



Blitz Indexer

Key features

- Index photos and other files from your home directory and other drives or locations.
- Quickly find photos, and other files, even if the volume they are on is offline.
- Browse photos and files by different metadata fields (including camera make and model, author and copyright, date and GPS location, and many more) to discover files you had long since forgotten, or misfiled deep in the wrong folder.
- Find duplicates and similar images (eg. scaled versions of a photo, or images with similar colours).
- Search and browse and find duplicates in ZIP files and other archive formats, even on offline volumes
- Display geotagged images on a map, filtered by date, to show when you visited different places.
- Keep control over *your* images and files on *your* storage the way you want to, without being tied in to a proprietary system that someone else (whether Apple or Adobe or Google or Microsoft or Dropbox, or anyone else) might want you to use.
- Super-fast proprietary database and search engine lets you search millions of files based on their name, metadata, or content in a fraction of a second for most queries, using simple but powerful plain text queries

Basic operation

- In 'automatic' mode, Blitz Indexer will automatically scan your home directory and mounted volumes in the background, as long the application is running, continuously looking for new or modified files and detecting when volumes are mounted or unmounted.
- In 'manual' mode (uncheck **Automatic Mode** in the File menu) use File > **Open** to choose the directory to index, then **Scan For New Files** (to quickly list all the files in the directory) and **Analyse Contents** (to read thumbnails and metadata from the file).

- Use **Save Index File** to save an index file in the directory itself (in a hidden package called **.blitz**), or **Save As** to save the index in another location (useful if you are indexing a removable volume and want to be able to search it when it is offline).

The indexing process

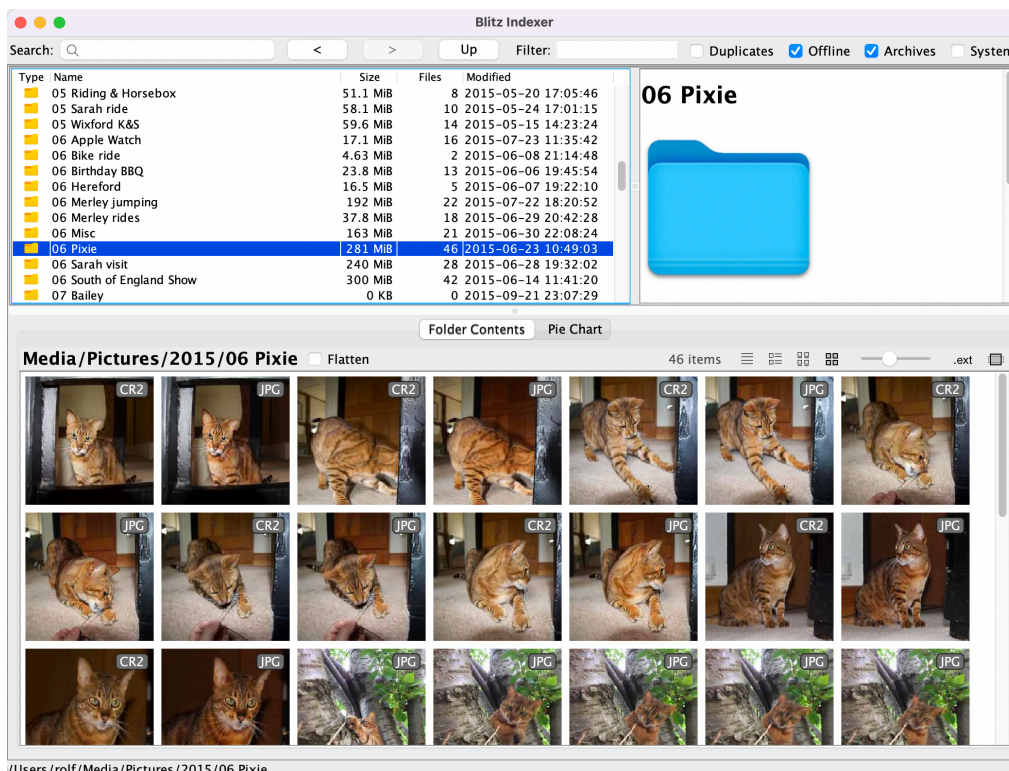
Indexing your photos and other files consists of three distinct phases:

- *Scanning for new files* looks through all the directories and subdirectories of the folder or volume being indexed, looking for any new files (also for files which have been deleted or moved) to quickly create a basic file list
- *Analysing the files* is a slower process that involves reading the contents of each file and adding Exif and other metadata to the index, as well as a low-resolution version of the image or brief summary of other types of file (for example a contact sheet for movies, or a plain text version of formatted documents)
- *Building the search index* involves building an optimised in-memory index of filenames, keywords, and metadata to speed up searches

In automatic mode all of these processes are handled automatically, while in manual mode you have full control over when they are performed.

Main window

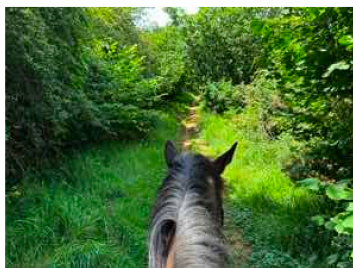
- Use the file list (top left of the window) to navigate all the items in the index by folder, listing files and directories by name



- Click on a folder to show its contents
- Press the “Up” button to move up to the parent folder and show the location of the selected file.

- Click on a column header to sort the list
- Press the “Flatten” checkbox to show all files anywhere below the selected folder, including in sub-directories.
- Use the icon panel (at the bottom of the window) to view thumbnails of the files. You can choose the size of the thumbnail, and whether to show the filename or other metadata alongside the thumbnail.
- Double click a file or image to view it, or use commands in the **Item** menu to copy or delete the file or reveal its location in the Finder
- The metadata panel on the right shows detailed information about the selected image or file:

IMG_6577.HEIC



♥ Favourite ♥

FileID: 29
 MetadataID: 49
 Inode: 72184320
 Size: 3870218 bytes
 SizeOnDisk: 3.69 MiB
 Modified: 2023-07-15 13:49:59
 Folder: [/Users/rolf/Development/Workspace/Indexer/testdata](#)
 Filename: IMG_6577.HEIC
 FileType: Picture

Media Metadata

FrameSize: [4032x3024](#)
 FocalLength: [6.86 mm](#)
 Exposure: [1/508](#)
 ISORating: [80](#)
 FNumber: [f1.8](#)
 Flash: [Off \(manual\)](#)
 ColorModel: [8-bit RGB](#)
 ColorProfile: [Display P3](#)
 Orientation: [1](#)
 Video: [HEIC Image](#)
 FocalLen35mm: [24](#)

Content Metadata

FileHash: dfac1ed6be05de13b0e0a
 OriginalDate: 2023-07-15 12:34:41
 GPSCoords: [51.91072N, 1.981675W](#)
 Location: 2.4km N of Whittington, 3.3km SE of Cleeve Hill Common
 Make: [Apple](#)
 Model: [iPhone 14 Pro](#)
 Lens: [iPhone 14 Pro back triple camera 6.86mm f/1.78](#)
 Software: [16.5.1](#)
 Kind: [HEIF Image](#)
 ItemContentType: [public.heic](#)
 DownloadFrom: [Rolf's iPhone \(Rolf Howarth\)](#)
 Quarantine: [sharingd](#)
 Hidden: [0000](#)
 Favorite: [0F00](#)

Preview

ContentPreview: 12266 bytes (Image - JPEG)
 Thumbnail: 294x221
 DominantColours: [477](#) [A47](#) [967](#) [088](#)
 ImageHash: 3E32060E0E37397C
 UncertaintyMask: 026004EE

- Clicking on a blue “link” will display other similar files with the same tag

Menu organisation

Because the basic items that Blitz Indexer deals with are *files* it is worth briefly explaining how the menus are arranged:

Commands in the ‘File’ menu relate to the indexing process itself, and managing index files: opening or creating an index, enabling automatic mode or manually scanning for new files and analysing them, and whether to expand the contents of ZIP files and other archives.

Commands in the 'Edit' menu are used to manipulate records in the index, such as tagging files as favourites or setting metadata to say an image should be rotated, while commands in the 'Item' menu work on the underlying files themselves, such as deleting or copying files, opening or viewing them, and so on.

The other menus such as 'Tools' and 'Help' are reasonably self-explanatory.

Searching and filtering

- Type in the search box in the toolbar (and press the return key) to search indexed files by name or metadata, or the contents of text documents.
- See below for details of the simple "Google-style" query syntax that can be used for advanced searches.
- If you select one (or more) directories within the file list then the search is restricted to files within the chosen directory.
- Use the **Directories/Text/Media/Other** checkboxes to filter which results are shown
- Use the **Duplicates** checkbox to individually list all the identical copies of a file, rather than grouping them together into one row
- Use the **System Files** checkbox to include files in hidden system folders
- Use the **Hidden Files** checkbox to include files which have been tagged as hidden or secret

Advanced searching

You can search for photos and other files in many different ways. Exactly what you can search on depends on the kind of file.

You can search for files:

- by their filename
- by Exif metadata fields such as date, GPS coordinates, frame size, or exposure
- by tagged metadata fields (such as camera make and model, author, file kind, video format, software used to save the file, language, artist and album, and many more, depending on the type of file)
- by the title and comments fields found in many kinds of files, for example music files or Office documents
- by the 'reference' field, which might store the original filename for a derived file, files that a QuickTime reference movie depends on, and so on
- by the 3 or 4 dominant colours in an image
- by keywords taken from the contents of text documents, including Office documents, PDFs, and HTML pages (though for large documents only the first 1MB or 10,000 distinct words are indexed)
- by the directory or volume they are on.

If you type in one or more plain text search terms it will search all the available information (file names, metadata fields, and contents keywords) and show all the results where at least one term matches. The more words that match the higher the score is.

For finer control you can add advanced hints to refine the search. These are generally of the form `prefix:value`, where the prefix says which field(s) to search. Any advanced query terms to search specific fields *must* match for a file to be included in the search results.

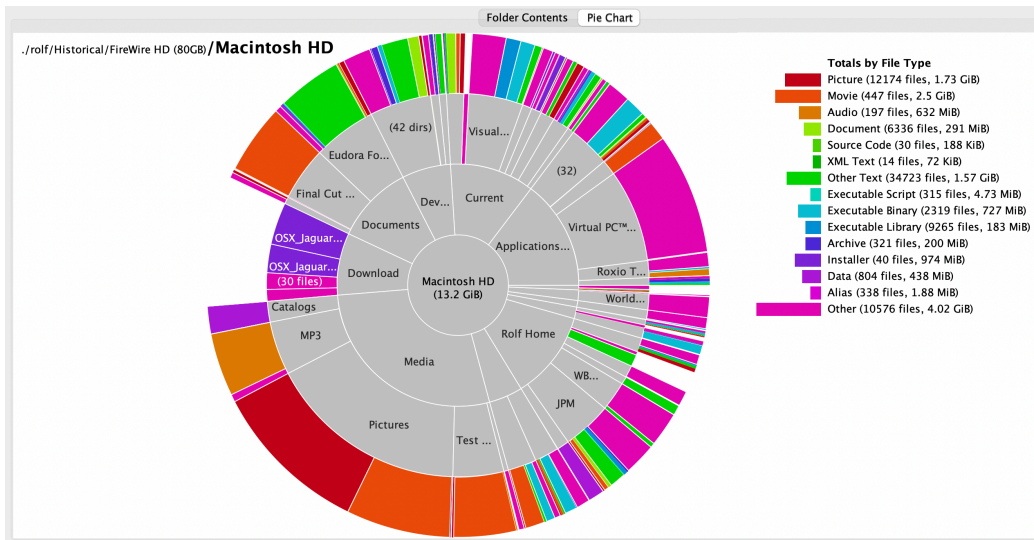
- Prefix a term with **name:** to only search filenames, for example **name:poi-5.2.2**. (Note that this can also be used to find filenames that contain punctuation and special characters which aren't include in the normal text-based search index.)
- Prefix a term with **contents:** to only search the file "contents", i.e. tagged metadata fields or content keywords, eg. **contents:proposal**.
- If the prefix is in *mixed case* (eg. **Name:** or **Contents:**) then exact case is checked, otherwise it is case-insensitive. For example, **Name:screenshot** would find a file called "screenshot1.png" but not "Screenshot 2023-03-22 13.04.42.png"
- Use **recent:** to view all photos, ordered by date.
- Use **favorite:** or **marked:** to view items tagged as favourites or marked
- Include a term starting with a period to only show files with a particular filename extension (for example **.pdf** or **.jpg**).
- You can search on file size, image size, duration and page count metadata fields using `<`, `=`, or `>` operators, eg. **Width>1024, Height<512, PageCount=10, Duration>5 Duration<10, Size<2.5MB**, etc. (Searching for **size=X** includes files within $\pm 25\%$ of the target size.)
- Queries for width and height support simple expressions, eg. use **width<=height** to find portrait images, or **width=height*4/3** to find 4:3 aspect ratio photos.
- You can also do numeric searches on aperture, exposure, ISO rating, and focal length. For example, **FNumber=f8, FNumber<1.5, Exposure=1/125, Exposure>0.5, FocalLength=6.8**, or **ISORating=200**. (Using an "equals" search for **fnumber=X** or **focalLength=X** actually allows a tolerance $\pm 10\%$, while **exposure=X** allows $\pm 25\%$).
- You can do various queries on date. Use **date** (or **OriginalDate**) to search on the date the photo was taken or the document was authored if present (given by Exif metadata etc.), **mtime** (or **LastModified**) to search on file last modified time, or **FirstDate** to search on whichever of these is earlier. You can compare these with each other, with a specific date, year, year and month, or number of days relative to today, eg. **Date=2015, mtime<date, FirstDate=2022-12-31, mtime>-7** (files modified within the past week), etc. (You can also search on the copyright or creation **Year** field, which is stored separately as a tagged metadata field.)
- You can search on a specific tagged metadata field (like Make, Model, Author, Artist, Album, Video or Audio format etc.) by using the name of the field, eg. **video:tiff** or **Author="Rolf Howarth"**. Quote the term if it includes spaces.
- When querying metadata tags, use colon (`:`) for "includes" and equals (`=`) for "exact match". So **make:nikon** would match "Nikon" or "NIKON" or "Nikon Inc.", while **make=nikon** matches "Nikon" or "NIKON" but not "Nikon Inc.". (Again, if the query contains mixed case then case must match exactly, otherwise case is ignored, so **Make=Nikon** matches "Nikon" but not "NIKON".)

- Use **comments**, **title** or **reference** (followed by colon or equals) to search these fields, for example **comments:draft**, **Title="A Life In A Day"**, or **reference:img_2314**
- Prefix a plain term with '+' if it must be included, or '-' to exclude it, and use '|' to separate alternatives, one of which must be included. So, for example, **keyboard mouse computer** would return files that contain at least one of those keywords (the more words that occur the higher the score would be), whereas **+computer keyboard|mouse display|monitor** would only return results with "computer", and at least one of "keyboard" or "mouse", and at least one of "display" or "monitor".
- As another example, **Model:iPhone** would display photos taken with any iPhone model, while **Model="iPhone 3GS"** would show files from an iPhone 3GS only, and **Model:iPhone -Model:3GS** would show files from any iPhone *except* for a 3GS.
- You can use '*' as a wildcard at the start, middle, or end of a search term, for example ***phan*** would find files containing "elephant", "phantasia", or "alphanumeric".
- Numbers of 6 digits or more are indexed. To simplify searching for phone numbers and the like, commonly used punctuation such as parentheses or hyphens or plus signs, e.g. '(1)800' or '+44', are removed before indexing numbers, and any numbers *ending* with the search term are matched, in case the country or area code is there or not. (If you want to explicitly search for numbers *starting* with specific digits instead then you can append a '*' wildcard to the end of the search term.)
- You can search for files containing a particular resource using **macresource:PICT** etc. Use **macresource=** on its own to find all "Mac" files (any file which has type/creator) but no resource fork. You can also search on data fork and resource fork size, eg. **datafork<resourcefork** or **resourcefork>65535**.
- You can restrict a search to specific directories or volumes if you look up their FileID's, e.g. **dir:171,24351** would search just those volumes or directories (and subdirectories). Or use **folder:** or **volume:** to search by name and check that one of the file's parent folders or the volume matches the given name, for example **folder:pictures** or **volume=Untitled**. Use **online:** or **offline:** as a shortcut to only search those volumes which are currently mounted and available (or not).

Disk usage pie chart

Use the **Pie Chart** tab to summarise the contents of a folder and understand what is using up your disk space:

- The largest sectors around the central circle show which subdirectories of the selected folder are using up the most space
- Click on a sector to expand that directory
- Click on the parent folder name (in the top left title) to move back "up" a level
- The *grey* segments represent folders, while the *coloured* segments represent files (of different types, such as images or text files, as shown in the key on the right)



Expanding archive contents

By default, common archive file formats (including .ZIP, .TAR, .TGZ, .7Z, and .DMG files) are expanded in the index so you can browse, search, and view the contents of files within the archive, or copy them, as if they were normal files. The files are automatically expanded to temporary storage, but only when needed (and they are deleted again afterwards), so they don't take up unnecessary extra space on disk.

You can turn this functionality off using the **Expand Archives** option in the **File** menu. (If you change this setting it only takes effect the next time the volume is scanned, whether using **Scan For New Files** or in **Automatic Mode**.)

Volumes

A Blitz index can describe files from many different “volumes”, including your own personal home directory, the ‘shared’ data directory (/Users/Shared), external removable drives (such as USB drives, memory sticks and SD cards, CDs or DVDs, etc.), and network drives such as Windows SMB shares or NAS (“network attached storage”) volumes.

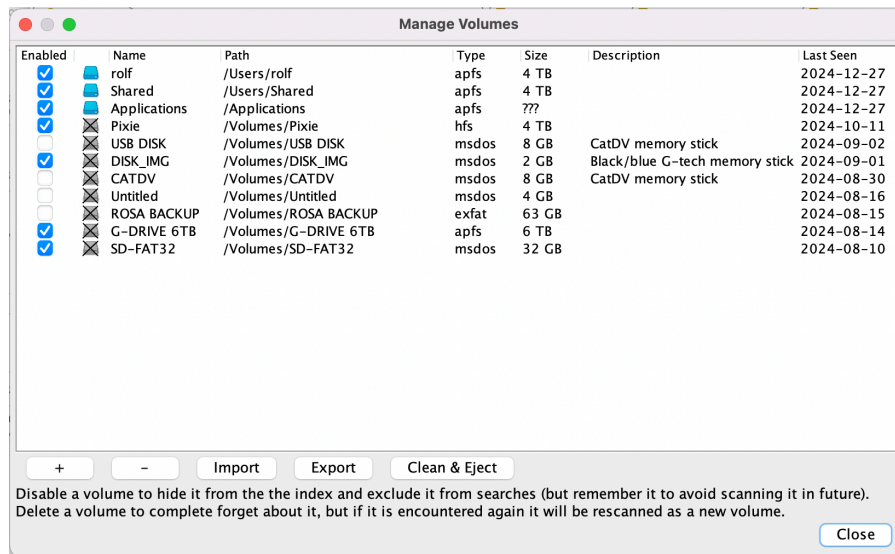
At the top level of an index (keep pressing the **Up** button!) you can see all the available volumes, including volumes which are currently offline:

Type	Name	Size	Files	Modified	Description:
rolf	rolf	3.48 TB	362...	2024-09-02 1...	“Black/blue G-tech memory stick”
Shared	Shared	6.45 GiB	4270	2024-09-02 1...	RootDir: /Volumes/DISK_IMG
USB DISK	USB DISK	2.49 GiB	4	2024-09-02 1...	FirstSeen: 2024-09-01 20:32:13
DISK_IMG	DISK_IMG	72.3 MiB	113	2024-09-01 2...	LastSeen: 2024-09-01 21:55:16
CATDV	CATDV	12.2 MiB	78	2024-08-30 1...	
Untitled	Untitled	3.07 GiB	261	2010-11-22 1...	
G-DRIVE 6TB	G-DRIVE 6TB	1.77 TB	732...	2024-08-14 1...	File System
SD-FAT32	SD-FAT32	46.8 MiB	11	2024-08-10 1...	VolumeRoot: /Volumes/DISK_IMG
DEMAND2016	DEMAND2016	91.1 MiB	221	2024-08-06 1...	MountFrom: /dev/disk5
NO NAME	NO NAME	115 MiB	329	2024-08-06 1...	FileSystemType: msdos

In automatic mode whenever a new volume is mounted it is scanned and added to the index automatically (and you are prompted to enter a description of the volume, for example a physical description of the memory stick).

Volumes are normally managed automatically, but you can use the **Manage Volumes** command for finer control over the volumes in an index:

- Use ‘+’ to manually add a directory to the index as a new “volume”
- Use ‘-’ to remove a volume from the index. All details about the volume are forgotten, so if you are in automatic mode and mount the drive again it will be rescanned as if it was a new volume.
- Alternatively, click the checkbox alongside the volume name to disable a volume. This will hide it from the file list (and from search results, and prevent it from being scanned) but the index remembers details about the volume so it won’t be added if it appears again.
- In “manual” mode you can index a volume (or directory) using the **Open** command and then save it as an index, and use the **Import** command to combine indexes together. This will result in a new ‘volume’ for that index.
- Use the **Export** command to save selected volume(s) to a new index file, perhaps to archive volumes you are no longer interested in prior to deleting them, or to break a large index up into several smaller ones for specific purposes.
- The **Clean & Eject** option is useful when indexing Windows USB memory sticks and will remove hidden Mac-specific files (like .DS_Store, .Trashes, and .Spotlight-V100) that the Finder might pollute the drive with, before unmounting the drive once it has been indexed.



Finding duplicate files

Blitz Indexer has several features to help you find and manage duplicate copies of a file:

- When performing a query you might sometimes find several copies of the same matching file in different locations or on different volumes, in which case the file list collapses these and shows a single row for each unique file.
- The count of files shown in the Files column.
- Tick the **Duplicates** checkbox to expand the list and show all the files.
- The **Identical Copies** tab shows all the other files which have exactly the same contents as the selected file.

- The **Visually Similar** tab shows images which have similar contents to the selected image but aren't identical copies of the file; perhaps the images were re-scaled, or their colour was adjusted.
- You can also use the **Find Duplicates** window (see below).

Find Duplicates window

The **Find Duplicates** command will search for and display all the duplicate files within the selected folder(s) or volume(s). You can mark which versions to retain or to delete and then remove the duplicates.

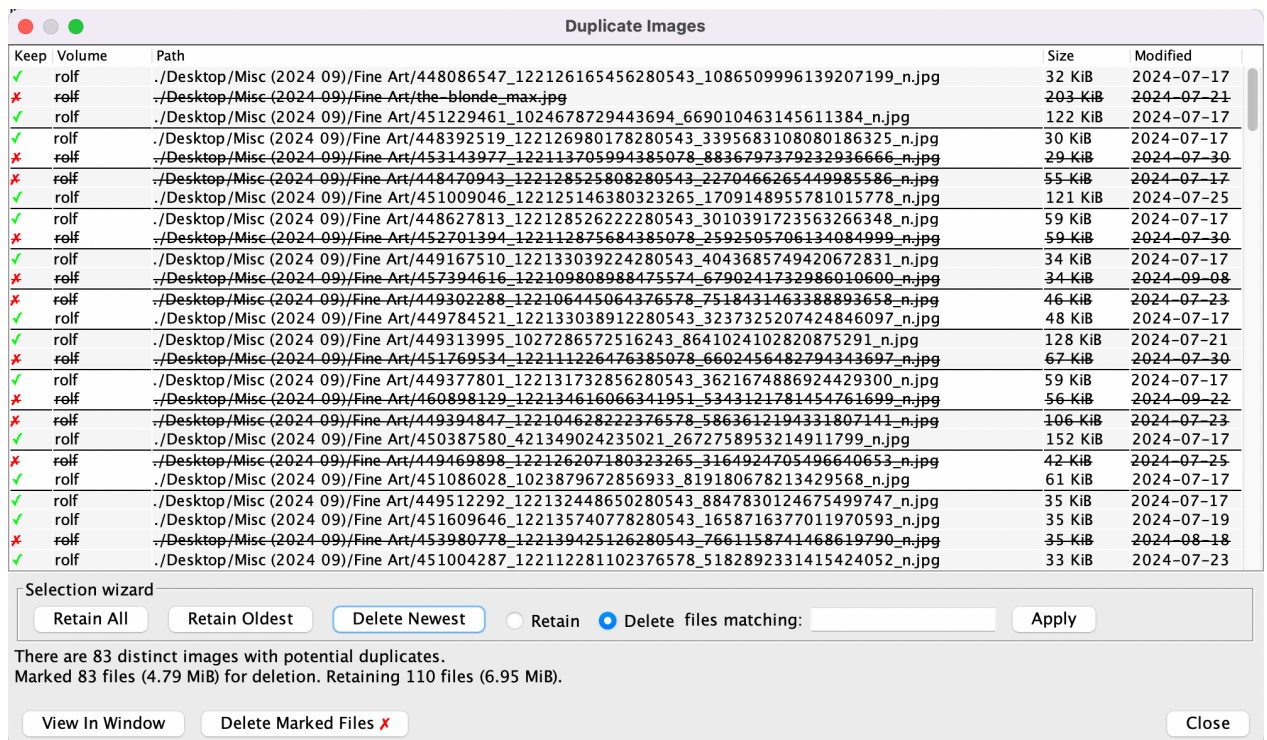
You can find:

- identical copies of files,
- duplicate directories,
- archive files and expanded directories with the same contents, or
- visually similar images.

In each case the results are sorted by size, to help you see how much disk space you can save by deleting unnecessary copies.

Within each group of files you can decide which of the copies to keep (✓) and which to delete (✗).

Note: Although the Find Duplicates command has some built-in protections (for example, it won't let you delete all versions of a file, or the highest resolution of an image leaving only lower resolution copies), you should still take care before confirming deletion as occasionally an unrelated image might be reported as being "similar".



Keep	Volume	Path	Size	Modified
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/448086547_122126165456280543_1086509996139207199_n.jpg	32 KiB	2024-07-17
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/the_blonde_max.jpg	203 KiB	2024-07-21
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/451229461_1024678729443694_669010463145611384_n.jpg	122 KiB	2024-07-17
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/448392519_122126980178280543_3395683108080186325_n.jpg	30 KiB	2024-07-17
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/453143977_122113705994385078_8836797379232936666_n.jpg	29 KiB	2024-07-30
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/448470943_122128525808280543_2270466265449985586_n.jpg	55 KiB	2024-07-17
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/451009046_122125146380323265_1709148955781015778_n.jpg	121 KiB	2024-07-25
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/448627813_12212852622280543_3010391723563266348_n.jpg	59 KiB	2024-07-17
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/452701394_122112875684385078_2592505706134084999_n.jpg	59 KiB	2024-07-30
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/449167510_122133039224280543_4043685749420672831_n.jpg	34 KiB	2024-07-17
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/457394616_122109808988475574_6790241732986010600_n.jpg	34 KiB	2024-09-08
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/449302288_122106445064376578_7518431463388893658_n.jpg	46 KiB	2024-07-23
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/449784521_122133038912280543_3237325207424846097_n.jpg	48 KiB	2024-07-17
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/449313995_1027286572516243_8641024102820875291_n.jpg	128 KiB	2024-07-21
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/451769534_122111226476385078_6602456482794343697_n.jpg	67 KiB	2024-07-30
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/449377801_122131732856280543_3621674886924429300_n.jpg	59 KiB	2024-07-17
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/460898129_122134616066341951_5343121781454761699_n.jpg	56 KiB	2024-09-22
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/449394847_12210462822376578_5863612194331807141_n.jpg	106 KiB	2024-07-23
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/450387580_421349024235021_2672758953214911799_n.jpg	152 KiB	2024-07-17
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/449469898_122126207180323265_3164924705496640653_n.jpg	42 KiB	2024-07-25
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/451086028_1023879672856933_819180678213429568_n.jpg	61 KiB	2024-07-17
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/449512292_122132448650280543_8847830124675499747_n.jpg	35 KiB	2024-07-17
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/451609646_122135740778280543_1658716377011970593_n.jpg	35 KiB	2024-07-19
✗	rolf	./Desktop/Misc (2024 09)/Fine Art/453980778_122139425126280543_7661158741468619790_n.jpg	35 KiB	2024-08-18
✓	rolf	./Desktop/Misc (2024 09)/Fine Art/451004287_122112281102376578_5182892331415424052_n.jpg	33 KiB	2024-07-23

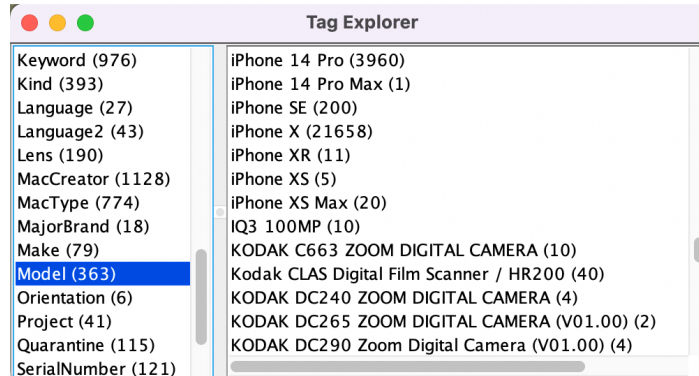
Selection wizard

Retain
 Delete files matching:

There are 83 distinct images with potential duplicates.
 Marked 83 files (4.79 MiB) for deletion. Retaining 110 files (6.95 MiB).

Browsing related files

- Use the **Show Map** window to show images with GPS location data on a map. You can also manually geotag other images if desired. (For more details on using the map window see below.)
- Use the **Tag Explorer** window to list all the distinct metadata tags and values (such as camera make and model, file type, video format, author and copyright information, etc.) and show all the matching images and files:

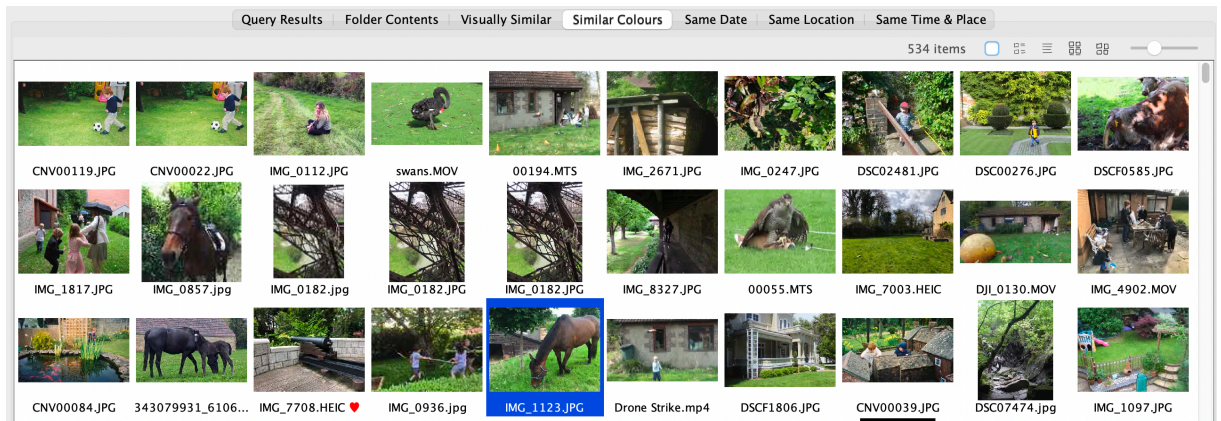


- Use the **Camera Time Line** window to show all the different cameras you used over the years, and show all the images from any particular camera:

Camera Time Line




- 2006**
 - [Canon Digital IXUS 55](#) (1027)
 - [Canon Digital IXUS 60](#) (952)
 - [Sony Cybershot U](#) (548)
 - [Canon EOS 5D](#) (198)
 - [Sony HDR-HC3E](#) (129)
 - [Olympus Corporation E-1](#) (90)
 - [Fuji Photo Film Co., Ltd. SP-1500](#) (22)
 - [Canon EOS 350D Digital](#) (16)
- 2007**
 - [Canon Digital IXUS 60](#) (1206)
 - [Canon EOS 400D Digital](#) (581)
 - [Apple iPhone](#) (72)
 - [Kodak Z740 Zoom Digital Camera](#) (22)
 - [Canon EOS 30D](#) (7)
 - [Canon EOS 5D](#) (6)
 - [Fujifilm Finepix S3Pro](#) (6)
 - [Canon EOS 350D Digital](#) (5)
- 2008**
 - [Canon EOS 400D Digital](#) (429)
 - [Canon Digital IXUS 60](#) (426)
 - [Apple iPhone](#) (192)
 - [Nokia 6210 Navig](#) (109)
 - [Ricoh GX200](#) (60)
- ...

- Other tabs at the bottom of the window (including **Visually Similar**, **Similar Colours**, **Same Date**, and **Same Location**) show other files which are related to the currently selected image:



Tagging images (and other files)

Use commands in the **Item** menu (or the corresponding keyboard shortcuts) to tag files as:

- Favourites  (highlight your best images so you can easily find them)
- Marked  (make a selection of files for a particular purpose)
- Hidden  (uninteresting or private files are suppressed from view by default)

If an image was tagged as a favourite or hidden on your iPhone then that tag is imported into the index, but note that any tags that you add in Blitz Indexer are stored in the index, not in Apple Photos, as you can tag files and documents other than images. (Similarly, if you add a location to files using the map, these are stored in the index and not in the file because you can add locations to files that don't support geotags.)

Use the **Edit Comments** command add notes or a description to files. Unlike tags and locations, these are stored both in the index *and* in the file itself (as Finder Comments in the file's metadata).

Using the map

You can view the exact location where a photo or video was taken (assuming it contains Exif location data) using either the Apple Maps application or in Google Maps (which launches in an external web browser). You can also use the built-in base map viewer which is less detailed but works if you are offline.

Look at the **GPSCoords** field in the metadata panel and click on ▶ M, ▶ A, or ▶ G to open the built-in map viewer, Apple Maps, or Google Maps respectively:

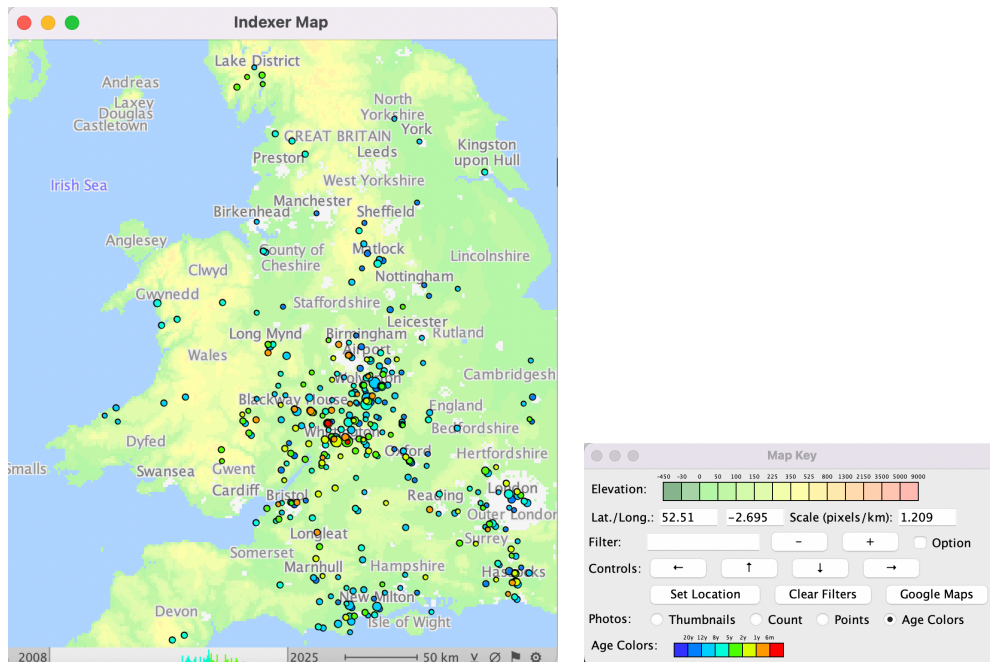
OriginalDate:	2023-07-15 12:34:41+01:00
GPSCoords:	51°54'39"N, 1°58'54"W (▶M , ▶A , ▶G)
Location:	2.4km N of Whittington, 3.3km SE of Cleeve Hill Common

You can click on the coordinates to toggle the display between degrees minutes and seconds or decimal degrees.

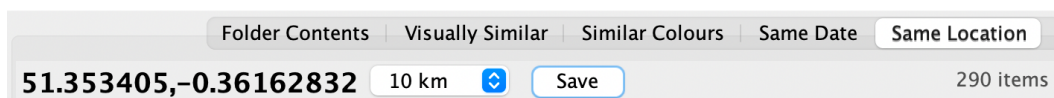
Using the built-in map viewer:

- Click on ▶ M or use the **View Map** command, to open the built in map and show where the photo was taken.

- If you don't select a single photo then all the geotagged photos in the current view are shown.
- You can switch the view between showing thumbnails, a count of images taken at each location, or coloured "age colour" blobs to indicate approximately how long ago you took photos in different places.
- Press the cog button (⚙️) to display the map key and controls panel, where you can select the type of view:



- Press the flag button (🚩) to launch Google Maps and show the current location in a web browser and show a more detailed map
- Use the date slider at the bottom left of the window to adjust the date range and filter which photos are shown on the map
- Press the circle button (∅) to clear any filters and show all the photos
- Press the down arrow (∨) to tag selected file(s) with the current map location. (Note that manually set locations are stored in the Blitz index, not in the file itself, but this also means you can tag files that don't normally store location information.)
- You can name your own favourite locations using the **Save** button on the **Same Location** tab. Named locations are shown in blue on the map, and can be used for searching.

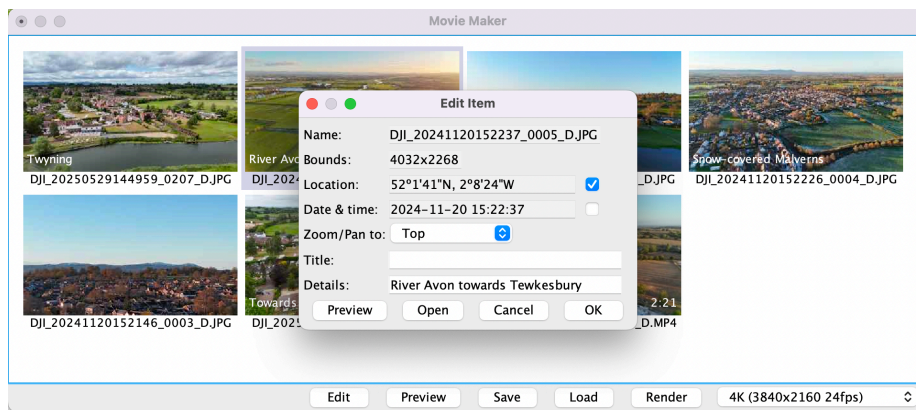


Movie maker

Using the **Movie Maker** command you can combine still images and videos to create a relaxing "slow TV"-style video of landscapes and similar images (similar to Apple TV

screensaver movies). This command is particularly designed for use with 4K drone footage (such as from the DJI Mini Pro 4 or similar).

- Drag and drop files into the window to add them to the project or rearrange the order
- Video is slowed down to 24fps for a cinematic effect
- Slowly zoom in and pan over still images
- Optionally include a description of the location or GPS coordinates in the corner of the image
- Drone video with a slow, smooth, continuous movement works best. If the source movie includes rapid movements enter the start and end time in seconds of the smooth section you want to use.
- Quickly preview the movie at double speed and then render it to the final output movie (either H.264 MP4 or MJPEG MOV) at full quality.
- Double click an item to view it, or right click to edit the item's settings.
- The options are deliberately minimalist (eg. there is no audio, stills are always 20s long, the font size and position of titles is fixed).
- All you choose for each item is whether to include a title in the corner, where to zoom in on still images, and where to start/end a video:



Metadata fields

Various types of information are read from a file, including:

- Basic file system metadata (file size, last modification time, etc.)
- MacOS Finder and Spotlight metadata
- “Classic” MacOS metadata (file type and creator, and content of resource forks)
- TIFF and Exif metadata from images (JPG, PNG, GIF, DNG, PSD, TIF, RAW, CR2, etc.)
- QuickTime, ID3, and FFmpeg metadata from other media files (MOV, MP3, M4A, MP4, MXF, AVI, etc.)
- Document metadata from common Office files (PDF, DOC, DOCX, XSLX, PPTX, etc.)
- Information from reading the content of files (eg. character encoding and language of text files, processor architecture of executable files, etc.)

A full list of fields that are stored in the index (to summarise the contents of a file and for searching) is shown below. Exactly which fields are available for any given file depends on the type of the file.

AccountID	For iTunes Music Store purchases
Album	The album for music files (from ID3 metadata etc.)
Artist	The artist for music files (from ID3 metadata etc.)
Audio	Codec and format for music files and movies (eg. 'MP3', 'AAC (LC)', 'pcm_s16le', etc.)
AudioChans	The number of tracks or channels in a music file or movie
AudioRate	The audio sampling rate, for music files and movies
Author	The author of Word or PDF documents (if stored in the document's metadata)
ColorModel	The bit-depth and colour model of the image, eg. '8-bit RGB' (Exif metadata)
ColorProfile	The ICC profile name of the image, eg. 'sRGB IEC61966-2.1' (Exif metadata)
Comments	Any comments or notes found in the file, including Finder Comments, comments in Word or PDF document, TIFF comments, etc. May also detail any errors that occurred while analysing the file. Unlike most other fields this field is <i>editable</i> ; if you edit the comments they are stored both in the index <i>and</i> as Finder Comments in the file.
Company	The author's organisation for Word or PDF documents (if stored in the document's metadata)
Composer	The composer of a music file (from ID3 metadata etc.)
ContentPreview	The size and type of a small preview that is stored in the index to describe the contents of a file, eg. a thumbnail image, or a compressed plain text version of Word documents (see also Thumbnail)
Copyright	Any copyright notice stored in TIFF or other metadata in the file
Country	Optional information about where a picture was taken or file originated that may be stored in TIFF or other metadata in the file (see also State)
CropFactor	Conversion factor between FocalLength and FocalLen35mm (if that is available from FocalPlaneResolution and PixelDimension Exif metadata)
DominantColours	Up to four dominant colours that occur in an image. Although not exact, this is used to find images containing similar colours.
DownloadFrom	Which web site the file was downloaded from if the file is quarantined by the Mac Finder
Encoder	The software or video codec used to encode the movie
Encoding	The character encoding for text files (eg. 'UTF-8', 'Latin-1', 'MacRoman', 'ISO-8859', etc.), also the line ending ('Classic Mac', 'Unix', or 'Windows')
Exposure	The camera exposure time when a photo was taken (Exif metadata)
Favorite	Indicates the image was marked as a favorite on your iPhone or in the Photos.app, which will result in the image being marked as a favourite in the Blitz index. Note that if you "favourite" an item in the Blitz index it won't update the file itself (in Blitz you can favourite all kinds of files, even though macOS only supports favouriting image files).

FileHash	A hash calculated from the file's contents, so if two files have the same contents they will have the same hash, while the chance of two files with different contents having the same hash is very low
FileID	An ID for the file record within the Blitz index.
Filename	The name of the file in the file system
FileType	The basic type of the file as determined by Blitz Indexer (eg. 'Picture', 'Movie', ' Document', 'Executable Library', 'XML Text', etc.)
FinderTag	Any Finder tags stored against the file
Flash	Whether flash was used or not when a photo was taken (Exif metadata)
FNumber	The camera aperture when a photo was taken (Exif metadata)
FocalLen35mm	The "equivalent focal length" that the lens would correspond to on a classic 35mm film camera, if known. This gives an indication of field of view (where 28mm is considered wide angle, 50mm a standard lens, and 135mm a telephoto lens). This will differ from the actual focal length, depending on the size of the camera's sensor. See also CropFactor.
FocalLength	The actual focal length of the lens when a photo was taken (Exif metadata)
Folder	The file path of the parent folder where the file is located
FrameRate	The number of frames per second for movies
FrameSize	The width and height of an image or movie file
Genre	The music genre for music files
GPSCoords	The latitude and longitude where a photo or movie was taken, if this information is available in Exif or other metadata within the file. This field is editable using the map; if edited the new location is stored in the index (so you can set a location on files which don't normally support location metadata). See also Location.
HandlerName	The media handler for QuickTime or MP4 movies
Hidden	Indicates the image was marked as hidden on your iPhone or in the Photos.app, which will result in the image being marked as a hidden in the Blitz index. Note that if you hide an item in the Blitz index it won't update the file, as you can hide files other than images, as well as complete folders
ImageHash	Together with UncertaintyMask this is used to find visually similar copies of an image scaled to another size
IndexedWords	For text documents, a count of the number of unique words that are indexed and can be used when searching for this document
Inode	The Unix inode number is unique for each file within a volume
ISORating	The ISO gain when a photo was taken (Exif metadata)
ItemContentType	The Spotlight kMDItemContentType field, eg. 'public.xml' or 'com.apple.property-list', for known extensions, or 'dyn.*' for others.
Keyword	Any keywords in TIFF or XMP metadata or in Office documents
Kind	The type of the file, as reported by the Finder or determined by analysing the contents of the file (eg. for executable binaries this may include the processor architecture)

Language	Which language or languages a text file or document is in, guessed by inspecting the contents of the file, including identifying anything that looks like computer code rather than plain text
LatestMtime	For folders, the latest modified time of any file within the folder
Lens	A description of the lens used when a photo was taken (Exif metadata)
Linked	For soft and hard links and for aliases a link to the next related file
Location	The name of a location if GPSCoords are present and the user entered a name for a nearby location
MacCreator	For Classic MacOS files the FOURCC "creator" code (eg. 'R*ch' or 'MOSS') that typically describes the application used to edit the file
MacResource	See 'ResourceTypes'
MacType	For Classic MacOS files the FOURCC "type" code (eg. 'TEXT' or 'JPEG') that describes the file format
MajorBrand	A FOURCC that gives more details about the type of file in an MP4 or QuickTime movie container
Make	The make of camera that was used when a photo was taken (Exif metadata)
MetadataID	An ID for the metadata record within the Blitz index that describes the file's contents. If two files have exactly identical contents they will typically share the same file metadata record.
Model	The model of camera that was used when a photo was taken (Exif metadata)
Modified	The file system date the file was last copied or modified (see also OriginalDate and LatestMtime)
Orientation	The orientation of Exif images that says whether the camera was held in portrait or landscape orientation
OriginalDate	The date a photo or movie was taken or a document was created, if this is available in Exif or other metadata within the file (see also Modified)
PageCount	The number of pages or slides (for Word and PDF and PowerPoint documents)
PalmCreator	The FOURCC creator application signature for Palm OS PDB files
PalmType	The FOURCC file type signature for Palm OS PDB files
Project	The project name available for some movie files and Office documents
Quarantine	Which application download the file if the file is quarantined by the Mac Finder
Reference	A reference associated with the file (eg. if the file was derived by editing another file, a QuickTime movie references other source files, etc.)
ResourceFork	Size in bytes of a Classic Mac resource fork, if present
ResourceTypes	The FOURCCs of which types are present in the resource fork. When querying or browsing an individual type in the tag explorer it's referred to as MacResource.
SerialNumber	The camera serial number (Exif metadata)
Size	The size of the file in bytes

SizeOnDisk	The total size a file actually occupies on disk, allowing for block sizes and resource forks etc.
Software	The software version that was used to create or edit the file
Special	Additional information for special files such as the path to the original file for symbolic links and aliases, special flags like 'uchg', the number of hard links to a file if it's linked more than once, and so on.
State	Optional information about where a picture was taken or file originated that may be stored in TIFF or other metadata in the file (see also Country)
Template	The template an Office document was based on
Thumbnail	The frame size of the thumbnail preview (see also ContentPreview)
Title	The song title for music files or title of a Word or PDF document
TotalFiles	For folders, the total number of files within the folder (or nested subfolders)
TotalSize	For folders, the total size of all the files in that folder (or nested subfolders)
Type	The low level file type (for special files, symbolic links, etc.)
UncertaintyMask	Used together with ImageHash to determine if two images are visually similar
Video	The video format or codec for pictures and movies
XMLKind	The top level tag for XML files
Year	The copyright or creation year that might be stored in metadata in the file, eg. for music files

Exporting data

You can export data for selected files and directories in a wide variety of formats.

With **Export As Text** you can:

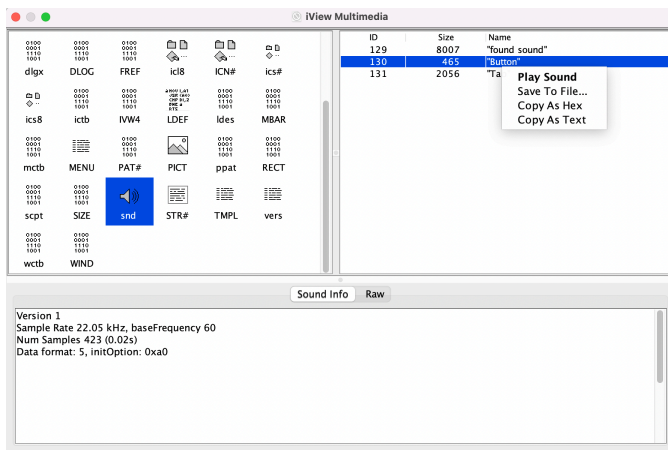
- Set up a template consisting of optional prefix (for example, a CSV header row) and suffix, plus the main pattern to be repeated for each file
- Use the field chooser and **Copy** button to copy selected fields into the template, including the specified separator between fields
- Export as comma-separated (.csv) or tab-separated files (.tsv, .txt or .tab) for importing into spreadsheets and databases by choosing the appropriate separator
- Export a shell script of commands, which you can run from the command line, to perform batch processing on selected files
- Depending on the desired application you may need to quote any fields that might contain spaces or other special characters
- Use the **Preview** button to see what the output might look like

Use **Export As XML** to save an XML file, including thumbnails, that can be imported into the "CatDV" media asset management system

Use **Export As Image** to export selected files as a JPEG or PNG file, scaling and setting the compression quality as required. (Note that if you export a movie or PDF document only the first frame or first page is exported.)

Other features

- Extract and store basic content previews to summarise the contents of most kinds of files even if the volume is offline (including a low-resolution version of photos, a contact sheet for movies, a plain text version of Office and PDF documents, album art for MP3 files, a dump of the structure of sqlite3 database files, or a hex dump of other files)
- Heuristics to identify the language of text documents
- Basic support for legacy Classic Mac OS files for use when indexing old hard drives, including reading PICT images and old Word 5.1 documents, searching on type and creator, and more.
- Built-in (read-only) “ResEdit” command to examine the resource fork of a Classic Mac file:



- Files are processed, and indexes are stored, locally on your hard drive, without requiring permanent internet access or being dependent on a 3rd party service that might be discontinued one day.
- Built-in PDF viewer with support for extracting a plain text version of the document either in the order it occurs in the document or from top to bottom, to work around problems that often occur when trying to copy and paste text from a table.

Recent changes

- UI changes to make it clearer that the file list is “where you are” while the icon panels are “what you’re looking at” (so you can preview similar images or the contents of a folder without opening it).
- Ability to replace duplicate files with hard links (so a file can appear in two locations but only use up one lot of storage on disk)
- Check for software updates when the application starts up
- Improved filtering so you can exclude archive entries or offline files from search results

- Incremental searching as soon as you type into search field. Right click on a folder to search within that folder.
- Option to show a flattened view of all the files anywhere within a folder
- New 'Movie Maker' command to create gentle screensaver movies from drone footage
- Reorganised menus, with new section in manual describing menu organisation
- Better handling of local vs absolute time, including displaying original timezone for PDF and HEIC files
- Summarise common fields in the metadata panel when selecting multiple files
- Improvements to the icon panel, including options for square thumbnails or to show the filename extension when thumbnails without text are shown
- Fix handling of multiple volumes (eg. /Volumes/Untitled) with the same name
- Basic support for legacy Palm OS .pdb files, including photos and PalmDoc eBooks
- New 'ResEdit' command to view resource fork of Classic Mac files, plus ability to browse by MacResource type in the tag explorer
- Click on dates, file sizes and GPS coordinates in the metadata panel to toggle the display format
- Improvements to the 'Export As Image' command.
- Fixes related to analysis of certain AIFF, TIFF and PICT files
- Include TwelveMonkeys and Batik libraries for PICT and SVG support
- Ability to search within the currently selected directorie(s) or volume(s)
- Allow specific directories to be excluded from the index by looking for a hidden file called '.noblitz'
- Add 'Export As Text' and 'Export As XML' commands
- Improvements to 'Find Duplicates' window, including support for finding when you have both a ZIP (or other archive) file and a directory containing the expanded contents
- New command to 'Manage Volumes'
- Support for indexing the contents of ZIP and other archives
- Disk usage pie chart
- Performance and memory usage improvements
- Better detection of moved and renamed files
- Fix description of certain files including source code etc.
- Automatically reanalyse files that were previously analysed by an older version of the software and might not be described as well as they should be
- Improved PDF viewer, including settings that control how to extract text
- Improvements to full screen mode (double click any image, text file, PDF document, movie, etc. to view it, then press 'F' to toggle full screen mode or Esc to close the viewer)
- Add a tag of Language=Code for anything that looks like computer source code rather than plain text
- Searching improvements related to hyphenated words, telephone numbers, numbers with a decimal comma, etc.
- Group fields in the metadata panel by type
- Sort icons in the folder contents tab to match the sort order of the file list (when you click on a column header)

Known issues

- The current user interface is primarily intended as a proof of concept to test underlying functionality and might be replaced by a very different interface (for example, a web-based UI).
- Several other planned features (removing duplicates of a file to save disk space or replacing them with hard links, organising photos into albums, comparing files or directories, etc.) haven't been implemented yet, or only partly implemented.
- There is no specific integration yet with cloud storage solutions (such as iCloud, DropBox, Sharepoint, or Google Drive)
- Currently the application runs on Macintosh only but a version for Windows is planned for a future date, as is a networked version to allow searching across different machines.

Glossary

Absolute path	A complete <u>file path</u> from the root directory of the computer that uniquely identifies the location of a file. Absolute file paths start with a slash, eg. /Users/rolf/Desktop/receipt.pdf
Alias	A file that contains a reference to another file or directory, usually including the filename and file path as a minimum, but possibly additional information such as the file ID that can help locate the file if the original file is renamed or moved. Unlike <u>soft links</u> , an alias is a normal file that the Finder (and most other Mac software, but not all) needs to interpret to access the original file. Aliases are called “shortcuts” on Windows.
Archive	Some file formats like ZIP (but also TGZ, JAR, TAR, DMG, 7Z, etc.) wrap up a whole directory of files into a single archive file that makes it easier to share a lot of files in one go, and often also compresses them to take up less space. Blitz Indexer lists all the individual files in the archive, saving you from having to expand the archive to see what it contains.
Bundle	Any <u>package</u> that has a standardised structure including a Contents subdirectory and Info.plist file
Classic Mac	The original Apple Macintosh operating system, in use from 1984 to 2001, which used a different way to represent files from later versions of macOS (for example by using type and creator codes rather than filename extensions, and storing the contents of a file in two parts, the so-called ‘data’ and ‘resource’ forks).
Desktop	A special subdirectory in your home directory where the Finder displays any files in this folder on the background of your screen.
Directory	Another name for a <u>folder</u> . (‘Directory’ is normally used when talking about the underlying file system, while ‘folder’ is what the user sees in the Finder, but they are the same thing.)
Document	A file containing useful user data, perhaps a spreadsheet or an image you have edited or a Word document, which you can open and edit in the

application that created it and then save, with a different name or to a different location if desired. Documents are files you can manipulate directly and are typically stored in your Documents folder or on the desktop. Some applications use documents, while others use a library user interface.

Exif metadata	EXIF is a standard, agreed between camera manufacturers, for including extra technical information about the photo alongside the image itself in a digital image file such as JPEG or TIFF. This <u>metadata</u> comes from the camera and generally includes the date and time the photo was taken and camera settings such as the exposure, lens focal length, whether flash was used and much more. Photos taken on a mobile phone will usually also include latitude and longitude GPS location information.
Extended attrs	Files on the Mac can have special metadata which is stored by the file system, not in the contents of the file. These extended attributes include Finder metadata as well as other app-specific data. In Blitz Indexer extended attributes appear in the FinderTags, DownloadFrom, Quarantine and Comments fields and whether a photo is hidden or a favourite.
Extension	Part of the filename following a period that is usually used to describe the type of a file. Common filename extensions include .JPG, .DOCX, .TXT, .ZIP, or .PDF. Extensions can be in upper or lower case. Because a filename can include periods and other punctuation as part of the name it's not always clear what is an extension and what is part of the name. Blitz Indexer assumes that something is an extension if it is up to 8 characters long and only consists of the letters A-Z and digits 0-9.
File	A named collection of data such as an image, document, or other information stored on a device. Files have a filename and may have an extension such as .docx or .jpg, and are usually organised into <u>folders</u> .
File path	For a file on a <u>volume</u> to be accessible you need to be able to get to it by following a chain of folders from the root directory of that volume. This will give you the file path, for example RootDirectory → Folder → Subfolder → Filename.ext, written /RootDirectory/Folder/Subfolder/Filename.ext
File system	How the computer organises files on a storage device. Common types of file system include Apple HFS+, APFS, and FAT32.
Finder	The default file manager and user interface software on the Mac.
Folder	A named collection of <u>files</u> or other folders, a place where to “put” files. Folders are also known as directories. Most computers have predefined special folders such as your desktop folder, Documents and Downloads folders and more, but you can also create your own named folders and put folders inside other folders (also known as sub-directories).
FOURCC	A ‘four character code’ such as ‘TEXT’ or ‘MooV’ or ‘icl4’ used by some systems (such as QuickTime or <u>Classic Mac OS</u>) to define the type of a file or a piece of data. The advantage of such codes is that they can be stored very efficiently using a single 32-bit integer while still being mnemonic.

Hard link	With some types of file system it is possible for the same file to have multiple file paths that refer to it – one file can literally be in more than one place. You can create additional hard links to a file and each link to the file is as good as any other. There is no such thing as the ‘original’ or ‘main’ location and it’s only after you delete all the places where the file exists that the storage taken up by file itself is freed up.
Hash	A hash (or checksum) is a number calculated by reading the contents of a file so that if two files are identical they will have the same checksum, and if two files have the same checksum it’s very likely (but not absolutely guaranteed) that they are the same. Hashes are commonly used to detect duplicate files and to verify that a file hasn’t been corrupted or altered.
HEIC	A modern, high efficiency image format used when taking photos on iPhones and other devices. Not all applications, especially on Windows, support HEIC files so you may need to save images as a JPEG file for maximum compatibility.
Home directory	The top-level directory where all the user’s files and folders are stored, including the Desktop and Documents folders. The home directory is sometimes hidden and you are discouraged from accessing it directly because moving or renaming files there can stop the system working properly.
JPEG	The most common file format for storing digital photos and other images. JPEG files use lossy compression but if you choose a high compression quality setting the losses are virtually imperceptible for photos, though for graphics and screenshots <u>PNG</u> files are more appropriate. Like <u>TIFF</u> and <u>raw</u> files, JPEG files often contain <u>Exif metadata</u> about when the photo was taken.
Library	A collection of useful data where access is controlled automatically by the application that owns it. Even though the data is stored in normal files behind the scenes, these files aren’t directly exposed to the user in the user interface, and if you should happen to move or rename one of the files the software is likely to stop working. On the Mac, applications like Contacts and Photos use a library interface, while others like Pages and Word, or Numbers and Excel, use a <u>document</u> interface.
Link	There are several mechanisms by which you can “link” a file to make it appear in another folder from where it was originally created: <u>soft links</u> , <u>hard links</u> , and <u>aliases</u> . These all let you access the same file from more than one location but each mechanism has different pros and cons.
Metadata	Information describing a file that will help you find it and know what is in it. This includes file system metadata (such as the filename, extension, and last modification time) and metadata that might be stored or “embedded” in the file itself, such as the title and author of a document or <u>Exif metadata</u> in photos.
Mounted	When a volume is connected and made available to the operating system so its files can be accessed. When you plug in a memory stick or USB drive it is normally mounted automatically after a few seconds.

Offline	Offline just means “not connected” and is used in two different contexts in Blitz Indexer. An <i>offline volume</i> is a hard disk or memory stick that isn’t currently connected (or <u>mounted</u>) so the files on it aren’t accessible, even though those files and a concise summary of their contents might be listed in the index. <i>Offline operation</i> means the software stores its data locally and will work without requiring a connection to the internet.
Package	A folder that appears as if it were a single file in the Finder (for example .app application bundles, a Photos library, installer packages, etc.).
Palm OS	The operating system (and file format) used by PalmPilot and other PDAs from 1996 to 2011.
PDF	Portable Document Format, a kind of file that is very widely used to store a read only printable version of a document for sharing with people who don’t have the application needed to open the original file. PDFs are usually generated by “printing” the original document but then choosing “Save As PDF” when the print dialog window appears. PDFs can contain metadata such as the author of the document.
Permissions	Files and directories have permissions associated with them by the file system that control which users can read or write the file.
PNG	Another common image format, especially suitable for graphics and screenshots because, unlike <u>JPEG</u> , PNG compression is lossless.
Query syntax	Special characters and keywords that have a particular meaning and can be typed in when searching for files to refine the search (for example to search by filename rather than by contents of a file).
QuickTime	Apple’s original format for movie files dating all the way back to Classic Mac OS. They have now largely been replaced by MP4 files for distribution, though both MP4 and QuickTime MOV files share the same underlying structure and Blitz Indexer will read metadata from either.
Relative path	Unlike <u>absolute paths</u> , a relative path is incomplete and specifies the location of a file <i>relative</i> to a particular folder.
Root directory	Every <u>volume</u> has a single top-level <u>folder</u> or root directory which ultimately contains all the files on that volume, either directly in the root directory or in a (nested) sub-directory of the root directory.
Raw file	Digital cameras usually give you the option whether to save images as <u>JPEG</u> or raw files. Raw files are larger and less compatible (you will generally need specialised digital photography software to work with them) but give access to the raw sensor data for the best possible quality, especially if you want to do detailed colour correction.
Soft link	A soft link (also called a “symbolic link”) is a special kind of file that stores the path (either absolute or relative) to another file or directory. Unlike <u>aliases</u> , soft links are stored in the file system itself, not in the contents of the file.
Spotlight	Apple’s built-in software for indexing and searching files. Although superficially there is overlap between Spotlight and Blitz Indexer some key differences include that Blitz works with both online and <u>offline</u> files,

is much more transparent about what it is doing, and will index everything rather than silently ignoring files that the system doesn't want you to know about.

System file	While a user is primarily interested in “useful” <u>files</u> such as documents or photos or applications there are also lots of files such as log files, code libraries, caches, settings files and countless other data that are used behind the scenes by the operating system. Such system files are often protected or hidden from view by default.
TIFF	A lossless digital image format commonly used in professional photography.
Volume	A storage device such as a hard disk, a USB drive, a shared network folder, or a memory stick, especially when it is connected to the computer (is “ <u>mounted</u> ”) and appears as an icon on your desktop or sidebar, is known as a <i>volume</i> . (More accurately, a volume is actually a “logical” storage container, so a physical device such as a hard disk might actually be split into different partitions and have several volumes on it, but for most purposes a volume can be thought of as a drive or disk.)
XML	A highly structured text file, not intended to be viewed or edited directly by users but for storing data by software. Commonly used for exchange of data between applications.
XMP	Metadata standard widely used by Adobe and other software. Unlike <u>Exif metadata</u> , which has information from when the photo was originally taken, XMP metadata is generally added later as part of a complete digital workflow and describes how an image was edited and where it is used.

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