

X-Ways Forensics

Quick Guide

X-Ways Software Technology AG
Carl-Diem-Str. 32
32257 Bünde
Germany

Web: <http://www.x-ways.net>

X-Ways Software Technology AG
Agrippastr. 37-39
50676 Köln
Germany

E-mail: mail@x-ways.com

Phone: +49-221-420 486 5

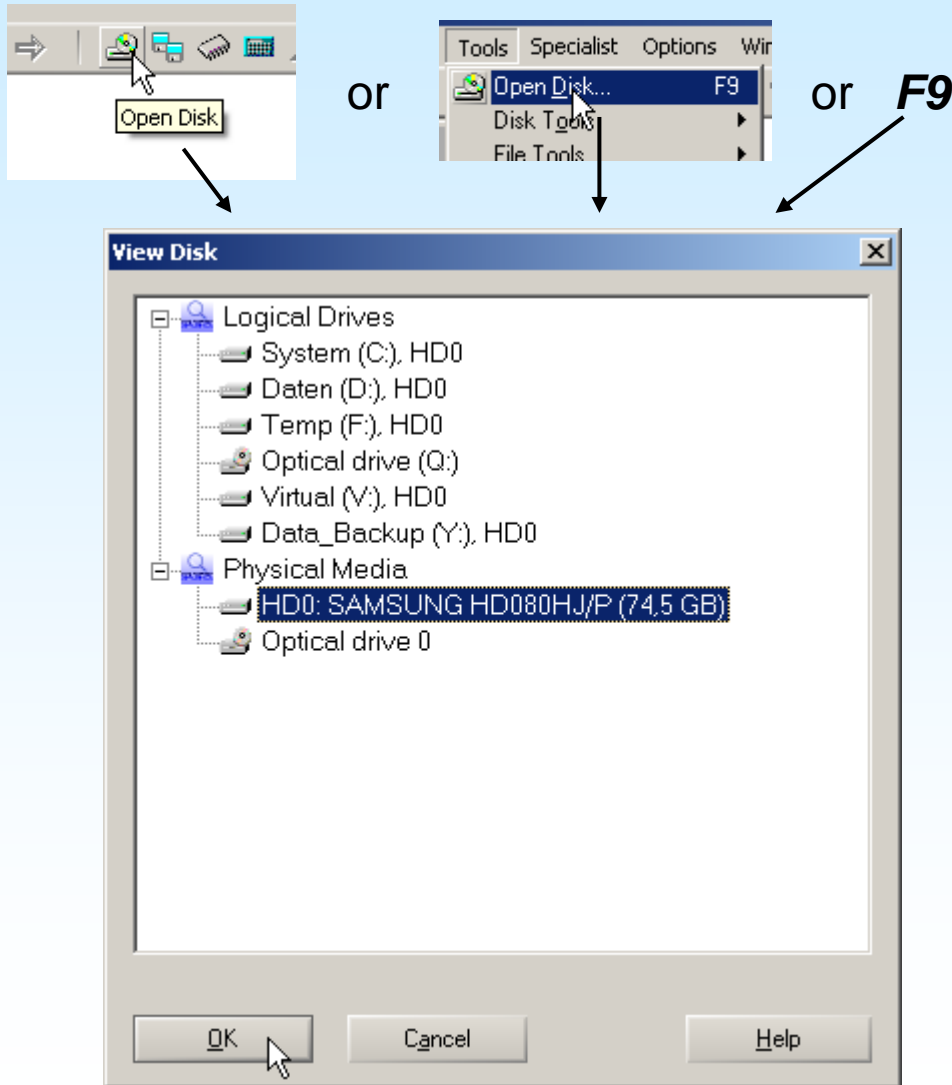
Based on v16.7. Please subscribe to the newsletter to stay informed of updates to the software.

All rights including but not limited to reproduction reserved.

Contents

| | |
|--|----|
| 1: Image Creation..... | 3 |
| 2: Case Creation, Adding Images..... | 6 |
| 3: Report Noteworthy Files..... | 11 |
| 4: Filtering (Ex. Deleted JPEG Files)..... | 16 |
| 5: Refine Volume Snapshot..... | 21 |
| 6: Office Metadata..... | 23 |
| 7: Search (Ex. "John" and "Smith")..... | 27 |
| 8: Copying Files..... | 31 |
| 9: Evidence File Container..... | 33 |

1: Image Creation



Step 1: Open medium to image

Either click the “Open Disk” button in the tool bar or the menu command from the Tools menu or simply hit the F9 key to call the View Disk dialog.

You can select either full physical media or choose a logical drive letter.

1: Image Creation

(Optional) Step 1a: Open desired partition on the disk

Hard disk 0

Partitioning type: MBR

| Name | Typ | Size | Created | Modified | Accessed | Attr. | 1st sector |
|-------------|-----|---------|---------|----------|----------|-------|------------|
| Partition 1 | | 47,0 MB | | | | | 63 |
| Partition 2 | | 17,6 GB | | | | | 96390 |
| Partition 3 | | 19,5 GB | | | | | 36965628 |
| Partition 4 | | 7,8 GB | | | | | 77931378 |
| Partition 5 | | | | | | | |
| Partition 6 | | | | | | | |
| Partition 7 | | | | | | | |

Hard disk 0 - Hard disk 0, Partition 3

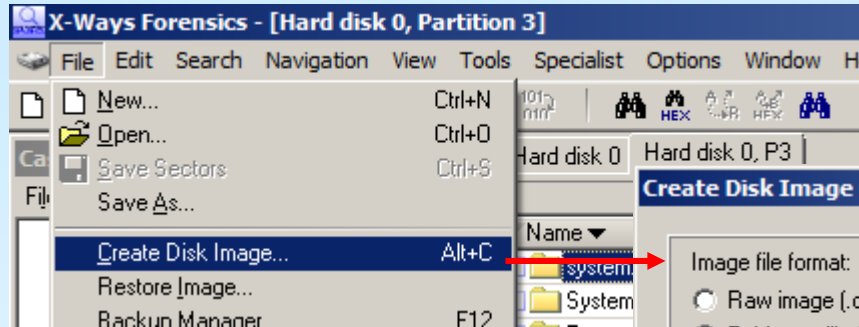
7 days ago

| Name | Typ | Size | Created | Modified | Accessed | Attr. |
|----------------------|-----|-----------|---------------------|---------------------|---------------------|-------|
| □ Pfad unbekannt | | | | | | |
| □ (Stammverzeichnis) | | 8,2 KB | 03.01.2006 10:03:38 | 30.05.2007 10:28:21 | 30.05.2007 10:28:21 | SH |
| □ RECYCLER | | 328 bytes | 03.01.2006 11:25:56 | 03.01.2006 11:25:56 | 30.05.2007 10:28:05 | SH |
| □ temp | | 4,0 KB | 26.09.2006 10:17:43 | 19.12.2006 11:13:13 | 30.05.2007 10:28:05 | |

Select a particular partition and open it. For images of the complete (physical) medium, this is not necessary, of course.

1: Image Creation

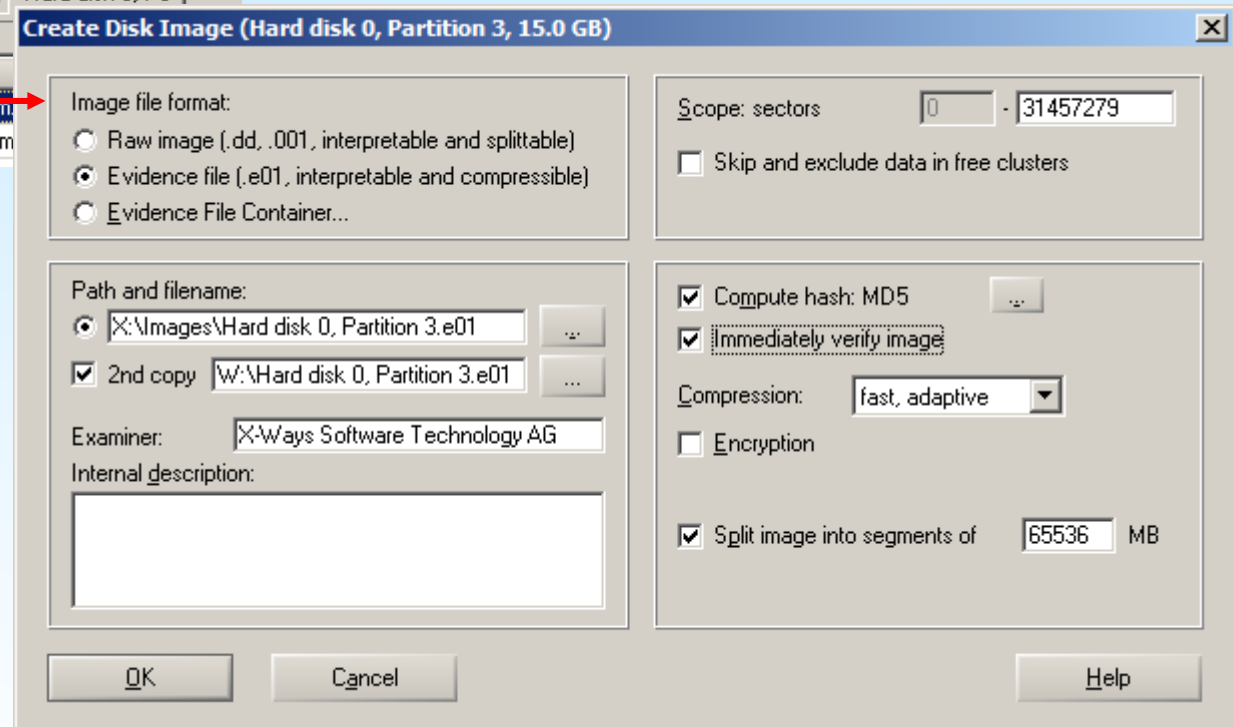
Step 2: Create the disk image



The command always applies to currently active tab within X-Ways Forensics.

Create 2 copies simultaneously if required!

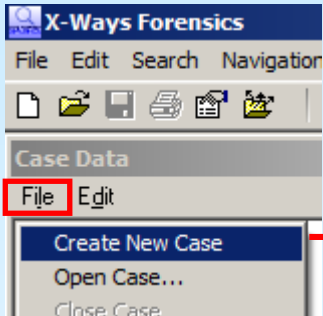
Hash computation allows for later verification of image integrity.



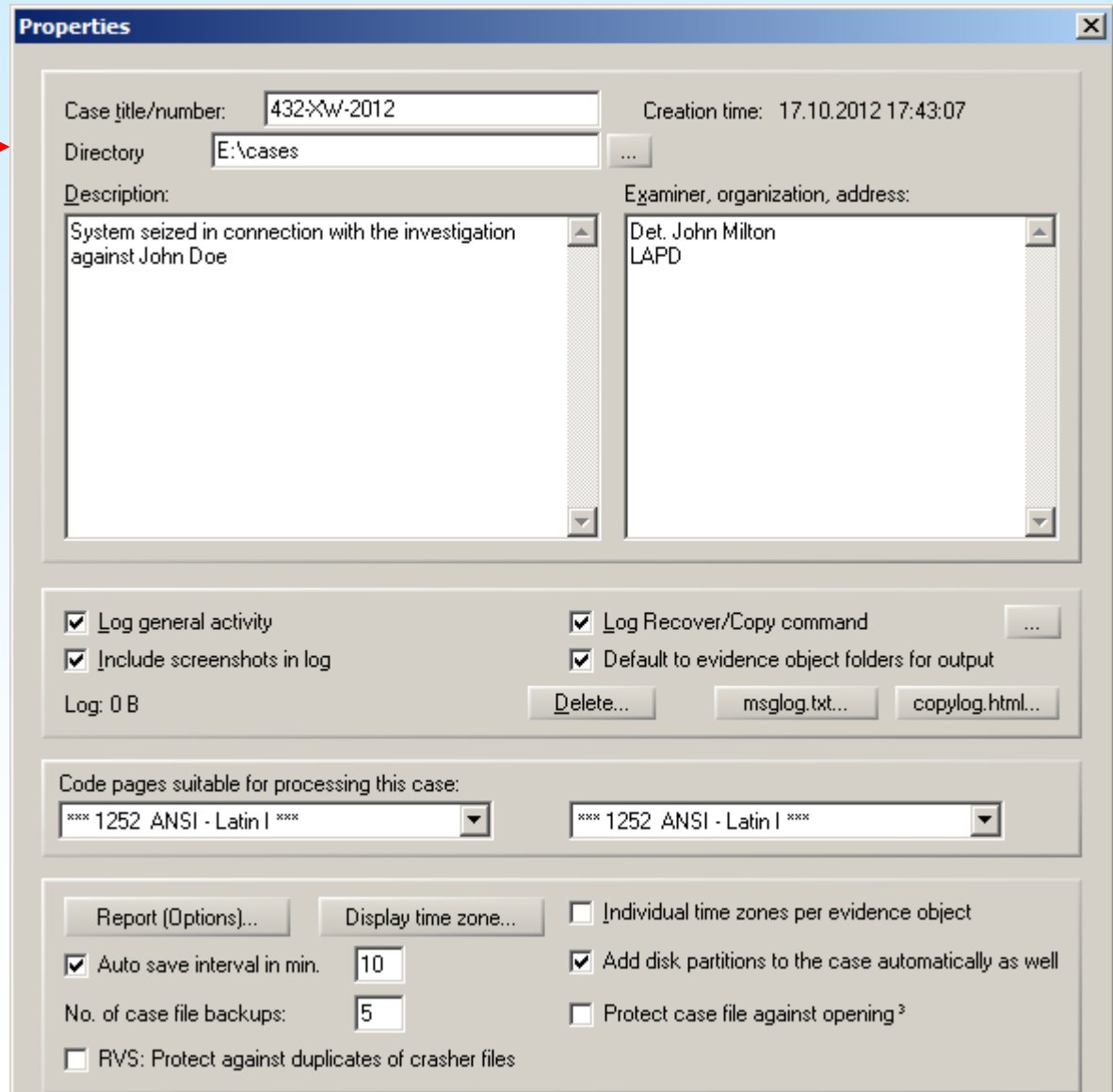
Splitting images helps if you need to store them on CD-Rs or DVD+/-Rs or FAT32 file systems.

2: Case Creation, Adding Images

Step 1: Create New Case



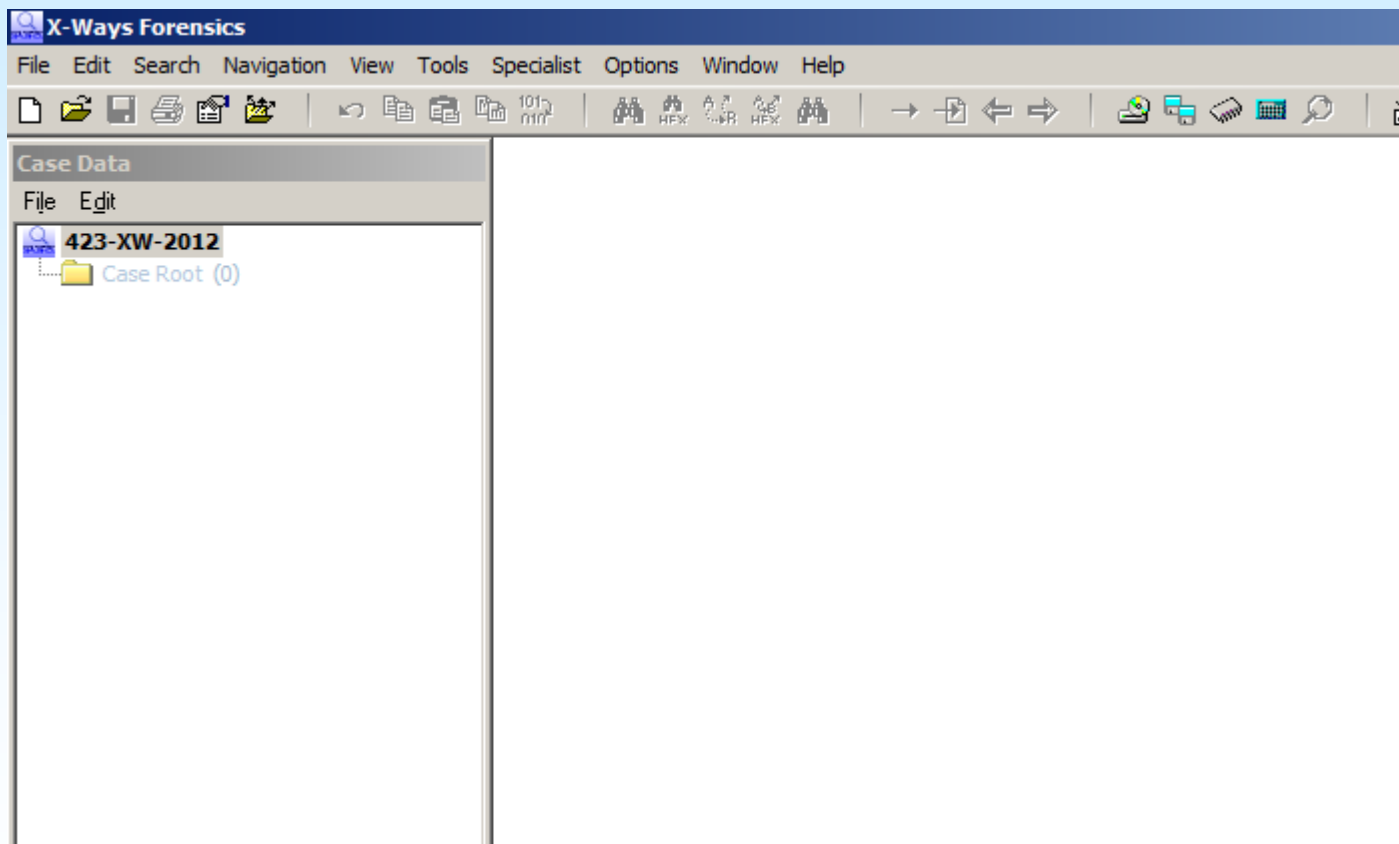
Select the case data window's "Create New Case" command and fill in the resulting dialog:

A screenshot of the 'Properties' dialog box in X-Ways Forensics. The dialog is titled 'Properties' and has a close button (X) in the top right corner. It contains several fields and sections:

- Case title/number:** 432-XW-2012
- Creation time:** 17.10.2012 17:43:07
- Directory:** E:\cases
- Description:** System seized in connection with the investigation against John Doe
- Examiner, organization, address:** Det. John Milton, LAPD
- Log settings:** Log general activity, Log Recover/Copy command, Include screenshots in log, Default to evidence object folders for output. Log: 0 B. Buttons: Delete..., msglog.txt..., copylog.html...
- Code pages:** Code pages suitable for processing this case: *** 1252 ANSI - Latin I *** (selected in both dropdowns)
- Advanced options:** Report (Options)..., Display time zone..., Individual time zones per evidence object, Add disk partitions to the case automatically as well, Protect case file against opening³, RVS: Protect against duplicates of crasher files, Auto save interval in min. 10, No. of case file backups: 5

2: Case Creation, Adding Images

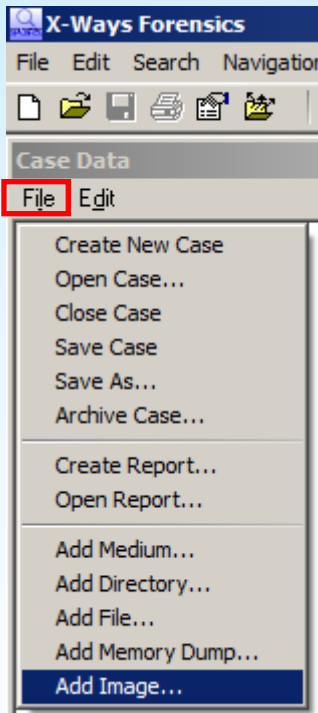
Once you select OK, a new case will be created and opened in X-Ways Forensics:



Images need to be added to work with.

2: Case Creation, Adding Images

Step 2: Adding image files as evidence objects



In the Case Data window's **File** menu, there are commands to add evidence objects to the case. Select **Add Image...**

In the resulting Open File dialog, you may select raw (.dd/.001) images, evidence files (.e01) or virtual hard disks (.vhd or .vmdk), which will then be interpreted.

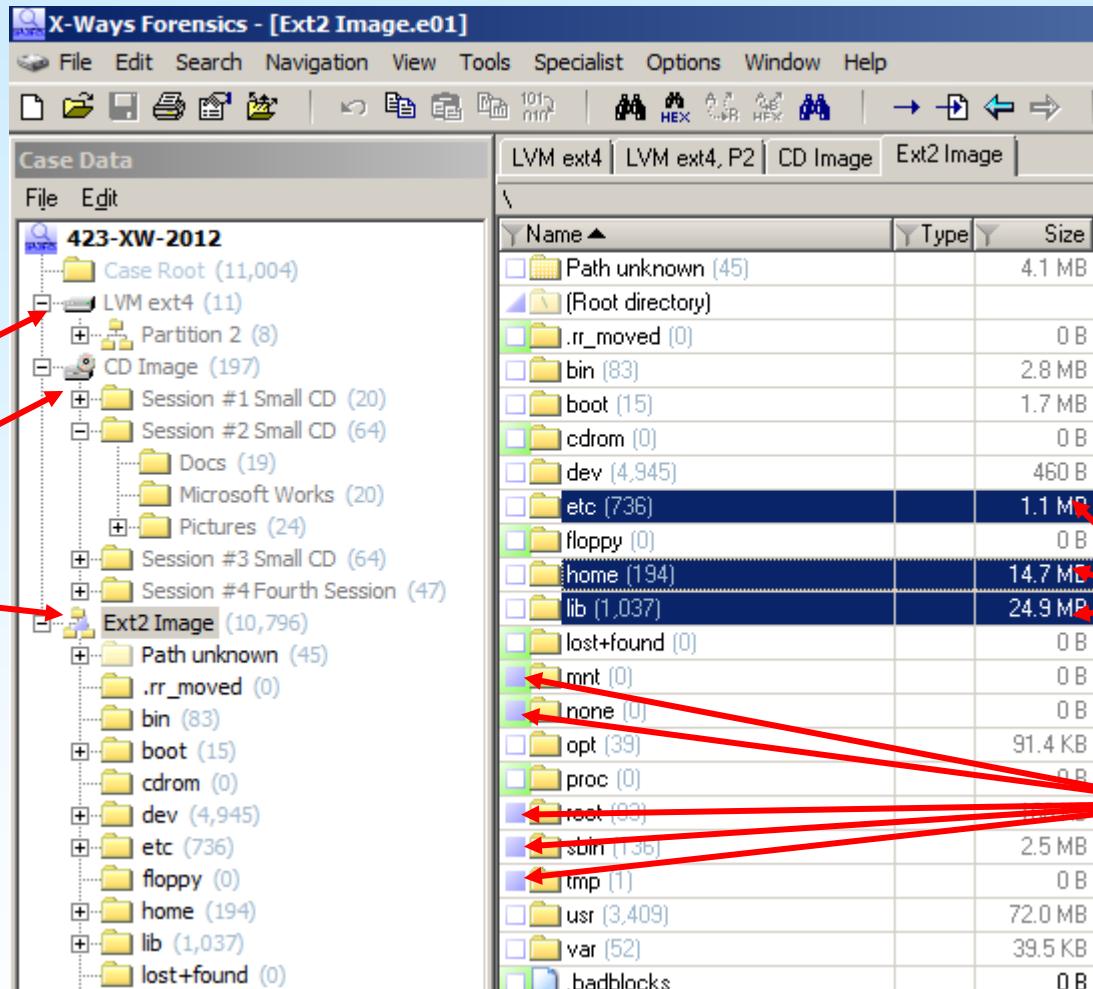
2: Case Creation, Adding Images

Images of:

Physical media

Optical media

Partitions/
Volumes

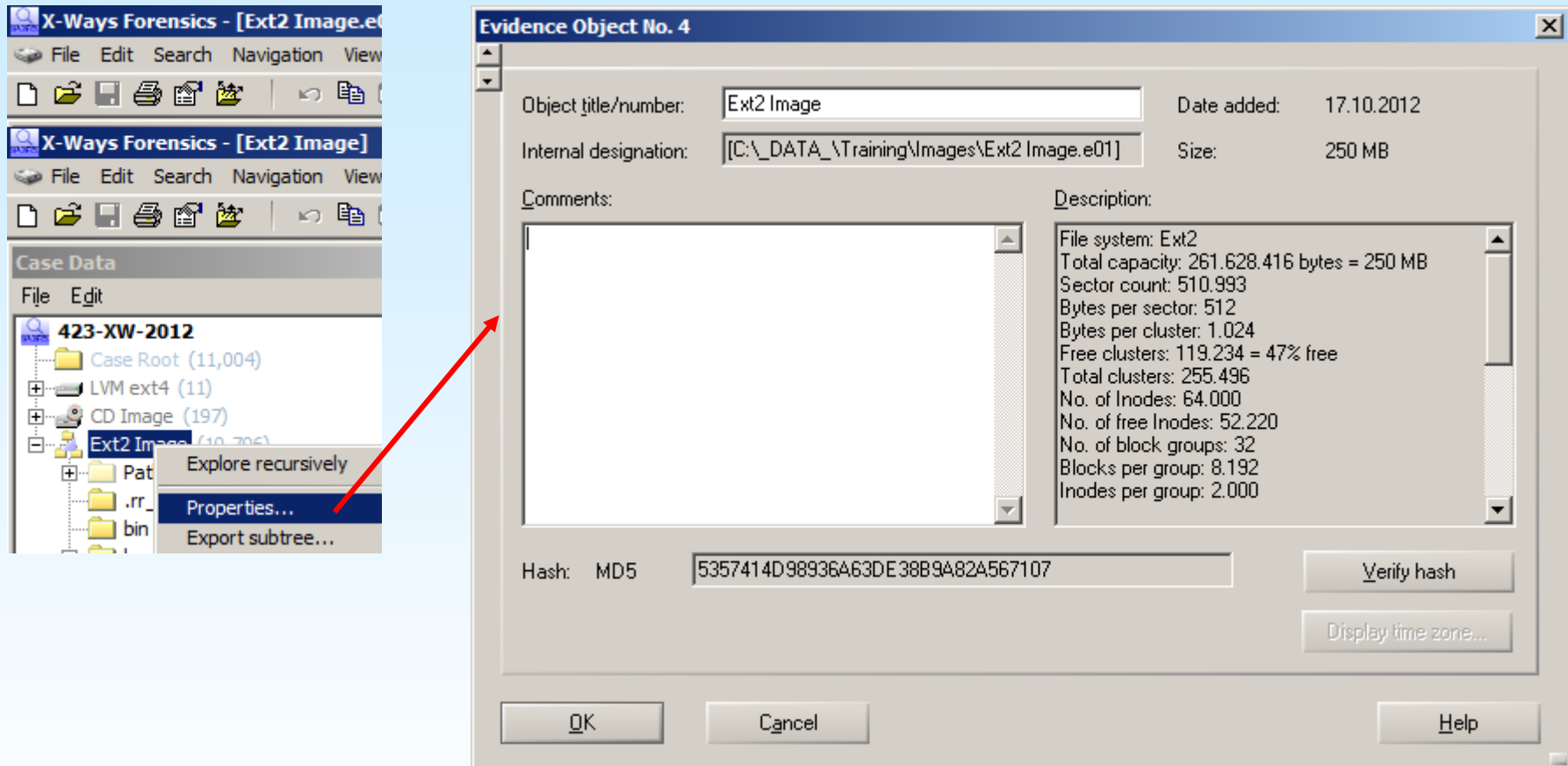


"Selected"

"Tagged"

Segmented images will automatically be recognized if they have identical names and are numbered in their extensions: .e01, .e02,... or .dd, .002,... or .001, .002,...

2: Case Creation, Adding Images

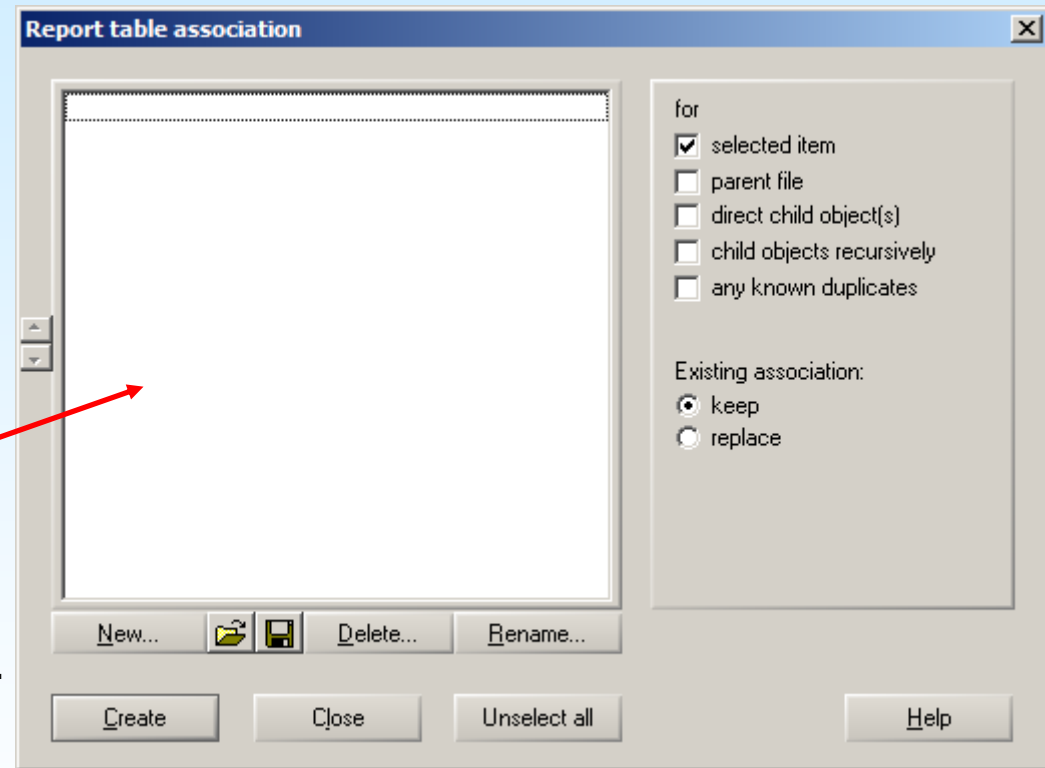
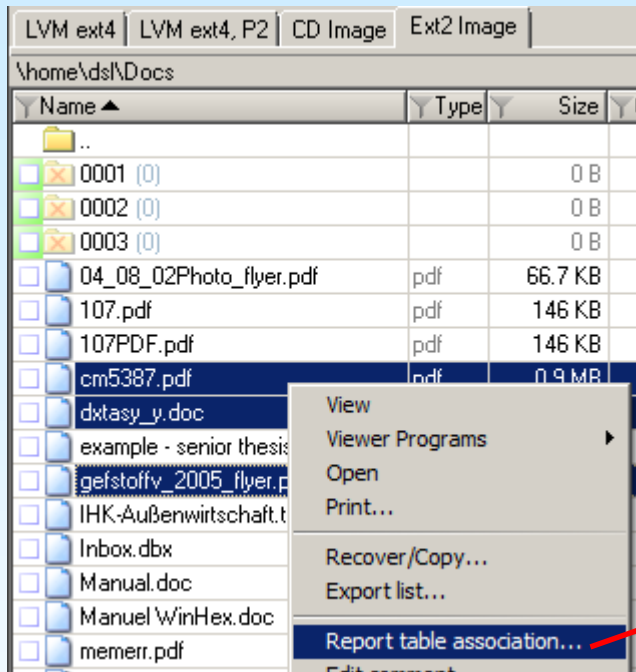


Properties of an image can be accessed via the context menu in the Case Data window.

There you can have X-Ways Forensics verify the image's hash value as well.

3: Report Noteworthy Files

Step 1: Report table association



Select the files and directories in question and right-click the selection. In the context menu, use “Report table association...”, which will bring up the list of currently available report tables.

At first use of this functionality no report tables exist yet – they must first be created.

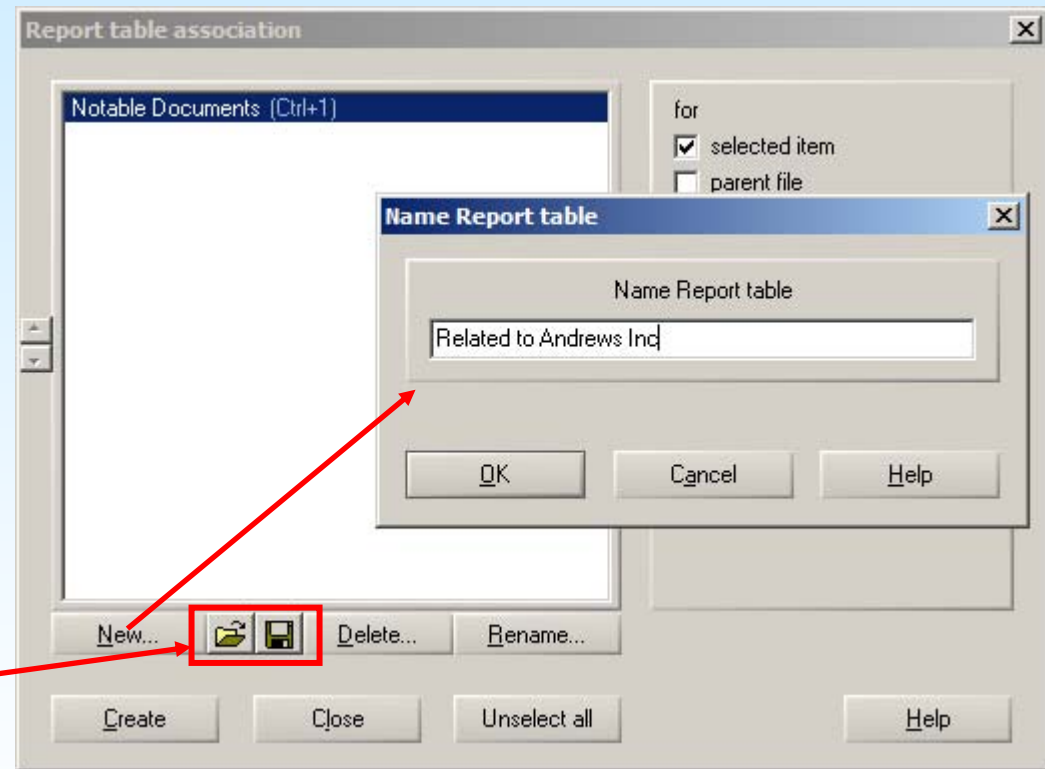
3: Report Noteworthy Files

Step 1a: New report table

(Step only required if the desired report table does not yet exist)

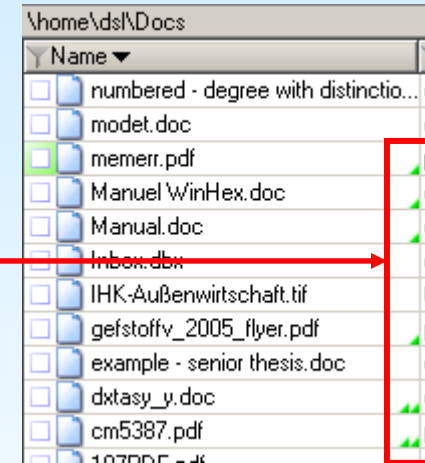
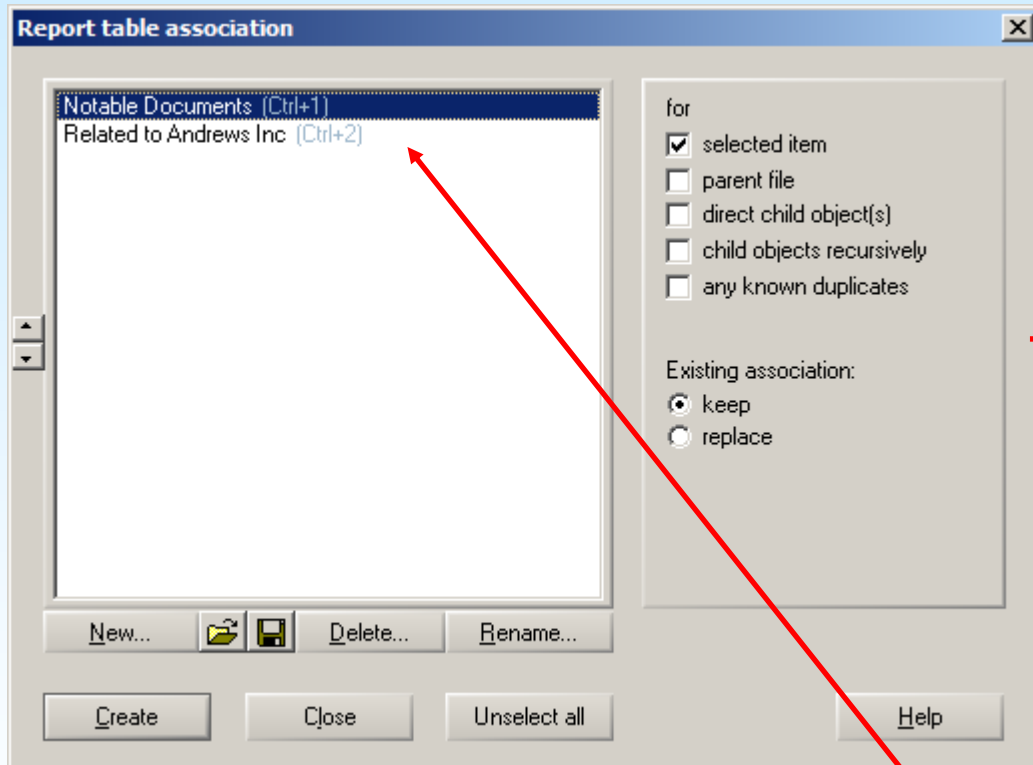
Create as many tables as you need – the list can be added to at any time.

Alternatively, you can save a list of report tables, once created, and simply load that list for the next case.



3: Report Noteworthy Files

Step 1b: Report table association



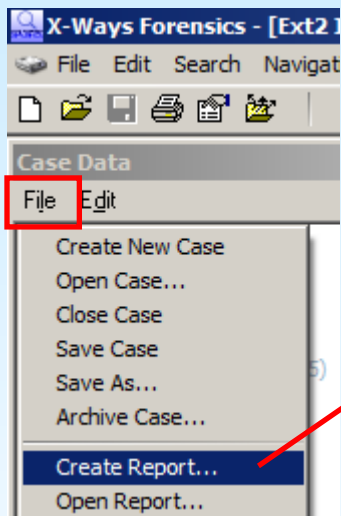
The green triangle identifies files presently in a report table (two triangles: two report tables)

Choose the required table and click *Create*, to add the previously selected files and directories to the report table.

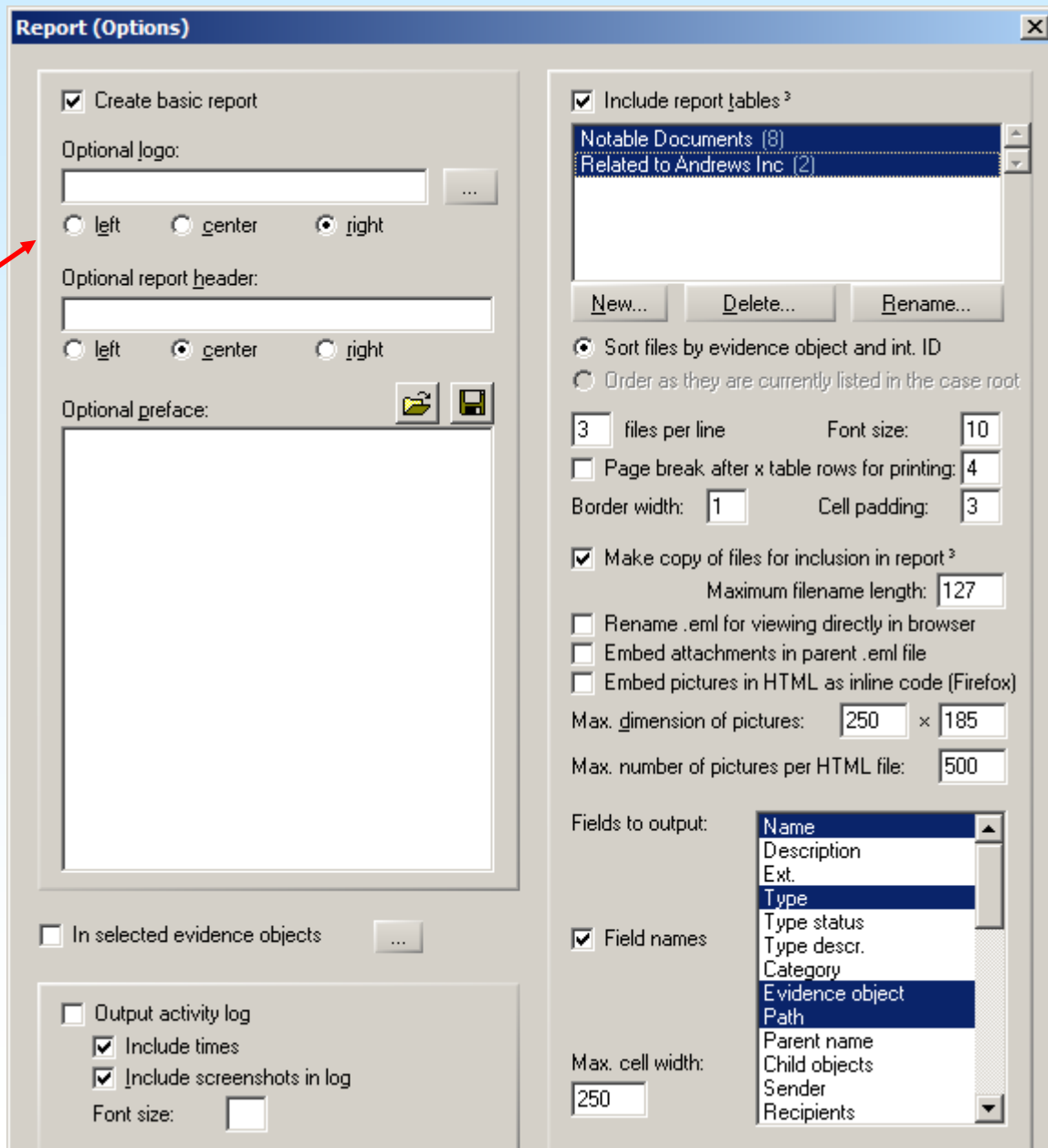
Note the keyboard shortcuts (e.g. Ctrl+1), which allow adding items to report tables without using the context menu.

3: Report Noteworthy Files

Step 2: Create Report

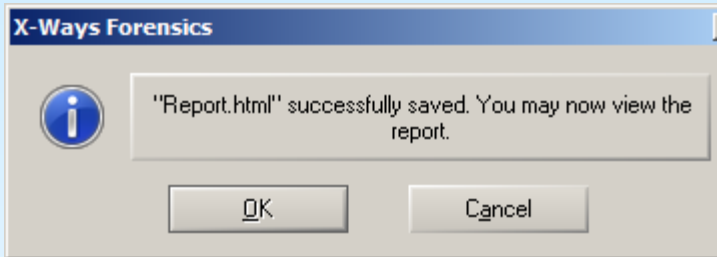


Select the option “Make copy of files for inclusion in report...”. Ensure that “Include report tables” is checked. Also select the fields to output according to your preferences.



3: Report Noteworthy Files

Step 2a: View Report



Clicking OK will call the HTML viewing application specified in Options | Viewer Programs... (none specified: default browser).

The report tables will be included with links for non-picture files while pictures will be embedded directly. (cf. scaling options at the report creation stage).

423-XW-2012

Creation time: 17.10.2012 16:30:43

Case file: E:\cases\423-XW-2012.xfc

Time zone UTC +00:00 London, Lisbon, Dublin

Report generated by X-Ways Forensics 16.7 SR-3

Description System seized in connection with the investigation against John Doe

Examiner, organization, address: Det. John Milton

LAPD

Evidence objects:

[Ext2 Image](#)

Notable Documents (8 items)

Name: **new-york-9400020.jpg**

Type: jpg

Evidence object: Ext2 Image

Path: \home\ds1\Pictures\0003

Size: 18.6 KB



Name: **Manuel WinHex.doc**

Type: doc

Evidence object: Ext2 Image

Path: \home\ds1\Docs

Size: 438 KB

[Link](#)

Name: **cm**

Type: pdf

Evidence

Path: \hor

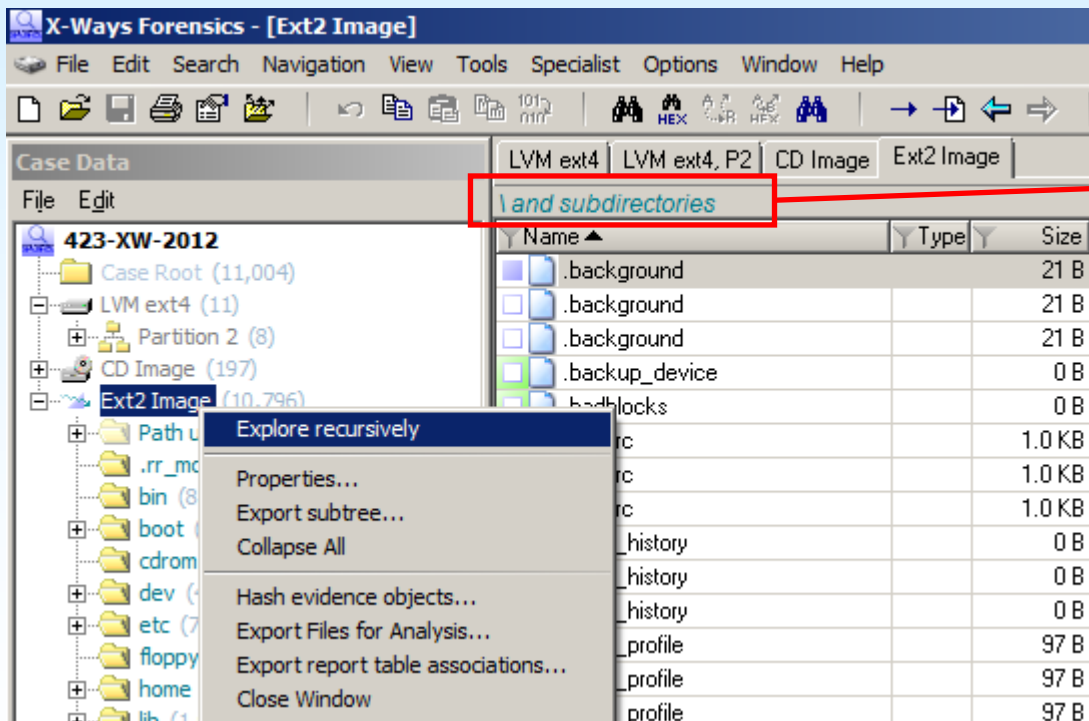
Size: 0.9 M

[Link](#)

4: Filtering (Ex. Deleted JPEG Files)

Step 1: Explore recursively

Right-click the volume in the directory tree and select “Explore recursively” from the context menu. This will generate a list of all files in all subdirectories.

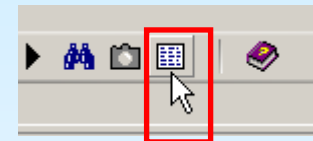
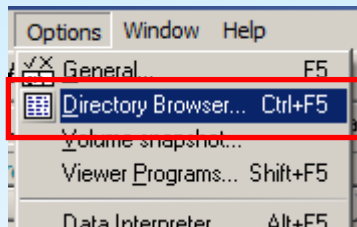


“and subdirectories” denotes recursive listings!

\ represents a partition's root directory

4: Filtering (Ex. Deleted JPEG Files)

Step 2: Open the directory browser options



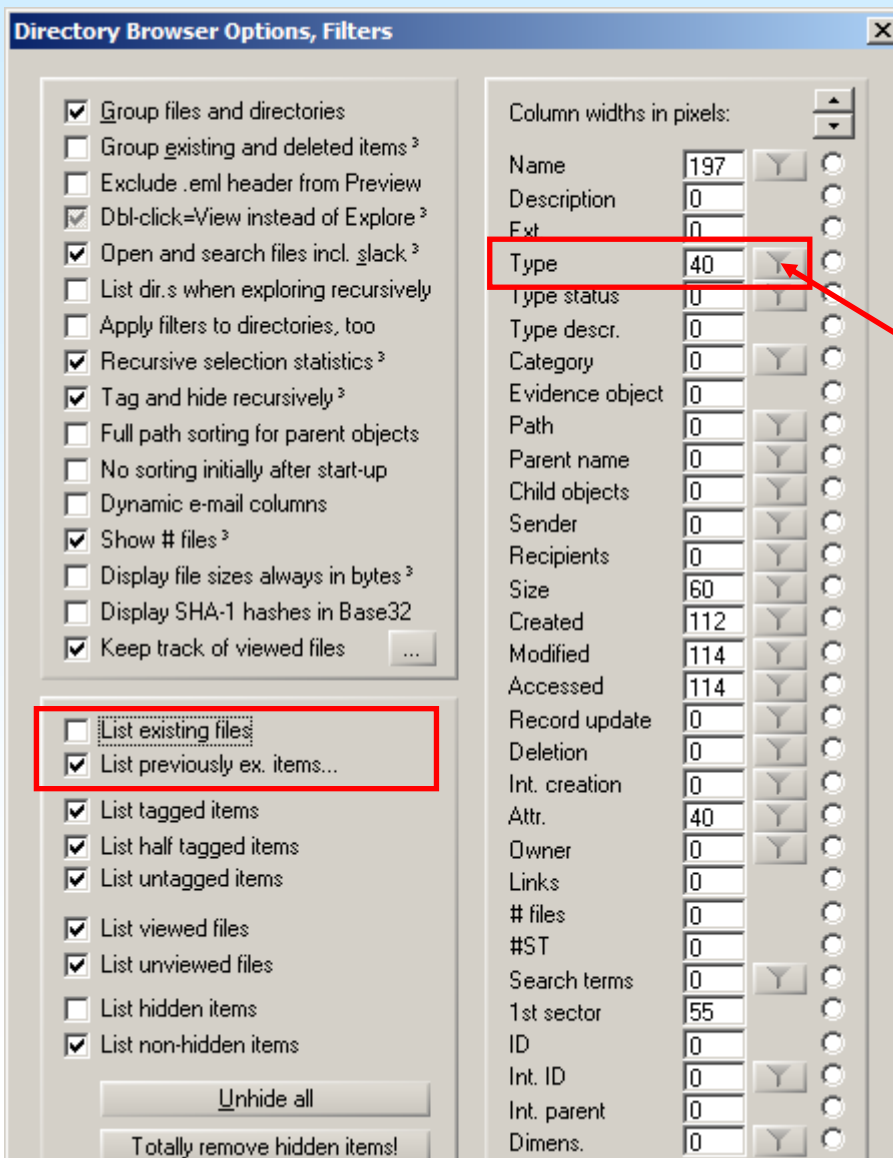
The directory browser options can be called either via their entry in the “Options” menu, the corresponding button in the toolbar or simply by clicking the directory browser’s title bar.

 A screenshot of a file browser window titled '[Ext2 Image.e01]'. The window shows a table of files and subdirectories. A red circle highlights the title bar of the table. The table has columns for 'Filename', 'Type', 'Size', 'Modified', 'Accessed', 'Attr.', and 'ID'.

| Filename | Type | Size | Modified | Accessed | Attr. | ID |
|----------------|------|----------|---------------------|---------------------|----------|-------|
| .background | | 21 bytes | 11/07/2005 20:43:37 | 12/14/2005 17:51:17 | rw-rw... | 24058 |
| .background | | 21 bytes | 11/07/2005 20:43:37 | 12/14/2005 17:54:19 | rw-rw... | 20267 |
| .background | | 21 bytes | 11/07/2005 20:43:37 | 12/14/2005 17:54:18 | rw-rw... | 2218 |
| .backup_device | | 0 bytes | 08/10/2004 06:54:14 | 12/14/2005 17:51:17 | rw-rw... | 32106 |

4: Filtering (Ex. Deleted JPEG Files)

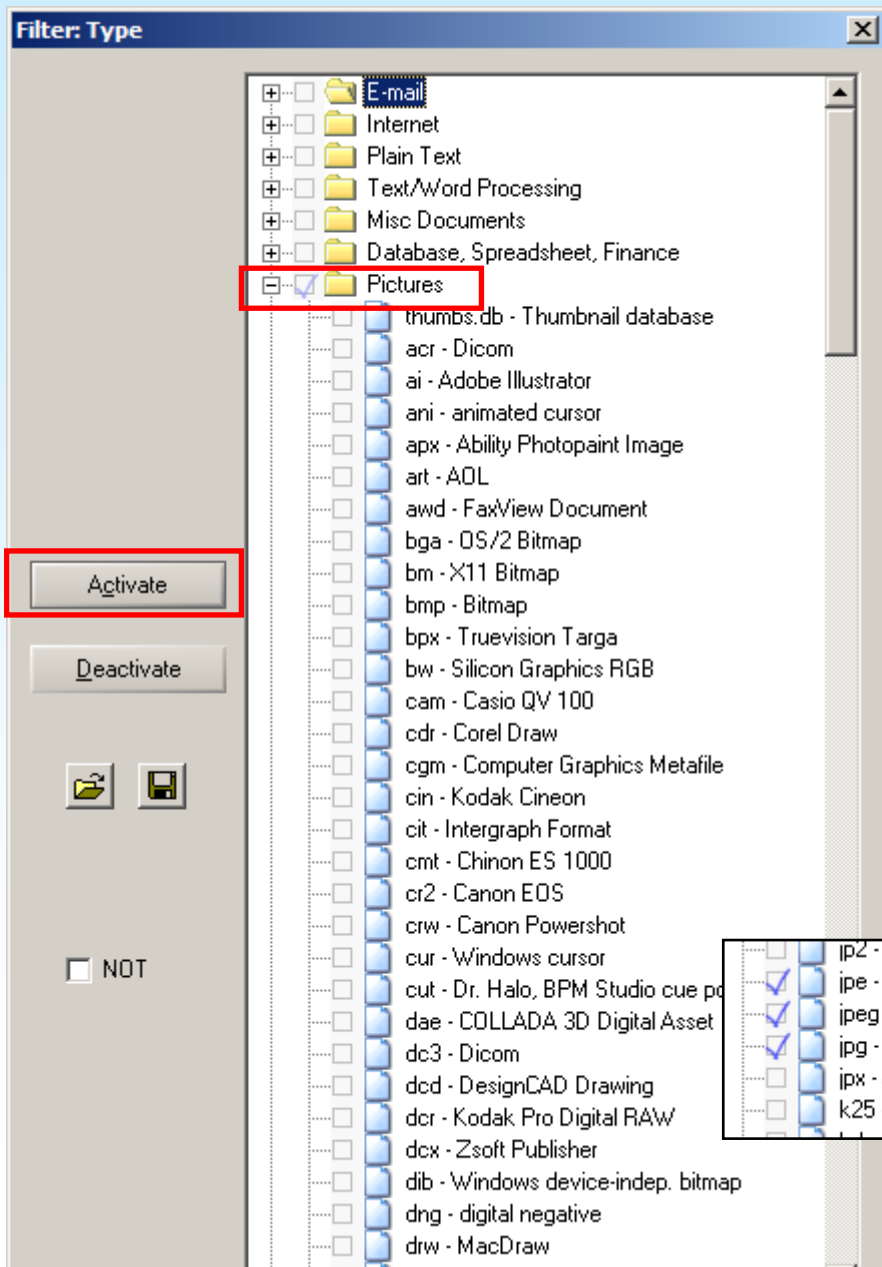
Step 3: Directory browser options



To see deleted files *only*, uncheck the option “List existing files”.

Then click the filter button for “Type”:
The dialog for step 4 will come up.

4: Filtering (Ex. Deleted JPEG Files)



Step 4: Selecting the type

Open category “Pictures” and check the JPEG types. Remove any other selections, if necessary.

Select “Activate” to close the Filter: Type dialog and “OK” to close the directory browser options. The directory browser will now only display deleted files of type JPG/JPEG.

4: Filtering (Ex. Deleted JPEG Files)

Quicker access to the column-based filters (e.g. to deactivate again)

| Name | Type | Size | Modified | Accessed | Attr. |
|------------------------------------|------|---------|---------------------|---------------------|-----------|
| 0_1020,299484,00[1].jpg | jpg | | | | -----... |
| 350de005.jpg | jpg | | | | -----... |
| beach-rocks-1.jpg | jpg | | | | -----... |
| beach-rocks-2.jpg | jpg | | | | -----... |
| Bird Park 09b.jpg | jpg | 101 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| Brend Peak 3.jpg | jpg | 54.8 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| CKS Memorial 01.jpg | jpg | 112 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| CKS Memorial 20.jpg | jpg | 87.2 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| Fu Tan Office View 4.jpg | jpg | 90.4 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| Freiburg 4.jpg | jpg | 72.0 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| Freiburg Mountain View Center 1... | jpg | 82.9 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| Gran Canaria, Bot. Garden 01.jpg | jpg | 220 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| Gran Canaria, Bot. Garden 02.jpg | jpg | 201 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |
| Gran Canaria, Bot. Garden 03.jpg | jpg | 163 KB | 14.12.2005 11:29:44 | 14.12.2005 11:29:44 | rwxr-xr-> |

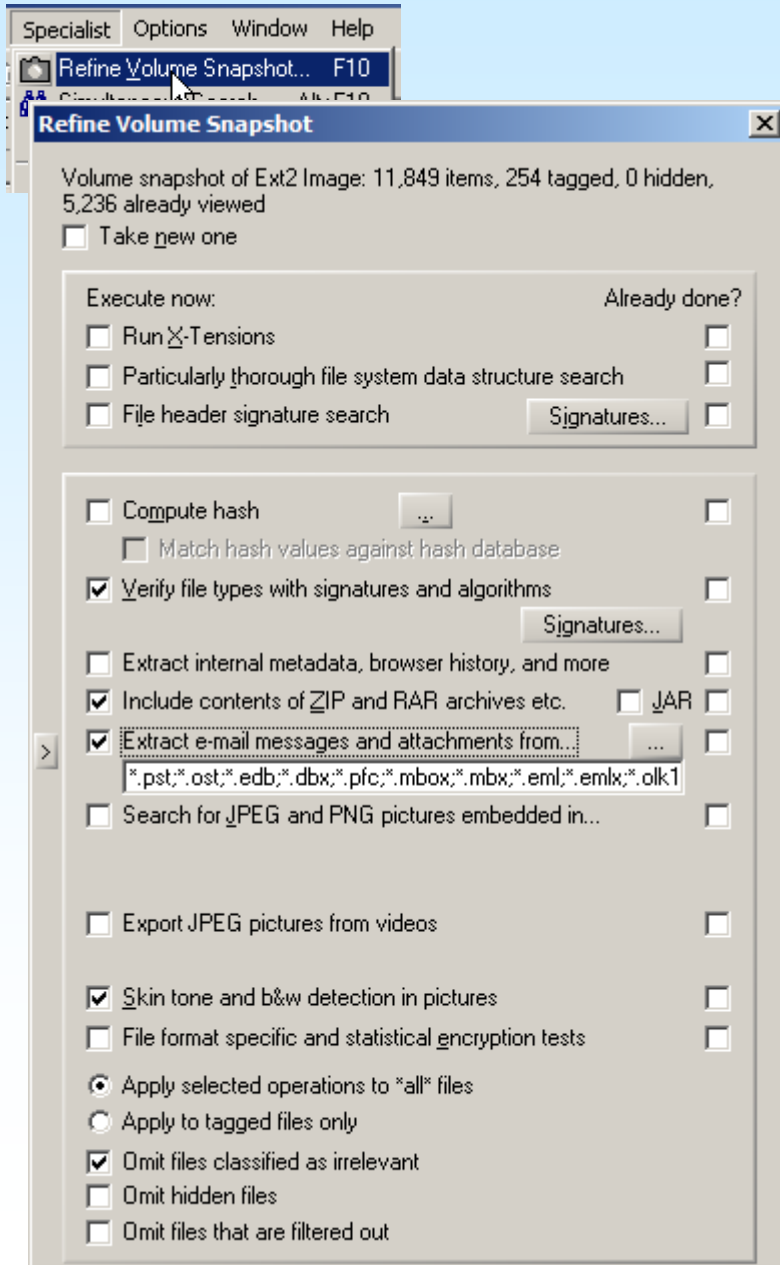
Gives details about the filters' effects:

40 previously existing files are currently displayed (no existing files, no virtual files, no directories).

10,756 files have been filtered out, i.e. are not listed.

Also acts as a "remove all filters" button.

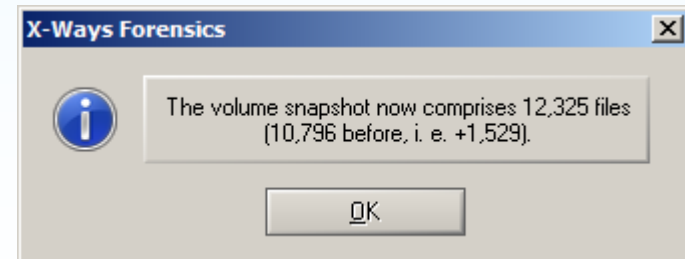
5: Refine Volume Snapshot



Refining the Volume Snapshot first will allow searching compressed files in archives and e-mails in e-mail archives, but also correctly identify file types based on their content, extract internal metadata, recognize skin color and black-and-white pictures, etc.

To that end, press F10 or invoke “Refine Volume Snapshot” from the Specialist menu.

Check the desired options and click ok, which will eventually result in a message like the one below. Acknowledge with OK.



5: Refine Volume Snapshot

Sample Effects of the Refinement

Before:

| Name ▲ | Type |
|---------|------|
| xyz.abc | abc |

File is listed as specified by the file system – *Type* column simply assumes the extension

After:

| Name ▲ | Type |
|----------------|------|
| ...xyz.abc (3) | zip |

Type has been replaced by type identified from the file contents.

Since the file is an archive and listing their contents was amongst the options chosen, the ... in the icon shows there are now child objects present, the (3) after the name specifies the number of files inside.

Skin color and black-and-white detection:

| Name ▲ | SC% |
|----------------------|-----|
| makeup3.jpg | 26% |
| makeup4.jpg | 61% |
| Marisandra.jpg | 4% |
| Memorial.jpg | 5% |
| monoster.bmp | b/w |
| Mydslgui.png | b/w |
| necklace1.jpg | 69% |
| Neo & Trinity 1.jpg | 26% |
| New York 2.jpg | 5% |
| new-york-9400020.jpg | 0% |

Color images receive a percentage score with regards to how much of the picture is within skin color range – grayscale images are flagged as **b/w** instead.

6: Office Metadata

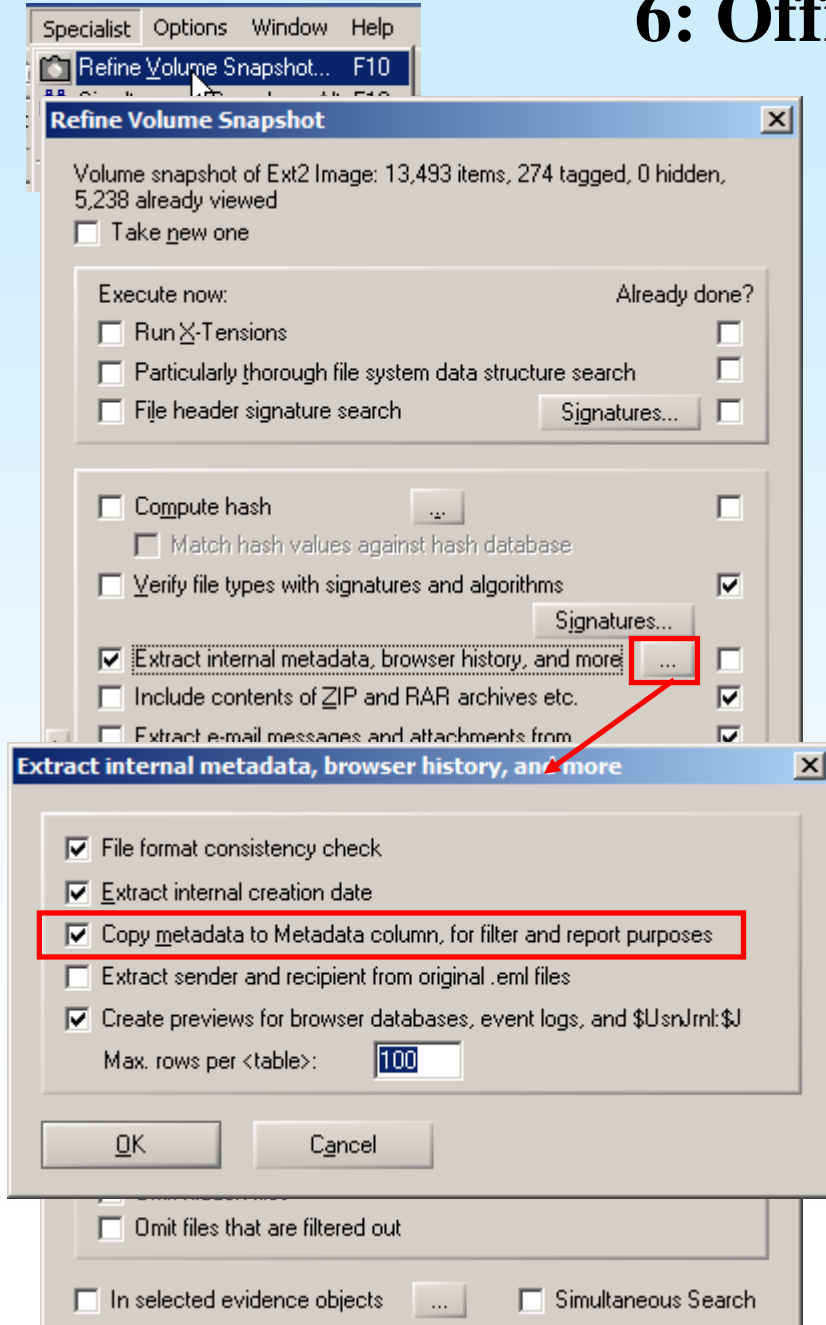
Step 1: Refine Volume Snapshot

Press F10 or invoke "Refine Volume Snapshot" from the Specialist menu.

Choose the option "Extract internal metadata, browser history, and more" and click on the button ... that appears to the right of it.

Choose "Copy metadata to Metadata column, for filter and report purposes". [Here you can also have the internal created date added to the corresponding column and for browser databases, etc., a permanent preview can be created.]

Click OK in both dialogue windows to run the refinement process.



6: Office Metadata

| | |
|---|---|
| <input type="checkbox"/> | Exclude .eml header from Preview |
| <input checked="" type="checkbox"/> | Dbt-click=View instead of Explore ³ |
| <input checked="" type="checkbox"/> | Open and search files incl. slack ³ |
| <input type="checkbox"/> | List dir.s when exploring recursively |
| <input type="checkbox"/> | Apply filters to directories, too |
| <input checked="" type="checkbox"/> | Recursive selection statistics ³ |
| <input checked="" type="checkbox"/> | Tag and hide recursively ³ |
| <input type="checkbox"/> | Full path sorting for parent objects |
| <input type="checkbox"/> | No sorting initially after start-up |
| <input type="checkbox"/> | Dynamic e-mail columns |
| <input checked="" type="checkbox"/> | Show # files ³ |
| <input type="checkbox"/> | Display file sizes always in bytes ³ |
| <input type="checkbox"/> | Display SHA-1 hashes in Base32 |
| <input checked="" type="checkbox"/> | Keep track of viewed files |
| <hr/> | |
| <input checked="" type="checkbox"/> | List existing files |
| <input checked="" type="checkbox"/> | List previously ex. items... |
| <input checked="" type="checkbox"/> | List tagged items |
| <input checked="" type="checkbox"/> | List half tagged items |
| <input checked="" type="checkbox"/> | List untagged items |
| <input checked="" type="checkbox"/> | List viewed files |
| <input checked="" type="checkbox"/> | List unviewed files |
| <input type="checkbox"/> | List hidden items |
| <input checked="" type="checkbox"/> | List non-hidden items |
| <hr/> | |
| <input type="button" value="Unhide all"/> | |
| <input type="button" value="Totally remove hidden items!"/> | |
| <hr/> | |
| First scrollable column: | Description |
| <hr/> | |
| <input type="button" value="OK"/> | <input type="button" value="Cancel"/> |

| | | | |
|-----------------|-----|---|--|
| Description | 0 | | |
| Ext. | 0 | | |
| Type | 43 | Y | |
| Type status | 0 | Y | |
| Type descr. | 0 | | |
| Category | 0 | Y | |
| Evidence object | 0 | | |
| Path | 0 | Y | |
| Parent name | 0 | Y | |
| Child objects | 0 | Y | |
| Sender | 0 | Y | |
| Recipients | 0 | Y | |
| Size | 60 | Y | |
| Created | 0 | Y | |
| Modified | 114 | Y | |
| Accessed | 114 | Y | |
| Record update | 0 | Y | |
| Deletion | 0 | Y | |
| Int. creation | 0 | Y | |
| Attr. | 40 | Y | |
| Owner | 0 | Y | |
| Links | 0 | | |
| # files | 0 | | |
| #ST | 0 | | |
| Search terms | 0 | Y | |
| 1st sector | 55 | | |
| ID | 0 | | |
| Int. ID | 0 | Y | |
| Int. parent | 0 | | |
| Dimens. | 0 | Y | |
| SC% | 50 | Y | |
| Hash | 300 | Y | |
| Hash set | 142 | Y | |
| Hash category | 176 | Y | |
| Report table | 0 | Y | |
| Comment | 200 | Y | |
| Metadata | 400 | Y | |

Step 2: Make Metadata column visible

If the Metadata column is already visible in the directory browser, simply skip this step.

Open the directory browser options (cf. chapter 4, step 2).

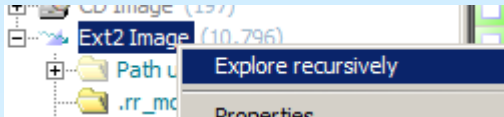
Enter a value in the box for "Metadata", e.g. 400.

[The value entered will be the column width in pixels – the width can be adjusted with the mouse at any time later.]

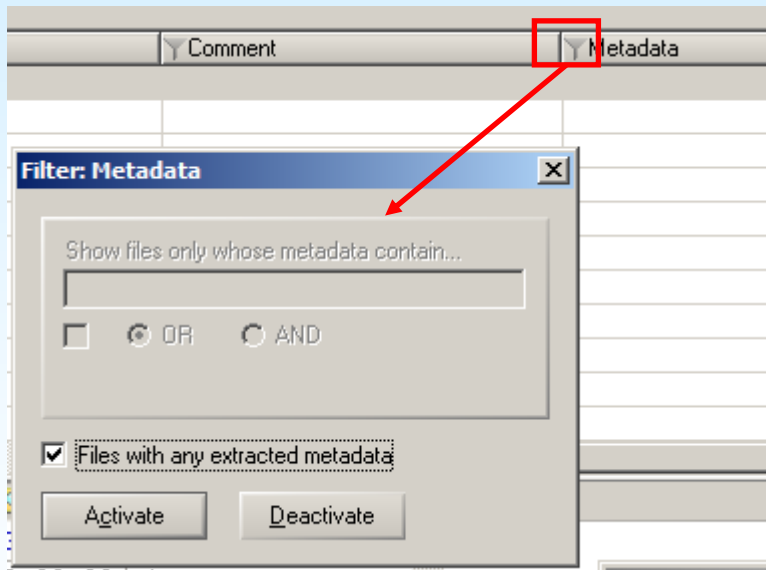
Confirm with OK. The column should appear in the directory browser.

6: Office Metadata

Step 3: Filter: Metadata – any



Explore the partition recursively (cf. chapter 4, step 1).



Click the filter icon in the Metadata column. The Filter: Metadata should appear.

[If you miss the icon and instead click the column header itself, the column will be sorted by.]

Leave "Files with any extracted metadata" checked and click "Activate". The directory browser will then only list files whose Metadata column is not empty.

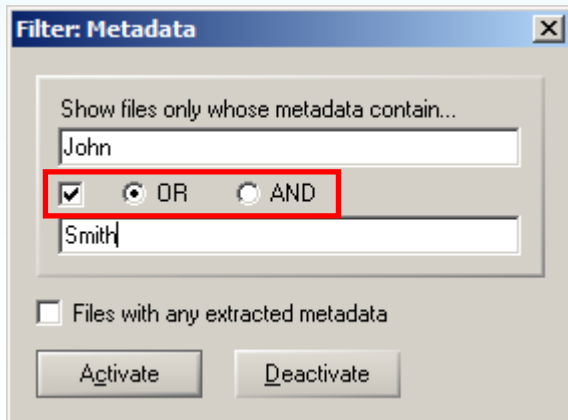
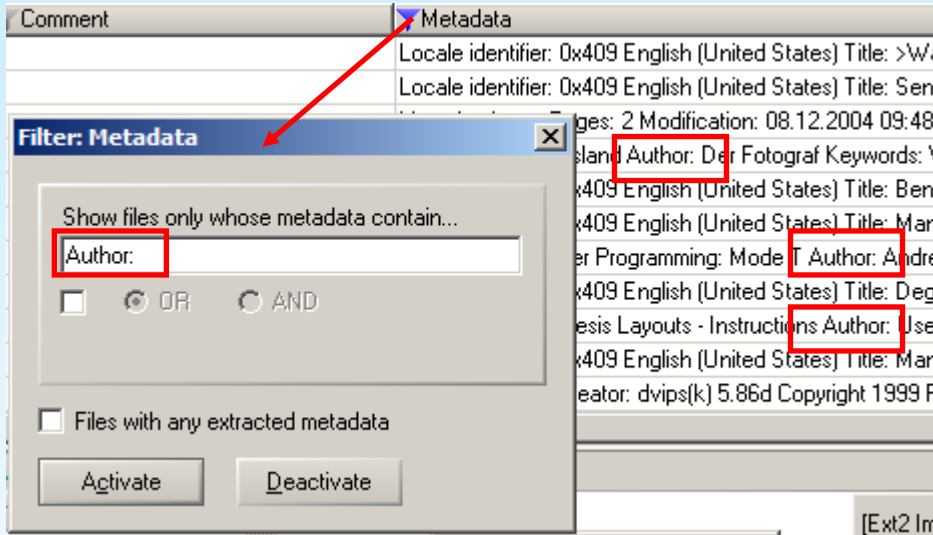
6: Office Metadata

Step 4: Filter: Metadata – specific

Click on the filter icon in the Metadata column. The Filter: Metadata should appear again.

Uncheck "Files with any extracted metadata". As an example enter "Author:" in the text box and click "Activate". The directory browser now only shows files whose Metadata column contains "Author:".

With the check box below the search term you can add a second text box. The two can then be combined with OR (all files whose Metadata field has at least one of the search terms) or AND (all files whose Metadata field contains both search terms) as required.



7: Search (Ex. "John" and "Smith")

Step 1: Enter search terms and options

Via the context menu the search can be limited to selected items, but the options allow changing that to all or tagged items instead.

The screenshot shows a file manager window with a context menu open over the 'home' directory. The 'Simultaneous Search...' option is selected. The 'Simultaneous Search' dialog box is open, showing the search terms 'John' and 'Smith' in a text area. The dialog box has several options and checkboxes:

- Match case
- GREP syntax
- Whole words only
- Alphabet to define word boundaries: ...
- Cond.: offset mod 512 = 0
- Run X-Tensions
- All objects in volume snapshot (267 MB)
- Search all tagged objects (3.6 MB)
- Search all selected objects (10.4 MB)
- Open and search files incl. slack³
- Cover file slack/free space transition
- Decode text in files: *.pdf;*.docx;*.pptx;*.xlsx;*.odt;*.odp;*.oc
- Omit files classified as irrelevant
- Omit hidden files
- Omit files that are filtered out
- Recommendable data reduction
- Omit directories
- 1 hit per file needed only (faster)

Annotations in the image include:

- A red arrow pointing from the 'Simultaneous Search...' option in the context menu to the search dialog box.
- A red box around the 'Whole words only' checkbox with the text: "Occurrences of 'John' and 'Smith' as whole words only".
- A red box around the text encoding options (ANSI - Latin I, Unicode UTF-16 Little Endian, Unicode UTF-8) with the text: "Multiple text encodings simultaneously".
- The text: "OK will run the search" is placed in the center of the dialog box.

At the bottom of the dialog box, there are buttons for 'OK', 'Cancel', 'Logical (file-wise)', and 'Help'.

7: Search (Ex. "John" and "Smith")

Step 2: Reviewing search hits (Explanations on following slide)

Case Data | LVM ext4 | LVM ext4, P2 | CD Image | Ext2 Image | 16.7 SR-3

File Edit Search Navigation View Tools Specialist Options Window Help

Search hits in \ and subdirectories 18 Search hits

| Offset | Rel. ofs. | Descr. | Search hits | Name | Type | Size | #ST |
|-----------|-----------|---------|--|--------------------|------|---------|-----|
| 98162715 | 153627 | CP 1252 | file or disk. Find "John" [MatchCase Mat | Manual.doc | doc | 419 KB | 1 |
| 98162886 | 153798 | CP 1252 | indow for the name John or the hexadecima | Manual.doc | doc | 419 KB | 1 |
| 98585732 | 144516 | CP 1252 | disque actif. Find "John" [MatchCase Mat | Manuel WinHex.doc | doc | 438 KB | 2 |
| 98585900 | 144684 | CP 1252 | être active le nom John ou les valeurs hex | Manuel WinHex.doc | doc | 438 KB | 2 |
| 98593231 | 152015 | CP 1252 | e.g.: Letter to Mr. Smith.doc Invoice*.pdf | Manuel WinHex.doc | doc | 438 KB | 2 |
| 107947537 | 136721 | CP 1252 | file or disk. Find "John" [MatchCase Mat | Spanish Manual.doc | doc | 394 KB | 2 |
| 107947708 | 136892 | CP 1252 | indow for the name John or the hexadecima | Spanish Manual.doc | doc | 394 KB | 2 |
| 107954449 | 143633 | CP 1252 | e.g.: Letter to Mr. Smith.doc Invoice*.pdf | Spanish Manual.doc | doc | 394 KB | 2 |
| 107964172 | 153356 | CP 1252 | e words Dear Mr. Smith in a MS Word do | Spanish Manual.doc | doc | 394 KB | 2 |
| 108575010 | 127266 | CP 1252 | file or disk. Find "John" [MatchCase Mat | WinHex Manual.doc | doc | 378 KB | 2 |
| 108575181 | 127437 | CP 1252 | indow for the name John or the hexadecima | WinHex Manual.doc | doc | 378 KB | 2 |
| 108581785 | 134041 | CP 1252 | e.g.: Letter to Mr. Smith.doc Invoice*.pdf | WinHex Manual.doc | doc | 378 KB | 2 |
| 108591481 | 143737 | CP 1252 | e words Dear Mr. Smith in a MS Word do | WinHex Manual.doc | doc | 378 KB | 2 |
| 112288433 | 10929 | CP 1252 | . We all know that John Carmack has den | dxtasy_y.doc | doc | 86.0 KB | 1 |

Notable hits
[Index search hits]
John (11)
Smith (7)

Hit per file only
Min. 1 Enter

Volume | File | Preview | Details | Gallery | Calendar | Legend | Sync | Selected: 1 Search hits

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 20 | 74 | 68 | 65 | 20 | 61 | 63 | 74 | 69 | 76 | 65 | 20 | 66 | 69 | 6C | 65 |
| 20 | 6F | 72 | 20 | 64 | 69 | 73 | 6B | 2E | 0D | 0D | 46 | 69 | 6E | 64 | 20 |
| 22 | 4A | 6F | 68 | 6E | 22 | 20 | 5B | 4D | 61 | 74 | 63 | 68 | 43 | 61 | 73 |
| 65 | 20 | 4D | 61 | 74 | 63 | 68 | 57 | 6F | 72 | 64 | 20 | 44 | 6F | 77 | 6E |
| 20 | 55 | 70 | 20 | 42 | 6C | 6F | 63 | 6B | 4F | 6E | 6C | 79 | 20 | 53 | 61 |
| 76 | 65 | 41 | 6C | 6C | 50 | 6F | 73 | 20 | 55 | 6E | 69 | 63 | 6F | 64 | 65 |
| 20 | 57 | 69 | 6C | 64 | 63 | 61 | 72 | 64 | 73 | 5D | 0D | 46 | 69 | 6E | 64 |

Sector 210835 of 510993 | Offset: 107947537 | = 74 | Block: | n/a | Size: n/a

[Ext2 Image.e01] 47% free
File system: Ext2
[Read-only mode]
Alloc. of visible drive space:
Block: 105417
Spanish Manual.doc
\home\ds\Docs\

7: Search (Ex. "John" and "Smith")

Step 2: Reviewing search hits (Explanations for previous slide)

- 1 Clicking this button calls the search term and search hit lists.
- 2 This is the search hit list. You can narrow search hits down by
 - selecting sub-directories in the directory tree 3
 - applying filtering methods available in the directory browser 4
- 5 This is the search term list. Selecting one or more search terms allows narrowing the search hits to just the currently desired terms. Double-click a single term or use multiple-selection and the Enter button or key.
- 6 Clicking on a search hit in the list will bring the hit into view in the lower half of the screen.
- 7 Increasing the expected search terms (i.e. different search terms not, not multiple hits for the same one!) per file reduces the search hit list to just those files that meet the condition.



7: Search (Ex. "John" and "Smith")

GREP alternative to Step 1: Enter search terms and options

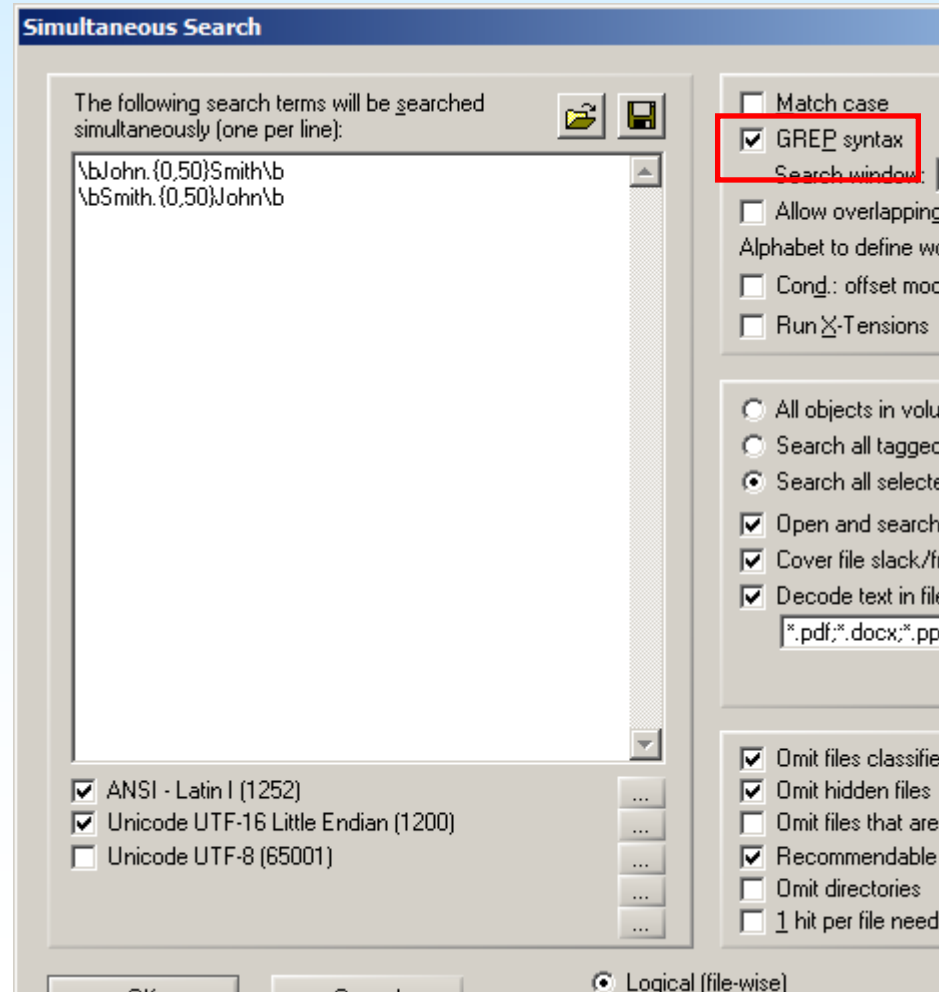
Instead of search for "John" and "Smith" as independent key words, GREP allows running a proximity search, i.e. requiring them to be found close together:

\bJohn.{0,50}Smith\b

\b requires a word boundary, (beginning or end of a word, depending on position) thus repaces "Whole words only"

.{0,50} allows for anything between 0 and 50 random characters (represented by the period), thus allows "John" and "Smith" either as one word or separated by at most 50 random characters.

The second line allows for the two words to occur in opposite order.



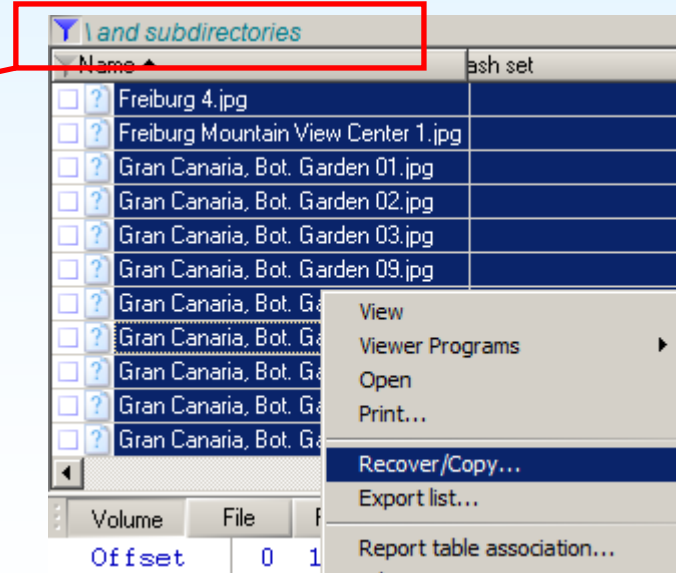
8: Copying Files

Step 1: Select the desired files and/or directories

- individually or as a group, via Ctrl+A the entire current list
- recursively or in regular listing
- using filters of your choice or without filters

As an example, deleted JPEGs are filtered for (as shown in chapter 4) and using Ctrl+A all files are selected that meet the filter criteria. Right-click the selection to see the context menu:

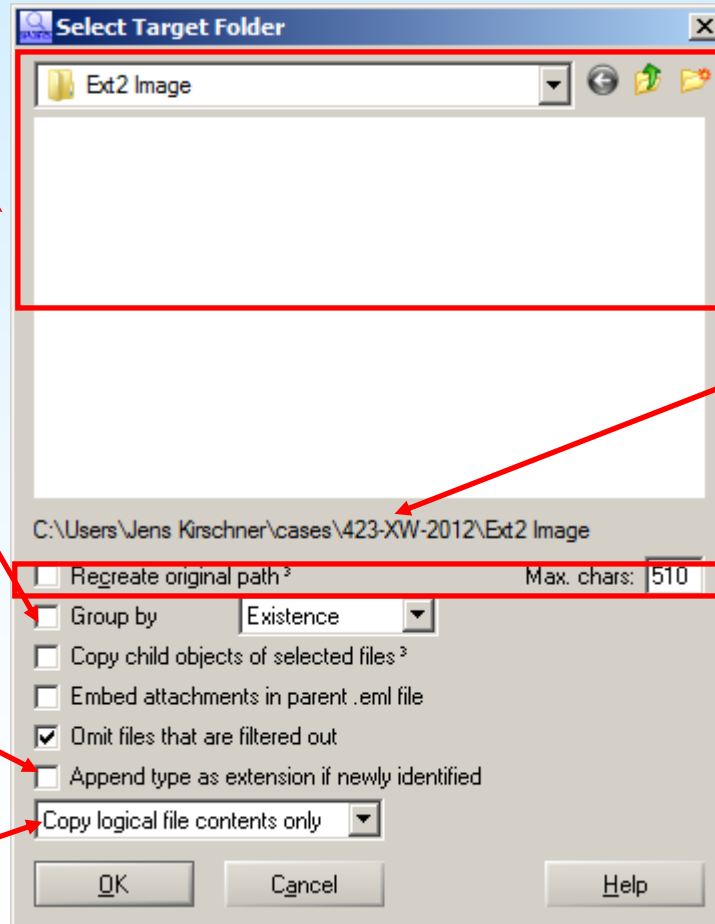
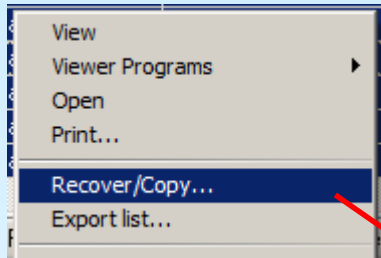
Filter active (in the example: Type filter for JPEGs, existing files not listed) and recursive listing from the root directory ("\\")



8: Copying Files

Step 2: Recover/Copy

In the context menu, select *Recovery/Copy...*



Produces separate output directories, as per the grouping.

Renames files without a useful extension – allows Windows to correctly open the file.

File contents with and without slack – or just slack, if the file itself is of no significance.

Specify output path for the files to be recovered/copied.

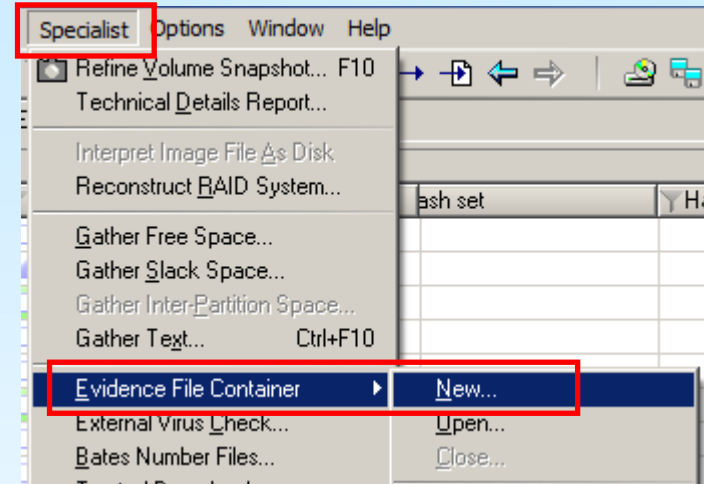
Reproduces within the output directory the paths as found at the origin (provided the maximum length is not exceeded).

9: Evidence File Container

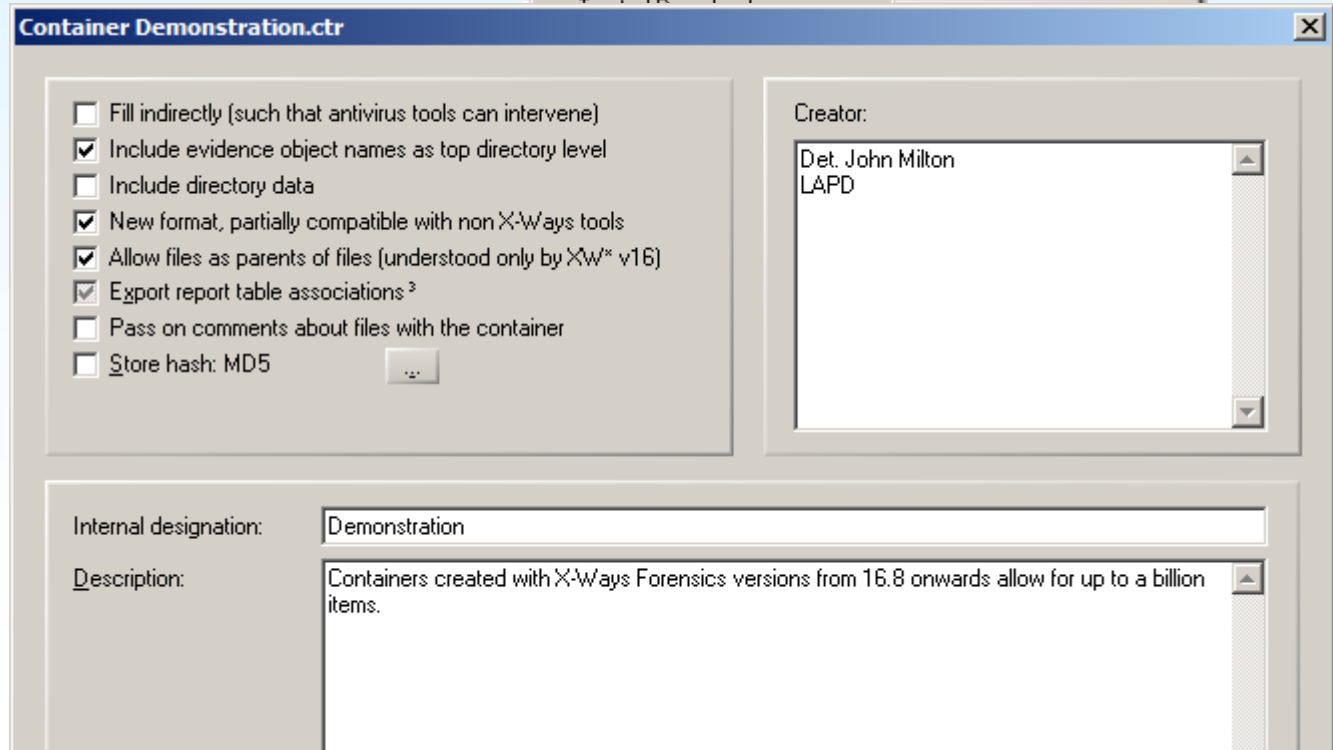
Step 1: Create the Evidence File Container

In the menu, go to *Specialist* → *Evidence File Container* → *New...*

In the following file dialogue, choose the desired path and file name for the container. X-Ways Forensics will add the extension .ctr.

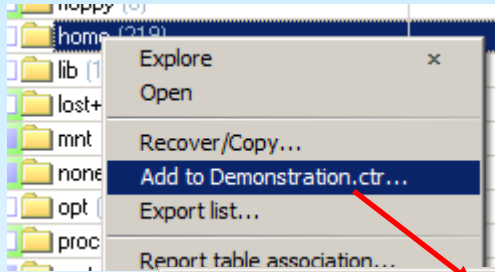


Once the file dialogue is confirmed, X-Ways Forensics will ask for the desired container settings. Keep the settings and enter a description. Click OK.

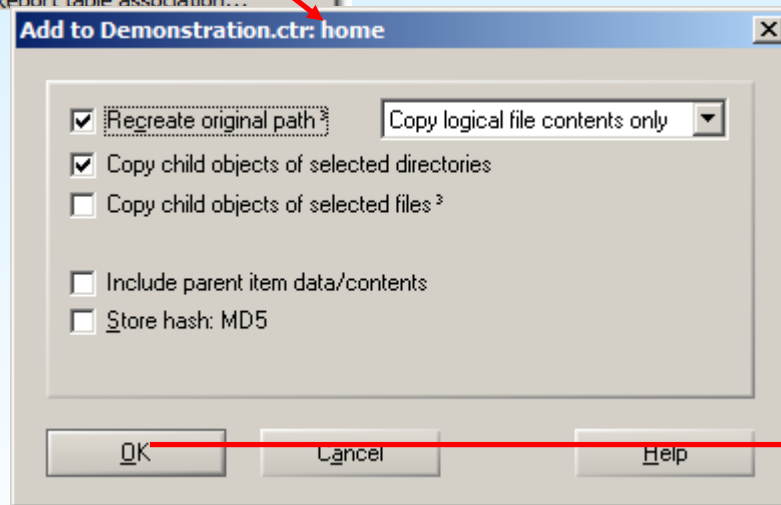


9: Evidence File Container

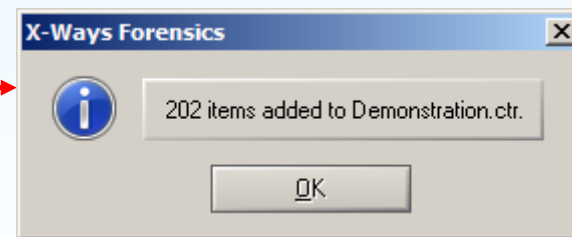
Step 2: Adding files to the container



Use the same methods as for copying files (chapter 8, step 1) to select the desired files. But in the context menu choose *Add to [name of your container]...* instead.



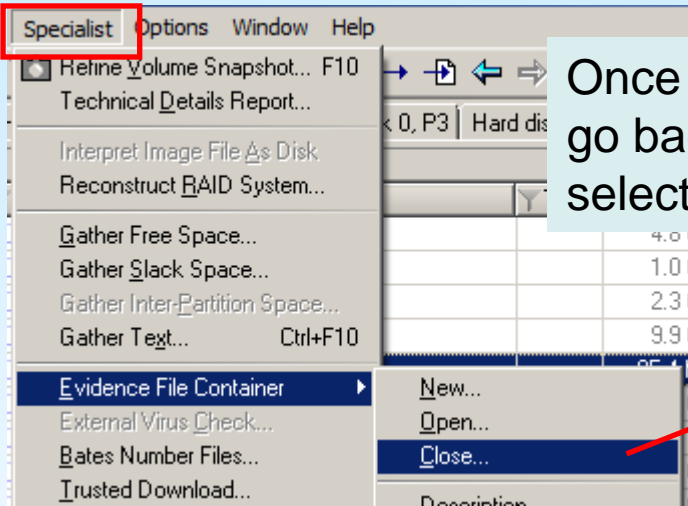
The options are similar to those of *Recover/Copy* as well, but no output directory is required, of course – and all files in the container are protected from interference by the operating system.



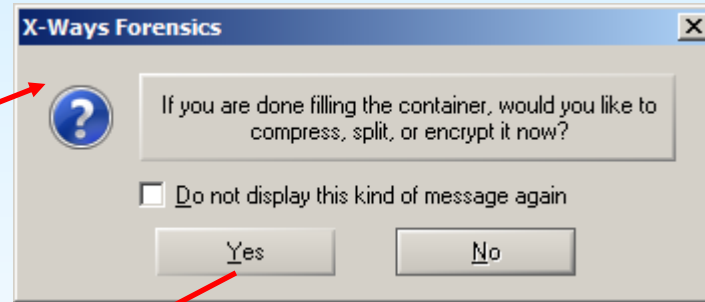
You can copy files from various sources into the same container. It does not matter whether the sources are media or images, or whether they are part of a case or have simply been opened standalone.

9: Evidence File Container

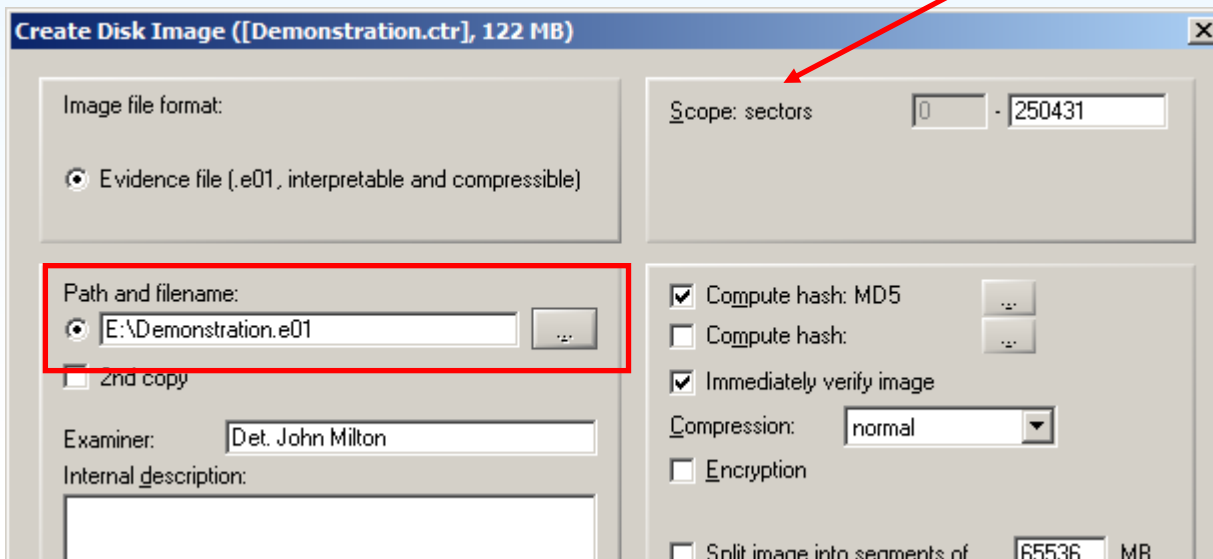
Step 3: Close the container



Once you have added all required items to the container, go back to *Specialist* → *Evidence File Container* and select *Close*.



Click Yes.



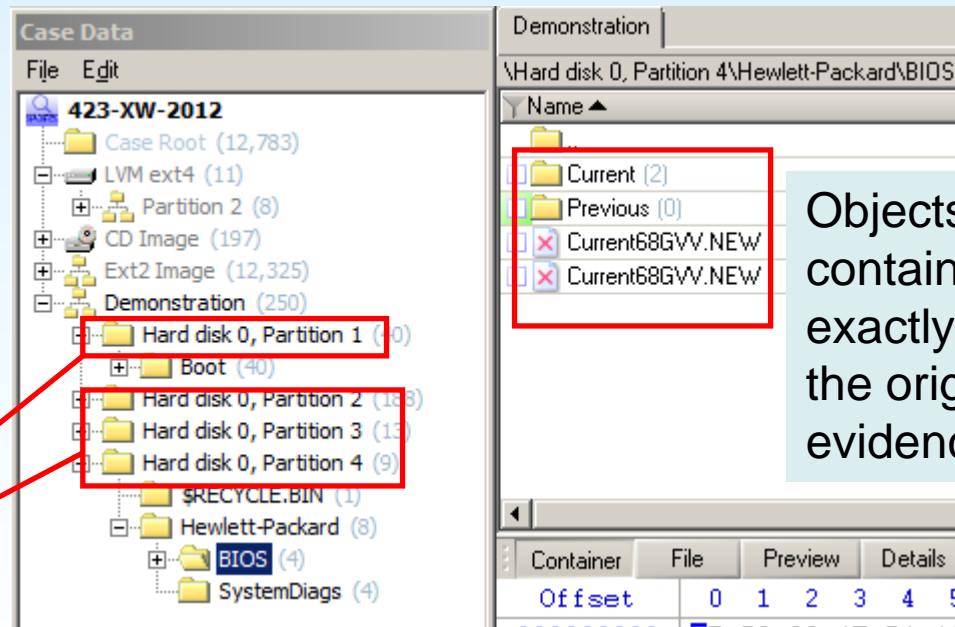
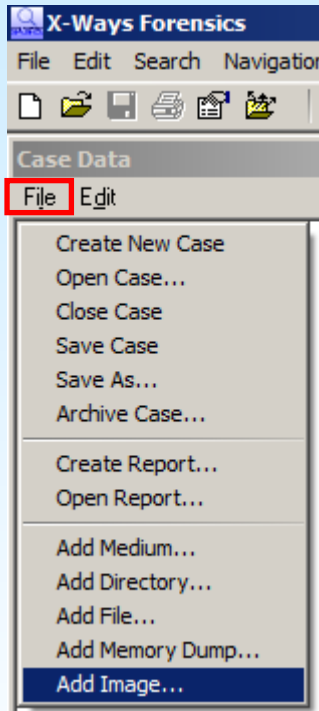
This dialogue is already known from chapter 1, step 2 – except here it is fixed to *Evidence file*.

Specify an appropriate output destination and click OK.

9: Evidence File Container

Step 4: Add container to the case

Containers are treated like ordinary images by X-Ways Forensics – add your container to your case (as in chapter 2, step 2).



Original evidence sources are shown as the top-level directories