



# Calibrator

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# Contents

Calibrator .....	5
Using the spectrophotometer to measure patches .....	6
Calibrate the spectrophotometer .....	6
Measure the calibration page .....	6
Density-based calibration workflow .....	8
Select a task .....	8
Create calibration for the server .....	8
G7 calibration workflow .....	9
Print a calibration page .....	10
Create a color output profile for a calibration setting .....	11
View measurement results .....	11
Print a test page .....	12
Calibrator test page .....	13
Export measurement data .....	13
Reset measurement data .....	13
Reset measurement data for color printers .....	13
Calibrator preferences .....	14
Calibration status (expiration) .....	14
Set calibration time limit and job suspension .....	15
Calibration settings .....	15
View measurement data of a calibration setting .....	15
Edit the calibration target .....	16
Recalibrate .....	16
Update calibration for the server .....	17
Print a calibration page for measurement .....	17
View calibration results .....	17
Calibration Manager .....	18
Edit calibration setting .....	18
View measurement results .....	19
L*a*b*-based calibration workflow .....	20
Select a task .....	20

Set Calibrator preferences .....	21
Create calibration for the server .....	21
Obtain measurement for ink limit per channel .....	22
Obtain measurement for linearization .....	23
Obtain measurement for total ink limit .....	24
Obtain measurement for G7 gray balance .....	25
Obtain measurement for color benchmark .....	27
Set color benchmark .....	27
Set an output profile .....	28
Recalibrate .....	28
Update calibration for the server .....	28
Obtain measurement for linearization .....	29
Obtain measurement for verifying calibration .....	30
Verify calibration .....	30
Calibration is ready to be applied .....	30
Calibration Manager .....	30
Edit calibration setting .....	31
View measurements .....	32

# Calibrator

Fiery-driven presses and printers come in different flavors: laser or inkjet; monochrome or CMYK or extended gamut, with or without specialty inks. Calibrator is designed to address the different calibration needs of each technology.

Command WorkStation and Fiery Color Profiler Suite will automatically launch the Calibrator version best suited to your system. Calibrator will self-configure to adapt to the connected Fiery server. Not every press requires every feature. For example, most laser printers do not need to limit the amount of toner for individual colorants, while inkjet presses do, because ink absorption by various substrates typically varies much more with inks than with toners.

Most Fiery-driven monochrome and CMYK presses are calibrated using density measurements. CMYK+ are typically calibrated using L\*a\*b\* measurements.

With Calibrator, you can create a new calibration setting on a Fiery server or update an existing one.

Like Calibrator in Command WorkStation, Calibrator in Fiery Color Profiler Suite can create a new calibration setting and recalibrate an existing one, but with support for a variety of measurement instruments not available in Command WorkStation.

The two main functions of Calibrator are:

- **Recalibrate** - updates a calibration with fresh measurements. The output of many presses will vary over time. For the Fiery server to compensate for such fluctuations, its correction tables need to be updated with fresh measurements.
- **Create calibration** - creates a new calibration, and if Fiery Color Profiler Suite is installed and licensed, a new profile. This task is needed when none of the existing calibration delivers acceptable output for a specific printing condition (combination of ink set, halftone, substrate, etc.). Examples are poor gradations or bad ink adherence. A new calibration will most frequently require a new profile, for color management to deliver accurate color.

Two administrative functions are accessible from two icons at the bottom left of the window. These settings are specific to and saved in each individual Fiery server. Because they affect every user, these functions are available only when logged as a Fiery administrator from Command WorkStation:

- **Calibrator Settings** - is used to set preferences for individual presses. This is where you can set pre- and post-calibration settings available with some press models. All models also offer to warn or even prevent jobs from printing when their applicable calibrations have not been recalibrated within a time frame the administrator specified.
- **Calibration Manager** - is used to view calibrations available in a Fiery server, see when they were last updated, their measurements and properties. User-added calibrations can be deleted, and their names modified.

Calibrator for the connected Fiery server is available for the following workflows. With conventional CMYK products and calibration sets, Calibrator 3 will automatically select the Density-based calibration workflow. Calibrator 3 will follow the L\*a\*b\*-based calibration workflow whenever imposed by an expanded ink set.

- [Density-based calibration workflow](#) on page 8
- [L\\*a\\*b\\*-based calibration workflow](#) on page 20

# Using the spectrophotometer to measure patches

You use the spectrophotometer to manually measure color patches.

Using the spectrophotometer consists of these tasks:

- Calibrate the spectrophotometer.
- Measure the calibration page using the spectrophotometer.
- View and save the measurements.

Fiery Calibrator typically offer standard support of EFI-branded measurement instruments, such as:

- EFI ES-2000
- EFI ES-3000

Other types of measurement instruments may be supported by the printer connected to the Fiery server.

## Calibrate the spectrophotometer

Calibrate the spectrophotometer to prepare it for measuring the calibration page.

Make sure that both the white tile on the cradle and the instrument aperture are clean. If the white tile has a cover, make sure that the cover is open.

White point calibration is used to compensate for gradual drifts in the spectrophotometer. The spectrophotometer must be placed in its cradle, and the sample aperture must be in full contact with the white tile on the cradle. If you do not place it correctly in the cradle, the spectrophotometer does not return accurate measurements.

The serial numbers of the spectrophotometer and the cradle must match for accurate calibration.

- 1** After printing the calibration page, place the spectrophotometer in its cradle.
- 2** Click Continue or press the button on the spectrophotometer.

If the calibration is successful, you can proceed to measure the calibration page.

## Measure the calibration page

You use the spectrophotometer to measure color patches by scanning each strip of patches in order.

When a strip is scanned successfully, the display indicator is green, and the arrow in the display moves to the next strip. If the strip is not scanned successfully, the display indicator is red, and a message directs you to try again.

- 1** For more accurate measurement, place several sheets of plain white paper beneath the calibration page or use a backup board if it is available.
- 2** Orient the calibration page so that strips are horizontal and the scan direction (indicated by the arrow at the beginning of the strip shown in the display or on the calibration page) is left to right.
- 3** Hold the spectrophotometer with its length perpendicular to the scan direction, and place the tip of the sample aperture on the white space at the start of the specified strip.
- 4** Press and hold the spectrophotometer button and wait for a signal (an indication on the display or a sound).
- 5** After you see or hear the signal, slide the spectrophotometer at a slow but consistent pace across the strip.
- 6** Take about five seconds to scan the length of the strip.
- 7** Release the button when all the patches in the strip have been scanned and you reach the white space at the end of the strip.
- 8** Repeat for all the strips in the order indicated on the display.  
For black-and-white printers, there is a single strip.
- 9** When all the strips have been scanned successfully, click **Continue** to view the measurement results.

# Density-based calibration workflow

When you calibrate a Fiery server, you perform the following tasks.

- Print a calibration page, which contains patches of various colors (or shades of gray, for black-and-white printers) in a specific layout. You use this page to measure the current output of the printer.

The output of the printer changes with time and usage. For the most current data, always measure a newly printed calibration page.

- Measure the color values of the patches on the calibration page using a spectrophotometer.
- Apply the measurements.

The measurement data is saved with the specific calibration setting. When you print a job with the calibration setting, the measurement data is used to calculate the calibration adjustment that is needed to produce the desired output (the calibration target).

## Select a task

Start the Calibrator to create a new calibration setting or update an existing one for a Fiery server.

- 1 Start Calibrator.
- 2 If Calibrator is started from Fiery Color Profiler Suite, click Select Fiery server in the Select a task window, and select the Fiery server from the list. If the Fiery server is not in the list, click the plus sign to add it using the IP address, DNS name, or by searching.
- 3 Select one of the following tasks:
  - Recalibrate: Update a calibration using the selected calibration setting.
  - Create calibration: Create a new calibration and profile to define a new color printing condition on the Fiery server.
- 4 Click Next.

**Note:** The number of steps required to complete the selected task depends on the connected printer. Some settings or options may not be available for your printer model.



## Create calibration for the server

To create a calibration, enter a name and other details, as required.

The required information is dependent on the Fiery server and printer that you are calibrating. For instance, you may not see the color mode field or the G7 gray balance check box.

- 1 Enter a calibration name of your choice.

**Note:** The calibration name should be unique for each server. The name you type must not already be used by a calibration setting or profile on the server.

- 2 Optional: Select G7 gray balance calibration target check box.

G7 calibration adjusts the color output of a printer to the G7 specification, using measurement data from a specific G7 target (patch page).

**Note:** To use G7 gray balance calibration, Fiery Color Profiler Suite must be installed and licensed. The option is otherwise grayed out.

- 3 Optional: In the Comments field, enter details about your calibration, such as media name, media type, special settings or instructions.

**Note:** When you create a calibration setting, we recommend that you document in the notes field the media type, printer used, and any special instructions should you need to recalibrate.

- 4 Optional: Select the down arrow by the Next button and choose Load measurements from file to allow you to bypass the print and measure workflows. This option is reserved for expert users who already have measurements for their printer. It is recommended that you always print and measure your actual printer.

- 5 Click Next.

## G7 calibration workflow

G7 calibration is conducted between the Fiery server calibration and printing of profiling measurement patches.

G7 calibration is applied on the top of the Fiery server calibration. Entering the G7 calibration process, you will select the patch layout for the P2P target you wish to use, measure them, inspect the results, and make adjustments to the settings, if needed.

The G7 specification defines standard grayscale curves that can be used to create a common neutral appearance of output on different printers. G7 calibration adjusts the color output of a printer to the G7 specification, using measurement data from a specific G7 target (P2P target). Fiery Color Profiler Suite supports printing and measuring different P2P targets that are used for G7 calibration. You can measure with any supported measurement instrument.

- 1 In the Patch layout window, select the Patch set you want to use:
  - P2P51 (the newer target, a revision of the original)
  - P2P25Xa (the original target)
  - P2P51 Randomized
  - P2P51 Randomized 2up (recommended choice for cut sheet toner presses)

**Note:** The actual values used in the targets are similar, but the newer version is a more precise version of the G7 specification.

- 2 Click Print and measure the patch page.
- 3 Review the G7 gray balance measurement results.

Because this is the G7 calibration run, it is expected that the results are failing. It is the measurements from this target that will be used to calculate the NPDC curves necessary for G7 calibration.

The NPDC (Neutral Print Density Curve) is displayed separately for CMY (composite) and K (black). Gray balance is plotted as  $a^*b^*$ . In the table, the weighted average must be less than 1.5 to show as green. The weighted maximum must be less than 3 to show as green.

- 4 (Optional) Click Correction options to display the correction curve, and expose advanced options applied to the formation of the correction curves.  
You can choose to keep the defaults or change them.
- 5 Click OK to print the P2P patch page again with the NPDC curves applied.
- 6 Measure the patch pages and view the G7 results.
- 7 If the G7 result is passing (all results show in green), click Next. If the result is failing (any result highlighted in red), then click Iterate to repeat the process. It is not uncommon that two or three iterations must be performed to pass G7 compliance.

## Print a calibration page

When you print a calibration page, first specify the calibration setting (color printers), paper source, and measurement method.

**Note:** Calibrate the spectrophotometer to prepare it for measuring the calibration page.

- When you start calibration for a specific job, only calibration setting(s) used to print the job is shown. Multiple calibration settings are commonly used by mixed-media jobs.  
The recommended paper and the date and time of the most recent calibration measurements associated with the selected calibration setting are displayed. If no date and time are given, the Fiery server has not been calibrated (for this calibration setting).
- Be sure the paper source contains paper that is appropriate for the calibration setting. If a warning appears under the Paper Source setting, it might be because the paper source does not match the calibration setting. You can either select a different calibration setting or a different paper source.  
If none of the calibration settings matches perfectly to your paper, you may want to experiment with an available setting resembling your paper. If it produces unacceptable results, you should create a new calibration and profile specific for your paper.

**1** Set the following options:

- For color printers, select a calibration setting in the Calibrate for list.
- Select the desired paper source in the Paper source list.
- Select a method in the Measurement method list.

Calibrator supports several types of spectrophotometer, including EFI ES-3000 and X-Rite i1Pro3.

If measurement options are available for calibration using the selected instrument, a Settings button will appear near the instrument.

Other types of measurement instruments may be supported by the printer connected to the Fiery server.

**2** Click Continue to print the calibration page and proceed to measurement

## Create a color output profile for a calibration setting

To be able to create a color output profile, Fiery Color Profiler Suite must be installed and licensed on the same computer as Calibrator. When you create a custom calibration setting, the spectrophotometer is automatically selected as the measurement method. ColorCal is not available as a method because it does not use a colorimetric instrument.

You must have Administrator privileges to create a custom calibration setting.

After you create a new calibration setting, you associate it with an output profile. Depending on your paper, a new calibration setting may not give satisfactory results when used with an existing output profile. If it does not, we recommend that you create a new, custom output profile based on your paper.

- If you select an existing profile, select the profile for the paper that is the most similar to your paper. A copy of this profile with the same name as the calibration setting is created, and the existing calibration target (goal) of the profile is changed to a new target calculated using the calibration measurements. The new calibration setting is associated with this profile.
- If you create a new, custom output profile, a profiling measurement page is printed. You measure the page using Printer Profiler in Fiery Color Profiler Suite, and the resulting profile is imported to the Fiery server and associated with your new calibration setting.

**1** Select an output profile from the list of profiles that reside on the Fiery server.

Calibrator will duplicate the output profile and rename it.

**2** Click Test Page.

You can print a test page to help you decide whether to associate the calibration setting with a copy of the currently selected output profile or create a new output profile.

**3** If Fiery Color Profiler Suite is installed on your computer, click Create New Profile to create a new, custom output profile.

## View measurement results

After you measure a calibration page or import measurements, the measurement results are ready to be applied. Applying (saving) the measurement data overwrites the existing data. For color data, you can view the measurement data in a graph to check the data before applying it.

Measurement results are shown as a set of density curves for C, M, Y, and K. For comparison, the calibration target data is also shown as a set of thicker density curves in the same graph, and the maximum density values are compared numerically.

**1** In Calibration Manager, select a calibration and click View Measurements.

**2** To hide or show curves, click the  icon next to the appropriate label:

- Measured - Hides or shows the measured density curves.
- Target - Hides or shows the target density curves.
- Cyan, Magenta, Yellow, or Black - Hides or shows the measured and target density curves for the specific colorant.

**Note:** When Fiery Color Profiler Suite is installed and licensed, Calibrator offers the option to create G7 calibration. With G7 calibration, transfer curves are applied over a Fiery server calibration target to reach G7 gray balance. The Calibration Manager displays the underlying regular Fiery server calibration target, not the temporary G7 transfer curves. Similarly, transfer curves used to reach the calibrated state for regular Fiery server targets are not displayed by the Calibration Manager. These transfer curves are temporary because they are recomputed with every recalibration.

**3** Optional: Click Save measurement to save the measurement data of an existing calibration setting.

**4** To print a test page, click Test Page.

You can print a test page to help you decide whether to associate the calibration setting with an existing output profile or create a new output profile.

**5** Optional: If you are not satisfied with the results produced by the latest measurements, click Reset to Default Measurements to reset the calibration data. When you perform this action, the last set of calibrator measurements is deleted. The button is displayed only when recalibration has been performed.

## Print a test page

For color printers, you can print a test page with latest calibration measurements and optionally a second copy which has the default measurements that were used when the calibration setting was created.

**1** In Command WorkStation, click Server > Device Center.

**2** Under General, click Tools, and then click Calibrator.

**3** In Calibrator, open Calibration Manager.

**4** Select a calibration and click View Measurements.

**5** Click Test Page.

- 6 Select a paper source and click Print.

Be sure to select a paper tray that contains media compatible with the calibration.

## Calibrator test page

The test page lets you verify the output produced with the current calibration and with the default calibration. The default calibration is printed using the measurement data that was captured when the calibration setting was created.

If some images included in the test page do not appear satisfactory, it might be because the output profile associated with the calibration setting is not appropriate for the paper and print settings.

## Export measurement data

For color printers, you can export the measurement data for a particular calibration setting to a .cm0 file.

- 1 To export measurement data, do one of the following:
  - In Calibrator, open Calibration Manager.
  - In Command WorkStation, click Server > Device Center. Under General, click Tools, and then click Calibrator and open Calibration Manager.
- 2 Select the calibration setting and click View Measurements.

You can also open View Measurements after you have successfully measured the calibration page for the new calibration setting.
- 3 Click Export Measurements.
- 4 Browse to the file location, change the file name if desired, and click Save.

## Reset measurement data

You can reset the measurement data for a particular calibration setting to the default data (either the factory default data or, for a custom calibration setting, the initial measurement data). This option is not available if the current measurement data is already the default data.

### Reset measurement data for color printers

For color printers, there may be one or more calibration settings.

- 1 In Command WorkStation, click Server > Device Center.
- 2 Under General, click Tools, and then click Calibrator.
- 3 In Calibrator, open Calibration Manager.

- 4 Select the calibration setting and click View Measurements.
- 5 Click Reset to Default Measurements.
- 6 Click Yes to confirm.

## Calibrator preferences

The settings in the Preferences window affect various aspects of the calibration procedure. You can set the calibration status (expiration), calibration time limit, and job suspension.

**Note:** You must have Administrator privileges to change preferences.

- In Command WorkStation, click Server > Device Center. Under General, click Tools, and then click Calibrator.
- In the Calibrator window, click the Settings (gear) icon located in the lower-left corner.

### Calibration status (expiration)

If you set a time limit for a calibration, an outdated calibration results in status messages in Command WorkStation and can cause a job to be suspended.

Command WorkStation displays a warning (yellow) for the job in the Job Center when the calibration will be outdated within 30 minutes, and an error (red) when the calibration is outdated.

If the calibration of a job is outdated, the Fiery server can suspend the job when you try to print it. The suspended job is not printed but remains in the Printing queue in a suspended state.

The calibration status is checked just before the job is sent to print. If the calibration becomes outdated while a job is printing, the job will not be suspended. We recommend that you calibrate before printing a long job to minimize the possibility of the calibration becoming outdated while the job is printing.

If you double-click the suspended job, you can do one of the following:

- Calibrate the Fiery server for the job's calibration setting(s). After you update the calibration measurements, select the suspended job and print it.
- Continue printing the job using the outdated measurement data. Select this option if output consistency is not important for this job.

### Types of jobs affected by calibration limit

The Fiery server can determine if the calibration is outdated for most jobs, including:

- Jobs submitted from an application using the Fiery PostScript printer driver or Fiery VUE.
- Imported PDF and TIFF jobs.
- Jobs that have been processed (including processed VPS and VIPP jobs).

The Fiery server cannot determine if the calibration is outdated and therefore will not suspend the following types of jobs:

- PCL and PDL jobs.
- Jobs submitted from an application without using the Fiery PostScript printer driver or Fiery VUE. This includes VPS and VIPP jobs that have not been processed.
- Jobs submitted through the Direct connection. These type of jobs cannot be suspended in any case.

In addition, the Fiery server does not check the calibration of jobs that were printed using the Force Print command. The Force Print command can be used on jobs that were suspended because of a job mismatch (the paper or finishing required for the job was not available). These types of jobs, because they are being forced to print, are not checked for calibration.

## Set calibration time limit and job suspension

You can set a calibration time limit and set whether Command Workstation suspends the job if calibration has expired.

- In the Calibration Preferences dialog box, do any of the following:
  - To set an expiration time, select Set time limit and display status in Job Center and specify a time interval (1-23 hours or 1-200 days).
  - To enable job suspension, select Suspend printing when calibration expires.

## Calibration settings

If your Fiery server supports color printing, you can access one or more calibration settings. Typically, calibration settings and output profiles are appropriate for specific paper and printing conditions. A calibration setting can be associated with more than one output profile.

To find out which calibration setting is associated with a particular output profile, check the profile settings in Command WorkStation.

## View measurement data of a calibration setting

Measurement data is saved when you calibrate for a specific calibration setting. The measurement data can be displayed on a graph with the calibration target data, so that you can see how closely the measured printer output matches the calibration target.

- 1 In Command WorkStation, click Server > Device Center.
- 2 Under General, click Tools, and then click Calibrator.
- 3 In Calibrator, open Calibration Manager.
- 4 Click the calibration setting to select it.
- 5 Click View Measurements.

## Edit the calibration target

The maximum densities of the calibration target (D-Max values) that is associated with a specific calibration setting are editable when you create the calibration setting. For each colorant (C, M, Y, and K), you can type a new value, or you can import a calibration target from a file.

The edited target data replaces the target data currently associated with this calibration setting when you apply the current measurement data.

Import the target data from a file if you have an existing profile and calibration target from another Fiery Server that you want to use on this Fiery Server. For best results, however, use profiles and calibration data that have been created specifically for this Fiery Server and its printer.

Even though you can edit the maximum density values, we recommend that you do so with caution. A calibration target represents the ideal values for calibration and should not be changed unnecessarily.

- 1 After you have successfully measured the calibration page for the new calibration setting, click **View Measurements**.
- 2 Do one of the following:
  - Type new values for the D-Max values under **Target**.
  - Click **Import Target**, browse to the file location, select the file, and click **Open**.  
Only files containing monotonic measurements are acceptable as imported targets.
- 3 Continue creating the calibration setting.

## Recalibrate

After you have calibration data for the Fiery server, you can recalibrate it at any time. The existing calibration will be updated to match the color benchmark produced for the Fiery server when this calibration was created.

- 1 Start **Calibrator**.
- 2 If **Calibrator** is started from **Fiery Color Profiler Suite**, click **Select Fiery server** in the **Select a task** window, and select the Fiery server from the list. If the Fiery server is not in the list, click the plus sign to add it using the IP address, DNS name, or by searching.
- 3 Select one of the following tasks:
  - **Recalibrate**: Update the calibration using the selected calibration setting.
  - **Create calibration**: Create a new calibration and profile to establish color behavior or a new printing condition on the Fiery server.
- 4 Click **Next**.



## Update calibration for the server

To recalibrate, start with the previously saved calibration data.

- 1 Choose an existing calibration set from the list.

Based on the calibration you selected, the color mode is displayed. If color mode is not displayed, it is not supported on the printer you calibrated.

The comments shown are those that were added at the time the calibration was created.

- 2 Click Next.

## Print a calibration page for measurement

When you print a calibration page for recalibration, specify the measurement method, patch set, and paper source.

**Note:** Calibrate the spectrophotometer to prepare it for measuring the calibration page.

- 1 In the Patch Layout window, set the following options:
  - Select a measurement instrument in the Measurement method list.
  - Select a patch set in the Patch set list.
  - Select the desired paper source in the Paper source list.

**Note:** Be sure that the paper source contains paper that is appropriate for the calibration setting. If a warning appears under the Paper source setting, it might be because the paper source does not match the calibration setting. You can either select a different calibration setting or a different paper source.

- 2 Click Next and proceed to measurement.

Follow the on-screen instructions to measure the calibration page.

## View calibration results

A new calibration produces a reference color state, a "target", that each recalibration will attempt to reach.

The target is the color response expected from your printer when properly calibrated to the printing conditions you have just defined (media, resolution, halftone, etc.). An output profile describing the color space produced by this calibrated state will be needed by the server to correctly color manage your printer. If you are not satisfied with the calibration, review the previous steps.

When recalibrating, you want the recalibration results to confirm if your printer is still performing to the original target for the specified calibration setting.

**Note:** Less options are offered when you use the load measurements from file.


- 1 Click Test Print. You can print a test page to help you decide whether to use the calibration setting or create a new one.

- 2 Optional: Select the down arrow by the Test Print button and choose With default calibration to print a test print using the default measurements for comparison.
- 3 Do one of the following:
  - Click Apply & Close to save the calibration settings.
  - Click Cancel to cancel the recalibration. When you perform this action, the calibration settings will not be updated.

## Calibration Manager

Calibration Manager allows you to view and delete calibration settings. Comments can also be added to or deleted from individual calibrations.

Typically, calibration settings and output profiles are appropriate for specific paper and printing conditions. A calibration setting can be associated with more than one output profile.

Open Calibration Manager from Calibrator by clicking  in the lower-left corner of the window. The window displays all the calibrations for the selected server. The following categories are shown:

- Calibration settings: Completed calibrations for the server listed by name.
- Last calibrated: The time of the last calibration.

You can perform a number of actions for the calibration you select in the list. Not all actions are available for all calibrations. If an action is not available, it is grayed out. The actions are:

- Edit opens a window where you can edit the basic information of a custom calibration setting.
- View measurements opens a window providing more details about the highlighted calibration.

The information displayed in the window is determined by the measurement space.

- Delete removes the selected calibration set.

Profiles relying on this calibration will also be deleted, after confirmation from the operator. Factory calibration sets, such as Plain, cannot be deleted.

### Edit calibration setting

You can edit the basic information of a custom calibration setting. You cannot edit a factory-supplied calibration setting.

You must have Administrator privileges to edit a custom calibration setting.

Job properties (print settings) cannot be edited since any measurement data saved with the calibration setting would become invalid. To edit the job properties of a calibration setting, create a new calibration setting based on the existing one.

- 1 In Calibration Manager, select the calibration setting in the list and click Edit.


**2** Specify the following settings:

- Name - Type a name that describes the paper name, weight, and type plus any other specific printing conditions (for example, halftone or gloss settings). The name can have a maximum of 70 characters.
- Comment - (Optional) Type additional descriptive information. This information appears in the list of calibration settings available on the Fiery server.

**View measurement results**

After you measure a calibration page or import measurements, the measurement results are ready to be applied. Applying (saving) the measurement data overwrites the existing data. For color data, you can view the measurement data in a graph to check the data before applying it.

Measurement results are shown as a set of density curves for C, M, Y, and K. For comparison, the calibration target data is also shown as a set of thicker density curves in the same graph, and the maximum density values are compared numerically.

- 1 In Calibration Manager, select a calibration and click View Measurements.
- 2 To hide or show curves, click the  icon next to the appropriate label:

- Measured - Hides or shows the measured density curves.
- Target - Hides or shows the target density curves.
- Cyan, Magenta, Yellow, or Black - Hides or shows the measured and target density curves for the specific colorant.

**Note:** When Fiery Color Profiler Suite is installed and licensed, Calibrator offers the option to create G7 calibration. With G7 calibration, transfer curves are applied over a Fiery server calibration target to reach G7 gray balance. The Calibration Manager displays the underlying regular Fiery server calibration target, not the temporary G7 transfer curves. Similarly, transfer curves used to reach the calibrated state for regular Fiery server targets are not displayed by the Calibration Manager. These transfer curves are temporary because they are recomputed with every recalibration.

- 3 Optional: Click Save measurement to save the measurement data of an existing calibration setting.
- 4 To print a test page, click Test Page.

You can print a test page to help you decide whether to associate the calibration setting with an existing output profile or create a new output profile.

- 5 Optional: If you are not satisfied with the results produced by the latest measurements, click Reset to Default Measurements to reset the calibration data. When you perform this action, the last set of calibrator measurements is deleted. The button is displayed only when recalibration has been performed.

# L\*a\*b\*-based calibration workflow

When you calibrate a Fiery server, you perform the following tasks.

- Print a calibration page, which contains patches of various colors in a specific layout. You use this page to measure the current output of the press.

The output of the press changes with time and usage. For the most current data, always measure a newly printed calibration page.

- Measure the color values of the patches on the calibration page using a supported measurement instrument.
- Apply the measurements.

The measurement data is saved with the specific calibration setting. When you print a job with the calibration setting, the measurement data is used to calculate the calibration adjustment that is needed to produce the desired output (the calibration target).

## Select a task

Start the Calibrator to create a new calibration setting or update an existing one for a Fiery server.

- 1 Start Calibrator.
- 2 If Calibrator is started from Fiery Color Profiler Suite, click Select Fiery server in the Select a task window, and select the Fiery server from the list. If the Fiery server is not in the list, click the plus sign to add it using the IP address, DNS name, or by searching.
- 3 Select one of the following tasks:
  - Recalibrate: Update a calibration using the selected calibration setting.
  - Create calibration: Create a new calibration and profile to define a new color printing condition on the Fiery server.
- 4 Click Next.

**Note:** The number of steps required to complete the selected task depends on the connected printer. Some settings or options may not be available for your printer model.

## Set Calibrator preferences

You can set general preferences for the selected Fiery server in Calibrator when opened from Command WorkStation.

**1** In the Calibrator window, click the gear icon located in the lower-left corner to open the Calibrator Settings window.

**2** If Printer Features are shown, make your selections.

The options shown under Printer Features are dependent on the connected Fiery server.

**3** For Calibration Status, specify the following:

- Specify number of days or hours when a new calibration is needed. The calibration status is displayed in Job Center.

The number you specify depends on the kind of jobs you are printing and the stability of the printer and its environment. If the Fiery server is used for color-critical applications, select once a day or more frequently. If the Fiery server is used to print basic documents like emails, you may choose to calibrate less often.

- Select Suspend printing when calibration expires to prevent printing jobs until a new calibration is completed.

**4** Click Factory Defaults to reset the preference settings to their original defaults.

**5** Click Save to save the preference settings.

## Create calibration for the server

To create a calibration, enter a name and other details, as required.

The required information is dependent on the Fiery server and printer that you are calibrating. For instance, you may not see the color mode field or the G7 gray balance check box.

**1** Enter a calibration name of your choice.

**Note:** The calibration name should be unique for each server. The name you type must not already be used by a calibration setting or profile on the server.

**2** Optional: Select G7 gray balance calibration target check box.

G7 calibration adjusts the color output of a printer to the G7 specification, using measurement data from a specific G7 target (patch page).

**Note:** To use G7 gray balance calibration, Fiery Color Profiler Suite must be installed and licensed. The option is otherwise grayed out.

**3** Optional: In the Comments field, enter details about your calibration, such as media name, media type, special settings or instructions.

**Note:** When you create a calibration setting, we recommend that you document in the notes field the media type, printer used, and any special instructions should you need to recalibrate.

- 4 Optional: Select the down arrow by the Next button and choose Load measurements from file to allow you to bypass the print and measure workflows. This option is reserved for expert users who already have measurements for their printer. It is recommended that you always print and measure your actual printer.
- 5 Click Next.

## Obtain measurement for ink limit per channel

The measurements taken for calibration provide suggested ink limits for each channel. Measure the patch pages for the ink limit per channel.

- 1 Choose one of the following:

- Print measurement chart

Select Include visual chart to print the measurement patches for visual inspection.

If you choose this option, follow the online instructions to print patch pages and measure them.

- Import measurements from file

**Note:** Loading measurements from file is most useful for tests and demonstrations. It is otherwise generally not recommended. Best results are obtained when measurement pages for all calibration creation steps are printed and measured in a single session.

Keep in mind the following:

- The printer's response may have changed since the measurement file was saved.
- Measurement files do not contain information on how the measurement pages were printed. Default job properties are assumed.

When you select this option, you are automatically taken to the location where the measurements files are stored.

If you choose this option, the measurements will be displayed in the next window.

- 2 Click Next.

If you selected Print measurement chart in the first step, the Patch Layout window in FieryMeasure is displayed. In the Patch Layout window, select the instrument and the chart size. Click Print to continue.

## Set ink limit per channel

After you have successfully measured the patch page provided for the ink limit per channel, the results are displayed and you can make some adjustments.

For each channel, the ink limit is displayed.

Click the arrow beside the name of each channel to display a slider. To change the ink limit, move the slider.

Click Next to measure for linearization.

## Obtain measurement for linearization

You can print a patch page to measure, or import measurements from a recent calibration. These measurements must accurately represent the current performance of your printer.

### 1 Choose one of the following:

- Print measurement chart

Select Include visual chart to print the measurement patches for visual inspection.

If you choose this option, follow the online instructions to print patch pages and measure them.

- Import measurements from file

**Note:** Loading measurements from file is most useful for tests and demonstrations. It is otherwise generally not recommended. Best results are obtained when measurement pages for all calibration creation steps are printed and measured in a single session.

Keep in mind the following:

- The printer's response may have changed since the measurement file was saved.
- Measurement files do not contain information on how the measurement pages were printed. Default job properties are assumed.

When you select this option, you are automatically taken to the location where the measurements files are stored.

If you choose this option, the measurements will be displayed in the next window.

### 2 Click Next.

If you selected Print measurement chart in the first step, the Patch Layout window in FieryMeasure is displayed. In the Patch Layout window, select the instrument and the chart size. Click Print to continue.

**Note:** When you are recalibrating, be sure to select a source tray containing the same media type, or a media type very similar to the media type that was used to create the calibration. Do not change settings from the Color tab and the Image tab because these settings were automatically set by the calibration software.

## Obtain measurement for total ink limit

The measurement for total ink limit helps to ensure that the printer does not use more ink than the media can handle or too much ink for your intended jobs.

### 1 Choose one of the following to specify the total ink limit:

- Print measurement chart

The Initial ink limit displayed is the default value suggested for your printer. You can enter a new value to overwrite the suggested value, and then print the chart. The chart you are about to print will not contain patches specifying more ink than this value.

Select Include visual chart to print the measurement patches for visual inspection.

If you choose this option, follow the online instructions to print patch pages, measure them, and to have the system propose a value optimized for your actual media type. You can change settings for the selected patch measurement instrument and specify a custom page size for the chart before printing the patch pages.

- Enter numerical value

The value displayed is the default value suggested for your printer without additional measurements required. This value is not optimized for your specific media. If set too high, your media may have trouble handling that much ink. If set too low, you are limiting the gamut of your printer for your specific media.

- Import measurements from file

**Note:** Loading measurements from file is most useful for tests and demonstrations. It is otherwise generally not recommended. Best results are obtained when measurement pages for all calibration creation steps are printed and measured in a single session.

Keep in mind the following:

- The printer's response may have changed since the measurement file was saved.
- Measurement files do not contain information on how the measurement pages were printed. Default job properties are assumed.

If you select this option, the value is loaded from previously saved measurement data.

If you choose this option, proceed to obtaining measurement for the color benchmark.

### 2 Click Next.

If you selected Print measurement chart in the first step, the Patch Layout window in FieryMeasure is displayed. In the Patch Layout window, select the instrument and the chart size. Click Print to continue.



## Set total ink limit

After you have successfully measured the patch page provided for the total ink limit, the results are displayed and you can make some adjustments.

### 1 Choose one of the following:

- Use measured result

The value displayed is the value suggested for your printer. This value is calculated from your latest measurements.

- Enter numerical value

The value displayed is the value suggested for your printer without additional measurements required. You can enter a numerical value of your choosing should you decide not to use the suggested value.

- Select value from printed visual chart

This option only displays if you selected Include visual chart when printing the measurement chart. The value displayed is the value suggested for your printer based on a specific column number in the chart. You can select a column number of your choosing should you decide not to use the suggested value. The printed visual chart may reveal issues that measurements alone cannot detect. For instance, ink might seep through the media if too much is allowed. In this case, you will want to use a lower value than the suggested one.

### 2 Click Next.

## Obtain measurement for G7 gray balance

You can print a patch page to measure, or import measurements from a recent calibration. These measurements must accurately represent the current performance of your printer.

### 1 Choose one of the following:

- Print measurement chart

If you choose this option, follow the online instructions to print patch pages and measure them.

- Import measurements from file

**Note:** Loading measurements from file is most useful for tests and demonstrations. It is otherwise generally not recommended. Best results are obtained when measurement pages for all calibration creation steps are printed and measured in a single session.

Keep in mind the following:

- The printer's response may have changed since the measurement file was saved.
- Measurement files do not contain information on how the measurement pages were printed. Default job properties are assumed.

When you select this option, you are automatically taken to the location where the measurements files are stored.

If you choose this option, the measurements will be displayed in the next window.

**2 Click Next.**

If you selected Print measurement chart in the first step, the Patch Layout window in FieryMeasure is displayed. In the Patch Layout window, select the instrument, one of the G7 targets, and the chart size. Click Print to continue.

**G7 gray balance measurement summary**

View the summary of the G7 gray balance measurement.

**1 Review the G7 gray balance measurement summary.**

The NPDC (Neutral Print Density Curve) is displayed separately for CMY (composite) and K (black). Gray balance is plotted as a\*b\*. In the table, the weighted average must be less than 1.5 to show as green. The weighted maximum must be less than 3 to show as green.

- 2 Click Correction Options** to display the correction curve, and expose advanced options applied to the formation of the correction curves. You can choose to keep the defaults or change them.
- 3 Click Back** to discard your initial measurements.
- 4 Click Iterate** to repeat the process.

**Correction Options**

Review the output correction curve.

**1 You can set various correction options.**

- **Fade gray balance:** reduces the gray balance correction applied by the G7 NPDC correction curves above the fade adjustment value.
- **Fade tone adjustment:** reduces the tone adjustments applied by the G7 NPDC correction curves above the fade adjustment value.
- **Fade adjustment value:** reduces adjustment of tone and/or gray balance above specified percent dot value.
- **Add smoothing:** smooths calibration curves for noisy or irregular calibration data.

**2 Select OK** to accept changes or **Default** to return to the default values.

**G7 gray balance measurement results**

View the results of the G7 gray balance measurement.

**1 Review the G7 gray balance measurement results.**

The NPDC (Neutral Print Density Curve) is displayed separately for CMY (composite) and K (black). Gray balance is plotted as a\*b\*. In the table, the weighted average must be less than 1.5 to show as green. The weighted maximum must be less than 3 to show as green.

- 2 Click Correction Options** to display the correction curve, and expose advanced options applied to the formation of the correction curves. You can choose to keep the defaults or change them.

- 3 Click Iterate to print the patches with the G7 calibration curves to see if the results are passing.
- 4 Click Back to discard your iteration measurements.
- 5 If the results are acceptable, click Accept to continue the calibration process.

## Obtain measurement for color benchmark

These final measurements establish the target gamut for the printer.

- 1 Choose one of the following:

- Print measurement chart

Select Include visual chart to print the measurement patches for visual inspection.

If you choose this option, follow the online instructions to print patch pages and measure them.

- Import measurements from file

**Note:** Loading measurements from file is most useful for tests and demonstrations. It is otherwise generally not recommended. Best results are obtained when measurement pages for all calibration creation steps are printed and measured in a single session.

Keep in mind the following:

- The printer's response may have changed since the measurement file was saved.
- Measurement files do not contain information on how the measurement pages were printed. Default job properties are assumed.

If you choose this option, the measurements will be displayed in the next window.

- 2 Click Next.

## Set color benchmark

A new calibration produces a reference color state, a "benchmark", that each recalibration will attempt to reach.

The benchmark is the color response expected from your printer when properly calibrated to the printing conditions you have just defined (media, resolution, halftone, etc.). An output profile describing the color space produced by this calibrated state will be needed by the server to correctly color manage your printer. If you are not satisfied with the calibration, review the previous steps.

When recalibrating, you want the recalibration results to confirm if your printer is still performing to the original benchmark for the specified calibration set.

## Set an output profile

You can proceed to Printer Profiler to create the output profile, or save the results for later.

- Choose to create a profile.
  - a) Choose Create output profile.
  - b) Click Next.

Fiery Printer Profiler will create an output profile for use with the calibration you have just completed.

Or choose to save the calibration results for later.

- a) Choose Save calibration now and create output profile later.
- b) Click Done.

Calibration is saved with a temporary output profile visible in Command WorkStation Profile Manager. For color management to be accurate, a custom profile must be created for use with the calibration.

## Recalibrate

After you have calibration data for the Fiery server, you can recalibrate it at any time. The existing calibration will be updated to match the color benchmark produced for the Fiery server when this calibration was created.

- 1 Start Calibrator.
- 2 If Calibrator is started from Fiery Color Profiler Suite, click Select Fiery server in the Select a task window, and select the Fiery server from the list. If the Fiery server is not in the list, click the plus sign to add it using the IP address, DNS name, or by searching.
- 3 Select one of the following tasks:
  - Recalibrate: Update the calibration using the selected calibration setting.
  - Create calibration: Create a new calibration and profile to establish color behavior or a new printing condition on the Fiery server.
- 4 Click Next.

## Update calibration for the server

To recalibrate, start with the previously saved calibration data.

- 1 Choose an existing calibration set from the list.

Based on the calibration you selected, the color mode is displayed. If color mode is not displayed, it is not supported on the printer you calibrated.

The comments shown are those that were added at the time the calibration was created.

- 2 Click Next.

## Obtain measurement for linearization

You can print a patch page to measure, or import measurements from a recent calibration. These measurements must accurately represent the current performance of your printer.

### 1 Choose one of the following:

- Print measurement chart

Select Include visual chart to print the measurement patches for visual inspection.

If you choose this option, follow the online instructions to print patch pages and measure them.

- Import measurements from file

**Note:** Loading measurements from file is most useful for tests and demonstrations. It is otherwise generally not recommended. Best results are obtained when measurement pages for all calibration creation steps are printed and measured in a single session.

Keep in mind the following:

- The printer's response may have changed since the measurement file was saved.
- Measurement files do not contain information on how the measurement pages were printed. Default job properties are assumed.

When you select this option, you are automatically taken to the location where the measurements files are stored.

If you choose this option, the measurements will be displayed in the next window.

### 2 Click Next.

If you selected Print measurement chart in the first step, the Patch Layout window in FieryMeasure is displayed. In the Patch Layout window, select the instrument, one of the G7 targets, and the chart size. Click Print to continue.

**Note:** When you are recalibrating, be sure to select a source tray containing the same media type, or a media type very similar to the media type that was used to create the calibration. Do not change settings from the Color tab and the Image tab because these settings were automatically set by the calibration software.

## Obtain measurement for verifying calibration

You can print a patch page to measure, or import measurements from a recent calibration. These measurements must accurately represent the current performance of your printer.

### 1 Choose one of the following:

- Print measurement chart

Select Include visual chart to print the measurement patches for visual inspection.

If you choose this option, follow the online instructions to print patch pages and measure them.

- Import measurements from file

When you select this option, you are automatically taken to the location where the measurements files are stored.

If you choose this option, the measurements will be displayed in the next window.

### 2 Click Next.

If you selected Print measurement chart in the first step, the Patch Layout window in FieryMeasure is displayed. In the Patch Layout window, select the instrument and the chart size. Click Print to continue.

## Verify calibration

A new calibration produces a reference color state, a "benchmark", that each recalibration will attempt to reach.

The benchmark is the color response expected from your printer when properly calibrated to the printing conditions you have just defined (media, resolution, halftone, etc.). An output profile describing the color space produced by this calibrated state will be needed by the server to correctly color manage your printer. If you are not satisfied with the calibration, review the previous steps.

When recalibrating, you want the recalibration results to confirm if your printer is still performing to the original benchmark for the specified calibration set.

### 1 View the results.

You can compare the color benchmark and calibrated results. You can also view individual channels by clicking the eye icon beside each channel icon.

### 2 Click Apply & close to apply the calibration set to printer and close Calibrator.

## Calibration is ready to be applied

When you have a set of measurements, the calibration is ready to be applied. You can choose to verify the calibration or apply the calibration setting to the printer.


- Click Verify and follow the online instructions.

When you verify the calibration of the printer, you will compare how close the calibrated state is to the color benchmark of the current calibration setting.

## Calibration Manager

Calibration Manager allows you to view and delete calibration settings. Comments can also be added to or deleted from individual calibrations.

Typically, calibration settings and output profiles are appropriate for specific paper and printing conditions. A calibration setting can be associated with more than one output profile.

Open Calibration Manager from Calibrator by clicking  in the lower-left corner of the window. The window displays all the calibrations for the selected server. The following categories are shown:

- Calibration settings: Completed calibrations for the server listed by name.
- Last calibrated: The time of the last calibration.

You can perform a number of actions for the calibration you select in the list. Not all actions are available for all calibrations. If an action is not available, it is grayed out. The actions are:

- Edit opens a window where you can edit the basic information of a custom calibration setting.
- View measurements opens a window providing more details about the highlighted calibration.

The information displayed in the window is determined by the measurement space.

- Delete removes the selected calibration set.

Profiles relying on this calibration will also be deleted, after confirmation from the operator. Factory calibration sets, such as Plain, cannot be deleted.

### Edit calibration setting

You can edit the basic information of a custom calibration setting. You cannot edit a factory-supplied calibration setting.

You must have Administrator privileges to edit a custom calibration setting.

Job properties (print settings) cannot be edited since any measurement data saved with the calibration setting would become invalid. To edit the job properties of a calibration setting, create a new calibration setting based on the existing one.

- 1 In Calibration Manager, select the calibration setting in the list and click Edit.
- 2 Specify the following settings:
  - Name - Type a name that describes the paper name, weight, and type plus any other specific printing conditions (for example, halftone or gloss settings). The name can have a maximum of 70 characters.
  - Comment - (Optional) Type additional descriptive information. This information appears in the list of calibration settings available on the Fiery server.

## View measurements

View details of calibration in a L\*a\*b\* measurement space.

You can reset the measurement data for a particular calibration setting to the default data (either the factory default data or, for a custom calibration setting, the initial measurement data). This option is not available if the current measurement data is already the default data.

- 1** In Calibration Manager, select a calibration and click View measurements.  
Details of the calibration are displayed.
- 2** To reset the calibration data, click Reset to Default Measurements.  
When you perform this action, the last set of calibrator measurements is deleted.