



# Preinstallation Steps

**T**he first part of this book discussed using Linux as part of your day-to-day life. It was intended to help you evaluate Linux and understand what you're buying into should you decide to make it your operating system of choice. Now we move on to actually installing Linux and, specifically, Ubuntu, which is included with this book on a DVD-ROM.

Installing any kind of operating system is a big move and can come as something of a shock to your PC. However, Ubuntu makes this complicated maneuver as easy as it's possible to be. Its installation routines are very advanced compared to previous versions of Linux, and even compared to other current distributions.

What does saying that you're going to install Ubuntu actually mean? This effectively implies three things:

- Somehow, all the files necessary to run Ubuntu are going to be put onto your hard disk.
- The PC will be configured so that it knows where to find these files when it first boots up.
- The Ubuntu operating system will be set up so that you can use it.

However, in order to do all this and get Ubuntu onto your PC, you must undertake some preparatory work, which is the focus of this chapter.

## Understanding Partitioning

Chances are your PC already has Windows installed on it. This won't present a problem. In most cases, Ubuntu can live happily alongside Windows in what's called a *dual-boot setup*, where you can choose at startup which operating system to run. However, installing Ubuntu means that Windows must make certain compromises. Windows is forced to cohabit on your hard disk with another operating system—something it isn't designed to do.

The main issue with such a situation is that Windows needs to shrink and make some space available for Ubuntu (unless you install a second hard disk, which is discussed later

in this chapter). Ubuntu isn't able to use the same file system as Windows, and it needs its own separately defined part of the disk, which is referred to as a *partition*. All of this can be handled automatically by the Ubuntu installation routine, but it's important that you know what happens.

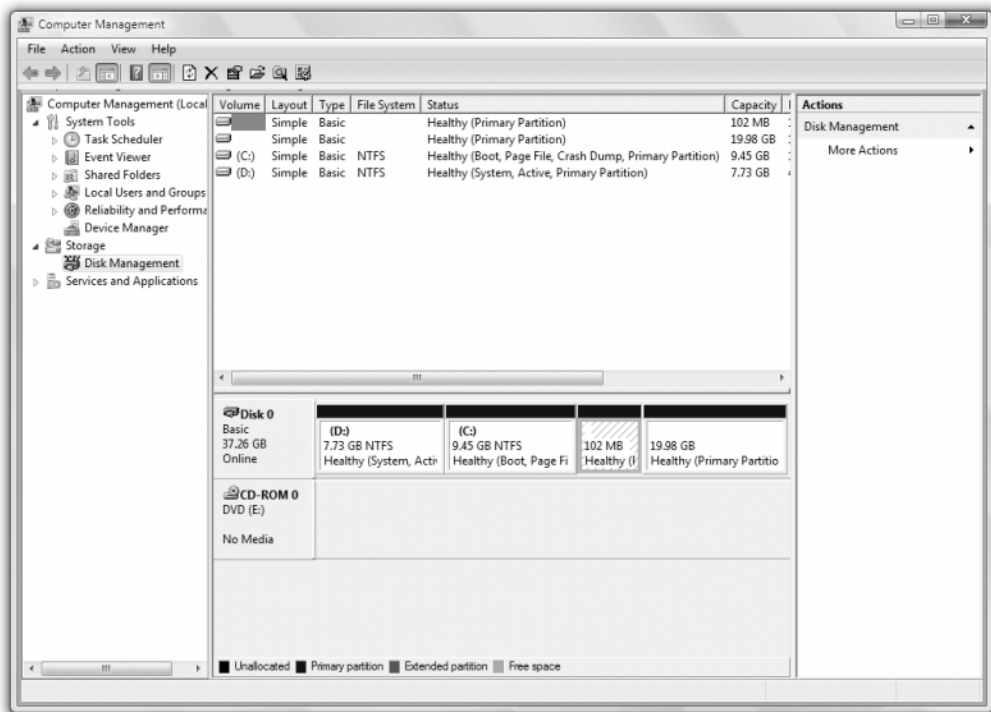
All hard disks are split into partitions, which are large chunks of the disk created to hold operating systems (just like a large farm is partitioned into separate fields). A partition is usually multiple gigabytes in size, although it can be smaller.

---

**Note** If you use a Macintosh then don't feel left out! In the next chapter we include a sidebar explaining the options for installing Ubuntu on your computer.

---

You can view your disk's partitions using the Disk Management tool in Windows XP, 2000, and Vista, as shown in Figure 4-1. You can access this tool by opening the Control Panel, switching to Classic View, clicking the Administrative Tools icon, selecting Computer Management, selecting Storage, and then choosing Disk Management.



**Figure 4-1.** You can view your disk's partitions using Windows's Disk Management tool.

Most desktop PC systems have just one partition, unless the user has specifically created new partitions. As mentioned, Ubuntu needs a partition of its own. During installation, Ubuntu needs to shrink the main Windows partition and create a fresh partition alongside it (actually, it creates two partitions; the extra one is used to hold the swap file).

In addition, the Ubuntu installation routine writes a new boot sector (also known as a boot loader). The boot sector is located at the very beginning of the disk and contains a small program that then runs another program that lets you choose between operating systems (and therefore partitions) when you first boot up.

---

**Note** Not all Linux distributions have the ability to repartition the hard disk. In fact, at the time of writing, it's pretty rare. Most expect to simply take over the entire hard disk, wiping Windows in the process (although they'll always ask the user to confirm this beforehand). The ability to repartition a disk is just one of the reasons that Ubuntu is among the best Linux distributions currently available.

---

Of course, Ubuntu cannot shrink a Windows partition that is packed full of data, because no space is available for it to reclaim.

### UBUNTU AND WINDOWS FILE SYSTEMS

One of the benefits of dual-booting Linux and Windows is that Ubuntu lets you access the files on the Windows partition. This is quite handy and facilitates the easy exchange of data.

If the Windows partition is FAT32—used on Windows 95, 98, Me, and (sometimes) XP—then Ubuntu can both read and write files to the partition. However, if the file system is NTFS—used with Windows NT, 2000, XP, and Vista—Ubuntu will make the file system available as read-only.

Because of this, if you run Windows XP, you might consider converting your NTFS Windows partition to FAT32 before you install Ubuntu (but be aware that doing so means you lose some of the security and performance features of NTFS). Microsoft doesn't include a tool that lets you do this automatically, but you can use third-party disk partitioning programs like Norton's Partition Magic ([www.powerquest.com](http://www.powerquest.com)) to convert your file system.

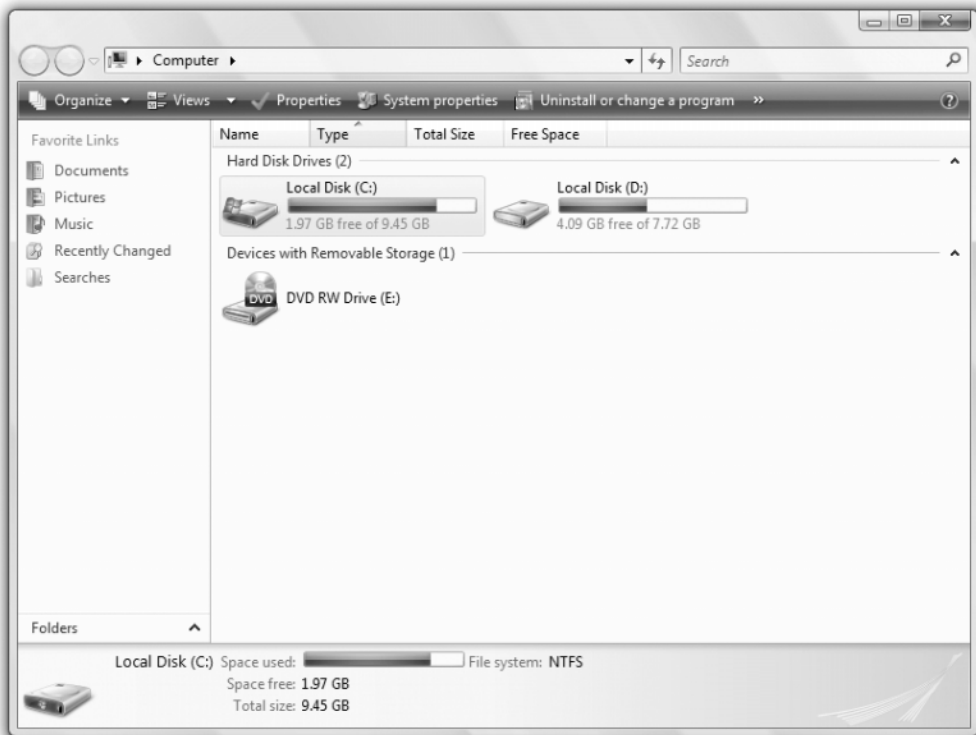
## Freeing Up Space

The first step before installing Ubuntu alongside Windows is to check how much free space you have in your Windows partition. To see the amount of free space you have under Windows Vista, click the Start button, click Computer, and look at the bar graph next to your hard disk drive, as shown in Figure 4-2. With older versions of Windows, you

should double-click My Computer, right-click your boot drive, and select Properties. The free space is usually indicated in purple on a pie chart.

In both cases, look for how much free space you have. In Windows Vista, this is the first figure underneath the bar graph.

You need to have at least 3GB of free space in your Windows partition for Ubuntu to use. You'll need more space if you wish to install a lot of programs. If you don't have enough free space, you have several options: reclaim space, remove Windows, or use a second hard disk.



**Figure 4-2.** *Ubuntu needs free disk space in which to install, so you might need to clean up your Windows partition.*

## Reclaiming Space

In Windows Vista and XP, you can run the Disk Cleanup tool to free some space on your hard disk. Under Windows Vista, click Start ► Computer, and right-click the icon representing your hard disk. Select Properties from the menu that appears, and click the Disk Cleanup button. On Windows XP, click the Disk Cleanup button beneath the pie chart

showing the free disk space. Disk Cleanup is also accessible by clicking Start ► All Programs ► Accessories ► System Tools ► Disk Cleanup.

You might also consider turning off System Restore. This consumes a lot of disk space, which you can therefore reclaim. However, deactivating System Restore will mean that you lose the possibility of returning your system to a previous state should anything go wrong. To access the System Restore under Vista, click the Start button, and then right-click Computer in the menu. Select Properties, and click the System Protection link on the left of the window that appears. Next, remove the check alongside the drives under the Available Disk list, confirm that you want to turn off System Restore, and click the OK button on the System Properties dialog box. Under Windows XP, right-click My Computer, click Properties, and then click the System Restore tab. Next, put a check alongside Turn Off System Restore on all Drives, and click OK.

If you still cannot free up enough disk space, consider uninstalling unused software via the Add/Remove Programs applet within Control Panel. If you have any large games installed, consider removing them first, because they usually take up substantial amounts of hard disk space. You might also consider deleting movie and MP3 music files, which are renowned for eating up hard disk space. The average MP3 is around 4MB, for example, and one minute of video typically takes up 1MB of disk space!

## Removing Windows

Some users might prefer a second, more radical option: getting rid of Windows completely and letting Ubuntu take over the entire hard disk. If you feel confident that Ubuntu will fulfill your needs, this is undoubtedly the most straightforward solution. You'll be able to do this during installation. However, this will also mean that any personal data you have will be lost, so you should first back up your data (as described shortly).

---

**Caution** You should be aware that installing Windows back onto a hard disk that has Ubuntu on it is troublesome. Windows has a Darwinian desire to wipe out the competition. If you attempt to install Windows on an Ubuntu hard disk, it will overwrite Linux.

---

## Using Another Hard Disk

A third option for making room for Ubuntu is attractive and somewhat safer in terms of avoiding the potential for data loss, but also potentially expensive: fitting a second hard disk to your PC. You can then install Ubuntu on this other hard disk, letting it take up the entire disk. Unlike Windows, Ubuntu doesn't need to be installed on the primary hard disk and is happy on a secondary drive.

A second hard disk is perhaps the best solution if you're low on disk space and want to retain Windows on your system. However, you'll need to know how to install the new drive or find someone to do it for you (although step-by-step guides can be found on the Web—just search using Google or another search engine). In addition, if your PC is less than 12 months old, there is a possibility that you'll invalidate your warranty by opening up your PC.

If you have an old PC lying around, you might also consider installing Ubuntu on it, at least until you're sure that you want to run it on your main PC.

## VIRTUALIZATION

If you don't want to repartition your disk or add another disk drive, there's another way you can run Ubuntu under Windows: using virtualization software.

Put simply, virtualization software lets you run a “computer within a computer” (or, in fact, several computers within a computer!). It does this by cleverly sharing system resources between the real computer and the one that's being virtualized.

When the virtualization software is run, the virtual computer appears in a program window. A BIOS-like startup screen appears, just like on a real computer, and then the virtual hard disk (usually a file on the main hard disk) is booted. An operating system may then be installed onto the virtual hard disk or, alternatively, it's possible to download entire virtual machines from various sites, for which the hard work of installing the operating system has been done for you!

There are a wide variety of virtualization software packages available. Perhaps the most popular are those offered by VMWare, including VMWare Server and VMWare Player. Although proprietary software, both of these two products are entirely free of charge and can be downloaded from [www.vmware.com](http://www.vmware.com). Another version of VMWare, called Workstation, which is available for a charge, is also highly praised by many. You might investigate Microsoft Virtual PC 2004 too, which is also free of charge and can be downloaded from [www.microsoft.com/windows/virtualpc/default.mspx](http://www.microsoft.com/windows/virtualpc/default.mspx).

You can also obtain open-source renditions of virtualization software, such as QEMU (<http://fabrice.bellard.free.fr/qemu>), although also worth downloading is QEMU Manager, which provides a GUI-based configuration front end for QEMU: see [www.davereyn.co.uk/download.htm](http://www.davereyn.co.uk/download.htm).

Using a virtualized computer is useful for testing software but, obviously, the experience isn't seamless. Operating systems running within virtual computers tend to operate more slowly compared to running natively on a computer, and the virtualized hardware is often very simple (you are usually unable to access your computer's 3D graphics hardware, for example). Setting up a virtual computer can also be difficult for those who are new to it.

One final note: virtualization software doesn't just run on Windows. You can download several virtualization software packages for Ubuntu, which means you could install and run Windows within a virtual machine running on Ubuntu! QEMU, mentioned previously, runs on Ubuntu, as does Xen: [www.xensource.com/products/downloads](http://www.xensource.com/products/downloads).

## Backing Up Your Data

Whichever route you decide to take when installing Ubuntu, you should back up the data currently on your computer beforehand. Possibly the easiest way of doing this is to burn the data to CD-R/RW discs using a program like Nero and a CD-R/RW or DVD+-R/RW drive.

If you take the coexistence route, installing Ubuntu alongside Windows, backing up your data should be done for insurance purposes. Although the people behind Ubuntu test all their software thoroughly and rely on community reporting of bugs, there's always the chance that something will go wrong. Repartitioning a hard disk is a major operation and carries with it the potential for data loss.

If you intend to erase the hard disk when installing Ubuntu (thereby removing Windows), you can back up your data and then import it into Ubuntu.

Table 4-1 shows a list of common personal data file types, their file extensions, where they can be typically found on a Windows system, and notes on importing the data into Ubuntu. Note that earlier versions of Windows (95, 98, and Me) may differ when it comes to data storage locations.

**Table 4-1.** *Data That Should Be Backed Up*

Type of File	File Extensions	Typical Location (Vista)	Typical Location (XP)	Notes
Office files	.doc, .xls, .ppt, .pdf, etc.	\Users\<username>\Documents	\Documents and Settings\<username>\My Documents	Microsoft Office files can be opened, edited, and saved under Ubuntu using the OpenOffice.org suite. PDF documents can be viewed with the Evince program.
E-mail files	N/A	N/A	N/A	The Evolution mail client used by Ubuntu cannot import data directly from Microsoft Outlook or Outlook Express. However, there is a convoluted but effective workaround, which is described in the next section.
Digital images	.jpg, .bmp, .tif, .png, .gif, etc.	\Users\<username>\Documents\Pictures	\Documents and Settings\<username>\My Pictures	Ubuntu includes a variety of programs to both view and edit image files.
Multimedia files	.mp3, .mpg, .avi, .wma, etc.	Various within Documents	Various within My Documents	With some additional downloads, discussed in Chapter 18, programs under Ubuntu can play MP3 music files and most movie file formats.

**Table 4-1.** *Data That Should Be Backed Up (Continued)*

Type of File	File Extensions	Typical Location (Vista)	Typical Location (XP)	Notes
Internet Explorer Favorites	None	\Users\<username>\Favorites	\Documents and Settings\<username>\Favorites	Your Favorites list cannot be imported into Ubuntu, but the individual files can be opened in a text editor in order to view their URLs, which can then be opened in the Ubuntu web browser.
Mozilla Firefox Bookmarks	.html	N/A	N/A	If you use Mozilla Firefox under Windows, you can manually export your bookmarks for import under Firefox when Ubuntu is installed. Click Bookmarks ► Organize bookmarks, and click File ► Export in the window that appears. To import the bookmarks into Ubuntu's version of Firefox, repeat the steps, but click File ► Import instead, and then locate the .html file you saved.
Miscellaneous Internet files	Various	Various	Various	You might also want to back up web site archives or instant messenger chat logs, although hidden data such as cookies cannot be imported.

## Backing Up E-Mail Files

Microsoft e-mail cannot be easily imported into Ubuntu. Most e-mail programs use the MBOX format, and this is true of Ubuntu as well as programs created by the Mozilla Foundation (the organization behind the Firefox web browser). However, Microsoft uses its own DBX file format for Outlook Express and PST format for Outlook.

As a workaround, you can download and install the free Mozilla Thunderbird e-mail client (available from [www.mozilla.com/en-US/thunderbird](http://www.mozilla.com/en-US/thunderbird)) on your Windows system. In Thunderbird, select Tools ► Import to import your messages from Outlook, Outlook Express, or even the popular Eudora mail client. You will then be able to back up Thunderbird's mail files and import them into Evolution under Ubuntu, as described in Chapter 27.

To find where the mail files are stored, in Thunderbird, select Tools ► Account Settings, and then look in the Local Directory box. Back up each file that corresponds to a folder within your mail program (for example, Inbox, Sent, and so on). Note that you only



need to back up the files *without* file extensions. You can ignore the .sdb folders as well as the .msf files.

---

**Tip** To quickly go to the location of the Thunderbird e-mail files under Windows, copy the address in the Local Directory text box. Then, under Windows XP, click Start ► Run, paste the address straight into the Open box, and click OK. Under Windows Vista, paste the address into the Start Search text box, and press Enter.

---

## Making Notes

When you're backing up data, a pencil and paper come in handy, too. You should write down any important usernames and passwords, such as those for your e-mail account and other online services. You might want to write down the phone number of your dial-up connection, for example, or your DSL/cable modem technical settings. Figure 4-3 shows an example of some information you might want to record.

In addition, don't forget to jot down essential technical details, such as your IP address if you are part of a network of computers using static addresses (this will usually be relevant only if you work in an office environment).

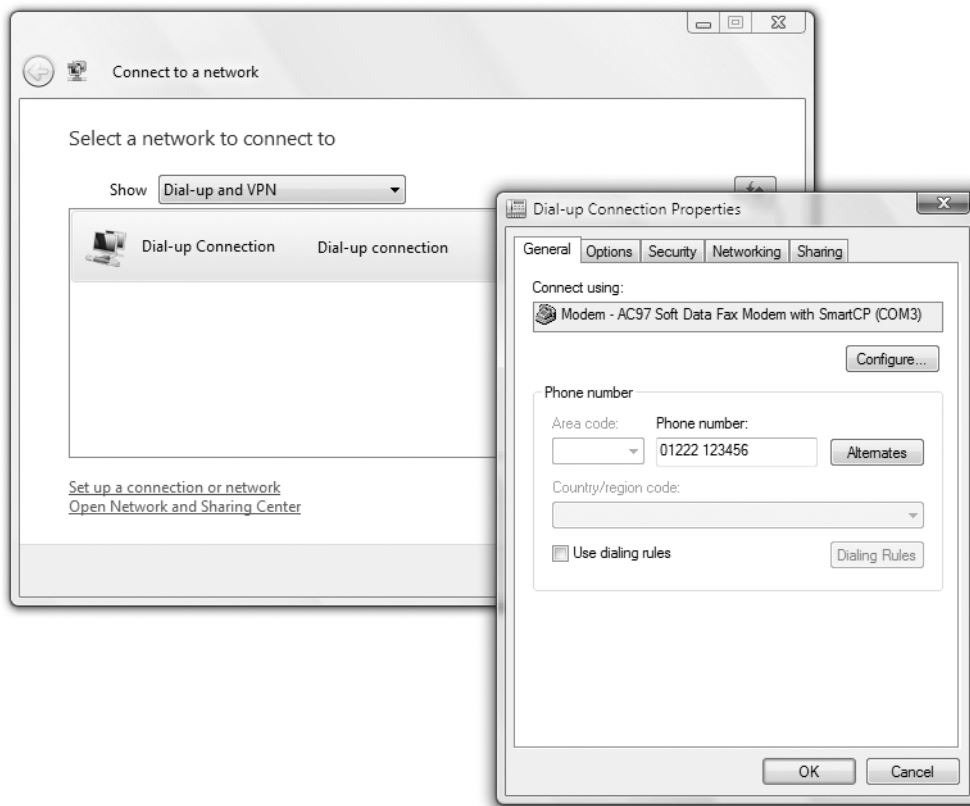
---

**Tip** If you've forgotten any passwords, several freeware/shareware applications are able to "decode" the asterisks that obscure Windows passwords and show what's beneath them. A good example is Asterisk Password Reveal, which you can download from [www.paqtool.com/product/pass/pass\\_001.htm](http://www.paqtool.com/product/pass/pass_001.htm). Shareware sites like [www.download.com](http://www.download.com) offer similar applications.

---

Note that you don't need to write down information such as hardware interrupt (IRQ) or memory addresses, because hardware is configured automatically by Ubuntu. However, it might be worth making a note of the make and model of some items of internal hardware, such as your graphics card, modem (dial-up, DSL, or cable), and sound card. This will help if Ubuntu is unable to automatically detect your hardware, although such a situation is fairly unlikely to arise. Under Windows Vista, you can find out this information by clicking the Start button and right-clicking Computer. Click Properties in the menu that appears, and click the Device Manager link on the left of the window that appears. Under Windows XP, right-click My Computer on the desktop (or on your Start menu), select Properties, and click the Hardware tab. Then click the Device Manager button.

Instead of writing everything down, you might consider taking a screenshot by pressing the Print Scr button and using your favorite image editor to print it.



**Figure 4-3.** *Don't forget to back up "hidden" data, such as ISP dial-up phone numbers.*

---

**Tip** Ubuntu works with a wide variety of hardware, and in most cases, it will automatically detect your system components. If you're in any doubt, you can consult the forums at <http://ubuntuforums.org>, in particular, the Hardware Help forums under the Main Support Categories heading. You might also consider subscribing to one or more of the Ubuntu mailing lists at <https://lists.ubuntu.com>. Remember that an important element of Ubuntu is its community of users, many of whom will be very willing to answer any questions you might have!

---

Once you're certain that all your data is backed up, you can move on to the next chapter, which provides a step-by-step guide to installing the operating system.

## Summary

The aim of this chapter has been to prepare both you and your computer for the installation of Ubuntu. We've looked at how your hard disk will be partitioned prior to installation and the preparations you should make to ensure your hard disk has sufficient free space. You also learned about the types of files you might choose to back up, in addition to vital details you should record, such as usernames and passwords for your online accounts.

In the next chapter, we move on to a full description of the Ubuntu installation procedure. The chapter guides you through getting Ubuntu onto your computer.