Durham County Record Office

Digital Preservation Policy 2021 to 2024

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1.0 draft	December 2014	Drafted by Mark Jervis, Archivist	
1.1 draft	July 2016	Amendments in line with Draft Digital Preservation Strategy EMB	
1.2 approved	March 2018	Amendments for Archive Service Accreditation	
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ARCHIVE SERVICE

Contents

Digital Preservation Policy

1. Purpose

1.1 Our Digital Preservation Policy exists to ensure that we preserve permanently as archives electronic records (born-digital records and digital copies of analogue records) of evidential and historical value to County Durham and Darlington. It should be read alongside our other policies, in particular our Collecting Policy, Appraisal Policy and our Deaccessioning Policy.

1.2 It should also be read alongside Durham County Council's Digital and Customer Services Business Recovery Process Business Continuity Plan.

1.2 Our key objectives are to ensure that preserved digital records are protected from accidental or deliberate data loss, and can be located, accessed and trusted.

2. Context

2.1 Durham County Record Office (DCRO) is the statutory local authority archive service for County Durham. We also act under agreement as the archive authority for Darlington Borough Council and as the Durham Diocesan Record Office for Parish Records. DCRO is an Accredited Archive Service and appointed as a place of deposit for public records by The National Archives.

2.2 Our mission statement:

Durham County Record Office collects, conserves, secures and makes accessible historical records relating to County Durham and Darlington to enable learning and education, business operations, local accountability, and personal enrichment.

2.3 Digital preservation is an issue of critical importance to Durham County Council (DCC), and the wider archive/records management professions. The number of records that are born-digital is increasing rapidly, while the importance of digitisation programmes (which seek to provide digital copies of analogue records for the purposes of preservation, access and revenue generation), generates additional pressure on the skills and resources of archives and records management services, and DCC ICT infrastructure.

2.4 To date, the bulk of records transferred to DCRO are analogue (paper, parchment, tapes, videos, photographs) but we anticipate that a large proportion of future transfers from DCC and outside agencies will be electronic. The content of electronic records is just as unique and important as records in a traditional format. Unlike paper and parchment, which can survive as long as basic environmental conditions are met, electronic records require active management throughout their lifecycle to ensure that they remain authentic (reliable, complete and usable).

2.5   Electronic records can range from simple text documents to complex web-based resources combining text, sound, digital photographs and videos. Electronic records can also be static (e.g. PDF documents) or dynamic (e.g. databases and web pages).

2.6   DCRO may implement different preservation strategies over time, and for different types of digital resource. We will select these strategies according to the requirements of particular resources, evolving international best practice, and an assessment of the resources required to execute the strategy. Whichever strategies we employ, we will always retain the original manifestation of the digital resource, and may optionally retain all intermediate manifestations.

2.7   In order to reduce technical dependencies and to manage the risks of hardware/software obsolescence or storage failure, our preferred option is format migration (convert the digital content to a format that can be accessed using current hardware/software), rather than emulation (using new hardware/software that mimics obsolete hardware/software).

3.   Scope

3.1   This policy applies to born-digital records managed by our service – DCC and Darlington Borough Council (DBC) corporate records and records offered to us as archives by other organisations or individuals.

3.2   This policy applies to digital copies of analogue archives created for the purposes of preservation, access and revenue generation.

4.   Policy Principles

4.1   We preserve archives because of the enduring value of the information they contain or as evidence of the functions and responsibilities of their creator. This important evidential role of archives supports research and the operational efficiency of organisations. What we preserve is unique and therefore irreplaceable.

4.2   We undertake the collection, preservation and provision of access to archives following professional principles and ethical guidance.

4.3   We accept collections for permanent preservation following our Collecting Policy, and DCC/DBC retention guidelines. We appraise the content of collections, assessing the cultural and informational value of the material, deciding what is archival material and therefore worthy of retention in the archive. Following this appraisal, we formally accession archives into the collection. We take disposal decisions with great care, following The National Archives Deaccessioning and Disposal Guide 2015.

4.4   The objective of this policy is to ensure that our born-digital archives remain authentic and accessible in the medium and long-term. The threats of rapid

technological change and the fragility (alteration, damage and decay) of the digital format need to be minimised by identifying and predicting the impacts of these threats on electronic records, as well as by planning and implementing appropriate preservation strategies.

4.5   The authenticity of an electronic record derives from three essential quantifiable characteristics: reliability, integrity and usability[1].

- **Reliability**: the record must be a full and accurate representation of the activity to which it attests. This requires the establishment of trust in the record keeping and archival processes used to manage the record throughout its lifecycle, and the continued ability to place the record within its operational context.

- **Integrity**: the record must be maintained to ensure that it is complete, and protected against unauthorised or accidental alteration.

- **Usability**: the record must be capable of being accessed by authorised users, across time and changing technical environments. This requires that the record be locatable and retrievable by users, that it must be capable of representation in a current technical environment, and that it supports interpretation by users.

4.6   These properties are independent from any given technical representation of that record.

5.   Policy requirements

5.1   Digital preservation requirements can broadly be subdivided into bit-stream preservation and content preservation.

- **Bit-stream preservation**: this form of preservation is concerned with the maintenance of existing manifestations of a digital resource. Its function is to ensure the continuing integrity of, and controlled access to, the digital objects that are contained within the preservation storage environment, including their associated metadata (data about data). It is sometimes referred to as passive preservation.

- **Content preservation**: this form of preservation seeks to ensure the continued accessibility of digital resources over time, in the face of technological change, through active intervention. It may generate new technical manifestations of those resources through processes such as format migration. These new manifestations are then incorporated into the preservation storage environment for ongoing bit-stream preservation. It is sometimes referred to as active preservation.

5.2   We will define, where possible in conjunction with record creators, the properties of any given record type that are significant to its authenticity.

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[1] Based on ISO 15489-1:2001 Information and Documentation-Records Management-Part 1: General.

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These properties will be defined in a measurable form, preferably at, or before, the point of transfer to DCRO.

5.3   In the specific context of long-term preservation, we will seek to ensure the authenticity of electronic records through a number of measures.

- **Significant properties**: we will identify and maintain those properties of an electronic record that are significant to its authenticity. By declaring in measurable form the properties that we consider significant, the validity of preservation processes can be asserted.

- **Audit**: we will maintain a full audit trail of all preservation actions performed on a representation of a record. We will document actions applied to that representation in sufficient detail for present and future users to understand their nature and consequences.

- **Integrity**: we will maintain the integrity of all stored record representations. This ensures that, once a given representation of a record has been determined to be authentic, it is preserved from any alteration.

5.4   We will seek to implement a model that provides a means to describe each manifestation, including its component objects, nature, currency, and derivation, and the preservation actions that generated it.

5.5   We will seek to maintain detailed metadata, to support the management of authentic electronic records. This metadata describes the logical record and its context, each physical manifestation of that record, and the preservation processes that have been performed on those manifestations.

5.6   Subject to an assessment of the reliability of the source, we will always seek to generate and process metadata automatically. Wherever possible, we will source record metadata from the creation environment to ensure its authenticity. This may be supplemented by metadata that is automatically extracted from the objects themselves.

6.   Standards

6.1   Standards play an important role in digital preservation. In particular, they can provide unambiguous benchmarks for defining requirements and measuring outcomes, and can support interoperability both between existing systems and across time. Standards in this area are still very much evolving, and we will monitor their development, and implement those that are appropriate.

6.2   Of particular relevance is the Open Archival Information Systems (OAIS) Reference Model, which defines a high-level functional model for a digital repository.[2] It specifies the terms, concepts, and reference model for a system dedicated to preserving digital assets. This standard is widely used in the

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[2] See (ISO 14721: 2003) Space data and information transfer systems - Open archival information system (OAIS) – reference model.

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digital preservation community. We will seek to align our policies with the OAIS model wherever practicable.

6.3   Also of relevance is the PREMIS (Preservation metadata: implementation strategies, 2.2) standard for the use of metadata. The PREMIS standard has built upon the framework established by the OAIS model. The PREMIS data model is composed of five 'entities' relevant to digital preservation. These entities are:

- intellectual (logical set of content which is considered as a discrete unit for the purposes of management and description e.g. book/ photograph/ website)
- object/digital object (a technical instantiation of a discrete unit of information in digital form e.g. files/bit-streams/representations)
- event (an action which relates to one or more objects or agents)
- agent (a person, organisation or system associated with events or rights which apply to an object)
- rights (rights or permission which apply to an object or agent)

6.4   See Appendix 2 for statutory position and standards.

7.   Roles and responsibilities

7.1   The Information and Records Manager and the County Archivist are responsible for DCC's Digital Preservation Policy, and will provide guidance and support to services and elected members in order to support the aims of the Digital Preservation Policy.

7.2   DCC Corporate Management Team is responsible for approving the corporate framework for the preservation of semi-current and archival electronic records as set out in this policy.

7.3   DCC Information Governance Group is responsible for:

- advising services on developing specific procedures in order to comply with the Digital Preservation Policy
- ensuring that all staff have access to and support in terms of training and development in order to facilitate understanding of the importance of the Digital Preservation Policy and developing specific procedures in order to comply with the Digital Preservation Policy
- reviewing and updating the Digital Preservation Policy and procedures when changes occur.

7.4   DCC ICT service is responsible for the infrastructure to ensure data security and business continuity to prevent loss of information.

7.5   DCC Corporate Directors are responsible for developing service guidance for the preservation of semi-current and archival electronic records and ensuring that the aims of this Digital Preservation Policy are implemented within their own Directorate.

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7.6   DCC Heads of Services are responsible for:
- Ensuring that appropriate resources are in place to enable compliance with the Digital Preservation Policy.
- Ensuring that all employees, including contractors, consultants and volunteers employed to undertake Council business, adhere to the Digital Preservation Policy.
- Communicating the Digital Preservation Policy.

7.7   Individual Employees are responsible for the electronic records they create and will follow service retention guidelines for the preservation of semi-current and archival electronic records. DCC owns the information that individual employees create.

7.8   The Digital Preservation Policy will apply to digital records created by Elected Members as part of their Council work.

8.   Communication

8.1   We will publish our Digital Preservation Policy on the DCRO website.

8.2   We will give presentations on the Digital Preservation Policy to records champions.

8.3   We will communicate the policy to all employees via DCC's intranet and staff newsletters.

9.   Audit

9.1   DCC and DCRO will develop procedures to enable the effective monitoring of the Digital Preservation Policy.

10.   Risk Management

10.1   Without a policy and procedures to manage digital preservation, there are a series of risks resulting in loss of electronic records:
- Changes in hardware and software can impact upon potential digital preservation strategies. This risk can be mitigated by active management of digital records and regular review of hardware and software requirements.
- Lack of experience in digital preservation may lead to DCC being unable to manage, curate and preserve its electronic records.

11.   Review

We will review this policy every three years to reflect the regular changes that take place within the field of digital preservation as well as any significant change in circumstances for DCC and/or DCRO.

12. Contacts

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Appendix 1: Glossary

Accessioning: the process of bringing digital resources under the intellectual and custodial control of a preservation environment.

Analogue: non-digital material.

Appraisal: the process of deciding whether an item or group of items has continuing value in accordance with the collecting organisation's mission statement.

Bit: fundamental unit of digital information storage with a binary value of 1 or 0.

Bit-stream: a sequence of bytes which has meaningful common properties for the purpose of preservation. A bit-stream may be a file or a component of a file.

Bit-stream preservation: the aspect of preservation management that is concerned with maintaining the integrity of every bit-stream ingested into the digital repository, by demonstrating that a demonstrably bit-perfect copy can be retrieved on demand, for as long as required.

Born-digital: materials that are created in digital form and that are not intended to have an analogue equivalent.

BS: British Standard.

Byte: unit of digital information and measure of data, normally equal to 8 bits.

Content preservation: the aspect of preservation which seeks to ensure the continued accessibility of digital resources over time, in the face of technological change, through active intervention.

Data object: a technological instantiation of an information object, composed of one or more bit-streams and dependent on a specific technical environment to provide access.

Digital assets: the material produced as a result of digitisation, or digital photography; as well as more complex, structured accumulations such as online learning resources, web pages, virtual reality tours and digital audio/visual files.

Digital object: a physical component of a digital resource. This may be represented as a bit-stream, a part of a bit-stream, or set of bit streams within a computer file system.

Digital record: any information that is recorded in a form that only a computer can process and that satisfies the definition of a record

Digital resources: encompasses both digital records and digital assets.

Electronic records: a record created digitally in the day-to-day business of an organisation and given formal status by the organisation.

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Emulation: the class of preservation actions which entail transforming a technology environment to allow a digital object to be accessed in its original form.

Hardware: physical components of a computer.

Information object: the conceptual object of preservation. An information object is realised as meaningful information by interpreting a data object through its associated representational information.

Ingest: OAIS process to capture digital resources into a preservation environment.

Instantiation: a copy of a digital record.

ISO: International Organisation for Standards.

Manifestation: a technological instantiation of a digital record, characterised by specific bit-stream encodings, and dependent upon a specific technical environment to provide access.

Media refreshment: moving data from one carrier medium to another to mitigate the risk of loss through physical degradation of the medium.

Metadata: literally "data about data". Generic term used to denote structured data associated with content in some way to assist in its management and use.

Migration: preservation actions which entail transforming a digital object to a form which can be accessed in a new technology environment.

PDF: Portable Document Format. A type of file format that displays documents digitally in the same way they would appear on paper. Adobe Acrobat Reader facilitates the use of PDF.

OAIS: Open Archives Information System reference model. An international standard (ISO 14721: 2003) defining a high-level functional model for a digital repository. This was developed in the space science community and is widely used in the digital preservation community.

PREMIS: Preservation, metadata: implementation strategies.

Presentation: the process of making a digital resource available to a user or user community.

Render: the production of an object.

Representational information: the set of information required to interpret a data object as a meaningful information object, or a component of a technical environment that supports interpretation of that object (such as a software tool or a hardware platform).

Significant properties: any intrinsic property of an information object that contributes to the assertion its authenticity.

Software: coded instructions which control the behaviour of a computer.

Appendix 2: Statutory Position and Standards

Durham County Council has a statutory duty to provide an archives service, to preserve and make accessible archives in whatever format they may be created. Relevant legislation:

- Public Records Act 1958
- Local Government (Records) Act 1962
- Local Government Act 1972
- Data Protection Act 1998
- Freedom of Information Act 2000
- Environmental Information Regulations Act 2004
- Parochial Registers and Records Measure 1978
- The Law of Property (Amendment) Act 1924
- The Manorial Documents Rules 1926
- The Tithe (Copies of Instruments of Appropriation) Rules 1960

Standards play an important role in digital preservation. In particular, they provide unambiguous benchmarks for defining requirements and measuring outcomes, and can support interoperability both between existing systems and across time. Standards in this area are still very much evolving, and DCRO will monitor their development, and implement those which are appropriate.

Of particular relevance is the Open Archival Information Systems (OAIS) Reference Model, which defines a high-level functional model for a digital repository. It specifies the terms, concepts, and reference model for a system dedicated to preserving digital assets for a designated community. This standard is widely used in the digital preservation community. DCRO will seek to align its policies with the OAIS model wherever practicable.

- ISO 14721:2012 Space data and information transfer systems - Open archival information system (OAIS)– reference model

Also of relevance is the PREMIS (Preservation metadata: implementation strategies, 2.2) standard for the use of metadata. The PREMIS standard has built upon the framework established by the OAIS model. The PREMIS data model is composed of five 'entities' relevant to digital preservation. These entities are:

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Further standards of relevance to digital preservation:

- ISO 15836: 2009 Dublin Core metadata element set for descriptive standards
- METS (Metadata Encoding and Transmission Standard) for encoding descriptive, structural and administrative metadata for packaging metadata for transfer between systems and storage repositories.
- ISO 15489, 16175 and 23081 relate to international standards for records management with a framework for managing authenticity of electronic records, a conceptual framework for creating, managing and using metadata, as well as principles and functional requirements for records in electronic office environments.
- BS4783:1988-94 Storage, transportation and maintenance of media for use in data processing and information storage
- ISO 16363: 2012 Space data and information transfer systems – Audit and certification of trustworthy digital repositories
- ISO 17799 Information Security Management
- BS 6266:2002 Code of practice for fire protection for electronic equipment installations
- BS 7083:1996 Guide to the accommodation and operating environment for Information Technology equipment

Standards that are relevant to the management of all archives:

- Archive Service Accreditation Standard 2013
- British Standard for archive storage BS 4971:2017
- Information and Records Management Society Retention guidelines for Local Authorities 2003

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