Introduction the Restorer2000

Restorer2000 is a powerful utility, which can <u>restore files being deleted accidentally</u> from NTFS partitions and even <u>reconstruct formatted and corrupted drives</u>.

Restorer2000 can restore files such non-trivial cases as *national language filenames*, *very long filenames*, *NTFS compressed filenames*, *files with an alternative data streams* - such as Windows 2000 file information.

Unique **SmartScan** technology combined with flexibility of adjusting all parameters gives you real control over fastest data reconstruction ever seen.

Usage of <u>Drive Images</u> is very useful for such tasks as recovering drive with a lot of bad sectors.

Detailed context sensitive information and ability to adjust as most as possible brings you incredible quality and data safety in extremely non-ordinal situations.

You can find and restore deleted files in few seconds using program's powerful algorithms.
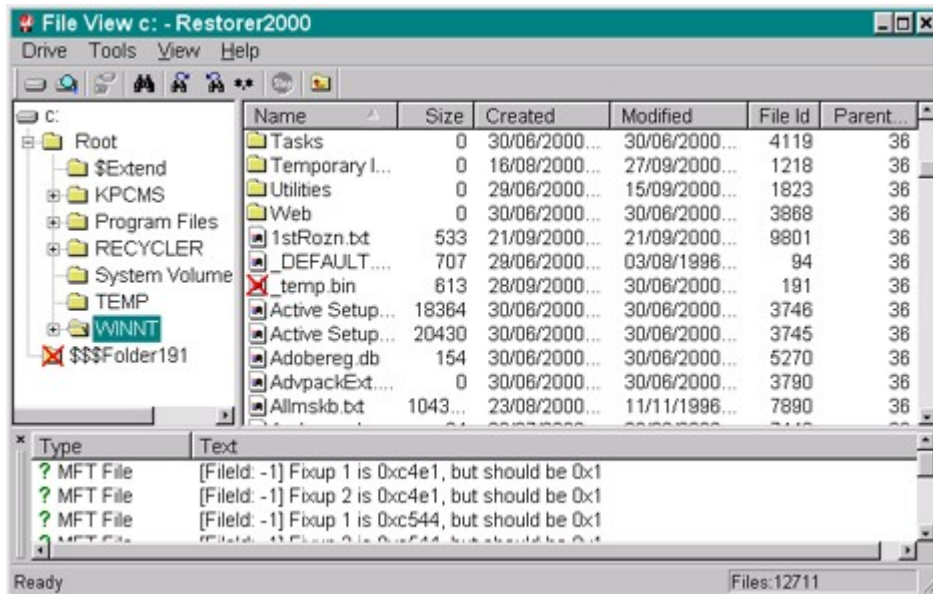
Contact authors

To obtain updates and support for registered users contacts:

Product Site   http://www.restorer2000.com
Tech. Support   <support.r2k@bitmart.net>
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Recovering deleted files

To recover deleted files in three simple steps:

1. <u>Open drive</u>, then <u>open drive's files</u>
   OR
   <u>Open drive</u>, then <u>reconstruct drive</u>, then <u>open partition's files</u>
   OR
   <u>Open drive</u>, then <u>create region</u>, then <u>reconstruct region</u>, then <u>open partition's files</u>
   OR
   <u>Open image</u>, then <u>reconstruct image</u>, then <u>open partition's files</u>
2. <u>Find files</u> using <u>search capabilities</u> or <u>apply filters</u> to show only subset of files or folders.
3. <u>Recover files</u>.

Please, pay attention to the <u>event log</u>, showing useful information about recovering process.

Using regular expressions

Using regular expressions:

Regular expression (regexps) is a notation for specifying patterns of text, as opposed to exact strings of characters. The notation uses literal characters and metacharacters. Every character which does not have special meaning in the regular-expression syntax is a literal character and matches an occurrence of that character. For example, letters and numbers are literal characters. A metacharacter is a symbol with special meaning (an operator or delimiter) in the regular-expression syntax. Metacharacters being accepted by Recover2000:

```
.         Wildcard: any character
*         Repeat: zero or more occurrences of previous character or class
^         Line position: beginning of line
$         Line position: end of line
[class]   Character class: any character in set
[^class]  Inverse class: any character not in set
[x-y]     Range: any characters within the specified range
\x        Escape: literal use of metacharacter x
\<xyz     Word position: beginning of the word
xyz\>     Word position: end of the word
```

For example the following regexp .* matches any string of characters, ^a matches any string beginning with character a.

Drive selection

In order to show drive's files first you are to open the drive.

To open the drive:

1. Click ▭ **Select Drive** button
   OR
   From **Drive** menu choose **Select...**
2. Drive selection window appears:

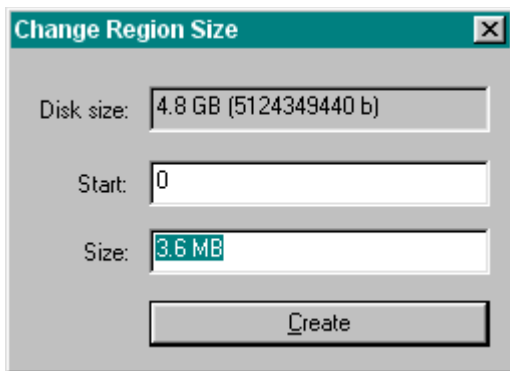| Device/Disk △	Type	FS	Start	Size
QUANTUM...	Physical			6.0 GB
c:	Logical	HPFS/NTFS	31.5 kB	862.8 MB
d:	Logical	HPFS/NTFS	1.2 GB	1.2 GB
e:	Logical	HPFS/NTFS	2.4 GB	1.2 GB
f:	Logical	BIGDOS Fat16	5.6 GB	392.2 MB
j:	Logical	HPFS/NTFS	4.9 GB	760.9 MB
m:	Logical	HPFS/NTFS	4.2 GB	31.3 MB
t:	Logical	HPFS/NTFS	4.2 GB	666.7 MB
x:	Logical	HPFS/NTFS	862.9 MB	329.4 MB
Region ...	Region		0	20 MB
r:	Logical	Unknown		
g:	Logical	Unknown		
a:	Logical	Unknown		
Images				
D:\Some..	Image			31.3 MB

3. Select physical drive, logical drive, region or image.
4. Open drive's files or scan drive for partitions.

Using regions

Drive region is a custom defined area on the drive. It can be used for scanning as well as storage of regular drives.

To create or modify drive region:

1. Select physical drive, logical drive or image.
2. Click ▣ **Create Region** button
   OR
   From context menu choose **Create Region...**
   OR
   From **Drive** menu choose **Create Region...**
3. Region creation / modification dialog appears:

4. Enter **Start** and **Size** of region that will be allocated on underlying drive.
5. Click **Create**.

Using images

Image is a file, which stores a copy of some physical drive, logical drive or region. It can be used for scanning and recognizing as well as storing regular files. Images are very useful for example for recovering drive with a lot of bad sectors and copying drive for later reconstruction.
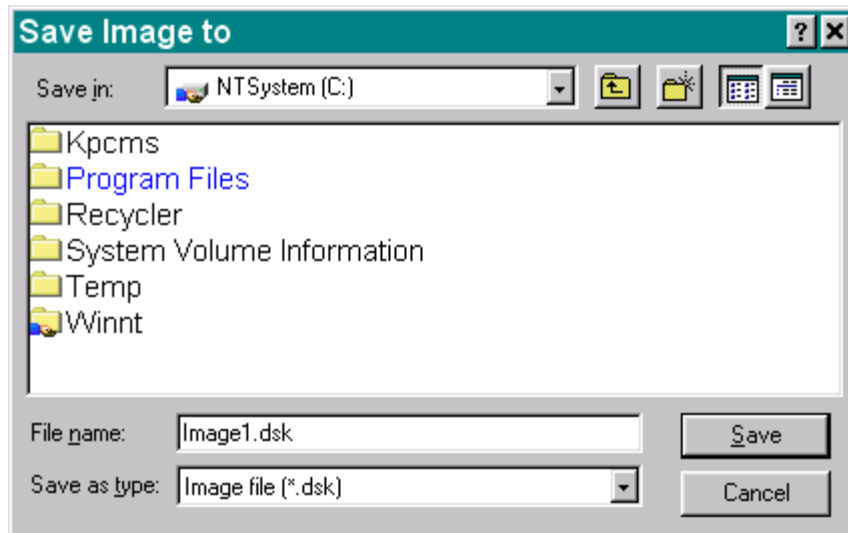
To create drive image:

1. Select physical drive, logical drive or region.
2. From context menu choose **Create Image File...**
   OR
   From **Drive** menu choose **Create Image File...**
3. Standard windows save dialog appears:
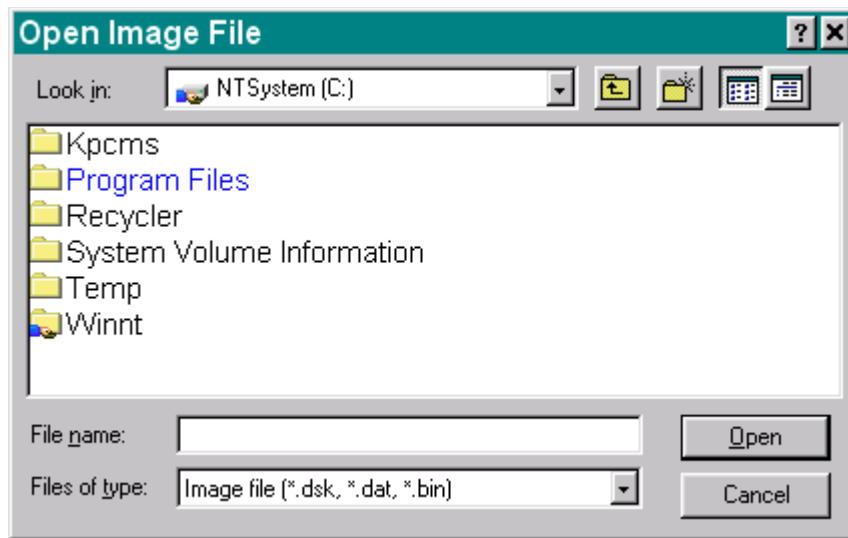

4. Enter **File name**.
5. Click **Save**.

To open image file:

1. Select **Images** folder, from it's context menu choose **Open Image File...**
   OR
   From **Drive** menu choose **Open Image File...**
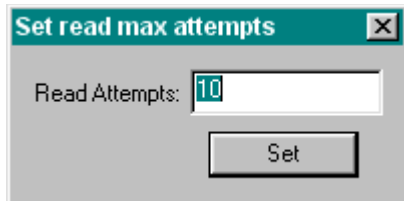2. Standard windows open dialog appears:

4. Enter **File name**.
5. Click **Open**.

Specifying options for the Drive

To set up drive options:

1. <u>Select physical drive or logical drive.</u>
2. From **Drive** menu choose **Set Read Attempts...**
    OR
    From context menu choose **Set Read Attempts...**
3. **Set Read Attempts** dialog appears:

4. Enter number of read attempts.
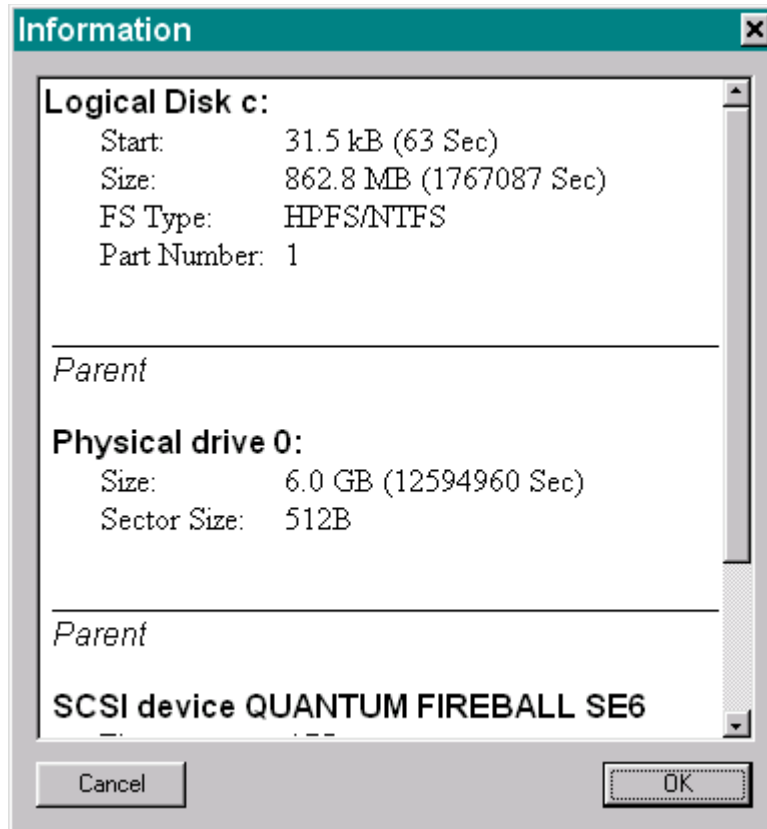5. Click **Set**.

Getting drive info

To explore drive information:

1. <u>Select physical drive, logical drive, region or image.</u>
2. From context menu choose **Info...**
     OR
     From **View** menu choose **Info...**
3. **Drive Information** window appears:

4. Explore information on selected logical drive as well as it's physical parent drives.
5. Click **OK**.

Scanning drive for partitions

Drive can be scanned for partitions in case of corrupted or erased partition tables or drive's physical failure.

To scan drive for partitions:

1. Select physical drive, logical drive, region or image.
2. Click ![scan] **Scan** button
   OR
   From context menu choose **Scan**
   OR
   From **Drive** menu choose **Scan**
3. Progress indicator appears:

| Scanning : | ██████ | File Groups:46 | |

4. Wait until progress indicator reaches right side or terminate scanning process using ![stop] stop button.
5. Proceed with scanned partitions

Managing partitions

Recognized partitions appear after __scanning drive__ in **partitions window**:

Number	Origin	Start	EstSize	MaxSize	Cluster	MFTRec
0	BF	0	31.3 MB	31.3 MB	2 kB	1 kB
1	O	20 MB	20 MB	30 MB	512B	1 kB

Each partition is represented by it's fields:

Origin   Represents method(s) used to recognize this partition. Possible methods are:
       B - partition was created by boot record
       F - partition was created while analysis of drive's files
       O - other partition(s)
Start   Start position of partition on underlying drive
EstSize   Estimated size of partition
MaxSize   Maximum size of partition
Cluster   Size of partition's cluster
MFTRec   Size of partition's MFT record

Start, **EstSize** and **MaxSize** fields affect the way of belonging files to one or more partitions.
If file was used to create some partition (see origin's **F** option) it belongs only to this partition.
If file fits to (**Start**,**Start**+**EstSize**) interval of some partition it belongs only to this partition.
Otherwise file belongs to all partitions where it fits to (**Start**,**Start**+**MaxSize**) interval.

You can __open partition's files__ or manage partitions the following way:

To add new partition:
1. From context menu choose **Add New Partition...**
     OR
     From **Drive** menu choose **Add New Partition...**
To change partition:
1. Select partition.
     Click ↔ **Edit** button
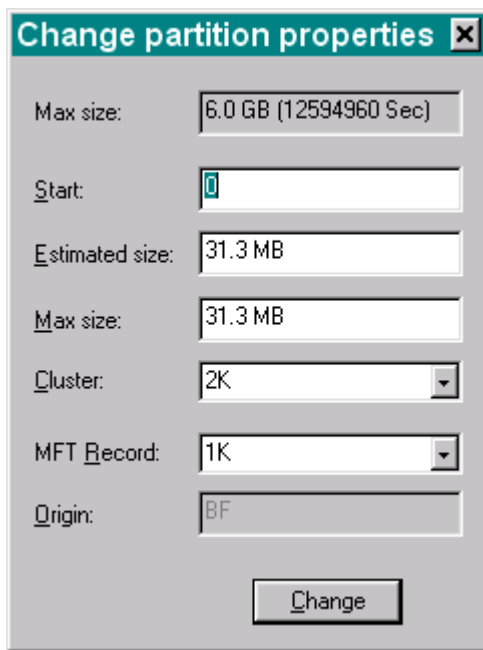   **OR**
     From context menu choose **Edit...**
       OR
     From **Tools** menu choose **Edit...**

2. Partition creation / modification dialog appears:

Change partition properties ☒

Max size:	6.0 GB (12594960 Sec)
Start:	0
Estimated size:	31.3 MB
Max size:	31.3 MB
Cluster:	2K ▾
MFT Record:	1K ▾
Origin:	BF

Change

3. Enter information about fields for the partition.
4. Click **Change**.

To delete partition:
1. Click ☒ **Remove Partition** button
     OR
   From context menu choose **Remove Partition**
        OR
   From **Tools** menu choose **Delete...**

To reset partitions to default:
1. From context menu choose **Reset Partitions List**
     OR
   From **Drive** menu choose **Reset Partitions List**

Openning drive files
To show files and folders on the drive:

1. Select physical drive, logical drive, region, image or found partition.
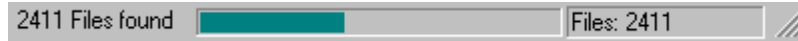2. Click 🔍 **Open Drive Files** button
   OR
   From context menu choose **Open Drive Files**
   OR
   From **Drive** menu choose **Open Drive Files**
3. Progress indicator will appears:

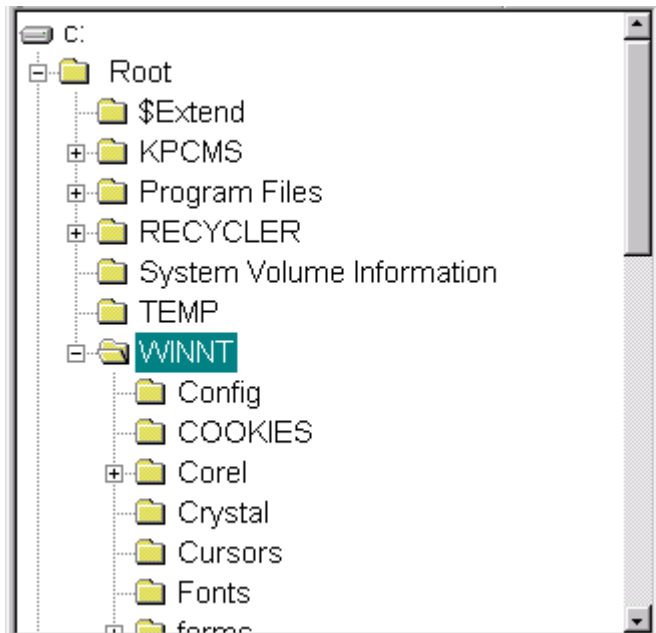 | 2411 Files found | ████████ | Files: 2411 | // |

4. Wait until progress indicator reaches right side or terminate scan process using 🛑 stop button.
5. Explore files and folders presented on the drive.

Exploring files

Drive's files and folders appear after <u>opening drive</u> in **folders window**:

```
🖳 c:
└─📂 Root
     ├─📁 $Extend
     ├─⊞📁 KPCMS
     ├─⊞📁 Program Files
     ├─⊞📁 RECYCLER
     ├─📁 System Volume Information
     ├─📁 TEMP
     └─⊟📂 WINNT
          ├─📁 Config
          ├─📁 COOKIES
          ├─⊞📁 Corel
          ├─📁 Crystal
          ├─📁 Cursors
          ├─📁 Fonts
          └─⊞📁 forms
```

and **files window**:

| Name	Size	Created	Modified	File Id
📁Tasks	0	30/06/2000...	30/06/2000...	4119
📁Temporary In...	0	16/08/2000...	27/09/2000...	1218
📁Utilities	0	29/06/2000...	15/09/2000...	1823
📁Web	0	30/06/2000...	30/06/2000...	3868
📄1stRozn.txt	533	21/09/2000...	21/09/2000...	9801
📄_DEFAULT.PIF	707	29/06/2000...	03/08/1996...	94
✗_temp.bin	613	28/09/2000...	30/06/2000...	191
📄Active Setup ...	18364	30/06/2000...	30/06/2000...	3746
📄Active Setup ...	20430	30/06/2000...	30/06/2000...	3745
📄Adobereg.db	154	30/06/2000...	30/06/2000...	5270
📄AdvpackExt.log	0	30/06/2000...	30/06/2000...	3790
📄Allmskb.txt	104313	23/08/2000...	11/11/1996...	7890
📄Andrey.acl	34	06/07/2000...	06/09/2000...	7449
📄ao97pr.ini	806	06/07/2000...	16/08/2000...	7488
📄ARTGALRY....	2	17/03/1997...	17/03/1997...	2717

You can:
- <u>Search for files and directories</u>
- <u>Set filter for files and folders</u>
- <u>Recover files or folders</u>
- <u>Select another drive to be explored</u>

Searching files

To search for files or folders:

1. Click ᴬᴬ **Find** button
    OR
    From **Tools** menu choose **Find...**
2. **Find dialog** appears:
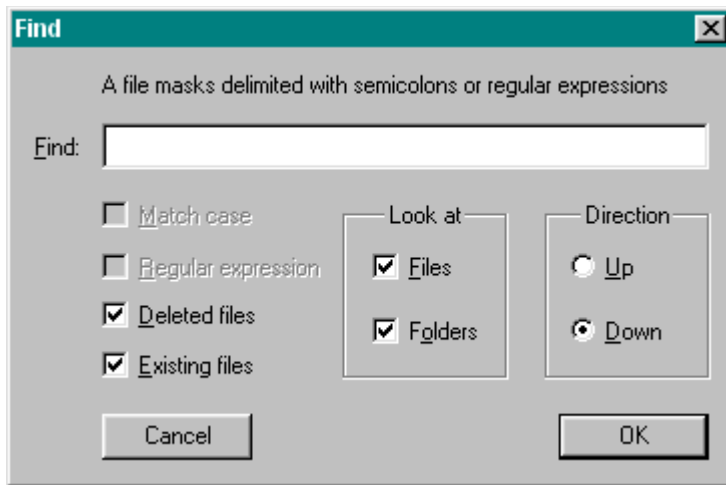
3. In **Find** field enter filename to be searched.
4. In **Match case** and **Regular expression** field select pattern for search.
5. In **Deleted files** and **Existing files** check boxes and **Look at** groupbox according to type of files to be searched.
6. In **Direction** groupbox select direction of search.
7. Click **OK**

Repeating search

1. To find next file by specified search criteria:

Click ![icon] **Find Next** button
OR
From **Tools** menu choose **Find Next**

2. To find previous file by specified search criteria:
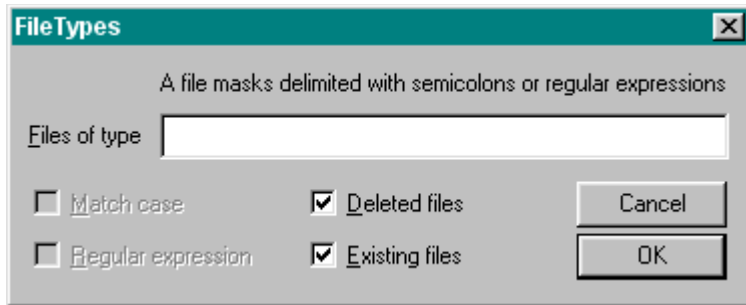
Click ![icon] **Find Previous** button
    OR
From **Tools** menu choose **Find Previous**

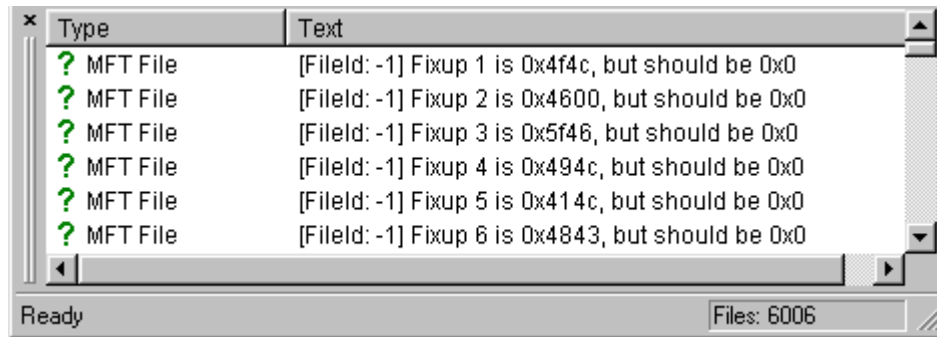## Setting files filters
To set up filter for files and folders:

1. Click ✳✳ **File Mask** button
   OR
   From **Tools** menu choose **File Mask...**
2. **File types** dialog appears:

3. In **Files of type** field enter filemask to be shown.
4. In **Match case** and **Regular expression** field select kind of filtering.
5. In **Deleted files** and **Existing files** check boxes according to type of files to be showed.
6. Click **OK**

Event log

At bottom of the main window **Event Log** panel appears:

Type	Text
? MFT File	[FileId: -1] Fixup 1 is 0x4f4c, but should be 0x0
? MFT File	[FileId: -1] Fixup 2 is 0x4600, but should be 0x0
? MFT File	[FileId: -1] Fixup 3 is 0x5f46, but should be 0x0
? MFT File	[FileId: -1] Fixup 4 is 0x494c, but should be 0x0
? MFT File	[FileId: -1] Fixup 5 is 0x414c, but should be 0x0
? MFT File	[FileId: -1] Fixup 6 is 0x4843, but should be 0x0

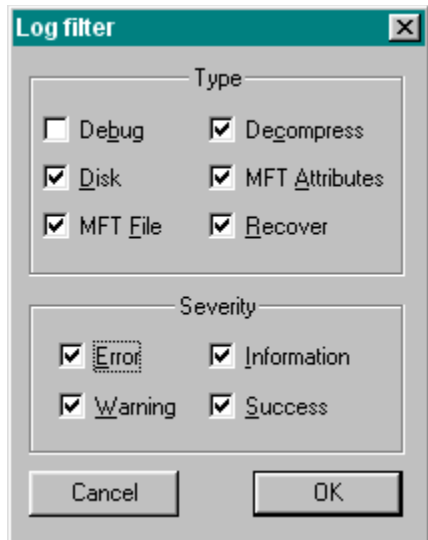Ready   Files: 6006

It shows vital information about events while restoring process.

Managing event log

To set up filter for event log:

1. From **Tools** menu choose **Log filter...**
2. **Log filter** dialog appears:

3. In **Type** groupbox select types of events to be shown.
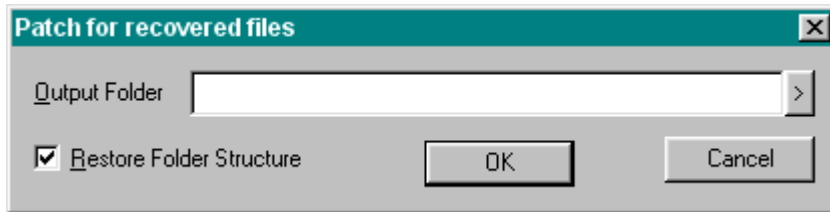4. In **Severity** groupbox select severity of events to be shown.
5. Click **OK**

To clear event log:

1. From **Tools** menu choose **Clear Log**.

Recovering files

To recover files or folders:

1. Select files and/or folders to be recovered.
2. Click ![icon] **Recover** button
   OR
   From context menu choose **Recover...**
   OR
   From **Tools** menu choose **Recover...**
3. **Patch for recovered files** dialog appears:

4. In **Output Folder** field enter folder where recovered files will be saved.
5. Check **Restore Folder Structure** checkbox to recover files and directories with folder structure, otherwise files will be recovered to **Output Folder** *without subfolder reconstruction*.
6. Click **OK**

SmartScan is a unique technology for fast disk structure restoring. The data is restored from the information obtained from disk scan. A physical or logical disk, disk region, or disk image saved as a file can be scanned. **SmartScan** can restore all previous partitions if the scanned disk has some direct or indirect data on those partitions. **SmartScan** allows you to interactively control and modify these data during scanning.