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## **Preface**

Photo Retriever (including program, document file and manual) is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. Photo Retriever is licensed, not sold. Please read the License Agreement in the box. End-user conditions are set forth in the License Agreement. You may not disassemble, reverse-engineer, decompile, resell, re-program or document any of Photo Retriever. The source code of the Photo Retriever program is copyrighted by FINAL DATA INC. All the document files of Photo Retriever are copyrighted by AlphaOmega Soft, Inc. and FINAL DATA INC. All other trademarks used herein are registered trademarks of their respective holders.

## 1. User Registration and Support

### 1.1. User Registration

User registration allows you to receive technical support, product updates and other benefits.

The following is a list of services available after registration.

- Technical support via email.
- Downloadable product updates (<http://www.finaldata2.com>).
- Serial number tracking (we will maintain a record of your registered serial number in the situation that it has been lost or misplaced).
- Special promotional offers via email (opt-in only).

### 1.2. How to Register

- Internet Registration

To register online, visit our website (<http://www.finaldata2.com>) and follow the registration links to complete registration. Please fill in all necessary fields including serial number and user information.

- Convenient User Information Update.

When you change your address or phone number, please email the updated information to [support@finaldata2.com](mailto:support@finaldata2.com)

### 1.3. Technical Support Options

You can contact Photo Retriever technical support at the following email.


- Email Response Support : [support@finaldata2.com](mailto:support@finaldata2.com)

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## 2. Introduction to Photo Retriever

### 2.1. How Photo Retriever Works

Photo Retriever is designed to recover deleted image files such as JPEG, GIF, TIFF, PNG, RAW, PSD, PCX, WMF and BMP; video files such as AVI, MPEG, MOV; and audio files such as MP3, MID, and WAV. Photo Retriever does not guarantee recovery of all data. Overwritten files or files that have been severely damaged can not be recovered by Photo Retriever.

Microsoft Windows provides a Recycle Bin () function to protect you from accidental data deletion. When a file is deleted in Windows, it is first moved to the Recycle Bin and can be recovered if needed. If, however, a file is deleted from the hard drive without being stored in the Recycle Bin ([Shift]-[Delete]), or if the user has emptied the Recycle Bin, it can not be recovered in Windows.

But when a file is deleted in Windows only the file directory information is removed, which means the file data still resides in data sectors on the hard drive. So, the file can technically be recovered.

Photo Retriever uses these principles to recover data, even after the Recycle Bin has been emptied. Photo Retriever is able to easily recover deleted files, files damaged by viruses or by accidental formatting. Even when a directory structure is partially damaged, Photo Retriever can recover the files as long as the data remains on the hard drive.

### 2.2. Photo Retriever Features

#### User-Friendly

It's fast and easy! If you know how to use Windows Explorer, you're well on your way to recovering lost files in a few easy steps.

#### Data recovery after virus infection

Traditional vaccine and firewall programs often do not provide security against new viruses. Photo Retriever will completely restore lost data caused by many viruses and hackers attacking your system directory structure or file tables.

#### Photo Retriever is Windows XP compatible

Photo Retriever is compatible with Windows XP, as well as Windows95/98/Me/NT/2000. With Photo Retriever, complicated DOS commands are never required - with a few clicks of a mouse, Photo Retriever can recover your data.

**Photo Retriever is reliable**

Photo Retriever is recognized for its superior simplicity, safety, speed and rate of recovery.

**Data Recovery after emptying the Recycle Bin**

Photo Retriever can recover your files as long as the data has not been overwritten and the information still exists on your storage device. Photo Retriever can even recover files that data recovery laboratories can not.

**Keeps your information private**

If the data is so important that even a data recovery technician should not see it, you can recover the data yourself and keep your information private.

**Data recovery from CD-ROM drives and removable drives**

Photo Retriever is capable of recovering data stored on several types of storage devices including CD-ROM, DVD-ROM, flash memory, memory stick, and MO/ZIP/Jaz drives.

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## 3. Install/Uninstall

### 3.1. Before Installing Photo Retriever

1. Photo Retriever installation requires the original CD and its serial number. Please keep them in a secure location.
2. If you have an earlier version or a demo version of Photo Retriever installed on your system, uninstall it before installing Photo Retriever 2.0.
3. Please keep in mind that if you install Photo Retriever on the same drive you need to recover data from, the installation process might overwrite your previously lost data. Therefore, it is recommended that Photo Retriever be run for the first time from the CD-ROM drive. To run the program from the CD-ROM find the Photo Retriever executable file. This file is typically located in the following directory: D:\PhotoRetriever\PhotoRetriever.exe (D: representing your CD-ROM drive). To launch the program, go to the 'Start' button on the Windows task bar and select 'Run'. Then click 'Browse' and find the executable file on the Photo Retriever CD-ROM. After your data has been recovered you can safely install Photo Retriever for any future instances of data loss.
4. Data can not be recovered from a physically damaged hard drive. A hard drive can become unrecoverably damaged if it is dropped, becomes wet, or is damaged by fire.
5. When previously deleted data in need of recovery is overwritten by other data, it generally can not be recovered.
6. When data restored by Photo Retriever has initially been fragmented, it may not be usable by other programs.
7. Photo Retriever is specifically designed for the purpose of recovering image files such as JPEG, GIF, TIFF, PNG, RAW, PSD, WMF, PCX and BMP; video files such as AVI, MPEG, MOV; and audio files such as MP3, MID, and WAV. It can not recover operating system files, application programs, or other types of damaged data.
8. A separate drive is required for saving the recovered files. To protect deleted data from becoming overwritten, recovered data must be saved on a different drive.
9. Due to various file deletion methods adopted by different camera manufacturers, some images may not be recovered once deleted.

10. Users other than the administrator can not run the Photo Retriever under Windows NT/2000/XP.
11. Because of the limited directory entry space in a cluster, not more than 10 files from any subfolders on a floppy disk can be retrieved at one time (unless a defragmenter program is employed) despite the number of files on a floppy diskette subfolder. With the exception of a floppy disk, most media are limited regarding their detectable number of files within the FAT file system, when files exceed the number of directory entry storable in one cluster or in one folder, the number of files retrieved at one time may be limited.
12. Photo Retriever can not be used on drives with disk compression software.
13. If a folder with a minimal amount of data was formatted, not all of the data will be recoverable.
14. When Windows is interrupted or restarted after a file has been deleted in a NTFS file system, part of the deleted file may not be recoverable.
15. Photo Retriever can not recover a file on a hard drive that has been deleted or repartitioned by FDISK or Windows [Disk Management]. Files on a disk or media not recognized by Windows can not be recovered in most cases.
16. Since no drive letter is associated with a Windows 2000/XP dynamic volume, the drive can not be scanned.
17. Image files encrypted with the NTFS file system can not be opened, even after recovery.
18. A file deleted from a FAT32 file system under Windows 2000/XP can only be recovered when a cluster scan is performed.
19. A user without local administrator rights could be denied program installation on Windows 2000/XP systems. In such cases, the following message will appear:

“Setup has detected uninstall shields are in use. Please close the uninstall shield and start setup again.”

“Error432”

To correct this issue, login as a local administrator and try installing the application again.

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20. Portions of images larger than 1800 pixels in length or width may not be visible as a thumbnail, during preview, or printing under the Windows 95/98 environment.
21. Data recovery can be performed easier on hard drives that are regularly maintained by the Windows Disk Defragmenter. Make sure to always backup important files before using the Windows' defragment tool. Avoid defragmenting drives if they have deleted data that needs to be recovered. Defragmenting a drive after data has been deleted will render the data completely unrecoverable.
22. Before starting the recovery process, make sure that Windows is operational and an extra drive is available to save the recovered data. If Windows does not boot-up, and the deleted files reside on the same drive as Windows, do the following:
  - Attach the affected disk as a slave drive to another system with a functioning Windows environment (and preferably the same Windows version), install and run Photo Retriever from the functioning system.
23. The Photo Retriever license agreement is issued for one computer or workstation. Additional licenses have to be licensed if the program is to be installed on multiple computers.
24. The program may appear to momentarily stop when you use the [Status] bar and click the [Detail] button to view detailed file information. This process will take a few moments, and the program will shortly resume interactive operations.
25. PSD, WMF, GIF and RAW file types can not be printed in Photo Retriever.
26. WMF, GIF and RAW file types can not be previewed in Photo Retriever.
27. The default size will be applied to the file which is found by cluster scan.

### 3.2. System Environments

Please check the minimum PC system requirements before using Photo Retriever:

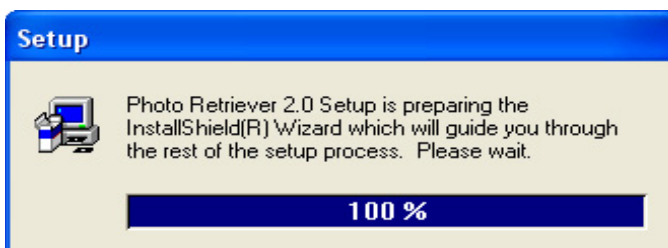
- O/S: Windows 95/98/Me/NT4.0(workstation, with SP4 or higher)/2000(Professional)/XP
- Minimum 64MB of RAM (128MB or more recommended)
- At least 10MB of free disk space (20MB or more recommended)
- 2x CD-ROM Drive or faster
- 256-color VGA or higher resolution

### 3.3. Photo Retriever Installation

Installing Photo Retriever

You can install Photo Retriever 2.0 for Windows as follows:

- Start Windows.
- Insert the Photo Retriever 2.0 CD into the CD-ROM drive. The setup program will launch automatically.



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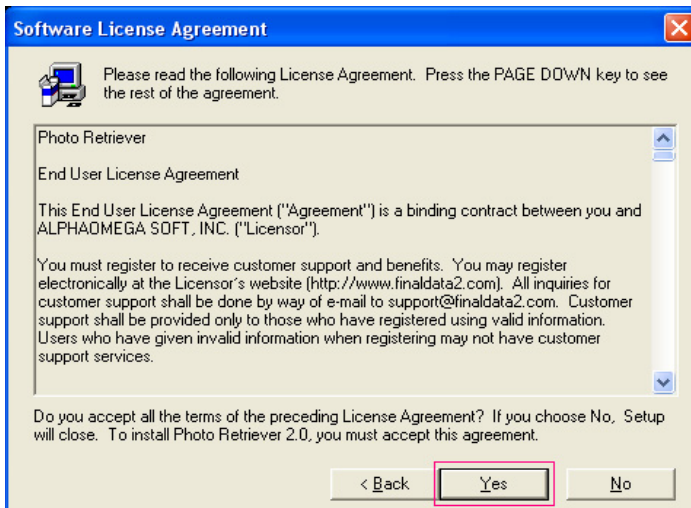
If the setup program does not launch automatically, please take the following steps:

- Double-click the [My Computer] icon on the desktop.
- Double-click [CD-ROM Drive].
- Open the [Setup] folder.
- Run “Setup.exe”.

**Note:** When Installation starts, a warning stating that you may overwrite recoverable data by software installation will appear. If you do not wish to install Photo Retriever, Click “No” to install Photo Retriever. You may still run Photo Retriever from the CD-ROM (Please refer to Chapter 3.1 –Before Installing Photo Retriever).



Click [Next] to continue with Photo Retriever 2.0 installation.

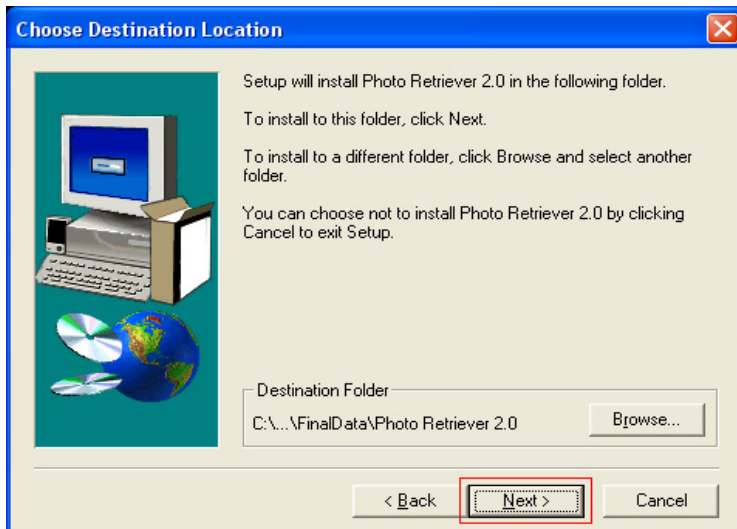


Click [Yes] after reading the above Software License Agreement.

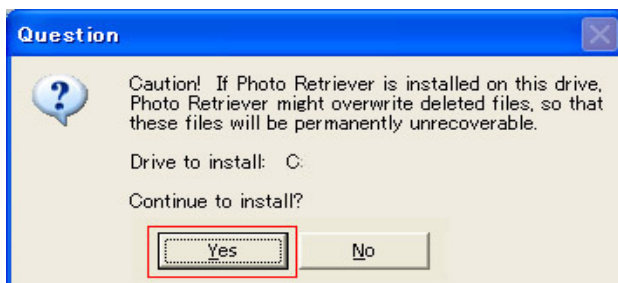


Enter your name, the company name, and the product serial number. Click [Next].

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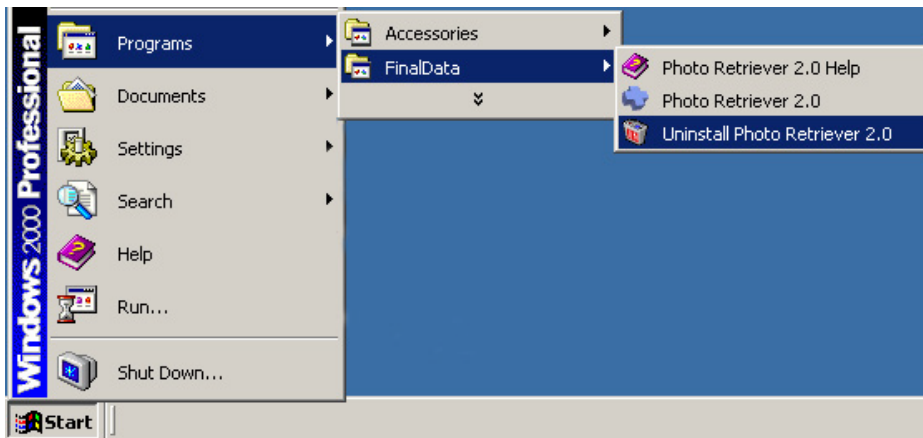
- The above dialog box allows you to choose the installation folder for Photo Retriever. The default folder is "Program Files\FinalData\Photo Retriever 2.0". To install to a different folder, click [Browse] and select another folder.



- Installing Photo Retriever to the same drive where files or folders are in need of recovery may potentially overwrite those files and folders. Please make sure that the drive where Photo Retriever is to be installed has no data in need of recovery. Click [Yes] to continue to install.

## Uninstalling Photo Retriever

Click the [Start] button and choose [Programs] - [Photo Retriever] - [Uninstall Photo Retriever]. Photo Retriever will be removed automatically.



If this item is not available, you can remove Photo Retriever as follows:

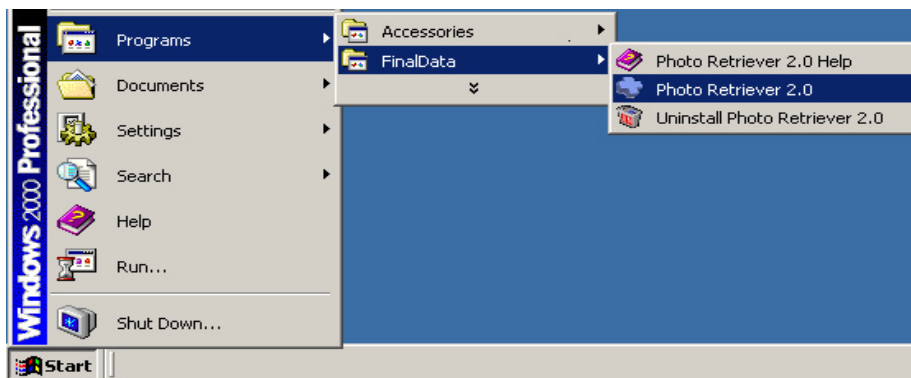
- Start Windows.
- Select [Start] - [Settings] - [Control Panel].
- Open the [Control Panel] and double-click [Add/Remove Programs].
- Select [Photo Retriever 2.0] and click the [Add/Remove] button.
- Photo Retriever files and folders will be removed.

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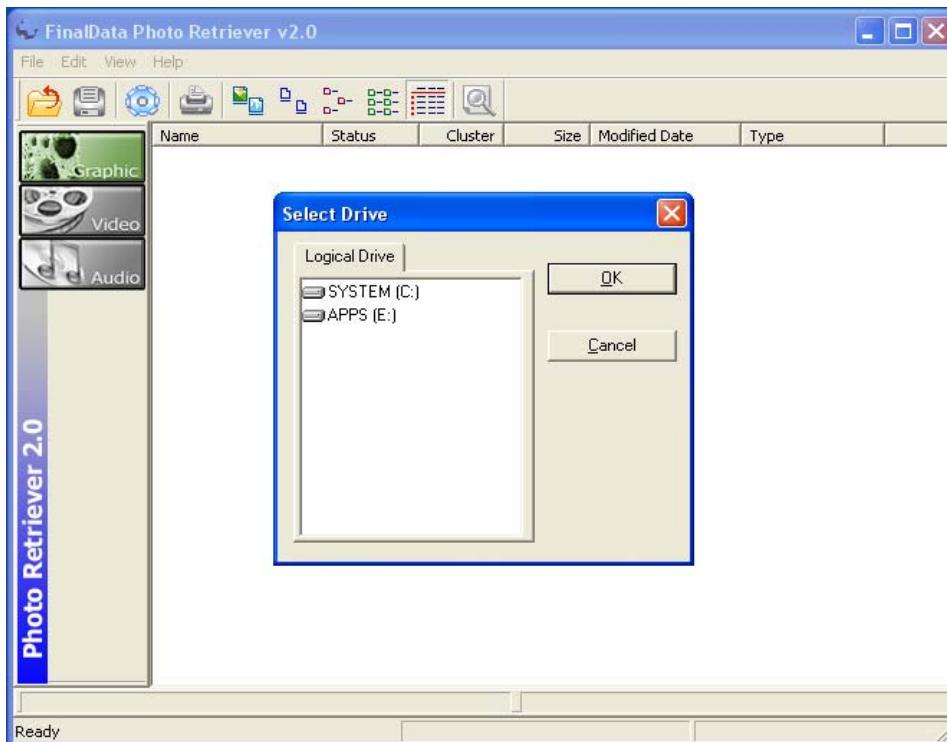
## 4. General Data Recovery Procedure of Photo Retriever 2.0

### 4.1. Launching Photo Retriever

Click [Start] and choose [Programs] – [Photo Retriever] – [Photo Retriever 2.0].



The main screen will be displayed as follows:



## Logical Drive Search

From the [Select Drive] dialog box, click the drive containing the data you wish to recover. Click [OK].

If detected, other types of memory cards such as SmartMedia or CompactFlash will also be listed in the [Select Drive] dialog box.

Network drives will not be listed.

Drives not recognized by Photo Retriever will not be displayed.

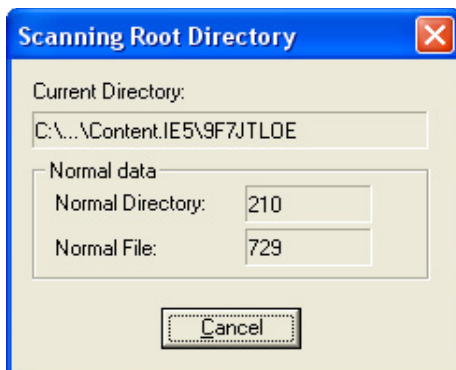
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Select the file type(s) to recover and click OK.



## 4.2. Directory Scan

After selecting the file type(s) to recover, a [Directory Scan] will be started.



It is necessary for the [Directory Scan] to run thoroughly. If you click [Cancel] before the completion, results for the scanned parts of the drive will only be displayed.

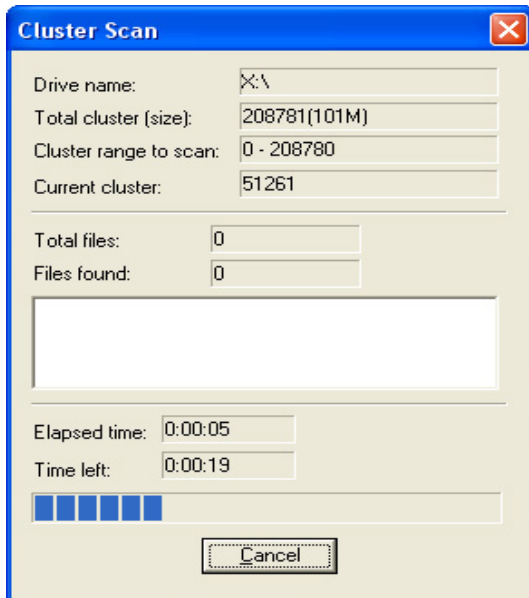
### 4.3. Cluster Scan

If the [Apply Detail Search Algorithms] was checked a more detailed search will begin automatically after the Directory Scan has completed.

**Note:** When images are deleted from a digital camera, you will need to choose the [Apply Detail Search Algorithms] option, since without a [Cluster Scan], image data will not be found. After the [Directory Scan] the [Cluster Scan] will automatically start. During a [Cluster Scan], other files may be found that did not show up with the initial [Directory Scan]. Since this process may take a considerably longer time (depending on the size of the hard drive), you have the option to stop it by clicking the [Cancel] button.



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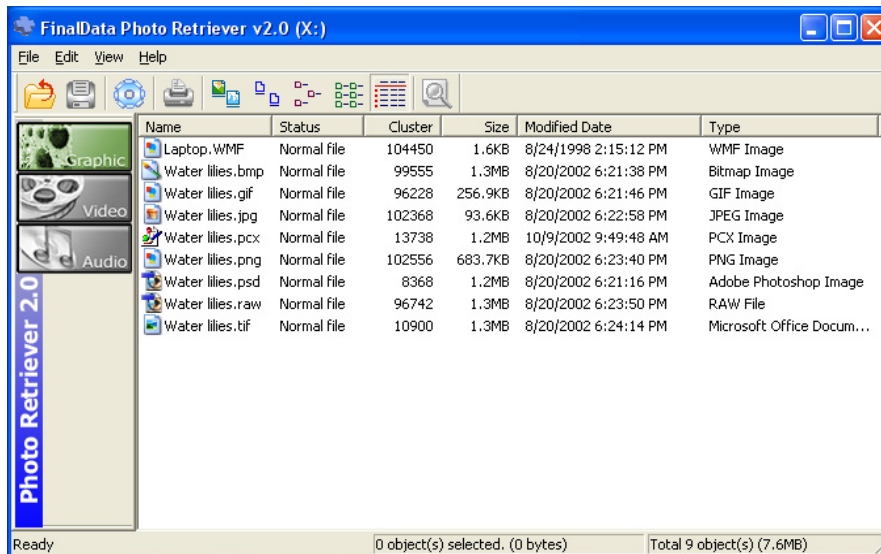


## 4.4. Scanning Result

Scanned media files are displayed as thumbnails. A maximum of 128 thumbnails can be displayed at the same time. However, part of a thumbnail may appear blank at this point.

A clear image thumbnail in Photo Retriever indicates a higher possibility of recovery, and easy image access for the future. If the default icon of Photo Retriever is displayed in the thumbnail area of a picture, it can suggest the possibility of file damage which may also prevent it from being opened. Limited computer resources may cause thumbnails to show up as blanks. In this case, the status and extent of damage to the image will not be verifiable unless it is recovered.


Choosing [Details] from the [View] menu:

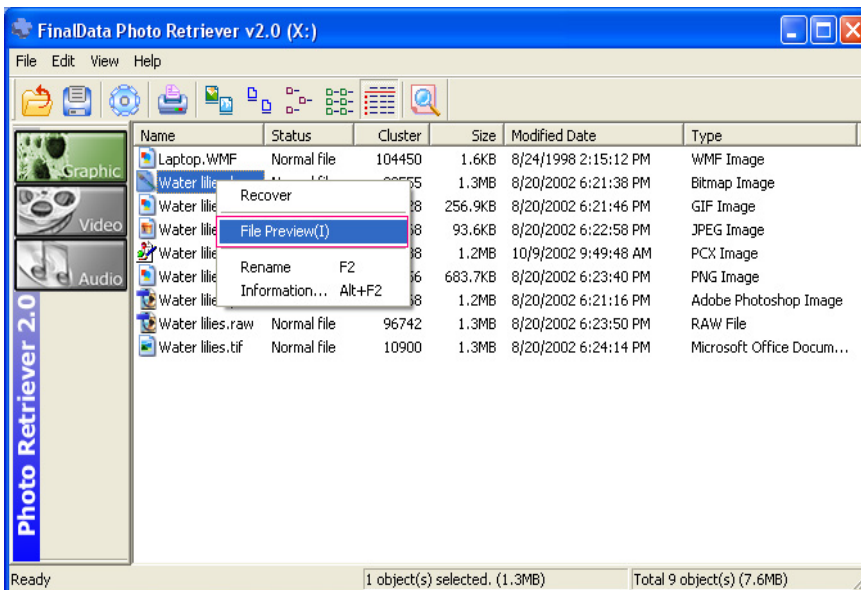


Detailed information about the files will be displayed. The following detail information will be displayed by setting the [Detail] information: Short name, status, cluster, size, date of creation, date of modification, date of application, sort, folder, etc. To set these items, please refer to “4.9. Preferences”.

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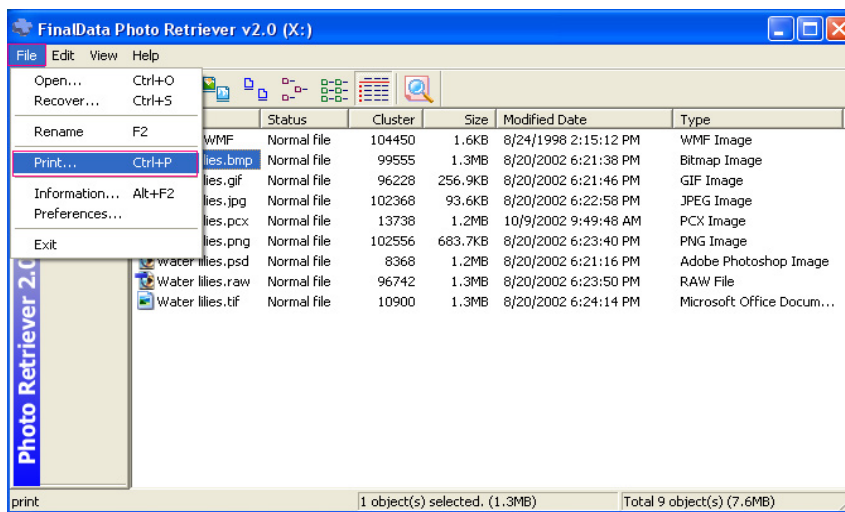
## 4.5. Preview an image file in need of recovery

To preview an image file, use the “Preview” function of Photo Retriever. Select a file from the list and click the (  ) button on the toolbar, or choose [Preview] from the pop-up menu that appears when you right-click on an image file.




## 4.6. Choose & Print an image file in need of recovery

To print an image file, you will need to first select it from the list by clicking on it.



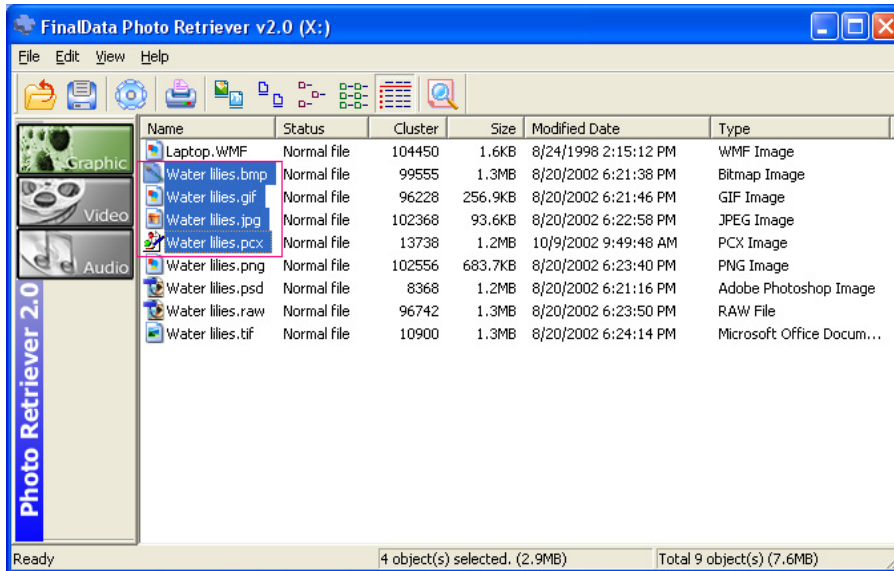
Print the selected image by:


Selecting [Print] from the [File] menu, or clicking the (  ) button on the toolbar.

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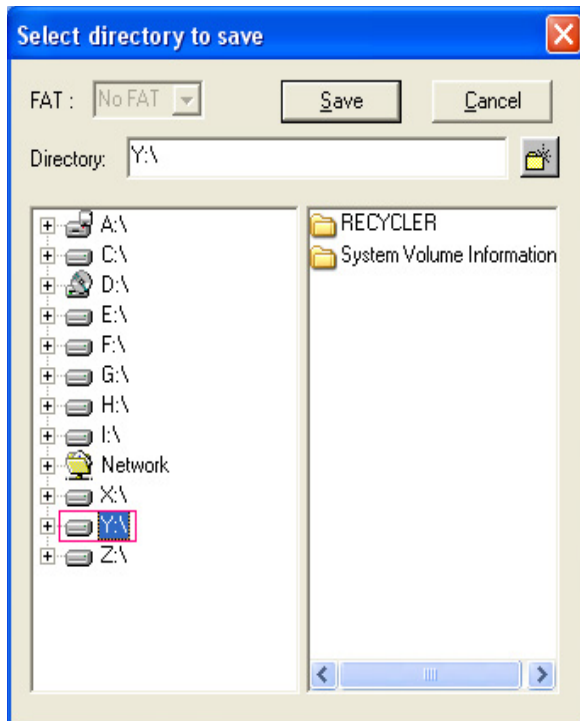
## 4.7. Recovery


Select the file(s) from the list.



Choose [Recover] from the [File] menu, or click on the (  ) button on the toolbar. You can also Choose [Recover] from the pop-up menu that appears when you right click on a file.

Select the drive and folder to save the recovered data to, and click the [Save] button.



To create a new folder, click the (  ) button.

To prevent overwriting, the program will not let you save recovered files on the same drive the previously deleted data resided.

Make sure secondary drives are available and have enough capacity to store recovered data. Other media that can be used for this purpose are:

- Floppy disk drive
- Removable disks such as MO or ZIP
- Shared network drives
- Another logical or physical disk

**Note:** *CD-R drives can not be used for recovery.*

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## 4.8. Confirmation of recovered data

Windows Explorer can be used to verify if a file has been recovered as intended, by the previously outlined section. To fully confirm the recovery, open the file in an application that supports the type of file being recovered.

However, the following scenarios could occur:


- The file will not open.
- The file opens, but is partially damage.
- The application stops suddenly while opening the file.

The preceding scenarios can be caused by overwritten data or data fragmentation.

As an alternative method of recovery in the case of the FAT16 or FAT32 file system, select [No FAT] for the FAT type during the [4.7 Recovery Section] process to recover the data. Recovery will not be possible if this does not work.

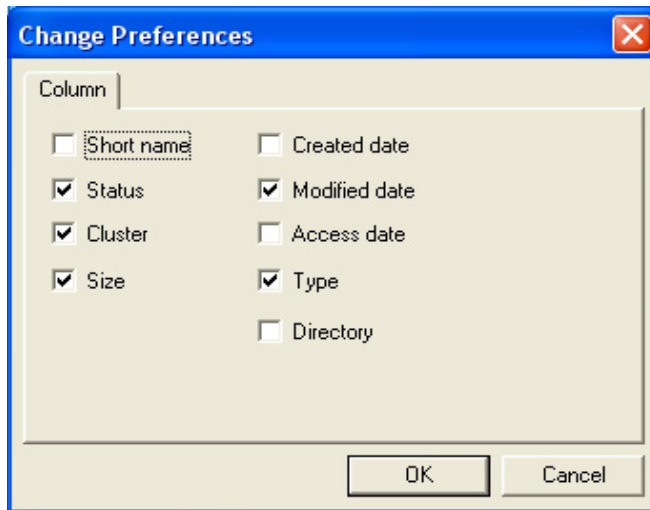
**Note:** *The FAT type option is not available if the file system is NTFS.*

## 4.9. Preferences

To modify the preferences, choose [Preferences] from the [File] menu, or click on the (  ) button of the toolbar. By choosing the [Preferences] option, you can turn on or off additional columns of detailed information that will be displayed on the main screen of Photo Retriever. The following items are among the preferences that can be displayed:

Short Name, Status, Cluster, Size, Date of Creation, Date of Modification, Date of Access, Type and Directory.

**Note:** Short name item is not available for the NTFS file system.



## **5. Error Messages & Troubleshooting**

### **5.1. Drive will not open**

The specified drive may not be accessible. Due to problems or damage to the Master Boot Record (MBR), the drive can not be opened. Recovery in this case is impossible.

### **5.2. Can not read xx sector**

This message appears when data is not readable because a bad sector has been encountered in the xx area. Click [Ignore] or [Ignore all] to continue the process. If the No. 0 sector on a removable storage media, such as a floppy disk or a MO drive is bad, you will not be able to access its data.

### **5.3. This file type is not compatible**

This message points to a file system other than a FAT12, FAT16, FAT32, NTFS (or the file system has been damaged) or a UDF formatted disk. Photo Recovery can not proceed in this case.

### **5.4. Can not move directory**

The directory can not be moved because there is no entry in the directory that needs to be moved. Either the new directory location has been overwritten or its sectors are damaged. The FAT32 deleted directory entry may be inaccessible.

### **5.5. Can not recover in the working drive - Please select another drive**

Photo Retriever prevents users from saving data to the same drive carrying out the recovery tasks, since saving data to the recovery drive might overwrite other data that is in need of recovery. If an error message is displayed when you attempt to save files to the recovery drive, you should save your data to another drive. If you have no other drive available in your computer system, you may recover the data as follows:

Save small files to a floppy disk.

Save files in large-capacity storage media such as ZIP or MO drive.

### **5.6. Photo Recovery is on the way**

Thumbnails are being generated - Please wait.

### **5.7. Can not print due to lack of memory capacity**

This message indicates that there is not sufficient memory for the printing process to continue. Stop printing temporarily and push the print icon again.

## **5.8. Some files are not listed in the folder among other files**

This can happen either when a directory entry is fragmented, or has been overwritten. In this case, it is impossible to recover data to its normal condition.

## **5.9. A file is listed as a “Continuous File”, but it is not recoverable**

A fragmented file can in some cases be marked as a “Continuous File” (especially after formatting, since FAT is rewritten). In some cases, it is not possible to recover data since some data is overwritten.

## **5.10. No files are displayed after scanning a formatted hard disk**

The above condition can be the result of several factors:

- The new disk format is different from the previous file system. (FAT32 to NTFS, or vice versa)
- The disk has been formatted several times.
- A format has been made by adjusting the size of the partition.

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## **6. Glossary**

### **6.1. File System**

A file system is a structure for managing files on magnetic storage media (floppy disk, hard disk). It organizes files and folders by actually corresponding them to the physical disk. A file system is managed with information such as directory entries and FAT (file allocation table).

### **6.2. FAT File System**

The FAT file system is categorized into FAT12, FAT16, and FAT32. FAT12 is the file system used in floppy disks, MS-DOS, Windows 3.1 and Windows 95. Starting with Windows 95 OSR2, both FAT16 and FAT32 are supported.

FAT is an index table indicating data location by cluster. As a safety measure, a duplicate is also kept.

In the FAT file system, a file is assigned to a cluster. When there is a new file, its entry is first created and the start cluster number is assigned. Next, the file's final cluster (EOF) or the next cluster is recorded in the corresponding entry.

### **6.3. NTFS File System**

Windows NT/2000/XP supports NTFS. Compared to FAT, NTFS is an advanced file system in terms of security and reliability.

### **6.4. FAT (File Allocation Table)**

A file is configured in a cluster unit. However, clusters of a single file are not always stored in adjacent physical locations on a disk. Therefore, it is necessary to manage how clusters are linked to constitute a single file. FAT functions perform this task. Each entry in FAT has a 1:1 correspondence with a cluster; so when using such FAT information, a file's location on the hard disk can be identified.

### **6.5. MFT (Master File Table)**

All data is managed in a file structure on volumes formatted for the NTFS system. The MFT (Master File Table) is a file system which has an information table for such files. MFT stores file contents for small files which have less than 1 MB. However for files larger than 1MB, it only keeps a record identifying which cluster the contents of a file resides.

### **6.6. Folder**

A directory is called "a Folder" in Windows. This manual expresses folders for most directories except when referring to a "directory entry", "directory scan", "root directory" and some other special cases.

## **6.7. Directory Entry**

Contains a long file name, extension, file size, MS-DOS file name, modified data/time and the file's start cluster. For files and directories saved in the root directory, the directory entries are saved in the root directory area. However, directory entry of files saved in lower directories are stored in the data area.

## **6.8. Sector**

Magnetic storage media such as hard disks or floppy disks are divided into regions for efficient data identification. The smallest space of a unit's region is referred to as a "sector". A disk track is partitioned into several sectors for management.

## **6.9. Bad Sector**

A sector that can not be read properly, due to damage or magnetic error on its surface. In many cases we may neither be able to read the contents of the bad sector nor the rest of the disk.

## **6.10. Cluster**

One or more sectors form a cluster for recording data. For example, saving a document consisting of a single character as a file requires one cluster.

## **6.11. Root Directory**

Refers to the highest directory in the drive's directory structure. Sub-directories are created under the root directory.

## **6.12. FAT 1**

There are two areas of FAT information on a hard disk. They are: FAT1 and FAT2. FAT2 works as a backup for FAT1 in the case of an unexpected situation. This FAT contains various file information like location, size, name, etc. In general, when a file is deleted only the FAT information about the location of a file will be initialized while the actual data will remain unchanged. When "FAT1" is chosen, data recovery will be enacted based on this FAT information.

## **6.13. No FAT**

Is an option to recover data without referring to any FAT information on a hard disk. For example, when "No FAT" has been chosen for data recovery, fragmented data will be considered as continuous data for file recovery.

## **6.14. Thumbnail**

A thumbnail is a reduced sample of an image file and a small image preview displayed so that the file's contents can be verified before opening.