Harvard Library

DRS Policy Guide

Version 4.1 – October 2020

PART I ■ SUMMARY

1 Purpose and Scope

1.1 This Guide expounds the controlling principles and obligations underlying the long-term preservation of digital resources by the Harvard Library's Digital Repository Service (DRS). It defines Library intentions and responsibilities, informs its strategic thinking and decision-making processes, and provides a benchmark for setting stakeholder expectations and evaluating programmatic outcomes.

1.2 Part I of this Guide provides an informative high-level summary of DRS policy goals. Specific normative principles and obligations are presented in Parts II and III. Detailed definitions of key policy terms marked with an *asterisk in Parts II and III are supplied in the Glossary in Appendix B. Appendix C provides brief narrative examples of important terminological distinctions.

1.3 This Guide is one component of a larger set of collateral documentation providing direction and guidance on all phases of digital preservation stewardship.

2 Summary Policy

2.1 Curated digital content of persistent value furthering the mission of the University can be contributed to the DRS by any institutional unit or sponsored individual member.

2.2 Digital content managed by the DRS receives the highest level and longest term of preservation service consistent with that content's pertinent formal characteristics, curatorially-appraised value, and Harvard Library (HL) and HUIT Library Technology Services (LTS) capacities and priorities.

2.3 HL managers, LTS administrators, and DRS content contributors and consumers act with integrity, transparency, and accountability to each other and stakeholder communities within and outside the University.

PART II ■ PRINCIPLES

3 Mission and Goals

3.1 The Digital Repository Service is the Harvard Library's centrally-supported programmatic solution for *digital preservation. The DRS encompasses:

1. These policies;
2. Professional staff;
3. Stakeholder consultation, analysis, strategic planning, and guidance;

4. Operational procedures; and
5. Robust technical infrastructure.

3.2   Digital preservation is the programmatic enterprise facilitating meaningful human communication of digitally-encoded information across time and ever-accumulating technical and cultural distance. It is a complex of actors, policies, procedures, and technologies ensuring the ongoing representational and functional qualities of managed *digital resources*, including their:

1. *Integrity*;
2. *Authenticity*;
3. *Accessibility*; and
4. *Usability*.

3.3   Use of preserved digital resources is inherently contingent with respect to time, place, person, and purpose, and may encompass varying degrees of reference to and exploitation of those resources' pertinent intrinsic and extrinsic characteristics, including their:

1. *Meaning*,
2. *Expressive form*;
3. *Symbolic form*;
4. *Material form*;
5. *Behavior*;
6. *Perceptual form*;
7. *Description*;
8. *Provenance*; and
9. *Context*.

4   Context and Scope

4.1   The Harvard Library advances the University's scholarship and teaching by committing itself to the creation, application, preservation, and dissemination of knowledge. The success of the University's research and pedagogy in the 21st-century is inseparable from effective HL stewardship of the digital resources underlying those activities. These *collections* are a vital living component of the University's intellectual capital; they are broad, deep, diverse, and deserving of prudent management to maintain and enhance their value to current and future generations of scholars.

4.2   Successful and sustainable preservation stewardship of those collections is possible only through the coordinated efforts of curatorial and technical competencies distributed across the Library and University, supported by ongoing financial commitments.

4.3   The most significant risk potentially confounding successful preservation outcomes is not posed by inadequately-rich resource representations or insufficiently-comprehensive accompanying metadata, but rather, technical and financial factors impeding the widest possible acquisition of eligible digital resources into the care of an appropriate program of active preservation stewardship. Thus, the overall intent of this policy is to encourage the most expeditious and extensive accession of resources into a

managed preservation environment. Towards that end, the understood meaning of specific policy terms should presumptively favor an expansive interpretation that best aligns with that overarching goal.

4.4   The DRS provides core functions for effective preservation of the University's digital collections. Discovery and delivery of DRS-managed resources are ancillary functions supported by external added-value HL services that interoperate with the DRS.

4.5   The DRS is available for HL and University use, but no HL or University unit is obligated to make use of it.

PART III ■ OBLIGATIONS

5   ELIGIBILITY

5.1   Digital resources are eligible for contribution to the DRS if they:

1. Support University research, teaching, and learning, or otherwise contribute to the scholarly or cultural record;
2. Possess *persistent curatorially-appraised value;
3. Conform to the requirements and recommendations of an HL *content model;
4. Are described at a curatorially-appropriate level of detail in HL discovery services at the time at which they are made available for public access; and
5. HL holds, or will be granted in good faith, legitimate legal authority to store, faithfully copy, make *derivatives of, and redistribute those resources subject to reasonable curatorially-designated access controls.

5.2   Eligible digital resources contributed to the DRS must fall under the responsible *proprietorial and *curatorial purview of a:

1.   University organizational unit;
2.   University-affiliated individual with University organizational sponsorship; or
3.   Non-University organization with University organizational sponsorship.

5.3   Managed resources may be affirmatively *deaccessioned from the DRS as the result of sound curatorial analysis or to remedy obvious errors.

6   PRIVILEGES

6.1   Rights and responsibilities regarding use of the DRS are attached to distinct functional roles that may be held by University-affiliated individuals. These roles are:

1. *Owners, who exercise primary proprietorial, i.e., administrative, financial, and legal, responsibility for DRS-managed resources on behalf of the University;
2. *Curators, who exercise primary intellectual responsibility for DRS-managed resources on behalf of their owners;

3. *Depositors*, who exercise delegated authority to effect the physical transfer of digital resources from University collections to the DRS on behalf of their owners and curators;
4. HL *managers*, who exercise delegated preservation responsibility for DRS-managed resources on behalf of their owners and curators; and
5. LTS *administrators*, who exercise primary technical and operational responsibility for DRS infrastructure on behalf of HL managers.

Note that these high-level functional categories are distinct from the more granular DRS operational roles administered by LTS in its Policy Service.

6.2   Individuals are imputed University affiliation through possession of valid Harvard-sanctioned online credentials. Affiliated individuals may hold and exercise multiple roles with respect to a given collection or digital resource, or the same role (or roles) with respect to multiple collections or resources.

6.3   An additional DRS role is defined for *patrons* who request and retrieve managed resources for local use. The patron role is not restricted to University affiliation.

6.4   Any patron may use public online HL discovery and delivery services anonymously to request and retrieve DRS-managed resources or resource *components* curatorially-designated for open public access.

6.5   Any patron holding an appropriately-privileged administratively-granted role and whose identity is authenticated through University-sanctioned credentials may use HL discovery and delivery services to request and retrieve DRS-managed resources or resource components that are curatorially-designated with more restrictive access controls.

6.6   HL managers may perform all activities, including those enumerated in § 5.1.5, necessary for the successful and sustainable preservation stewardship of DRS-managed resources, as defined in § 3.2 and 3.3, consistent with those resources' service level and term of service.

7   Service Levels

7.1   The DRS supports differential preservation service levels regarding digital resource:

1. Storage *disposition*;
2. Proactive *monitoring*; and
3. Proactive and reactive *intervention*.

7.2   Digital resources managed by the DRS receive the highest level and longest term of service consistent with:

1. Their intrinsic and extrinsic characteristics;
2. Their curatorially-appraised value, as determined by:
    (1) Intellectual, aesthetic, historical, artifactual, evidential, and economic importance as may persist or evolve over time;
    (2) Ubiquity or uniqueness;

    (3)   Risk of damage or loss;

    (4)   Ease or difficulty of re-creation or reacquisition; and

    (5)   Alignment with HL and University collection development policies and priorities;

3. Relevant HL and LTS expertise and programmatic capacity; and

4. Competing demands of other HL and LTS priorities.

These evaluation factors are not fixed, but rather, may fluctuate during the service term of managed DRS resources.

7.3   The minimum DRS service level conforms to community-accepted best practices for ensuring ongoing *bit-level integrity of managed resources. Note that this alone may not be fully sufficient to enable all possible exploitive opportunities for the future use of those resources.

7.4   Service levels and terms applied to DRS-managed resources are mutually-agreed upon prior to deposit and subject to periodic review and revision by consensus of HL managers and collection curators.

8   Accountability

8.1   Every digital resource managed in the DRS is associated with a responsible University collection owner and curator. The assignment of these roles may be re-designated during the service term of managed DRS resources at the discretion of HL managers in consultation with collection owners and curators.

8.2   The DRS operates on a partial cost-recovery basis.

1. There is no service fee for DRS use; nominal costs for staffing and routine operational, maintenance, enhancement, analysis, consultative, and training activities are funded through HL and LTS administrative budgets.

2. Preservation storage fees are assessed to individual collection owners based on their resources' allocated storage capacity.

3. Special one-time fee assessments may be necessary to support infrequent large-scale, non-routine, manually-intensive intervention activities.

8.3   Deposit of digital resources to the DRS constitutes implicit agreement by collection owners, curators, and depositors to fulfill all administrative, legal, intellectual, financial, and operational stewardship obligations regarding their resources, including:

1. Creation or acquisition and description of digital resources in the most preservation-amenable form practicable;

2. Curatorial appraisal and selection for deposit of those resources conforming to professional collection development practices, HL policies and priorities, and DRS eligibility and appraisal criteria enumerated in § 5.1 and 7.2.2;

3. Deaccessioning resources from the DRS only as the result of analysis conforming to professional collection development practices and HL policies and priorities, or to remedy obvious errors affecting representational or functional integrity or authenticity; and

4. Timely payment of fees assessed for preservation management of their resources under the DRS cost model.

An inability or unwillingness to meet these obligations may result in the re-designation of ownership and curatorial responsibilities or deaccessioning of affected resources at the discretion of HL managers.

8.4   Request for and retrieval of digital resources or resource components from the DRS constitutes implicit agreement by patrons to use those resources or components in accordance with accepted ethical norms of scholarly best practice. These include due respect for:

1. Intellectual property rights;
2. Attribution; and
3. Privacy of confidential, sensitive, or personally-identifiable information (PII) as defined by University *security policy*.

An inability or unwillingness to conform to these norms and practices may result in loss of patron access privileges to the DRS at the discretion of HL managers.

8.5   HL managers pursue digital preservation activities in conformance with evolving community-recognized *standards and best practices*, and with transparency to and in consultation with University stakeholders. These activities include:

1. Providing guidance to collection curators regarding creation or acquisition of preservation-amenable digital resources and their description, appraisal, and selection for contribution to the DRS;
2. Analysis, planning, and monitoring to anticipate, recognize, and ameliorate factors detrimental to the long-term integrity, authenticity, accessibility, and usability of managed resources;
3. Working with LTS administrators to provision appropriate technical infrastructure necessary for successful and sustainable preservation stewardship;
4. Periodic assessment and reporting to collection owners and curators regarding the current and prospective preservation status of managed resources;
5. Periodic review and, as appropriate, revision of the DRS cost model and fee structure;
6. Advocacy and outreach to University stakeholders;
7. Ongoing professional development; and
8. Meaningful engagement with and participation in initiatives and activities of peer memory institutions and national and international digital preservation communities.

8.6   This policy will be reviewed and revised as necessary by HL managers in consultation with University stakeholders at least every five years.

PART IV ■ APPENDICES

A   Abbreviations

CCDSC Collections and Content Development Standing Committee

DRS	Digital Repository Service
FRBR	Functional requirements for bibliographic records
HL	Harvard Library
HUIT	Harvard University Information Technology
IDS	Image Delivery Service
IFLA	International Federation of Library Associations
LLT	Library Leadership Team
LTS	Library Technology Services
NDSA	National Digital Stewardship Alliance
OCR	Optical character recognition
OAIS	Open archival information system
PII	Personally-identifiable information
SAA	Society of American Archivists
SDS	Streaming delivery service
SSC	Stewardship Standing Committee
TDR	Trusted digital repository

B   Glossary

Key policy term definitions are informed by or adapted from the IFLA FRBR library reference model (Riva et al., 2016), OAIS reference model (ISO, 2012a), Online Dictionary for Library and Information Science (Reitz 2013), and SAA glossary (Pearce-Moses, 2005).

Accessibility

> The quality of an *information resource* being extant, contextually described, findable, and retrievable with respect to administrative, intellectual, legal, and technical considerations. Note that a resource may be accessible without necessarily being *usable*.

Administrator

> The LTS agential role exercising primary technical and operational oversight and control of HL's preservation infrastructure on behalf of HL *managers*.

Authenticity

> The quality of an *information resource* being what it purports to be. Note that a resource may be authentic without necessarily being *reliable*.

Behavior

> The technically-mediated modalities by which a *digital resource* may be manipulated, including conversion from its *material form* to *perceptual form*.

Bit-level integrity

The quality of a *digital resource*'s *material form* being comprised of the exact sequence of bits as in its canonical state. Note that a resource may possess this integrity without necessarily being *usable* in all possible contexts.

Collection

An aggregation of *information resources* sharing a common administrative or intellectual identity based upon topical or thematic unity.

Component

An identifiable and intellectually-meaningful subset of a larger *digital resource*, for example, the OCR text for a single page of a digitized monographic volume.

Content model

A set of optional, recommended, and required characteristics regarding a *digital resource*'s description, encoding format(s), structural arrangement, internal and external relationships, and packaging (Harvard Library, 2018).

Context

The cultural, organizational, functional, and operational circumstances surrounding the production, management, or consumption of an *information resource*.

Curatorial

Pertaining to intellectual concerns of *resource* stewardship, especially as exercised by *curators*.

Curator

The University agential role exercising primary intellectual oversight and control of *digital resources* managed by the DRS on behalf of their *owners*.

Deaccession

The permanent removal of resources from managed stewardship.

Depositor

The University agential role designated by collection *owners* or *curators* with approval of HL *managers* to be granted privileges by LTS *administrators* to permit the physical transfer of *digital resources* from University *collections* to the DRS.

Derivative

An *information resource* created through adaptation, rearrangement, translation, or transformation of another resource.

Description

A documented set of functional, informational, and technical characteristics that identify and distinguish an *information resource*.

Disposition

The conditions under which a *digital resource* is stored, including the number and distribution of replica copies, the medium (e.g., magnetic or optical) and media (e.g., disk, tape, or film) of those copies, and their responsivity (e.g., online, nearline, or offline).

Digital resource

An *information resource* materialized in one or more digitally-encoded files.

Digital preservation

The programmatic enterprise facilitating meaningful human communication of digital-encoded information across time and ever-accumulating technical and cultural distance. A complex of actors, policies, processes, and technologies ensuring ongoing *integrity*, *authenticity*, *accessibility*, and *usability* of *digital resources*.

Expressive form

The abstract representation of an *information resource's* informative *meaning* in terms of a distinct arrangement of signifying semantic or affective signs.

Information resource

A coherent, identifiable unit of informative *meaning*.

Integrity

The quality of an *information r*esource being whole and unaltered from its canonical state.

Intervention

An affirmative action taken to ensure the ongoing *integrity*, *authenticity*, *accessibility*, and *usability* of a managed *digital resource* consistent with that resource's preservation service level and term of service.

Manager

The HL agential role exercising delegated *digital preservation* oversight and control of *digital resour*ces managed by the DRS on behalf of their *owners* and *curators*.

Manifest form

The tangible representation of an *information resource*'s *symbolic form* in terms of one or more digitally-encoded files.

Meaning

> The abstract intellectual or aesthetic idea underlying an *information resource* as intended by its creator.

Monitoring

> The proactive review of managed *digital resources* with respect to assurances of their ongoing *integrity*, *accessibility*, *authenticity*, and *usability*, leading if necessary to reactive *intervention*.

Owner

> The University agential role exercising primary administrative, financial, and legal oversight and control of *digital resources* managed by the DRS, including their creation or acquisition and proprietorial custody external to the DRS, on behalf of the University.

Patron

> The agential role authorized to request and retrieve *digital resources* or resource components from the DRS.

Perceptual form

> The tangible representation of an *information resource* directly apprehensible by a human sensory modality, primarily vision and hearing, generated by the application of a *behavior* against the resource's *material form*.

Persistence

> Enduring across a significant bounded or open-ended time period.

Proprietorial

> Pertaining to administrative, financial, and legal concerns of *resource* ownership, especially as exercised by **owners*.

Provenance

> The documented history of a managed *information resource* as it may change over time.

Reliability

> The quality of an *information resource*'s underlying information *meaning* being dependable and worthy of trust. Note that a resource may be *reliable* without necessarily being *authentic*.

Security policy

> The set of affirmative obligations regarding the creation, management, and use of University information (Harvard University, 2019).

Standards and best practices

> Recommendations and activities broadly recognized as efficacious by the international digital

preservation community, including conformance to or consistency with the OAIS reference model (ISO 2012a), trustworthy digital repository (TDR) audit and certification (ISO, 2012b), and NDSA levels of preservation (Phillips et al., 2013).

Symbolic form

The representation of an information resource's *expressive* form in terms of digital encoding rules, i.e., its format.

Understanding

The subjective interpretation of an *information resource*'s informative *meaning* as experienced by its *patron*.

Usability

The quality of an *information resource* being susceptible to meaningful exploitation for some purpose potentially unique with respect to time, place, person, and modality of use. Note that a resource may be *usable* in theory without necessarily being *accessible* in practice.

C   Exegesis

The following example illustrates the functional distinctions between DRS roles.

Example 1 – Owner, curator, depositor, manager, administrator, and patron roles

The Harvard University Archives holds and controls important *collections* of resources providing a comprehensive record of the University's academic and operational history. The owner of these collections, exercising primary oversight over their creation, acquisition, and administrative, financial, and legal custody, is the University Archivist. Other Archive staff members act as *curators* for specific collections, over which they exercise primary intellectual control. The physical transfer of a digital resource from an Archive collection to the DRS is performed by a *curatorially*-designated *depositor*. LTS *administrators* exercise primary technical and operational control over the DRS infrastructure, while HL *managers* exercise delegated preservation oversight and control of the DRS and the resources managed in it. As *owner*, the Archivist is ultimately responsible for meeting the financial obligations of DRS preservation management of Archive collections. Scholars wishing to retrieve and use managed resources or resource components act as *patrons*. They may act anonymously for resources or resource components curatorially-designated for public access. For resources or components with more restricted access controls they must hold appropriate *curatorially*-designated, *manager*-approved, and *administrator*-granted privileges and complete online authentication and authorization prior to access.

In short, *owners* and *curators* are administratively and intellectually responsible for resource collections managed by the DRS, *depositors* transfer resources from those collections to the DRS, *managers* are responsible for the preservation of those DRS-managed resources, *administrators* are responsible for the technical operation of the DRS, and *patrons* request and

retrieve managed resources for local scholarly use.

The following examples illustrate the functional distinctions between a resource's expressive, symbolic, manifest, and perceptual forms.

Example 2 – Textual resource

This Policy Guide is an *information resource* encapsulating the intentional *meaning* of the DRS digital preservation policy. That *meaning* is given abstract *expressive form* as a sequence of sections, paragraphs, sentences, and words as considered apart from their representation. That expression is given representational *symbolic form* as a sequence of PDF-defined Boolean, numeric, string, name, array, dictionary, and stream objects. That representation is given tangible *material form* when fixed as a sequence of bits in a PDF file. Subjecting that file to the rendering *behavior* supported by the Adobe Acrobat reader presents the policy in the *perceptual form* of an online page-oriented text for visual consumption.

Example 3 – Image resource

Drawing: L'Orage is a painting by Vera Stravinsky in the Harvard Theatre Collection (pfMS Thr 495 (306)) encapsulating the painter's impressionistic experience of a storm at sea. That experience is given abstract *expressive form* as a two-dimensional arrangement of line, color, and texture. That expression is given representational *symbolic form* as a rectangular raster of numeric colorimetric samples. That representation is given tangible *material form* when fixed as a sequence of bits in a JPEG 2000 file. Subjecting that file to the rendering *behavior* supported by the HL Image Delivery Service (IDS) presents the painting in *perceptual form* of an online image that can be panned, zoomed, and rotated for visual consumption.

Example 4 – Audio resource

The Loeb Music Library's James Rubin collection of Indian classical music (AWM RL 15077-16049) contains historic field recordings of Carnatic and Hindustani music. A given recording takes abstract *expressive form* in terms of a sequence of melodic, harmonic, rhythmic, and timbral elements. That expression is given representational *symbolic form* as a sequence of linear numeric audio waveform samples. That representation is given tangible *material form* when fixed as a sequence of bits in an AAC/MP4 file. Subjecting that file to the playback *behavior* supported by the HL Streaming Delivery Service (SDS) presents the recording in the *perceptual form* of a streamed audio performance for aural consumption.

D   Change History

Version	Date	Description	Review and approval
4.1	2020-10-07	Minor grammatic correction	HLPS
4.0	2019-06-14	Comprehensive restatement explicitly	HLPS, SSC, CCDSC, LLT

		embracing differential service levels.	
3.0	2017-04-20	Unreleased draft clarifying questions of eligibility and obligation	Policy review group
2.6	2017-02-10	Revised presentational structure	
2.0	2006-08-07	Revised service description and removal of detailed metadata and format assessment	
1.0	2005-05-23	Original issue	

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