

Images: Good practice with images



The small print

Prerequisites

Time in the workshop is precious – it is an opportunity for you to interact with the workshop leader and other participants through questions and discussions and to share your experiences and concerns. To make the most of this time we sometimes ask you to carry out learning activities ahead of the workshop so that everyone comes into the class with the same basic knowledge. We keep this prior learning to a minimum and often make use of online videos. Online videos provided through LinkedIn Learning can be accessed free of charge by University members anytime, anywhere, through a browser or app.

Your course booking will tell you if any prior learning activity is required. If you don't have an environment where you can do this learning, you can come along to one of our LinkedIn Learning sessions. These are a quiet space where you can work through videos or other workshop resources.

If you arrive for a workshop without having done the prior learning, the workshop leader may suggest that you come back on another session.

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About the workshop designer

Carl Wenczek is a very experienced architectural illustrator and an expert in 3d modelling and 2d imaging. He is a Director of his own small company and over the last 18 years has built long lasting relationships with his clients, creating 100's of illustrations and helping them convey their ideas and designs.

Running parallel to his commercial work, Carl is also a part-time lecturer in multimedia and has been teaching at Oxford University's IT Services for the last 17 years, delivering courses in Photoshop, Illustrator, InDesign, After Effects, Blender, GIMP, Inkscape and digital photography.

Carl also coaches Paddlesport (kayaking, canoeing and stand up paddling) and Indoor Climbing. These sports are often coached in demanding and dynamic environments and require a calm persona!

Revision history

Version	Date	Author	Comments
1.0	June 2022	Carl Wenczek	First version

About this workshop

What you will learn

This course guides people through the process of working with images. The course will broadly cover 3 subject areas: selecting appropriate images and image formats; modifying and creating images; and using images. There will be a mixture of explanation, demonstration and hands-on tasks.

What you need to know

You do not need any prior knowledge of the software used during this workshop.

This workshop will cover:

- Selecting appropriate images and image formats includes usage scenarios, image make up and formats, sourcing images and assessing images.
- Modifying and creating images includes workflows, guidance on choosing appropriate software applications, creating images and image type comparison.
- Use of images includes accessibility, referencing images and permissions.

If you need to review these activities, LinkedIn Learning is a great place to get guidance. There is an activity with relevant videos in the IT Learning Portfolio: visit skills.it.ox.ac.uk/it-learning-portfolio and search for “Images” or “Images activity”.

The resources you need

Sample documents that you can use to experiment with will be made available, but you may like to bring along your own.

The resources for most workshops, including any pre-course activity, are in the IT Learning Portfolio: visit skills.it.ox.ac.uk/it-learning-portfolio and search for “Images”.

Unless you have been told otherwise, in classroom workshops there will be a computer available for you to use with the following applications installed:

- GIMP
- Inkscape
- Microsoft Word
- Adobe Acrobat Reader
- A web browser such as Google Chrome

You can use your own computer with your preferred apps installed if you want to – just bear in mind that I am not an expert in every app (although I am sure that between us we will be able to sort out most problems!)

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Good Practice with Images

Digital Images ...

Digital Images ...

Good Practice with Images

Learning Objective 01 - Scenarios

We use images for a variety of different purposes, for newsletters, magazines, research papers, websites, email marketing, PowerPoint presentations and so on.

These uses, or **Intents**, can be broadly grouped into two categories:

- Screen based
- Print based

Each Intent requires the use of specific file formats such as .tiff, .jpeg, .png, .pdf, .eps, .wmf and so on.

Task

Examine a publication and some websites and discuss with your teacher the different file formats that might have been used.



Good Practice with Images

Learning Objective 02 - Image makeup and file formats

Image makeup

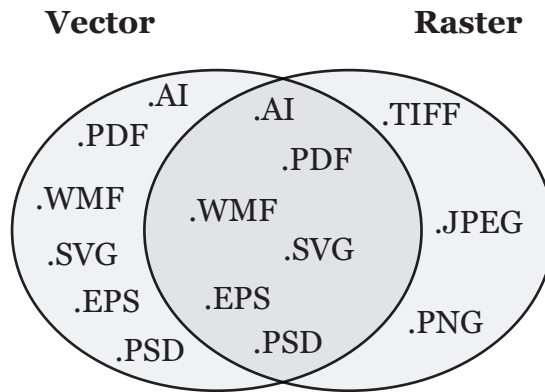
Images can be made of pixels (**raster**) or generated mathematically (**vector**).

Raster images are resolution dependent whereas vector images are resolution independent.

Images typically come in 2 colour formats, **RGB** (screen) and **CMYK** (print).

Images can be compressed or uncompressed to save file space.

File formats



File format

TIFF
PNG
JPEG

Compression

Yes, lossless
Yes, lossless
Yes, lossy

Colour

RGB and CMYK
RGB
RGB



Good Practice with Images

Digital Images ...

Learning Objective 03 - Image size for screen and print

For Screen

- Pixel dimensions only.

When it comes to displaying images on a screen you need to be aware of the size of the screen or monitor you will be using to display your images. For example, to fill a monitor that is 1920 by 1080 pixels in size so, you will need an image that is 1920 by 1080 pixels in size.

Date	Other High	1920x1080	1366x768	1280x1024	1280x800	1024x768	Lower
January 2020	37.5%	20.3%	27.6%	2.4%	1.8%	1.4%	9.0%

https://www.w3schools.com/browsers/browsers_display.asp

For Print

- Print size/document size.
- Resolution.

When preparing images for print you need to decide on the size you want to print the image (it's print or document size), and the pixel density or **resolution** (pixels per inch (ppi)). You might also need to decide if your image is big enough, see examples below:

Print size (mm)	Resolution (dpi)	Pixel dimensions
A4	300	3508 x 2840
	150	1754 x 1240
A3	300	4961 x 3508
A2	300	7016 x 4961

Nikon D750, 25 megapixels = 6016 x 4016

- For Photoshop use the **Image Size** command (**Image>Image Size...**).
- For GIMP use the **Scale Image** command (**Image>Scale Image...**).

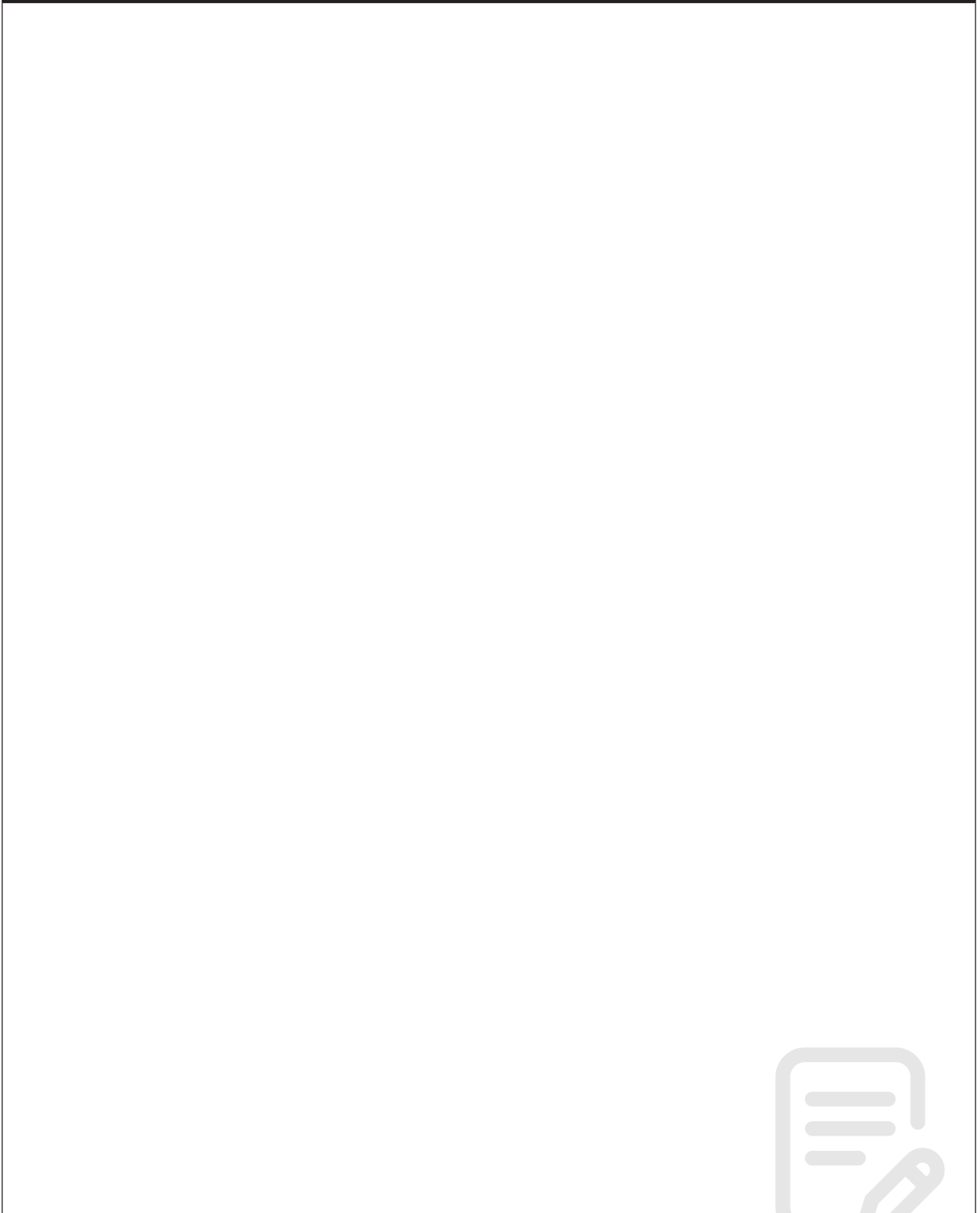


Good Practice with Images

Task

Save a vector image file as a JPEG and a PNG and insert the resulting image files into a blank Word document. Discuss the differences with your teacher.

Resize a raster image and insert the different size versions into a blank Word document. Discuss the results with your teacher.



Good Practice with Images

Working with Sourced Images ...

Images ...

Learning Objective 04 - Sourcing images

Capturing images

An image can be “captured” using a digital camera, a phone or a scanner.

Typically these devices will have a maximum resolution and will save the digital image in a certain file format e.g. .tiff, .jpeg or a RAW file format.

A RAW file is an uncompressed version of an image file. The camera takes the image data from the sensor and saves it in an unedited (unprocessed) and uncompressed format on the memory card.

RAW files contain many more shades of colours compared to JPEG files - RAW files have 12 or 14 bits of intensity information per channel (4096-16384 shades), compared to JPEG's 8 bits (256 shades).

For more information see the the link below:

https://en.wikipedia.org/wiki/Raw_image_format

When opening a RAW file in Photoshop, the program will first open Adobe Camera RAW. Camera Raw gives you everything you need for processing raw images.

For GIMP you will need a third party plugin such as UFRaw (<http://ufraw.sourceforge.net/>).



Learning Objective 05 - Transferring your images to a computer

Cameras

The images you capture are stored on a memory card. The card is located in a compartment in your camera (sometimes it is also in the battery compartment).

Most cameras can be connected to a computer using a cable supplied with it and the images transferred either manually (by drag and drop) or using software, again supplied with the camera. This usually requires the camera to be turned on.

A more universal way to transfer the images is to remove the memory card from the camera and use a memory card reader attached to your computer.

Memory card readers are cheap, and can be used with most memory card formats.

Mobile devices

For mobile phones there are numerous ways in which to get the images from your phone to your computer. These include:

- Connecting the phone to your computer with the USB cable
- Using a data/file manager app
- Downloading them from the cloud e.g. Google Photos

Task

Discuss some methods with your teacher.



Learning Objective 06 - Sourcing images

Image Subscription Databases

There are two key image subscription databases that the University has access to:

- Artstor (many subject areas, despite the name)
- Bridgeman Education (many subject areas)

They contain 2 million+ images of objects, locations, events, worldwide, from photo agencies, archives, libraries, museums, etc.

Why should you use these in preference to other image sources?

- Images in these databases have extremely useful associated information
- Using these images for educational purposes (teaching and research) is legal
- Image quality is guaranteed

You may find that one database has more/better quality images but this will depend on the subject(s) you are researching.

Task

Find images

- Open a browser, and go to SOLO (Oxford's online catalogue): <http://solo.bodleian.ox.ac.uk> (or type solo bodleian in the Search box)
- In the SOLO Search box, type the following database name **Artstor**
- From the SOLO results list, click View Online below the database's name
- **Artstor:** You MUST register if you want to use the images you find (Register button is top right)
- **Bridgeman Education:** No need to login or register. DO NOT TRY TO SEARCH the Bridgeman (as opposed to Bridgeman Education) database; this is not for educational use and we do not have access to it.



Learning Objective 07 - Other reliable image sources

Other Reliable Image Sources

How do you know an image is what its textual data claims it to be?

- A Google search will not always produce a high quality and accurately attributed image.

How can I find what I want?

- We use text to describe images. Usually, you can only find an image if it has been tagged with the search term(s) you are using in your search.


How can I be sure to find relevant images?

- You may be better off targeting specialist sites and image providers. Three such resources are:
 - Flickr (a photo-sharing site)
 - Wellcome Images (medical images)
 - NYPL Digital Collections (images in the public domain or with no known copyright)

Task

Search for an image in **Flickr**.

Note: you do not need to create accounts to search these resources.

- Open a web browser, then go to <http://flickr.com>
- Search for an image by subject
- On the search results page, select an image
- Select  (lower right hand side of the image) to download

Note: Some images ask you to create/sign into a Flickr account (using Yahoo) before you can download.

- **Wellcome Images:** <http://wellcomeimages.org/>
- **NYPL Digital Collections:** <http://digitalcollections.nypl.org/>



Learning Objective 08 - Reverse Image Searching

Reverse Image Searching


Most image searching involves entering text. If a potentially relevant image has not been tagged with the keyword term/s you've used to search, that vital hit will not appear in your results list.

However, you can use an image to find an image. Try this when:

- You have an image but don't know what it is, or where it came from
- You need a better quality/higher res version
- You are hoping for a rights free version

Task

Match your image

- Open a browser, then go to <https://images.google.com/>
- In the search box you will see **Search by image** button 
- Click on this and choose **Upload an image**
- Choose a file and then click on **Visually similar images** in the search results



Learning Objective 09 - Assessing images and Metadata

Viewing, organising and assessing

There are a variety of applications that will assist you with viewing, assessing and organising your images. These include:

- Windows Explorer
- Finder
- Adobe Bridge

Task

- Using Windows Explorer or Finder go to a folder that contains digital images
- Change the way the files can be viewed and sorted

Image metadata

Metadata is the information and specific details concerning a particular image file. This information often includes date created, author, file name, content, themes and more. Metadata offers users a better way to organize, sort and maintain image files within a system.

Task

- Using Windows Explorer or Finder go to a folder that contains digital images
- Right-click (PC) or Control-click (Mac) on an image
- View the image's information and metadata



Learning Objective 10 - Image editing application comparison

Demonstration

Your teacher will quickly demonstrate and compare 4 image editing applications:

- GIMP
- Photoshop
- Lightroom
- Google

Task

Discuss the uses, similarities and differences and pro's and con's.



Good Practice with Images

Working with Sourced Images ...

Correcting and Improving your images **a digital workflow**

- Evaluate image
- Rotate, crop and correct perspective
- Reduce noise and repair blemishes
- Capture Sharpening
- Tonal range adjustment
- Colour balance
- Saturation
- Selective correction
- Fine tuning of colours
- Adjust mid-tone contrast
- Resize image for final media
- Sharpen for final media

Good Practice with Images

Working with Created

Images ...

**Working with
Created
Images ...**

Learning Objective 12 - Image creation application comparison

Demonstration

Your teacher will quickly demonstrate and compare 3 image creation applications:

- Illustrator
- Inkscape
- Powerpoint

Task

Discuss the uses, similarities and differences and pro's and con's.



Good Practice with Images

Using Images ...

Images ...

Learning Objective 13 - Rights and Permissions

Rights and Permissions

There are many questions image users ask:

- Which images can I use for my publication?
- Who owns the rights?
- How do I get permission?
- When don't I need permission?
- How can I find cost free images?
- Can I take a photo myself and include it in a publication?
- Can I use this image for a poster? What about in a blog?
- What's the difference between fair use and fair dealing?

A variety of sources may help:

- IAP (Images for Academic Publishing)
- Creative Commons (rights-defined, licensed images)
- Public Domain (images not subject to, or no longer under copyright protection)

But there are no easy answers in the rights arena. Very often you will get the reply "it depends...".



Good Practice with Images

Learning Objective 14 - Rights and Permissions

Tasks

Find a Creative Commons image

- In your browser go to <https://search.creativecommons.org/>
- Change the **Content Types** to **Images**
- Type in your search word(s)
- Experiment with the **Filters**
- From your results list select an image, then scroll down to see the image information

Find a rights-free image on Google

Not all images on Google Images are Creative Commons licensed. However, it is possible to limit your search results to images available under a Creative Commons license.

- In your browser go to Google Advanced Image Search: https://www.google.co.uk/advanced_image_search
- Type in your search word(s)
- Scroll down to the last box to select the **usage rights**



Good Practice with Images

Learning Objective 15 - Rights and Permissions

What kinds of CC licence are available?

All Creative Commons licenses require attribution to the creator.



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Use these Creative Commons licenses to tag your images and inform other users what they should and should not do with your own content.



Good Practice with Images

Learning Objective 16 - Attribution

Task

- Open a web browser and go to <https://www.freepik.com/home>
- Choose **Free** and **Photos** and then type in a search word(s)
- Select an image and find out how to attribute the author

- Open a web browser and go to <https://search.creativecommons.org/>
- Search and select an image and find out how to attribute the author



Good Practice with Images

Learning Objective 17 - Accessibility

Visually impaired readers may depend on a screen reader and may not be able to see an image on a page or website. Therefore, when we are creating PDFs or websites, we tag images with alternative text (ALT text or ALT tags) to describe the image to visually impaired readers. This ALT text will be read aloud by screen readers.

Task

Add alternative text to an image

- Open Microsoft Word
- Create a new, blank document and change it's size to A3 and it's orientation to landscape
- Insert an image (*crows large A3.jpg*)
- Right-click (PC) or Control-click (Mac) on the image and choose **Edit Alt Text...**
- Type in your alternative text



Learning Objective 18 - Backing up

One of the best ways to approach backing up your data is the 3-2-1 strategy

- 3 copies
- 2 media (in 2 separate places)
- 1 offsite

This can easily be achieved by using an external hard drive and a cloud based backup service.

For more information visit <https://digital-photography-school.com/create-solid-backup-strategy-photos/>



Further information

Getting extra help

Course Clinics

The IT Learning Centre offers bookable clinics where you can get pre- or post-course advice. Contact us using courses@it.ox.ac.uk.

Study Videos from LinkedIn Learning

On our website, you will find our collection of self-service courses and resources. This includes providing LinkedIn Learning video-based courses free to all members of the University. Visit skills.it.ox.ac.uk/linkedin-learning and sign in with your Single Sign-On (SSO) credentials.

Some courses recommend pre- and/or post-course activities to support your learning. You can watch the online videos anywhere, anytime, and even download them onto a tablet or smartphone for off line viewing.

About the IT Learning Portfolio online

Many of the resources used in the IT Learning Centre courses and workshops are made available as Open Educational Resources (OER) via our Portfolio website at skills.it.ox.ac.uk/it-learning-portfolio.

Find the pre-course activity for this course in the IT Learning Portfolio: visit skills.it.ox.ac.uk/it-learning-portfolio and search for “Images” or “Images activity”.

About the IT Learning Centre

The IT Learning Centre delivers over 100 IT-related teacher-led courses, which are provided in our teaching rooms and online, and we give you access to thousands of on-line self-service courses through LinkedIn Learning.

Our team of teachers have backgrounds in academia, research, business and education and are supported by other experts from around the University and beyond.

Our courses are open to all members of the University at a small charge. Where resources allow, we can deliver private courses to departments and colleges, which can be more cost-effective than signing up individually. We can also customize courses to suit your needs.

Our fully equipped suite of seven teaching and training rooms are usually available for hire for your own events and courses.

For more information, contact us at courses@it.ox.ac.uk.

About IT Customer Services

The IT Learning Centre is part of the Customer Services Group. The group provides the main user support services for the department, assisting all staff and students within the University as well as retired staff and other users of University IT services. It supports all the services offered by IT Services plus general IT support queries from any user, working in collaboration with local IT support units.

The Customer Services Group also offers a data back-up service; an online shop; and a computer maintenance scheme. Customer Services is further responsible for desktop computing services – for staff and in public/shared areas – throughout UAS and the Bodleian Libraries.