

Digital Services & Technologies

ANNUAL REPORT 2019-2020

MISSION

The mission of the Digital Services and Technologies (DST) Division is to provide technical support and technical infrastructure to UMD Libraries' employees and patrons, enable and support the Libraries' Web presence and online user interfaces, and enable management of UMD Libraries' digital assets in all formats and media. To meet its mission, the division conducts policy and strategic planning, and launches and/or coordinates digital initiatives and programs in collaboration with other divisions in the UMD Libraries and across the campus. DST also monitors and evaluates emerging technologies and trends, and deploys those technologies when suitable.



Organization

Software Systems Development & Research

We configure *Software* for server based applications, operate backend *Systems* infrastructure, *Develop* software for applications and their integrations, and *Research* software systems to support future services.

Digital Programs & Initiatives

The Digital Programs and Initiatives (DPI) department facilitates and coordinates the creation, acquisition, discovery, and preservation of digital assets in support of the mission of the UMD Libraries. This highly collaborative work spans several interrelated programs – digital library systems management, research data services, digital repository management, and digital curation.

Digital Services & Technologies

Digital Conversion & Media Reformatting

Digital Conversion and Media Reformatting (DCMR) manages digitization and conversion operations throughout the Libraries, performing in-house operations and managing vendor-based projects. This department creates and advises on consistent standards and best practices for file formats, quality standards across various media types, and the development and management of workflows impacting digitization.

Consortial Library Applications Support

Consortial Library Applications Support (CLAS) is the driving force for efficiency and effectiveness in the University System of Maryland and Affiliated Institutions (USMAI) Library Consortium. We provide technical support for the shared systems and initiatives of USMAI and its 17 member libraries, including UMD Libraries. Primarily, this includes systems support for core library operations at member libraries, support for consortial services, and support for communication and collaboration within USMAI. Shared systems include Aleph, SFX, and EZproxy among others.

User & System Support

The User and Systems Support (USS) department provides day-to-day technical support to various divisions and units at UMD Libraries and to the Libraries' broad customer base, which includes faculty, staff, and students. USS also manages the technical infrastructure at the Libraries, including servers, desktop and laptop computers and networks, and provides system administration and user support services to the broader communities of the University System of Maryland and Affiliated Institutions (USMAI) Library Consortium.

DIGITIZATION (Past-year total)



**75,000 pages/
images**



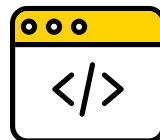
**1,200 hours
digitized**



196.6 Terabytes

of unique digital materials managed.
This number was about 1 Terabyte in 2011

OPEN SOURCE CODE



38,578 files

3,582,401 lines

of open source code available from our
GitHub organization, representing both
current and archived applications

SUPPORT REQUESTS FOR FY20



User Systems and Support

6058 requests

**Consortial Library
Applications Support**

1545 requests

DESKTOP AND LAPTOP SUPPORT

(On-going)



**500+ desktop
computers**

200 Staff (approx)
300 Public (approx)



**200+ laptops
computers**

60 Staff (approx)
140 Public (approx)

GRANTS



\$303,340

secured through grants.

Digital Curation

PRESERVATION ASSET MIGRATION TO THE CLOUD

UMD Libraries' staff collaborated to move nearly 200 terabytes of data from DIT's archival tape backup service to Amazon's Glacier storage service. In this process, we began development of a modern preservation asset tracking system, and eliminated millions of duplicate or unnecessary files. Many of the files in our digital archive represent the only digital version of our content in existence.

MIGRATION OF THE HEALTH EQUITY ARCHIVE

In 2019, UMD Libraries personnel collaborated to migrate the **Minority Health** and **Health Equity Archive**. An open resource led by Dr. Stephen Thomas in the UMD School of Public Health, the Archive promotes trans-disciplinary scholarship on race, ethnicity and disparities research designed to achieve health equity. In order to ensure long-term availability and stewardship of the project, we moved the project to DRUM with custom-developed migration scripts, and made user interface improvements to meet stakeholder needs.

DIGITAL COLLECTIONS REPOSITORY DEVELOPMENT

Archelon is the UMD Libraries' next-generation management interface for our unique digital collections. Built with open source tools from the digital repository community, the application enables staff across the Libraries to manage our digital library at scale, by allowing us to load, edit, and maintain content more efficiently than ever before. The project is also an essential piece of our efforts to enhance our digital infrastructure to support the needs of the UMD research community, and will play a key role in sustaining our digital library for years to come.



Technical, Data & Application Support

DATACENTER MIGRATION

The libraries' servers were moved to a high-security, temperature-controlled facility known as the **Cherry Hill Data Center** located in Silver Spring, MD. We chose the Winter Break for the time of the move since it would minimize disruption to the students and other Library services and resources. While working closely with DIT, coordinating movers, making decisions on how to limit downtime, and segmenting and expanding the network, DST cultivated many partnerships during this process. On the evening of January 10 we shut down the systems, de-racked the equipment, handed it off to the movers, and re-racked the systems in the new facility. Our team kicked into high gear and successfully met the move's deadline. We would like to thank DIT, Dell and everyone who helped to facilitate this migration.

BACKUP MIGRATION AND DISASTER RECOVERY PLANNING AND CONFIGURATION

We migrated the Libraries' data and file backup mechanisms to an in-house storage solution with an option to store a copy on cloud storage. This move will reduce the cost of storing our daily backups significantly. We also developed a disaster recovery plan and procedure for our systems and data, utilizing a 3-2-1 backup strategy for our Virtual Machines (VMs) infrastructure, where there are 3 Copies of our VMs, 2 on different media located onsite, and 1 located offsite in the cloud. This recovery plan was successfully used during our data center migration to bring critical applications back online as soon as possible.

SEARCH AND DISCOVERY IMPROVEMENT

In collaboration with the Discovery Committee, we released a beta version of the **new search tool**, which provides library patrons an intuitive, bento-style way to find the information they need while also helping them understand the different research tools the library offers.



Projects

MORPHIC PILOT

Morphic is a tool developed by iSchool and iSchool's Trace center, which makes computers more accessible and easier to use. The UMD Libraries collaborated with iSchool to make Morpheic available on Library computers as part of a pilot project. DST employees wrote programs to automatically deploy and install Morpheic onto over 270 computers. We worked with the Morpheic team to properly configure that tool so it installs successfully on our computers. The tool was successfully installed and was tested on our public computers.

AUTOMATION OF INTERNAL OPERATIONS

>> Application Infrastructure Improvements


In order to decrease maintenance and server costs, we continued migration of many of our applications to Docker container deployment in Kubernetes, replacing our current model of a single Virtual Machine per application.

>> Desktop Support Automation

Managing over 800 public desktop and laptop computers requires a lot of re-imaging and system configuration. We developed a set of scripts to streamline pre- and post-imaging steps. A goal was to also make our re-imaging workflow more seamless. Automating our imaging processes made the tasks easier for staff to perform, made them less error prone, and significantly more efficient. These automation efforts increased productivity and resulted in a shorter turn around time for our loaner program to have laptops ready for students to use. These new measures also enabled automation of license activation and installation of other software needed by students.

>> Account and Authentication Management

In order to increase security and decrease maintenance of user accounts and privileges, we continued migrating our applications to the latest DIT recommended authentication and authorization tools for websites, including Single Sign-On with Multi Factor Authentication and Grouper for authorization management.



Morphic
Makes computers
easier

Discover settings & features that make computers easier to use. Morpheic will save your settings & apply them whenever you use the library computers.

Digitization

DIAMONDBACK AND STUDENT NEWSPAPERS

Funded by a combination of crowd-sourced fundraising and Library funds, we have digitized the **Diamondback newspaper** from 1910-2016 and multiple minority student titles including **Black Explosion**, **Eclipse**, **Mitzpeh**, **Asian Voice**, **14%**, **15%**, **Public Asian**, **Expression**, **La Voz Latina**, **Hanoori**, and **Ha-Koach**, titles spanning 1970s-2013. This has been UMD Libraries' part of an effort to put more diverse student perspectives online. Issues are available via the UMD Student Newspaper database: lib.umd.edu/univarchives/student-newspapers. Titles not yet online were digitized in 2020 but are not yet available online due to Covid-19 delays.

MARYLAND PUBLIC TELEVISION ARCHIVE

As part of an initiative to make regional public television content freely available on the Web, we have worked for the past three years with **Maryland Public Television** (MPT) to digitize a portion of their archive containing series produced by MPT, spanning from 1970s to 2010s. The latest and largest installment went online in spring 2020, totaling 734 online videos. This project was funded primarily by the UMD Libraries, though MPT seeks to fundraise and digitize more of their archives in the future. archives.lib.umd.edu/repositories/2/resources/501

KATHERINE ANNE PORTER CORRESPONDENCE

In 2014, 2016, and 2019, we digitized approximately 10,000 pages of correspondence from the **Katherine Anne Porter correspondence**, between 1912 and 1977, a collection of letters and other written exchanges between the famous writer and her family and friends. Some of the collection is now available at digital.lib.umd.edu, and more will be available soon. This project was funded by the Katherine Anne Porter Literary Trust.



Projects

US AGRICULTURAL INFORMATION NETWORK

Funded by the Center for Research Libraries, Project Ceres Preserving the **History of Maryland Agriculture and Rural Life** will digitize and put online over 20,000 pages of historic agricultural publications published by the University of Maryland. These publications will go online in the Internet Archive (archive.org) later in 2020 and contribute to a larger national project under the US Agricultural Information Network.

DANCE EXCHANGE

Funded by the National Endowment for Humanities, we worked with MSPAL personnel on the **Preserving and Presenting the Past, Present, and Future of Dance History: Digitizing the Liz Lerman Dance Exchange Archives** project. This project digitized over 1,125 videotapes including rehearsal and performance footage, interviews, and promotion material from the Takoma Park, MD company, The Dance Exchange, and 134 paper programs of the performances. We had to make adaptations during Covid-19 closures for changes in vendor schedules and how to transfer the large volume of files. Staff are currently describing all the files so they are findable in our database. Files will be ingested to be available online in spring 2021.

HISTORIC MARYLAND NEWSPAPERS PROJECT

The **Historic Maryland Newspapers Project**, funded by the National Endowment for the Humanities, concluded its fourth phase. This project has been awarded a total of \$1.129M and has produced over 400,000 digital newspaper pages over the eight-year project. We partnered with over a dozen institutions who have contributed content to digitize newspapers published across the State of Maryland, from the 1800s to 1963. The fourth phase focused on documenting underrepresented communities, particularly immigrant communities, and digitized papers in German, Polish, Czech, and Italian, and from regions where industries relied heavily on immigrant workers, such as Western Maryland. Another highlight from the fourth phase is the *Maryland Suffrage News*, a paper published by and for women regarding the local impact of the suffrage movement in the early 20th century. All the newspapers are freely available via [Chronicling America](https://chroniclingamerica.loc.gov), hosted by the Library of Congress:



chroniclingamerica.loc.gov, and are part of a larger national project, the National Digital Newspaper Project which seeks to digitize newspapers from every state, territory, and the District of Columbia.

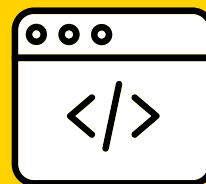
Consortial Support

USMAI DATA WAREHOUSE

The **USMAI Data Warehouse (DW) Reporting Environment**, which provides self-service reporting in select areas, was released in October 2019. The Reporting Environment is implemented using an application called “Jaspersoft”. It currently includes Aleph collections data and EZproxy session counts, with more reporting topics to come. This release was the result of a multi-year data warehousing effort that included very detailed profiling of selected data sources, designing and implementing the DW’s technical architecture, developing automated programs to transform and load data, setting up Jaspersoft, and creating trainings and documentation for library staff.

USMAI MEMBER PORTAL

The new **USMAI Member Portal**, which facilitates better communication and collaboration among the consortium and its member libraries, was released in December 2019. The Portal is implemented in Confluence, replacing the former multi-site USMAI web presence that used an unsupported version of Drupal. Implementing the Portal involved an analysis of the consortium's communication and collaboration needs, evaluations of several possible solutions, setup of Confluence, and the successful migration of more than 2,000 pages of content.

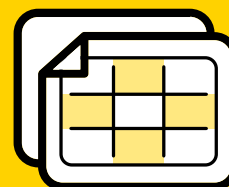


METADATA STEWARDSHIP Count of Items

(as of July 1, 2020)

10,910,896

(4,682,075 College Park only)



REPORTS RUN FOR FY20 In the USMAI Data Warehouse

1176

(106 College Park only)



LIBRARY STAFF USER ACCOUNTS Created in USMAI Member Portal in FY20

267

Covid-19 Service Response

FOR LIBRARIES STAFF

- >> Prepared 5 Internet Hotspots, 65 PCs and Macs, and numerous peripheral devices to lend to teleworking staff, GAs, and student employees and created 40 temporary Windows virtual machines for staff and students. They reconfigured on-campus computers to facilitate easier remote log-in from off-campus staff. They provided procedures and training to facilitate remote equipment use for successful telework.
- >> Coordinated with new and departing employees to configure and distribute or collect teleworking equipment through safe, no-contact interactions.

FOR CAMPUS COMMUNITY

- >> Responded to USMAI libraries' closing and reopening needs by reconfiguring Aleph, completing batch updates of item metadata and loan transactions, and for UMD, making over 2 million items available for curbside pickup and changing due dates for more than 73,000 loans.
- >> Proactively monitored and managed EZproxy to ensure the system could accommodate increased off-campus access by users.
- >> Partnered with DIT to lend out 83 Libraries laptops to students in need for Spring and Summer online classes. USS and DIT provided virtualized applications and desktop environments for students, faculty, and staff leveraging both Citrix and Windows Virtual Desktop, using the Libraries public desktop computer image.
- >> Redistributed and removed public computer workstations on McKeldin 1 and 2 to adhere to a separation of 6ft or more.



We would like to thank the UMD Libraries' Strategic Communications and Outreach Office for their help in editing and formatting this report and for improving it overall.