Installer Rasbian et cie pour la mini CNC Laser

English version at the end of this paper

Installer l’image disque Rasbian stretch lite, par copie de l’image disque sur la carte SD.

Copier les fichiers de paramétrage SSH sur la carte SD :

1. Copier un fichier vide se nommant : « ssh » sans extension
2. Copier un fichier se nommant « wpa\_supplicant.conf » contenant :

ctrl\_interface=DIR=/var/run/wpa\_supplicant GROUP=netdev

network={

ssid="your box name"

psk="your psk code"

key\_mgmt=WPA-PSK

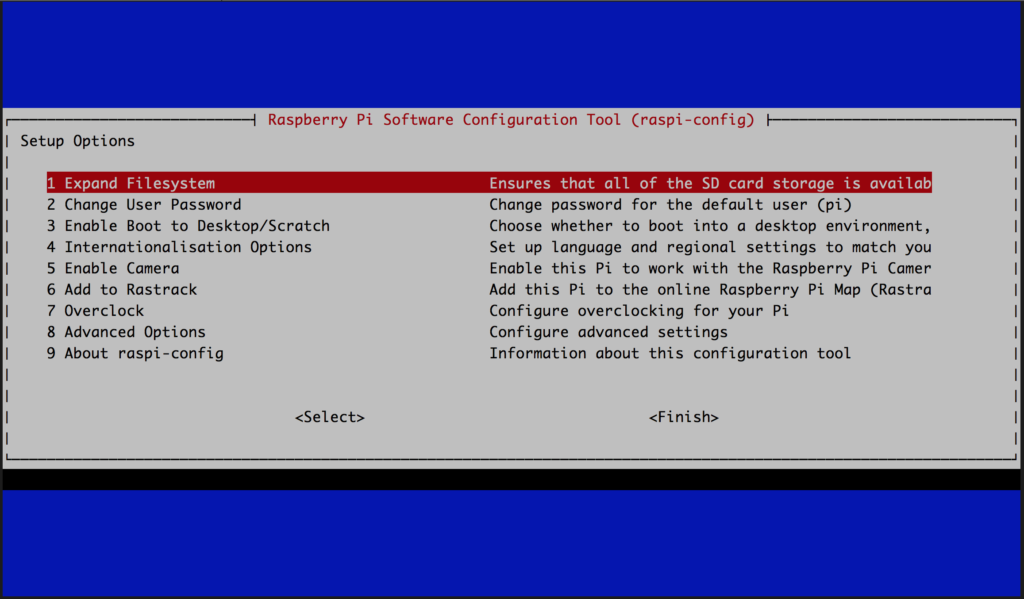
}

Mettre la carte SD dans le raspberry pi (RPI)

Se connecter au RPI en ssh via WinSCP

Si votre installation de Raspbian est toute neuve, vous aurez besoin d’étendre la partition afin d’utiliser tout l’espace libre. Pour cela:

$ sudo raspi-config



Dans le menu, allez sur l’option “Expand Filesystem” et appuyez sur entrer et validez.

Enfin redémarrez votre Raspberry:

Eventuellement créer mot de passe super utilisateur :

$sudo passwd root

Pour acceder en root, taper

$su

Puis le mot de passe

Eventuellement créer un environnement virtuel.

Puis :

Ouvir une console Putty pour installer les packages suivants :

$sudo apt-get update

$sudo apt upgrade

Installer l’environnement virtuel :

$ mkdir Monprojet

creating environment :

$ cd Monprojet /

$ virtualenv -p -–python=python3.5 cv **🡨 utilise le python de votre choix**

~~$ virtualenv cv~~ **🡨 utilise le python par defaut de la machine**

New python executable in cv/bin/python3.5

Installing setuptools, pip...done.

activating environment

$ source cv/bin/activate

Attention, maintenant vous devez toujours être sous :

cv) pi@raspberrypi:~/CNCLASER $

# **imutils**

$ pip install imutils

# **numpy**

$ pip install numpy

# **pexpect**

$ pip install pexpect

# **PyUSB et cie**

<https://github.com/pyusb/pyusb>

$ pip install pyusb

puis :

$ sudo apt-get install usbmount

$ pip install pyudev

manually edit systemd file for udevd located in */lib/systemd/system/systemd-udevd.service* and change *MountFlags=slave* to *MountFlags=shared*

<https://vivekanandxyz.wordpress.com/2017/12/29/detecting-and-automatically-mounting-pendrive-on-raspbian-stretch-lite/>

Faire ça :

<https://www.axllent.org/docs/view/auto-mounting-usb-storage/>

Cette procédure est disponible dans ma fiche ***Gérer les clés USB et disk.docx***

# **IO**

https://sourceforge.net/p/raspberry-gpio-python/wiki/Home/

$ pip install [RPi.GPIO](https://pypi.python.org/pypi/RPi.GPIO/0.6.3)

et

<https://gpiozero.readthedocs.io/en/stable/installing.html>

$ pip install gpiozero

# **Afficheur LCD**

https://github.com/rm-hull/luma.examples

Enable the SPI port:

$ sudo raspi-config

> Advanced Options > A6 SPI

If raspi-config is not available, enabling the SPI port can be done [manually](http://elinux.org/RPiconfig#Device_Tree).

Ensure that the SPI kernel driver is enabled:

$ ls -l /dev/spi\*

crw-rw---- 1 root spi 153, 0 Nov 25 08:32 /dev/spidev0.0

crw-rw---- 1 root spi 153, 1 Nov 25 08:32 /dev/spidev0.1

or:

$ lsmod | grep spi

spi\_bcm2835 6678 0

Then add your user to the *spi* and *gpio* groups:

$ usermod -a -G spi pi

$ usermod -a -G gpio pi

Finally, install the luma libraries using:

$ pip install --upgrade luma.core

$ pip install --upgrade luma.lcd

Vérifier l’installation :

$ pip list | grep luma

Si vous voulez :

Log out and in again and clone this repository:

$ git clone https://github.com/rm-hull/luma.examples.git

$ cd luma.examples

Et un peu de nettoyage :

$ sudo du -h /var/cache/apt/archives

$ sudo apt-get autoclean

$ sudo apt-get --purge autoremove

# Setting a GPIO pin as output and high at boot.

https://fr.pinout.xyz/pinout/1\_wire#

You could set the gpio-poweroff option in /boot/config.txt. That can set almost any gpio pin to go high (or low) early in the boot sequence, and change state to low (or high) when it is safe to remove power.

You must use the BCM numbering for the gpio pins.

For example, to set physical pin 16 (BCM 23) high during boot and then go low when shutdown is complete, you'd use

$ Code: Select all

dtoverlay=gpio-poweroff,gpiopin=23,active\_low

If you don't specify a gpiopin= it will default to 26 (physical pin 37).

If you don't put 'active\_low' it will go low at boot time and go high when shutdown is complete. 'active\_low' reverses that value.

Install Raspbian and Co. for the Mini CNC Laser

Install the Rasbian stretch lite disk image, by copying the disk image to the SD card.

Copy the SSH setting files to the SD card:

1. 1) Copy an empty file named: "ssh" without extension
2. 2) Copy a file named "wpa\_supplicant.conf" containing:

ctrl\_interface=DIR=/var/run/wpa\_supplicant GROUP=netdev

network={

ssid="your box name"

psk="your psk code"

key\_mgmt=WPA-PSK

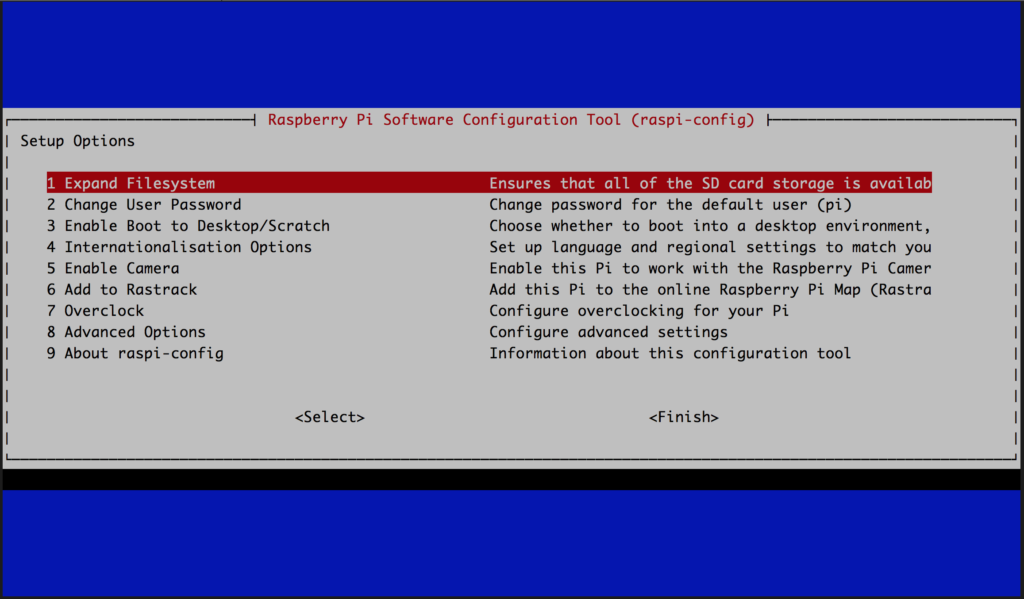
}

Put the SD card in the raspberry pi (RPI)

Connect to the RPI in ssh via WinSCP

If your Raspbian installation is brand new, you will need to expand the partition to use all free space. For that:

$ sudo raspi-config



In the menu, go to the option "Expand Filesystem" and press enter and confirm.

Finally restart your Raspberry:

Optionally create super user password:

$sudo passwd root

To access root, type

$su

Then the password

Eventually create a virtual environment.

Then open a Putty console to install the following packages:

$sudo apt-get update

$sudo apt upgrade

Install the virtual environment:

$ mkdir Monprojet

creating environment :

$ cd Monprojet /

$ virtualenv -p -–python=python3.5 cv **🡨 use the python of your choice**~~$ virtualenv cv~~ **🡨 uses the default machine python**

New python executable in cv/bin/python3.5

Installing setuptools, pip...done.

activating environment

$ source cv/bin/activate

Attention, now you must always be under:

cv) pi@raspberrypi:~/CNCLASER $

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$ pip install imutils

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$ pip install numpy

# **pexpect**

$ pip install pexpect

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and :

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manually edit systemd file for udevd located in /lib/systemd/system/systemd-udevd.service and change MountFlags=slave to MountFlags=shared

<https://vivekanandxyz.wordpress.com/2017/12/29/detecting-and-automatically-mounting-pendrive-on-raspbian-stretch-lite/>

Do this :

<https://www.axllent.org/docs/view/auto-mounting-usb-storage/>

This procedure is available in my Manage USB drives and disk.docx form

# **IO**

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et

<https://gpiozero.readthedocs.io/en/stable/installing.html>

$ pip install gpiozero

# **LCD display**

https://github.com/rm-hull/luma.examples

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Then add your user to the *spi* and *gpio* groups:

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$ usermod -a -G gpio pi

Finally, install the luma libraries using:

$ pip install --upgrade luma.core

$ pip install --upgrade luma.lcd

Check installation :

$ pip list | grep luma

If you want :

Log out and in again and clone this repository:

$ git clone https://github.com/rm-hull/luma.examples.git

$ cd luma.examples

And a little cleaning:

$ sudo du -h /var/cache/apt/archives

$ sudo apt-get autoclean

$ sudo apt-get --purge autoremove

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