DRS Policy Guide

This *Guide* defines the policies associated with the Harvard Library Digital Repository Service (DRS) and is intended for Harvard collection managers who are using or considering making use of DRS services. The term "Collection manager" is intended to identify a role rather than a specific individual and it is understood that over time many individuals will play this role for a collection.

Management of DRS operations is the responsibility of staff in Library Technology Services (LTS).

1. What is the purpose of the Digital Repository Service?

The DRS provides professionally managed services to ensure the usability of stored digital objects over time. The DRS is both a preservation and an access repository. In other words, its obligations include assurances that stored digital content will remain both viable and accessible into the indefinite future despite a constantly changing technological environment. All objects managed in the DRS will receive the highest level of preservation service consistent with the object's characteristics and the current technical capabilities of the DRS and its staff.

The DRS is part of a suite of independent but cooperating services operated by HUL that provide a comprehensive infrastructure for digital content management, discovery, and delivery. Further information about HL infrastructure is available on the LTS web site at <http://library.harvard.edu/lts/support>.

Note that the DRS is not intended to function as a record management system or an institutional repository (i.e., it is not designed to capture all of the research output of the university).

2. What type of objects may be deposited into the DRS?

A digital object is the representation in digital form of a piece of intellectual or artistic content. In order to be eligible for deposit into the DRS, digital objects should be "library-like," that is, they should:

- Support research, scholarship, and pedagogy.
- Have inherent persistent value.
- Be intended to be stored in the DRS indefinitely.

The DRS will accept objects comprising one or more files in any format and accompanied by appropriate metadata. Note however, that the use of certain formats or insufficiently rich accompanying metadata may constrain the range and effectiveness of services applicable to the objects.

3. Who may deposit objects into the DRS?

Key points:

-- Any Harvard organizational unit can participate.
-- Individual members of the Harvard community can participate with an organizational sponsor.

Any Harvard organizational unit, or individual member of the Harvard community with organizational sponsorship, may deposit objects into the DRS. Since the DRS is a preservation repository in which objects are intended to be stored indefinitely, in the case of individual depositors it is important that some long-lived organizational entity oversees, and is prepared to assume, custodial stewardship for the deposited objects. Stewardship includes an organizational commitment to fulfill ongoing financial responsibilities for storage and preservation services.

See What is digital stewardship? for more information about stewardship responsibilities.

4. What are the obligations of collection managers?

Collection managers are Harvard-affiliated agents, or their proxies, who exercise intellectual and administrative stewardship responsibilities for digital objects stored in the DRS. "Collection manager" is a role rather than a specific individual, and it is understood that over time, many individuals will play this role for a collection.

Collection managers have these obligations:

- **Digital stewardship:** Cooperate with DRS staff in exercising appropriate digital stewardship for their objects. See What is Digital Stewardship? for more information.
- **Intellectual property rights:** Manage the legal rights necessary for DRS services to be performed on their objects.

  Collection managers must manage the intellectual property rights of their objects over time. When practical, they should expend reasonable effort towards obtaining all legal clearances necessary for DRS services. These include the right to make one or more faithful copies of objects for backup purposes, the right to make derivative copies, and the right for public redistribution.

- **Metadata:** Provide appropriate administrative, technical, and structural metadata about their objects. Accurate metadata is essential to the functioning of the DRS. See descriptions of the Creation and Deposit phases of digital stewardship for more information.
- **Discovery:** Ensure that descriptions of their objects are publicly available in online discovery systems. See What are DRS discovery and access policies? for more information.
- **Access:** Ensure that access to a version of their objects' content is available to members of the Harvard community. See What are DRS discovery and access policies? for more information.
- **Financial considerations:** Arrange payment for DRS services.

  The management, operation, and maintenance of the DRS are financed by HUL in part on a cost recovery basis. The obligation placed on collection managers—and ultimately, the TUBs with which they are associated—to meet ongoing financial responsibilities is an important component of sustainable digital stewardship.

5. What are the obligations of the DRS?

The DRS staff and management have these obligations:

- **Digital stewardship:** Cooperate with collection managers in exercising appropriate digital stewardship for their objects. See What is digital stewardship? for more information.
- **Preservation of usability:** Preserve the usability of stored objects over time. See What are DRS preservation services? for more information.
- **Delivery services:** Deliver content to desktop client applications via standard web protocols. See What are DRS delivery services? for more information.
- **Professionalism and sustainability:** Professionally manage the DRS in a manner that is administratively, financially, and technically sustainable.
- **Responsiveness and transparency:** Be responsive to the needs and concerns of the collection manager community and conduct DRS policy setting and planning activities in an open and transparent manner.

6. What are DRS retention policies?

Key points:

-- DRS normally retains the current, previous and original versions of stored files.
-- Collection managers can de-accession objects from the DRS based on sound collection management decisions.
-- DRS should not be used as a temporary storage facility.

If newer versions of object files are created as the result of *migration* (conversion of a file to a new format to preserve usability) or *corrections* (changes to an object to correct superficial errors of fact or appearance), the normal practice of the DRS is to retain the current, previous, and original versions of those files. Additional intermediate versions are assumed to be redundant and discardable without loss of integrity or function.

Collection managers can de-accession objects from the DRS as a consequence of sound collection management decisions. However, the DRS is not intended to be and should not be used as a temporary storage mechanism for digital objects. The temporary storage needs of collection managers can be dealt with on a more cost-effective and less curatorially-intensive basis by other technology solutions offered by local, central, or external IT service providers.

7. What are DRS discovery and access policies?

Key points:

-- All stored objects are considered to be University resources.
-- DRS policy is to facilitate discovery of and broadest possible access to objects by the Harvard community.

In keeping with the DRS funding structure and eligibility requirements, all objects stored in the DRS are considered to be University resources. The intent of the DRS policy is thus to facilitate discovery of and the broadest possible access to those objects by the Harvard community.

DRS policies regarding end-user discovery of and access to stored objects are described in this section.

Sections in this topic include:

7.1 Discovery policies

Key point:

-- Stored objects must be described in appropriate publicly-accessible catalogs or web sites.

Collection managers are responsible for ensuring that descriptions of their objects are publicly available in online discovery systems.

The DRS does not manage descriptive metadata about stored objects. Collection managers must provide appropriate descriptive metadata about their objects in some publicly-accessible catalog or web site. Note, however, that this requirement exists at the descriptive level only; there is no requirement that the public has access to stored objects.

7.2 Access policies

Key points:

-- Access to a version of a stored object's content must be made available to members of the Harvard community.
-- Exemptions from this policy are possible for some classes of objects (such as course materials).
-- Collection managers are responsible for accuracy of the access metadata for stored objects.

DRS policy requires that a version of the content represented by stored objects -- though not necessarily the objects themselves -- must be made available to the community (or expected to be available in the future).

A collection manager can meet this requirement by providing access to:

- Digital objects stored in the DRS.
- Digital objects stored *external* to the DRS.
- Non-digital versions of the objects.

Furthermore, when external digital versions are used, these do not have to deliver the same quality levels as the objects stored in the DRS.

Materials intended for course support may be exempt from this requirement when copyright requires more limited access.

The access rules for stored objects are defined in the metadata submitted with the objects and are implemented by the HUL Access Management Service. Collection managers are responsible for the accuracy of the access metadata for their stored objects.

8. What are DRS delivery services?

Key points:

-- DRS delivers stored content to client applications, but does not render content to the user.
-- DRS works with the HUL Access Management Service to provide access control on stored objects.

The DRS provides services for delivering stored content to client applications via standard web protocols, but is not responsible for rendering content to the user. For example, the DRS image delivery service will deliver still images to the web-based VIA image catalog, but it is the web browser that renders (displays) the image to the user.

DRS, in conjunction with the HUL Access Management Service, will provide access control for stored objects, based on access metadata deposited with the object.

9. What is digital stewardship?

Digital stewardship is the management of digital objects over the long term through careful digital asset management practices. Collection managers and DRS staff must work together to manage stored digital objects throughout all phases of the objects' life cycle. This section describes the major areas of digital stewardship in the life cycle of a digital object:

- Assessment and selection phase: Collection manager performs a curatorial assessment of materials intended for DRS storage.
- Acquisition and creation phase: Collection manager (in consultation with HUL analysts) selects digital formats and defines technical specifications and workflow processes for creation of objects and related metadata.
- Deposit phase: DRS ensures a successful deposit by validating each package of digital objects and related metadata that is submitted to DRS.
- Archive and preservation phase: DRS staff perform periodic checks to ensure the usability of digital objects over time. This includes periodic reports to collection managers about their objects.

9.1 Assessment and selection phase

Key points:

-- Collection managers need to develop a curatorial assessment of content proposed for the DRS.
-- Collection managers must notify DRS staff if this assessment changes for stored objects.

Collection managers are generally aware of a range of significant factors related to their content, including:

- Knowledge of additional versions of content beyond those to be stored in the DRS.
- Expectations with regard to the use of stored objects by one or more identifiable user communities.
- Curatorial assessment of the value (whether artifactual, aesthetic, economic, or intellectual) of stored objects.
- Uniqueness of and difficulty in re-acquisitioning or re-creating digital objects.

Collection managers are expected to provide DRS staff with this information to provide a curatorial perspective during important decision-making processes. Recognizing that this perspective will undoubtedly evolve over time, it is incumbent on collection managers to disclose significant changes to this information on a timely basis.

9.2 Acquisition and creation phase

Key points:

-- Preservation planning for digital objects starts at point of creation.
-- Proper characterization of a digital object (i.e., technical and structural metadata) is essential.
-- The collection manager should review the DRS best practice guidelines (forthcoming) and consult with the HUL reformatting analyst before selecting formats and designing digitization processes.

One important component of digital stewardship is planning for the long-term preservation of objects stored in the DRS. Ideally, preservation planning should begin before any digital object is created.

Important preservation decisions at the digital object acquisition/creation stage include:

- Selection of digital formats for representing object content.
- Definition of technical specifications and workflow processes for object creation.
- Selection of the "best version" from among multiple versions of object content to be used as the source for creating new derivatives.

Also essential to preservation planning is creation of appropriate technical and structural metadata about digital objects. Without metadata to provide the proper characterization of a digital object – especially with regard to its internal structure, technical properties, and the format of its underlying files – the ability of the DRS to preserve access to that object is severely compromised.

Collection managers who have substantial control over the creation of their objects should review the DRS best practice guidelines (forthcoming) prior to selecting data formats, specifying technical specifications, or designing workflow processes. Collection managers can arrange consultation with a HUL reformatting analyst to review collection-specific functional requirements and suggest effective solutions for the creation of objects and related metadata.

9.3 Deposit phase

Key points:

-- Collection managers (or agents working on their behalf) are responsible for DRS deposits.
-- Administrative and technical metadata supplied in the deposit must be accurate.
-- DRS is responsible for validating deposits to ensure digital objects and their metadata arrive in storage safely.

A collection manager (or a deposit agent working on behalf of the collection manager) is responsible for the preparation and deposit of objects to the DRS.

Objects are submitted for deposit to the DRS in the form of a Submission Information Package (SIP), which is composed of the individual files that represent object content and an additional submission control file. This control file supplies administrative and technical metadata for all content files and defines all inter-file and inter-object relationships required or allowed by the objects' content models.

The administrative and technical metadata that are supplied in the control file must accurately characterize the deposited objects. Inconsistency of this control file metadata with the objects' internal properties is cause for rejecting the deposit. In such cases the collection manager must regenerate the object or the metadata in order to remove the inconsistency.

The success of a given deposit is dependent upon a number of validation checks, including conformance of the submitted deposit package—the combination of digital objects, externally supplied metadata, and deposit processing instructions—to documented DRS specifications. At deposit-time and subsequent to significant events in a digital object's lifecycle, such as a preservation migration, additional checks will be performed to ensure the validity, consistency, and conformance of content models, objects, and their files.

9.4 Archive and preservation phase

Key points:

-- Once in DRS, all objects are monitored for risk factors that would compromise usability.
-- DRS periodically generates reports about stored objects.
-- DRS offers a web-based interface for ad hoc reporting on stored objects.

Once in DRS storage, all objects are periodically monitored with respect to risk factors that would compromise their usability. See What are DRS preservation services? for more information.

As part of ongoing monitoring, DRS will provide collection managers and their designated agents with periodic reports about their objects, including:

- Deposit confirmation (or error) reports sent immediately after every successful (or failed) deposit.
- Summary administrative reports providing the number, size, content model, and usability and access status of stored objects and their files.

Additionally, the DRS will provide collection managers and their agents with a web-based interface for *ad hoc* reporting on stored objects and their properties.

10. What are DRS preservation services?

Key points:

-- The goal of preservation is to keep digital objects usable as technologies change.
-- DRS staff monitor digital objects and their technical environment for risk factors that would compromise usability.
-- When usability is threatened, a preservation action plan is implemented.

Digital materials are surprisingly fragile; their viability depends on technologies that undergo rapid and continual change. The primary obligation of the DRS is to keep stored digital objects usable over the long term as technologies change.

The DRS takes three approaches to preserving the usability of digital objects:

- **Offer best practice guidelines for creating and acquiring digital materials.** These guidelines help Harvard curators make choices about digital content that are conducive to preservation.

- **Run a well managed repository service**. While the DRS storage and handling practices will at a minimum always preserve the bit-level integrity of all stored digital objects, objects receive the highest level of preservation service possible given their characteristics, quality of their metadata, and current technical understanding of the digital environment. Preservation decisions will also be influenced by relative benefit to the user community and managerial considerations such as cost and availability of resources.

- **Monitor digital formats**, the technical environment in which they are used, and the service requirements of the user community. Look for usability threats or opportunities and implement an appropriate preservation action plan.

To maximize preservation confidence, collection owners should conform to DRS best practices for creation/acquisition of digital content and use HUL delivery systems to make this content accessible to users.

The preservation strategy recommended by DRS staff will vary based on nature of the threat or opportunity, format and function of the object, needs of the user, and other factors. Here are a few preservation scenarios:

- **File format becomes obsolete.** If future web browsers no longer render a once popular format, the preservation strategy might be to migrate digital objects of this format to a replacement format.
- **Software application becomes obsolete.** If digital objects require a proprietary software application to be usable and that application becomes obsolete, it may be necessary to preserve or emulate that application environment.
- **Change in user requirements.** Sometimes, changes in user requirements will prompt preservation action. For example, DRS staff might recommend migration of digital objects to a format that offers a richer set of features to the user.