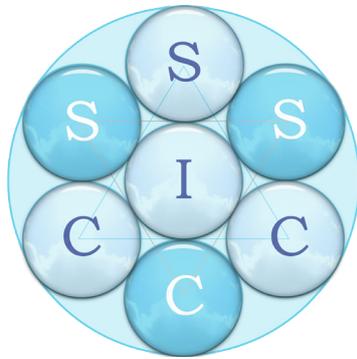


*CPrint 1.0*  
*Reference Manual*  
*Linux Version*  
*for Canon*



Spherical Integrated Circuits  
Château de la Prolière  
36500 Sainte Gemme, France

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# 1 Introduction to CPrint

## 1.1 Introduction

*CPrint 1.0* is a genuine, page oriented, driver for printing to Canon imagePROGRAF Printers on Linux platforms. It will be mostly used by system administrators, though once a queue is created, an ordinary user may benefit from *CPrint 1.0* by the possibility to adjust 'last minute' printing parameters from most common Linux applications (OpenOffice, gimp, evince, acroread, etc.). In a more classical sense, *CPrint 1.0* allows for printing to a printer queue, including support for a number of command line options.

This manual provides details on all aspects of *CPrint 1.0*: Installation, maintenance, scripts, etc. Parts of this document are rather technical and will not be required for a first approach to CPrint. These pages may contain valuable information, however, for more advanced features of CPrint, or for the system administrator who wants to customise CPrint. These pages are indicated with a  sign on the bottom of the page, and may be skipped by the occasional reader.

The manuals *CPrint 1.0 Quick Installation and User Guide for Linux - Core Package* - and - *imagePROGRAF Package* - provide enough details to enable a quick installation of *CPrint 1.0*. Some parts of these guides will be present in this reference manual too.

The manual is organised as follows:

The *Introduction* gives general information.

The *General Concept* section gives information about the way CPrint is designed and how it works. Even though this might look technical, it is recommended reading for an effective and efficient installation of CPrint.

The *Installing CPrint* section presents an example of an installation, much in the same way as the *CPrint 1.0 Quick Installation and User Guide*.

The *Creating a Queue with CPrint* section presents various ways of how to setup a printer queue.

The *Printing with a Queue of CPrint* section presents details on how to get the best out of a printer queue of CPrint.

The *On Zooming with CPrint* section presents details on the different ways CPrint handles scaling of the image data.

The *What to do with Problems* section helps to answer questions that may arise if things do not work as expected.

The *Program Description* section gives detailed information about the various programs making up the CPrint package.

The *CPrint 1.0* package consists of at least two modules:

- The Core module, described in the manual: *CPrint Quick Installation and User Guide - Core Package* -.
- A printer specific module, described in the manual: *CPrint Quick Installation and User Guide - Printer Package* -.

To fully install CPrint you must be logged on either as *super-user* or *root* (*System Administrator*), or at least have these access rights during installation. A user who is not super-user (i.e. a *normal user*) will not have the rights to add or delete printer queues.

## 1.2 Compatibility

The package is compatible with and tested on the *Linux versions* shown in the following table.

Linux Workstation Type	Operating System Version
RedHat (as well as Fedora Core)	7.2 (FC2) and newer
Mandriva	9.0 and newer
Suse (NOVELL)	8.0 and newer
Debian	2.0 and newer
Ubuntu	2.0 and newer
Knoppix	3.0 and newer
Linux (Intel) in general	kernel 2.4-7 and newer

Required packages CPrint relies on are:

- \* CUPS: A CUPS version 1.2.X or newer is recommended.
- \* foomatic-rip: A foomatic version 1.2 or newer is recommended.

The *Printer Manager* must be CUPS. As CUPS has become the standard printer manager for most of the current Linux distributions, CQue relies on the file and directory structure of Printer Description Files (PPD) as used by CUPS. Many main applications on Linux do the same, so that CPrint and these main applications may share printer options through CUPS. For this reason no other printer managers, especially LPRng, are supported.

Standard CUPS installations will include the foomatic package by default. CPrint explicitly relies on the foomatic-rip package for the transformation of one printer description language (PDL) to another.

We note that CPrint is not a replacement of a printer manager. It is a separate layer fully compatible with the above mentioned CUPS printer manager. It does not modify any of the components of the native printer manager either.

CPrint provides support for the following type of Canon imagePROGRAF printers:

Canon imagePROGRAF Printer
iPF series with GARO
iPF LP series with GARO

CPrint does not support the W series of Canon imagePROGRAF printers, because these are compatible with CPCA V1. CPrint starts with CPCA V2.0 only.

CPrint will also be of no help to support HPGL oriented data: HPGL data are designed to be sent to the Canon imagePROGRAF printer directly - if the printer supports HPGL of course - and no interference with CPrint is required.

CPrint 1.0 for Linux comes without any licence key. It has its own licence statement to be subscribed at download time and it does not fall under the GNU/GPL licence conditions.

This manual describes both the *interactive installation* of *CPrint* on an X11 desktop and the installation on an alphanumerical terminal.



***Please note that as CPrint will add new PPD files to the Linux operating system it may restart the CUPS printer manager at the end of the installation!***

***For details of known limitations, bugs or work arounds of specific operating systems, please always read the Appendix D: "Release Notes"!***

## 1.3 Capabilities and Limitations of CPrint

As a genuine printer driver for Linux CPrint relies on foomatic and hence on ghostscript. The CUPS printer manager is driven by PPD files to allow for various options for the fine tuning of ghostscript. This release of CPrint uses *static* PPD files shipped at download time. A PPD file includes, amongst other things, media sizes and media types supported by the printer.

### **Media type and paper size**

This version of CPrint does not query the printer to infer the paper sizes and media types supported and/or loaded by the printer. This is a main difference with the Canon printer driver for MS Windows, which supports a tool to modify the media types supported by the printer.

### **Very large paper sizes**

As the printer driver makes use of ghostscript (through foomatic) a potential limitation occurs for *very large paper sizes* and *colour images with a low compression rate*. In general very large paper sizes will print colour images correctly if optimisation for disk space is requested. If sufficient compression cannot be achieved, the only alternative is to use a pixel zoom or to print in 300 dpi.

A list of paper sizes concerned is given in **Appendix B**.

### **Printing a multi-page document**

The driver does support printing of documents of more than one page.

### **Mailbox and storage options**

CPrint support most of the features of the Canon imagePROGRAF printers. If your Canon imagePROGRAF printer has a hard disk drive printing to mailboxes is supported, and printing multiple copies with storage on the disk driver is supported too.

### **Colour management**

CPrint supports RGB and grey scale printing. CMYK images are not supported. Also limited colour corrections like a gamma correction and separate R, G and B corrections are supported. CPrint is not a high quality RIP and hence does not support input and output colour profiles or other sophisticated colour management.

### **Computer resources**

Especially when printing to large paper formats some resources of your Linux workstation will be required. Hence a reasonably powerful processor is required and please make sure that sufficient disk space is available. Temporary data files in the order of several gigabytes (for the larger paper formats) are no exception.

## 1.4 Before Installing CPrint

CPrint 1.0 always consists of two (or more) modules:

- The core package containing the genuine driver software. It does not contain any PPD files or colour data files.

and

- A printer specific package for each model of Canon Large Format printers. This package consists mainly of a printer specific PPD file and colour data files.

CPrint 1.0 can be obtained by:

- Downloading from the web.

or

- Obtaining a copy on CD-ROM.

The core package *must* be installed before installing the printer specific package. There is a printer specific package for each Canon Large Format Printer.

***Please do not use a package of one imagePROGRAF printer for another model: The colour tables will not match and generate an error on the Canon imagePROGRAF printer!***

### 1.4.1 Using the web

You can download the driver from the Canon web site for your country or directly from <http://software.canon-europe.com>.

There are two different archive formats:

- tar + gzip: a gzipped tar archive with extension: \*.tgz.
- rpm: an rpm archive with extension: \*.rpm.

As there exist many different Linux distributions and various package management systems too, it may happen that your distribution does not support rpm packages by default (for example: Debian, Ubuntu, ...). In that case we recommend using the \*.tgz version of CPrint, which should run on all known Linux systems.

If you downloaded a copy of CPrint 1.0 from the web in \*.tgz format the file will be in a compressed format. You will need to decompress the file, using an appropriate interactive package of gzip, and extract the contents to a designated directory on your system, for example */tmp*.

### 1.4.2 *CD-ROM*

To obtain a copy of CPrint 1.0 on CD-ROM please contact your local Canon Sales Office.

On the CD-ROM the package will be available in both \*.tgz and \*.rpm formats.

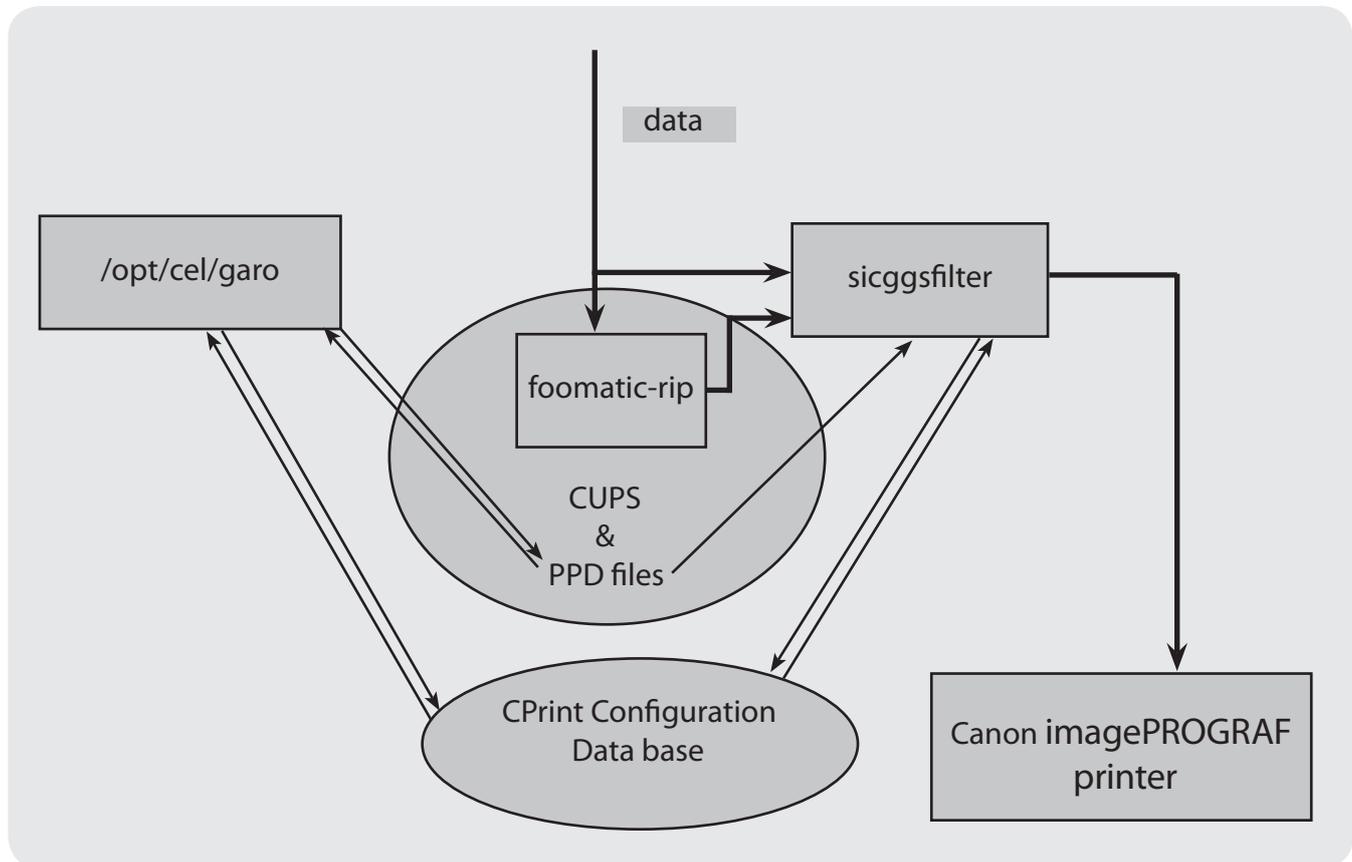
### 1.4.3 *Support*

For support, please contact your local Canon service technician/representative.

## 2 The General Concept

### 2.1 The Modules of CPrint

The CPrint package consists basically of the following modules:



- \* The directory */opt/cel/garo* (and the subdirectories thereof).
- \* The program *sicggsfilter*, which is the driver taking care of the output of the queue.
- \* The *foomatic* package, which is not part of CPrint itself. Yet CPrint relies on the *foomatic* package especially for the transformation of printer description languages, if necessary. CUPS itself does the same.
- \* The *database* of CPrint, which mostly includes information on media types and colour tables of each Canon imagePROGRAF printer.

The print jobs of a CPrint queue are processed by the program *sicggsfilter*. The program *sicggsfilter* is configured by the PPD file of each Canon imagePROGRAF printer.

CUPS will call *foomatic-rip* to perform the transformation of the input data and then send the resulting data to *sicggsfilter*. *sicggsfilter* will always query the PPD information and the CPrint Configuration Data base.



## 2.2 What Happens when Printing?

CPrint behaves like a genuine CUPS printer queue. CPrint will always output data in GARO format encapsulated in Canon CPCA. Before output in this format is generated CPrint will interpret the data and optionally scale and/or rotate it.

If a job is sent to a CPrint queue then the following will happen depending on the type of input data:

- ◇ *PostScript files*. This type of files is mainly considered as raw PostScript, i.e. without any printer specific PostScript code. Many native Linux applications produce this kind of data. It is the job of sicggsfilter to transform the PostScript data first into raster data, and then into GARO and Canon CPCA data.
- ◇ *Non-Postscript ASCII files*, will automatically be transformed to PostScript through a filter. This filter will be a standard filter supplied by CUPS. Thereafter the same mechanism as for PostScript data will apply.
- ◇ *PDF files*. CQue will automatically convert the PDF data first into raster data, and then into GARO and Canon CPCA data.
- ◇ *Image files* like TIFF, JPEG, X11, PNG, etc.: This kind of data is not recommended to be printed directly to a CUPS printer queue. CPrint will ship a separate module (to be released) intended for printing of image raster data to Canon imagePROGRAF printers.



## 3 Installing CPrint 1.0

Note: This section describes how to install CPrint 1.0. To *upgrade* or *uninstall* CPrint 1.0 refer to section 9 of this manual respectively.

Note: You *must* install the *core package* of CPrint 1.0 before installing any *printer specific package*.

First the different steps to unpack the files is described, either for the RPM package or the TGZ package. Thereafter the setup program is described, which is the same in both cases.

In this manual we take the example of a Canon iPF610 (and iPF8100) imagePROGRAF printer.

### 3.1 Installing a CPrint Core RPM Package

If you downloaded a copy of CPrint 1.0 core package from the web in *\*.rpm* format you will need to extract the files, using an appropriate interactive package of rpm.

If you use an interactive desktop, you may click on the rpm package icon. If this does not open up, it is probable that your Linux system does not support the RPM packages. In that case we recommend to use the TGZ package, described in the next section.

If the icon opens up you would see something like:

You click *“Install”* to start the RPM installation.

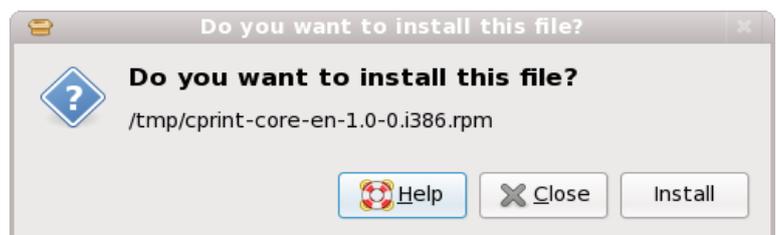


Fig. 1. Starting an RPM installation

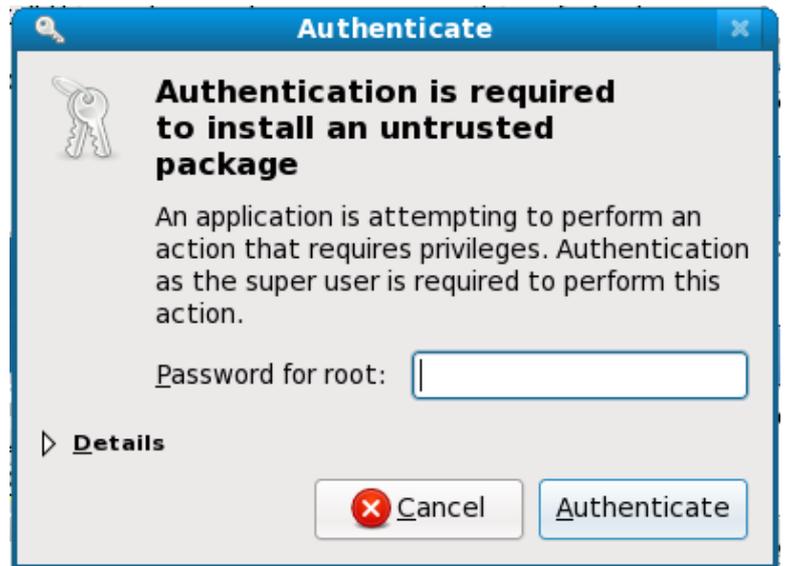
The following window will display:

As the CPrint package is not signed, you will have to force the RPM manager to accept it. Click *“Force Install”* to proceed.



Fig. 2. Forcing the RPM installation

Before the installation can continue you need to be authenticated with root privileges:



After entering the password the RPM installation will proceed.

Fig. 3. Authentication before the RPM installation



Fig. 4. Resolving dependencies of the RPM installation

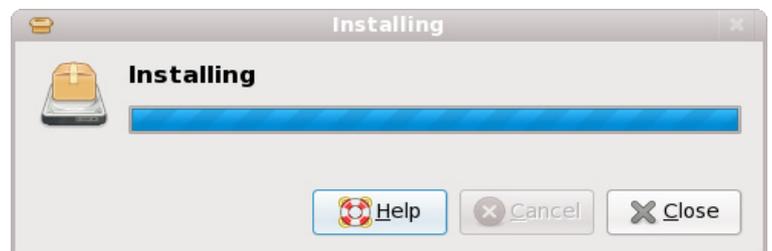


Fig. 5. Installation of the RPM package

This concludes the installation and no further steps are necessary.

You may now install the RPM package for the specific Canon imagePROGRAF printer which is described in section 3.3.

Please note that after installing a printer RPM package other than this core package, you **must** run the printer specific setup program.

If you cannot extract the files using this method you can extract the contents of the file using the following command

```
rpm -Uhv cprint-core-en-1.0-0.rpm
```

The rpm program will automatically extract the files to the directory:

**/opt/cel/garo**

## 3.2 Installing CPrint Core from a TGZ Package

If you downloaded a copy of CPrint 1.0 from the web in \*.tgz format you will need to extract the files and then run setup.

1. To extract the files type:

```
cd /tmp
tar -xvzf cprint-core-en-1.0-0.tgz
```

or

```
cd /tmp
gzip -d cprint-core-en-1.0-0.tgz
tar -xvf cprint-core-en-1.0-0.tar
```

2. To start the installation, either double-click on the **setup** icon, or alternatively type:

```
cd /tmp/cprint-core-en-1.0-0
./setup
```

The start up may take a while when setup configures an SELinux module if necessary.

The CPrint core package always installs into the directory */opt/cel/garo*, which will be created if necessary.

The setup procedure leaves a log file in: */var/log/setup\_cprint.log*, which you might consult in case of trouble.

Note: this log file is *not* created when you do an RPM installation.

### 3.3 Installing a CPrint Printer from an RPM Package

If you use an interactive desktop, you may click on the rpm package icon. If this does not open up, it is probable that your Linux system does not support the RPM packages. In that case we recommend to use the TGZ package, described in the next section.

If the icon opens up you would see something like:

You click **“Install”** to start the RPM installation.

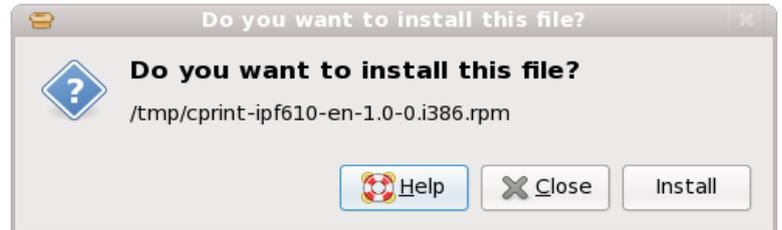


Fig. 6. Starting an RPM installation

The following window will display:

As the CPrint package is not signed, you will have to force the RPM manager to accept it. Click **“Force Install”** to proceed.



Fig. 7. Forcing the RPM installation

Before the installation can continue you need to be authenticated with root privileges:

After entering the password the RPM installation will proceed.

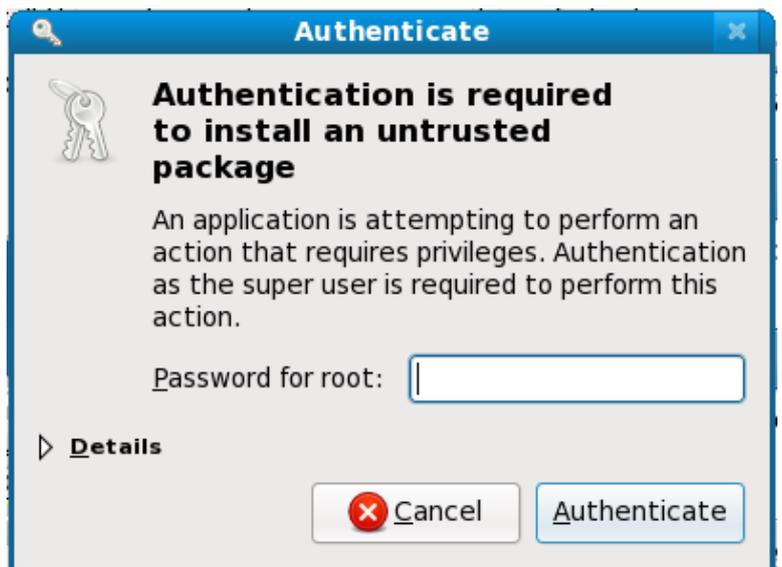


Fig. 8. Authentication before the RPM installation



Fig. 9. Resolving dependencies of the RPM installation

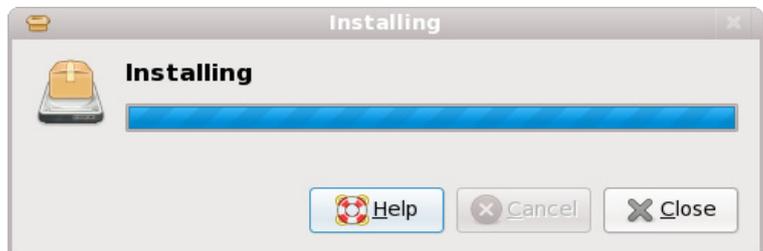


Fig. 10. Installation of the RPM package

This concludes the installation and no further steps are necessary.

Please note that after installing a printer RPM package you *must* run the printer specific setup program (see section 3.5).

If you cannot extract the files using this method you can extract the contents of the file using the following command

```
rpm -Uhv cprint-ipf610-en-1.0-0.rpm
```

The rpm program will automatically extract the files and install them into the directory:  
**/opt/cel/garo**

### 3.4 *Installing CPrint Printer from a TGZ Package*

If you downloaded a copy of CPrint 1.0 from the web in \*.tgz format you will need to extract the files and then run setup.

To extract the files type:

```
cd /tmp  
tar -xvzf cprint-ipf610-en-1.0-0.tgz
```

or

```
cd /tmp  
gzip -d cprint-ipf610-en-1.0-0.tgz  
tar -xvf cprint-ipf610-en-1.0-0.tar
```

Please note: You will have to run the setup program next as described in section 3.5.

### 3.5 *Running the setup Program for an imagePROGRAF Package*

For each Canon imagePROGRAF printer there is a setup program called **setup\_iPFXXX**, where **XXX** is specific for the imagePROGRAF printer. In our example the setup program is **setup\_IPF610**. If you are installing another printer, please run the setup program for that printer.

To start the installation, either double-click on the **setup\_iPF610** icon, or alternatively type:

```
cd /tmp/cprint-ipf610-en-1.0-0
./setup_iPF610
```

The start up may take a while when setup configures an SELinux module if necessary.

The CPrint printer package always installs into the directory **/opt/cel/garo/etc**, which will already be created by the installation of the core package. A subdirectory **iPF610** will be created containing a lot of device specific colour data.

Most important: the **PPD file** specific for the Canon imagePROGRAF printer will be copied to the system PPD folder. And then CUPS, the printer manager, will be restarted so the PPD file will be properly taken into account by CUPS.

The setup procedure leaves a log file in: **/var/log/setup\_ipf610.log**, which you might consult in case of trouble.

# 4 Creating a Printer Queue of CPrint 1.0

## 4.1 Creating a Printer Queue with the System Print Manager

The PPD file of the Canon imagePROGRAF printer, which is installed by the setup program, is fully CUPS compatible. Hence you may create a queue making use of the system supplied tools.

Here we will describe the creation of a queue with the system printer manager from a Fedora 10 distribution. Details may be slightly different for other distributions, yet the basic principles will be the same.

Start the printer manager, which displays something like:

(The example here is on a brand new Fedora installation, so there are no printers installed yet. In real world situations this will rarely be the case, and you will see already existing printers displayed in the window.)

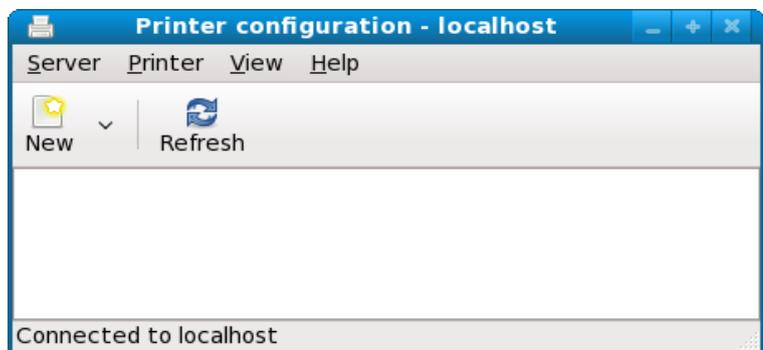


Fig. 11. The Printer Manager Tool

Click on the “New” icon, which will display:

In principle the Canon imagePROGRAF printers support different communication channels: AppleSocket, IPP and LPD. If your device is connected through a USB cable, it would show up too.

For a Canon imagePROGRAF printer connected through a TCP/IP connection we recommend the TCP/IP 9100 port (here called AppleSocket). The advantage is that CUPS will automatically detect the type of Canon imagePROGRAF printer and thus find the PPD file for that device automatically.

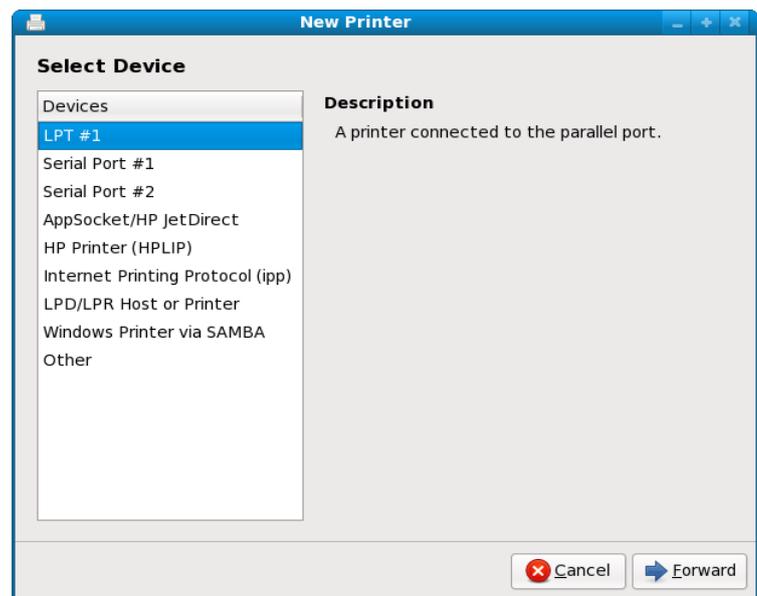


Fig. 12. Select a device

Specify the Canon imagePROGRAF printers IP address or hostname, if preferred.

Then click the “Forward” button. The following window will display:



Fig. 13. Specify the Port Parameters

If the printer tool did not find ‘Canon’ itself automatically, please select ‘Canon’ and click the ‘Forward’ button.

Then the following window will display:

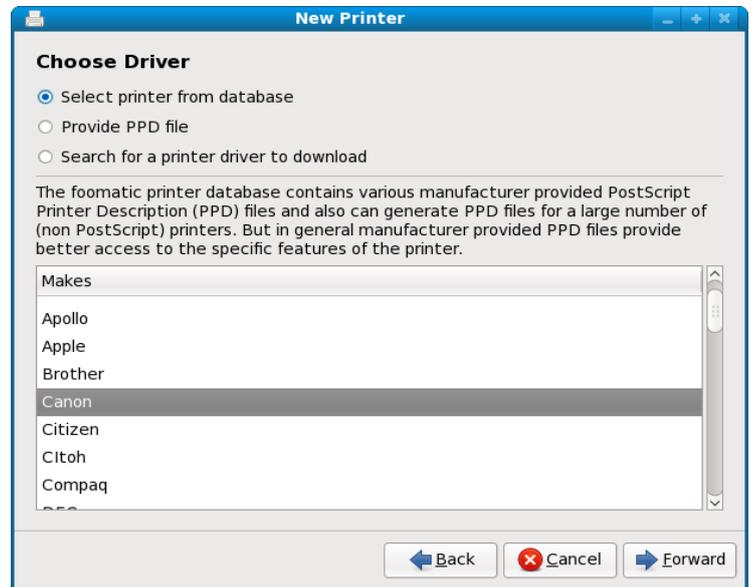


Fig. 14. Select Manufacturer Canon

Here you select the driver corresponding with the Canon imagePROGRAF model. The ‘driver’ here corresponds with the PPD file previously installed by the setup program.

If you have installed other Canon printer drivers, for example CQue, then the list may be rather long. Normally CUPS will find the corresponding driver automatically. Click the ‘Forward’ button to display the following window:

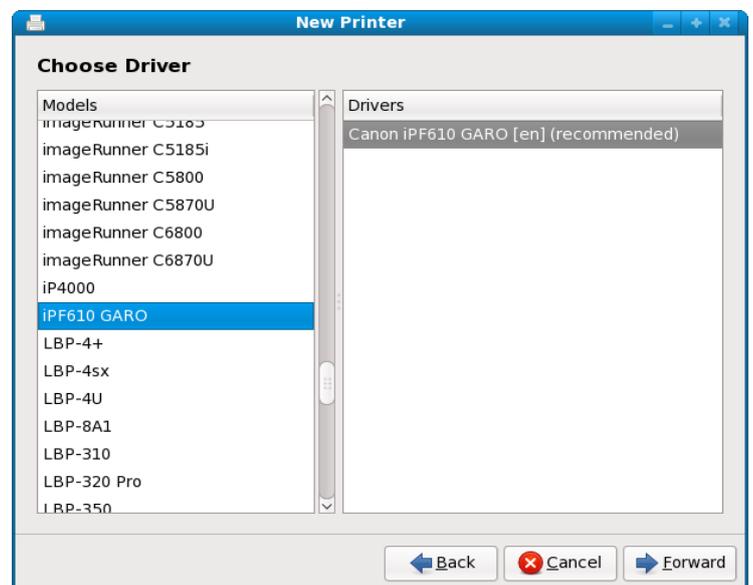


Fig. 15. Select the correct Driver, i.e. PPD file

Finally give the printer (queue) a name and optionally a description. Thereafter click the 'Apply' button and the printer queue will be created by the printer manager.

The printer settings will be the defaults from the PPD file. You may wish to specify different default values which will hold system wide. See section 5 and *Appendix A* for more details.

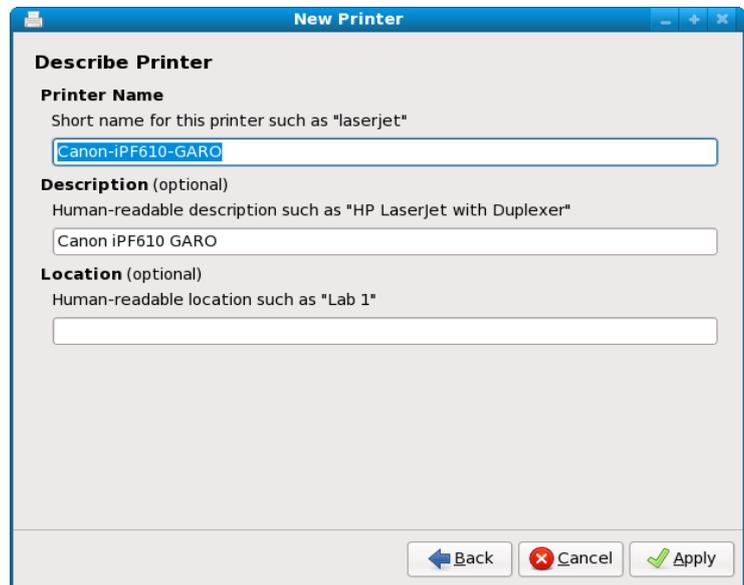


Fig. 16. Specify the Printer Name and Descriptions

## 4.2 Creating a Printer Queue with the *lpadmin* Command

Although the description of the previous section is the preferred one, you may also create a printer queue with the CUPS *lpadmin* command. You should know two things: The PPD file and its location.

The IP address or host name of the Canon imagePROGRAF printer.

The PPD file will be installed by the setup program into the system PPD folder. Or, into a subdirectory, called *cel*. But for the purposes of *lpadmin* you may also use the PPD file which is always stored in the folder: */opt/cel/garo/etc/iPF60*. (or the sub folder corresponding to the Canon imagePROGRAF printer model).

If we suppose that the name of the printer queue to create is 'ipf610' and its IP address is 192.168.1.77 then you may run the following commands:

```
lpadmin -p ipf610 \  
        -i /opt/cel/garo/etc/iPF610/cel-ipf610-en-1.0-0.ppd \  
        -v socket://192.168.1.77:9100  
accept ipf610  
cupsenable ipf610
```

The first three lines, starting with *lpadmin*, form actually one line. If you type it on one line, please leave out the backslashes.

The PPD file will now be copied into */etc/cups/ppd/ipf610.ppd* and the CUPS printer manager will have added an entry into the file */etc/cups/printers.conf*. CUPS will use this latter PPD file, and will never modify the original PPD file from the */opt/cel* directory.



# 5 Printing with a Queue of CPrint 1.0

## 5.1 Printing with a General GTK Printer Dialog

The Linux system is not as standardised as the MS Windows system. Yet, many applications make use of the so called GTK printer dialog. This holds for example for **OpenOffice**, **gimp**, **evince** etc. But even then some local modifications may be in effect.

We will first describe the full cycle of a print with gimp, paying special attention to parameter settings typical of CPrint. We will suppose that an image has been loaded and that we want to print that image to a certain format. For reasons which will follow, we want to print our image on a Poster 42x60 inch paper.

Before selection the print dialog, however, please select the **Page Setup Dialog**. In the Page Setup Dialog you may select the printer, in our case Canon-iPF8100-GARO. For our purpose we select Poster 42in x 60in, and please note that the dialog specifies 42 x 60 inch, which is correct.

Apply the dialog. And then re-open it.

Please note: the **Page Setup Dialog** has reset the values to something different (displayed below the "Poster 42in x 60in" line). The reason why is not clear: it may be a limitation of the Printer Dialog, or it may be related to the resolution of the image. Anyway, we recommend to use a format which corresponds with the aspect ratio of the image and which is supported by the Printer Dialog.

For our purposes of an example we select A3, as displayed in the window on the right:

When this window is applied and re-opened afterwards, the paper size dimensions are stable.

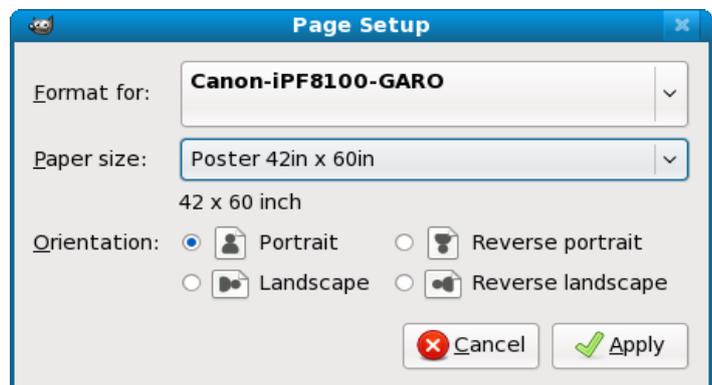


Fig. 17. Select and Set the Page Setup

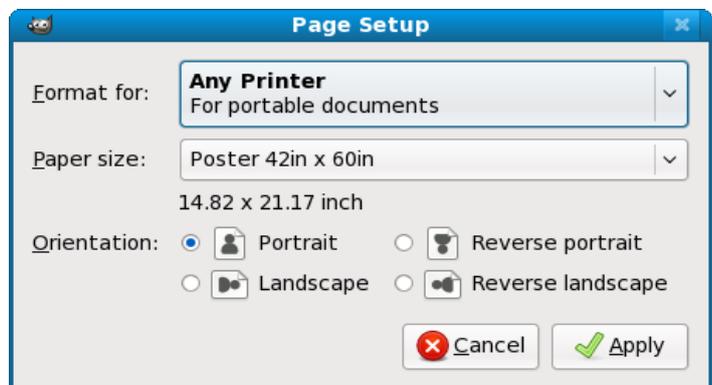


Fig. 18. Page Setup has reset the Dimensions!

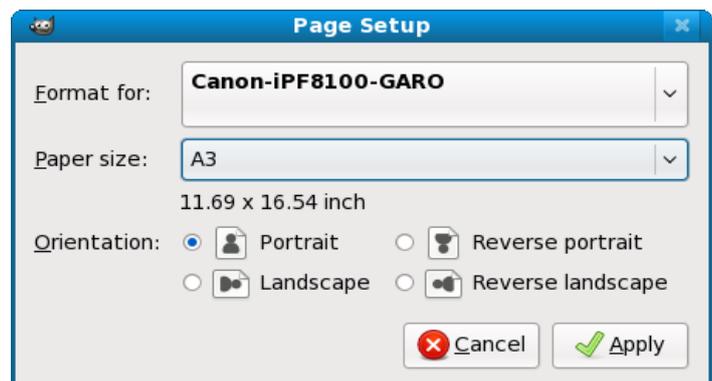


Fig. 19. Select a format which is supported

Once the page size has been setup, you may now select the printer:

(You may note in the following figures that the page format selected in the previous dialog, will *not* appear anymore. This is typical of the Linux GTK interface).

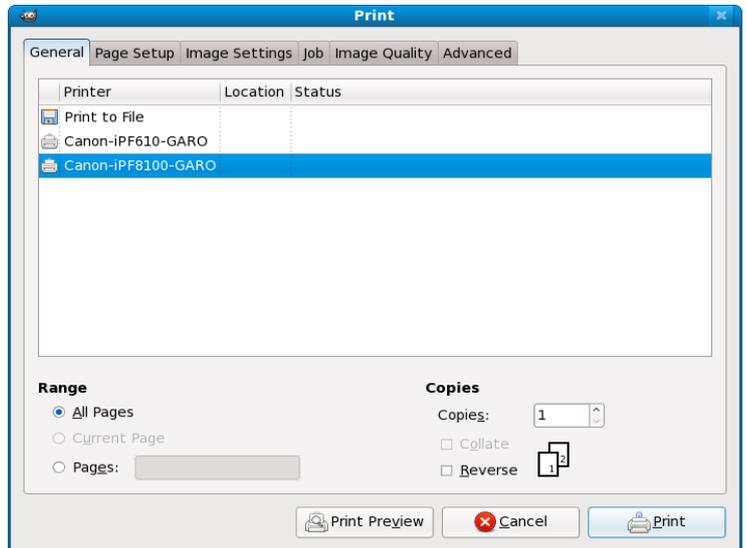


Fig. 20. Select the Printer

Select the **Page Setup** tag, which differs from the Page Setup Dialog we used previously!

On this dialog specify the **Paper type** and, if available, the **Paper source** (roll, manual, cassette, etc.).

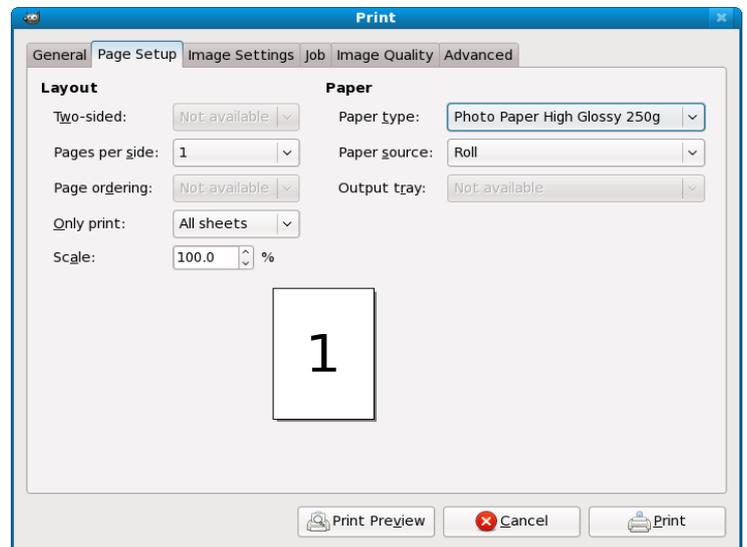


Fig. 21. Specify Media Type and Paper Source

Select the **Image Settings** tag, which displays the layout parameters.

On this dialog specify the **Image Layout** parameters.



**Please note:** the image layout parameters are relative to the page size selected in the **Page Setup** dialog **before** we started the Print Dialog!

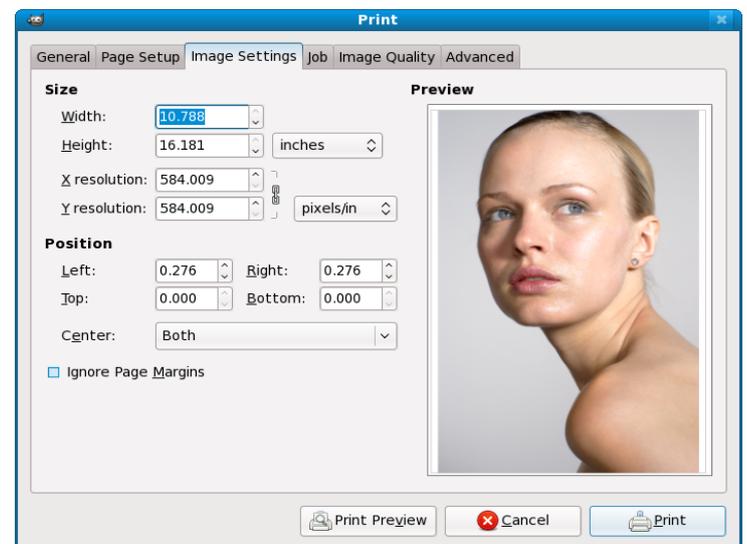


Fig. 22. Specify Image Layout

The *Job* tag displays some CUPS specific parameters independent of CPrint. In most cases you may skip this tag.

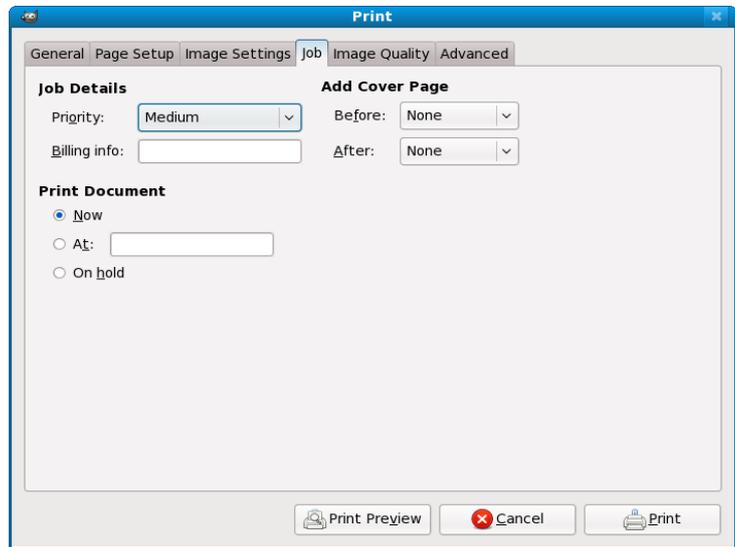


Fig. 23. Specify Job Parameters

The *Image Quality* tag displays the resolution selection of CPrint. In most cases you may leave this on 600 dpi. In case you would select 300 dpi, please note that 300 dpi is not compatible with high print quality (see next tag) and only with normal print quality for some paper types.

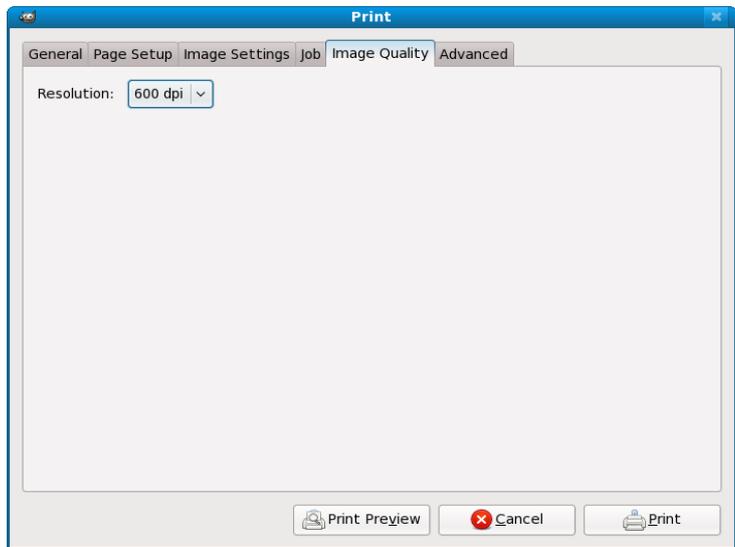


Fig. 24. Specify Image Quality Parameters: Resolution

The *Advanced* tag displays a number of CPrint specific parameters subdivided in several groups.

The *Colour Management* group is rather self explanatory. More details on some parameters can be found in Appendix A.

The *Output Mode* section will be present only for Canon imagePROGRAF printers with a hard disk drive. For details on how CPrint manages Mailboxes, supported by these devices, please refer to Appendix C. You may also specify a number of copies, which will be reprinted directly from disk.

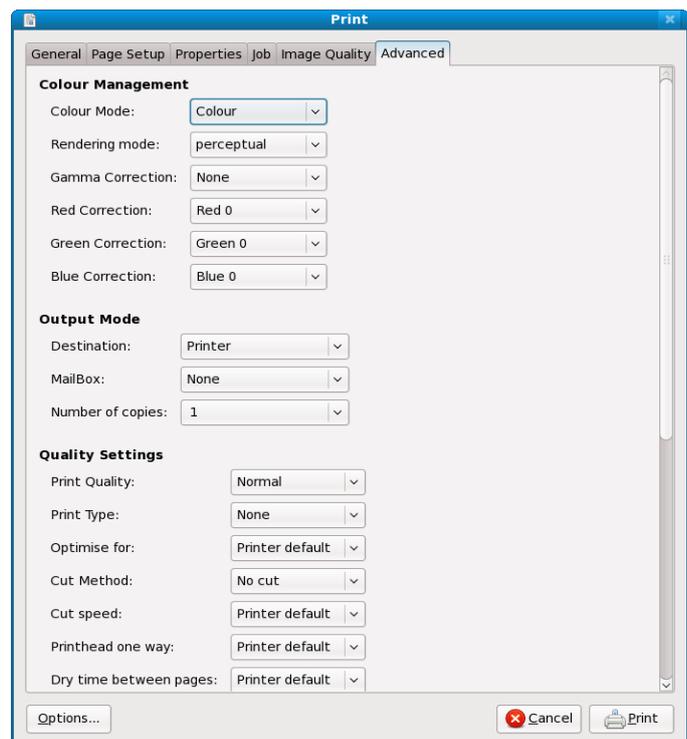


Fig. 25. Specify Advanced Parameters

Some *Advanced* options of more particular interest to CPrint.

**Print Quality:** *Draft, Normal* or *High*. High quality is compatible with 600 dpi printing, Draft with 300 dpi. Normal with both but depending on paper type.

**Optimise for:** *Speed* or *Disk Space*. Default is *Speed*. For large paper formats *Disk Space*, which is slower due to compression, may be required.

**Full Bleed Printing:** This type of printing is supported only for roll media and also only for some, not all, types of paper media and roll widths.

**Short Edge Feed:** This parameter may be ignored for roll paper.

**Zoom quality:** *Direct* gives best quality in most cases, but for very large paper formats this mode is not available in the current release of CPrint. *Low, Normal, High* and *Very High* correspond to a pixel zoom method, further explained in section 6.

Figure 27. shows a parameter setting which is not allowed: The Final Paper Size, Poster 42inx60in, is too large for speed optimisation - the default value. In such cases it is recommended to use disk space optimisation, or, if that would not work, a zoom quality Low, Normal or High - not Direct..

 **Please note:** When using 300 dpi the current version of CPrint will always indicate a conflict for Normal Print Quality. This is more to give a warning and does not mean, however, that the Canon imagePROGRAF printer would not support it. (This issue will be resolved in a future release of CPrint).

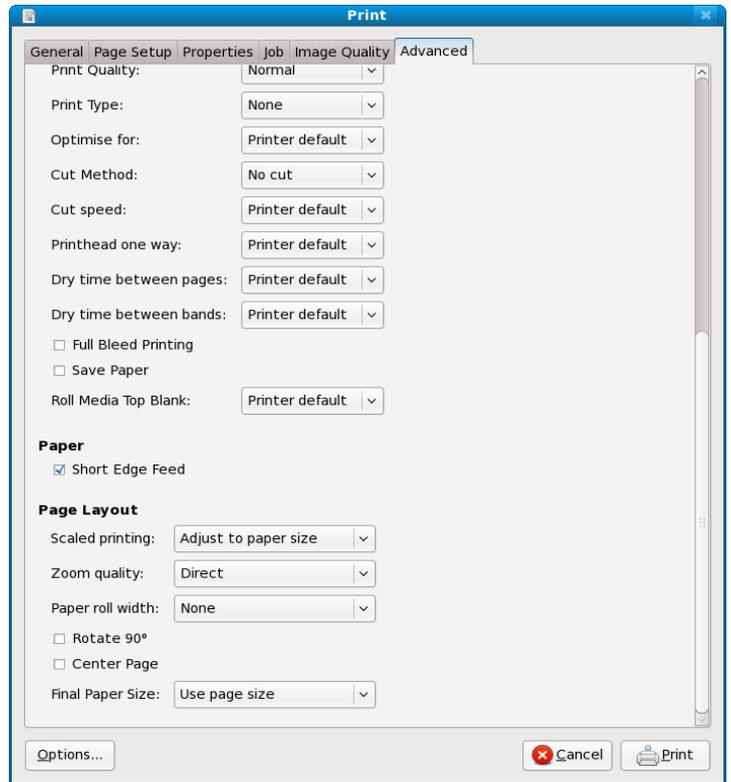


Fig. 26. Advanced Parameters

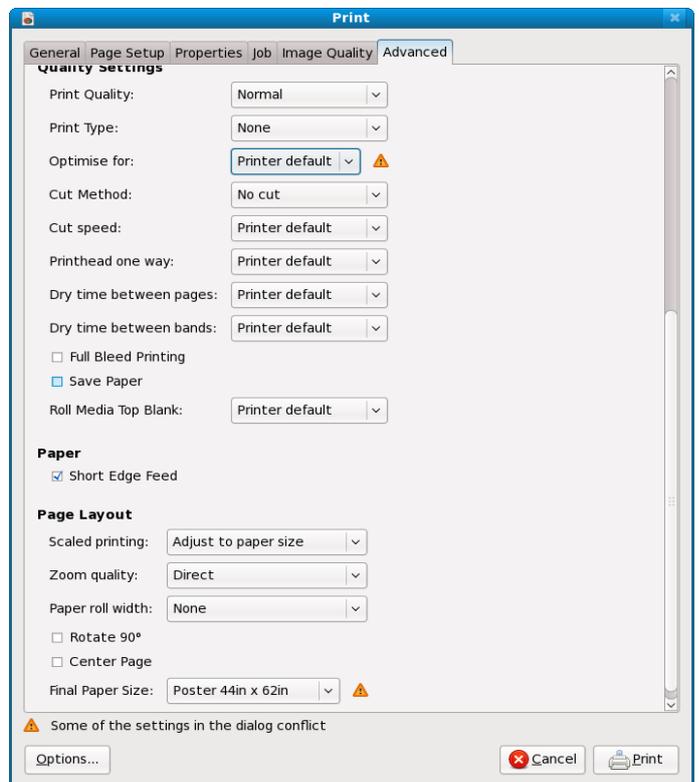


Fig. 27. Conflicting Parameters

Figure 28 shows a possible solution for the previous conflict.

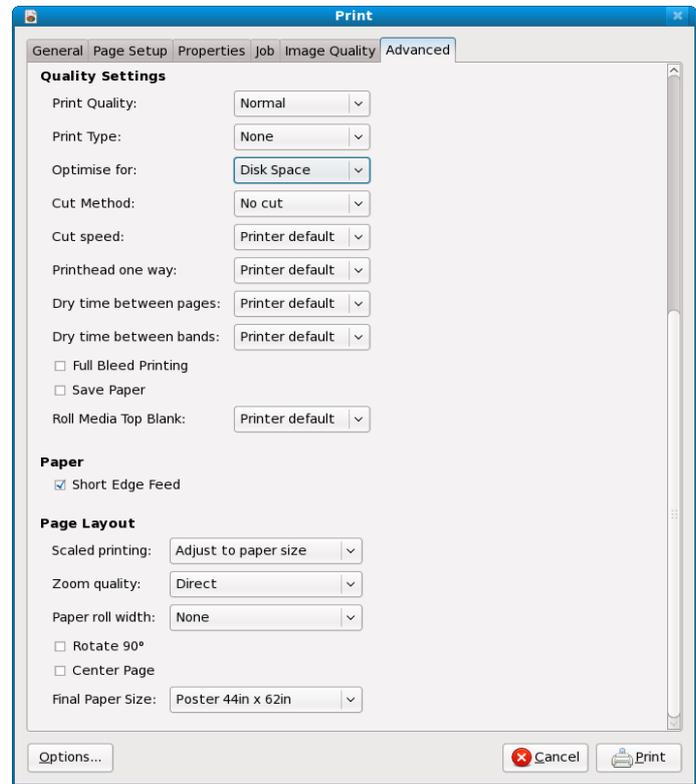


Fig. 28. Corrected Parameters

## 5.2 Printing with acroread

To print PDF files you may use different Linux tools, like evince, xpdf, or acroread. As acroread has a printer dialog different than the GTK interface we present it here as an example. Please download the version 9 of acroread as the printer dialog is significantly more complete than that of previous versions.

The printer dialog of acroread 9 looks like figure 29. The interface is rather different than the GTK print dialog. Please note: there is no page size field here on this dialog too. The page size will be, by default, the format of the PDF file itself. The page size, however, may be modified by clicking **Preferences**, which displays the following window.

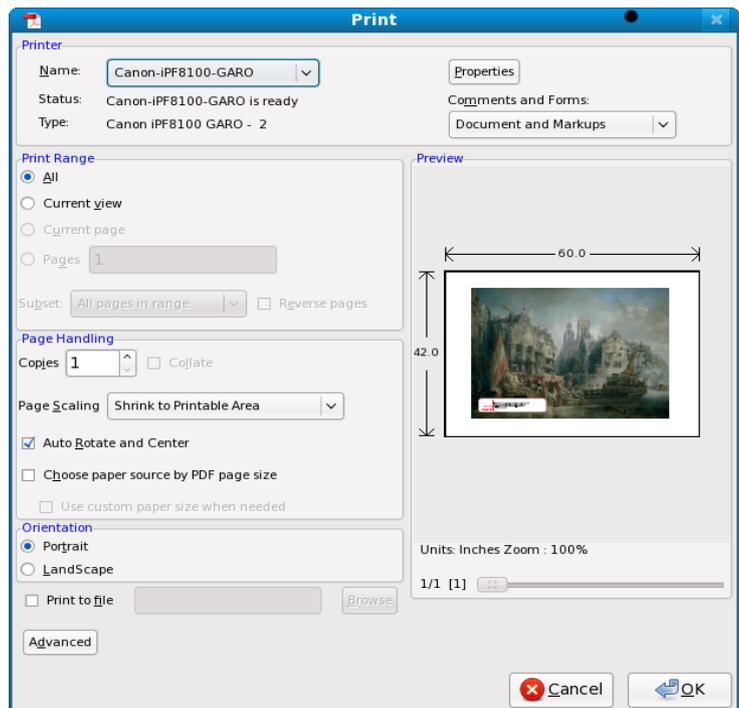


Fig. 29. The Print Dialog of acroread 9

The preference window of acroread 9 shows all entries from the PPD, i.e. all selectable options. These include the page size, as well as the (final) paper size options of CPrint.

The order of the options is slightly different than in the case of the GTK print dialog, but all options are available. Note the command line displayed at the bottom of the window, which includes all selected options.

When printing with older versions of acroread the command line entry is always available and you may add any command you wish. See Appendix A. for a review of command line options supported by CPrint.

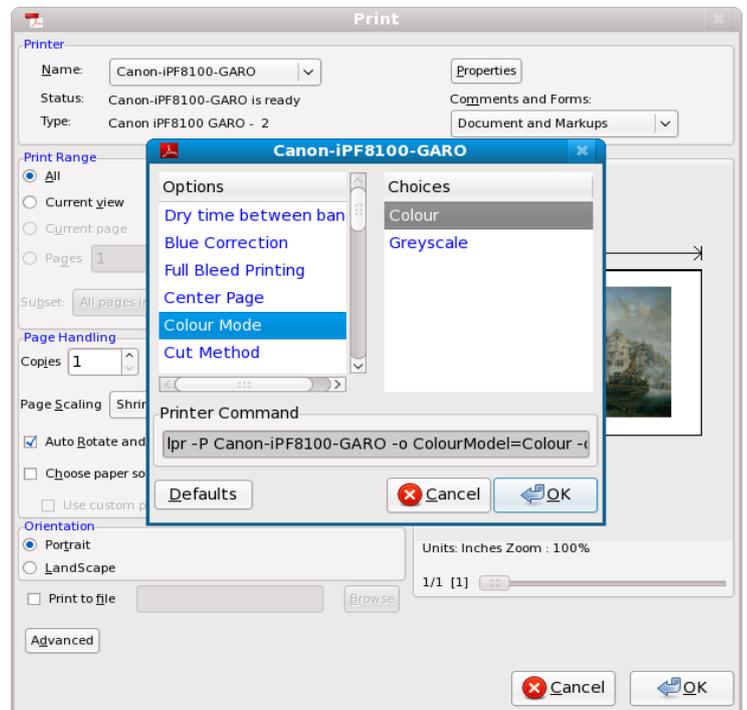


Fig. 30. The Preference window of acroread 9

# 6 On Zooming with CPrint 1.0

## 6.1 Pixel and Direct Zoom

CPrint supports two types of zooming or scaling of images:

- Direct zoom: scaling is done by ghostscript.
- Pixel zoom: scaling is done by a separate scaling program.

The pixel zoom knows four levels of scaling: low, normal, high and very high.

## 6.2 Direct Zoom or Direct Scaling

The advantage of direct scaling is that vector and pixel data are scaled in different manners.

The vector data are painted at maximal resolution, or with best quality.

The pixel data are zoomed with the default ghostscript zoom algorithms, which are quite reasonable.

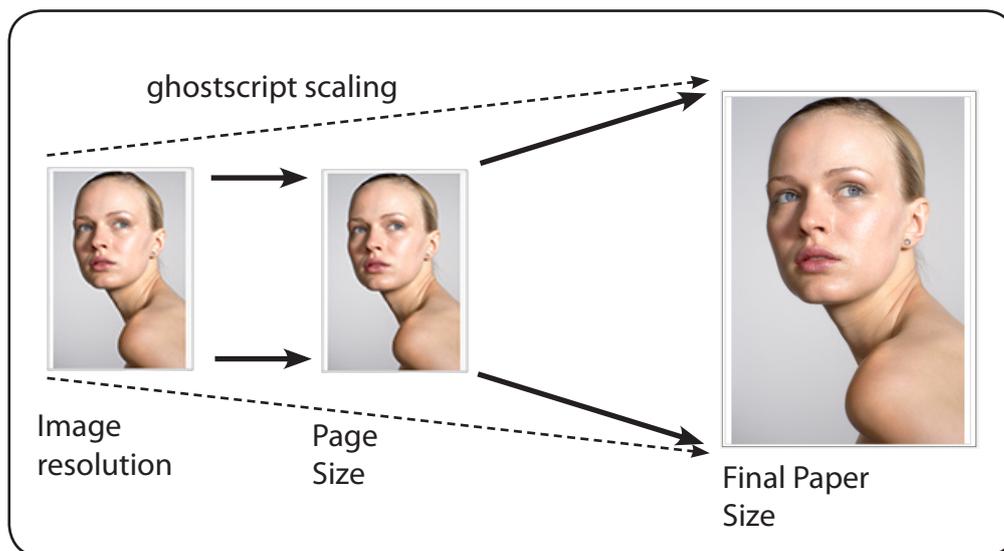


Fig. 31. Direct scaling

Figure 31. shows the three stages of the image:

At the left the image resolution, i.e. the resolution with which the image was created.

The second stage is the Page Size, i.e. the size specified at the Page Setup Dialog, which corresponds with the size of the page from the point of view of the application with which you are printing: gimp, evince, acroread, etc.

The final stage is the Final Paper Size, which you specify for CPrint only.

In figure 31 the part of ghostscript scaling is indicated by the dotted line.

When direct scaling is selected CPrint calculates an effective resolution for ghostscript based on the initial image resolution and the final paper size only. Hence the intermediate page size is not too important.

For this reason direct scaling is recommended in most cases.

For very large paper sizes it may be necessary to *optimise* for *Disk Space*. This is due to a file size limitation of ghostscript. When Disk Space optimisation is selected CPrint will create a compressed intermediate file in PNG format. Of course processing time will be slightly longer.

For very large paper sizes (see Appendix B) with images with poor compression rates even this method may not work. In these cases it is recommended to use pixel scaling.

### 6.3 Pixel Zoom or Pixel Scaling

When applying pixel zoom or pixel scaling, not all scaling is done in a pixel manner. The first stage, i.e. from the initial image to the paper size stage, is done by ghostscript, which scales vector and pixel data with optimal quality.

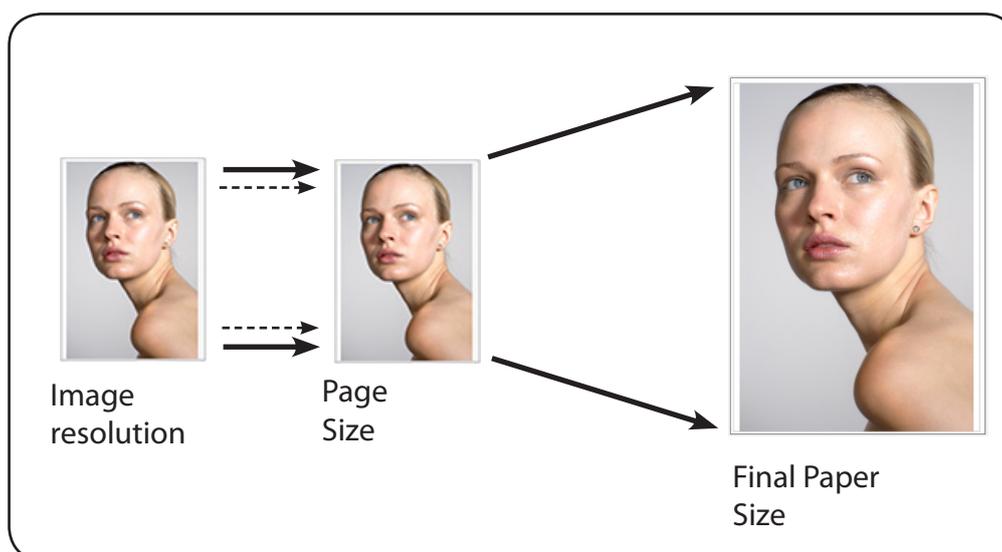


Fig. 32. Pixel scaling

Figure 32. shows the procedure for pixel scaling. The ghostscript part is again indicated by the dotted line. The rest is done by pure pixel scaling.

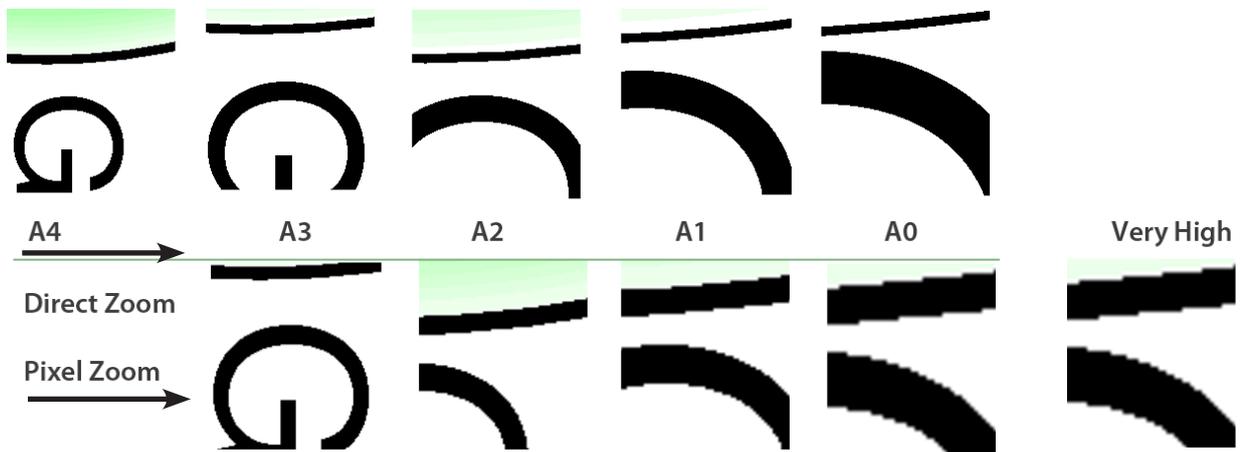


Fig. 33. Results of Direct and Pixel scaling

Figure 33. shows the results of the two different methods, when the same PostScript file is rasterised to page formats A4 to A0 in 600 dpi. The upper row corresponds to direct zoom, the lower to a pixel zoom, taking the A4 image as a starting point.

For the pixel zoom the normal zoom quality was used.

The result for the direct zoom is definitely superior, especially for narrow lines.

The pixel zoom tends to broaden narrow lines more.

When using pixel zoom it is recommended to use a page size as large as possible: this way ghostscript will take a major part of the scaling and the rest will be done by genuine pixel scaling.

Figure 33. also shows that the results of normal and very high zooms do not differ very much.



## 7 What to Do with Problems of CPrint 1.0

Of course when a first installation works straight out of the box, you will not need to read this section. But as with any software, problems may arise or results may be not as expected.

Together with the debugging mechanisms of CUPS CPrint allows for rather extensive debugging.

To activate debugging you should be root, or have the access rights of root.

### 7.1 Activating CUPS Debug Mode

By default the CUPS printer manager only logs error messages to the CUPS log file. The cups log files are located in the directory:

***/var/log/cups***

The file which is of most interest for our purposes is: ***error\_log***.

To activate more extensive debugging of CUPS itself, please edit the file:

***/etc/cup/cupsd.conf***

and look for the line starting with the word: ***LogLevel***.  
Change the line to the following:

***LogLevel debug***

After modifying you should save the file and then restart CUPS, so the modifications will be taken into account.

You may restart CUPS as follows:

**service cups restart**

or

**/etc/init.d/cups restart**

or (depending a little bit on the type of Linux):

**/etc/init.d/cupssys restart**

You will see that the error\_log file will now collect many more messages, even when not printing.



## 7.2 Activating CPrint Debug Mode

Even when CUPS debug mode logs error messages to the CUPS log files, this does not tell very much about what is going on during printing, or what possibly might have gone wrong. There is, however, a mode of the CPrint driver *siggsfilter*, which triggers it to give more output about the steps it is taking during printing.

To activate that mode *siggsfilter* should be called with the option `-v`.

Suppose we have created a printer queue called *ipf610test*. To activate the debug mode for that printer queue, edit the file:

```
/etc/cups/ppd/ipf610test.ppd
```

Locate the line:

```
*FoomaticRIPCommandLine: "sicgsfilter -M610 %G%H%l -u&user; -V&quot;&title;&quot; -n&copies; "
```

and modify it to:

```
*FoomaticRIPCommandLine: "sicgsfilter -v -M610 %G%H%l -u&user; -V&quot;&title;&quot; -n&copies; "
```

(The option `"-v "` has been added).

To make sure that CUPS uses this PPD file, you may either restart CUPS as described in the previous section, or disable and then enable again the printer queue as follows:

```
disable ipf610test  
cupsenable ipf610test
```

The output which is now generated in the file `/var/log/cups/error_log` may look like:

```
D [23/Apr/2009:09:40:07 +0200] [Job 1913] renderer command: sicgsfilter -v -M610 -w0 -p1 -c0 -r600 -R1 -GU0 -GR0 -GG0  
-GB0 -q1 -Q0 -C0 -E0 -a1 -b1 -B0 -g0 -F0 -t2 -z0 -S1 -f10 -T1 -l0 -o31 -m254 -uroot -V"testprint.ps" -n1  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] Starting process 14049: "sicgsfilter -v -M610 -w0 -p1 -c0 -r600 -R1 -GU0 -GR0  
-GG0 -GB0 -q1 -Q0 -C0 -E0 -a1 -b1 -B0 -g0 -F0..."  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] sicgsfilter: Canon iPF Garo driver; ver. 1.03.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] (c)2009 SIC International.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] all rights reserved.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] iPF Model = iPF610.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] GS: Colour mode= 1.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] Resolution = 600.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] Media in = 1.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] Media out = 31.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] Short edge = 1.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] Mode = 1.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] ScaleMode = 1.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] ScaleFileMode= 10.  
D [23/Apr/2009:09:40:07 +0200] [Job 1913] isComplex = 1.  
D [23/Apr/2009:09:40:08 +0200] Discarding unused job-progress event...  
D [23/Apr/2009:09:40:19 +0200] [Job 1913] gs -q -sDEVICE=tiff24nc -sOutputFile=/tmp/sicPQ35DcLv_%02d.tif -d BATCH  
-r840 -sPAPERSIZE=a3 -dNOPAUSE /tmp/sicGSocTM8B = 0  
D [23/Apr/2009:09:40:19 +0200] [Job 1913] Running: /opt/cel/garo/bin/zoomer -src /tmp/sicPQ35DcLv_01.tif -dst /tmp/
```



sicPRZlwWW3\_01.tif -r90 -v.

```
D [23/Apr/2009:09:40:19 +0200] [Job 1913] Rotating image.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Data flow: /tmp/sicPRZlwWW3 [TIFF] ==> stdout.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Job name: testprint.ps.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Job client name: root.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Number of copies 1 [1].
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Print quality: Normal.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Plotting Type: Image.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Destination: Printer.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Cutting type: None.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Media size[in]: ISO_A3.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] ShortEdge mode: true.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Media size[out]: ISO_A1.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Media type : stationery.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Media subtype : 0x44.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Tray/Roll type: Cassette 1.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Optimise level: 1 (Office).
D [23/Apr/2009:09:40:35 +0200] [Job 1913] One way print : Off.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Center mode : no.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Rotate mode : yes.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Zoom mode : 10.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Page dry time : panel setting.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Band dry time : panel setting.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Save paper : 0.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Gamma value : 1.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Red value : 0.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Green value : 0.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Blue value : 0.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Start position: (0,0) pixels.
D [23/Apr/2009:09:40:35 +0200] [Job 1913] Processing TIFF image: 1 = /tmp/sicPRZlwWW3_01.tif.
D [23/Apr/2009:09:40:40 +0200] [Job 1913] done.
D [23/Apr/2009:09:40:40 +0200] [Job 1913] Process 14049 ending: "sicggsfilter -v -M610 -w0 -p1 -c0 -r600 -R1 -GU0 -GRO
-GG0 -GB0 -q1 -Q0 -C0 -E0 -a1 -b1 -B0 -g0 -F0..."
D [23/Apr/2009:09:40:40 +0200] [Job 1913] tail process done writing data to STDOUT
D [23/Apr/2009:09:40:40 +0200] [Job 1913] KID4 exited with status 0
D [23/Apr/2009:09:40:40 +0200] [Job 1913] KID4 finished
D [23/Apr/2009:09:40:40 +0200] [Job 1913] KID3 finished with 0
D [23/Apr/2009:09:40:40 +0200] [Job 1913] KID3 exited with status 0
D [23/Apr/2009:09:40:40 +0200] [Job 1913] Renderer exit stat: 0
D [23/Apr/2009:09:40:40 +0200] [Job 1913] Renderer process finished
D [23/Apr/2009:09:40:40 +0200] [Job 1913]
D [23/Apr/2009:09:40:40 +0200] [Job 1913] Closing foomatic-rip.
D [23/Apr/2009:09:40:40 +0200] [Job 1913] PID 14043 (/usr/lib/cups/filter/foomatic-rip) exited with no errors.
D [23/Apr/2009:09:40:40 +0200] [Job 1913] File 0 is complete.
```

If an error would occur, it will most certainly be logged into this file.

You can see that in this example the printing program calls *sicggsfilter*, which then calls *ghostscript* (*gs ...*) followed by the program *zoomer*.

When CPrint debug mode is activated you may note that the program *sicggsfilter* leaves the intermediately generated image files in the */tmp* directory.

When printing to very large paper formats and obtaining no output, please check what the result of the *ghostscript* command is. When *ghostscript* produces an output file with a file size larger than approximately 2.2 Gb it may crash.



## 7.3 Restoring CUPS Normal Mode

After debugging please do not forget to restore the CUPS printer manager to its normal mode by editing the file `/etc/cups/cupsd.conf` again and setting the line with ***LogLevel debug*** back to

***LogLevel info***

and then restart CUPS again as described in section 7.1.

## 7.4 Printing to a File Device

Sometimes it may be useful to print not to the Canon imagePROGRAF printer but into a file. This is prohibited by default by CUPS. To allow printing to a file edit the file:

***/etc/cup/cups.conf***

and add a line:

***FileDevice Yes***

Then restart the CUPS printer manager as described in section 7.1.

To print to a file, you might run for example the command:

**`lpadm -pipf610test -v file:/tmp/IPF610.prn`**

To restore printing to the Canon imagePROGRAF printer you would run:

**`lpadm -pipf610test -v socket://IPAddressOfIPF610:9100`**

Printing to a file may sometimes help in debugging a certain problem.



## 8 Program Description of CPrint 1.0

### 8.1 Command Line Options of the setup Programs of CPrint 1.0

The **setup** program of CPrint allows for only one option:

- v More verbose output to the terminal. This basically outputs all message to the terminal, which you would find in the log file too.

The same is true for the **setup\_iPFXXX** programs for each Canon imagePROGRAF printer.

### 8.2 Command Line Options of the sicggsfilter Program of CPrint 1.0

The **sicggsfilter** program is the working horse of CPrint.

The program supports the following options:

- ax : set dry time to x. [30s].
- bx : set band dry time to x. [1s].
- cx : set colour mode to x. (0=RGB,1=K,2=Gray) [0].
- dx : set destination to x. (1=Printer,2=PrinterAutoDel,3=Mailbox) [0].
- ex : set execution mode to x. [0=standard,1=with store].
- fx : set scale quality mode to x. [3=triangle,1-7].
- gx : set save paper mode to x. (1=on,0=off).
- h : print this help message.
- ix : set plotting type to x. (0=image,1=linedraw) [0].
- jx : set mailbox to x. [1..29].
- kx : set compression mode to x.(0=none,2=packbits,3=seedrow) [2].
- mx : set media name to x. [0].
- nx : set number of copies to x. [1].
- ox : set output paper size to x [-1].
- px : set paper size to x [1=A3].
- rx : set resolution to x. [600].
- sx : set media subtype to x. [68].
- tx : set tray/roll type to x. See -HT for option list.
- ux : set job owner name to x.
- qx : set quality to x. (0=draft,1=normal,2=high) [1].
- v : set verbose mode.
- wx : set paper roll width [-1].
- zx : set short/long edge feed (0=short,1=long) [-1].
- Ax : set band height to x pixels [300].
- Bx : set borderless printing to x: 1=True,0=False [0].
- Cx : set paper cut type to x: 0=None,1=cut,2=cut-line [0].
- Ex : set paper cut speed to x: 0=None,1=slow,2=normal,3=fast [3].
- Fx : set roll media top blank to x: 0=Default,1=3mm,2=5mm,3=20mm [0].



- Hx : print specific help x: T=tray,M=media.
- lx : set center image mode to x (1=TRUE,0=FALSE) [FALSE].
- Lx : set ghostscript optimisation mode to x (0,1=speed,2=disk space) [0].
- Mx : set iPF model to x. [610].
- Ox : set one way printing x=1:on,0=off [0].
- Px : set directory for image processing data x [/opt/cel/garo/data].
- Qx : set render quality to x. (1=office,2=photo,3=linedraw) [2].
- Rx : set render mode to x. (0=percept,1=colorimetric,2=sat,3=none) [0].
- Sx : set scale mode to x. [1=fit paper,2=fit roll].
- Tx : set page rotation to x. [0].
- Vx : set job name to x. [CPrint\_IPF610].
- Wx : set tmp directory to x. [/tmp].
- Yx : set media type to x. [0].

### 8.3 Command Line Options of the zoomer Program of CPrint 1.0

The **zoomer** program supports the following options:

- b %f[,%f] : blur factor: >1 is blurry, <1 is sharp
- src %s : source filename
- dst %s : destination filename
- d %d,%d,%d,%d : destination box
- i : use integer scale factors
- f %f : use global magnification factor
- k : keep zeros in filter
- m %f,%f,%f,%f : scale and translate: sx sy tx ty (src to dst by default)
- p : disable filter coercion
- q : use square mapping (don't stretch pixels)
- r x : rotate x [1=90,2=180,3=270] degrees
- s %d,%d,%d,%d : source box (x0 y0 xsize ysize)
- v : verbose mode
- w %d%d%d%d : source window (x0 y0 x1 y1)
- x : filter x before y
- y : filter y before x
- Bx,y : scale band x of a maximum of y (x <= y)
- D %d : print filter coefficients
- F %s[,%s] : filter name in x and y (default=triangle)
- M : monochrome mode (1 channel)
- S %f[,%f] : filter support radius
- W %d%d%d%d : destination window

Where: %d denotes integer, %f denotes float, %s denotes string.



## 8.4 File Structure of CPrint 1.0

The programs of CPrint are all installed into the directory:

***/opt/cel/garo***

In this directory there are two subdirectories:

***bin***

***etc***

The ***bin*** directory contains at least the two main programs:

***sicggsfilter*** : the main driver of CPrint

***zoomer*** : a program used by *sicggsfilter* to scale and rotate image data.

Also the ***setup*** programs will be found here.

The ***etc*** directory contains a subdirectory for each Canon imagePROGRAF printer which is added. As an example the subdirectory ***etc/iPF610*** contains:

***cel-ipf610-garo-en.ppd*** : the PPD file for the Canon iPF610 imagePROGRAF printer.

***setup\_iPF610*** : the setup program for the Cano iPF610 imagePROGRAF.

***doc*** : a subdirectory with documentation files.

***RGB*** : a subdirectory with colour and raster data files.

Please note that the files found under the subdirectory ***RGB*** are device specific: they are only valid for the device they are designed for and will generate an error when used for another Canon imagePROGRAF printer.

A symbolic link is made from ***/opt/cel/garo/bin/sicggsfilter*** to ***/usr/bin/sicggsfilter***. This is done so that the PPD files will be able to access the ***sicggsfilter*** as a system utility.





## 9 *Non-standard Installations of CPrint 1.0*

### 9.1 *Upgrade Installation of CPrint 1.0*

If a version of CPrint is already installed on your Linux workstation the setup program of both the core and the printer package will detect that. And in both cases it will silently upgrade the necessary programs.

But printer package will in addition to that also search the CUPS data base of installed printers of the same model as the one of the package. If an already printer is found, it will ask for confirmation to upgrade the PPD file of that printer.

If you confirm the setup program will replace the PPD file of that printer by the new one, keeping the printer settings as much as possible.

A review of the upgrade installation will be available in the file `/var/log/setup_ipf610.log`.

### 9.2 *De-Installation of CPrint 1.0*

If you want to de-install the printer specific package of an existing version of CPrint 1.0 from your Linux workstation, it depends to how you have installed it.

For an RPM based installation, please type:

```
rpm -e cprint-ipf610-en-1.0-0
```

Please note: Printer specific package(s) installed through the RPM mechanism *must* be deleted before the core package can be deleted. The RPM program will detect the dependency of the printer specific packages on the core package and hence prevent you from deleting it.

If you want to de-install the core package of an existing version of CPrint 1.0 from your Linux workstation, it depends to how you have installed it.

For an RPM based installation, please type:

```
rpm -e cprint-core-en-1.0-0
```

For a TGZ based installation you would remove the directory (including subdirectories) `/opt/cel/garo/etc/iPF610` (or the directory corresponding with the Canon imagePROGRAF printer).

And if you delete the core package you would delete the full `/opt/cel/garo` directory. See Section 8.4 for more details on which files are used by CPrint.



# Appendix A: Command Line Options

## A.1 Command Line Options of the CUPS lp Command

The CUPS lp command allows for options in the form of:

**-o Option1=Value1 -o Option2=Value2 .....**

The following table gives a review of the PPD options supported by the PPDs shipped by CPrint. The table gives all options, which need not necessarily be supported by each Canon imagePROGRAF printer, with a short description.

**Table 1. PPD Command Line Options**

<i>PPD Option</i>	<i>Description</i>	<i>Values (* = default value)</i>
ColourModel	Colour Mode	*Colour, Grayscale Colour is always RGB mode. Please note: CMYK is <i>not</i> supported.
RenderMode	Rendering mode	*Perceptual, Colorimetric, Saturation <i>Perceptual = psychologically most pleasing.</i> <i>Colorimetric = according to the rules of the colour model applied.</i> <i>Saturation = saturated colours, mostly for business representations etc.</i>
GSOptimiseLevel	Rendering optimisation	*GSAuto, GSSpeed, GSSpace <i>GSAuto &amp; GSSpeed = optimise for speed.</i> <i>GSSpace = optimise for disk space making use of compressed PNG file format</i>
GammaCorrection	Gamma Correction	*GmaNone, Gma040, Gma045, Gma050, Gma054, Gma058, Gma062, Gma066, Gma070, Gma074, Gma078, Gma082, Gma086, Gma090, Gma110, Gma120, Gma130, Gma140, Gma150, Gma160, Gma165, Gma170, Gma175, Gma180, Gma185, Gma190, Gma195, Gma200, Gma210, Gma220, Gma230, Gma240 (Gma180 = 1.80 etc.) <i>A smaller gamma corresponds with darker colours, a larger gamma with lighter colours.</i>
RedCorrection	Red Correction	Redm15, Redm14, Redm13, Redm12, Redm11, Redm10, Redm9, Redm8, Redm7, Redm6, Redm5, Redm4, Redm3, Redm2, Redm1, *RedNone, Redp1, Redp2, Redp3, Redp4, Redp5, Redp6 Redp7, Redp8, Redp9, Redp10, Redp11, Redp12 Redp13, Redp14, Redp15, (RedmX = -X, RedpX = +X) <i>The Red, Green and Blue corrections add an overall linear amount of Red, Green or Blue to the output.</i>

<i>PPD Option</i>	<i>Description</i>	<i>Values (* = default value)</i>
GreenCorrection	Green Correction	Greenm15, Greenm14, Greenm13, Greenm12, Greenm11, Greenm10, Greenm9, Greenm8, Greenm7, Greenm6, Greenm5, Greenm4, Greenm3, Greenm2, Greenm1, *GreenNone, Greenp1, Greenp2, Greenp3, Greenp4, Greenp5, Greenp6 Greenp7, Greenp8, Greenp9, Greenp10, Greenp11, Greenp12 Greenp13, Greenp14, Greenp15, (GreenmX = -X, GreenpX = +X) <i>The Red, Green and Blue corrections add an overall linear amount of Red, Green or Blue to the output.</i>
BlueCorrection	Blue Correction	Bluem15, Bluem14, Bluem13, Bluem12, Bluem11, Bluem10, Bluem9, Bluem8, Bluem7, Bluem6, Bluem5, Bluem4, Bluem3, Bluem2, Bluem1, *BlueNone, Bluep1, Bluep2, Bluep3, Bluep4, Bluep5, Bluep6 Bluep7, Bluep8, Bluep9, Bluep10, Bluep11, Bluep12 Bluep13, Bluep14, Bluep15, (BluemX = -X, BluepX = +X) <i>The Red, Green and Blue corrections add an overall linear amount of Red, Green or Blue to the output.</i>
Resolution	Resolution	300dpi *600dpi
PrintQuality	Print Quality	Draft, *Normal, High
OptimiseLevel	Print Type	*None, Office, Picture, LineDrawing
CutMethod	Cut Method	*None, CutPage, PrintCutLine, CutDefault, <i>CutPage = cut the page after plotting possibly after waiting a PageDryTime.</i> <i>PrintCutLine = print a line, but do not cut.</i>
CutSpeed	Cut speed	*CutDef, CutFast, CutStandard, CutSlow
PrintHead	Printhead one way	*None, Off, On <i>With PrintHead On: slower output, but more regular quality.</i>
PageDryTime	Dry time between pages	*PDTDefault, PDT0, PDT30s, PDT1m, PDT3m, PDT5m, PDT10m, PDT30m, PDT60m <i>PDT30s = 30 seconds.</i> <i>PDT30m = 30 minutes.</i>
BandDryTime	Dry time between bands	*BDTDefault, BDT0s, BDT1s, BDT3s, BDT5s, BDT7s, BDT9s <i>Times are in seconds.</i>
Borderless	Full Bleed Printing	*False, True Note that Full Bleed printing is not supported for all media nor all media sizes.
SavePaper	Save Paper	*False, True <i>If True: adjusts vertical margins to a minimum.</i>
RollTopMargin	Roll Media Top Blank	*MDefault, M3mm, M5mm, M20mm <i>Adds a blank area before printing in mm.</i>

<b>PPD Option</b>	<b>Description</b>	<b>Values (* = default value)</b>
InputSlot	Input slot	Roll1, Roll2, RollAuto, Manual, ManualFront, ManualTop, *Cassette1 <i>All devices support Roll1 and Manual. The other options are device specific.</i>
MediaType	Media Type	<i>See MediaType table here below</i>
ShortEdgeMode	Short Edge Feed	False, *True
ScaleMode	Scaled printing	*AdjustPage, AdjustRoll
ZoomQuality	Zoom quality	*ZQDirect, ZQLow, ZQStandard, ZQHigh, ZQVeryHigh <i>ZQDirect = direct scaling with ghostscript. The other modes imply pixel scaling of different qualities. See section 6 for more details.</i>
PaperRollWidth	Paper roll width	<i>See PaperRollWidth table here below</i>
PageRotateMode	Rotate 90°	*False, True <i>True = Rotate the image by 90°.</i>
CenterPageMode	Center Page	*False, True
PaperFormat	Final Paper Size	<i>See PaperFormat table here below</i>
PageSize	Page Size for main applica- tion	<i>See PaperFormat table here below</i>

**Table 2. Media Type**

<b>MediaType=</b>	<b>Description</b>
AdhMattVinyl	Adhesive Matt Vinyl
AdhMattVnlStr	Adhesive Matt Vinyl Stretch
AdhSynthetic	Adhesive Synthetic Paper
ArtExtraSm250g	Art Paper Extra Smooth 250g
BacklitFilm	Backlit Film
BacklitFilmEU	Backlit Film EU
BackprintFilm	Backprint Film
CADClearFilm	CAD Clear Film
CADTracing	CAD Tracing Paper
CADTransMatFilm	CAD Translucent Matte Film
CanvasMatte	Canvas Matte
CanvasMatte2	Canvas Matte 2
CanvasSemiGlos	Canvas Semi Glossy
CoatedPaper	Coated Paper
ColoredCoated	Colored Coated Paper
CommercialProf	Commercial Proofing Paper
CommProof210g	Commercial Proofing Paper 210g
CommProof270g	Commercial Proofing Paper 270g
ExtraHeavyCoated	Extra Heavyweight Coated Paper
ExtraMattCoat	Extra Matt Coated Paper
FabricBanner	Fabric Banner
FineArtBlockPrt	Fine Art Block Print

<b>MediaType=</b>	<b>Description</b>
FineArtHWPhoto	Fine Art Heavyweight Photo
FineArtPhoto	Fine Art Photo
FineArtTextured	Fine Art Textured
FineArtWaterClr	Fine Art Watercolor
FlameResistCloth	Flame-Resistant Cloth
GlossyPaper	Glossy Paper
GlossyPhoto	Glossy Photographic Paper 190gsm
GlossyPrf195g	Glossy Proofing Paper 195g
HighResBarrier	Hi Res Barrier Paper
HighResGraphic	Hi Res Graphic Paper
HighRes	High Resolution Paper
HWCoated	Heavyweight Coated Paper
HWGlossy2	HW Glossy Paper 2
HWGlossyPhoto	HW Glossy Photo Paper
HWGlossyPhoto3	HW Glossy Photo Paper 3
HWSEmiGlossy2	HW SemiGlossy Paper 2
HWSEmiGlossyPhoto	HW SemiGlossy Photo Paper
InstDryGlos200	Instant Dry Papers Glossy 200g
InstDryGlossy	Instant Dry Papers Glossy Paper
InstDryPhotoSat	Instant Dry Papers Satin 200g
InstDrySatin	Instant Dry Papers Satin
JapaneseWashi	Japanese Paper Washi
MattCoated	Matt Coated Paper
MattCoated140g	Matt Coated Paper 140g
MattCoated170g	Matte Coated Paper 170gsm
MattCoated90g	Matte Coated Paper 90gsm
MattePhoto	Matte Photo Paper
OpaquePaper	Opaque Paper
PhotoGloss190g	Photo Glossy Paper 190g
PhotoGloss240g	Photo Glossy Paper 240g
PhotoGloss270g	Photo Glossy Paper 270g
PhotoHighGloss	Photo HighGloss Paper
PhotoHWGlossy	HW Glossy Photo Paper
PhotoPaperPlus	Paper Photo Plus
PhotoPaperPro	Paper Photo Pro
PhotoPapHighGl	Photo Paper High Glossy 250g
PhotoPearl260g	Photo Paper Pearl 260g
PhotoPlusGlossy2	Photo Paper Plus Glossy 2
PhotoPlusSemiGl	Photo Paper Plus Semi-Gloss
PhotoProPlatinum	Photo Paper Pro Platinum
PhotoReal210g	Photo Realistic Paper 210g
PhotoSatin240g	Photo Paper Satin 240g
PhotoSatin270g	Photo Paper Satin 270g

<b>MediaType=</b>	<b>Description</b>
PhotoSemiMatt	Photo paper Semi Matt
Plain	Plain Paper
PlainHG	Plain Paper (High Quality)
PlainHQ	Plain Paper (High Grade)
PolyproOutdrBnr	Polypro Outdoor Banner
PopBoard	POP Board
PosterSemiGlos	Poster Semi-Glossy Photo Paper
PremArtEmboss	Prem Art Paper Embossed
PremArtSmooth	Prem Art Paper Smooth
PremGlossy200	Premium Glossy Paper 200
PremGlossy280	Premium Glossy Paper 280
PremiumMatte	Premium Matte Paper
PremSemiGlossy200	Premium Semi-Glossy Paper 200
PremSemiGlossy280	Premium Semi-Glossy Paper 280
ProofingPaper	Proofing Paper
RecycledCoated	Recycled Coated Paper
RollUpFilm	Roll-Up Film
SatinHWPhoto	Satin Photographic Paper 190gsm
SatinPhoto190g	Satin Photographic Paper 240gsm
SatinPhoto240g	Satin Photographic Paper 270gsm
ScrimBanner	Scrim Banner
SemGlossyPrf195	Semiglossy Proofing Paper 195g
SemGlossyPrf255	Semiglossy Proofing Paper 255g
SemiGlossyPhoto	Semiglossy Photo
Special1	Special 1
Special2	Special 2
Special3	Special 3
Special4	Special 4
Special5	Special 5
Special6	Special 6
Special7	Special 7
Special8	Special 8
Special9	Special 9
Special10	Special 10
StandardPap80g	Standard Paper1569B 80g
StandardPap90g	Standard Paper1570B 90g
Synthetic	Synthetic Paper
ThinFabricBanner	Thin Fabric Banner
ThinFabricBnr2	Thin Fabric Banner 2
UniOpqBckltFlm	Uni Opaque Backlit Film
WtrResArtCanv	Water Res Art Canvas
WtrResHiGlos	Water Res High Glossy
WtrResSemGlos	Water Res Semi Glossy

**Table 3. Paper Size**

<i>PageSize= or PaperFormat=</i>	<i>Description</i>
A0	ISO A0
A1	ISO A1
A2	ISO A2
A2Plus	ISO A2Plus
A3	ISO A3
A3Plus	ISO A3Plus
A4	ISO A4
ISOB0	ISO B0
ISOB1	ISO B1
ISOB2	ISO B2
ISOB3	ISO B3
ISOB4	ISO B4
JISB0	JIS B0
JISB1	JIS B1
JISB2	JIS B2
JISB3	JIS B3
JISB4	JIS B4
ANSIE	34 inch x 44 inch ANSI E
ANSIF	28 inch x 40 inch ANSI F
ANSID	22 inch x 34 inch ANSI D
ANSIC	17 inch x 22 inch ANSI C
Tabloid	11 inch x 17 inch Ledger
SuperB	13 inch x 19 inch Super B
Letter	Letter 8 5 inch x11P
Legal	Legal 8 5 inch x14P
ARCHE	36 inch x 48 inch ARCH E
ARCHE1	30 inch x 42 inch ARCH E1
ARCHE2	26 inch x 38 inch ARCH E2
ARCHE3	27 inch x 39 inch ARCH E3
ARCHD	24 inch x 36 inch ARCH D
ARCHC	18 inch x 24 inch ARCH C
ARCHB	12 inch x 18 inch ARCH B
ARCHA	9 inch x 12 inch ARCH A
DINC0	DIN C0
DINC1	DIN C1
DINC2	DIN C2
DINC3	DIN C3
DINC4	DIN C4
INCH20X24	20 inch x 24 inch
INCH18X22	18 inch x 22 inch
INCH14X17	14 inch x 17 inch

<i>PageSize= or PaperFormat=</i>	<i>Description</i>
INCH12X16	12 inch x 16 inch
INCH10X12	10 inch x 12 inch
INCH10X15	10 inch x 15 inch
INCH8X10	8 inch x 10 inch
INCH16X20	US Photo 16 inch x 20 inch
INCH20X30	Poster 20 inch x 30 inch
INCH30X40	Poster 30 inch x 40 inch
INCH42X60	Poster 42 inch x 60 inch
INCH44X62	Poster 44 inch x 62 inch
INCH50X70	Poster 50 inch x 70 inch
INCH54X76	Poster 54 inch x 76 inch
INCH60X84	Poster 60 inch x 84 inch
INCH13X22	13 inch x 22 inch
MM300X900	Poster 300 mm x 900 mm

**Table 4. Paper Roll Width**

<b><i>PaperRollWidth =</i></b>	<b><i>Description (Paper Format taken as basis)</i></b>
60inch	Poster 60 inch x 84 inch
54inch	Poster 54 inch x 76 inch
50inch	Poster 50 inch x 70 inch
44inch	Poster 44 inch x 62 inch
42inch	Poster 42 inch x 60 inch
JIS_B0	JIS B0
ARCH_E	36 inch x 48 inch ARCH E
ISO_A0	ISO A0
ARCH_E1	30 inch x 42 inch ARCH E1
JIS_B1	JIS B1
ARCH_D	24 inch x 36 inch ARCH D
ISO_A1	ISO A1
JIS_B2	JIS B2
ANSI_C	17 inch x 22 inch ANSI C
ISO_A2	ISO A2
16inch	US Photo 16 inch x 20 inch
14inch	14 inch x 17 inch
A3Plus	ISO A3Plus
Poster300mm	Poster 300 mm x 900 mm
ISO_A3	ISO A3
JIS_B4	JIS B4
10inch	10 inch x 12 inch
8inch	8 inch x 10 inch

## Appendix B: Limits on Large Paper Sizes

Due to internal size limitations of the ghostscript program, which underlies the driver of CPrint, and due to a limitation of most of the Linux file systems, there is currently a limit on the size of temporary files which are generated during the rasterisation process. This limitation will be resolved in the next release of CPrint.

For the following paper sizes please select

- first: **optimisation for disk space**.
- or use a zoom method different than 'direct zoom',
- eventually use a resolution of 300dpi :

ISO B0 (1000mm x 1414mm)

JIS B0 (1030mm x 1456mm)

Poster 42inch x 60inch

Poster 44inch x 62inch

Poster 50inch x 70inch

Poster 54inch x 76inch

Poster 60inch x 84inch.

### When using **optimisation for disk space**

The intermediate file format used is PNG, a very compressed format, slower to process. For very large images with a low compression rate this may still fail.

### When using a **non direct zoom**

In this case the scaling of the image is partially done on a pixel basis, with image compression activated automatically by the driver. For very large images with a low compression rate the driver will use a banding mechanism.

### When using a resolution of 300 dpi and direct zoom

This resolution is dependent on the image quality according to the following table:

Image Quality	Supported by 300 dpi
High	No
Normal	By some media types, but not all
Draft	Yes

When selecting 300 dpi resolution with an image quality 'normal' the PPD mechanism will indicate a conflict. You may nevertheless continue printing if you know that the media type which is in the printer supports 300 dpi printing in this mode. Please consult the Canon imagePROGRAF documentation for more details. (For example: plain paper is supported by models iPF8X00-9X00, but not by the others).

## *Appendix C: A Note on Mailbox Support*

Mailbox support is available for Canon imagePROGRAF printers which have a hard disk drive. Depending on the printer there will be either 9 or 29 mailboxes available.

The purpose of a mailbox is to allow for a job to be stored on to the hard disk and then to be printed later when the user activates the job either by a network interface or directly from the front panel of the Canon imagePROGRAF printer.

A mailbox may be protected by a password.

The current version of CPrint does not query the Canon imagePROGRAF printer before printing. Hence a possible password for a specific mailbox will be ignored. The job will, however, be stored into the mailbox and to access the mailbox and the job therein the user will have to apply the password associated with that mailbox.

This differs from the way of printing on MS Windows where the mailbox is queried before printing and if a password is associated with the mailbox the user has to type in the password before the job is processed.

# Appendix D: Release Notes

This Appendix describes some of the known limitations and bugs on specific releases of Linux operating systems. You may always have a look at the *sicforum* for more up-to-date information.

## 1. *First release version 1.0: April 2009*

This is the first official release of CPrint 1.0.

## 2. *SELinux*

Several Linux distributions, including Debian and Fedora, come with the SELinux layer by default. If SELinux enforced then some CPrint log messages would generate a SELinux warning. Therefore the setup program will now install a SELinux module if it detects the presence of enforced SELinux protection. This does not mean that some SELinux warnings during installation may not occur: sometimes the `/var/log` directory does not allow programs to write into. This is no serious problem and does not affect the proper installation at all.

## 3. *Very Large Paper Formats Limitation*

This version suffers from a limitation on very large paper formats and images with a very low compression rate due to limitations on file sizes of some Linux operating systems.

