CENTOS 7.7 INSTALLATION GUIDE	TB000110	REV. B

Purpose:
This installation guide goes through the steps to integrate CentOS onto an Elo computer. It contains the instructions to install, set-up, and test CentOS for a faultless compatibility with Elo computers.

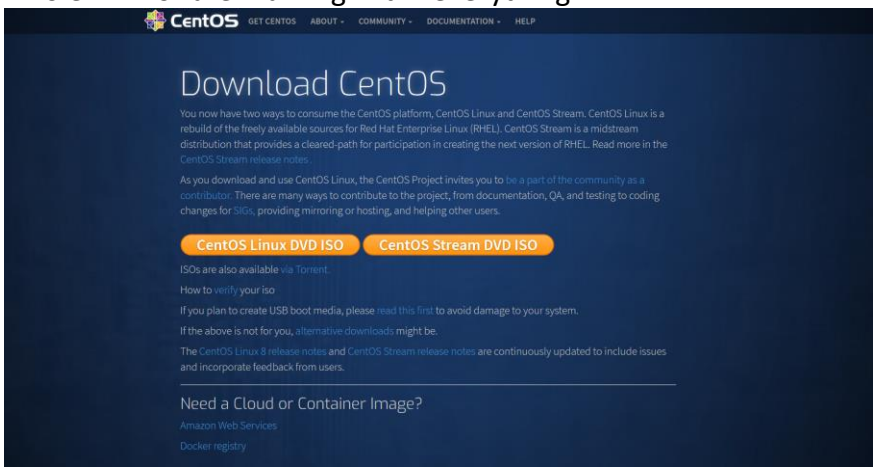
Note:

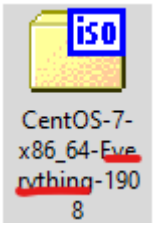
*Elo strongly recommends using this or a later version of CentOS to ensure full hardware support. *
For all terminal su commands in Terminal, the computer will ask for your password, enter your password in order to process the command
For all terminal commands, be aware of the spacing or the lack thereof in-between words and be aware of using the correct capitalization
The appendix sections are for testing purposes only

Table of Contents

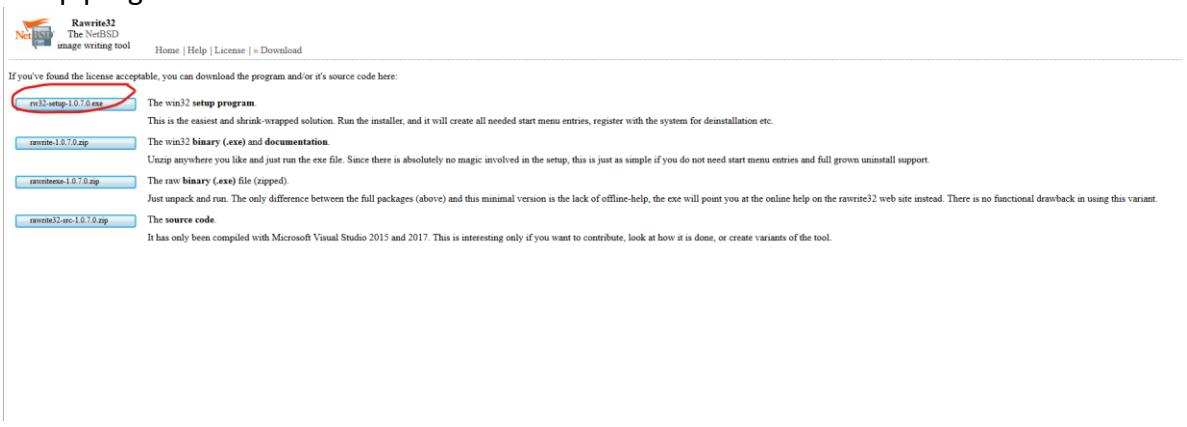
Downloads Required (download files below before starting the next step):

- CentOS 7 iso:
  - To download CentOS 7's iso, go to CentOS's website and download the DVD iso (This instruction is written using CentOS 7): https://www.centos.org/download/ . Clicking on the orange button will bring you to a list of distributors. Pick any mirror close to your region. Make sure to download an iso that contains the whole DVD or are marking with "everything".





- Rawrite32 (download this only if you are using a Windows computer to create the bootable flash drive).
  - We will be using Rawrite32 to create a CentOS 7 bootable USB drive. Alternatives to Rawrite32 are Fedora Media Writer and Win32 Disk Imager. You may use those instead of Rawrite32 is unavailable to you.
  - To download, go to NetBSD: https://www.netbsd.org/~martin/rawrite32/download.html and download the setup program.

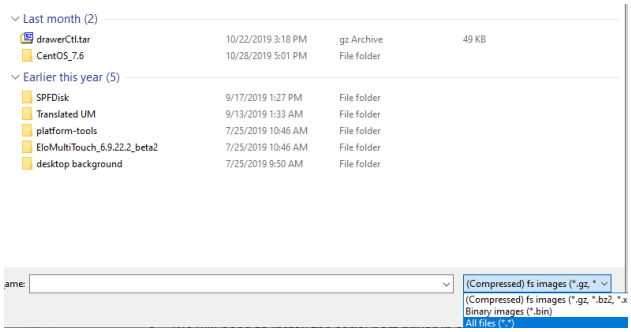


- Serial port, Cashdrawer and Printer Drivers:
  - To download the driver packages, go to Elo's website:

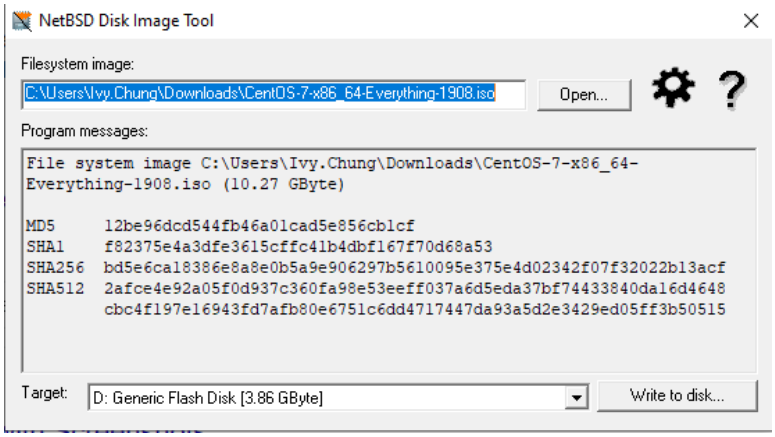
Creating an Installation USB Media:

* Warning: to create an installation USB drive, we will need to wipe out an USB drive. When choosing the disk to write to, make sure that you are choosing the correct disk, and that there are no files you want to preserve on the drive. *

1. Creating a CentOS bootable flash-drive in Windows:
   If you are using Linux to create the bootable flash-drive, skip to step 2.
   - Launch Rawrite32 and plug in an USB thumb drive.
   - In Rawrite32, select your thumb drive under Target's drop-down menu. Then, click on "Open" under the Filesystem image, change the file type to "All files", and choose the CentOS iso that you've downloaded



   - When the program is done preparing the image, click on "Write to Disk".

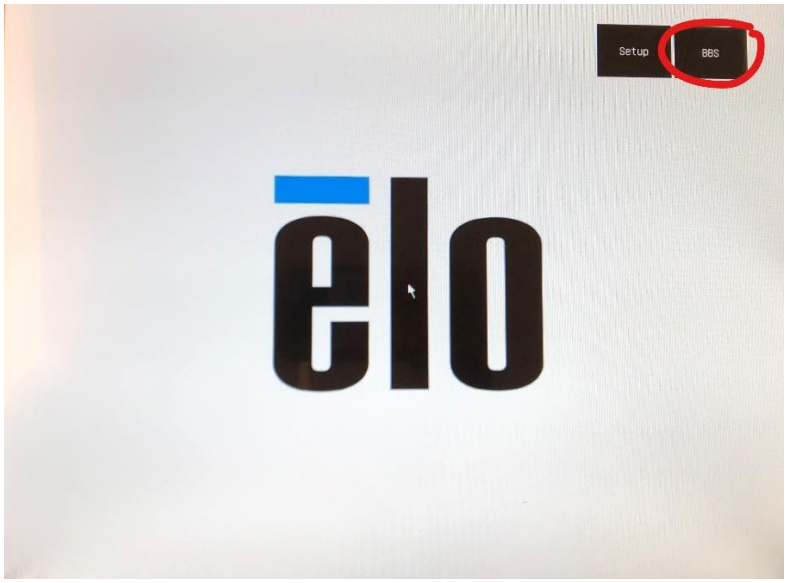


2. Creating a CentOS bootable flash-drive in Linux:
   1. Insert an USB thumb drive into an USB slot on your Elo computer. Launch terminal.
   2. Log in as root by running command
      $ su
   3. Run lsblk command to check the assignment device of your USB:
      # lsblk -So NAME,SIZE,TRAN
      In my case, the assigned USB device is sdb1.

4. Now, we can format the USB drive using the dd command:
   # dd if=CentOS_your_version.iso of=your_usb_device_path
   Fill in the full name of the iso file that you downloaded and your usb device path. Make sure to put the whole device instead of just a partition of the decice. In my case, it would be sbd instead of sbd1.

Installing CentOS onto the Elo Computer:

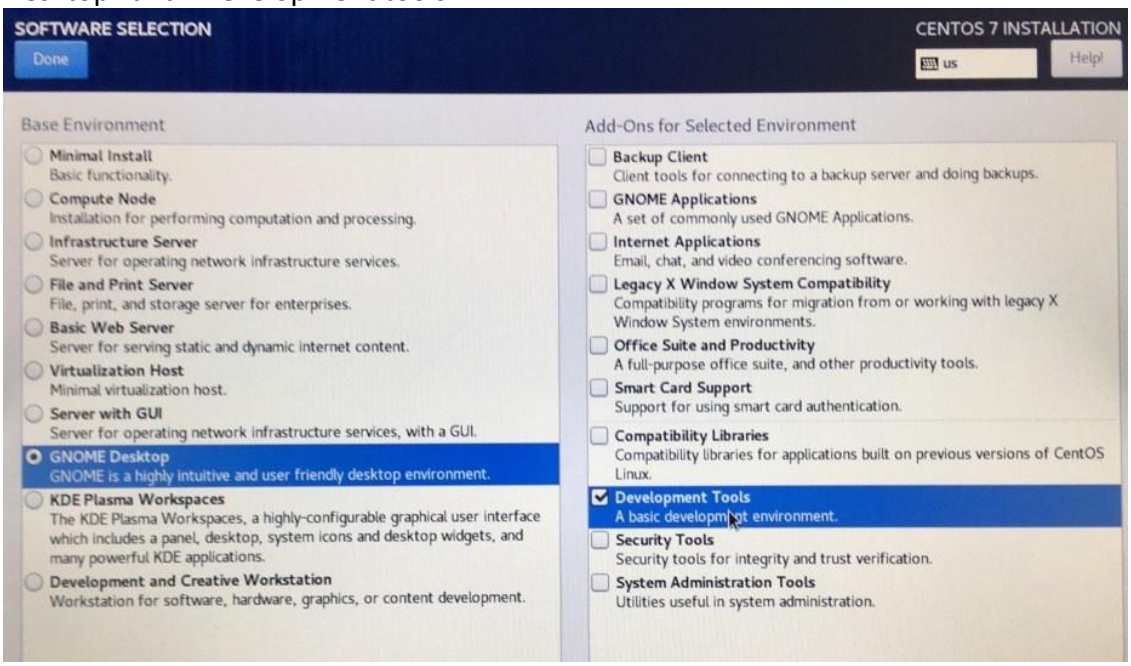
1. Plug the bootable USB installation device into the Elo computer.
2. Turn on or restart the computer. Go to the BBS Menu. This can be done by clicking on the BBS button on the top right corner during computer start-up.



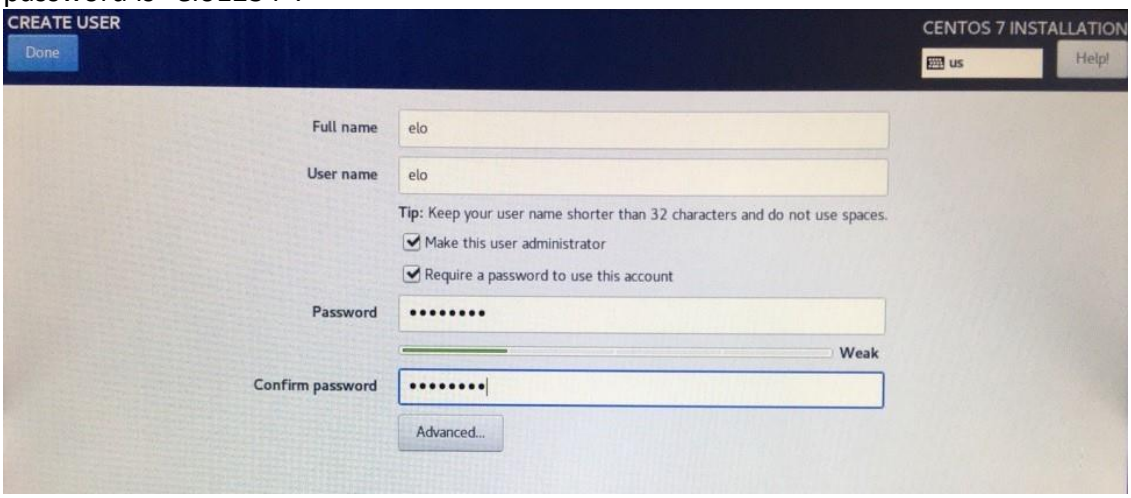
3. Now, select your thumb drive.

4. Follow the installation process. Set the location.

5. Add development tools option. Go to “SOFTWARE SELECTION”, choose “GNOME Desktop” and “Development tools”.



6. Set root password.
7. Set the user name and password. Choose “Make this user administrator” and “Require a password to use this account”. Our demonstration is to use “elo” as the user name and password is “elo1234”.



8. The CentOS Installation is now completed.

Note: The current kernel for CentOS 7.x does not support G-sensor (auto rotation) on EloPOS or I-Series for Windows products.

Appendix A: Testing Serial Port Functionality

In this section, we will test the functionality of the serial ports.

1. Check if your CentOS version have Exar's USB serial driver installed. Perform this check by running command:
   $ ls /dev/ttyXRUSB*. If you see the serial ports listed in a format like the one shown below, skip to step 6.

```
[root@localhost ~]# ls /dev/ttyXRUSB*
/dev/ttyXRUSB0  /dev/ttyXRUSB1
```

2. Prepare xr_usb_serial_drv and script. Download Exar's USB serial driver at Elo's website. Copy xr_usb_serial_drv folder to /usr/elo. Now, you need to use command "su" to change the privilege to be the root. Please do not use "sudo -i" to change user to be the root. It does not get the root privilege.

   (1) Change to the root privilege

```
$ su
Enter your root password.
```

```
[elo@localhost ~]$ su
Password:
[root@localhost elo]# pwd
/home/elo
```

   (2) Copy and untar xr_usb_serial_drv.tar.gz

```
# mkdir -p /usr/elo
# cd /usr/elo
# tar zxvf xr_usb_serial_drv.tar.gz
```

   (3) Check /usr/elo/xr_usb_serial_drv/

```
# cd xr_usb_serial_drv/
# ls
```

```
[root@localhost xr_usb_serial_drv]# ls
build.sh        startup.sh                  xr_usb_serial_common.o
built-in.o      xr_usb_serial_common.c      xr_usb_serial_common.o.ur-safe
Makefile        xr_usb_serial_common.h      xr_usb_serial_hal.c
modules.order   xr_usb_serial_common.ko     xr_usb_serial_ioctl.h
Module.symvers  xr_usb_serial_common.mod.c
README.txt      xr_usb_serial_common.mod.o
[root@localhost xr_usb_serial_drv]#
```

   (4) Change.ko files mode.

```
# chmod 666 xr_*
```

   (5) Edit startup.sh script, put your password to the script. If the xr_usb_serial_drv path is not /usr/elo/xr_usb_serial_drv/, please reminder to modify the related path.

```
# gedit /usr/elo/xr_usb_serial_drv/startup.sh
```

*NOTE. 'elo1234' => should change to your password.

(6) Change mode of startup.sh, let it get executable permissions:

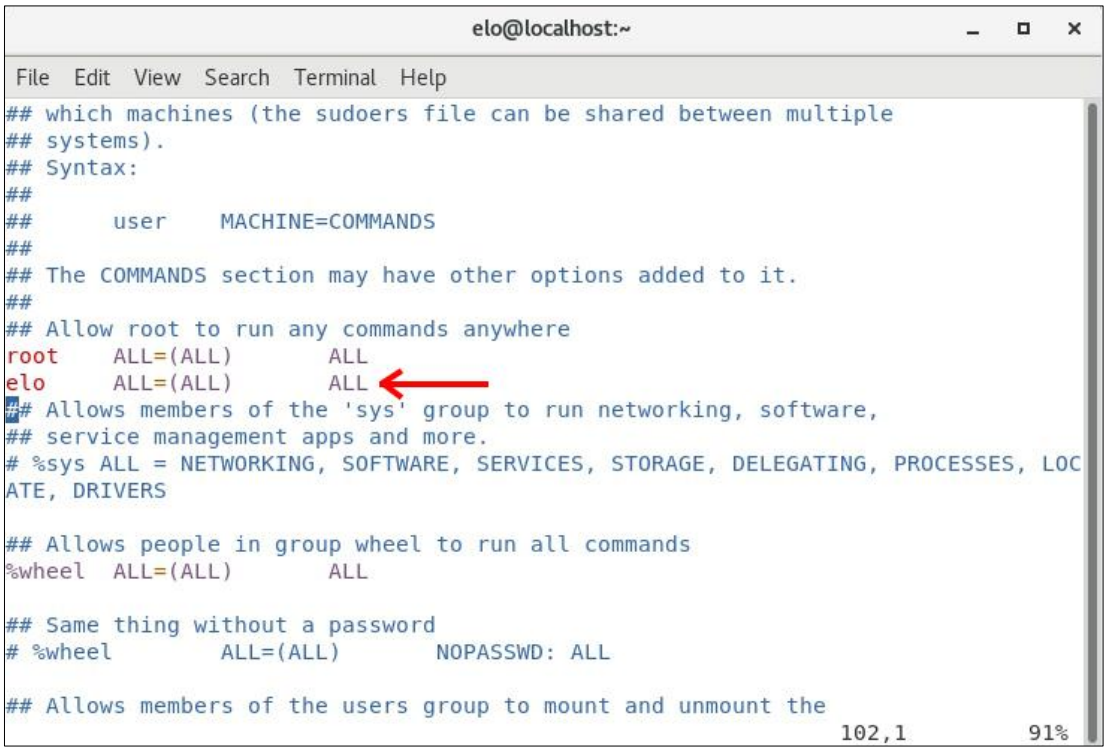
```
# chmod 777 /usr/elo/xr_usb_serial_drv/startup.sh
```

3. Add root permissions to the user, it needs to use the root privilege.

(1) Modify sudoers

```
# vim /etc/sudoers
```

(2) Add the following content:



(3) Use :wq! to save and exit.

4. Set the startup procedure, it does not need the root privilege. Please use your user account instead.

(1) Exit the root privilege

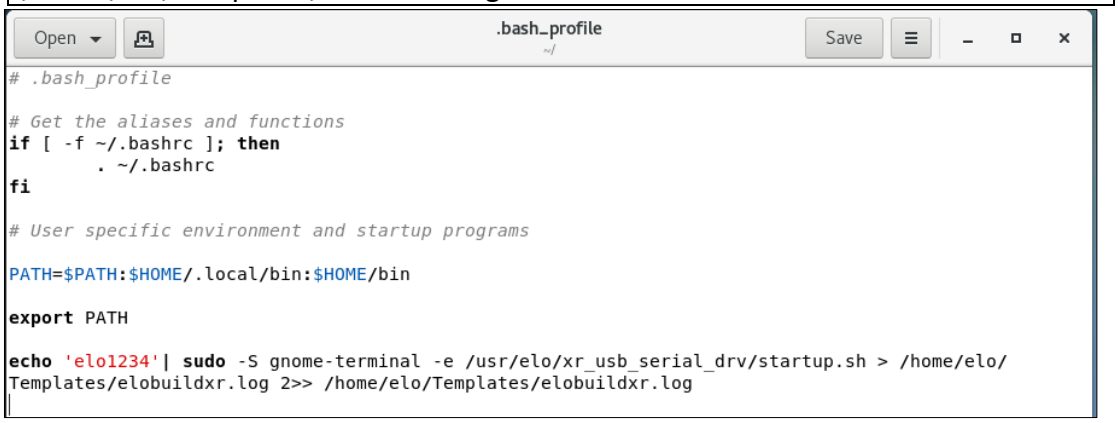
```
# exit
$
```

(2) Modify bash_profile file which is in /home/elo/. The folder "~/" is "/home/elo/"

```
$ gedit ~/.bash_profile
```

(3) Edit bash_profile like the following picture. Add content at the end:

```
echo 'yourpassword' | sudo -S gnome-terminal -e
/usr/elo/xr_usb_serial_drv/startup.sh > /home/elo/Templates/elobuildxr.log 2>>
/home/elo/Templates/elobuildxr.log
```

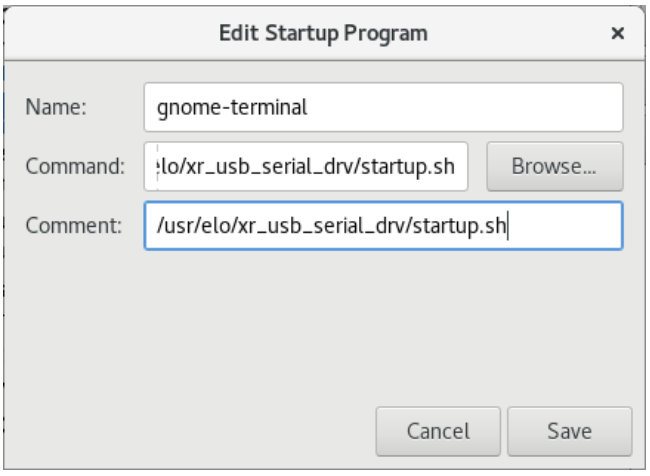


NOTE. 'elo1234' => should change to your password

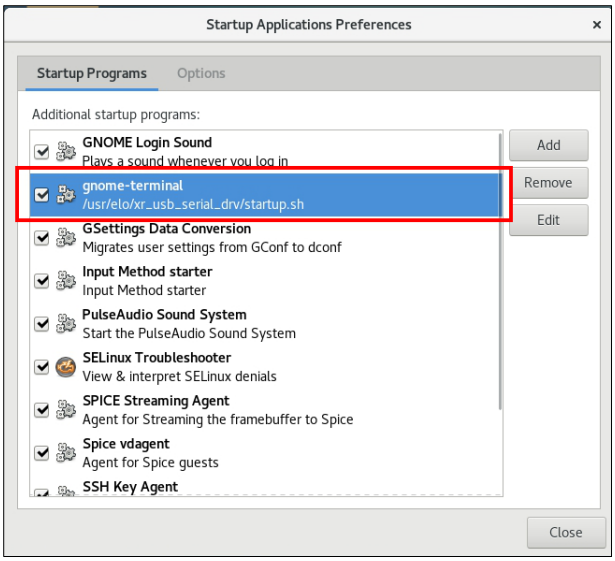
(4) Launch the startup task manager

```
$ gnome-session-properties
```

(5) At Startup Programs => choose "Add"



Name : gnome- terminal
Command: /usr/elo/xr_usb_serial_drv/startup.sh
Comment: /usr/elo/xr_usb_serial_drv/startup.sh
Click Save.



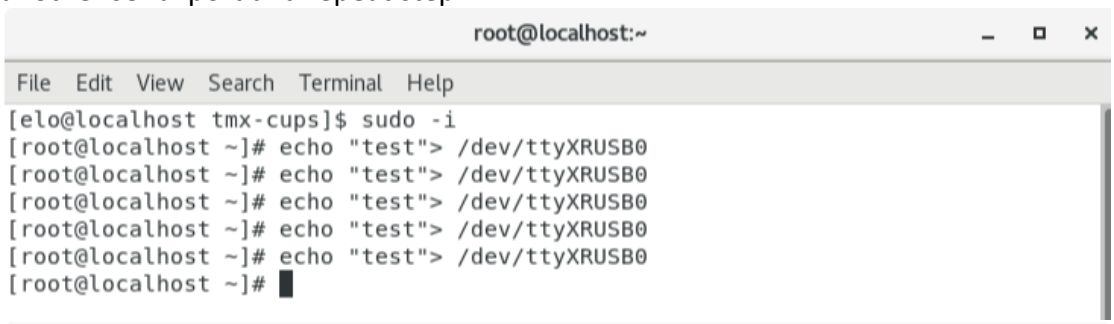
Close.

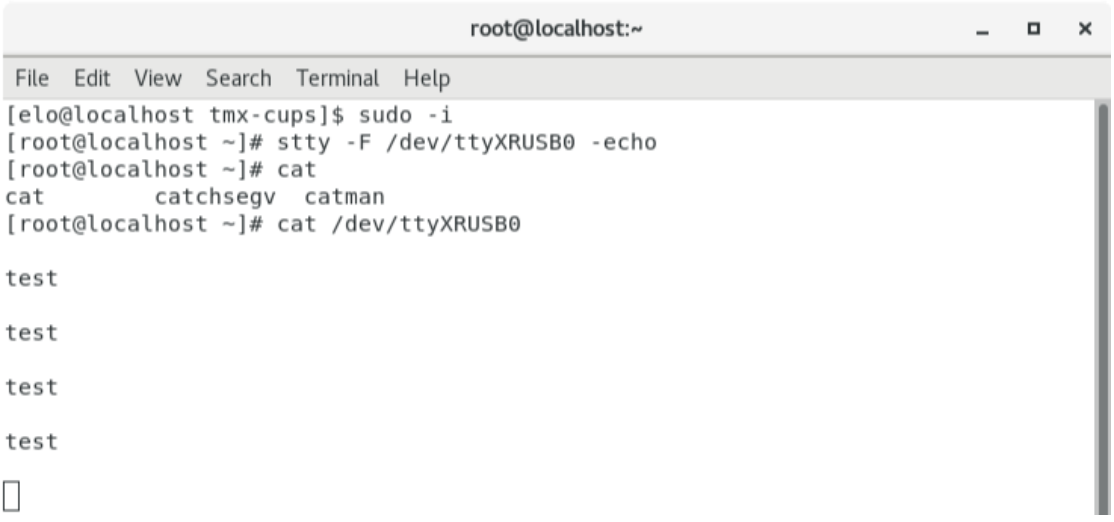
5. Reboot and check that USB UART is detected by the system by using the command: $ lsmod, and check device nodes by using the command: $ ls /dev/ttyXRUSB*. You should see the serial ports listed in a format like the one shown below.

```
[root@localhost ~]# ls /dev/ttyXRUSB*
/dev/ttyXRUSB0  /dev/ttyXRUSB1
```

6. Seeing the port names printed means that the Elo computer registers the serial ports. Now, to test the functionality of the serial ports, we will check the output and input function of the ports by using the cat and echo commands.
7. Connect a cable to a serial port on the Elo Computer and a serial loopback connector to the other end of the cable.

8. Launch two terminal windows and enter su mode for both by using the command $ su in both terminal windows.
9. In one of the windows, we will run echo commands and in the other window we will test cat commands. We will call these two windows “cat terminal window” and “echo terminal window” for easy identification. The messages we output from the echo terminal window should show up in the cat terminal window. This will test the output and input functionality of the serial port.
10. To prevent infinite loops of the echo message, in the cat terminal window, run command # stty -F /dev/ttyXRUSB0 -echo
11. In the cat terminal window, run command # cat /dev/ttyXRUSB0. This terminal will now print out all the input messages that the serial port receives.
12. In the echo terminal window, run command # echo “insert_your_test_message”> /dev/ttyXRUSB0.
13. You should see the message printed out in the cat terminal window. If you don’t see the message, try plugging in your serial cable along with the loopback connector into another serial port and repeat step 11.

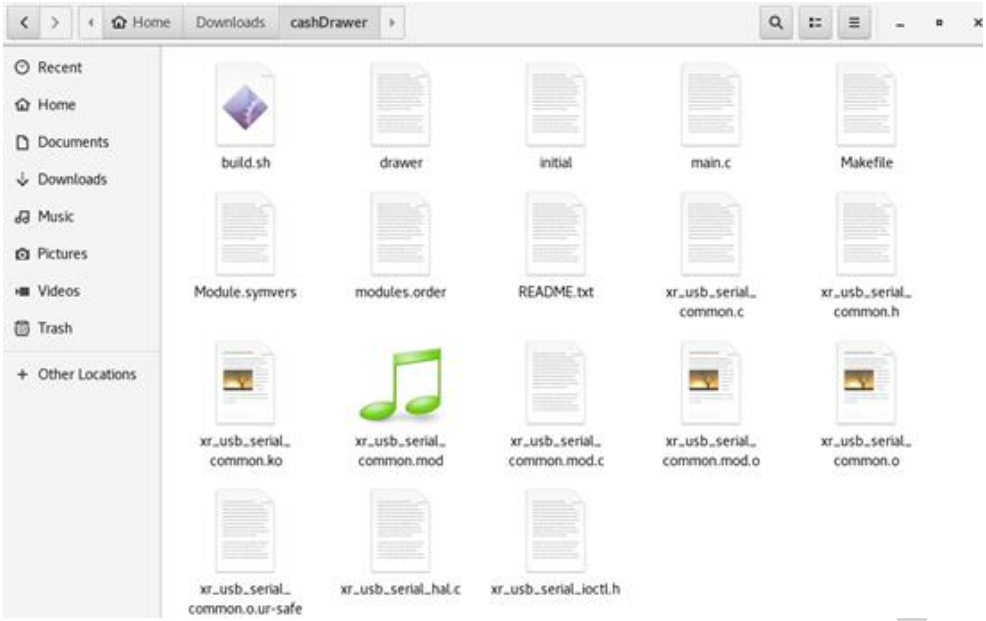




14. Once you’ve successfully tested the serial port, revert the echo setting by typing in the command:
    # stty -F /dev/ttyXRUSB0 echo
15. Repeat steps 6-13 on all serial ports.

Appendix B: Testing Cashdrawer Functionality

1. To test the cashdrawer functionality, first download the cashdrawer file from the Elo website onto the Elo computer. Once all files are downloaded, copy all serial port driver files from the last step into the cashdrawer folder.



2. Launch terminal and change to root user by running the command $ su. Go to the downloaded cashdrawer directory using the cd command. For our computer, the command is # cd /home/elo/Downloads/cashDrawer.

```
[root@localhost ~]# cd /home/elo/Downloads/cashDrawer/
```

3. Change the permissions of the drawer script by running the commands:

```
# chmod 777./drawer
```

4. Run command:

```
# ./drawer init
```

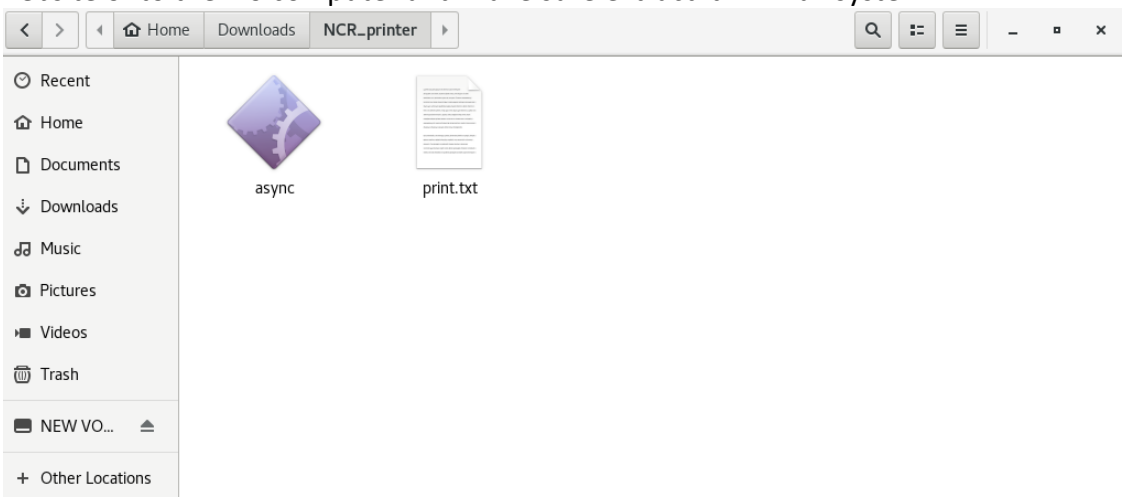
5. Now you should be able to open the drawer(s) using the commands # ./drawer cda and # ./drawer cdb (to open cash drawer a and b).
6. You should also be able to read drawer status by running the command # ./drawer state.

```
[root@localhost cashDrawer]# ./drawer state
Channel control mode.
Cash drawer is close.
reg value:0x1f1, state:0x0
[root@localhost cashDrawer]# ./drawer state
Channel control mode.
Cash drawer is open.
```

Appendix C: Testing Printer Functionality (USB)

For NCR Printer:

1. To test the NCR Printer functionality, first download the NCR_Printer file from the Elo website onto the Elo computer and make sure extract it in Linux system.



2. Launch terminal and change to root user by running the command $ su. Go to the downloaded NCR_Printer directory using the cd command. For our computer, the command is # cd /home/elo/Downloads/NCR_Printer.

```
[root@localhost ~]# cd /home/elo/Downloads/NCR_printer/
```

3. Unplug and plugin printer cable.
   Check device node by running the command # ls /dev/ttyUSB*

```
[root@localhost NCR_printer]# ls /dev/ttyUSB*
/dev/ttyUSB0
```

   Check USB device by running the command # lsusb

```
[root@localhost NCR_printer]# lsusb
Bus 002 Device 003: ID 0424:5807 Standard Microsystems Corp. Hub
Bus 002 Device 002: ID 0bda:0411 Realtek Semiconductor Corp.
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 007: ID 8087:0025 Intel Corp.
Bus 001 Device 009: ID 04e2:1422 Exar Corp.
Bus 001 Device 010: ID 0404:0311 NCR Corp. 7167 Printer, Receipt/Slip
```

9. Print by running the command
   # ./async 0 print.txt true 5 false

```
[root@localhost NCR_printer]# ./async 0 print.txt true 5 false
```

   Command format: # ./async [port] [message_path] [cut] [lines] [beep]
   [port]: device node, get from #ls /dev/ttyUSB*
   [message_path]: print content file
   [cut]: true or false, true: cut paper after print, false: not cut
   [lines]: int, blank lines
   [beep]: true or false, true: beep after print

For Epson TM20II Printer:

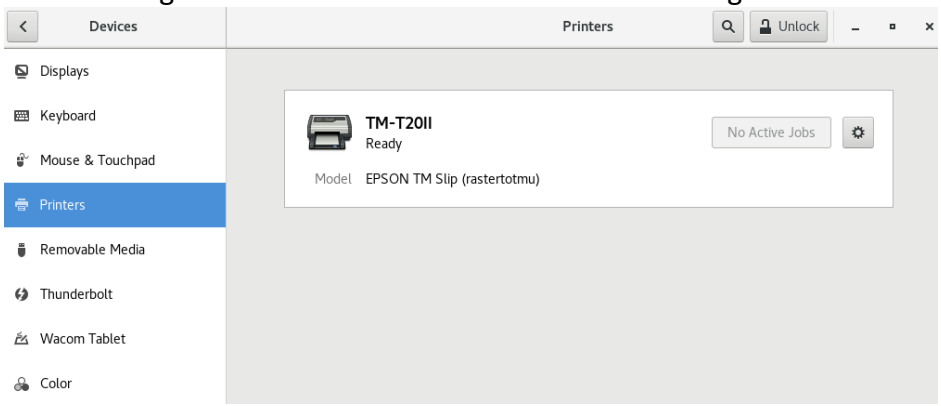
1. Driver download : https://download.epson-biz.com/modules/pos/index.php?page=single_soft&cid=5012&scat=32&pcat=52 and make sure extract it in Linux system.
2. Launch terminal and change to root user by running the command $ su. Go to the downloaded tmx-cups directory using the cd command. For our computer, the command is # cd /home/elo/Downloads/tmx-cups

```
[root@localhost ~]# cd /home/elo/Downloads/tmx-cups/
```

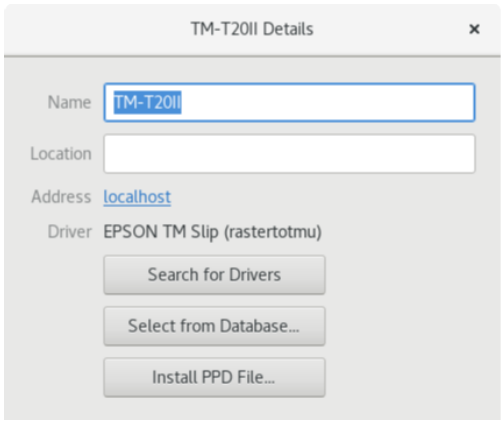
3. Install the driver by running the command #./install.sh and #./install-sc.sh

```
[root@localhost tmx-cups]# ./install.sh
[root@localhost tmx-cups]# ./install-sc.sh
```

4. Go to Setting => Device => Printer => TM-T20II => setting icon => Printer Details => Unlock.

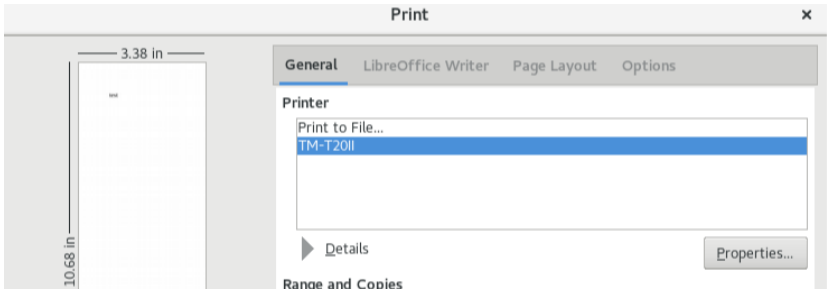


5. Go to Setting => Device => Printer => TM-T20II => setting icon => Printer Details => Install PPD File => select PPD file (tm-slip-rastertotmu.ppd.gz)



6. Go to Activities => LibreOffice Write and type any wording for testing. Then select the printer TM-T20II and print it out as below:

=>  =>



Reference document: TM/BA Series Printer Driver for Linux Driver Manual

https://download.delfi.com/SupportDL/Epson/Manuals/TM-T20/Drivers/Linux/tmx-cups/manual/TmxDriverManual.en.html

Appendix D: Testing Printer Functionality (Serial)

For Epson TV88VI Printer:

1. Launch Terminal and change to the root by running the command $ su

Ensure that you have the following packages pre-installed. cmake, gcc, gcc-c++, cups-devel. The following commands can check and install the latest packages.

yum install cmake

yum install gcc

yum install gcc-c++

yum install cups-devel

Ensure that Exar's USB serial driver installed in Appendix A: step1. If not, please follow Appendix A: step2 to step5.

2. Driver download : https://download.epson-biz.com/modules/pos/index.php?page=single_soft&cid=6408&pcat=3&pid=4983

Driver file: tmx-cups-src-ThermalReceipt-3.0.0.0.tar.gz and make sure extract it in Linux system.

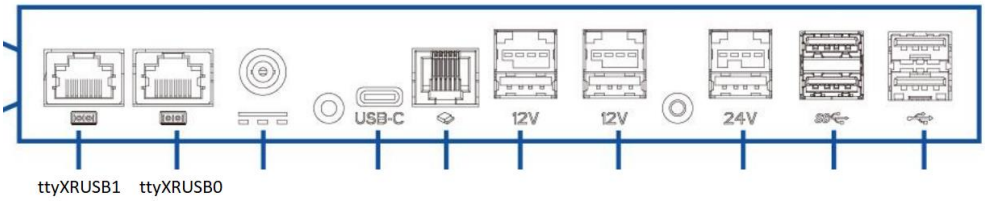
Go to your Downloads folder and untar the driver package by the following command.

```
# cd/home/elo/Downloads/
# tar zxvf tmx-cups-src-ThermalReceipt-3.0.0.0.tar.gz
```

Go to "Thermal Receipt" directory.

Install the driver by running the command # ./build.sh and # ./install.sh

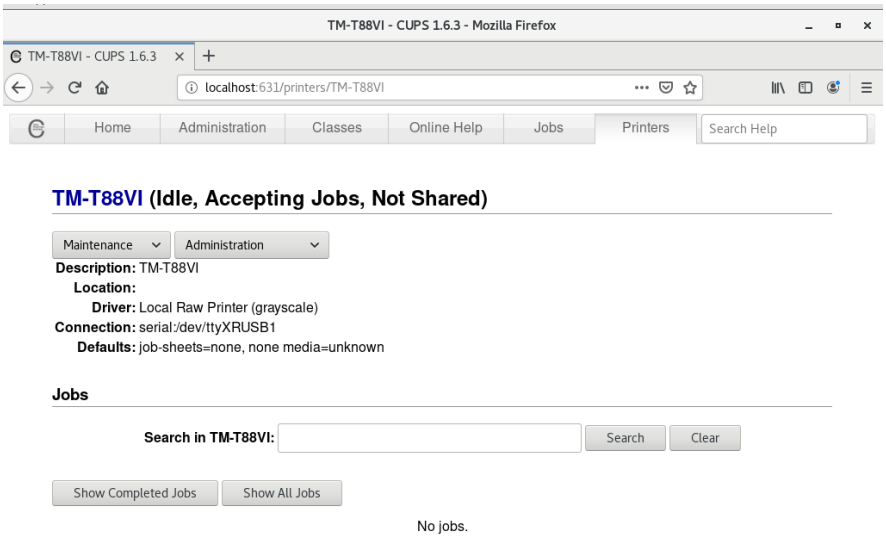
Register a printer by running the command # lpadmin -p TM-T88VI -v serial:/dev/ttyXRUSB1 -E
Note: Use either ttyXRUSB0 or 1 depending on the port that you connect to.



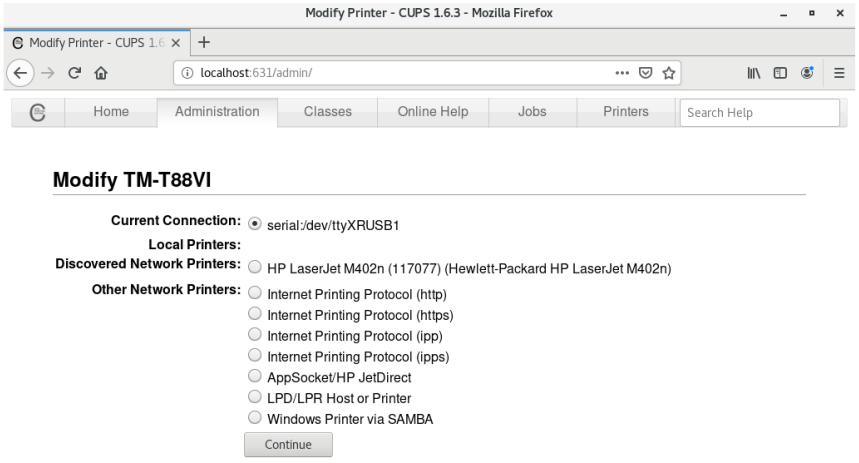
Type commend # usermod -a -G sys elo

3. Open Firefox and go to http://localhost:631 or http://127.0.0.1:631

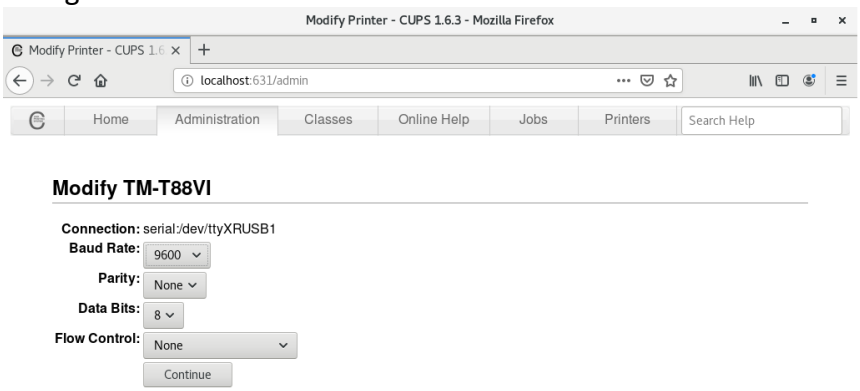
Go to Printers ➔ TM-T88VI ➔ Administration ➔ Modify Printer.



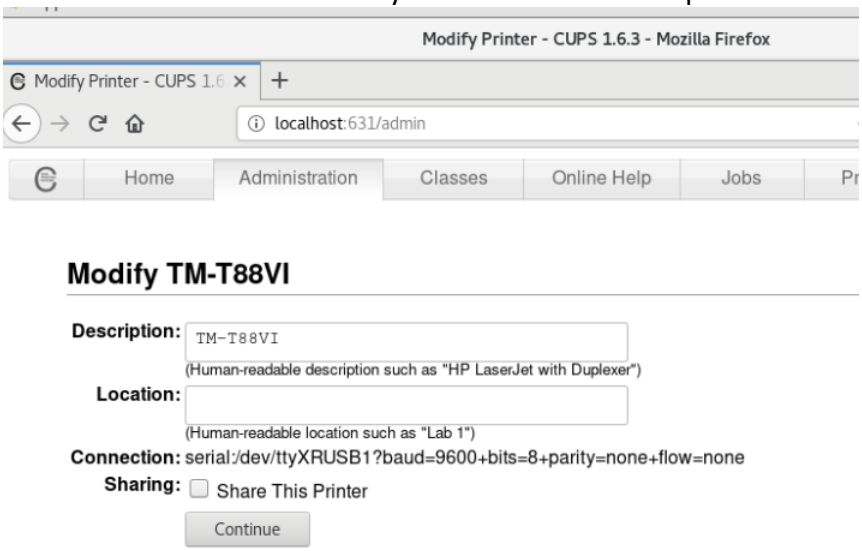
Select “serial:/dev/ttyXRUSB1” and hit “Continue”



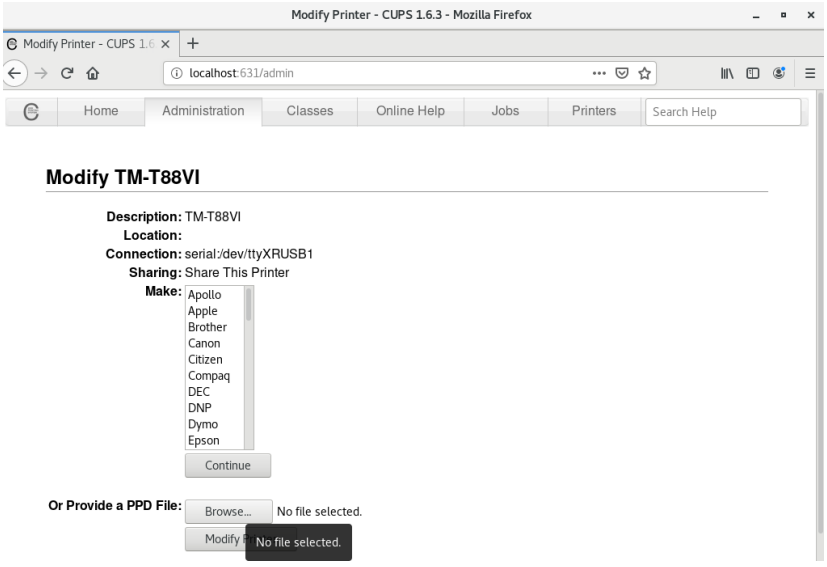
Change Baud Rate to 9600 and hit “Continue”.



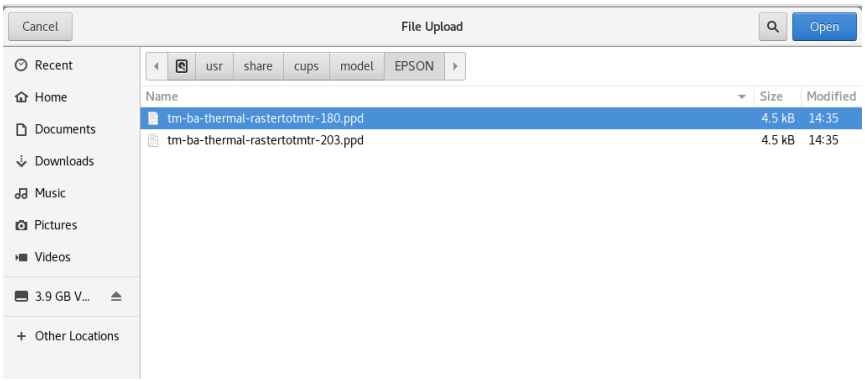
Enter the Location and select you want to share this printer or not



Click “Or Provide a PPD File” ➔ “Browse”



Choose /usr/share/cups/model/EPSON/tm-ba-thermal-rastertotmtr-180.ppd



Click “Modify Printer”.

You can use the command: echo “ABCDE” > /dev/ttyXRUSB1 to test your serial printer