

Installing Ubuntu on Virtual Machine

Introduction to Computer Networks

Outline

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- ▶ VirtualBox & Vmware 擇一安裝即可

Virtual Machine(1/1)

- ▶ Virtual Machine: 使用軟體來模擬硬體，並能夠在此虛擬硬體上執行一個隔離的完整作業系統。
- ▶ 由於是隔離的環境，因此不小心弄壞VM也不會影響Host端或是其他台VM的運作 (適合實驗)
- ▶ 常見的VM軟體有VirtualBox, VMware等。



VirtualBox



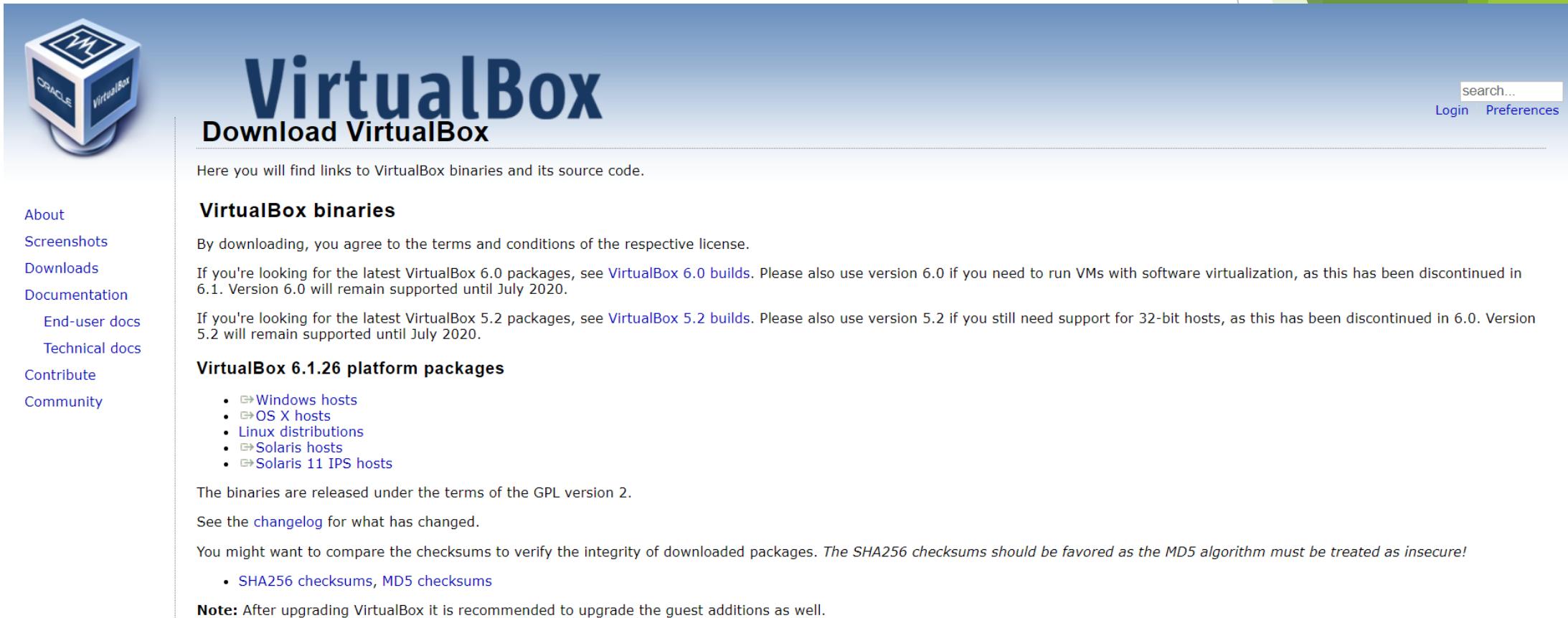
Download Ubuntu光碟映像檔(1/1)

- ▶ 下載Ubuntu 20.04 LTS
- ▶ <https://www.ubuntu-tw.org/modules/tinyd0/>
- ▶ 選擇: Ubuntu 桌面版本/ 20.04 LTS/64位元版本

下載 Ubuntu		版本	電腦架構	下載選項
發行版	<input checked="" type="radio"/> Ubuntu 桌面版本 <input type="radio"/> Ubuntu 伺服器版本	<input type="radio"/> 21.10 (9 個月支援) <input checked="" type="radio"/> 20.04 LTS (5 年支援) <input type="radio"/> 18.04 LTS (5 年支援) <input type="radio"/> 16.04 LTS (5 年支援)	<input type="radio"/> 32 位元版本 <input checked="" type="radio"/> 64 位元版本	<input type="checkbox"/> 下載 BitTorrent 種子 開始下載 或是 至此瀏覽所有版本及檔案
	<p>不同發行版具備不同的圖形環境與配套軟體。如果您不知道如何選擇，請選擇 Ubuntu 桌面版本。</p>	<p>20.04 LTS (2020/04 - 2025/04)為最新 LTS 版 (長期支援，穩定，五年支援)。16.04 (及之前版本) 的預設桌面為經典 Unity，18.04 開始為 Gnome 3，但您仍可手動安裝 Unity 並進行切換。 詳細資訊請參考 Release End of Life</p>	<p>目前一般電腦大多使用 64 位元架構，故從 18.04 開始，桌面版也將不再提供 32 位元版本。另外，目前在下載區無 Mac 版本可下載。</p>	

Install Ubuntu using VirtualBox(1/28)

- ▶ 下載Virtual Box
- ▶ <https://www.virtualbox.org/>
- ▶ 選擇windows hosts



The screenshot shows the official Oracle VM VirtualBox download page. At the top left is the VirtualBox logo, which is a blue cube with the word "VirtualBox" on it. To the right of the logo is the title "VirtualBox" in large blue letters, followed by "Download VirtualBox" in smaller black letters. On the far right of the header are links for "search...", "Login", and "Preferences". Below the header, there's a sidebar on the left with links to "About", "Screenshots", "Downloads", "Documentation", "End-user docs", "Technical docs", "Contribute", and "Community". The main content area starts with a paragraph about finding binaries and source code. It then has a section titled "VirtualBox binaries" with a note about agreeing to terms and conditions. It mentions the discontinuation of version 6.1 and the support until July 2020. Another note discusses the discontinuation of version 5.2 and its support until July 2020. A third section is titled "VirtualBox 6.1.26 platform packages" and lists options for "Windows hosts", "OS X hosts", "Linux distributions", "Solaris hosts", and "Solaris 11 IPS hosts". Below this, it states that binaries are released under GPL version 2 and provides a link to the changelog. It also advises comparing checksums and lists "SHA256 checksums, MD5 checksums". A final note at the bottom says that after upgrading VirtualBox, guest additions should be upgraded as well.

Here you will find links to VirtualBox binaries and its source code.

VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

If you're looking for the latest VirtualBox 6.0 packages, see [VirtualBox 6.0 builds](#). Please also use version 6.0 if you need to run VMs with software virtualization, as this has been discontinued in 6.1. Version 6.0 will remain supported until July 2020.

If you're looking for the latest VirtualBox 5.2 packages, see [VirtualBox 5.2 builds](#). Please also use version 5.2 if you still need support for 32-bit hosts, as this has been discontinued in 6.0. Version 5.2 will remain supported until July 2020.

VirtualBox 6.1.26 platform packages

- [Windows hosts](#)
- [OS X hosts](#)
- [Linux distributions](#)
- [Solaris hosts](#)
- [Solaris 11 IPS hosts](#)

The binaries are released under the terms of the GPL version 2.

See the [changelog](#) for what has changed.

You might want to compare the checksums to verify the integrity of downloaded packages. *The SHA256 checksums should be favored as the MD5 algorithm must be treated as insecure!*

- [SHA256 checksums, MD5 checksums](#)

Note: After upgrading VirtualBox it is recommended to upgrade the guest additions as well.

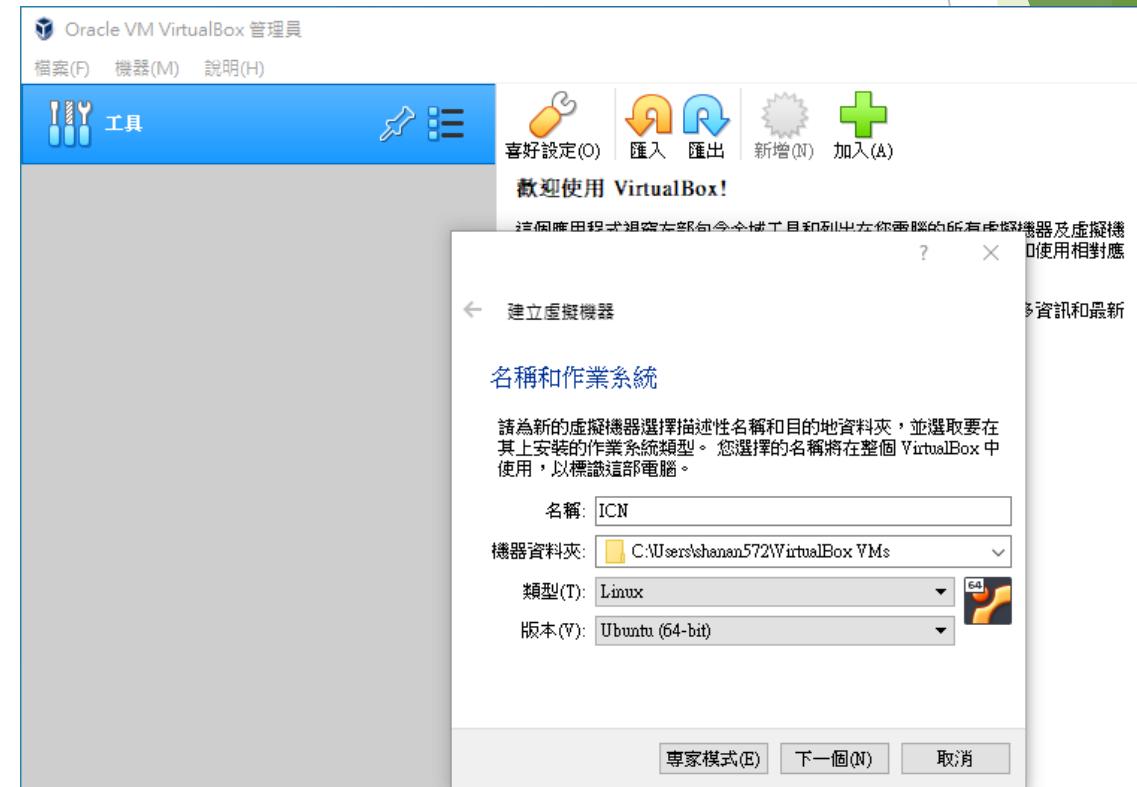
Install Ubuntu using VirtualBox(1/28)

- ▶ 執行VirtualBox的exe檔
- ▶ 一直按下一步即可
- ▶ 遇到跳窗記得也要按安裝
- ▶ 安裝過程中網路斷線是正常現象



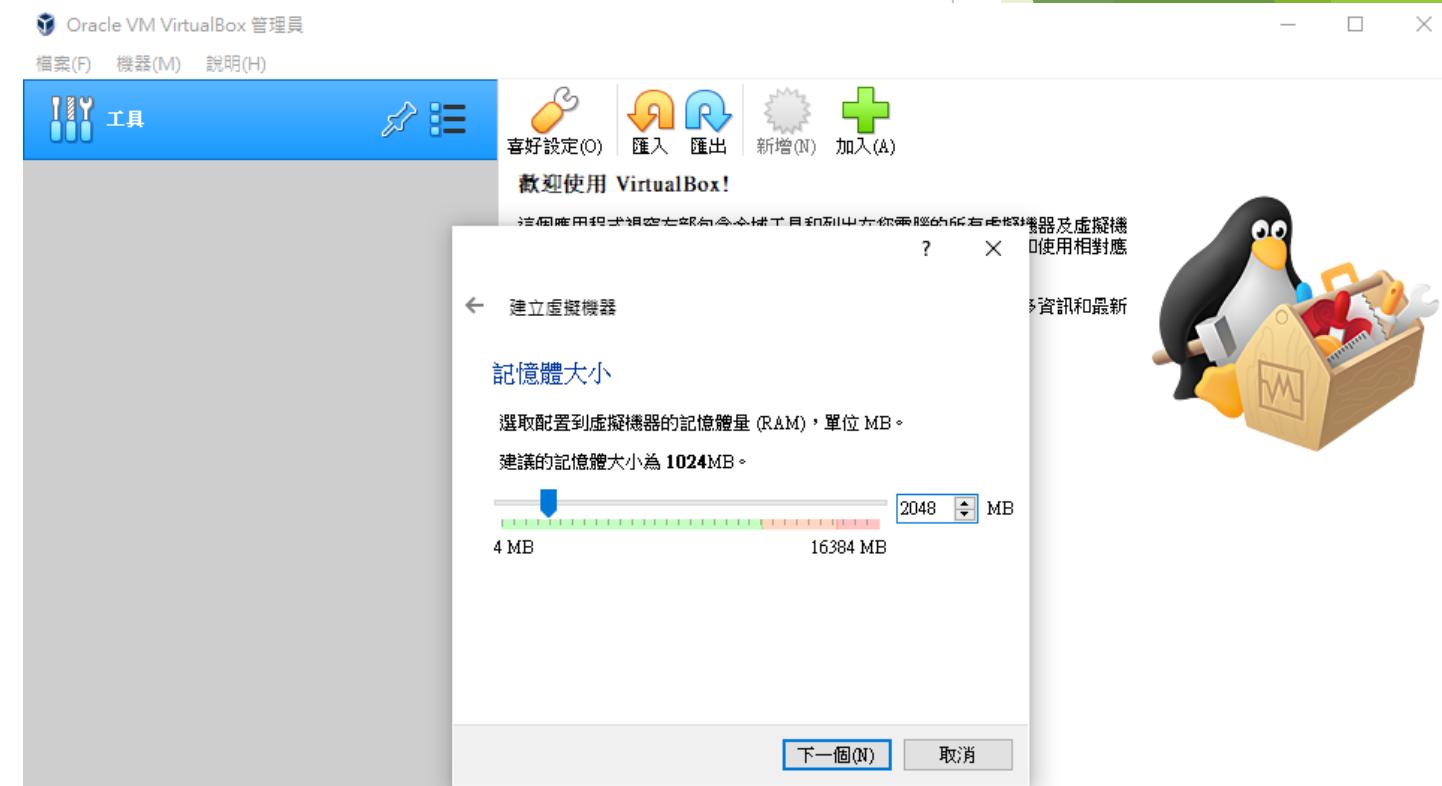
Install Ubuntu using VirtualBox(3/28)

- ▶ 開啟Virtual Box，選擇新增
- ▶ 輸入名稱，選擇Linux/Ubuntu(64bit)



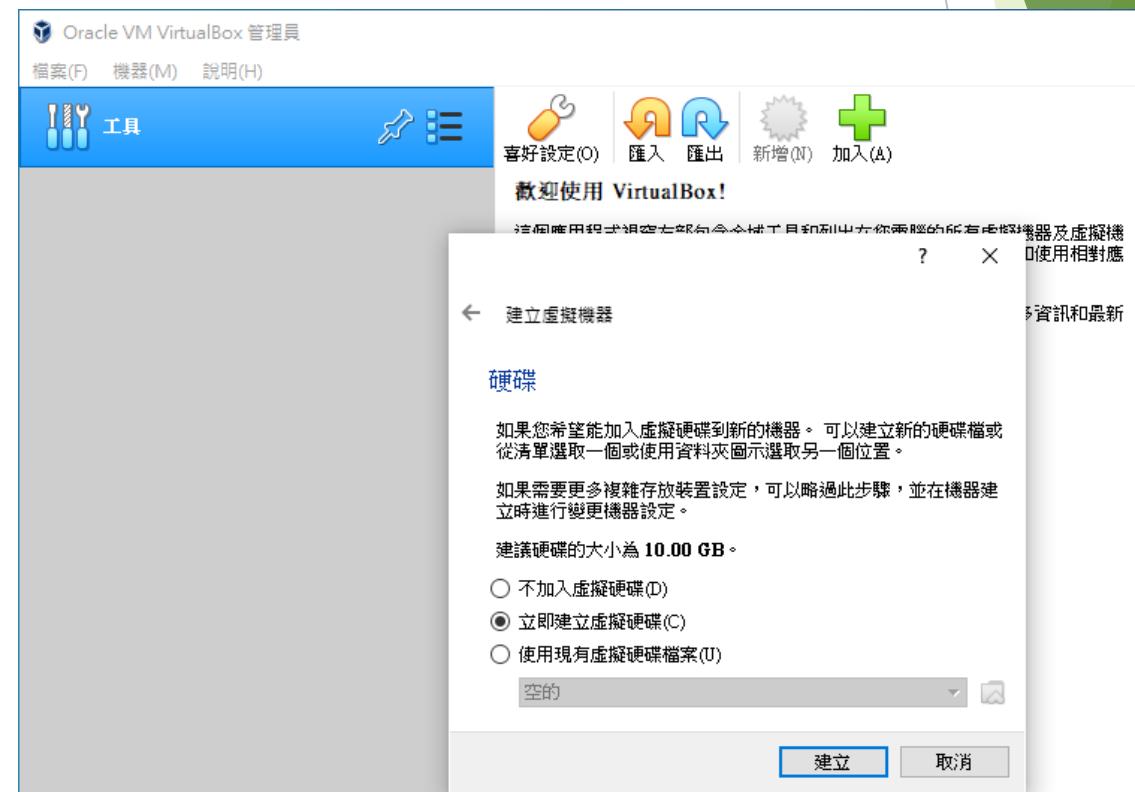
Install Ubuntu using VirtualBox(4/28)

- ▶ 輸入記憶體大小2048MB



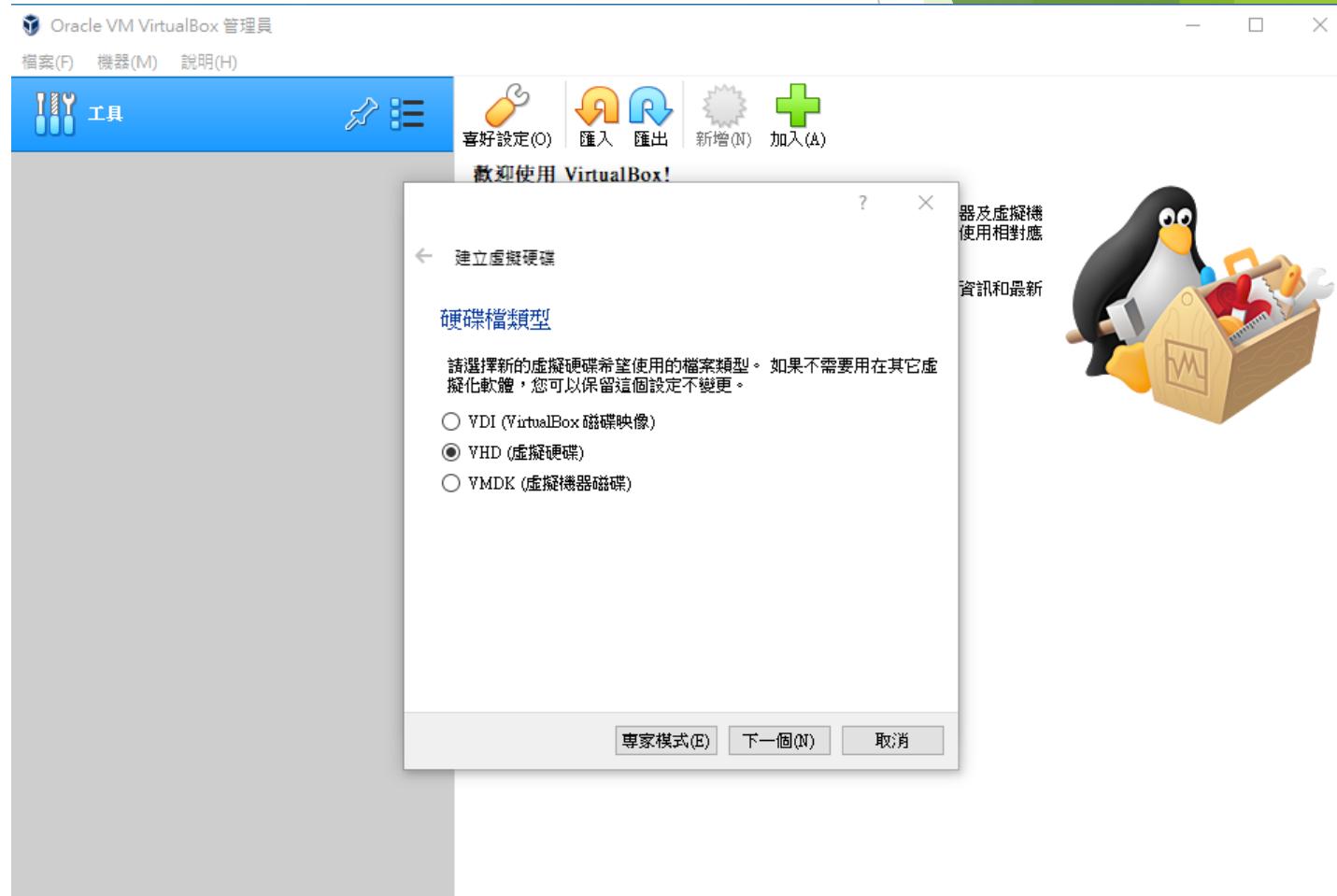
Install Ubuntu using VirtualBox(5/28)

- ▶ 選擇立即建立虛擬硬碟，按建立



Install Ubuntu using VirtualBox(6/28)

- ▶ 選擇VHD(虛擬硬碟)



Install Ubuntu using VirtualBox(7/28)

- ▶ 選擇動態建立即可

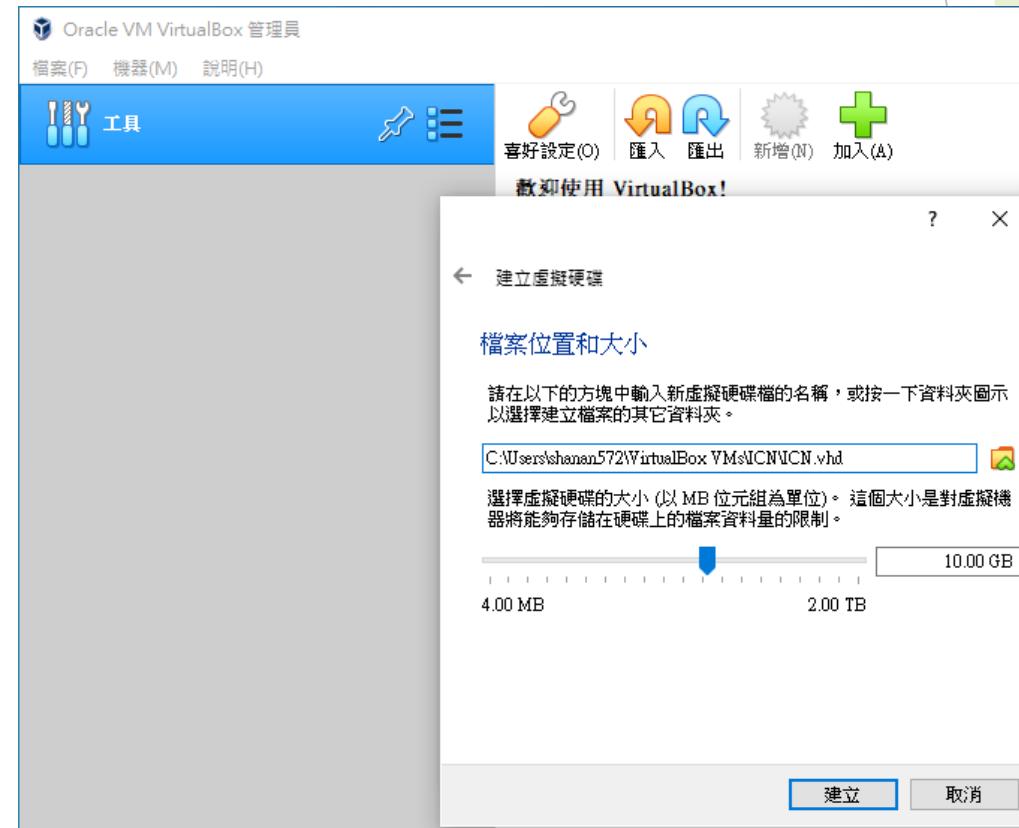


器及虛擬機
使用相對應
資訊和最新



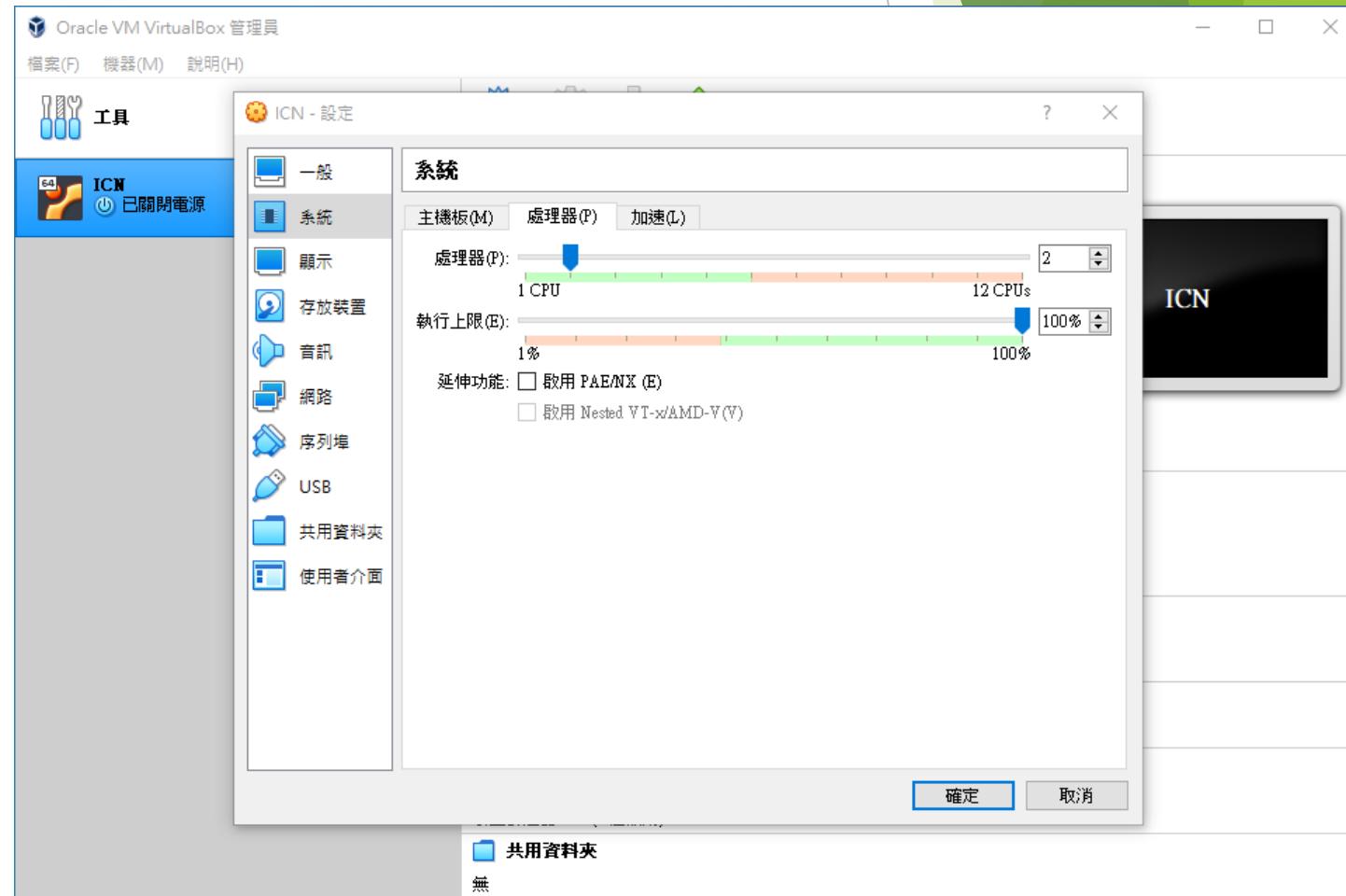
Install Ubuntu using VirtualBox(8/28)

- ▶ 按照預設即可，給定硬碟容量10G



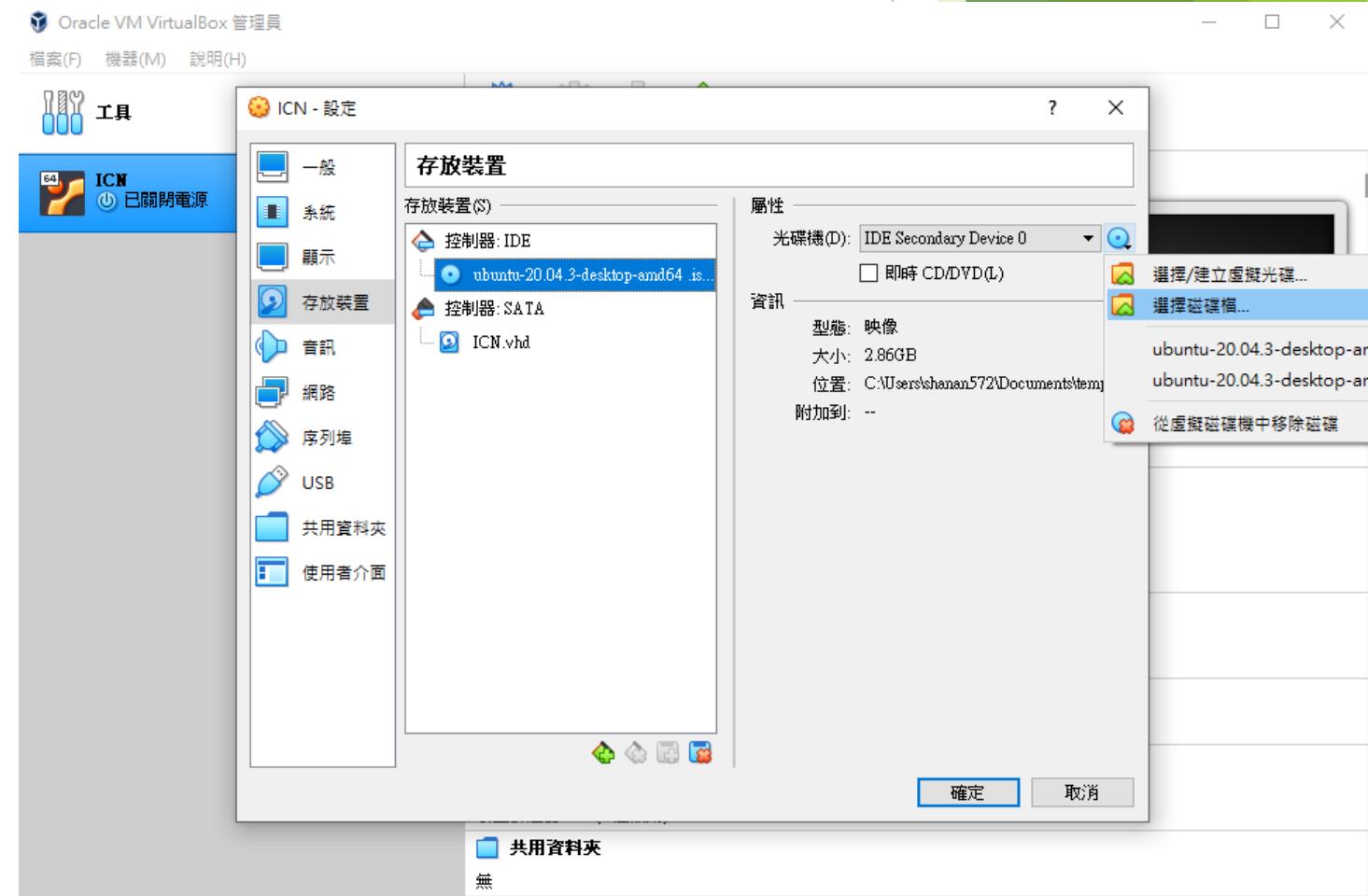
Install Ubuntu using VirtualBox(9/28)

- ▶ 選擇剛剛新增好的虛擬機，按設定
- ▶ 系統->處理器->將CPU數量提升至2(建議分配給VM的CPU的數量不要超過電腦硬體CPU數的一半)



Install Ubuntu using VirtualBox(10/28)

- ▶ 存放位置>光碟機>選擇磁碟檔>選擇剛剛下載好的印像檔
- ▶ 按OK



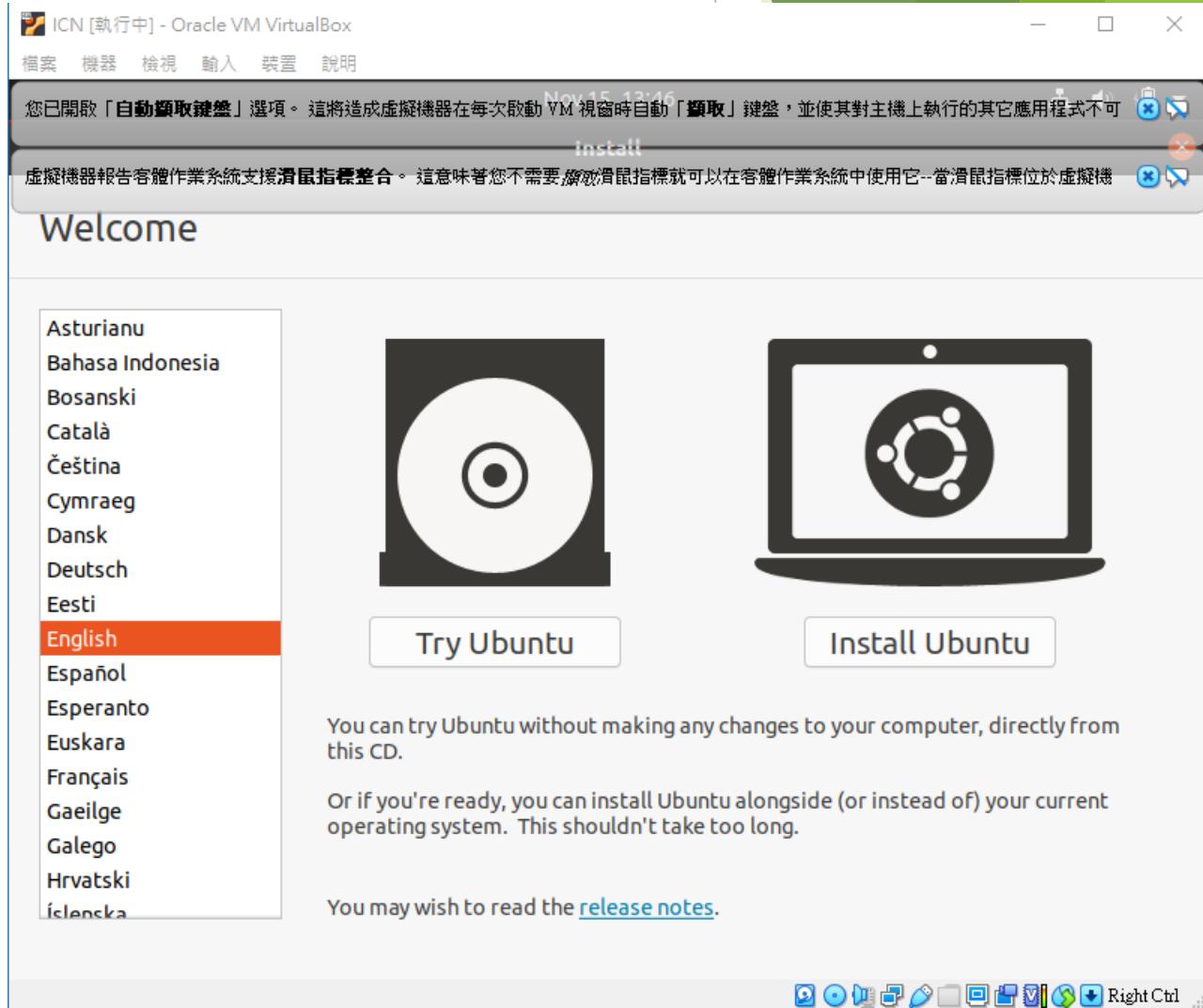
Install Ubuntu using VirtualBox(11/28)

- ▶ 檢查記憶體.處理器.光碟機是否設定正確
- ▶ 選擇虛擬機>按啟動



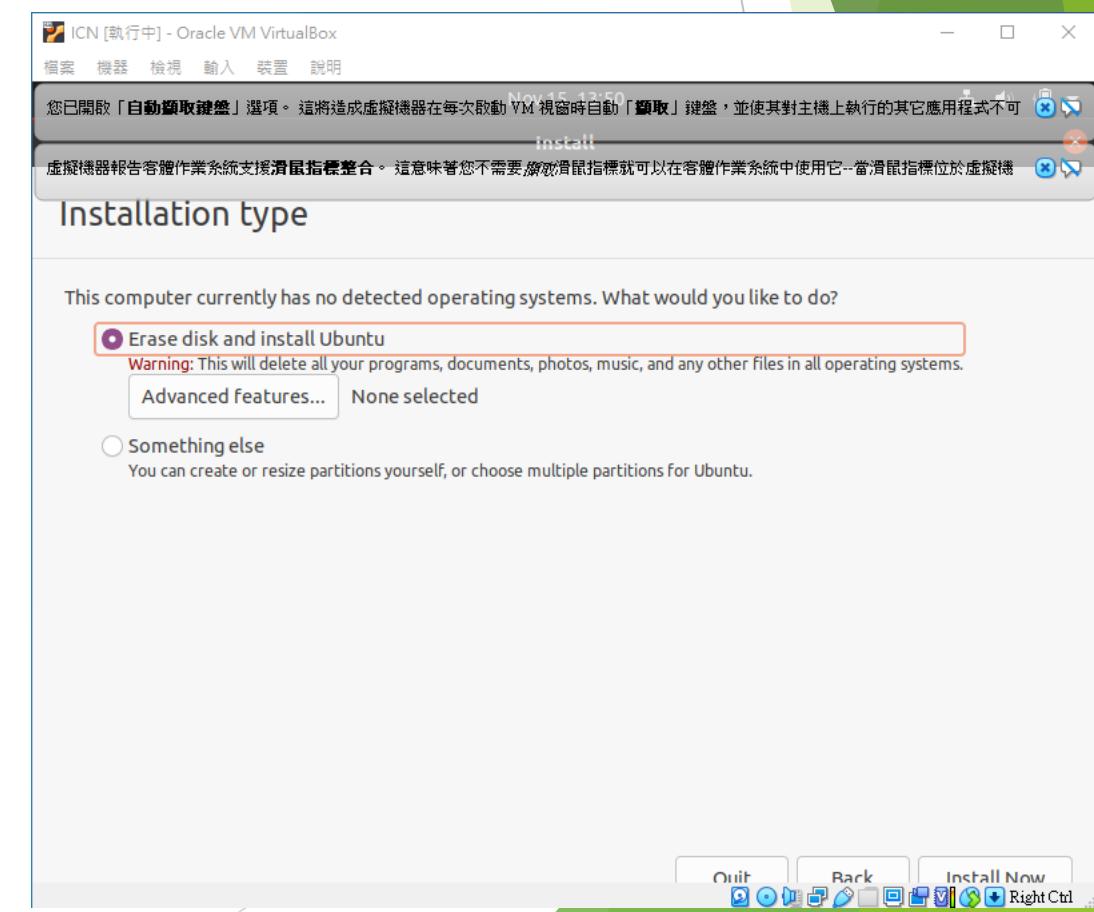
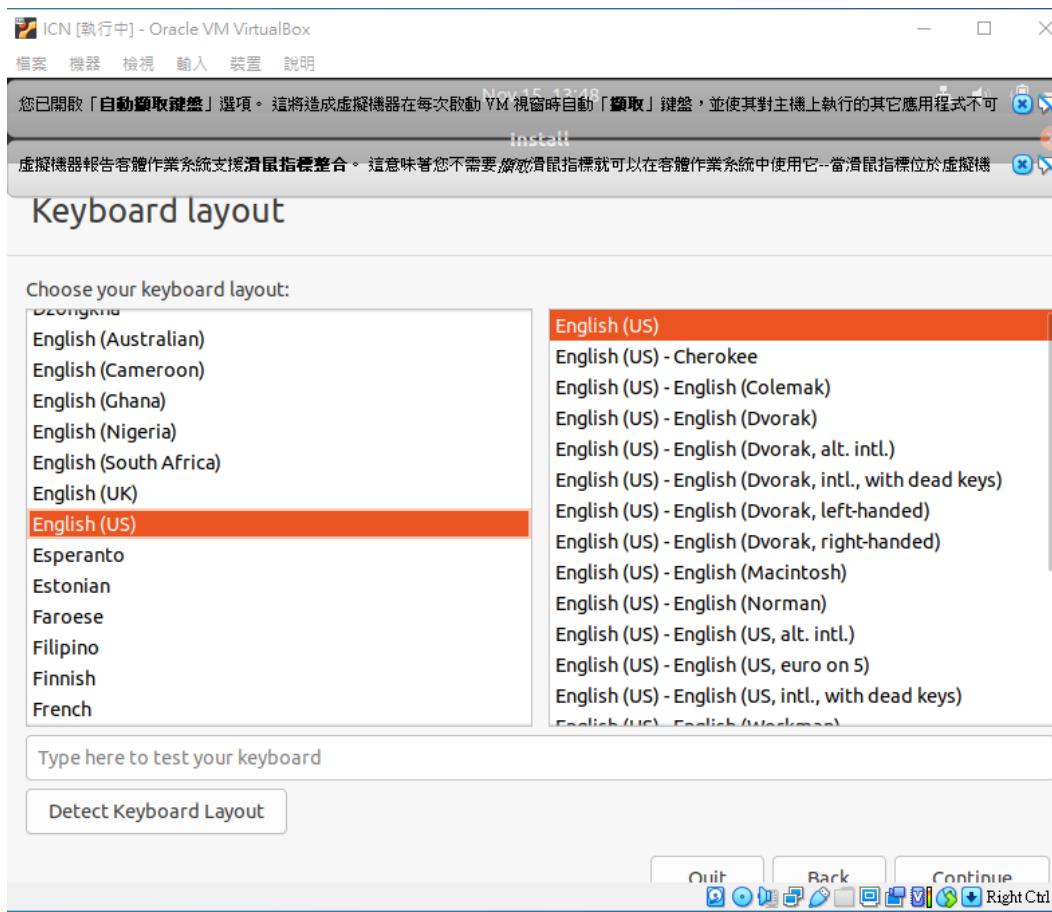
Install Ubuntu using VirtualBox(12/28)

- ▶ 選擇English
- ▶ 選擇Install Ubuntu



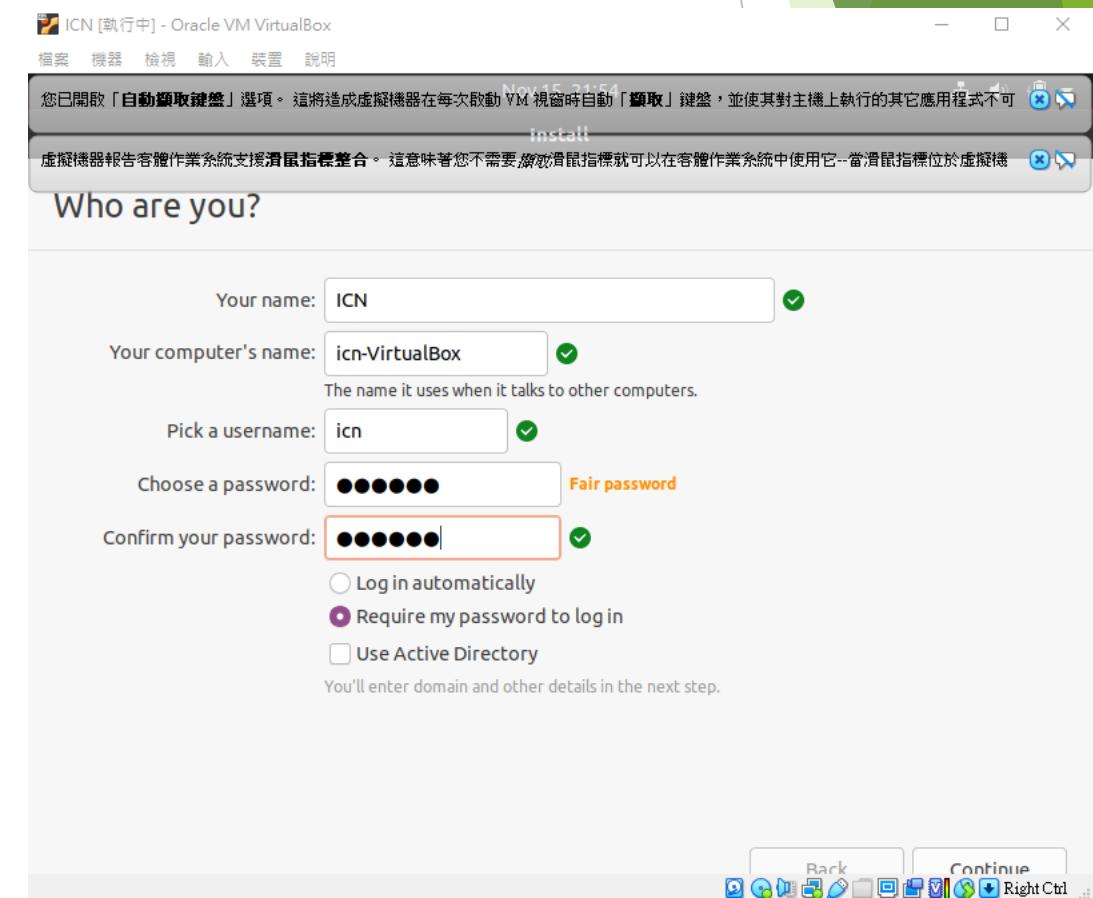
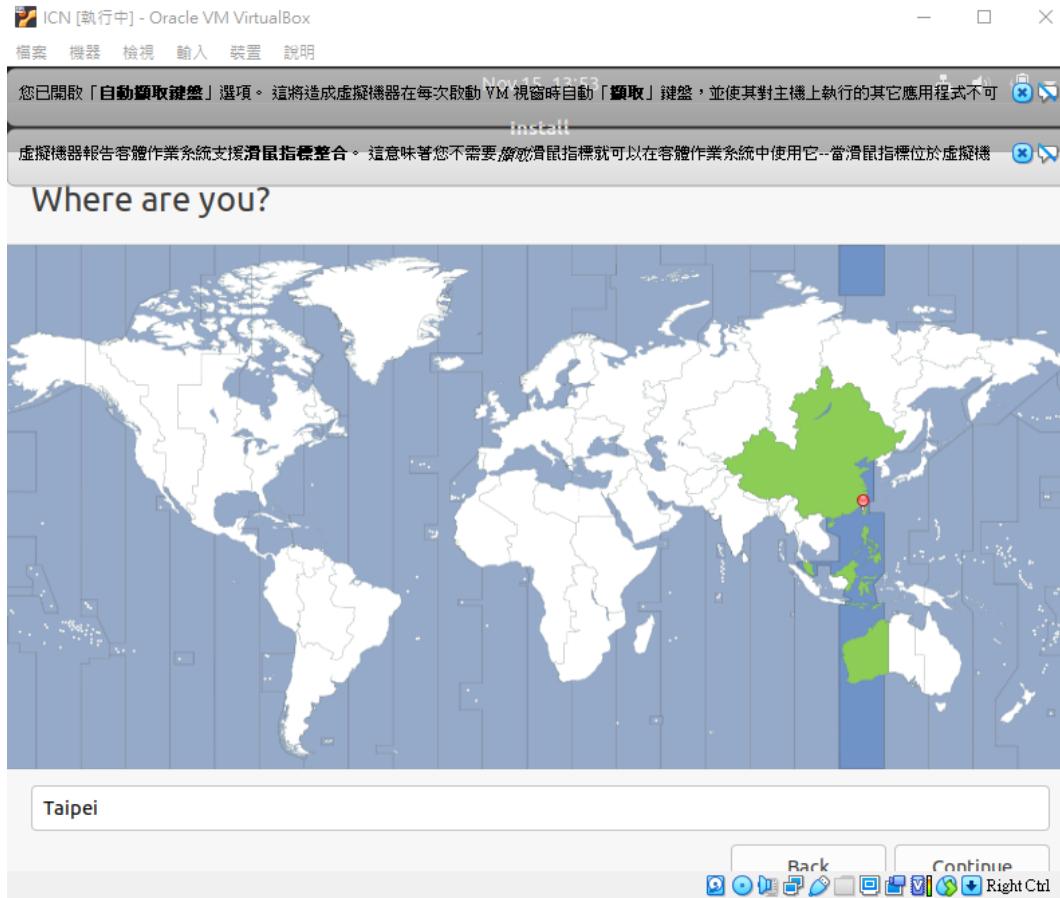
Install Ubuntu using VirtualBox(13/28)

- ▶ 所有步驟Continue即可
- ▶ 最後選擇Install Now



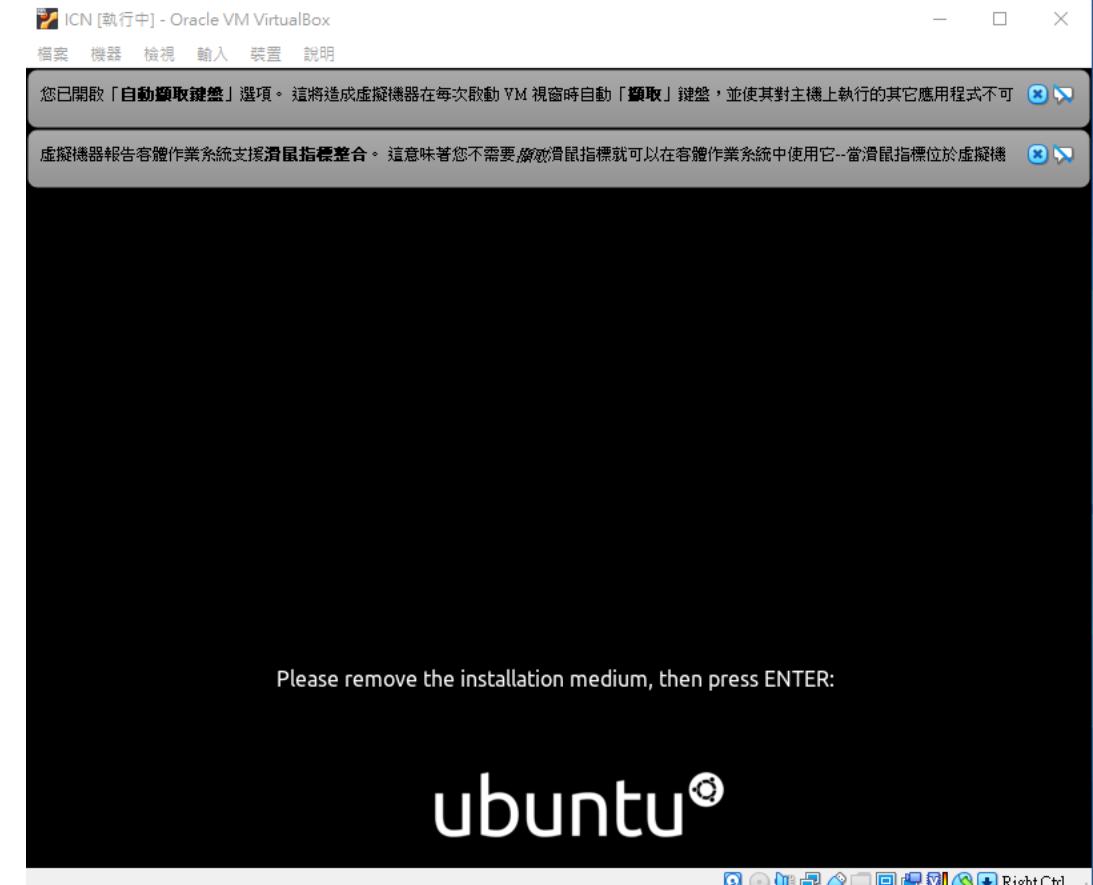
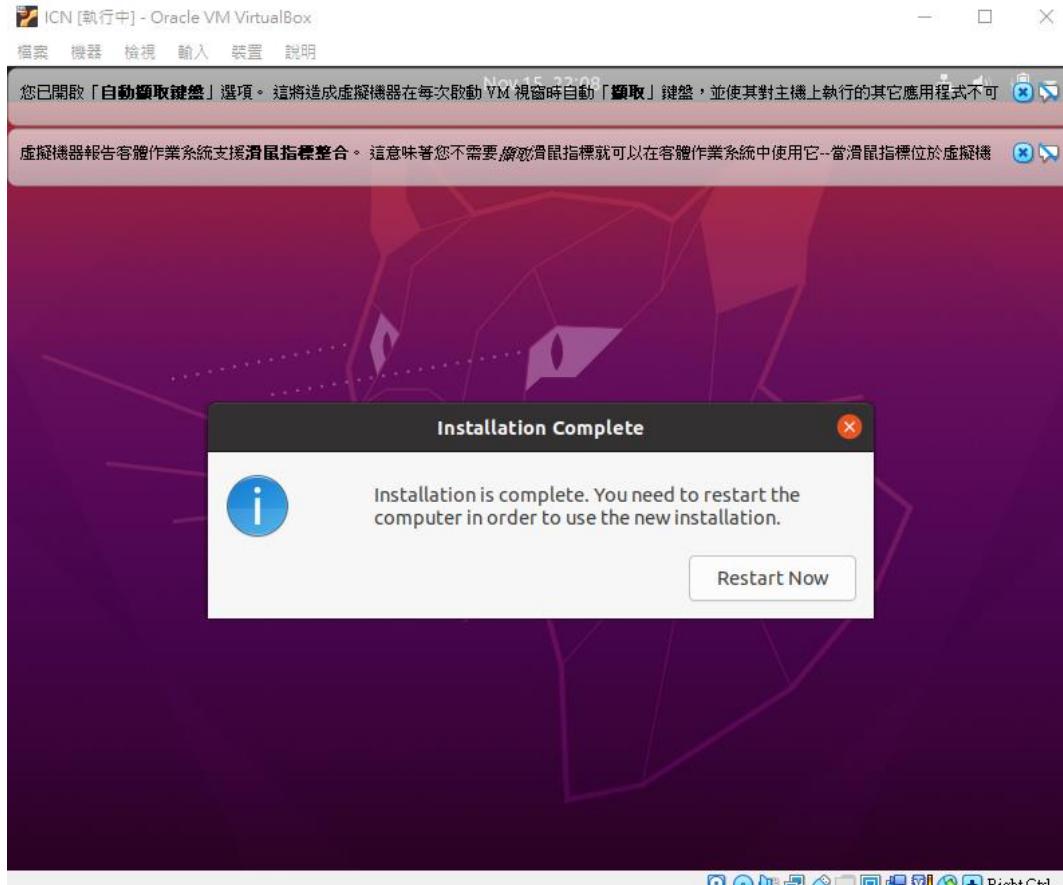
Install Ubuntu using VirtualBox(14/28)

- ▶ 選擇Continue
- ▶ 最後設定使用者名稱與密碼



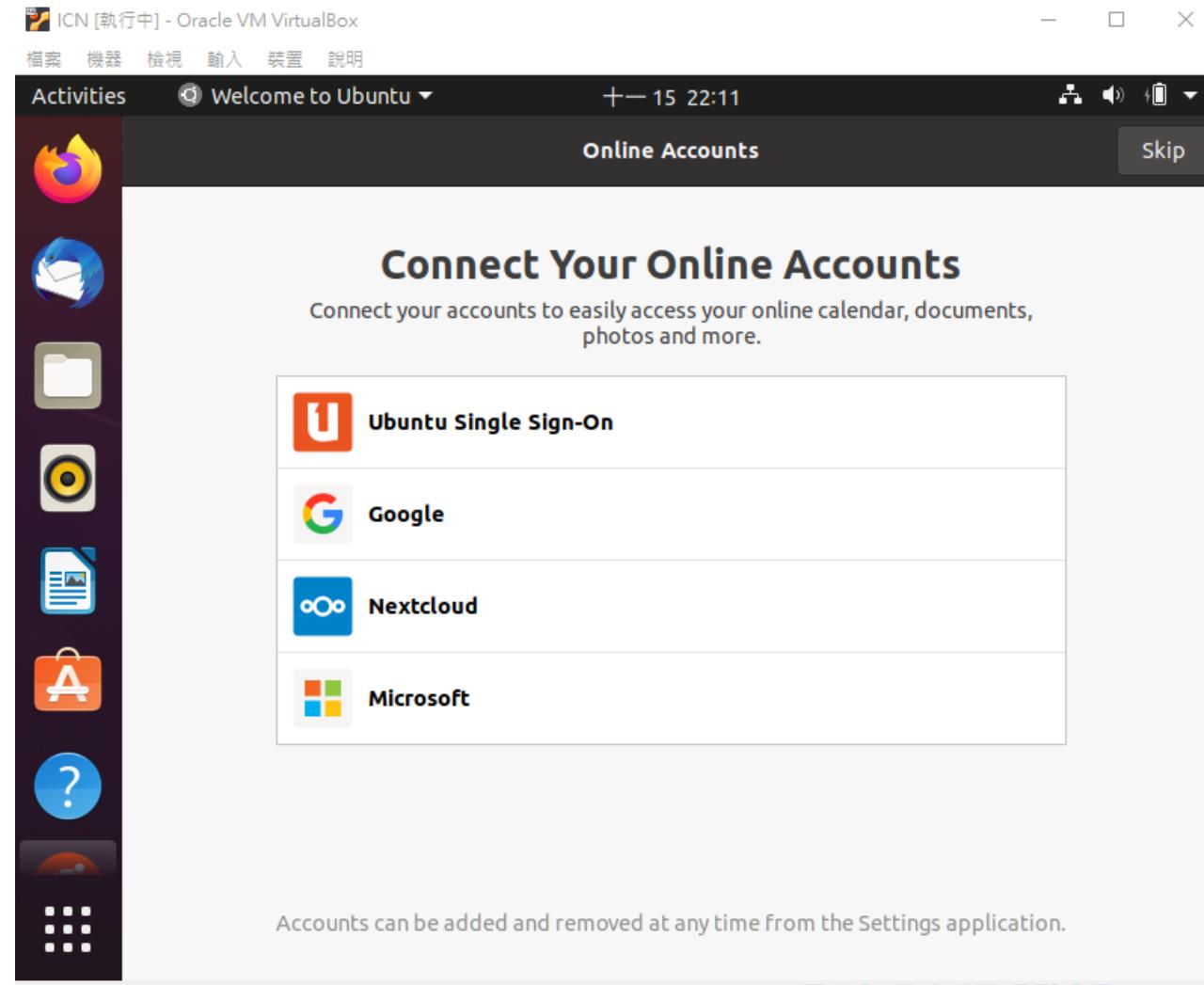
Install Ubuntu using VirtualBox(15/28)

- ▶ 安裝完成後會要求Restart Now，此時會看到一個提示
- ▶ 按下Enter即可重新啟動虛擬機



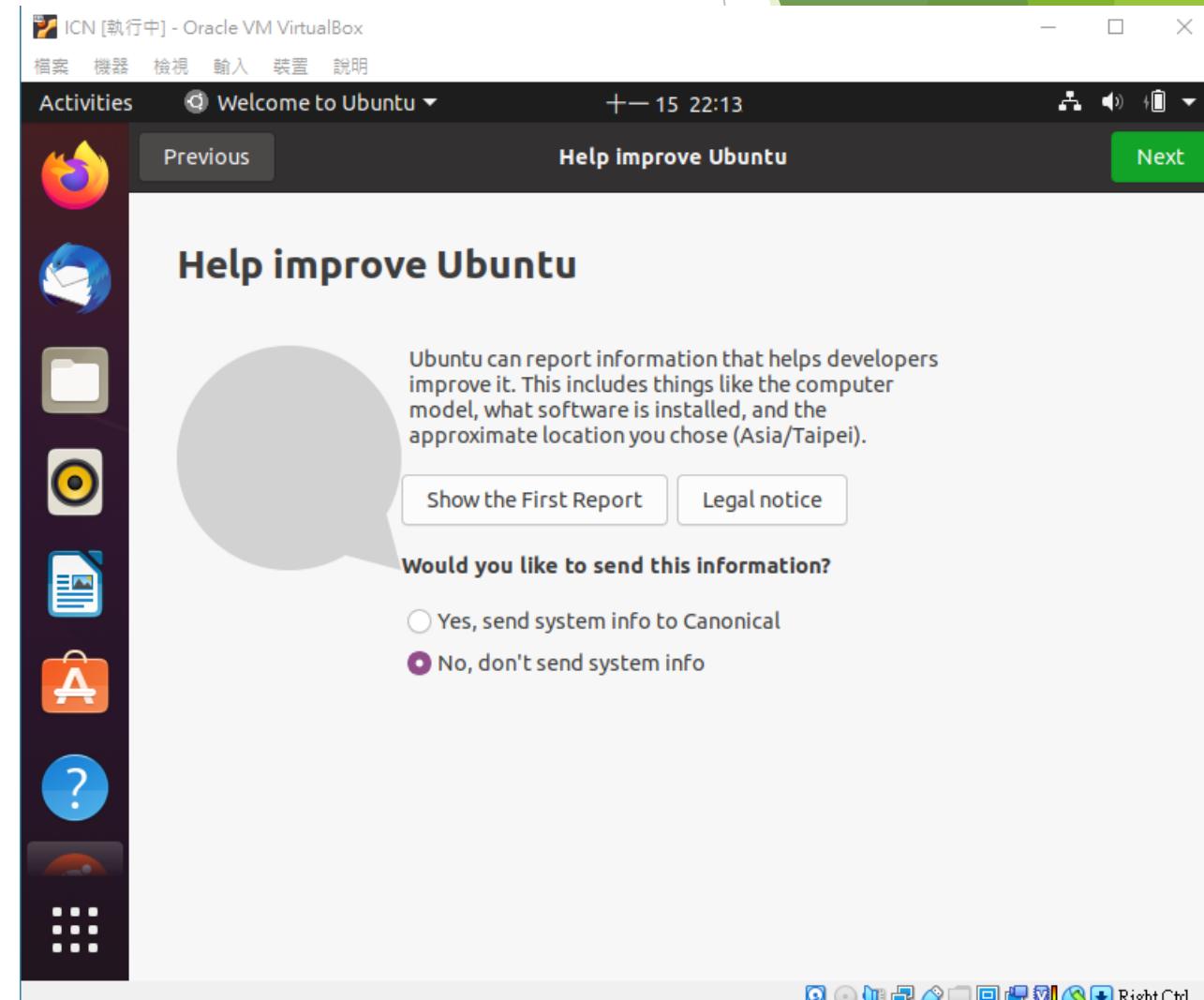
Install Ubuntu using VirtualBox(16/28)

- ▶ Skip即可



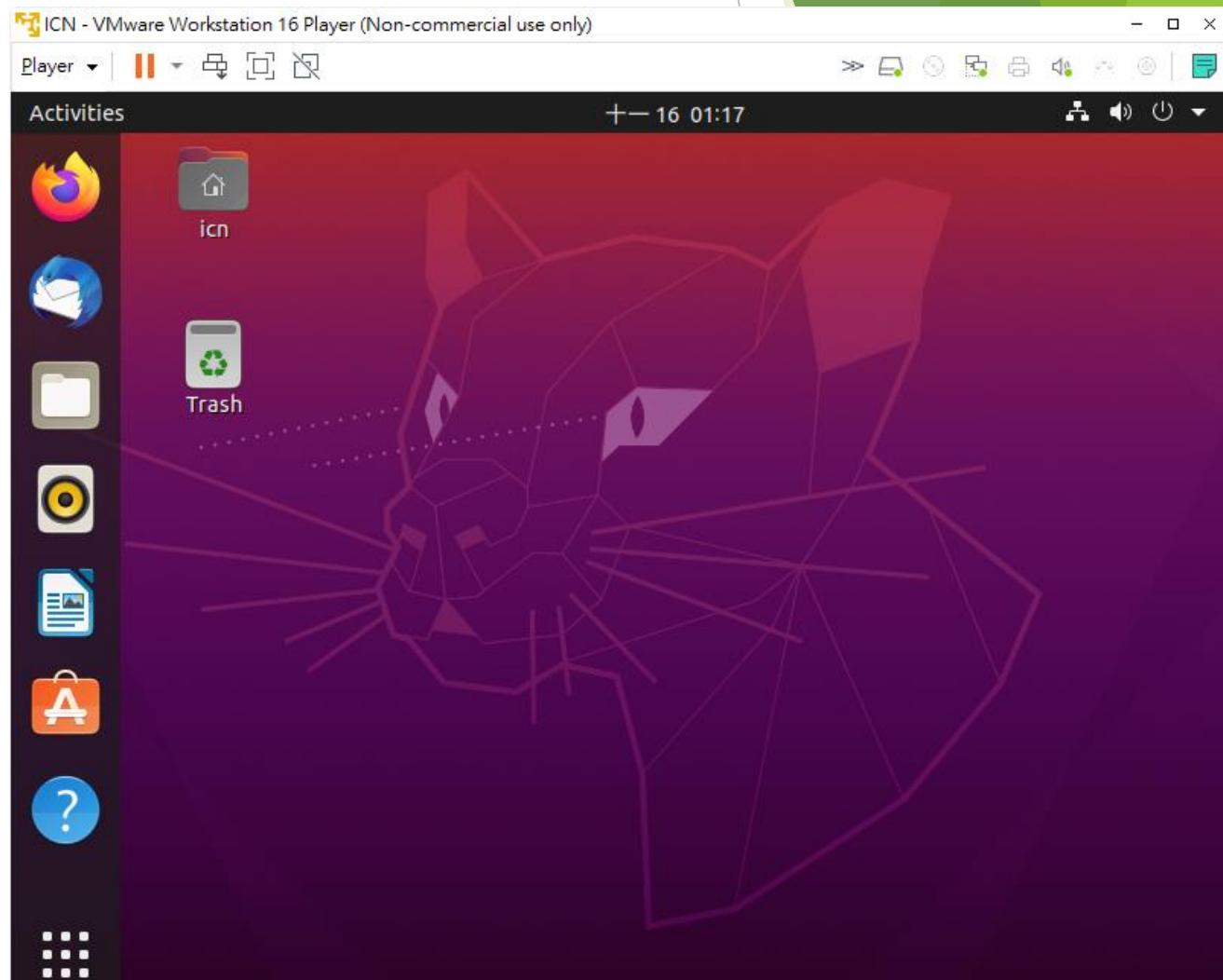
Install Ubuntu using VirtualBox(17/28)

- ▶ 下圖步驟選Don't send，其餘步驟選Next即可



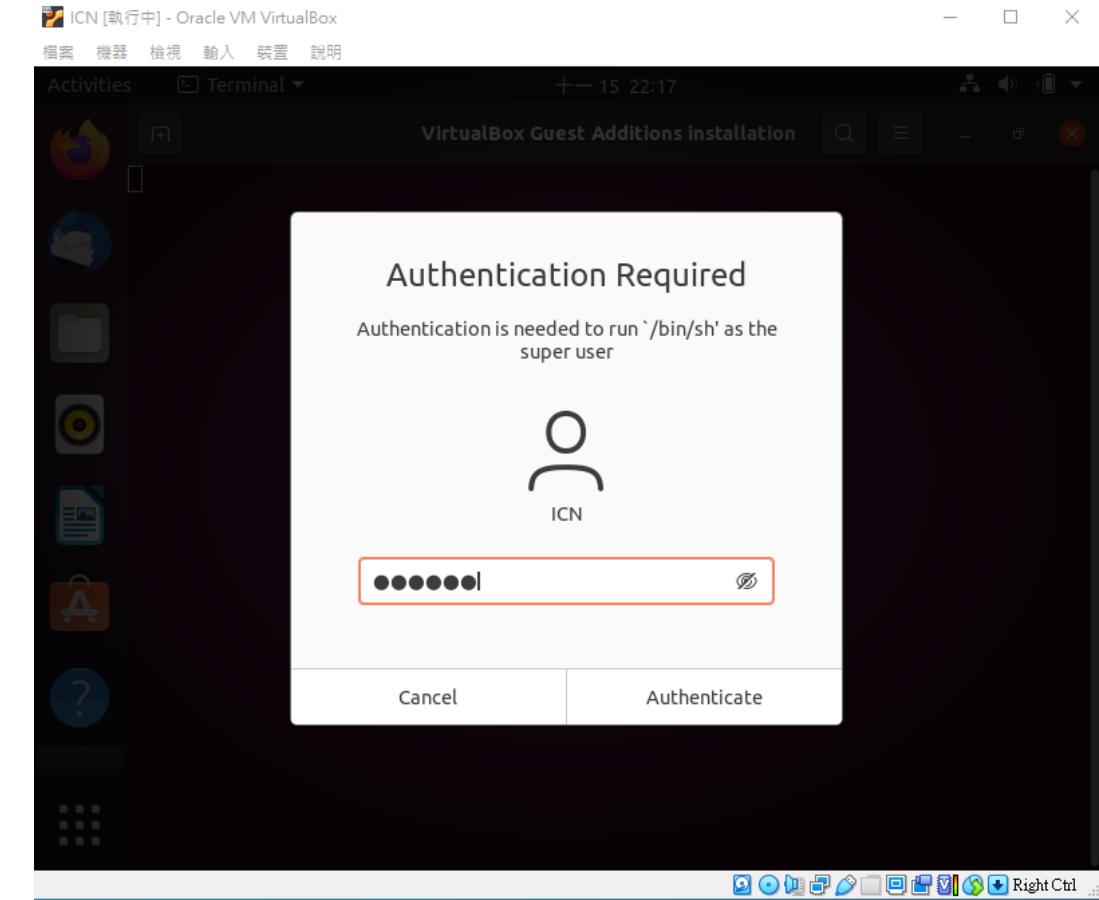
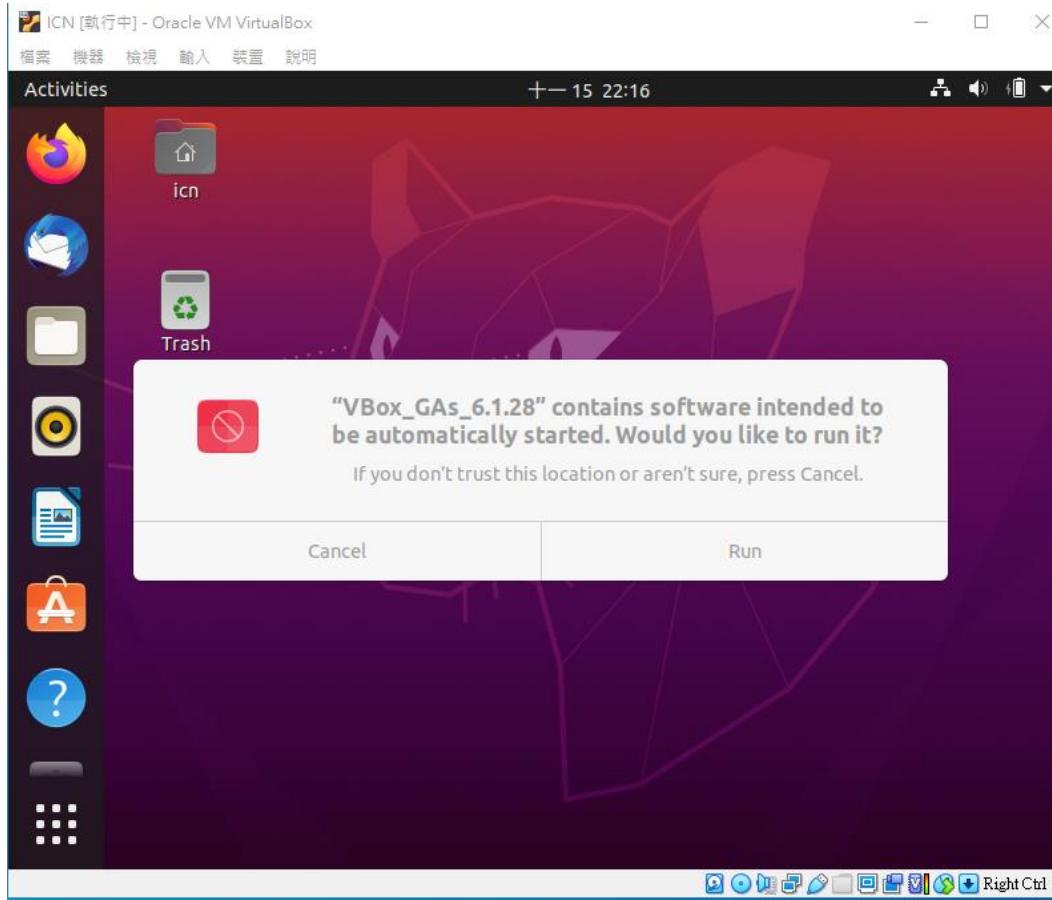
Install Ubuntu using VirtualBox(18/28)

- ▶ 安裝完成



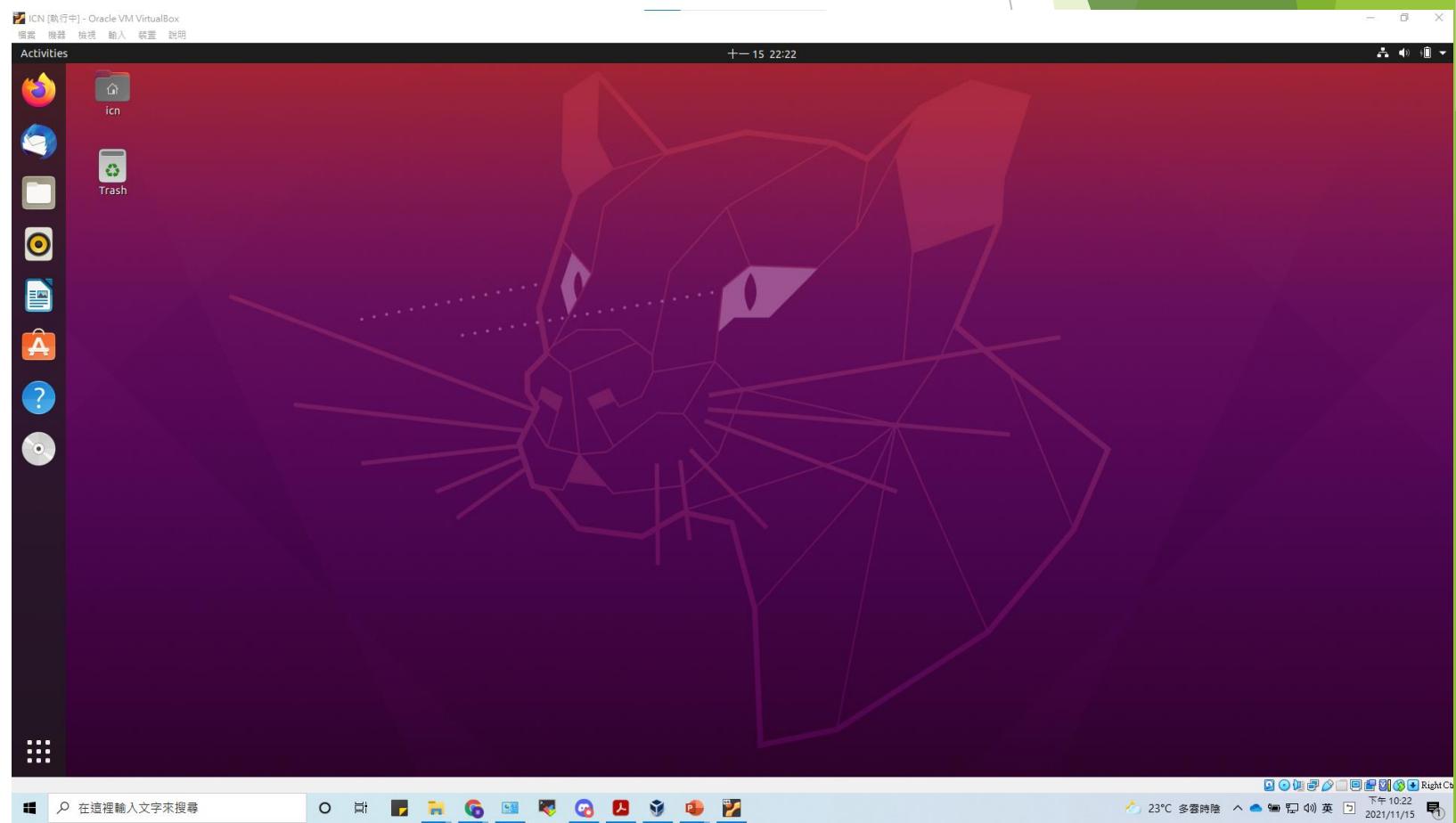
Install Ubuntu using VirtualBox(19/28)

- ▶ 此時螢幕解析度只有 640*480，需安裝額外工具
- ▶ 裝置>插入Guest Additions CD
- ▶ 按下Run>輸入密碼>安裝完成後按下Enter



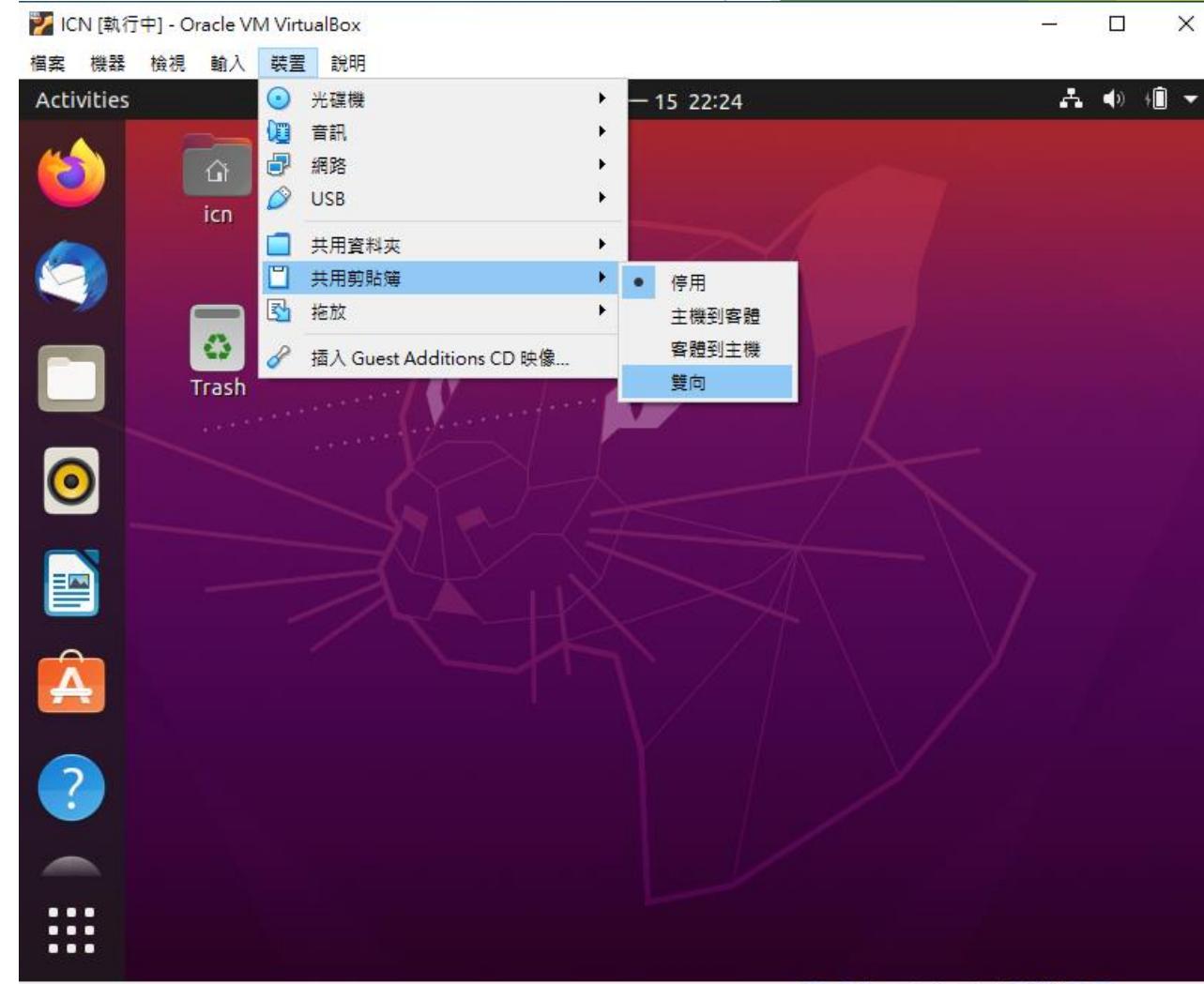
Install Ubuntu using VirtualBox(20/28)

- ▶ 重新啟動後直接全螢幕即可
- ▶ 若不行則將整台電腦重新開機



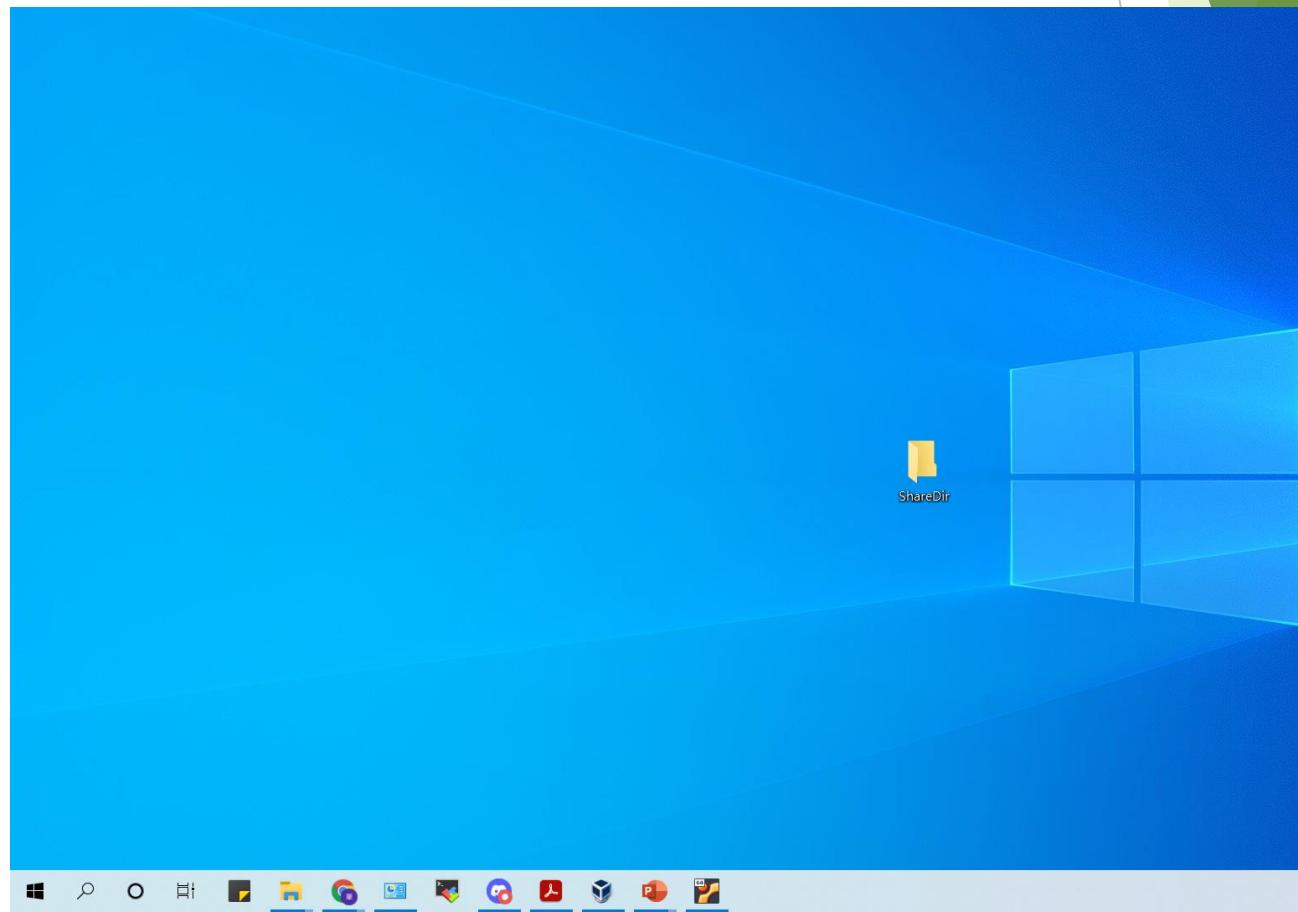
Install Ubuntu using VirtualBox(21/28)

- ▶ Virtual Box的內建功能，能夠讓Host及VM共用同一個剪貼簿
- ▶ 裝置->共用剪貼簿->雙向
- ▶ 重新啟動後即可使用



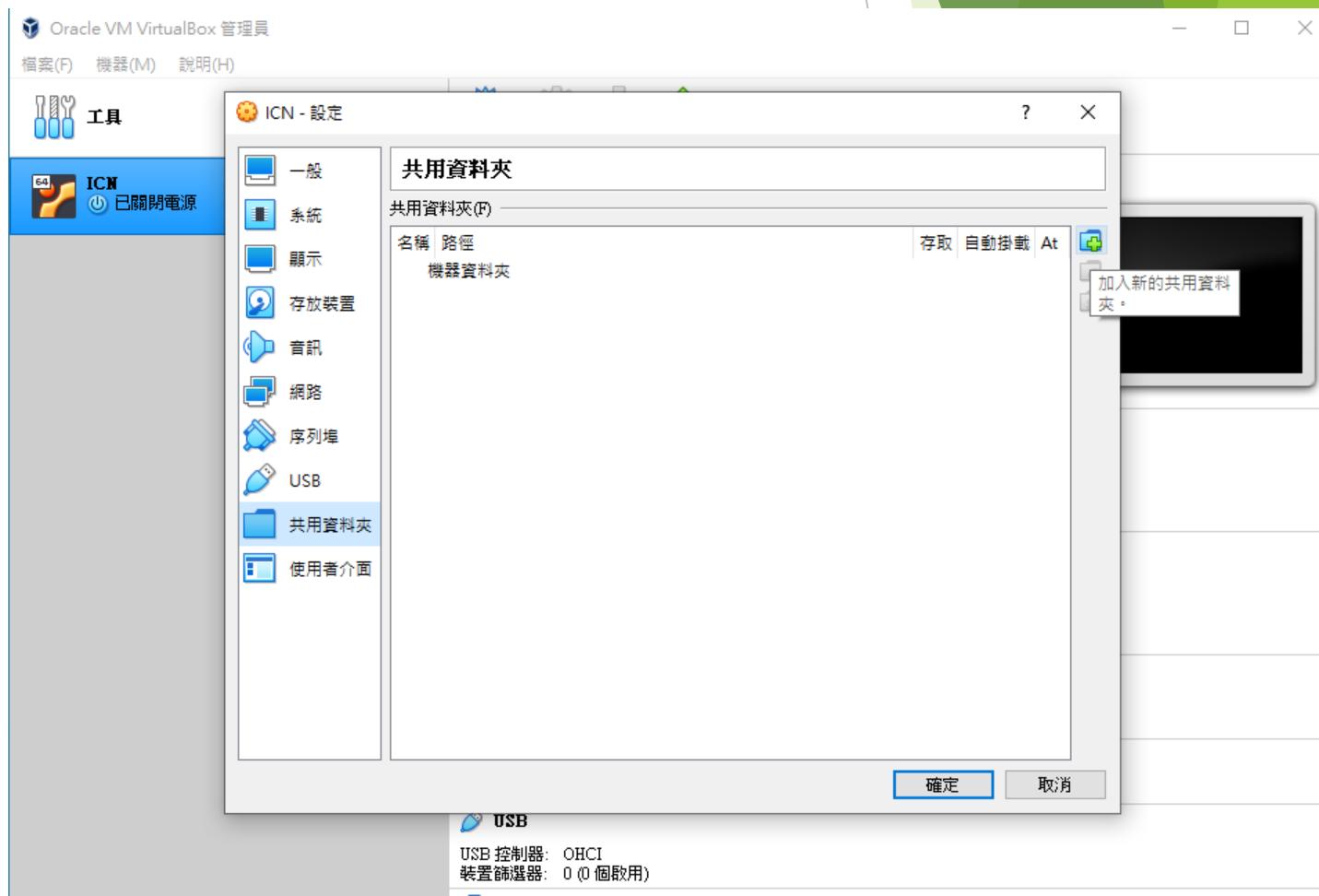
Install Ubuntu using VirtualBox(22/28)

- ▶ 先在windows桌面新增一個資料夾，命名為ShareDir



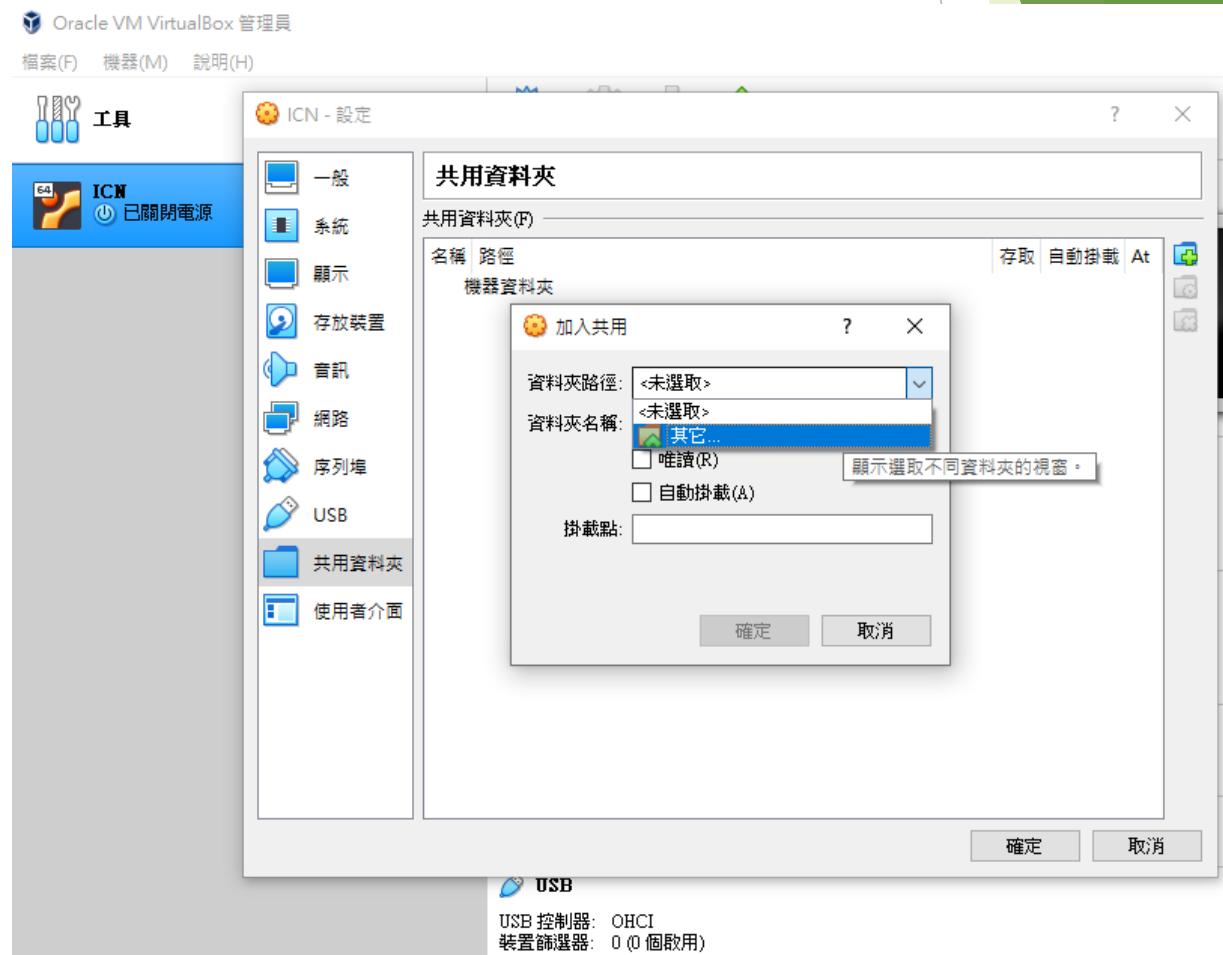
Install Ubuntu using VirtualBox(23/28)

- ▶ 選擇剛剛新增好的虛擬機，按設定>共用資料夾
- ▶ 選擇右邊(存取/自動掛載/At旁)的加入新的共用資料夾



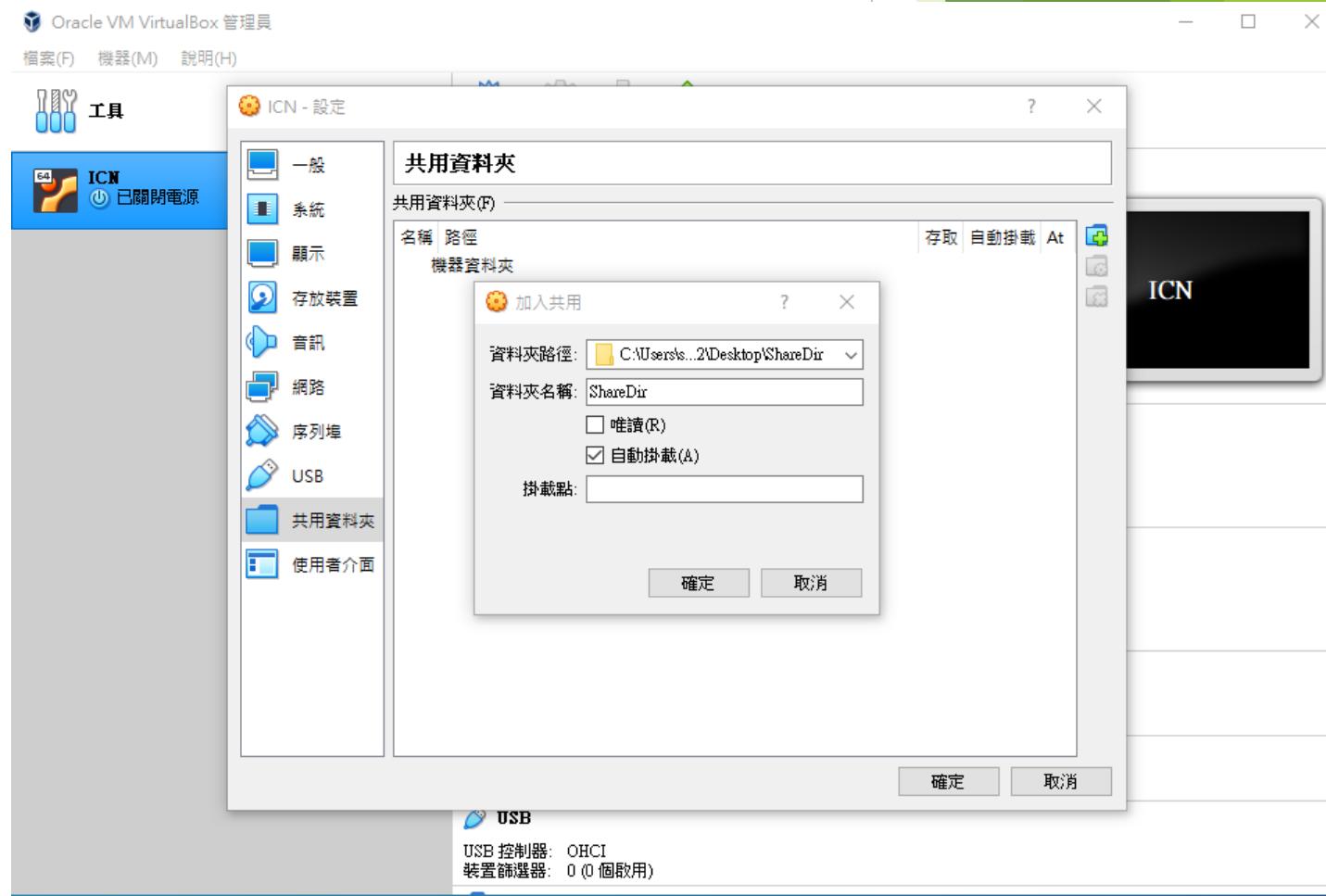
Install Ubuntu using VirtualBox(24/28)

- ▶ 資料夾捷徑下拉選單選擇其他



Install Ubuntu using VirtualBox(25/28)

- ▶ 選擇剛剛建立的桌面資料夾
- ▶ 點選自動掛載

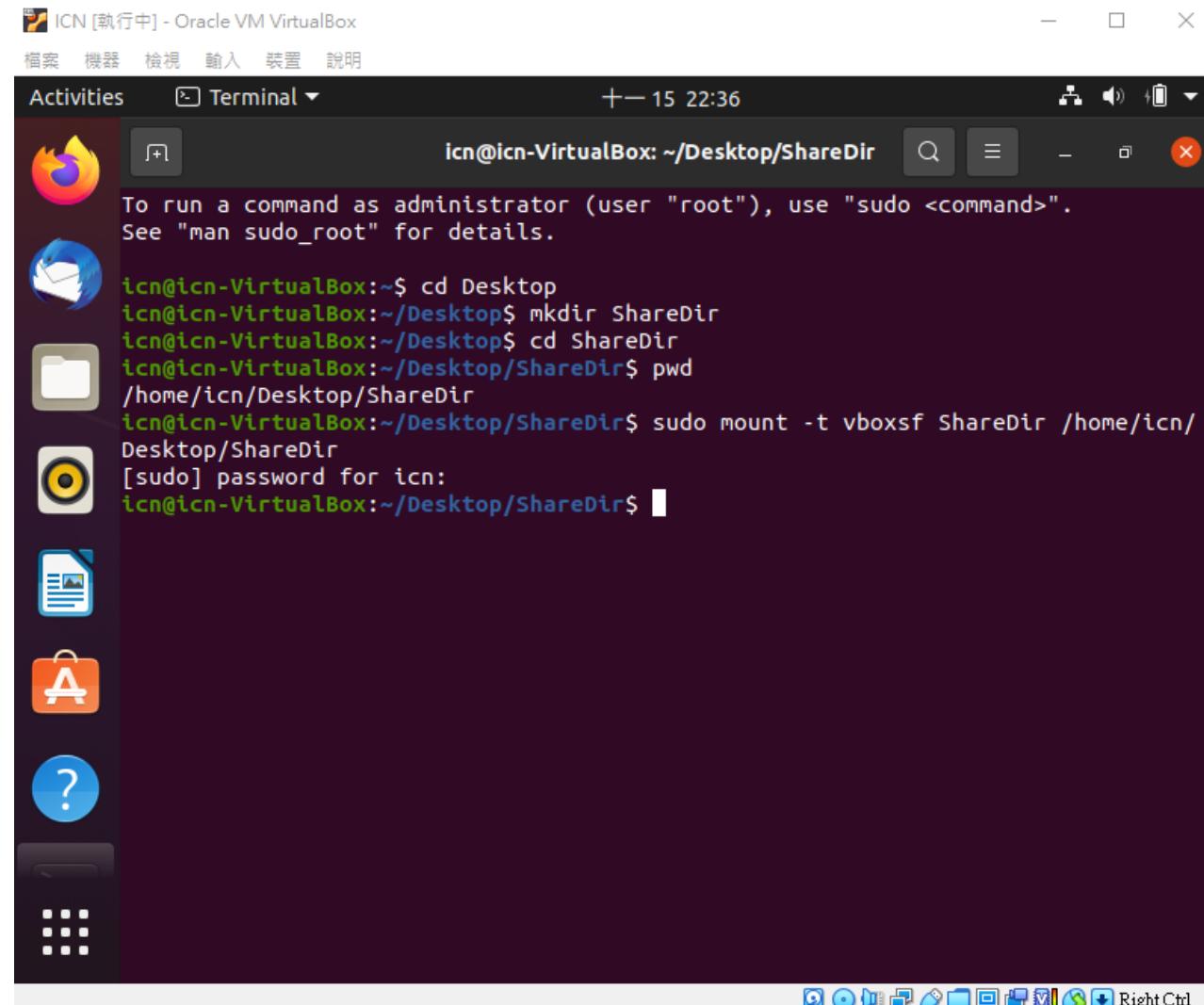


Install Ubuntu using VirtualBox(26/28)

- ▶ Ctrl + Alt + t 開啟termanal
- ▶ 輸入以下指令即可完成共用資料夾設定
- ▶ cd Desktop
- ▶ mkdir ShareDir
- ▶ cd ShareDir
- ▶ pwd
- ▶ sudo mount -t vboxsf ShareDir + <pwd指回傳的路徑>

Install Ubuntu using VirtualBox(27/28)

- ▶ 完成共用資料夾設定



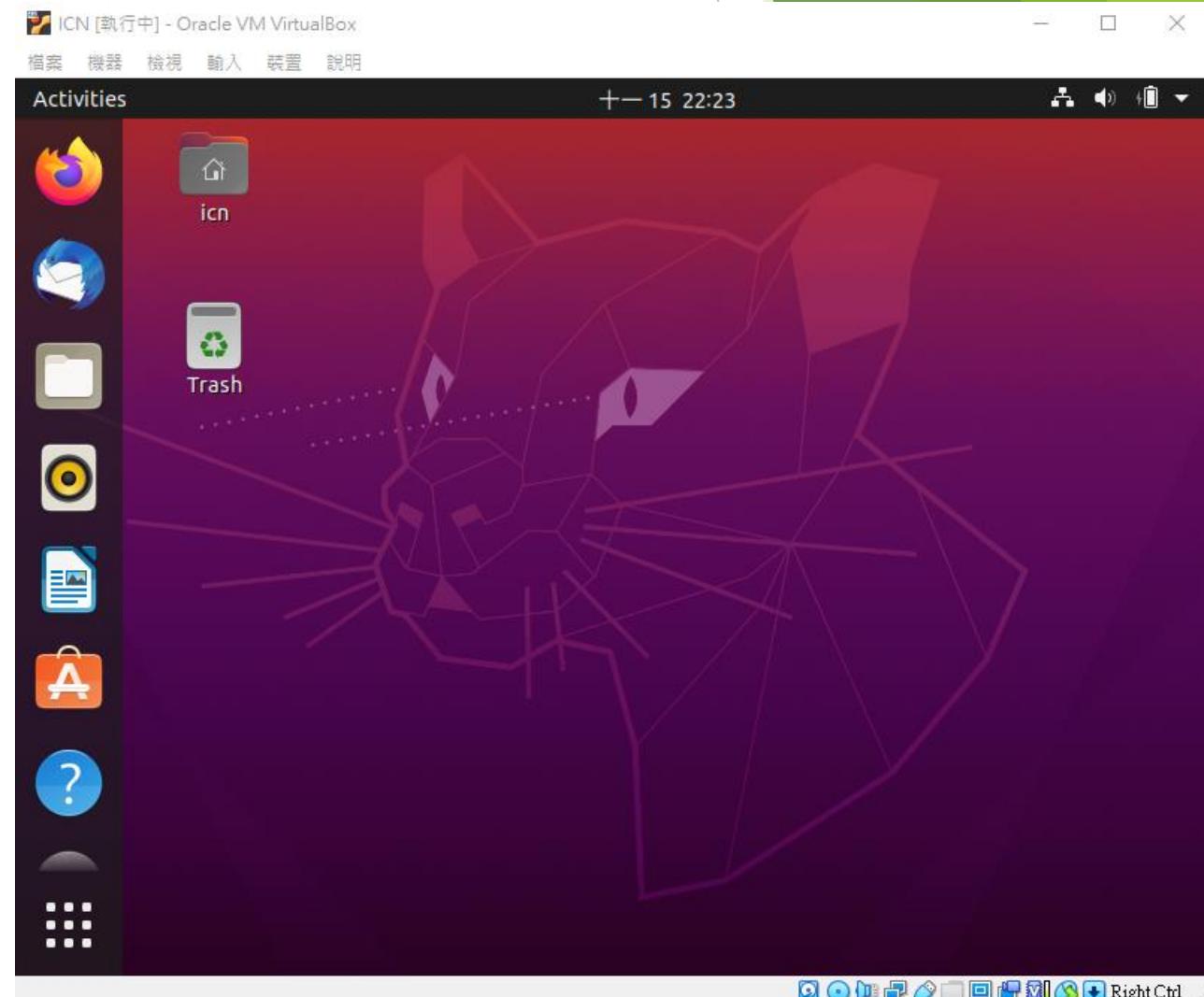
The screenshot shows a terminal window titled "ICN [執行中] - Oracle VM VirtualBox". The window has a dark theme with white text. On the left is a vertical dock containing icons for the Dash, Home, Activities, Terminal, and Help. The terminal itself has a header bar with the user "icn@icn-VirtualBox" and the path "~/Desktop/ShareDir". The main area of the terminal displays the following command history:

```
icn@icn-VirtualBox:~/Desktop$ cd Desktop
icn@icn-VirtualBox:~/Desktop$ mkdir ShareDir
icn@icn-VirtualBox:~/Desktop$ cd ShareDir
icn@icn-VirtualBox:~/Desktop/ShareDir$ pwd
/home/icn/Desktop/ShareDir
icn@icn-VirtualBox:~/Desktop/ShareDir$ sudo mount -t vboxsf ShareDir /home/icn/Desktop/ShareDir
[sudo] password for icn:
icn@icn-VirtualBox:~/Desktop/ShareDir$
```

The terminal window is part of the Unity desktop environment, as evidenced by the docked icons and the overall aesthetic.

Install Ubuntu using VirtualBox(28/28)

- ## ► Ubuntu安裝完成



Install Ubuntu using VMware(1/22)

- ▶ 下載VMware
- ▶ <https://www.vmware.com/tw/products/workstation-player/workstation-player-evaluation.html>
- ▶ 選擇適用windows適用的workstation 16.0 player

The screenshot shows a web browser window with the URL [vmware.com/tw/products/workstation-player/workstation-player-evaluation.html](https://www.vmware.com/tw/products/workstation-player/workstation-player-evaluation.html). The page title is "VMware Workstation 16 Player". It features a large "vmware WORKSTATION PLAYER™ 16" logo. Below it, there are two main download sections: "試用 Windows 適用的 Workstation 16.0 Player" with a "立即下載 >" button, and "試用 Linux 適用的 Workstation 16.0 Player" with a "立即下載 >" button. The page also includes a brief description of the product and links for commercial and educational versions.

VMware Workstation 16 Player

VMware Workstation Player

VMware Workstation Player is a virtualization software that allows you to run multiple operating systems on a single computer. It's ideal for professionals who need to test and develop software across different environments, or for students and educators who want to learn and experiment with various operating systems. The free version is available for non-commercial use, such as personal and home use. We also encourage students and non-profit organizations to use the free version.

Commercial organizations that use Workstation Player must obtain a commercial license. If you need more advanced virtualization solutions, consider Workstation Pro.

試用 Windows 適用的 Workstation 16.0 Player

立即下載 >

試用 Linux 適用的 Workstation 16.0 Player

立即下載 >

Cookie Settings

在這裡輸入文字來搜尋

22°C 多雲時陰 2021/11/16

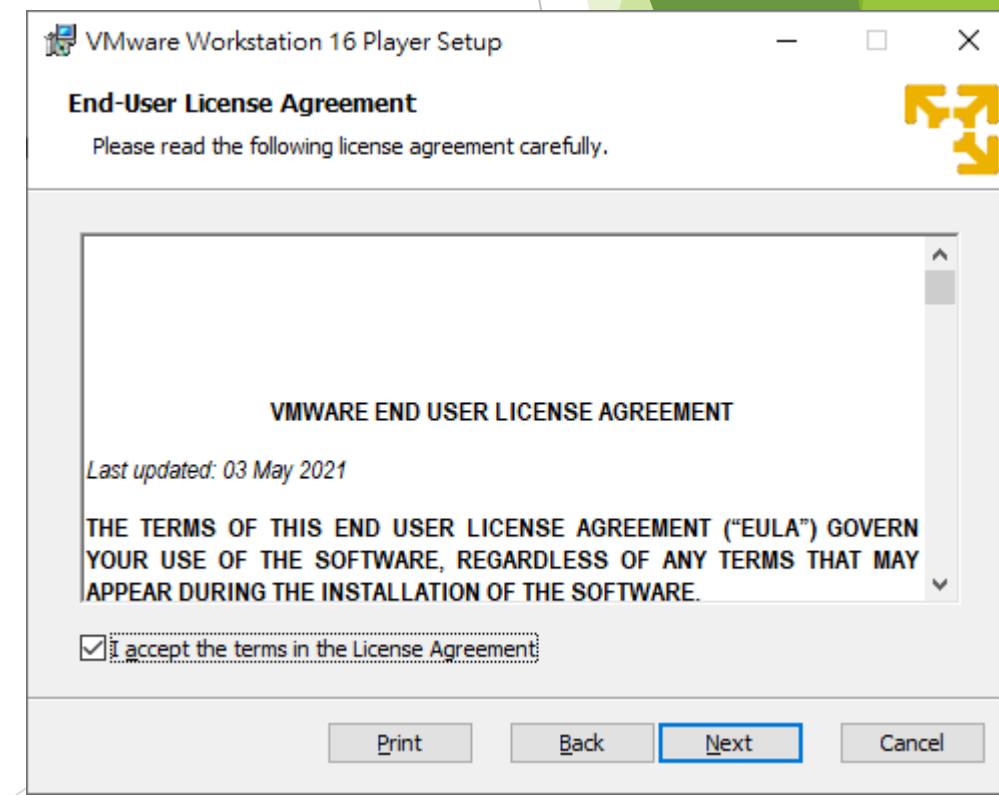
Install Ubuntu using VMware(2/22)

- ▶ 基本上一直按Next即可



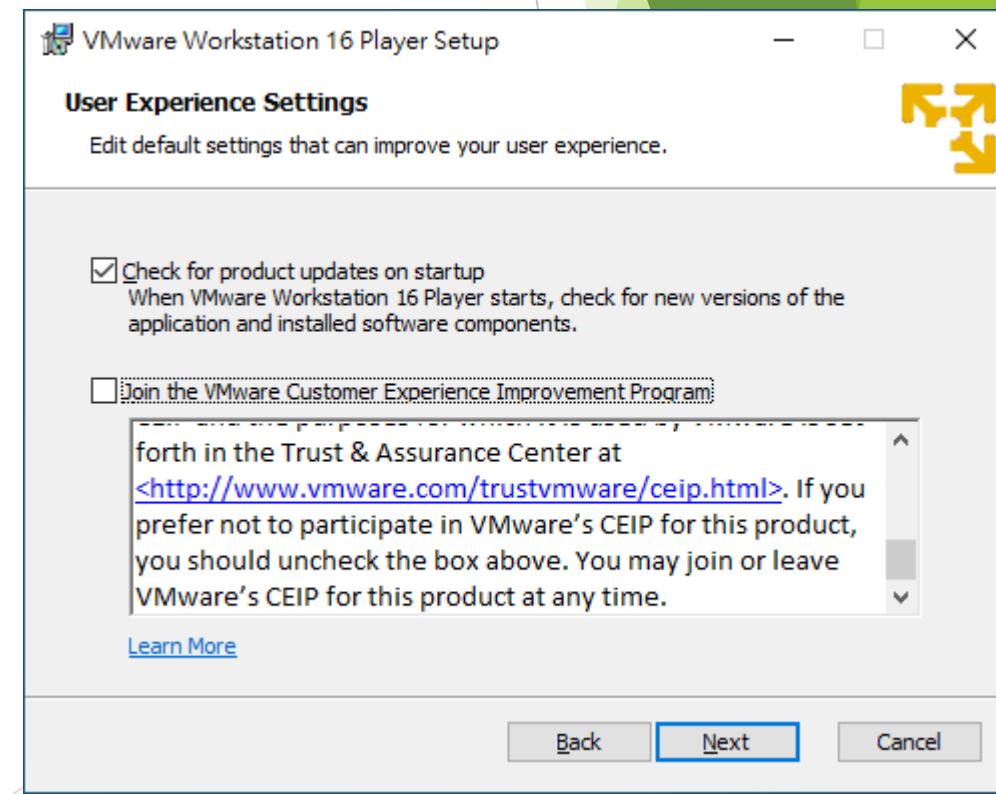
Install Ubuntu using VMware(3/22)

- ▶ 勾選I accept the terms in the License Agreement
- ▶ 按Next



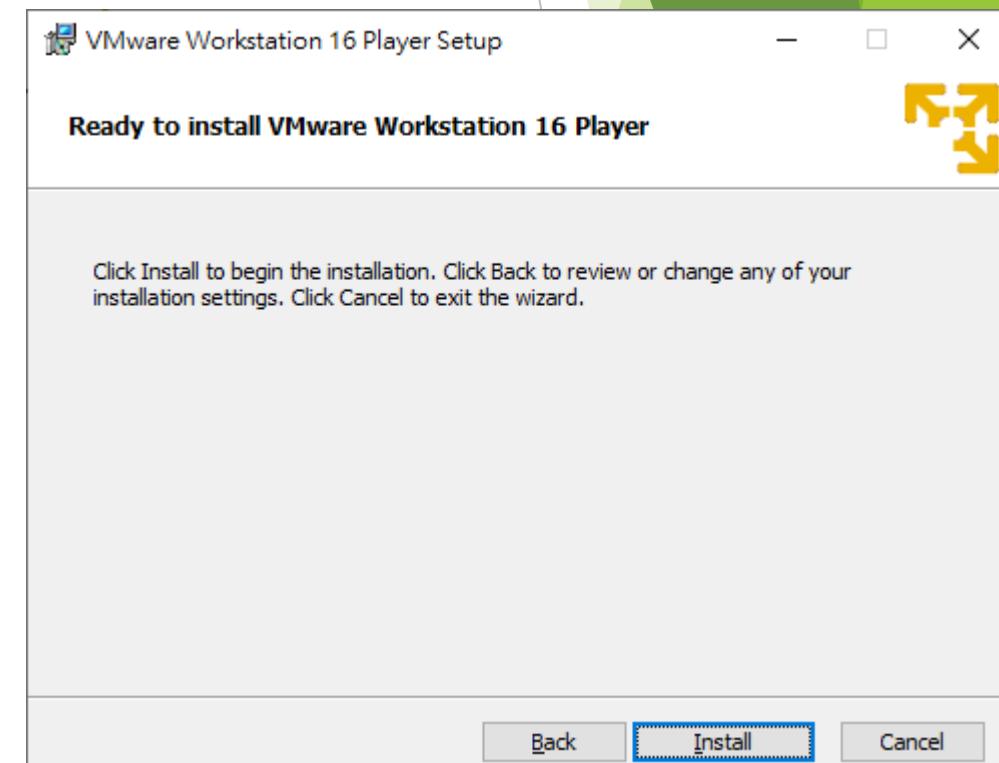
Install Ubuntu using VMware(4/22)

- ▶ 取消勾選Join the VMware Customer Experience Improvement Program
- ▶ 若願意協助Vmware改善軟體，可保留此選項
- ▶ 按Next



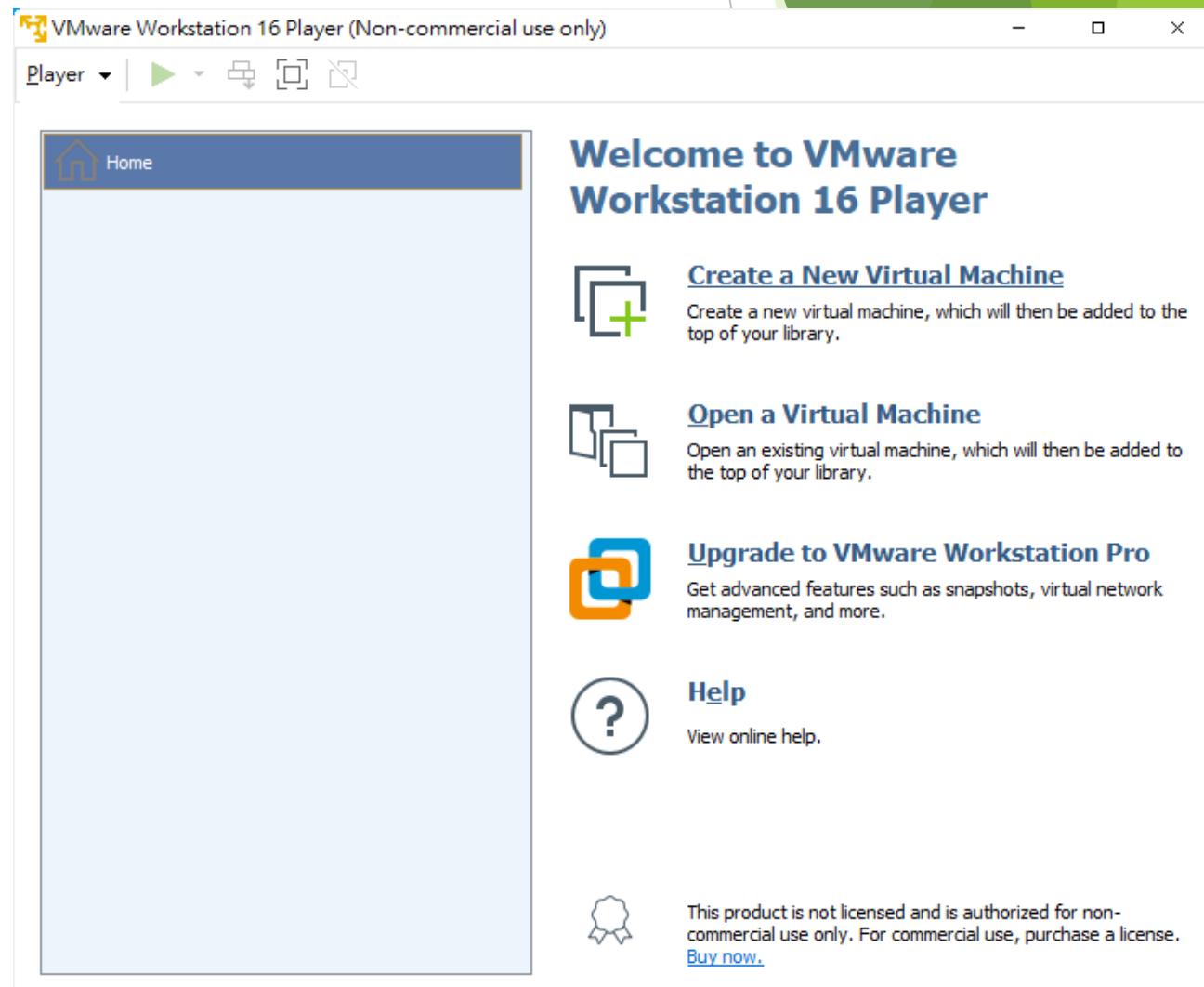
Install Ubuntu using VMware(5/22)

- ▶ 最後按 install 即可



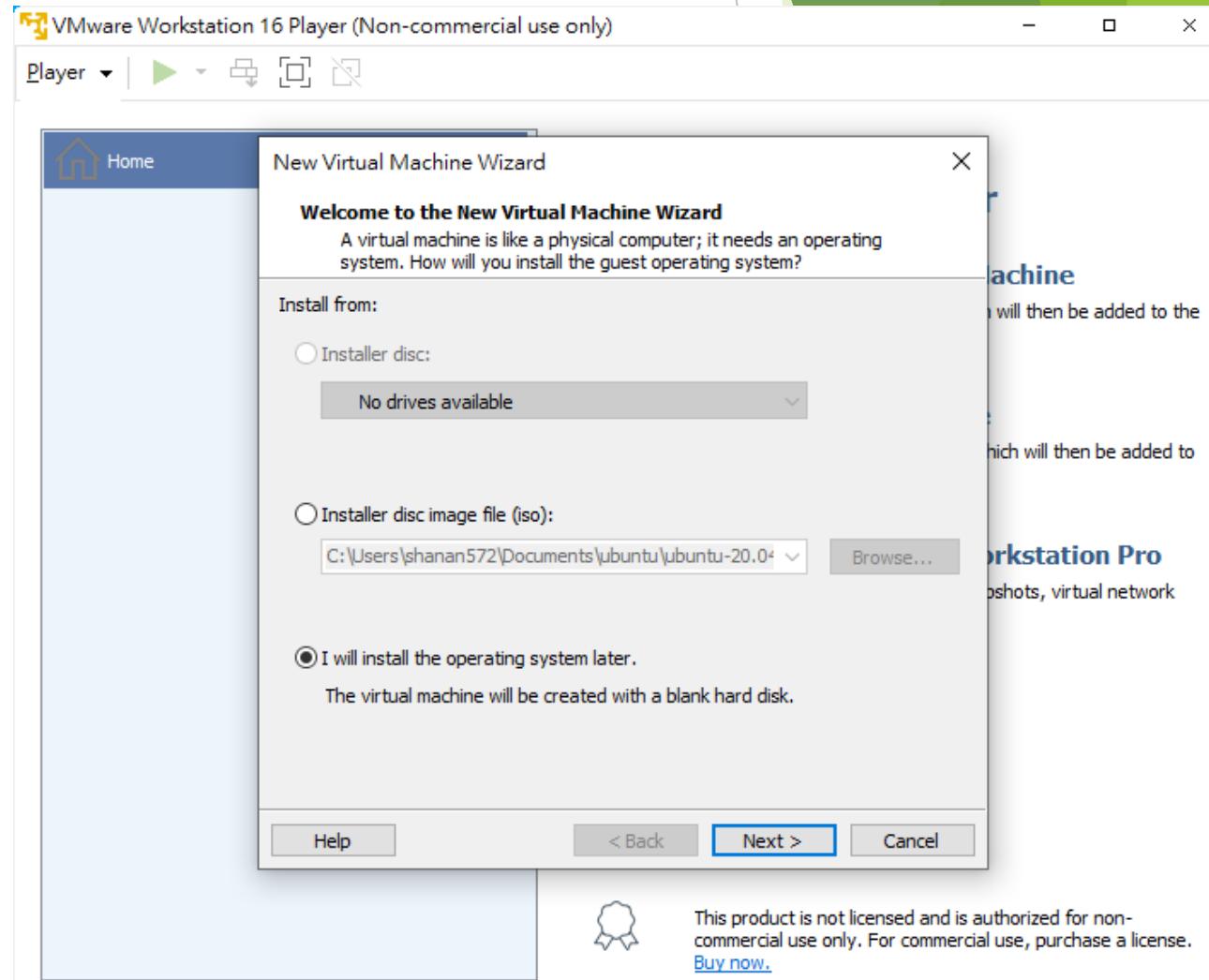
Install Ubuntu using VMware(6/22)

- ▶ 選擇Create a New Virtual Machine



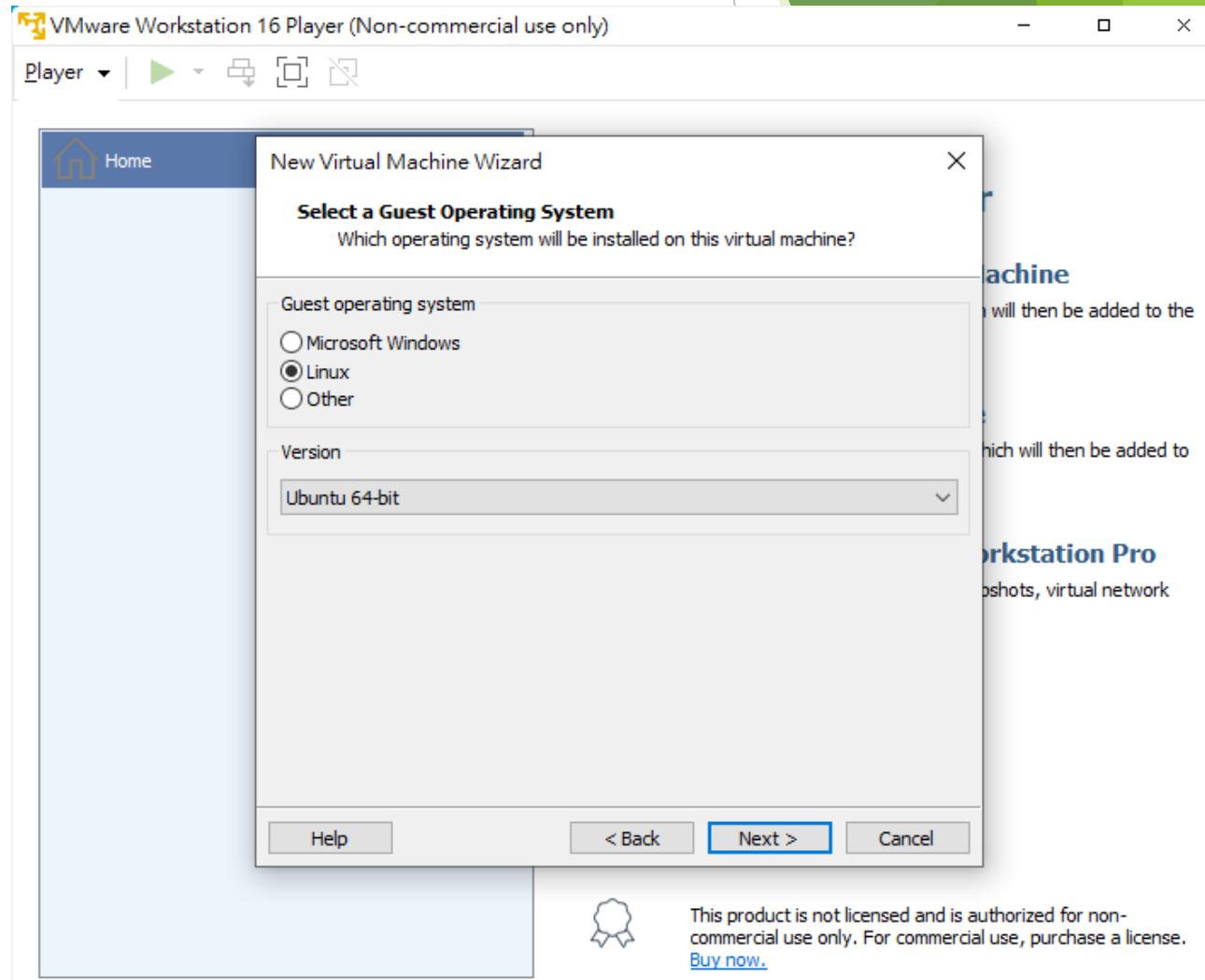
Install Ubuntu using VMware(7/22)

- ▶ 選擇I will install the operating system later.
- ▶ 按Next



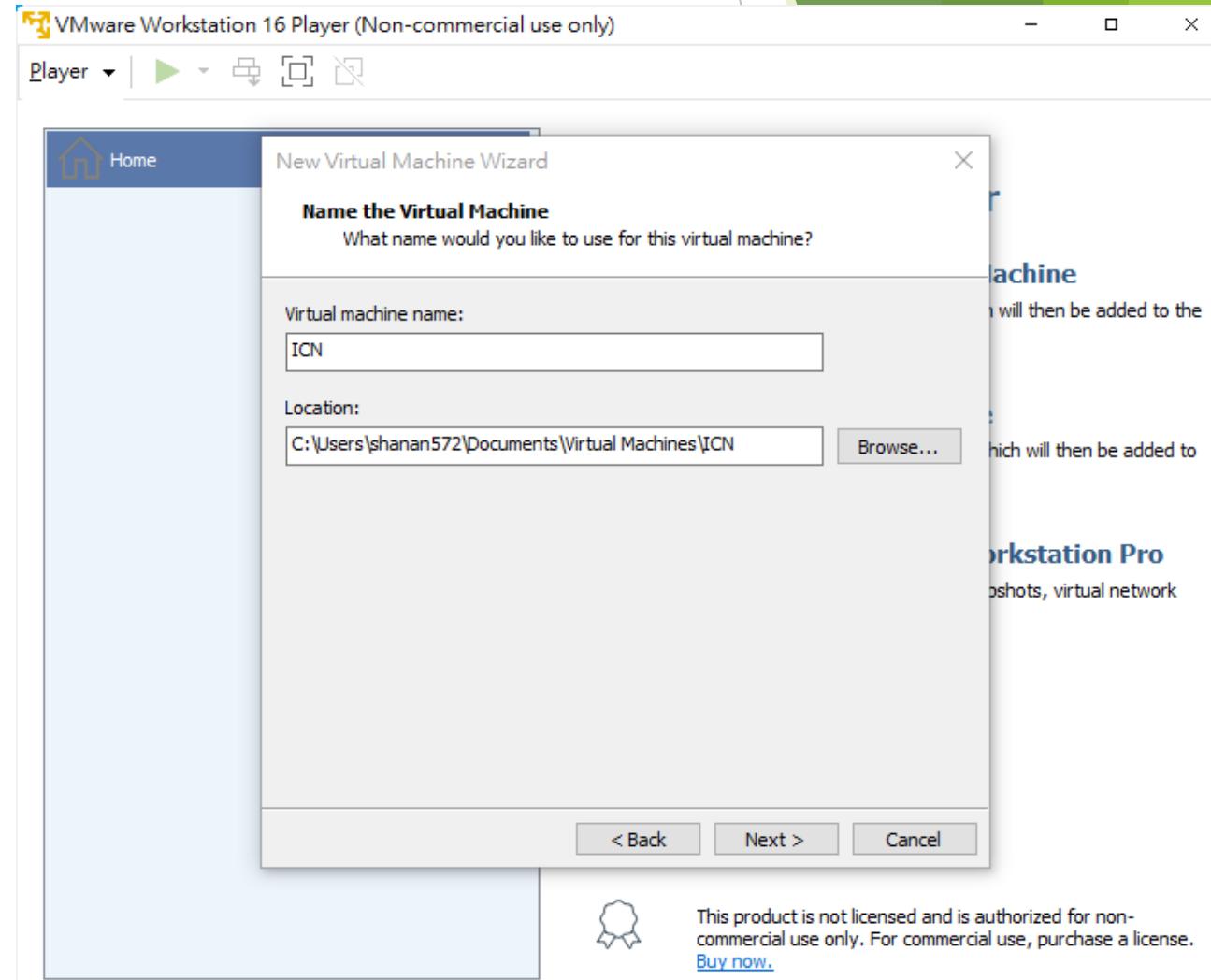
Install Ubuntu using VMware(8/22)

- ▶ 選擇Linux. Ubuntu 64-bit
- ▶ 按Next



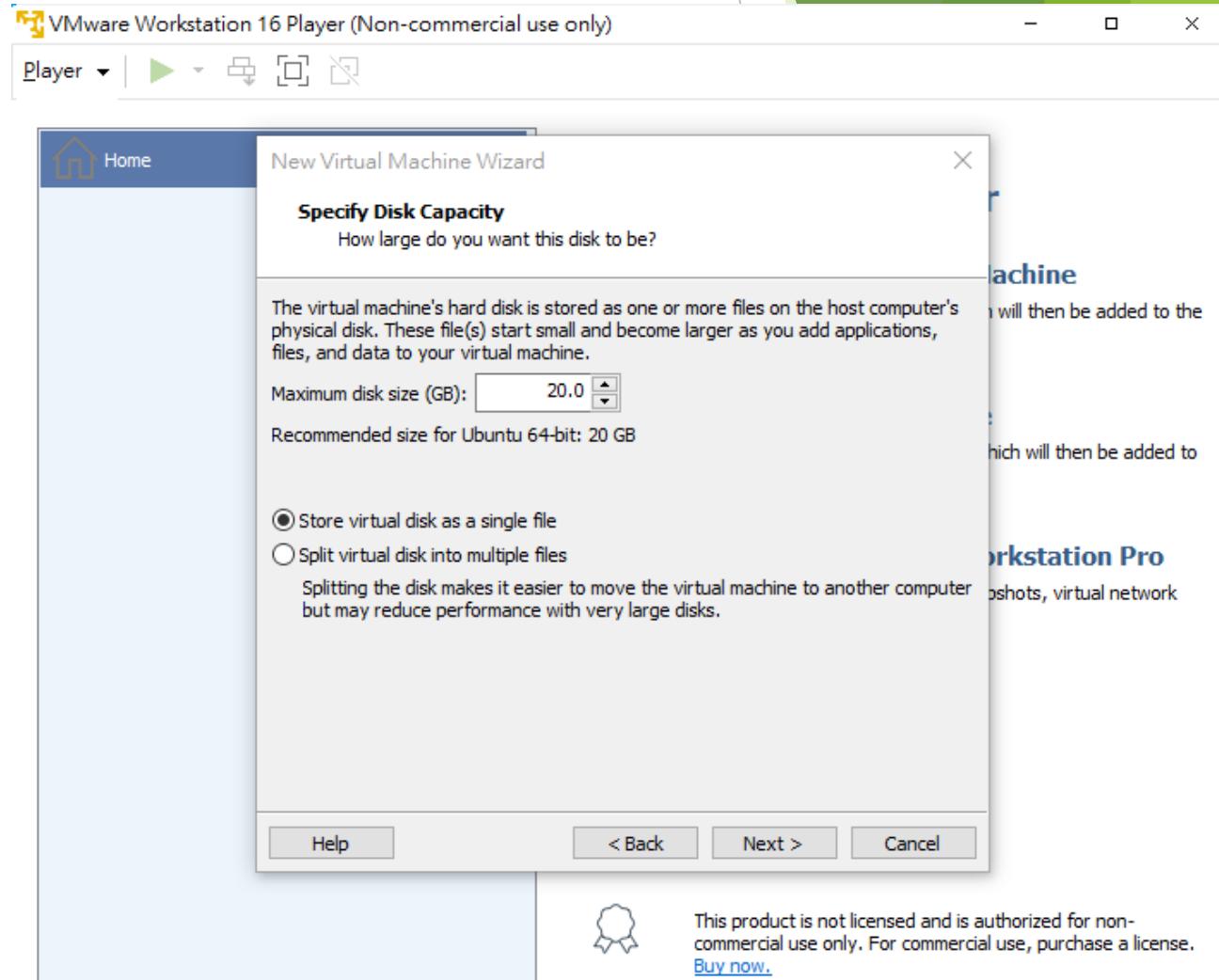
Install Ubuntu using VMware(9/22)

- ▶ 設定VM名稱
- ▶ 按Next



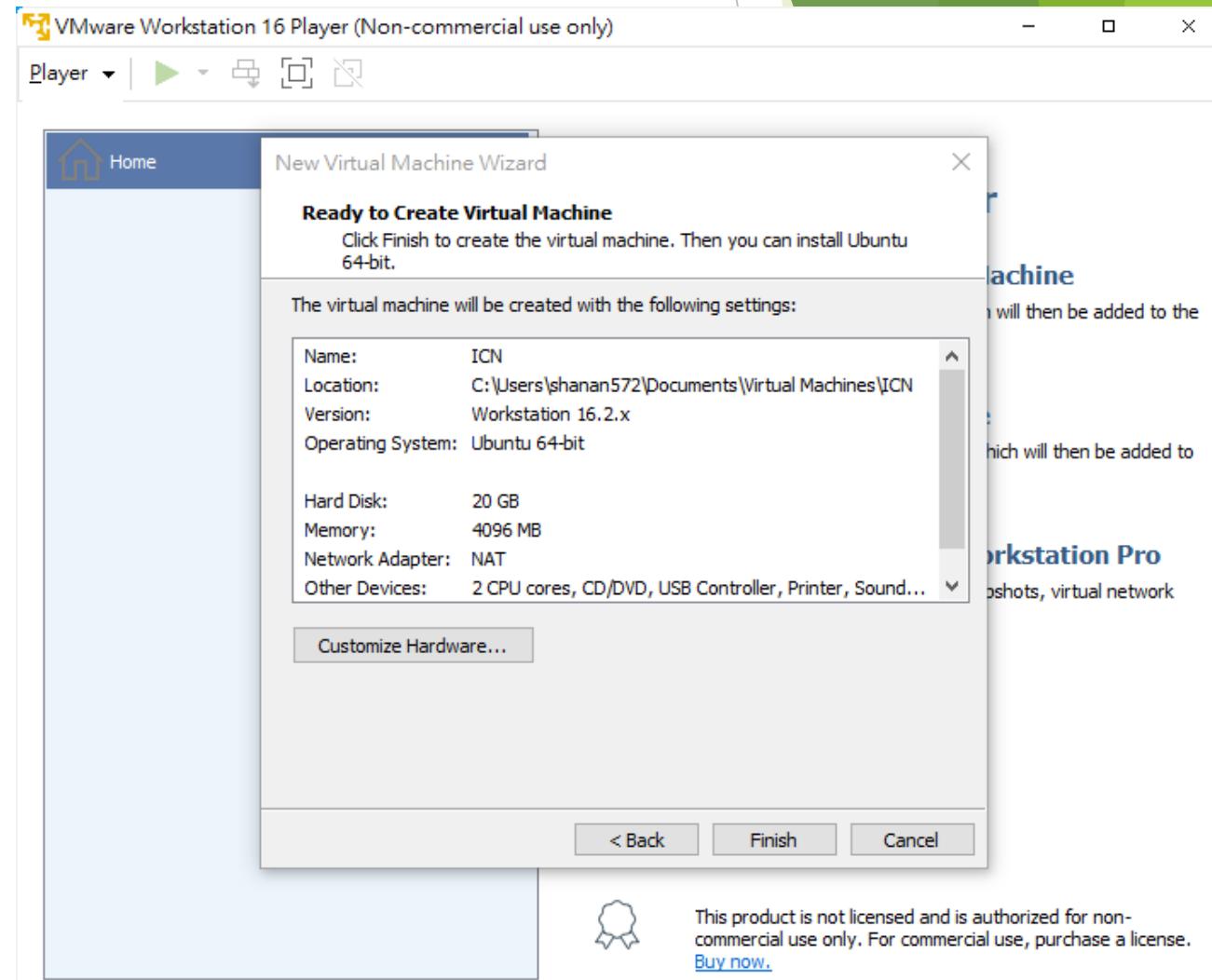
Install Ubuntu using VMware(10/22)

- ▶ 設定硬碟大小為20GB
- ▶ 選擇store virtual disk as a single file
- ▶ 按Next



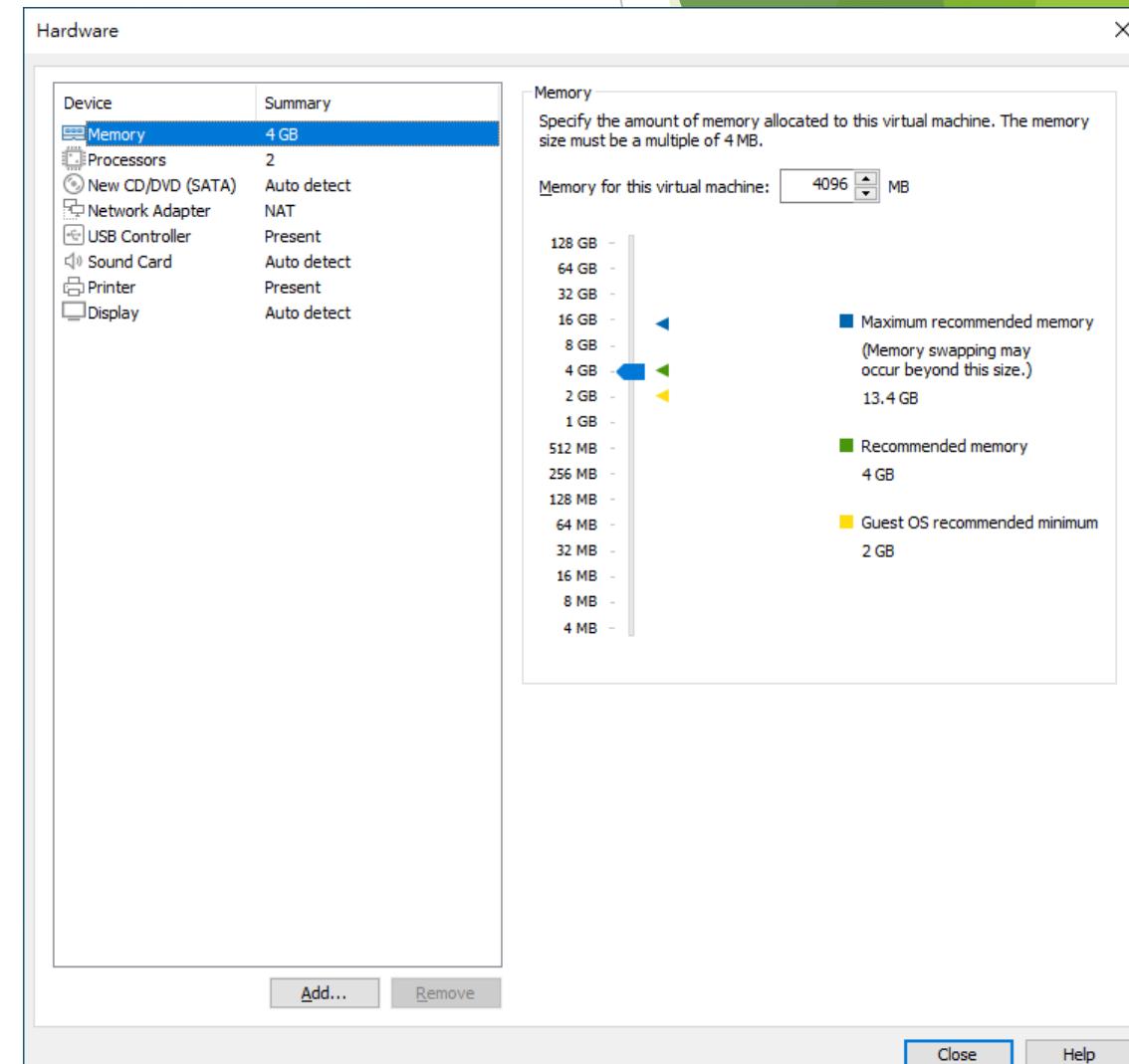
Install Ubuntu using VMware(11/22)

- ▶ 選擇customize hardware
- ▶ 按Finish



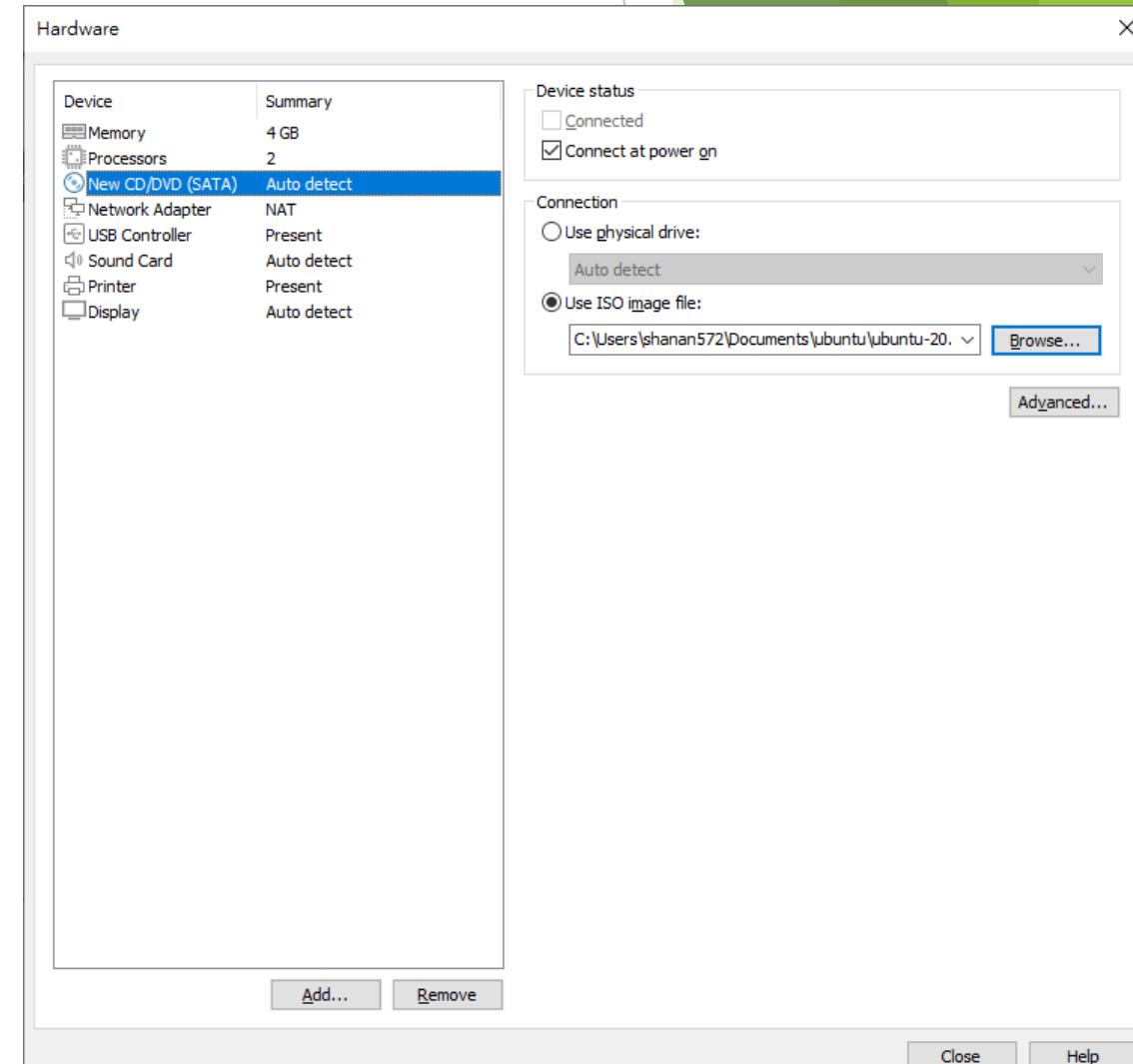
Install Ubuntu using VMware(12/22)

- ▶ 確認記憶體及處理器設定
- ▶ 記憶體設定最小為2GB，也可按預設給定4GB



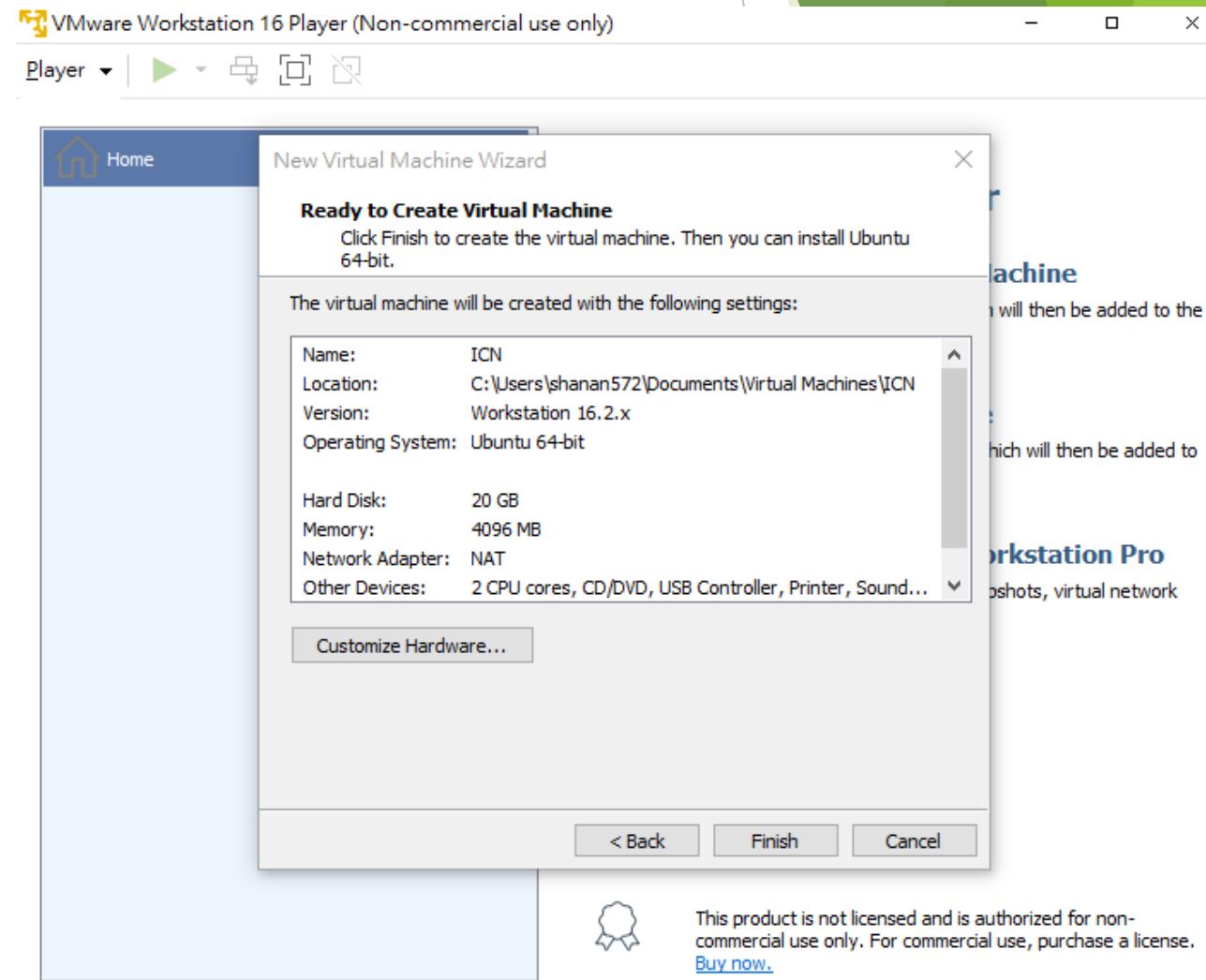
Install Ubuntu using VMware(13/22)

- ▶ 選擇New CD/DVD(SATA)
- ▶ 選擇use ISO image file
- ▶ 選擇剛剛下載的ubuntu的iso檔
- ▶ 按close



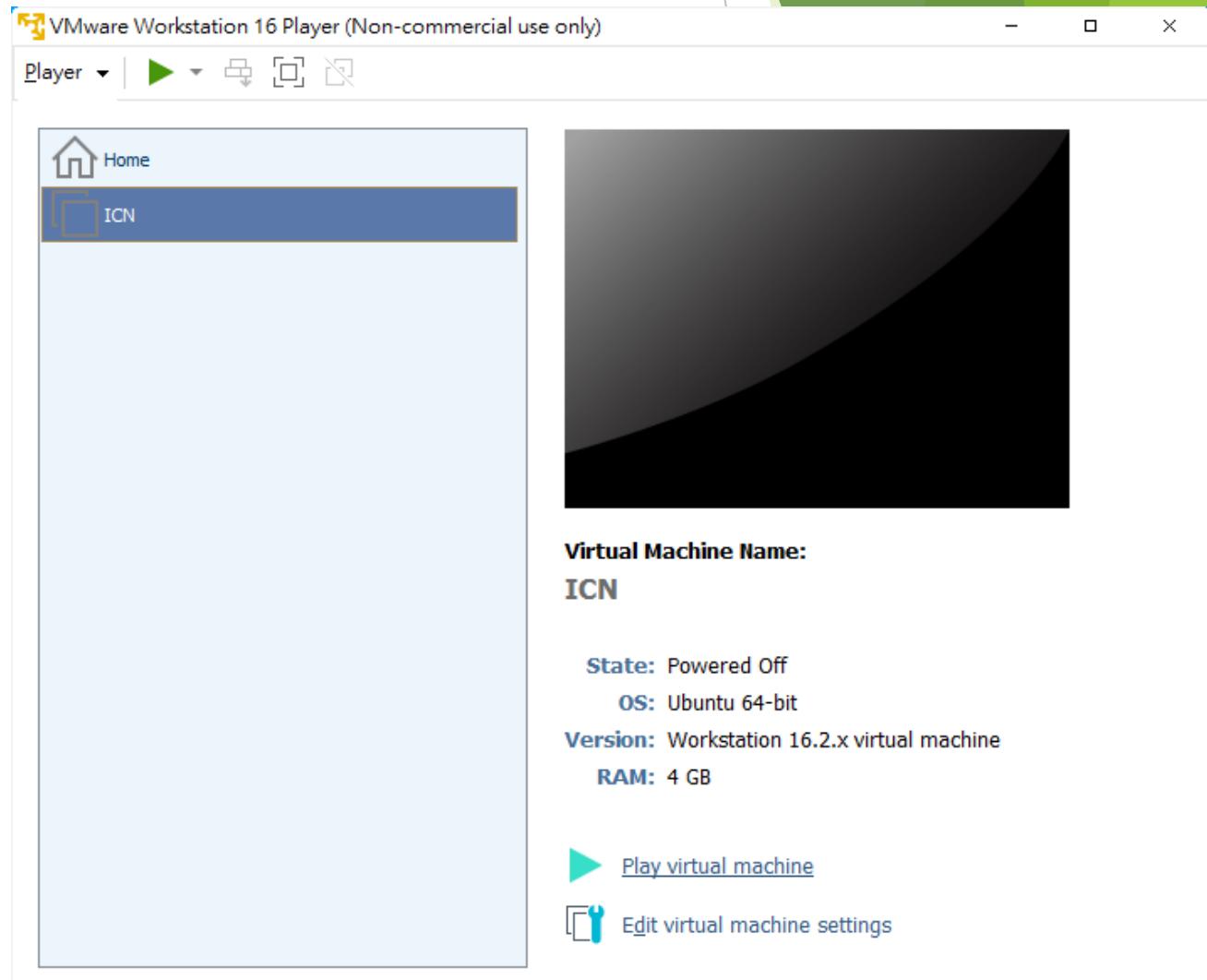
Install Ubuntu using VMware(14/22)

- ▶ 按Finish



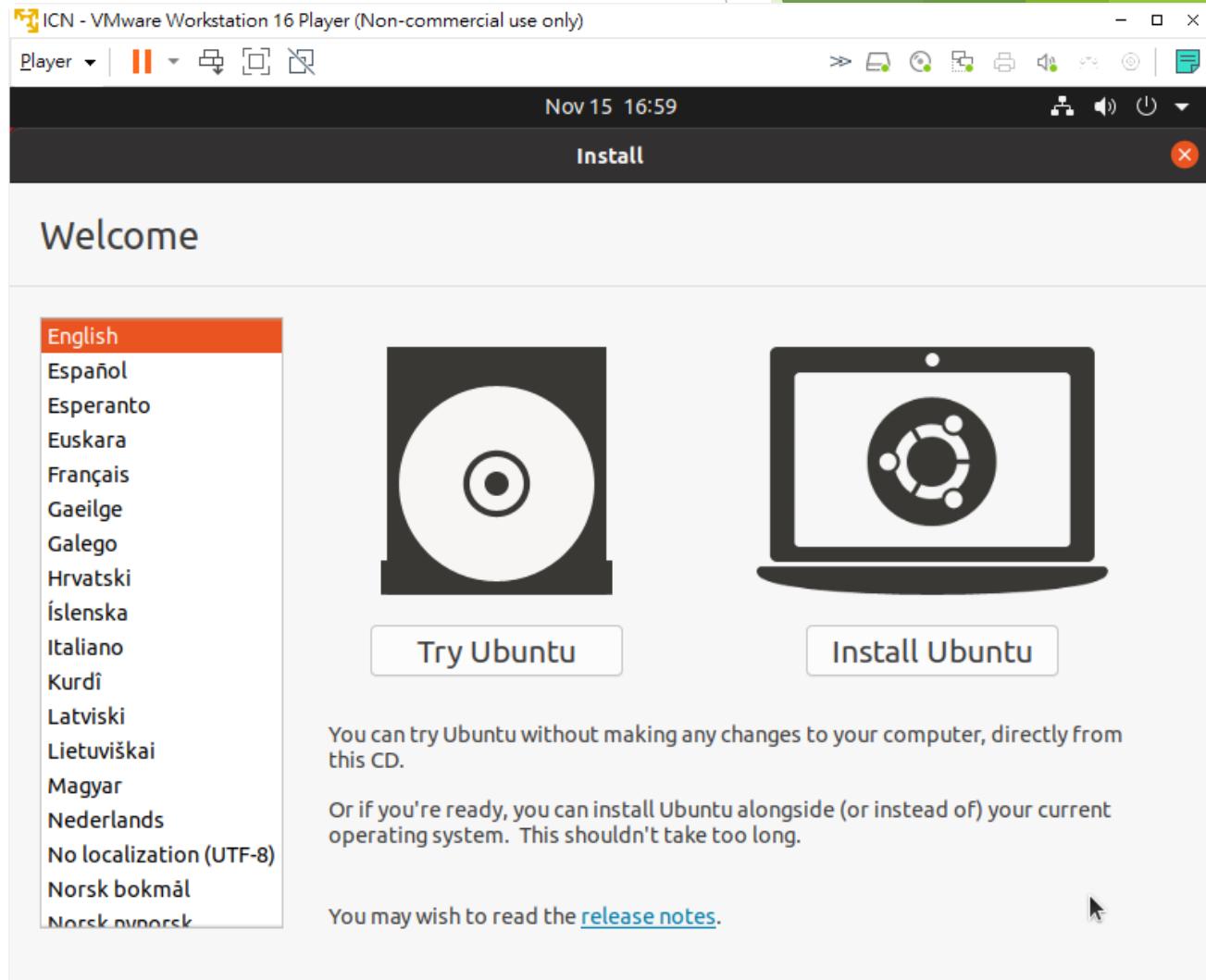
Install Ubuntu using VMware(15/22)

- ▶ 選擇虛擬機>按play the virtual machine



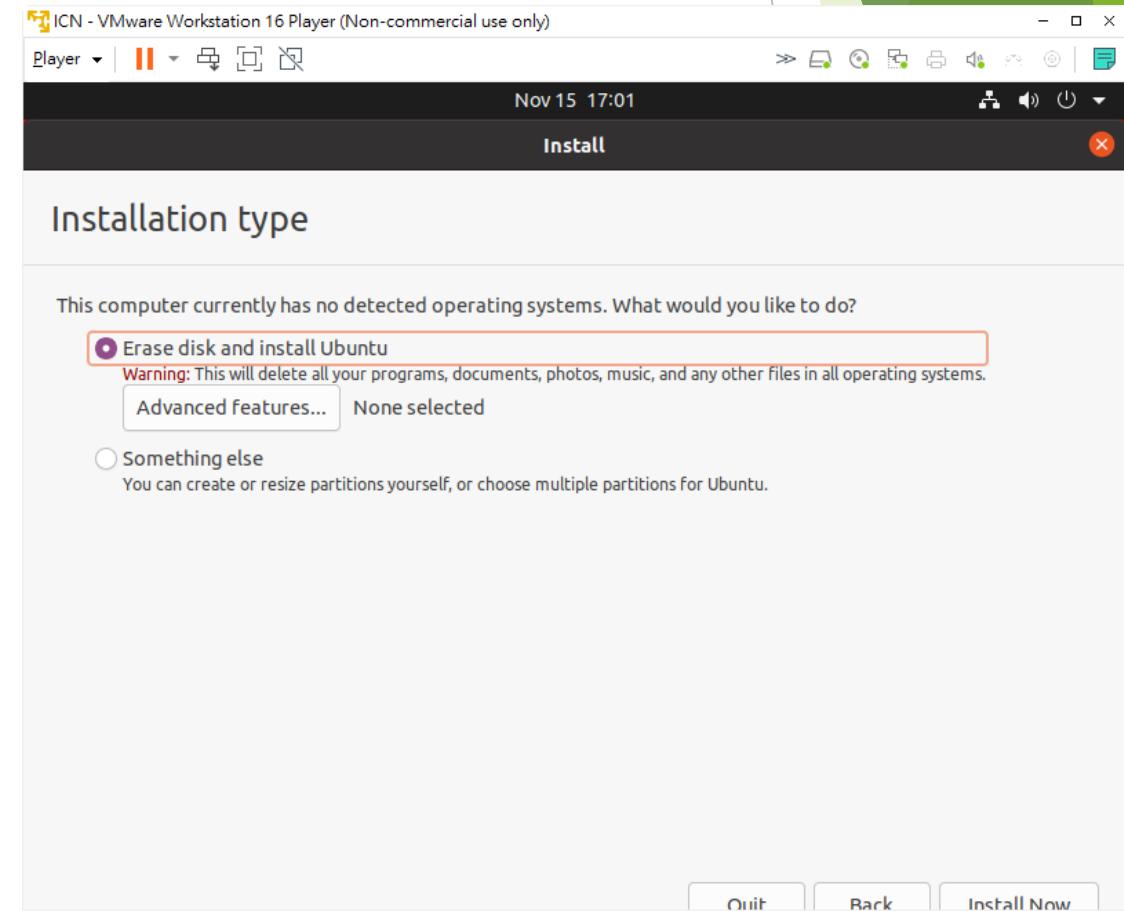
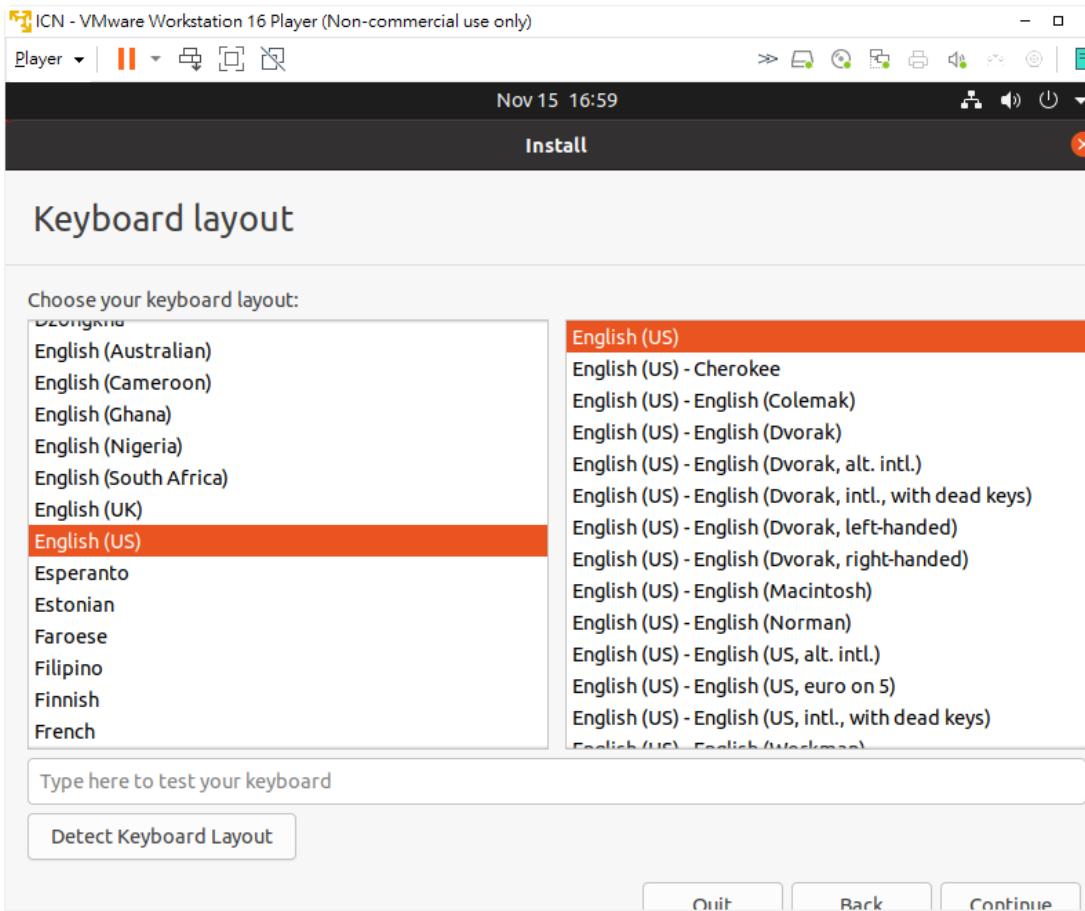
Install Ubuntu using VMware(16/22)

- ▶ 選擇English
- ▶ 選擇Install Ubuntu



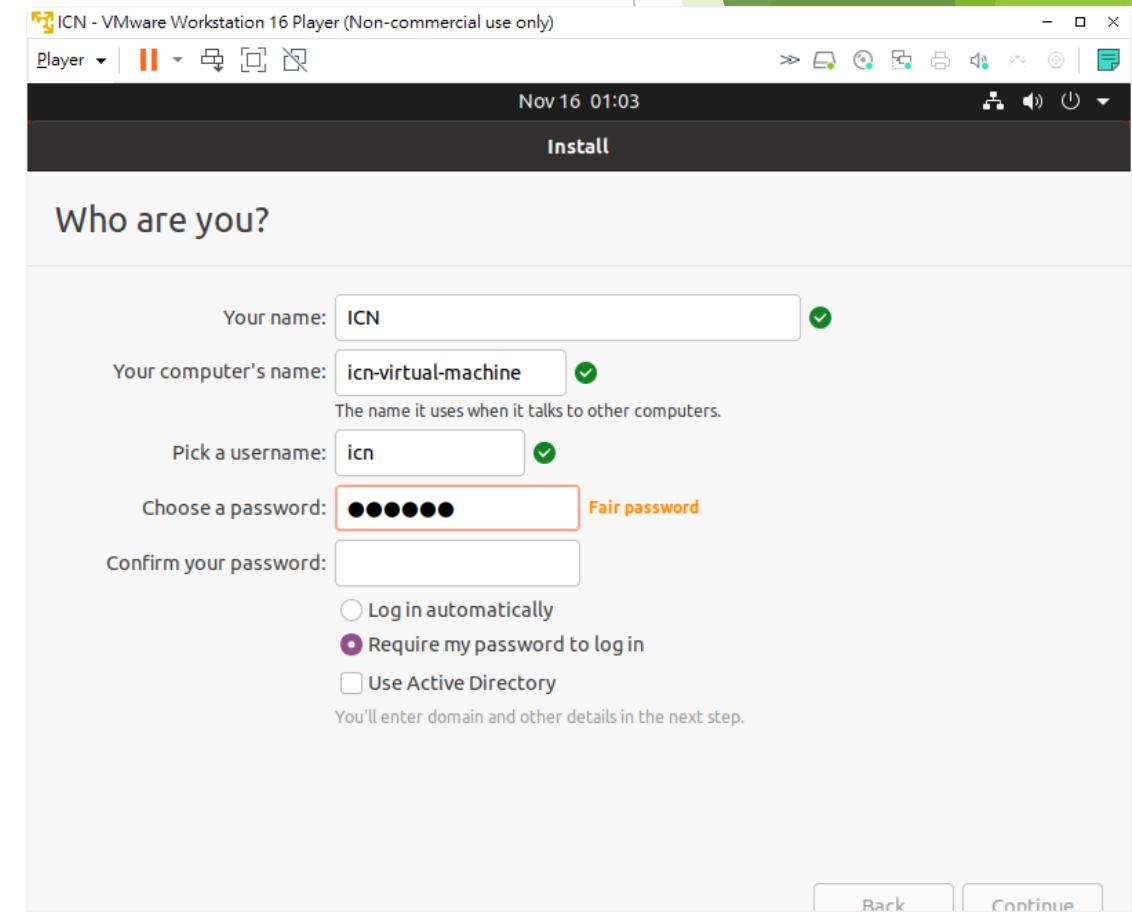
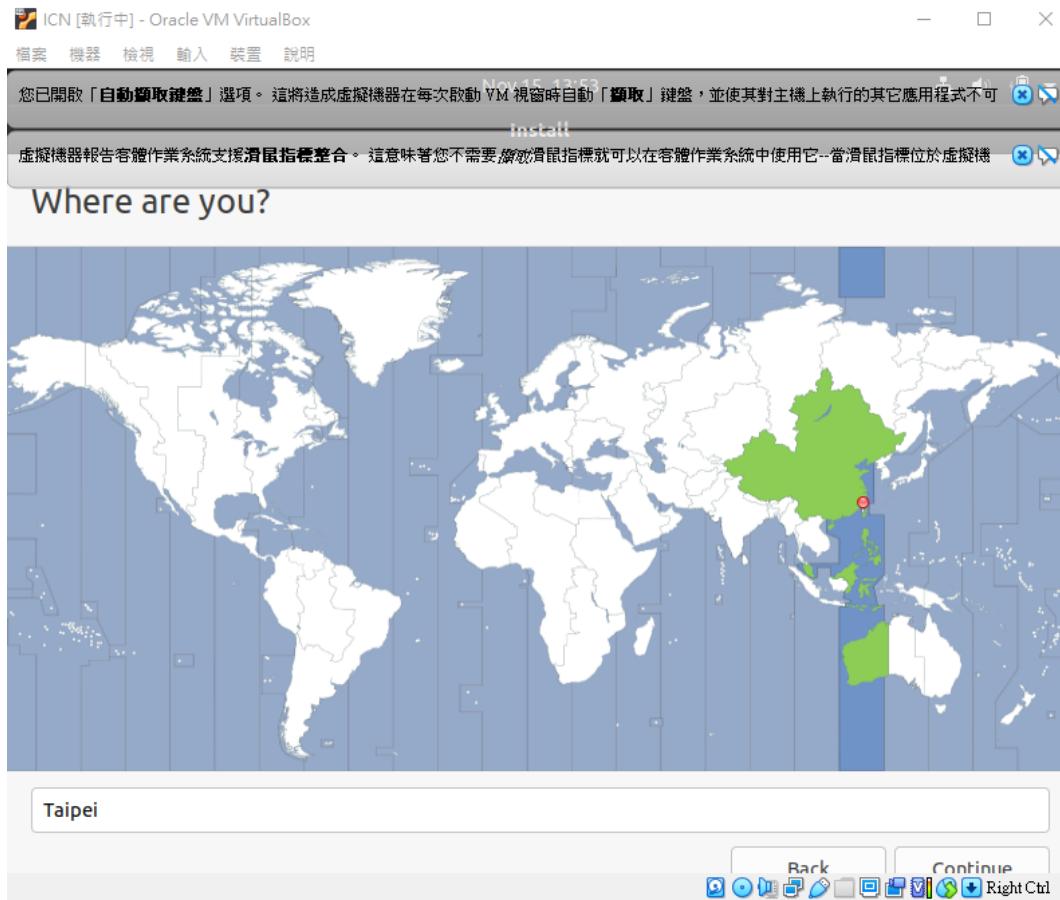
Install Ubuntu using VMware(17/22)

- ▶ 所有步驟Continue即可
- ▶ 最後選擇Install Now



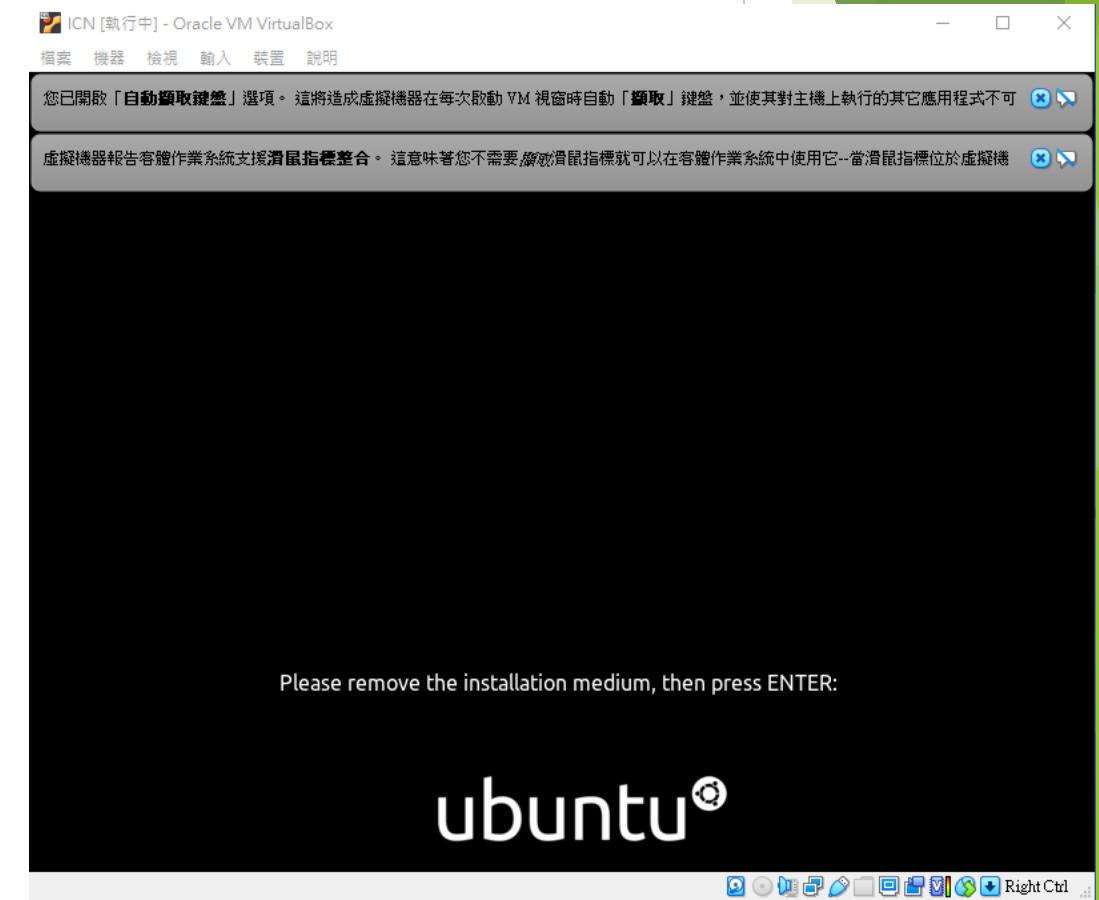
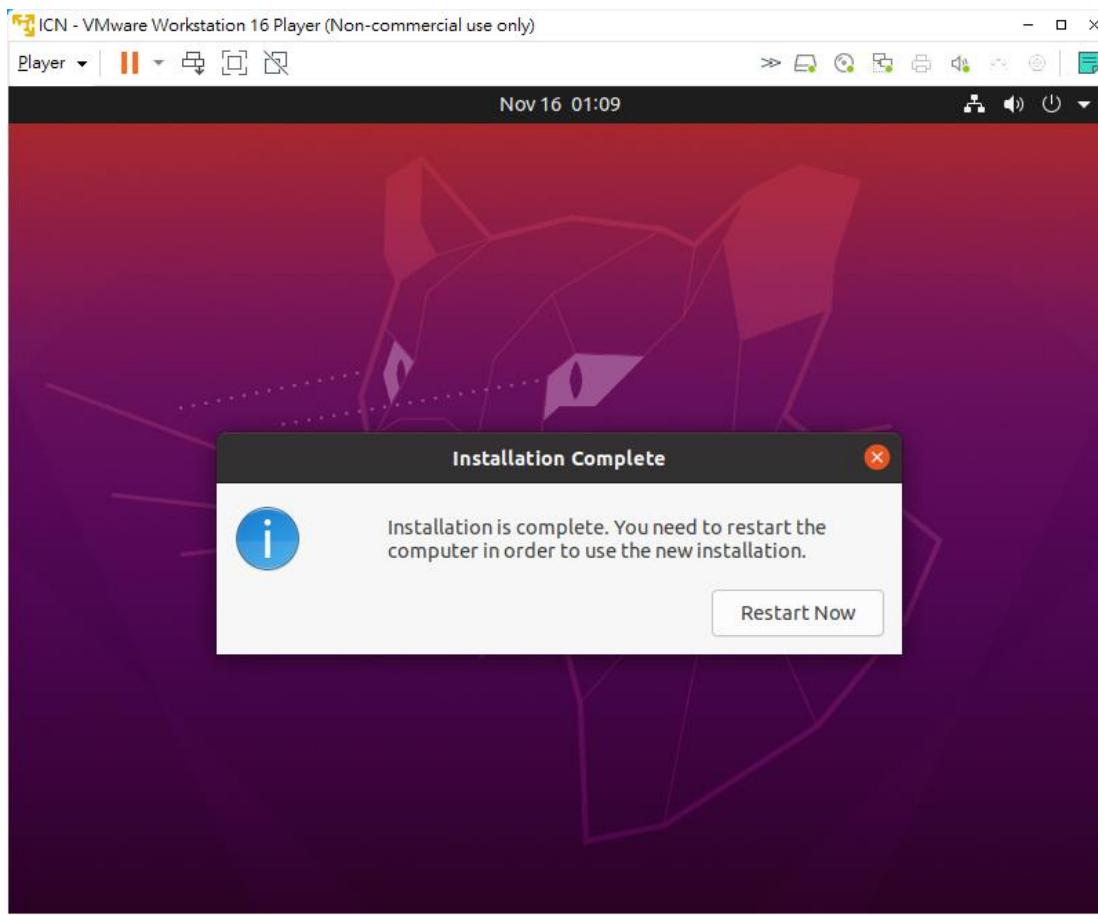
Install Ubuntu using VMWare(18/22)

- ▶ 選擇Continue(借用VirtualBox圖片)
- ▶ 最後設定使用者名稱與密碼



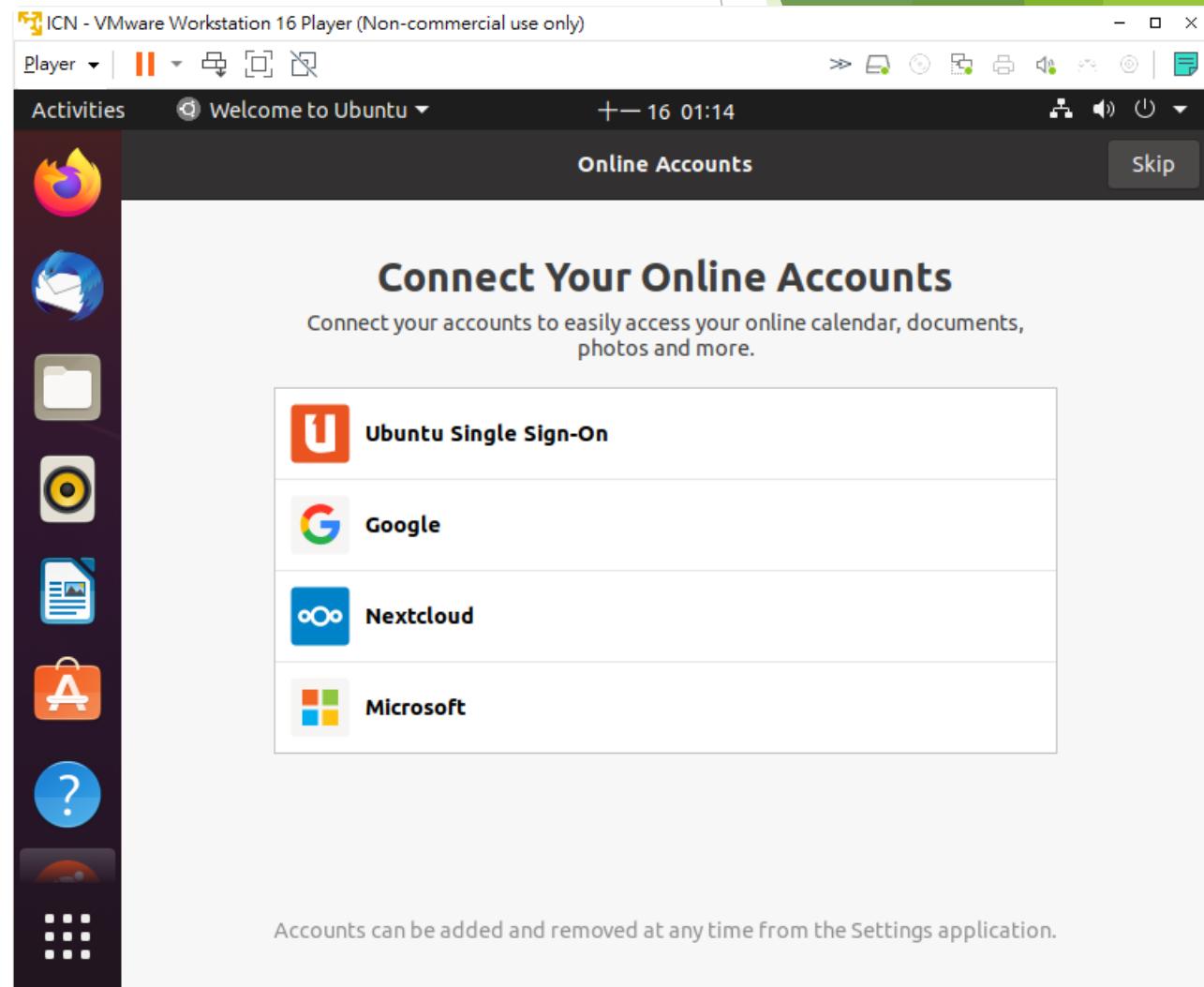
Install Ubuntu using VMWare(19/22)

- ▶ 安裝完成後會要求Restart Now，此時會看到一個提示
- ▶ 按下Enter即可重新啟動虛擬機(借用VirtualBox圖片)



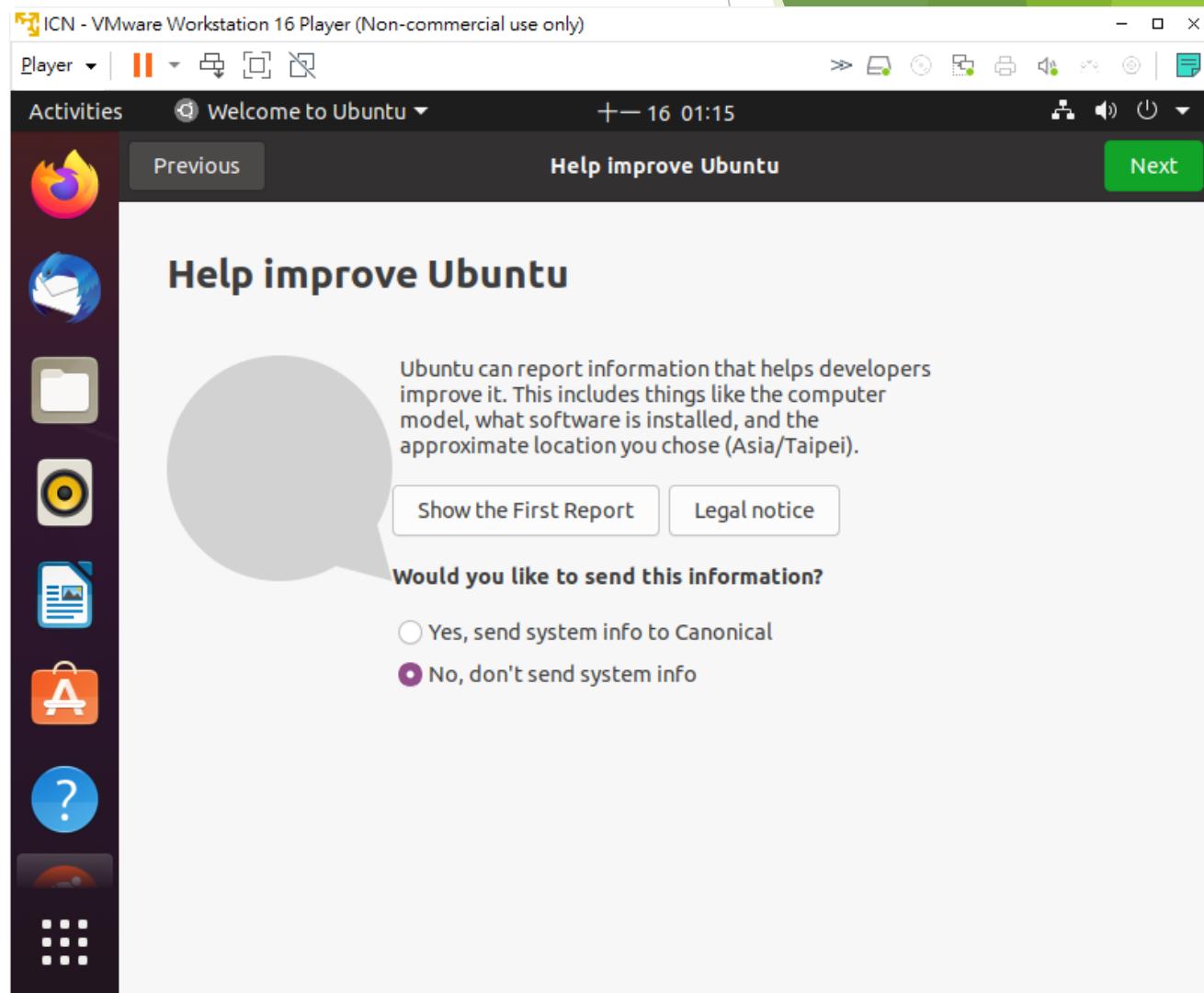
Install Ubuntu using VMware(20/22)

- ▶ Skip即可



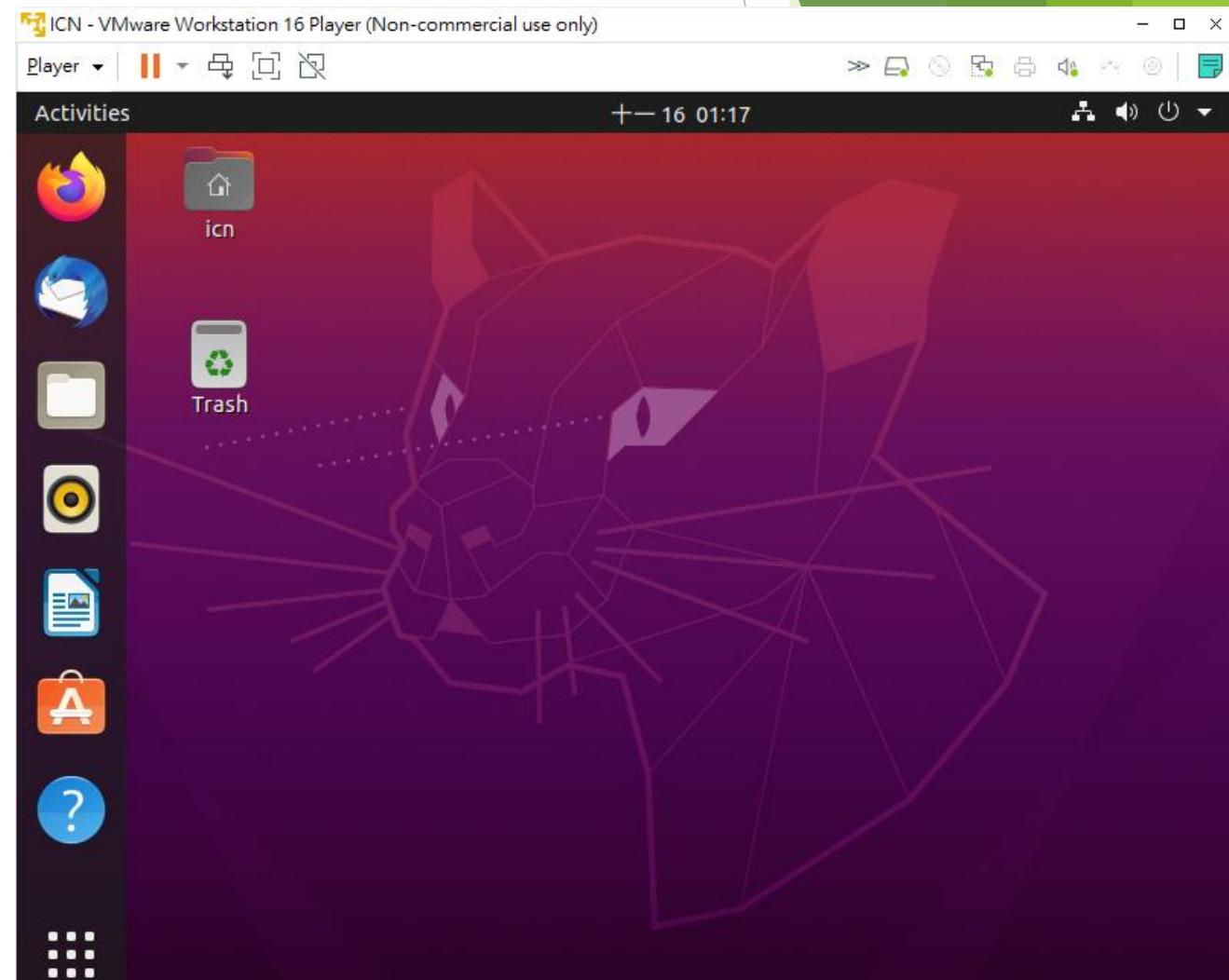
Install Ubuntu using VMware(21/22)

- ▶ 下圖步驟選Don't send，其餘步驟選Next即可



Install Ubuntu using VMWare(22/22)

- ▶ Ubuntu安裝完成



Text editor -- gedit

- ▶ Ubuntu中有內建GUI的文字編輯器 – gedit
- ▶ Win鍵→搜尋text editor即可
- ▶ 使用方法和Windows中的記事本大同小異

簡易 Linux 指令

- ▶ Ctrl + Alt + t: 開啟terminal
- ▶ ls : 列出該目錄下的資料夾與檔案
- ▶ cd XXX : 切換目錄至 XXX資料夾
- ▶ cd .. : 回到上一層目錄
- ▶ clear : 清除 CMD中的文字
- ▶ sudo XXX : 以 Root權限執行 XXX指令
- ▶ 輸入執行檔的路徑即可執行
- ▶ 假設在目錄下有個執行檔叫做 「 exe_file 」
- ▶ ./exe_file 即可執行它
- ▶ 在執行程式中按下 Ctrl + C可強制終止它

簡易 Linux 指令

- ▶ 想知道更多指令或其詳細功能請洽Google大神

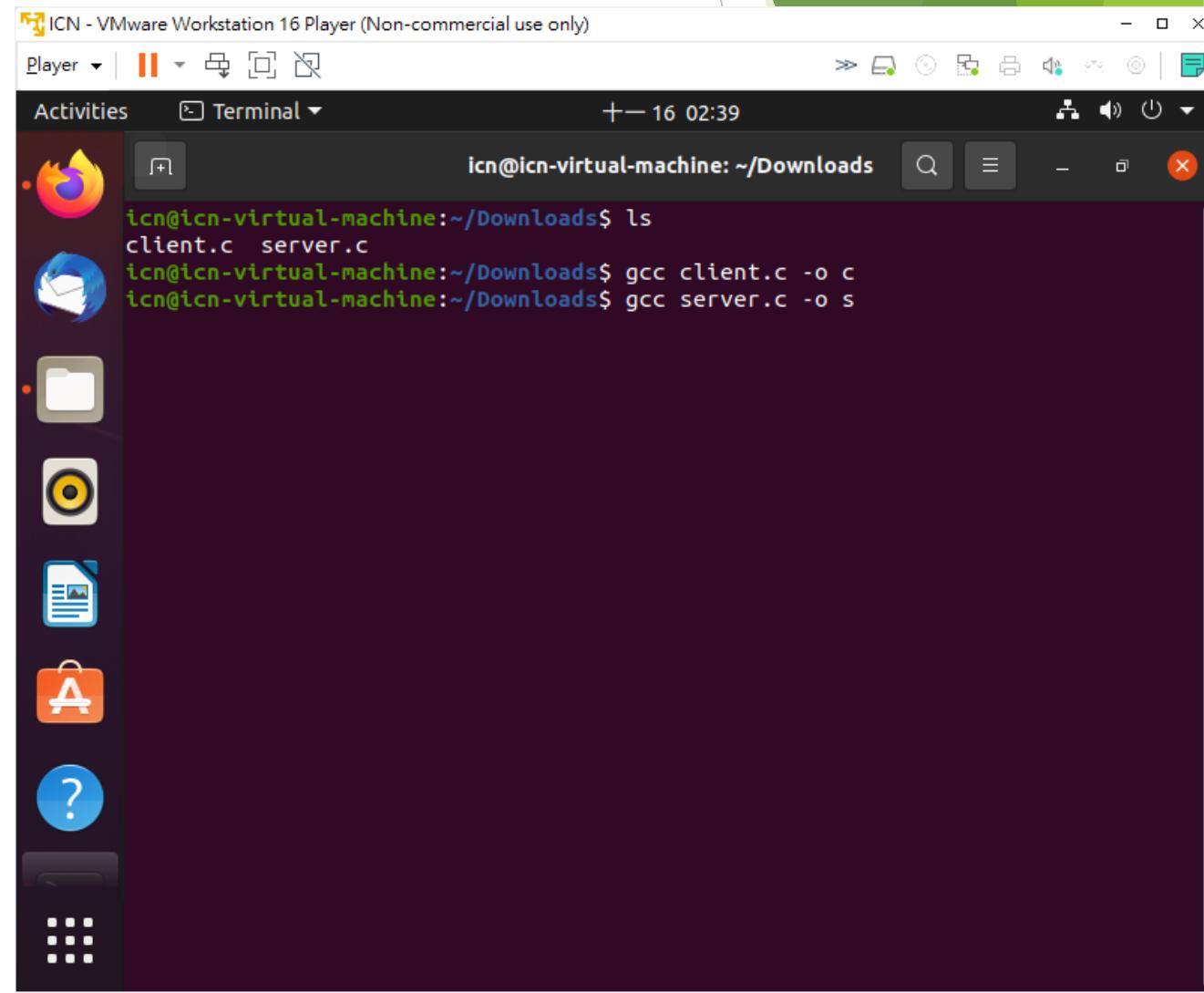
器譯繩安裝

- ▶ sudo apt update
 - ▶ sudo apt install build-essential
 - ▶ 可用下列指令來確認編譯器是否安裝成功
 - ▶ gcc --version

```
ICN - VMware Workstation 16 Player (Non-commercial use only)
Player Terminal Activities Terminal 16 02:31
icn@icn-virtual-machine: ~/Downloads
icn@icn-virtual-machine:~/Downloads$ sudo apt update
Hit:1 http://tw.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://tw.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 http://tw.archive.ubuntu.com/ubuntu focal-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:5 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11 Metadata [29.0 kB]
Get:6 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11 Metadata [63.6 kB]
Get:7 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 DEP-11 Metadata [2464 B]
Fetched 209 kB in 2s (89.9 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
122 packages can be upgraded. Run 'apt list --upgradable' to see them.
icn@icn-virtual-machine:~/Downloads$ sudo apt install build-essential
```

編譯

- ▶ 編譯指令為gcc + <欲編譯檔案名稱> + -o <執行檔名稱>
- ▶ 下圖為一範例

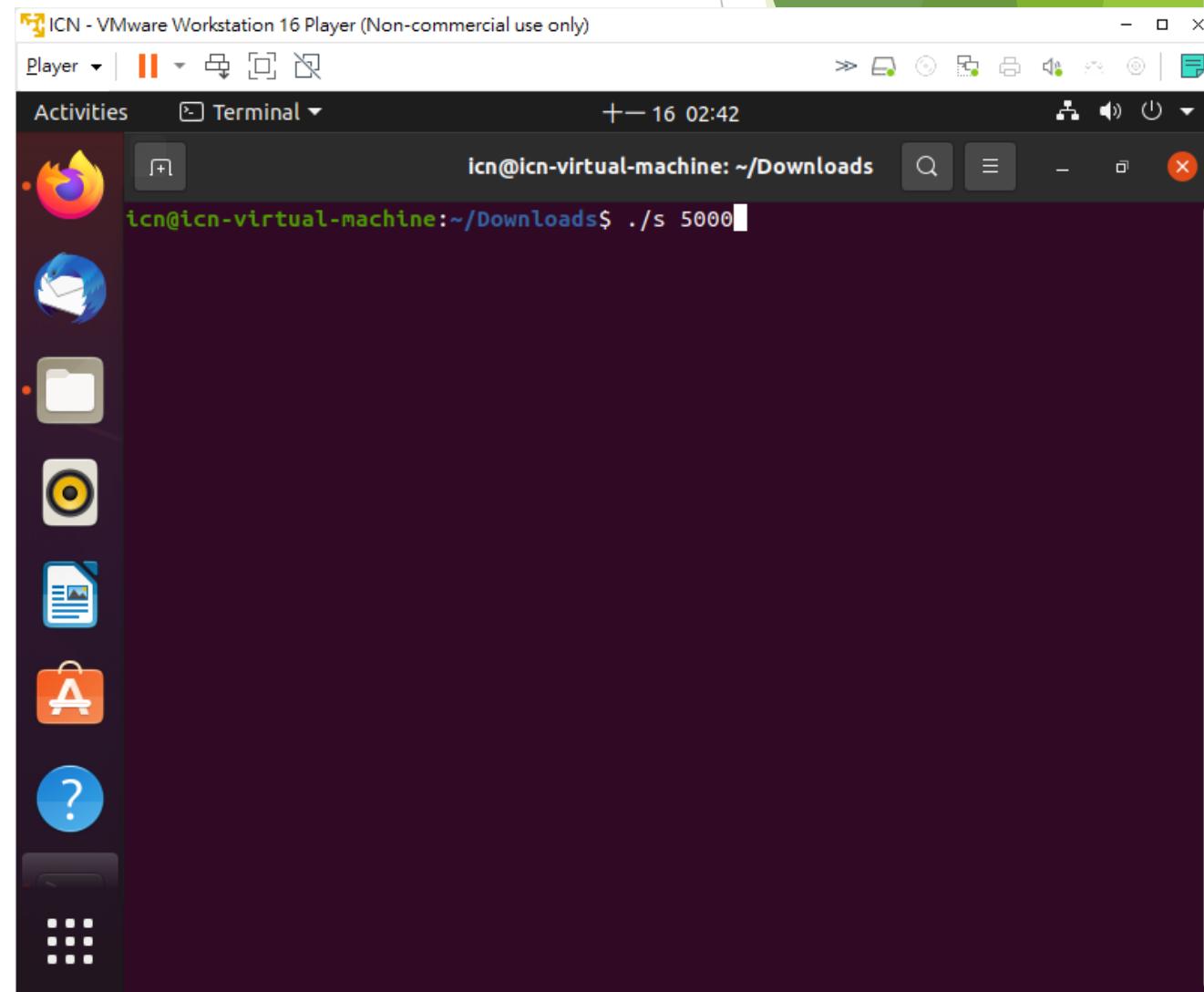


The screenshot shows a terminal window titled "ICN - VMware Workstation 16 Player (Non-commercial use only)". The terminal is running on a virtual machine with the command-line interface. The user has run the "ls" command to list files, followed by "gcc client.c -o c" to compile the client program, and "gcc server.c -o s" to compile the server program.

```
icn@icn-virtual-machine:~/Downloads$ ls
client.c  server.c
icn@icn-virtual-machine:~/Downloads$ gcc client.c -o c
icn@icn-virtual-machine:~/Downloads$ gcc server.c -o s
```

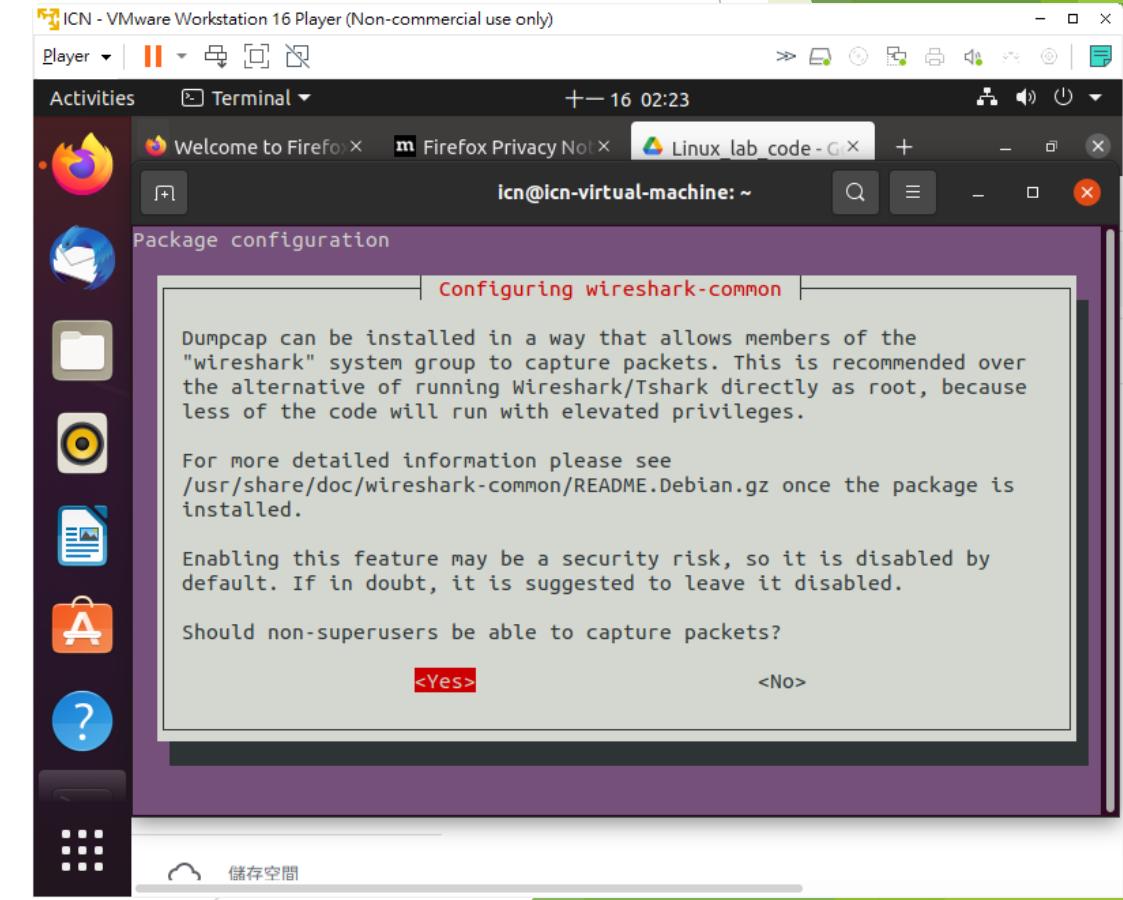
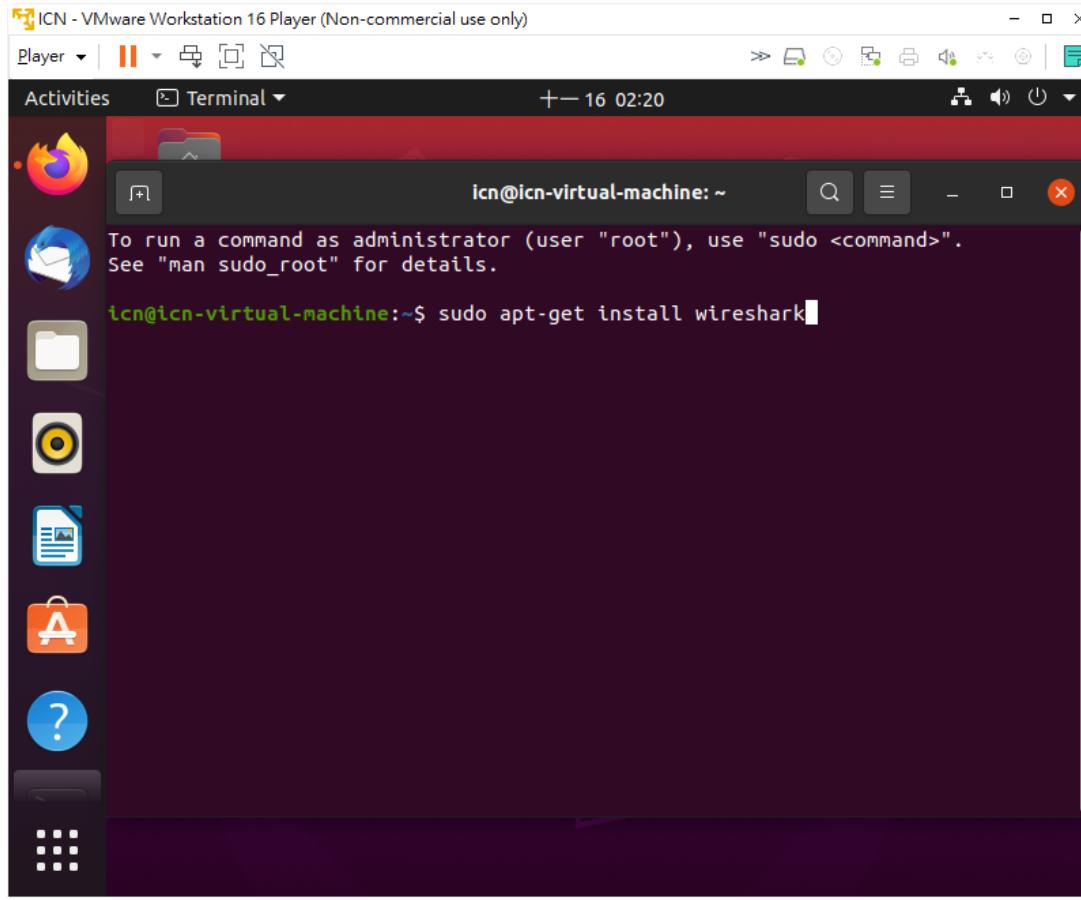
執行

- ▶ 執行指令為./<執行檔名稱>
- ▶ 下圖為一範例



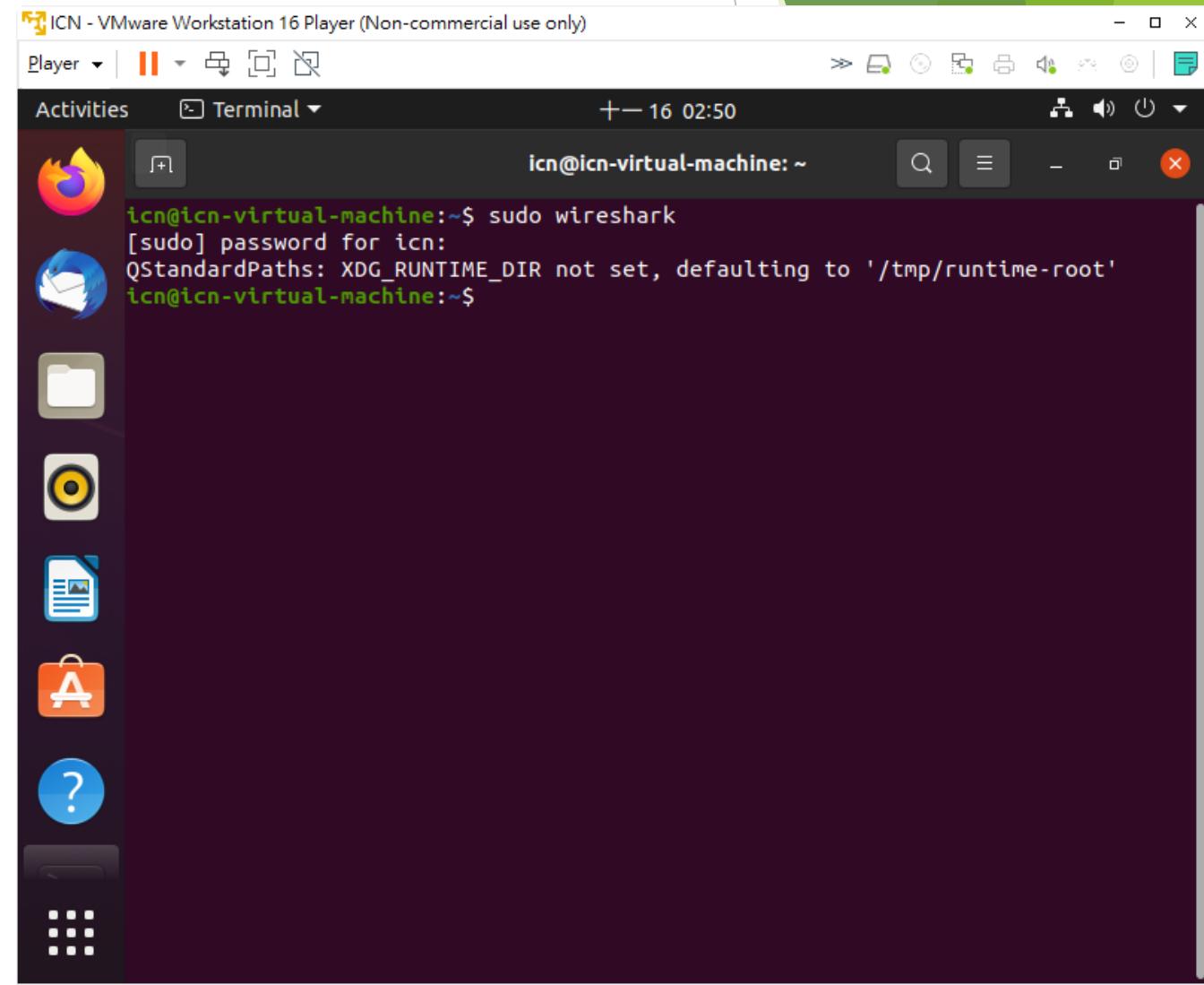
安裝Wireshark

- ▶ sudo apt-get install wireshark
- ▶ 選擇Yes



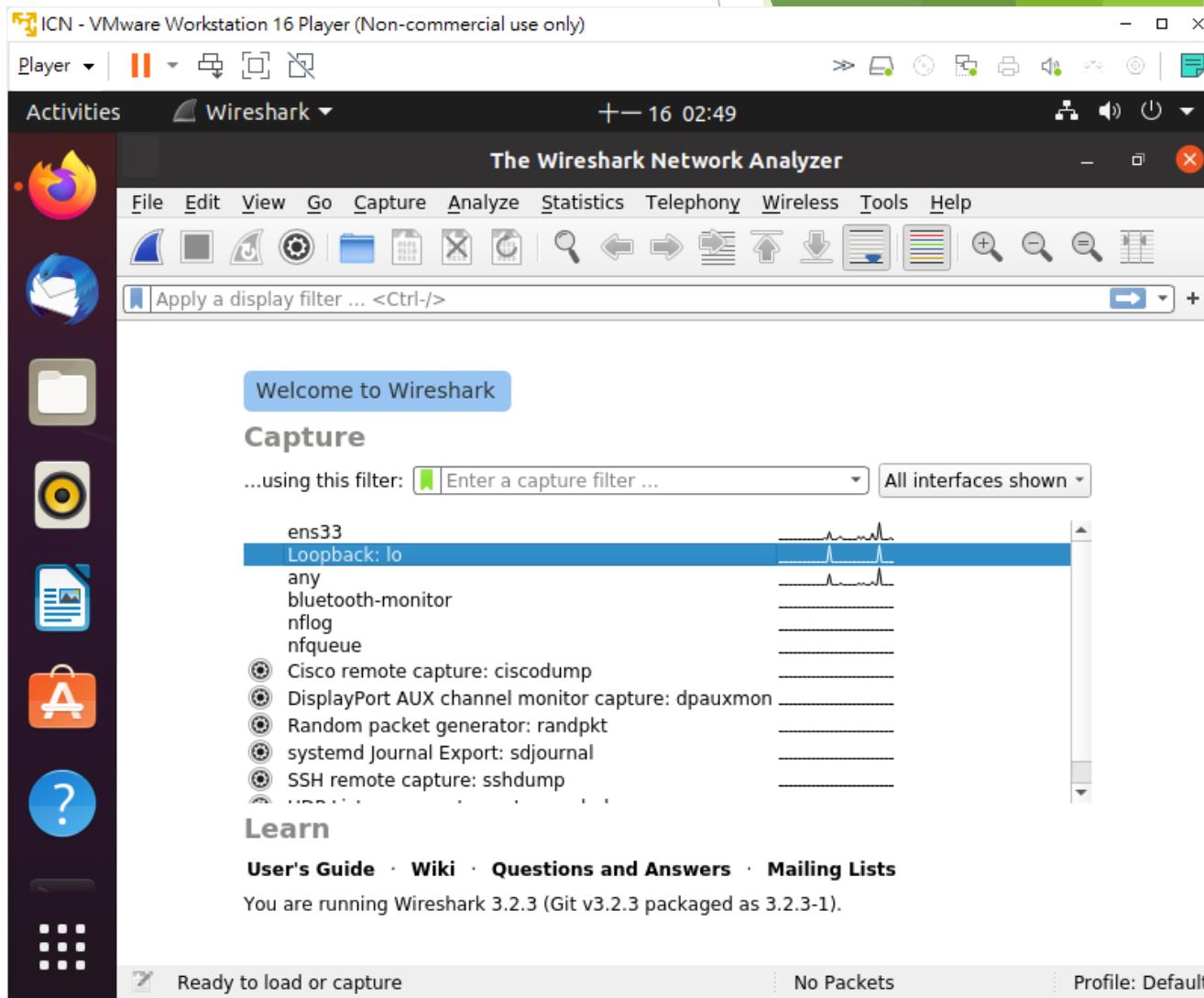
執行Wireshark

- ▶ sudo wireshark



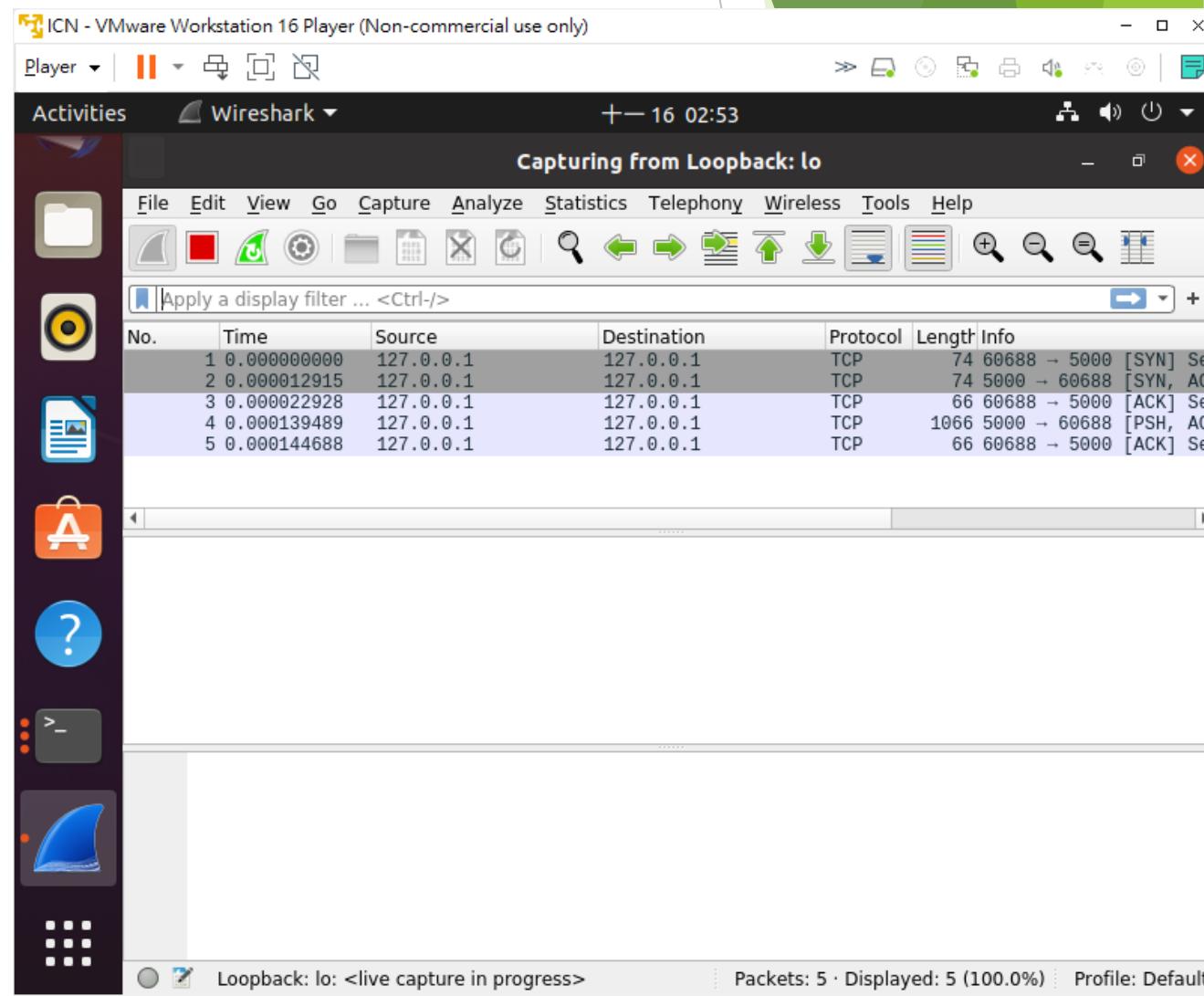
執行Wireshark

- ▶ 選擇loopback:lo
- ▶ 選擇左上角鯊魚鰭圖標，開始擷取封包



執行Wireshark

- ▶ 開始進行觀察實驗吧~



感謝大家的觀看

► 計網概助教關心您~