

# **McAfee EasyRecovery Professional User Guide**

## Notice to Users

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# ABOUT THIS MANUAL

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.**
- *This font denotes file names, such as C:\my documents\newfile.*



1. 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.*

## GETTING HELP

### THIS MANUAL

This manual will get you started installing and using EasyRecovery. It provides an introduction and explanation of the tools in EasyRecovery, and describes how to use each one.

### ONLINE HELP

The EasyRecovery online help system is available in the following ways:

- From the **Help** menu, select **Help Topics**.
- Press the **F1** button.
- In any dialog box, click on the **Help** button.

### MCAFEE WEB SITE

At the McAfee Web Site, you can send e-mail to our customer support team or order other McAfee products.

[us.mcafee.com](http://us.mcafee.com)

### TECHNICAL/CUSTOMER SUPPORT

For technical support, please visit <http://www.mcafeehelp.com/>. Our support site offers 24-hour access to the easy-to-use AnswerWizard for solutions to the most common support questions.





# EasyRecovery Professional Edition User Guide

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# Chapter 1: Welcome to EasyRecovery™

## WELCOME TO EASYRECOVERY™ DATA RECOVERY SOFTWARE!

EasyRecovery™ Professional Edition data recovery software will help you quickly and easily recover lost or inaccessible data.

It can help recover lost data when a drive has been:

- Hit by a computer virus
- Formatted or fdisked
- Accidentally deleted
- Zapped by a power failure or power surge
- Damaged due to rogue applications or system malfunction

EasyRecovery can help if you have corrupt or missing:

- Master Boot Record (MBR)
- BIOS Parameter Blocks (BPB)
- Partition Tables
- File Allocation Tables (FAT) (for DOS/Win9x/Me)
- Master File Tables (MFT) (for WinNT/Windows 2000)
- Root Directory

EasyRecovery is NON-DESTRUCTIVE and READ-ONLY. It will not put any data onto the file system (volume) it is recovering from. It will recover your data and copy it to another destination—a removable drive, another hard drive, a floppy diskette or a network volume.

EasyRecovery is easy to use. The software's fully automated wizard will walk you through three simple steps:

- 1. Evaluate** – the software identifies all devices and partitions on the system and presents a graphical representation of what was found.
- 2. Recover** – the software examines the file structures that remain on the corrupted partition and constructs a *virtual* file system in memory with them.
- 3. Tag and Copy** – a list of files is graphically presented. You then select (tag) files and folders for backup and move the data to a safe location.

EasyRecovery Professional Edition runs in Windows 95, 98, Me, NT and 2000. It also includes a program to create an emergency boot diskette that runs in DOS, so you can recover data even if you cannot boot to Windows.



*Be aware of strange noises coming from your hard drive as this might be an indication of a more serious problem.*

*Continuing to operate your system **may damage your hard drive beyond repair or cause irretrievable data loss.** We recommend performing a disk drive diagnostic (included with EasyRecovery) before attempting to recover any data. If you need additional help, see the Technical Support and Data Recovery Services, on page 7 for contact information.*

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## ABOUT THIS GUIDE

This User's Guide and the online help files will help you with the data recovery process. See "Important Terms" on page 35 for definitions of terms used throughout this manual.

## DATA RECOVERY BASICS

While it can pull up files that have been inadvertently deleted from your computer, EasyRecovery is more than a simple file undeleter. Even if your computer has severe file system corruption, EasyRecovery can locate, recover and restore your data.

When you delete files from your computer, they're not really gone forever. Traces of structural information are left behind on the disk itself. EasyRecovery uses sophisticated pattern recognition technology to put the right pieces of data together again. EasyRecovery finds those traces and rebuilds them based on their statistical properties. It then builds a virtual file system in memory and displays all the files, folders—even whole partitions—it finds. Even disks with very little administrative information can still recover files of high quality.

## SUPPORTED FILE SYSTEMS

EasyRecovery can retrieve data from these file systems:

<b>Operating System</b>	<b>File Systems Used</b>
PC Floppy disks	FAT12
DOS	FAT16 only
Windows 3.x	FAT16 only
Windows 95/98/Me	FAT16 or FAT32

Windows 2000

FAT 16, FAT32 or NTFS

Windows NT 3.x or 4.x

FAT 16 or NTFS

EasyRecovery Professional Edition can also retrieve data from SCSI hard drives, and Iomega Zip and Jaz removable disks.

## SYSTEM REQUIREMENTS

EasyRecovery has the following minimum system requirements:

- 486 or Pentium-class processor
- 16 MB RAM (in most cases)
- DOS, Windows 3.x, 95, 98, Me, NT or 2000
- 5 MB of free space (Windows version only)

## INSTALLING EASYRECOVERY

### WINDOWS VERSION

Run setup.exe from the EasyRecovery CD-ROM (or, if you downloaded EasyRecovery, run the downloaded setup file from Windows Explorer) to begin the installation process. If you have an Internet connection, we recommend you check for any updates using EasyUpdate..



*You should not install EasyRecovery on the partition you are trying to recover (doing so may result in overwriting recoverable files). If your system has one drive with one partition, or if the system is not bootable, use the DOS version of EasyRecovery.*


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## DOS VERSION

Boot the computer to the EasyRecovery Emergency Boot Diskette and the software will automatically load. We recommend you have the destination drive ready and configured before running EasyRecovery.

## MAKING AN EMERGENCY BOOT DISKETTE

Once you've installed EasyRecovery for Windows on a working system, you have the ability to make an emergency boot diskette should you need it in the future. The diskette will allow you to run EasyRecovery software even if you cannot boot to Windows. Should the partition on which EasyRecovery is installed become damaged in the future, you can use this disk to recover data from that partition. To make an emergency boot diskette, follow these steps:

- 
1. Put a blank, formatted 3.5" floppy disk in the A: drive. If there is data on the disk, it will be deleted.
  2. From Windows, select **Start**→**Programs**→**EasyRecovery**→**Make Emergency Boot Diskette**
  3. Follow the prompts to start the process. Click **OK** to begin making the disk.
  4. A progress bar will appear, telling you that the files are being copied. You can click **Cancel** to stop the process.
  5. When all the necessary files have been copied to the floppy disk, a new window will come up. Click **Exit** to return to Windows.
  6. Label the disk **EasyRecovery Emergency Boot Diskette**.

To test the disk, shut down your computer. Turn it back on. You should see an EasyRecovery screen instead of Windows.

## UPDATING YOUR SOFTWARE (EASYUPDATE™)

McAfee periodically improves EasyRecovery software—adding features and making changes based on customer requests. Programming updates (also known as patches) are also available to you through the Internet. EasyUpdate™ downloads and installs program patches in minutes.

If there are multiple components for updating, EasyUpdate provides you with a list of options—you can update everything, or select a subset of options.

We recommend running EasyUpdate as soon as you purchase and install EasyRecovery, just in case there is a program patch that was not included with your version.

To run EasyUpdate:

1. Make sure you are connected to the Internet, via modem or network.
2. Start EasyRecovery.
3. From the EasyRecovery Welcome screen, go to the **EasyUpdate** menu and select **Check for Update**.
4. In the EasyUpdate window, click **Next** to continue.

This connects you to the McAfee update server. You will see a list of the items available for download. Selected items will be downloaded to your computer.

5. Continue to follow the instructions to download and then install the new software.
6. When finished, click **Done** to exit EasyUpdate.

You may be prompted to restart Windows. Once you have restarted Windows, the changes will appear in EasyRecovery the next time you run it.

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## REMOVING EASYRECOVERY

To remove EasyRecovery:

1. Make sure the program is closed.
  - From Windows, select **Start→Programs→EasyRecovery→Uninstall EasyRecovery.**
  - Confirm your decision by clicking **Yes, remove EasyRecovery.**

## TECHNICAL SUPPORT AND DATA RECOVERY SERVICES

For technical support, please visit <http://www.mcafeehelp.com/>.

Our support site offers 24-hour access to the easy-to-use AnswerWizard for solutions to the most common support questions.

## Chapter 2: Evaluating the System and Recovering Your Data

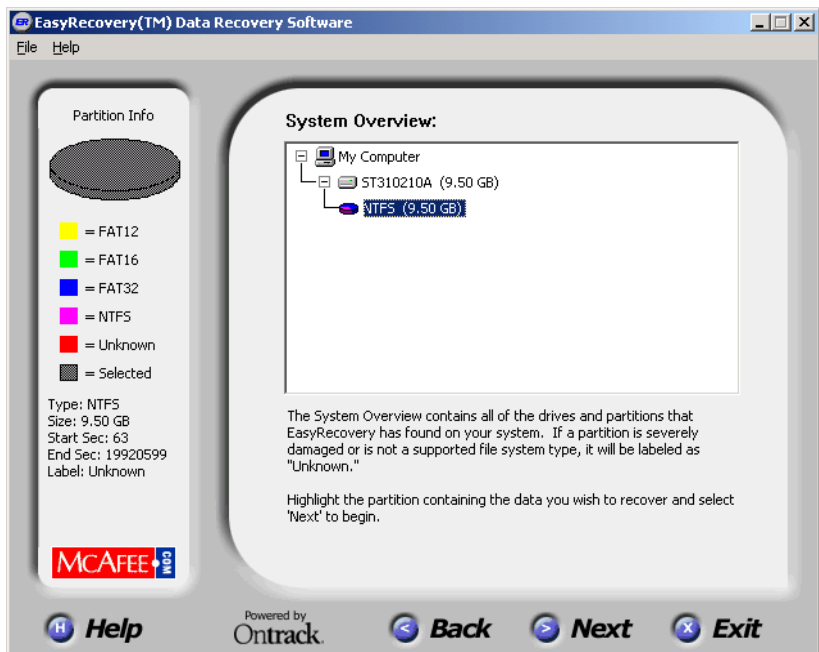
The first step in recovering your data with EasyRecovery is to identify and evaluate your system. Some of this is done automatically, but you will need to confirm some information about your computer before the recovery begins.

### SELECTING THE PARTITION TO RECOVER

When EasyRecovery loads, you'll see the Welcome screen. Click **Next** to display the System Overview page. You'll see your hard drive(s) and



removable drive(s) in the window, with all partitions listed underneath. If there's a floppy disk in the drive, it will also be listed.



EasyRecovery can do a quick scan of your drive to determine whether data is immediately recoverable. Go to **File**→**Disk Diagnostics** to scan your drive. The next section, "Disk Diagnostics," covers this feature in detail.

Click on the partition where the data you want to recover is located and then the **Next** button to continue. If the partition you want to recover is not listed, select any partition listed under the "right" physical drive. That is, if you want to recover the D partition on the first hard drive, and you see just one partition, select it. If EasyRecovery detected the file system

type correctly, this will take you to the Partition Information screen. If the file system type was “unknown,” this will take you to the Partition Finder screen (See “Changing the Partition Information (Partition Finder)” on page 16..)



*EasyRecovery cannot recover data from a USB (Universal Serial Bus) removable drive. Your EasyRecovery Emergency Boot Diskette will not work if this type of drive is damaged.*

### DISK DIAGNOSTIC

EasyRecovery can bail you out of the most common data loss problems, but occasionally a partition has become so severely damaged that you need more sophisticated techniques to get your data back.

EasyRecovery's Disk Diagnostic can tell you where you stand even before you've started the recovery process.

Go to **File**→**Disk Diagnostic** from the System Overview screen to scan your hard drive. EasyRecovery will look for damaged sectors on the drive for 90 seconds. If it finds more than 10 bad sectors during that scan, it is very likely you will need professional data recovery services. If your computer fails the diagnostic, see *Technical Support and Data Recovery Services*, on page 7 for round-the-clock data recovery service phone numbers.

When the diagnostics complete, click **Back** to return to System Overview.

### DEFINING THE PARTITION

EasyRecovery uses information from the master boot record, any extended boot records and BIOS parameter blocks to identify the size, file

system, and starting and ending sectors of the partition you want to recover.

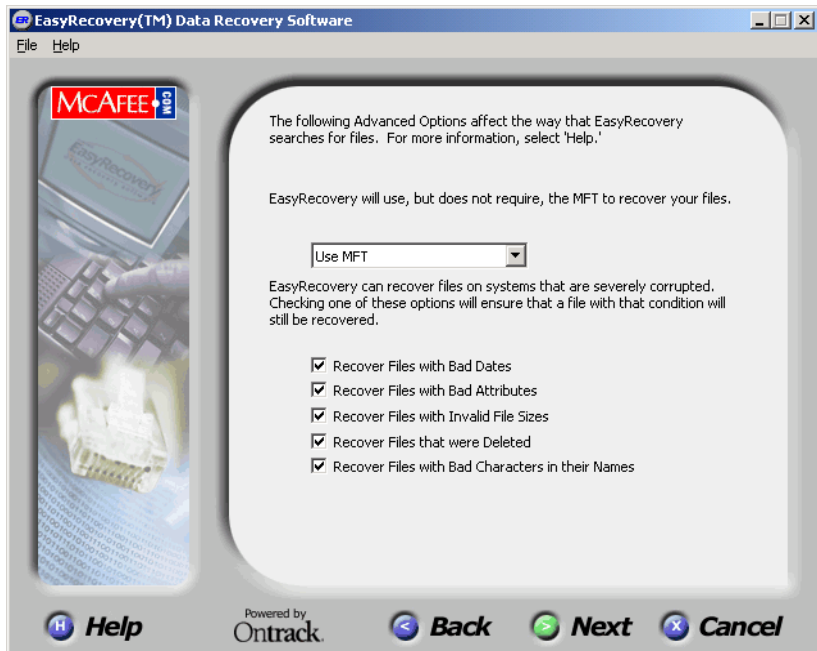
In general, unless you are certain that something in the Partition Information screen is wrong, clicking the **Next** button is the safest thing to do. Situations where you should manually change the settings include:

- If you know what the machine's file system is, and EasyRecovery reports it as something else.
- If the partition size is substantially different from what you know to be true.
- If you have recent information on the starting or ending sector of the partition that is different from what EasyRecovery reports.

Once you've set your options, click **Next** to begin the recovery scan. Depending on the system's speed, the size of your drive and the amount of work EasyRecovery has to do, this can take from 15 minutes to several hours.

If the information displayed is not correct, use the **Change** button to correctly identify the partition to be recovered. See "Changing the Partition Information (Partition Finder)" on page 16..

## ADVANCED TUNING OPTIONS



The **Advanced Options** button on the Partition Information screen allows you to configure how the Professional Edition of EasyRecovery will perform the recovery scan. They include:

- Specifying a good copy of the File Allocation Table for FAT file systems
- Specifying whether or not to use the Master File Table on NTFS systems
- Telling EasyRecovery how to handle incomplete or corrupt data files
- Whether EasyRecovery should ignore bad characters in file names

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## SPECIFY FAT COPY

In FAT-based file systems (DOS and Windows 9x/Me), data is stored in distinct clusters on the drive. DOS creates a File Allocation Table (FAT) to track where each file is stored. It also makes a backup copy of the FAT in case one is damaged. By default, EasyRecovery will compare the two copies of the FAT sector-by-sector and use the best information from each FAT to try to recover files. If this method fails to locate the data you need, this option allows you to choose to base the recovery scan on one or the other copy of the FAT. The options in the drop-down menu include:

**Use FAT1:** Use the first copy of the FAT.

**Use FAT2:** Use the second copy of the FAT.

**Use Best Match:** The default, described above.

**Ignore FAT:** On occasion, both copies of the FAT are damaged. This option forces EasyRecovery to rely solely on the information in the file without referencing either copy of the FAT.

## USING THE MASTER FILE TABLE (WINDOWS NT/2000)

Instead of using multiple copies of FAT to track the drive location of specific files, the NT File System (NTFS) builds information on file locations in each cluster. In addition, a record about the file is created in the Master File Table (MFT). This record is used to locate a file's possibly scattered clusters.

This option lets you choose whether to use the Master File Table or ignore it during the data search. Select from the drop-down menu.

## INCOMPLETE AND CORRUPT DATA TYPES

The EasyRecovery file search by default will try to identify as many files as can possibly be recovered. This can bring up a number of corrupt, deleted and other files that are not relevant to you. **Advanced Options** allow you to skip certain incomplete or corrupt file types. This will speed up the scanning process. Simply uncheck the box for the appropriate item:

**Recover Files with Bad Dates:** If a file date is not a number, is after today's date or is otherwise wrong, unchecking this box will stop EasyRecovery from identifying this file as recoverable.

**Recover Files with Bad Attributes:** Unchecking this box will prevent recovery if attributes have been damaged.

**Recover Files with Invalid File Sizes:** If the size of a file is reported as larger than the volume size, unchecking this box will prevent its recovery.

**Recover Files that were Deleted:** Files that have been deleted but haven't been overwritten will be recovered by EasyRecovery. This category can include hundreds of temporary files, deleted web cache and history files and other irrelevant data. Unchecking this box will prevent that from happening.

**Recover Files with Bad Characters in their Name:** When a file is damaged, it can often place invalid characters in the file name. By default, EasyRecovery locates and recovers as much data as possible. You can use the Advanced Options to tell EasyRecovery not to recover files with invalid characters by unchecking this box. Invalid characters are identified with an X in the following chart. All standard alphanumeric letters are valid. Some characters that are invalid in standard DOS 8.3 file names are valid in 32-bit Windows long file names.

---

<b>Character</b>	<b>DOS 8.3</b>	<b>Win32</b>
! (exclamation)		
“ (double quotation mark)	X	X
\$ (dollar sign)		
% (percent)		
& (ampersand)		
‘ (single quotation mark)		
(		
)		
*	X	X
+	X	
, (comma)	X	
- (hyphen)		
. (period)		
/ (forward slash)	X	X
: (colon)	X	X
; (semicolon)	X	
<	X	X

Character	DOS 8.3	Win32
=	X	
>	X	X
?	X	X
@		
[	X	
\ (backslash)	X	X
]	X	
^		
_ (underline)		
‘		
{ (left brace)		
(pipe)	X	X
} (right brace)		
~ (tilde)		

## CHANGING THE PARTITION INFORMATION (PARTITION FINDER)

When you click the **Change** button from the Partition Information screen, you can manually configure where EasyRecovery should search for your missing or damaged file system. This is meant to save you time and is



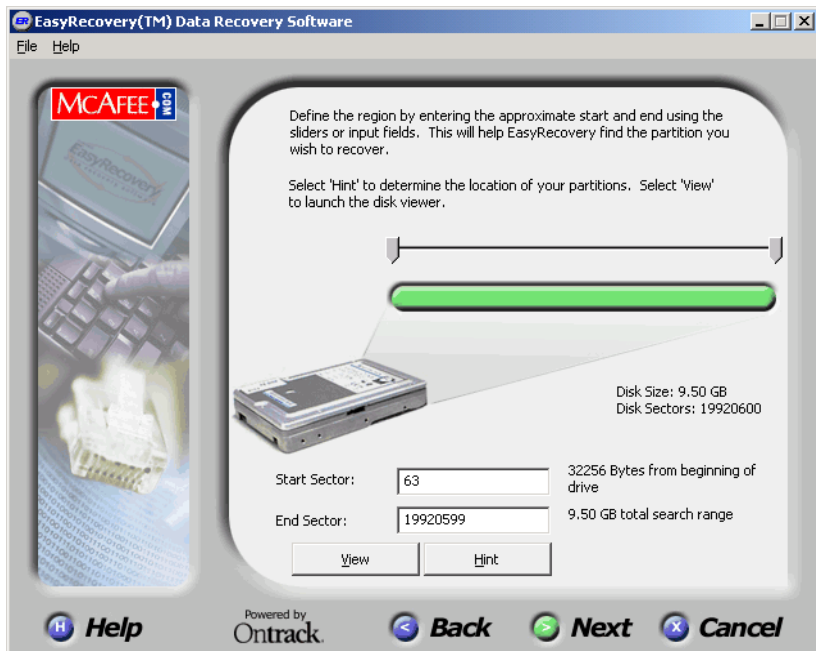
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used only as an approximation. EasyRecovery will search this area exhaustively for your file system.

There are two parts to the Partition Finder: specifying the region to search, and identifying the file system. These are explained further in the next two sections. These tools give EasyRecovery the minimum information it needs to locate and recover your data.

If EasyRecovery cannot identify the file system based on the information it finds on the drive, you will also see this screen. EasyRecovery cannot complete a scan unless it knows how the partition is organized. If you don't know what file system the partition uses, there is no harm in guessing. Use the Supported File Systems table on page 3 to help you decide. If EasyRecovery cannot locate any files, it will simply send you back to this screen to try again. Your files will not suffer any further damage.

## SETTING THE STARTING AND ENDING SECTOR



The first Partition Finder screen asks you to define where to search for the start or end of a partition. By default it will search the entire drive.

This screen offers a slider bar to reset the sector information. Just drag the left end to the right to adjust the Starting Sector. Drag the right end to the left to adjust the Ending Sector. You can also type this information in yourself. EasyRecovery will search between the specified sectors to locate the partition on the drive.

If you only know the size of your partition, and/or aren't comfortable using the slider bar, use the **Hint** button. This allows you to more easily

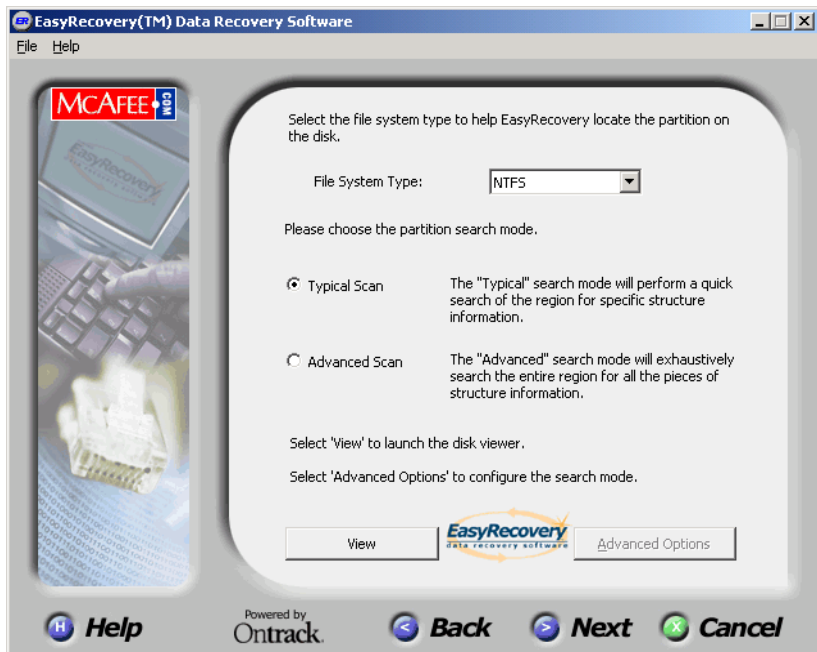
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determine the location of a partition on a multiple partition system where the relative size of each partition is known. For more on this feature, see “Hint button” on page 25.

You can also use the **Advanced Options** from this screen to identify the cluster size, the first data sector and the first cluster of the root directory. See *Identifying a Partition: Advanced Options*, on page 26.

Click **Next** to identify the file system and set the scan mode. Click **Back** to return to the Change Partition Information screen without saving your changes.

## IDENTIFYING THE FILE SYSTEM



EasyRecovery uses information from the master boot record, any extended boot records and BIOS parameter blocks to identify the file system of the partition you want to recover. If that information is faulty or unavailable, EasyRecovery will report the File System Type as Unknown. If EasyRecovery misidentifies the file system, you can also click the drop-down **File System Type** menu here.

Before EasyRecovery can analyze the partition for recoverable data, you must select a file system.

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When you've made your changes, click **Next** to confirm the changes and begin the recovery scan. EasyRecovery will first re-identify the partition, then scan the drive. Depending on your system's speed, the size of your drive and the amount of work EasyRecovery has to do, this can take from a few minutes to several hours.

If you want to restore the default settings, click the **Back** button. Click **Cancel** to close EasyRecovery.

## RAW SCAN

If you've only recovered some files, but still need some files that EasyRecovery did not locate on the first pass, you can also select the RAW format. This scan will read all sectors on the disk sequentially (sector-by-sector).

This scan will only recover small files that are stored in one cluster or larger files stored in consecutive clusters on the disk. If you have used a disk defragmenter recently, your chances of recovering files from a badly damaged disk are much improved.



***DO NOT** attempt to defragment a damaged partition before using EasyRecovery. If your File Allocation Table is bad, defragmenting the partition could make your files unrecoverable.*

## PROFESSIONAL EDITION OPTIONS

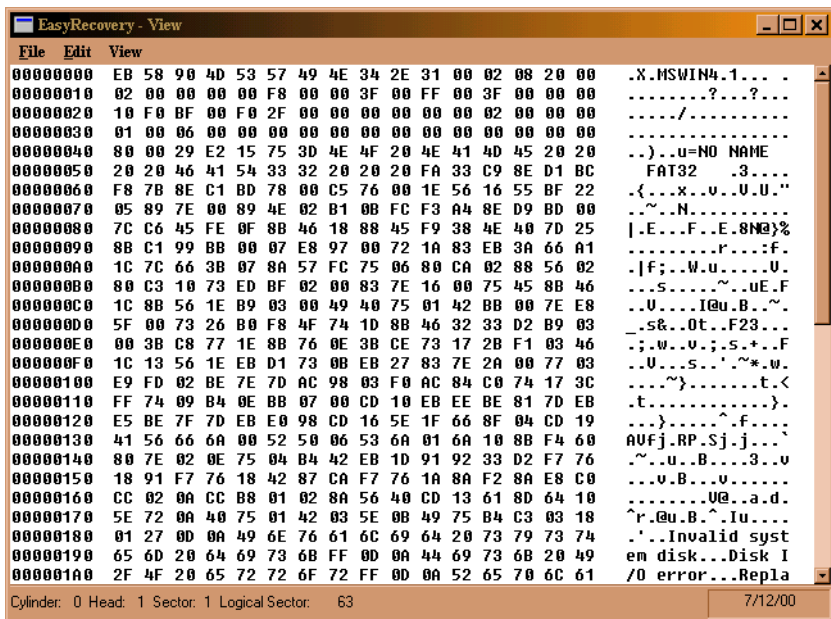
The EasyRecovery Professional Edition offers you more ways to identify and scan your disk.

### DISK VIEWER

The Disk Viewer is a version of the same tool Ontrack Data Recovery Engineers use to confirm the presence of file system information and/or data in the lab. This option allows you to view the physical hard disk on a sector by sector basis. You can use this to perform your own manual assessment of the system. With the Disk Viewer, you can view the contents of specific sectors, search for text strings and display the results in several different formats.

You can open the Disk Viewer from the Partition Finder screen. When you launch the Disk Viewer, you'll see the first sector of the partition

that's defined as Starting sector. The disk viewer will then let you roam the entire disk.



This is shown in Byte view: you see a series of columns of binary numbers followed by a wider 16-character column that contains some readable ASCII text. These are the contents of a single sector. At the bottom of the screen you'll see the Cylinder, Head, and Sector values for the current location, followed by the physical sector or logical block address (LBA). You can press Ctrl-G (or choose **GoTo Sector/Block** from the **View** menu) to select a different sector to look at.

The **Find** feature will locate a specific text string and can help you determine if a particular critical document is still present on the disk. Let's say your spreadsheet with the payroll records of your company has

been lost. Follow these steps to determine if this spreadsheet is still on the drive:



1. Open the Disk Viewer.
2. Select **Find** from the **Edit** menu (or press Ctrl-F).
3. Type John Doe in the **Find What** box. Click **Find Next**.
4. A **Searching...** box will come up and tell you what sector is being searched. This can take some time. You can cancel the search at any time by clicking the **Cancel** button.
5. If the first match for John Doe isn't from the spreadsheet, go back to the **Edit** menu and select **Find Next** to keep looking.

Keep in mind that if a file takes up more than one sector, there is a possibility that the whole file cannot be recovered. If the FAT is corrupt, and the file is fragmented (not in contiguous clusters), EasyRecovery may not be able to locate some parts of the file.

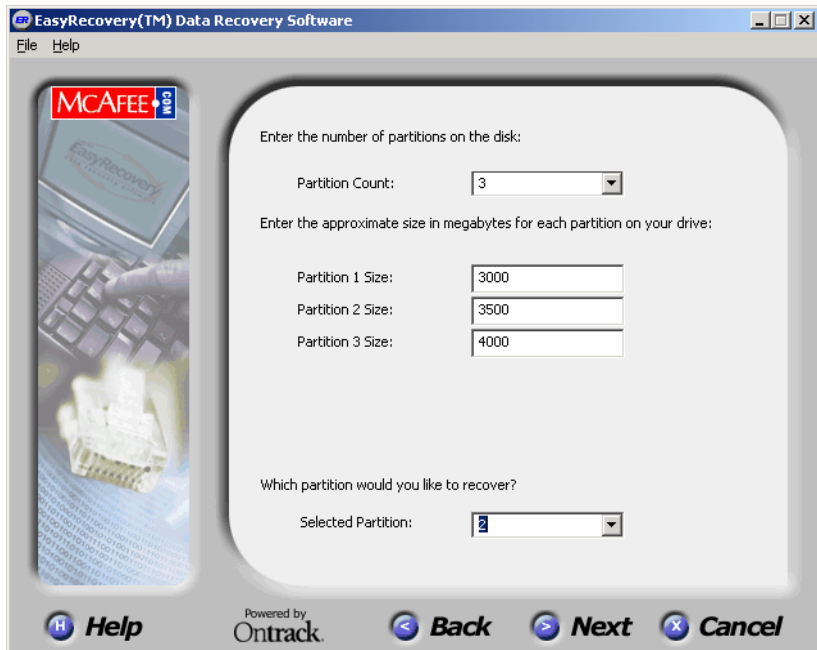
### VIEWER FORMATS

All data on a computer is in binary (Base 2) form. When displaying binary code, the numbers get large very quickly. Programmers use different ways to display/convert these 1s and 0s to make it convenient. Most often they use a hexadecimal format (Base 16), because you can represent one byte of data as two consecutive hexadecimal digits.

There are other ways to display the same data, though. The Disk Viewer display changes depending on your Format. Go to **Format** from the **View** menu to change this. Choose from Decimal, Octal, Word and DWord. Changing the format will not make it easier to find a text string. To do that, use the **Find** command.



## HINT BUTTON



The screenshot shows the 'EasyRecovery(TM) Data Recovery Software' window. On the left is a vertical sidebar with a McAfee logo and an image of a hand typing on a keyboard. The main area contains the following fields:

- Enter the number of partitions on the disk:  
Partition Count:
- Enter the approximate size in megabytes for each partition on your drive:  
Partition 1 Size:   
Partition 2 Size:   
Partition 3 Size:
- Which partition would you like to recover?  
Selected Partition:

At the bottom, there are navigation buttons: 'Help' (with an 'H' icon), 'Powered by Ontrack', 'Back' (with a left arrow icon), 'Next' (with a right arrow icon), and 'Cancel' (with an 'X' icon).

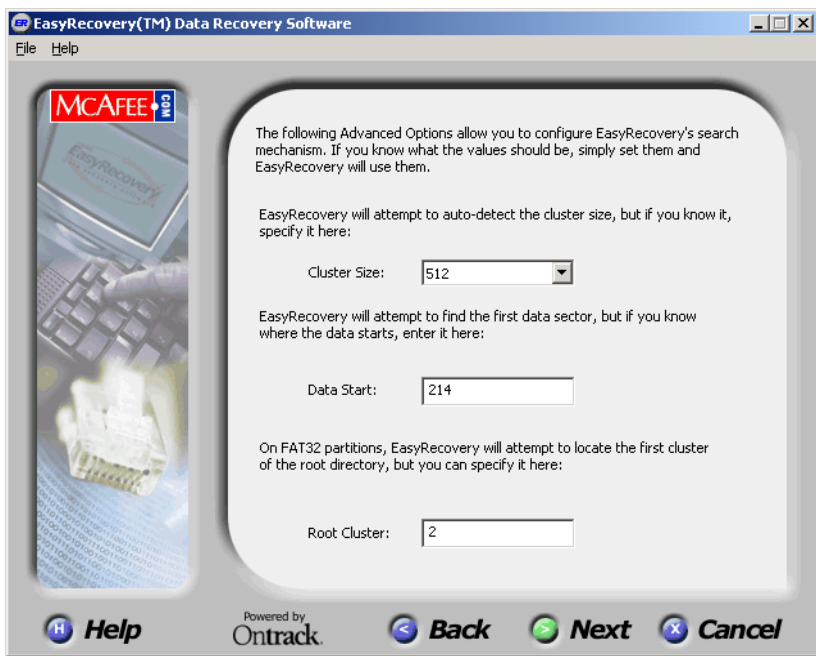
If you only know the size of your partition, and/or aren't comfortable using the slider bar, use the **Hint** button from the first **Partition Finder** screen. You can use the drop-down menu in the **Partition Count** line at the top to define how many partitions are on this drive.

The second item asks you how many megabytes are on the first partition on the drive. Be aware that a gigabyte (GB) is equal to 1024 megabytes (MB), so a 6 GB drive has about 6144 MB.

The last item on the Hint screen lets you select the partition you want to scan. The drop-down menu will let you choose from the number of partitions you specified in the Partition Count line.

Click **Next** to save your information and return to the **Partition Finder** screen. Click **Back** or **Cancel** to return to the **Partition Finder** screen without saving the changes.

### IDENTIFYING A PARTITION: ADVANCED OPTIONS



You can help EasyRecovery locate your partition with this additional information:

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**Cluster Size:** Based on the file system and the size of your drive, EasyRecovery tries to determine the size of each cluster. You can use the drop-down menu to reset this.

**First Data Sector:** In its initial scan, EasyRecovery tries to locate the first sector containing any kind of data. If the Disk Viewer tells you something different, you can reset that here.

## SCAN MODE OPTION

EasyRecovery will scan the file system for files to recover. There are two modes to choose from:

- **Typical** – this is the default case and in most cases will be sufficient to locate your missing partition. With this option, only specific areas are searched, thus making it a relatively quick solution.
- **Advanced** – This option performs a much more exhaustive search for your missing partition. Instead of searching specific areas of the disk, the Advanced mode will check every cluster. The Advanced mode is substantially slower, and should only be used if the typical option fails

Click **Next** to confirm all the changes made in the **Partition Finder** screens and begin recovery.

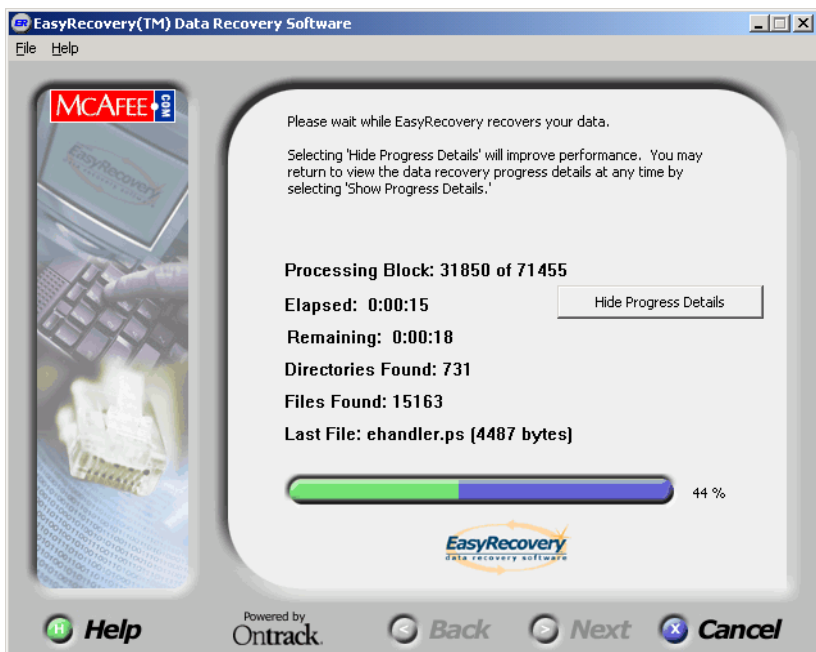
## RECOVERING YOUR DATA

Once you've selected and defined your partition, EasyRecovery will scan it and recover as many files as possible.

While EasyRecovery is scanning the partition, it will give you a continuous progress report. You'll see:

- The current block being processed
- A running Time Elapsed/Time Remaining count
- The total number of Directories/Folders and Files Found

- The last file found (with size information)
- A progress bar indicating the percentage of the scan that is complete



You can hide this display (except for the progress bar) by clicking the **Hide Details** button on the right side. This will improve the performance by decreasing the amount of work that must be done to update the screen.

You can stop the recovery in mid-process by clicking the **Cancel** button at the bottom. You'll be given a choice to save the recovery information up to that point (see the next section, "Saving Recovery Data"), or continue

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the recovery process. To get the best results, we recommend that you allow the recovery scan to complete.

When the recovery process is complete, you can locate and recover your files.

## SAVING RECOVERY DATA

If for some reason you need to interrupt the data recovery process, EasyRecovery lets you save all the information it has retrieved from the damaged drive and pick up where you left off at some later point. This includes the information on your partition and on any files that have been recovered.

The easiest way and best time to do this is after the recovery scan is complete. From the main Recovery screen, click **File→Save Recovery**. You'll specify a directory to put the saved \*.dat file.

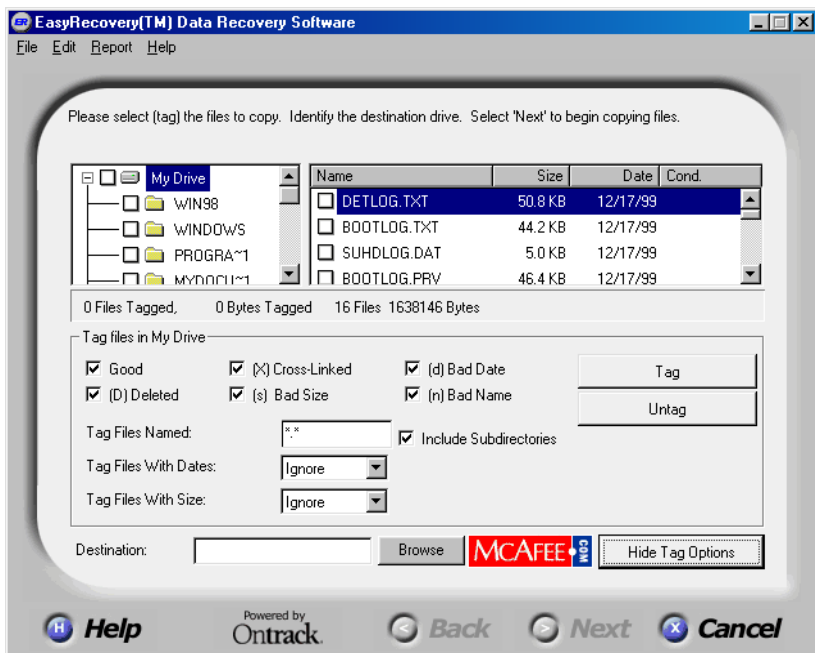
If you need to interrupt the recovery process, you'll also get the chance to save the recovery. For best results, however, we recommend always allowing the recovery scan to complete.

When you want to return to EasyRecovery, open the program and go to **File→Resume Recovery**. Locate and open the saved \*.dat file. You'll be returned to the same screen you were at when you saved. If a scan was in process, it will resume there automatically, using the same parameters you set earlier.

## Chapter 3: Copying Recovered Files

Once EasyRecovery has recovered your data, you can then choose to copy any or all of your files to a safe location.

### LOCATING AND TAGGING FILES AND DIRECTORIES



When the recovery scan is complete, EasyRecovery will show the contents of the virtual drive in a window that looks like a file manager. Everything in this window has been recovered from the damaged partition, and can be copied to a safe place.

---

On the left side you can see the directories and subdirectories, under "My Drive." On the right side are the files of the selected directory.

If your root or any directory was destroyed, EasyRecovery will create fictitious directory names. The names will be of the form dir99999 and are referred to as "check dirs." This is done in an effort to keep the directory tree intact. The files that were located in these damaged directories are placed in these check dirs. Whether or not there is a "real" name for the directory, the files are still of the same quality.

Use this screen to select the files you want to retrieve from the disk.

## TAGGING FILES

Once you've generated the list of files that can be recovered, you tag files to mark them for recovery. Simply check the box next to any file to tag it.

If you want to retrieve the whole drive, tag **My Drive** by clicking the box on the left. A check mark will appear in the box next to all files and folders tagged for copy. If the check is gray in color, the folder has at least one file somewhere below it that is tagged. If the check is blue, all files and subfolders are tagged.

As you tag files, EasyRecovery will report the number of tagged files and their size. The more files you tag, the longer it will take to copy them.

When you've tagged all the files you want to recover, click **Next** to complete the process.

## ADVANCED TAGGING OPTIONS

Clicking the **Show Tag Options** button opens a number of advanced options for mass tagging. These include:

- **By name:** Use wildcards to identify specific files and/or extensions. This does not allow for multiple selections.

- **By date:** Name a specific date, on, before or after.
- **By size:** Define a file size (in bytes) and set the flag for equal, smaller, larger--even between two sizes.
- **By condition:** The Condition column in the file list notes any problems with files it recovers. See "Assessing the Quality of a File" on page 33. for an explanation of this column. Check the appropriate boxes to tag by condition.

If the "Include Subdirectories" box is checked, files meeting the tagging requirements in tagged folders will be tagged, regardless of how deep in the file tree they go. If you have files in subfolders that you don't want to retrieve, you can uncheck the box(es) for those files at any time before starting the copy.

Once you've tagged a set of files, you can also use the **Untag** option to specify a different set of criteria and apply that set to file that have already been tagged. Thus, you might tag a group of files larger than 500 bytes modified since January 1, then find a number of large program update files that are already located on another machine on the network. Simply go back to the **size** menu, specify larger than 5000 bytes and click **Untag**.

### GENERATING REPORTS

You can generate a series of reports from the **Report** menu. By default, **Run Report During Copy** is checked. This time-stamped report contains the location of your recovered file(s), the date each file was created, and its size. You'll also get the total number of files, and bytes, recovered.

You can save a list of all your tagged files (with size and date created) before the recovery process starts. Go to **Report**→**Run Report on Tagged Files**.

Before you run these reports, you'll have to set a destination folder for the report. Click **Set Report Destination** from the **Report** menu. If you don't do this before starting the copy operation, you'll be prompted to do so before the copy starts.



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## SETTING THE DESTINATION FOLDER

EasyRecovery copies your file(s) to a folder on an undamaged partition. The default is C:\Recover, but if your C drive has been damaged, you must copy the recovered files to a different partition, preferably a completely different physical drive. This could be another physical hard drive, a network drive, a Zip or other removable drive, or even a floppy (for a few small files).

To change the destination folder, select the text in the **Copy Files To** box and type in the new folder path.



*If you have more than one damaged partition on your system, DO NOT copy files from one partition to another damaged partition. Always use removable media (like a Zip disk) or a second, undamaged hard drive, as the destination in these cases.*

## VIEWING THE CONTENTS OF A FILE

EasyRecovery will let you view the contents of a recovered file, much like the Disk Viewer (see page 22). Select a file from the window and choose **View Contents** from the **File** menu.

You can search for text or hex strings by pressing **Ctrl-F** or selecting **Find** from the **Edit** menu. As in the Disk Viewer, you can also change the format from the **View** menu. See “Viewer Formats” on page 24..

## ASSESSING THE QUALITY OF A FILE

The condition of recovered files depends on the overall condition of the system. EasyRecovery notes any problems with each file in the Condition column on the recovery screen with a letter/color combination. The key is in the chart below.

Black d	File with a bad date: after today or with invalid values (e.g., 15-50-2000)
Black a	Bad (undefined or invalid) attribute
Black n	Bad name: has invalid characters
Blue D	Deleted
Red X	Invalid chain, perhaps a cross-linked file or runlist that doesn't match its size
Red s	Bad size: file is larger than the partition (volume)

If a file has multiple problems, the color will reflect the most serious problem. So a Deleted file with a bad attribute will be blue, but a deleted cross-linked file will be red.

Always check the contents of problem files in the file viewer before you copy.

## RECOVERING FILES TO A SAFE LOCATION

When you've tagged your files and selected a target folder, you're ready to begin moving data. Click **Next** to begin.

EasyRecovery will copy the data to the destination folder. If you have a large number of files, you'll see a screen similar to the Recovery Scan screen. It will give you a continuous progress report, with the file being recovered, the destination and the Time Elapsed and Remaining. A progress bar will also keep you posted on the percentage of files copied.

When your files have been copied to the destination folder, click **Finish** to close EasyRecovery.

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# Chapter 4: Important Terms

## CLUSTER

The basic unit of data structure on a hard or floppy drive. A cluster is a group of more than two sectors. Cluster sizes can vary from 512 bytes to 256k bytes, depending on the particular file system and the partition size.

## CROSS-LINKED FILES

If your system crashed while you're saving a file, the FAT may report that two files contain at least one like cluster on the drive. These are cross-linked files. These are not allowed by either FAT or NTFS file systems. NT does support hardlinks and they will not be described as cross-links. A hardlink is simply another name (possibly in another folder) that contains exactly the same contents.

## FILE ALLOCATION TABLE

In DOS and Windows, data is stored in distinct clusters on the drive. DOS creates a File Allocation Table (FAT) to track where each file is stored.

## FILE SYSTEM

A file system consists of files, directories, and the information needed to locate and access these items.

## PARTITION

A formatted section of your hard drive. Drives formatted by DOS or Windows have at least one partition, labeled C:. Large drives can be

formatted to have multiple partitions. Each partition will then behave as if it were a separate physical drive, with its own letter (D, E, F, etc.).

### **SECTOR**

The smallest storage units on a disk. On PCs, a sector can hold 512 bytes of information.

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