# Configure a printer under Emmabuntüs Debian Edition



Tutorial designed for an on-line publication Developpez.com

Written by Emmabuntüs collective

under <u>Creative Commons license</u>: Emmabuntüs collective BY-SA

updated : July 20, 2017

First release: 2017-07-09, updated: 2017-07-09

Main Author: Collectif Emmabuntüs

The goal of this tutorial is to explain to the new users of the Emmabuntüs Debian Edition, how to configure a printer on this new distribution.

## 1 - Introduction

Surprising as this may seem these days, printing remains one of the most complicated chapter of the computer history. This is mainly due to two different factors :

- on the one hand, each program tends to use its own file format, and even programs with the very same functionality – text editing, for example – usually don't understand the format used by each others.
- And on the other, the printer manufacturers are very creative and continuously bring to market new devices which need new interfaces like, for instance, new printer or scanner drivers.

The situation became eventually unmanageable for the software developers, and a standardization effort was undertaken to define various "Page Description Languages" (PDL), <u>PostScript</u> being one of the most popular, but there are plenty of others.

So the situation was greatly improved at the application level, but the proliferation of the printers available on the market, makes often difficult the configuration of a new printing/scanning devices on your computer.

The situation became eventually unmanageable for the software developers, and a standardization effort was undertaken to define various "Page Description Languages" (PDL), <u>PostScript</u> being one of the most popular, but there are plenty of others.

So the situation was greatly improved at the application level, but the proliferation of the printers available on the market, makes often difficult the configuration of a new printing/scanning devices on your computer.

## 2 - Printing system

Debian uses the printing subsystem <u>CUPS</u> (formerly an acronym for **Common Unix Printing System**) which is an open source software, originally developed by Apple Inc. for its OS X and other Unix-like operating systems. CUPS is able to manage local or network printers, thanks to the Internet Printing Protocol (IPP).

At this point, it is enough for you to remember that CUPS will manage your printing tasks, and that it is installed by default within the Emmabuntüs-DE distribution.

# 3 - Compatibility

Like all good peripherals, a printer generally needs an external driver, but thanks to the various standardization efforts, Debian was able to propose a simplified configuration interface, which allows you to easily connect to your system a wide range of printers.

However, if your device is not recognized properly by the system, you will be forced to search on-line for non-free drivers corresponding to your configuration. Hereafter we suggest various methods, depending on the device manufacturer:

- HP: the HPLIP package is already installed on Emmabuntüs-DE. However, if you printer is a brand new model, please visit the dedicated page:
   <a href="http://hplipopensource.com/hplip-web/index.html">http://hplipopensource.com/hplip-web/index.html</a>
   and download the Debian package (the one with the ".deb" extension)
   corresponding to your printer model, and install it by using dpkg, for example.
- Canon: start by looking at your printer model on this page:
   http://www.canon-europe.com/support/
- Brother: visit this page dedicated to Linux
   <a href="http://support.brother.com/g/s/id/linux/en/index.html?">http://support.brother.com/g/s/id/linux/en/index.html?</a>
   <a href="c=us">c=us</a> ot&lang=en&comple=on&redirect=on
- Epson: add the following package to your "sources.list" file:
   deb http://download.ebz.epson.net/dsc/op/stable/debian/ lsb3.2 main

In order to check the compatibility of your printer, the simplest way to go is usually to visit the dedicated page on the <u>openprinting.org</u> site.

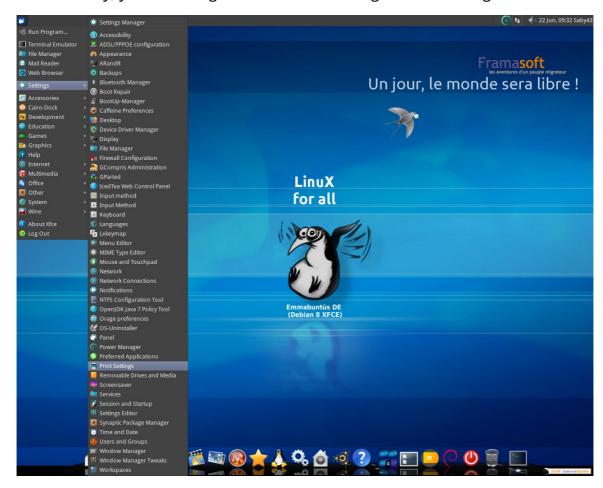
# 4 - Configure a printer

Whatever method you have chosen, don't forget to plug the device to the power grid, to verify that its paper tray is not empty, to connect it to your computer or to the network, and to switch it on!

## 4.1 - Configuration using system-config-printer

Emmabuntüs-DE includes a simplified graphical utility to add and configure a new printer : namely *system-config-printer*.

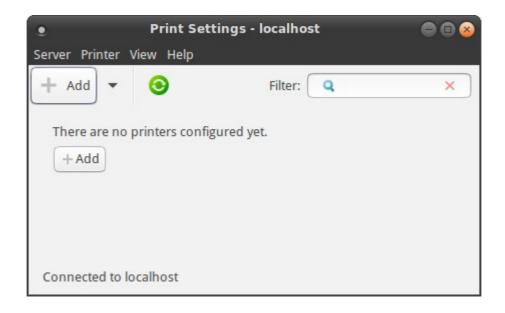
To launch it easily, you can navigate to : Menu > Settings > Print settings



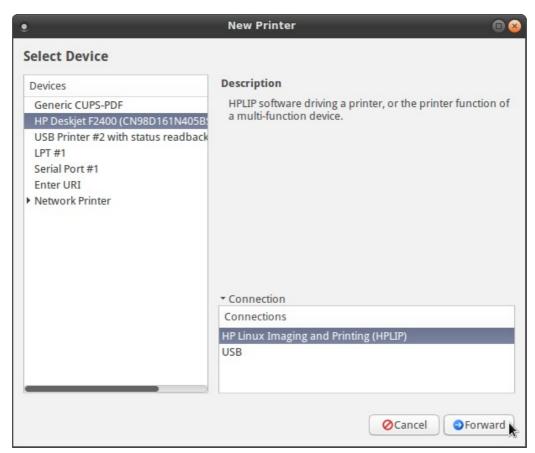
or, within a terminal window, you can type:

```
system-config-printer
```

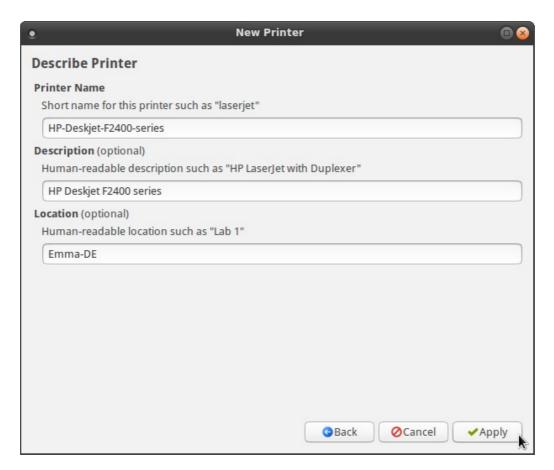
The first windows which opens let you define a new printing device by clicking on the **Add** button:



The "New Printer" window opens in turn and displays the list of detected devices on its left plane. You select the printer you want to install now, select the type of connection you wish, and click on **Forward**:

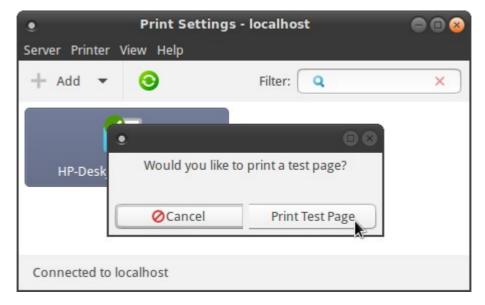


If your printer was correctly detected, its driver is automatically selected and you can complete the description of your device within the next window. Once done, click on **Apply**:

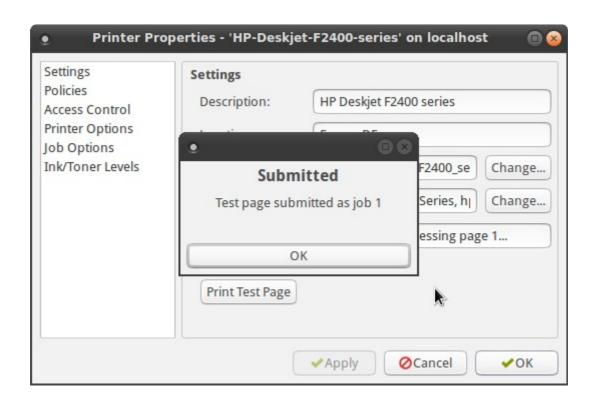


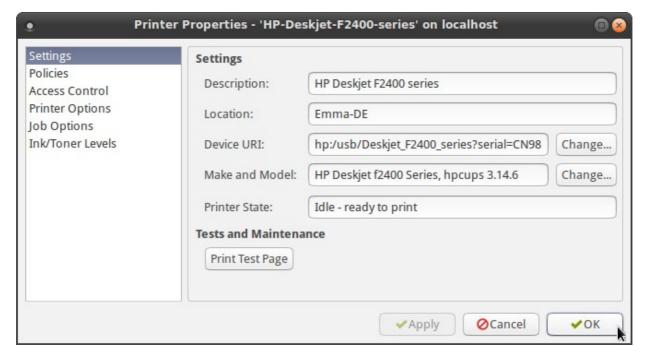
Once you are done with the new printer description, click on **Apply**:

Then the printer install utility propose you to print a test page:



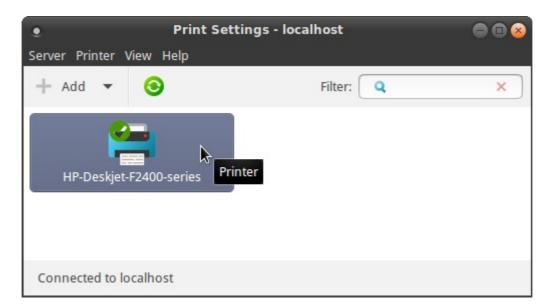
If you have chosen to print a test page, the next window to open will be the printer properties. Otherwise, you will go back directly to the Printers main window.



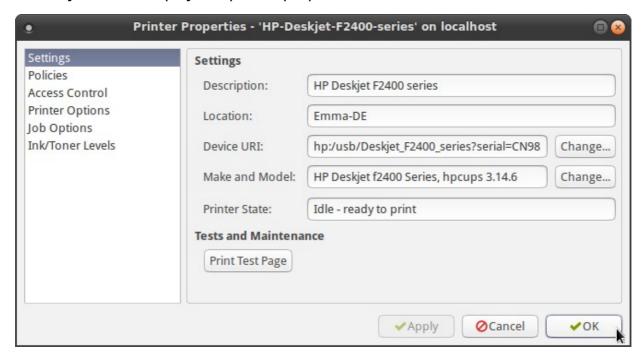


Your new device is now ready and available for printing to all programs running on your computer (LibreOffice for your documents, Shotwell for your images, Evince for the pdf files, etc.)

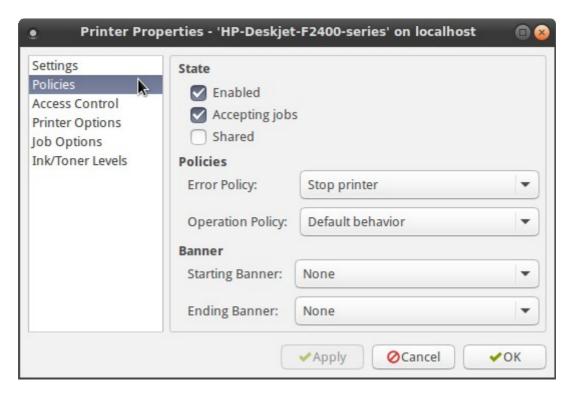
If you want to change your printer settings, just double\_click on its icon within the "*Print Settings*" main windows (the one which opens with *system-config-printer*)



and the system will display this printer properties window:

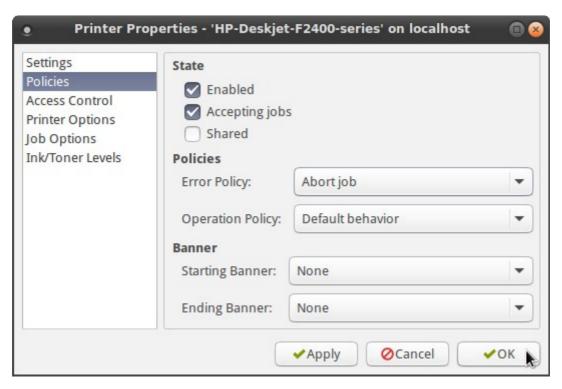


At this stage, you can use a little trick to change the behavior of your printer in case of error: you need to click now of the **Policies** category in the left pane:



Then, using the drop down list, change the *Error Policy* from "Stop printer" to "Abort job" :



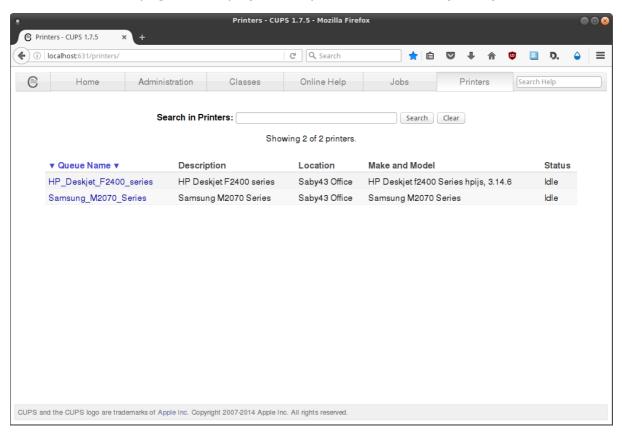


and click on the **OK** button to apply and exit.

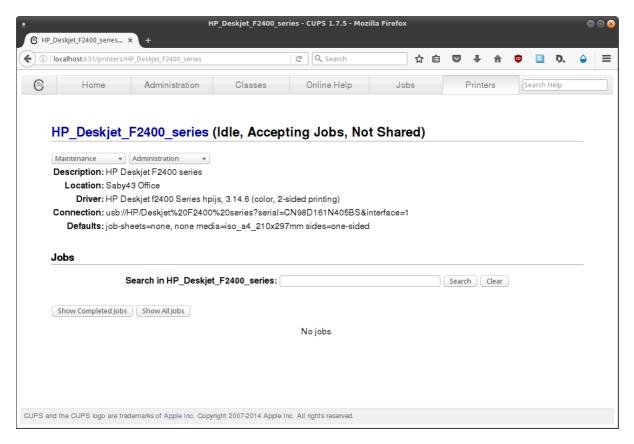
## 4.2 - Configuration with CUPS

The simplified "system-config-printer" is very handy, but we should also mention the classic CUPS interface, which is now less rustic as it used to be. CUPS is a printer server offering a web interface that you can easily access within your favorite Internet navigator.

To get started, you enter <a href="http://localhost:631/printers/">http://localhost:631/printers/</a> in the address field of your browser and a CUPS page will display all the printers defined in your system:

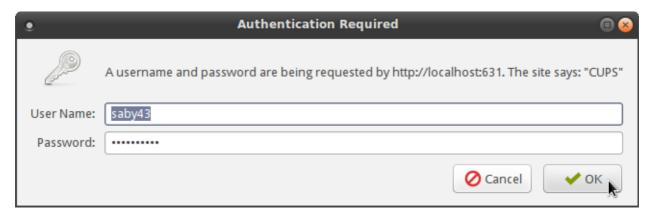


and a left click on the printer link brings you to its dedicated page:



where the **Maintenance** and **Administration** menus allow you to easily manage your device.

Warning: some commands might ask you to enter your user ID and password:



More detailed information on CUPS can be found here:

http://wiki.debian.org/SystemPrinting

# 5 - Scanning

Nowadays, the printer devices can also perform scanning operations on your paper documents. There exits two ways to scan under Emmabuntüs-DE: Simple Scan (as easy as its name suggests) or Xsane (a lot more sophisticated).

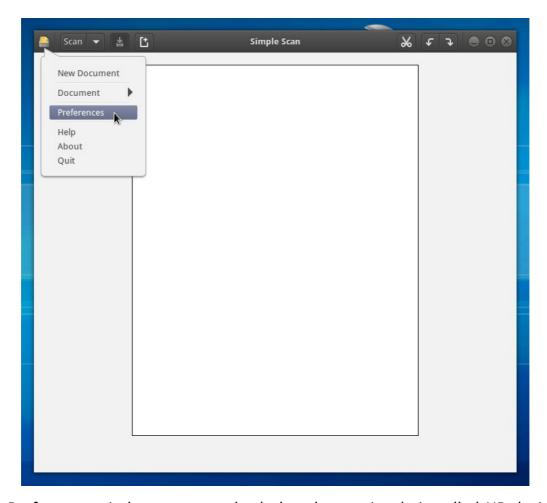
**Important remark:** when your printer/scanner is not automatically recognized by the system, in addition to the printer driver, you often need to find and download the driver and/or the application for its scanning functionality.

#### **Simple Scan**

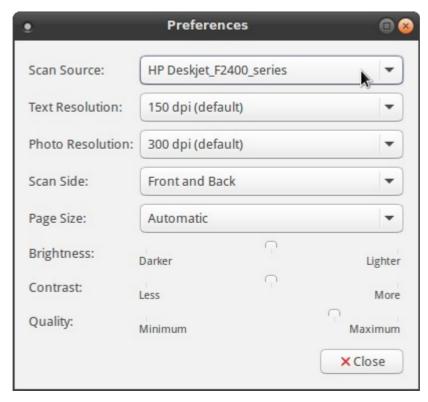
The easiest way to launch <u>Simple Scan</u> is to follow the path : Cairo-Dock > Photo > Simple Scan



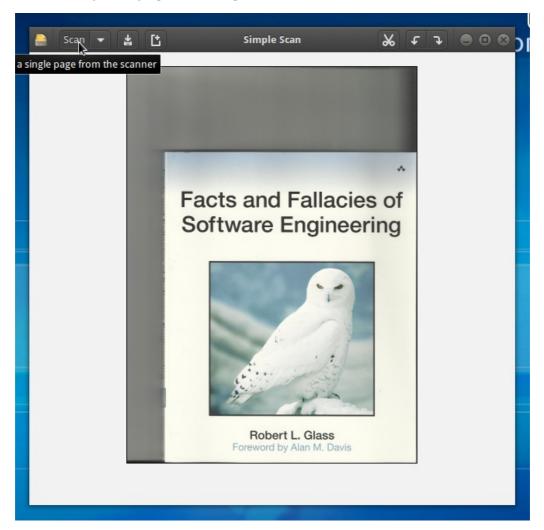
The Simple Scan windows is now open and you can click on the top left menu icon, and then select *Preferences*:



In the *Preferences* window, you can check that the previously installed HP device is in fact the current scan source. If you have several scanners attached to your computer, you can use the drop down list to select the source you want to use at this point in time.



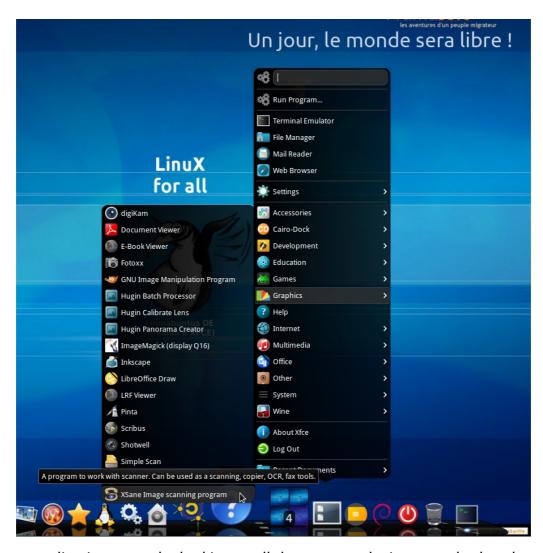
And below an example of page scanning:



#### 5.1 - XSane

The <u>XSane</u> application also allows you to scan documents, but is more sophisticated and you can play with a lot of parameters.

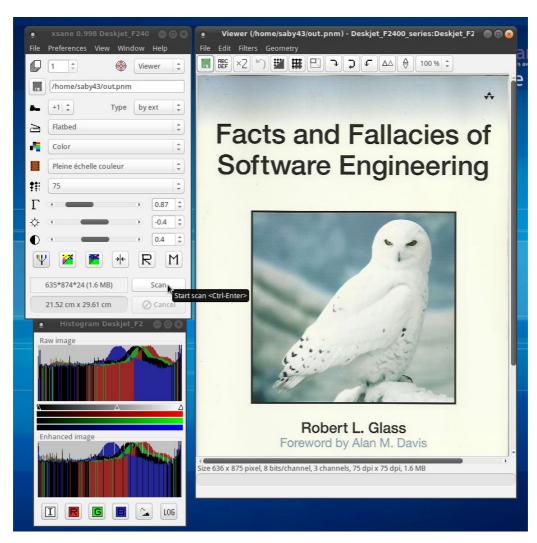
To launch it, you can use the following path: Cairo-Dock > Applications Menu > Graphics > Xsane Image Scanning program.



The XSane application starts by looking at all the scanner devices attached to the system and then asks you to select the one you want to use :



Here we pick our favorite HP F2400 and click **OK**, and hereafter the result of the first scan:



# 6 - Special cases

As mentioned at the beginning of this tutorial, and unlike the installation of our HP Deskjet F2400, which went very smoothly for us when using the standard *Print settings utility*, some printer/scanner devices are not recognized automatically by the system, and one must perform a somewhat more compicated manual installation.

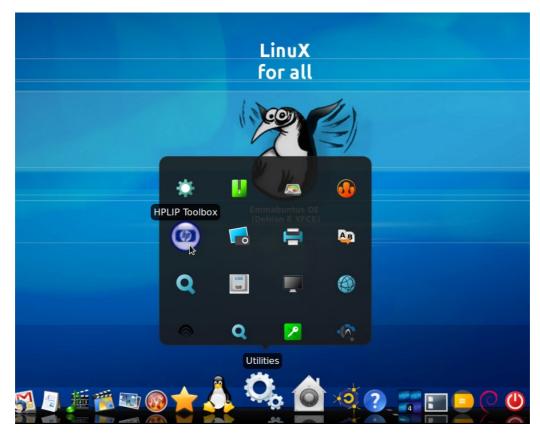
Hereafter, in the following paragraphs, four examples of printer installation using HP, Canon, Samsung and Brother models.

## 6.1 - HP printer manual installation

In the case where your HP device was not recognized automatically by the system, we are going to use the HPlip subsystem.

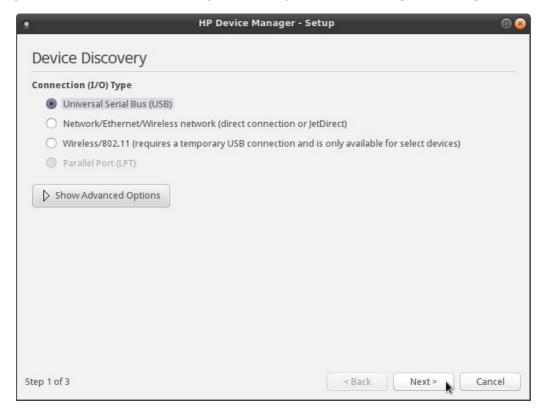
The "HP Linux Imaging and Printing" system is able to manage the interface of most of the HP inkjet printers, as well as many I printers. It handles also the scanning function, the fax function and the interface with the photo memory cards on most of the multifunction devices marketed by <a href="Hewlett-Packard">Hewlett-Packard</a>.

To launch HPlip you go to Cairo-Dock > Utilities > HPLIP Toolbox





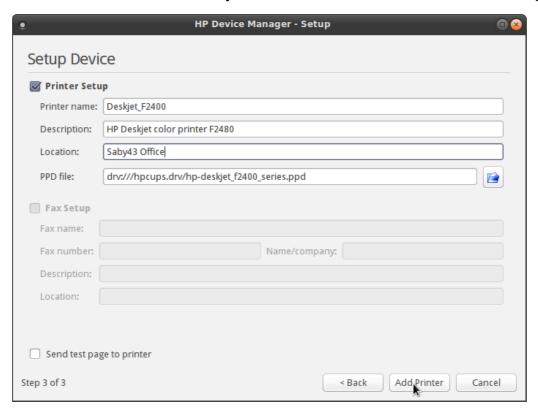
Obviously, the tool does not find any installed printer, and we go to **Setup Device...** 



The HP Device Manager Setup utility will help us during the discovery process, but we need to select first the kind of connection applicable to our new device. Here we have chosen USB; Then we click **Next>** 



After a while, the HP tool find our Deskjet F2400. We select it and click on **Next>** again

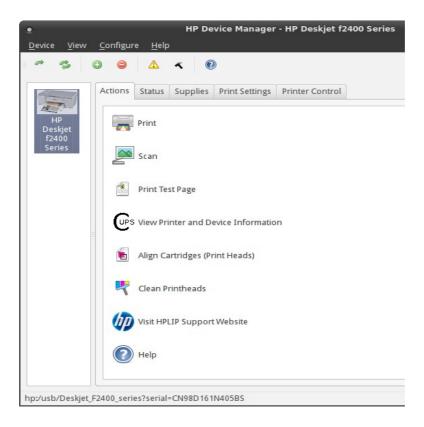


The next window let you check or setup the various parameters for this device, and then we can click on **Add Printer**.

Back to your desktop screen, If you right-click on the HP icon, at the right of the top panel, you will see a small HPLIP Status window on display:



while a double click on the same icon will open the main HP Device manager window:

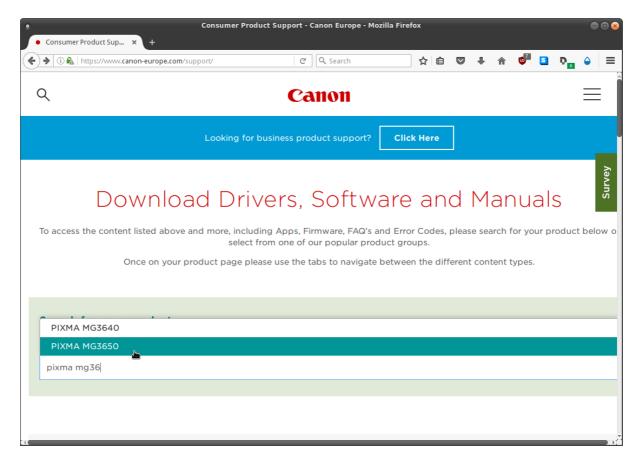


**Table of contents** 

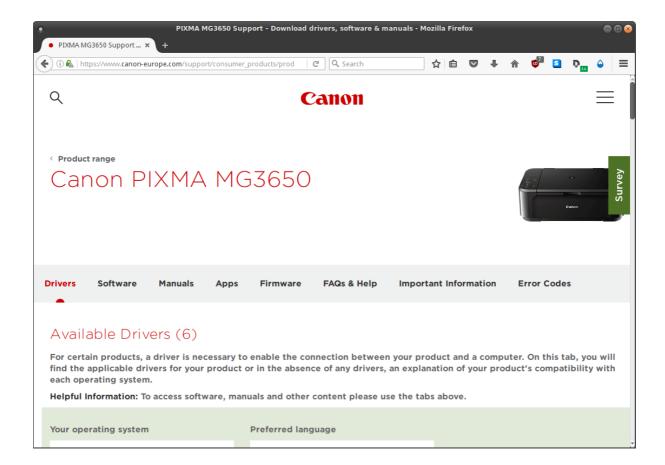
## 6.2 - Canon printer manual installation

It happens that the Canon Pixma MG3650 is not (not yet?) recognized by the system. In order to install it, we are going to find and download the corresponding printer and canner drivers on the support site of the manufacturer.

With your favorite Internet navigator you go to the page : <a href="http://www.canon-europe.com/support/">http://www.canon-europe.com/support/</a>



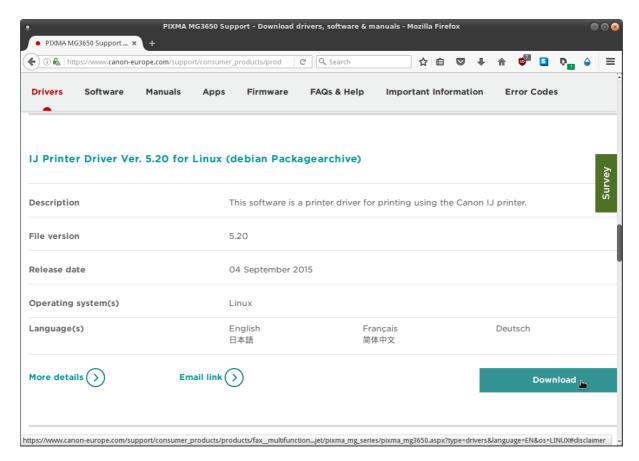
and you enter the model of your printer in the search field. Here we typed in "PIXMA MG3650"



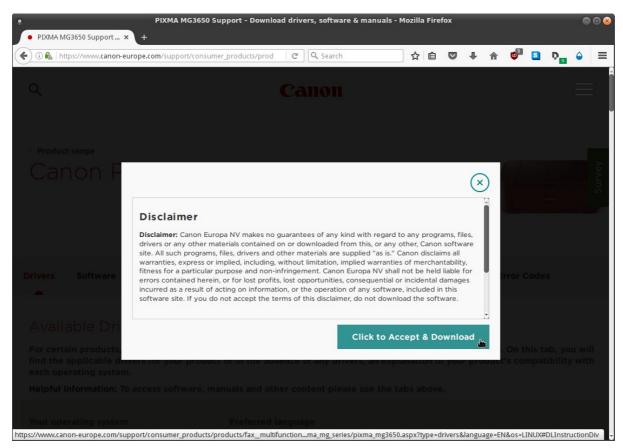
It takes some times, but eventually the Canon support site tells us that there are 6 drivers available for the PIMAMG3650. You need to scroll down to find the two debian packages we are interested in:

- IJ Printer Driver for Linux (debian Packagearchive) for the printer
- ScanGear MP Driver for Linux (debian Packagearchive) for the scanner

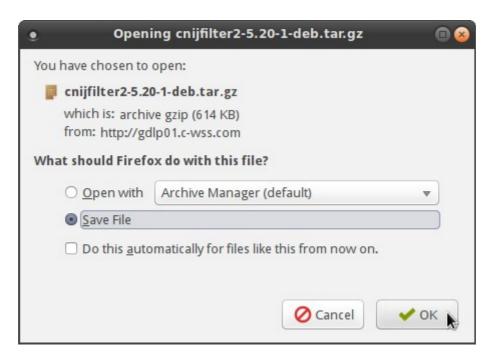
**Remark**: since Emmabuntüs is based on the Debian distribution, we need to select for download the Debian packages, commonly referred to as *deb packages*.



We scroll down, and once the *IJ Printer Driver* is located we ask for its **Download**:

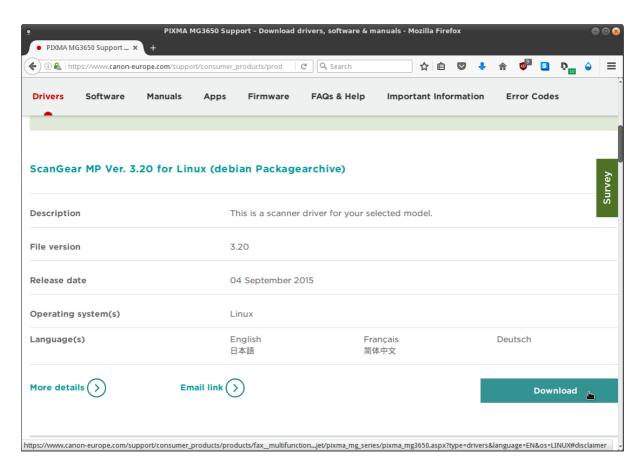


The Canon support site then displays a Disclaimer that you should read carefully and then you click on **Accept & Download**:



The browser wants to know what to do with this file. You select the *Save File* option and click on **OK**.

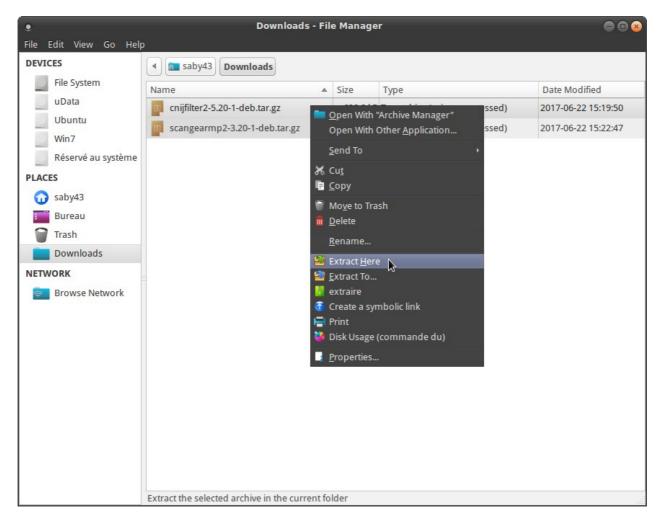
And you follow the very same procedure for the ScanGear MP Driver.



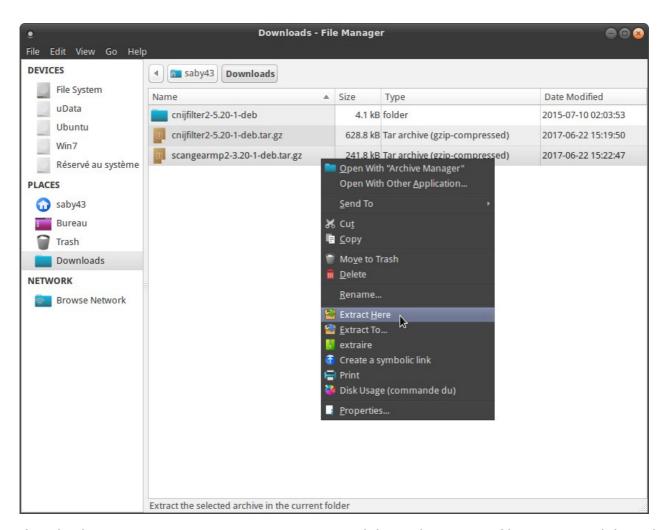
Locate the debian package for the ScanGear MP Driver, request the Download, accept the disclaimer, and save the file



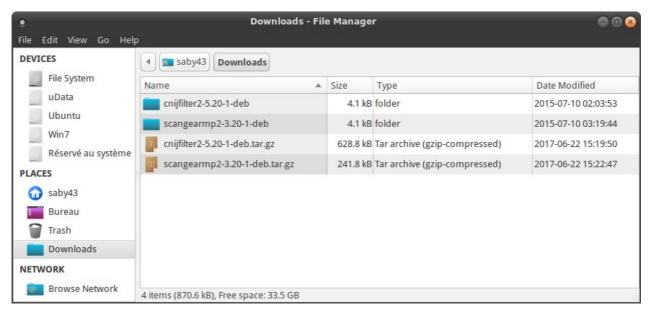
Assuming that our Internet browser saved the downloaded files in the *Downloads* folder, we must go in there, with the file system manager, to continue the manual installation. Right-click on the *cnijfilter2-5.20-1-deb.tar.gz* file and select the "Extract Here" operation in the contextual menu:



Same operation on the scangearmp2-3.20-1-deb.tar.gz file:

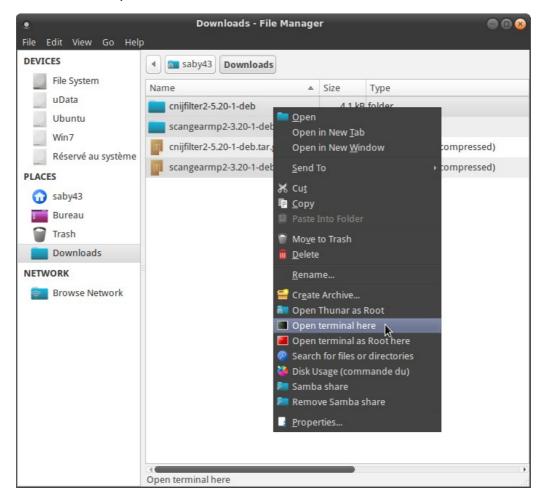


After both extractions, we can see our two deb packages *cnijfilter2-5.20-1-deb* and *scangearmp2-3.20-1-deb* in this *Downloads* folder.



#### 6.2.1 - Printer driver installation

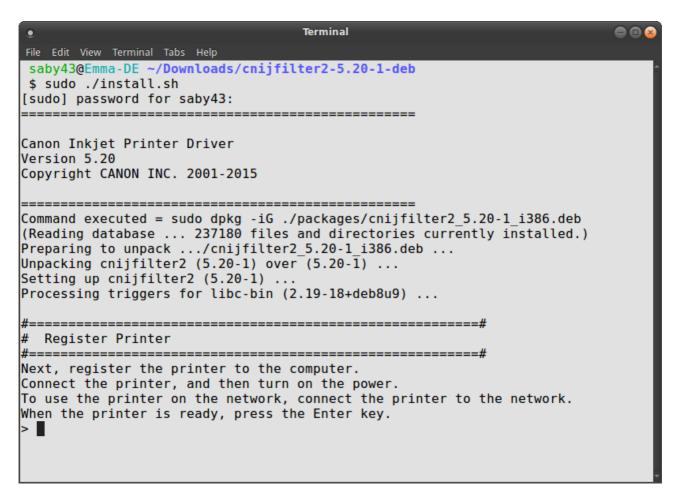
To install the printer driver, right-click on the *cnijfilter2-5.20-1-deb* file and select the "Open terminal here" operation :



In the Terminal window that just open, type in:

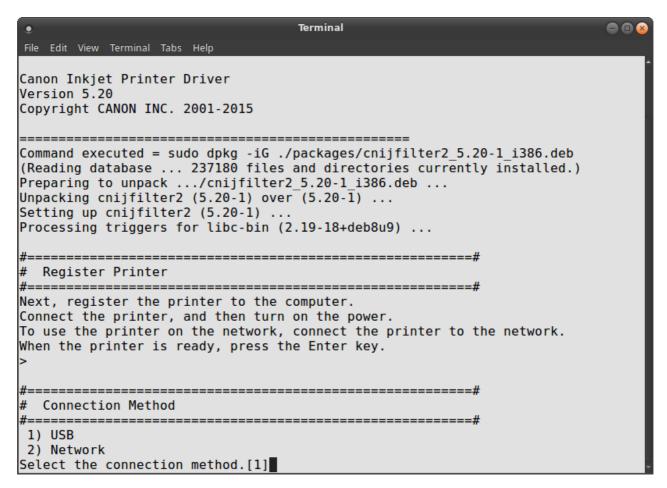
and enter your password.

The script will install the driver debian packet and then wait for the printer to be ready:



Make sure the printer is turned on, and connected to the computer either with a USB cable or through the local network. Then press the **Enter** key.

Then you are asked to specify the type of connection (here we enter 1 for USB)



Next we need to select the right printer.

In our example, the Canon printer is correctly detected, and we select it (we enter 1):

```
Terminal
To use the printer on the network, connect the printer to the network.
When the printer is ready, press the Enter key.
# Connection Method
1) USB
2) Network
Select the connection method.[1]
Searching for printers...
#-----#
# Select Printer
Select the printer.
If the printer you want to use is not listed, select Update [0] to search again.
To cancel the process, enter [Q].
0) Update
Target printers detected

    Canon MG3600 series (//Canon/?port=usb&serial=5A7E6E)

Currently selected:[1] Canon MG3600 series (//Canon/?port=usb&serial=5A7E6E)
Enter the value. [1]
```

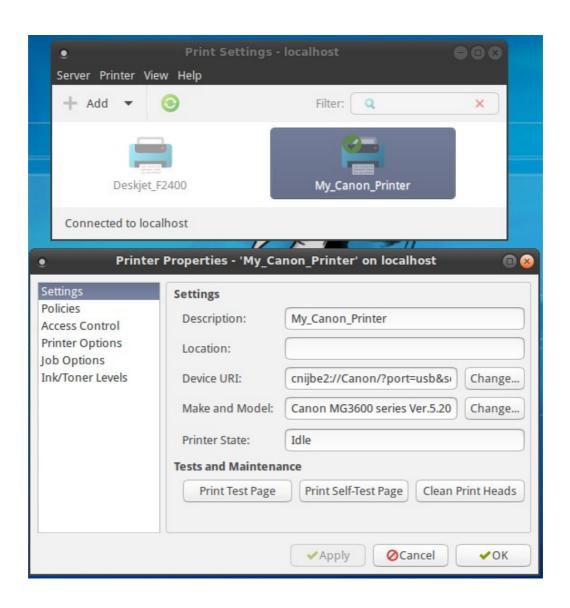
Then we are asked for the printer name, and we pick "My\_Canon\_Printer".

And finally we accept to use this device as the default printer.

```
Terminal
                                               ------
Currently selected:[1] Canon MG3600 series (//Canon/?port=usb&serial=5A7E6E)
Enter the value. [1]
# Register Printer
Enter the printer name.[MG3600USB]My Canon Printer
Command executed = sudo /usr/sbin/lpadmin -p My Canon Printer -P /usr/share/cups
/model/canonmg3600.ppd -v cnijbe2://Canon/?port=usb&serial=5A7E6E -E
# Set as Default Printer
Do you want to set this printer as the default printer?
Enter [y] for Yes or [n] for No.[y]y
Installation has been completed.
Printer Name : My Canon Printer
Select this printer name for printing.
saby43@Emma-DE ~/Downloads/cnijfilter2-5.20-1-deb
```

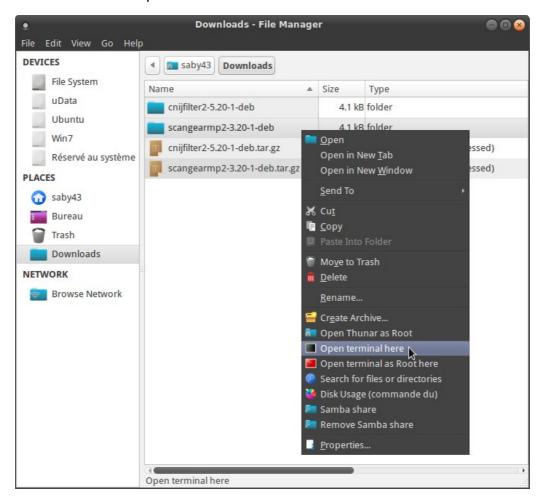
The printer installation is complete, and you can type in "exit" to quit the terminal session.

We can check that everything was setup correctly by opening the *Print Settings* window and then the Properties of "My\_Canon\_Printer":



#### 6.2.2 - Scanner driver installation

Back to the *Downloads* folder. Right-click on the *scangearmp2-3.20-1-deb* file and select the "Open terminal here" operation of the contextual menu :



In the Terminal window that just open, type in:

and enter your password.

```
Terminal
File Edit View Terminal Tabs Help
saby43@Emma-DE ~/Downloads/scangearmp2-3.20-1-deb
$ sudo ./install.sh
[sudo] password for saby43:
_____
ScanGear MP
Version 3.20
Copyright CANON INC. 2007-2015
-----
Command executed = sudo dpkg -iG ./packages/scangearmp2 3.20-1 i386.deb
(Reading database ... 237180 files and directories currently installed.)
Preparing to unpack .../scangearmp2 3.20-1 i386.deb ...
Unpacking scangearmp2 (3.20-1) over (3.20-1) ...
Setting up scangearmp2 (3.20-1) ...
Processing triggers for libc-bin (2.19-18+deb8u9) ...
Installation has been completed.
saby43@Emma-DE ~/Downloads/scangearmp2-3.20-1-deb
$ exit
```

The "scangearmp2" software will install without further user input, but when it's done, you can enter "exit" to quit the terminal.

### 6.2.3 - Digitalization

For this Canon device the software in charge of the scanning function is "scangearmp2".

**Remark:** older Canon scanners can use "scangearmp" or even "scangear"

To execute a scan the command scangearmp2 must be invoked. For instance within a terminal window enter:





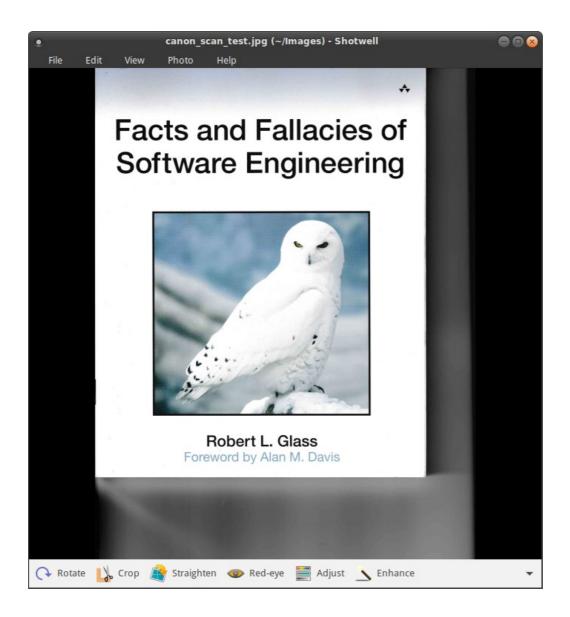
Select the right device you want to use and click on the **OK** button:



You can scan your document into either a JPEG or a PDF document



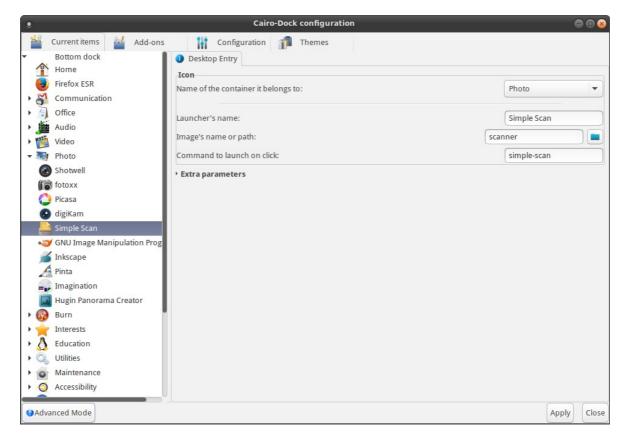
and we can find the JPEG result in the *Images* folder:



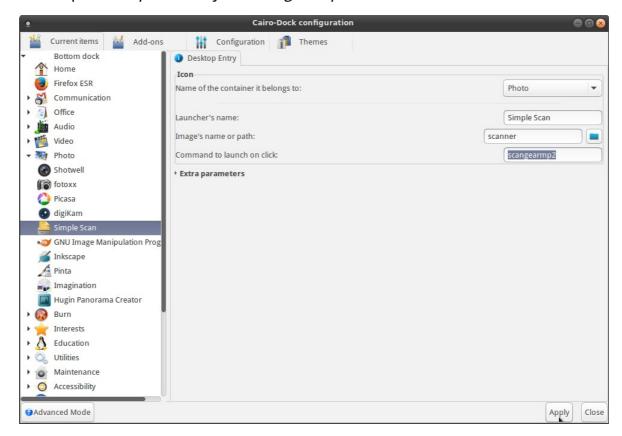
Instead of typing the command "scngearmp2" in a terminal window, one can modify the simple-scan command directly in the Cairo-Dock. To achieve this, navigate to: Cairo-Dock > Photo > Right-click on Simple Scan > Simple Scan > Edit



The Cairo-Dock Configuration windows opens, and allows you to edit the field "Command to launch on click"



Here we replace *simple-scan* by the *scangearmp2* command :



and click on the **Apply** button.

Now, if we go back to: Cairo-Dock > Photo > Simple Scan, we can verify that this is indeed the Canon scangearmp2 software which is launched:



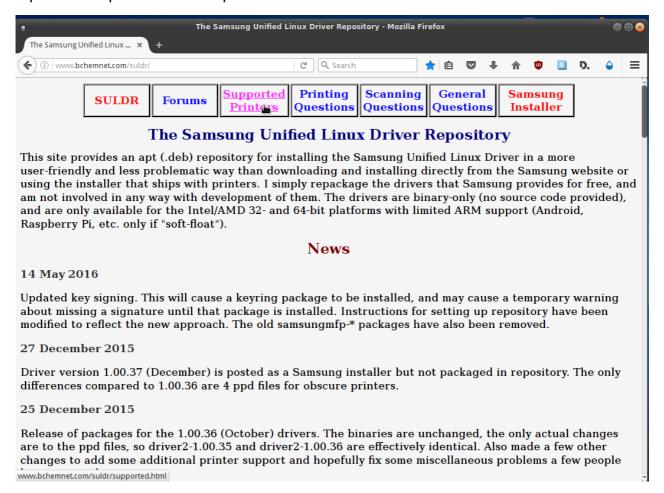
Another possible solution is to move a link to your to desktop, if you are not afraid to clutter it needlessly.

To do so, navigate in the file system to the /usr/bin folder, then Left-click+[Shift] on the scangearmp2 file and drag-and-drop the link on the desktop.

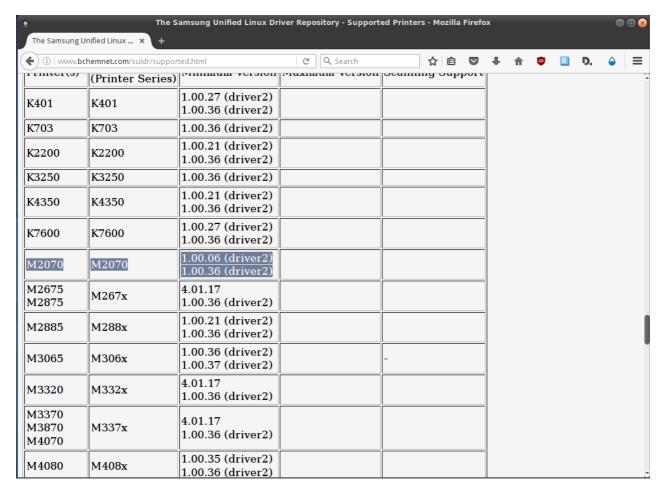
## 6.3 - Samsung installation

You got a Samsung M2078w, and you discover that this device is not supported by default in your Debian system. Unfortunately also, the Samsung official site propose a solution which is problematic and not easy to master.

Instead, we are going to use the solution proposed by the "The Samsung Unified Linux Driver Repository" site. This site being written in English, I will just highlight the most important steps of the install process.



The very first thing to do is to navigate to the <u>supported printers page</u> and find your printer model in there (M2070 in our example):



We can read on this table that the M2070 is well supported by the Samsung Unified Linux Driver (type 2), with the latest version 1.00.36. Therefore, the driver to be installed is namely: *suld-driver2-1.00.36*.

And here is how to proceed ...

Add the <u>www.bchemnet.com/suldr/</u> repository within your repository sources

```
sudo bash -c 'echo "deb http://www.bchemnet.com/suldr/ debian
extra" >> /etc/apt/sources.list'
```

Update the packages list:

```
sudo ap-get update
```

You will surely get an error message at the end of this update process:

```
Reading package lists... Done
W: GPG error: http://www.bchemnet.com debian InRelease:
The following signatures couldn't be verified because
the public key is not available: NO_PUBKEY FB510D557CC3E840
```

The remedy consists in installing now the *suldr-keyring packet*.

Download the file suldr-keyring\_2\_all.deb from this page

Then you open a Terminal window, you go into the *Downloads* folder, and install the keyring packet:

cd ~/Downloads sudo dpkg -i suldr-keyring\_2\_all.deb

Its time to rerun the packets update:

sudo apt-get update

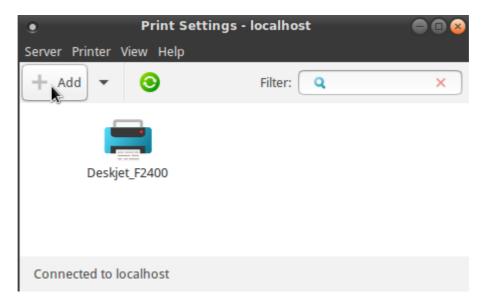
The update should now run without any error.

And then we can install our selected driver:

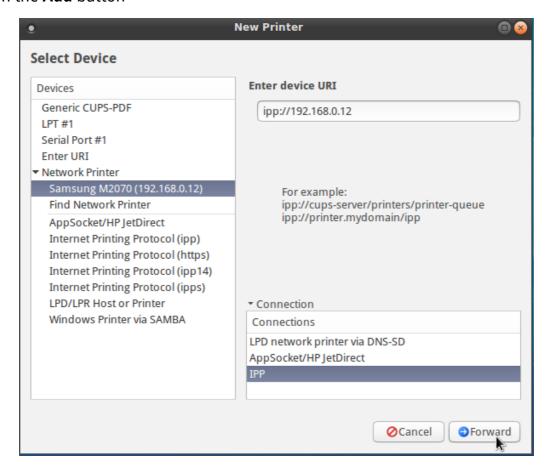
```
saby43@Emma-DE ~
$ sudo apt-get install suld-driver2-1.00.36
[sudo] password for saby43:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
suld-driver2-common-1 suld-ppd-4
The following NEW packages will be installed:
 suld-driver2-1.00.36 suld-driver2-common-1 suld-ppd-4
0 upgraded, 3 newly installed, 0 to remove and 95 not upgraded.
Need to get 0 B/6,206 kB of archives.
After this operation, 32.5 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Preconfiguring packages ...
Selecting previously unselected package suld-driver2-common-1.
(Reading database ... 236952 files and directories currently installed.)
Preparing to unpack .../suld-driver2-common-1_1-9_all.deb ...
Unpacking suld-driver2-common-1 (1-9) ...
Selecting previously unselected package suld-ppd-4.
Preparing to unpack .../suld-ppd-4_1.00.37-2_all.deb ...
Unpacking suld-ppd-4 (1.00.37-2) ...
Selecting previously unselected package suld-driver2-1.00.36.
Preparing to unpack .../suld-driver2-1.00.36_1.00.36-2_i386.deb ...
Unpacking suld-driver2-1.00.36 (1.00.36-2) ...
Setting up suld-driver2-common-1 (1-9) ...
Setting up suld-ppd-4 (1.00.37-2) ...
Setting up suld-driver2-1.00.36 (1.00.36-2) ...
saby43@Emma-DE ~
$
```

Now that the additional software is installed, we can proceed like a very regular printer installation.

To do so, we open the Printer Settings utility (system-config-printer)

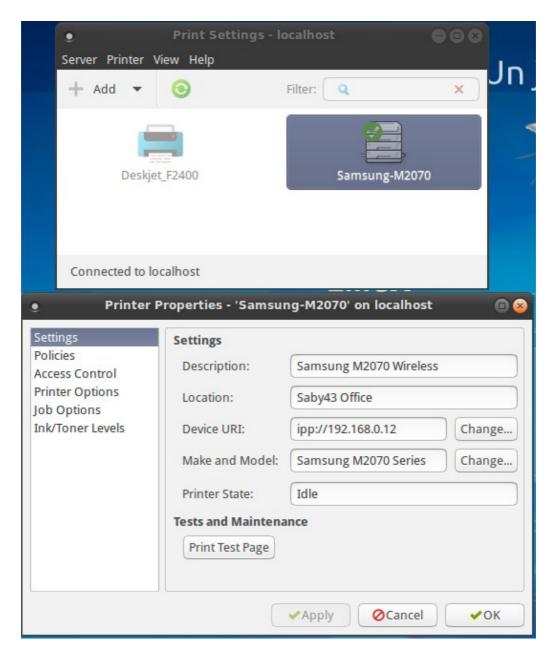


#### Click on the Add button

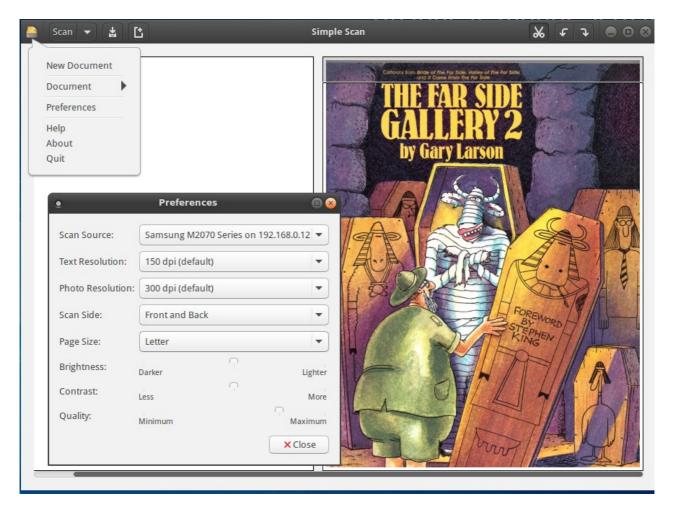


Select your Samsung printer together with the IPP connection, then Forward





And, cherry on the pie, the scanner is also correctly installed when using this method. By going to Simple Scan:



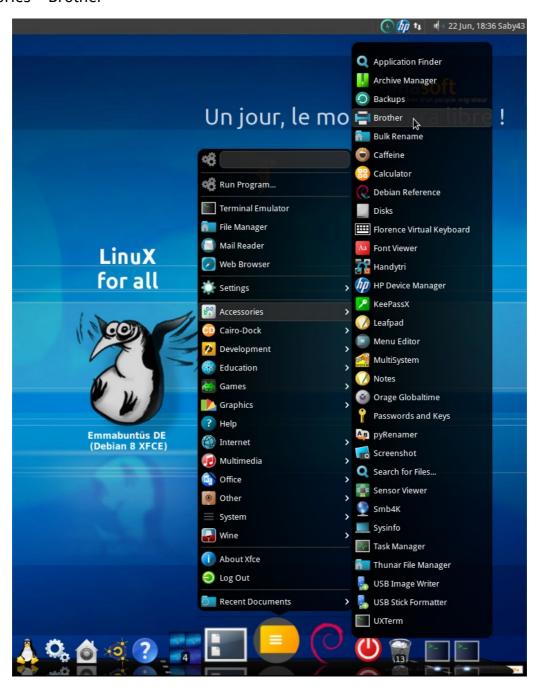
you can verify in the *Preferences* that your Samsung scanner is ready for use.

### 6.4 - Brother installation

To make your life even easier, Emmabuntüs-DE includes a script to automatically install Brother printers.

In this example we are going to install the HL-4140CN model printer connected to the local network.

In order to launch the script you navigate to : Cairo-Dock > Applications Menu > Accessories > Brother



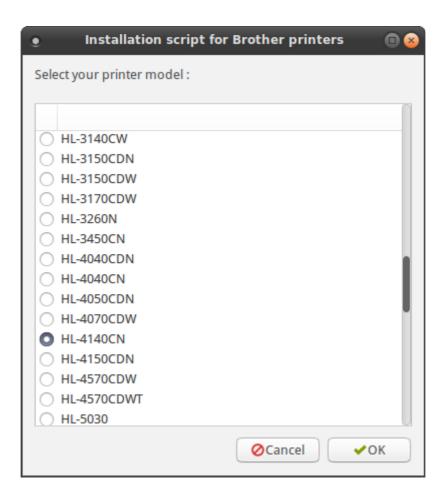
You are asked immediately for your password since we are going to perform some administrative tasks:



Then select the printer family:



Here we pick the HL family, and then **OK** 



Within the HL family we pick the HL-4140CN model, then **OK** 



For this example we select the *Network* type of connection, then **OK** 



Now we are asked to enter the printer IP address on our local network, then OK



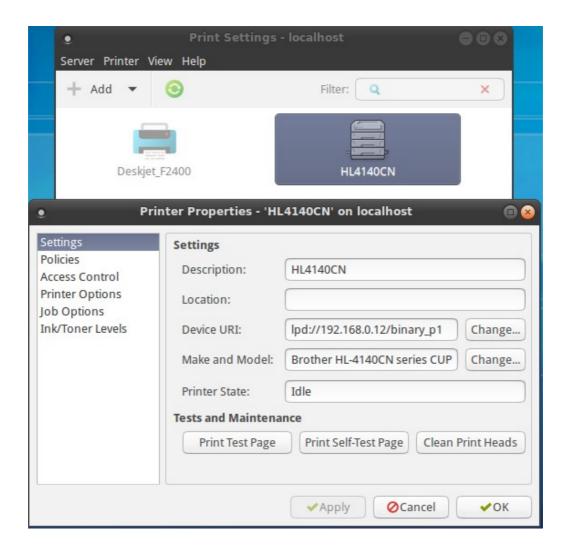
Then, the script checks if the connection is valid, and you can click **OK** when it is successful



Finally, the script asks you to confirm that the previously entered data are correct. You should double check them and click **Yes.** 

The scrip will then install everything quickly and without any more user input, restart the CUPS print subsystem and close automatically.

As usual, you can check that the printer is well installed by going to the Printer Settings utility, and double-click on the HL4140CN printer icon :



## 7 - Conclusion

This tutorial was written to allow the beginners of the <u>GNU/Linux Emmabuntüs Debian</u> <u>Edition</u> to easily install their printers by showing them concrete examples.

This tutorial was put together by the <u>Emmabuntüs collective</u> and by using a computer running the <u>Emmabuntüs-DE 1.02</u> distribution.

# 8 - Table of contents

1 -Introduction	2
2 -Printing system	3
3 -Compatibility	3
4 -Configure a printer	4
4.1 -Configuration using system-config-printer	4
4.2 -Configuration with CUPS	
5 -Scanning	13
5.1 -XSane	16
6 -Special cases	18
6.1 -HP printer manual installation	18
6.2 -Canon printer manual installation	22
6.2.1 -Printer driver installation	28
6.2.2 -Scanner driver installation	33
6.2.3 -Digitalization	34
6.3 -Samsung installation	40
6.4 -Brother installation	48
7 -Conclusion	52
8 -Table of contents	53