

UNFORMAT

User Guide

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1.0 Product Overview

This chapter gives an overview of Active@ UNFORMAT.

1.1 About UNFORMAT

Active@ UNFORMAT is a versatile utility that will help you recover data from a physical device or a logical drive that has been:

- accidentally formatted
- recently deleted
- recently deleted and re-created

Major features and functionality of UNFORMAT:

- Creates a disk image for the selected drive or device that can be:
 - restored back to the starting point if data recovery is impossible
 - scanned repeatedly to try other recovery methods
- Scans the device or logical drive and finds all partitions (existing, deleted or re-formatted)
- Displays scan results in a format that allows you to browse folders and files and determine recovery status
- Recovers a selected partition, or data from it using one of the following methods:
 - Physical recovery: fixes boot sectors and Master Boot Record; a quick method but not always successful
 - UNFORMAT: formats a target partition and copies all data from a disk image of the damaged partition to a new formatted drive
 - Copy: copies data from the damaged partition to a folder on a different local drive, or to a network folder

1.2 Requirements for Using UNFORMAT

To use UNFORMAT, you must have the following:

- Pentium processor 300 MHz (or higher)
- 128MB RAM (or more)
- Windows XP operating system (or later)

In addition to the above, you must be able to lock access to the target drive. That means that you must close all open files on this drive and do not access this drive using Windows Explorer.

1.3 Data Recovery Tips

After you discover a formatted or deleted drive or device, it is important that you take steps to protect the data that you want to recover.

DO NOT WRITE ANYTHING ONTO THE DRIVE THAT CONTAINS YOUR IMPORTANT DELETED DATA!

When you install software, you write data onto the disk. This can destroy your deleted data. If you have only one logical drive, physically remove the hard drive from the computer and install it as a second logical drive on another computer where data recovery may be possible.

2.0 Using UNFORMAT

After you start UNFORMAT, a dialog box appears showing that the application is looking for all devices and disk image files in your system. Then the UNFORMAT workspace appears.

Unformatting a drive or a device is a 5-step process.

- Step 1 – Identify drive, device or disk image
- Step 2 – Create disk image
- Step 3 - Scanning the drive
- Step 4 – View scan results
- Step 5 – Unformat/Copy

2.1 Step 1 – Identify drive, device or disk image

In this step, you simply select the disk that you want to work with.

In the UNFORMAT workspace, a list of items appears. The content of this list depends on which of three options you have selected:

- Logical Drives
- Physical Devices
- Disk Images

2.1.1 Working with Logical Drives

If you have just formatted an existing drive and not changed any other drive parameters, use the Logical Drives option.

To work with a logical drive, at the bottom of the workspace select Logical Drives. All logical drives appear in the list, showing the drive name, drive letter, size of the drive and the date that the drive was formatted.

The drive with the most recent formatted date is selected.

This view is a console from which you may use features to help you choose the correct logical drive:

- To look for and scan all logical drives again, click Refresh.
- If you plug in a new drive into a USB port, the list of logical drives is refreshed automatically.
- To see more detail, click Advanced View.
- To set Step 1 options, click Options.

After you have selected a logical drive, click Next to go to the next step.

2.1.1.1 Advanced View – Logical Drives

The advanced view shows a tree view of folders (Drive Tree) and a list view of folder contents and attributes.

To display the details of a different logical drive, select a different drive.

To display the contents of a folder, in the Drive Tree, select the folder.

To make details easier to read, you may make the following adjustments:

- To change the height of Advanced View panel, click and drag the top edge of the panel.
- To change the width of the tree view panel, click and drag the right edge of the tree view.
- To change the width of a column, click and drag the right edge of the column header.
- To sort the list view by a column, click the column header.
- To reverse the sort order of a sorted column, click the column header a second time.

To close Advanced View, click Simple View.



Note Information that appears in Advanced View is displayed to help you identify the partition or the device that you want to restore. After you click Next, the entire logical drive is scanned.

2.1.2 Working with Physical Devices

Work with the physical device when you have deleted a partition (a logical drive), or if you have deleted a partition and then re-created it using a different drive size or a different offset. In either case, if a partition does not appear in Logical Drives option, scanning the physical device is the only way to find the partition.

To work with a physical device, at the bottom of the workspace select Physical Devices. All physical devices appear in the Physical list, showing the device name, size and the drive letter for each detected logical drive.

You must select a device from the list.

This view is a console from which you may use features to help you choose the correct device:

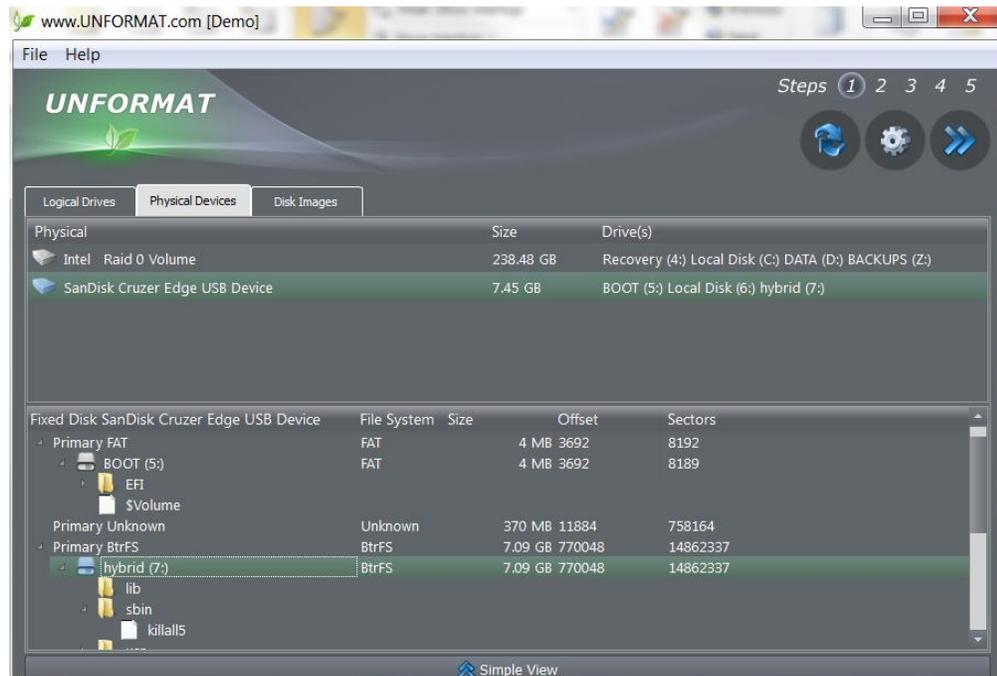
- To look for and scan all physical devices again, click Refresh.
- If you plug in new drive into a USB port, the list of physical devices is refreshed automatically.

2.1 Step 1 – Identify drive, device or disk image

- To see more detail, click Advanced View.
- To set Step 1 options, click Options.

2.1.2.1 Advanced View – Physical Devices

The advanced view shows a list view of physical devices, partitions and partition attributes.



To display the details of a physical device, select one in the Physical list.

To make details easier to read, you may make the following adjustments:

- To change the height of Advanced View panel, click and drag the top edge of the panel.
- To change the width of a column, click and drag the right edge of the column header.
- To easily read the attributes of a partition, select the partition row.

To close Advanced View, click Simple View.



Note Information that appears in Advanced View is displayed to help you identify the partition or the device that you want to restore. After you click Next, the entire physical device is scanned.

2.1.3 Working with Disk Images

To work with a disk image that you have already created, at the bottom of the workspace, click Disk Images. All detected disk images appear in the

Disk Image list, showing attributes of each disk image. The most recently created disk image is selected.

To delete a disk image from the list, along with all scan results, logs and any other files related to that disk image, click Permanently delete Disk Image.

This view is a console from which you may:

- Add a disk image from another location (Add)
- Display advanced information about the selected disk image (Advanced View)
- Restore a disk image to a logical drive or a physical device

2.1.3.1 Adding a Disk Image

You may add an existing disk image from any location. A single disk image file has the file extension .DIM.

As well, you may manually assembly a disk image from a disk image that has been split into chunks. These raw chunks can be created by any third-party program (for example, [Active@ Disk Editor](#)) and can have any file extension. Common file extensions are .RAW and .IMG.

To add a disk image from another folder:

1. Click Add. The Add image dialog box appears.
2. To load a disk image from a single file:
 - Select the Load Image check box.
 - Click the ellipsis (...), browse to the folder and select the disk image file.
 - Click Open. The path to the disk image appears in the Load Image box and the OK button is enabled.
3. To load a disk image from individual files:
 - Select the Custom check box.
 - In Name, give the set of individual files a descriptive name.
 - To add files to the list from another folder, click Add, browse to the folder and select the files.
 - Click Open. Selected files appear in the list and the OK button is enabled.
 - To remove a file from the list, select it and click Remove.
 - To change the order of a file, select it and click Move Up or Move Down.
 - To indicate the type of image that you are restoring, select either Physical Device or Logical Drive (Partition).

2.1 Step 1 – Identify drive, device or disk image

- The size of a hardware sector for most disks is 512. If your sector size is different, select a size from the Bytes per Sector drop-down list.
 - Disk size information appears in Total Sectors.
 - To change the total number of sectors, click the up or down scroll arrows, or type a new total in the Total Sectors box.
 - To undo changes that you made to Total Sectors, click Set Default.
4. Click OK. The disk image file name or the custom image name appears in the Disk Image list, depending on which type you selected.

2.1.3.2 Advanced View – Disk Images

The Advanced View shows a list view of physical devices, partitions and partition attributes.

To display the details of a physical device, select one in the Physical list.

To make details easier to read, you may make the following adjustments:

- To change the height of Advanced View panel, click and drag the top edge of the panel.
- To change the width of a column, click and drag the right edge of the column header.
- To easily read the attributes of a partition, select the partition row.

To close Advanced View, click Simple View.



Note Information that appears in Advanced View is displayed to help you identify the partition or the device that you want to restore. After you click Next, the entire disk image is scanned.

2.1.3.3 Restoring a Disk Image

If you have made an attempt to recover data with unsatisfactory results, you may restore the drive to its original condition before the Unformat process. We advise you to create a disk image for the original drive before you start scanning for and recovering deleted files. You can recover deleted files and folders from this disk image.

To restore a disk image back – simple mode:

1. Select a disk image from the Disk Image list.
2. Click Restore Disk Image. A confirmation message appears.
3. Click Yes. The Restoring Image progress bar page appears.
 - Various status messages appear above the progress bar.
 - Text messages about the restore process appear in the list below the progress bar.

4. To stop the restore process, click Stop at any time.
5. After the process is complete, the message “Image restored successfully” appears in the text message area.
6. Click Back to return to Step 1.

To restore a disk image back – expert mode:

1. Select a disk image in the Disk Image list.
2. Select the Restore Image Expert Mode check box.
3. Click Restore Disk Image. A confirmation message appears.
4. Click Yes. The Restoring Image progress bar page appears.
 - To be certain that you have selected the correct disk image, view the detailed description on the left.
5. In the Destination panel, select a logical drive. This is the place where you want to write the restored disk image.
6. Click Next. The Restore Image progress bar appears.
 - Various status messages appear above the progress bar.
 - Text messages about the restore process appear in the list below the progress bar.
7. To stop the restore process, click Stop at any time.
8. After the process is complete, the message “Image restored successfully” appears in the text message area.
9. Click Back to return to Step 1.

Click Restore Disk Image back – to revert unformatting results (if any), thus restoring original drive/device configuration.



Note If two identical devices exist, you cannot restore data to either device. If you have two identical devices, to restore data, you must physically remove one of the devices.

2.1.4 Options – Step 1

When you click Options, the Step 1 – Options page appears.

In the left panel, a list of logical drives appears – including network drives. The drive with the most free space available is selected.

2.1 Step 1 – Identify drive, device or disk image



To set options:

1. In the left panel, select the drive where a disk image may be stored. You should select the drive with the most free space available.
2. Indicate what action to take if the target disk runs out of space while saving the disk image:
 - Request more space
 - Continue scan and do not recover data
 - Continue recovering data
3. Indicate what kind of scan to use when looking for drives:
 - QuickScan first and SuperScan if needed
 - SuperScan only
4. Select the default scan mode:
 - Create a Disk Image first before performing a scan. This mode creates a backup copy of your original data and you will be able to rollback any changes to physical partition structure later on (if needed)
 - Work directly with a physical device. This mode allows you to recover a partition in-place (quick unformat, but is not always successful) as well as to copy data from a deleted/damaged partition to another safe location
5. If needed, load User-Defined File Signatures to be recognized while SuperScan is in progress. Click Load Signatures button, and select a text file, containing signatures definition. See file Custom_Signatures.txt,

located in the installation folder for scripting language definition and examples of signatures programming.

6. Click Apply.

All options are saved and used each time you run UNFORMAT.

2.2 Step 2 – Create a Disk Image

To advance to step 2, in step 1 select a logical drive or a physical device and click Next. The Step 2 Disk Image Progress page appears.

Click Stop to stop the disk image process at any time.



Note This step is executed only when you selected a scan mode that starts from creating a Disk Image. Creating a Disk Image is recommended, because you can rollback any changes to physical partition structure later on, however it takes time and requires a lot of disk space available. Check the Options to verify default scan mode.

2.3 Step 3 - Scanning the Drive

After the disk image has been created, the disk content is scanned automatically. A progress bar is displayed for the scan. Messages about partition status or about detected errors are displayed on the page.

UNFORMAT uses either QuickScan or SuperScan. If you choose QuickScan in Step 1 options, QuickScan is run first. If QuickScan fails to find non-empty partitions, SuperScan is launched automatically. If you choose SuperScan in Step 1 options, then SuperScan is the only scan that runs.

After the scan is completed, scan results are automatically saved to a file in the directory where the disk image is located. With this record combination of the disk image and scan results, if the original recovery attempt is not successful, you may re-use the original information in the future for a different type of recovery. Original scan results can be loaded quickly to avoid another time-consuming disk scan process.

After a complete scan, UNFORMAT advances automatically to Step 4.

2.3.1 Stopping the Scan

You may click Stop to stop the disk scan process at any time.

2.4 Step 4 – View Scan Results

If you stop the scan, although results are not complete, scan results are saved to a file in the directory where the disk image is located. These scan results can act like a bookmark. If you start the scan for this drive or device again, the scan resumes from the bookmark place.

After you stop a scan, you may click Back to return to Step 1 or click Next to advance to Step 4.

If you are looking for a partition on a physical device, the partition information can be detected at the beginning of the scan. If you advance to Step 4, you may be able to view a deleted or damaged partition without scanning the entire device.

2.4 Step 4 – View Scan Results

In this step, you select a device or a partition and start the recovery process.

This view is a console from which you may use features to help you choose the correct device or partition for data recovery.

- To scan the selected drive or device again, click Refresh.
- To scan the selected drive or device using SuperScan, click SuperScan.
 - If the Step 3 QuickScan process did not detect any partitions, or if empty partitions were detected, you may click SuperScan button and run the advanced disk scan (SuperScan) to try to detect more data.
 - If SuperScan was performed in Step 3, the Re-Scan Low Level is disabled.
- To see more details of the scanned device or partition, click Advanced View.
- To set Step 4 options, click Options.
- To return to Step 1, click Back.

2.4.1 Files Detected by Signatures

SuperScan can detect files by file signatures. If no partition is detected and some file signatures are detected, you may be able to recover files and the data that they contain without the partition and the folder hierarchy.

If files are detected in this way, they appear in a virtual folder (Files detected by Signatures) in the Detected Drive list under all detected partitions.



Note Recovering file data by detecting file signatures is your last chance for recovering data. UNFORMAT has more than 100 standard built-in file signatures to be detected (DOC, XLS, JPG, MP3, ...). To define and recover files based on user-defined signatures, load signatures definition from text file in Options on Step 1. See

Custom_Signatures.txt file, located in the installation folder, for scripting language definition and usage examples.

Without the partition, the folder hierarchy and file names, the recovered data will not have a familiar appearance. For example, each file name will be in the format "File0000123.DOC" instead of the familiar file name that was destroyed along with the partition. To find out what is in each file, you will have to open each one. For some file types, for example MP3 music files, it is possible to detect internal attributes, and if this happens, a proper file name has been displayed.

2.4.2 Advanced View – Scan Results

The advanced view shows a tree view of a scanned drive or device. Select a tree node to easily display the contents of that node in the right panel.

To make details easier to read, you may make the following adjustments:

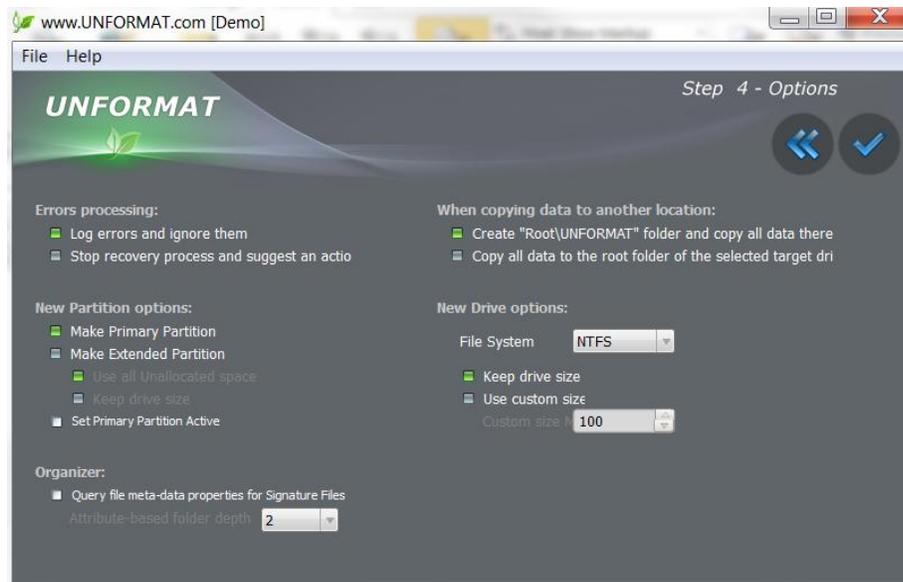
- To change the height of Advanced View panel, click and drag the top edge of the panel.
- To change the width of the tree view panel, click and drag the right edge of the tree view.
- To change the width of a column, click and drag the right edge of the column header.

To close Advanced View, click Simple View.

2.4.3 Options – Step 4

When you click Options, the Step 4 – Options page appears.

2.4 Step 4 – View Scan Results



To set options:

1. To deal with errors, in Errors processing do one of the following:
 - To run the recovery process without interruption, select Log errors and ignore them. Errors will be saved to a log file.
 - To stop the recovery process on each error, select Stop recovery process and suggest an action.
2. To set a default location for copying data, in When copying data do one of the following:
 - Copy all data to the root folder of the selected target drive.
 - Create "Root\UNFORMAT" folder and copy all data there.
3. To set partition options for the unformatted drive, in New partition options do the following:
 - To make this partition the primary partition, select Make Primary Partition.
 - To make this partition an extended partition, select Make Extended Partition. The remaining controls are enabled.
 - To create an extended partition using all available space and recover the Detected drive as a logical volume, select Use all Unallocated space.
 - To create an extended partition using the same size as Detected drive, select Keep drive size.
 - To use the recovered partition as the drive's active partition, select the Set Primary Partition Active check box. The computer will boot from the active partition.
4. To set other drive options, in New Drive options, do the following:

- To set the file system, select one from the File System drop-down list.
 - To create a partition using the same size as Detected drive, select Keep drive size.
 - To set a custom drive size in megabytes, select Use custom size and indicate the size in the Custom size MB box.
5. To display extended file attributes (for files detected by their signatures) and Organizer button, check Query file meta-data properties checkbox.
 6. Click Apply. All options are saved to a configuration file and will be remembered the next time you use Active@ UNFORMAT.

2.4.4 Recovery Types

After you have set Step 4 options, you may recover data one of three ways:

- Physical Recovery
- Unformat volume
- Copy data to another location

After you have selected a drive and a recovery type, click Next to go to the next step.

2.4.4.1 Physical Recovery

This list view is a simple display of partitions.

The Scan Results list displays all detected partitions with Excellent likelihood of data recovery – and no details.

When you select a partition from the Scan Results list, the Next button is enabled.

2.4.4.2 Unformat volume

This is the standard, detailed display of partitions.

All detected drives appear in the Detected Drive list. Each item in the list is ranked according to the likelihood of successful data recovery. Those items with an Excellent likelihood status appear at the top of the list.

If any files are detected by reading file signatures, the size of the total of these files appears in a separate line.

The right panel Target contains a tree view that shows all system devices and their partitions, including unallocated areas. If you select a different item in the left panel, the most suitable drive is selected automatically in the right panel. The selected drive is called the unformat Target.

2.4 Step 4 – View Scan Results

In the right panel, when you select a suitable target, the Next button is enabled. If you select a target that is not suitable, the Next button is disabled. This prevents you from unformatting the wrong partition.

2.4.4.3 Copy all data to another location

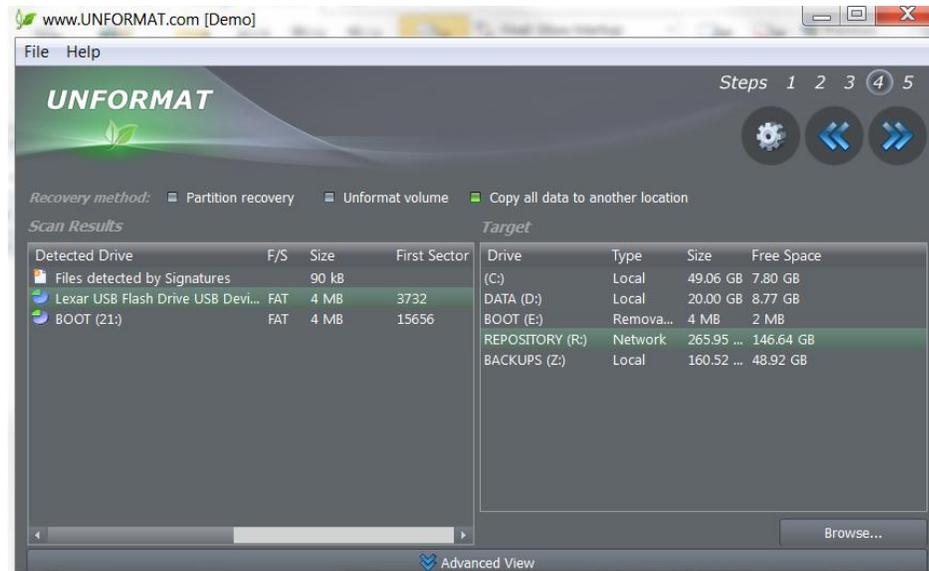
All detected drives appear in the Detected Drive list. Each item in the list is ranked according to the likelihood of successful data recovery. Those items with an Excellent likelihood status appear at the top of the list.

If any files are detected by reading file signatures, the size of the total of these files appears in a separate first line.

The right panel Target contains a list of all system devices, showing size and free space. The selected drive is called the Copy Target. Copy Target can be a local volume, USB disk, or even a Network Mapped disk.

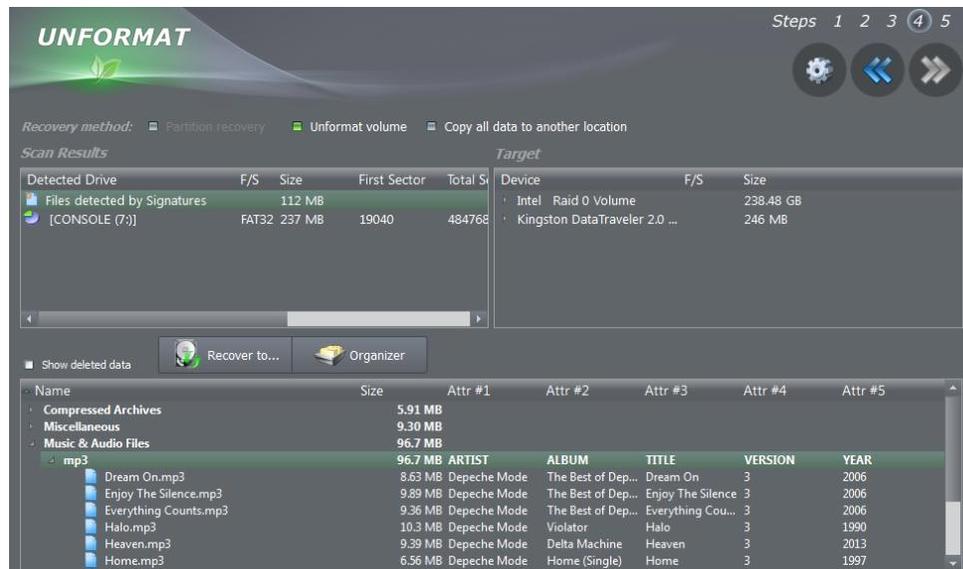
To select a specific folder that does not appear in this list, click Browse... Select the folder, or create a specific folder. This folder is added to the Copy Target list.

If you click Next button, all data from the selected drive will be recovered.



Note If you do not want to copy from the drive all the data, but just some folders and files, click Advanced View button, select a folder or file you want to recover, and click Recover to... button.

By default only existing items are displayed in the Advanced View. Click "Show deleted data" checkbox to display both deleted and non-deleted files and folders.

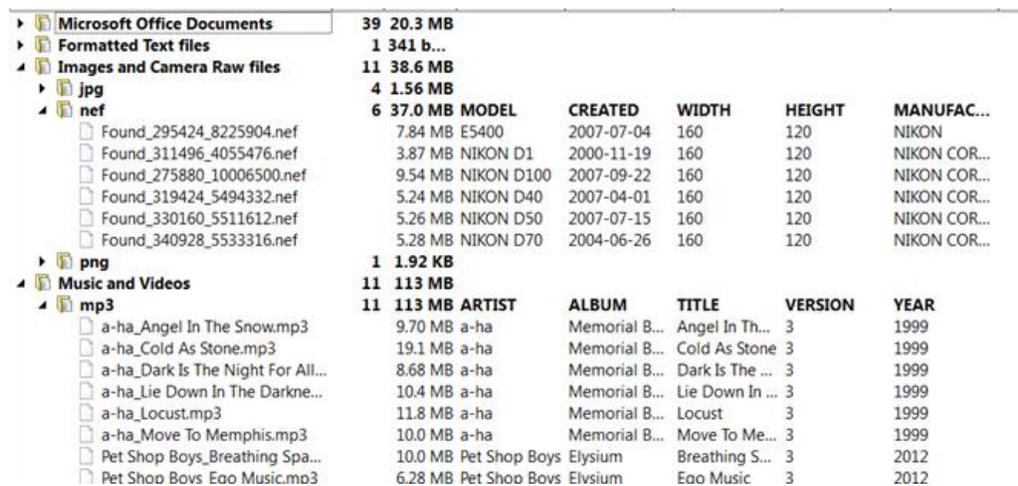


2.4.5 To organize and recover files detected by signatures:

Select Files detected by signatures in the Scan Results panel.

Click Advanced View to display Signature files.

Expand general groups (Music, Documents) and specific sub-types (MP3, XLS,..) to inspect what is detected, for example you see:



If file detected by signatures has some extended attributes, like AUTHOR, CREATED, TITLE, etc., these attributes will be displayed on the right. By default the only 5 first detected file attributes being displayed.

If you want to hide some attributes or change display order, click Reorganize Attributes button on the toolbar. Dialog appears and you can change the attribute for the particular file type (MP3, XLS, ...) to be displayed in the particular column on the screen. For example, default column order for

2.4 Step 4 – View Scan Results

music is Artist, Album, Title, Genre, Year,... To group MP3 first by Year, then by Artist, then by Album, change column order this way:



Click Apply and you'll see your files have been re-organized this way:



	11	113 MB				
	11	113 MB	YEAR	ARTIST	ALBUM	TITLE
a-ha_Angel In The Snow.mp3	9.70 MB	1999	a-ha	Memorial B...	Angel In Th...	
a-ha_Cold As Stone.mp3	19.1 MB	1999	a-ha	Memorial B...	Cold As Stone	
a-ha_Dark Is The Night For All...	8.68 MB	1999	a-ha	Memorial B...	Dark Is The ...	
a-ha_Lie Down In The Darkne...	10.4 MB	1999	a-ha	Memorial B...	Lie Down In ...	
a-ha_Locust.mp3	11.8 MB	1999	a-ha	Memorial B...	Locust	
a-ha_Move To Memphis.mp3	10.0 MB	1999	a-ha	Memorial B...	Move To Me...	
Pet Shop Boys_Breathing Spa...	10.0 MB	2012	Pet Shop Boys	Elysium	Breathing S...	
Pet Shop Boys_Ego Music.mp3	6.28 MB	2012	Pet Shop Boys	Elysium	Ego Music	
Pet Shop Boys_Everything Me...	9.40 MB	2012	Pet Shop Boys	Elysium	Everythingq ...	

To recover files detected by Signatures, select the particular file or group of files, or even all signature files and click Recover to... button.

On Options dialog you can use Organize by file meta-data option to group files in folders based on attributes (meta-data). Use Attribute-based folder depth parameter to organize recovered files in a specified number of sub-folders. For example, for the MP3 files default columns are Artist, Album, Title and default folder depth is 2. When you recover MP3s using default parameters, your music files will be organized first by Artist, then by Album, so all album songs will be in one folder. If you reorganize columns display like in example above (Year, Artist, Album,...) and specify folder depth 3, after recovery you'll have music grouped in folders first by Year, then by Artist, then by Album.



Note If the file system of the unformat target is different from the file system of the original data, some files and file attributes may be lost.

2.5 Step 5 – Unformat / Copy

When file recovery starts, the Step 5 progress bar appears.

You may click Stop at any time to stop the recovery process.

The Unformat process does the following:

- Deletes the existing partition
- Creates a new partition
- Formats the new partition
- Copies files from the disk image to the new partition

When the process is completed, there is a message dialog that tells you about status (successful or un-successful) of the operation.

If your data recovery was not successful, click Back to go to Step 4. You may try a low-level scan or change options and try recovery again.

If your data recovery was successful, click Finish. The application closes.



Note If two identical devices exist (for example, two USB devices with the same model number and the same number of sectors on the drive), you cannot restore data to either device. If you have two identical devices, to restore data, you must physically remove one of the devices.

3.0 Glossary

active partition Primary partition on a hard drive that typically contains and boots the operating system.

exclusive access Lock that is applied to a partition for exclusive writing access. For example, while recovering deleted or damaged files or folders, the recovery operation must have exclusive access to the target partition while recovering files. If another application or the operating system is using the target partition, you must close all applications or system processes that may be using the target partition before you may lock it.

extended partition Partition that is not formatted and has no drive letter. An extended partition is useful if you want to create more than four volumes on a hard disk. You may create one or more logical drives within an extended partition. After you create the logical drive, you format it and assign it a drive letter.

FAT File Allocation Table. File that contains the records of every other file and directory in a FAT-formatted hard disk drive. The operating system needs this information to access the files. There are FAT32, FAT16 and FAT versions.

file signature Code that identifies the type of file, normally found in the first 20 bytes of the file. To recover data from files, match file signatures against file extensions and then recover data in that file format.

MBR Master Boot Record. All disks start with a boot sector. When you start the computer, the code in the MBR executes before the operating system is started. The location of the MBR is always track (cylinder) 0, side (head) 0, and sector 1. The MBR contains a file system identifier.

NTFS New Technology File System. Developed by Microsoft after the FAT file system, it is the preferred file system for Microsoft Windows operating systems. NTFS has improved support for metadata and the use of

advanced data structures to improve performance, reliability, and disk space utilization.

offset Starting address location of a partition.

primary partition (boot partition) Partition that contains one file system (DOS, Windows, etc.) or exists for a special use. In DOS or Windows, a standard setup includes a single, active primary partition (usually the C: drive), that contains the operating system, utilities, applications, user data and page/swap file.