Chapter 1

Cleaning for the Novice

You unpack that great new computer you just bought, connect everything as shown in the diagram, and flick the switch. The monitor flickers on and you see all the lights flash for the first time. Nothing is more exciting! Your speed demon computer starts so fast that you don't even see the listing of hardware at the end of the tests. Suddenly, the Windows logo appears and things slow down—way down. In fact, the computer is so slow that you get a cup of coffee. Disappointment sets in and you wonder what all the hubbub is about—this computer isn't any faster than the dinosaur in your office and it might even be slower. Don't beat that computer or take out a hit on the salesperson. Your computer really is a speed demon. Windows, or should I say all the stuff installed on Windows, is simply consuming all of the computer resources.

NOTE A resource is something an application needs to run. The application is stored on the hard drive because the hard drive is the only permanent memory available to it. The Random Access Memory (RAM) used to run the application is temporary memory—it loses its content when you turn the machine off, but the hard drive doesn't. Windows loads the application into memory so it runs faster. Of course, any task the application performs requires the use of processing cycles. Applications also require access to the display and use of operating system services. All resources are consumable and finite. When one application uses a piece of memory, that memory is no longer available to any other application. When the system runs low on resources, it also begins to react slowly to your commands, so freeing resources to maintain good performance is essential. Chapter 2 describes these concepts in detail.

This chapter provides hints and tips for the novice (beginning) user. Many novices feel they can't work with their computer because they could damage it in some way. With careful setup, however, even novice users can help their computer use resources better. Don't let anyone tell you that the steps in this chapter are too complicated. All you really need to do is go slowly and make sure you understand a task completely before you begin.

The first section of the chapter helps you avoid basic problems that most novices encounter when cleaning their computer. For example, this section helps you understand that before you remove an application, you must make sure you save it and its settings. That way, when you discover you've made a mistake, you can restore the application to its former state. The second section describes some essential cleaning tasks you can perform once you set your system up properly. Always perform the steps in the first section before you do anything in the second section.

Novice computer users probably won't want to perform every possible computer-cleaning task. For example, it's very easy to make an incorrect registry setting change, so you'll want to avoid registry changes until you know a lot more about your computer. The third section describes a few cleaning aids that novices will want to avoid in this book. Even though these cleaning aids provide optimum performance, the cost is high when you perform the task incorrectly.

Everyone makes mistakes. The only way that I discovered many of the techniques described in this book was to make mistakes—lots of them. Every one of those mistakes cost me time. Don't feel bad about making a mistake, but the second you do, stop and check the fourth section of the chapter. I've included a number of tips on how to recover from mistakes or at least not make them worse.

Before You Begin Cleaning

Every cleaning task begins with some preparation. When you clean your home, you get out buckets, mops, dust cloths, and so forth. You make sure every one of these tools is ready for use before you begin cleaning. Likewise, when you clean Windows you need to check your equipment and make sure it's ready for use. The most important task is to ensure you protect your data, followed by your applications. Your data is irreplaceable, so concentrate on that part of the computer, followed by the application settings. The following sections discuss the preparation you should perform.

WARNING Perform the steps in the sections that follow every time you clean Windows. These steps aren't a one-time process. In fact, you should consider performing these steps regularly, even when you aren't going to clean Windows. Everyone can benefit from a properly maintained system—one that has good recovery options.

Backing Up Your Hard Drive

Always create a backup of your hard drive. The backup process places the information on the hard drive onto a tape (a special tape recorder such as Digital Audio Tape or DAT for computer systems), recordable CD/DVD, or other backup media. The idea is to create a copy in case something happens to the original. Although a wealth of third party backup products exists, you can use the Backup application found in the Start ➢ Programs ➢ Accessories ➢ System Tools folder to create a backup of your system without spending exorbitant sums of cash. This application provides standardized backup options for all of your essential data and it's free. You can read more about this utility in the "Performing Backups" section of Chapter 8.

TIP Most people cycle through several backups of their system. Using this technique ensures that even when one backup fails, you have other (albeit older) backups you can use. Even an old backup is better than no backup at all.

Knowing how to use the Backup application is only useful when you can easily choose the information to back up. Some novice users try to back up the entire hard drive. While this technique certainly protects your investment, it's also difficult to manage the amount of data that most people have on their hard drive today. In addition, making a backup of everything is overkill—you'll never use most of that data.

There's a practical reason for keeping backup sizes small. Large backups make it both difficult and time consuming to restore the data later. When you look through a large backup, you need to consider the age of the file and whether it's really the one you need. In addition, trying to sift through an entire hard drive's worth of data is time consuming when you only need one file. Creating a list of the items you want to restore is the best idea. Here's a list of common folders that you want to back up.

`\Documents and Settings` Always perform a complete backup of this folder because it contains all of your user settings. This folder can also contain your email, browser data, and many of the documents you create. In fact, this folder affects everyone who uses your system, so this is potentially the most important folder on your hard drive.

Application-Specific Data and Settings Some applications you install use a separate folder for data and settings. For example, older versions of Corel Draw store information in the `\Corel` folder. Many games, such as older ones produced by Microprose, also rely on a separate application folder. To ensure you can restore these older applications, make a backup of the application folder. The manual that comes with the application normally tells you where the application stores its data, but you can also use Windows Explorer to search for the application folder.

`\Program Files` Some applications store settings and a few even store data with the application in the `\Program Files` folder. Generally, these are older applications, but many games and educational applications also store their data in the `\Program Files` folder. Use the Date feature of the Search Explorer Bar shown in Figure 1.1 as a means to locate recently modified files when you want to determine which applications in this folder to back up. Those folders that have files with recent modifications are good candidates for backup. Also, notice how I've set up the Advanced Options to help ensure Windows Explorer reports all of the recently modified files.

Custom Data Folders Many users don't accept Microsoft's default folder scheme of placing everything in My Documents—they use custom folders to store data. In addition, anyone working in a group is likely to rely on some common folders that don't appear in My Documents. Always back up any custom folders you create. Make sure you include custom locations for email files and workgroup templates for applications such as Word.

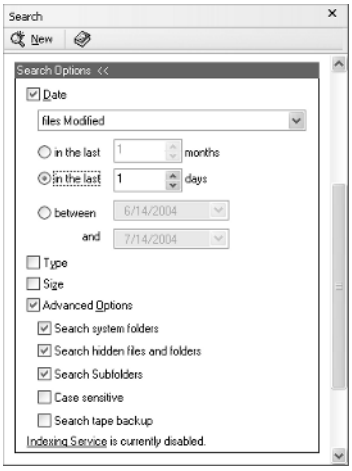

FIGURE 1.1
Use the Date feature to locate the applications that store their settings locally.

Your hard drive might appear complex, and it is, but by limiting yourself to these four data folder types, you can greatly decrease the complexity of creating a good system backup. More importantly, by concentrating on just the items you need, you reduce backup time and make it easier to restore the data later. Fewer places to look for data translates into a system that's easier to maintain.

Creating a System Restore Point

A system restore point lets you take the system back to a previous stable state. It's as if you've taken a picture of your system so that you can see it as it was before you made a change. Use system restore points carefully because the picture is extremely accurate. For example, when you make a system restore point, it creates a picture of any installed application. When you roll your system back to that restore point, any new applications you installed become inaccessible. You can learn more about creating a system restore point in the "Defining a System Restore Point" section of Chapter 8.

Always create a system restore point after you back up your system, but before you make any changes to it. The restore point is a second option when fixing mistakes. It lets you remove all of the changes you make when cleaning Windows. When you make a significant mistake, one that can leave the system nearly unusable, this is the restoration option to choose.

Applying All Required Patches

Your system is stable and you have two forms of backup at your disposal: an actual backup and a system restore point. The next step is to apply all required patches to your system. Simply use the Start ➢ Windows Update command to get a list of patches from the Windows Update site. (Executing this command will connect you to the Internet, should you need to make the connection.) Make sure you also look for application updates. For example, visiting Windows Update doesn't update any Office products installed on your machine. To perform this update, select the Help ➢ Check for Updates command in an Office application such as Word. There are three reasons to patch your system before you do anything else.

- Patches can cause operating system problems that you want to know about before you begin cleaning Windows so that you don't accidentally confuse the source of an error.
- Sometimes patches make settings changes and start unnecessary services. Part of the cleanup process is to shut unnecessary services and background applications down, so installing a patch after you change the Windows settings is counterproductive.
- Installing patches not only fixes application errors and improves security, but can also correct known performance problems.

After you install the patches, wait a day or two to ensure the patches don't create problems. You might want to make another backup and create a second system restore point before you start cleaning Windows. The idea is to ensure your system is as stable and up-to-date as possible before you start making changes to it. A stable system with the most current patches and adequate backup is far less likely to cause problems and is easier to repair should you make a mistake.

TIP Always allow plenty of time to perform tasks such as installing a patch or update. Depending on what the patch or update does, you might end up waiting anywhere from a few minutes to several hours for the patch or update to complete. A good rule of thumb is that larger patch or update files require more time to install, but this isn't always the case. Always assume that cleanup tasks will require several hours to complete. For example, a hard drive backup requires more time when you have a lot of data to backup and you use a slower device such as a tape drive. A typical 8GB backup on my system requires around 4 hours using a DAT drive. Once you perform these tasks several times, you'll develop a "feel" for the time they require on your system and you can plan the required time better.

An Overview of Tasks to Perform Immediately

Everyone can perform some tasks immediately after performing the proper setup (see the "Before You Begin Cleaning" section for details). The three tasks described in the following sections represent minimal risk as long as you stay within the guidelines. For example, removing old cookies and Web site data from your system is relatively painless and unlikely to cause problems, but removing old application settings can cause problems.

Cleaning Your Hard Drive

The first resource usage problem that many users experience is a lack of hard drive space. Most hard drives today are extremely large compared to those of days gone by because hard disk storage has become so inexpensive. However, there are several hidden costs of large hard drives.

- They require more system resources to manage.
- Cleaning a large drive requires more time because there are more data files to go through.
- Files are easily lost because the hard drive contains more folders.

It's better to locate problem files and remove them from your hard drive than to continually update it. The techniques described in Chapter 3 help you perform this task. Most novices will want to begin with the "Taking Out the Internet Explorer Trash," which tells how to optimize your Internet Explorer setup. You'll be amazed at how much space this one application can gobble up on your drive. It's also important to consider using the techniques in the "Scrapping Temporary Files" section to get rid of excess files created by other applications.

As your skills increase, you'll want to explore sections in Chapter 5. For example, it's helpful to know how to archive old email files, so you'll want to read about the techniques in the "Preventing Email Overload" section of the chapter. Keeping your application data organized is also important, so check out the archival techniques in the "Cataloging and Archiving Data" section. Of course, you won't want to archive group data unless the group is done using it, but archiving your personal data as you complete projects can save considerable space.

TIP It helps to organize email and application data into projects or by type so that there's a definite starting and stopping point for adding new data. This technique ensures that you can find data to archive on your system. When you store data as one continuous store, it's hard to find information that you can easily place in permanent (or archived) storage.

Clearing the Cobwebs from Memory

Memory can be a lot harder than the hard drive to monitor and clean. For one thing, everything disappears from memory the second you shut the system down—it's not permanent. Before you begin to think that you can clear memory by shutting your system down often enough, however, you need to know that Windows fills part of memory the second you start the system and every time you start or use an application. Memory is a precious commodity to track. Fortunately, anyone can see how their system uses memory by relying on the Task Manager. Figure 1.2 shows an example of how the Task Manager lists the applications running on your machine. The "Using Task Manager" section of Chapter 7 describes how you can perform this task.

At some point, you'll know that some applications are using more than their fair share of memory and other applications shouldn't even be running. This information is invaluable because it gives you a starting point for clearing memory and making more available to the applications you do use. Memory starvation is the biggest reason applications run slowly and it can be a contributing factor in application crashes. The "Using MSCONFIG" section of Chapter 7 provides some of the best advice that a novice can use to clear enough memory to make their system run well again.

As your skills improve, you might want to tackle the "Clearing Unnecessary Services" and "Modifying Network Connections" sections as well. Microsoft usually creates a default Windows setup that includes a number of services that you won't need because they have the corporate environment in mind. For example, you don't necessarily need to have some network support features installed when you don't attach your machine to a network. Even when you access a network, you can often modify the connections or perform other optimizations to keep memory usage down. Remember that the whole idea is to make more memory available to applications that actually need it.

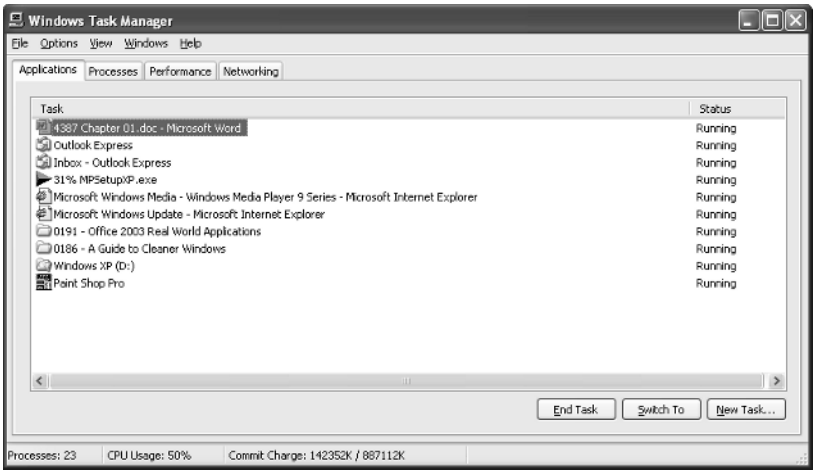

FIGURE 1.2
Check which applications are running on your system using Task Manager.

Tuning Your Applications

Applications use memory, hard disk, and processor resources as a minimum. A simple change in an application setup can make a big difference in system performance. As a minimum, you can remove applications you don't need to save hard drive space and, in some cases, prevent the application from executing automatically. Windows is one of the worst offenders when it comes to

installing excess applications that you don't need or want. The "Controlling Microsoft Additions You Don't Want" section of Chapter 4 tells you how to remove excess Windows applications from your system, including a number of hidden applications that Microsoft doesn't necessarily want you to see.

The easiest application element to control is fonts. I'm often surprised at how many fonts an application installs on my system even though I haven't asked it to. In some cases, the application actually uses the font to create a special display, but in many cases, the setup program installs the fonts to support the samples that come with the application or simply because the vendor assumes you want them. The "Removing Fonts You Don't Need" section of Chapter 4 shows you how to view and optionally remove the fonts you don't need on your system. Even this seemingly small change can net a large return in hard drive space.

TIP Many users will install the application with the samples, list the fonts the samples use, and then remove both the samples and their associated fonts once they've explored the samples sufficiently. Fonts are also one of the easiest files to restore to your system. Even if you accidentally remove one you need, the application will usually display an error message to tell you which one it does need. Consequently, optimizing your font setup is one of the best ways to get a little hard drive space back and potentially some memory too.

Part of the problem with today's application setup is that the vendor thinks their product is so good that you'll want to use every feature—most users don't need even half of the features provided by a typical application, so the extra features just consume memory and hard drive space. The "Tweaking Application Feature Sets" section of Chapter 4 helps you uncover application setup problems and correct them as needed.

Most people don't realize that applications have two other problems. First, the vendor assumes that you want to retain all of those setup files on your system even though you'll never need them again and they're readily available on the CD. The "Removing Application Installation Crumbs" section of Chapter 4 helps you start out on the right foot with an application by removing the excess files safely. Applications are even worse at removing files during an uninstallation. Fortunately, you can usually find these remains quickly and remove them. The "Discovering Application Uninstall Remains" section of Chapter 4 shows you how.

Potentially Hazardous Cleaning Aids

I don't like to place limits on what novices should do because I'm constantly surprised at what people can accomplish given a little time and assistance. However, some cleaning aids are so strong that you'll want to avoid them. The problem is complexity—most of these cleaning aids require an in-depth knowledge of Windows and offer a no-frills interface that's easy to misunderstand. Microsoft designed these tools for professionals, for the most part, so you'll want to leave them alone.

Getting Bit by the Registry

The registry is the most dangerous part of your system because it contains all the settings required for many applications and all the settings for Windows. When you make a mistake in the registry, it's often impossible to recover. A few settings are so important that the system won't start in any mode, not even Safe mode. Failure to follow the rules when working with the registry can mean starting from scratch by formatting the hard drive and reinstalling Windows.

Once you gain some experience with Windows, you might discover a need to make a change to the registry based on a Microsoft Knowledge Base article. Make sure you understand the change completely and read the "Using the Registry Editor" section of Chapter 6 before you do anything. I would highly recommend asking an experienced user to help you make several registry changes before going solo.

Avoiding the Pitfalls of Programming

A number of the resource optimization techniques described in this book depend on some programming. I'm not talking about the sort of programming you'd perform to write an application, but writing scripts to automate the task. You could possibly complete the task without programming, but doing so is often mind-numbingly difficult. In many cases, you'll want to avoid script writing until you understand how Windows works. The selection of the wrong object or technique could have unfortunate results. For example, it's relatively easy to erase a hard drive using the wrong scripting technique.

Zapping Important Application Settings

Some parts of the book describe how to get rid of nuisance applications. Some of these applications require a significant amount of effort to remove even if you're an intermediate to advanced Windows user because they wind themselves around the registry and other areas of Windows. Getting rid of a nuisance application always requires removal of the application settings. The only problem is that the application might include links to other applications. Accidentally removing the wrong settings can make these other applications unusable as well. In short, you generally want to avoid zapping an application until you understand both Windows and the application involved.

In a very few cases, a Microsoft Knowledge Base article will tell you to make an application setting adjustment to fix an error. Always try to make this change within the application to ensure the application makes the change for you. When you must make a change to the registry or an initialization (`INI`) file, make sure you make a copy of the settings first. Read the instructions for making the change carefully and ensure your backup is up-to-date before you make any changes.

Some application settings are a little easier to make than others are. Many novices can make changes to the Windows setup with relative ease. In addition, Windows provides a modicum of protection against errors in this area. You can read about these changes in the "Controlling Microsoft Additions You Don't Want" section of Chapter 4. As always, make these changes with care and create a backup so you don't lose any application settings you permanently need.

Dodging the Command Line

Microsoft buries the command prompt for good reason. The command prompt requires knowledge of commands, command line switches, and hard drive location to use correctly. Execute a command with the wrong switches or in the wrong location and you can cause major system damage. Most of this damage is permanent. For example, the simple act of erasing a file has no recovery option when working at the command prompt. That's right; your Recycle Bin remains empty when you erase files at the command prompt.

There's only one use of the command prompt that I recommend novice users even attempt—locating all those files that Windows Explorer tells you don't exist. Use the instructions in the "Windows Explorer Lies to You" section of Chapter 3 to perform this task. Generally, you'll find that the search features in Windows Explorer work well for data files in locations that Microsoft expects you to search, but doesn't work especially well for other kinds of searches.

Oops, I Made a Mistake

Everyone makes a mistake from time to time. Mistakes need not be fatal or even embarrassing. No matter what mistake you make, someone else has already made it at some point. The goal is to realize that you made a mistake as quickly as possible and to understand that many mistakes are relatively easy to fix when you catch them early enough. Many users run into problems when they fail to recognize a mistake and then try to avoid responsibility for it when someone else does see it. Therefore, the first step in fixing a mistake is to look for it in the first place. The earlier you catch a mistake, the faster you can fix it.

Chapter 12 helps you overcome mistakes. Some of the fixes in this chapter are difficult; others are quite easy. For example, most novice users can try the fixes listed in the "Fixing Operating System and Disk Problems" section of Chapter 12. After all, if you can save the data on your system to a tape or other media, you can probably retrieve it. The same goes for restore points—they're very easy to work with.

Depending on how well you know the applications you use, you can also try the techniques in the "Repairing Application Settings" section of Chapter 12. However, if you're also a novice with the application, you might want to get someone to assist you the first time you try to restore the application settings. Generally, applications give you two or three chances to fix the settings before strange things start to happen.

Novice users should avoid the "Restoring DLLs and Executables" section of Chapter 12. Restoring executable files isn't something that even advanced users take lightly because all sorts of odd things can happen. For example, even when you restore a DLL correctly, it could be the wrong version. The application might fail to work because the code in the DLL is too old. Because you've written over the damaged DLL, an advanced user won't be able to fix the problem very easily because the version information appears within the DLL. In short, it's normally best to leave executable file repairs to the professional.

NOTE When you notice an error that requires professional assistance, try to contact the professional before you do anything else. The professional will help you shut the system down, if necessary, and might be able to provide an estimated time of repair. The less you do after noticing an error, the better. When in doubt and you can't contact a professional, close all applications and shut the system down.

Other chapters in the book contain repair tips and hints as well. These tips and hints are specific to one situation, so you should avoid generalizing them. For example, just because you can recreate an `INI` file for one application doesn't mean you can recreate it for another application. In fact, recreating the `INI` file could damage the application further and make it difficult to fix. Only use the other repair tips and hints in the book when you understand the tip or hint completely and you can use it for the specific situation that it addresses.

Let's Start Cleaning

This chapter directs novice users to various locations in the book. It emphasizes the tasks that anyone can perform. However, it's important to realize that not everyone understands computers or even wants to understand them. A good rule of thumb for the novice is to perform the tasks that feel comfortable and stay away from those that don't. A failed optimization can create a machine that won't run at all.

The essential tasks to perform as you leave this chapter appear in the "Before You Begin Cleaning" section of the chapter. Before you do anything else, make a backup of your system, create a restore point, and apply any patches that your system might require. In fact, these three tasks are important even if you don't plan to optimize your system immediately because they help you recover from errors that occur during any activity.

Once you get the process for protecting your system down, try optimizing one part of your system at a time. Don't optimize everything in one day. Take time to discover the effects that one change can make. Now that you have the basics down, proceed to Chapter 2 to discover just how valuable various types of optimization can be to your system health and performance.