Raspberry Pi 好好玩
- 安裝設定篇

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about 台灣樹莓派

- 專注於 Raspberry Pi 應用與推廣
- Maker Faire 2013, 2013 科學玩意節
- 舉辦台灣第一次 Raspberry Pi 社群聚會

安裝 Raspberry Pi

- 步驟 1 ：下載映像檔 (image)
- 步驟 2 ：透過燒錄軟體將映像檔燒到 SD 卡
- 步驟 3 ：將 SD 卡插到 Raspberry Pi & 上電

步驟 I ：下載映像檔

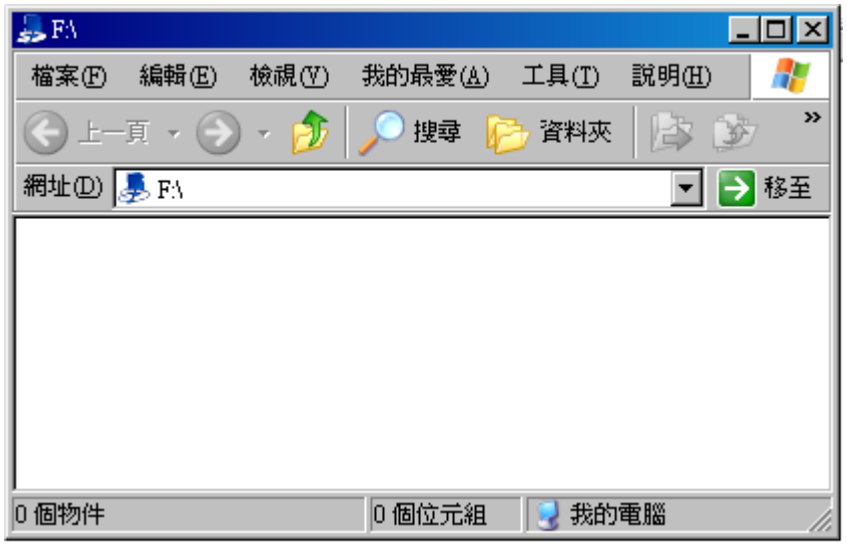
- 官方下載網頁
  - http://www.raspberrypi.org/downloads
- 選擇映像檔 (image)
  - NOOBS
  -  Raspbian(推薦)
  -  Pidora
  -  RISC OS
  -  RaspBMC
  -  Arch
  -  OpenELEC

步驟 2 ：下載燒錄軟體

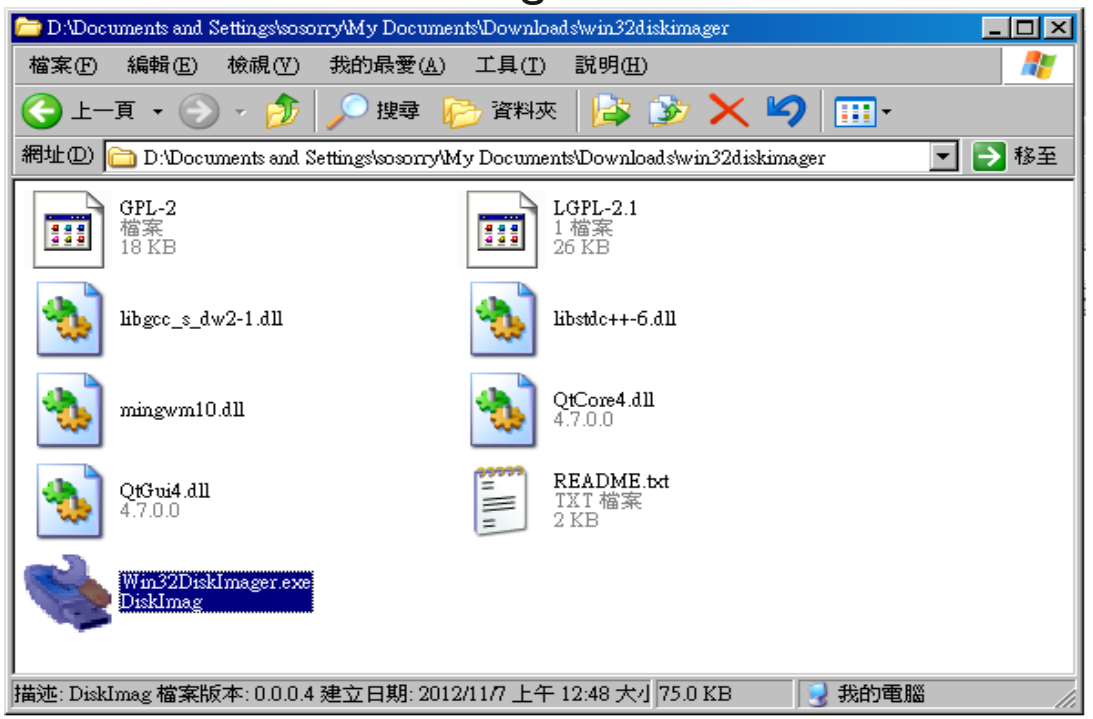
- Windows
  - Win32 Disk Imager
  - http://sourceforge.net/projects/win32diskimager/

用 Win32 Disk Imager 燒錄映像檔

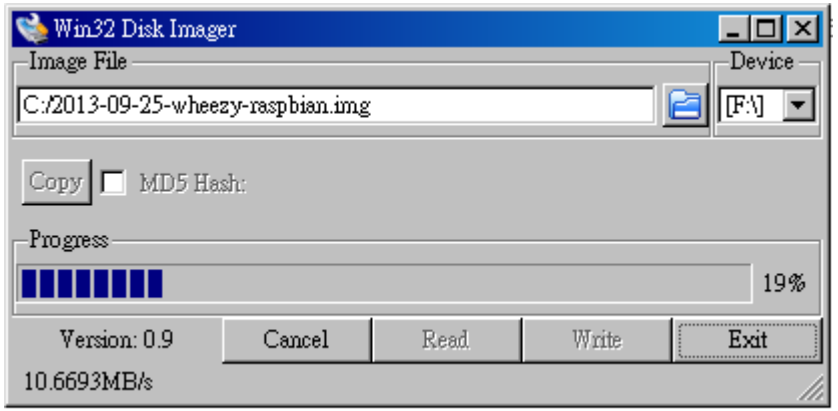
1. 將 SD 卡插到 PC 上



2. 執行 Win32DiskImager



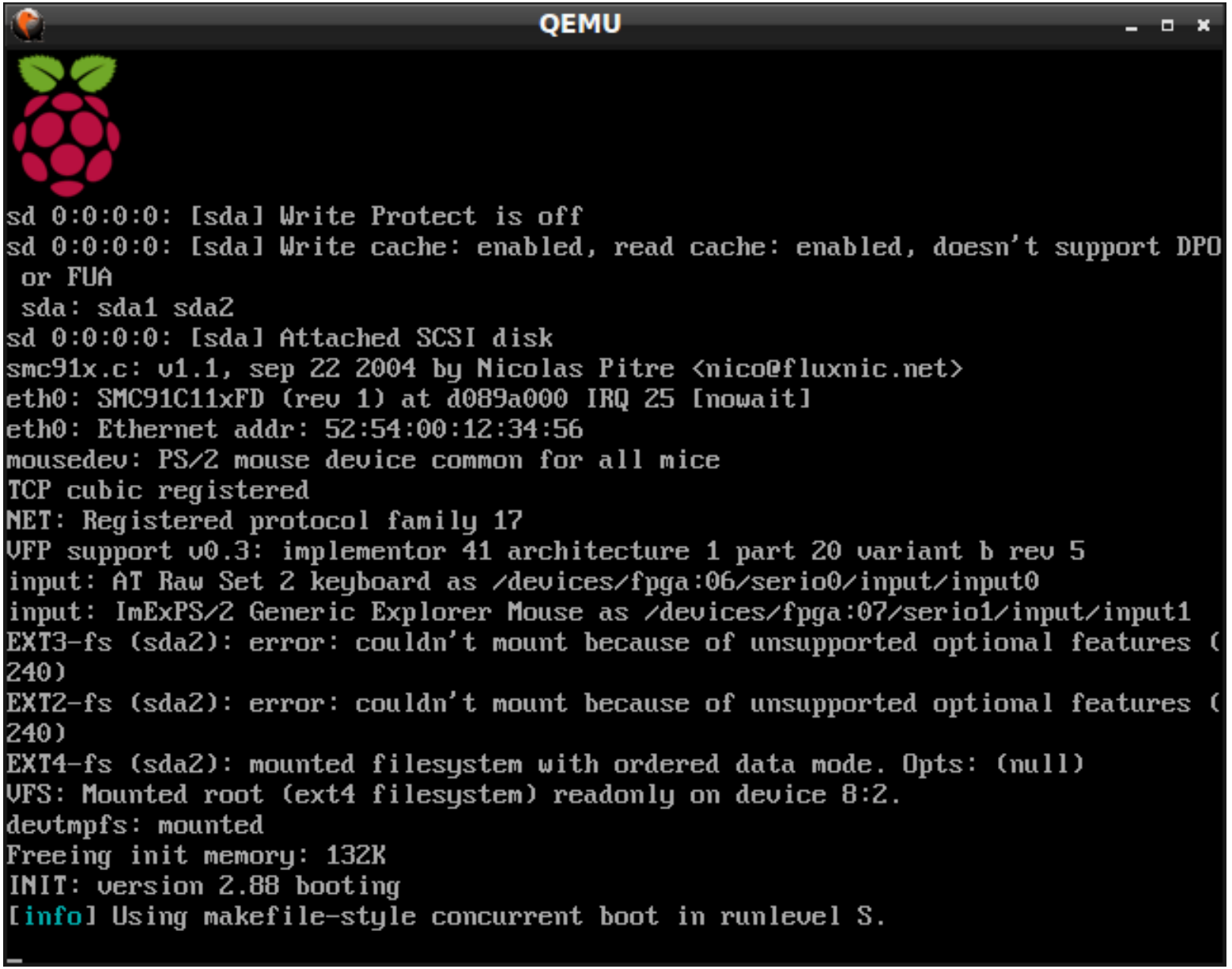
3. 選擇 SD 卡位置後寫入映像檔



步驟 3 ：接上週邊並上電

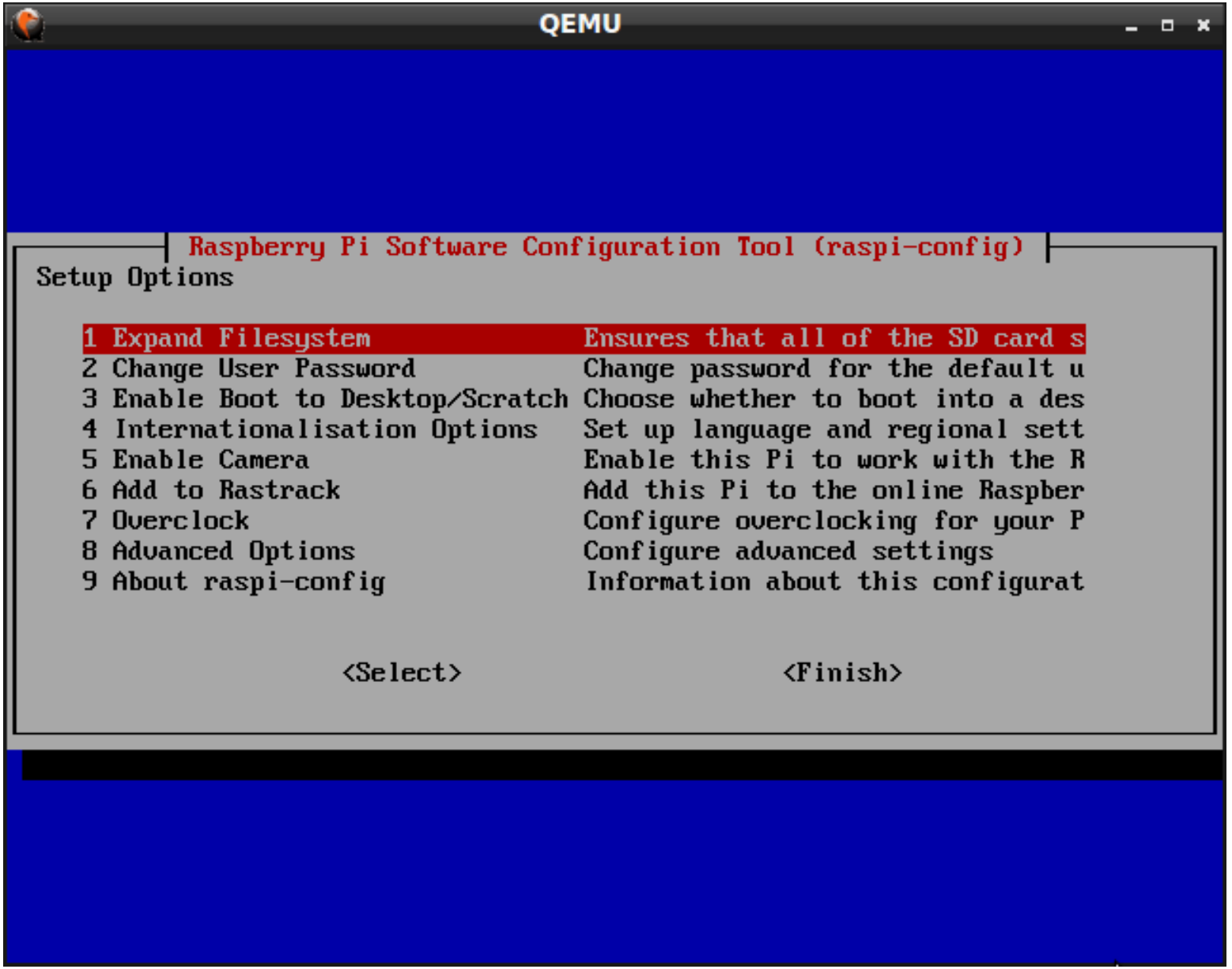
http://www.raspberrypi-tutorials.co.uk/starting-up-your-raspberry-pi-device/set-raspberry-pi/

第一次開機

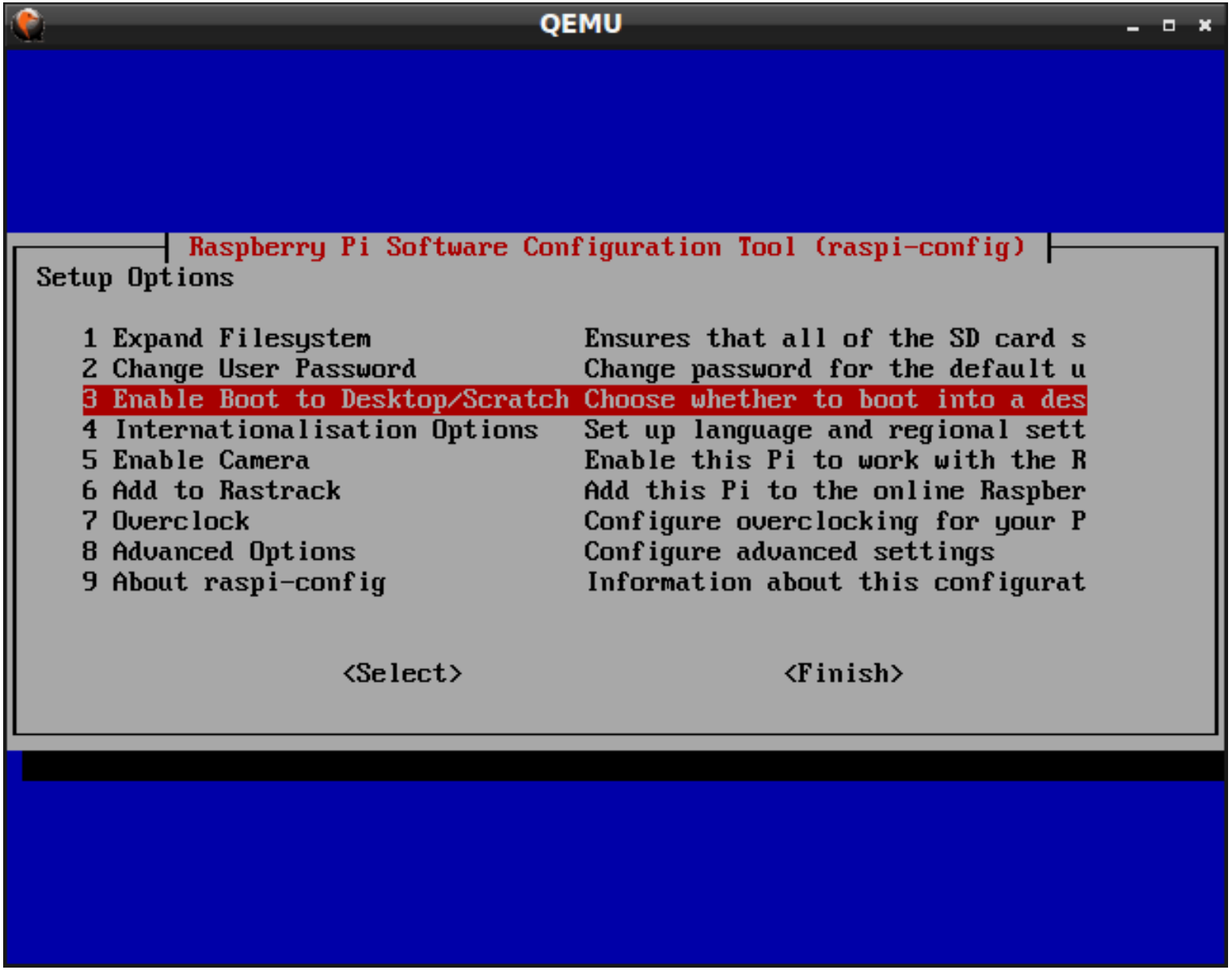

QEMU
sd 0:0:0:0: [sda] Write Protect is off
sd 0:0:0:0: [sda] Write cache: enabled, read cache: enabled, doesn't support DPO
or FUA
sda: sda1 sda2
sd 0:0:0:0: [sda] Attached SCSI disk
smc91x.c: v1.1, sep 22 2004 by Nicolas Pitre <nico@fluxnic.net>
eth0: SMC91C11xFD (rev 1) at d089a000 IRQ 25 [nowait]
eth0: Ethernet addr: 52:54:00:12:34:56
mousedev: PS/2 mouse device common for all mice
TCP cubic registered
NET: Registered protocol family 17
VFP support v0.3: implementor 41 architecture 1 part 20 variant b rev 5
input: AT Raw Set 2 keyboard as /devices/fpga:06/serio0/input/input0
input: ImExPS/2 Generic Explorer Mouse as /devices/fpga:07/serio1/input/input1
EXT3-fs (sda2): error: couldn't mount because of unsupported optional features (
240)
EXT2-fs (sda2): error: couldn't mount because of unsupported optional features (
240)
EXT4-fs (sda2): mounted filesystem with ordered data mode. Opts: (null)
VFS: Mounted root (ext4 filesystem) readonly on device 8:2.
devtmpfs: mounted
Freeing init memory: 132K
INIT: version 2.88 booting
[info] Using makefile-style concurrent boot in runlevel S.

raspi-config 設定

擴增檔案系統所在分割區大小



開機後的登入方式


QEMU
Raspberry Pi Software Configuration Tool (raspi-config)
Setup Options
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2 Change User Password Change password for the default u
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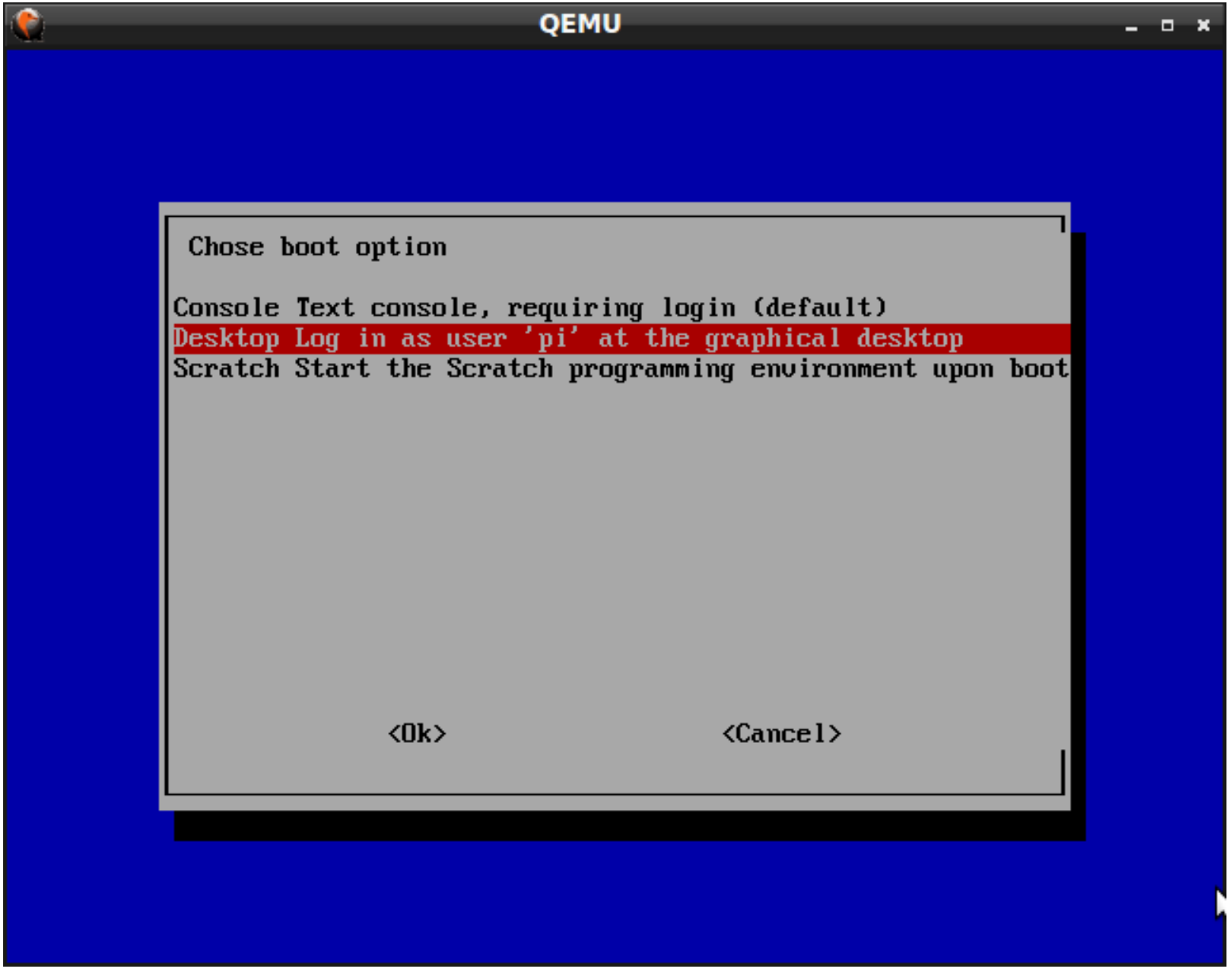
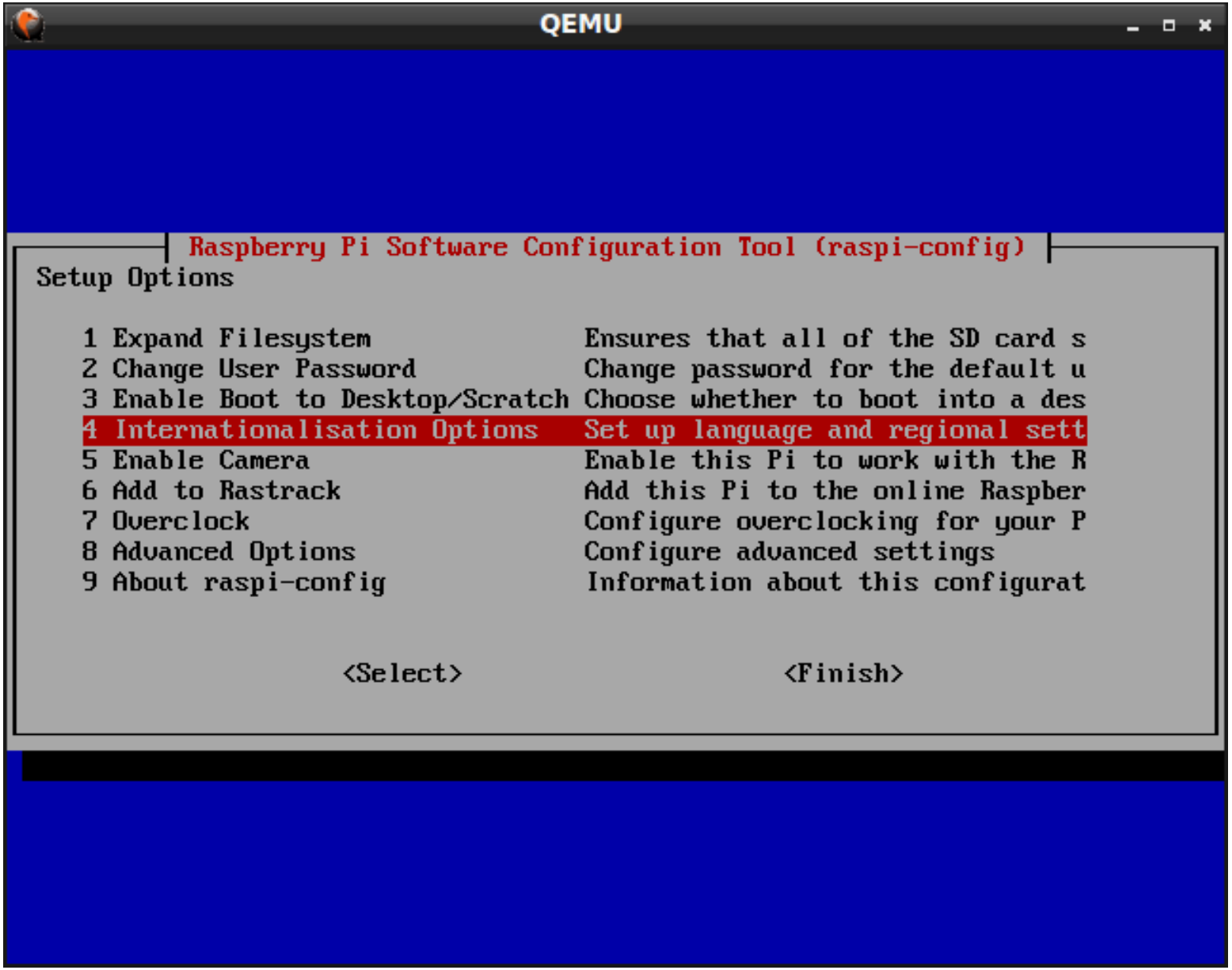
5 Enable Camera Enable this Pi to work with the R
6 Add to Rastrack Add this Pi to the online Raspber
7 Overclock Configure overclocking for your P
8 Advanced Options Configure advanced settings
9 About raspi-config Information about this configurat
<Select>
<Finish>

以 pi 身份登入 X Window



國際化設定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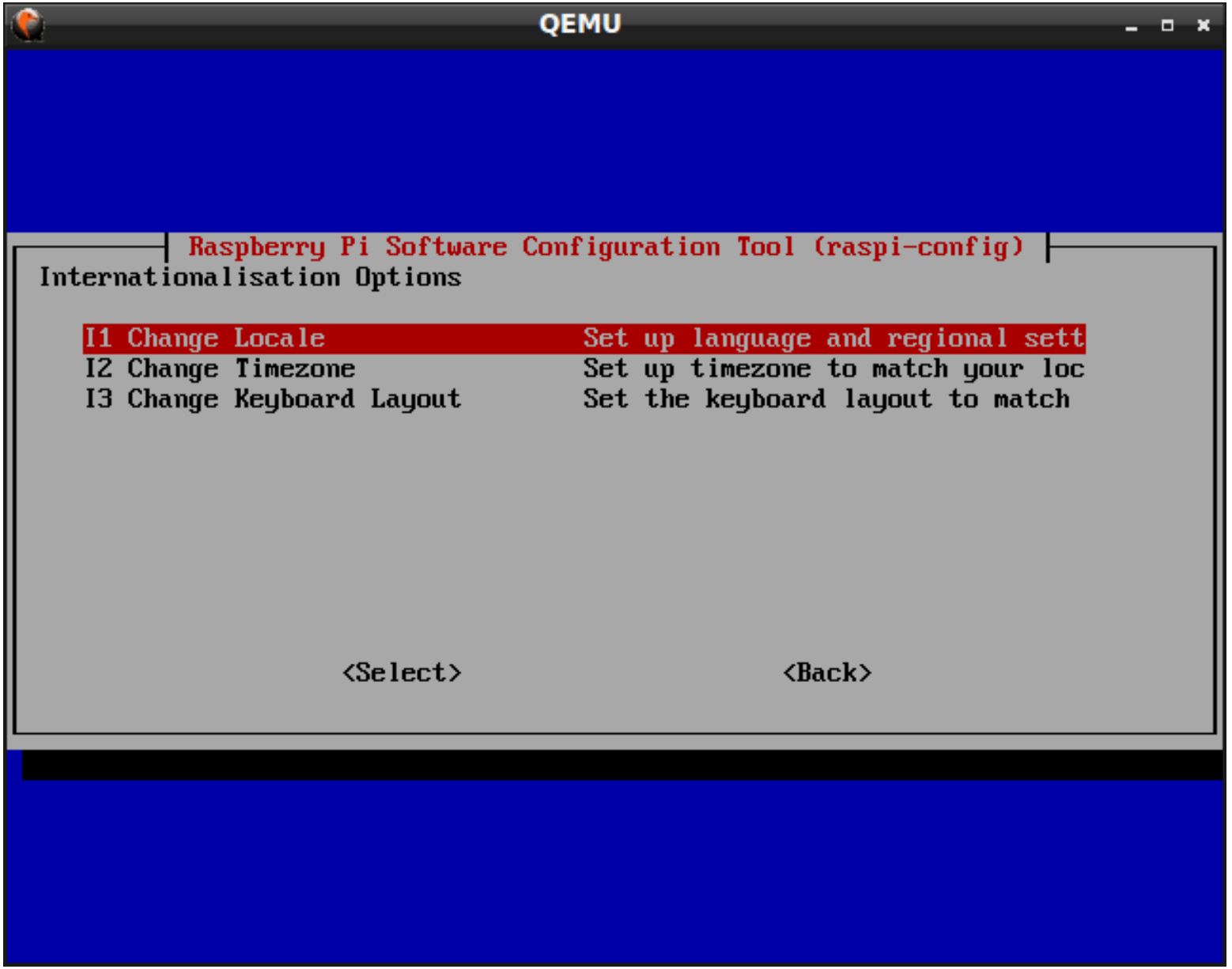
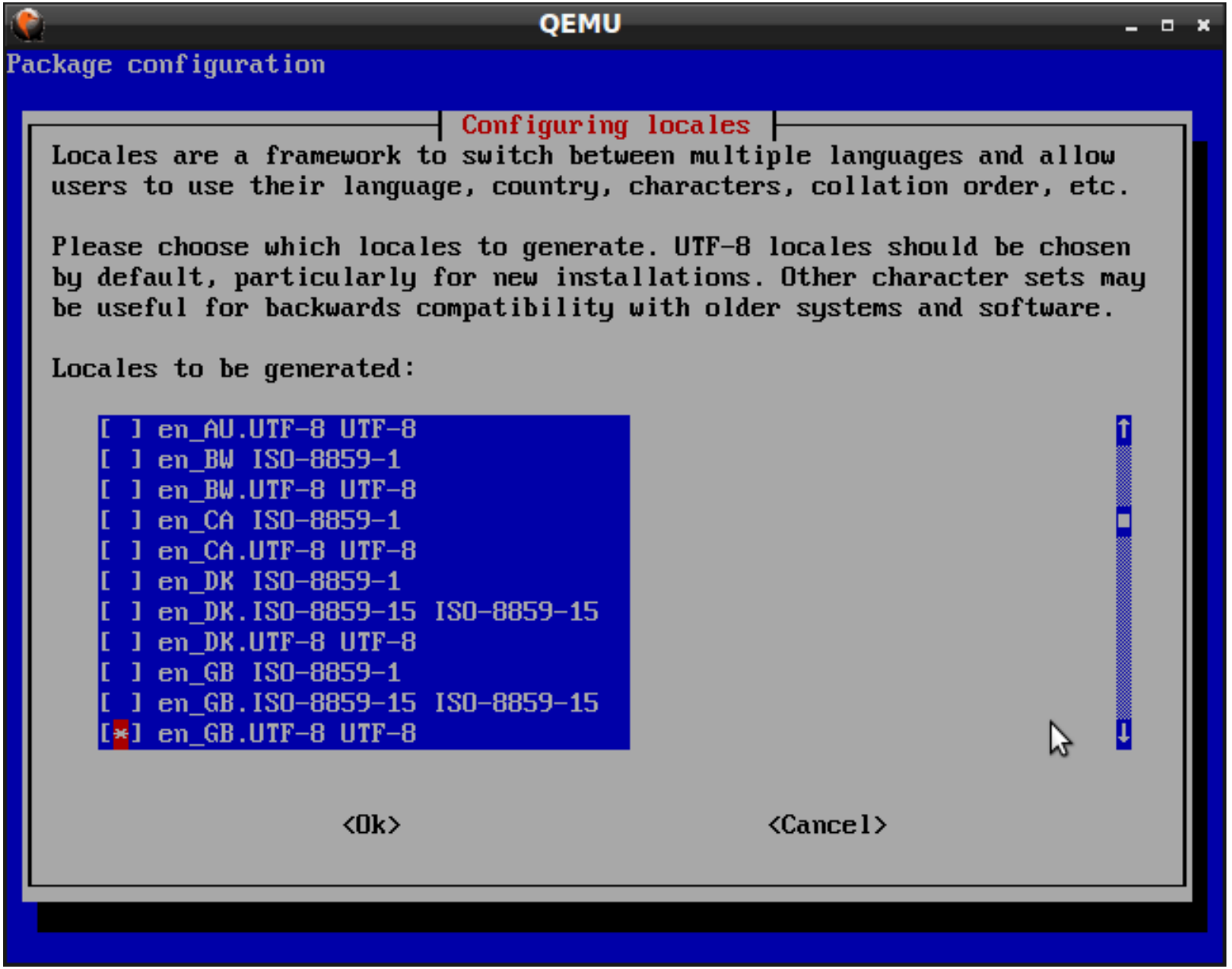
<Select>
<Finish>

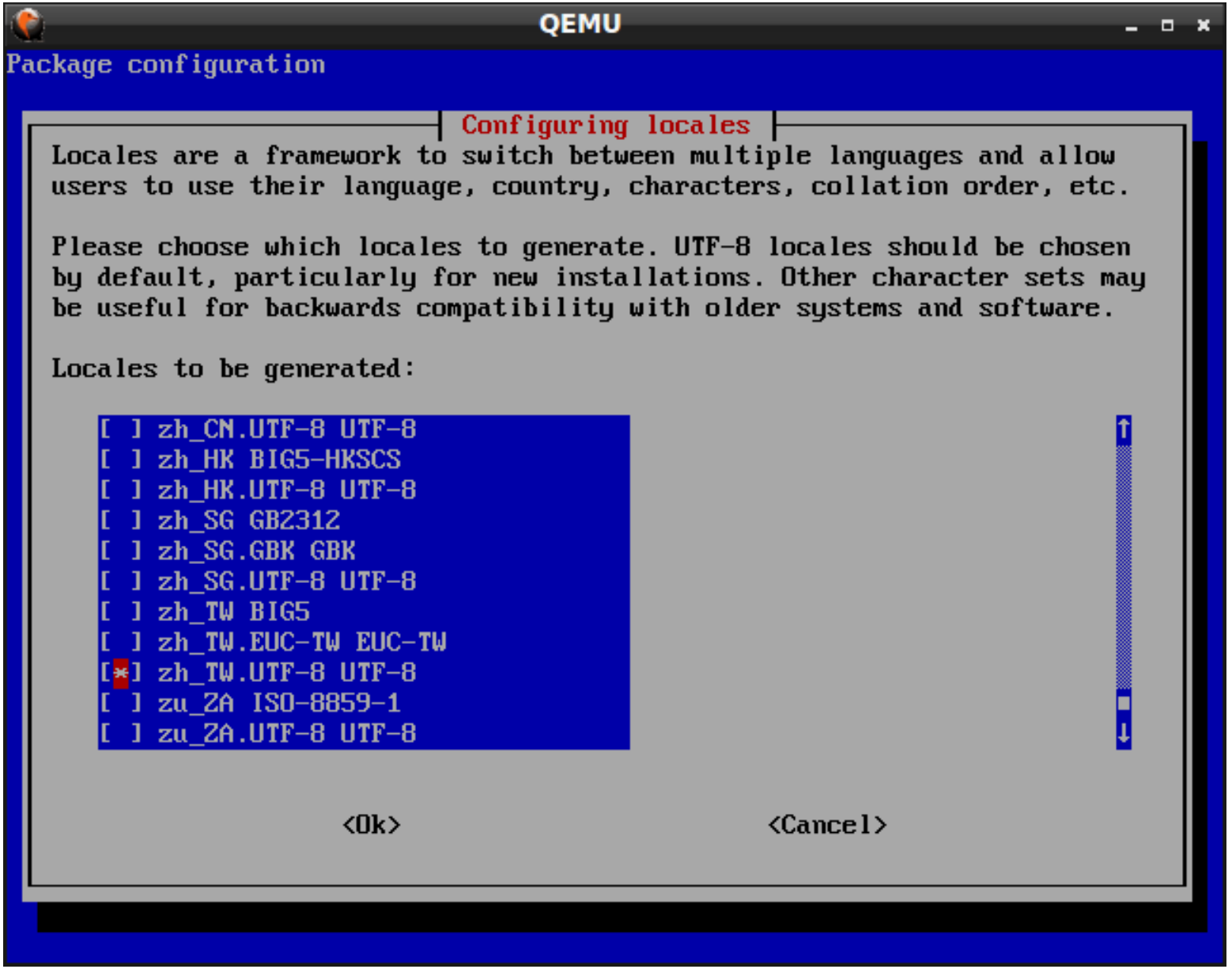
區域設定 / 語言，單位，日曆別



取消 en_GB


QEMU
Package configuration
Configuring locales
Locales are a framework to switch between multiple languages and allow users to use their language, country, characters, collation order, etc.
Please choose which locales to generate. UTF-8 locales should be chosen by default, particularly for new installations. Other character sets may be useful for backwards compatibility with older systems and software.
Locales to be generated:
[ ] en_AU.UTF-8 UTF-8
[ ] en_BW ISO-8859-1
[ ] en_BW.UTF-8 UTF-8
[ ] en_CA ISO-8859-1
[ ] en_CA.UTF-8 UTF-8
[ ] en_DK ISO-8859-1
[ ] en_DK.ISO-8859-15 ISO-8859-15
[ ] en_DK.UTF-8 UTF-8
[ ] en_GB ISO-8859-1
[ ] en_GB.ISO-8859-15 ISO-8859-15
[*] en_GB.UTF-8 UTF-8
<Ok>
<Cancel>

增加 UTF-8 繁體中文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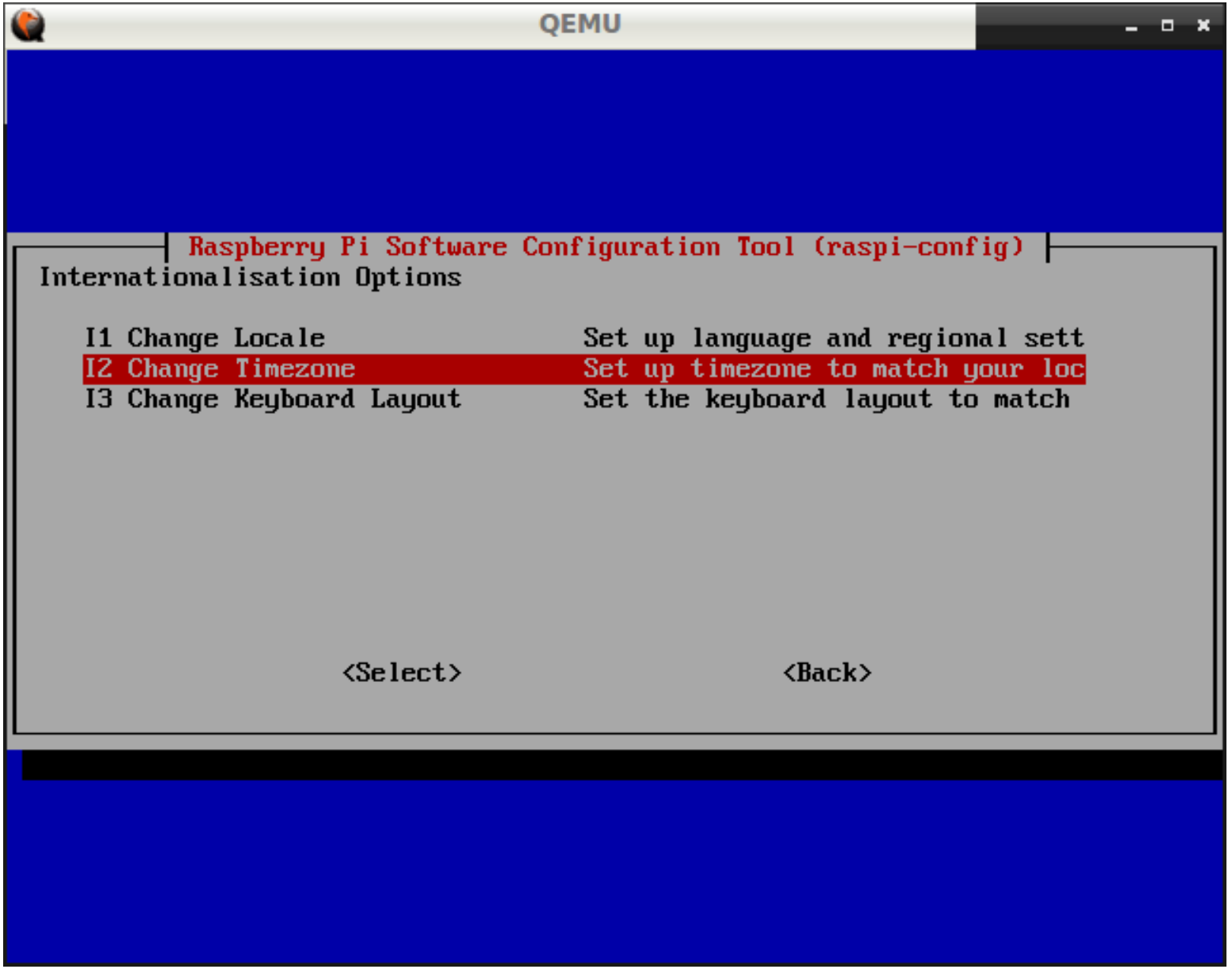
Locales to be generated:
[ ] zh_CN.UTF-8 UTF-8
[ ] zh_HK BIG5-HKSCS
[ ] zh_HK.UTF-8 UTF-8
[ ] zh_SG GB2312
[ ] zh_SG.GBK GBK
[ ] zh_SG.UTF-8 UTF-8
[ ] zh_TW BIG5
[ ] zh_TW.EUC-TW EUC-TW
[*] zh_TW.UTF-8 UTF-8
[ ] zu_ZA ISO-8859-1
[ ] zu_ZA.UTF-8 UTF-8
<Ok>
<Cancel>

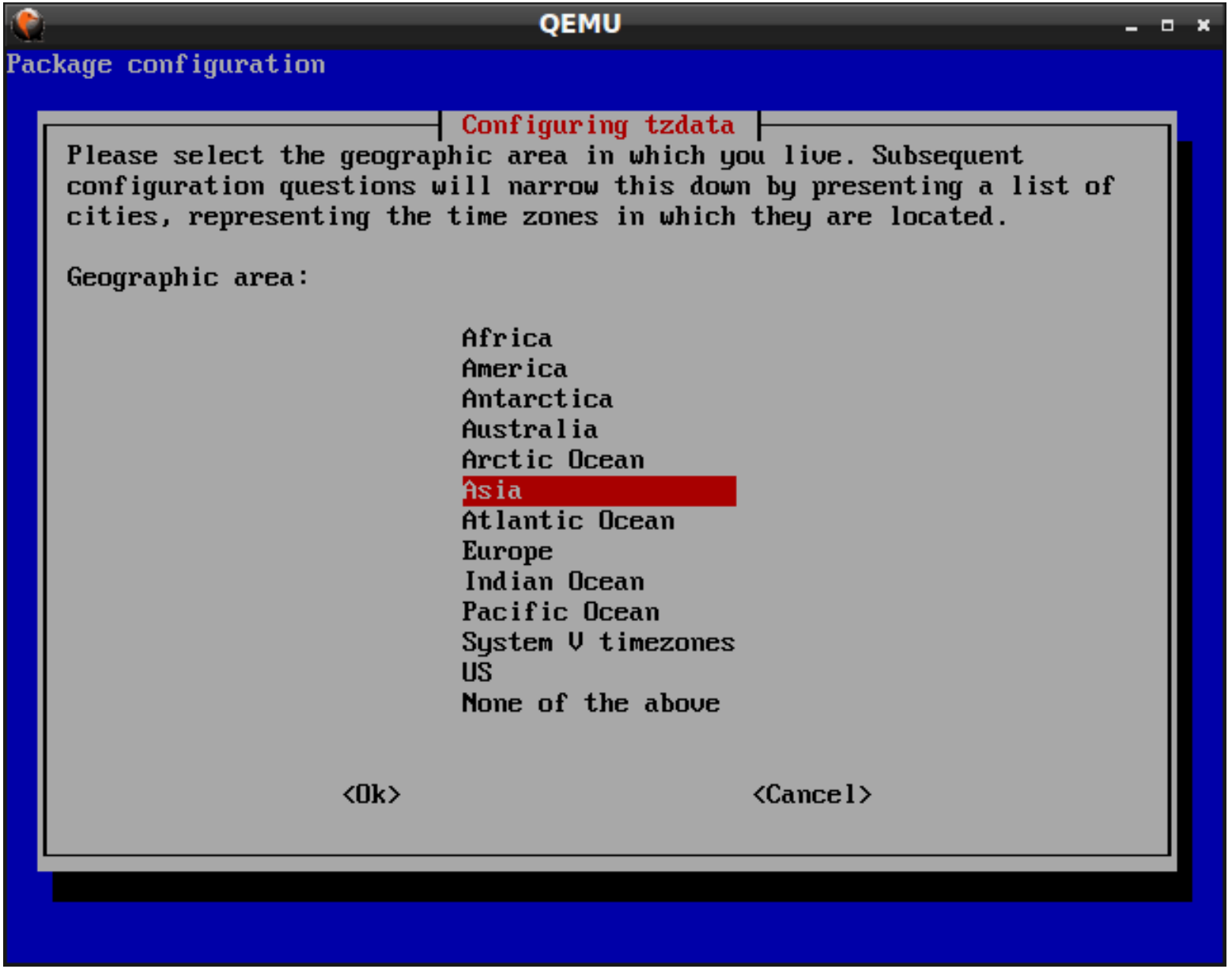
選擇 UTF-8 繁體中文


QEMU
Package configuration
Configuring locales
Many packages in Debian use locales to display text in the correct language for the user. You can choose a default locale for the system from the generated locales.
This will select the default language for the entire system. If this system is a multi-user system where not all users are able to speak the default language, they will experience difficulties.
Default locale for the system environment:
None
zh_TW.UTF-8
<Ok>
<Cancel>

設定時區


QEMU
Raspberry Pi Software Configuration Tool (raspi-config)
Internationalisation Options
I1 Change Locale
Set up language and regional sett
I2 Change Timezone
Set up timezone to match your loc
I3 Change Keyboard Layout
Set the keyboard layout to match
<Select>
<Back>

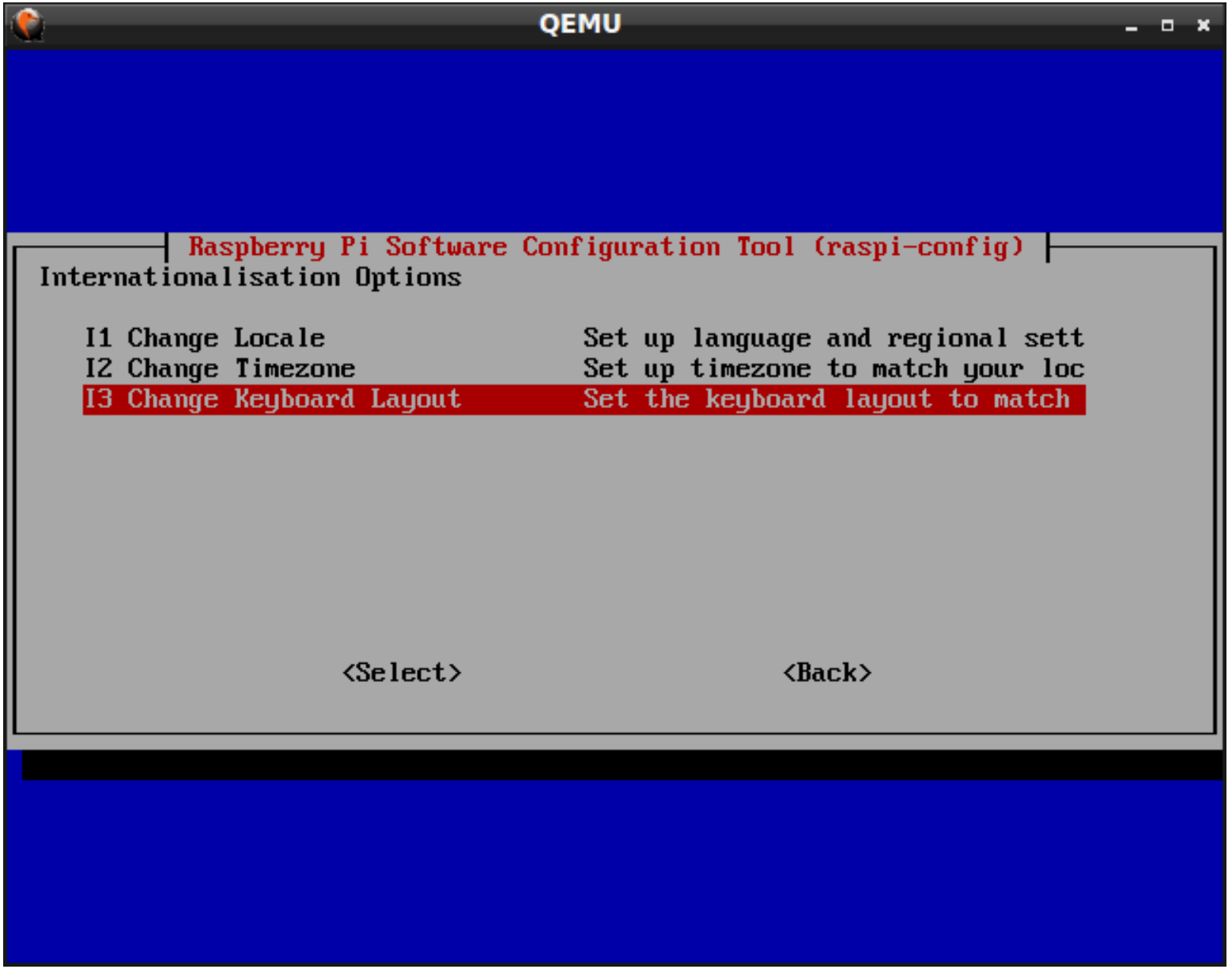
選擇亞洲地區


QEMU
Package configuration
Configuring tzdata
Please select the geographic area in which you live. Subsequent configuration questions will narrow this down by presenting a list of cities, representing the time zones in which they are located.
Geographic area:
Africa
America
Antarctica
Australia
Arctic Ocean
Asia
Atlantic Ocean
Europe
Indian Ocean
Pacific Ocean
System V timezones
US
None of the above
<Ok>
<Cancel>

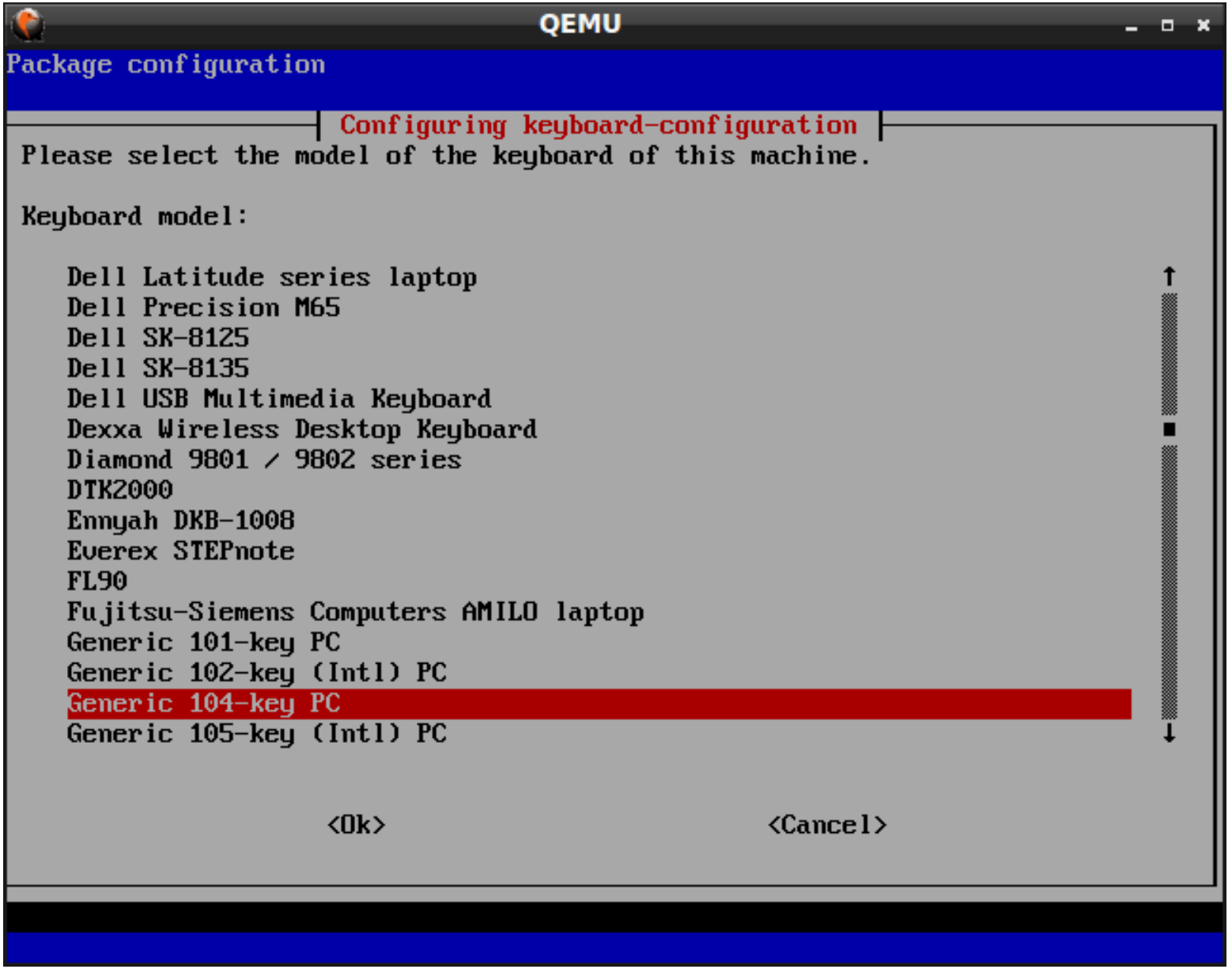
選擇地點


QEMU
Package configuration
Configuring tzdata
Please select the city or region corresponding to your time zone.
Time zone:
Sakhalin
Samarkand
Seoul
Shanghai
Singapore
Taipei
Tashkent
Tbilisi
Tehran
Tel Aviv
Thimphu
Tokyo
Ujung Pandang
Ulaanbaatar
Urumqi
Ust-Nera
<Ok>
<Cancel>

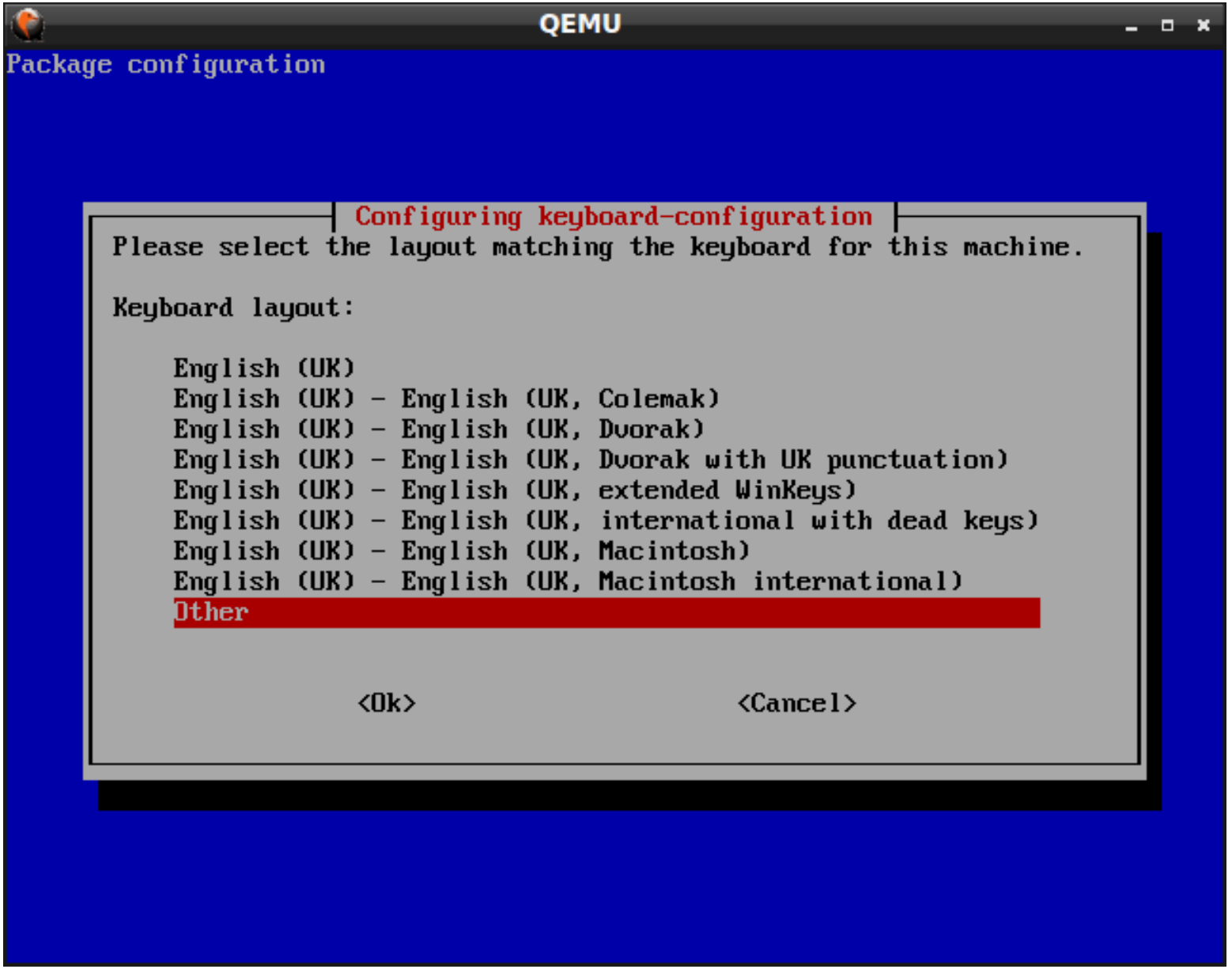
設定鍵盤配置


QEMU
Raspberry Pi Software Configuration Tool (raspi-config)
Internationalisation Options
I1 Change Locale
Set up language and regional sett
I2 Change Timezone
Set up timezone to match your loc
I3 Change Keyboard Layout
Set the keyboard layout to match
<Select>
<Back>

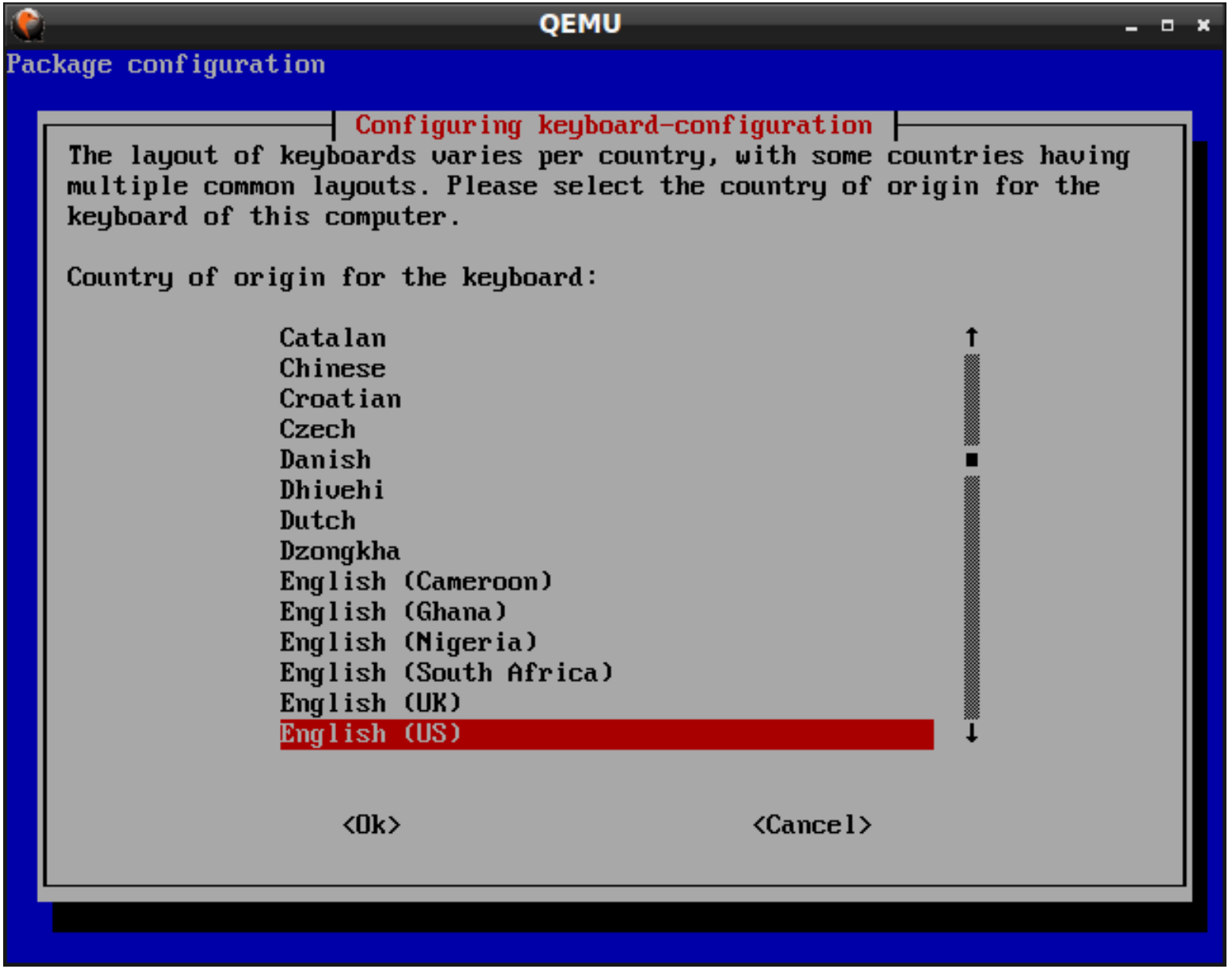
標準 104 鍵盤配置


QEMU
Package configuration
Configuring keyboard-configuration
Please select the model of the keyboard of this machine.
Keyboard model:
Dell Latitude series laptop
Dell Precision M65
Dell SK-8125
Dell SK-8135
Dell USB Multimedia Keyboard
Dexxa Wireless Desktop Keyboard
Diamond 9801 / 9802 series
DTK2000
Ennyah DKB-1008
Everex STEPnote
FL90
Fujitsu-Siemens Computers AMILO laptop
Generic 101-key PC
Generic 102-key (Intl) PC
Generic 104-key PC
Generic 105-key (Intl) PC
<Ok>
<Cancel>

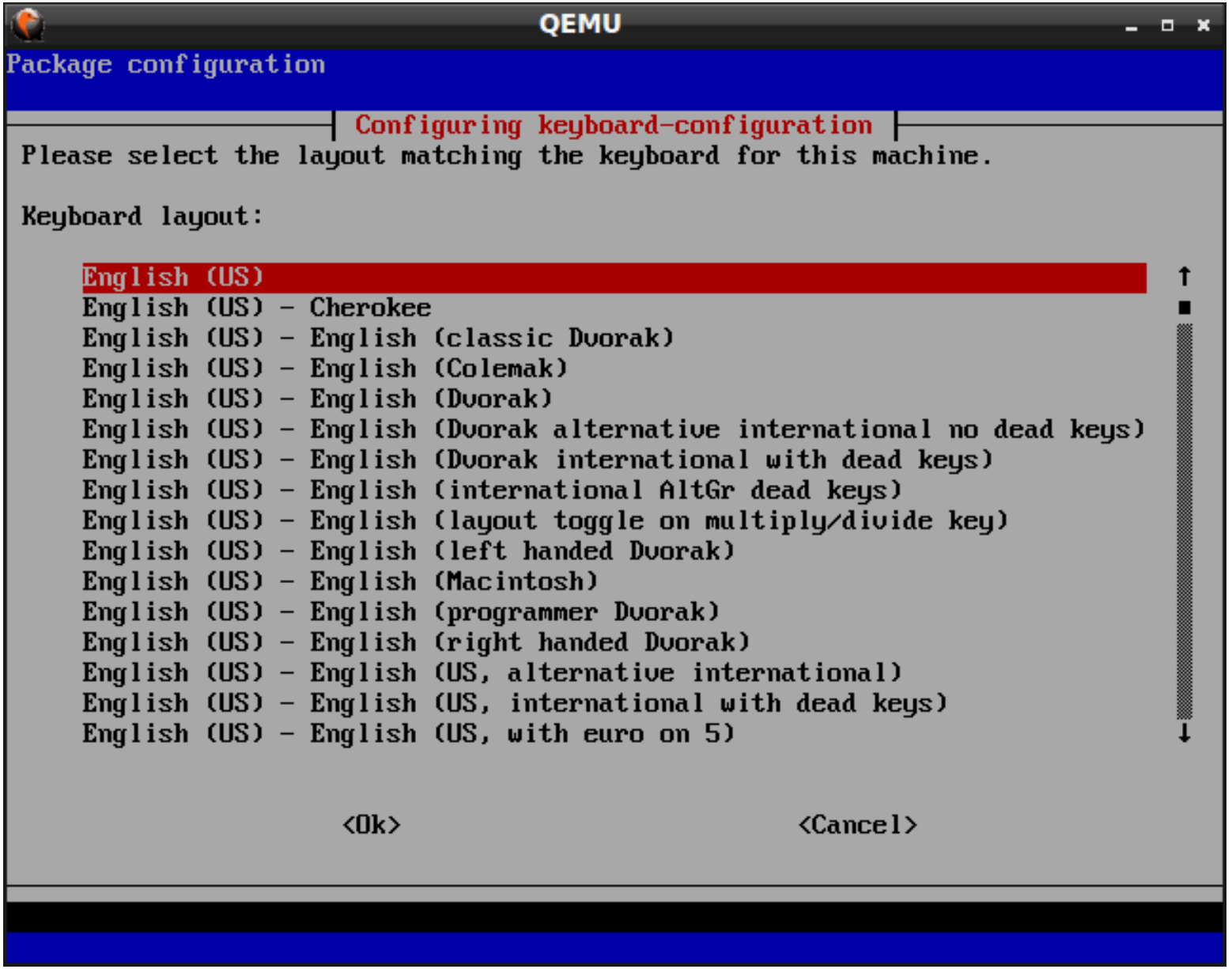
選擇非英式鍵盤


QEMU
Package configuration
Configuring keyboard-configuration
Please select the layout matching the keyboard for this machine.
Keyboard layout:
English (UK)
English (UK) - English (UK, Colemak)
English (UK) - English (UK, Dvorak)
English (UK) - English (UK, Dvorak with UK punctuation)
English (UK) - English (UK, extended WinKeys)
English (UK) - English (UK, international with dead keys)
English (UK) - English (UK, Macintosh)
English (UK) - English (UK, Macintosh international)
Other
<Ok>
<Cancel>

選擇美國


QEMU
Package configuration
Configuring keyboard-configuration
The layout of keyboards varies per country, with some countries having multiple common layouts. Please select the country of origin for the keyboard of this computer.
Country of origin for the keyboard:
Catalan
Chinese
Croatian
Czech
Danish
Dhivehi
Dutch
Dzongkha
English (Cameroon)
English (Ghana)
English (Nigeria)
English (South Africa)
English (UK)
English (US)
<Ok>
<Cancel>

選擇美式鍵盤


QEMU
Package configuration
Configuring keyboard-configuration
Please select the layout matching the keyboard for this machine.
Keyboard layout:
English (US)
English (US) - Cherokee
English (US) - English (classic Dvorak)
English (US) - English (Colemak)
English (US) - English (Dvorak)
English (US) - English (Dvorak alternative international no dead keys)
English (US) - English (Dvorak international with dead keys)
English (US) - English (international AltGr dead keys)
English (US) - English (layout toggle on multiply/divide key)
English (US) - English (left handed Dvorak)
English (US) - English (Macintosh)
English (US) - English (programmer Dvorak)
English (US) - English (right handed Dvorak)
English (US) - English (US, alternative international)
English (US) - English (US, international with dead keys)
English (US) - English (US, with euro on 5)
<Ok>
<Cancel>

標準美式鍵盤

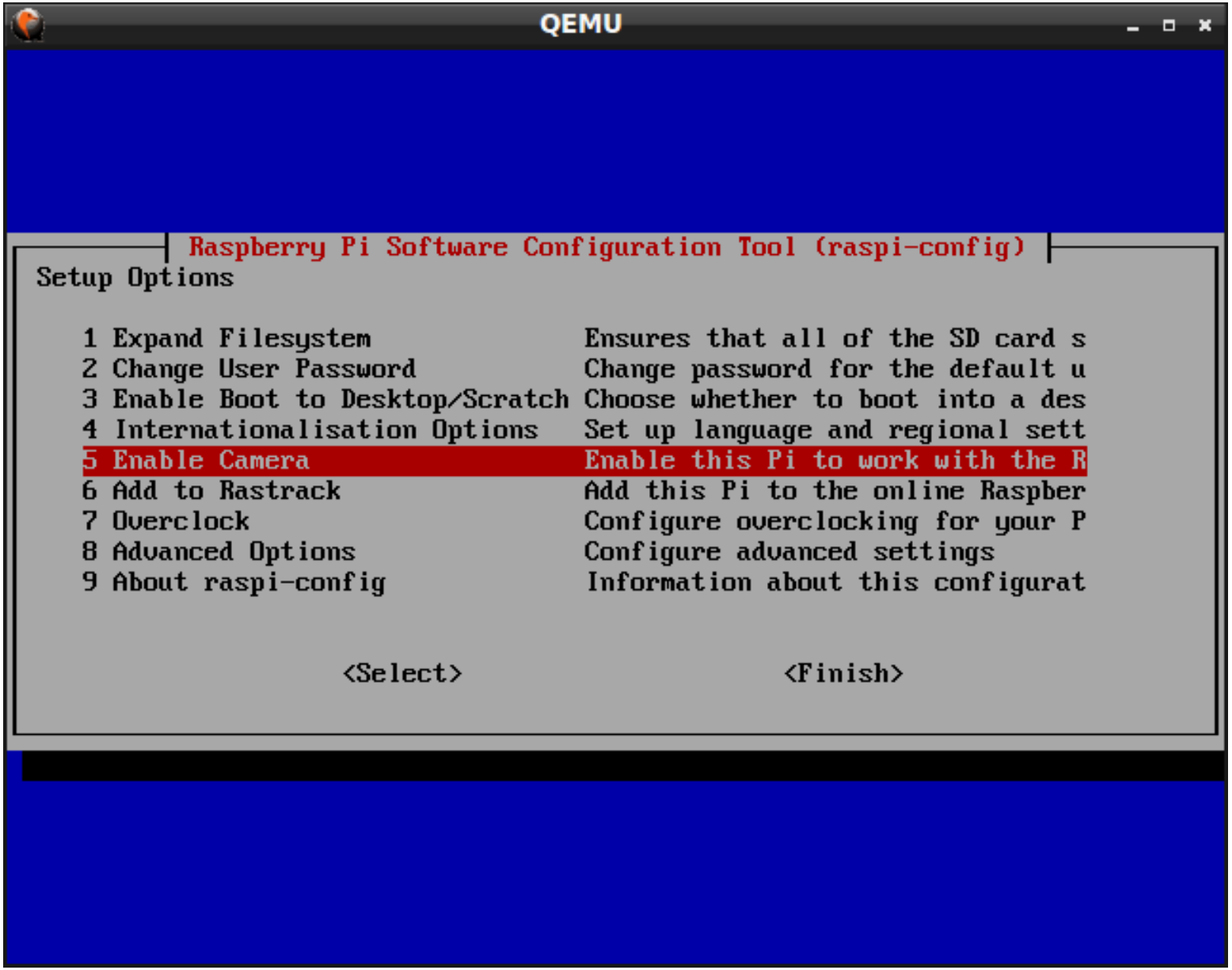

QEMU
Package configuration
Configuring keyboard-configuration
With some keyboard layouts, AltGr is a modifier key used to input some characters, primarily ones that are unusual for the language of the keyboard layout, such as foreign currency symbols and accented letters. These are often printed as an extra symbol on keys.
Key to function as AltGr:
The default for the keyboard layout
No AltGr key
Right Alt (AltGr)
Right Control
Right Logo key
Menu key
Left Alt
Left Logo key
Keypad Enter key
Both Logo keys
Both Alt keys
<Ok>
<Cancel>

不需要有組合鍵

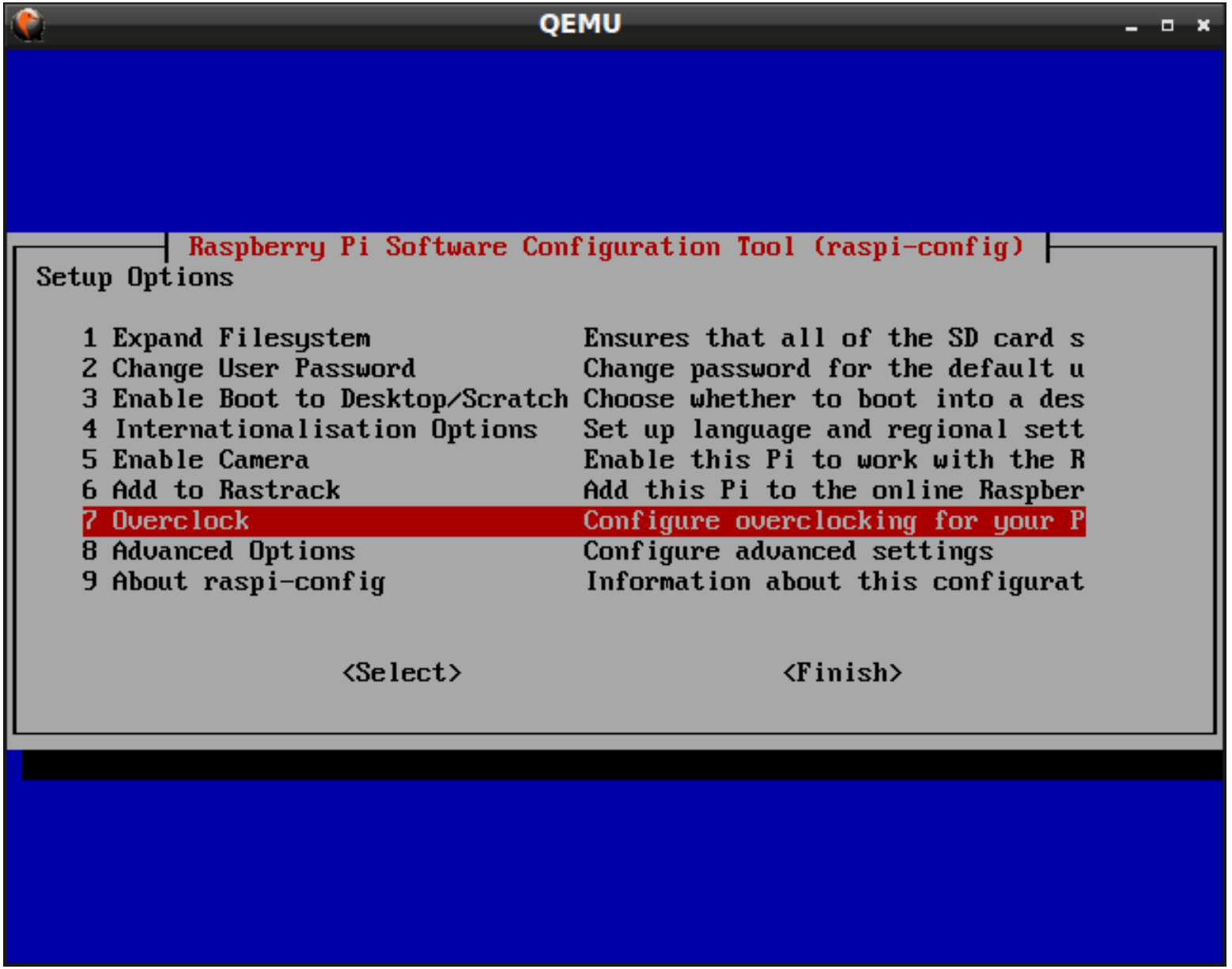

QEMU
Package configuration
Configuring keyboard-configuration
The Compose key (known also as Multi_key) causes the computer to interpret the next few keystrokes as a combination in order to produce a character not found on the keyboard.
On the text console the Compose key does not work in Unicode mode. If not in Unicode mode, regardless of what you choose here, you can always also use the Control+period combination as a Compose key.
Compose key:
No compose key
Right Alt (AltGr)
Right Control
Right Logo key
Menu key
Left Logo key
Caps Lock
<Ok>
<Cancel>

不需要停止 X Server

支援 CSI 介面的 Camera



超頻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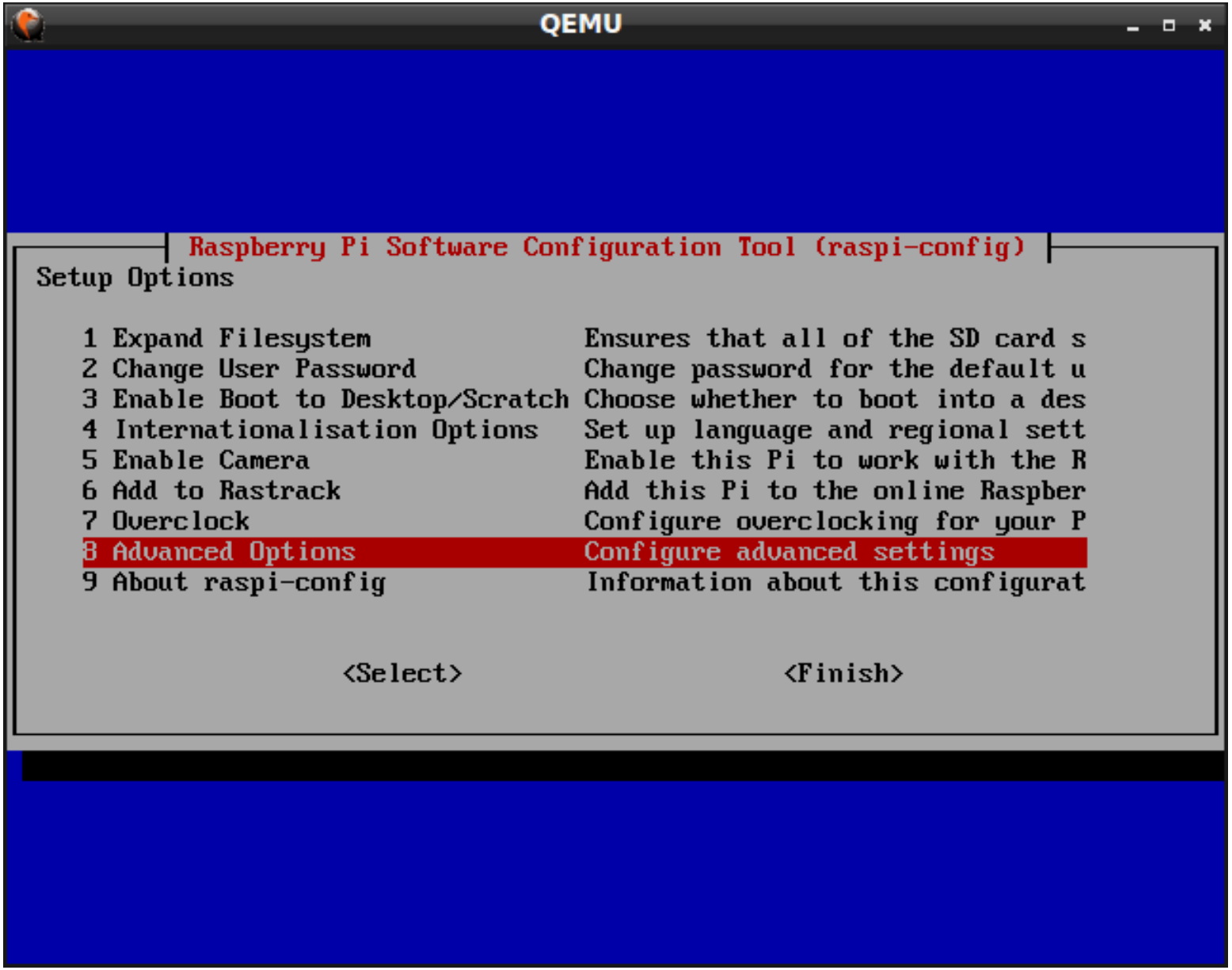
9 About raspi-config Information about this configurat
<Select>
<Finish>

選擇預設的 700MHz

進階設定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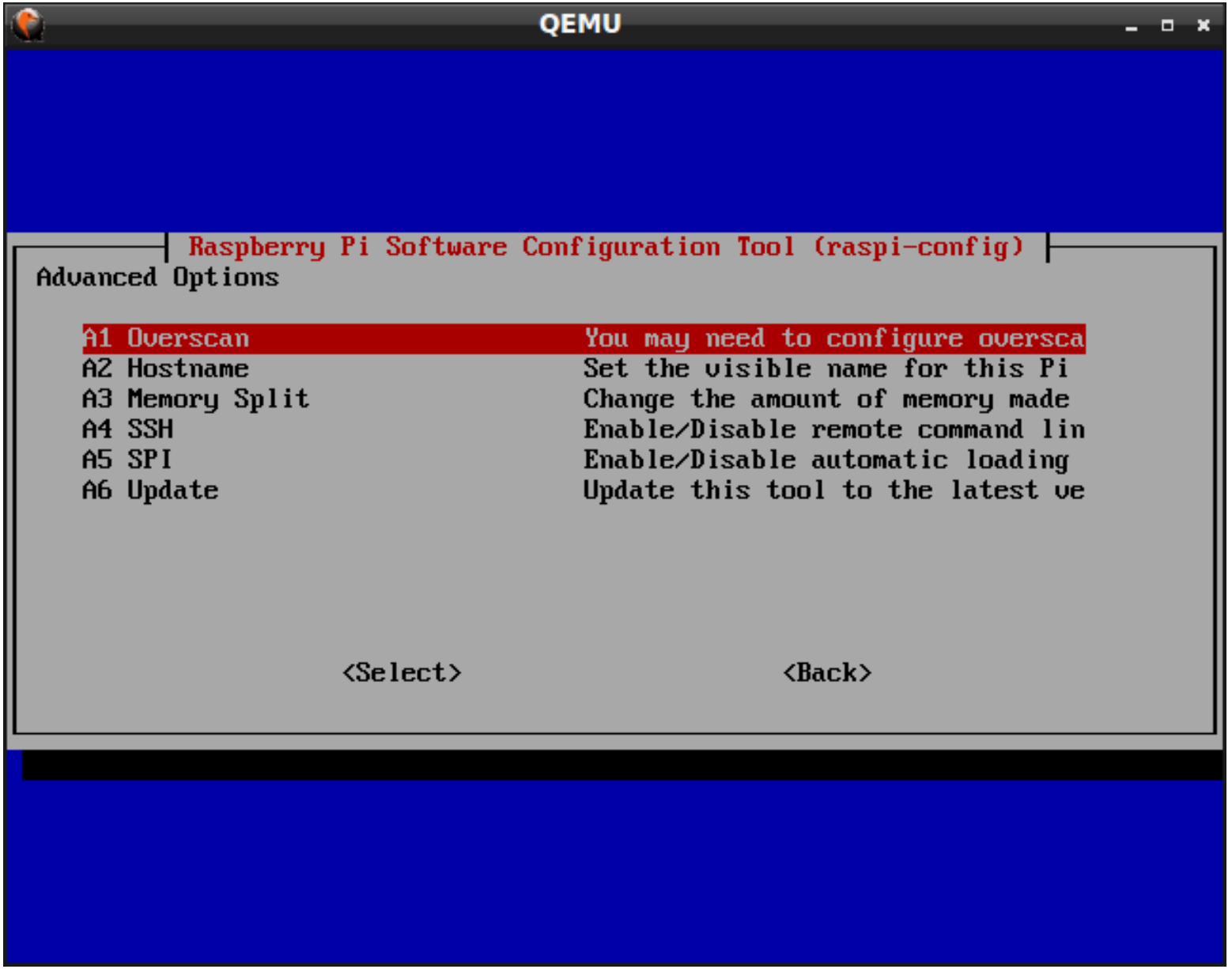
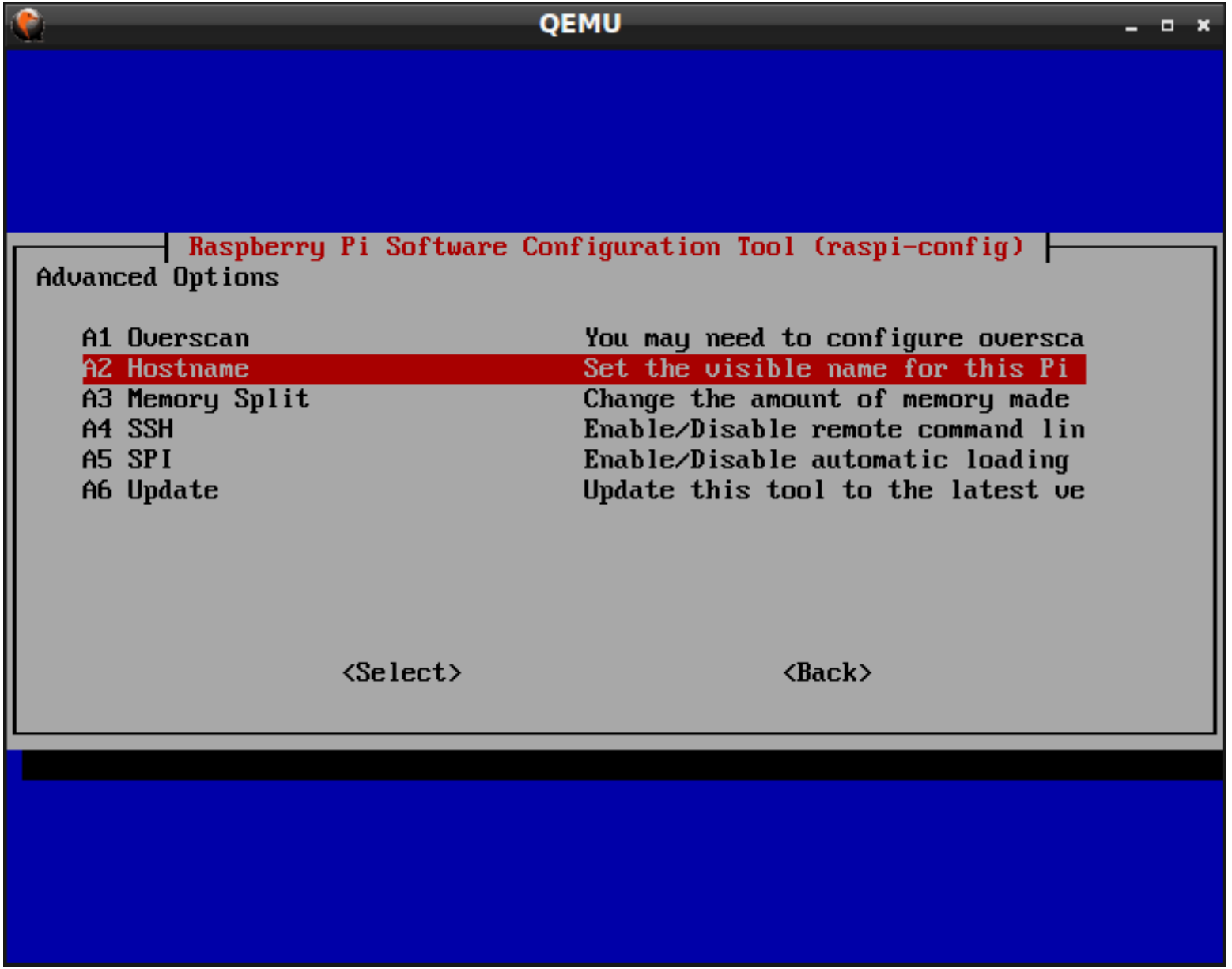
開啟 / 關閉過度掃描


QEMU
Raspberry Pi Software Configuration Tool (raspi-config)
Advanced Options
A1 Overscan
You may need to configure oversca
A2 Hostname
Set the visible name for this Pi
A3 Memory Split
Change the amount of memory made
A4 SSH
Enable/Disable remote command lin
A5 SPI
Enable/Disable automatic loading
A6 Update
Update this tool to the latest ve
<Select>
<Back>

主機名稱設定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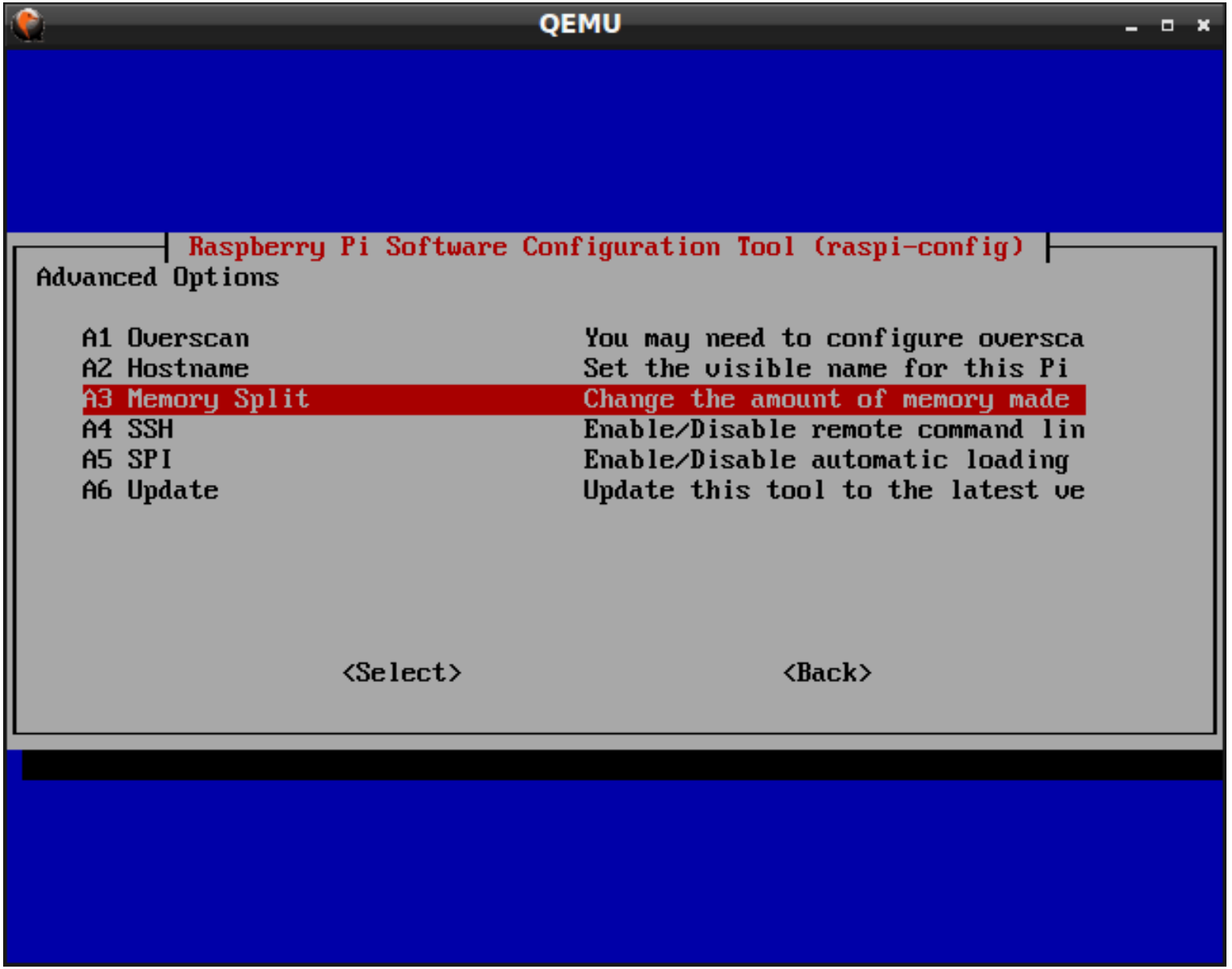
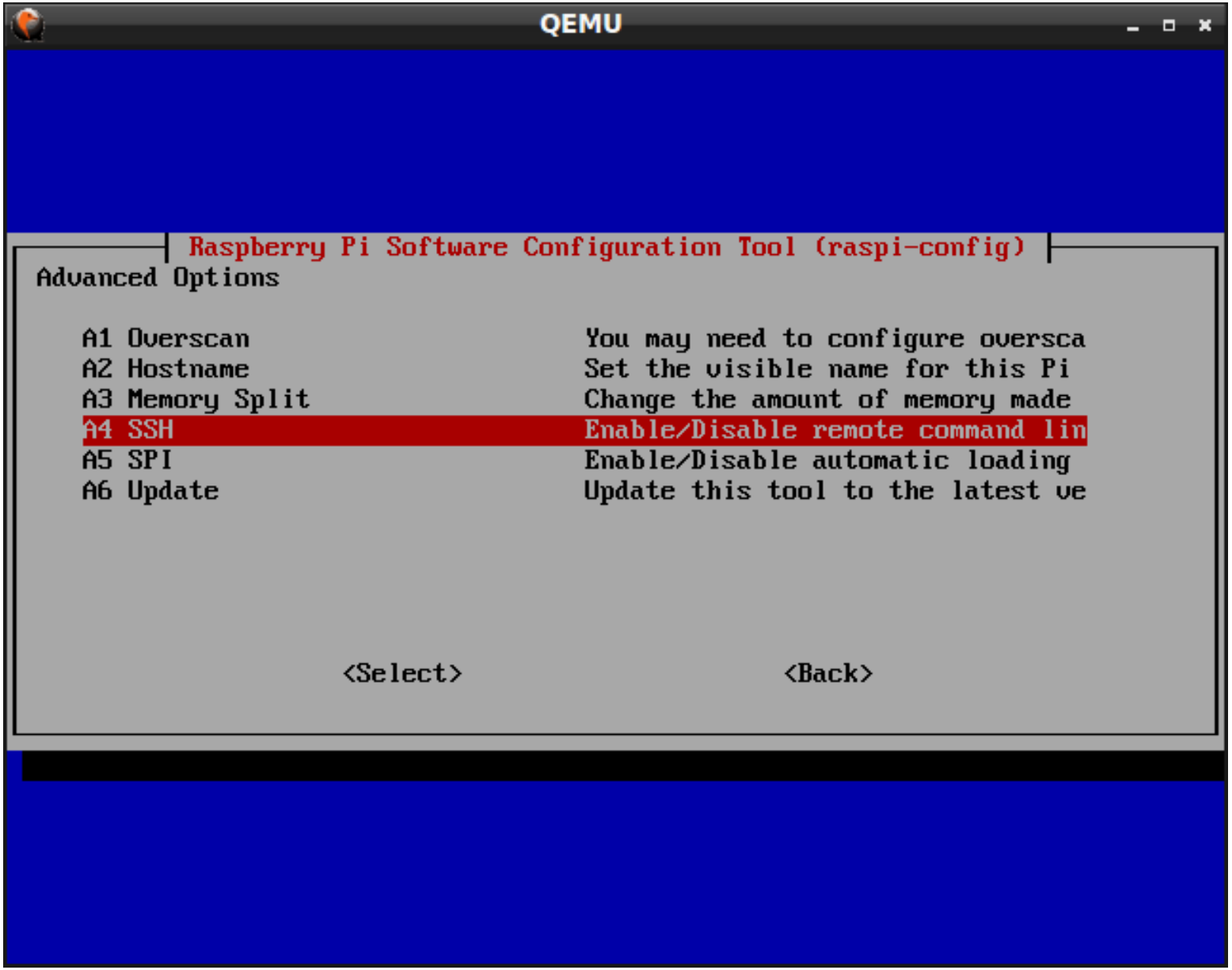
<Back>

分配給 GPU 的記憶體大小



開啟 / 關閉 SSH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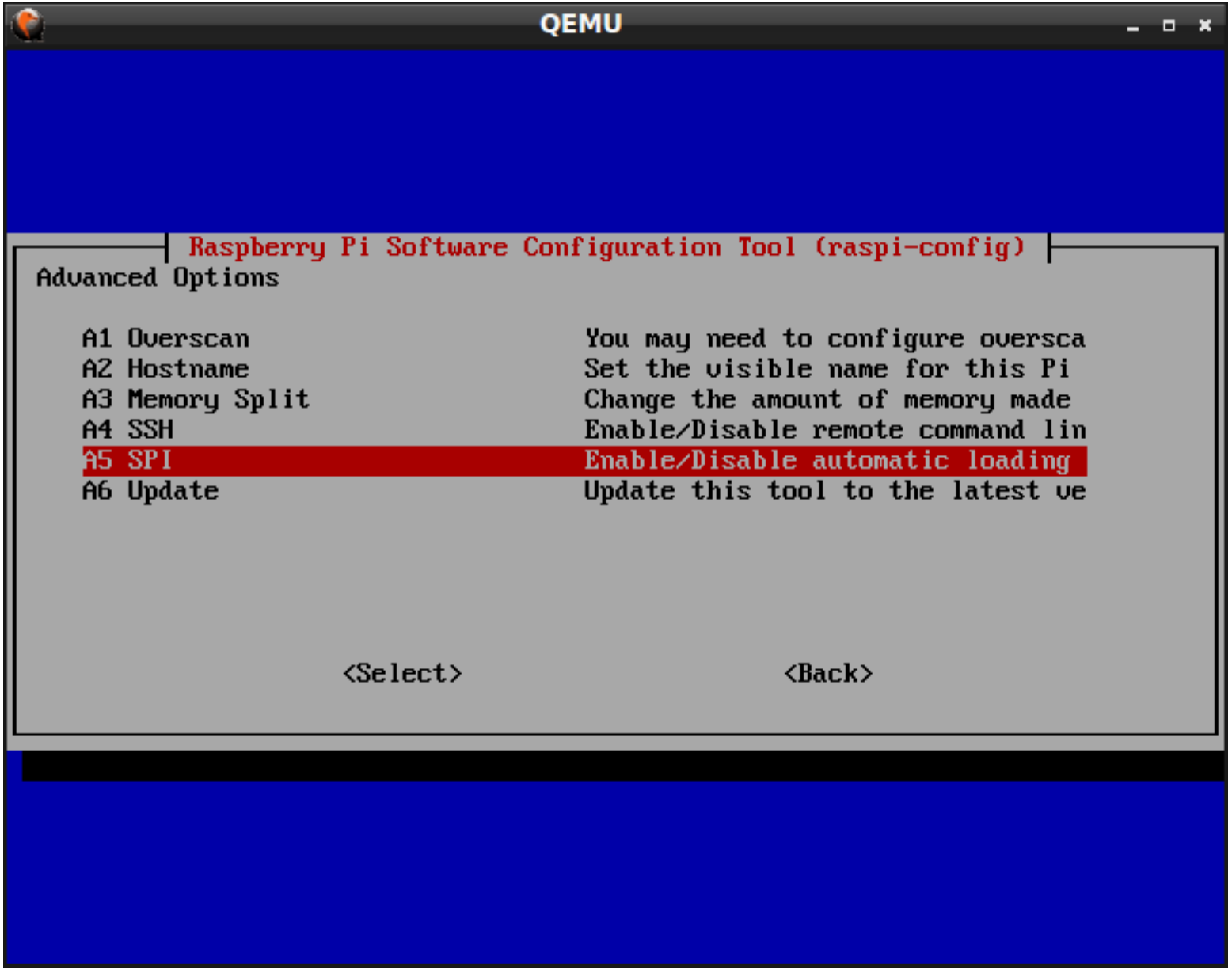
開啟 / 關閉 SPI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A2 Hostname
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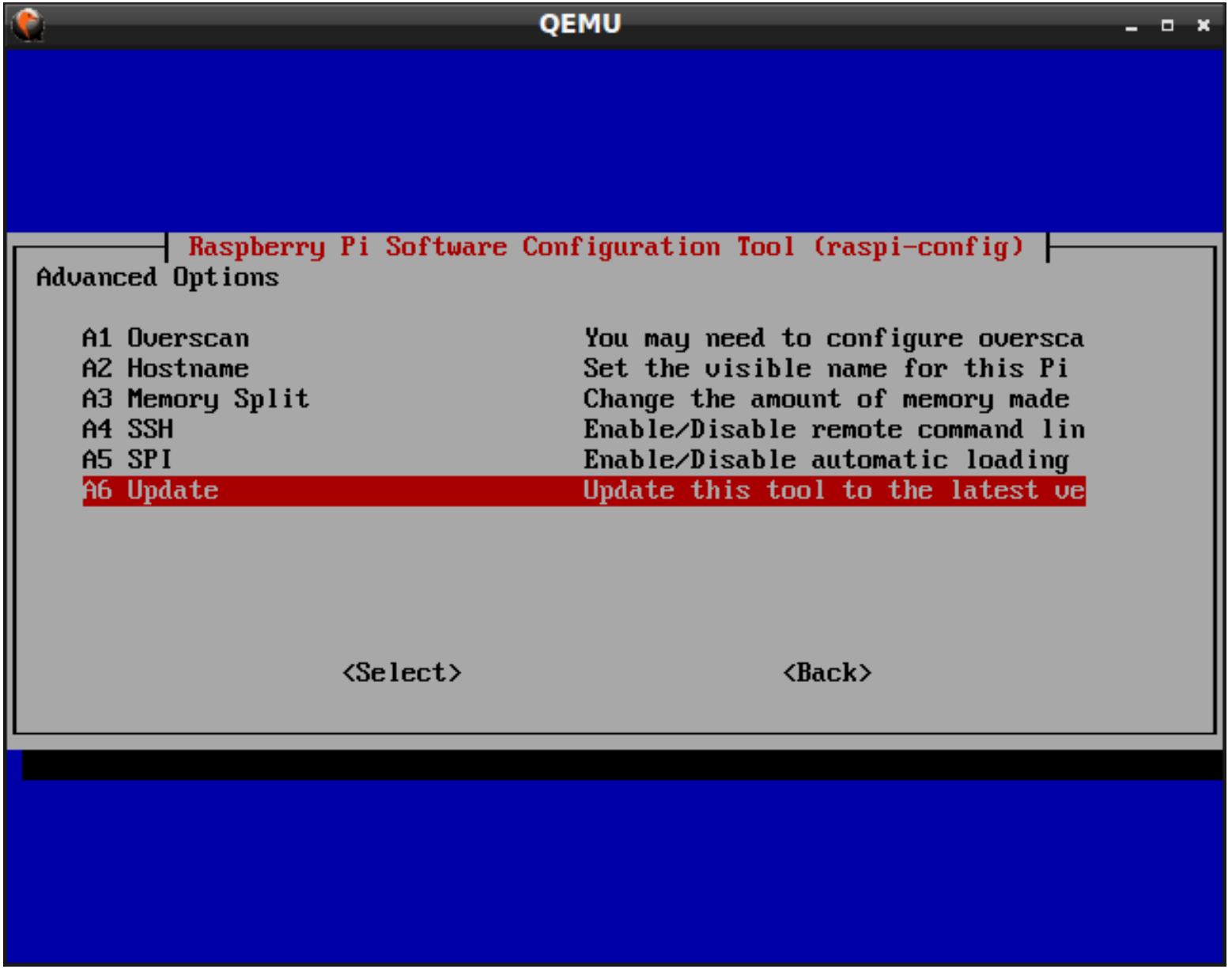
A4 SSH
Enable/Disable remote command lin
A5 SPI
Enable/Disable automatic loading
A6 Update
Update this tool to the latest ve
<Select>
<Back>

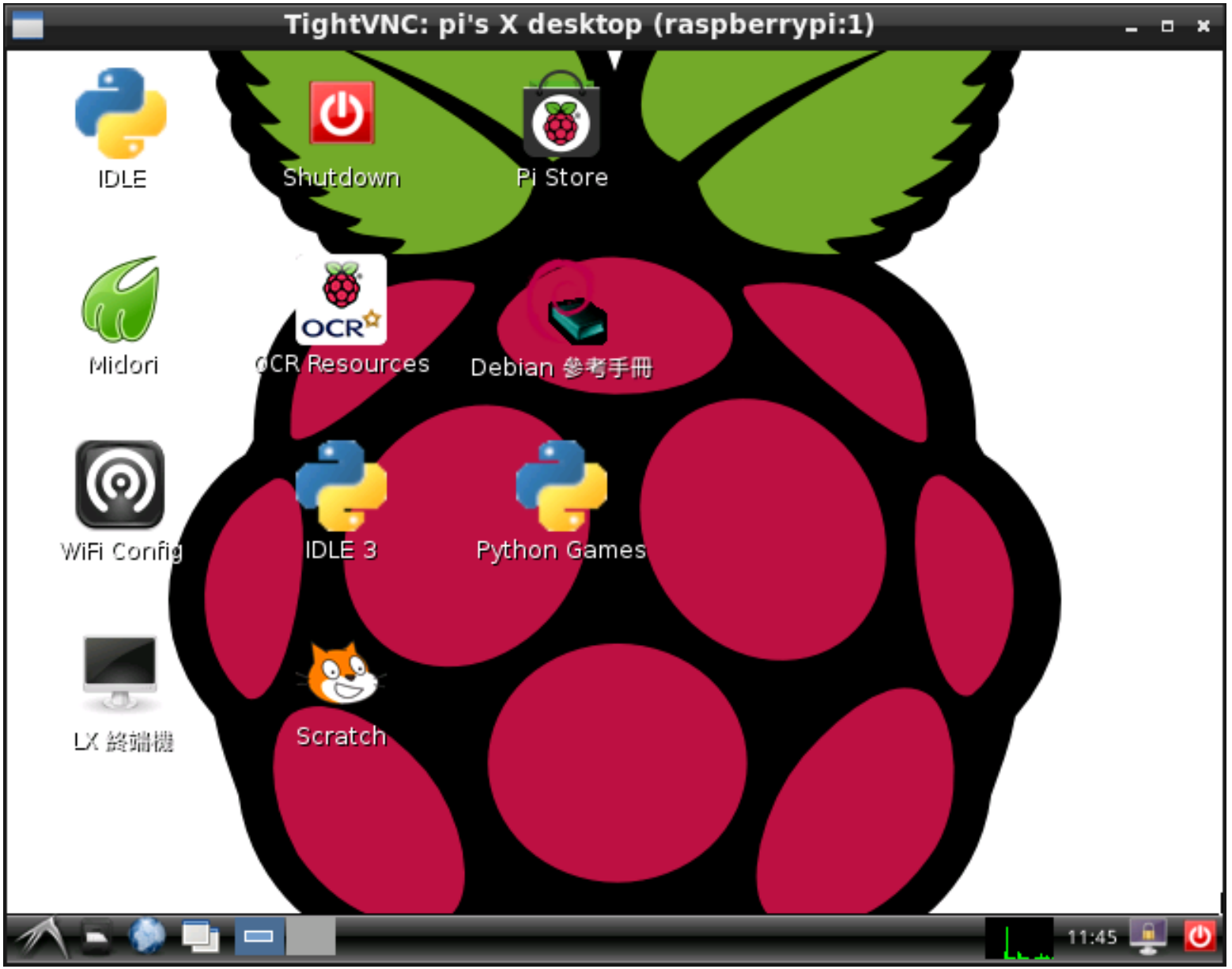
更新 raspi-config 工具



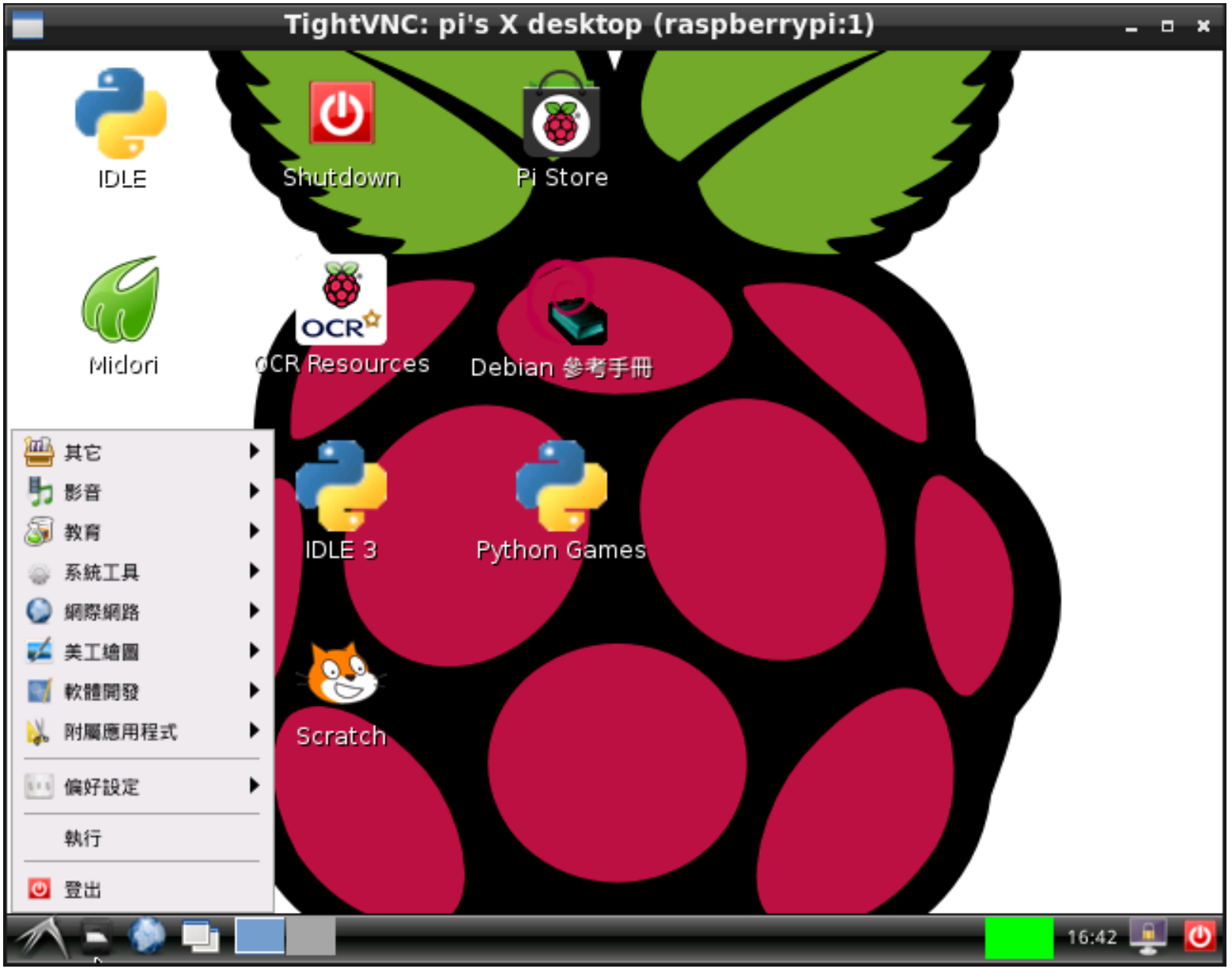
設定完成，重新啟動

桌面環境介紹

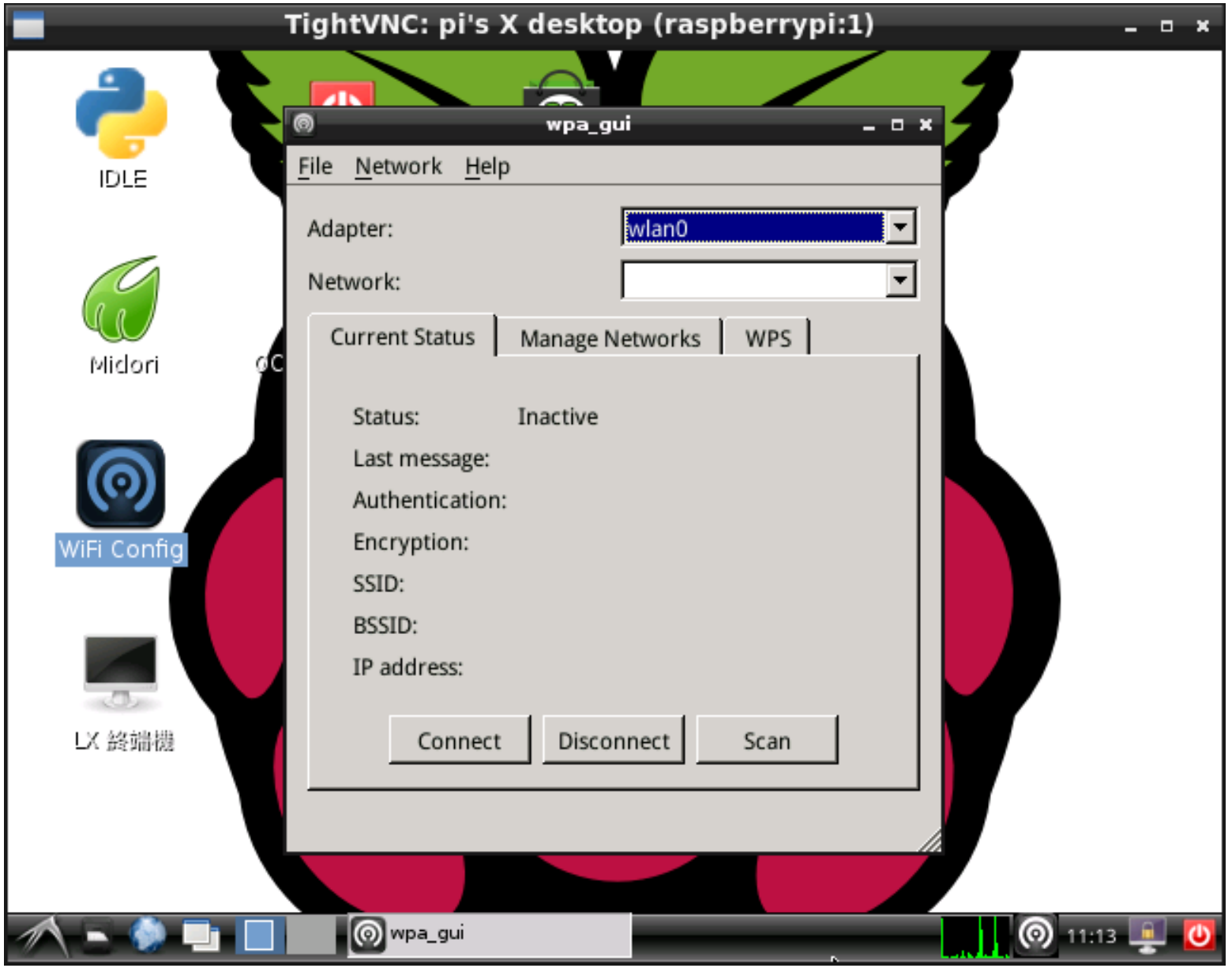
LXDE 桌面環境


TightVNC: pi's X desktop (raspberrypi:1)
IDLE
Shutdown
Pi Store
Midori
OCR Resources
Debian 參考手冊
WiFi Config
IDLE 3
Python Games
LX 終端機
Scratch
11:45

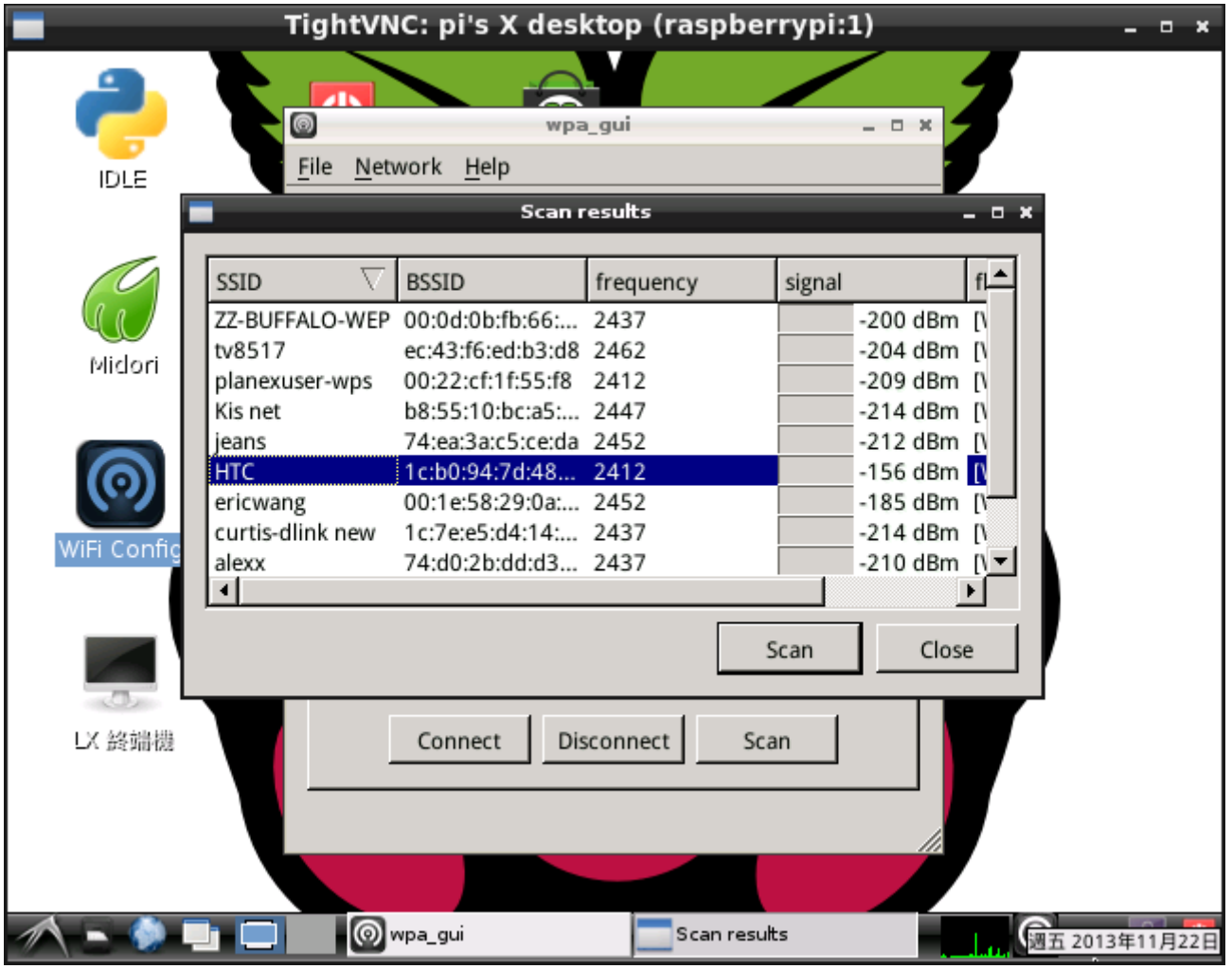
開始功能列表


TightVNC: pi's X desktop (raspberrypi:1)
IDLE
Shutdown
Pi Store
Midori
OCR
OCR Resources
Debian 參考手冊
其它
影音
教育
系統工具
網際網路
美工繪圖
軟體開發
附屬應用程式
偏好設定
執行
登出
IDLE 3
Python Games
Scratch
16:42

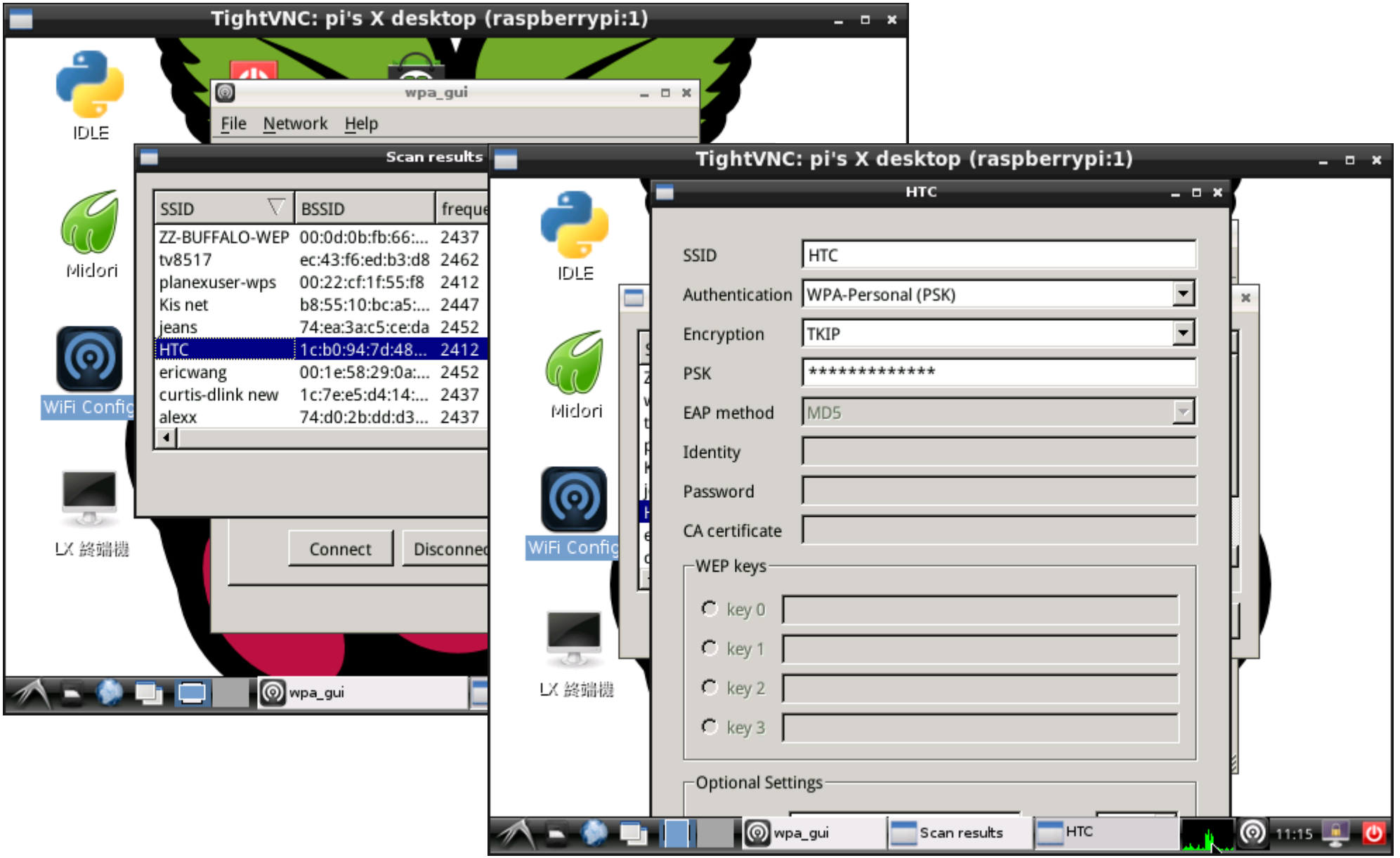
設定無線網路使用 WiFi Config



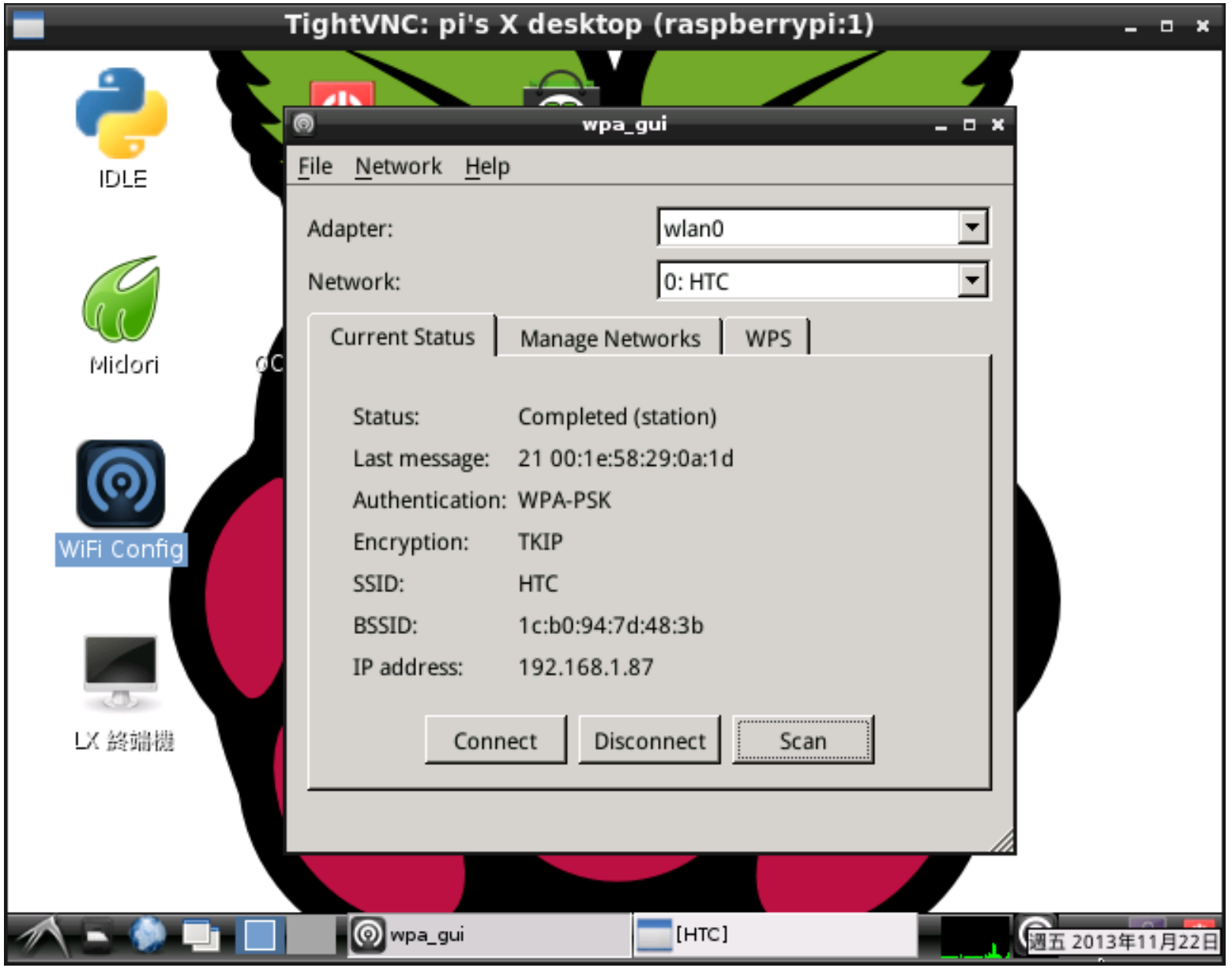
WiFi Config 掃描和設定密碼



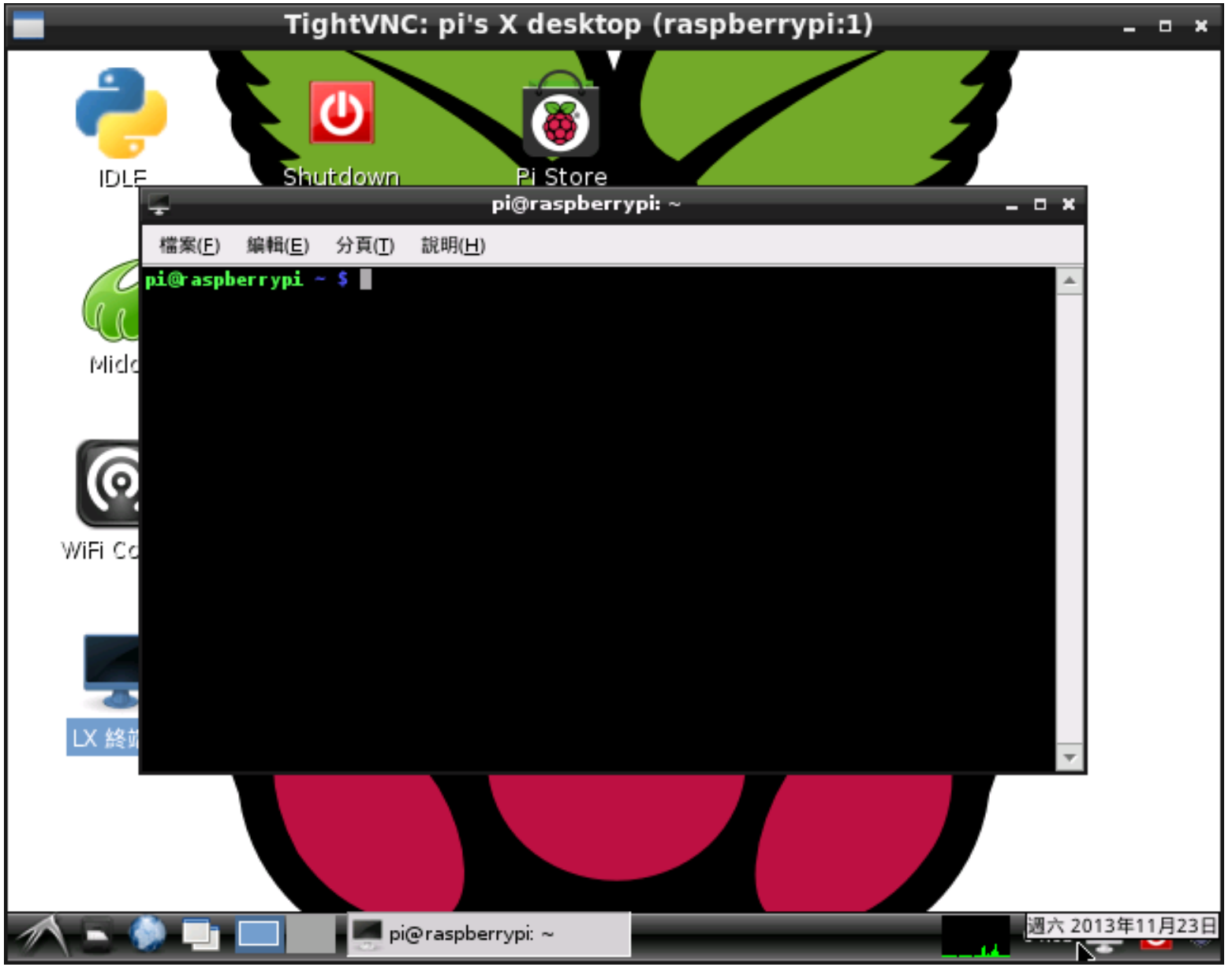
WiFi Config 掃描和設定密碼



WiFi Config 連接成功



LXTerminal 終端機



WEP 加密

```
$ sudo vi /etc/network/interfaces
    allow-hotplug wlan0
    iface wlan0 inet dhcp
    wireless-essid <ssid>
    wireless-key s:<password>
```

- 重新啟動網卡

```
$ sudo ifdown wlan0 && sudo ifup wlan0
```

WPA 加密

```
$ sudo vi /etc/network/interfaces
    allow-hotplug wlan0
    auto wlan0
    iface wlan0 inet dhcp
    wpa-ssid <ssid>
    wpa-psk s:<password>
```

- 重新啟動網卡

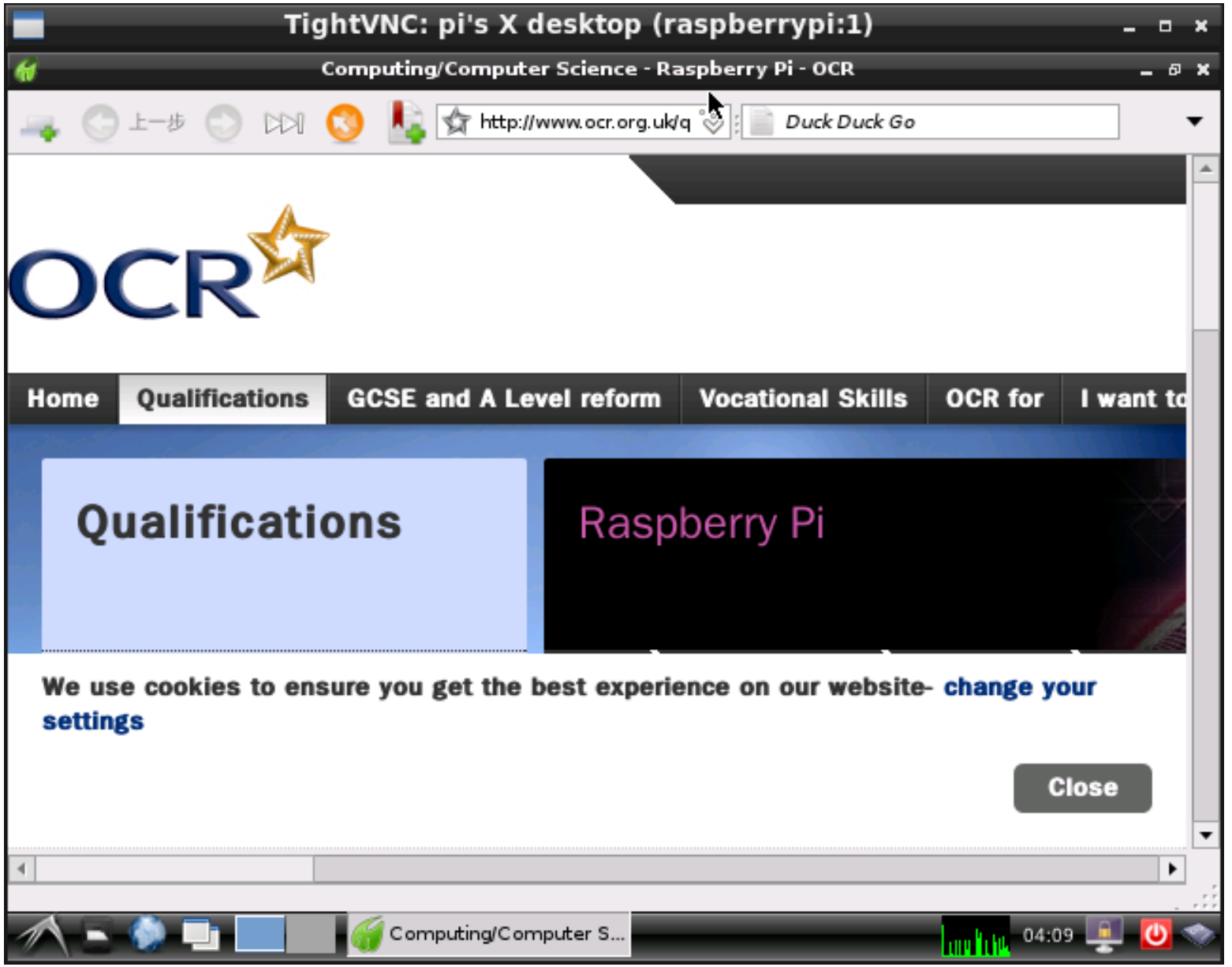
```
$ sudo ifdown wlan0 && sudo ifup wlan0
```

Midori 網路瀏覽器

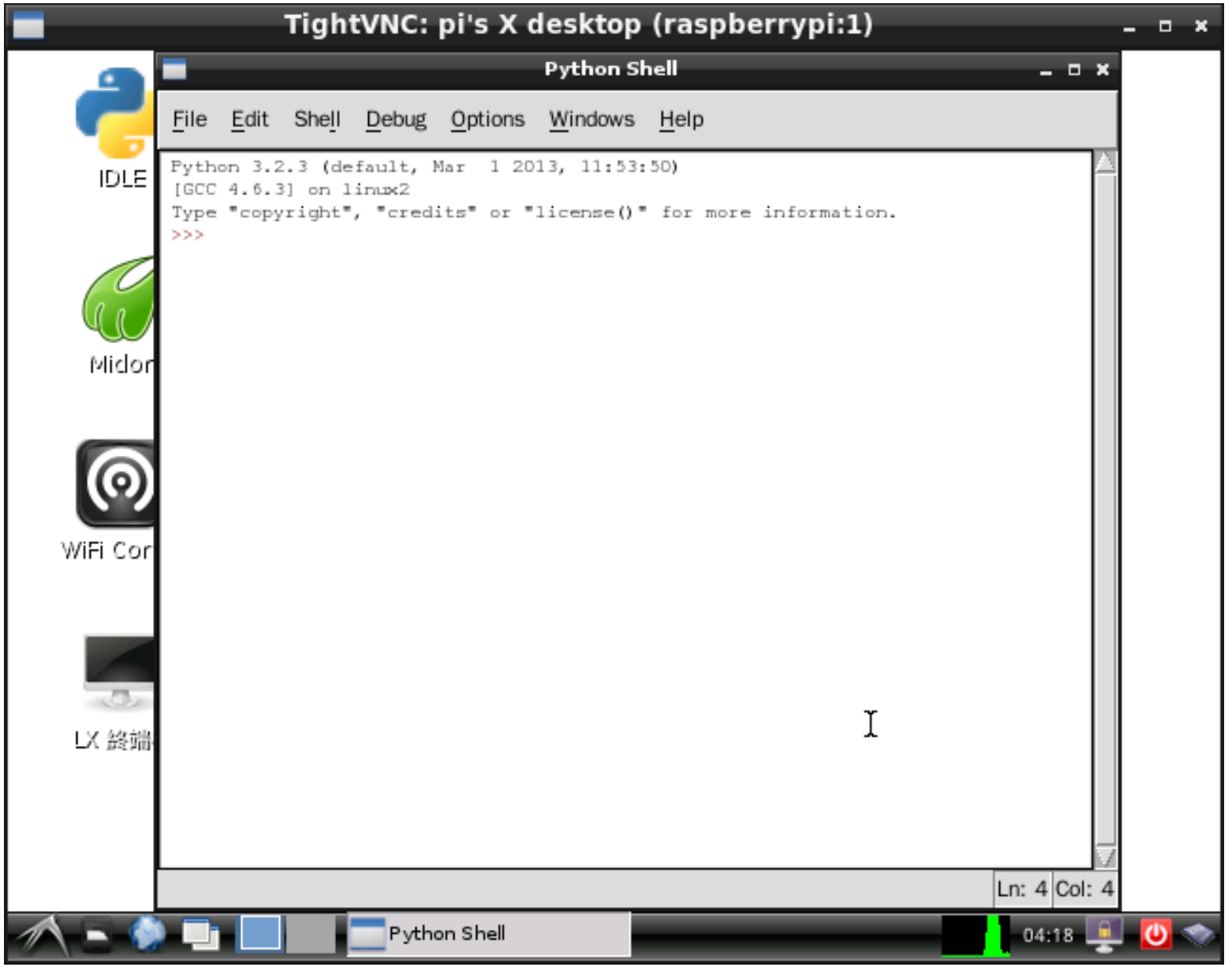
Shutdown


TightVNC: pi's X desktop (raspberrypi:1)
IDLE
Shutdown
Pi Store
Midori
OCR Resou
WiFi Config
IDLE 3
LX 終端機
Scratch
問題
Do you want to shutdown now?
否(N)
是(Y)
問題
週六 2013年11月23日

OCR Resources



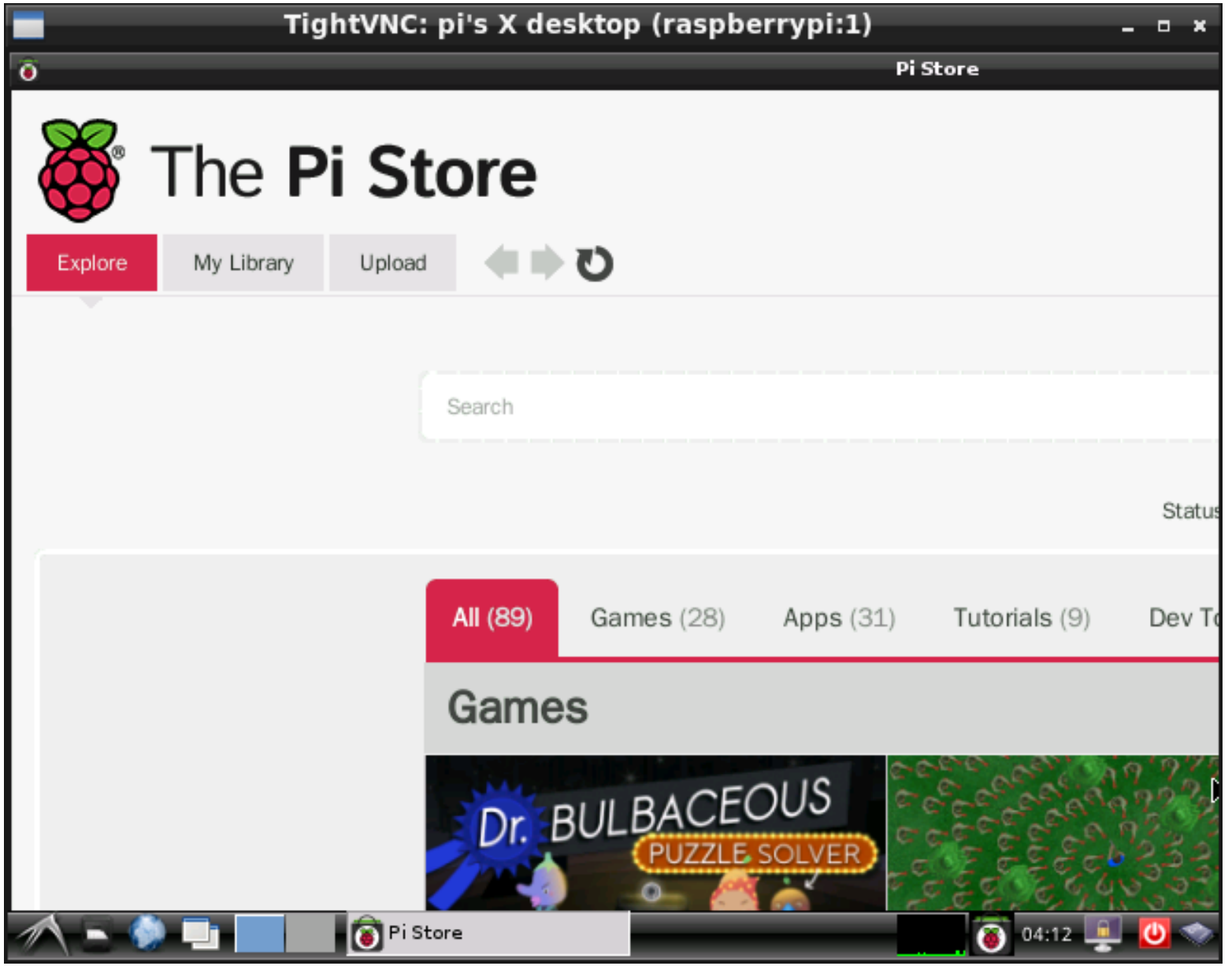
IDLE3


TightVNC: pi's X desktop (raspberrypi:1)
Python Shell
File Edit Shell Debug Options Windows Help
Python 3.2.3 (default, Mar 1 2013, 11:53:50)
[GCC 4.6.3] on linux2
Type "copyright", "credits" or "license()" for more information.
>>>
IDLE
Midor
WiFi Cor
LX 終端
Ln: 4 Col: 4
Python Shell
04:18

Scratch

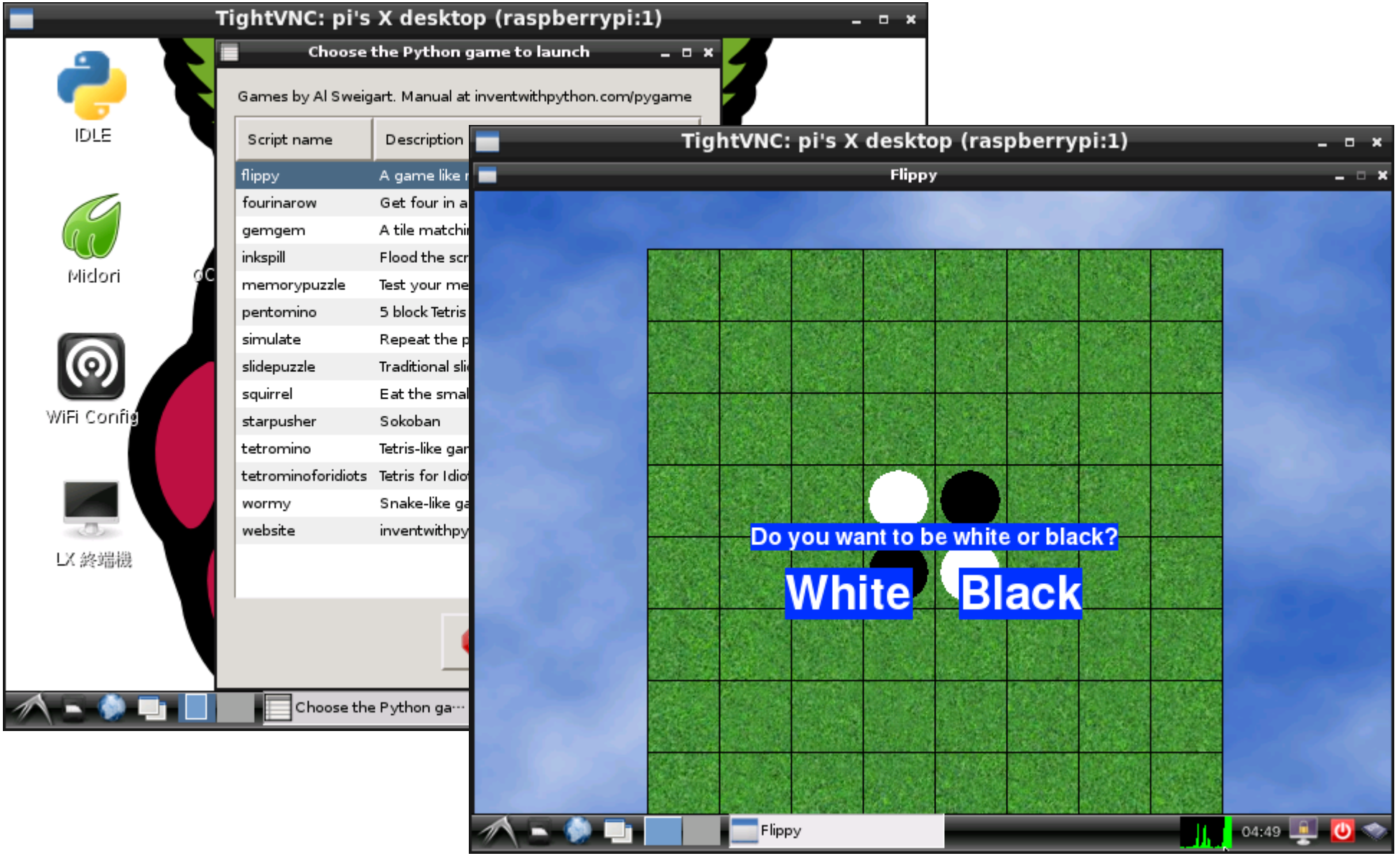

TightVNC: pi's X desktop (raspberrypi:1)
/usr/share/scratch/Scratch20131027.image
SCRATCH
檔案 編輯 分享 幫助
動作
控制
外觀
偵測
聲音
運算
畫筆
變數
舞台
程式
背景
聲音
選擇的舞台
無動作積木
/usr/share/scratch/Scrat...
04:09

Pi Store

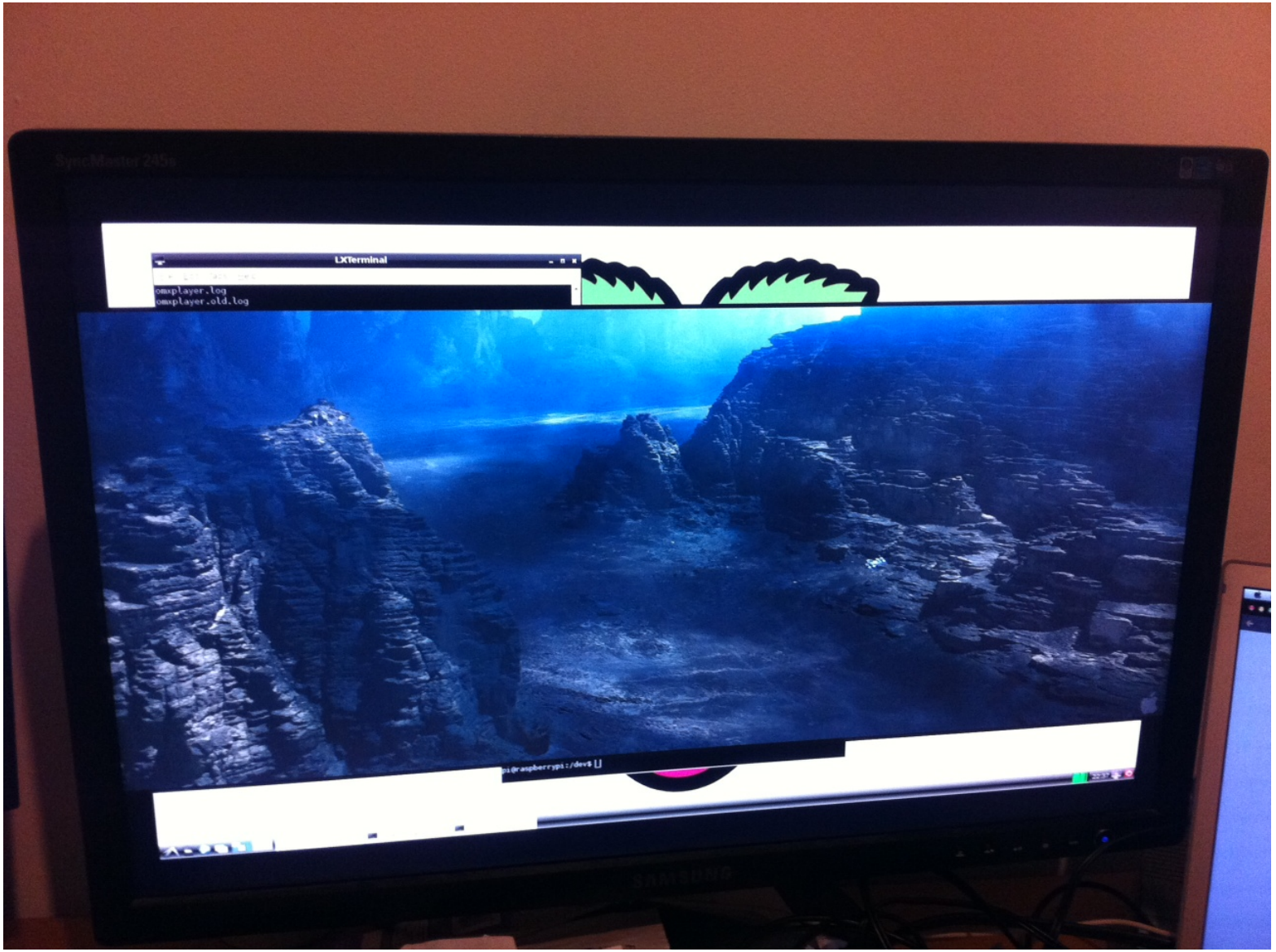

TightVNC: pi's X desktop (raspberrypi:1)
Pi Store
The Pi Store
Explore
My Library
Upload
Search
Status
All (89)
Games (28)
Apps (31)
Tutorials (9)
Games
Dr. BULBACEOUS
PUZZLE SOLVER
Pi Store
04:12

Python Games

Python Games

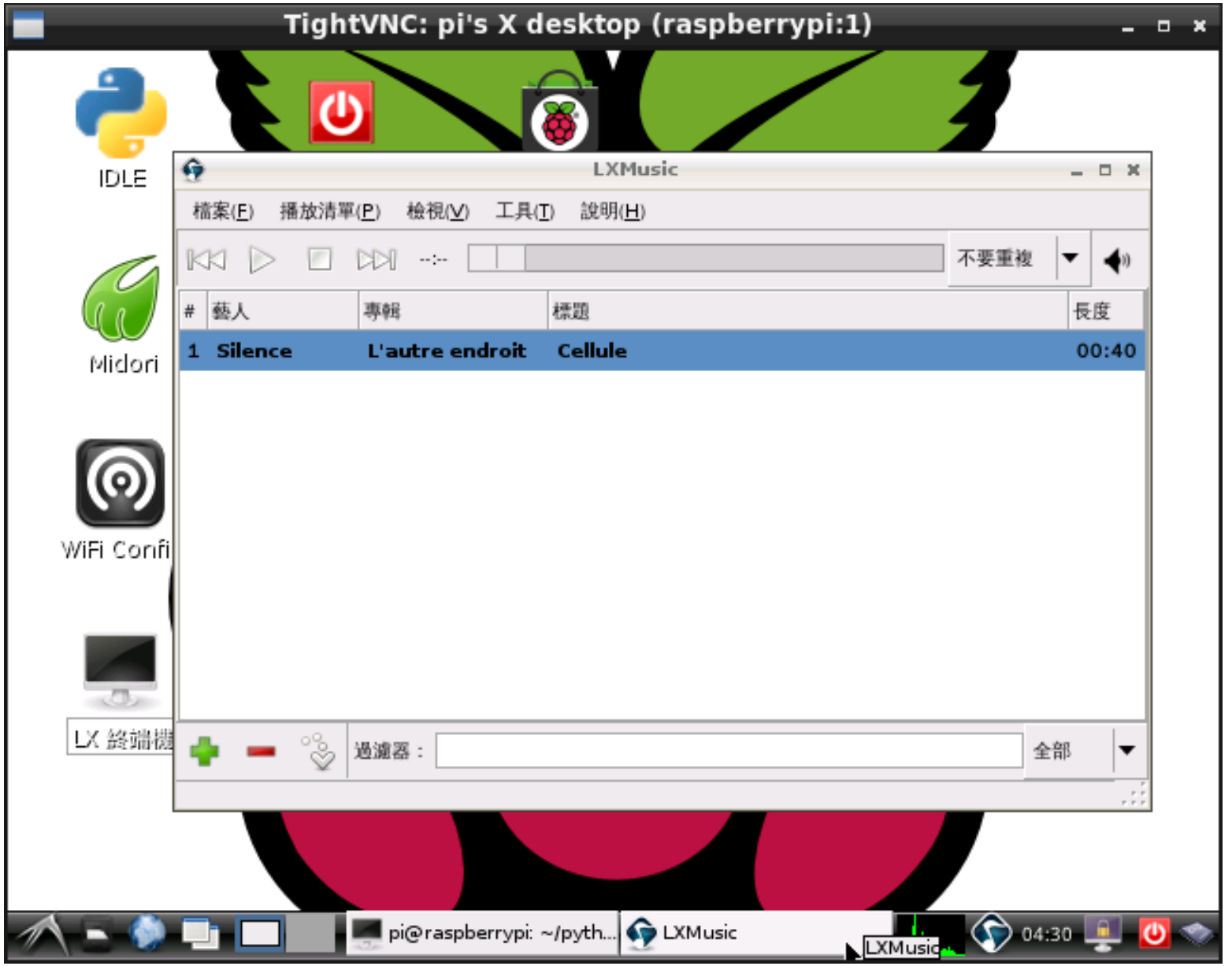


看 1080p 影片 omxplayer



http://www.bethanycorcoran.co.uk/2012/05/16/raspberry-pi-video-playback/

聽音樂 lxmusic


TightVNC: pi's X desktop (raspberrypi:1)
IDLE
Midori
WiFi Confi
LX 終端機
LXMusic
檔案(F) 播放清單(P) 檢視(V) 工具(T) 說明(H)
--:--
不要重複
藝人 專輯 標題 長度
1 Silence L'autre endroit Cellule 00:40
過濾器：
全部
pi@raspberrypi: ~/pyth...
LXMusic
LXMusic
04:30

用 C 寫程式

```
$ vim hello.c
#include <stdio.h>
int main()
{
    printf("Hello C\n");

    return 0;
}
$ gcc hello.c -o hello
$ ./hello
Hello C
```

用 Java 寫程式

```
$ vim Hello.java
```

```
public class Hello
{
        public static void main(String[] args)
        {
                System.out.println("Hello Java");
        }
}
```

```
$ javac Hello.java
$ java Hello
```

```
Hello Java
```

套件管理指令快速介紹

- 安裝套件
  - sudo apt-get install <pkg_name>
- 搜尋套件
  - sudo apt-cache search <keyword>
- 移除套件
  - sudo apt-get remove <pkg_name>
- 移除套件並清除設定檔
  - sudo apt-get remove --purge <pkg_name>
- 更新套件庫與更新系統套件
  - sudo apt-get update && sudo apt-get upgrade

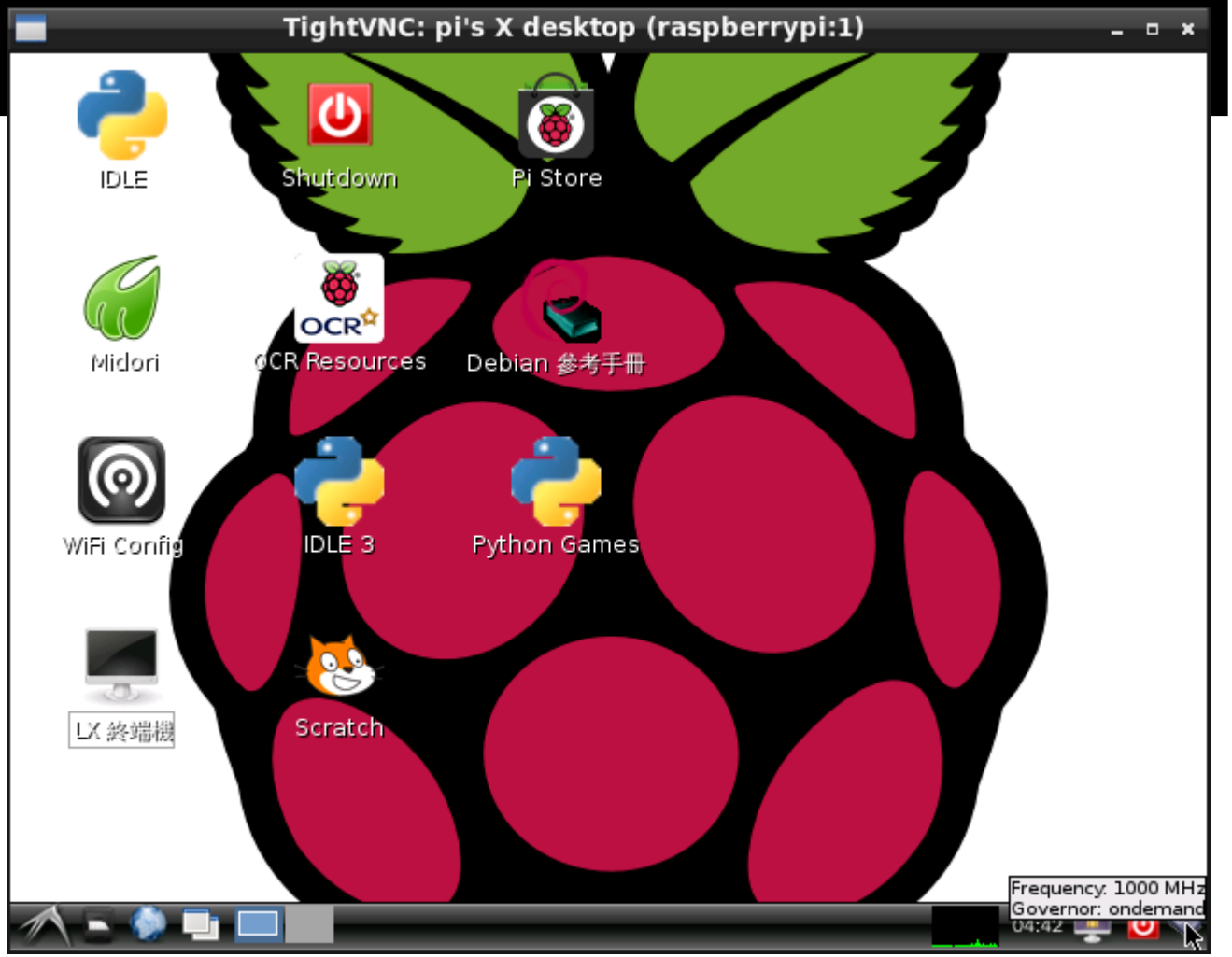
安裝常用套件

- 安裝中文字型 + 輸入法
  - sudo apt-get install ttf-wqy-microhei ttf-wqy-zenhei xfonts-wqy
  - sudo apt-get install scim scim-tables-zh scim-chewing
- 安裝 Python 開發套件
  - sudo apt-get install python-dev
- 安裝 Vim 編輯器
  - sudo apt-get install vim
- 安裝 chromium 瀏覽器
  - sudo apt-get install chromium-browser

小技巧 I - 持續超頻

$ sudo vim /boot/config.txt

```
force_turbo=1
```



小技巧 2 - 強制從 HDMI 輸出畫面

$ sudo vim /boot/config.txt

```
hdmi_force_hotplug=1
hdmi_drive=2
config_hdmi_boost=4
```

小技巧 3 - 永遠不進入螢幕保護程式

$ sudo vim -p ~/.xinitrc /etc/X11/xinit/xinitrc

```
xset s off
xset -dpms
xset s noblank
exec /etc/alternatives/x-session-manager
```

$ sudo vim /etc/lightdm/lightdm.conf

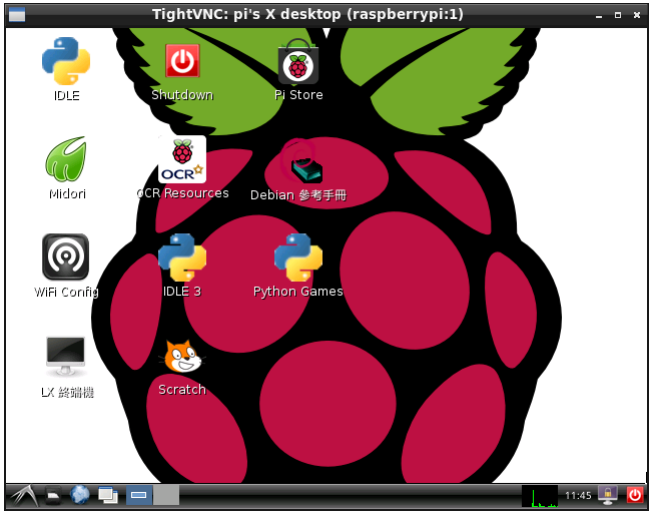
```
[SeatDefaults]
xserver-command=X -s 0 -dpms
```

小技巧 4 - 用 VNC 遠端存取

- 在 Raspberry Pi 上執行

  pi@raspberrypi $ sudo apt-get install tightvncserver

  pi@raspberrypi $ vncserver :1

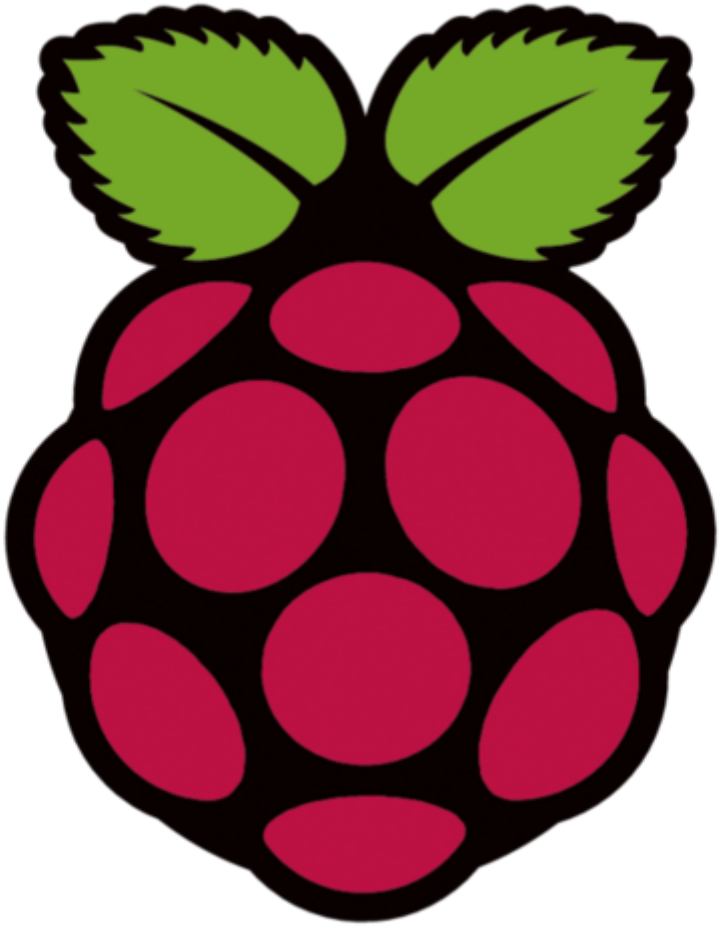


- 在 PC 上 (Linux 環境) 執行

  user@linux $ sudo apt-get install gtkvncviewer

  user@linux $ vncviewer 192.168.x.x:5901

Raspberry Pi Rocks the World



Thanks