workshop

Back up and survive

Why, when backups are easily made and can be our saviours in time of Windows woes or reboot rejections, do so many of us find excuses not to perform them? Emma Northam provides a hassle-free guide to saving your system and data

Here at *PC Advisor* barely a month goes by without us exhorting you to back up your data. And with good reason: new viruses appear all the time, occasionally catching out even the most careful antivirus updater. What's more, freshly installed software or hardware can cause unforeseen conflicts and reduce your PC to a blithering wreck in seconds, while bugs and glitches in Windows itself are another unknown quantity.

And it's not just viruses, buggy software or faulty hardware that cause problems. Any prevention measures can be undone in a matter of minutes by fire, floods, theft or even accidents, leaving full, regular backups your only really secure option for keeping your PC working through any external or internal attack. Put simply, you can't guard against every eventuality without a backup.

But rather than just tell you that backups are important while wagging a finger knowingly, we're going to show you exactly how to protect your PC so that you won't be left high and dry if the worst happens. Read on to find out which files you should back up, which software and media to use and how to make a full system backup.

ILLUSTRATION: JESS READ

Creating boot disks

Every version of Windows 9x lets you make an emergency boot floppy disk. When you boot from the floppy, Windows takes you to a DOS prompt where you can run DOS utility programs to evaluate and repair your hard disk, fix Windows, copy critical data to a safe location or even reinstall Windows.

Creating a boot disk is the same in all versions of Windows 9x and in Me: select Start, Settings, Control Panel, open the Add/Remove applet, select the Startup Disk tab and click Create Disk. (You'll need a blank, formatted floppy disk.)

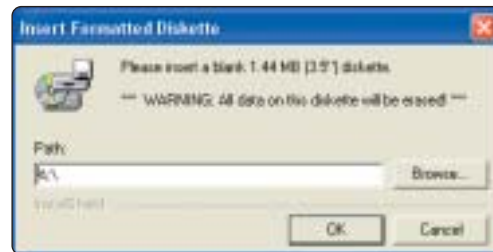Windows boot floppies contain useful DOS troubleshooting utilities, but they lack some of the key files you'll need to get your system up and running. This is where a third-party utility can come in useful.

If Windows is already misbehaving and you can't make a boot disk, you can insert your Windows CD-ROM or rescue CD and reboot your PC from that. But if you've lost the rescue CD and don't have Windows 95 or 98, then you're going to have to create your own boot disks anyway.
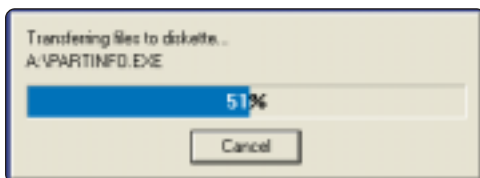
We've used Drive Image to make two bootable floppy disks. We can then use these to restore the image of our hard disk that we're also going to create using Drive Image (see *Imaging your data* on page 117).

1 The first time you run it, Drive Image asks whether you want to create rescue floppies and by default ticks the Yes box for you. The process takes a matter of minutes, so we recommend you do it. Click Next to proceed

2 Drive Image will prompt you to insert the first floppy disk into the A drive

3 The progress bar shows that Drive Image is writing the necessary files to create the bootable floppy disk

4 When copying is complete you'll be prompted to remove the disk and label it. Do this, then repeat the process with a second floppy disk and you're done

Backup choices

How you decide to back up depends on how you work – whether your PC is part of a network, for instance – and the sort of hardware you have available or the budget you have to buy the necessary kit. If your PC was bought in the last couple of years, chances are you already have the equipment you need to make backups – a CD-recordable or rewritable drive, maybe even a DVD writer.

Compact disc is an ideal medium for archiving work as discs are reasonably durable, with an average lifespan of 10 years, plus they're compact and can hold a hefty 650MB to 700MB of data. However, with hard drive capacities hitting hundreds of gigabytes, CDs might not be big enough to hold all their information.

In this case DVD is a better option, but only if you already have the requisite DVD-recordable drive or are prepared to pay around £200 for one.

Their capacities are much higher, but DVD discs are also much costlier than CDs. We found 50 CD-R discs on Maplin's website (www.maplin.co.uk) priced at £30 while 10 DVD-R discs cost almost as much.

And as with any nascent technology, the many DVD recording and rewriting standards could pose a problem in the future if your chosen format is destined for Betamax-style obsolescence rather than widespread acceptance.

But even DVDs are small fry compared to most PC hard drives. If you want to make a complete copy of your hard drive

– a mirror image which you can restore your operating system, applications and data, as well as all your settings intact – we recommend you invest in an external hard drive the same size or bigger than your PC's hard disk.
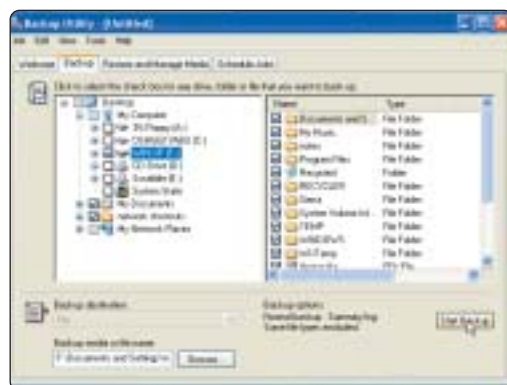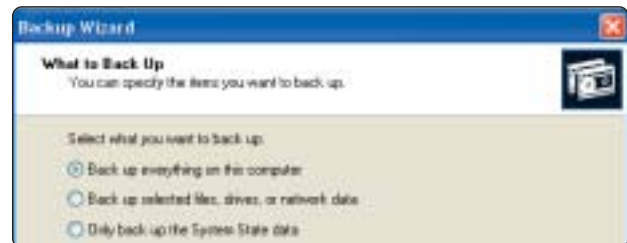
Going incremental

A backup should be performed daily, but the process doesn't have to take long. What you back up need only be those files you've changed – perhaps a few Word files or a handful of emails. This means making incremental backups of your data. You can set Windows' own Backup utility to do this for you (if you have 9x, Me or XP Professional), saving the results to CD rather than stumping up for extra software and hardware.

Backing up with Windows Backup

If you have **Windows 98 or XP Professional, you can use Windows Backup Utility to make incremental backups of your data or to make a copy of your entire C drive. It's wizard-based which makes automating backups and restores** very simple, plus you can schedule jobs so you don't even have to think about it. XP Home users will have to fork out for alternative software or manually back up files to CD (see *Imaging your data* on page 117).

1 To start the Windows Backup Utility, go to Start, Programs (All Programs in XP), Accessories, Backup. By default, the utility starts in Wizard mode, but you can click Advanced Mode instead if you want to dictate settings yourself. We've chosen Advanced Mode, so Backup now prompts us to choose what we want to make copies of – everything on our PC, selected files or drives or just system state data. Click the appropriate choice
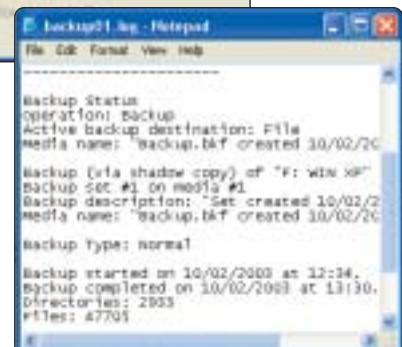
2 Next choose a destination for your backup. You can select another partition on your existing hard drive, your CD or DVD drive or an external device. To back up your data files alone, choose your My Documents folder (assuming this is where you normally store files you've created).

We chose 'Everything on this computer' so next we need to place a tick in the box adjacent to the drive partition we want to back up. The contents of that drive will be shown in the righthand pane. Note also that two desktop folders – My Documents and network shortcuts – are also selected in the lefthand pane as they are contained in our F drive. Now press Start Backup

3 Backup Job Information lets you append the backup to an existing one which is a good option for incremental backups. Alternatively, you can replace any existing data in your backup location (CD or hard drive, for instance) with the new backup. You might want to change the automatic name Windows gives the backup to help you identify it. When the backup is complete, you'll see a dialog box onscreen. Click Report for more information on the backup. As you can see, we've created a shadow copy of our F partition

Alternatively, if your filing's up to date then it's fairly easy to manually copy the files you've worked on to the data storage medium of your choice. If you're doing this, it's a good idea to back up to an overwritable format such as CD-RW or Zip disk so that you can replace the files that have changed rather than copying all your data again.

But remember that data backups on their own are not enough. If something happens to render your PC completely unbootable, you'll need boot disks to get it going again and a system backup too.

If you have your original Windows and applications discs then reinstalling from scratch is an easy enough, if lengthy, process, but you won't be able to restore tweaked settings and you'll need to download and reinstall all your hardware drivers again too.

Storage solutions

If you're just backing up your own files at the end of each day, a CD, Zip or Jaz drive is ideal. For full system backups look to an external hard drive that y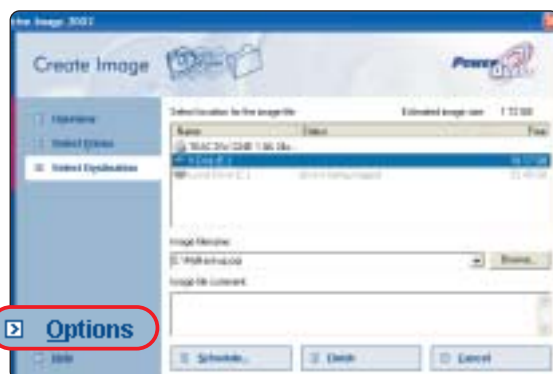ou can store safely offsite. Backing up multiple PCs on a network probably means a tape drive. In terms of speed, backup hard drives zoom, tape storage drags and optical storage generally ranges between those extremes. And as you might expect, low-capacity removable media drives demand a lot of babysitting during large backups.

• CD or DVD A great way to back up data as most PCs have a CD-recordable or rewritable drive and media is cheap. But be warned: if you're thinking of making a full backup to CD the process can use in excess of a dozen discs. You'll also have

Imaging your data

The point of making a mirror image of your hard disk is that Windows, software, data and all those carefully customised settings you applied will be restored to exactly the state you had them in before disaster struck.

We've used Drive Image for this workshop, which offers LAN support for networked PCs and a scheduler. Similar packages include Symantec Norton Ghost 2003, Acronis True Image 6.0 and Vcom's DriveWorks.

1 Check the size of your hard disk to give you an idea of how many CDs you'll need to back it up or what size hard disk to buy to mirror all its contents. Select the drive in My Computer, right-click it and choose Properties

2 When you first run Drive Image, you can run the Setup Wizard to create a backup location or choose a destination manually. You can choose an existing drive or ask Drive Image to make another partition on your hard disk and back up to that.

If you choose to skip the wizard, you can set these preferences manually. From the main interface click Create Image. Now choose which partition you wish to image. Choose Select Drives from the lefthand side then select one or all of your partitions

3 Next select the backup device you want to save the data to. Our PC's CD writer isn't the best option for this as the imaging process will require multiple CDs and we'll have to be there to put new discs in the drive as Drive Image needs them. For this reason, we've selected an external hard drive, E.

That's it. If you're security minded (and you should be) select Options and add a password before you click Finish to start the image process

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to insert each disc twice – once for the backup and once for data verification.

DVD is a better bet if you've more than a couple of gigabytes to store but it's an expensive option as discs cost around five times the amount CDs do. For small, incremental backups in the under-2GB category, try the Iomega Zip 250MB USB-Powered Drive (£81 from www.dabs.com); or Asus' CRW-5224A internal CD-RW drive (£49 from www.scan.co.uk).

• Hard drive If you have more than 20GB of data, can't afford downtime and everything on your PC is vital, you need a dedicated backup drive to safeguard your PC's content and get you up and running fast. Speed, capacity and removability are major considerations. An external hard drive delivers great performance at the best price, whereas an internal model makes storing critical data offsite difficult.

• Tape Back when hard drives were measured in megabytes, savvy users and businesses relied on the only automated backup option of the time: a tape drive. Everyone else used the humble floppy disk; prayed that they wouldn't accidentally corrupt or delete essential files; or hoped that their hard drives wouldn't die.

These days, a tape drive is still the best option for backing up a number of PCs – for instance, Exabyte's VXA-1 (£560 from www.exabyte.com) boasts storage capacities of 33GB for a single tape and 66GB if data is compressed. A tape drive's two advantages – easy automation and use of removable media (allowing for the storage of redundant backups offsite) – generally make up for the shortcomings inherent in its pedestrian performance.

• Online You can save money on hardware and eliminate setup and installation hassles by using an online site to store your files. There are loads of firms offering remote backup, with prices starting at around £12 a month for 75MB. Internet storage solves the problem of where to keep backups so that they're safe from fire, theft, flood and the ravages of central heating or sunlight.

Data is offsite and protected, giving you immediate peace of mind. This can be a slow way of doing things if you're using a 56K dialup line, but small businesses with leased lines or high-speed ADSL connections could find online backup the ideal solution.

For more on remote storage check out any of the following sites: www.evault.com www.ibackup.com, www.datafort.co.uk, www.onlinebackup.org, www.freedrive.com (test the 15-day trial of the service) and www.datavaultcorp.com. ■