

# Digital Conversion and Media Reformatting: Management and Production of Digital Collections

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*University of Maryland Libraries*

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## **Introduction**

The University of Maryland Libraries have significant holdings of unique and moderately rare paper-based, photographic, sound recording, and moving image materials throughout the collections. Many of these collections are inaccessible due to deterioration, brittleness, insufficient intellectual description, fragile analog carriers, deteriorating playback equipment, and shortage of technical expertise.

Digitization has played an increasingly larger role in the University of Maryland Libraries since the early 2000s to meet access and preservation needs. Before 2006, digitization occurred through uncoordinated, discrete projects across the Libraries. The Office of Digital Collections and Research was founded under the Dean of Libraries in 2006, to strategically develop digital collections. In 2008, this Office was dissolved due to lack of resources, and a Digital Collections Unit was formed within Special Collections. This unit had resource and reach limitations.

The Collections Management and Special Collections and the Information Technology Divisions decided that this unit be moved within the Information Technology Division (now Digital Systems and Stewardship) to better serve all Libraries collections in 2012, and be split into two departments—*Digital Stewardship* (now *Digital Programs and Initiatives*) would define and develop the digital repositories, digital projects and initiatives, and digital preservation; and *Digital Conversion and Media Reformatting* would focus on digitization production, and setting the policies, standards, and workflows surrounding digitization. The Libraries Strategic Plans from 2010-2013 supported the evolution of these digital programs and capabilities.

## **Mission**

The Digital Conversion and Media Reformatting Department seeks to support the Libraries' collection development goals and strategic priorities for preservation and access by working with collection managers and subject specialists to digitize collections of all formats through a centralized, production-based environment.

## Charter

The Digital Conversion and Media Reformatting Department:

- Handles textual, paper-based, photographic, audio, and moving image digital conversion and reformatting services for UMD Libraries materials for use by patrons and inclusion into Digital Collections. This excludes materials digitized for reserves, which is primarily performed by Public Services.
- Will be used by all UMD Libraries divisions and their staff for the above services, and may be used by UMD faculty and staff, and USMAI and other state partners.
- Coordinates all of the in-house digital conversion and reformatting needed in the UMD Libraries, including but not exclusive to that which has been performed in Digital Collections, Library Media Services, Mass Media and Culture, the Performing Arts Library, and the Visual Resources Center, which is now part of the Architecture Library.
- Works as a liaison for content managers with Preservation and Conservation for projects or materials that require digitization for preservation or preservation before digitization.
- Designates what formats will be digitally converted and reformatted within the UMD Libraries and between the Libraries and vendors.
- Coordinates digitization projects through vendors for the content managers for projects that cannot be digitized in-house.
- Will maintain a list of, and agreements with, potential on-call vendors for formats that cannot be digitized in-house.
- Coordinates a schedule of on-demand, patron-based digital conversion or reformatting projects performed by student worker or graduate assistant staff.
- Coordinates a schedule of long-term, mass-digitization or mass-conversion projects performed by student workers or graduate assistants, or through external vendors.
- Sets standards for digital conversion and reformatting, including but not limited to: preservation-level, high-quality access, low-quality access, and streaming file formats, and quality of those formats.
- Sets standards for digital conversion and reformatting workflows for large projects and on-demand requests.
- Creates and maintains the Digitization Center including legacy equipment, modern equipment, hardware, and software necessary to run operations.
- Consults with curators and librarians for digital project planning and management.
- Consults with metadata librarians on the descriptive, administrative, and technical metadata captured for digital assets.
- Consults with the Head of Digital Programs and Initiatives on digital initiatives that have a digitization component, digital storage, and on formats and metadata to be ingested into the digital repository, other file staging areas, or other access methods.
- Consults with Digital Systems and Stewardship staff on ingest procedures, protocols, and standards, file staging areas, digital storage, or other access methods.

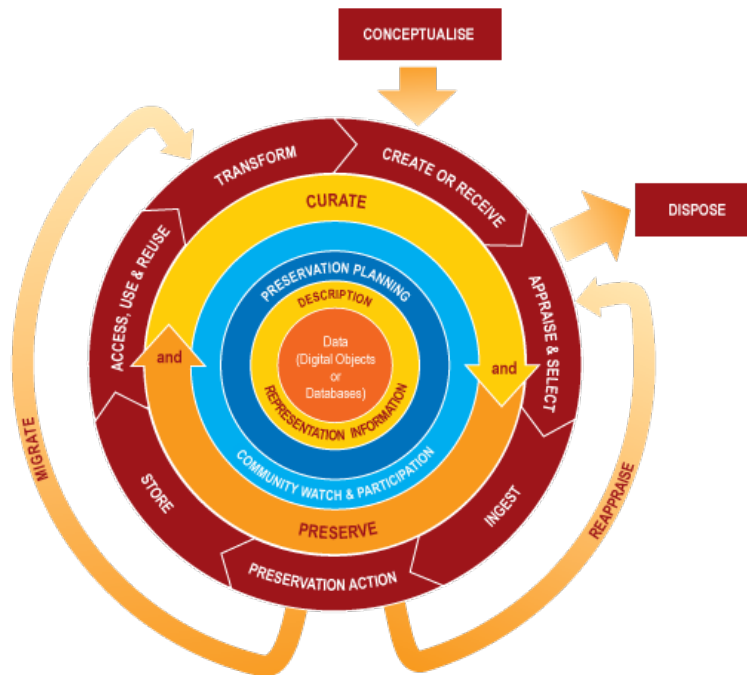
**As such, all Libraries divisions, departments, and units are expected to consult DCMR prior to starting any digitization activity.**

## Definitions and Roles

(Parts from Digital Programs and Initiatives: Guiding Principles, Policies, and Procedures)

### The Curation Lifecycle Model

The Digital Curation Centre (DCC) Curation Lifecycle Model <  
<http://www.dcc.ac.uk/sites/default/files/documents/publications/DCCLifecycle.pdf>>  
provides a high-level overview of the stages required for successful curation and  
preservation of data, as well as where DCMR fits within these high-level stages.



### Digitization Project

A Digitization Project is a project that primarily addresses the transformational and creation phase of a content set's digital lifecycle. In a digitization project, digital surrogates are created through digital conversion or reformatting, preservation copies are stored and access copies are ingested to the UMD Libraries digital repository. Digitization projects are managed by the Digital Conversion and Media Reformatting Department within DSS. A digitization project should have a clearly-defined objective, scope, and goals outlined in a project charter and project plan or a small projects request form, and it should end with a concrete deliverable according to a schedule, or it should become a part of routine operations. Many digitization projects evolve into digital projects or initiatives during a second phase of the project. The Manager of DCMR will consult with the Manager of Digital Programs and Initiatives to plan and prepare the digital assets for the digitization project's second phase.

### **Digital Project**

A Digital Project addresses one or more facets of a content set's digital lifecycle, often with a greater emphasis on access, use, reuse, and preservation. A digital project should have a clearly-defined objective, scope and goals outlined in a project charter and project plan, and it should end with a concrete deliverable according to a schedule, or it should become a part of routine operations. Based on agreed-upon requirements, Digital Programs and Initiatives coordinates certain custodial responsibilities for the products of digital projects, such as backup and archiving of files, acceptable system "up-time," and migration of content to new servers or applications as appropriate. Once a digital project is complete, according to the parameters set by the project charter and project work plan, day-to-day maintenance of content and operation of tools is carried out by the content managers and not by Digital Programs and Initiatives. Some maintenance and production tasks that may require ongoing support from Digital Programs and Initiatives include minor updates to website text, migration of interfaces from one system to another, troubleshooting errors caused by problems with the underlying repository system, or troubleshooting and modifying the workflows established by the project.

### **Digital Initiative**

A digital initiative is something **new** and something **high-level** that fits into the UMD Libraries' strategic priorities. An idea may begin its life as a digital initiative and progress to become a routine activity, such as a program, that operates in a fully functional production mode. Digital initiatives may be comprised of a number of nodes, some of which are routine, but when put together, create something entirely unique. Because of this, different digital initiatives may require different levels of management and resources in order to be realized. A digital initiative may be divided into a number of digital projects to facilitate the management and execution of a larger concept. A digital initiative often involves some level of research and development and can include pilot or prototyping projects. Other projects of an initiative would develop, implement and deploy tools and services to realize the goals of the initiative.

### **Digital Program**

A digital program is an ongoing service or operation. A digital program often starts as a digital initiative or a digital project, and then, as it evolves into a routine part of the Libraries' workflows, it becomes a program. The Digital Repository at the University of Maryland (DRUM) is an example of a digital program.



## Digital Conversion and Media Reformatting Department Plan

### ***Planning, Assessment, and Surveys, 2012***

The Digital Conversion and Media Reformatting Department was organized in February 2012 to meet the following 2012 Libraries Strategic Plan goals:

- *I.A.10 Develop a comprehensive plan for digitizing special collections and the general collection, including in-house and out-sourced work.*
- *I.A.10.i Gather data regarding unique materials in special collections that are candidates for digitization, to determine benchmarks for decision-making regarding in-house digitization and outsourcing needs.*
- *I.A.10.ii Develop digitization and conversion program that specifies policies regarding digitization and digitization standards for all media types (e.g. text, image, video, audio), and processes and workflows for efficient and effective digitization efforts across the library.*
- *I.A.10.iii Evaluate and redesign the Libraries' digitization infrastructure to better suit strategic needs.*

In early 2012, the Manager, DCMR selected stakeholders from divisions across the UMD Libraries to participate in three surveys. Staff were selected to participate because: their previous requests and projects with the Digitization Center or the former iterations of Digital Collections made them probable users of the Digitization Center; their collection materials were ideal candidates for conversion or reformatting; and interest in becoming involved in a Library-wide digitization program. Two surveys focused on current involvement in conversion and reformatting activities, current guidelines employed, staffing capabilities, and specific formats in collections. The respondents were also asked to describe the types of services they needed, the projects they wanted to pursue, and to provide suggestions for other useful services. The third survey collected information on the type of legacy or digitization equipment in each of the units.

After analysis of the survey data, the Manager, DCMR, held in-depth interviews with individuals or units. These interviews captured more detailed information about the survey responses and needed services. The information gathered informed the DCMR services currently offered and planned for the future. It also provided a list of potential projects which were incorporated into the DCMR Project Portfolio, a growing spreadsheet which is used to document digitization project ideas, and plan and track the projects.

### ***Standards and Best Practices***

As part of the assessment process, the Manager, DCMR evaluated and revised *Best Practices for University of Maryland Libraries Digital Collections* in 2012, adding updated information concerning audio and moving image digitization standards and best practices, and embedded metadata standards which would be used when the Broadcasting Media Digitization Librarian was creating the digitization stations and procedures. The Manager, DCMR will update these guidelines every two years, or as needed as new standards are adopted or created by bodies such as ISO, NISO, and FADGI, and professional communities.

## **Workflows**

DCMR will maintain previously used workflows including on-demand requests and project-based workflows. Project-based workflows will be divided into in-house projects, which contain less material over a longer period of time, and vendor-based projects, which will focus on mass-digitization efforts, digitization over a shorter period of time, or digitization projects containing formats or conditions prohibitive for in-house digitization.

In fall 2013, additional research efforts will begin on automation processes for metadata and ingest, making staff work more efficient and cost-effective, while trying to eliminate some elements of human error. Specific Digitization Center processes will be tracked through spreadsheets. Once Aeon is available for use in the Digitization Center, we may experiment in tracking request digitization from creation of a request to quality assurance through the available tools.

See Appendix A and B for on-demand and project-based workflow diagrams.

## **Services**

During the interviews, staff requested numerous services. The Manager, DCMR considered these requests when developing plans for in-house format digitization, under the following Strategic Plan goals:

- *I.A.10.i Gather data regarding unique materials in special collections that are candidates for digitization, to determine benchmarks for decision-making regarding in-house digitization and outsourcing needs.*
- *I.A.10.ii Develop digitization and conversion program that specifies policies regarding digitization and digitization standards for all media types (e.g. text, image, video, audio), and processes and workflows for efficient and effective digitization efforts across the library.*

Requested services included project management and description creation. DCMR offers some project management services, but will also be reliant upon the upcoming Digital Systems and Stewardship Project Manager position, as well as project managers in collection areas. DCMR provides some metadata creation and enhancement services for digital assets included in UMD Digital Collections, and assistance with metadata mapping, but is reliant on the collection managers and the Metadata Services Division.

## **Staffing**

The Manager, DCMR will request staffing needs based on the necessary skills and knowledge for specific activities, and production hours needed to fulfill estimated requests and proposed projects. Production hours will be calculated by multiplying the current hours spent on specific activities by the amount of hours for proposed activities. Staffing requests will never exceed the total possible production hours of digitization stations or weekly work hours.

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Staffing needs may be satisfied through state-line permanent-track librarians or staff, contractual faculty and staff (Faculty I and CII), hourly Labor and Assistance-funded positions (students and CI), internships, and volunteers.

Requests will be sent to the Libraries Budget Office with other DSS division requests on an annual timeline.

### ***Physical Space***

The Manager, DCMR will determine the need to space expansion based on Libraries stakeholders' needs and the following Strategic Plan initiatives:

- *I.A.10.ii Develop digitization and conversion program that specifies policies regarding digitization and digitization standards for all media types (e.g. text, image, video, audio), and processes and workflows for efficient and effective digitization efforts across the library.*
- *I.A.10.iii Evaluate and redesign the Libraries' digitization infrastructure to better suit strategic needs.*

Because of the planned format digitization services and the increased staffing needs, the Digitization Center was moved and expanded in October 2012 to a much larger space—4210W Hornbake Library North. 4210V Hornbake Library North was proposed as potential staff space for an on-call repair technician and as legacy equipment storage. The Manager, DCMR will reside in McKeldin Library with the other DSS managers, and the Digital Reformatting Specialist will manage daily operations in the Digitization Center.

4210W Hornbake Library North expanded digitization services, and operates as a shared staff and digitization space. Library Media Services, the Prange Collection conservator, and DCMR currently share 4210V. DCMR will use this space to organize and stage equipment for repair by a technician, with optional workspace in this area. The shelving is ideal for storing unused audiovisual equipment. Towards the end of 2013, research and development will begin to develop the Performing Arts Audio Digitization Studio.

4210W Hornbake will continue to function as the main Digitization Center; some operations may expand into 4210V. The Broadcasting Media Digitization Librarian will maintain 4210V until August 2013. The Performing Arts Audio Digitization Studio will be developed. Some staff may permanently work in 4210V, either working on audiovisual equipment repair or digitization. Research will begin on re-developing the digitization studio in the Architecture Library in 2015.

### ***Equipment***

The Manager, DCMR will determine digitization station development based on the needs of Libraries stakeholders, under the following Strategic Plan initiatives:

- *I.A.10.ii Develop digitization and conversion program that specifies policies regarding digitization and digitization standards for all media types (e.g. text, image, video, audio), and processes and workflows for efficient and effective digitization efforts across the library.*

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- *I.A.10.iii Evaluate and redesign the Libraries' digitization infrastructure to better suit strategic needs.*

After the assessment of current equipment in 2012, the Manager, DCMR ordered four Mac Pro computers for audio and video digitization operations. One would reside in the Performing Arts Library, to replace an older Windows machine, and three would reside in the Hornbake Digitization Center. The Broadcasting Media Digitization Librarian performed an analysis of audio equipment and cables necessary for two audio digitization stations, as well as the desired services and formats, and began ordering equipment and peripherals in summer 2012. Costs were primarily focused on buying new equipment.

In 2013, the Broadcasting Media Digitization Librarian continued to develop two modular, expandable audio digitization stations, with the goal of providing parallel digitization capabilities for specific, common formats, based on library staff needs. Continued audio digitization development was halted during the summer, due to the need for extensive repair on many machines. Modular, expandable, video digitization station development began in the summer. The Manager, DCMR developed a plan and timeline for the digitization of four video formats by August 2014, as well as procedural guidelines for the setup and use of the digitization station. Costs were equally split between buying new equipment and servicing existing Libraries equipment. By December 2013, the Hornbake Digitization Center had the following equipment capacity to handle these formats:

- Image and Document: four flatbed scanners; one planetary scanner; DSLR
- Audio: one of ADAT, cassette, CD, DAT, LP, mini disc, open reel
- Video: one of DVCAM/MiniDV

The studio in the Performing Arts Library was analyzed in late 2013 and a plan was developed in early 2014.

An audiovisual technician was contracted in early 2014 and will perform maintenance, calibration, and advanced repairs on legacy audiovisual equipment. The scanners will be maintained and repaired through manufacturer contracts.

The Broadcasting Media Digitization Librarian continues to develop the video digitization station, as well as add audio equipment to the digitization station as equipment is repaired. Targeted new equipment will be added to the Hornbake Digitization Center by the end of 2014. Costs were primarily focused on maintaining existing equipment. By August 2014, we plan that the Hornbake Digitization Center will have the following capacity:

- Image and Document: four flatbed scanners; one planetary scanner; DSLR with lightbox setup
- Audio: multiple of ADAT, cassette, CD, DAT, LP, mini disc, open reel
- Video: multiple of Betacam family, Digital Betacam family, Betamax, DVCAM/MiniDV, DVD, VHS family

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DCMR staff will explore additional planetary scanners, DSLR setups, microfilm scanners, and other equipment to audio and video digitization stations as the demand increases.

The studios in the Performing Arts Library will be fully online for audio digitization by the end of 2014. The Manager DCMR will then coordinate the analysis and development of the digitization studio in the Architecture Library for image digitization. Service development in these studios will continue as needs arise.

Staff or contracted personnel will perform maintenance, calibration, and advanced repairs on legacy audiovisual equipment. The scanners will be maintained and repaired through manufacturer contracts.

See Appendix C for January 2014 equipment and software capabilities.

### ***Budget***

#### **Cost of Digitization**

The Manager, DCMR and other professional staff in the department will maintain digitization statistics for broad format areas to determine the cost of in-house digitization, metadata creation, and quality assurance. These statistics will be divided by the number of hours worked by assistants and their hourly pay rate. The Manager, DCMR will use these figures to calculate and justify budget requests.

#### **Operations**

Prior to 2013, digitization projects were either paid for through the collections operations budget, through the Preservation and Conservation reformatting budget (if they contained a preservation component), or funds controlled by units for restricted projects. If projects did not fall into one of these categories and they could not be digitized in-house, the materials were not digitized.

In summer 2013, the Library Resources Group founded the Digitization Initiatives Committee to determine a digitization operations budget for the Libraries. The Manager, DCMR will chair the committee, consisting of division-head-appointed representatives from Collections, Public Services, Technical Services, and the Library Administration. The committee will send out an annual call for digitization projects proposals, which should be approved and prioritized by the division heads. After evaluation of the proposals, the Development Officer will guide matching the proposals to existing or potential matches for funding, which will be sent to the Library Resources' Group for final approval.

The annual call for projects will coincide with the annual strategic planning process, budget requests, and workplan creation, so that staff can ensure that the projects are incorporated into the strategic plan and their workplans, and they are able to make the appropriate budget requests for needed resources.

DCMR will use this annual project planning process to determine internal staffing needs, equipment needs, vendor contracts, and to predict growing digital storage needs in DSS.

## **Capital Expenditure**

### ***Equipment, Furniture, and Supplies***

The need for specific equipment, hardware, software, and special supplies will be assessed on an ongoing basis, though the requests will be made annually. The Manager, DCMR will assess needs based on the frequency of requests for specific activities. Furniture requests will typically support hardware or equipment acquisitions. For example, repeated or prioritized requests to be able to digitize select microfilm frames may result in the research into and request of a microfilm scanner, as well as the necessary hardware, software, and peripherals to set up a new digitization station, and the furniture on which to install the new digitization station.

DCMR will maintain an annual modest budget for supplies used in routine activities, such as Kodak Q-13 colorbars, splicing tape, or white cotton gloves. Office supplies will come from the Libraires' or DSS general budget.

### ***Facilities Requests***

Because the Digitization Center has been expanding since 2012, the Manager, DCMR has made several, large requests for facilities improvements through the capital expenditures budget, including moving costs, and telecommunications and electrical upgrades. In the future, the Manager, DCMR will assess the characteristics of the physical space of the Digitization Center to assure that staff will be able to meet production needs. The Associate Dean of DSS will bring requests for improvement to the Library Resources Group for approval before the Manager, DCMR seeks an estimate from the Libraries' Facilities Office, to be included in the DSS capital expenditures budget for the following fiscal year.

### ***Digital Storage***

In 2012 and 2013, it was estimated that DCMR would need an additional 5-10TB of digital storage per year for developing digitization activities. This figure was not accurately estimated through data; the Manager, DCMR made this request to accommodate development plans. In addition, approximately 10 1-TB hard drives were ordered per year to deliver files digitized by vendors.

In the future, annual cost requests for digital storage acquisition will be based on the digital storage requirements for proposed digitization projects and estimated requests, multiplied by 20% for unforeseen priorities, less currently available storage. The Manager, DCMR will coordinate with the Manager, USS for the acquisition of approximate TB for upcoming fiscal year, and coordinate with the Manager, DPI for digital preservation of the new assets. Hard drives will be ordered based on predicted vendor-based work. These costs will be included with the annual DSS capital expenditure request for digital storage and equipment.

### ***Contracts***

DCMR will use vendors to perform specific work, when the expertise, equipment, or timeline are best served by outside resources. The Manager, DCMR will work with the university Procurement Office to pursue on-call contracts with vendors for legacy equipment repair and format-based digitization. The Manager will take advantage of consortial or membership digitization opportunities when possible, achieving a lower rate

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(i.e. Lyrasis, CIC, USMAI, etc.). Solidifying consistent relationships with vendors for specific types of projects will promote the use of consistent technical specifications and predictable workflows, and will limit the amount of time it takes to write RFQs for individual projects, as well as the amount of time testing workflows and deliverables during a pilot project.

Work on the Legacy Equipment Repair RFQ began summer 2013. Potential future digitization contracts include: book digitization, oversize digitization, microfilm digitization, audiovisual digitization, and manuscript digitization.

The capital expenditure budget will fund the equipment repair contract; the operations budget will fund digitization contracts from a variety of sources.

### ***Outreach and Promotion***

The Manager, DCMR and other staff will support DCMR services through presentations or informal announcements to groups of stakeholders, such as the Special Collections Collaborative and the Library Assembly. The Manager, DCMR will also promote and consult on services and capabilities to the Libraries as a member of the Collection Services Advisory Committee and as chair of the Digitization Initiatives Committee. DCMR staff may also participate in other groups that benefit from the expertise of its staff, such as the Born-Digital Working Group and the Digital Preservation Policy Taskforce, raising awareness of the services and expertise. The Manager, DCMR will write for the DSS blog, promoting projects and capabilities to internal and external communities.

DCMR staff will promote the Digitization Center through tours for UMD Libraries staff, USMAI staff, and other interested parties. Additional outreach plans can be found in the Communication Plan in this document.

### ***Collaboration and Partnerships***

#### **University of Maryland**

DCMR is amenable to mutually beneficial partnerships and collaborations with internal communities from the Libraries and other UMD campus partners. Partnerships or collaborations could include: digitization requests or projects; job enrichment programs; field study or internship opportunities; grant proposals or grants; research or experimentation; consultation, etc. A Memorandum of Understanding (MOU) between the Libraries and the campus partnership should be written and approved by the Associate Dean, DSS and the Dean of Libraries if the project falls outside the scope of what is considered normal DCMR operations. Past partners have included the Maryland Institute for Technology in the Humanities and the College of Information Studies (iSchool).

#### **External**

The University of Maryland is a consortial partner in USMAI and CIC. As new roles are defined, the Manager, DCMR is looking to form new relationships with the member institutions, so that UMD Libraries becomes a leader in digitization programs. As the Libraries form partnerships with other regional and national institutions and

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organizations, such as the recent partnership with the Corcoran, the Manager, DCMR will work to find new collaborative opportunities.

The Libraries are also members in Lyrasis, which provides the ability to contract mass digitization for bound volume through the Internet Archive, and a variety of other formats through other vendors. The Libraries are a new partner in HathiTrust, providing access to additional resources for digital preservation and access, and the Academic Preservation Trust (APTrust) for digital preservation. The Manager, DCMR will work with the Manager, DPI to exploit the benefits of these memberships.

DCMR will also seek to explore collaborative digitization opportunities through collection areas, established projects, and grants. Examples of these projects include becoming a partner in the American Archive project, through the Corporation of Public Broadcasting, to digitize a large amount of audio hours from public radio station archival collections.

A Memorandum of Understanding (MOU) or contract between the Libraries and the partnership should be written and approved by the Associate Dean, DSS and the Dean of Libraries, and signed by the Dean and other campus personnel, as applicable.



## Digital Conversion and Media Reformatting, Staffing

### History

DCMR began with the Manager and four student digitization assistants, totaling 65 hours of work per week. In 2012, the Manager, DCMR hired two full-time staff and increased student hours funded by Labor and Assistance to meet Libraries Strategic Plan goals:

- *I.A.10.ii Develop digitization and conversion program that specifies policies regarding digitization and digitization standards for all media types (e.g. text, image, video, audio), and processes and workflows for efficient and effective digitization efforts across the library.*
- *I.A.10.iii Evaluate and redesign the Libraries' digitization infrastructure to better suit strategic needs.*
- *III.A.7.v Expand two-year Post-Masters Program to link hiring to areas of strategic importance*

The Broadcast Media Digitization Librarian, a two-year Post-Masters contract librarian would execute the development of audio and video digitization stations for prescribed formats over a two-year period, under standards developed by the Manager, DCMR, based on the results of the stakeholder surveys. The Digital Reformatting Specialist, an annual, renewable non-exempt staff contract was hired to manage the daily operations of the Digitization Center, and the work of the student assistants. Labor and Assistance funding was modestly increased to boost production and the potential to take on additional digitization projects.

In 2013, staffing became an integral part of the infrastructure in the Strategic Plan: *"I.A.9.iii Evaluate, redesign and propose appropriate staffing and systems support for the Libraries' digitization infrastructure to better suit strategic needs."*

The Digital Librarian, a full-time, permanent status-track faculty librarian position replaced the Digital Reformatting Specialist position in fall 2013. It subsumed the duties of the Digital Reformatting Specialist, and took on the management and planning of in-house digitization projects, to allot additional time to the Manager, DCMR for increased long-term planning and innovation, contractual planning, research, and out-sourced project management. Planned Labor and Assistance hours and digital asset and metadata creation nearly doubled the level of 2011 with additional digitization hours and a new position dedicated to quality assurance.

### Staffing

#### Manager, Digital Conversion and Media Reformatting

The manager will provide leadership concerning, and create policies, standards, and workflows as they relate to digital conversion and reformatting. The manager will keep up with and revise policies and standards as community best practice evolves, to ensure the relevance of the Libraries digitization infrastructure. The manager will administer the personnel, resources, and projects of the DCMR Department, and will oversee and

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coordinate digital conversion and reformatting efforts across the UMD Libraries, for both in-house and vendor-based digitization projects or requests.

The manager will direct vendor-based digitization contracts for the Libraries. The manager will consult with Libraries staff on digitization projects, and coordinates these projects and resources. The manager will be proactive in identifying potential collaborative opportunities in the UMD Libraries and external groups, such as USMAI and CIC.

The manager will serve as an expert on digitization and digital collections standards and policies by representing Libraries on internal and external committees, working groups, and other professional organizations as necessary. The manager will also provide advice and guidance on RFP and MOU documents, as they relate to large digitization projects and endeavors, and draft these formal proposals and contracts as necessary. The manager serves as an advocate for the financial demands of Libraries digitization projects.

### **Digital Librarian (2013-)**

The Digital Librarian manages the daily operations of the Digitization Center for textual, photographic, audio, and moving image materials at the University of Maryland Libraries, including the workflows for on-demand requests and longer-term projects. The librarian will also supervise and train student digitization assistants or other staff in digitization and metadata procedures for these requests and projects. He will contribute to the development of procedural documents to train students and to document workflows, and other digitization guidelines. He will also communicate with library staff and patrons on issues related to digitization requests or in-house projects. The librarian is expected to digitize materials for requests and in-house projects as necessary.

The librarian provides technical guidance and support to staff throughout the Libraries to facilitate both patron-initiated digitization requests and other digitization projects, and works with colleagues in Technical Services on quality assurance of metadata records that are entered into the digital repository.

He is responsible for the maintenance of sophisticated digitization equipment including flatbed scanners with slide and transparency attachments, oversize scanners, digital cameras, audio and moving image analog to digital stations, and audio and moving image legacy equipment, and related software. The librarian supervises and performs quality assurance on digital objects. The librarian manages in-house digitization projects as necessary. The librarian is expected to remain current with digitization standards, technologies, and best practices.

### **Project Librarians**

#### ***Broadcasting Media Digitization Librarian (2012-2014)***

The Broadcasting Media Digitization Librarian is one of the Post-MLS Residency Librarians, a program designed to provide dynamic new librarians with a supportive environment for professional exploration in academic librarianship, and an opportunity for concentrated experience in an area of specialization. The contract will end in August 2014.

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This librarian will focus on the set-up of audio and video digitization stations in the Digitization Center under the guidance and supervision of the Manager of DCMR. He will create procedural documents for the use and maintenance of the equipment and software selected by the Manager, as well as digitization procedures for various formats. He will primarily serve the collections of Special Collections and SCPA, focusing on collections as they relate to broadcasting, though other audio and video collections will also be serviced. He will perform digitization and metadata capture for the materials digitized. He will train student digitization assistants in audio digitization procedures, and create tutorials for these processes. The librarian will also perform research as needed, to support the development of the audio and video digitization stations.

### **Digital Reformatting Specialist (2012-2014)**

The Digital Reformatting Specialist was a one-year C2, non-exempt staff contract that served DCMR for two years. It was initiated to fill a gap in staffing, to manage the daily operations of the Digitization Center, including digitizing textual, photographic, audio, and moving image materials within the UMD Libraries' collections, and perform quality assurance on digital assets. However, due to the rapid growth of DCMR and its demanding capacity, the position grew to include training students assistants, creating tutorials, and managing in-house digitization projects. This position was replaced by the Digital Librarian position in the fall of 2013 to adjust to the growing professionalism of this position.

### **Assistants**

These C1, non-exempt positions are continuations of student assistant positions for recent graduates, to support the continued needs of the digitization capacity during periods when hiring new student assistants is not feasible. They will include Digitization Assistants, Quality Assurance Assistants, and Research Assistants.

### **Student Assistants**

Working in consultation with the appropriate curators, librarians, and staff, and with the Digital Collections Librarian, the Student Digitization Assistants operate sophisticated digitization equipment to fulfill textual, image, and audiovisual requests, complete and augment metadata records, and perform quality control on digital objects. These are hourly positions within the Libraries in the Hornbake Digitization Center, and will be placed in other digitization studios in the Libraries. Some Student Digitization Assistants may be hired for specific projects, as funding allows. DCMR filled an average of 100 student hours per week in FY13, hopes to expand the hours as the need for in-house digitization increases in the Libraries.

Student Quality Assurance Assistants will work with digitized materials from across the UMD Libraries, under the direction of the Digital Librarian. This position will perform quality assurance on digitized materials, and the corresponding metadata, to supplement the workload of the Digital Librarian as digitization capabilities increase. This person will ensure digital assets comply with UMD Best Practice Standards, and edit digital objects and complete and augment metadata records as necessary.

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Research Assistants will support the goals of DCMR on projects as needed, such as to help revision the *Best Practice Guidelines for Digital Collections at UMD Libraries*, or to assist with the development of tools. An hourly student or a field study or internship student may fill this position.

### **Associated Liaison Staff**

(Parts from Digital Programs and Initiatives: Guiding Principles, Policies, and Procedures)

#### ***Special Collections Digital Collections Librarian***

Because of their unique holdings, Hornbake Special Collections generates a large number of digital projects. As such, it is important that clear lines of communication exist between Hornbake Special Collections and DCMR. The Special Collections Digital Collections Librarian plays a leadership role in the development, planning, promotion, delivery, and evaluation of digital initiatives involving Special Collections materials and services. This position provides key support to special collections staff in the planning and management of digitization projects.

#### ***Metadata Services Department***

The Metadata Services Department of the Technical Services Division, is responsible for making key decisions regarding metadata used in description of digital objects. DCMR works closely with the Metadata Librarian when embarking on any new project, in order to determine which metadata will ensure the best discovery and access to our materials. In addition, the Metadata Librarian provides services such as metadata mapping from one schema to another, and descriptive cataloging, and manages the Metadata Graduate Assistant.

The Metadata Graduate Assistant will be the primary contact to the Digital Reformatting Specialist or Digital Librarian on metadata quality assurance. Monthly lists of PIDs will be sent to the Metadata GA for enhancement and approval after meeting DCMR quality checks. This GA will enhance and edit the descriptive metadata records before making the records and digital objects public.

#### ***Manager, Digital Programs and Initiatives***

The manager of Digital Programs and Initiatives is responsible for providing leadership and oversight of the Digital Programs and Initiatives Department. The head of DPI will be the first point of contact for all new digital projects and digital initiatives and work with all stakeholders to develop project charters and project plans. It is the role of the manager, DPI to keep current on technology trends, to identify possibilities for collaboration and partnership on digital initiatives within the UMD Libraries and externally, and to be proactive in ensuring that the UMD Libraries remain current and relevant with their digital repository and digital systems. In addition, the manager, DPI will serve as a public face for digital initiatives by representing the UMD Libraries on external committees, working groups, and other professional organizations as needed.

The Manager, DCMR will collaborate closely with the Manager, DPI on many projects because rarely will digitization projects focus solely on digitization; they will typically

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include development of the interface, infrastructure, or workflows to include new formats or new access methods.

### ***Manager, Software Systems Development and Research***

The Software Systems Development & Research (SSDR) department provides leadership in the development, integration, testing and deployment of digital library software systems and tools at the Digital Systems and Stewardship (DSS) of the University of Maryland Libraries. The SSDR Manager is responsible for the research, development, deployment, support and management of library application software and software systems; and for the integration, implementation, and maintenance of software to provide acquisition, curation, preservation, access and discovery services to the libraries' collections. The software development activities encompass all phases of software development lifecycle, including implementation of interfaces to other software systems, development of Web interfaces and user interfaces for the tools developed in SSDR. The SSDR Manager recommends policies, procedures, standards and guidelines related to software development, information management and workflows to the Associate Dean of Information Technology. The SSDR Manager leads requirements analysis exercises to gather, evaluate and document library users' needs, and will develop and manage projects and plans to meet those needs

### ***Manager, User and Systems Support***

User Support and Systems Administration provides several services for DCMR. USS services the equipment, software, and supply requests of DCMR through the helpdesk. They also troubleshoot system, equipment, and software problems. Finally, USS provides the infrastructural backbone and operational support needed to build and maintain a robust digital library program. Included in this Department's responsibilities are server computing, storage, and operational aspects of bit-level digital preservation.

### ***Digital Systems and Stewardship Project Manager***

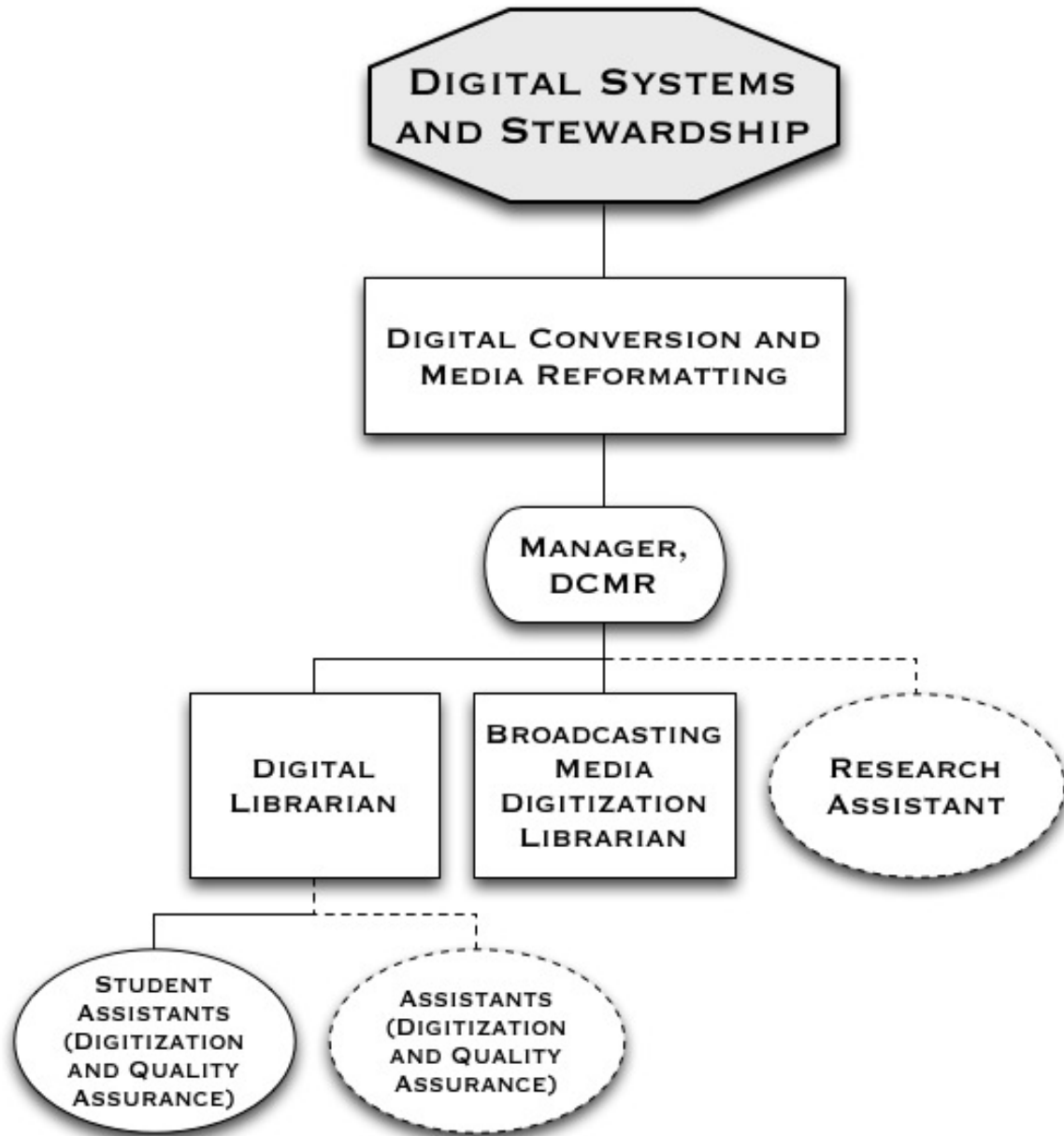
The DSS Project Manager manages projects throughout the division, and supports other Managers' workloads.

### **Future Staff**

The Manager, DCMR will explore options for additional staff as demand increases, both within DCMR and other departments. Possible future positions include:

- Project Librarians, to support explicitly funded, mass-digitization projects, either through grants or other resources
- Audiovisual Engineer, located in USS, to perform maintenance and repair of legacy equipment in DCMR and throughout the Libraries.

*2014 Staffing Model*



## Digital Conversion and Media Reformatting, Services

The Digital Conversion and Media Reformatting Department (DCMR) provides preservation-level conversion and reformatting services for textual, photographic, audio, and moving image materials.

### **Digital Conversion and Reformatting:**

DCMR provides the following *in-house* digitization services:

#### **Text and Image Services**

##### **Digital Scanning**

- Paper (up to 25.5"x18.25" at 300 dpi, up to 11"x17" to higher dpi):
  - Books or bound documents
  - Printed flat documents
  - Documents with hand-written text
  - Drawings, sketches, lithographs, or prints
  - Newspapers
  - Maps
- Photographic (up to 25.5"x18.25" at 300 dpi, up to 11"x17" to higher dpi):
  - Photograph prints
  - Photograph negatives, microforms, and transparencies, up to 3"x4"
  - 35mm slides
  - Encased photographs (ambrotypes) at 300 dpi
- Other (up to 25.5"x18.25" at 300 dpi):
  - Memorabilia--flat, or semi flat

##### **Digital Photography**

- Encased photographs (ambrotypes)
- Large format posters or maps
- Memorabilia

##### **Digital Conversion**

- Digital text files
- Digital image files

##### **OCR**

- Optical Character Recognition (OCR) is provided via Adobe Acrobat Professional, upon request for PDF deliverables of type-written documents, and specific projects, such as books for inclusion in the Internet Archive.

##### **Deliverable Files**

- TIFF (highest quality)
- JPEG (high and low quality)
- PDF (with or without OCR)

## Audio and Moving Image Services

### *Audio and Moving Image Conversion and Reformatting*

- Audio:
  - 5", 7", and 10.5" ¼" open reel tapes recorded at 15, 7 ½, or 3 ¾ ips
  - ADAT
  - Cassettes
  - CDs
  - Digital Audio Tape (DAT)
  - Minidisc
  - Most digital audio files
- Video:
  - DVCAM/MiniDV
  - DVD
  - Most digital video files

### *Planned Future Conversion and Reformatting (date pending)*

- Audio:
  - Acetate or lacquer, glass, aluminum, and vinyl grooved discs
  - Audio cartridges
- Video:
  - ½" tape, VHS and S-VHS cassettes
  - ½" tape, Betacam, BetacamSP, Betamax cassettes
  - ½" tape Digital Betacam cassettes (Digibeta)

### *Deliverable Files*

- Audio:
  - WAVE (high to medium quality)
  - MPEG-1 Layer 3 (.mp3) (medium to low quality)
- Video:
  - MOV (high to medium quality)
  - MOV ProRes (medium quality, compressed)
  - H.264 compliant MPEG-4 (low quality, compressed)

See Appendix C for 2013 equipment and software capabilities.

## **Request Services**

### **Request Procedures and Forms**

DCMR handles textual, paper-based, photographic, audio, and moving image digital conversion and reformatting services for UMD Libraries materials for use by patrons and/or inclusion into UMD Digital Collections. Library staff should fill out a digitization request form and coversheet to submit with the materials:

<http://libi.lib.umd.edu/groups/digital-collections/digital-collections-digitization-request-forms>. This form provides guidance to the digitization assistants on file format and delivery



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method, as well as repository inclusions and metadata. This form is also used to compile internal statistics.

### **Request Speed Tiers**

DCMR provides the following speed tiers for on-demand digital conversion and reformatting services in the UMD Libraries Digitization Center. Format, quantity, and condition of the material(s) to be converted or reformatted in the request, the amount of other urgent requests, and the availability of staff influence the applicable speed tier.

No items will be able to be made immediately public in UMD Libraries Digital Collections because they require extensive image and metadata quality assurance procedures; digital items will be delivered to patrons and staff via distribution services.

Project-based digitization does not fall into these tiers.

### ***Urgent***

- Curators and librarians should consult with DCMR staff to see if a specific date can be fulfilled prior to promising a date to a researcher.
- Requests of over 30 documents or photos, or over 5 audio recordings might not be able to be fulfilled in an urgent manner—please consult DCMR staff.
- A due date must be specified with the order for prioritization in the queue.
- Curators and librarians can expedite an order by locating previously scanned items in Fedora or the Internet Archive, and including the URL or PID on the request form.
- If the material(s) require preservation or conservation work prior to digitization, the staff will do their best to meet the requested due date. If extensive preservation work is needed, a new due date will be assigned.
- If the Digitization Center has multiple urgent orders in its queue, orders will be completed in order of due date, to the best of its capabilities.
- This speed tier should not be over-used by any one user or unit.

### ***Normal (Default Speed)***

- The requested materials will be converted or reformatted within 10 working days if a document or photograph, and within 15 working days if audio or video.
- A due date should be specified if the request is preferred before 10 working days.

### ***Distribution Services***

- DCMR will provide digitized images to requestors on CD, DVD, Local Area Network, or FTP, depending on preference for each order.
- DCMR is only able to distribute scans requested at the time of an order, or materials permanently retained by DCMR. We cannot include images not permanently

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retained and not digitized at the point of order from other LAN or file locations in a distribution package.

- Digitized items are available through UMD Libraries Digital Collections: <http://digital.lib.umd.edu/>, if they are marked for inclusion on the request sheet, or if they are part of a digitization project with permission for inclusion.

### ***Instruction Services***

- Downloading digital surrogates from Digital Collections and the Internet Archive, including the *Terrapin* and *Reveille* yearbooks.
- Metadata entry and editing for digital surrogates in Administrative Tools for Digital Collections.
- Basic image editing (e.g. rotating and cropping, adjusting size) in Adobe Photoshop CS5.
- Basic audio editing (cropping, re-sampling for derivatives) in Adobe Audition CS6.
- Operating digitization equipment:
  - Epson Expression 10000XL (flatbed scanner with negative and slide attachments), Epson Perfection V700 (flatbed scanner with negative and slide attachments), Zeuschel OS 12000 Bookcopy (overhead scanners in Maryland Room and Digitization Center), Canon Rebel T2i (digital SLR camera).
  - Though Libraries Job Enrichment Program: audio digitization station, audio digitization software.
- Viewing digital surrogates in Sharestream

### ***In-house Project Services***

- DCMR provides a separate form to request small in-house digitization projects: <http://libi.lib.umd.edu/groups/digital-collections/digital-collections-digitization-request-forms>
- Please consult with the Manager of DCMR:
  - Before using this form for the first time.
  - Concerning suitability of the collection to digitize in-house.
  - Before suggesting a timeline for the project.
  - Concerning formats in the collection.
  - Concerning standards used in the digitization of the project.
  - Concerning deliverable files for the project.
- Projects must be under approximately 10 hollinger boxes to qualify.
- Project forms must link to description at the level of digitization. Examples:
  - Finding aid with folder-level description.
  - Item-level spreadsheet inventory with sufficient fields for descriptive metadata
  - MARC records

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- The Digital Librarian or Digital Reformatting Specialist may manage the project once it is initiated.

### ***Consultation Services***

- The Manager of DCMR will discuss planning and project management with collection managers and curators for new and on-going mass-digitization, conversion, and reformatting projects.
- The manager of DCMR will outline accepted standards and workflows applicable to each project.
- The manager of DCMR will act as a liaison with digitization, conversion, and reformatting vendors.
- The manager of DCMR will act as a liaison with Preservation and Conservation and the Digital Systems and Stewardship personnel as needed.
- The manager of DCMR and Digital Librarian or Digital Reformatting Specialist will consult with librarians and curators to assess and make recommendations for process and specifications for the digitization of requested materials for patron and internal requests, as well as long-term in-house projects.

### ***Metadata and Description Services***

- DCMR creates technical and administrative metadata as part of the digitization process for all digital assets in UMD Digital Collections.
- DCMR creates descriptive metadata for on-demand requests which are included in UMD Digital Collections.
- If appropriate and feasible, DCMR may enhance provided descriptive metadata for in-house projects.
- DCMR will work with the Metadata Librarian to map legacy descriptive metadata for digitization projects.
- DCMR prefers that description (catalog record, finding aid, metadata record, etc.) is created prior to digitizing large projects, to better track and describe the materials.

### ***Project Management***

- The Manager of DCMR may manage large, long-term projects, or at least portions of projects, such as interactions with digitization vendors, or where the project requires extensive collaboration with Digital Systems and Stewardship.
- Once the Manager, DCMR initiates a small, in-house project, the Digital Librarian or Digital Reformatting Specialist may manage it for the Manager, DCMR.
- When feasible, DCMR encourages that the department that initiates the digitization project, manage the project.

### ***Policies***

- Please consult Digital Collections online at <http://digital.lib.umd.edu/> to check whether or not items have been digitized before requesting digitization.

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- All digitization for the sake of preservation and access for digital collections within the UMD Libraries, will be performed or coordinated by DCMR; it is understood that all digitization for audio and moving image collections should be considered preservation digitization.
- DCMR will make the determination whether materials can be digitized in-house based on an item's format or condition, and will recommend appropriate outsourcing options should it be determined that we cannot accommodate an item in-house.
- Materials available for self-service digitization in the Maryland Room and other parts of the Libraries are not scanned by DCMR staff, including microfilm, Marylandia and National Trust Library books, and Theses and Dissertations, unless these are part of a larger digitization project.
- If preservation-level master files are requested at a date later than the original order date, the requests for TIFF, WAVE, or digital video files may take up to five business days to provide. By default, we provide high-resolution JPEG or PDF, .mp3 (audio), or MPEG-4 (video) for patron requests.
- Text and image requests should be performed within 10 working days, unless additional conservation work is required.
- Audio and video requests should be performed within 15 working days, unless additional conservation or preparatory work is required.
- Conservation needs will be assessed by DCMR in consultation with Preservation and Conservation. DCMR can perform baking of magnetic audio media to accommodate mild to moderate "sticky-shed" syndrome. Treatments, such as demetaling, dis-binding, or flattening objects, should be performed by Preservation and Conservation. Any treatment that DCMR or Preservation and Conservation is not able to perform in-house, will be performed by a vendor, and will add considerable time and cost, to the request.
- Project planning meetings will not necessarily result in the creation of an immediate digitization, conversion, or reformatting project.
- Projects are subject to allocation of library resources, departmental and divisional prioritization, Libraries Strategic Plan goals, and the current workload of DCMR.

### ***Exclusions***

- DCMR does not physically preserve materials, or perform preservation surveys of materials. Please work with the Preservation and Conservation Department, who specializes in these services.
- DCMR does not create facsimiles of materials after we digitize them. Please work with a graphic designer or a printing service for these products.
- DCMR does not create edited images, or audio or video clips after we digitize them. If your department or unit requires this capability, please request software to

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perform this in-unit through the DSS Helpdesk. If a patron makes these requests, please make them aware of our policy.

- DCMR does not develop the digital collections repository, though we work closely with Digital Programs and Initiatives to identify user needs.
- DCMR is dedicated to the digitization of UMD Libraries materials because we have an extensive amount of collections materials; we do not have time to digitize non-library materials if we are to fulfill our commitment to the Libraries.

## **Digital Conversion and Media Reformatting Roles and Responsibilities**

Digital Conversion and Media Reformatting (DCMR) and UMD Libraries' content managers will follow these responsibilities for digital conversion and media reformatting activities. Content managers include archivists, curators, and librarians.

### ***Content Manager Roles and Responsibilities***

#### **Initiatives**

Content managers are responsible for answering calls for potential project proposals or participation in digitization initiatives by the set annual deadlines.

#### **Selection**

##### ***Large Projects***

Content managers will discuss proposed projects with the leaders of their department or division. Once a project is recognized as a priority of the department or division, the content manager will write a proposal directed to DCMR, if it is just comprised of digitization activities, or DCMR and Digital Programs and Initiatives, if the project comprises digitization and additional activities or tools. The projects that are agreed upon by all parties will be developed through DCMR and/or Digital Programs and Initiatives.

Large projects are defined as more than approximately 10 hollinger boxes, or more than 50 items.

##### ***Small Projects***

Content managers will discuss proposed projects with the leaders of their department or division. Once a project is recognized as a priority of the department or division, the content manager will fill out the In-House Digitization Project Form, directed to DCMR. The Manager of DCMR, the Digital Reformatting Specialist, or the Digital Librarian must approve projects as appropriate for in-house digitization.

Small projects are defined as less than approximately 10 hollinger boxes, or less than 50 items, projects consisting of only digitization, and where previous descriptive data exists (finding aid, MARC record, item-level spreadsheet inventory, etc.). Larger, longer-term requests may be treated as small projects.

##### ***On-demand Requests***

It is the responsibility of content managers to determine whether or not material has been digitized and are currently available via UMD Digital Collections Administrative Tools. Content managers will submit on-demand requests from patrons, staff, etc., to the Digitization Center for digital conversion and reformatting using the proper protocols. The content manager will also inform the Digitization Center what digital objects should be included in the UMD Libraries Digital Collections (<http://digital.lib.umd.edu/>), and which objects should public.

### **Consultation**

Content managers will consult with DCMR to determine what projects will be best served by in-house or vendor digitization, and what standards and deliverables will best suit the materials to be digitized. The content manager will be involved in discussions between the Managers, DCMR and Digital Programs and Initiatives on the requirements for digital projects.

### **Coordination**

The Manager, DCMR will help coordinate between the content managers and other involved parties including Digital Programs and Initiatives, Preservation and Conservation, Metadata Services and other divisions, departments, and units, as needed. Content managers will coordinate between staff in their own department, and assign personnel as needed.

### **Communication**

Content managers are responsible for clearly communicating their expectations and goals, as well as issues they have with DCMR services, guidelines, and project responsibilities timelines. Content managers should negotiate achievable project responsibilities and a timeline that works with their other responsibilities during the project charter development process. Content managers should contact DCMR for request and project updates.

### **Copyright, Permissions, and Access**

The content manager should secure the copyright or permissions to post the digital surrogates online, including assuring the material is in the public domain, retaining ownership of the copyright, or licensing the material. The content manager is responsible for informing DCMR of the access or licensing restrictions that should be placed on the digital surrogates.

#### ***Levels of Access Restrictions***

The levels of access restrictions that can be placed on collections include:

- Publicly available to whole world
- Restricted to on-campus use, or off-campus through VPN log-in
- Restricted to specific library, or computer IP addresses
- Uploaded to repository, private, access through handle or streamer URL
- Uploaded to repository, private, staff access only

See *Copyright Decision Tree* (Appendix D) for more information.

### **Management**

Content managers or their department should project manage digitization projects, to the best of their capacity.

### **Preparation**

Content managers should prepare the materials for digitization, clearly marking the objects to be digitally converted or reformatted, taking care to remove staples, remove mounts, un-frame, mark for exclusion, etc. what the content manager does not want to be included in

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the digital image. The content manager should also clearly notate selected pages, items in a folder, or portions of a whole to digitize, when applicable. When digitizing audio and moving image media, entire recordings will be digitized and delivered. However, if a specific portion is requested, the content manager should note that the digitization assistant provide the timestamp or code information for the request deliverable, along with the entire file.

### **Description**

As the content experts, the content manager should provide as much bibliographic information as possible so that the technicians in the Digitization Center can enter accurate metadata for on-demand requests. The content manager is required to provide metadata in fields suggested by the Metadata Librarian and Manager, DCMR for large digitization projects before the materials are digitized whether in-house or through a vendor. The content managers are also responsible for quality control of metadata, noting corrections in metadata to DCMR, or expanding the records through the UMD Digital Collections Administrative Tools interface.

### **Delivery of Physical Materials**

The content managers will deliver the materials to the Digitization Center for on-demand digitization, and will work with either DCMR or Preservation and Conservation to safely pack and send large quantities of materials to vendors for digitization. The content managers will create the shipping manifests for Internet Archive and other vendor shipments. Digitization Center staff will notify content managers when orders are finished and materials are ready for pick-up.

### **Scheduling**

Content managers should provide due dates for all requests and long- and short-term digitization projects to assist DCMR scheduling across collection areas' requests. Content managers will collaborate with the Managers, DCMR and Digital Programs and Initiatives to schedule digital projects and digitization projects across UMD Libraries, and is also responsible for meeting deadlines in the project charter and timelines.

### **Digitization**

Content managers will not perform digitization unless trained on the Digitization Center equipment to UMD Best Practice Standards. Libraries Job Enrichment opportunities will be available in the early fall of 2013. DCMR staff use of the digitization stations is prioritized above content manager use.

### **Alteration**

Content managers are responsible for preparing the digital files for patron request delivery, either through editing the image, audio, or video files to their patrons' specific request, or providing the raw files and supplying their patrons with information about tools that can assist them in creating their desired products.

### **Post-processing**

Content managers are responsible for providing the information for the preferred delivery



## **Digital Conversion and Media Reformatting Department, University of Maryland Libraries**

file format and the delivery location to the DCMR staff via the request form.

### **Quality Control**

Content managers are responsible for checking access points of digital surrogates, ensuring their users have the access they require. Content managers should also point out errors in visual quality for files digitized on-demand, when applicable. Depending on the project charter, content managers may be responsible for visual or aural quality control on digital objects for materials sent to vendors, and delivering their comments on the digital surrogates to DCMR within the vendors' requested time period for feedback.

### **Vendors**

If the content managers have worked with or are aware of reputable vendors that will provide deliverables according to the Best Practice Guidelines for Digital Collections at UMD Libraries, the manager may recommend this vendor to DCMR for consideration. Content managers are expected to assist in writing an RFQ or RFP if the project exceeds \$5,000 or \$100,000, respectively.

### **Funding**

It is advisable that content manager secure, or assist in securing, funding for a project or request that must be sent to a vendor. The content manager can propose a project to the Digitization Initiatives Committee to help locate financial resources. If a project proposal is funded it will raise the prioritization of the project, though does not guarantee the acceptance of the project, which relies on other factors, including available staff time.

### **Staff and Student Labor**

Content managers can assign or hire additional staff or student labor to assist with metadata creation, quality assurance, or material preparation, which should be completed to UMD Best Practice standards, under advisement of DCMR.

## ***DCMR Roles and Responsibilities***

### **Initiatives**

DCMR is responsible for promoting Libraries digitization initiatives or calls for potential digitization projects to the content managers (i.e. promoting digitizing through the Internet Archive, taking advantage of a collaboration between collecting areas to focus on a specific format, subject, etc.). The Manager, DCMR chairs the Digitization Initiatives Committee, which will release an annual call for project proposals that need to be funded.

### **Selection**

DCMR staff will not select digitization projects for divisions, though the Manager, DCMR may suggest initiatives for specific determined projects.

### **Consultation**

DCMR will consult with content managers on digitization projects, and will advise what standards and deliverables will best suit the materials to be digitized. The Manager, DCMR will collaborate with Digital Programs and Initiatives and content managers for digital

## **Digital Conversion and Media Reformatting Department, University of Maryland Libraries**

projects. The Manager, DCMR will also consult with content managers whether a digitization project can be digitized in-house or must be digitized through a vendor. The Manager, DCMR will assist with the conversion and reformatting portion, and serve as the technical expertise for a digitization grant, when applicable, though DCMR will rely on the content manager to lead the grant-writing process.

### **Coordination**

The Manager, DCMR will coordinate between the content managers and Digital Programs and Initiatives for larger digital projects and digital initiatives, focusing on the digitization aspects of the projects. DCMR will act as the liaison between content managers and Preservation and Conservation for materials that require preservation prior to digitization, or are being digitized as a form of preservation. DCMR will act as the liaison between Metadata Services and content managers when developing set fields and subjects or genre notes for large digitization projects. DCMR will also coordinate digitization projects across multiple units or divisions concerning similar formats or topics.

### **Communication**

DCMR is responsible for clearly communicating standards, guidelines, and services relating to digital conversion and media reformatting to all stakeholders. DCMR is also responsible for communicating digital project responsibilities and timelines as necessary. DCMR will create project charters for larger projects, where the roles and responsibilities, and the project timeline will be negotiated. DCMR is committed to transparency for all stakeholders. DCMR staff will contact the content managers when digitization requests and projects are completed, and will provide updates for in-house digitization projects.

### **Copyright, Permissions, and Access**

DCMR staff will defer to the content managers' guidelines concerning digitization requests, except when known problems exist. The Manager, DCMR will consult with content managers to determine access levels for digitization projects.

#### ***Levels of Access Restrictions***

The levels of access restrictions that can be placed on collections include:

- Publicly available to whole world
- Restricted to on-campus use, or off-campus through VPN log-in
- Restricted to specific library, or computer IP addresses
- Uploaded to repository, private, access through handle or streamer URL
- Uploaded to repository, private, staff access only

See *Copyright Decision Tree* (Appendix D) for more information.

### **Management**

If the content manager cannot manage a project, the Manager, DCMR can manage digitization projects, but the capacity to do so, and the timeline of other projects may impact when the project can be managed.

### **Preparation**

DCMR digitization assistants will perform limited preparation of collections prior to digitization. The digitization assistants or the Digital Reformatting Specialist or Digital Librarian will defer to content managers if materials prove difficult to handle for digitization. If necessary, Preservation and Conservation will be consulted to perform remediation on the material prior to digitization. DCMR staff will not perform additional rehousing or other measures, unless it was necessary during digitization.

### **Description**

The digitization assistants will enter the metadata for digital assets as provided on the digitization request forms or the in-house digitization project form and accompanying information. Content managers must provide additional metadata on these forms if they desire more information than what is on the original material, folder, or other housing. The Digital Reformatting Specialist or Digital Librarian will provide enhanced metadata, including additional subject and genre headings, and perform quality assurance on the metadata, as able. DCMR staff will work with the Metadata Librarian or Metadata GA to further enhance description. The Manager, DCMR will work with content managers to collect necessary metadata for vendor digitization projects.

### **Delivery of Physical Materials**

The Digitization Center will usually be open Monday through Friday, 8:30am-5:00pm to accept the delivery of collection materials. If the schedule deviates, a sign will be posted, and content managers can either leave the materials on a table or cart outside the Center door, or schedule a delivery time. DCMR staff will coordinate with content managers and Preservation and Conservation if the materials are determined to need preservation work after they have been delivered to the Digitization Center. The Manager, DCMR will coordinate and provide guidance to content managers to pack to pack and ship materials to vendors for digitization.

### **Scheduling**

DCMR staff will prioritize requests and projects only based upon due dates and agreed upon project timelines. Prioritization is collection-agnostic. The Manager, DCMR will work with the Manager, Digital Programs and Initiatives to schedule digital projects involving digitization, and is also responsible for meeting deadlines in the project charter and timelines.

### **Digitization**

DCMR is responsible for all digital conversion and media reformatting for all formats, as it relates to digital collections in the UMD Libraries. DCMR is not responsible for digital conversion and media reformatting as it relates to reserves, though the Manager of DCMR can be consulted as to standards and workflows as it relates to reserves, and software and hardware, and the services DSS can support concerning reserves. Digitization will be performed in the Digitization Center or through a reputable vendor.

### **Alteration**

DCMR is responsible for a modest amount of digital editing for digital images for request delivery, to include: modest resizing; reasonable cropping, softening, and sharpening; creating gray scale images from color images; and re-scanning images at a higher dpi for a larger size. DCMR is responsible for a modest amount of digital editing for digital audio and video for request delivery to include: modest degradation of signal for a lower-resolution file, modest editing to improve audio or video clarity. In both cases, the requester must give explicit directions to do so. Only batch alteration will be performed for digitization projects.

### **Post-processing**

DCMR will provide specific deliverable files and metadata, if requested, according to Best Practice Guidelines for Digital Collections at UMD Libraries. DCMR can provide additional derivative files upon consultation. DCMR will also provide the requested derivative files and deliver to specific location for the requester.

### **Quality Assurance**

DCMR is responsible for the quality assurance of metadata, and visual, aural, and technical characteristics for the digital objects created on-demand and for digitization projects, both in-house and through vendors.

### **Vendors**

The Manager, DCMR will coordinate projects through digitization vendors if:

- The Digitization Center cannot digitize the format
- The preservation issues merit specialized handling or preparation
- The project volume is significant
- The project timeline is short
- Designated funding is available

The manager may recommend a vendor to the Manager, DCMR for consideration if DCMR is bidding a project. The Manager will assist in writing the RFQ or RFP for digitization projects.

The Manager, DCMR will communicate with the vendor, and will coordinate packing, shipping, and receipt of materials and digital delivery media with the content manager.

### **Funding**

The Manager, DCMR will chair the Digitization Initiatives Committee, which will receive division-prioritized digitization project proposals and try to match these proposals with financial resources. If a project proposal is funded it will raise the prioritization of the project, though does not guarantee the acceptance of the project, which relies on other factors, including available staff time.

### **Staff and Student Labor**

DCMR is responsible for hiring and training all staff and student assistants employed in the Digitization Center. DCMR is also responsible for training volunteers, interns, and other Libraries staff who wish to use the Digitization Center equipment and stations.

## Digital Conversion and Media Reformatting, Communication Plan

The following communication and sharing tools will be utilized in these instances:

- *Email*: Primary communication method between two individuals or a small group; used between individuals involved in a project until significance merits Basecamp project.
- *Reflectors*: Primary communication between DCMR managers and DCMR staff; primary communication to established groups in the Libraries, such as staff groups or project groups; primary communication method to make requests from the Helpdesk.
- *Surveys*: Initial method to gain information from librarians and curators. Used while setting up DCMR. Continued use to survey collections and needs.
- *Intranet (Libi)*: Share Digitization Center staff hours; share request forms; share instructions and procedures. All policy documents will be hosted on the Intranet, and will be accessible to all UMD Libraries staff for maximum transparency of policies and services.
- *Internet, DSS Blog*: Share short stories about projects, services, and accomplishments with the Libraries and other external communities.
- *M Drive*:
  - Shared Projects: Request restricted shared folder as collaborative workspace though helpdesk when working across Libraries departments.
  - Information Technology/Digital Conversion and Media Reformatting: Workspace for DCMR staff; allows access to other DSS managers and Special Collections Digital Collections Librarian
  - Collection Management and Special Collections/Special Collections/Digital/Scanning Orders: Delivery space for Special Collections staff
- *R Drive/FTP*: Request delivery space
- *Basecamp*: Communication tool for collaborative, long-term projects
- *JIRA*: Communication tool for task management and error reporting
- *Special Collections Collaborative*: Primary presentation venue for DCMR to introduce new policies, procedures, and services to Libraries staff.
- *Meetings*: Collaborative opportunities to begin and discuss projects; try to keep to 1 hour or less.
- *DCMR Project Portfolio*: Method of sharing active and potential projects with DCMR, DPI, DSS, and other stakeholders.
- *Skype/Lync*: Chat tools used for communication between DCMR staff for immediate response or for scheduled virtual meetings.
- *Adobe Connect*: Tool for scheduled virtual meetings.

## **Copyright and Access Policy**

The policy pre-dates a Libraries' Copyright Policy. If such policy exists, it should have precedence over this policy.

When digitizing for preservation or access, all copyright laws must be followed. UMD Libraries will exercise all due diligence in serving its students, employees, and the general public within the accommodations made by copyright laws for research, educational, library, and archival uses of copyrighted materials.

UMD Libraries must balance its mission to provide access to its holdings with legal and ethical restrictions on access. Delivery and usability of time-based media falls within a contested and constantly evolving legal landscape. UMD Libraries must be proactive in advancing its mission and its commitment to access while at the same time abiding by legal and ethical constraints.

UMD Libraries will abide by use under the copyright of commercially-released and published materials, copyright and use agreements under donor agreement and deed of gift forms, and will seek to clarify and prove copyright of orphan works and public domain materials. Content managers should provide copyright documentation to DCMR when developing project plans and metadata.

Content managers are responsible for seeking out copyright and acquiring licensing when possible, to achieve the most open access permissible for a given digital object. DCMR, Digital Programs and Initiatives, and other Departments within DSS will be responsible for ensuring that the access in the digital collections repository meets the access and format restrictions of license agreement. Content managers are responsible for ensuring that works licensed to be accessible through the digital collections repository are not accessible in other means that would go against the license agreement. Content managers are encouraged to work with campus legal counsel.

When digital objects are not in the public domain and are not licensed, the digital object will be accessible through the digital collections repository to a limited audience. Access will be restricted to campus and division, as if the user is viewing the original object, and will be moderated by the content manager.

The content manager will manage permission request for use and reproduction.

See Appendix D for copyright decision tree.

## **Digital Surrogates Policy**

### ***Request***

Digital surrogates of all formats will be coordinated through the Digitization Center when requested by librarians, curators, Libraries staff, and patrons, including University of Maryland faculty, staff, and students, individuals from other institutions, commercial entities, and individual researchers. Digital surrogates of select formats will be created in-house; others will be outsourced.

All images will be provided as JPG files at an optimum resolution specified by the Best Practice Guidelines for Digital Collections at the UM Libraries. Other file formats, such as TIFF or PDF, can be requested through the librarian or curator and subject to their approval, as well as the feasibility of the Digitization Center to provide the requested format.

All audio files will be provided as MP3 files at an optimum resolution specified by the Best Practice Guidelines for Digital Collections at the UM Libraries. All video files will be provided as MPEG-4 files at an optimum resolution specified by the Best Practice Guidelines for Digital Collections at the UM Libraries. Other file formats, such as WAVE, MOV or MPEG-2, can be requested through the librarian or curator and subject to their approval, as well as the feasibility of the Digitization Center to provide the requested format.

Librarians and curators will conduct their patrons to use the appropriate forms and procedures within their divisions to request digital surrogates.

### ***Use***

Digital surrogates are expected to be used in lieu of fragile material that cannot be handled, except in circumstances approved by librarians or curators. Digital surrogates will be used in lieu of original audiovisual media playback, to preserve the original, unless the Digitization Center cannot meet this need in the time allotted for the request, and the original can be played without damage.

Librarians and curators will conduct their patrons to use the appropriate forms and procedures within their divisions to use digital surrogates, including informing the patron of intellectual property, copyright, and restrictions for each surrogate. It is the responsibility of the requester to obtain the permission of the individual or entity that controls the intellectual property residing in the item or items to be copied prior to the initiation of any order for digital surrogates, when appropriate. Permission is not required for materials that are in the public domain, but citation is preferred.

## Digital Object Retention, Storage, and Distribution Policy

### *Digital Object Retention and Storage*

#### **Online Backup and Temporary Storage and Management**

DCMR facilitates access to digitized materials by filling requests from staff throughout the UMD Libraries. Once materials are digitized, they are either a) selected for permanent retention, or b) kept for a temporary time period and then discarded once they have been distributed to the appropriate customer.

#### ***Group A***

Files in Group A are saved as high-resolution archival master files in sub-directories corresponding to the owning repository of the original item in Backup storage. The master files will be permanently retained. Master files for the month three months before the current month will be archived monthly. Requests for master files may take up to a week to fulfill.

Derivative files from Group A are added to the digital repository. The files may be downloaded via the UMD Digital Collections administrative interface.

#### ***Group B***

Files in Group B are saved in another directory. Within the directory, files are organized into temporary sub-directories according to the date of the patron request. Files will be retained for six months, after which they will be deleted. It is the responsibility of requestors to ask DCMR staff for backups of these items, or to save them in an alternate location before the six-month deadline.

#### **Online Dark Storage**

Separate storage on the UMD Fedora server is used to store high-resolution derivative audio files to increase access to these files.

#### **Offline Storage**

Once a month, DCMR staff move files from Group A to another directory for archiving. Digital Programs and Initiatives staff create a directory listing and checksum, and work with the DSS Helpdesk to archive the files to tape at UMD DivIT. Once this is completed, DPI staff check the checksums, and DCMR staff delete the files once they are confirmed.

### ***Policy on Distribution of Digital Objects***

#### **Downloading Files**

UMD Libraries staff with access to the UMD Digital Collections administrative interface may download high-resolution derivatives without a request to the Digitization Center.



### **Compiling Patron Orders**

The Digitization Center will facilitate delivery of digital files to patrons for digitization request orders. Requests containing files that were digitized for another purpose or as part of an earlier order must be compiled by Libraries staff, or requested as a new request.

### **File Delivery**

DCMR provides several method for file delivery including:

#### ***FTP***

FTP is used as an alternative to CD or DVD because it can transfer large files, and can provide almost immediate transfer. Instruction service is available.

#### ***CDs/DVDs***

Most UMD Libraries computers are equipped with the capability to create CDs/DVDs. The Digitization Center will provide CDs/DVDs as a delivery format for on-demand requests if this is listed on the request form.

#### ***LAN***

DCMR can provide files to library staff via the LAN if the location is listed on the request form.

#### ***Online Distribution and Access***

Online, low-resolution digital surrogates are available for access through UMD Digital Collections and the Internet Archive. Online access is dependent on the copyright permissions and restrictions, and the licensing of the materials. The levels of access include:

- Publicly available to whole world
- Restricted to on-campus use, or off-campus through VPN log-in
- Restricted to specific library, or computer IP addresses
- Uploaded to repository, private, access through handle or streamer URL
- Uploaded to repository, private, staff access only

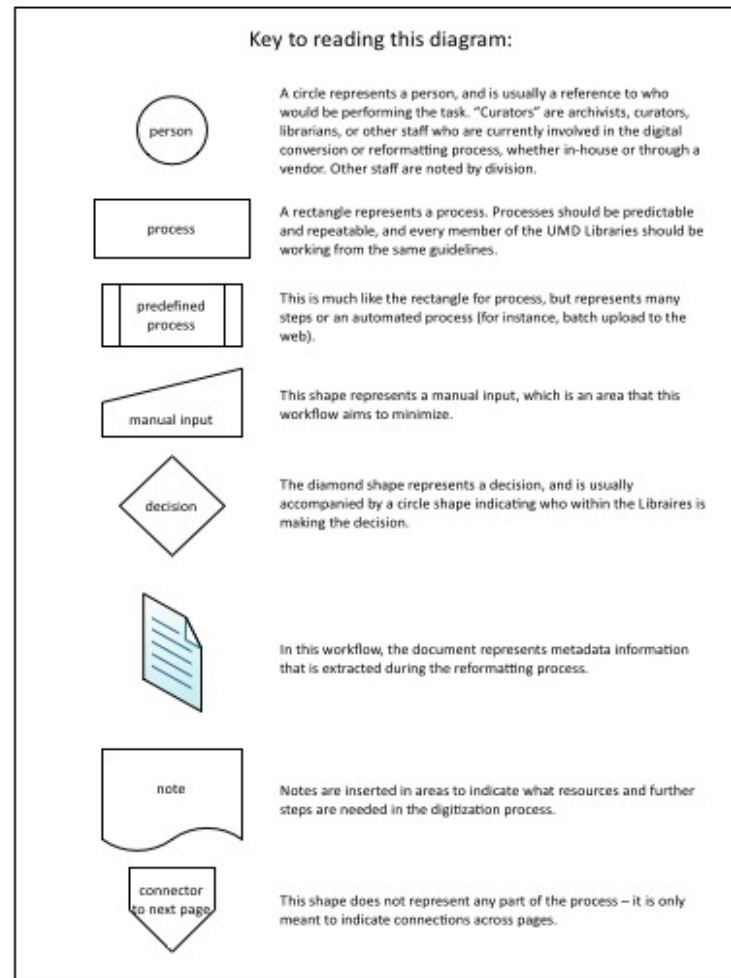
UMD Libraries is committed to make digital surrogates as accessible as possible to the broadest community possible.

## Appendix A: On-Demand Workflow

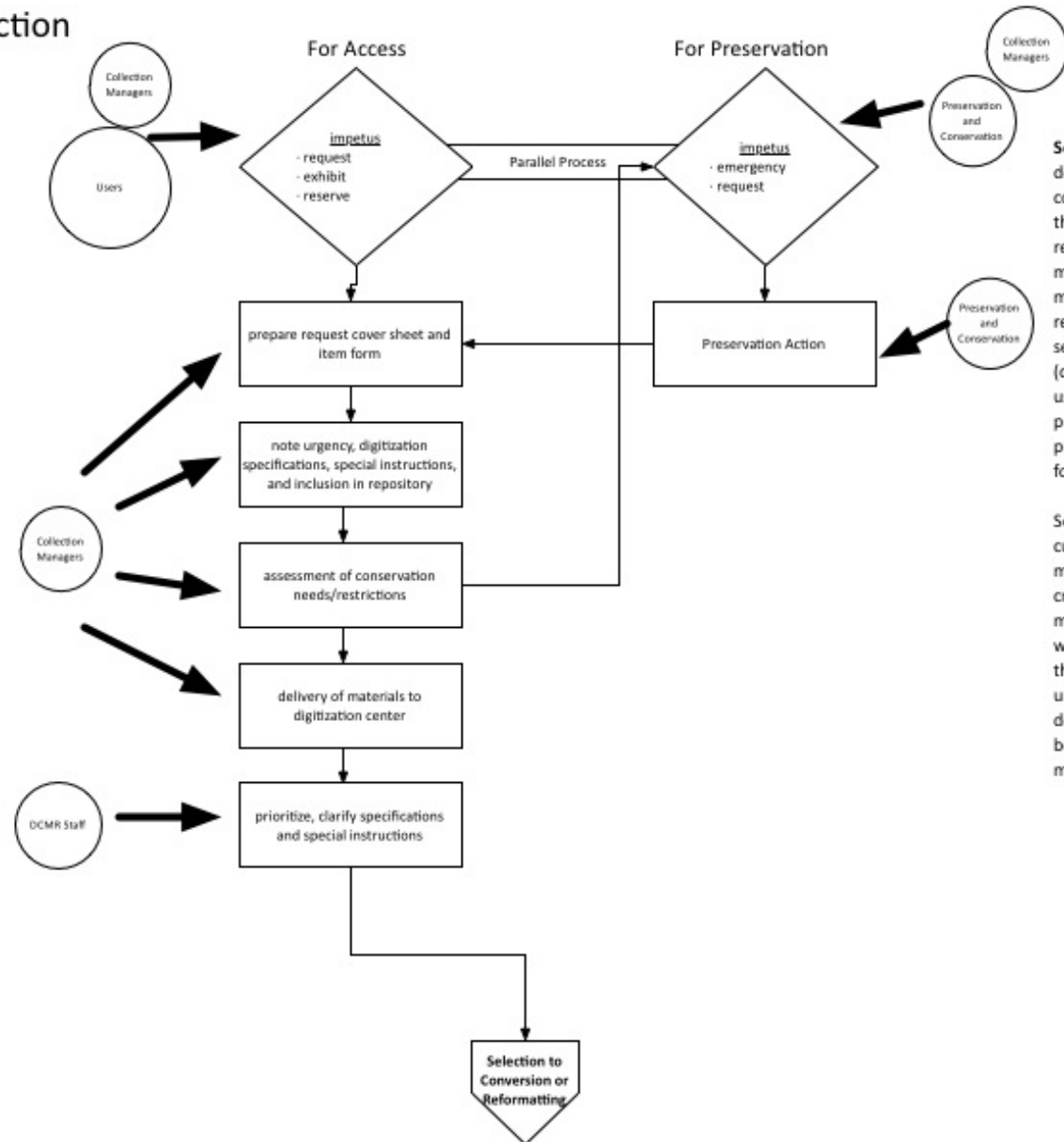
### UMD Libraries On-Demand Digital Conversion and Reformatting Workflow

The **aim** of this document is to provide an overview of the steps required to perform conversion and reformatting in a centralized facility across several Libraries. It is intended to be a general outline of the process and to be a visual guide to the collaborative services required for a successful digitization program.

To effectively create a sustainable workflow, we will invest in a centralized **infrastructure** of the conversion and reformatting efforts, standards, and technologies.

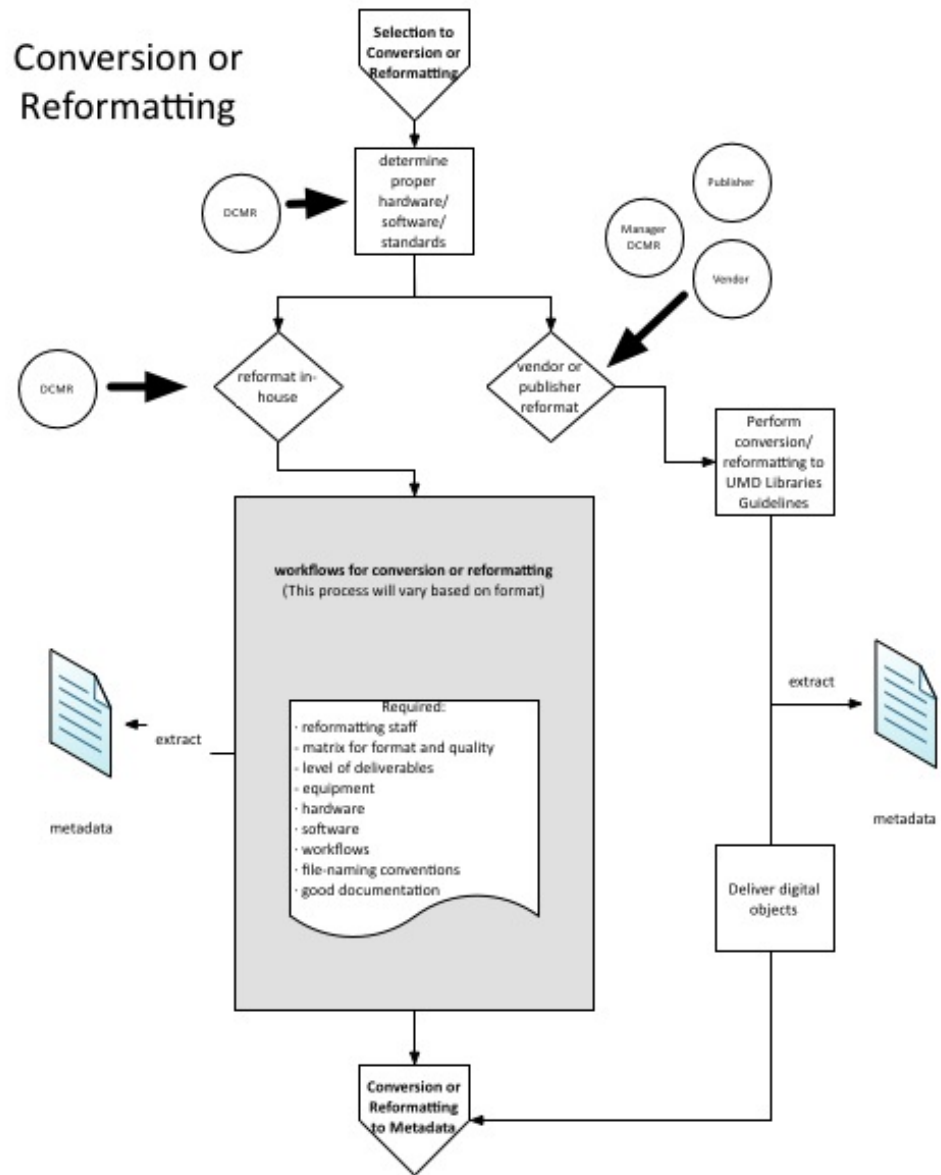


### Selection



**Selection** is the process of determining which objects should be converted or reformatted, ensuring they meet requirements for digital reformatting, and devising and managing a system to keep track of materials that are being sent off to be reformatted. Two typical paths for selection are detailed: access (digitizing material primarily to give users access to its content) and preservation (digitizing material primarily to ensure its survival in some form).

Selection should be handled by curators, though the Head of DCMR may provide assistance with applying criteria for identifying suitable materials (such as copyright status, whether materials of like formats or theme across Libraries can be digitized under the same project, or determining if existing metadata can be repurposed to speed descriptive metadata creation).



**Reformatting** is the process of making materials available in new ways. This may include scanning photographs to make them digital images, processing reel-to-reel tapes to make them digital audio recordings, or turning microfilm into digital images, among many, many examples.

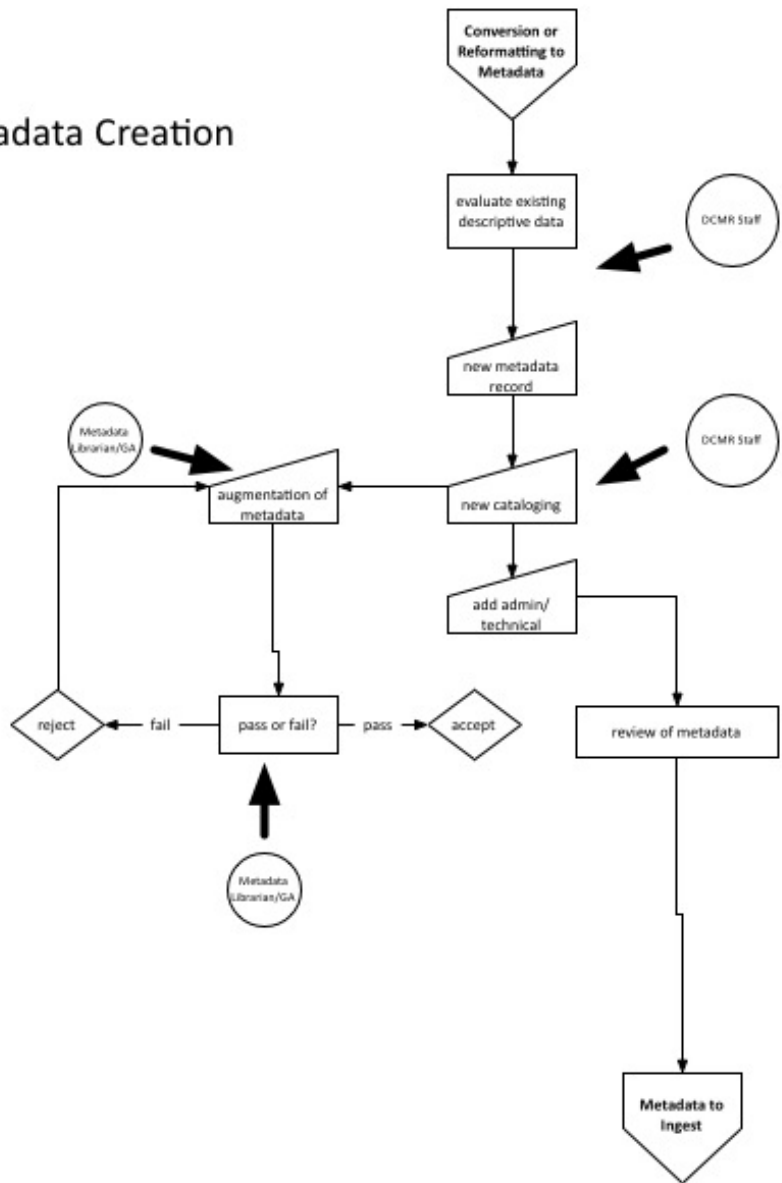
Reformatting requires precision and care, and must be performed by highly-trained professionals. The idea is to only perform this expensive function once, and to do it properly.

During the reformatting process, information about the images (technical metadata) may be extracted for future preservation use.

Member institutions possess various equipment and software for reformatting, but all members reported that they have no dedicated staff responsible for doing the work of reformatting. Note that we have included "reformatting staff" in the requirements for establishing workflows for reformatting.

To be successful, it is crucial that we invest in establishing standard procedures for handling various types of material, whether the reformatting production happens in-house, within the consortium, by a vendor, or by a WRLC reformatting specialist.

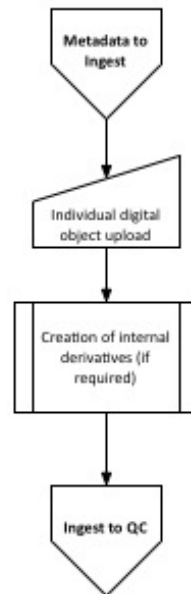
### Metadata Creation



**Metadata creation** is the process of creating, repurposing, and managing information about digital objects to allow users to access and identify them and to allow libraries to be effective stewards of digital material. Creating new descriptive metadata is often the most time-consuming part of a digital workflow. Curators and their staff should undertake their own descriptive metadata, which will make the DCMR services more economical, more efficient, and provide an opportunity to build knowledge expertise in-house. This metadata will be created under guidelines created by and reviewed by metadata experts in TSD.

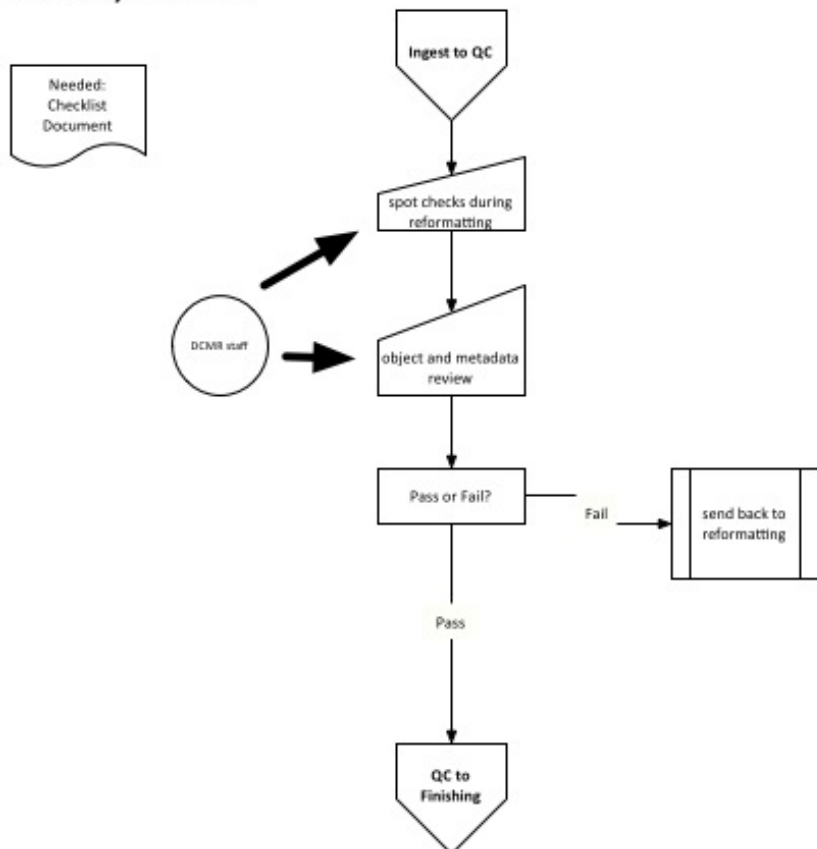
In addition to descriptive metadata, it's important to capture and manage machine-generated data, such as technical metadata, as well as preservation and rights metadata.

## Ingest into Repository



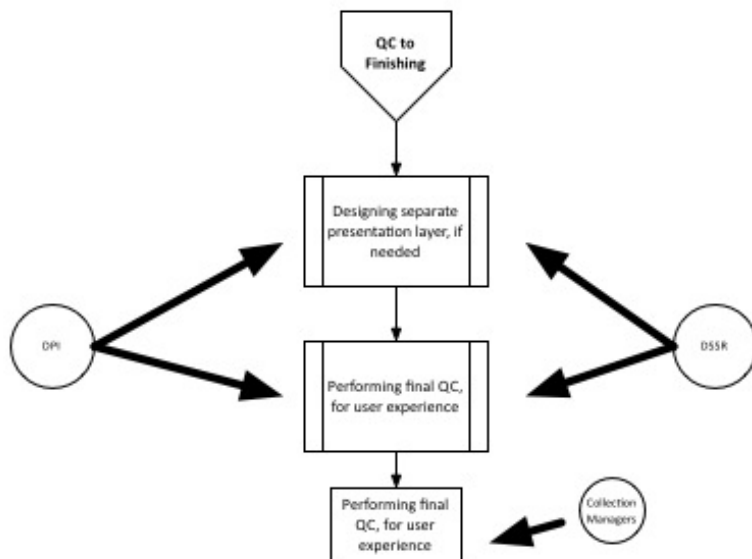
The final stage is **loading content into the repository**. Ingesting digital objects from a centralized conversion and reformatting workflow will ensure consistency and efficiency, and a cost-effective process. By avoiding excessive customization, we can keep down production and maintenance costs, as well as the time spent to get collections online.

### Quality Control



**Quality control** is the process of verifying the accuracy of conversion or reformatting. Some routine spot checks are performed by the trained reformatting staff, followed by a more comprehensive review by curators, and possibly additional DCMR staff. A standard QC checklist will assist with this stage. The curators will either accept or reject the deliverables based on their own review.

## Finishing Digital Objects



This stage describes the process of **pulling together the digital object files** into a package that can be loaded into the repository. To make this process easy and consistent, we need a tool for extracting technical metadata and ingesting it.

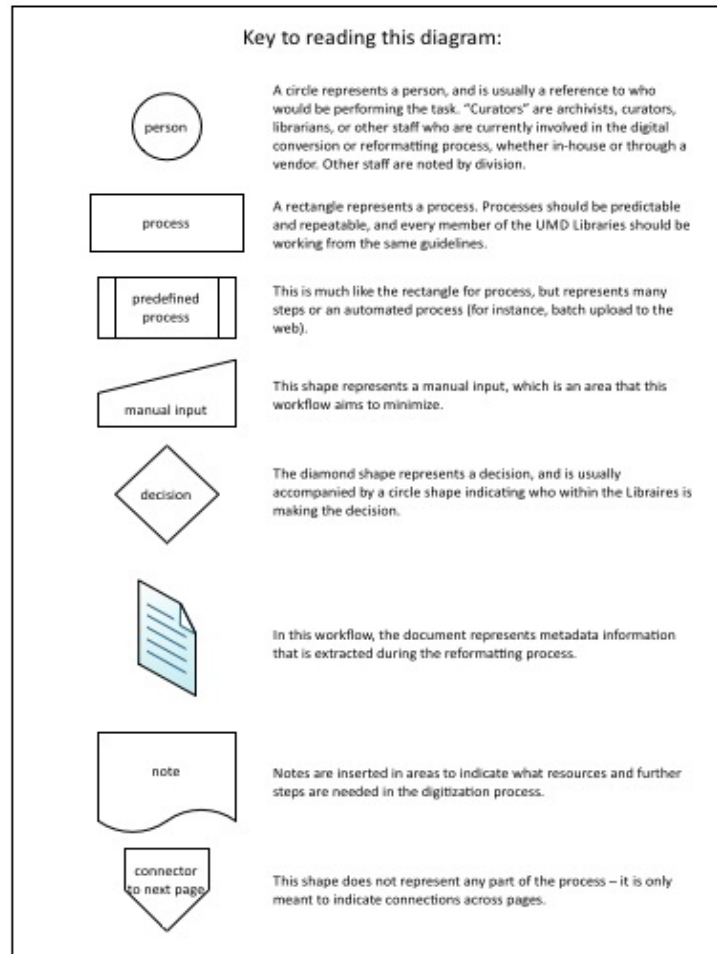


## Appendix B: Project-Based Workflow

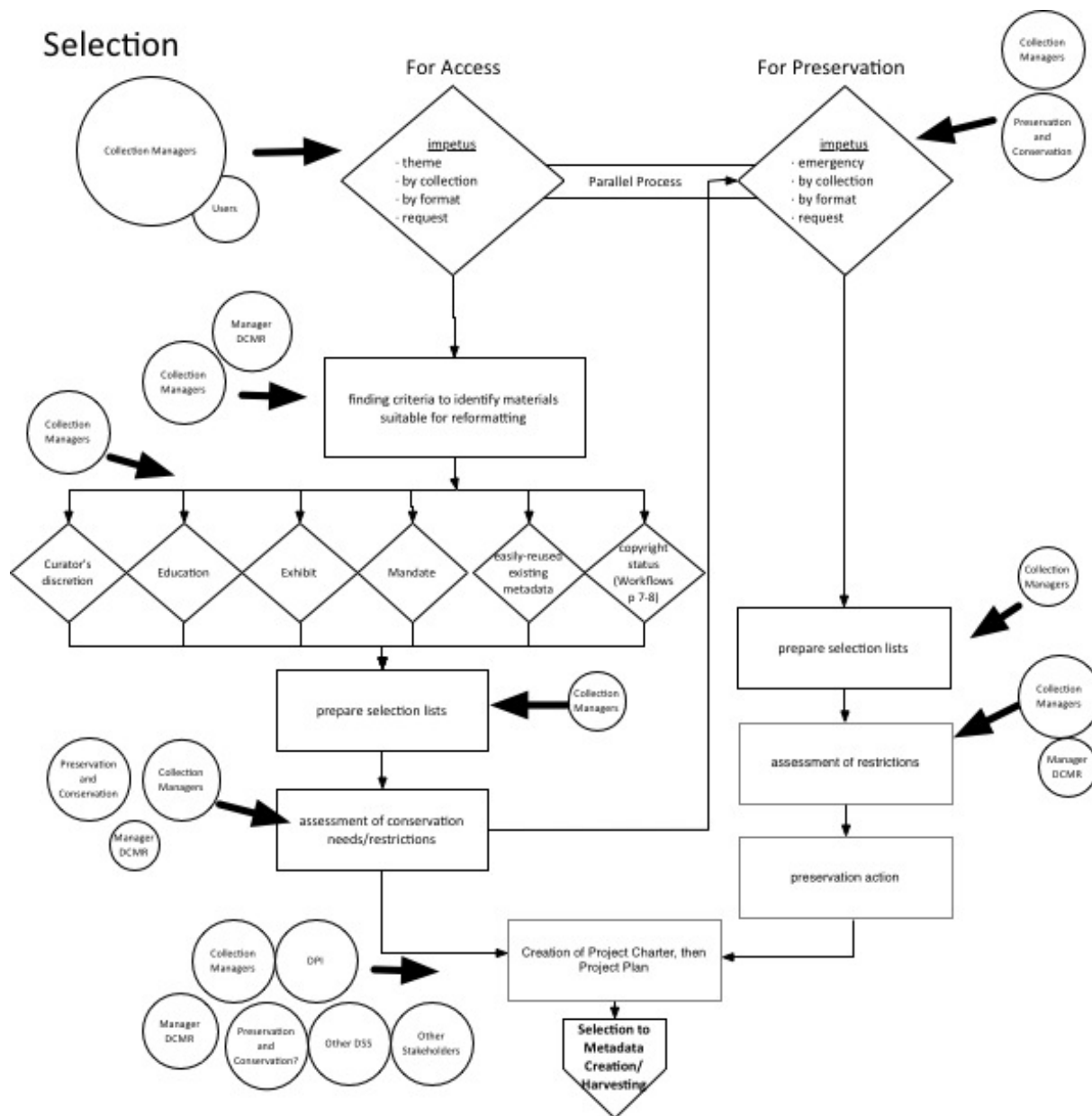
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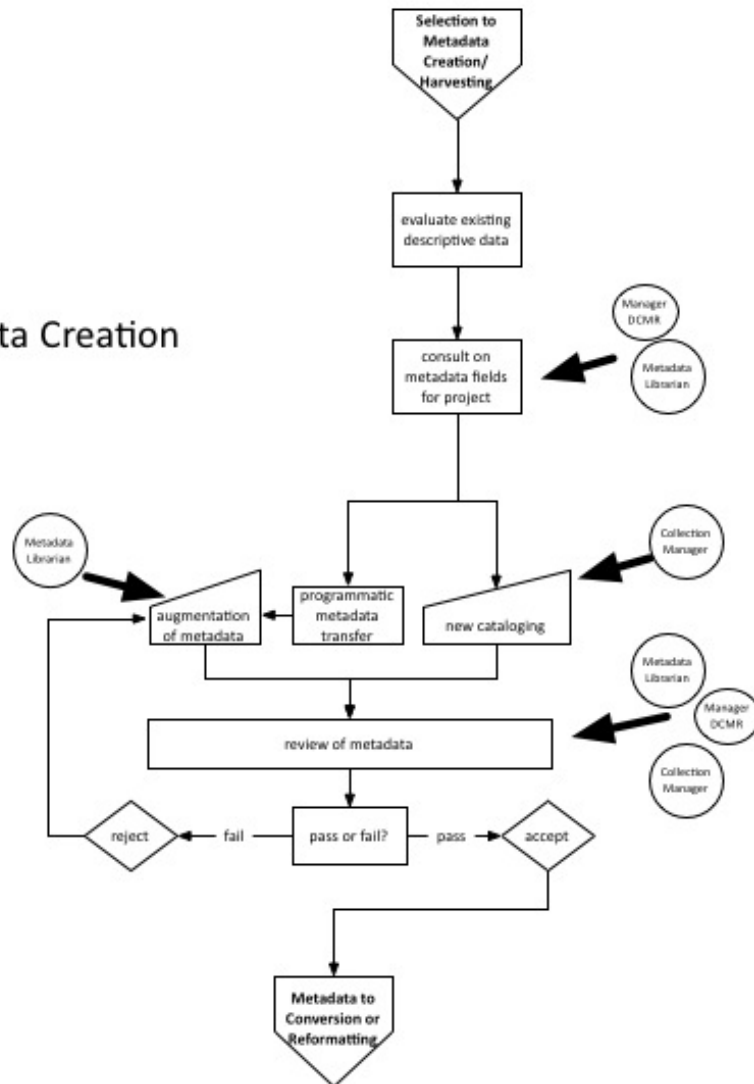
# Digital Conversion and Media Reformatting Department, University of Maryland Libraries



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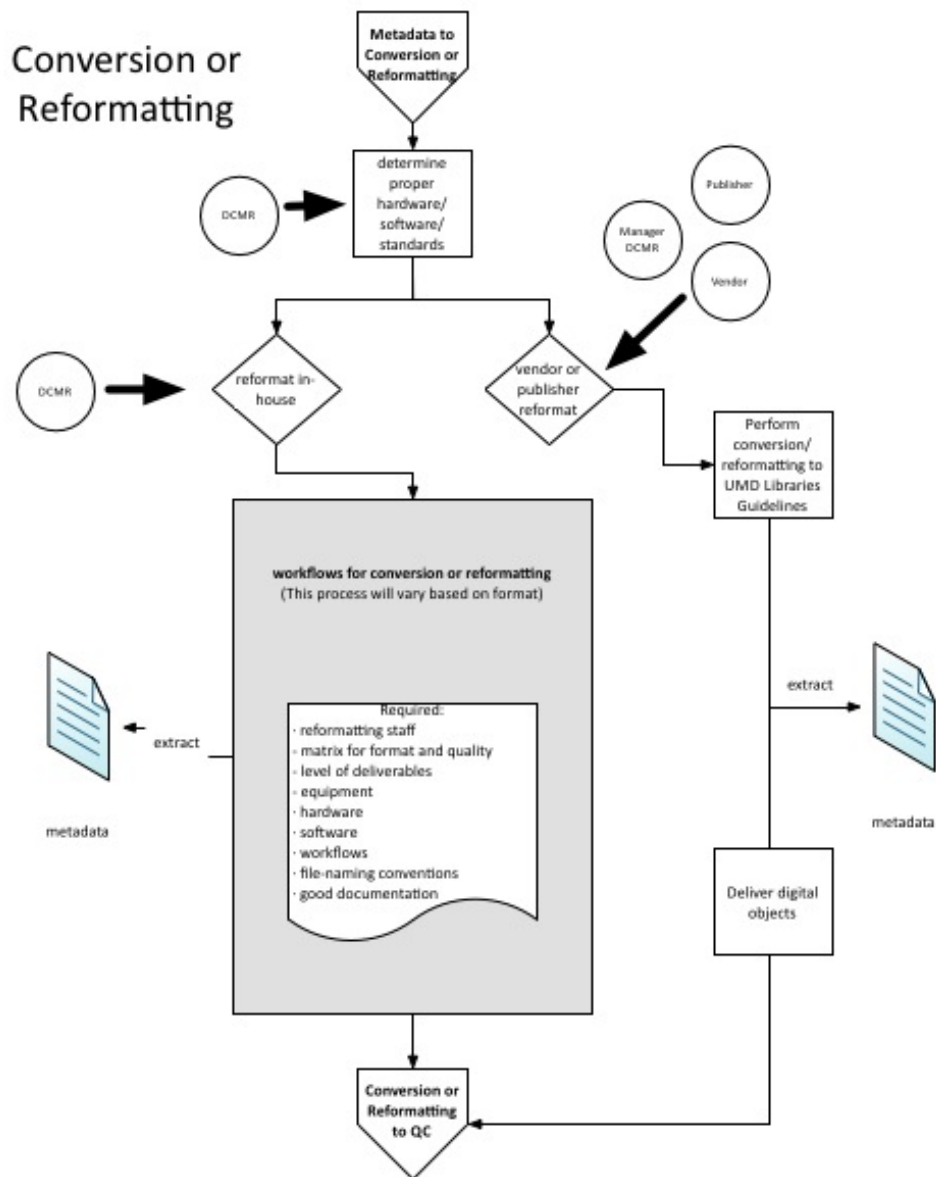
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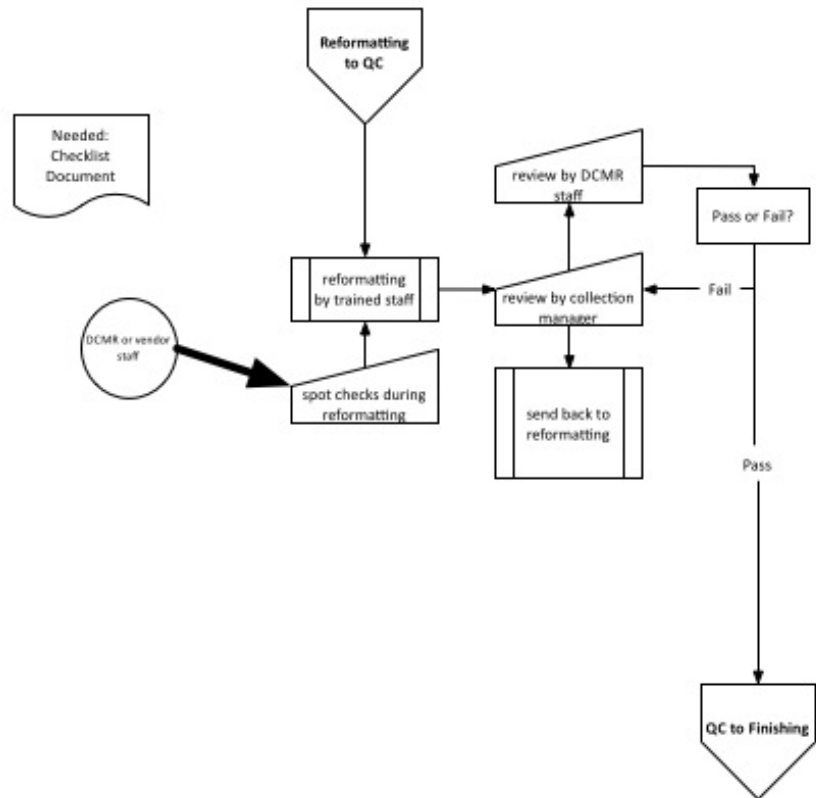
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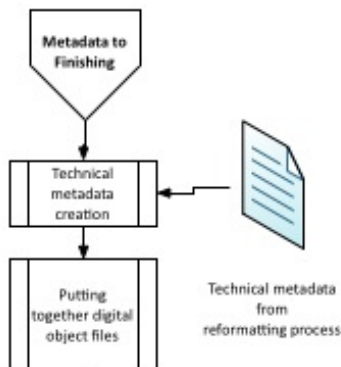
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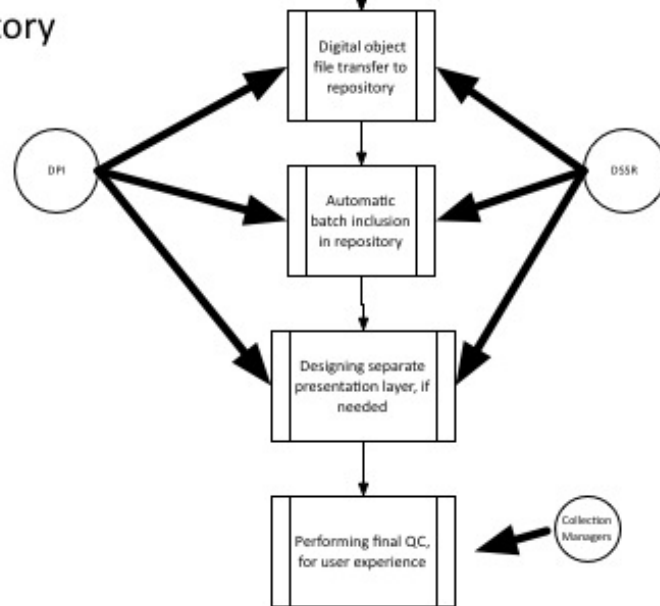
### Finishing Digital Objects

Needed:  
Technical Metadata  
Creation Tool



This stage describes the process of **pulling together the digital object files** into a package that can be loaded into the repository. To make this process easy and consistent, we need a tool for extracting technical metadata and ingesting it.

### Ingest into Repository



The final stage is **loading content into the repository**. Ingesting digital objects from a centralized conversion and reformatting workflow will ensure consistency and efficiency, and a cost-effective process. By ingesting digital objects in batch processes and avoiding excessive customization, we can keep down production and maintenance costs, as well as the time spent to get collections online.

## Appendix C: Equipment and Software in the Hornbake Digitization Center, 2010

DCMR possesses the following equipment, hardware, and software in the Hornbake Digitization Center, for the production of preservation-level digital files.

### *Text and Imaging Hardware*

Type	Manufacture	Model	Quantity
Computer	Dell Windows PC	Optiplex 960	4
Computer	Dell Windows PC	Precision T5500	1
Scanner	Epson	Expression 10000XL with transparency attachment	3
Scanner	Epson	Expression 10000XL	1
Scanner	Epson	Perfection V700 with transparency attachment	1
Scanner	Zeutschel	OS 12000	1
Camera	Canon	Rebel T2i EOS 550D DSLR	1

### *Text and Imaging Software*

Type	Product	Version	Quantity
Scanning	Epson Scan		4
Scanning	Omniscan 32-bit	12.2	1
Scanning	SilverFast Ai	IT8	4
Image Editing	Adobe Photoshop	CS5	4
Image Editing	Adobe Photoshop	CS6	1
Compilation	Adobe Acrobat Professional	9	5

### *Audio and Moving Image Hardware*

Type	Manufacture	Model	Quantity
Open Reel	Otari	MX-5050 BIII/2	1
Open Reel	Otari	MX-5050 BII	1
Open Reel	Studer	A807	1
Open Reel	ReVox	C270	2
Cassette Deck	Denon	DN-770R	1
Cassette Deck	Tascam	112R	2
Cassette Deck	Tascam	112B	1
Cassette Deck	Teac	V-285CHX	1
DAT Deck	Tascam	DA-302	1
DAT Deck	Sony	PCM-7010	2
ADAT Deck	Alesis	Blackface	2
Minidisc Player	Sony	MDS-B6P	1
Cartridge Player	Dynamax	CTR10	2
Cartridge Player	Delta	Unlisted	1
Analog Mixer	Tascam	M-108	1
Audio Interface	RME	Fireface UCX	2

**Digital Conversion and Media Reformatting Department, University of Maryland Libraries**

Patchbay	Switchcraft	Studio Patch 9625	1
Video Patchbay	Trompeter Electronics		1
Audio Level Meter	Dorrough	40-A	1
Sample Rate Converter	Alesis	AI-1	1
Stereo Audio Meter	Tektonix	760A	8
Headphone Amp	Behringer	MA400	2
Headphones	Behringer	HPS3000	8
Speakers (set)	M-Audio	AV-40	1
Power Conditioner	ETA Systems	PD8L	1
Power Conditioner	Furman	M-8Dx	3
Computer	Apple	Mac Pro	3

***Audio and Moving Image Software***

<b>Type</b>	<b>Product</b>	<b>Version</b>	<b>Quantity</b>
Digital Audio Workstation	Adobe Audition	CS6.0	3
Digital Audio Workstation	Logic Pro	9	3
Digital Audio Restoration	iZotope	RX3	2
Non-linear Editor	Adobe Premiere	CS6.0	3
Digital Video Capture	CatDV Live Capture Plus	2.2.0	1



Appendix D: Copyright Decision Tree

