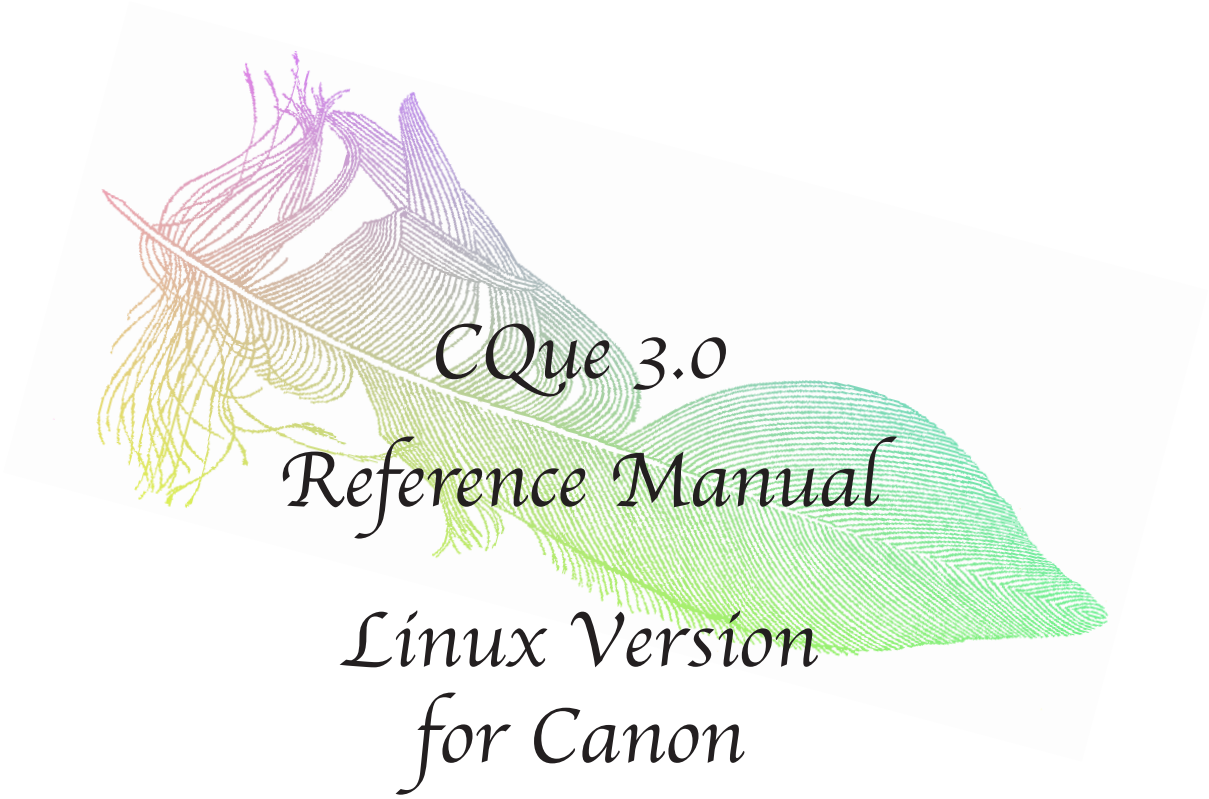
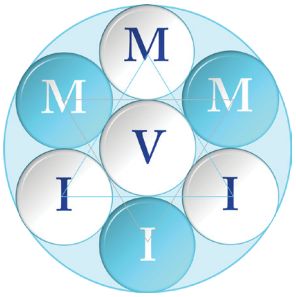


CQue 3.0
Reference Manual
Linux Version
for Canon



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1 Introduction of CQue

1.1 Introduction

CQue 3.0 is a tool to create and manage printer queues on Linux platforms. It will be mostly used by system administrators, though once a queue is created, an ordinary user may benefit from *CQue 3.0* by the (optional) possibility to adjust 'last minute' printing paramaters. In a more classical sense, *CQue 3.0* allows for the creation of dedicated printer queues.

This manual provides details on all aspects of *CQue 3.0:* Installation, maintenance, scripts, etc. Parts of this document are rather technical and will not be required for a first approach to CQue. These pages may contain valuable information, however, for more advanced features of CQue, or for the system administrator who wants to customise CQue. These pages are indicated with a  sign on the bottom of the page, and may be skipped by the occasional reader.

The manual *CQue 3.0 Quick Installation and User Guide* for *Linux* provides enough details to enable a quick installation of *CQue 3.0.* Some parts of this guide 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 CQue is designed and how it works. Even though this might look technical, it is recommended reading for an effective and efficient installation of CQue. It also gives some suggestions for various types of usage of CQue.
The *Installing CQue* section presents an example of an installation, much in the same way as the *CQue 3.0 Quick Installation and User Guide*.
The *Setting up a Queue* section presents various ways of how to use CQue.
The *What to do with Problems* section helps to answer questions that may arise if things do not work as expected.
The *Program Description s*ection gives detailed information about the various programs making up the CQue package.
The *Scripts and Configuration* section gives an outline of the various scripts of CQue and how to customise them.

The X11/Motif version of CQue 3.0 for Linux is shipped free of any license, i.e. there is no demonstration version.

To install CQue you must be logged on either as *super-user* or *root* (*System Administrator*). A user who is not super-user (i.e. a *normal user*) will not have the rights to add or delete printer queues. The setup program will not run if you are not super-user.

1.2 Compatibility

The package - up to version 3.0-5 - is compatible with and tested on the *Linux versions* shown in the following table.

Linux Workstation Type	32 Bits Operating System	64 Bits Operating System
RedHat (and Fedora)	7.2 (FC2) and newer	kernel 2.6-27 and newer
Mandriva	9.0 and newer	kernel 2.6-27 and newer
Suse (NOVELL)	8.0 and newer	kernel 2.6-27 and newer
Debian	2.0 and newer	kernel 2.6-27 and newer
Ubuntu	2.0 and newer	kernel 2.6-27 and newer
Oracle Linux	6.0 and newer	kernel 2.6-27 and newer
Knoppix	3.0 and newer	kernel 2.6-27 and newer
Linux (Intel) in general	kernel 2.4-7 and newer	kernel 2.6-27 and newer

Because of security reasons as of version 3.0-5 CQue is compiled on a Linux kernel version 4.1 in both 32 and 64 bits versions. This implies too that libpng version 16 is used as well as libmotif - which need to be present on your Linux distribution. If your Linux system is not compatible with these requirements, versions of CQue 3.0-X compiled on kernel 2.6 are still available on request.

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 CQue 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. CQue explicitly relies on the foomatic-rip package for the transformation of one printer description language (PDL) to another.

We note that CQue 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.

CQue provides support for the following type of Canon devices:

Printer Description Language of Canon device
PostScript
PCL (PCL5e and/or PCL5c)
PXL (or PCL6)

Of course the Canon device itself would need the necessary hardware, if available, to support any of these PDLs.

1.3 Desktops with Wayland Window Manager

The package CQue is compiled for X11 window managers and makes use of the Motif type of windows. This is the reason why libmotif is required for CQue to run properly. Currently CQue is thus not compatible with the more modern type of window manager Wayland.

Future releases of CQue will be compatible with Wayland but if your Linux workstation is running with Wayland then for the time being there are two work arounds:

1. You mail install CQue through an RPM or DEB package, which will install all components of CQue properly, i.e. all the PPD files, the driver and the user interface cque. The user interface cque, however, will not run. But you may create printer queues through the CUPS interface (localhost#631) or through the native printer manager of your Linux distribution.
2. You may switch your desktop to support X11 windows by editing the file: **/etc/gdm/custom.conf**. The file looks similar to:

```
# GDM configuration storage
[daemon]
# Uncoment the line below to force the login screen to use Xorg
#WaylandEnable=false
```

By uncommenting the line "#WaylandEnable=false", i.e. deleting the '#' and restarting the desktop, X11 mode will be enabled and now you can also run cque itself.

2 The General Concept

2.1 Some Terminology

In this manual we will talk about different kinds of queues. For clarity we give the following description of how various terms will be used within this manual.

Physical Printer Queue

A *physical printer* queue corresponds with a printer queue, in the classical meaning of the word, assuring the connection of a computer with a printer. The files, sent to this queue, will be processed the one after the other. A physical printer queue may send the files as is, or in certain cases it is possible that the queue includes a *filter,* which processes the file passing through the queue. For example a transformation of the file from one format to another may be applied. The connection with the printer may be a network port, a parallel or USB port or yet another type of port. If the connection is through a network, then we speak about a *remote queue*. Otherwise we are talking about a *local queue*.

Logical Queue

A *logical queue* also has the property that the files will be processed the one after the other. But these files will not necessarily go directly to the printer. It is possible – as a matter of fact this is the task of a logical queue – to apply a specific processing of the files passing through this queue. After processing the files may be redirected to a physical printer queue in order to be output on the printer.

Filter

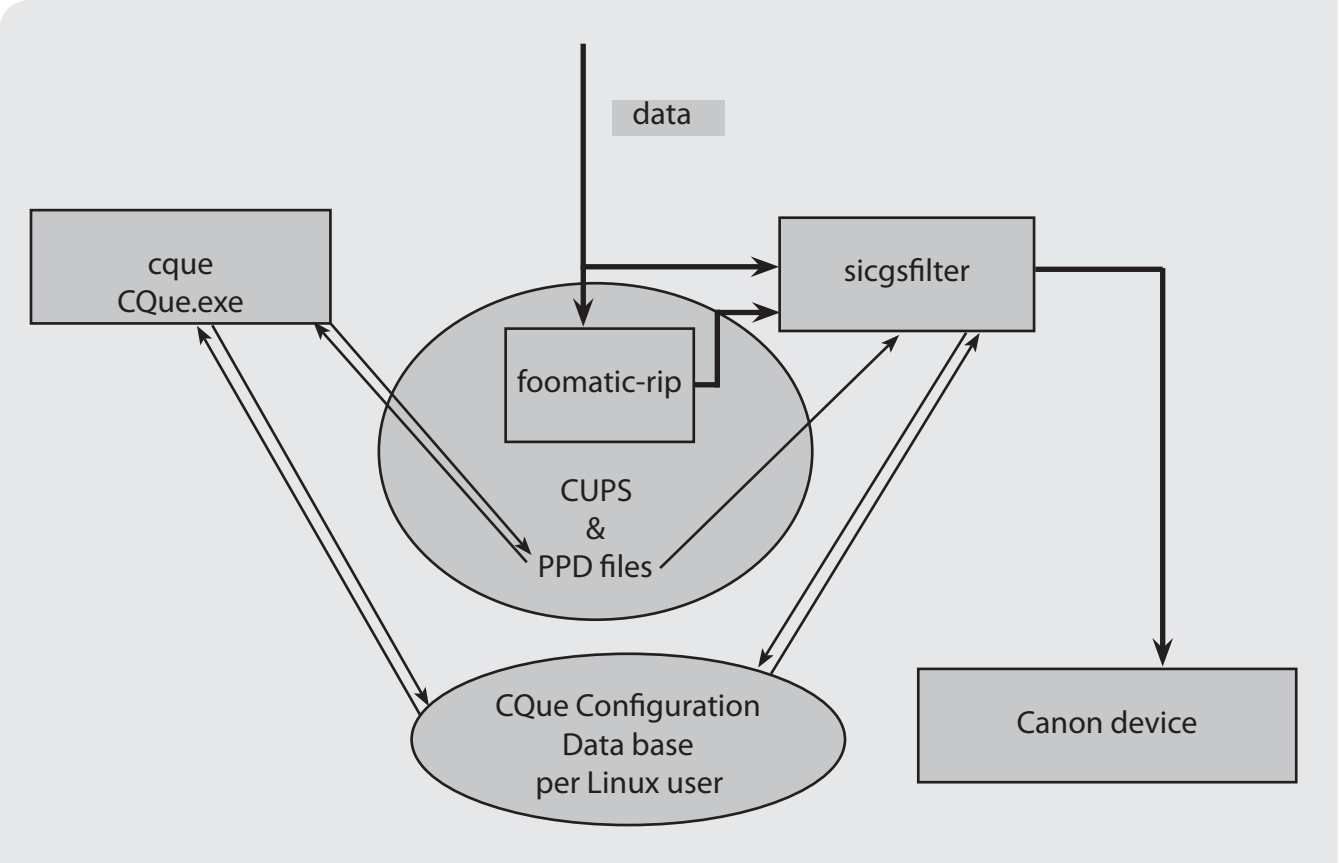
A *filter* is a program or executable file (script), which will be executed inside a printer queue. The syntax of such a filter is strictly defined by the print manager of the UNIX system and is therefore strongly system dependent. Filters of CUPS for example allow the user to pass user specific arguments to the filter. This is not possible (or very limited) for printer queues of the classical B.S.D. type of workstations.

CQue Queues

A queue of the *CQue type* is in principle a genuine CUPS physical queue with a filter that executes the CQue driver *sicgsfilter.* The program *sicgsfilter* will be described shortly. Most of the printer options may be managed either by CQue or by CUPS compatible tools. Some advanced options, however, may be managed by CQue only. These advanced options include mailbox printing, secured printing and printing with department accounting.

2.2 The Modules of CQue

The CQue package consists basically of the following modules:



- The program ***CQue.exe*** (or the script ***cque*** which runs *CQue.exe* including certain environment variables).
- The program ***sicgsfilter***, which is the driver taking care of the output of the queue.
- The ***foomatic*** package, which is not part of CQue itself. Yet CQue relies on the foomatic package especially for the transformation of printer description languages, if necessary. Foomatic is integrated into more recent versions of CUPS, and thus not a separate package anymore.
- The ***database*** of CQue, which may include information per Linux login or user.

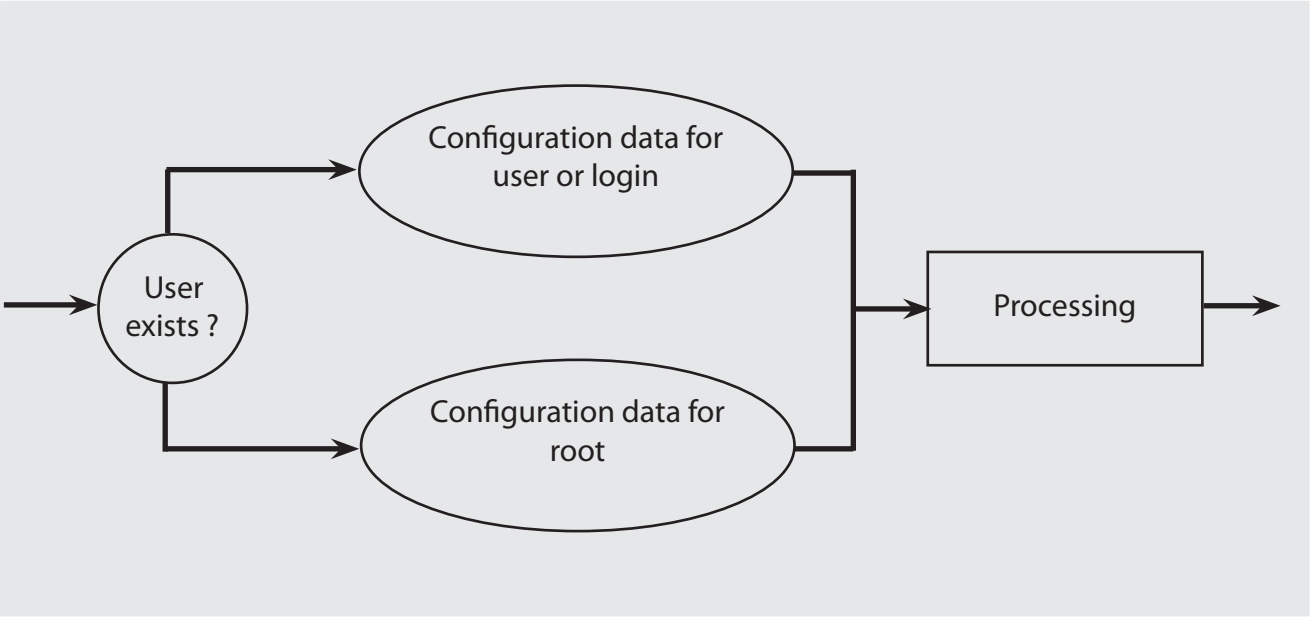
The print jobs of a CQue queue are processed by the program ***sicgsfilter***. They are never processed directly by *CQue.exe* itself. The program ***sicgsfilter***, however, is configured by CQue through the common database.

If no PDL transformation is necessary, then the data are directed straight to the ***sicgsfilter*** program. Otherwise CUPS will call foomatic-rip to perform the transformation and then send the resulting data to ***sicgsfilter***. ***sicgsfilter*** will always query the PPD information and the CQue Configuration Data base.

As of CQue 3.0 the GTK+ package as well as LibreOffice may also read PPD information and thus format the data, for example for advanced options like mailbox and secured printing, etc.

2.3 What Happens when Printing?

When a CQue queue is configured, the finisher features of the queue will in general hold for all users. For advanced features like mailbox printing, secured printing and accounting, however, a distinction will be made according to the login or username. This is independent of the fact of whether these options are set by the GTK+ print interface or otherwise (command line, for example).
If a user is known to the data base of CQue, then those values will apply.
If a user is not known to the data base of CQue, then the values of root will apply.



CQue may process various file types, depending on the type of printer queue.

If a queue of CQue type has been configured for a ***PostScript Canon device***, then it will accept:

- ◊ *PostScript files*. This type of files is mainly considered as raw PostScript, i.e. without any printer specific PostScript code like duplex printing, stapling etc. It is the job of sicgsfilter to include these PostScript codes into the file. If the PostScript file itself includes already features of this kind, then the result may not be defined in a unique way.
- ◊ *Non-Postscript ASCII files*, which will automatically be transformed to PDF and then to PS through a filter. This filter will be a standard filter supplied by CUPS.
- ◊ *PDF files*. CQue will automatically convert the PDF data to PS. Thereafter it will insert any printer specific PostScript finishing code like duplex printing, stapling into the data stream. It will normally not sent the PDF file as is.
- ◊ *Image files* like TIFF, JPEG, X11, PNG, etc., which will also be transformed to a PostScript format internally. They will be printed 'as is' at standard printer resolution.

If a queue of CQue type has been configured for a *PCL Canon device*, then it will accept:

- ◊ *ASCII files*, to which the appropriate header with PCL/PJL data will be added. The ASCII data may be formatted so that the data will print more sophisticated than simply A4 and the default values of the copier or printer.
- ◊ *PostScript files*. CQue will automatically convert the PS data to PCL. Thereafter it will insert any printer specific PCL finishing code like duplex printing, stapling into the data stream. CQue can generate both black-white and colour PCL depending on the Canon device.
- ◊ *PDF files*. CQue will automatically convert the PDF data to PCL. Thereafter it will insert any printer specific PCL finishing code like duplex printing, stapling into the data stream. CQue can generate both black-white and colour PCL depending on the Canon device.
- ◊ *Image files* like TIFF, JPEG, X11, PNG, etc., which will also be transformed to a PCL format internally. They will be printed 'as is' at standard printer resolution.

Please note that ***genuine PCL files***, i.e. files including specific PCL and/or PJL code for page layout, fonts etc. ***are not supported by CQue***. They will be send "as is" to the Canon device, and no printer or finishing options may be set through CQue. For more advanced processing of PCL data we recommend using ***SQue 11.0 for Linux***, which is also available from the Canon web-site.

If a queue of CQue type has been configured for a *PXL Canon device*, then it will accept:

- ◊ *ASCII files*, to which the appropriate header with PXL/PJL data will be added. The ASCII data may be formatted so that the data will print more sophisticated than simply A4 and the default values of the copier or printer.
- ◊ *PostScript files*. CQue will automatically convert the PS data to PXL. Thereafter it will insert any printer specific PXL finishing code like duplex printing, stapling into the data stream. CQue can generate both black-white and colour PXL depending on the Canon device.
- ◊ *PDF files*. CQue will automatically convert the PDF data to PXL. Thereafter it will insert any printer specific PXL finishing code like duplex printing, stapling into the data stream. CQue can generate both black-white and colour PXL depending on the Canon device.
- ◊ *Image files* like TIFF, JPEG, X11, PNG, etc., which will also be transformed to a PXL format internally. They will be printed 'as is' at standard printer resolution.

Please note that ***genuine PXL files***, i.e. files including specific PXL and/or PJL code for page layout, fonts etc. ***are not supported by CQue***. They will be send "as is" to the Canon device, and no printer or finishing options may be set through CQue. (Also SQue 11.0 does not support PXL).
Please note that the copier should support the PDL: if you send PCL data to a copier which does not support PCL, then the job will not print.



2.4 Before Installing CQue

This section presents some concepts to be considered before installing CQue.

2.4.1 Linux versus Windows Printing

There is an important difference between the printing concept in a Linux environment and a MS Windows environment.

For UNIX each program has its own way of preparing and formatting the data to be printed. For Linux the situation is slightly better: many programs make use of the integrated print interface of GTK+, but unfortunately not all programs do so. For these latter a printer queue is basically a concept largely independent of the main program.

For MS Windows there exists a layer of Windows itself, that is highly involved in the printing. In this way each program (with a few exceptions) relies on the same driver with the same behaviour for each program. Thus, there is for each printer driver a *Properties* button, allowing for the modification of the printer parameters.

CQue tries to imitate the behaviour of Windows printing, if desired by the customer. Therefore, in a first approach, and independent of the PDL (Postscript, PCL or PXL), the UNIX printer queues as far as CQue is concerned can be divided into three categories:

1. *Raw printer queues*. This type of queue can be created by CQue in a homogeneous way on different UNIX platforms, though once created, CQue has no means to manage them. Such a queue would typically print A4 only.

2. *System (or foomatic) printer queues*. This type of queue will, when processing a job, take into account finishing options and advanced options specified at the time a job is submitted. It will also automatically transform the job data to the correct printer format (PostScript, PCL or PXL). If the GTK+ or LibreOffice print interface is used even advanced options (mailbox, secured printing, printing with department account) will be taken into account properly.

3. *Dedicated printer queues*. This type of queue would, when processing a job, always apply the same finishing properties, without bothering the user. This type of queues is excellent when the user knows what he or she wants and needs only a limited number of different finishing options. Many UNIX users, for example, are quite happy with dedicated printer queues for: A4 (the default), A4 Duplex, A4 Duplex + Staple and possibly A3. The creation and configuration of these queues is very well possible with CQue.

The decision of the type of queue to create can always be made once CQue is installed. This is actually one of the first steps in using CQue.

2.4.2 Linux Printing: A Cook Book Approach

The following scenario may help to set up a printer queue before it will be created on most *Linux Systems*:

1 Activate ***creation mode*** on the first window of CQue.
2 Determine the ***type of queue*** required, i.e. will it be a raw, PostScript, PCL or PXL queue, and specify this on the first window of CQue.
3 Select a ***port***. For example you might select a remote LPD or a TCP/IP 9100 port.
4 Select the ***model*** of the printer. Depending on your choice of the type of queue under 1. the list of supported Canon devices may be different.
5 Specify the ***device options***.
6 Specify the ***printer options***.
7 Specify the advanced printer options, like file box printing, secured printing, printing with department accounting.

2.4.3 Linux Printing: When will CQue not work?

Even though the aim of this manual is to explain how CQue does work, there are some known situations where it will not be able to function correctly.

1. For Linux programs where the main program does highly sophisticated page formatting, especially for PCL printing. In that case the CQue formatting may conflict with the PCL formatting of the main program with undefined end results.
2. Linux environments with an alphanumerical terminal only. This configuration often consists of a server with a number of PCs running a terminal emulation on the Linux server. Although the current version of *CQue 3.0* requires an X11 graphical user interface, it is nevertheless possible to use CQue 3.0: Once properly installed through an RPM or DEB package installation standard utilities like the CUPS interface or native printer managers will use the CQue PPD files properly and display all available options. Only the very specific CQue approach of advanced options described in section 3.4.9. are not available.
3. Linux desktops making use of the Wayland windows manager. See section 1.3 for more details.

2.4.4 Linux Printing: CQue and OpenOffice, acroread, gimp, FireFox, GTK+

Recent user interfaces of programs like OpenOffice, the gimp, acroread etc. on Linux support a printer interface allowing for the setting of printer options like paper format, duplex printing etc. CQue is compatible with these interfaces as long as these interfaces rely on the standard CUPS PPD files.

Some of these main applications rely on the printer tool of the GTK+ library, which is also compatible with the CUPS PPD mechanism, including the CUPS PPD extentions. There are exceptions, explained below.

Please note that the user interface structure for the passing of accounting user IDs and passwords currently is supported by print interfaces using the ***latest GTK+ release*** (version 2.2 and newer) only.

All programs making use of this GTK+ print interface benefit from this feature, bringing Linux printer a step closer to what one is used to on MS Windows. Some programs, like Adobe acroread, however, maintain their own printer interface and are as yet not compatible with the CUPS PPD extensions. This is an unfortunate limitation of current printer dialogs on Linux. Adobe discontinued support for acroread as of version 9.4. Many alternatives exist, making use of GTK+ thus gradually phasing out Adobe's acroread.

OpenOffice or LibreOffice use their own printer interface too, but advanced options like secured printing and printing with accounting are available: Select the "custom" setting from the PPD file and enter the password or ID string in the available text field.

If you are using CUPS on a server, including the broadcasting mechanism of CUPS, then any CQue queue (which is also a genuine CUPS queue) will be broadcast and thus be known on all CUPS clients.

3 Installing CQue

3.1 Obtaining CQue 3.0

CQue 3.0 can be obtained by:

- Downloading from the web.

or

- Obtaining a copy on CD-ROM.

There are three different archive formats:

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

As there exist many different Linux distributions and various package management systems too, it may happen that your distribution does not support rpm nor deb packages by default. In that case we recommend using the *.tgz version of CQue, which should run on all known Linux systems.

In general we recommend to use either the rpm or deb package, as the installation of such a package is fully automatic, including the upgrading of any existing CQue 2.0 queues.

3.1.1 Using the web

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

3.1.2 CD-ROM

To obtain a copy of CQue 3.0 on CD-ROM please contact your local Canon Sales Office.

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

3.1.3 Support

For support, please contact your local Canon service technician/representative.
This chapter will describe the general installation of CQue for Linux environments.

Both the RPM, DEB and the setup program will restart the CUPS printer manager after finishing.

3.2 Starting the Installation CQue 3.0

3.2.1 Introduction

The following sections will describe an installation of CQue on a workstation which does not have any CQue installed. The same description holds for rpm and deb packages installation when a CQue 1.X versions is already installedd - upgrade installation. For a description of a manual upgrade installation of CQue or of a de-installation of CQue, please refer to the sections 4.2 and 4.4 respectively of this manual.

3.2.2 Installing a TGZ package

If you downloaded a copy of CQue 3.0 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***.
If you cannot decompress the file using this method you can extract the contents of the file using the following commands (we recommend doing this from the /tmp directory):

```
gzip  -d  cque-xx-3.0-5.tgz
tar  xvf   cque-xx-3.0-5.tar
```

or in one sweep (with the GNU version of tar):

```
tar  xzvf  cque-xx-3.0-5.tgz
```

where the 'x' depends on the language of the version of CQue.

The first line will decompress the archive, the second line will extract all files from it.

The extracted the files from a **.tgz* version you will need to start setup from the directory where you extracted the files to. Normally a subdirectory: cque-xx-3.0-5 will have been created.
The section 7.4. describes all options supported by setup. Here we only mention the -q option: If you run setup with the option ***-q1*** then setup will ask for permission to upgrade any previously CQue 2.0 printer queue.

To start a ***default*** installation, either double-click on the **setup** icon, or alternatively from a terminal window type:

```
./setup
```

The installation will silently start and will terminate with a restart of the CUPS printer

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

Otherwise, if you want to *control the upgrading of individual CQue 2.0* printer queues then from a terminal window type:

```
./setup -q1
```

The start up may take a while when setup configures an SELinux module if necessary.
If the setup program does not encounter any previous CQue 2.0 installation, it will behave as described above.

If it does encounter a previous CQue 2.0 installation, setup will ask for permission to continue the upgrade. You answer by typing ***y*** or ***yes*** if OK, or ***n*** or ***no*** if not OK, followed by the **<RETURN>** key.
For each CQue 2.0 printer queue encountered this procedure is repeated.

If you want to upgrade all following CQue 2.0 printer queues at once, you may also reply by ***a*** or ***all*** followed by the **<RETURN>** key, when asked permission for the upgrade of a printer queue.

Of course setup never modifies a non-CQue printer queue.

Please have a look at the log file: ***/var/log/CQue3.0_UpdateLog*** after running setup.

3.2.3 Installing an RPM package

The rpm package appears with its specific icon in a file browser as in fig. 1. The "look and feel" of the menus may differ among different Linux distributions, but the general way will resemble the example we present here (Fedora Core).

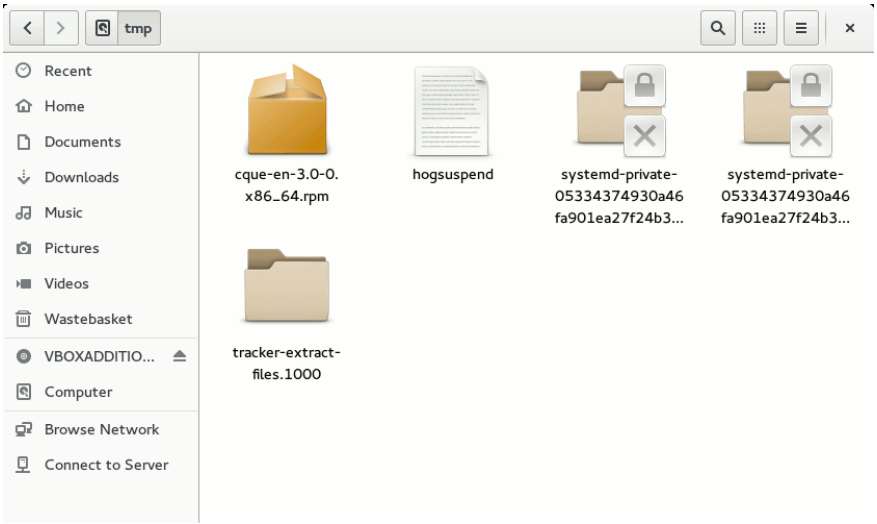


Figure 1 The CQue rpm package.

As of version 3.0-5 you are advised to use the non-interactive method to install CQue described at the end of this section.

When you double click on the icon, the following menu opens up:

If you agree to continue with the installation, click on *Install*.

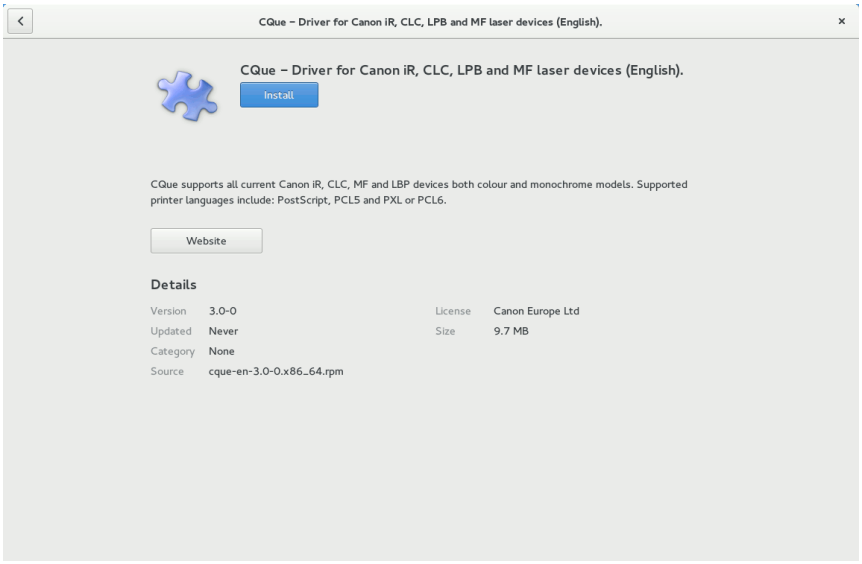


Figure 2 Confirm CQue rpm package installation.

You may now be queried to identify yourself with the ***root*** password. Only the ***root*** has the right to add system software.

The rpm manager checks any package dependencies. After authentication the software will be installed.

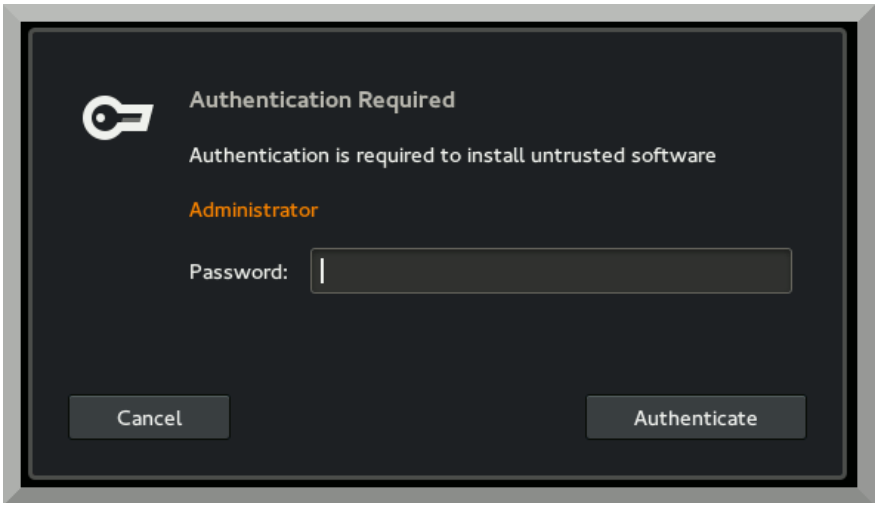


Figure 3 Authentication required for the CQue rpm package.

Thereafter the following window displays:

A review of the full installation procedure will be found in the file: ***/var/log/CQue3.0_UpdateLog***.

The documentation will be installed into the directory ***/usr/share/doc/CQue3.0***.

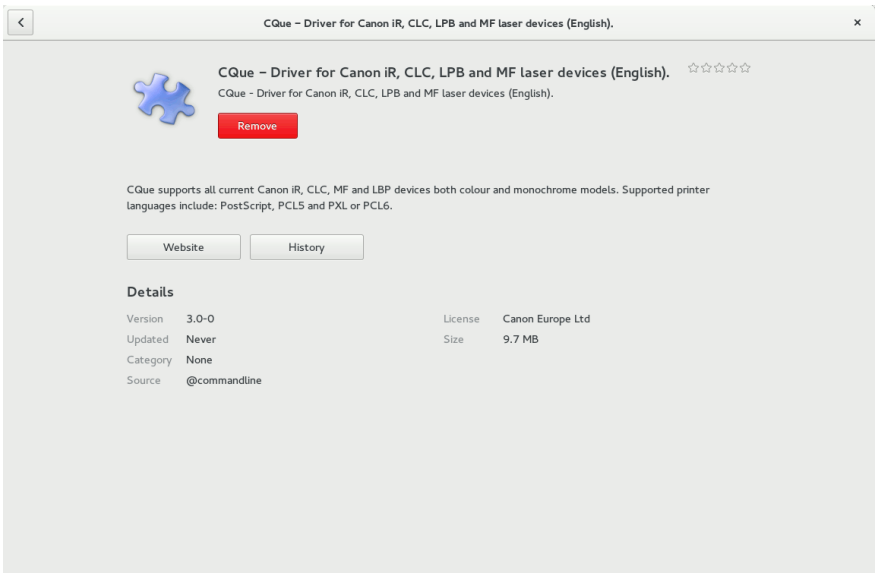


Figure 4 After installation of the CQue rpm package.

Please note that if you upgrade from a CQue 2.0 installation an rpm installation will automatically update any CQue printer queue. You may check the file ***/var/log/CQue3.0_UpdateLog*** to verify which printer queues have been upgraded successfully.

For versions as of 3.0-5 or if you do not want to extract the files and install them using this interactive method you can extract and install the contents of the file using the following command from a terminal window:

dnf install cque-xx-3.0-5-i386.rpm

or (older approach)

yum install cque-xx-3.0-5-i386.rpm

This will also pull in any dependent libraries not yet available on your system. You will be asked for permission to do so - which is the reason why the interactive method will fail: it cannot pull in the necessary libraries automatically.

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

/opt/cel

and run the setup program in the same manner as described above. At the end de CUPS daemon will be restarted.
Depending on the Linux distribution used (i.e. not supporting ***yum*** or ***dnf***), you may also try one of the following commands:

rpm -Uhv cque-xx-3.0-5-i386.rpm

If (obvious) dependency conflicts would arise (see release notes, appendix F), you may run:

rpm -Uhv --nodeps cque-xx-3.0-5-i386.rpm

The installation will be the same and you may check the file ***/var/log/CQue3.0_UpdateLog*** to verify whether the installation was successfully.

3.2.4 Installing a DEB package

The deb package appears with its specific icon in a file browser as in fig. 5. The "look and feel" of the menus may differ among different Linux distributions, but the general way will resemble the example we present here (Ubuntu).
As of version 3.0-5 you are advised to use the non-interactive method to install CQue described at the end of this section.

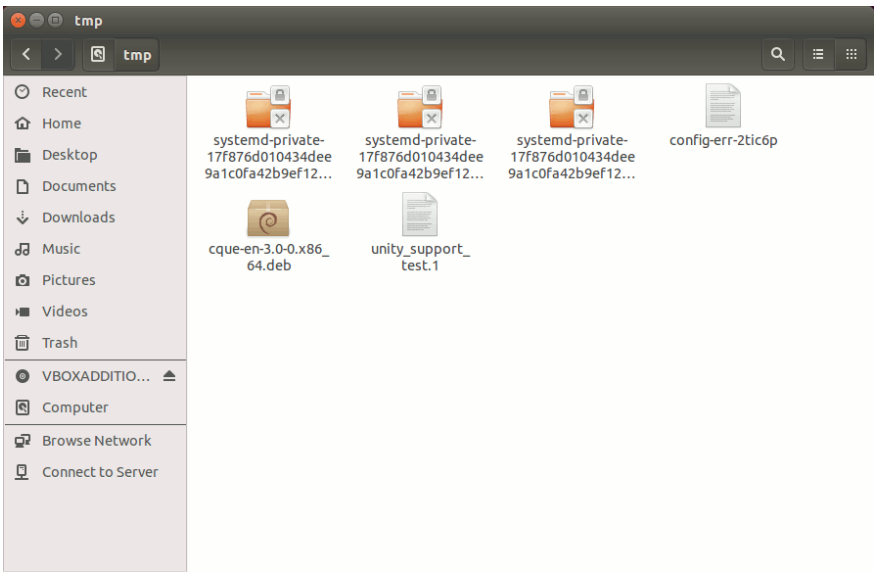


Figure 5 The CQue deb package.

When you double click on the icon, the following menu opens up:

A review of the package to install appears. To continue the installation, please click ***Install***.

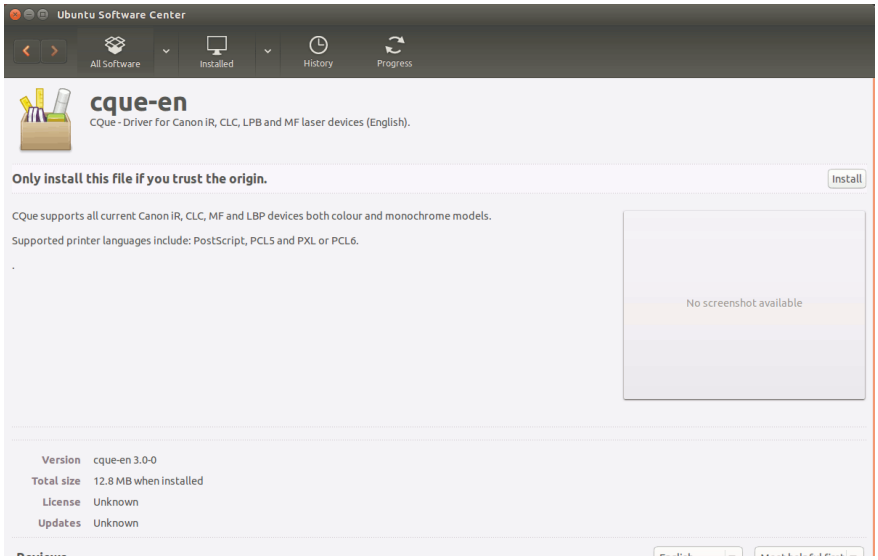


Figure 6 Confirm CQue deb package installation.

Before the installation can start you will have to authenticate yourself.

On Ubuntu (and other .deb oriented Lunix system) you should type here ***your own password*** (not the root password, which often is not even available).
Then the installation of *CQue* will start.

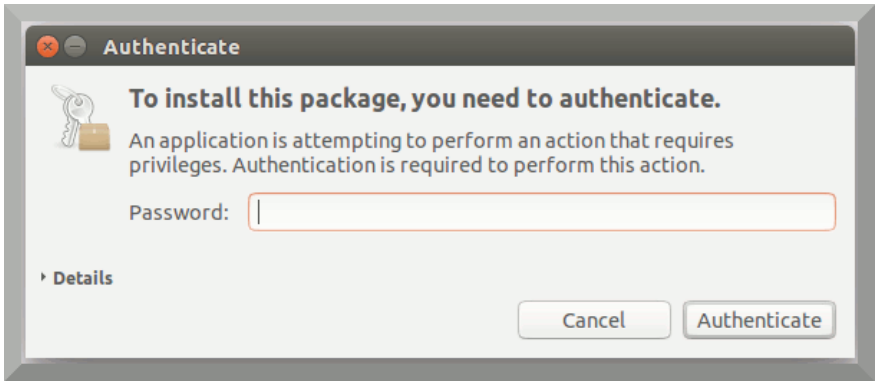


Figure 7 Authentication for the CQue deb package.

At the end of the installation of *CQue* this window will display.

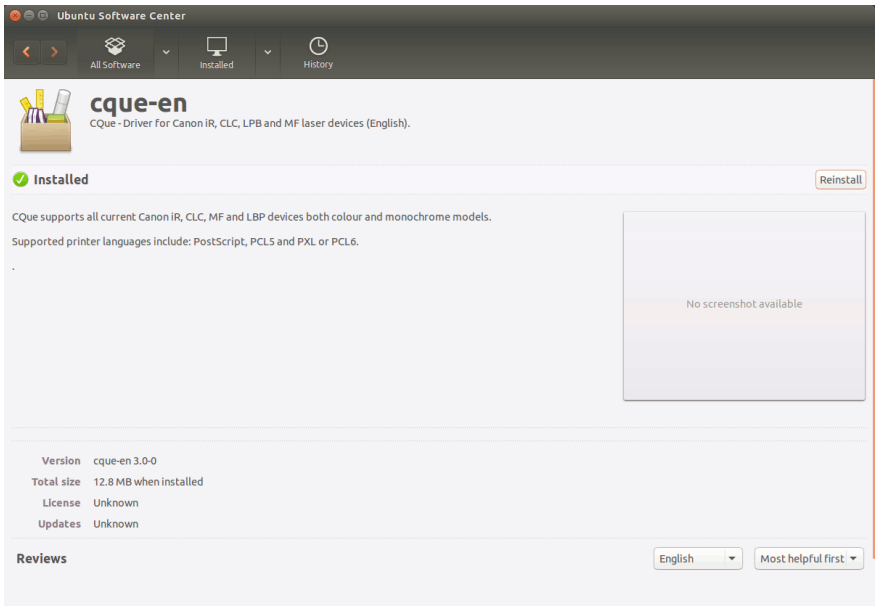


Figure 8 End of the installation of the CQue deb package.

As of version 3.0-5, or if you do not want to install the package using this interactive method you can extract and install the contents of the file using the following command from a terminal window.
For versions as of 3.0-5 of CQue you would need the png library version 16 (solving serious security issues) and the motif library. To obtain these (if not already available):

sudo apt-get install libpng16-16

sudo apt-get install libmotif-dev

Thereafter you are ready to install the package:

dpkg -i cque-xx-3.0-5-i386.deb

The *dpkg* program will automatically extract the files to the directory:

/opt/cel

and run the setup program in the same manner as described above.
At the end de CUPS daemon will be restarted.

On Debian you may also use the recommended program ***aptitude*** to install CQue, which is a more user friendly interface to ***dpkg***.

The installation will be the same and you may check the file ***/var/log/CQue3.0_UpdateLog*** to verify whether the installation was successfully.

3.3 Running CQue 3.0

Once CQue is installed you, i.e. root, may run it directly from the setup procedure, or you may start it from a shell. If you were to run it from a shell, use the following command*:

```
cque
```

or

```
/opt/cel/bin/cque
```

Alternatively, you can use the Browser to the directory *'/opt/cel/bin'* and from there select the icon or file *cque*.
The file *cque* is a script, created during setup, which includes the necessary environment variables to run CQue.exe. *Never* try to run *CQue.exe* itself.
(Refer to *Appendix B* for further information on how to run *cque* from the "Start" menu of the desktop).

When you run *cque* the following window will display:

1 A list of existing Queues.
2 A Main Menu (File, Edit, Options, About).
3 A Menu of Tabs of which only one is visible, i.e. Queues.
4 Next and/or Previous buttons.
5 OK, Help and Cancel buttons.
6 A Menu for the Queue Type.
7 A text field for the queue name.

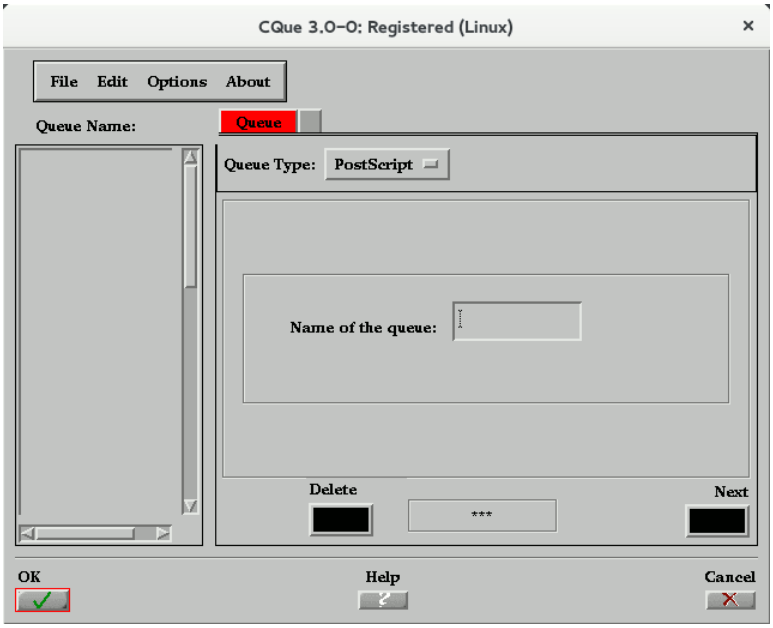


Figure 9 CQue Main Menu

*) A link will exist to /usr/bin/cque too allowing to run cque without any prefix.

3.3.1 List of Queues

In the *list of queues* there are two types of entries:

- If an entry has an asterisk (*) in front, then it is a printer queue, which is not managed by CQue. These could be local or remote queues generated with the native printer manager of your Linux system.

- The other queues are genuine CQue queues, which can be managed by CQue.

A CQue queue can also be managed by the native printer manager of your Linux system except for some advanced options (like forced mailbox printing, secure printing and department accounting).

3.3.2 Main Menu

The *main menu* contains the following sub menus:

1 File
2 Edit
3 Options
4 About

The details of these menus can be found in the *section 3.4*.

3.3.3 Main Menu of Tabs

The *menu of tabs* contains the following tabs:

1 Queues
2 Port
3 Model
4 Device Options
5 Print Options
6 Advanced
7 Extra

3.3.4 Buttons

The *Next button* navigates to the next menu or window. This button is initially greyed out as long as no valid queue name is specified.

Note: No *Previous button* shows on the first menu/window.

When you use the *Next* (and possibly) *Previous* buttons to navigate, the tab of the current menu will become red. You can also directly access a specific menu of the above list making use of the *tabs menu*. Finally you can navigate using the *Edit* menu.

The *Delete* button enables you to delete a selected queue. You must first select the queue from the list and then select *Delete*. A message will display asking you to confirm the deletion. If you confirm, the queue will be permanently deleted from the system.

The *OK button* and *Cancel button* are quite general and serve the obvious purposes. They can be used in many situations.

The *Help button* displays on-line help as follows:

1. Select *Help*.
2. The cursor changes into a question mark.
3. Select the object or window element you want information about.
4. A help window will display with the information on the requested object.

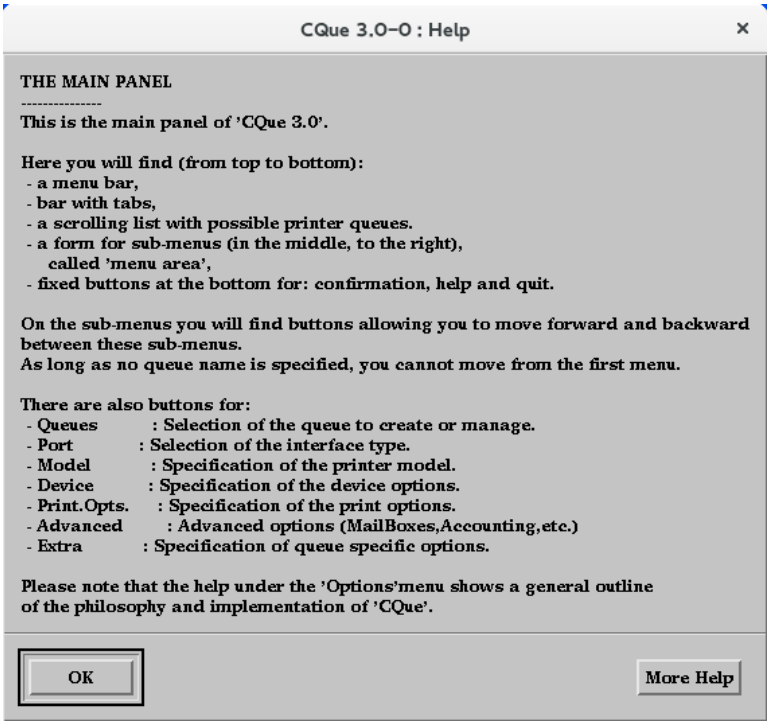


Figure 10 CQue Help Menu

The ***File Menu*** contains two buttons:

1. *Create*. A toggle button, when activated then CQue allows for the creation of a new queue. Otherwise existing queues can be updated/modified.
2. *Save*. When activated the configuration of the selected queue will be saved to disk.
2. *Cancel*. When activated CQue will abandon, after asking for confirmation.



Figure 11 The File Menu

The ***Edit Menu*** contains seven buttons, which will sequentially become available during the process of defining of the queue. They correspond with the various tabs and menus respectively:

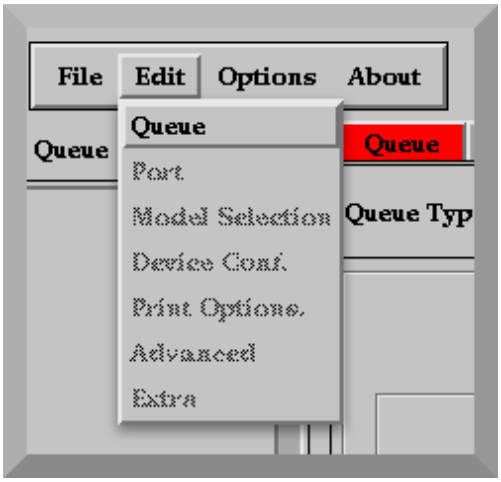


Figure 12 CQue Edit Menu

1 *Queue*. The tab for the specification of the name of the queue and its type (PS, PCL, PXL or raw).
2 *Port*. The tab for the specification of the port of the queue (LPD, TCP/IP 9100, USB, parallel, file, etc.).
3 *Model*. The tab for the specification of the model of the queue. This basically selects the PPD file to be associated with the queue.
4 *Device Options*. The tab for the specification of the device options of the queue (finisher modules, extra paper trays, etc.).
5 *Print Options*. The tab for the specification of the print options of the queue (Duplex printing, stapling, sorting, output bin, etc.).
6 *Advanced*. The tab for the specification of the advanced options of the queue (mailbox printing, secured printing, printing with accounting, etc.).
7 *Extra*. The tab for the specification of some extra, CUPS specific options of the queue (banner pages, error processing behaviour of the queue, etc.).

The ***Options Menu*** contains four buttons, with the following meaning:

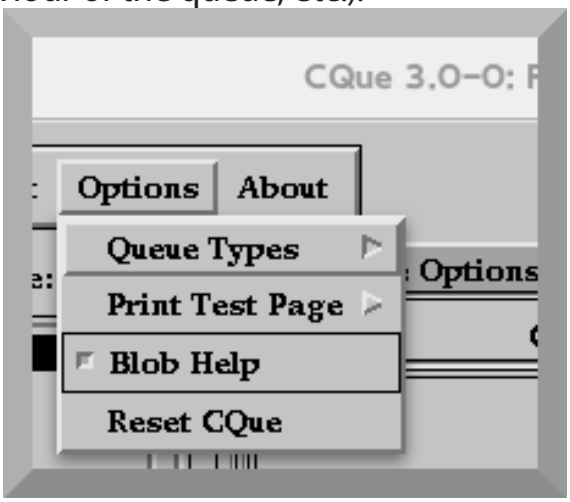


Figure 13 CQue Options Menu

1 *Queue Types*. This opens a sub-menu with which the type of queues shown in the list at the left of CQue can be modified. It is possible to show:

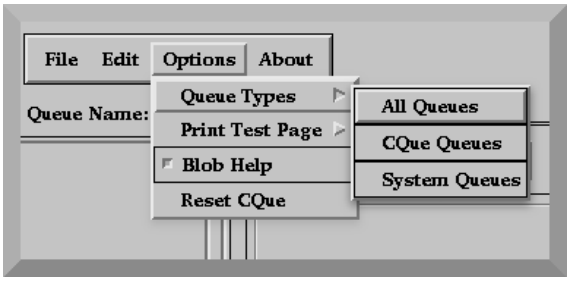


Figure 14 CQue Queue Types Menu

- all queues (CQue and system)
- system queues only.
- CQue queues only.

Note: if for one reason or the other the list of queues would be corrupted or perhaps empty, modifying the type of queues will refresh the list of queues.

2 *Print Test Page*. This opens a sub-menu with which one or more test pages may be send to the selected queue. The following options exist:

- 1 page ASCII.
- 2 pages ASCII.
- 4 pages ASCII.
- 1 page PostScript.
- 2 pages PostScript.
- 4 pages PostScript.

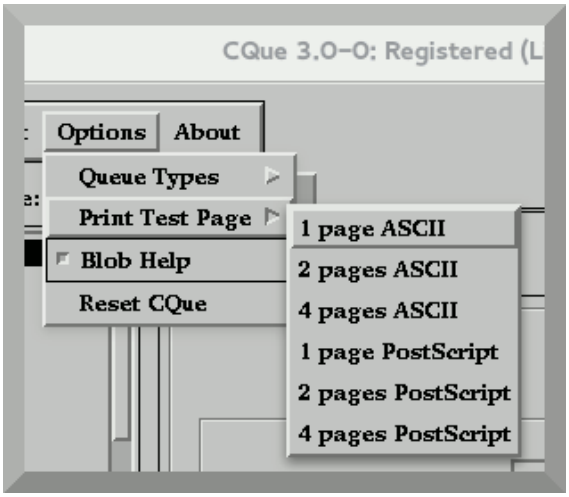


Figure 15 CQue Print Test Pages Menu

The ASCII page contains only pure ASCII text. The PostScript page contains both graphics and text. The options to send more pages allow for testing of duplex printing and printing with stapling. (See Section 5.3 for more details).

3 *Blob Help*. When the cursor is positioned over a menu or button a short message about its function or purpose may pop up in a so-called blob help window. This feature may be turned on or off with this menu. (See section 5.1 for more details).

4 *Reset CQue*. When a queue has been created and you want to create another queue this menu may be used to reset all the parameters of CQue to their default values. This is recommended.

The ***About Menu*** shows, when clicked upon, a window with version information about the origin of CQue. (See section 5.7 for more details).

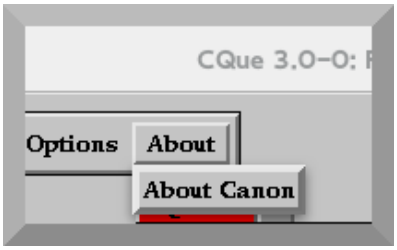


Figure 16 CQue About Menu

3.4 Setting up a Queue with CQue 3.0

The following procedure must be run to set up a printer queue before it can be created:

1 Enter creation mode.
2 Determine the type of queue required.
3 Enter the queue name.
4 Select a port.
5 Select the model of the printer.
6 Specify the device options.
7 Viewing the printer options.

3.4.1 Enter Creation Mode

(If you already created or managed other queues with CQue you may reset CQue first with "Reset CQue" under the Options menu).
Before creating a printer queue with CQue, you should first enter ***creation mode***. In this mode all actions of CQue apply to the new printer queue to be created.
You enter creation mode from the ***File*** menu. The Create button is a toggle button, which should be activated.

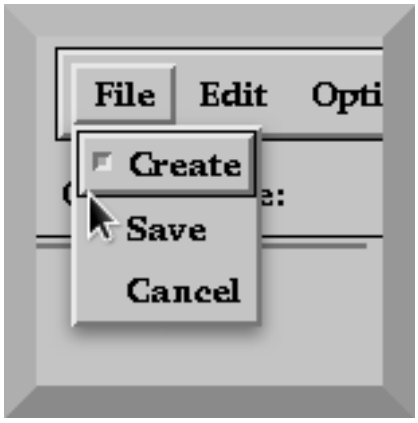


Figure 17 Enter Creation Mode

Once activated the main menu slightly changes, displaying a red message under the queue name text field as in figure 18.

Please note that creation mode stays active until you either de-activate it through the File menu, or when you finish creating the queue.

When in creation mode the name of the queue you are working on will display in red.

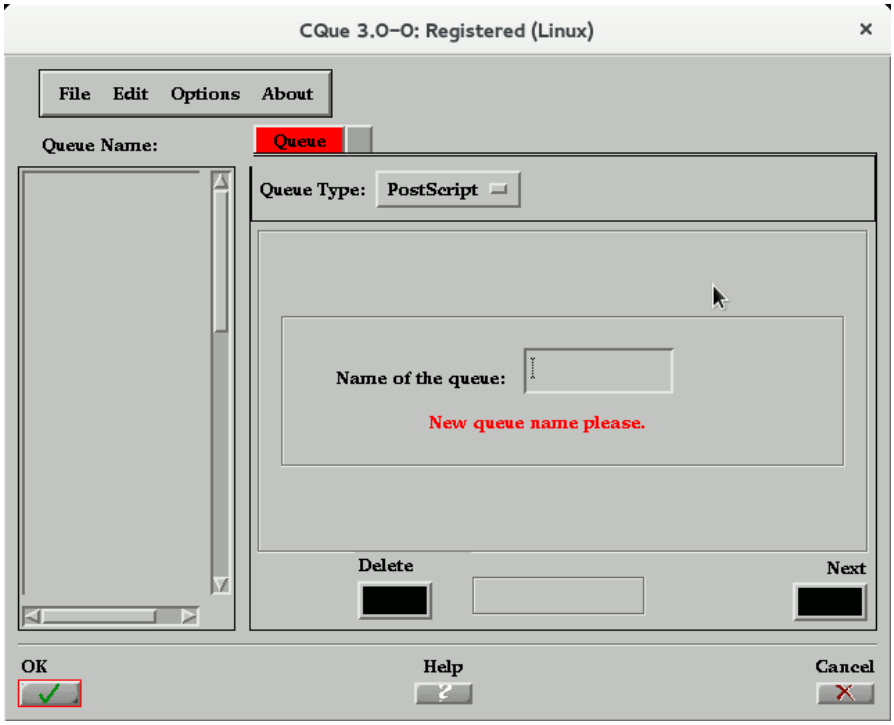


Figure 18 CQue in Creation Mode

3.4.2 Determine the Queue Type

Before you will create your first printer queue with CQue, you should first decide what the purpose of the queue will be.
There are four different types of queues:

1 PostScript
2 PCL (PCL5e or PCL5c)
3 PXL (PCL6)
4 raw

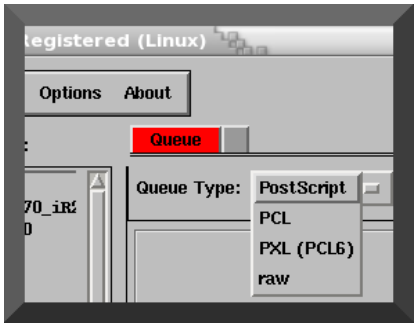


Figure 19 Queue Type Menu

3.4.2.1 A PostScript Queue

A *PostScript queue* handles PostScript data, but it will also try converting non-PostScript data to PostScript data, if necessary.

3.4.2.2 A PCL Queue

A *PCL queue* will print PCL data, including plain ASCII text. Input from applications generating PostScript will automatically be converted to PCL. In general PCL5e will be used. Most Canon colour devices, if supporting PCL, will be compatible with this type of PCL too.

3.4.2.3 A PXL Queue

A *PXL queue* will print PXL or PCL6 data, including plain ASCII text. Input from applications printing in PostScript will automatically be converted into PXL. Most recent Canon colour devices, if supporting PXL, will be compatible with this type of PXL. Note that older Canon colour devices may not support this type of PXL. If both PCL and PXL are supported please keep in mind that PXL generates more efficient data than PCL using maximum device quality.

3.4.2.4 A Raw Queue

A *raw queue* will not perform any processing and output the data 'as is' to the Canon device.

A raw queue can be created or deleted with *CQue*, but once it is created you can not modify any of its parameters.

3.4.3 Enter the Queue Name

Once you have determined the type of queue you require, enter a unique name for the queue in the *Name of the Queue* field. Please note that this name appears in red too at the bottom of the menu.

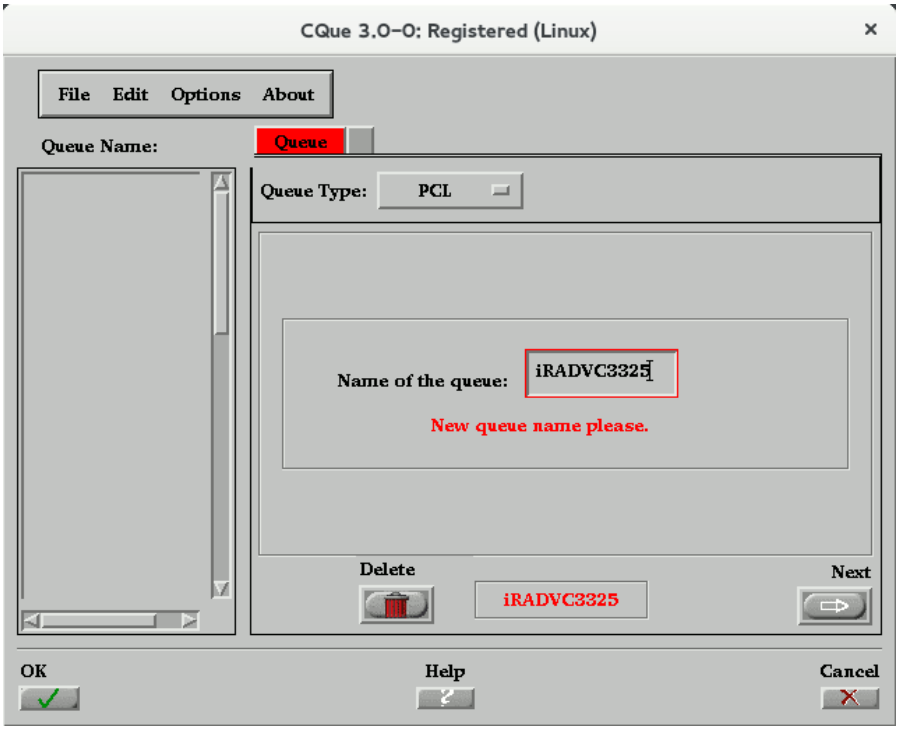


Figure 20 Entering a Queue Name

Select ***Next***. The menu for selecting a port will now display.

CUPS is rather free in the specification of queue names. Yet, classical UNIX machines would limit a queue name to a maximum of 14 characters and not allow for white spaces and other non-ASCII characters. We strongly recommend using this specification.

3.4.4 Select a Port

The *'port'* of the queue enables you to specify where the output of the queue will go to. There are the following possibilities:

1. Remote LPD
2. Remote TCP/IP(9100)
3. Remote IPP
4. Local USB
5. Local
6. File

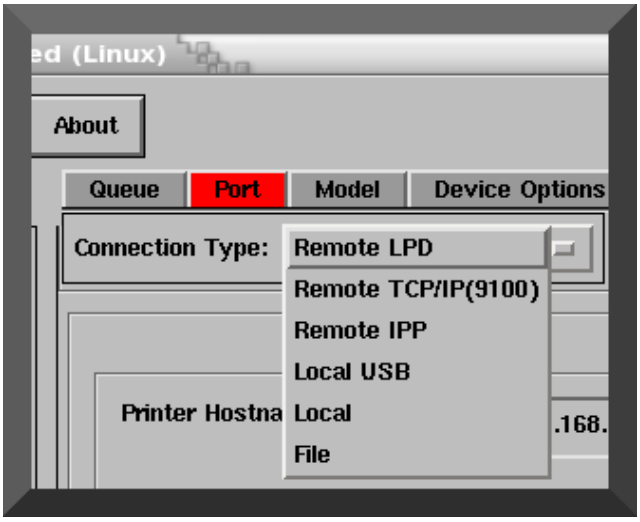


Figure 21 Port Type Menu

You may make use of any type of queues, but *we recommend using remote LPD queues* or possibly remote TCP/IP(9100).

Even though CUPS is using the IPP protocol itself for many internal processes, not all Canon devices support this protocol by default.

When connecting the Canon device through a USB port, please make sure the cable is connected to the Linux workstation before creating the queue.
When you want to print to a file on disk, please note that by default CUPS does not allow this. You would have to modify the cupsd.conf file. (See section 5.6 for more details).

3.4.4.1 A Remote LPD Port

When we select a remote LPD port, the following window will display:

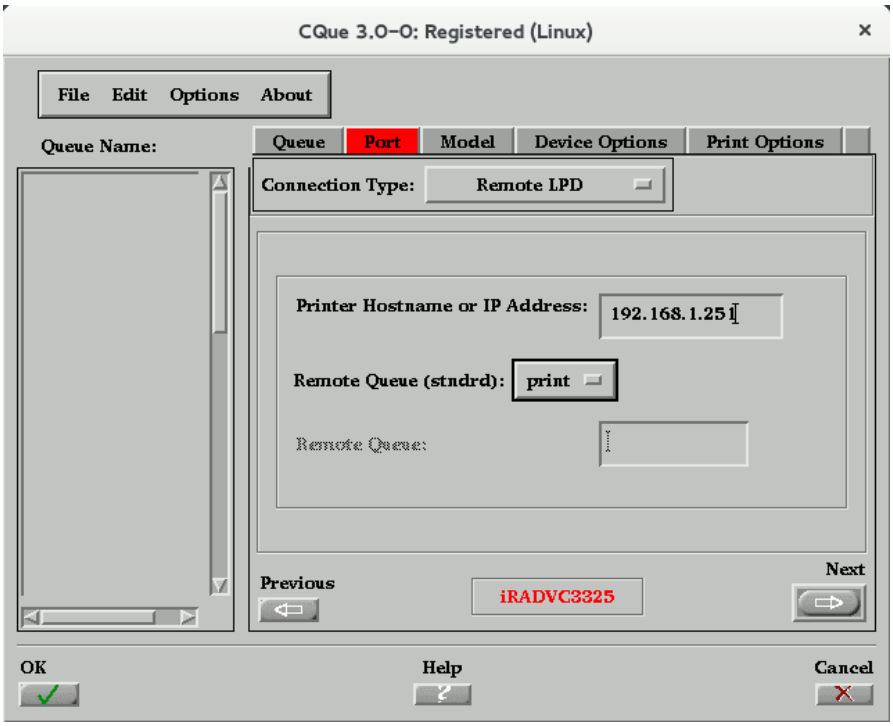


Figure 22 A Remote LPD Port

You must specify the *hostname* or the *IP address* of the Canon device.

And the name of the *remote LPD queue* on the Canon device together with the name of the Remote LPD Queue. A list of pre-defined names is provided; if you cannot find the name, then you can select "Other queue" and type the name in the text field called *Remote Queue*.

Please note that for Canon devices with EFI controllers the remote queue name ***must*** be either ***print*** or ***hold***.

This type of queue will be most common for Linux.

If the *'next button'* is not becoming available or not reacting, please verify on the preceding menu that the queue type is really other than *raw*.

3.4.4.2 A Remote TCP/IP(9100) Port

When you select a remote TCP/IP(9100) port, the following window will display:

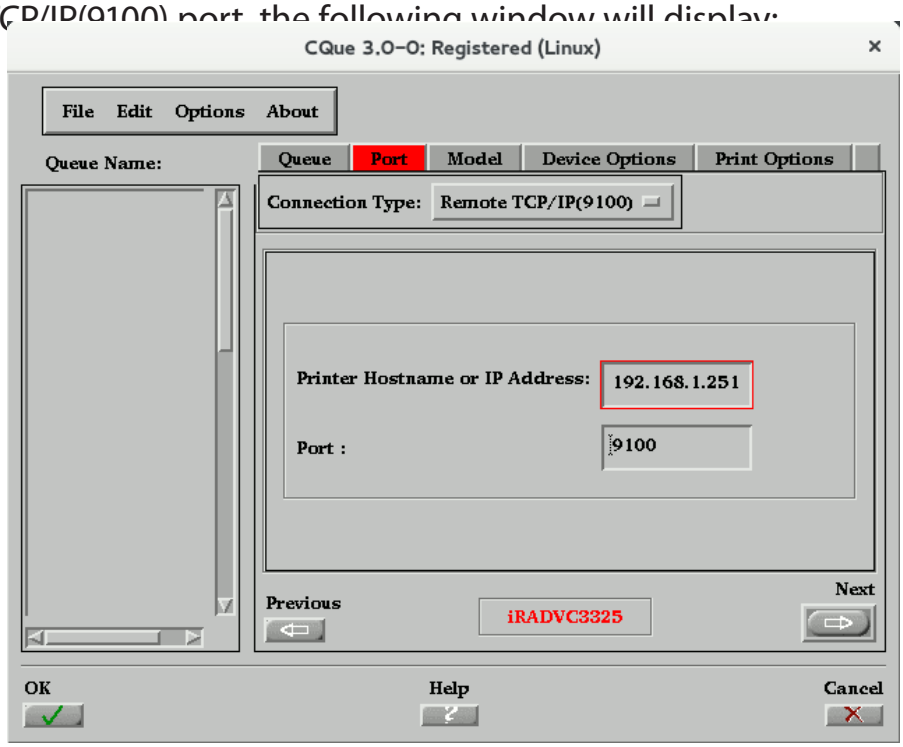


Figure 23 A TCP/IP (9100) Port

You must specify the *IP address* or the *hostname* of the Canon device.

You may specify a port number too, but for most copiers/printers the port number should be 9100.

3.4.4.3 A Remote IPP Port

When you select a remote IPP port, the following window will display:

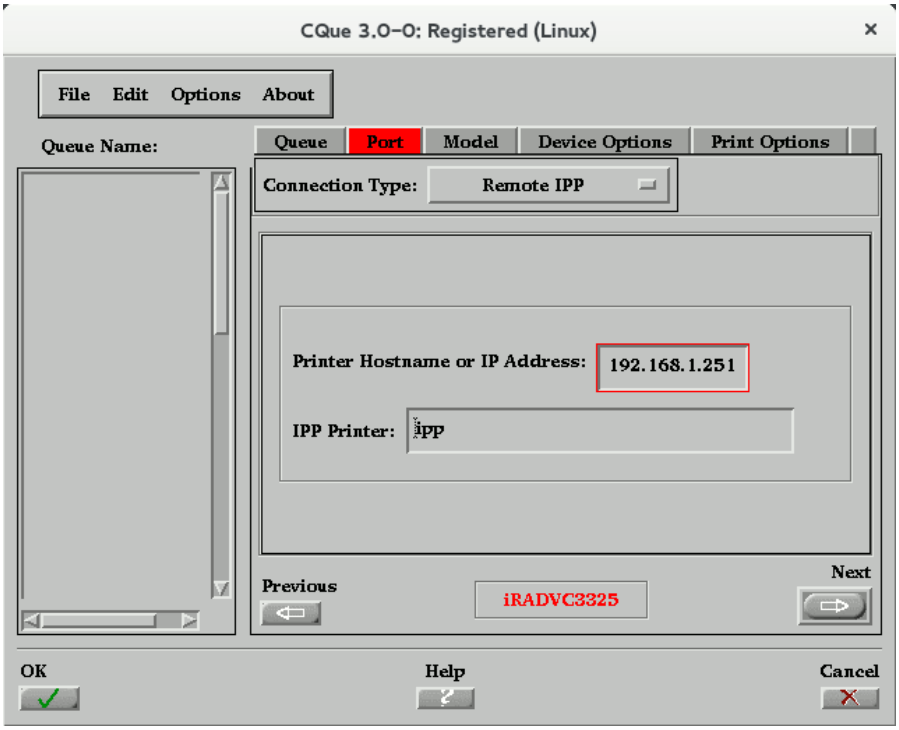


Figure 24 An IPP Port

You must specify the *IP address* or the *hostname* of the Canon device.

You must specify a remote IPP printer too. For Canon devices you may leave ***ipp***. If printing through a MS Windows server, you might enter: ***printers/remotePrinterName*** where ***remotePrinterName*** corresponds with the printer on the server.

Not all Canon devices may support this IPP protocol.

3.4.4.4 A Local USB Port

Please make sure before selecting this type of port that the Canon device is connected to your Linux system.
When you select a local USB port, the following window will display:

A list will display with all recognised USB devices. Select the line corresponding with your Canon device by double clicking on it.

If for some reason the device would not show up in the list, you may select manual USB and enter a device manually. In that case that would probably be something like:

/dev/usb/lp0

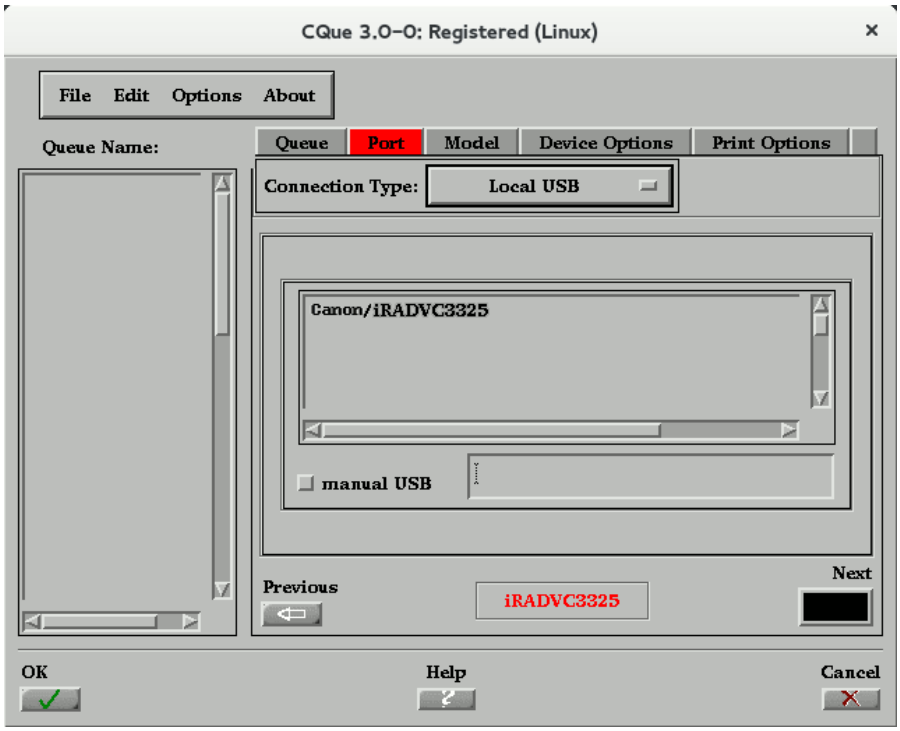


Figure 25 A local USB Port

The first method, i.e. double clicking on the line in the list, is the preferred one. In that case CQue will select the device the same way as CUPS does. If more than one USB devices are connected at the same time to your system, the order of connection does not matter in this case.
When a device is specified as */dev/usb/lp0* or so, and more than one USB devices are connected to the Linux system, than it does matter in what order the devices are connected.

Not all Canon devices may support this USB protocol.

3.4.4.5 A Local Port

When you select a local port, the following window will display:

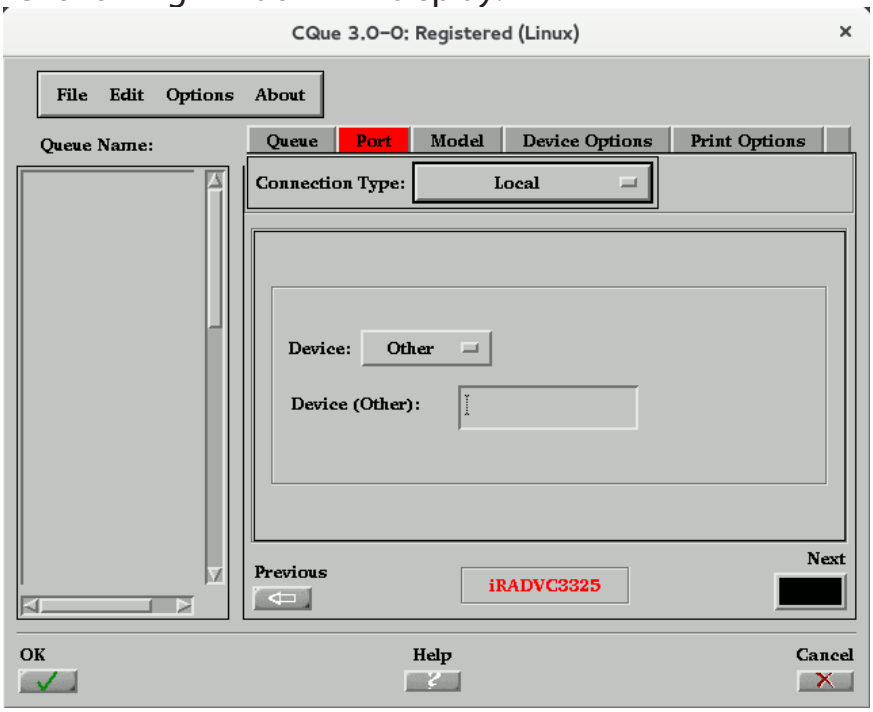


Figure 26 A Local Port

To specify the device of the local port you may click on the button for the devices.

A list with predefined devices will display corresponding to parallel or serial port(s) on your system. If the device you want to use is not listed, you must select *Other* and enter the device name into the text field called "Device (Other)".

The device */dev/null* is the so-called null device, which would be of use for logical queues only.

CQue will rely on the printer manager for the processing of the local device.

Many recent Canon devices do not support parallel or serial ports anymore.

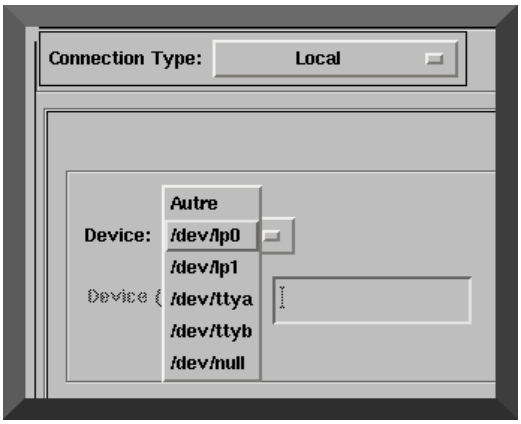


Figure 27 Supported Local Ports

3.4.4.6 A File Port

When you select a file port the following menu will display:

You must specify the name of a file into which the output will be saved.

With a file browser you can also browse the file system of your workstation, to search for an appropriate location.

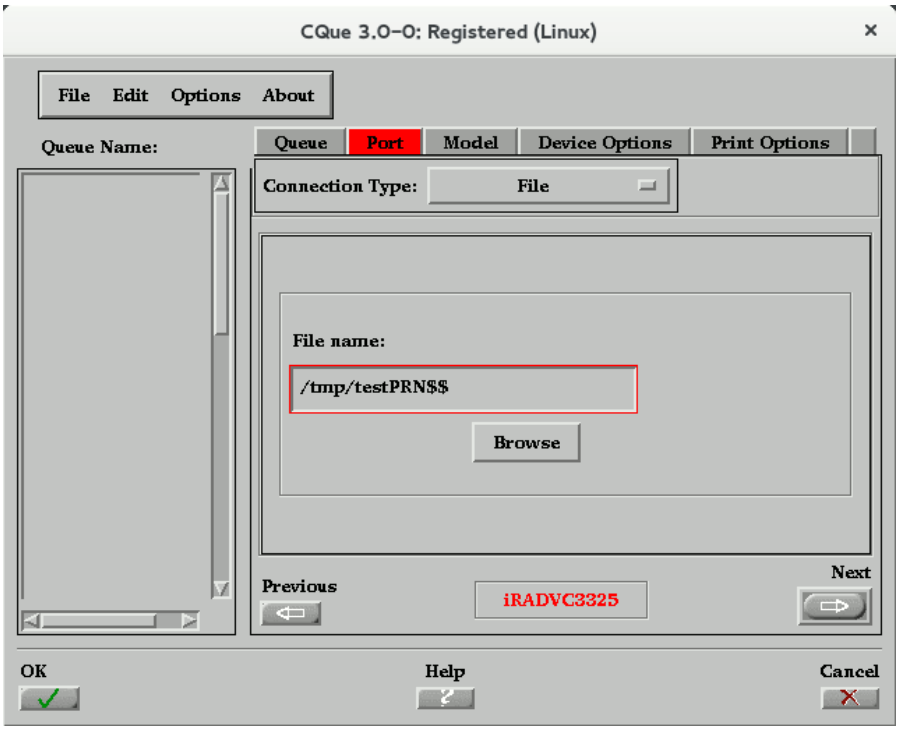


Figure 28 A File Port

A technical note:
If you append two dollar signs to the specified name of the file, each print job will be printed into a separate file, the name of each file consisting of that name extended with the process id. Thus each job will be printed in a different file.
For example, */tmp/PRN$$* will print to a file in the */tmp* directory with name *PRNXXXX* where *XXXX* corresponds with the process id of the print job (this is *not* the id attributed by the print manager to the job).

Please note: The CUPS printer manager does not allow for printing to file by default. You would need to modify the ***cupsd.conf*** file. See section 5.6 for more details.

3.4.5 Select Printer Model

The model of the Canon device includes all the features of the printer such as the installed finisher modules and the options related to these finisher modules.

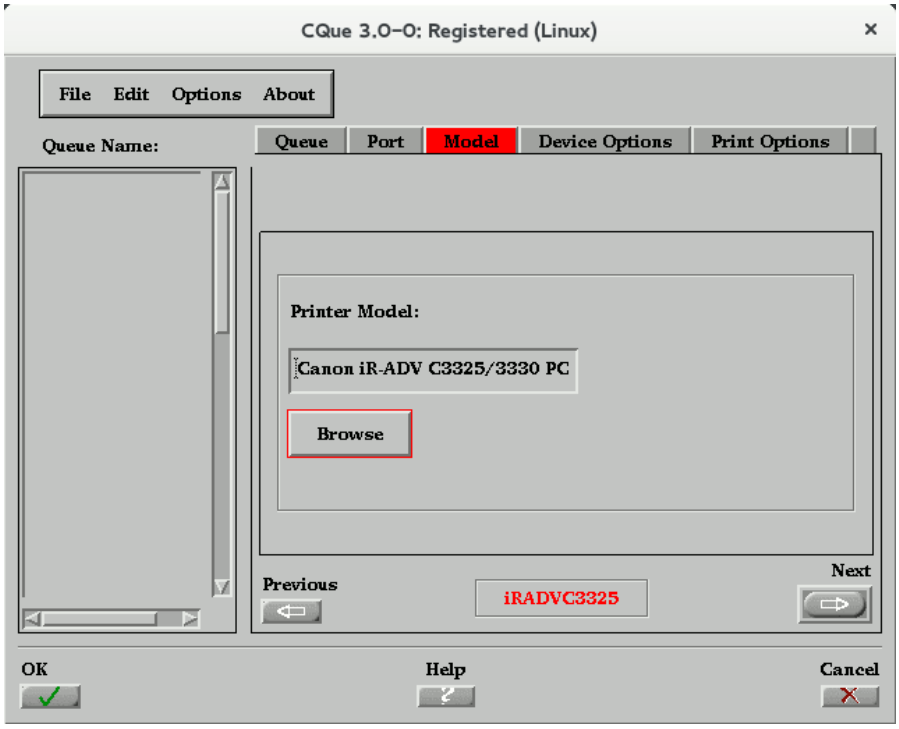


Figure 29 The Printer Model

CQue uses a number of pre-installed printer model files. Use the Browse feature to find and select the printer model you require. Please note that the list may be different depending on the type of queue you want to create (PS, PCL or PXL).

If your printer model is not in the list, you would need to obtain a CQue compatible PPD file from Canon and copy that into the system CUPD PPD directory to add a printer model.

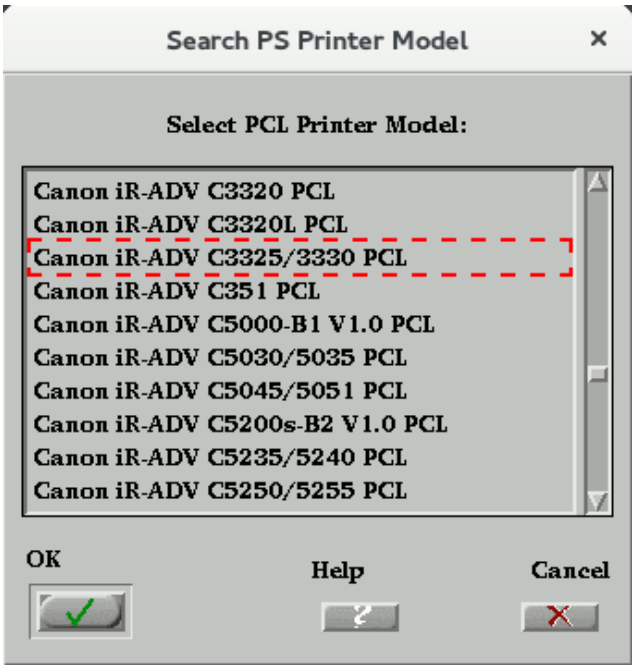


Figure 30 Model Browser

3.4.6 Device Options

Device options define the hardware and software components of the Canon device. They must be specified on the window under the "Device Options" tab. The current version of CQue does not detect the various finisher modules of the copier automatically. For the correct specification of the printer options (section 3.4.7), however, it is important to know what the exact capabilities of the Canon device are.

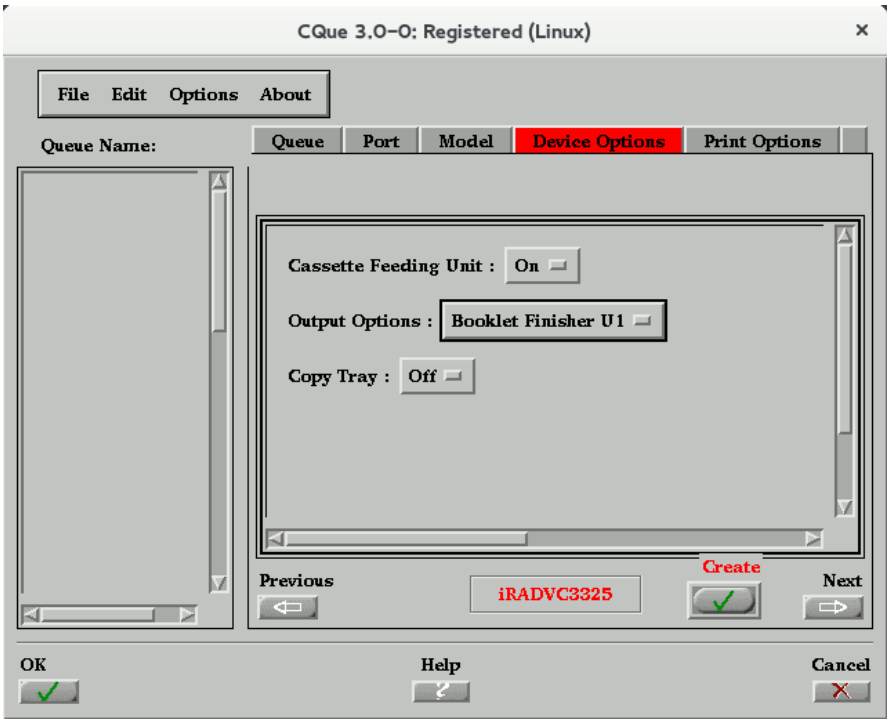


Figure 31 Device Options

On this menu you must select those features of the Canon device corresponding with the installed hardware and or software modules of the Canon device.

3.4.7 Viewing the Printer Options

Finally you should specify the so called printer options on the window under the "Print Options" tab.

You can ***update*** or add the data of the printer setting with the ***Update*** button, but only if the queue is already created. (fig 32).
If you are in *creation mode* then there is no update button. Instead there is a red ***Create*** button (fig 34). The creation of the queue is described in the next section.

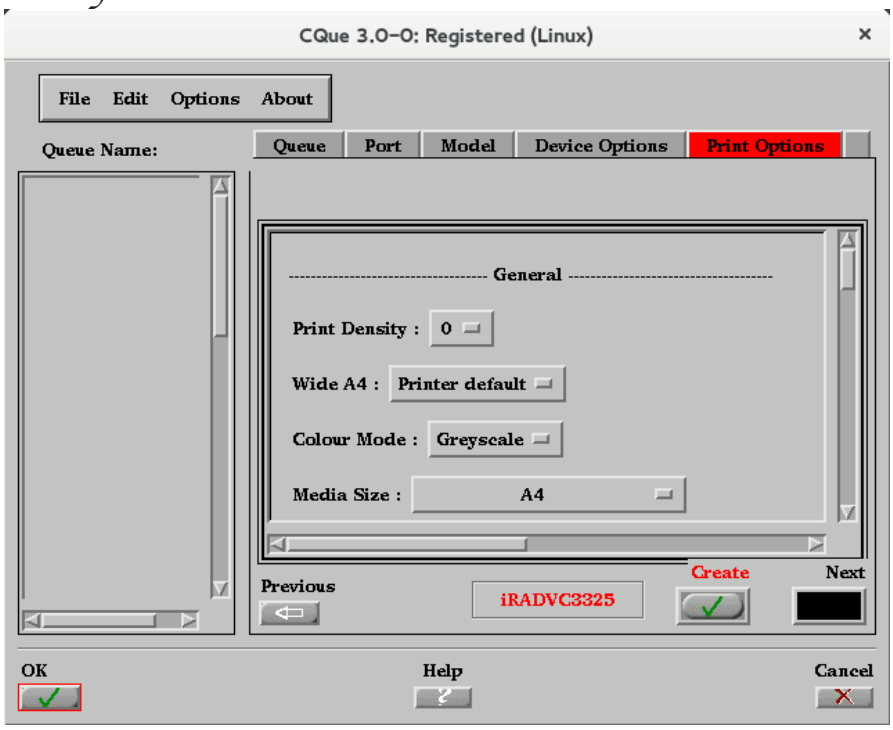


Figure 32 Printer Options

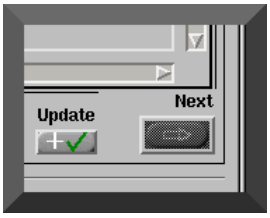


Figure 33 Printer Options Update

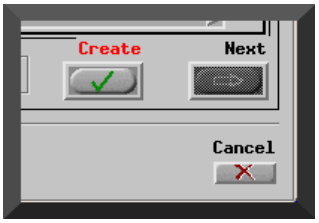


Figure 34 Printer Options Create

This window also allows for the setting of some Canon device specific printer options, like destination, mailbox number, user ID and password as well as secured printing password. Some main applications like acroread etc. may not allow for the setting of password and/or user ID strings. This is a feature due to the different types of printer interfaces used by these applications.

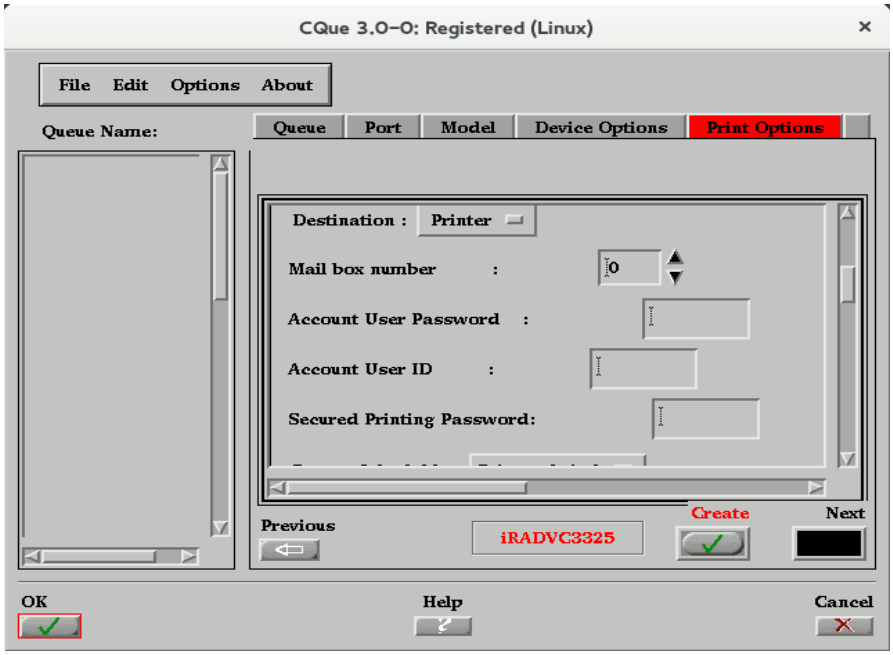


Figure 35 Canon Device Specific Printer Options

Section 3.4.9 describes how to deal with these Advanced Options in more detail.

3.4.8 Creating the Queue

After setting up the required data for the queue, i.e. its name, type, port, device options and printer options, you can now create the queue.

To create the queue, select *Create* from the lower right of the *CQue main window* (see fig. 33, 35 or 36 on the previous page).
The following window will display:

This window shows a review of the data for the queue to be created. If the data are correct select *OK* to create the queue.

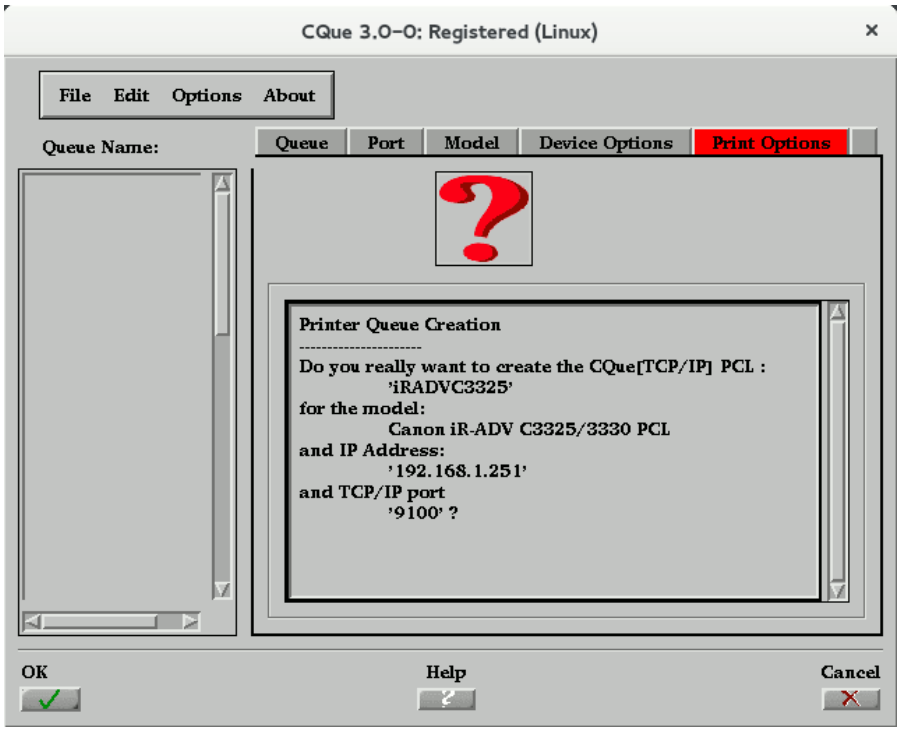


Figure 36 Confirmation of Creation of the Queue

Please note that once the queue has been created the creation mode ceases to be active. The name of the queue now appears in black instead of in red. You may add advanced data, such as mail box or secured print information and update these data using the *Update button* (see fig. 33 on the previous page) on the various menus or the *OK button* on the main menu.

3.4.9 Advanced Options

The following advanced options are available:

1. *Mail box (or file box) printing*: The job will be sent to one of the file boxes of the copier and will stay there to be printed at a later time. A mailbox may contain a limited amount of documents (most Canon devices support a maximum of 100 documents). There is also a limit to the number of total pages being stored (please refer to the documentation of your Canon device). An advantage of printing from a mailbox is that most of the finishing features may still be modified once the document is received in the mailbox. A mailbox may be protected by a password.
   Documents stored in a mailbox will automatically be purged after a time period to be specified on the Canon device.
2. *Printing with (department) accounting*. In this case the user should have a valid user ID and password on the Canon device, on which department accounting should be activated. The job to be printed will be credited on the account of the user.
   The user ID and password have to be registered on the Canon device. For each account a maximum quota of pages (sometimes different for black/white and colour pages) may be specified.
   Accounting feed back is only possible through the Canon CPCA protocol. For the PostScript, PCL and PXL queues we therefore cannot give any user friendly feedback. If a job is not accepted on the Canon device, for example because of exceeded quota, the job will silently be ignored.
3. *Secured printing*. The job will be sent to a public mail box (with a password) to be printed at a later time. The user will be required to type in the password on the Canon device panel to start the printing of the document.
   In contrast to habits in MS Windows environments no pop-op window is used to confirm the password. The password is fixed by CQue (see section 3.4.9.5).

The following table shows which combinations of options are allowed:

Combination	Supported
Mailbox + Accounting	Yes
Mailbox + Secured Printing	No
Accounting + Secured Printing	Yes

In many cases the above operations require user intervention locally on the Canon device, for example to specify user id's and passwords, or to print a job once it arrived in a mailbox, etc. Yet most of these operations can also be performed through a web browser having access to the Canon device, i.e. knowing the required passwords.
You may find more information in the documentation of the Canon device itself.

3.4.9.1 Advanced Options and GTK+

The latest GTK+ interface supports advanced options directly from the PPD. Hence applications using the GTK+ interface will allow for setting of advanced options directly from an application when printing. Fig. 36 shows an example of setting such print options.

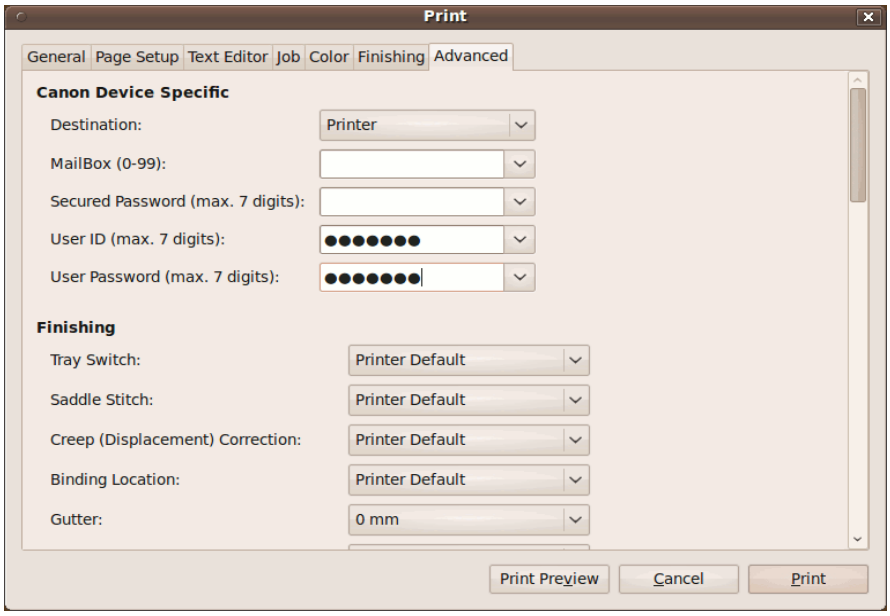


Figure 37 Advanced Options: GTK+ user interface

Making use of these advanced options is one of the strong features of CQue. Even if some of the main applications may not provide mechanisms to pass user identifiers or passwords, the mechanism used by CQue allows a system administrator to impose department accounting in a way, which is transparent for the ordinary user. In that case no password passing is required at all, as CQue will take care of this automatically.

When re-printing or re-opening an older session and then printing, the GTK+ interface does not always show advanced options in a correct way. If, for example in the text editor ***gedit***, like in fig. 36 you would have activated department accounting with a user ID and a user password, these would not be shown again by the GTK+ interface! But they would still be active.

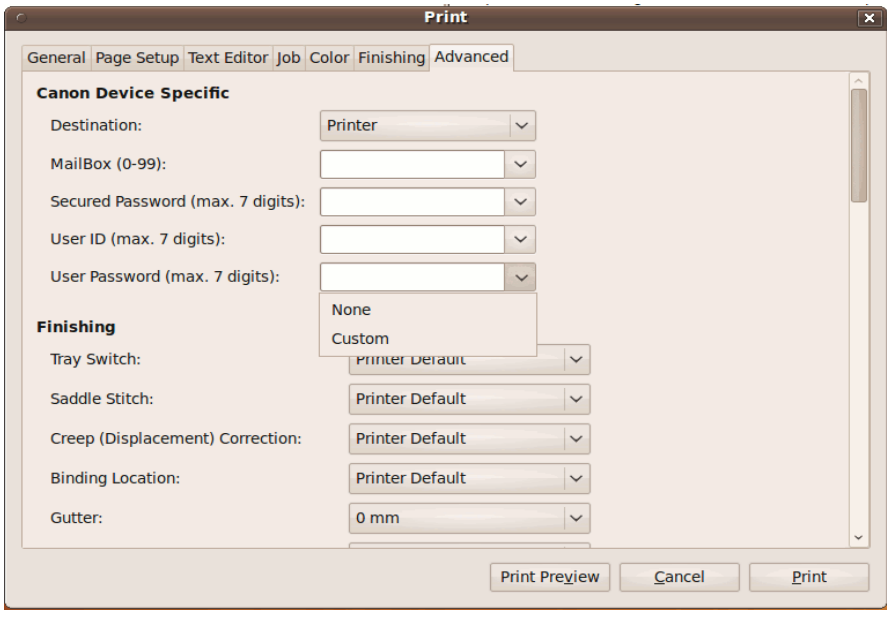


Figure 38 Advanced Options: GTK+ user interface

This may be a limitation of the current GTK+ implementation. Please note that ***gedit*** maintains a hidden file ($HOME/.gnome2/gedit/gedit-print-settings) into which all printer settings are stored and thus retrieved when restoring a previous session.

Other applications, which also use the GTK+ print interface, do not have this behaviour.

If you want to reset an advanced option, i.e. de-activate it, please click on the right drop down menu of the option you want to reset, and there select “NONE”. If you were to select “CUSTOM,” then you must specify a value (password or ID).

3.4.9.2 Advanced Options and LibreOffice

LibreOffice, the free Linux equivalent of the MS Office suite, always has had its own printer interface. In the older versions advanced options were not supported. The more recent versions of LibreOffice do fully support all of the advanced options of Canon devices. The general printer interface of LibreOffice looks like:

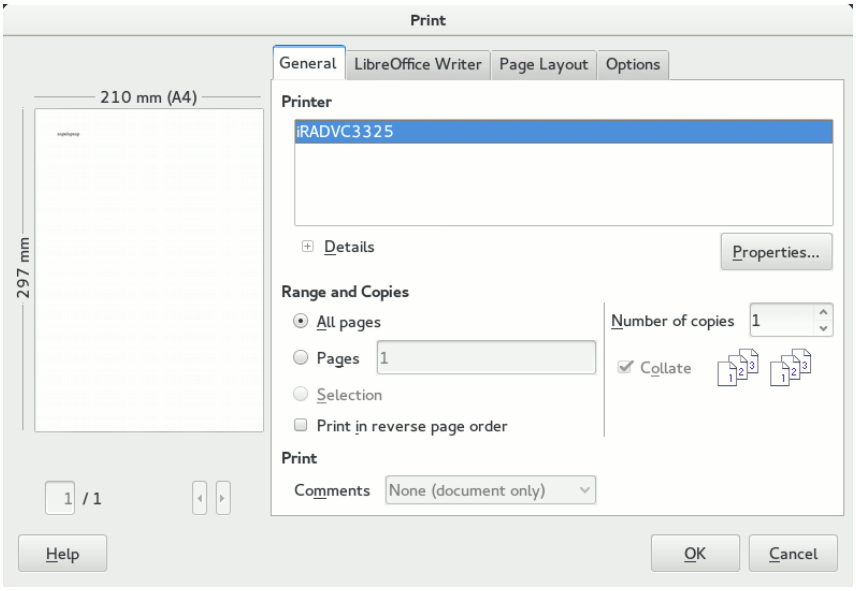


Figure 38 LibreOffice Printer Interface: General

LibreOffice separates the standard printing options from more specific options. Thus the standard printing options interface allows for the setting of paper size, duplex printing and paper tray selection:

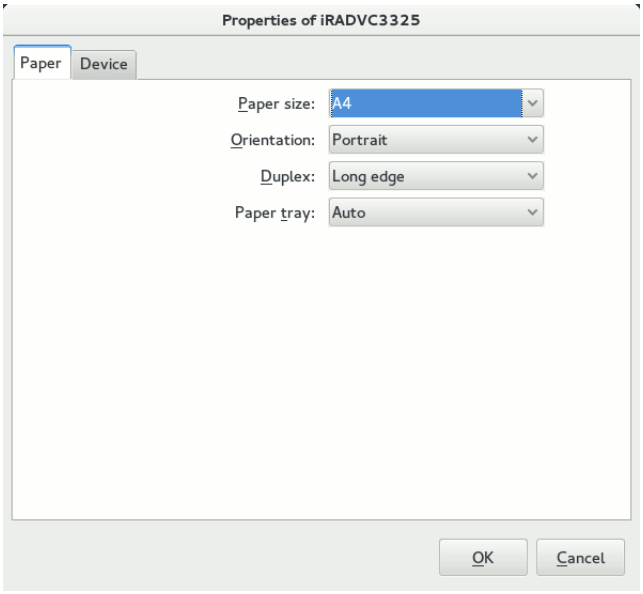


Figure 40 LibreOffice Printer Interface: Paper Options

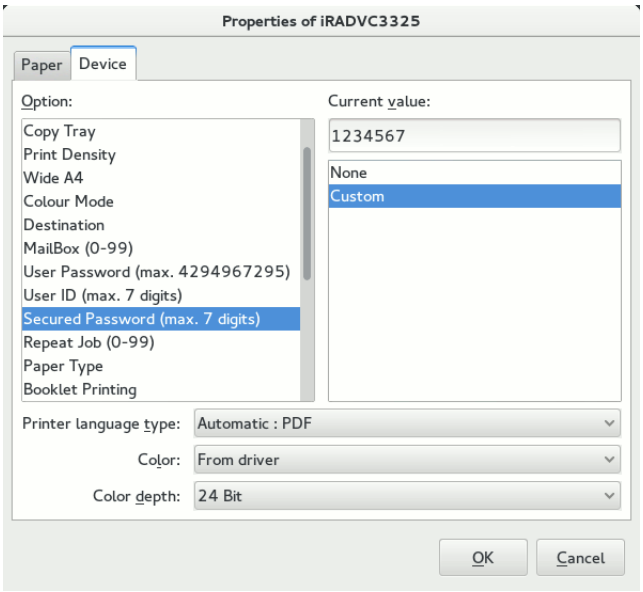


Figure 41 LibreOffice Interface: Advanced Options

All of the advanced options are supported by selecting “Custom” and (when a special text field opens up) typing there the required value. For a mailbox this would be the mailbox number (0-99). And for secured printing and printing with departement

accounting this would be password and/or user id. To undo an advanced option, select the "NONE" option, which closes the special text field.

3.4.9.3 How CQue Manages File Boxes, User IDs and Passwords for Different Linux Users

As we have seen the Canon device knows about features like *file boxes, user ID-s* and *passwords*. The Linux, operating system knows about *user names* or *login names*. The *root* user plays a special role, both on the Linux level and for CQue.
Of course, the root is the only user with enough rights to modify the global behaviour of these advanced options of the printer queue. But for CQue the root user plays another role too, as will be clear from what follows.

Within CQue you may create a list of users or logins and specify Canon device features for each user. CQue will associate Linux logins to Canon device features in the following way:

	root	***normal user***
Filebox	Each job of a normal user not in the list will go to the file box.	Each job of this user will go to the file box.
Secured printing	Each job of a normal user not in the list will use the specified password.	Each job of this user will use the specified password.
Accounting printing	Each job of a normal user not in the list will use the specified user ID and password.	Each job of this user will use the specified user ID and password.

Perhaps not all possibilities will be of interest to all applications, but this approach is very powerful as some examples will show further below in this section.

All advanced entries also come with a so-called "force" flag: If this flag is set, then the associated value cannot be changed from the printer setting menu of any application (OpenOffice etc.). If the flag is not set, then the user has the freedom to modify a value, if the user interface properly allows for such modifications.

The force flag does not have very much meaning for the root user (except when root himself would be printing): once a root value is set, it overrides any selection made by a user who is not in the list. This is not the case for a user who is in the list.

If the force flag for a certain user is set (by the system administrator) then that user will not be able to modify the associated value from any application.
Otherwise values for this user may be changed.

3.4.9.4 File Box Specification for UNIX Users

To specify a file box, click on the *box button* on the Advanced options menu. The following window will display:

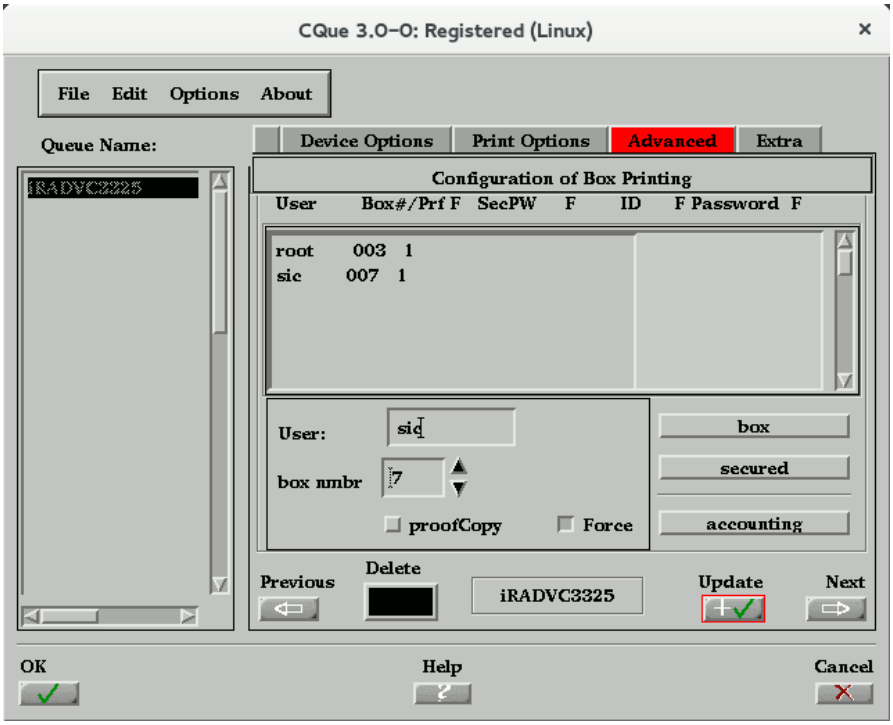


Figure 42 Advanced Options: Filebox

From this window you must specify the:

1. user name.
2. file box number.
3. force flag.
4. proofcopy flag.

The *user name* can be any legal UNIX login.
If you specify *root*, please note that the values for that user will hold for any other user not in the list.

The root user has a special meaning:
If root is present, then the jobs of all users will be sent to the file box of 'root', except if a user itself is specified in the list (with a different file box number). In that case, and only for that user, his own file box number would be used.

The *file box number* can be '0' up to a maximum specified by the copier, normally '99'. A value of '-1' indicates no file box.

The *force flag* will determine whether a user has the right to modify the setting from within any application like OpenOffice: If set, then the value may not be changed, otherwise the user may, if he wishes, still modify the file box number.
Please note: if a file box is specified here, automatically the destination of the document will not be the printer, but the file box. This is independent of the setting for the destination in any application printer menu.

The *proofcopy* flag indicates whether a proof copy should be printed when a job is submitted to the Canon device. If this is set, then each time a job is sent to the Canon device, a copy will be printed and the job will then be stored in the file box. Please note: not all, and especially more recent Canon devices do ***not*** support the proof copy.

You can add and/or update the values for a particular user using the *Update button*.

Examples:

- If you would like to create a queue that will print to file box 3 for all users, then you would specify *root* as user and *3* as file box number.
- If you would like all jobs for the user *sic* to go to file box number 7, then figure 43. shows the parameters.

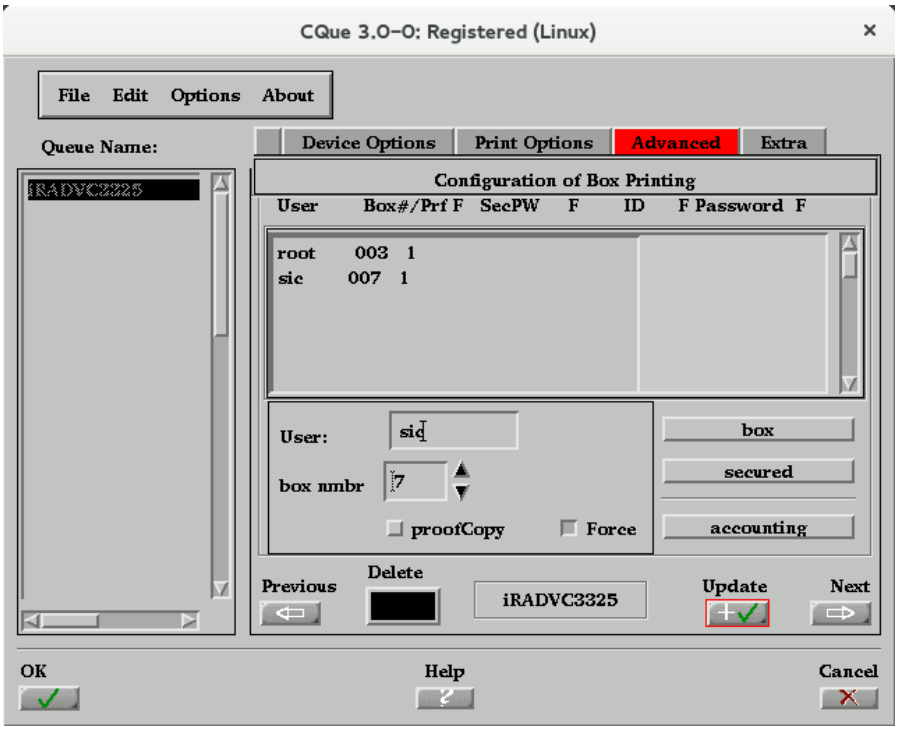


Figure 43 File Box for the user 'sic' and 'root' (all other users)

3.4.9.5 Accounting Printing Specification for UNIX Users

To specify Accounting Printing click on the *accounting button* on the Advanced options menu. The following window will display:

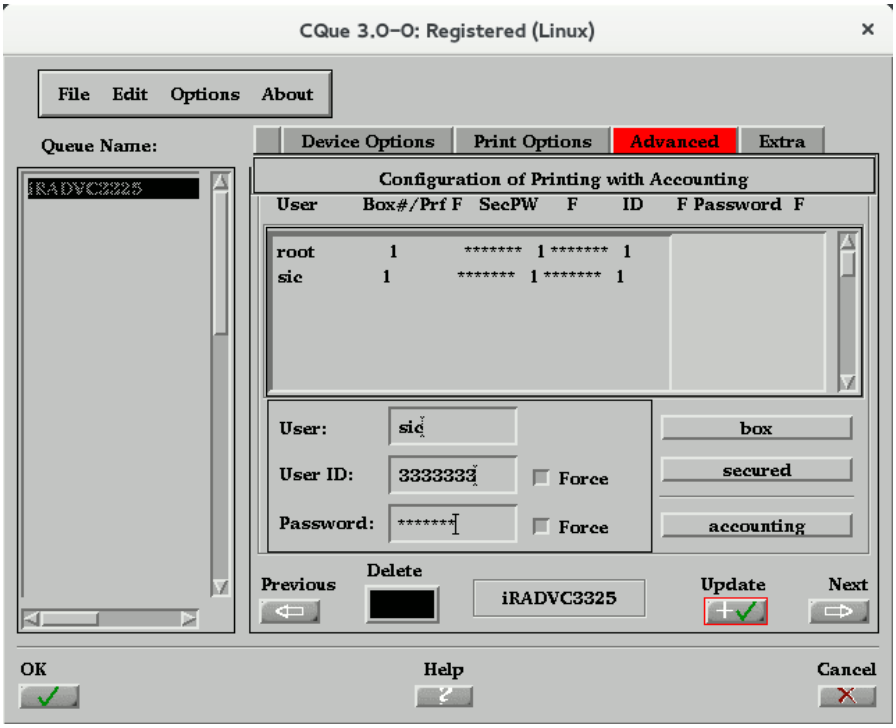


Figure 44 Advanced Options: Accounting

From this window you must specify the:

1. user name.
2. user ID.
3. user password.
4. force flags.

The user name can be any legal UNIX login.
If you specify *root*, please note that the values for that user will hold for any other user not in the list. The root user has a special meaning: If root is present, then the jobs of all users will be processed using the user id and password of 'root', except if a user itself is specified in the list. In that case, and only for that user, his own user id and password would be used.

The user ID and password are numerical values of up to seven digits.
You *must* specify a user ID, but the password is optional.

The current version of CQue does support department accounting, but is not able to give any feedback. Therefore, if printing quota are used up, further printing will be refused silently by the Canon device.

3.4.9.6 Force a User ID / Password

Next to the text field for the *user ID* and the *password* there is a toggle button *force*. If this button is selected, then the corresponding value will be forced.

If a value is *forced*, it will be taken into account automatically by CQue. Thus each job sent to a queue with forced values for the user ID and password will print making use of this user ID and password, *without any possibility for the user to modify these values*.

If a value is *not forced*, it will be taken into account by CQue, but the user still has the possibility to modify the values from the application he is printing from (if the printer setup menu of that application properly supports modification of these values).
The example of figure 44. shows the case for our user 'sic' with user ID 3333333 and a password which is hidden from display.

3.4.9.7 Secured Printing Specification for UNIX Users

To specify Secured Printing click on the *secure button* on the Advanced options menu. The following window will display:

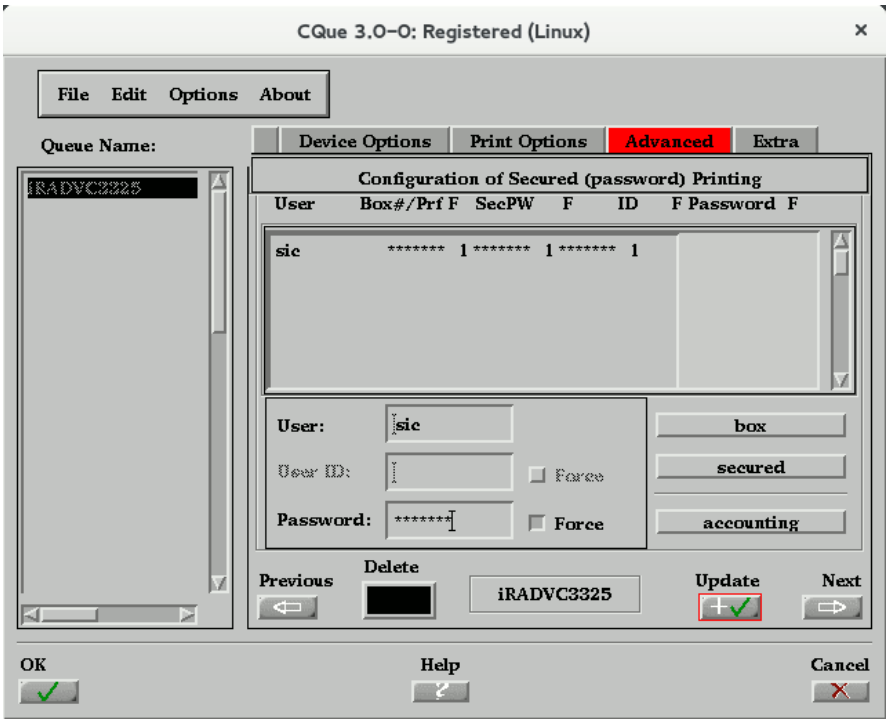


Figure 45 Advanced Options: Secured Printing

From this window you must specify the:

1. user name.
2. password.
3. force flag.

The user name can be any legal UNIX login.
If you specify *root*, please note that the values for that user will hold for any other user not in the list. The root user has a special meaning:

If ‘root’ is present, then the jobs of all users will be sent making use of the secured password of ‘root’, except if a user itself is specified in the list. In that case, and only for that user, his own secure password would be used.

The user password consists of a numerical value of up to seven digits.

3.4.9.8 Force a Password

Next to the text field for the *password* there is a toggle button *force*. If this button is selected, then the corresponding value will be forced.

If a value is *forced*, it will be taken into account automatically by CQue. Thus each job sent to a queue with forced values for the secured password will print making use of this user password, *without any possibility for the user to modify this value*.

If a value is *not forced*, it will be taken into account by CQue, but the user still has the possibility to modify the values from the application he is printing from (if the printer setup menu of that application properly supports modification of these values).

The example of figure 45. shows the case for our user ‘sic’ with a password which is hidden from display.

3.4.9.8 Deleting an Entry of the Advanced Options Menu

If you were to delete an entry from the list of users, double click on the entry to select it. The waste basket (*Delete* button) will become accessible.

When you hit the *Delete* button the entry will not be deleted immediately. The following verification window will display:

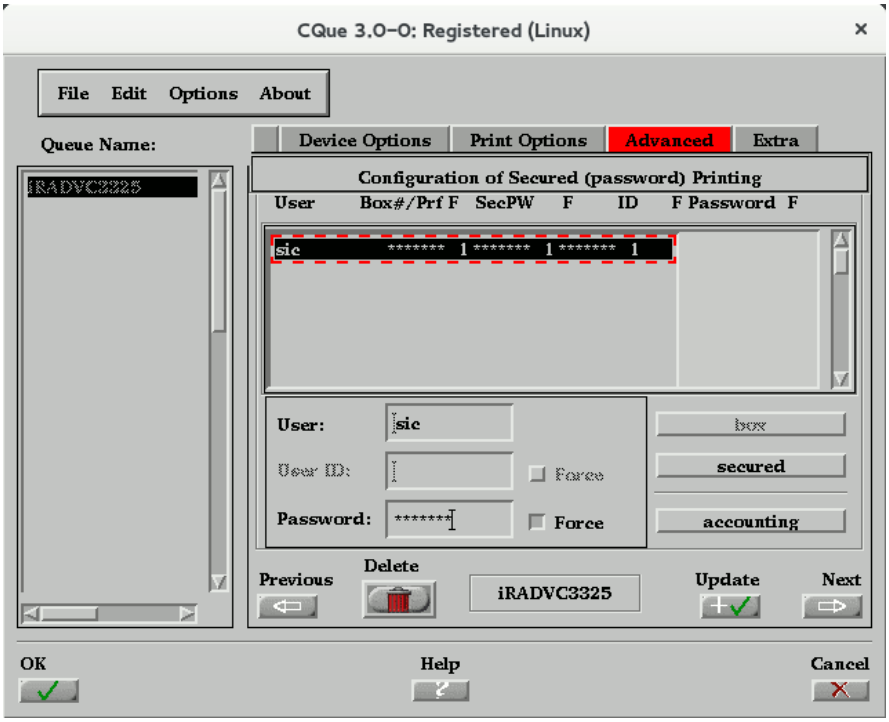


Figure 46 Advanced Options: Selecting an entry to delete

The selected user name, in our example 'sic', will display and if you are really sure, you may click the *OK* button to activate the deletion.

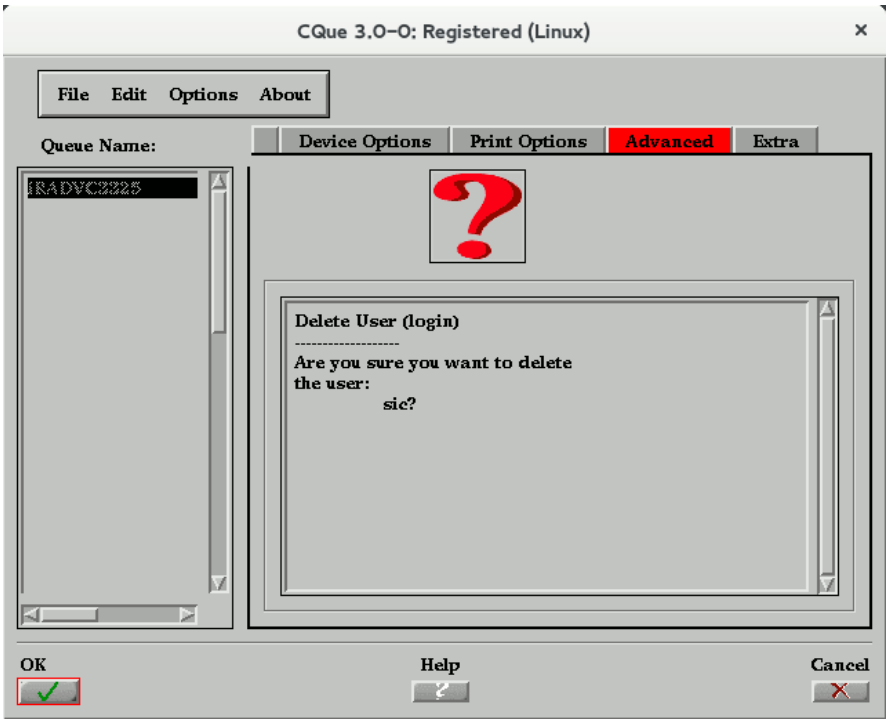


Figure 47 Advanced Options: Verification before deleting the entry

3.4.10 Extra & Banner Options

The *Extra tab* contains first two entries for the option of a *banner page*: A banner page before and/or after the job are possible.

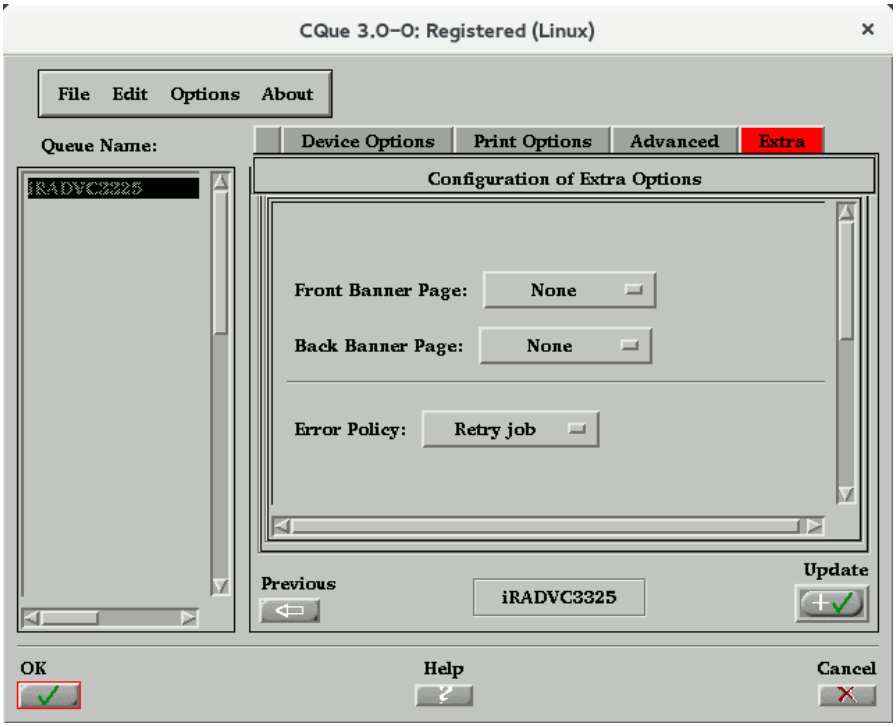


Figure 48 Extra and Banner Options

The possible types of banners, before and or after the document, supported and generated by CUPS are displayed in fig. 48.
Please note that these banner pages are generated by CUPS and for the printer manager may just be another job not necessarily with the same finishing options as specified for the main document.

Also the *Error Policy* of the queue can be modified here. The possible error policies are displayed in fig. 49.

Note that if *"Stop the queue"* is selected, then in case of a problem, like for example a paper jam, the queue will indeed be disabled (stopped) and needs to be enabled manually after the original problem has been solved.

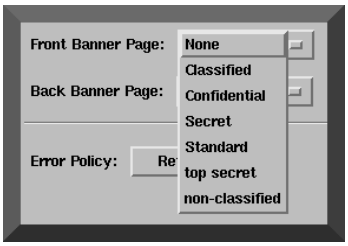


Figure 49 Banner Type Options

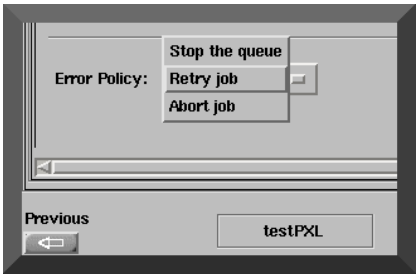


Figure 50 Error Policy Options

If *"Retry job"* is selected then the job will continue to retry, possibly with some time out between different tries.
If *"Abort job"* is selected the job will simply be aborted in case of a problem.

3.4.11 Printing Multiple Copies of a Document with Stapling

When printing multiple copies (say N copies) of a document with stapling most CUPS implementations will concatenate the output N times and then staple the resulting concatenated file. To prevent this CQue 3.0 PPDs support a feature: ***Repeat Job*** within the ***Canon Specific Options*** section. This allows you to specify from 1 to 99 copies for applications with the GTK+ print interface and 1 to 25 otherwise, with proper stapling of each copy. This feature is supported for PostScript, PCL5 and PCL6 Canon devices allowing PJL headers, i.e. some pure PostScript EFI devices are excluded.
Note: N copies of a document may generate N separate entries in the log file of the Canon device.

4 Non-standard Installations of CQue 3.0

4.1 Upgrade Installation of CQue 2.0 to CQue 3.0

If a version of CQue is already installed on your Linux workstation the setup program will detect that. If you would like to upgrade any existing CQue printer queues to the new version CQue 3.0 automatically, you may chose any of the three installation possibilities outlined in section 3.2. By default setup will upgrade any CQue printer queue with the new PPD files. The setup program will never touch any non CQue printer queues.

If you would like to upgrade CQue, but not upgrade any existing CQue printer queues, that is possible only by using the .tgz package installation, as outlined in section 3.2.2.

When upgrading from CQue 2.0 to CQue 3.0 the setup program makes a backup of various PPD files:

- All system PPD files are saved in to a file /var/tmp/CQuePPDFiles2.0-0.tar.
- Each PPD file corresponding to a printer queue (in /etc/cups/ppd) is saved into a file in the directory /etc/cups with the extension .rpmsave.

A review of the upgrade installation will be available in the file */var/log/CQue3.0_UpdateLog*.

4.2 De-Installation of CQue 3.0

If you want to de-install an existing version of CQue 3.0 from your Linux workstation, you may do so with a system tool if you installed CQue as an rpm or deb package. Such a de-installation, however, will not remove any CQue printer queues. This means that these printer queues most probably will not function correctly any more. A CQue printer queues relies on the existence of the filter ***sicgsfilter***. If that program is removed because of a de-installation, the queues will not work properly, and in the best case continue to print in A4 only.

Alternatively you may runs ***setup*** from a terminal window with the options -d:

```
/opt/cel/bin/setup  -d
```

The program will ask for confirmation and then delete any CQue queues, as well as (most of) the CQue programs and tools. As you run ***setup***, it is probable that the Linux system

will prevent to delete the program setup itself! This means that eventually you would have to remove the program /opt/cel/bin/setp and possibly the directory /opt/cel/bin.

A review of the actions taken can be found in */var/log/CQue3.0_UpdateLog*.

5 Miscellaneous Topics of CQue 3.0

5.1 Blob or Balloon Help of CQue 3.0

The program CQue 3.0 has help mechanisms at various levels. The main Help, which consists of selecting the "Help" button, and then selecting the object about which help is required, is already explained in the Introduction.

There is also a so-called "blob help", sometimes called "balloon help" too: When you point the mouse cursor to a button or other element of the CQue graphic interface, a small window pops up with a short description of that element. The window remains for a short time and disappears also when you move the cursor away from the element.

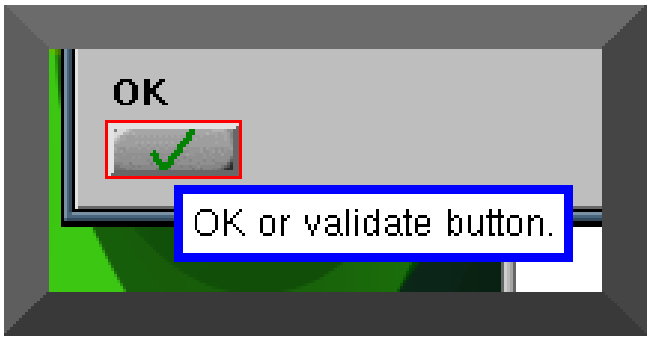


Figure 51 Blob Help

The figure 51 shows an example of the blob help for the *OK* button.

Sometimes this may have a side affect: When you would have different windows of CQue open at the same time and these windows would overlap, then the blob help mechanism tends to systematically put one of the windows in front of all the others.

In such cases you may wish to turn off the blob help mechanism. On the main menu of CQue select the *"Options"* button and there you may toggle on or off the blob help.

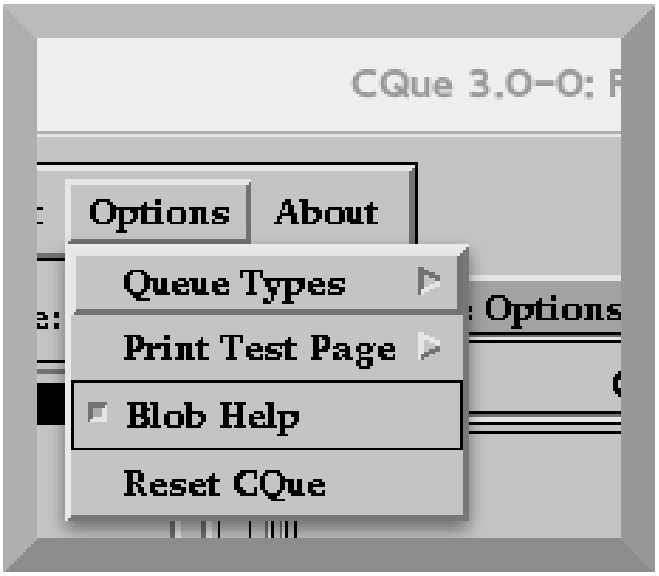


Figure 52 Turning on or off Blob Help

5.2 Filtering the list of Queues of CQue 3.0

On the most of the windows of CQue 3.0 a list of queues is visible with, as explained in the Introduction, two type of queues: with an asterisks for system or non-CQue type of queues and without for CQue type of queues.

If this list is very long you may wish to show only one type of queue. To select which type of queue will be displayed, you select *"Options"* on the main window of CQue. Then select the sub-menu *"Queue Types"* and there make your choice:

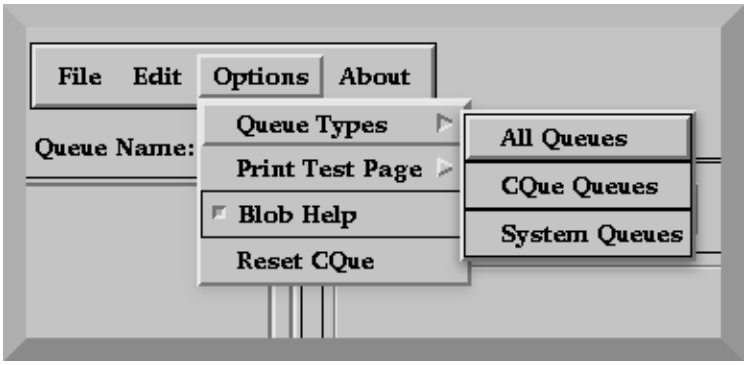


Figure 53 Selecting which Type of Queues will display in the List

All Queues	Displays all queues found on the workstation, with the asteriks for non-CQue queues.
CQue Queues	Displays only CQue queues.
System Queues	Displays only system or non-CQue type of queues.

Be careful: Currently CQue only shows which filter is active (or not) under the "Options" menu of the main window. So if you wouldn't find a queue in the list you were expecting to be there, please verify which filter is set.

5.3 Printing a Test Page with CQue 3.0

Once you have created a queue with CQue 3.0 you might want to test it. CQue has the following possibilities to print one or more test pages.

From the main menu of CQue select the *"Options"* menu. There select the *"Print Test Page"* sub-menu, which shows the following possibilities:

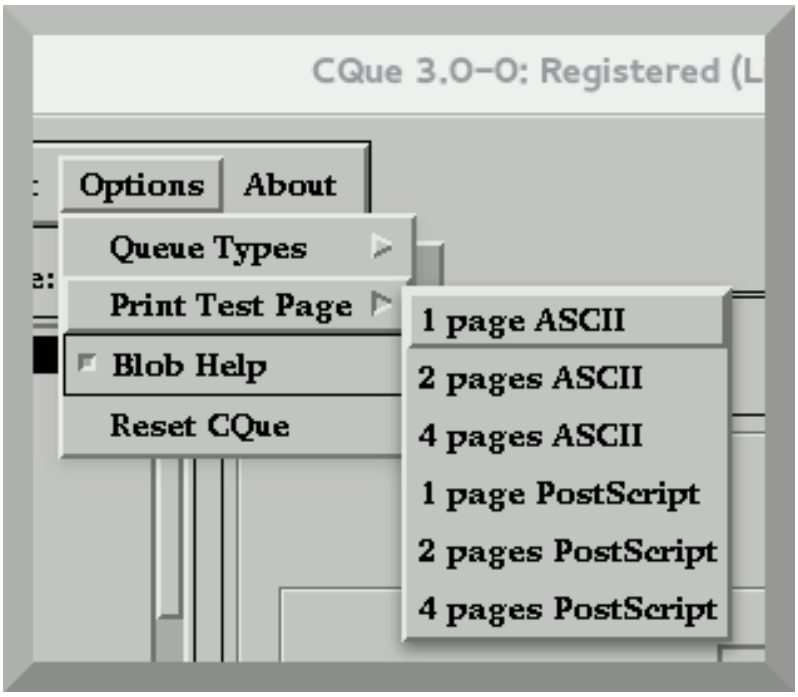


Figure 54 Printing a Test Page

1 page ASCII	Prints a simple test page with only ASCII text.
2 pages ASCII	Prints twice the same simple test page with only ASCII text.
4 pages ASCII	Prints four times the simple test page with only ASCII text.
1 page PostScript	Prints a PostScript test page, possibly in colour, with information about the imageable area and the resolution of the printer.
2 pages PostScript	Prints twice the same PostScript test page.
4 pages PostScript	Prints four times the same PostScript test page.

You may send a test page to any printer, either of CQue type or not. Once the job is sent, CQue displays a message asking whether the page(s) printed correctly.

The option to print more pages at once is included to test duplex and/or stapling of the Canon device.

5.5 Reset of CQue 3.0

If, for some reason or another, you want to reset all options at once, select the *"Options"* menu from the main window of CQue. There select *"Reset CQue"*. This may be useful if you are creating various printer queues in one session of CQue. CQue will retain some of the data, for example the printer options. If you change the model from one queue to another, then this may generate conflicting settings because of differing constraints of the PPD file. In such cases it may be helpful to reset CQue completely.

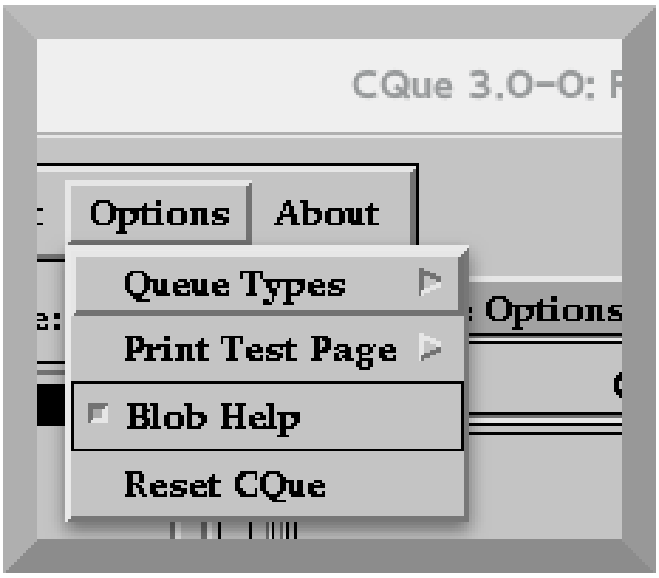


Figure 55 Reset of CQue

On the other hand, if you were to create various printer queues for the same model (same PPD) then it may be advisable to not reset CQue each time you create a new queue.

If creating both PostScript and PCL printer queues for the same printer, then we do advise to reset CQue between the creation of the different queues.

5.6 Printing to a File with CQue 3.0

If you were to print to a file the CQue Port interface does provide the necessary options to do that, as described in section 3.4.4.6.
The CUPS printer manager, however, may not agree with such a strategy. By default CUPS does not allow to print to data files on the file system.
To modify this you must edit the file: ***/etc/cups/cupsd.conf*** (we recommend to make a backup of the file first).

Add a line with:

```
FileDevice Yes
```

and then restart thee CUPS printer manager so that the modified configuration file will be taken into account.
Restarting CUPS can be done by:

```
service cups  restart
```

or:

```
/etc/init.d/cups restart
```

or

```
/etc/init.d/cupsys restart
```

or

```
sysctl restart  cups.service
```

depending on the type of Linux system you are using.

5.7 About CQue

When you click on the ***About*** button of the main window (Fig. 17) the following window will open, showing some general information on the origin of CQue.
For support you are invited to contact the technical division of your local Canon company.

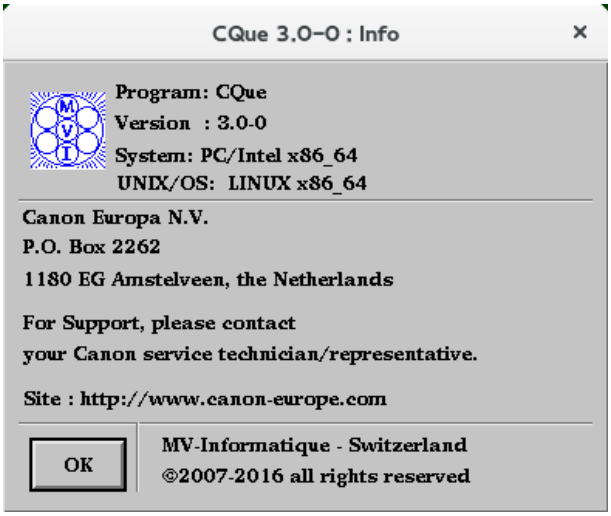


Figure 56 About window of CQue

6 What to do with Problems of CQue 3.0

6.1 Introduction

If you installed a version of CQue 3.0 on your Linux workstation, and things are not functioning as you expected, this chapter tries to outline some debugging strategies.
Section 6.2 discusses problems related to the CQue interface itself.
Section 6.3 discusses problems related to printer queues in a first approach.
Section 6.4 discusses debugging in a more detailed manner.

6.2 After Installation of CQue 3.0 the Program Does Not Start

If you installed CQue with an RPM or DEB package the program /opt/cel/bin/setup will be executed automatically.
Once the setup program run, the final CQue program is /opt/cel/bin/cque.
And a link to that location should be made in /usr/bin.
If you installed CQue on your workstation and CQue would not start, please first check the file

/var/log/CQue3.0_UpdateLog

This file contains a trace of the complete installation and normally will give you an indication of possible problems.

You may also try to start CQue from a terminal. First open a terminal session. Then go to the directory /opt/cel/bin.
From there try the command:

./cque

To run CQue from a terminal, though, the value of the environment variable DISPLAY should be set! To verify, type

```
echo  $DISPLAY
```

If there is no answer, or the answer is empty, try setting the default value:

```
DISPLAY=:0.0
export DISPLAY
```

(We suppose you are not running in a csh, for which you would have to use the *setenv* command: setenv DISPLAY=:0.0).



And retry the ***./cque*** command.

If you opened a terminal window as root in a non-root desktop, you may have to execute from yet another terminal winod, i.e. as the owner of the dekstop:

```
xhost  +
```

This will allow others users than the owner to open a window on the desktop.

If the CQue interface would display in outline, but text fields are invisible, this is probably due to a lack of colours of the X11 server.
Running ***cque*** in a terminal would display an error message complaining about the allocation of colours.
To solve this problem try running ***cque*** with the option -a2. This will essentially run CQue in black/white mode. If this solves the problem, you may edit the ***cque*** script and include the -a2 option in the last line, which starts ***CQue.exe***. (see section 8.5 for a description of the script ***cque***).

To activate ***cque*** with full debug options you may run:

```
/opt/cel/bin/cque  -v  -Z2
```




6.3 A Created Queue Does Not Print

If you created a queue and for one reason or the other it does not print, perhaps the following suggestions may help. Some topics seem rather obvious, though experience learned that sometimes they are enough to solve the problem...

1. Check that the Canon device (and possibly the printer controller) are both powered up and connected with the appropriate cables. Of course there should be paper or media in to the paper trays.
2. To check the connection with the Canon device do a *ping* on the system. I.e. from a Linux terminal window type:

   ```
   ping  pName
   ```

   We suppose here that the Canon device is known by the network as *pName*.
   The system should respond with something like:

   ```
   pName is alive
   ```

   or it could return an infinite loop of sequences reported to be send and received. (You may stop this by *Ctrl-C* or the *break* key of the keyboard).
   If the system does not respond like that, there is a network connectivity problem, which must be resolved first. *There is no point in doing any other tests, before the connection with the printer is established.*
   Check the cables, check also the IP address of the Canon device to be the same as entered by the installation. The file */etc/hosts* contains the IP address entry on the Linux system, in the most simple case. If your system uses DNS or NIS check the main databases. To get the IP address of the Canon device you might print the configuration page.

3. Check that the printer manager is running. On Linux systems the command

   ```
   lpstat  -r
   ```

   should respond with

   ```
   scheduler is running.
   ```

   If it is not running for one reason or the other you may restart it by the command

   ```
   /etc/init.d/cups  start          (or possibly:  /etc/init.d/cupsys)
   ```

   or

   ```
   sysctl  start  cups.service
   ```

4. Send a test print to the printer by hand. This could be done with CQue itself (see section 5.3) but it could also be done by hand. For example the command

```
lp  -dqName  /etc/hosts
```

should print a short text file on the printer.
For older versions of CUPS you may check the file

/var/log/cups/error_log

Please verify its contents, which may give a clue to the problem.
For newer versions of CUPS these files are not used anymore, but CUPS uses the system log file.

5. You may also verify the details of the created printer queue in the CUPS printer data base: /etc/cups/printers.conf.
For the printer queue qName you would see something like:

```
<Printer qName>
Info CQue 3.0 LPD Queue
DeviceURI lpd://192.168.1.152/lp
State Idle
StateTime 1199811929
Accepting Yes
Shared Yes
JobSheets none none
QuotaPeriod 0
PageLimit 0
KLimit 0
OpPolicy default
ErrorPolicy retry-job
</Printer>
```

Finally the general command:

```
lpstat –t
```

should give an answer like:

```
scheduler is running
device for qName: lpd://192.168.1.152/lp
printer qName is idle. enabled since Mon Oct 30 22:21:21 WET 2015. available.
printer remPrinter is idle. enabled since Mon Oct 30 22:21:22 WET 2015. available.
```

7. If you activated file or mail box support check that the document has the correct destination. Sometimes it happens that printing to a certain mailbox is applied, and thus no output to the copier will appear. You will see the communication indicator of the copier flicker, but no printing will occur. In such cases verify that no mailbox is activated.
8. You may also use the print manager of the Linux operating system. This tool, however, may be used to delete printers or to (re-)create *raw* printers, but it should *not* be used to (re-)create the *qName* CQue printer because the Linux print manager is not capable of handling this kind of printer queues. You may modify printer options though making use of the Linux print manager for a CQue printer queue.
9. It may also help to have a look at possible mail that might be send by the printer managers if a problem arises.

The next section describes a more detailed approach activating some of the debugging features of CQue.

6.4 Introduction to Debugging an Installation of CQue

Chapter 7 details a number of command line options of most of the programs of CQue. If you have problems with ***cque*** (or CQue.exe) itself, the program ***cque*** supports the option -Zx to set debugging.
The value if *x* has the following meaning:

x	Description	Remarks
0	Normal usage. No particular debug mode.	This is the default value.
1	Will display messages of system commands etc. but will not execute them.	This is useful if you do not want to create a queue, but simply want to see what CQue intends to do.
2	Will display messages of system commands etc. but will execute them too.	This is the most appropriate method for debugging: CQue displays what it wants to do and executes too.

To catch the messages issued by ***cque*** you would have to run ***cque*** from a terminal.
administrator
If a queue does not print as expected and the suggestions of the previous sections did not help, you may activate debug flags too.
The most important program is the ***sicgsfilter*** which will be started in a script run by the CUPS printer scheduler. To see how this program is run by CUPS you need to activate the debug mode of CUPS. This can be done either by the HTML interface at localhost:631 (port 631) and then under the administrator window activate debug mode. Or you may edit the file ***/etc/cups/cupsd.conf*** or on some newer systems: ***/etc/cups/cups-files.conf***.

Search for the line:
LogLevel info
and modify it to
LogLevel Debug

On more recent Linux versions you may run:

cupsctl LogLevel=debug2

After editing the file ***cupsd.conf*** you must restart the CUPS printer scheduler:

services cups restart
or ***/etc/init.d/cups restart***
or ***/etc/init.d/cupsys restart***
or ***sysctl restart cups.service***

On older versions of Linux the useful place to look for log files is the directory /var/log/cups.
There are three types of files:

access_log:	reporting all access events of all CUPS printers.
page_log:	reporting all pages printed by CUPS printers.
error_log:	reporting a full history of each print process of a CUPS printer. This file is by far the most important one.

Of course the file *error_log* will be of most interest.

To view the log messages on more recent Linux versions (which do not support the /var/log/cups files anymore, but use the system log file) you would type:

journalctl -u cups -e

or:

journalctl -u cups --since=...

To filter out messages relating to a specific job ID, use:

journalctl -u cups JID=...

To turn off the debugging of CUPS, you may use:

cupsctl --no-debug-logging

Or of course edit the file /etc/cups/cupsd.conf (or cups-files.conf).

7 Program Description of CQue 3.0

7.1 Introduction

This chapter describes some of the programs or modules of CQue 3.0. For the occasional reader this chapter will be far too technical, but for a Linux system administrator it may contain valuable information. It will mainly explain the command line options of some of the modules of CQue. Most of these modules will be of little use if used as stand alone programs. But for debugging purposes, for example, it may be useful to know the meaning of the various command line options.

7.2 The Program CQue.exe

The program ***CQue.exe*** is the main interface of the package. It should never be run without the correct environment variables associated with it. Section 8.5 gives details on the script ***cque***, which is normally used to run ***CQue.exe***.
The command line options known by the program ***CQue.exe*** include the following:

-ax : *colour* mode:
- 0: use system default colours;
- 1: limited number of colours, with grey background; [*default*]
- 2: use black and white exclusively;
- 3: use all colours in true colour mode;

If on your display only the outlines of CQue would be visible but no text fields, try using the option -a2, which switches to the most basic black/white version of the CQue colour scheme.

-h : print a *help* message.

-rx : define how the *previous session* will be *restored*:
- 0: no restoring of the previous session.
- 1: restore the previous session at start up, [*default*]
- 2: re-read the PPD/PDD file without restoring;

-sx : define the name of the *main configuration file*. By default the name of this file is: /opt/cel/cqueInfo3.0. This name may also be specified with the environment variable CQUEINFO.

-ux : define the *working directory*. By default : /opt/cel. Normally this directory may also be redefined by the configuration file cqueInfo3.0.

-v : define *verbose* mode [*false*];

-xx : set the width of the window of CQue [*640*];

-yy : set the height of the window of CQue [*480*];

-Hx : define users *home directory* [*$HOME*];

-Mxy : defines the *mailbox mode*.
x = 0: no mailbox support. [default]
x = C: mailboxes of type Canon, also EFI ;
y = the number of available mailboxes (default : 100).

-Ux : define the user name. By default CQue will detect itself the name of the user who started CQue. Normally CQue would be run by the root only.

-Wx : define the *working directory*. By default : /opt/cel. Normally this directory may also be redefined by the configuration file cqueInfo3.0.

-Zx : *debug mode*:
0: normal mode. [*default*]
1: debug mode: Don't execute commands, but echo them to the console only.
2: debug mode: Echo the commands and execute them at the same time.

Normally the script ***cque*** will take care of the most important options through environment variables.
The environment variables of ***CQue.exe*** include:

CQUEINFO :	The main configuration file (by default: /opt/cel/cqueInfo3.0).
PREPATH:	The working directory of CQue.exe.
PREFIX:	Identical to PREPATH.
PPDDIR:	The directory of the PPD files, i.e. the printer model files.
CQUECUPSDIR:	The directory root of the CUPS distribution.
CQUECUPSBINDIR:	The directory 'bin' of the CUPS distribution.
XKEYSYMDB:	If XKEYSYMDB is present it may overrule the default keyboard mapping. On some UNIX systems, particularly Linux, the standard XKeysymDB file is located in another than the standard location: /usr/lib/X11.
XENVIRONMENT :	If XENVIRONEMNT is present it may overrule some of the X11 features of CQue.exe. Default all graphic interface widgets and components will have reasonable values.

7.3 The Program sicgsfilter

The program or printer driver *sicgsfilter* - the main working horse during printing next to foomatic - supports a number of options, which are simply listed without much technical explication. The following options are supported:

-ax : set booklet mode to x.
-bx : set back cover mode to x.
-dx : set duplex to x; (0=simplex,1=duplexLong,2=duplexShort) [0].
-ex : set line refine mode to x.
-fx : set front cover mode to x.
-lx : set binding location to x.
-mx : set media type to x.
-px : set paper size to x.
-qx : set staple mode to x.
-rx : set long/short offset registration [1].
-r xfl,yfl[,xbl,ybl][,xfs,yfs[,xbs,ybs]] : set fixed PCL offsets (see below).
-sx : set sorter mode to x.
-tx : set input tray to x.
-ux : set user to x.
-Ax : set destination to x (0=prt,1=mailbx,2=mailb+proof,3=Secure,4=Form) [0].
-Bxy: set mailbox to y,x='B':iR, x='N':EFI, [-1].
-Cx : set back cover source to x [0].
-Dx : set debug flag to x [0].
0: standard mode; [*default*]
1: debug mode without actions;
2: debug mode with actions;
-Fx : set front cover source to x [0].
-Gx : set punch mode to x [0].
-Hx : set halftone mode to x [0].
-Kx : set colour mode to x [0].
-Lx : set slip sheet mode to x [0].
-Mx : set work mode to x (MPS=PS,MPCL=PCL5,MPXL=PXL) [PS].
-Nx : set flag to keep PaperSize (x=P), or paper tray (x=T).
-Ox : set output bin x [0].
-Px : set PCL level to x [5].
-Qx : set print density to x.
-Rx : set resolution to x [600].
-SPW=x : set secured print password to "x".
-Tx : set toner reduction to x [0].
-UID=x : set account user id to "x".
-UPW=x : set account print password to "x".
-Wx : set wideA4 mode to x [0].

The option –M (for the printer description language) and –P (for the name of the printer queue) are the most important ones and are almost required options.

The -r option allows for fixed PCL offsets. The unit of dimension is decipoint, which means 1/720". The meaning of the variables is:
xfl,yfl = (x,y) offset for front page (simplex or long edge duplex).
xbl,ybl = (x,y) offset for back page (long edge duplex).
xfs,yfs = (x,y) offset for front page (simplex or short edge duplex).
xbs,ybs = (x,y) offset for back page (short edge duplex).
Appendix C gives some more details on applying these options.

The program ***sicgsfilter*** supports the following environment variables:

SICPSBINDIR :	The directory where binary files related to PostScript processing would be located. For example: CQue 3.0 will try to transform PDF files with the program *pdf2ps*. It will search for *pdf2ps* in a number of default directories, but you may force the location by SICPSBINDIR. (this option is not used anymore)
CUPS_SERVER:	The CUPS server on which the document is printed.
DEVICE_URI:	The URI of the Canon device or output device of the queue.
PPD:	The name of the PPD file used for the printing of the document.
PRINTER:	The name of the printer queue itself.
SERVER_ADMIN:	The CUPS administrator.
TITLE:	The title of the document to print.
CQUEDATADIR:	The directory for the data of CQue [/opt/cel].
USER	Name of the user of the print job.

7.4 The Program setup

The program *setup* is the *installation program* for ***CQue.exe***. It supports the following options:

-fx : Allow installation from any directory. (x=0: no, 1:yes). Default: yes. It makes a slight difference for setup up to know whether it is launched from the default directory /opt/cel/bin or not. The rpm and deb package installations launch setup with the option -f0 to force installation from /opt/cel/bin.

-d : Run setup in de-installation mode. In this mode, if an installation of CQue is detected, setup will ask for permission to de-install CQue (including any CQue printer queues). If confirmed it will proceed with the de-installation.

-qx : Query the steps of setup:
- x = 0 : No, installation proceeds without questions [default].
- 1 : Ask permission to proceed and to upgrade each CQue printer queue if found.

-Sx : Set SELinux mode (x=0:ignore SELinux, 1:process SELinux) [1].

-Dx : Set debug mode:
- x = 0 : Normal processing without debug information
- 1 : Send debug information to *stderr*, but do not execute commands.
- 2 : Send debug information to *stderr*, and do execute commands normally.
- >2: May even output more debug information, while executing normally.

This program must be run as ***root*** (or super-user).
A log file with a review of the installation or update is written in:
/var/log/CQue3.0_UpdateLog.

7.5 CQue and SELinux

The program *setup,* the installation program for ***CQue.exe,*** will detect whether the Linux distribution is running SELinux in enforced mode. If this is the case, setup will install a CQue SELinux policy module, ***cque.pp***. This will prevent any SELinux warning messages during setup process.

The ***cque.pp*** module, however, is not necessary for the correct functioning of CQue.exe and one of it components. If, for whatever reason, you might prefer to de-activate the CQue SELinux policy, you may do so by the following command:

```
semodule  -r  cque
```

7.6 The program sicnc

The program *sicnc* is a home made version of the popular *netcat* or *nc* program shipped with most Linux distributions. It is used for various TCP/IP work internal to CQue. This version has the property that, when listening to a TCP/IP port, it stops doing so when an end of file is encountered. Some versions of nc would continue listening indefinitely.

8 Configuration Files and Scripts of CQue 3.0

8.1 Introduction

This chapter describes some of the configuration file of CQue 3.0. For the occasional reader this chapter will be far too technical, but for a Linux system administrator if may contain valuable information.
All of the configuration files of CQue are in readable ASCII format.

In this chapter the term *advanced options* of CQue will refer to either file box printing, printing with department accounting or secured printing, or any combination thereof.

8.2 Directory Layout of CQue 3.0

The program CQue is installed in a directory, which is fixed during setup of CQue.
The so-called working directory is: ***/opt/cel***.
For each printer that is created by CQue, and which is of CQue type, a subdirectory of ***/opt/cel*** will be created, with the same name as that of the printer queue. Within that directory there is always another subdirectory called *root*.
For a particular printer we, of which the configuration files will be located in a subdirectory of /opt/cel, we will denote that directory by $PRINTERDIR.

During setup there will be the following directories created as sub-directory of /opt/cel:

- ***bin***: directory with binary programs, and executable scripts, basically: ***CQue.exe, cque, sicgsfilter, setup, sicnc***.
- ***doc***: directory with documentation.
- ***etc***: directory for the CQue configuration files.
- ***ppd***: directory for the printer model files or PPD files for PostScript, PCL and PXL.

8.3 File Box and Accounting Configuration File

If advanced printing options are applied then CQue will have created a file called ***CQueMailBoxFile*** into the $PRINTERDIR. This file associates user names or login names on the Linux level with mail or file boxes, user IDs or passwords on the copier level.

The syntax of this file is as follows:

1. Each line corresponds with the data of one user or login.
2. The first entry of a line corresponds with the login or user name.
3. The login name is followed by any of the following sequences or a combination thereof:

Start sequence	Followed by	Followed by	Meaning
m=	S followed by X=number between -1 and 99	P	Stores into file box X. If P is present, then prints too (proofcopy). If S is present value is 'saved'
u=	S	X=number of max. 7 digits	User ID for department accounting. If S is present value is 'saved'
s=	S	X=number of max. 7 digits	User password in combination with user ID for department accounting. If S is present value is 'saved'
p=	S	X=number of max. 7 digits	User password for secured printing. If S is present value is 'saved'

4. The character S is optional. The character P for the m-sequence is optional too.
5. No comment lines are allowed.

An example:

```
mv      m=S2P      u=S2800    s=S2800
gz      m=3        u=2802     s=2804
sic     m=S49
```

The first line indicates that for the user or login 'mv' each job will be stored into the file box number 2 and a proofcopy will be printed too. (m=S2P). This user will be automatically accounted for with user ID = 2800 (u=S2800) and password = 2800 (s=S2800). Note that the values of the mailbox, user ID and password are 'saved' (all have the character 'S' before the digits). This means that the mailbox, user ID and password will be taken into

account automatically and the user does not have to enter them when submitting a job.

The second line indicates that for the user or login 'gz' each job will be stored into the file box number 3, but no proofcopy will be printed. (m=3). This user will be accounted for with user ID = 2802 (u=2802) and password = 2804 (s=S2804). Note that the values of the user ID and password are not 'saved' in this case. This means that the user ID and password may be modified by means of a "Properties" window before submitting a job. It the user does not enter the correct values, the job will not be printed. If no values are specified, then the values specified here will be taken into account automatically.

The third line indicates that for the user sic each job will be stored into the file box number 49. There will be no proof copy nor will there be department accounting for this user.

Please note that you may edit this file by hand. It will possibly be re-edited by CQue as soon as you run CQue, but no information will be lost.

For the sake of completeness we repeat here the tables displaying the possible combinations allowed from section 3.4.9:

Combination	**Supported**
Mailbox + Accounting	Yes
Mailbox + Secured Printing	No
Accounting + Secured Printing	Yes

If, for example, you were to include all sequences, (m, p, u and s) this is *not* allowed and the result will be undefined.

We also remind that the root has a special meaning:

	root	***normal user***
Filebox	Each job of a normal user not in the list will go to the file box.	Each job of this user will go to the file box.
Secured printing	Each job of a normal user not in the list will use the specified password.	Each job of this user will use the specified password.
Accounting printing	Each job of a normal user not in the list will use the specified user ID and password.	Each job of this user will use the specified user ID and password.

An example with the root entry:

```
root      m=S2        u=S2800     s=S2800
gz        m=S3        u=2802      s=2804
sic       m=S49
```

In this case all users would print, rather store, into file box number 2, *except for the users* 'gz' and 'sic', who would store into file box numbers 3 and 49 respectively.
This is a convenient way of constructing a queue which print or stores to a file box for all users.

8.4 Adding a Printer Model to CQue

When running CQue the Menu for the selection of the Printer Model shows a list of available Canon devices, depending slightly on the printer description language (PDL). It may occur that from time to time new models become available and/or old models become obsolete. To add a printer model to the data base of CQue consists simply of adding one or two files.

The name of a CQue PPD file is as follows:

cel-<Model>-<PDL>-<COUNTRY>.ppd

where:

<Model>	= the Canon model name, for example iR4580
<PDL>	= the printer description language: ps = PostScript, pcl = PCL or pxl=PXL.
<COUNTRY>	= the language code: en=English, fr=French, de=Geman, it=Italian, es=Spanish.

For example: ***cel-iR4580-ps-en.ppd*** is a PPD for an iR4580 PostScript Canon device in the English language.
And ***cel-mf7170i-pxl-fr.ppd*** is a PPD for a MF7170i PXL Canon device in the French language.
This naming convention is imperative for CQue. In other words otherwise valid PPD files not adhering to this naming convention will not be recognised by CQue!

For PostScript Canon devices you could use the PPD files from MS Windows. We do not, however, recommend using these files because the advanced features (mailbox, department account, secured printing) are not supported by these files.

Thus we recommend using CQue compatible PPD files. CQue will be upgraded regularly to include any new Canon devices when available.
You might also check the web site of M.V.I. www.mv-informatique.com, which will be updated regularly to make the PPD files for the latest Canon devices available in different languages.

To add support for a new Canon device, first get the PPD files for that device.
Then copy these files to the appropriate PPD directory. This sounds easier than it may be for certain Linux distributions. Despite the standard of LSB (Linux Standard Base) which is proposed, only very few current Linux distributions do adhere to this standard.
At installation time setup figures out where the proper system PPD directory is located. This is reported in the CQue log file ***/var/log/CQue3.O_UpdateLog***.
The table on the next page shows some known locations where you may look for.

Please note: The directory ***/etc/cups/ppd*** is ***not*** the right place to put the PPD file! This is a system directory where PPD files are copied after the queue has been created.
The correct PPD directory should already contain a series of files with the above described naming convention.

The following table shows some potential directories where PPD files could be located:

PPD directory	Comment / Linux system
/usr/share/foomatic/db/source/PPD	Fedora, Mandriva
/usr/share/ppd	Recommended LSB
/usr/share/cups/model	CUPS standard directory
/opt/share/ppd	Debian
/usr/share/cups/model/custom	UBUNTU
/usr/share/cups/model/foomatic-db-ppds	Several Linux

If no directory could be found, you might use /usr/share/cups/model as a starting point and find any subdirectories or symbolic links from there. For most current Linux distributions the /usr/share/cups/model directory is the basis for PPD files. On more recent Linux distributions we would expect /usr/share/ppd to be the principal location to look for, as this is the LSB recommended directory.
Finally you may have a look at the script ***cque*** and try to locate the environment variable PPDDIR therein. This is the directory ***CQue.exe*** will take as a starting point.

8.5 The Script cque

The general script ***cque*** which runs ***CQue.exe*** would look like:

```
#!/bin/sh
#
# Start up script for CQue 3.0. with environment variables.
# 1999-2010 MV-Informatique.
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# For system colours use option -ax:
#       x=0 use system colours
#       x=1 use grey colours (default).
#       x=2 use black and white only (basic version).
#       x=3 use full colours.
# Creation date: Tue Jan  8 16:26:44 2010.
# This script is multi-platform
#
prepath=/opt/cel
machine=`uname -s`
CQUEINFO=$prepath/cqueInfo3.0
CQUETMPDIR=/tmp/
PREPATH=$prepath
PREFIX=$prepath/bin
CQUECUPSDIR=/
CQUECUPSBINDIR=/usr
PPDDIR=/usr/share/foomatic/db/source/PPD/Canon/cel
XKEYSYMDB=/usr/share/X11/XKeysymDB
XENVIRONMENT=$prepath/CQue3_0
export CQUEINFO
export CQUETMPDIR
export XKEYSYMDB
export XENVIRONMENT
export PREPATH
export PREFIX
export PPDDIR
export CQUECUPSDIR
export CQUECUPSBINDIR
$PREFIX/CQue.exe -MC100 -W$prepath $*
```

Please note that this script contains some important environment variables:

CQUEINFO : default the file /opt/cel/cqueInfo3.0. This file is the heart of CQue. We outline its syntax further below. If this file does not exist, CQue will try to create one itself or it will fail to start.



PREPATH and PREFIX are path variables to directories of CQue. These variables are exported because other modules of CQue may use them.

XENVIRONMENT : This is a standard X11 environment variable and describes the X11 resources which may possibly override those of CQue itself.

XKEYSYMDB : This is a standard X11 environment variable and describes the X11 resources for keyboard mappings.

PPDDIR : This environment variable describes where the PPD files are to be found. It is not very important.

CQUECUPSDIR : This environment variable describes where the CUPS installation is to be found. The CUPS configuration files will be found in the /etc subdirectory relative to this one.

CQUECUPSBINDIR : This environment variable describes where the CUPS shared or common data are to be found. The CUPS model directory will be found in the /share subdirectory relative to this one.

We recommend to always starting ***CQue.exe*** by means of this type of scripts in order to assure that the correct environment variables are defined.
Note, please, that the program ***CQue.exe*** is run with $*, so any arguments given to the script ***cque*** will be transferred to ***CQue.exe*** itself. It also has the standard argument -MC100 allowing for 100 file boxes support.
If you were to run CQue in black and white mode, i.e. without colour widgets, then you would add the option -a2 to the last line of the script (before the '$*'-entry).

8.6 The file cqueInfo3.0

The file ***cqueInfo3.0*** will be regularly updated and consulted by ***CQue.exe.*** It looks like:

```
#
# CQue 3.0 Information File
#
%%SICBLOCK_GENERAL_BEGIN
USRDIR          /opt/cel
HOMEDIR          $HOME
TMPDIR          /tmp
%%SICBLOCK_GENERAL_END
#
#
%%SICBLOCK_PRINTERS_BEGIN
Default
qName
%%SICBLOCK_PRINTERS_END
#
#
%%SICBLOCK_USERS_BEGIN
root
%%SICBLOCK_USERS_END
#
#
#
%%SICBLOCK_PRNT_BEGIN Default
root
%%SICBLOCK_PRNT_END Default
#
#
%%SICBLOCK_PRNT_BEGIN qName
root
%%SICBLOCK_PRNT_END qName
#
%%SICEND
```

It starts with a general block of some environment variables.
Then follows the block between %%SICBLOCK_PRINTERS_BEGIN and %%SICBLOCK_PRINTERS_END. This block contains a list of currently known printers of CQue. The entry ***Default*** is just a place holder, which will not show up in the list of printers on the X11 CQue window.
For each printer follows an entry with %%SICBLOCK_PRNT_BEGIN and %%SICBLOCK_PRNT_END. In the example above the printer queue ***qName*** is registered.

Appendix A: Accessing CQue from the Desktop

Once the program is installed you may want to access it in a rather convenient way. One way to do this is to include access to CQue in the startup menu.

With a file manager go to the installation directory of CQue, i.e. */opt/cel*. Locate there the item "CQue 3.0 Printer Driver" with the MVI logo (not the CQue3.0.png file, which contains the same logo image) and drag it to a position on the workspace bar of the desktop. You may now click on MVI icon in the toolbar to start *cque*. This would work for Gnome as well as KDE.

Another way to do this is to include access to CQue in the startup menu. To this end the setup procedure creates a file *CQue3.0.desktop* in the working directory of CQue (by default: */opt/cel*).
We describe here the procedure for RedHat which is rather general and applies mutatis mutandis to most current Linux versions. You might consult the FAQ section of the website: http://www.mv-informatique.com/forum which will contain updates on this topic.

You should copy the file *CQue3.0.desktop* to the directory:

```
/usr/share/applications
```

After that execute the following commands:

```
cd  /var/lib/menu/kde/Applications/System/MoreSystem
ln  -s  /usr/share/applications/CQue3.0.desktop  CQue3.0.desktop
```

This creates a link to the file CQue91.desktop in the /usr/share/applications directory.
You may now access CQue from the startup menu. It will be in the sub-section *"Extra System Utilities"* of the *"System tools"* section.

Finally, if you want to have a shortcut of CQue on the desktop, you may also do the following: Locate with a browser the program *cque* in the */opt/cel* directory. Then copy-paste it onto the desktop.

You might consult the FAQ section of the website: http://www.mv-informatique.com which will contain updates on this topic.
There is also a MVIForum at: http://www.mv-informatique.com/forum. Here you may find much more information about CQue and related UNIX printing topics.

Appendix B: Command Line Options

CQue relies on the CUPS printer manager for the processing of printjobs. The CUPS lp command supports a number of command line options, frequently used in classical UNIX printing.

The syntax for command line options is:

lp -d*printer* -o *option1* -o *option2* ....

Here ***option1*** has for example the syntax: *duplex=DuplexNoTumble*, or: *PageSize=a4*, etc.

Some main applications, for example ***acroread***, allow for the specification of such kind of options in the printer interface menu or windows.

To get a full listing of all options supported by the printer you may use the CUPS specific command:

lpoptions -l -d*printer*

Appendix C: A Note on PCL Printing

CQue supports PCL printers through the foomatic package, which uses the ghostscript program to transform various PDLs to PCL. Due to the intrinsics of this mechanism sometimes the output page needs an offset registration in both horizontal (x) and vertical (y) directions in order to fit completely on the paper. The CQue driver program **sicgsfilter** does apply known offsets for each Canon device.
The offsets may be different for long-edge and short-edge duplex printing. If, for whatever reason, the offsets applied by CQue do not give satisfactory output, you may modify the behaviour of CQue by applying the -r option of the sicgsfilter program.

The -r option allows for fixed PCL offsets.
The syntax is:

-r xfl,yfl[,xbl,ybl][,xfs,yfs[,xbs,ybs]]

The unit of dimension is decipoint, which means 1/720th of an inch.
The meaning of the variables is:

xfl,yfl = (x,y) offset for front page (simplex or long edge duplex).
xbl,ybl = (x,y) offset for back page (long edge duplex).
xfs,yfs = (x,y) offset for front page (simplex or short edge duplex).
xbs,ybs = (x,y) offset for back page (short edge duplex).

A negative value implies a shift to the left, or top. A positive value implies a shift to the right or bottom. This is on the front page. For the back page definitions differ.

To apply these options please follow the following steps.

1. Locate the PPD file for the printer queue. If the queue has the name 'foo,' the PPD file corresponding to that queue will be located at **/etc/cups/ppd/foo.ppd**.

2. Edit the file **/etc/cups/ppd/foo.ppd** and search the line containing the **sicgsfilter** program. An example:
   *FoomaticRIPCommandLine: "gs -q -dBATCH -dPARANOIDSAFER -dPDFFitPage -sDEVICE=ljet4 -dNOPAUSE%B%A%C -sOutputFile=- - %D%E | sicgsfilter -MPCL -NP %G%H%I -u&user; -V"&title;" -n&copies; "

   If we were to apply our own shifts, for long edge duplex only, an example might be:

   *FoomaticRIPCommandLine: "gs -q -dBATCH -dPARANOIDSAFER -dPDFFitPage -sDEVICE=ljet4 -dNOPAUSE%B%A%C -sOutputFile=- - %D%E | sicgsfilter -MPCL -NP %G%H%I **-r155,10,-155,20** -u&user; -V"&title;" -n&copies; "

If you specify values for short-edge duplex, you must first specify values for long-edge duplex.

3. Save the file and restart the queue (or cups):

   Restarting the queue is done by:

   ```
   disable  foo
   cupsenable foo
   ```

   Restarting CUPS is done by:

   ```
   service  cups restart
   ```

   or

   ```
   /etc/init.d/cups  restart
   ```

   (possibly: /etc/init.d/cupsys restart, depending on the type of Linux used).

Appendix D: CQue and the CUPS interface

This Appendix describes how printer queue generated with CQue will show up in the CUPS standard interface of a web-browser.
To start the CUPS interface open a web-browser with the address:

localhost:631

As a CQue queue is also a CUPS compatible printer queue, when going into the "administrator mode" and then "manage printers" a CQue queue would show like:

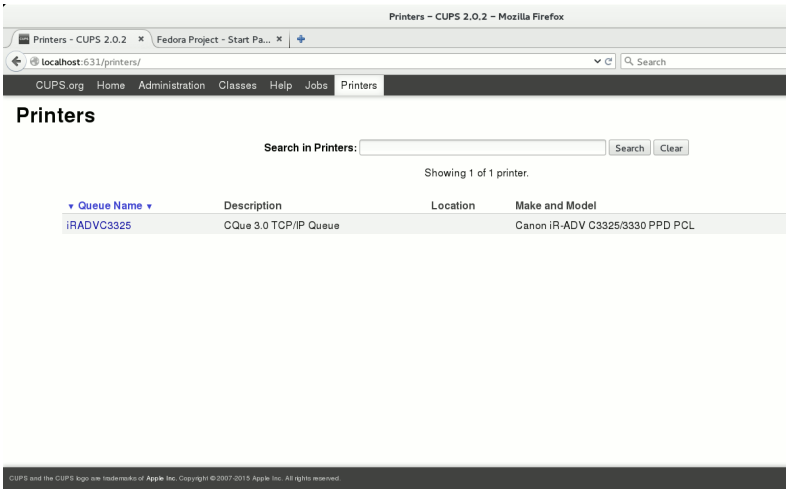


Figure 57 CQue printer queue in the CUPS administrator interface

On this CUPS interface you can modify and/or use any of the CUPS specific print attributes.

When, for example, we want to modify some default printer attributes, we would get the following interface:
Here we see, apart from all the other printer options, for example the Canon Device Specific options, like mailbox, secured printing etc.

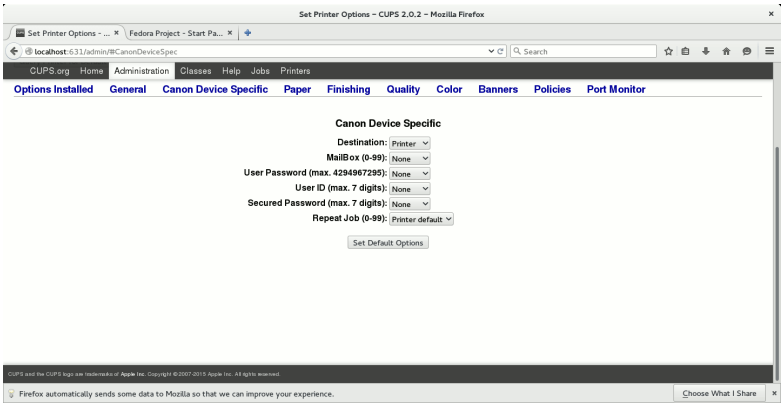


Figure 58 CQue printer default options in the CUPS administrator interface

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Appendix F: 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: January 2008*

   This is the first official release of CQue 3.0.

2. *CUPS 1.3.2 (distributed by UBUNTU 7.10)*

   The CUPS 1.3.2 release as distributed by UBUNTU 7.10 has some limitations for legacy SystemV printing. For example the /etc/cups/interface directory is non-existent and the /usr/share/cups/model directory, though existing, is empty.

3. *Foomatic-rip and duplex printing*

   Some foomatic-rip distributions do not correctly process duplex printing. We strongly recommend using the latest version of foomatic-rip, which may be found at: http://www.openprinting.org/foomatic-rip.

4. *Printing multiple copies from OpenOffice*

   When printing multiple copies of the same document from OpenOffice, please note the behaviour for the various types of PDL as described in the following table.

Number of Copies	PS	PCL	PXL
1	prints 1 copy	prints 1 copy	prints 1 copy
N > 1 with collate	prints N copies	prints N copies	prints N copies
N > 1 without collate	prints N copies	prints 1 copy	prints 1 copy

   Thus, if possible, we recommend using the collate option of OpenOffice.

5. *OpenSuse*

   For OpenSuse the RPM version should be used with “rpm --nodeps”.
   OpenSuse checks for “foomatic-filters,” whereas CQue requires “foomatic.”

6. *LBP Support*

   For the LBP5970/5975 advanced features (mailbox, secured printing, department accounting) are not supported. Stapling is supported in PostScript only.

7. *PCL Offsets*

CQue allows for very precise positioning of the print data on the page. As not all Canon devices use the same PCL interpreter, details may differ between different Canon devices. The program sicgsfilter supports an option (-r) to manually specify PCL offsets in the PPD file. See Appendix C for more details.

8. *SELinux*

Several Linux distributions, including Debian and Fedora, come with the SELinux layer by default. If SELinux enforced then some CQue 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. (See Section 7.5)

9. *CQue 2.0-8 PPD revision*

Starting with CQue 2.0-8 all PPD files have been revised to be more stable and compatible with the latest foomatic specifications, as well as the Adobe specifications.

10. *Linux 64 bit (x86_64) support*

As of version 1.0-9 CQue comes with a separate package for Linux 64 bits version. The kernel version should be 2.6-27 or newer.

11. *CQue 2.0-10*

CQue 2.0-10 adds new devices and corrects some bugs for IPP and USB printing.

12. *CQue 2.0-11*

CQue 2.0-11 adds new devices and corrects some bugs in PPD files.

13. *CQue 2.0-0*

With respect to the version ***CQue 2.0*** some important changes of ***CQue 2.0*** include:

- All PPD files have been revised to allow for support of secured printing and printing with department accounting through the GTK+ interface. Unfortunately *OpenOffice* and *acroread* for Linux do not yet use this type of interface. It is expected, however, that future releases of these programs will support the CUPS specifications of PPD file syntax, as used by GTK+.
- CQue now ships in *rpm*, *deb* and *tgz* packages.
- The installation of an *rpm* or *deb* package includes the execution of the *setup*

program and installs the PPD files in an appropriate system directory. Any existing CQue 2.0 printer queues will be automatically upgraded with the new PPD files.

- For special purposes the *tgz* package allows for in installation without upgrading existing CQue 2.0 printer queues.
- Upgrading from SQue 9.X for Linux to CQue 3.0 for Linux is not supported. If you want to upgrade SQue 9.X to CQue, you would fist have to install CQue 2.0 (which transforms SQue printers queues to CQue printer queues) and then CQue 3.0.

Please note: Due to a bug #3631 in CUPS versions up to and including 1.4 it is not possible to set default values for the advanced options (mailbox, secured printing and printing with department accounting) making use of the user interface of CQue. This bug will be fixed in release 1.5 of CUPS.
When printing from applications making use of GTK+ advanced options are supported as described in this manual, and they do work correctly.

13. *CQue 2.0-1*

CQue 2.0-1 adds some new devices especially for professional printing.

14. *CQue 2.0-2*

CQue 2.0-2 adds some new devices especially entry level devices.

15. *Printing multiple copies of a document with stapling*

When printing multiple copies (say N copies) of a document with stapling most CUPS implementations will concatenate the output N times and then staple the resulting concatenated file. To prevent this CQue 2.0-2 PPDs support a feature: ***Repeat Job*** within the ***Canon Specific Options*** section. This allows you to specify from 1 to 99 copies for applications with the GTK+ print interface and 1 to 25 otherwise, with proper stapling of each copy. This feature is supported for PostScript, PCL5 and PCL6 Canon devices allowing PJL headers, i.e. some pure PostScript EFI devices are excluded.
Note: N copies of a document may generate N separate entries in the log file of the Canon device.

16. *CQue 2.0-3*

CQue 2.0-3 adds some new iR-ADV B/W and LBP devices.

17. *CQue 2.0-4*

CQue 2.0-4 adds some new iR-ADV B/W and Colour devices.

18. *CQue 2.0-5*

CQue 2.0-5 adds some new iR-ADV B/W and Colour devices and fixes some minor bugs.

19. *CQue 2.0-6*

CQue 2.0-6 adds some new iR-ADV B/W and Colour and B/W LBP devices.
CQue 2.0-6 revises PPD files for compatibility with CUPS versions 1.6 and later.
If you use CUPS 1.6 or later, please use CQue 2.0-6 or later.
Manual paper selection bug fixed for PCL drivers.
Limit for password of printing with department accounting fixed and some minor bugs were fixed too.

20. *CQue 2.0-7*

CQue 2.0-7 adds some new iR-ADV B/W and Colour and B/W LBP devices.
CUPS 1.7 integrates the foomatic package into CUPS itself. CQue 2.0-7 is the first version to be compatible with this new approach of CUPS.

21. *CQue 2.0-8*

CQue 2.0-8 adds some new iR-ADV B/W and Colour devices.

22. *CQue 2.0-9*

CQue 2.0-9 adds some new iR-ADV B/W and Colour devices. Also some minor bugs have been solved.

23. *CQue 2.0-10*

CQue 2.0-10 adds some new LBP B/W and MF Colour devices. Also some minor bugs have been solved.

24. *CQue 3.0-0*

CQue 3.0-0 adds some new iRADVANCE colour and LBP B/W and MF devices. The version 3.0-0 is a ***major release***, including updated documentation. Also some minor bugs have been solved. Support of XPP is discontinued.

25. *CQue 3.0-1*

CQue 3.0-1 adds some new colour and B/W LBP and MF devices.

26. *CQue 3.0-2*

CQue 3.0-2 adds iR-ADV C5560-5550 and iR-ADV C5540-5535 colour devices.

27. *CQue 3.0-3*

CQue 3.0-3 corrects some minor bugs and adds iR-ADV C7580/7570, iR-ADV C7565, iPR Svr G100, iPR Svr F200, iR-ADV C5500s GX500, iR-ADV C7500s GX500, iR-ADV C5500s-P1 and MF249dw devices.

28. *CQue 3.0-4*

CQue 3.0-4 adds iR-ADV colour devices (iR-ADVC255, iR-ADVC355, iR-ADVC3500 series) and grey-scale devices (iR-ADV4500 series).

29. *CQue 3.0-5*

CQue 3.0-5 adds the LBP 312x device.
CQue 3.0-5 also solves a couple of security issues and is now compiled with more recent (and secure) libraries on Linux kernel 4.1. This implies that the motif library as well as the png library version 16 have to be available on the Linux workstation. Versions using the older method of compilation (i.e. static compilation on Linux kernel 2.6) will be maintained and are available on request.