



UNIVERSITY OF ALBERTA LIBRARIES

UAL Digital Curation Program Service Model

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1. Program Description

The Digital Curation Program assists University of Alberta faculty, students, and staff in managing digital materials throughout their lifecycle. Librarians and other UAL staff are actively involved in the selection, collection, maintenance, description, and preservation of digital materials to ensure their future use. This is achieved through digital repository services, consultation, and training & outreach.

2. Values

Digital Curation services are **user centred, responsive, sustainable, and collaborative**:

- **User Centred:** Services are designed and delivered from the perspective of end users, and are communicated and reflect user goals and values.
- **Responsive:** Services are communicated and delivered in a timely manner, and communication is clear, consistent, and based on established practices, policies, and procedures.
- **Sustainable:** Services anticipate the financial, human, technological, and other resources required to support valued assets being curated at required scales.
- **Collaborative:** Services are delivered with relationship-building in mind.

3. Eligible Users

All current University of Alberta faculty, students, and staff may access Digital Curation services. Services are extended to other groups on a case by case basis, and at the discretion of the Head, Digital Repository Services.

4. Roles and Responsibilities

Role	Responsibilities
Leadership & Management	
<i>Head, Digital Repository Services</i>	Strategic and managerial responsibility for Digital Curation Program, leads the direction of associated services, and is final decision-maker on special service requests ¹ (consulting with AUL, Digital Initiatives as required)

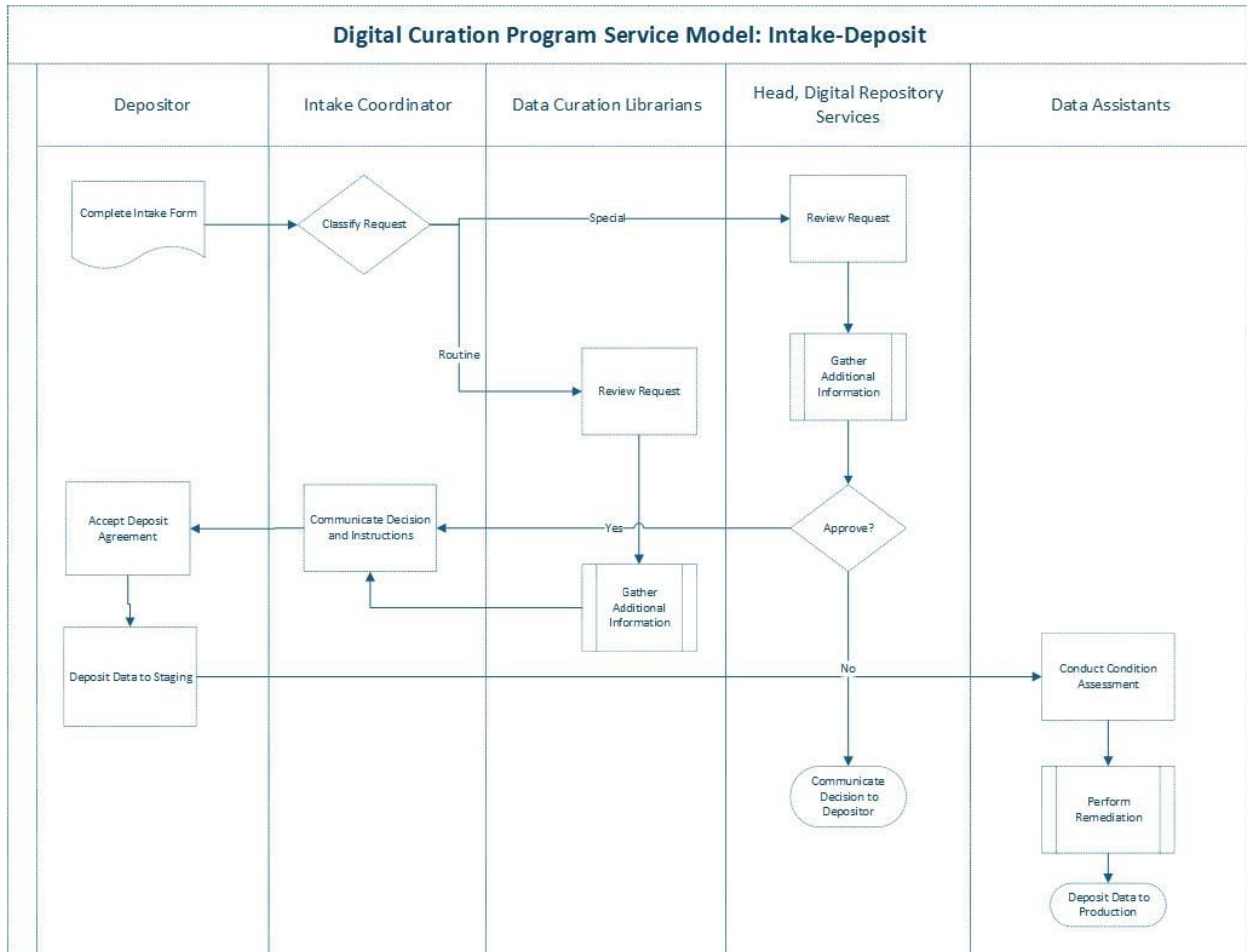
¹ Defined in section 1.1.

<i>RDM Coordinator</i>	Coordinates day to day public service activities such as data consultation, provides training and outreach to internal and external audiences, and takes leadership role on RDM across campus; coordinates the work of staff providing digital curation support
<i>Digital Preservation Officer</i>	Provides oversight and guidance on digital preservation as it relates to the Digital Curation Program
Operational	
<i>Intake Coordinator</i>	Administrative staff person responsible for ensuring service requests are properly classified and routed, and that instructions/decisions are sent to depositors
<i>Data Curation Librarian Role (e.g. 50% of subject librarian position resident in Public Services for total 1.5 FTE)</i>	Assists faculty and students in managing the lifecycle of data resulting from research projects of all types, and support the use, curation, preservation, and reuse of data
<i>Data Assistants (SLIS collaborative students, PSAs)</i>	Conducts condition assessments and remediation, deposits digital materials to staging/production environments and assist operational team with tasks as they arise
<i>Metadata Team</i>	Provides coordination, oversight, training and guidance on metadata as it relates to the Digital Curation Program. Supports researchers by providing metadata consultation
<i>DI Projects Librarians</i>	Provide project management and business analysis support for Digital Curation related projects
Technical	
<i>Digital Infrastructure Librarian</i>	Provides oversight and guidance on digital infrastructure as it relates to the Digital Curation Program
<i>Digital Applications Librarian</i>	Deposits digital materials to preservation

	storage, leads development work for applications that support Digital Curation Program in collaboration with project stakeholders
<i>Development Team</i>	Develop and maintain applications that support Digital Curation Program
<i>Metadata Team</i>	Develops metadata profiles, data dictionaries and data models to support data curation application development; engages in metadata creation, enhancement, transformation as needed
<i>System Administrators and Security Analyst</i>	Maintain technical infrastructure used in Digital Curation Program

5. Service Process Overview

Service requests follow a predictable, documented path that takes into account the consultative and collaborative nature of the UAL. The entire service process is transparent, meaning that at any state, interested parties (end users, subject librarians, DI staff) should be able to assess at what stage in the process a service request is. Regardless of where a service request originates, it is important that it enters the request system first. See below for an overview of a service request from start to finish:



*Access a full size version [here](#).

Stage 1: Intake

1.1 Initiation

Service requests are initiated through the request system. Potential users complete an intake form, which is accessible from the Libraries website. The intake form gathers preliminary information about the 5 Vs:

- **Volume:** How much data? How many files?
- **Variety:** What kinds of data? Structured vs. unstructured, mixed?
- **Velocity:** How frequently will data be added to? What are the requirements for download/sharing?
- **Veracity:** What quality is the data? What state is it in (complete/incomplete)? Do you have metadata? What format is your metadata in?
- **Value:** Is the data of enduring scholarly value? Is it needed in the short-term only?

Additionally, questions are asked about intellectual property rights, privacy and sensitivity, and ethics approval procedures associated with the data.

1.2 Classification

Based on the information gathered in the intake form, service requests are flagged by the intake coordinator as **routine** or **special**:

- **Routine** service requests refer to cases where there are no barriers to deposit raised in the initial request for service form. Requests of this nature are forwarded to Digital Curation Librarians for confirmation, review, follow-up, and forwarding to Data Assistants.
- **Special** service requests refer to cases where at least one barrier to deposit has been raised in the service request. Requests of this nature are forwarded to the Head, Digital Repository Services for review, approval, or further action. Potential barriers to deposit include:
 - **Large file size:** Individual file size exceeds application upload/download limits (note: this limit is undefined)
 - **Large total consumption:** Combined total storage requirement exceeds 1 TB
 - Protected/Sensitive data: Datasets requiring custom access controls/restricted access.
 - **Staging/non-archival storage environment needed:** Large data that are not 'archive-ready' where storage is required to stage and work with the data to prepare it for archiving.
 - **Rapid preservation, minimal researcher preparation:** Large data that are not necessarily 'archive-ready' where the researcher is very concerned about near-term preservation.
 - **Large data, archive-ready, sophisticated metadata:** Large data that are archive-ready where researcher wants the archiving environment to handle sophisticated metadata.
 - **Non-OA data:** data where there are no plans to make it OA

1.3 Review

Service requests are reviewed through an in-person consultation as needed, and DMPs may be recommended to depositors for more complex cases. Depositors may be required to meet in-person with a Data Curation Librarian, the Head, Digital Repository Services or the RDM Coordinator as appropriate to clarify their request for service, although it is expected that the majority of service requests are routine and do not require in-person consultation. An in-person consultation discusses the answers in the intake form in more depth, and will typically involve members of the Metadata Team, the Digital Preservation Officer, etc. as

needed. The purpose of an in-person consultation is to clarify the service request and finalize a deposit acceptance decision.

1.3.2 Data Management Planning

Complete DMPs are useful tools which may assist and guide depositors on appropriate data management strategies. DMPs are not required in order to fulfill a service request, but may be recommended to assist depositors in documenting data management practices. DMPs may be completed using DMP Assistant, and with the assistance of Digital Curation Librarians and the RDM Coordinator, but are ultimately the responsibility of depositors.

Stage 2: Appraisal

Prior to depositing digital materials, the following activities are undertaken by a Data Assistant in a staging environment:

2.1 Condition Assessment

Depositors are required to deposit their digital materials in a staging environment for the purposes of condition assessment. A condition assessment will:

- Confirm service request scope. Is what was requested accurate?
- Determine digital preservation readiness through assessing file formats and conducting fixity checks (working closely with the Digital Preservation Officer)
- Confirm file organization and any special requirements
- Assess metadata (if created), and allow the Metadata Team an opportunity to determine metadata requirements, provide guidance, etc.

2.2 Deposit Procedures

Based on the information gathered in stages 1-2, and in consultation with the depositor, the Digital Curation Librarian makes a determination of the appropriate repository environment(s) for the digital materials, and forwards the materials/decision to the Data Assistant who prepares them for deposit, and initiates batch ingest according to application specific procedures. The following features matrix provides guidance on current repository environment features:

Feature	ERA	Dataverse	ERA A+V
Digital Object Identifiers (DOIs)	✓	✓	✗
Download files	✓	✓	✗
Self-deposit	✓	✓	✗
CCID authentication	✓	✓	✓
Stream media	✗	✗	✓
Caption media	✗	✗	✓

*Chart last revised 2018/07/12

2.3 Remediation

Remediation is provided by UAL on a case by case basis. Remediation may include any/all of the following activities:

- File format normalization
- Metadata creation/cleanup
- File reorganization
- Data de-identification, cleaning, coding

Stage 3: Deposit

3.1 Accept Terms of Service

To initiate the deposit process, depositors must accept the Terms of Service to complete the service request.

3.3. Digital Materials Documentation (Readme)

Depositors are required to submit an accompanying readme file with their digital materials that contains metadata about the files, such as file descriptions, noting of any distinctions between the files, and whether the files contain sensitive information.

Stage 4: Closeout

4.1 Request Closeout

Service requests are closed upon verifying that the initial service requirements of the depositor have been met and that digital materials have successfully been deposited to production environment(s).

4.2 Service Assessment

Service requests are routinely assessed by the Head, Digital Repository Services and RDM Coordinator based on quantitative (e.g. request time to completion, user surveys) and qualitative (e.g. interviews, focus groups) methods.

Related Policies and Procedures

Digital Preservation

- [UAL Digital Preservation Framework](#)
- [UAL Digital Preservation Practices](#)
- [UAL File Format Registry](#)

Repository Terms of Service

- [ERA Policies](#)
- [ERA A+V Policies](#)
- Dataverse

Metadata

- [UAL Metadata Services for Research Data](#)

Digital Curation Program Recommendations

The following recommendations are necessary in order to implement the Digital Curation Program Service Model described above over the longer term. The recommendations are based on an environmental scan², document analysis of existing policies, and interviews (summarized in [Appendix 1](#)) with key UAL staff members currently involved in digital curation-related work.

Documentation

1. Develop a DI information page on StaffHub (similar to the CSU page) to consolidate documentation and act as communication channel to UAL staff and a resource for staff members involved in digital curation work:
2. Harmonize individual repository terms of service, deposit agreements, and related policies and condense into single pieces of documentation
3. Develop a business glossary for internal use to help us communicate our services consistently and accurately, and to improve service governance
4. Approve draft policies ([UAL Digital Preservation Practices](#), [UAL Digital Preservation Framework](#), [File Format Registry](#)) and publish to DI website
5. Develop user-centred documentation (preparing data for deposit, handling sensitive data, etc.) and publish to DI website
6. Develop a service catalog that describes programs and services and their boundaries, and publish to DI website
7. Develop criteria for what happens when data retention periods end (i.e. how are decisions made on which action is taken?)

Human Resources

1. Create an administrative position of intake coordinator (NASA) to do task-based work related to digital materials deposits, which would include:
 - a. Classifying/managing service requests in the case management system using established criteria
 - b. Communicating deposit instructions and required actions to depositors
 - c. Routing service requests as appropriate
 - d. Managing communication and bookings

² See [Data of Unusual Size Presentation](#) and [Report](#). Additional websites were also scanned for information on RDM/curation programs to complete the environmental audit.

2. Create data assistant (NASA/Casual) role to do digital materials deposits (to staging and production), condition assessments, and remediation. This work could be carried out by current DI students and UAL PSAs.
3. Create role of Digital Curation Librarian (either a new position or developing capability within subject librarians) responsible for consultation, training, and outreach for this program (i.e. the public services aspect of this program)

Technical

1. Invest in case management software to route, approve, track, and document service requests from start to finish centrally
2. Develop capability to increase upload caps in repositories to allow for larger deposits without the need for UAL intervention
3. Provide staging space for in-process/under review deposits in excess of existing upload caps for the purpose of condition assessment, remediation, and batch ingest to repositories with the capability to do so remotely (e.g. via Globus). Access would need to be to a secure environment, through authentication
4. Standardize deposit workflows across repositories and improve usability through a user centred design process

Appendix 1: Digital Curation Program Interviews

Interview Questions

1. Describe your involvement with and responsibility over data archiving services (broadly defined)
2. How are services in this area delivered? How could they be improved?
 - a. **Prompt:** specific workflows/processes
3. What documents do you use (policies, procedures, and standards) in carrying out your work with regard to these services?
4. How are decisions made regarding this service?
 - a. **Prompt:** Could decision-making be improved?
5. What are the strengths and weaknesses of our current data archiving services?
 - a. **Prompt:** What do we need to do to improve them?

Interview Themes

1. Current Data Archiving Activities

- Assessment
- Coordination
- Consulting/training
- Problem solving (case by case)
- Technical infrastructure/storage/development
- Ingesting materials/retrieving them
- Direct work on service requests (with users)

2. Assessment of Current Service Model

Strengths

- Staff are competent and dedicated
- Institutional support to grow/be a leader in Canada
- Positively thinking and problem solving culture
- People trust us
- Relationship building builds capacity
- Conversations with researchers are an important and key aspect of our service model
- The right preservation architecture/approach: lightweight AIP as basis of all digital preservation; standardized intake; single source of truth database

- Workflows are right, storage worries will go away
- DMP assistant is a useful tool at intake stage
- Dataverse is appealing to end users

Weaknesses

- Lack of strategic planning
- Limited capacity for training and outreach
- More concurrent projects than we can handle
- Say yes to too many things
- Promises out of line with what is currently in place
- Putting all of our eggs in one basket (i.e. preserving everything)
- Unclear on what is pilot and what is operational
- Not always part of the grant lifecycle
- Should be earlier in the process (e.g. REB/RSO stage)

Service Management

- Decentralized management of service requests and multiple intake points
- Lack of control over state of data coming in
- Middle part of process not articulated
- Lack of clear processes
- Service level is work in progress and disconnected from preservation level
- Awaiting answers, this drags service requests
- Service requests go on too long
- Poor usability in deposit workflows
- Vendor mindset - find solution then problem
- Infrastructure built but not used
- Difficulty retrieving materials in preservation storage

Decision Making Processes

Current Approach

- Case by case and by precedent
- Lack of clarity over who has final say
- Consensus model: good in some ways but bad for service
- Time consuming approach to decision-making
- Decision paths/commitments unclear
- Driven by access considerations

Desired Approach

- Decisions should be made step by step
- Develop a process for finalizing decisions
- Maintain collective decision-making but base it on overarching policies
- Empower individuals to make a decision on service requests
- Develop acceptance criteria for data deposits
- Develop staging repository for in process data
- Bring in other units (e.g. ITS) when certain data threshold is met
- Do not let the technical limitations determine service decisions
- Get involved earlier in the research process/see data earlier
- Make expectations of depositors clear on the website

Documentation

In Use

- Tri-agency statement on RDM
- Standards
- Publications
- Internal assessment data
- Internal guidelines
- Technical documentation
- Case specific documentation

Recommendations

- Develop standard intake protocol
- Approve draft policies and procedures
- Develop service level documentation