

Here's a classic Windows-ism for you:

"Uninstall completed. Some elements could not be removed. Manually remove these items." Apparently the uninstall was *not* completed. WinXP may be the tidiest OS to ever come out of Redmond, but it's still plagued by the build-up of digital crud that results from sloppy housekeeping. Applications deleted long ago leave behind remnants. Spyware leaves smelly droppings throughout your system folders. File fragments, temp files, and obsolete driver packages clog the pipes. All this crap slows down performance, extends search times, and, at worst, creates system instabilities.

WinXP utilities like Disk Cleanup and System Restore can be helpful in keeping your system in good health, but the truth is that there's no substitute for a top-to-bottom OS reinstall to make your PC feel like new. It's called a "clean start," and on the following pages, we'll show you how to perform one with the highest level of personal customization possible. We first did this project in June 2000 with Win98, and because the article was so well-received, we decided to update it for WinXP. Our time-tested (and improved) *Maximum PC* process involves backing up all your valuable files, wiping your system clean, reinstalling your OS along with all your personal settings and favorite apps, then creating a mirror image of this perfect

system profile on CD-ROMs. It'll include all your OS preferences, all your networking settings, and all the software you use on a daily basis—ready to load at any time, and ready to rescue you from disaster. Here's what you'll need:

- Windows XP installation CD
- PowerQuest *Drive Image 2002*
- CD-Rs or CD-RWs (at least three)
- A CD burner

After you're done, you'll be able to get that "fresh-out-of-the-shower" feeling anytime you want just by popping your recovery CDs and loading in your image. System feeling groggy? Virus attack? No problem. All you need is a clean start.

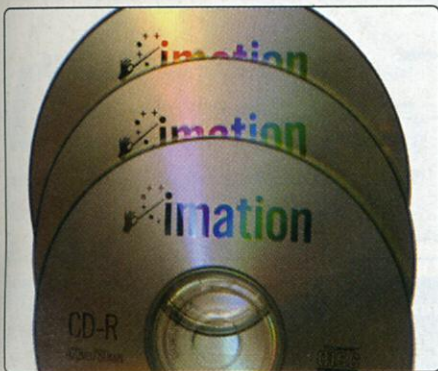
TEN EASY STEPS

Lest you get antsy about the sheer scope of this project, check out how easy the process really is. Here's a brief outline of what you'll be doing:

- 1.** Confirm that you can boot from CD. Most PCs shouldn't have a problem booting directly off of a CD, but some really
- 2.** Back up your data. All your files will be wiped clean during this project. Sorry, that's the nature of the beast.
- 3.** Collect the essentials. Before you recklessly reformat your drive, you're going to make sure you have all the tools required for the project.
- 4.** Format your drive. This is the point of no return. Anything not backed up is about to be offered as sacrifice to the god of hard drives.
- 5.** Install XP. This process is much easier than it was in previous Windows incarnations, but it's still the longest step here, so pay attention.
- 6.** Windows Update. Microsoft's online resources will help you plug security holes and stomp out bugs.
- 7.** Install drivers. Many people forget this step and end up wondering why their frame rates are in the toilet.
- 8.** Tweak XP. Here's the part where you get to wring every last bit of performance from the OS.
- 9.** Install apps. Your PC isn't going to be much use without some software to run.
- 10.** Create restore discs. Finally, we're going to take a snapshot of your pristine, perfectly configured system.

Stuff you'll need:

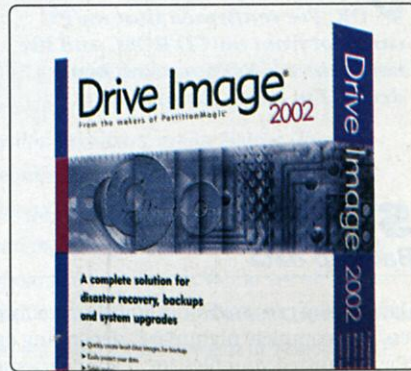
CD-Rs or CD-RWs (at least three)



Windows XP installation CD



PowerQuest Drive Image 2002



STEP 1

Confirming that you can boot from CD

In order to restore your system without requiring a fragile floppy startup disk, your PC must be able to boot from a CD-ROM. Fortunately, almost all PCs that meet the minimum system requirements for WinXP are able to boot from the optical drive. Even so, you're still going to have to configure your BIOS so that your PC checks the CD-ROM for a bootable disc before turning to the hard drive. Here's how to do it.

Restart your computer. As soon as the screen that indicates your BIOS is loading comes up, you'll have a few seconds to press the correct key to enter the BIOS. The name of the key should appear on the screen (e.g., "Press F1 to enter the BIOS"), but if it doesn't, check your motherboard documentation. If you don't have a manual, try the Delete key. If that doesn't work, try pressing each of the function keys (F1, F2, etc.) and the Escape key until you hit the right one.

Once you enter your BIOS, check to see whether your BIOS is from Award or AMI by reading the title at the top. If you have an Award BIOS, enter the Advanced BIOS Features tab and scroll down to First Boot Device. It should be preset to Floppy. Because we aren't going to use the Floppy drive for boot purposes, press Enter, select CDROM from the list, and press Enter again. Now press Escape until you're back at the BIOS entry screen. Select "Save & Exit Setup" from the menu, and press Enter.

If your BIOS is an AMI, select the Advanced BIOS Features tab, scroll to 1st Boot Device, and use the plus and minus keys until you've selected CDROM. Now press Escape, select "Save & Exit Setup," and press Enter.

Once you've done all this, you should be ready to boot off a CD. If you can't seem to get the CD to boot, see the sidebar on page 35 for alternatives.

✓ OK, I've confirmed that my PC can boot from my CD-ROM, and I've made the CD-ROM my first boot device. I'm ready to move on.

STEP 2

Back up data

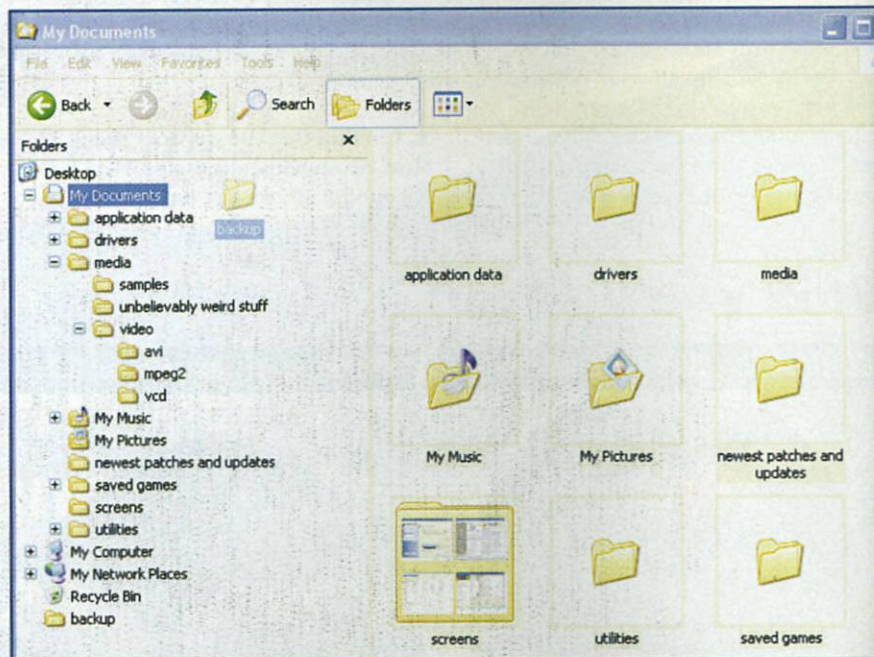
Data backup can range from "quick and effortless" to "complete nightmare" depending on how organized your files are. If your personal

Phoenix - AwardBIOS CMOS Setup Utility		Item Help
Advanced BIOS Features		Menu Level ▶
Virus Warning	[Disabled]	Select Your Boot Device Priority
CPU L1 & L2 Cache	[Enabled]	
Quick Power On Self Test	[Enabled]	
RAID & SCSI Boot Order	[RAID,SCSI]	
First Boot Device	[CDROM]	
Second Boot Device	[HDD-0]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Typeomatic Rate Setting	[Disabled]	
x Typeomatic Rate (Chars/Sec)	6	
x Typeomatic Delay (Msec)	250	
Security Option	[Setup]	
OS Select For DRAM > 64MB	[Non-OS2]	
Report No FDD For WIN 95	[No]	

STEP 1 Once you're done with the "clean start" process, you can shave a couple seconds off your boot time by switching First Boot Device back to your floppy drive.

documents are littered far and wide, let this be a lesson to you. Centralizing your data into one main folder—such as My Documents—can spare you the trouble of spelunking the depths of your system when you need to gather up coveted MP3s, JPGs, and AVIs.

Yes, you'll be tempted to use WinXP's Files and Settings Transfer Wizard. It purports to offer one-click backup of all the data you'll want installed on a new system. But trust us, it's not foolproof. The problem is that the wizard also transports all of the gunk—



STEP 2 Don't miss any important files during a backup, because you can't come back for them after you reformat.

orphaned shortcuts, abandoned dialup configurations, and so on—along with your data and settings. This of course defeats the purpose of performing a clean install!

So let's get down to business. On your desktop, create a folder that will eventually be copied to either removable media or a secondary hard drive. Into this folder, copy everything from My Documents along with any sundry files you might have created on your primary hard disk, be they text documents, videos, or MP3s—anything you want to save for posterity. Make sure you organize the files into sub-folders, and as long as you've got the opportunity to tidy up things, make the most of it. Don't copy any personal document that you're sure you'll never need. If you have a secondary drive that's unrelated to the primary drive (that is, it doesn't have any software installed on it and will not require reformatting), then you can leave files there for safekeeping.

You'll want to export your e-mail, as well. In *Outlook*, this can be done by opening up *Outlook* and right-clicking the *Outlook Today* icon in the list of mailboxes and selecting the "Properties for Outlook Today" option. Then click the *Advanced* button and copy the path from filename. The path will lead you directly to the file with all of your *Outlook* settings.

If you use a modem, you're going to need to copy down your ISP's phone number, as well as your username and password. This information can be found in *Control Panel*>*Network Connections*, but your password will be blotted out, so make sure you have it written down. Also, you'll need to record your username and password for any kind of broadband, such as PPPoE, that

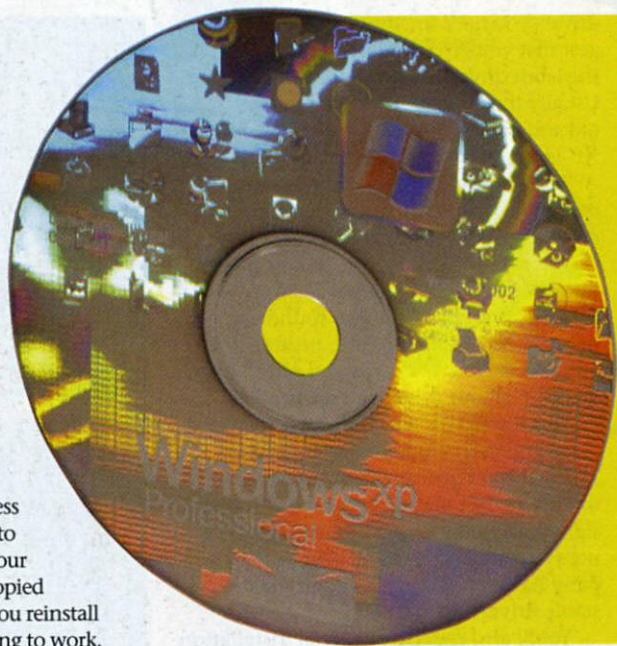
requires you to connect before using. If you use a static IP address, copy down all your IP settings, which can be found by going to *Control Panels* > *Network Connections*. Right-click *Local Area Connections* and select "Properties." In the new menu, highlight *TCP/IP*, click the *Properties* option and you'll find your IP info.

Don't forget your saved games! If you can't figure out where they're stored by browsing game folders, you can try uninstalling the game. Before the uninstallation process begins, many games will offer to keep the saved game files on your drive; these files can then be copied onto your new system when you reinstall the game. This isn't always going to work, though, so try first to find the right folder.

✓ *Alright, I've backed up all my data. I've double-checked that everything else on the drive is expendable. Yes, I'm sure. I'm ready to move on.*

STEP 3 Collect your project tools

It never hurts to double-check your tool box, because once you get moving, you won't want



STEP 3 The XP CD won't have the most updated drivers, so download the latest ones from your vendors' web sites, and put them onto a CD.

to be caught empty-handed. So make sure you have the following.

- *Drive Image 2002*, the program we'll use to create the restore disc set.
- Your original Windows XP installation CD (either Home or Professional).
- At least three CD-Rs or CD-RWs (it helps to have more on hand in case there are burning errors or you need more room).
- An optical disc that contains all the

The Clone wars

Alternatives to Drive Image 2002

Drive-imaging software isn't only for home consumers who want to make mirrored copies of their hard drives. System "cloning" is in fact a common procedure among IT managers who don't want to go through the hassle of manually installing a new OS on a bunch of identically configured machines.

Symantec's imaging software, *Norton Ghost*, has always been a popular choice

among IT bosses because it allows them to scan networks for machines, then perform remote imaging on the hapless clones. The software also has numerous tools for controlling network data transfers.

PowerQuest's *Drive Image 2002*, however, is much more friendly toward people who just want to make images of their hard drive without mucking around in numerous

DOS screens. For example, *Drive Image 2002* lets you restore your system image from within Windows, while *Norton Ghost* requires you to boot into DOS first. *Drive Image 2002* also has a much better interface and includes wizards for setup, image creation, and restoration. While we all have fond memories of our DOS days, we prefer to do our work in the comfort of Windows XP.

drivers you need for your hardware. We suggest that you go onto the Internet and pull the latest drivers from vendor web sites.


Usually the driver you've got on your CD is old and moldy, or even Windows XP-incompatible in some cases.

Try not to forget any components, because any driver that you don't update now will have to be updated every time you reinstall. So make sure you've got the most current driver releases for your video-card, motherboard chipset, soundcard, network card, USB 2.0 card, printer, and any specialized A/V cards you might have. We keep all our drivers on rewritable optical discs. This way they all stay in one place and can be updated as necessary.

We'll warn you ahead of time that drivers are not always going to be digitally signed. Digitally unsigned drivers aren't necessarily a bad thing as long as the company has a good reputation for making stable drivers.

You'll also need the original installation packages of all of the applications and utilities you'll want on your clean system mirror—Office, Photoshop, ACDSee, what have you.

Once you have all these parts collected, you can move on to the next step.

 I've got Drive Image 2002, my Windows XP CD, plenty of CD-Rs, all the latest drivers for all my hardware, and I know which apps and utilities I want to install. Now what?

STEP FOUR

Format your drive

This is it: the point of no return. Up until now, everything we've done has been simple preparation, but in this step you're going to actually erase files from your hard drive. If you've diligently backed up all your data, there's nothing to worry about.

Here's a final safety tip before we begin: If you used a removable drive to back up all your data and it's still connected to your PC, disconnect it now. When the XP install process begins and the formatting screen pops up, it will display the removable drive as the first partition. Many unhappy people have inadvertently formatted their removable drive—with all their backed-up data—instead of their hard drive. Whoops!

Drop the Windows XP CD into your optical drive and reboot. Since you've

Windows XP Professional Setup

The following list shows the existing partitions and unpartitioned space on this computer.

Use the UP and DOWN ARROW keys to select an item in the list.

- To set up Windows XP on the selected item, press ENTER.
- To create a partition in the unpartitioned space, press C.
- To delete the selected partition, press D.

76341 MB Disk 0 at Id 0 on bus 0 on atapi [MBR]

Unpartitioned space	76340 MB
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ENTER=Install C=Create Partition F3=Quit

STEP 4 Now that you've pooled all your disk space, it's time to create a partition.

already set it up to be the primary boot device, you should get a message that says "press Enter to set up Windows XP." Do this. Once you're in Windows Setup, wait until a "Welcome to Setup" screen appears. Follow the instructions and press "Enter to Set Up Windows XP."

When the EULA (end-user license agreement) appears, press F8 to continue. If Windows is already installed on your hard drive, then you'll need to press Escape to bypass the previous install, and install a fresh copy. Next you should see a list of the partitions you have on your PC. Before you do anything, you need to develop a plan for the final configuration of your partitions. Partitioning is basically dividing the disk space of a physical drive among several "virtual" drives called partitions. These virtual drives show up as separate drives (C, D, E) within Windows. While many people like to divide their drives into multiple pieces, we recommend that you create a single partition for every physical drive you have.

Remember that there is no helpful redundancy in creating partitions, because if a physical drive fails, all of the partitions associated with the drive will die as well. It is also advantageous to create a single partition for your OS install because of the way Windows XP accesses its data. When a partition spans the entire disk,

Windows XP automatically puts the large files onto the outside edge of the drive, where high seek times are mitigated by high throughput speeds. The smaller, more frequently accessed files use the inside edge of the disk platters, to take advantage of low access times. When you partition the drive into two pieces, you lose most of the advantages of this ordering scheme.

At the partition setup screen, find the partitions that are associated with your primary drive (Disk 0). Make sure this is the drive you want to format. If you have a physical hard drive that is 120GB, for example, and another 60GB physical drive that you backed up your old data on, look at the format screen and check the disk size—be absolutely certain that you are drawing a bead on the right drive. Once you're certain, delete them by pressing D, then Enter, then L.

Once this is done, you will have created a pool of all the free space on your hard drive and it will be ready for partitioning. Select the unpartitioned space, press Enter, and choose "Format the partition using the NTFS file system." For this task we want to avoid the Quick option since it simply rewrites the TOC to make the drive think it's empty instead of actually erasing anything. A full format goes through each hard drive

sector and rewrites it, so if you have a bad sector on your drive, it will be exposed now rather than later.

Now let the drive format. This will take a long time.

✓ I've formatted my drive and deftly avoided disaster. Windows XP is now ready to install itself. No sweat.

STEP 5 Install Windows XP

After the format of your hard drive, your PC will reboot, and the Windows XP install routine will swing into action. You'll be prompted along the way for basic information, and asked to enter your Product Key.

After Windows XP asks for your desired network setup option for broadband and modem connections, the rest of the installation will progress automatically. When it has finished and rebooted, you'll be prompted to change your display resolution. Follow the onscreen instructions and allow Windows to boot into the familiar desktop. You'll also receive a message asking if you want to register and activate Windows. (Note that activation is required, but registration is not.) If Windows was able to recognize your network card and you use a broadband connection, then you can probably activate now. Otherwise, you'll have to wait until after you have installed the network card or modem drivers (see the next step).

✓ Okey-doke, a fresh copy of Windows is now completely installed. What do I do next?

STEP 6 Run Windows Update

Our first stop after installing Windows XP is Windows Update, Microsoft's one-stop online shop for security fixes, OS updates, and certified drivers.

If you're using a network card and you connect through a standard DHCP broadband connection, then you can skip to the next part about running Windows Update. But if you're using a modem, or if you need to install specialized network parameters (username and password) from your broadband ISP to connect to the Internet, then we'll need to visit the Control Panel before going to Windows Update.

STEP 5 Installing XP is easy, just follow the directions onscreen.

Go to the Start Menu and click Control Panel. On the left-hand side there should be an option that says "Switch to Classic View." Click this and you'll see the familiar set of Control Panel icons. Double-click Network Connections, and on the sidebar choose "Create a New Connection," choose the "Connect to the Internet" option, then "Set Up My Connection Manually." From here you can choose to connect through dialup or broadband with a username and password. Go through the desired menu selec-

tion and enter the information that you've copied down or that your ISP has supplied you with. After you're done, try to achieve a connection with your ISP. If you use a static IP, make sure you select that option in the Network Connection Wizard.

Once you're able to log on and access the Internet, go to the Start Menu on the Taskbar, select All Programs and click Windows Update. This will open an *Internet Explorer* browser that will automatically connect you to the Windows Update site. Once

STEP 6 You'll need to go to Windows Update often—your OS is a work in progress.

Setup Options



Please select the required setup type:



Full Installation:
When you want to create and experience multimedia contents.



Custom Installation:
For advanced users. You can choose individual components.



Drivers Only:
Only drivers are installed.

STEP 7 Whenever possible, select the leanest driver installation option—you can always add programs later.

STEP 7 Install drivers

As we discussed earlier, having the latest drivers is extremely important to a well-functioning machine, but you'll want to be careful with some of the stuff you put on your freshly installed OS.

Vendor driver discs tend to contain tons of extras that most people neither need nor want. Creative Labs, for example, packs a dozen or so programs with its Sound Blaster Audigy driver CD, and it all installs by default. So when installing from vendor driver packs, make sure you always select the minimum possible installation without all the extraneous software that's just going to muck up your pristine box. You can always add craplets later if you feel like you're missing out on something.

Most people use videocard based on either nVidia or ATI chipsets. Although your board maker may have a specialized driver pack, it's usually little more than a reference driver with a bunch of extra crap tacked on. To avoid this, just download the latest reference driver from either www.nvidia.com or www.ati.com. nVidia makes this especially easy by providing a

the page comes up, click the "Scan for Updates" option and wait while your computer is gently probed.

Once your computer is checked, you'll have three different categories of updates available to you. The first section is Critical Updates, which will automatically be selected for download. You can click on that section to review what is going to be installed, but it's best to just leave it alone and let Windows Update patch whatever security holes the hacking gurus have come up with this week.

The second section is Windows XP and it contains noncritical software updates for Windows. We recommend installing everything you think you'll need, especially the Microsoft Virtual Machine and all the recommended updates.

The last section is Driver Updates, and it contains a sparse list of WHQL certified drivers for your hardware. These drivers will usually be a bit older than the latest ones you can find on your vendors' web sites. You may want to go with the latest update, even if it isn't sanctioned by Microsoft.



I've gone to Windows Update and brought my OS up to date. Are we done yet?

General	Computer Name	Hardware	Advanced
System Restore	Automatic Updates	Remote	

How do you want to be notified when updates are available for your computer?

Notification Settings

- Download the updates automatically and notify me when they are ready to be installed.
- Notify me before downloading any updates and notify me again before installing them on my computer.
- Turn off automatic updating. I want to update my computer manually.

Previous Updates

You can choose to have Windows notify you again about updates you previously declined.

STEP 8 Take the time to customize your settings. This includes folder views, update notification, and display properties, among other things.

unified driver that will work on any of its video chipsets since the TNT2.

Your motherboard chipset will probably be based on either an Intel or VIA chipset, although it may also be one from SiS, ALI, nVidia, or AMD. Check the vendor's web page for the latest driver updates. Having the latest chipset driver is far more important than most people think.

These days, most everyone runs a sound-card from Creative Labs, although there are some other vendors still out there, as well as a ton of integrated audio chips. For integrated audio, check your motherboard vendor's web site and you should be able to find what you need. Audio card drivers are usually available as downloads from the vendor's home page.

Once you're done installing drivers, reboot your PC and go on to the next step.

✓ I installed all of the drivers necessary for my hardware, and I didn't forget to install updated chipset drivers for my motherboard. What's the next step?

STEP 8 Tweak WinXP

This is the final step in your OS installation. Here's where you turn Microsoft's Windows XP into *your* XP by customizing its configuration and tweaking the settings for maximum performance.

If you didn't activate Windows during setup, do that first by clicking the key icon in your System Tray. Windows will generously offer to take you on a tour, install a Passport account, etc. Click all these reminders, then cancel them right away if you're not interested. This will prevent you from being bugged about them every time you reinstall.

Change the display resolution if you haven't already. In fact, while you're in Display Properties, take the time to set your power-management settings and Windows décor.

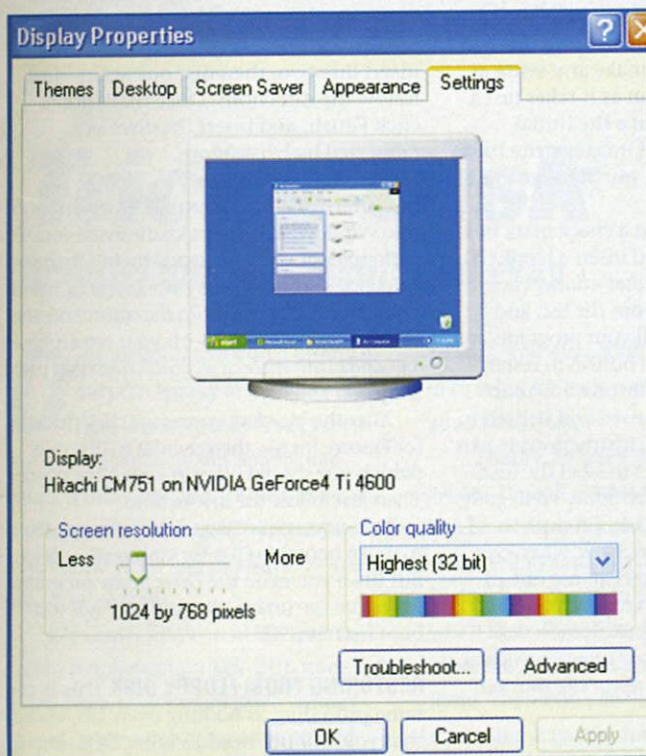
Set up directories for your personal data within My Documents, so you'll have a fairly easy method of backing it up later. Tweak My Documents to reflect the view you prefer (we prefer to see file details, not icons, so go to the View menu and select Details). If you want, you can go to Tools > Folder Options, select the View tab, and

apply these settings to all your folders by clicking "Apply to all folders."

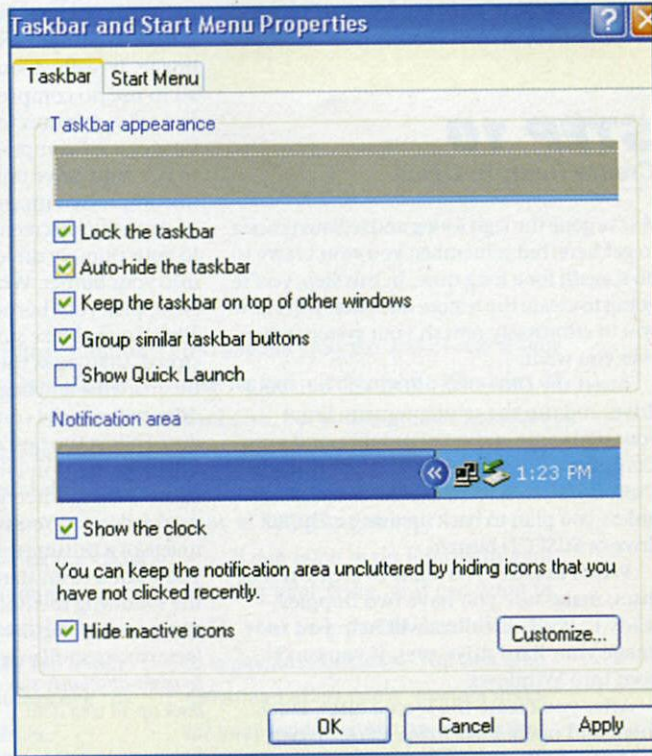
Next, right-click the My Computer icon on the desktop and select Properties. When the Properties window opens, select the System Restore tab and adjust the slider to the amount of disk space you want to allocate to System Restore. Also make sure you examine the "Automatic Updates" and "Advanced" tabs in order to set preferences for Users, Windows Update, Performance, and Startup. Don't forget to go into *Internet Explorer* and specify your security settings (at Tools > Internet Options > Security). If you plan on using a software firewall, you can configure that now as well.

If you prefer a more comprehensive, one-stop approach, check out programs such as *TweakXP* (included on this month's disc) that provide easy access to all the Windows XP tweaking options within one application.

✓ Aye, Windows XP is tweaked to my tastes. No, I mean it. I've scrubbed through every dialog box and tab, including those within Internet Explorer, to reflect my preferences. Let's carry on.



STEP 8 Don't forget your display settings.



STEP 8 And always customize your Start Menu.

STEP 9

Install your applications

The final step in building your custom OS image is to install all the key applications you want loaded whenever you do a clean-start reinstall. These apps should be installed judiciously, so wherever possible, select "custom" installations and limit the modules and install packages to just the ones you know you'll want to use.

Avoid installing programs that are frequently updated. For example, we're perfectly happy with *Office 2000* and don't have any plans to upgrade to *Office XP*, so we're going to add *Office 2000* to our base install. But with something like an instant-messaging client, which is updated almost obsessively, we prefer to install the latest version each time we go for a clean start.

Before you move on to the next step, make sure you try running all your programs at least once to ensure that the installs were successful.

I've installed all the applications that I want on my pristine system image. And, yes, I've ensured the installations are as minimal as possible, selecting only the modules that I'll actually use.

STEP 10

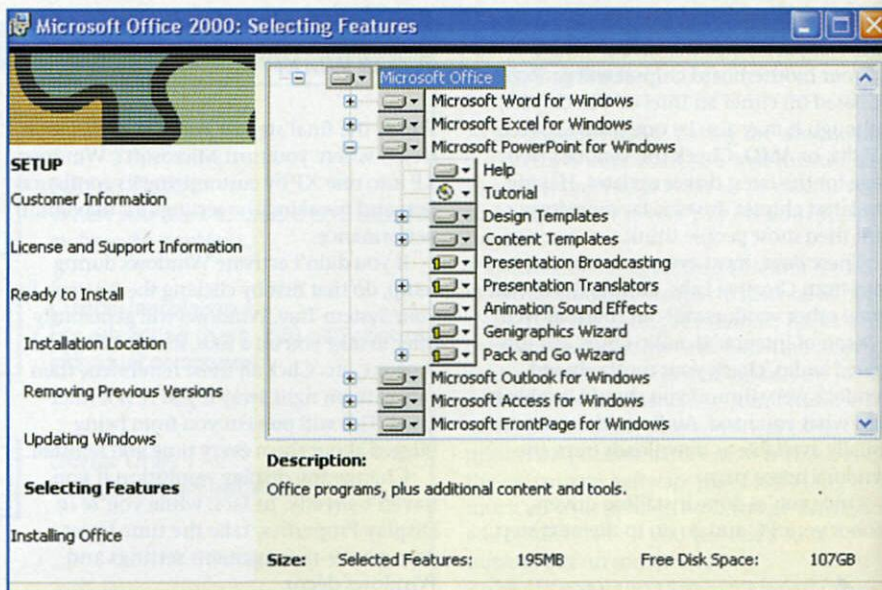
Create Restore Discs

You've gone through a long and tedious process to get here, but remember, you won't have to do it again for a long time. In this step, you're going to create the restore discs that will allow you to effortlessly refresh your system whenever you want.

Insert the *Drive Image 2002* CD into your drive, and run the setup program. Enter your username and serial number, and press Continue. When you come to the Install Customization screen, use the defaults unless you plan to back up using a Zip/Jaz drive or SCSI CD burner.

When asked if you want to create rescue discs, make sure you have two floppies ready to go. These discs will help you re-image your hard drive even if you can't boot into Windows.

After you create the rescue discs, label them and open *Drive Image 2002*. When the wizard selection menu comes up, check the box next to "Initial Backup Wizard" to continue with the default imaging process. Unless you want to



STEP 9 Feel free to install Office, but leave the more commonly updated programs until later.

modify the compression setting or tweak the amount of space that the images use on each CD, it's best to stick with the defaults. Compression is automatically set to high, which takes up less space but takes longer to compress when creating the image. It really doesn't make any sense at all to use no compression as it takes just a few extra minutes to make the initial images, and compressed images write back to the hard drive much, much faster than uncompressed images.

At the next screen, put a check mark next to your primary drive and insert a blank CD into your burner. When that's done, click Next, pick your burner from the list, and click Finish. Make sure all your programs are closed, then press the Yes button to restart the machine and begin the process. Your drive will now be compressed and written to disc. Follow the onscreen instructions to exit the program. Don't forget to label the discs consecutively when you're done. Well, golly, you've done it. You've made a complete image of a pristine system. Now, whenever you want a clean start, you can use one of the following methods to restore your system to its original state. *Remember that these processes will wipe out all your personal files, so make absolutely sure you repeat step two and back up all your data.*

RESTORING FROM WINDOWS (EASIEST AND BEST) If you want to re-image your drive and can still boot into your old install, the process is an absolute snap. Just open up

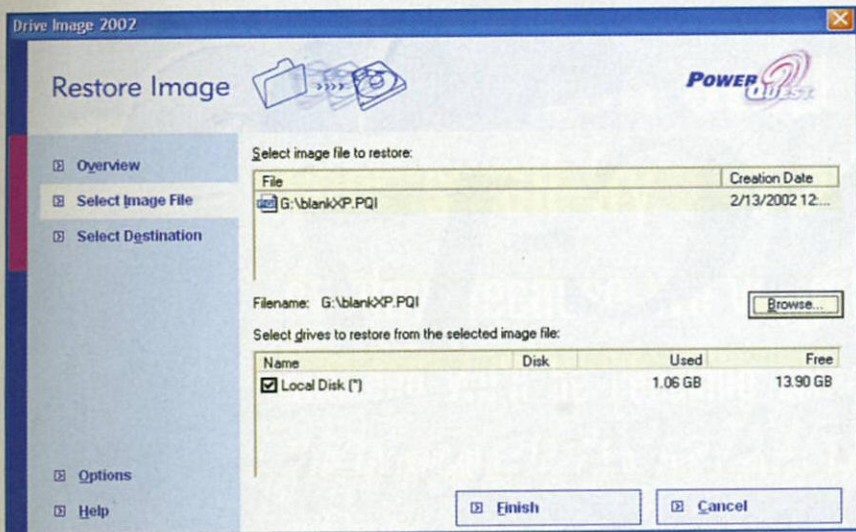
Drive Image within Windows and cancel past the welcome screen. Insert disc one of your backup discs into the CD drive and click the Restore Image option. Click "Select Image File" and point it to the .pqi file on disc one. *Drive Image* will ask you to insert disc two, then disc one again—just follow the directions. Once that's done, click Finish, and insert the discs as requested by *Drive Image*.

RESTORING FROM CD If your PC just won't boot into Windows and you're loathe to use your set of floppies (if you even made them), then you can boot directly off the *Drive Image* CD itself. The CD will drop you onto the command line. When you see the A:\> on your screen type: Y:\english\execute\pqi.exe then press the Enter key.

After the interface comes up, click the icon for Restore Image, then point it to disc one (which you should place in your drive now). Then just follow the instructions.

In case you were wondering, it's possible to make bootable CDs for your restore discs. But since you need the *Drive Image* program to restore the image anyway, why not just boot from its CD?

RESTORING FROM FLOPPY DISK This is the same procedure as booting from CD, except that you will not need to enter DOS. Pop in the first of two floppies you made when you installed *Drive Image* and reboot. *Drive Image* will ask for the second floppy, and start up its GUI automatically.



STEP 10 Select the image file you would like restored (you can have as many archived images as your drive can hold), and click Finish. *Drive Image* will take the reins from there.

Keeping your Windows clean

While even the most diligent housekeeper will find it impossible to keep a system absolutely free of data dust, there are still many ways to put off spring cleaning for up to six months or more, depending on your usage and degree of slovenliness. Your first defense is simple common sense. Be judicious and selective about software

installation packages, customizing their installs wherever possible. Avoid installing programs that have extensive spyware—and that means most file-sharing P2P applications (unless you can find one of the unauthorized, ad-free “lite” versions online).

Even if you don’t use any of the traditionally suspect software, you should still

use (and update frequently) Lavasoft’s *Ad-aware* (www.lavasoft.nu) to get rid of commercial garbage dumped into your Registry and system folders.

You can also avoid strangling the pipes with cross-linked files and file fragments by shutting down Windows the right way. Use the Start Menu > Turn Off the Computer selection. Shutting down by simply flipping off the power switch can lead to data loss, file corruption, and the little droppings mentioned above. Trust us, take the extra five seconds and shut down the right way.

Virus checks and regular defragmentation of your hard disk are also essential to keeping your PC in top shape. System maintenance packages like *Norton Utilities 2002* contain numerous tools for Registry cleaning, disk defragmenting, virus checking, and removing old files and shortcuts. Likewise, McAfee’s *QuickClean* (available for Windows 95b through XP) is a stand-alone utility that blows out the garbage from all of Windows’ hiding places, deletes duplicate files and orphaned shortcuts, and safely “shreds” these files on their way out. And the next time you get a message saying that the uninstall is completed but “some elements could not be removed,” *QuickClean* steps in and removes them for you. At this point, we think that’s something everyone can appreciate. ■

Tricky Disk

Booting the Old-Fashioned Way

Despite Microsoft’s best efforts to bury the legacy of the command line, there are still times when you might need to go old-school and create a DOS boot disk. For instance, if your motherboard doesn’t support booting from the CD-ROM and you have no intention of upgrading.

Windows XP does allow you to create a rudimentary MS-DOS boot disk (right-click your floppy drive, select Format, and check the option to add system files). But you won’t have any CD-ROM drivers on the disk, nor any of the apps you might need like FDISK,

Format, and even Edit. The best solution is to whip up your own custom all-purpose boot disk.

There’s no need to reinvent the wheel, though—most of the dirty work has been done for you. Go to www.drd.dyndns.org and click the “Boot Disks” link. Scroll to the bottom where you’ll find “Boot Disk Essentials” and click the download link (the red floppy icon). Then click on “wbootess.exe” to download it to your hard drive.

After it has completed downloading, put a disk into your floppy drive and launch the wbootess executable. Click

OK, and the program will create a boot disk for you, similar to the Windows 98 boot disk, but with a greater assortment of standard tools. You will get a universal CD-ROM driver, a mouse driver, a copy of FDISK and more.

If you want more information on creating boot disks, or if you want to tailor your own custom boot disk, go to www.bootdisk.com. You can also download other users’ custom disks for your own use. But be aware that you must possess a valid license of Windows before downloading a boot disk imaging program.