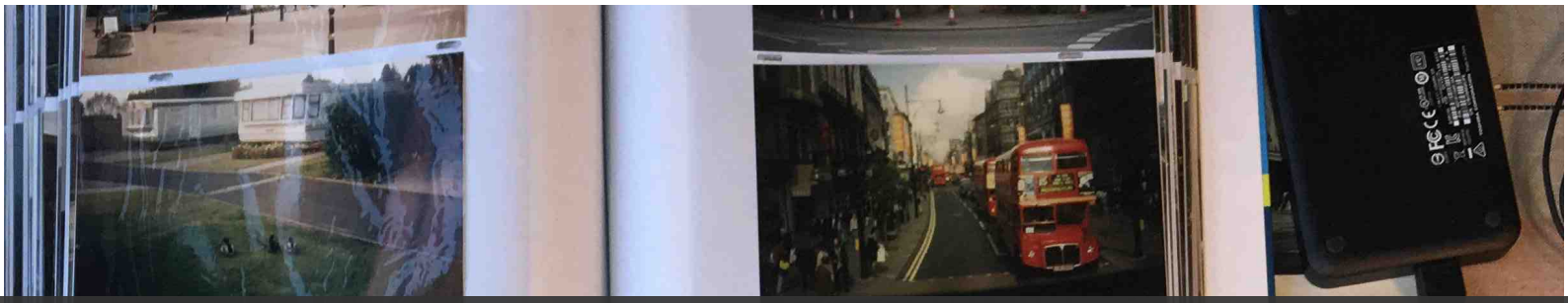

PHOTO AND VIDEO ORGANIZATION

A PRACTICAL GUIDE

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1. INTRODUCTION

OVERVIEW

Are your digital photos in a mess? You are not alone! With the explosion in digital photography over the last few decades, the size of photograph and video collections has increased exponentially and will most likely continue to do so. How can you deal with ever increasing volumes of photos and videos, keeping it organised and under control and relatively future proof? This e-book aims to give you low cost example solutions for how to organise your photos and videos while keeping your head above water!

As well as the influx of photos from our smartphones, many of us most likely have a large collection of digital photographs taken with dedicated digital cameras (from the olden days!). As well, many people will have scanned some or all of their collection of print photos onto their computer. These photos are typically lying around on CDs or DVDs gathering dust! They may also be sitting on a PC or external hard disk in multiple directories and possibly with many duplicates. You may have one or several backups of these photos, again most likely unordered directories with many duplicates. This e-book will help you to organise, deduplicate, backup and share these older digital photographs with friends and families.

APPROACH

There are many options and ways of achieving photo organisation. The approach I have taken in this book is to focus on explaining in detail my personal methods of achieving this, which I have tried and tested. While there are many other approaches available (many of which depend on your available computer hardware and operating systems), I have aimed to choose my options with a preference for open source free software that runs on the major platforms. I have spent a significant amount of time researching the options for photo management and have carefully chosen software that plays well together and has allowed me to enjoy and share my large personal and family photo and video collections while automating the more tiresome tasks.

Also bear in mind that if you choose to use this system then it is also documented extensively (ie in this ebook!) - and if you wish someone else to manage your collection (or create their own using the same principles), then this e-book will become your training material ... far quicker than spending the time to document your own system!

This book aims to focus more on photo management and organisation rather than photo editing and is aimed at the amateur photographer audience, although some concepts could be useful to professional photographers also.

My recommended software for managing photos and videos is digiKam. digiKam is a free open source photo management platform available on Linux, Windows and MacOS.

digiKam functionality includes:

- Reading and writing photo metadata (including hierarchical tags or keywords, photo title and caption)
- Extensive search and filtering capabilities
- Exporting photos to cloud services including Google Photos, Flickr and Piwigo
- Geolocation editing and searching
- Basic photo editing - rotating, cropping etc
- Batch functions - eg renaming photos

Although some basic computing knowledge is required (such as the ability to create and rename folders, move files and folders, edit text files and run command prompt or terminal commands), I have aimed to make the explanations and processes detailed, with a large number of screen shots. If you have existing systems and procedures in place for managing your photos, you can pick and choose additional items or ideas that will improve your systems. Also the procedures I describe in this book will not handle every possible workflow, but should provide a customisable structure that you can adapt for your own needs.

The recommended photo software, digiKam, is available on Linux, MacOS and Windows. To run digiKam and to use the tools and procedures recommended in this e-book, you will need suitable hardware, ie a PC. Most midrange PCs or Macs should be able to run digiKam without any problems, however no guarantee is provided that digiKam will run on your particular hardware. digiKam is free to download, so you can download it and verify it runs on your hardware.

CHAPTER OVERVIEW

Chapter 2 discusses a desirable end state for your photo and video collection, the "master collection", where all media is in one place. The remainder of the book shows you some practical ways to achieve and maintain this end state.

Chapter 3 details how to create a basic master collection structure

Chapter 4 shows how you can add your existing photos and videos to your master collection "all at once". This involves collating existing media, removing duplicates and structuring your master collection.

Chapter 5 shows how you can add photos and videos to your master collection bit by bit by creating projects.

Chapter 6 discusses photo sources and describes methods for importing your photos and videos from these sources in a consistent manner.

Backups are boring, right? True, however they are essential as anyone who has lost digital photos or documents will tell you. **Chapter 7** will provide some ideas for backup solutions.

Chapter 8 discusses some common formats for pictures and videos. You may have a myriad of different file formats for your photos and videos. This chapter discusses some common formats and describes some strategies for converting between different formats.

Have you heard the term "metadata"? **Chapter 9** discusses what metadata is and why it is important and useful (well essential) for organising your photo and video library. It describes how you can add keywords and captions to your media efficiently. This is possibly the most important step in organising your photo collection as it enables you to identify what the photo is and what category it belongs to. This makes your photo collection easily searchable.

Photos are not much use if other people can't enjoy them! **Chapter 10** discusses some ways you can easily share your collection with others.

Appendix A1 describes how to install and configure digiKam

Appendix A2 describes how to carry out basic operations in digiKam

Appendix A3 describes strategies to deduplicate your photo collection using digiKam

Appendix A4 describes strategies for determining the sources of your photos using digiKam

There are many tools freely available for converting between different photo and video formats.

Appendix B1 shows you tools you can use to convert between different photo formats

Appendix B2 describes tools for converting between different video formats

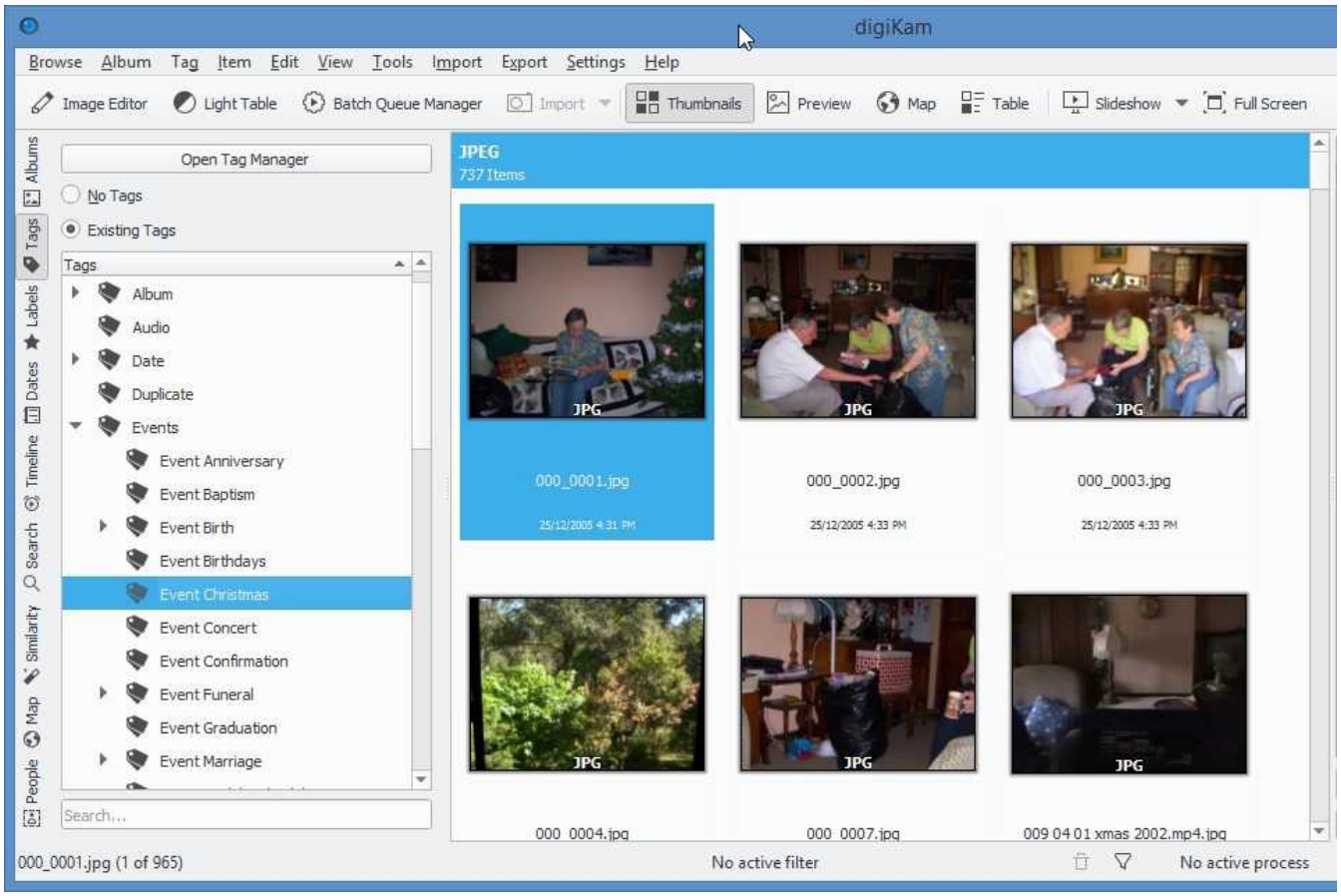
Appendix B3 describes tools for basic video editing

Appendix C1 describes how to install some of the recommended photo processing software for Windows

Appendix C2 describes how to install some of the recommended photo processing software for MacOS

SAMPLE END STATE

As photographers know, a picture is worth a thousand words. So here is a sample picture of how your photos might be organised after following the methods described in this book:



ABOUT THE AUTHOR JOHN WATKINS

I am an IT Professional with 30 years experience developing software for large companies.

I enjoy working with Open Source software on low cost hardware such as the Raspberry Pi.

While looking at ways to organise my own large family and personal photo collection (over 25000 photos and videos), I was dissatisfied with the current “cloud” solutions and surprised at the difficulty of deciding on and setting up a local (“non cloud”) photo organisation system. After much research and many dead ends, I created a working solution, described in detail in this series of books.

ACKNOWLEDGMENTS

Most of the software described in this book is free and open source so I would like to show my appreciation and thanks to the many software developers who have made their software freely available.

In particular I would like to acknowledge and thank the developers of the following open source softwares:

- digiKam photo management software
- FFmpeg video processing software
- ImageMagick photo processing software
- MP4Joiner and MP4Splitter software

FURTHER RESOURCES

There is a companion website to this book with a blog and further resources. Go to the site at:

https://sortingsnaps.com

2. END STATE

OVERVIEW

When organising photos, it's important to have an idea of an end state for how you want to enjoy your photos. Perhaps you just want to see random recent photos appearing as a screensaver. At the other end of the spectrum you may wish to completely organise and catalogue your photos meticulously. And of course, different family members will have different ideas on how the photo collection is to be structured.

This chapter gives you some ideas of what end states may be achievable using the techniques described in this e-book. Bear in mind that an end state is not fixed - as technologies and circumstances change, so will your “end state”. The important thing is to feel that your photos are “under control” and that you have a procedure that, given enough time and patience, will create the organised collection you desire and is adaptable to new situations.

END STATE EXAMPLE

Here is a description of my personal end state some of which I have achieved using the techniques described in this e-book series. Of course, this is related to my personal circumstances, but you can get an idea of the type of result that can be achieved and apply this to your personal situation.

I had a number of different digital photo and video sources:

- Scanned photos
- Scanned slides
- Photos from older digital cameras on CDs and DVDs
- Photos and videos from older mobile phones
- Videos from older video camera (Mini DV digital tape)
- Videos from a newer video camera (SD card)
- Screenshots from my PC
- Photos and videos from my older iPhone and iPad devices
- Photos and videos from my current iPhone and iPad devices
- Photos and videos from other people
- Photos and videos from email or internet

There were also similar sources for other extended family members, and also the digital photo collection of a deceased relative.

The end state that I wanted to achieve was:

- To have 2 separate collections of photos - one for my personal photos and another for family and extended family
- For ALL photos from ALL devices and sources to be in one of these two collections
- For each of the 2 collections to be able to:
    - Search using photo information such as caption, keyword and date

- Backup to a local and remote site
- Export to common photo sharing services
- Define a procedure to import new photos into the collection easily from current devices

Here is how I achieved this in a nutshell:

1. I collected all existing sources of digital photos and created 2 “master” collections, one personal and one family
2. I eliminated any duplicate photos and videos
3. I used a procedure for each type of photo source to convert them to a standard picture and video format and a suitable size
4. I tagged and captioned all photos with a software program.
5. I exported selected photos to sharing services
6. I created a backup solution
7. I created procedures for importing new photos from my current photo sources

While this may sound straightforward, achieving each step involved researching various options and in some cases coming up with my own systems to achieve this. This e-book series details how I achieved each step with practical examples of specific software and organisations that met these goals.

DEFINING YOUR OWN END STATE

At this point it may be a good idea to write down what your objectives are in terms of photo organisation. Here are some suggestions of what I believe constitutes an “organised” end state:

- All photos and videos from all sources are searchable by keywords and captions
- All photos and videos have been converted to a common format and manageable size
- There is a well defined procedure for moving photos and videos from an unordered state to an ordered state. These procedures must be adaptable to new circumstances and new devices.
- All photos and videos are backed up, including offsite backup
- Selected photos and videos can easily be shared with cloud services (make a note of which cloud services need to be supported)
- Selected photos and videos can easily be shared with other peoples collections
- Collections are appropriate for family structure and the people who are designated as photo organisers.

THE MASTER COLLECTION

While there are a number of different end states that depend on personal preferences, the starting point for the majority of end states is the creation of one (or several) underlying "master collections". A "master collection" ideally has the following characteristics:

- It contains all photos and videos that are relevant to an individual or family unit (complete)
- It is centralised and easily accessible, most likely on a hard disk drive or solid state drive (SSD)
- It does not contain duplicate photos or videos
- It has a basic level of organisation, most likely achieved by having a suitable directory structure
- It can be added to easily
- It can be read and accessed by a digital photo organising program

The advantages of this for photo organisation are:

- Everything in one place allows relevant photos to be found more quickly ... you don't need to search through multiple hard drive archives or CDs and DVDs which may not even be accessible on more recent computers and laptops.
- Completeness means that if other people need to find photos, they know where to at least start looking. If it isn't in your master collection, then you likely haven't got it.
- Access is quick and allows for the most varied range of photo organising programs to be used. Intensive processing (such as photo deduplication) can be performed more quickly.
- Deduplication saves space not only locally but for backups also. Sometimes a huge collection of duplicated backup CDs and DVDs can be reduced to a single directory.
- Backups can be achieved reliably since you know where and what needs to be backed up and you are not wasting space backing up duplicate photos

So what are the disadvantages of a centralised master collection?

- Probably the main potential disadvantage is the amount of storage space taken by the master collection. Some more recent PCs do not have sufficient storage space for a complete large photo and video collection in one place.
- Another potential disadvantage is privacy. A master collection may contain photos that for whatever reason, you would prefer other people not to be able to access.

How can these disadvantages be overcome?

- The storage and privacy problems can be alleviated by using an external USB hard drive. While in the past these drives were expensive and rather slow, the advent of inexpensive high speed USB hard drives has made this a suitable option. Of course, the disadvantage is that you need to have it physically present with your computer hardware, and it may restrict the software programs that you can use to organise your photos.
- Cloud storage is an option also, and this is indeed the method large companies such as Apple, Google and Microsoft would prefer you to use. In these cases, your photos go straight from your device to the cloud. Here are some advantages of the cloud approach:
    - Large amounts of storage available (though sometimes at a cost)
    - No need to be concerned with backups and hardware failures (in general), though I would not recommend keeping your photos only in the "cloud".
    - Software programs (or apps) and websites available for viewing and sharing photos easily
    - Ease of import and uploading directly from devices.
    - In some cases impressive facial and object recognition due to behind the scenes algorithms and computing power
    - Integration into the vendors ecosystem, although this could be seen as a disadvantage if there is lock in.

Some disadvantages of the cloud approach:

- Fragmentation of your photo collection - some will be in the cloud others most likely not, a master collection is unlikely to be achieved.
- Potential ongoing cost to maintain your collection depending on size, which is likely to continue increasing

- Potential loss of access to your collection, potentially due to lost passwords or non-payment of subscription fees.
- Difficulty transferring your collection to other people if necessary
- Potential access issues when, for example, creating family photo archives.
- Vendor lock in - it is often difficult to transfer your collection to another service provider if you become unhappy with the current offering
- Vendor risk - a significant number of cloud companies have changed their offering or in some cases ceased to exist. While this is not likely for the larger vendors, it is a significant risk for smaller vendors. Larger vendors may also force you to move to different systems (such as Google no longer supporting Picasa) though they will generally provide a simple transfer path where large numbers of users are involved.
- Potential privacy issues. Some vendors, if you read their fine print, may have the right to use your photos for marketing or advertising.
- Risk of data loss or data theft. For most large vendors, this is low risk, though possible.

Can you use the advantages of the cloud based approach as well as the advantages of the local approach while minimising the disadvantages? Absolutely, and this is the method I would recommend. So here is, in my opinion, the ideal basic "end state" for a single master collection:

- Master collection of all photos and videos in one place locally, either on an external hard drive or preferably on a local computer (or potentially split if space or privacy is an issue).
- Local backup to external hard drive(s) and potentially off site for extra security
- Ability to export or upload selected photos to your favourite cloud service for additional backup and/or sharing. There is no vendor lock-in or vendor risk since you will be able to export to a different service should there be any issues with your current vendor. You have no need to be able to export from a cloud service, since your master copy is local and complete.

Although a master collection is a good ideal, another issue is that a single master collection may not suit your current (or future) family and relationship structure. It may still be necessary to import and export to other master collections that are maintained by other family members. Also, other family members may not be interested in receiving or

contributing to a master collection. Typically in these cases, you will still potentially want to include photos originating in other master collections for viewing, but you may not want to treat it as the master copy. The main thing is to be able to use a relatively simple method to decide which master collection a photo belongs to and to have systems in place to allow for the import and export of photos.

Another issue to consider is that master collections are typically not completely individual. Generally, photo collections initially belong to families. Ok, so you have photos of the kids, then those kids grow up and, guess what, they start their own photo library! So, what happens to the cherished family memories of summer holidays at the beach? Well, one approach is to create a family master collection. The extent of a family archive is largely personal preference. Typically it would include:

- Early childhood photos
- School photos
- Shared family history photos

The following section will help you decide which master collections you require for your family structure.

REACHING THE END STATE

So how do we go about reaching the 'end state'?

The first step is to decide which master collections are required. This will depend on a number of factors:

- Who is going to be maintaining the master collections and their geographical location
- What PCs are available and their capacity
- Family structure and family life stage

There are any number of family structures and complications, so let's focus on a few likely scenarios.

- Single Individual
    - In this case, I would suggest creating 2 master collections, one for personal photos and one for those relating to family - ie brothers, sisters, parents, nephews, grandparents, ancestors etc. You may need to consult with your family to decide who is going to manage the family collection. It will save a lot of time if you can agree on the structures and standards used as this will enable photo collections to be merged easily in the future.
- Young family
    - At this stage, I would suggest a family master collection be started. Most likely the two partners will have individual photo collections also so they would need to decide whether to integrate them in one or keep them separate. If they want to keep them separate, then there would basically be 3 master collections - one collection for each partner and a family collection.
- Teenage family
    - Once your family enters the teenage stage, things start getting complicated! For a start, teenagers will most likely want their own separate photo collection, and are probably more interested in sharing photos with their friends rather than family! However, they may wish to contribute some of their photos to the family collection. So I would suggest each teenager has their own private master collection (though, like their bedrooms, it probably won't be in an ordered state!) and that they be encouraged

to share photos of their choosing with the family master collection. Now may be the time to take them through how you organise your own personal or family master collection in the (perhaps forlorn) hope of getting them to do the same with their collection.

- Empty nesters
    - At this stage, you will still most likely be in charge of the family master collection. The challenge will be to share this master collection with other master collections and vice versa. At some point you may wish to delegate the responsibility for the family master collection to other family units.
- Divorcees
    - For younger divorcee families, typically the family master collection would stay with the parent who spends most time with the children. There is of course no problem in duplicating the master collection and splitting into 2, one for each parent. Then at some point in the future the children may wish to remerge the collections. If similar standards have been followed for each master collection then this should be fairly painless.
    - For older divorcee families, then it may make sense for one or more of the children to maintain the master collection if possible.
- Elderly single or widowed/divorced
    - In this case, it may make sense to have a personal master collection but also for the family collection to be maintained by the closest family in the next generation. In this case, it is perhaps more important for the personal master collection to be sorted and captioned in a format that can be easily merged into the family collection
    - Without wanting to be morbid, it is a useful exercise for someone approaching their final years to think about a master collection with the following questions in the event of their death or incapacitation:
        - Who will inherit my photos?
        - Are the photos all in one place? (If you have built a master collection according to this book, then they will be). If not, do other people know where they are and have access to them? (This could be a problem if they are stored only in the "cloud" or are on encrypted drives).

    - Are there photos of people or places that only I know about, and should I make a priority of captioning them (or at least writing on the back of them) so that someone else knows who/what they are?
    - If I am the maintainer of the family archive, does someone else know the procedures I have used to create that archive?
- Often elderly folk have more time to devote to something like photo organisation. It is also possible for different individuals to be responsible for parts of the master collection creation, but not necessarily "own" the master collection.

Once you have decided on the master collections you require and who will maintain them, you can start the process of creating those collections. That process is described in the next chapter.