Usage Guide for USB camera, 3g_dongle, and printer

Version: 1.0
Release date: 2011-12-22

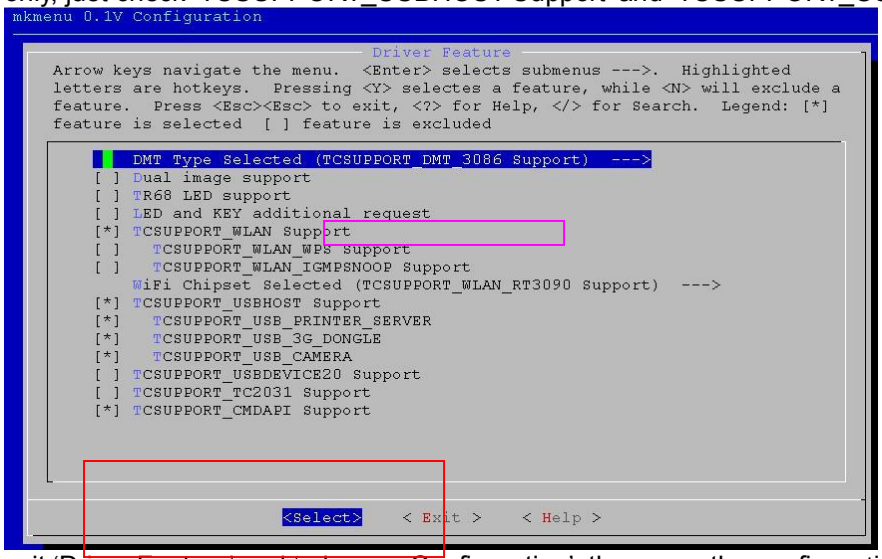
Document Revision History

Revision	Date	Author	Description

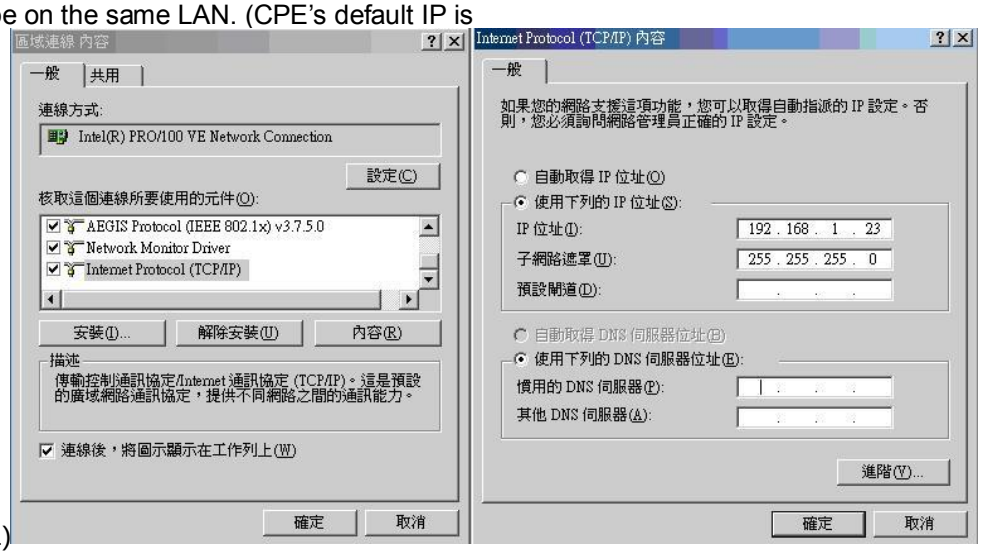
Table of Contents

1 Firmware building and upgrading

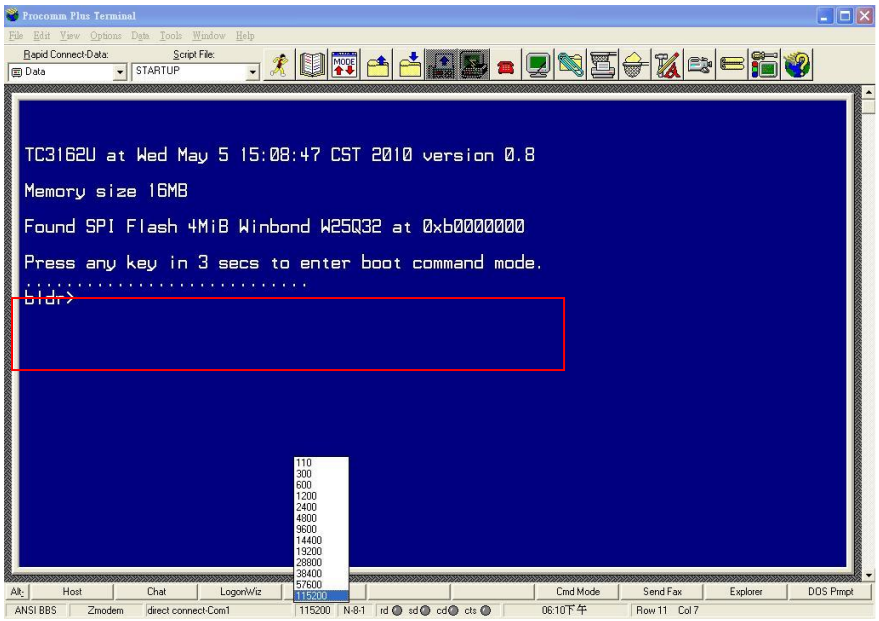
- Log on a Linux OS and change directory to source code 'releasebsp'.（You can refer to chapter 7 in "ReleaseNote"）
- "sudo make PROFILE=tc3162u menuconfig" to enter 'mkmenu Configuration'.
- cd to 'Driver Feature' to check 'TCSUPPORT_USBHOST Support', then check 'TCSUPPORT_USB_PRINTER_SERVER', 'TCSUPPORT_USB_3G_DONGLE', and 'CAMERA' in order to support printer, 3g_dongle, and camera. (Note: if you just want to support 3g_dongle only, just check 'TCSUPPORT_USBHOST Support' and 'TCSUPPORT_USB_3G_DONGLE')



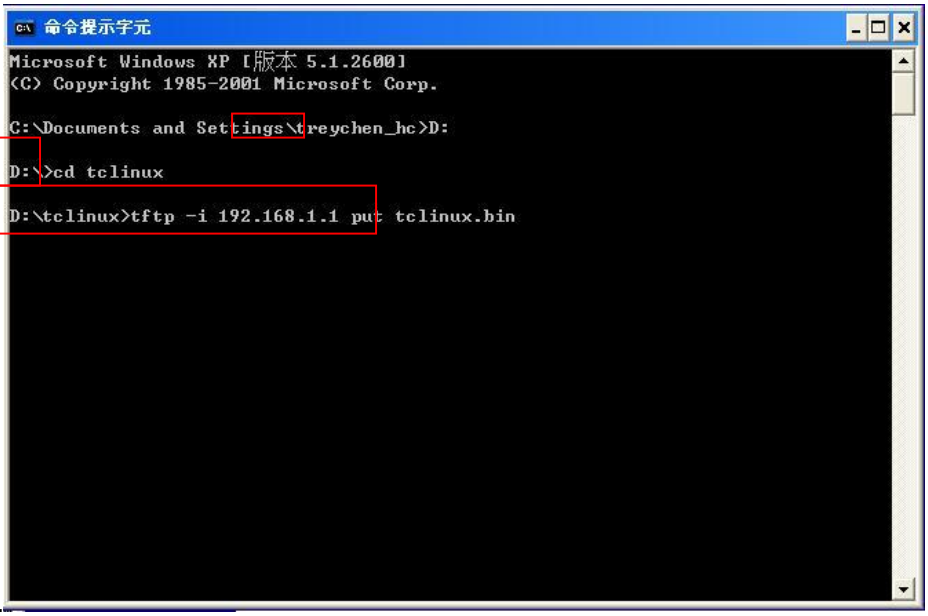
- exit 'Driver Feature' and 'mkmenu Configuration', then save the configuration
- type the command "sudo make PROFILE=tc3162u clean" to clean once.
- type the command "sudo make PROFILE=tc3162u" to build the kernel.
- after the process is finished, the built kernel 'tclinux.bin' will be place in the directory 'Project/images/'
- copy 'tclinux.bin' to a directory, say (D:\tclinux), of a Windows PC. (because we're going to use 'Procomm Plus' installed in Windows PC to load 'tclinux.bin' to the CPE board)
- use a network line to connect the Windows PC and the CPE board, then set the Windows PC's IP as '192.168.1.23' and MASK as '255.255.255.0', such that the Winsdows PC and the CPE board can be on the same LAN. (CPE's default IP is 192.168.1.1)



- use ‘Procomm Plus’ (installed in Windows PC) to see the CPE’s console (baud rate should be 115200) and turn on the CPE board. As soon as the CPE board is turned on, press any key in 3 second to enter the ‘boot command mode’!



- on the windows PC, open ‘(DOS) Command Prompt’ and type “D:”and “cd tclinux” to enter the ‘D:\tclinux’ directory, then type “tftp –i 192.168.1.1 put tclinux.bin” to copy ‘tclinux.bin’ to the CPE board (at address



0x80020000).

- After the process is finished, the ‘Procomm Plus’ console will show how many bytes is copied, say 0x333740 bytes.
- on the ‘Procomm Plus’ console, type “flash 20000 80020000 340000” to burn ‘tclinux.bin’ to the flash address ‘0x20000’. (where ‘340000’ should be a little bit larger then the value ‘333740’ mentioned in step 11)

```
bldr>
Starting the TFTP download...
.....................................................................
.....................
Total 3356480 (0x333740) bytes received

bldr> flash 20000 80020000 340000
Write to flash from 80020000 to 20000 with 340000 bytes
erase addr=20000 size=10000
erase addr=30000 size=10000
erase addr=40000 size=10000
erase addr=50000 size=10000
erase addr=60000 size=10000
erase addr=70000 size=10000
erase addr=80000 size=10000
erase addr=90000 size=10000
erase addr=a0000 size=10000
erase addr=b0000 size=10000
erase addr=c0000 size=10000
```

- after the process, type “go” to boot from the kernel ‘tclinux.bin’. After a while, press ‘Enter’ to activate the console, then type “admin” for ‘tc login’ and “1234” for ‘Password’ in order to get a shell.

```
Please press Enter to activate this console.
Starting pid 308, console /dev/ttyS0: '/sbin/getty'

tc login: admin
Password:
Jan  1 00:02:30 login[308]: root login  on 'console'

#
```

For now, the Windows PC is LAN-connected to the CPE, and the Windows PC uses ‘Procomm Plus’ to see the CPE’s console and to issue commands to it.

2 Reference or USB 3g_**dongle**

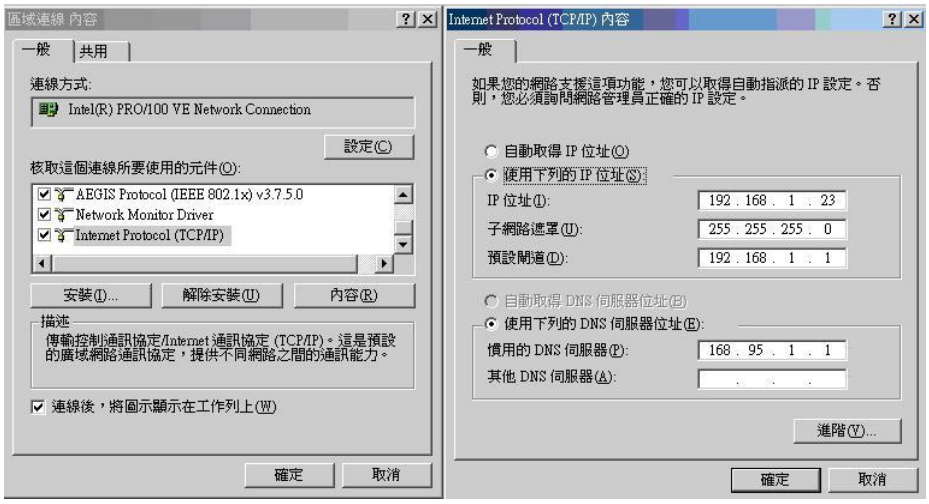
1. plug the USB 3g_dongle into the usb port of the CPE borad.
2. After text message, such as 'ttyUSB0', 'ttyUSB1' and 'ttyUSB2', comes out on the 'Procomm Plus' console, type the command "iptables -t raw -L –v" to check if the 'NOTRACK' rule exists. If yes, type the command "iptables –t raw -F" to flush the rule. Then type "iptables –t nat –A POSTROUTING –o ppp0 –j MASQUERADE" to turn on the NAT function on the CPE board.

```
usb 1-1: configuration #1 chosen from 1 choice
option 1-1:1.0: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB0
option 1-1:1.1: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB1
option 1-1:1.2: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB2
scsi2 : SCSI emulation for USB Mass Storage devices
scsi 2:0:0:0: Direct-Access     HUAWEI   MMC Storage      2.31 PQ: 0 ANSI: 2
sd 2:0:0:0: [sda] Attached SCSI removable disk

# iptables -t raw -L -v
Chain PREROUTING (policy ACCEPT 24 packets, 3067 bytes)
 pkts bytes target     prot opt in     out     source               destinat

   24  3067 NOTRACK    all  --  any    any     anywhere             anywhere


Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target     prot opt in     out     source               destinat

    0     0 NOTRACK    all  --  any    any     anywhere             anywhere

# iptables -t raw -F
# iptables -t nat -A POSTROUTING -o ppp0 -j MASQUERADE
```

3. type "./userfs/bin/pppd call wcdma" then wait for the 3g_dongle to connect to the 3g network. After the 3g_dongle's LED turns to blue which means it's physically connected to the 3g network, type "ps" to check if the command "./userfs/bin/pppd call wcdma" no longer exists. If yes, type "./userfs/bin/pppd call wcdma" again for the 3g_dongle to get an IP. Then type "ifconfig ppp0" to check if 3g_dongle got an IP. If not, type "./userfs/bin/pppd call wcdma" again until 3g_dongle gets an IP. (Note: the IP may not be the same every time)

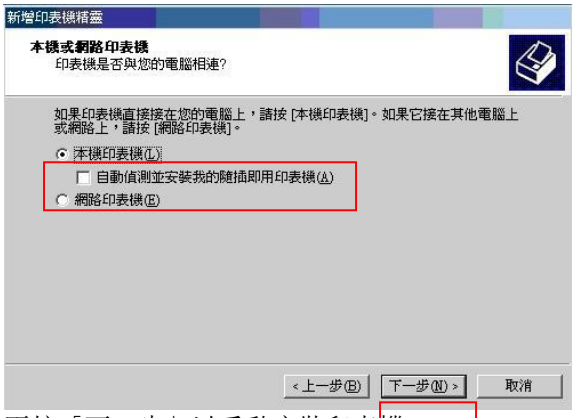
```
# ifconfig ppp0
ppp0      Link encap:Point-Point Protocol
          inet addr:111.70.106.220  P-t-P:10.64.64.64  Mask:255.255.255.255
          UP POINTOPOINT RUNNING NOARP MULTICAST  MTU:1500  Metric:1
          RX packets:7 errors:0 dropped:0 overruns:0 frame:0
          TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:3
          RX bytes:130 (130.0 B)  TX bytes:181 (181.0 B)

#
```

4. On the Windows PC, remember to set the default route to the CPE's IP (default is 192.168.1.1) and set DNS to 168.95.1.1, then the FireFox browser on the Windows PC should be able to surf the Internet through the 3g_dongle.

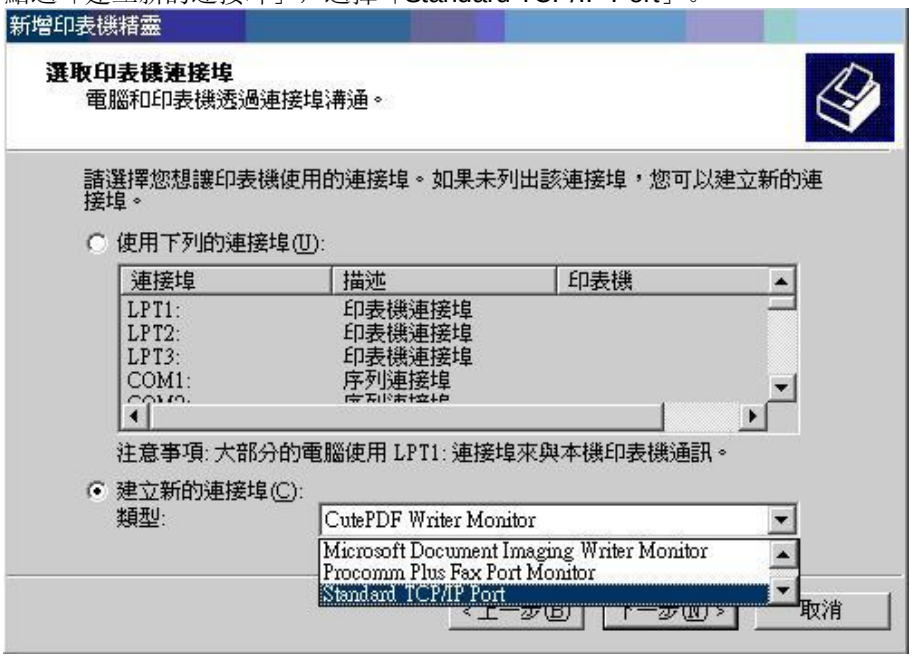


3 Reference for USB printer:

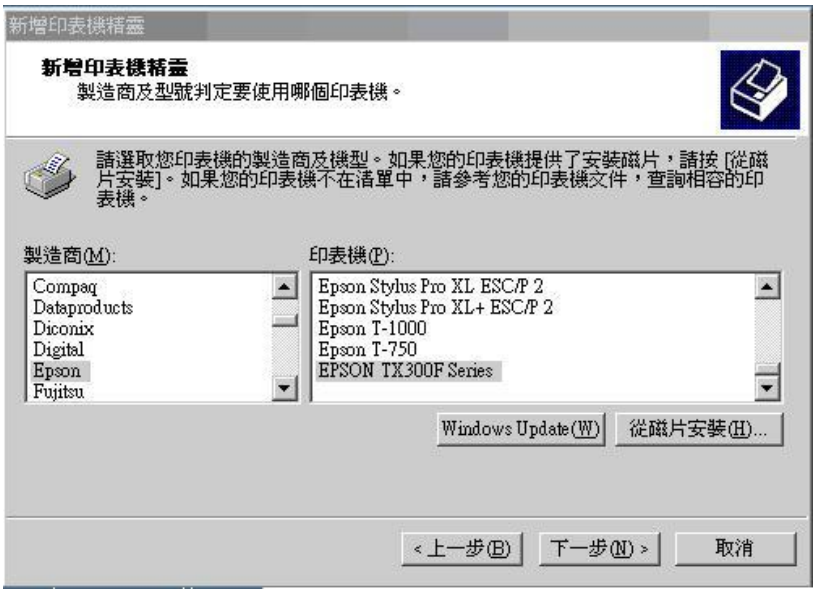
1. plug the USB printer into the usb port of the CPE borad.
2. on the 'Procomm Plus' console, type "./userfs/bin/p910nd –f /dev/usb/lp0 –b 0" to make the USB printer wait for the commands coming from the driver on the Windows PC
3. install the driver for the USB printer on the Windows PC.
4. 在控制台中選擇「印表機」，然後點選增印表機。
5. 按「下一步」後點選「本機印表機」，然後按「下一步」。



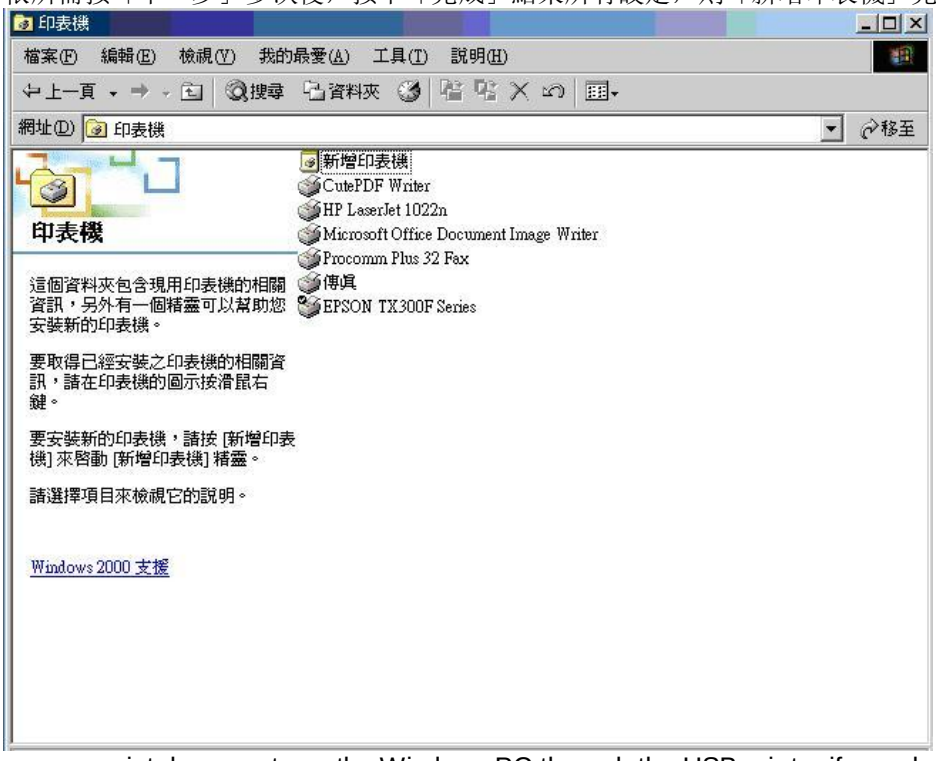
6. 再按「下一步」以手動安裝印表機。
7. 點選「建立新的連接埠」，選擇「Standard TCP/IP Port」。



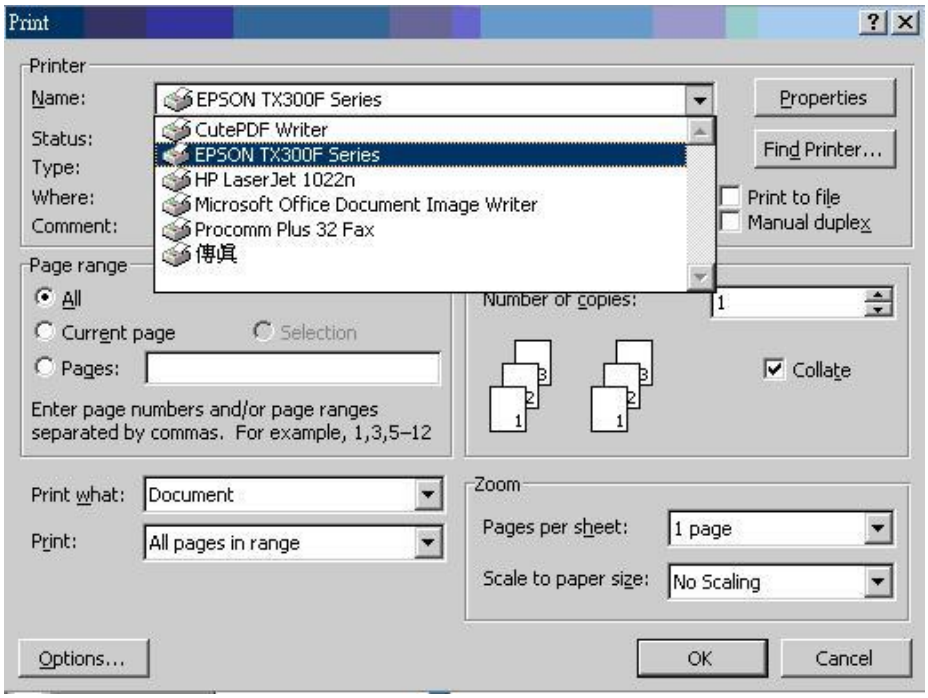
8. 按「下一步」進入標準 TCP/IP 印表機連接埠設定精靈。
9. 在「印表機名稱或 IP 位址」中填入 CPE's IP 位址 192.168.1.1，在「連接埠名稱」中填入您欲辨識的名稱，而後按「下一步」。
10. 在「其他連接埠資訊」中選擇「自訂」，並按「設定」。
11. 在通訊協定中選擇「RAW」(如果不行的話再選擇 LPR，我試過是兩個設定都可以用)。
12. 按下「確定」後回到主頁，並按「完成」結束設定精靈。
13. 回到「新增印表機精靈」後，選擇印表機製造商及印表機型號 (依自己的印表機做選擇!)，且安裝驅動程式 (若沒有，則要先去網路上抓)。



14. 依所需按「下一步」多次後，按下「完成」結束所有設定，則「新增印表機」完成。

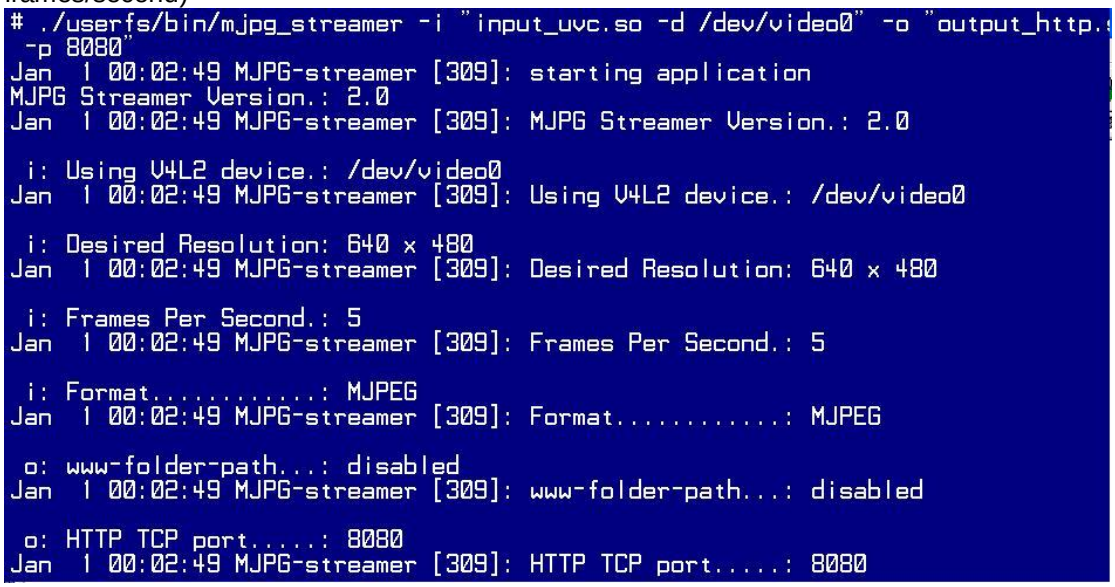


15. Now you can print documents on the Windows PC through the USB printer if you choose the right printer ‘EPSON TX300F Series’.



4 Reference or USB camera:

1. plug the USB camera into the usb port of the CPE borad.
2. on the 'Procomm Plus' console, type ". /userfs/bin/mjpg_streamer -i "input_uvc.so -d /dev/video0" -o "output_http.so -p 8080" to capture the camera's video and send it to the '8080' port. (Note1: the default resolution is 640x480 pixels and 5 frames/second) (Note2: "input_uvc.so -d /dev/video0 **–r 1024x768 –f 30**" can adjust the camera's resolution to 1024x768 pixels and 30 frames/second)



on the Windows PC, by typing "http://192.168.1.1:8080/?action=stream" on the FireFox browser (can't use IE), you can see the video from the camera; or by typing "http://192.168.1.1:8080/?action=snapshot", you can get a picture from the camera (Note: do

“http://192.168.1.1:8080/?action=snapshot” again, you can get another picture).