第三單元

VMware 虛擬作業系統安裝

VMware 簡介

Virtual Machine (虛擬機器)的觀念是指可以同時在一台機器上執行不同的作業 系統,讓人感覺好像同時有好幾部機器一樣。VMware 使用 x86 的延伸模式建立 一個虛擬的 386 機器,同時也可以依需求自行規劃這個虛擬機器,如硬碟、記憶 體大小和相關週邊等,感覺上和一部機器相同,只是執行速度會稍稍慢一點而已。

VMware 目前可以支援 Windows 2000/XP 和 Linux 平台,基於整體的考量,建議 使用 Linux 平台為佳。如果要安裝 VMware,其硬體最低需求為 Pentium 等級的 CPU 加上 64 MB RAM,一般建議在 Pentium II 266MHz 加上 128 MB RAM 以上 會比較順。



VMware 主要的功能如下:

- 不需要重新開機,就能在同一台 PC 上使用兩種以上的作業系統。
- 如果你的電腦早就使用多重開機安裝了多套作業系統,現在可以同時使用這些作業系統而不必重新開機。
- 安裝新的作業系統在虛擬機器上而不必重新分割硬碟。
- 不同的 OS 之間還能互動操作,包括網路、周邊、檔案分享以及複製貼上功能。
- 提供一個安全學習的機會,對初學者來說非常方便。

| 🖗 YMware Worksta | tion 🔲 🗖 🔀 |
|------------------------|---|
| Eile Edit Power | Snapshot <u>V</u> iew <u>W</u> indows <u>H</u> elp |
| | n Snapshot 🙀 Revert 🗐 💽 📑 |
| | |
| Works | tation 4 |
| New Virtual Machine | VMware Workstation allows multiple standard operating systems and their applications to run with high performance in secure and transportable virtual machines. Each virtual machine is equivalent to a PC with a unique network address and a full complement of hardware devices. The physical computer where the VMware Workstation software was installed is the host computer, and its operating system is the host operating system. The operating system installed and run inside a virtual machine is a guest operating system. To set up a new virtual machine, first complete the New Virtual Machine Wizard by clicking the New Virtual Machine button. After completing the wizard, install a guest operating system into the virtual machine just as you would with a physical PC. To run a guest operating system that you have installed previously, select it from the list of virtual machine names at the left or click the Open Virtual Machine button and browse to the virtual machine's configuration file. |
| | |

針對不同的作業平台有不同的版本,在此使用的是 VM ware Workstation 4 的版本,你可以連上 VM ware 的官方網站

(http://www.vmware.com/landing/ws4_home.html)下載 30 天試用版。在安裝 VMware 之前,必須先連上其網站填寫資料以取得 30 天試用註冊碼。然後你會 收到一封 Email,執行其中的附件之後才能試用 30 天,到期後只要用你第一次 註冊的 E-MAIL 跟密碼再去 VMware 的網站登錄 他們就會再寄一次 30 天試用版 的註冊碼給你,或者也可以購買正式版的註冊碼永久使用。



安裝新的 Linux

1.首先按下如下圖的圖示,新增一台虛擬的機器。

| TMware Workstation | |
|--|---|
| Eile Edit Power Snapshot | <u>View Windows H</u> elp |
| | npshot 🙀 Revert 🔄 💽 📑 |
| | |
| Workstatio | on 4 |
| VMware Wo application machines. I address an The physic is the host the operat operating Witrual Machine To run a gi from the li Machine bu | irkstation allows multiple standard operating systems and their is to run with high performance in secure and transportable virtual Each virtual machine is equivalent to a PC with a unique network d a full complement of hardware devices. al computer where the VMware Workstation software was installed computer, and its operating system is the host operating system. ing system installed and run inside a virtual machine is a guest system. I new virtual machine, first complete the New Virtual Machine clicking the New Virtual Machine button. After completing the tall a guest operating system into the virtual machine just as you a physical PC. uest operating system that you have installed previously, select it st of virtual machine names at the left or click the Open Virtual itton and browse to the virtual machine's configuration file. |
| | |

2.VMware 的介紹畫面,直接按【下一步(N)】。



3.選擇適當的設定模式,在此選擇『Typical』一般設定即可。

| Select the Appropriate Configuration |
|--|
| How would you prefer to configure your new virtual machine? |
| Virtual machine configuration Image: Virtual machine configuration Create a new virtual machine with the most common devices and configuration options. Image: Create a new virtual machine with the most common devices and configuration Image: Create a new virtual machine with the most common devices and configuration Image: Create a new virtual machine with the most common devices and configuration |
| |

4.選擇作業系統,從下圖中可看出 VMware 支援的作業系統相當多,在此選擇安裝 Linux 的作業系統。

| Ne | w Virtual Machine Wizard | |
|----|--|--------------|
| | Select a Guest Operating System Which operating system will be installed on this virtu | ual machine? |
| ſ | Guest operating system | |
| | MS-DOS Windows 3.1 Windows 95 Windows 98 Windows Me Windows NT Windows 2000 Professional Windows 2000 Professional Windows 2000 Advanced Server Windows 2000 Advanced Server Windows XP Home Edition Windows XP Professional Windows Server 2003, Web Edition Windows Server 2003, Enterprise Edition | |
| | FreeBSD NetWare 5 NetWare 6 | |

5.設定虛擬機器的名稱,由於安裝的是 Linux 作業系統,所以填入『Linux』,並 選擇將它的虛擬檔案放在 C:\VMware\Linux 目錄集中管理。

| New Virtual Machine | Wizard | |
|--|-------------------------------|--------|
| Name the Virtual M What name would | | |
| Virtual machine name Linux Location C:\VMware\Linux | | Browse |
| | < <u> < 上一步</u> (B) 下一步(A) | > 取消 |

6.選擇網路的型式:

- 使用 bridgd networking 模式:此模式是讓這個虛擬的作業系統使用一個外 部的網路位置,這個系統必須擁有一個獨立的 IP 位址。
- 使用 NAT 模式:此模式是讓這個虛擬的作業系統使用 NAT 的模式,並可對 外連線。
- 使用 host-only networking:此模式是讓這個虛擬的作業系統連結至一個虛擬的內部網路。
- 使用 Do not use a network connection:此模式是讓這個虛擬的作業系統沒 有網路連線的功能。

在此選擇第一項,使用原本這個機器的 IP 連線出去,接著按下『完成』。

| New Virtual Machine Wizard |
|---|
| Network Type What type of network do you want to add? |
| Network connection |
| Use bridged networking Give the guest operating system direct access to an external Ethernet network. The guest must have its own IP address on the external network. |
| OUse network address translation (NAT) |
| Use host-only networking Connect the guest operating system to a private virtual network on the host computer. |
| O Do not use a network connection |
| |
| <上一步(B) 完成 取消 取消 |

VMware 上的 Linux 相關設定

做好基本設定之後,即完成了 Linux 的虛擬機器,其相關環境如下圖所示。

| 🔁 Linux - YMware Workstation | | | |
|---|--------------------------|----------------------------|----|
| <u>File E</u> dit <u>P</u> ower <u>S</u> napshot <u>V</u> iew <u>W</u> indows | <u>H</u> elp | | |
| 📕 💵 🕨 🊱 🔚 Snapshot 🖓 Revert 🚦 | • | | |
| Linux | | | × |
| Linux ^{暫停} ^{啓動} | Reset | | |
| C:\VMware\Linux\Linux.vmx 關閉電源 | | | |
| Powered off | Summary | | |
| ▶ Start this virtual machine 啓動 | 🔳 Memory | 128 MB | |
| Edit virtual machine settings | 🚍 Hard Disk 1 (SCSI 0:0) | | |
| | CD-ROM 1 (IDE 1:0) | Auto detect | |
| 编辑LINUX土城的阳阁設正 | | Using drive A: Daid and | |
| | | Binden | |
| Netes | 虚擬 inux 機製的硬 | 豊貯能: | |
| Notes | 記憶體:128MB | 84/484 • | |
| Type here to enter notes for this virtual machine | 模疑SCSI硬碟 | | |
| | CD-ROM | | |
| | Floppy | | |
| | 利路卡 | | |
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記憶體大小

點選在上圖中的『Edit virtual machine settings』來設定,出現如下圖的【Hardware】 及【Options】兩個索引頁,以設定硬體的設定。首先是記憶體大小的設定,一 般來說是實際記憶體大小的一半即可。

| Virtual Machine Control Pane | 1 | | × |
|---|--|--|---|
| Hardware Options | | | _ |
| Device Memory Hard Disk 1 (SCSI 0:0) CD-ROM 1 (IDE 1:0) Floppy 1 NIC 1 SUSB Controller Audio | Summary 129 MB Auto detect Using drive A: Bridged Present Default adapter Add | Memory Adjust the amount of memory allocated to this virtual machine. The guest memory size that you specify must be in multiples of 4MB. Guest size (MB): System total (MB): Recommended guest range (MB): 32 176 Total memory for all running virtual machines (MB): | |
| | | OK Cancel Help | |

硬碟大小的配置

關於硬碟的設定比較重要,在 VMware 預設的硬碟配置是一個虛擬機器給它 4GB 的大小空間,不過它不會馬上使用到 4GB, Vmware 會根據你實際使用的大小來決定這個檔案的容量,但最大只能使用到 4GB。

| Virtual Machine Control Pan | el | |
|---|---|---|
| Hardware Options | | |
| Device Memory Hard Disk 1 (SCSI 0:0) | Summary 128 MB | Disk file Linux.vmdk Browse |
| CD-ROM 1 (IDE 1:0) Floppy 1 NIC 1 USB Controller | Auto detect Using drive A: Bridged Present | Capacity Current size: 0.0GB System free: 10.5GB Maximum size: 4.0GB Defragment |
| Audio | Default adapter | Disk information File: Monolithic 高4GB大小 |
| | | |
| | | |
| | | Ad <u>v</u> anced |
| | Add <u>R</u> emove | |
| | | OK Cancel Help |

光碟機的設定

在光碟機的設定方面,可以選擇實體的 CD-ROM 來開機,或是直接選擇可以開機的 ISO 影像檔來進行開機安裝。在此利用剛下載的 Trustix-1.5 版的 Linux 套件來進行安裝,指定 C:\trustix-1.5-20030807.i586.iso 這個 ISO 檔,在稍後啟動時就會直接讀取 ISO 檔進行開機並且安裝。

| Virtual Machine Control Panel | <u>I</u> | |
|--|---|---|
| Hardware Options | | |
| Device Memory Hard Disk 1 (SCSI 0:0) CD-ROM 1 (IDE 1:0) Floppy 1 NIC 1 USB Controller Audio | Summary 128 MB Using image C:\Do Using drive A: Bridged Present Default adapter | Device status Connected ✓ Connect at power on Connection Use physical drive: E: Connect exclusively to this virtual machine Legacy emulation Outse ISO image: C: \trustix-1.5-20030807.i586.iso Browse Virtual device node SCSI 0:0 Hard Disk 1 IDE 1:0 CD-ROM 1 |
| | dd <u>R</u> emove |) |
| | | OK Cancel Help |

其它硬體的設定

接下來的硬體,像是 Floppy、NIC、USB Controller、Audio 在設定上並無什麼大的問題,若是有新增的硬體,可以按下【Add...】來新增。

| Virtual Machine Control Panel | | | × |
|--|--|--|---|
| Hardware Options | | | |
| Device Memory Hard Disk 1 (SCSI 0:0) CD-ROM 1 (IDE 1:0) Floppy 1 NIC 1 USB Controller Audio 在機器上的其它硬體 新增設備的話,按下開 新增。 | Summary 128 MB Using image C:\Do Using drive A: Bridged Present Default adapter 没備,如果想要 到的【Add】, | Memory Adjust the amount of memory allocated to this virtual machine. The guest memory size that you specify must be in multiples of 4MB. Guest size (MB): 128 System total (MB): 256 Recommended guest range (MB): 32 - 176 Total memory for all running virtual 192 machines (MB): | |
| | | OK Cancel Help | |

啟動在 VMware 上的 Linux

按下控制列上的啟動圖示,接著 VMware 就開始進行模擬。當進入 VMware 視窗時,必須按下『Ctrl+Alt』才能再跳出 VMware。



選擇 Truxtix Secure Linux 來安裝,是因為它擁有精巧、安全性高的特色,Truxtix Secure Linux 的開機安裝畫面跟實際安裝一模一樣,如果覺得畫面太小的話,還可以按下控制列最右邊的全螢幕。



在 VMware 之下的硬碟分割動作,分割成 256MB 的 SWAP,剩下的所有空間都 規劃成根目錄/,這是最簡單的分割法。

| 🖶 Lin | шк - | [Ctrl-I | lt-F1] | - VMw | are Work | station | | | | | | | | |
|----------|-------------|---------------|--------------|-------------|----------------|------------------|---------------|--------------------|--------|---------|-------|-------|-------|----------|
| <u> </u> | <u>E</u> di | t <u>P</u> ov | /er <u>S</u> | napshot | <u>V</u> iew ⊻ | <u>V</u> indows | <u>H</u> elp | | | | | | | |
| | | | 9 | 🔒 Snap | shot 📊 | Revert | — [| | | | | | | |
| Linux | : | | | | | | | | | | | | | × |
| Trus | tix | Secu | ire 1 | Linux | (C) 2 | 000 Tr | ustix f | NS. | | | | | Parti | tion |
| | Мон | int I | o i n | t | | l curr Nevice | ent Dis Re | sk Part equeste | itions | tual | т | une | | |
| | / | | UTI I | • | | sda1 | | 1M | 38 | 35M | Linux | nativ | e | ↑ |
| | | | | | | sda5 | | 256M | 2 | :58M | Linux | зыар | | |
| | | | | | | | | | | 43 | | | | # |
| | | | | | | | | | | | | | | Ť I |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Dr | iue | SUM | ari | 95 | | | | | | | | | | * |
| 1 | Driv | ve Ve | | Geom I | CZHZS | 1 | Total | Use | d F | ree | | | | |
| | sda | l - |] | 522/ | /255/6 | 31 | 4094M | 4094 | М | 0M | [#### | ***** | 1 | <u>↑</u> |
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| | | | | | | | | | | | | | | |
| | - IL | Add | | | Ed i | t | | Delete | | 01 | k | Ba | .ck | |
| | | | - | | | | | | | | | | | |
| | _ | | | | | | | | | _ | | | | |
| | | | | | | | | | | | | | | |
| | F1-6 | ldd | F | 2-Add | NFS | F3-E | dit 1 | 4-Dele | te | F5-Rese | et F1 | 2-0k | v 1. | 99 |
| 🔥 You | do no | t have N | Mware | • Tools ins | talled. | | | | | | | Ŀ | | 1.0 |

在經歷一連串的設定之後,再重新開機之後,一套活生生不同的 Linux 作業就目前所呈現出的畫面,實際上跟現實中的主機完全相同,甚至還可以把它當做伺服器來使用。

| 🖶 Linux - [Ctrl-Alt-F1] - YMware Workstation | | | | |
|--|---|----|---|---------|
| <u>File Edit Power Snapshot View Windows H</u> elp | | | | |
| 📃 🔲 🕟 🊱 🔚 Snapshot 👦 Revert 🛐 💽 🛅 | | | | |
| Linux | | | | × |
| Checking filesystems | | | | |
| | Γ | OK |] | |
| Mounting local filesystems | Γ | OK |] | |
| Turning on accounting | Γ | OK |] | |
| Turning on user and group quotas for local filesystems |] | OX |] | |
| Enabling swap space |] | OX |] | |
| INIT: Entering runlevel: 3 | | | | |
| Entering non-interactive startup | | | | |
| Bringing up interface lo | Ε | OK |] | |
| Bringing up interface eth0 | Ε | OK |] | |
| Initializing random number generator | I | OK |] | |
| Mounting other filesystems | Ε | OK |] | |
| Starting system logger: | Γ | OK |] | |
| Starting kernel logger: | Ι | OK |] | |
| Starting cron daemon: | Γ | OK |] | |
| Starting keytable | Γ | OK |] | |
| Starting postfix | Ľ | OX |] | |
| Trustix Secure Linux release 1.5 (MiddleWhere) Kernel 2.2.25-8tr on an i686 | | | | |
| net121 login: root | | | | |
| Password: | | | | |
| root@net121 ~# | | | | |
| <u>A</u> You do not have VMware Tools installed. | | | | 4 Q 🗆 🗳 |

在 Linux 上的 VMware

在 Linux 的 VMware 除了安裝方式有點不一樣外,其他幾乎完全相同,只要下載 VMware 的 rpm 套件,再執行 rpm -ivh vmware.*.rpm 進行安裝,並且在 X window 下的終端機輸入以下的指令,然後再使用手動的方式來啟動 VMware。

/usr/bin/vmware-config.pl

接下來會出現版權宣告的聲明,也會詢問下列問題,只要依照實際狀況設定即 可。『Do you want networking or for your Virtual Machines?』請回答 yes。『Do you want to be able to use host-only networkingin your Virtual Machines?』這行是詢問網 路環境只能和主作業系統連結?請回答 no。『Do you want this script to automatically configure your system to allow Virtual Machines to access the host's filesystem?』如果已安裝 samba 請回答 yes,否則請回答 no。

設定完成後,請在文字模字下輸入『vmware』,即可啟動 VMware 服務與網路功能。