Procedures for Records Creation

Digital Preservation Policy

PROCEDURES

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HERIOT-WATT UNIVERSITY
Digital Preservation Prodecures

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2. **STANDARDS FOR SELECTIING DIGITAL FORMATS**

   There are a wide range of digital formats. However some are suitable for facilitating long term preservation and others are not. The use of proprietary formats runs the risk of digital obsolescence. In many cases the University controls the formats available for use e.g. Microsoft Office although this is not always the case. When a data creator is making the decision regarding which format to use the overriding factor will be their business needs. However the data creator should also take the long term preservation of the data for both future business use and archival preservation into consideration. Failure to do so will make it difficult and costly to manage the data in a preservation system or make it unusable for future business purposes. In addition, some Research Council Specialist Subject Repositories have quite strict criteria over which formats they can or cannot accept to facilitate data sharing, and may ask for details of the formats to be used and how the researcher plans to ensure long term preservation as part of the data management plan.

2.1 **Recommended Standards for Common Data Formats**

   The following specifications should be followed when data creators select file formats and resolution for the most commonly used forms of data. More specialised formats such as with research data may require separate guidance. More complete guidance can be found with the Library of Congress Recommended Formats Statement.

Type of Data	Ideal Format/Resolution	Mimimum Format/Resolution
Text	PDF, PDF/A, XML, Rich Text File	Word
Still Images	TIFF Jpeg 300dpi	Jpeg Camera raw format
Moving Images	MXF MPEG-2 H.265 codec Progressive not interlaced format	MP4
Sound	WAV DSD (Direct Stream Digital) PCM (Pulse Code Modulated Audio)	MP3
Quantitative tabular data with extensive metadata	CSV	XML Excel
Web pages	WARC as a long term preservation format	

2.2 Standards for the Creation of Digital Images

Still digital images are commissioned by many different members of academic and professional services staff for a variety of reasons, but usually to record a particular significant event or as part of research. This record forms part of the University's corporate memory as well as potential future use in publications and displays. For this reason it is important that such images are of a high enough technical standard and enough descriptive information is given to facilitate such future use and to be worth archival retention.

The Museum and Archive Service is the official place of deposit for archival records of the University and relating to the University's history in all formats, in compliance with the University Collections Management and Development Policy. The Service will work proactively with colleagues in Schools and Professional Services to select and acquire images of archival value as soon as possible after the images have been created to ensure that the images and their essential data are captured promptly, while the events they record are fresh in the memory of those involved. The Service will catalogue the images selected for the image library and for the collections database, liaising with the image creators to capture the medadata described in c below.

a) Creation

The image should be taken on a good quality digital device that can produce images of a sufficiently high standard.

b) Standards

The minimum standard for a printed publication is 300 dots per inch (dpi), ideally large enough to be printed up to A3 size. TIFF images are the gold standard regarding both preservation and use because of the high dpi and the amount of embedded technical metadata that is needed for long term preservation. Otherwise a high resolution JPEG at 300 dpi would be the next best standard.

c) Metadata

- Title – It's preferable not to leave the title as Picture or IMG but to change this to one that reflects the image content. Otherwise it can be very difficult to find a particular image. Alternatively, clearly identify this at folder level.
- Date
- Description - Basic details – event, names of people in the image, location. For images connected to research, the research project and funding. This can be added in to the Details section under Properties, or cross referenced in a separate list.
- Photographer
- Commissioner

d) Copyright

• The copyright of any images taken by members of staff as part of their work belongs to the University.
• Images taken by professional photographers used by the University should be covered by the Photographic Agreement and copyright is assigned to the University.
• For images taken otherwise the name of the photographer should at least be recorded to ensure permission to publish can be sought at a future date. Ideally written permission for the University to publish the images should be sought at the time the image is submitted.

e) Storage

Store images on a University system which meets the University's Information Governance Principles and complies with the Information Governance and Records Management Policy, for example a Workspace Zone (as defined by the Office 365 Policy).

f) Submission

Images can be submitted to the Museum and Archive Service on CD or DVD, memory stick, e-mail or through secure file sharing systems such as WeTransfer.

g) Selection

All events that are photographed for inclusion in University publications and website would be regarded as potentially worthy of permanent retention. HIG will make the final selection in consultation with the image creators or commissioners.

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2.3 Standards for the Creation of Digital VIdeo and Sound

The University has a regular requirement for the production of both video and audio material. This can be in the form of raw footage or as edited and finished output. This material is intended to be used for a number of purposes including, but not limited to, external and internal corporate communication, marketing and directly as educational material.

The material will be used in a variety of formats ranging from full, stand-alone, video presentations delivered on Blu-ray, DVD and as digital files, through to short video and audio clips encapsulated within web pages. Material is also retained, subject to a retention policy, for archival purposes.

Commissioners of video and sound material should make the technical standards and following procedures available to the companies used to ensure that the material produced is of an adequate standard.

Audio-Visual Services is the official place of deposit within the University for digital video and sound material.

a) All material should be produced to the technical standards in section 2.1
b) All material should be accompanied with detailed data relating to time, date and location of acquisition along with a narrative description of the shot/recording i.e. a full shot list
c) All material should be accompanied by all necessary documentation including personal, group, location and materials release forms
d) In the case of finished programme output, the camera originals should also be made available, as should editing data and other data related to the use of stock footage/photographs and production music and sound effects.
e) All video material should be accompanied by a synchronized PCM audio track. Where this has been recorded "off camera", such as in the case of the use of digital SLRs, a clapperboard should be used to enable li-sync to be achieved
f) Material should be delivered to the University in its original unedited state in addition to an edited programme material.
g) Video material should be supplied in two formats, the native format and a non-proprietary format such as H.264.

2.4   Compression

Digital objects should be retained in the format and resolution in which they were created. Still and moving images and sound are the particular areas where compression into smaller files can create objects of such poor quality the future business use and preservation value are affected. In addition, embedded technical metadata such as essential for long term preservation can be lost. However, digital media files can also be extremely large making them difficult to both store and open. Some forms of compressions are lossless i.e. lose a minimum of information, and others are lossy where a large amount of data is lost. The following guide shows the best compression formats if the original files are too large to store.

Format	Lossless Compression	Lossy Compression
All formats	zip	
Images	JPEG compressed for Maximum Quality (Photoshop JPEG quality setting 10 or 12)	Low resolution jpeg
Audio	WAV, FLAC. ALAC	MP3, MP4
Moving Image	MPEG 4 or 2	MKV, WMV

2.5   Selection Criteria

The following recommendations should be taken into consideration by data creators when selecting more unusual file formats not covered in the above lists

to ensure that the data can be managed throughout the life cycle and can support future business use.

1 Ubiquity

The use of popular formats is preferable. These tend to have broader and longer lasting support from both suppliers and users.

2 Support

Choose software that has a wide range of supporting tools rather than from just one source or supplier.

3 Disclosure

The use of open software formats is preferable. Otherwise the format should have technical specifications available in the public domain.

4 Documentation Quality

Format documentation should be of sufficient quality to allow interpretation of the objects.

5 Stability

The format specification should be stable and new versions should be backwards compatible.

6 Ease of Identification and Validation

It should be easy to accurately identify the format and confirm that it is a valid example of that format.

7 Intellectual Property Rights

Formats that are not encumbered by patents are recommended.

8 Metadata Support

File formats that offer both technical and descriptive metadata support should be used

9 Complexity

Choosing over-specified formats should be avoided as these can be more costly to manage and preserve.

10 Interoperability

It is recommended that formats that are supported by a wide range of software and are not platform dependant should be used.

11 Viability

Use formats that provide error- detection facilities to allow detection of file corruption.

12 Re-usability

Use formats that retain the ability to be processed.

2.6   Submission

Digital objects can be submitted in the following ways – e-mail, CD or DVD, memory stick, or by setting up a secure file sharing account. If objects are submitted in an obsolete or proprietary format or storage medium the service reserves the right to refuse the donation as it may be too difficult or expensive to extract the data.

3   RELATED POLICIES AND PROCEDURES

Policies

Digital Preservation Policy
https://www.hw.ac.uk/documents/digital-preservation-policy.pdf

Collections Development Policy
http://www.hw.ac.uk/archive/docs/collections-development-policy.pdf

Collections Management Policy
http://www.hw.ac.uk/documents/collections-management-policy.pdf

Information Governance and Records Management Policy
http://www.hw.ac.uk/documents/information-governance-records-management-policy.pdf

Data Protection Policy
http://www.hw.ac.uk/documents/heriot-watt-university-data-protection-policy.pdf

Student Records Management Policy
http://www1.hw.ac.uk/registry/resources/studentrecordsmanagement.pdf

Research Data Management Policy
http://www.hw.ac.uk/documents/research-data-management-policy.pdf

Office 365 Policy
https://www.hw.ac.uk/documents/office-365-policy.pdf

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Data Protection: Procedures for obtaining informed consent for recordings and images of people
http://www.hw.ac.uk/documents/data-protection-obtaining-consent.pdf

Best Practice on Research Data Management
http://www.hw.ac.uk/is/research-support/research-data-management.htm

Further Reference

Selecting File Formats for Long-Term Preservation, The National Archives Digital Preservation Guidance Note 1 August 2008
http://www.nationalarchives.gov.uk/documents/selecting-file-formats.pdf

Library of Congress Recommended Formats Statement
Recommended Formats Statement – table of contents | Resources (Preservation, Library of Congress) (loc.gov)

UK Data Archive File Formats
http://www.data-archive.ac.uk/create-manage/format/formats-table

4   DEFINITIONS

compression   Reduction of the size of data to save space or transmission time

5   FURTHER HELP AND ADVICE

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6   POLICY VERSION AND HISTORY

Version No	Date of Approval	Approving Authority	Brief Description of Amendment
V. XX	15 February 2021	Finance Committee	Chnaged to reflect new reporting structure and standards

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