

## Scanning, analysing and archiving photographs

Photographs can tell us a great deal about people, places and events, and can inspire debate and recollections when images are shared. A successful project will often result in local people offering photographs to you for your collection, either to keep or to copy and return. These images need to be carefully catalogued and preserved, so that current and future generations will know what is held, and can arrange to see any that are of interest.

This guide will cover the following topics:

- Equipment
- Technical standards
- Analysing your images
- Archiving your images

### Equipment

The photographs many people take today are 'born' digital, but history and heritage groups are more likely to be interested in older photographs of people and places. Many of these may only be lent to you by owners who want them returned. They can quickly and easily be converted into digital files, but before doing that, you should ask yourself three questions:

- What do you want to digitise?
- Are you allowed to?
- Are there any other restrictions?

To convert a photographic print to a digital file you will either need a scanner or a digital camera. There are many to choose from across a wide price range, but before purchasing any equipment you need to ask yourself what you will be using it for, to make sure you purchase something suitable. The three main options are flatbed scanners, handheld scanners or digital cameras. Larger scanners which can handle maps or books are beyond

the budget of most community groups, but some copy-shops do own them, and can provide an economical scanning service if you only have a few such items.



*You may not need to buy anything new: many inkjet printers incorporate a flatbed scanner*

	Flatbed scanner	Handheld scanner	Digital camera
<b>Features</b>	<ul style="list-style-type: none"> <li>Can be stand-alone, or incorporated within an inkjet printer</li> <li>Range of prices</li> </ul>	<ul style="list-style-type: none"> <li>Images are saved to a memory card</li> </ul>	<ul style="list-style-type: none"> <li>Images saved to memory card</li> <li>Wide range of features and prices</li> </ul>
<b>Suitable for</b>	<ul style="list-style-type: none"> <li>Single sheets no larger than A4</li> <li>Real objects, if not too bulky</li> </ul>	<ul style="list-style-type: none"> <li>When you need to travel to the person with the photograph</li> <li>Single sheets only</li> </ul>	<ul style="list-style-type: none"> <li>All kinds of material</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>Simple to use – just press the button.</li> <li>Gives good results</li> </ul>	<ul style="list-style-type: none"> <li>Portable</li> <li>Works without being connected to a computer</li> </ul>	<ul style="list-style-type: none"> <li>Portable (especially compact cameras)</li> <li>Versatile</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>Has to be connected to your computer</li> <li>Will cause damage to the spine of books</li> <li>Can damage parchment which has been kept rolled</li> <li>Too small for larger items, such as maps.</li> </ul>	<ul style="list-style-type: none"> <li>Not as simple to use as a flatbed scanner</li> <li>Quality can be poor</li> <li>Becoming less common and hence more difficult to find, especially as good digital cameras have now reduced in price</li> </ul>	<ul style="list-style-type: none"> <li>Requires a greater level of skill</li> <li>Quality can be poor (see common problems, below)</li> </ul>

If you are using a camera you need to pay particular attention to the light and the angle of the lens. The most common problems encountered are:

- Insufficient light – the most appropriate aperture setting or shutter speed for low light levels requires the use of a tripod, or the image may be out of focus due to

‘camera shake’. If buying a new camera, look for image stabilisation, although this may not be enough in poor lighting conditions.

- Artificial light and/or flash – can bounce back off the image, or create light and dark areas within the image.
- Too much light – be aware of where your shadow is falling. It may be necessary to step to one side, but holding the camera at arm’s length can give rise to a poor angle and ‘camera shake’.
- Angle – unless the lens is held exactly parallel to the item you are copying, the image will be distorted, and the corners will not be ‘square’.

You might also want to consider photo-editing software, which can compensate to some extent for poor lighting, and also allows you to create multiple copies of the image at different resolutions for different purposes (e.g. for the web or for a PowerPoint presentation, while retaining a high resolution original). There are many commercial versions, and also some that are free.

Finally, bear in mind that all photographs are potentially someone’s copyright. This is not the place to consider the issues surrounding copyright (you will find information on this later in the guide), but before copying any image, make sure you are clear in your own mind about whether you are allowed to copy it, and whether there are any restrictions on how the image can be used.

## Technical standards

Some cameras and scanners can be set to record images in different file formats (the most usual options are JPG, TIFF and RAW).

	JPG	TIFF	RAW
<b>Features</b>	<ul style="list-style-type: none"> <li>▪ The most common file format and the default (or only) setting for most cameras</li> <li>▪ Image is compressed, but the loss of quality is not noticeable to the naked eye, except at high magnification</li> </ul>	<ul style="list-style-type: none"> <li>▪ Images are only lightly compressed.</li> <li>▪ Quality is high</li> </ul>	<ul style="list-style-type: none"> <li>▪ Unprocessed images, effectively the digital equivalent of a film negative</li> <li>▪ Contain the highest level of detail</li> </ul>
<b>Use for</b>	<ul style="list-style-type: none"> <li>▪ File sharing</li> <li>▪ Websites</li> <li>▪ PowerPoint presentations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Initial image capture for long-term archiving</li> <li>▪ Commercial printing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Images of a professional standard</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>▪ Files can degrade if they are saved or edited many times</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not every camera can produce TIFF files</li> <li>▪ File size is too large for use on a web site or for file sharing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not available on many cameras</li> <li>▪ Need to be converted to another format to be viewed or printed</li> </ul>

- Contain more detail than necessary for general viewing.
- File sizes are very large

Scanners can also be set to different resolutions. They record images in pixels, although the settings on most scanners are marked in DPI (dots per inch), rather than PPI (pixels per inch). The higher the number, the more detail that will be recorded, and the larger the file size. Confusingly for non-technical people, the term DPI in the context of scanners is the same as PPI, but differs from the DPI rating used on printers (which relates to ink dots per inch).

Although you may think it is best to record as much information as possible within your copied image, you need to consider the impact on file size. Scanning multiple images at a high resolution will 'eat up' your digital memory space and can slow down your computer. The highest resolution may also be unnecessary: the extra detail often can't be seen with the naked eye, and large files are unsuitable for websites, as they take too long to load.

### DPI and file size: for the technically-minded

The pixel count is the image size multiplied by the DPI.

At 400 DPI, a 6" x 4" image will contain  $2,400 \times 1,600 = 3,840,000$  pixels.

If you double the resolution, you will quadruple the pixels, so a 6" x 4" image at 800 DPI =  $4,800 \times 3,200$  pixels = 15,360,000 pixels.

For most purposes, 400 DPI will be sufficient for your archive copy of a photograph, or 300 DPI for a document. This will be too high for web use, and unnecessarily high for PowerPoint, so use photo-editing software to produce a smaller file, taking care to save it as a JPG file **under a different file name**, so as not to overwrite your archive copy.

### Analysing your images

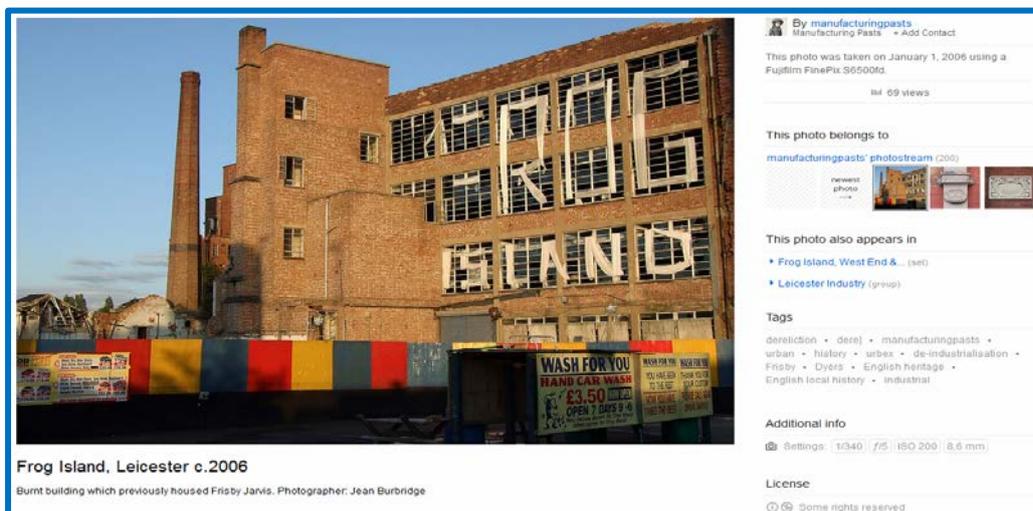
Images themselves are not searchable, so you need to find a way to locate the photograph you know is there, or to see if you have anything that matches particular criteria, such as subject matter, location or date. Recording metadata can help you to analyse and catalogue your images.

Metadata has been described as data about data, but that's not very helpful! Metadata are simply information about the digitised image which can be stored separately or embedded within the image file itself. Metadata help you to find images within your collection and can ensure that you, and others, know what a picture contains, the location for the shot and when it was taken (and perhaps other information as well).

There are three basic categories of metadata:

- Descriptive – information about the item that you have digitised: what is it, where was it taken, when was it taken, etc.
- Administrative – information about the resource itself: who captured the image, who gave or lent it to you, where the non-digital version (if any) is stored, information about copyright, etc.
- Technical – information about how the image was captured: the type of camera, the camera settings, etc.

If you have used the photographic image site Flickr, you will have come across metadata, perhaps without realising it. A site like Flickr contains many millions of photographs. Visitors to the site can search for pictures using information stored as metadata to find images that might interest them. The image below can be found on Flickr and was taken as part of the University of Leicester's Manufacturing Pasts project. The metadata stored on Flickr appears to the right of the image.



The screenshot shows a Flickr page for a photograph of a brick industrial building. The photo is titled "Frog Island, Leicester c.2006" and is described as a "Burnt building which previously housed Frisby Jarvis. Photographer: Jean Burbridge". The metadata on the right side of the page includes the following information:

- By manufacturingpasts (Manufacturing Pasts) • Add Contact
- This photo was taken on January 1, 2006 using a Fujifilm FinePix S6500fd.
- 69 views
- This photo belongs to manufacturingpasts' photostream (200)
- This photo also appears in Frog Island, West End &... (set) and Leicester Industry (group)
- Tags: dereliction • derej • manufacturingpasts • urban • history • urbex • de-industrialisation • Frisby • Dyers • English heritage • English local history • industrial
- Additional info: Settings: 1/340 | f/5 | ISO 200 | 8.6 mm
- License: Some rights reserved

Deciding what to record is not always easy, and it can be helpful to think about how you and others might want to search for images. Useful metadata fields are

- Title
- Creator (name of photographer)
- Subject keywords (include as many as possible)
- Description (brief and free text, including whether the image is monochrome or colour)

- Date of original photograph (if you don't know, give an approximation)
- Location of original image
- Filename or unique identifier (which you will use to catalogue your collection)

What subject keywords would you choose for the following photograph of Market Bosworth, Leicestershire?



Think about the interests of anyone who might want to see this photograph, and you will identify the most appropriate key words. These may include: Leicestershire, Market Bosworth, historic houses, timber-framed buildings, thatched buildings, horse riding, the name of the road, perhaps the numbers and/or names of the houses, the date of the photograph, the name of the photographer, the name of the person who deposited it with you, etc.

If you want to know more about using metadata, there is a very helpful guide at <http://www.jiscdigitalmedia.ac.uk/guide/an-introduction-to-metadata>

Metadata will help you to catalogue your images. You will find more on cataloguing in the next section of this guide, 'How to manage, catalogue and preserve your collections'.

### **Archiving your images**

No digital image can be guaranteed to last forever:

- Hard drives corrupt or fail
- CDs and DVDs corrode
- Individual images can also become corrupted
- Formats can become obsolete, making the file unreadable on new technology

**It is therefore important to keep multiple copies of all your digital files**

You should store copies of your images in at least three different locations, for example on your PC, the PC of another group member and an external hard drive (not a memory stick/flash-drive/CD/DVD, which are not as reliable). You might also wish to keep a further copy in a web-based 'cloud' service, such as Dropbox, Picasa (Google), Flickr, Mozy, iCloud (Apple) or one offered by your internet service provider. Many cloud services offer a limited amount of free storage, although you can usually purchase more, for a fee.

Your archive copies should be the least compressed version of your images, and ideally in TIFF format (see above). However, if you have a large collection of images, storage can be expensive, and some compromises may be necessary. Think about what you are archiving and why. Do you need to keep everything? Remember to record your metadata, and create unique file names for each image that will help you to find them again.

If you need a lower resolution image for use on a website or for a PowerPoint presentation, make sure you don't overwrite your archive copy.

For more help with describing images and choosing file names, see <http://www.jiscdigitalmedia.ac.uk/managing>

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