits in SetGoldPro.

## A.2 Methods for determining SetGoldPro ink limits

The list below offers an overview of some possible methods for deciding on SetGoldPro ink limits. Choose the method that suits your needs and refer to the relevant section for further details.

- “Method A” on page 44

Use this method to ensure that the ink limits are not reduced below those of the eventual press, when using the printer as a proofing device.

This method involves setting the ink limits to just above those of the eventual press.

- “Method B” on page 45

Use this method if you have already created a profile for one resolution with suitable ink limits and you wish to create a matching profile for another resolution.

This method involves copying the maximum Status T value for each colour component from the first profile for use in the other profile.

- “Method C” on page 45

Use this method to facilitate any of the following needs:

- Establish what your profiling package TAC should be
- Limit inking beyond the ability of your profiling package

This method consists of two main stages.

1. The first stage involves following a procedure to establish a desired profiling package TAC.
2. If necessary, the second stage involves deciding on SetGoldPro ink limits to account for the difference between your desired profiling package TAC and the actual TAC control offered by your profiling package.

**Note:** You may still see over-inking when using a Golden State profile that includes ink limits to print a colour profiling target. In most cases this over-inking can be ignored, as ink is limited by the TAC control of your profiling package. In some severe cases the ink may run and prevent acceptable patches from being read.

Once you have determined suitable ink limits using one of these methods you can return to “Manually entering ink limits” on page 26.

## A.3 Method A

Use this method in a proofing situation where you know the solid ink densities for the printing system you wish to proof and where the primary objective is to ensure that the colour gamut of your proofing device is not reduced below that of your eventual press.

This method involves setting ink limits in SetGoldPro to values just above those of the eventual press.

For example, you could take the maximum Status T values for each colour component on a SWOP press and use slightly higher values in SetGoldPro. The amount by which you should increase the ink limits is a matter of experimentation and analysis.

**Table A.1** SWOP Press - CGATS Type 1

Colour	Cyan	Magenta	Yellow	Black
Status T	1.22-1.36	1.33-1.47	0.94-1.08	1.52-1.66

The table shows some Status T values for a SWOP press.

## A.4 Method B

If you have already created a Golden State profile for one resolution you can use the same inking limits when creating a matching profile for another resolution.

For a proofing environment this method ensures the colour gamuts will match for a given ink, paper and screening combination, regardless of resolution setting.

To access the Status T values used in the first profile, follow these steps:

1. Open the Calibration Manager using the **Output > Calibration Manager** menu option.
2. Choose the **Device** for which the profile was created and click **New**.
3. Choose the **Profile** that you wish to copy values from.
4. Choose **Status T (x Rite)** from the **Measurements as** menu.
5. Choose **Cyan** from the **Channel** menu and note the Status T value within the **C100** field.
6. Repeat step 5 for the other channels.
7. Use these values in SetGoldPro.

## A.5 Method C

This method can be used in two instances and involves following various stages of a procedure.

- Stage 1      Complete stage 1 to establish what your profiling package TAC should be. This stage involves printing a file that shows Output for different levels of Cyan (C), Magenta (M), Yellow (Y), Black (K) and Superblack (C+M+Y+K). You decide on acceptable maximum ink limits for each of these patches and calculate your desired profiling package TAC on the basis of these limits.
- Stage 1 includes steps 1-4 of the procedure.

**Stage 2** Continue to stage 2 if your desired profiling package TAC is below the level of control offered by your colour profiling package.

This stage involves following guidelines to decide on SetGoldPro ink limits that account for the difference between your desired and actual profiling package TAC.

Stage 2 includes steps 5-8 of the procedure.

**Note:** As discussed in the introduction, unnecessarily low ink limits in SetGoldPro prevent a colour profiling package from producing saturated colours. Where possible, limit inking using your profiling package rather than SetGoldPro.

Follow steps 1-4 of the procedure to establish your desired profiling package TAC. Complete the whole procedure if your desired profiling package TAC is below the level of control offered by your colour profiling package.

1. Print the file `setGoldLimits.ps` located in the `misc` folder within the SetGoldPro application folder, using a page setup in the RIP where **Colour** and **Calibration** are set to **(None)**.

*The target contains patches for Cyan (C), Magenta (M), Yellow (Y), Black (K) and Superblack (C+M+Y+K). The percentage levels for the patches of the C, M, Y and K patches are indicated by the numbers to the left of the Cyan patch. Numbers to the right of the Superblack patch indicate the TAC levels for the Superblack patches.*

2. Inspect the C, M, Y and K patches and record acceptable ink limits for each patch.  
*You should select the highest ink limits possible and use the printing of reversed text at a specific point size as a means of determining acceptable Output.*
3. Inspect the Superblack patch and choose the highest patch that produces acceptable Output. Note the TAC of this patch. This is your aim TAC.
4. If the C, M, Y and K inking limits that you chose in step 2 are all 100% then the aim TAC that you decided on in step 3 is equal to your desired profiling package TAC. Otherwise, determine your desired profiling package TAC using the formula:

$$\text{Desired Profiling Package TAC} = \left( \frac{\text{Aim TAC}}{\text{Sum of C, M, Y, K Limits}} \right) \times 400$$

**Figure A.1** Desired profiling package TAC formula

*For example, if the sum of the C, M, Y, and K inking limits is 370% and your aim TAC is 160% then your desired profiling package TAC is approximately 170% ((160/370) x 400 = 173%).*

5. If your profiling package offers your desired TAC there is no need to set ink limits in SetGoldPro. Otherwise, calculate the difference between your desired profiling package TAC and the actual TAC control offered by your profiling package. In total, you need to reduce the C, M, Y and K inking limits by this amount.

*For example, if your desired profiling package TAC is 170% and your profiling package only offers a TAC control of 220%, then the difference is 50%.*

**Note:** If your desired profiling package TAC is close to the lowest TAC offered by your profiling package, then you should limit inking in SetGoldPro. This means that you can further limit your profiling package TAC, if necessary, at a later stage. The amount by which you should limit inking is a matter of judgement.

6. Try to account for this difference, for example 50%, by reducing the inking limit that you decided on for Black (K) in step 2.

*Often, a range of similar patches can be seen in the Black patch. You can account for some if not all of this difference by choosing the lowest patch in the range. However, you should not limit any colorant more than necessary. For example, if the difference is only 10% do not limit Black by more than a further 10%.*

7. If necessary, account for the remaining difference by reducing the C, M, Y inking limits that you chose in step 2.

*You can either reduce these colorants equally or account for the remaining difference by choosing new CMY levels that attain a gray-balance. For example, if the difference you calculated in step 5 is 50% and you reduce the Black inking limit by a further 20% in step 6 then you can account for the remaining 30% difference by reducing each of the other colorants by 10%.*

8. Record the revised ink limits that you decided on in steps 6 and 7.

Once you have determined suitable ink limits using this method, you can return to “Manually entering ink limits” on page 26.

# Appendix B

---

## Editing default values for targets

### B.1 Introduction

This appendix describes how to edit some default values used for generating targets in SetGoldPro. The default values that you can edit are mainly associated with Gray Balance targets, although you can edit the colour of dividing lines on all targets.

The default values used for generating targets are defined in a PostScript dictionary in the `defaults.1g` file, located in the `data` folder within your SetGoldPro application folder. Values within this dictionary are expressed as key-value pairs, which include a key that begins with a forward slash, such as `/IterationPrefix` and a value such as `Greybal`.

**Note:** If you edit the `defaults.1g` file and wish to return to the default values, delete the `defaults.1g` file and restart SetGoldPro. SetGoldPro will create a new `defaults.1g` file with default values if no existing file is found.

### B.2 Editing the Gray Balance target

There are two main aspects of the Gray Balance target that you may edit:

- |                    |  |
|--------------------|--|
| <b>Percentages</b> | You can change the percentage values of the patches for all the strips. See Section B.2.1 on page 48 for details.                                |
| <b>Filenames</b>   | You can change the format of file names for both the Gray Balance target file and the IT8 import file. See Section B.2.2 on page 50 for details. |

Refer to the individual sections for details on how and why to edit specific defaults.

#### B.2.1 Percentage values

You can change the percentage values of the patches for the *No Change* strip, as well as the percentage values that are used in the *Magenta Change* and *Yellow Change* strips when creating the first Gray Balance target. Also, you can specify the percentages to use on the chromaticity target.

##### *No Change strip*

The percentage values used for the patches of the No Change strip on the Gray Balance target are defined in an array with the key `/Percentage`.

```
/Percentage [ 100.0 95.0 90.0 85.0 80.0 70.0 60.0 50.0 40.0 30.0  
20.0 15.0 10.0 8.0 6.0 4.0 2.0 0.0 ]
```



The default values range from 100-0%, with 5% and 10% increments. You can choose other values, but there must be 18 patches and the percentage values must range from 100.0 to 0.0.

**Note:** The percentage values reflect a percentage of the maximum amount of Cyan, Magenta and Yellow that you allow (see “Manually entering ink limits” on page 26). The maximum limits for CMY are indicated on the bottom right of the target. For example, if you set an inking limit of 40% for C, M and Y the target would read **Max CMY (40, 40, 40)**.

Do not change the maximum percentage value 100.0 to a lower value. SetGoldPro already provides a mechanism for limiting inking, as described in “Manually entering ink limits” on page 26.

You may wish to change other values to place more patches in the highlights, midtones or shadow tones sections of the strip.

### ***Magenta Change / Yellow Change strip***

You can change the amount by which the percentage values for the Magenta Change and Yellow Change strips differ from those for the No Change strip during the first iteration. The amount by which the percentage values differ for the first iteration is known as the *range*.

The default values for the Magenta Change strip are:

```
/M_Range [ 0.0 -14.0 -10.0 -12.0 -14.0 -18.0 12.0 12.0 12.0 10.0
6.0 6.0 4.0 0.0 ]
```

The default values for the Yellow Change strip are:

```
/Y_Range [ 0.0 -12.0 -16.0 -18.0 -16.0 -16.0 12.0 12.0 8.0 8.0
4.0 4.0 4.0 0.0 ]
```

The arrays of values for the Magenta Change and Yellow Change strips directly correspond to the array of values for the No Change strip. In this case the range for both strips at 100% is 0.0. The range for the Magenta Change strip at 95% is -14.0 which produces a value of 81% for Magenta. Similarly, the range for the Yellow Change strip at 95% is -12.0 which produces a value of 83% for Yellow.

You can edit these values in order to optimize SetGoldPro and reduce the number of iterations that you need to perform to make a Golden State profile. For example, you can experiment with these values and analyze the number of iterations that are necessary for varying ranges.

If you change the percentage values for the patches of the No Change strip, you may wish to change the range for these strips. Determining suitable ranges for particular percentage levels is a matter of experimentation.

### ***Chromaticity values***

Default percentages that are used in the Chromaticity stage. Values do NOT typically range from 0%, and there should be 18 in total.

```
/ChromaticityPercentage [ 100.0 97.5 95.0 92.5 90.0 87.5 85.0 82.5
80.0 77.5 75.0 72.5 70.0 67.5 65.0 62.5 60.0 57.5 ]
```

## B.2.2 File names

You can change the file name prefix of the Gray Balance target from its default value of *Greybal*. You can also change the format of the file name of the IT8 file that is searched for when importing data.

### B.2.2.1 Gray Balance target file name

You can change the file name prefix used to create the file name of the Gray Balance target file. The default value is:

```
/IterationPrefix Greybal
```

SetGoldPro appends the number of the iteration as well as the file extension *.ps* to this file name prefix to create the file name of the Gray Balance target file. For example, using the default settings, SetGoldPro produces the file *Greyba10.ps* the first time it generates a Gray Balance target. Successive iterations are then numbered accordingly, for example *Greyba11.ps* for the first iteration and so on.

You can edit the file name prefix to contain any text:

```
/IterationPrefix AnyPrefix
```

**Note:** SetGoldPro displays the file name in uppercase when it prompts you to print the Gray Balance target file. The file generated in your Output folder uses the same case as the file prefix that you specify.

### B.2.2.2 IT8 import file name

You can change the format of the file name of the IT8 file that is searched for when importing data. You can change the file name prefix of the IT8 file from its default value of:

```
/ImportPrefix Greybal
```

SetGoldPro expects the file name of the IT8 file to consist of the file prefix and the file extension *.it8*.

You can also choose whether the file name should use the same numbering convention as that used for the file names of Gray Balance target files. This choice is indicated by the value of **TRUE** or **FALSE** for the key */ImportAppendNum*. The default value is:

```
/ImportAppendNum TRUE
```

When this value is **TRUE** you must include the number of the iteration for which the measurements apply in the file name of the IT8 file. For example, if the IT8 file contained data from measuring the target *Greyba11.ps* then you should save the file as *Greyba11.it8*.

If the value is **FALSE**, you can use the same file name each time you save IT8 files, for example *Greybal.it8*.

**Note:** When you import data from an IT8 file this data is stored in the corresponding Gray Balance target file. This means that you can use a single file name for IT8 files and overwrite previously imported IT8 files, whilst still keeping track of iteration data.

## B.3 Editing the dividing lines on all targets

On all targets, black or white lines separate the patches. The lines must have enough contrast for the reading device to detect the patch boundaries. You can change the point at which the dividing lines on a strip change from black to white for all of the targets used in SetGoldPro. Two main types of target are used in SetGoldPro:

### **Golden State/Initial targets**

Contain four strips Cyan (C), Magenta (M), Yellow (Y) and Black (K).

### **Gray Balance targets**

Contain three strips Magenta Change (M), No Change (N) and Yellow Change (Y).

### B.3.1 Initial target and Golden State target

For the Initial target and the Golden State target the default values are:

```
/BlackStripsCMYK [ 8 8 15 6 ]
```

The values in the array correspond to the CMYK strips and specify how many black dividing lines should appear in each strip, counting upwards from the dividing line below the lowest percentage patch. There are a total of 15 dividing lines in each strip. The default values specify that all of the dividing lines in the Yellow strip (Y) are black, whereas only the first 6 dividing lines in the black strip are black.

You may need to modify the changeover point from black to white strips for targets that display relatively dark colours in the highlights section of the strip. For example, your reading device may not be able to use the dividing line to distinguish between neighbouring patches. If this is the case reduce the number of black dividing lines.

### B.3.2 Gray Balance targets

For the Gray Balance targets the default values are:

```
/BlackStripsMNY [5 5 5]
```

The default values specify that the first 5 dividing lines on all of the strips are black. The dividing lines are counted from below the lowest percentage patch (as for the Initial target). This should restrict the black dividing lines to the highlights section of the target. However, if the target is relatively dark in the highlights section, you can use white dividing lines to distinguish between neighbouring patches by reducing the numbers in this array.

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