

VCOM ***Fix-It Utilities™ 4.0***

Emergency Response Manual



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Manual Conventions

This manual uses a number of conventions that make it easier to read and understand.

- **This font denotes button and field names**
- **This font denotes menus and menu paths**



You will see this 123 graphic any time there are numbered steps or instructions.



Notes contain additional information that may not directly relate to the current text, but is important to know.



Warnings contain important information that you must be aware of to avoid possible system problems.

The term “click,” as in “Click **Next** to continue” means that you move the mouse pointer over the specified area on your screen, and click with the primary mouse button.

The term “right-click,” as in “Right-click on the tray icon” means that you move the mouse pointer over the specified location and click the secondary mouse button (the right button if you’re right-handed).

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Chapter 1: Your System is in Trouble...

Fix-It Utilities works best as preventive medicine. That is, you'll find that running these tools regularly on your system will keep you out of most trouble that folks find themselves getting into.

That said, not everyone has the luxury of buying "just in case" software. Sometimes your system just goes down, you panic and look for something that will get you out of whatever trouble you're in.

The good news is that Fix-It Utilities can, in many cases, get you out of your temporary jam—and then help keep you out of trouble for years to come.

If you cannot start Windows, but do not have Fix-It Utilities installed, this chapter will help you use both Fix-It Utilities and the tools included with your operating system to diagnose the problem. The next chapter delivers more information about using the Rescue Disk included in your Fix-It Utilities box. Windows 95/98/Me users can use this disk to recover from many computer problems.

The rescue disk cannot fix every problem known to keep you from booting. If your hard drive has suffered serious damage, you should look to "Crisis Center™" on page 2-25 for help in recovering data that might otherwise be lost.

GETTING STARTED IF YOUR SYSTEM IS IN TROUBLE (WINDOWS 95/98/ME)

If you have a computer that has crashed and won't boot up, or if you suspect a virus has infected it, you can't install Fix-It Utilities 4.0 on your system until the problem has been fixed.

Your most important priority at this point is probably to clean your system (if there is a virus), to get back up and running as quickly as possible, and to make sure you haven't lost any data. You may want to save data to a floppy or other removable medium. Then you will want to make sure your system is bootable. Here's what to do:



1. First make sure your computer has been turned off.
2. Insert the Rescue Disk included with Fix-It Utilities 4.0 into the floppy disk drive, and turn your computer on.



If you believe you have been infected by a virus, you will need to create and boot from an AVRescue disk set instead of the Fix-It Utilities Rescue Disk. From another computer with Internet access, go to <http://www.VCOM.com/virusinfo/rescue.html> and follow the instructions there to create this rescue set. You will need five floppy disks.

3. Your computer will use the Rescue Disk as its boot disk. You will see a graphical menu once the computer boots, with a number of options. The **HELP** option displays a special text file that can assist you in determining what to do.
4. **If your mouse doesn't work:** Since your mouse driver is a Windows-based program, a DOS program like the Rescue Disk software has to have its own generic mouse driver. This driver works on most (but not all) mice on the market. If your mouse does not work, you can either find and use a more generic mouse, or use the keyboard commands, which are shown on the Rescue Disk menu buttons. If you have access to another computer with Internet access, you may also be able to download a DOS driver for your mouse from the mouse manufacturer's Web site. This driver would then have to be copied to the Rescue Disk.
5. Consult the Troubleshooting chart on page 2-11 for advice on how to resolve your problem. Use the available options to recover your data and diagnose your computer. See "Booting from a Rescue Disk" on page 2-15 for detailed information about the Rescue Disk tools.

6. Some problems simply cannot be fixed by even the best rescue programs. If the problem is caused by a hardware malfunction, you may need to have the computer serviced by a technician. However, the DOS prompt may help you retrieve and save critical data to a diskette. If your system remains unbootable, go to “Crisis Center™” on page 2-25 for information on other options.
7. Once the computer has been repaired and it boots normally, you can install Fix-It Utilities 4.0.

GETTING STARTED IF YOUR SYSTEM IS IN TROUBLE (WINDOWS NT 4.X)

Since the Rescue Disk only works for Windows 95/98/Me, fixing a Windows NT system that won't boot up is more problematic.

If your system won't boot up and you haven't yet installed Fix-It Utilities, you have a few choices in this case.

LAST KNOWN GOOD CONFIGURATION

The first option is to try booting using the **Last Known Good Configuration** option. This choice, available during the standard NT boot process, occasionally can resolve problems stemming from a corrupt registry.

BOOTING WITH THE EMERGENCY REPAIR DISK (ERD)

The next choice is to use an NT Emergency Repair Disk (ERD). This floppy disk can be created while you're installing the operating system, but can also be created or updated later. In Windows NT, run the RDISK utility located in WINNT\System32 directory.

The ERD contains copies of several critical system and registry files that you can restore to the non-functional system. For this reason, it is very important

to keep your ERD updated with each service pack application and significant change to your system.

The Emergency Repair Disk is not bootable. To use the ERD to repair your system, you must first boot to Disk 1 of the 3-disk Windows NT Setup set. You may be prompted to change to Disk 2 before seeing the NT Setup menu. Select **Repair** from the Setup menu.

There are four options from the **Repair** menu. You can choose any or all of them to examine and repair your system:

- **Inspect Registry Files**

This allows you to view the various sections (hives) of the registry and replace a defective hive with the one on the ERD. You can also restore user accounts from here.

- **Inspect Startup Environment**

This checks the system's boot files and replaces any defective file with a file from the Setup disks.

- **Verify Windows NT System Files**

This will find damaged or missing files from the installation. It will then replace these files with one from the installation disks or CD-ROM.

- **Inspect Boot Sector**

This option reinstalls the boot loader and other startup files.



Be very careful using these tools, particularly if your Emergency Repair Disk has not been updated since you applied your last service pack. You could replace some updated files with older files.

These tools should help you get your system up and running.

USING THE RESCUE DISK

Finally, if you are using a FAT file system instead of the NT File System (NTFS) on your boot partition, you can use the Fix-It Utilities Rescue Disk to

boot to the DOS command prompt. From there you can move/remove/rename files that you suspect may be causing the problem.

Once you have restored your system, you can install Fix-It Utilities and run System Lifeline to protect yourself from other catastrophes. See “NT System Lifeline™” on page 2-21 for more information.

GETTING STARTED IF YOUR SYSTEM IS IN TROUBLE (WINDOWS 2000)

Windows 2000 offers its users a few more options for recovering from serious trouble. In addition to the steps listed above for Windows NT users, you can boot to Safe Mode and use the Recovery Console to repair problems.

To create or update an ERD in Windows 2000, use the Backup utility (**Start** → **Programs** → **Accessories** → **System Tools** → **Backup**).

The Emergency Repair Disk is not bootable. To use the ERD to repair your system, you must first boot to Disk 1 of the 3-disk Windows NT Setup set. You may be prompted to change to Disk 2 before seeing the NT Setup menu. Select **Repair** from the Setup menu. Select to use either the Recovery Console or ERD to handle the repair.

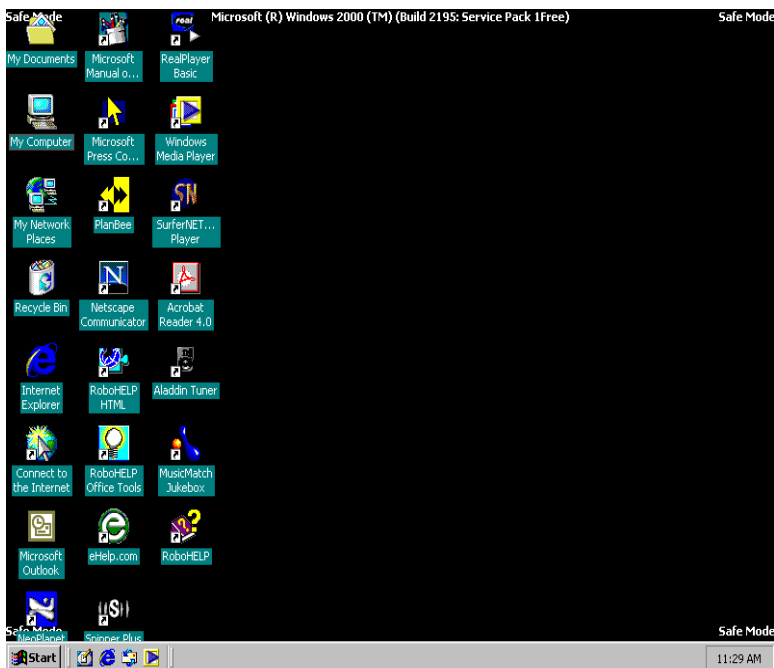
BOOTING TO SAFE MODE

If you’ve just installed a new program or hardware driver and now can’t boot, getting into Safe Mode can be your lifesaver. Safe Mode loads a barebones version of Windows with just the hardware drivers the operating system needs to run.



You must be able to log in as Administrator to boot successfully to Windows 2000 Safe Mode. You will be prompted for the Administrator password at the end of the boot process.

As the boot process begins (before the Windows 2000 startup screen starts), press the F8 key to get to the startup menu. If you are dual-booting, press F8 when the boot menu appears. There are three choices: **Safe Mode** is the standard option. **Safe Mode with Networking** gives you access to your network volumes (and possibly your system-state backup). **Safe Mode with Command Prompt** does not load your desktop, but gives you a command prompt instead. You can also use this menu to boot to the Last Known Good Configuration (see the last section on Windows NT).



Be aware that booting to Safe Mode will take somewhat longer than a normal bootup process. When the process is ready (and after you have logged in as Administrator), Windows will put up a message briefly explaining what Safe Mode is. Click **OK** to clear this message; now you can begin working.

You can use the **Add/Remove Programs** utility in Control Panel to uninstall the program or driver that caused the problem.

USING THE EMERGENCY REPAIR DISK

Less-than-advanced users of Windows 2000 systems should choose the **Fast Repair** option from the ERD menu. This option will work by itself, automatically checking and, if possible, repairing problems with the registry, system files, the partition boot sector and startup environment. If the problem was in the registry, Fast Repair will restore the section from the backup registry created at setup. If you want to restore from a later backup, you should use the Recovery Console instead. See the next section for information on the Recovery Console.

The **Manual Repair** option should be used by advanced users and administrators. This functions much like the Windows NT ERD, but does not give you access to the registry. Use the Recovery Console to repair registry files.

USING THE RECOVERY CONSOLE

The Windows 2000 Recovery Console offers advanced users command-prompt access to their system, with a number of commands available to fix startup problems. You can use Recovery Console to perform many tasks without starting Windows 2000, including: starting and stopping services, reading and writing information on a local disk drive (including NTFS file system drives), formatting drives, etc. Recovery Console is particularly useful if you need to repair your system by copying a file from a floppy disk or CD-ROM to your hard drive or if you need to modify a service that prevents your computer from starting properly.

If you have not already installed Recovery Console as a startup option, you should boot to your Windows 2000 setup disk (or the Windows 2000 CD-ROM). To use the Recovery Console to repair your system:



- 1.** At the “Welcome to Setup” screen, press **F10**, or press R to repair, and then C to start the Recovery Console.
- 2.** You will be asked to identify the NT installation to logon to. Enter the Administrator password for the correct installation to enter the Recovery Console.
- 3.** Recovery Console offers access to only these folders:

- The root folder (C:\)
 - The SystemRoot folder (usually C:\WINNT) of the installation you are logged into, and its subfolders
 - The Cmdcons folder
 - Removable media (CD-ROM, Zip, etc.) drives
4. Type `help` to see all the commands available to you. In addition to many standard DOS commands, some of the more useful Recovery Console Commands are:
- **Enable/Disable services:** type `listsvc` to get a list of all services and drivers. The `enable` and `disable (servicename)` commands turn services on and off, respectively.
 - **Disk partitioning:** `Diskpart` is similar to the `FDisk` command in DOS. Get information on your existing partitions, delete damaged partitions and add new ones.



Changing hard drive partitions with this tool will destroy all data on your disk! This is only to be used on new hard drives that have not been formatted, and on older drives that have completely failed and cannot be fixed any other way.

- **Repair boot sectors:** `Fixboot` writes a new Windows 2000 boot sector. `Fixmbr` is similar to the `fdisk /mbr` DOS command and rewrites the master boot record on the disk. If these sectors have been infected by a virus, or otherwise corrupted, these commands will help.
- A list of all Recovery Console commands and switches can be found in the Microsoft Knowledge Base: Article Q229716.
5. When you have completed your repairs, type `exit` to quit the Recovery Console and restart your computer.

Chapter 2: Troubleshooting

Problem/Symptoms	Possible Causes	What to Do
<p>The computer won't boot up.</p>	<p>Missing or corrupted system file(s). Crash during software or driver install. Corrupted registry. Potential hardware problem.</p>	<p>Windows 9x, 2000: Boot to Safe Mode, if possible. Uninstall problem program. Run DiskFixer (or ScanDisk, if Fix-It Utilities is not installed). Run DiskCleaner to remove *.tmp files from system. Boot your computer from the Rescue disk and back up any files you need. You may need to restore the system files. All Windows: Try rebooting. If you can't reboot, you may need a computer technician to look at the system. Data recovery experts may be able to help if you cannot retrieve your important data.</p>
<p>Computer seems slow, sluggish.</p>	<p>The hard drive is either very fragmented, or getting full. The program you were running needs more RAM than your computer has.</p>	<p>Run SpeedUp, CleanUp or All-in-One Wizard to clean and optimize. You may also want to run DiskFixer to locate and fix any problems on the hard disk. Run JETDefrag to optimize the hard drive. Check to see that you aren't starting up too many programs at boot time.</p>

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Problem/Symptoms	Possible Causes	What to Do
The computer is exhibiting erratic, unpredictable behavior.	Possible virus. Possible corrupted file allocation table.	Run All-in-One Wizard with all options. This will fix system files and check for viruses.
Computer freezes or hangs. No mouse or keyboard control.	The program you were running encountered an internal error. The program you were running needs more RAM than your computer has.	<p>Windows 9x: Press Ctrl-Alt-Del to bring up the Close Program dialog. Click on the Revive button (if CrashProof is running), which brings up another dialog showing the likelihood of fixing the program. Select the appropriate option. Otherwise, End Task on the program.</p> <p>Windows NT/2000: Right-click on the Fix-It Utilities icon in the System Tray. Click on CrashProof. Click the Revive button. Select the appropriate option.</p> <p>If you have an older computer, you may need to install more RAM.</p>
The “blue screen of death” appears, with the message that your program crashed.	Usually caused by a fault in a driver file.	This is a Windows crash, which crash protectors usually can’t catch. You usually have to reboot your system.
Your disk drive is making an unusual grinding noise.	The drive bearings or other part of the drive may be going bad.	Run SMARTDefender. Back up everything important to floppies or other removable media NOW, then turn off the computer. Get the computer checked out by a good hardware technician. May have to replace the hard drive.
Your Word files are being saved as .dot files.	This is a known virus.	Run VirusScanner.

Chapter 2: Troubleshooting

Problem/Symptoms	Possible Causes	What to Do
Your program crashes frequently, especially when trying to use a particular feature.	Program may be trying to create a temporary file leftover on your system from an earlier crash.	Run DiskCleaner to remove all *.tmp files. Run CrashProof in the background to let you exit program (and remove any *.tmp files created during that session).
Your program crashes a lot, especially when certain graphics are displayed.	You may have the wrong driver for your video card. You may have the right driver, but the wrong settings for the type of monitor.	Call your computer (or video card) manufacturer and get the latest video driver (these are usually downloadable from the Web). Make sure your settings are correct.
You try running a program that you have run before, but the system cannot find it.	Did you move the program to a new location? Possible invalid registry link.	Run RegistryFixer. You may need to delete program files and reinstall the program.
Not enough room to install new software	Low disk space.	Run DiskCleaner. Also, you may want to zip-compress any large files you aren't using.
Not enough room for programs that write to temp files to run successfully	Low disk space.	Run DiskCleaner. Also, you may want to zip-compress any large files you aren't using.
Files left over on disk after uninstalling an application	The application's uninstall program did not completely remove all files.	Run DiskCleaner to remove unused/temporary files.
Unwanted files left in the cache after a web browsing session		Run DiskCleaner to remove unused/temporary files.

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Problem/Symptoms	Possible Causes	What to Do
Old files, especially intermediate files, left around when changing to a new directory or project, e.g. compiler intermediate files		Run DiskCleaner to remove unused/temporary files.
Old files that are no longer needed or wanted accumulate because they are forgotten, buried in never accessed folders		Run DiskCleaner to remove unused/temporary files.
Duplicate files accumulated when applications are moved or reinstalled		Run DiskCleaner to remove unused/temporary files.

Chapter 3: Booting from a Rescue Disk

(Windows 95/98/Me only) The Rescue Disk is primarily intended for use if you cannot boot your computer into Windows Safe mode.



If you're a Windows NT user, there is no Rescue Disk. However, there is hope—see “NT System Lifeline™” on page 2-21. See also “Getting Started if Your System is in Trouble (Windows NT 4.x)” on page 2-5 or “Getting Started if Your System is in Trouble (Windows 2000)” on page 2-7.

If your computer refuses to boot up, it may have any of a number of problems. The Rescue Disk can fix some of these; others may require the services of a computer technician. In any case, the Rescue Disk may help you recover important files and restore system files from the latest SystemSaver backup.

The Rescue Disk program is designed to do everything possible to help you restore your system so you can boot it up normally once again.



If you have not made a Rescue Disk, you may be able to access the Fix-It Utilities tools directly from the Fix-It Utilities CD-ROM. You must have your system BIOS configured to allow you to boot from the CD, however. Check with your computer manufacturer to see how to do this.

To boot your computer from the Rescue Disk:



- 1.** Turn the computer off.
- 2.** Insert the Rescue Disk into the floppy disk drive.
- 3.** Turn the computer on. Make sure the monitor is also on.

- 4.** A graphical menu with some options will come up.
- 5.** Click on the **Help** button (or press Alt-H on your keyboard). This displays a complete document describing the features of the Rescue Disk.

The Rescue Disk installs a generic mouse driver that allows most users access to their mouse. If your mouse does not seem to be working, it may be that the driver is incompatible with it. In this case, you will have to use only keyboard commands. Notice that each button also has its keyboard command on the button label.

THE RESCUE DISK MENU

HELP

This option displays the Rescue Disk help file. Reading through this file will give you much of the information you need to successfully restore your computer.

DISKFIXER

This tool works only on FAT-based file systems, including Windows 95, Windows 98, Windows Me and FAT-based Windows NT. It cannot access NTFS partitions on your hard drive.

DiskFixer scans your hard drive and fixes consistency errors. It also locates and reports on any errors it cannot fix. See “Maintaining Your Hard Drive (DiskFixer)” on page 1-30 for more information on this tool.

PARTITIONS

This powerful program lets you resize and make other changes to the partitions on your hard drive.



Running Partitions and changing hard drive partitions will destroy all data on your disk! This is only to be used on new hard drives that have not been formatted, and on older drives that have completely failed and cannot be fixed any other way.

FORMAT

The Format program is a very powerful tool that formats your hard drive or hard drive partition, deleting all existing data on that partition, including the Windows or Windows NT operating system files.



Running Format will destroy all data on your hard drive or partition! This is only to be used on new hard drives that have not been formatted, and on older drives that have completely failed and cannot be fixed any other way.

UNDELETE

Use this option to recover deleted files. This program has the same capabilities as the FileUndelete application you can run from Fix-It Utilities in Windows. You can retrieve files from the disk if they have not been overwritten. See “Recovering Lost Data (FileUndelete)” on page 1-51 for more information on this tool.

Don’t forget that deleted files that have been emptied from the Windows Recycle Bin into the Fix-It Deleted Files Bin will most likely have been renamed.

SYSTEM RESTORE

The System Restore function retrieves the latest system file backups taken by SystemSaver. This function will *not* be available if you have never taken a system backup (via SystemSaver) and you are booting from the generic Rescue Disk. If you are booting from your own Rescue Disk but have never run SystemSaver, there will be a limited set of files System Restore can recover. When you install Fix-It Utilities, though, a SystemSaver backup is created, so if you installed Fix-It Utilities before getting into trouble, there is likely to be at least that one available to you. See “Restoring System Files” on page 1-48 for more information on this tool.

EDIT

This option opens text files for you to edit or review. This is handy for editing Windows startup files such as *config.sys* or *win.ini*.

COMMAND LINE

The Command Line option exits the Rescue Disk menu and displays a prompt. You can use standard DOS commands to explore the directory, and if necessary, copy some files to a floppy disk. To return to the menu, enter the command `Exit`.

EXIT

This command exits the Rescue Disk program and displays the DOS prompt.

RECOVERING DATA

Depending on your situation, your first priority may be to recover any important files you have worked on. The Command Line button and the Undelete button can both help you with this.

In order to find files you want to rescue, you need to know where they are on the disk. This requires some advance knowledge of what directories are and how to find them using DOS commands.



If you prefer to work in a more Windows-like environment, EasyRecovery Professional Lite may work better for you. See “Using the EasyRecovery Emergency Boot Diskette” on page 2-33.

When you boot from the Rescue Disk, you will see a main menu of options.



1. From the menu, select the **Command Line** option.
2. At the prompt, use the `cd` (change directory) command to navigate to the location where the files are. For example, if you know your files are in the directory `c:\my documents\newfiles`, use the command:

```
cd "c:\my documents\newfiles"
```

Notice that if you use the double-quotation marks, you can specify full path names without truncating directory and file names to 8 characters.

3. You can click on the **Help** button for a detailed explanation of recovery procedures.
4. Don't forget that DOS only allows 8 characters in directory and file names, and it truncates longer names. It also removes spaces from the names. The `dir` command will show you how it is representing directory and file names.
5. When you locate the files you want to copy, put a new disk into your floppy drive.
6. Use the copy command to copy the files you need to a new floppy disk. For example:

```
copy *.doc a:\
```

...copies all files in the local directory with the extension *.doc* to the A: floppy drive.

RELOADING THE WINDOWS OPERATING SYSTEM

There may be times when your computer has failed so completely that you will need to reinstall Windows. If this is the case, you will need the use of your CD-ROM drive.

The Rescue Disk comes with a generic CD-ROM driver that works with most IDE/ATAPI CD-ROM drives. This is the most common type of CD-ROM drive; if yours is different, you may have to call the manufacturer to find out how to install the driver.



- 1.** Put the CD into the drive and let it spin up to speed. At the DOS prompt, type *d:* (or the letter denoting the CD drive) and press **Enter**.
- 2.** Enter the DOS command *dir* to should see all of the files and folders in the CD home directory. In most cases, you can enter the command *setup* and press **Enter** to begin installing Windows.

Chapter 4: NT System Lifeline™

Until now, there has been very little recourse for a Windows NT user with a crashed system. If you couldn't boot your system, even if you knew exactly what file was causing the problem, you had to go through a very painful process to restore the system. Often this meant reinstalling Windows NT on another partition of the drive. This also meant lost time, lost productivity, and possibly lost sense of humor.

Now you have a Fix-It Utility that provides a "lifeline" for Windows NT. System Lifeline provides a method for starting up a DOS-like environment during the NT boot process. Now you can interrupt the boot process, display a command prompt, and enter commands that allow you to navigate through the directory structure; copy, move and delete files; and perform other DOS-like commands. This is actually a DOS environment emulator, designed for NT.

Although the commands are simple and don't have as many options as in the real DOS environment, they are designed to provide the basic necessities to get you out of serious trouble without having to reinstall the operating system, wire two hard drives together, or do any other terrible things just to get back up and running.



In Windows 2000/XP, you should activate the Windows 2000/XP Recovery Console to get the functionality of System Lifeline. Consult the Windows 2000/XP documentation and "Using the Recovery Console" on page 2-9 of this Guide for more information on the Recovery Console.

SETTING UP SYSTEM LIFELINE

In order to use System Lifeline, you *must* set it up correctly.

- 1.** Log in to your system as Administrator.

2. In the Fix-It Utilities home window, click on **System Protection**.
3. Click on the **System Lifeline** button.
4. You will see a dialog box with some options:

System Lifeline provides you with an optional command line during the early NT boot process. This allows you to have access to your file system during an emergency case for repair and backups (when NT cannot fully boot properly for example).

Enable System Lifeline

Startup waiting period: seconds

Access password (optional):

Confirm password:

5. To have System Lifeline available during the boot process, check the **Enable System Lifeline** box.
6. The **Startup waiting period** defaults to 5 seconds; this means that you will have 5 seconds within the boot process to activate System Lifeline, once the prompt is displayed.
7. To restrict other users of the system from using System Lifeline, enter (and confirm) a password. You will need this password if you want to run System Lifeline during the boot process, so you should make sure it is one you won't forget.
8. Click **OK** when ready. Now, whenever you reboot your system, you will see the System Lifeline prompt during the boot process.

USING SYSTEM LIFELINE TO RESTORE YOUR SYSTEM

When you see the System Lifeline prompt during the boot process, you have a specified number of seconds (five seconds is the default) to press the spacebar and activate System Lifeline.

Once you activate it, you see a command prompt similar to the following:

```
C:\>
```

Type `help` and press **Enter** to see a list of available commands.

Here are some hints about the files you may want to restore:

If you boot to the System Lifeline prompt, you have access to your directory structure and your files. If any system files are corrupt, you may want to replace them. SystemSaver backs up your system files (including registry files) to the following location:

`C:\Fix-It\BACKUP\mxb*.mxb` [where `C` is the drive on which Fix-It Utilities is installed, and `*` is a sequence number. The highest number is for the most recent backup]. Each of the `.mxb` locations is a folder (not a file) containing the following files:

- `autoexec.nt`
- `config.nt`
- `mxfiles.lst`
- `notes.txt`
- `Ntuser.mxr`
- `Sam.mxr`
- `software.MXR`
- `system.MXR`

mxfiles.lst contains the original path names for `autoexec.nt` and `config.nt` and is viewable from SystemLifeline by typing `TYPE T` from `C:\Fix-It\BACKUP\mxb*.mxb`

You can use these path names to copy `autoexec.nt` and `config.nt` to their original locations (use the `COPY` command in System Lifeline).

Ntuser.mxr should be copied to the NT User Profile Directory and renamed `Ntuser.dat`

Sam.mxr, **software.mxr** and **system.mxr** are three files that can be copied to the `WinNT\system32\config\` directory [where `WinNT` is a place holder for the name given during the NT install] and renamed as `Sam.`, `software.`, and `system.` (no extensions).

Chapter 5: Crisis Center™

Even if you've had the worst possible disaster happen to your computer, you may still be able to get the data from it. Ontrack has experience recovering data resulting from severe software corruption, hard drive failures, viruses, user error, and natural disasters including floods, fires, and earthquakes. So if you're reading this chapter because your computer is in real trouble, the first thing to remember is *Don't panic!* Even in the worst of circumstances, data can often be recovered from a damaged disk.

Of course, making regular backups of your critical data is very important. Even with JETDefrag, DiskCleaner, and the other tools that clean, optimize, and reorganize your disk, a computer can be subjected to unforeseen and uncontrollable events. If you back up your data regularly, you may lose only a few hours to a few days' worth of work, in the worst case. However, even if the worst should happen, Crisis Center provides tools and services that can help you recover from your data loss situation.

Crisis Center has several levels of data rescue and recovery:

- **Level 1: Free tech support and information.** This level provides free technical support on the use of Fix-It Utilities to recover from data loss problems.
- **Level 2: EasyRecovery™.** This do-it-yourself software allows you to recover data on your own. A little techie, but it works well for those cases where an engineer is not required.
- **Level 3: Remote Data Recovery™ services.** Many software-related data loss situations can be solved remotely. This includes situations where the computer's operating system will not even boot. Through an Internet or modem connection, a professional data recovery engineer will diagnose and repair severe data loss corruption.
- **Level 4: In-Lab Data Recovery services.** This service is the right choice for the toughest, most intensive data recovery problems, including

hard drives that have suffered from mechanical failure. This also includes severe software corruption, water damage, and fire damage.

WHAT IF THERE IS SERIOUS PHYSICAL DAMAGE?

If you ever find your computer's hard drive making unusual noises, submerged in water, buried under rubble (say from an earthquake), sitting amongst the wreckage of a fire, or otherwise physically compromised, the first course of action should be to contact a professional data recovery service. Never assume that lost data is unrecoverable, because in most cases it can be retrieved. Ontrack engineers have vast experience recovering lost or corrupted data from damaged storage media.

HELP! MY DISK IS DEAD!!

“Now what do I do? I can't afford to have my computer down, or worse yet, lose all the information on my PC!”

You may be surprised to learn that just because a hard drive is not working or your system won't boot, you still have a good chance of at least recovering your data. This chapter, along with all of the supporting information and web site links provided through the Crisis Center, is a tutorial on data recovery and how to go about it. Your data may still be recoverable, and we'll step you through the various data recovery methods from the easiest and free services all the way to Ontrack's premier data recovery services.

FIRST, EVALUATE THE LEVEL OF DAMAGE

There are varying levels of data recovery situations, from accidentally deleting an important file, to losing critical disk information such as a File Allocation Table (Windows 95/98/Me) or NTFS Master File Table (Windows NT/2000/XP), all the way to severe physical disk damage.

If you seem to have lost data or even your operating system, but the disk itself seems to be spinning correctly (no strange noises when the computer is running), the chances of recovering data at a minimum of cost are very good.

On the other hand, if your disk has obvious physical damage, then you must send the disk into a data recovery service that has cleanroom facilities to clean the disk and can recover as much data as possible.

NEXT, GET ALL THE INFORMATION YOU CAN

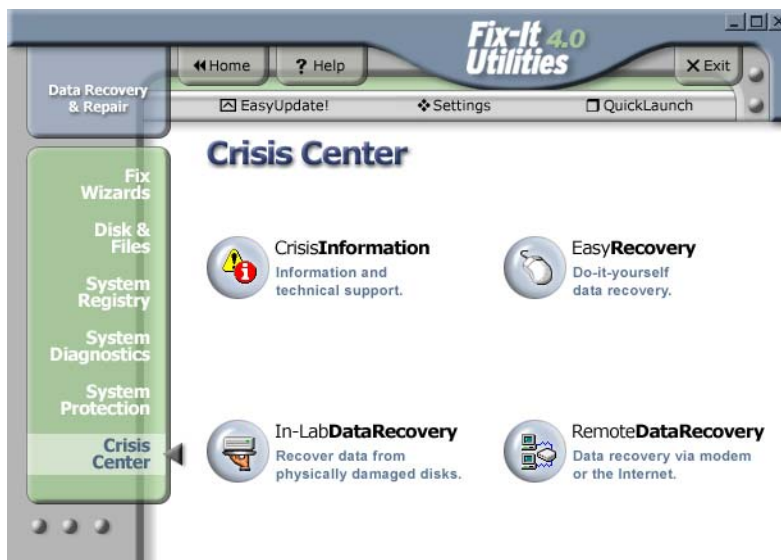
Ontrack has been recovering data from all kinds of damage situations for years. Their trained technical support staff can help you evaluate the damage and determine the most effective way for you to recover the data. If your system is still bootable to Windows, click on the Technical Support button in the Crisis Center window to open the Crisis Information window. This is an information center that provides, among other things, FAQs for those who have specific questions, and links to helpful Web sites. If you can't boot your system, please visit www.ontrack.com for more information.

CREATE A PLAN OF ACTION

The Crisis Information center should have given you some viable options; we suggest that if you have a choice, you begin with the least expensive option that meets your needs. Read on for more details.

RUNNING CRISIS CENTER

When you first open the Crisis Center, you see the four buttons showing the different levels of information and software:



You can click on any of these buttons to see more information.

LEVEL 1: CRISIS INFORMATION: FREE CUSTOMER SERVICE SUPPORT/INFORMATION

This level provides access to free technical support, plus links to more information. If you are running Crisis Center from Windows (not the rescue disk), there is a link to the computer clinic on the Web, which contains tips on installing hardware, replacing parts and fixing your computer. There are also answers to the most frequently-asked questions (FAQs). Technical support

and questions can also be submitted electronically by visiting the technical support section of VCOM's website: <http://www.v-com.com/support/>.

LEVEL 2: EASYRECOVERY™

Ontrack EasyRecovery is a program that can help you recover your data on your own. Not all types of data loss require the assistance of an engineer. EasyRecovery is a low-cost, do-it-yourself data recovery solution capable of capturing lost or inaccessible data from your drive and reconstructing the file system (including from drives larger than 8.4gb). Unlike some recovery utilities, which put your data at risk by attempting to repair corruption, EasyRecovery never writes to the original drive. Instead, it rebuilds the file table in memory to facilitate the safe transfer of data to another device.

It can help recover lost data when the drive has:

- been hit by a virus
- been formatted or 'fdisked'
- accidentally deleted
- zapped by a power failure or power surge
- been damaged by rogue applications or system malfunction

EasyRecovery can help if you have corrupt or missing

- Master Boot Record
- BIOS parameter blocks
- Partition tables
- File Allocation Tables (Windows 95/98/Me)
- Master File Tables (Windows NT/2000/XP)
- Root directory



EasyRecovery cannot recover from hardware problems

When you run EasyRecovery, it identifies all recoverable files, and the EasyRecovery Professional Lite software supplied as part of Fix-It Utilities can recover up to 50 files at a time.

OVERVIEW

EasyRecovery is non-destructive and read-only. The analysis process does not put any data onto your crashed drive. Recovered data is restored to another destination (disk, diskette, network). It is recommended that a removable Zip drive or another hard drive be used as a destination option.



Be aware of strange noises coming from your hard drive. If you hear a strange noise or grinding sound, turn off your computer immediately. Further operation may damage your hard drive beyond repair or cause irretrievable data loss. Contact VCOM for information regarding data recovery services.

If you have mission critical data on a drive with hardware damage we recommend using in-lab data recovery services rather than any software.

Unlike some recovery utilities, which put data at risk by attempting to repair and rewrite the corruptions on the original drive, EasyRecovery never writes on the original drive and its evaluations are non-invasive.

The extensive use of sophisticated pattern recognition technology enables EasyRecovery to put the right pieces of data together again. Even disks with very little administrative information left can still yield files of high quality.

HOW IT WORKS

When a suspected data loss occurs, you can either

- Run EasyRecovery Professional Lite (if the data is on another drive or partition) or
- Create the EasyRecovery Emergency Boot Diskette, either from your computer (if it still boots), or from another computer, using the EasyRecovery wizard button in Crisis Center.

You then reboot the computer with the EasyRecovery Emergency Boot Diskette in the drive and choose the **Recover** option to begin hard drive analysis.

Once EasyRecovery Professional Lite has gone through a complete drive analysis (this will take quite a while), it presents a list showing your directory structure. You can see exactly which files are recoverable and select the files desired for recovery, which are then copied to a safe location. With the data recovery complete, you can then make any necessary repairs to the original system.

This virtual drive looks like Windows Explorer. In it you can see the lost directories and files from your crashed drive. Files and directories can be viewed and copied to a safe medium, such as another partition, a different drive, a network drive, a Zip disk, or a floppy disk. Be sure that there is enough room on this medium to hold the files you wish to recover. Never use the drive with data problems as the copy destination.

EASYRECOVERY PROFESSIONAL LITE

EasyRecovery Professional Lite is supplied with Fix-It Utilities, and does nearly everything that the EasyRecovery Professional version does. You can recover a maximum of 50 files per session. EasyRecovery Professional Lite supports DOS, Windows 3.x, and Windows 95/98/NT/2000.

EASYRECOVERY PERSONAL AND PROFESSIONAL EDITIONS

In addition to the Professional Lite version included in Fix-It Utilities, EasyRecovery comes in a full Personal version (for Windows 9x/Me and older systems) and the full Professional version (supports Windows NT and 2000 systems). Each program will recover unlimited numbers of files, and includes a few added features. Each version of EasyRecovery is an independent program available for download from the Ontrack web site. All basic documentation is included with the downloadable file; however additional FAQ's are also on www.ontrack.com.

RUNNING EASYRECOVERY FROM WINDOWS

If your damaged data is on a different physical drive from Fix-It Utilities, you can run EasyRecovery directly from Fix-It Utilities.

- 1.** From the Crisis Center main window, select the EasyRecovery button.
- 2.** Click **Next** to run EasyRecovery Professional Lite.
- 3.** Select the drive you want to recover. Click **Next**.
- 4.** Follow the instructions to perform an analysis of your disk. Once the analysis is complete, the disk structure will be displayed and you can search for the files you wish to recover.
- 5.** EasyRecovery Professional Lite allows you to recover up to 50 files; If you wish, you can purchase EasyRecovery Personal or Professional Edition from Ontrack's web site instead to be able to recover more files.
- 6.** Recovering files: You cannot save files to the same partition you are recovering. You can save them to a different partition, the floppy drive, or another hard drive.

USING THE EASYRECOVERY EMERGENCY BOOT DISKETTE

This process creates the EasyRecovery Emergency Boot Diskette. You should either make these disks before you ever run into trouble, or on another computer. Once you create the disks, boot the damaged system and start the drive analysis.

- 1.** From the Crisis Center main window, select the EasyRecovery button.
- 2.** Follow the instructions to create the EasyRecovery Emergency Boot Diskette.
- 3.** Once the diskette is created, shut down your computer.
- 4.** Put the EasyRecovery Emergency Boot Diskette in the floppy drive and reboot the computer.
- 5.** Follow the instructions to perform an analysis of your disk. Once the analysis is complete, the disk structure will be displayed and you can search for the files you wish to recover.
- 6.** EasyRecovery Professional Lite allows you to recover up to 50 files; If you wish, you can purchase EasyRecovery Personal Edition or Professional Edition from Ontrack's web site instead to be able to recover more files.
- 7.** Recovering files: You cannot save files to the same partition you are recovering. You can save them to a different partition, the floppy drive, a Zip drive or another hard drive.

LEVEL 3: REMOTE DATA RECOVERY™

While EasyRecovery is a powerful tool, there are cases where the expertise of an engineer is required. For those cases, Ontrack provides other solutions, including its patented Remote Data Recovery service.

Remote Data Recovery is an Ontrack service in which Ontrack engineers perform data recovery services modem-to-modem or over your Internet connection. The cost of the Remote Data Recovery service depends on the

nature and severity of your data loss situation. With Remote Data Recovery, users often get their data back within a few hours.

If you are not sure you need this service, you can go to the Ontrack Web site (www.ontrack.com) and use the Data Recovery Help Wizard (which also allows you to request a price quote for this service).

WHEN WOULD I USE REMOTE DATA RECOVERY?

The following is a list of situations in which you might consider Remote Data Recovery. Don't forget...EasyRecovery Personal Edition or EasyRecovery Professional Edition can also recover lost data in some of these situations (EasyRecovery Professional Lite comes free with Fix-It Utilities).

- Unbootable operating system
- Deleted files
- Reformats/repartitions
- Invalid boot sectors
- Invalid volume tables/definitions
- Deleted partitions
- Virus damage
- FDISK'ed drives
- Damaged file tables (File Allocation Table, Master File Table)
- Drives damaged by software

HOW DOES IT WORK?

Armed with a suite of advanced tools and techniques, an Remote Data Recovery engineer can repair damaged data on your disk drive through a modem or Internet connection. You can use Remote Data Recovery even if you can't boot your system. The only requirement is that the computer and hard disk drive are not damaged or malfunctioning.

Please visit www.ontrack.com to get more information regarding Remote Data Recovery.

REMOTE DATA RECOVERY OVER TELEPHONE LINE

For Remote Data Recovery to work modem-to-modem, your system must:

- be running DOS, Windows 3.x, 95, 98, NT, Netware, or Linux (the operating system does not have to be functioning properly or bootable).
- have no obvious hardware problems.
- have modem or Internet access.

REMOTE DATA RECOVERY OVER THE INTERNET

To use the Internet capabilities of Remote Data Recovery, you must meet the qualifications in the previous section, plus you must:

- have a system that is bootable to Windows.
- have Windows 95, 98, Me, NT, 2000 or XP.
- have more than one drive partition. In addition, the inaccessible data cannot be located on the boot partition (therefore users with only one partition cannot qualify for Internet-based service).
- have Internet access.

WILL MY DATA BE SECURE?

While Remote Data Recovery services take place via the Internet or modem, Ontrack has taken steps to secure the data. Ontrack secures data transferred using a proprietary communication protocol, encryption for Internet communication, and secure Ontrack lab facilities. Minimal information is sent across the communication medium. The only information accessed by Ontrack engineers is information required to repair the system. Typically the only data transferred is file structure information.

Remote Data Recovery technology also has an "undo" feature that allows engineers to roll back any changes made to the system during the recovery process if an unforeseen problem should arise. Security features like these will help protect your system and data throughout the recovery process.

WHAT ABOUT THE COST?

Remote Data Recovery is a fee-based service. Standard pricing begins at \$400US and goes up from there. The Remote Data Recovery engineer must evaluate the extent of the data damage and the amount of time it will take to recover it, prior to giving you a price estimate. The reason for the extra cost is that this is a premier data recovery service that can only be safely accomplished by highly trained data recovery engineers using specially designed software and hardware. When contacting Ontrack, identify yourself as a Fix-It Utilities customer in need of data recovery services.

RUNNING REMOTE DATA RECOVERY

Although everyone's situation is different, here is a standard set of guidelines for getting started with Remote Data Recovery services.

- 1.** If you have lost data, but are still able to boot your computer or you still have a running system, start up Fix-It Utilities' Crisis Center, and click on the Remote Data Recovery button.
- 2.** Click on the main Remote Data Recovery wizard button to begin the Data Recovery process.
- 3.** Follow the on-screen instructions.

HOW CAN I GET MY OTHER QUESTIONS ANSWERED?

There are Frequently-Asked Questions (FAQs) available at Ontrack's Web site, and through the Fix-It Utilities 4.0 online help system.

LEVEL 4: IN-LAB DATA RECOVERY

In the most serious of data loss situations, you may need to send the hard drive into a data recovery lab. Hard drives that are malfunctioning, physically damaged, or have been exposed to a disaster (flood, fire, power surges/spikes) would require this level of service. Severe software damage that cannot be

solved using other levels of service would also qualify for in-lab data recovery.

Once the hard drive has been sent in for a data recovery, an Ontrack engineer will utilize the most advanced software and hardware tools available to recover the data. This includes the use of one of Ontrack's many Class 100 clean rooms.



You can take your computer to a standard computer repair shop, which can probably fix the hardware; however, repair shops generally do not guarantee the safety of your data. If the data is critical, you should use a data recovery service before having the computer repaired.

To find out more about how and whether to send in your hard drive for data recovery services, please visit www.ontrack.com for more information and pricing.

DISASTER RECOVERY

FLOOD DAMAGE

Computer data storage media submerged in water suffers not as much from the water itself as from all of the impurities found in the water. If it is suspected that computer equipment has been contaminated with water, the data must be recovered in a clean room, where the contaminants can be removed by a data recovery professional in a particle-free environment. Once the media is completely cleaned the data recovery process can begin.

If your data has been damaged by water, it is important to get your media into the hands of professionals as quickly as possible.

FIRE DAMAGE

Fire damages data storage media when the internal components are contaminated with airborne smoke particles. Storage media can be further

damaged by the water used to extinguish the fire. If it is suspected that computer equipment has been contaminated, the data must be recovered in a clean room, where the contaminants can be removed by a data recovery professional in a particle-free environment. Once the media is completely cleaned the data recovery process begins.

EARTHQUAKE DAMAGE

Earthquakes can not only shake computer data storage media components out of alignment, they can trigger additional disasters as well, including fire- and water-related damage. When water or smoke particles find their way into data storage devices and contaminate the surface the data is stored on, data integrity can be compromised.

If it is suspected that computer equipment has been contaminated, the data must be recovered in a clean room, where the contaminants can be removed by a data recovery professional in a particle-free environment. Once the media is completely cleaned the data recovery process begins.

LIGHTNING DAMAGE

Electrical storms can cause considerable damage when lightning strikes result in electrical surge. If the electrical surge reaches a computer terminal, it can wipe out the internal electronics of the computer data storage media. If this happens, and the computer is subsequently powered up, the media can malfunction and render data inaccessible. Lightning can also trigger other catastrophic events such as fire, the smoke particles from which can reach the inside of a computer and contaminate the area where the data is stored.

If it is suspected that computer equipment has been contaminated the data must be recovered in a clean room, where the contaminants can be removed by a data recovery professional in a particle-free environment. Once the media is completely cleaned the data recovery process begins.

CLEANUP TIPS

The following tips have been put together by data recovery professionals to assist you in the recovery of damaged media:

- Never assume the data is unrecoverable, no matter what it has been through.
- Send the media to a professional data recovery facility as soon as possible.
- Do not attempt to power up your system if you suspect there was an electrical surge, as internal or external electronic failures could result in data storage device malfunction.
- Do not use storage media that may have been exposed to heat, moisture or soot. The media may be irreversibly damaged if not treated and recovered in an air- and static-controlled room by data recovery professionals.
- Do not shake the media, or in the case of hard disk drives, remove the cover of the assembly.
- Do not attempt to dry water-damaged media by opening it or exposing it to heat.
- Do not attempt to freeze dry media.
- Do not attempt to operate visibly damaged media, or media that has been exposed to water. Caution: waiting for the media to dry out and then operating it on your own can cause irreversible damage.
- Do not attempt to clean the media yourself without using proper solutions applied in a clean room environment. Contaminated media requires immediate and thorough cleaning. In fact, we prefer to receive media in the clean room before it has had a chance to dry out.
- Do not attempt to recover severely damaged data with commonly available software utility programs.
- Hard drives flooded in salt water require special treatment. Because data can be damaged quicker due to salt oxidizing on the media, the drive should be express-shipped in an airtight container to a professional data recovery facility. To reduce the risk of further damage, drives can be “bathed” in distilled or fresh water, although they should not be agitated.

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