Laying the Groundwork for a Born-Digital Records Management Program

by Erin Gallagher and Katie Causier Howell

Abstract

Implementing a digital records management policy is especially difficult when the University Archives isn't sure which records may be at-risk. This paper describes a 2017 Atkins Fellow project to survey how the various departments at the University of North Carolina at Charlotte store their digital records. This project also included a proposed workflow which outlines the basic steps and details involved in ingesting files into a newly-built repository. While this project did not involve the transfer of digital records to the repository, it laid the groundwork for new policies and procedures to address concerns of both the University Archives and University departments.

Project Background

The University of North Carolina at Charlotte is an urban research university that currently serves nearly 29,000 students and employs over 3,000 faculty and staff members. Since 1970, when the first records retention and disposition schedules were written and approved for its use, there has been some form of records management program in place. Today, the responsibility for guiding and promoting the records management program lies with the university archivist, who works in Special Collections and University Archives (SCUA) in J. Murrey Atkins Library. This work is supported by a full-time records analyst in SCUA and through a close working relationship with the University's Office of Legal Affairs, especially the public records officer in that department.

In 2007, UNC Charlotte adopted the *University of North Carolina General Records Retention and Disposition Schedule* for use by all campus offices and departments.[1] The system schedule is based on the provisions of Chapters 121 and 132 of the General Statutes of North Carolina and is published by the Department of Natural and Cultural Resources. It guides the public universities in North Carolina on the proper retention and disposition for the public records

they create. The retention periods for scheduled records differ based on their subject matter, resulting in some records being transferred to the University Archives for permanent storage, while others are marked for destruction. This schedule is format-neutral and eliminates the need for specific record series for electronic records.

When the schedule was adopted by UNC Charlotte, it established a new mandate for SCUA to collect, preserve, and maintain the University's electronic records. However, at that time SCUA was not well-equipped to carry out this responsibility due to limited staffing and technological infrastructure. While paper records continued to fill the archives and off-site storage, an increasing amount of born-digital records was being independently maintained by the offices of origin.

By the 2010s, the university archivist was concerned that offices were maintaining born-digital records on unstable portable media or other storage devices, and possibly even deleting their records. In 2014, SCUA and Atkins Library Technology and Digital Strategies (TDS) developed and launched Goldmine, a preservation-quality digital repository built on the Islandora platform. With the newfound ability to appropriately store and preserve electronic records, SCUA staff members developed a plan to assess the state of at-risk born-digital University records.

In 2015, Atkins Library developed the Atkins Fellows Program, an eleven-week paid summer residential fellowship designed to provide participant fellows with professional-level work experience.[2] Library staff and faculty interested in hiring a fellow were required to submit a competitive project proposal to be approved by the selection committee. At that time, SCUA did not yet have a digital archivist on its staff, nor did it have a full-time staff member able to work with born-digital University records. SCUA staff hoped to hire an Atkins Fellow who could begin the work of assessing the state of digital record-keeping on campus.

The university archivist and the interim head of Special Collections (now associate dean of Special Collections and University Archives) submitted the digital records assessment project for consideration for the inaugural Atkins Fellow program. Their project was accepted and in the summer of 2015 a graduate student fellow was

hired for the project. The fellow's initial goal in the position was to conduct a pilot project to produce a workflow and processes for the future file transfer of electronic University records. Working with the university archivist and interim department head, she developed a brief five-question survey and sent it out to four high-level University offices: the Chancellor's Office on behalf of the Board of Trustees, Academic Affairs, the Graduate School, and Faculty Governance. The survey asked about the existence of born-digital records as well as their storage, extent, and file formats. Unfortunately, the survey did not generate enough meaningful responses to complete the pilot project, and so the work of the fellowship shifted to developing a more general outline for eventual file transfers and accessioning workflows, among other tasks.

In 2016, Katie Causier Howell was hired as the new university archivist for UNC Charlotte. Eager to move forward with collecting and preserving at-risk born-digital records, Howell formulated a revised plan to gather information about how departments were creating and maintaining these records. During the summer of 2017 she applied for an Atkins Fellow to carry out this plan and continue the work started by the previous fellow two years earlier. In May 2017, Erin Gallagher was hired as an Atkins Fellow with two primary goals. The first was to develop and implement a survey tool to gather information about University offices' born-digital records and record keeping practices. The second was to develop and draft procedures for the transfer and ingest of permanently valuable born-digital University records.

Survey

To gather the pertinent information concerning record keeping practices of University offices, Gallagher developed a survey to learn the content of their records, the context in which they were created, and how they were stored. The results of the survey were used to determine if any records were at-risk, as well as to determine the record keeping practices of the departments overall. To draft questions that would gather the appropriate archival information, she consulted the current *Digital Materials Donation or Transfer Form* used by SCUA, as well as donation forms used by other university archives and special

collections departments.[3] Additionally, she consulted the 2007 *General Records Retention and Disposition Schedule*, as the 2018 edition was under revision at the time.[4]

The final survey tool consisted of twenty-one questions, seen in Appendix A, that highlight which factors will be the most important when ingesting collections into Goldmine. The survey questions were grouped into six categories:

Introductory Questions and Contact Information

File Content and Context: The questions in this category provide insight into the types of files typically created by the departments interviewed, as well as understanding of the context in which those records were created. Considering this information, as well as the retention schedule, and SCUA's collecting interests, the university archivist can better advise departments on how to store and dispose of their records. Additional questions in this category offer an idea of the date and stability of the digital records, as well as their place within their respective time frames on the retention schedule.

Volume: The volume of digital records can affect how SCUA archivists may approach the transfer of records. This question was also important for this project, as the volume of digital records would affect the identification of a suitable candidate for the initial test ingest into the digital repository.

File Storage: To gain additional context on the types of materials created by the interviewed departments, the file storage questions inquire about the file extensions regularly used for department documents. With a variety of digital formats, SCUA needs to determine how to ingest and provide accessibility, as different formats may require different software, hardware, and processing. Additionally, this category of questions touches on file destruction, as this had been a concern for Howell and her predecessor. Without the guidance and regular records management required with paper records, Howell was concerned that departments would destroy digital records, rather than archive them.

Backup: The backup category of questions gathers information on how, or if, the departments were backing up their records, and if the departments might require assistance creating backups. This section includes questions on hardware failures, as University departments could be missing important files or need additional instruction on how to proceed.

Accessibility: Finally, the survey asks the interviewed departments about the accessibility of their records, including if any of the records were password protected, compressed, or if they required additional proprietary software to access. This information could affect not only the ability of future users to access the files, but also could affect SCUA's ability to access the digital records for preservation.

Once the survey tool was complete, Howell and Gallagher contacted six departments to conduct the initial face-to-face interviews. They chose to conduct the survey in person so that participating interviewees could ask questions or raise concerns they had about records management of digital records. Howell and Gallagher could respond immediately and engage in useful conversations about current practices. Five departments responded positively to the requests, while one department did not provide a response. The departments surveyed during the summer of 2017 were: the School of Nursing, J. Murrey Atkins Library Administration, the Graduate School, Student Union Activities and Recreation (SUAR), and Research and Economic Development.

Howell and Gallagher selected J. Murrey Atkins Library Administration and the Graduate School because their staff members had all recently undergone training on records management. They also chose to survey the School of Nursing due to its upcoming 50th anniversary, which would likely spark an examination of its records for notable and celebratory materials. Howell identified SUAR as an area of desired collection growth, as their records concern student organizations. The Research and Economic Development department was of interest as a participant because it already had a large body of paper records in the care of the University Archives, and their interview would determine if they had born-digital materials ready for transfer to the archives.

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Of the five interviews, four were conducted shortly after the completion of the survey, while one department was unavailable until the end of Gallagher's fellowship. Once Gallagher and Howell had completed the interviews, Gallagher formatted the responses in a spreadsheet for comparison across departments. The results gathered from the department surveys illuminated the level of record keeping literacy around campus. This information also helped determine what measures should be taken to aid the departments in keeping records and in determining the next steps of ingesting born-digital materials.

Results

The review of interview results revealed that a common thread among all of the departments was the use of cloud and network-based record storage. All five departments stored files on Google Drive, the chosen suite of UNC Charlotte, as well as internal shared networks. Dropbox was regularly used by two departments, and only one department noted use of external hard drive storage and continued creation and storage of paper records. The interviewed departments did not regularly use portable, unstable media as storage, as was a concern of the former university archivist.

Another concern raised by Howell's predecessor was that departments would delete the files that they felt were out of date. However, the results of the interviews showed the opposite to be true. Often, the participants noted that they refrained from deleting any digital records, from fear that they could prove useful in the future. At the time of the interviews, the Graduate School was the only department that actively employed an electronic records destruction policy, while Library Administration applied disposition to paper records only. The other departments interviewed did not actively destroy records, whether paper or digital.

Anecdotally, several of the interviewed participants weren't familiar with the University's retention schedule. This unfamiliarity could be due to the fact that without the imposing presence of physical records, these administrative offices were not consulting the university archivist as frequently as is recommended. The interviews themselves, and the act of reaching out to these departments, began the

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reintroduction of the University Archives and SCUA as a whole, and raised awareness of the University's records retention and disposition policies and procedures. Those unaware of the retention schedule were eager to learn about it and welcomed direction on how to better manage their records.

Once the survey was conducted with all the participating departments, Gallagher provided, as part of a stretch goal, a suggestion for which department would be a good candidate for a pilot transfer. Considering the close proximity and the previous communication on records management practices, she identified the J. Murrey Atkins Library Administration office as the best candidate of those interviewed.

Additional Materials

Once the majority of the interviews were complete, Gallagher shifted her focus to drafting procedures for transferring born-digital records to the repository. In addition to these procedures she created supplementary materials, some of which are a direct response to the record keeping questions brought up by the interviewed departments. She created other forms and guidelines based on information gathered from meeting with SCUA and TDS staff.

The draft of high-level procedures for the transfer and ingest of born-digital University records into Goldmine was organized into a proposal workflow. The proposed workflow draws from a variety of sources, including workflows published by MIT and Yale, SAA's *Accessioning and Ingest of Electronic Records Manual*, and the existing SCUA processes used to ingest materials into Goldmine.[5,6]

The proposed workflow, as seen in the appendix, categorizes the steps through four distinct stages in the processing of born-digital materials: pre-transfer, transfer, processing, and accessibility. Pre-transfer steps include the actions needed to determine the records management and transfer needs of the department, as well as the creation of metadata for the records to be transferred. The steps in the transfer section allow departments to explore ways that they can transfer their records to SCUA. The section also includes the first steps SCUA archivists should take upon receiving digital records. The processing steps involve creating additional metadata, descriptive information, and further

preparing documents for ingest into the repository. The final steps, under the accessibility section, involve providing the information and materials for public consumption.

While Gallagher wasn't able to fully define the individual procedures necessary to ingest University records into the digital repository, she designed an introductory, high-level workflow composed of common stages. The granular items within each stage indicate the actions and options that SCUA staff should take when processing born-digital materials. The suggestions put forth by this proposal can be refined and tested to provide a more comprehensive view of digital record ingest once those individual actions are fully developed. The goal for the proposed workflow was to provide a guideline that could evolve to better reflect the processes and tools used for ingest and accessibility as they become more defined. This document will serve as a useful tool as Howell and other SCUA members train additional staff and student employees to ingest materials into Goldmine. It is also a useful visual aid for explaining to campus records liaisons what happens to their department's records once they are transferred to the archives.

Through meetings with SCUA and TDS staff members, Gallagher and Howell learned about the existing workflows being used for non-University records such as manuscripts and oral histories. Once the materials and appropriate metadata are gathered, the metadata needs to be formatted into a schema that the Islandora platform can read. For efficiency, the staff ingesting digitized materials created templates to format the metadata into XML format, according to Metadata Object Description Schema (MODS). To aid future digital records processors with their accessions, Gallagher created an additional template to help format the relevant metadata unique to university documents and records. The template provides appropriate options for the types of records departments may need to ingest into to the repository.

The suggested template included minimally required metadata fields as well as additional metadata fields typically utilized for university documents and records. The *creator* and *role* fields are included, as they are helpful to contextualize the information within in the records, but are marked "if applicable" since many records are owned by the office and not an individual. Also included are the *abstract*

and *subject* fields, as they provide a fuller understanding of the materials and add searchable terms used to aid in discoverability. Once the files and their associated metadata are gathered and formatted into an ingest folder they can be uploaded to the Network Attached Storage (NAS), which will then be pulled into the Islandora platform.

   In light of some of the more pressing questions brought up by record keepers during the first four departmental surveys, Gallagher created a document on record keeping tips and best practices. This guide defines important terms in record keeping such as obsolescence, and provides information on version control, file naming conventions, and proper file storage tips. This guide can be consulted by record keepers on a day-to-day basis and serves as a reminder for best practices that aid in archival storage and access.

   The previous fellow expressed concerns that offices were unsure how to determine the size of the digital files to be transferred to SCUA. In response to this uncertainty, Gallagher created two instructional tools that guide departments on how to find the size of their folders and files, regardless of operating system. This information is important for archivists to know before accepting the transfer of digital records, as staff may need to adjust processing time and storage space for the records.

   Another helpful reference for departments is the *Record Keeping Cheat Sheet*, outlining which files, based on content, are to be permanently retained by SCUA. This document was created in response to the questions from offices on how to determine which records have long-term archival value, and which documents should be retained or disposed. It notes each type of file marked for permanent retention in the *University of North Carolina General Records Retention and Disposition Schedule*. Each entry is given a summary of their in-office retention and time of transfer, where applicable.

   Once the fellowship projects and interviews were completed, Gallagher consolidated the above-mentioned materials and additional information, such as links to relevant University policies and the records retention schedule, in a LibGuide website.[7] This information helps explain some of the basics of record keeping and can be used to acquaint departments with the information needed to

manage their digital records. It can also be used during future interviews to answer common questions. Additionally, as the ingest process continues to develop for digital materials, this LibGuide can instruct interested parties on the appropriate next steps.

Conclusion and Next Steps

In 2017, SCUA hired its first digital archivist. With this position newly filled, the department is finally able to enact some of the recommendations that resulted from the survey that Gallagher and Howell carried out. In the summer of 2018, Howell and the digital archivist successfully proposed yet another Atkins Fellowship. This fellow's first project was to pull born-digital files from portable storage devices that were transferred to the archives prior to 2015 and ingest them into Goldmine for preservation. She also updated collection descriptions and accession records in ArchivesSpace to reflect the extent, content, and formats of the digital records.

Moving even further into the future, the digital archivist and university archivist will work together to transfer born-digital records in bulk from campus offices and departments. They will examine and test various tools for accepting file transfers, including but not limited to Google Drive, Dropbox, and portable storage devices like flash drives and external hard drives. In conjunction with TDS, they may also explore building a custom tool that could be used to transfer files. Their goal is to keep the transfer process easy and accessible so that designated records liaisons in University offices can quickly and securely transfer files without first having to learn a complicated or highly technical process. Howell hopes that using familiar tools will encourage a higher level of participation from campus offices.

This work will require a plan for prioritizing offices or specific record series to target in the first push for records. Based on the 2017 survey results, Atkins Library Administration was determined to be a good candidate for a pilot transfer and ingest. Other surveyed offices are currently being identified by Howell as potential partners to make records transfers in the pilot project. Criteria for inclusion will include the quantity of records at hand, the retention rules for the body of records, the research

potential of the files, privacy concerns, and technical challenges posed by the body of records. There will need to be some targeted outreach and careful direction given to the selected pilot offices, as transferring born-digital records is a new process with new policies and procedures. The supplemental tools created by Gallagher, such as the record keeping tips and best practices and record keeping cheat sheet will be used to assist participating record liaisons.

Questions about accessing born-digital University records still linger as these materials often contain confidential or personally identifiable information that, like existing paper records, will require well-thought-out access policies for internal and external researchers. However, by using the survey tool and other supplemental documents created during Gallagher's fellowship, Howell can get a more accurate picture of which records transfers would be most likely to contain protected records and apply access policies appropriately.

The survey tool outlined in this article has proved instrumental in giving SCUA staff a better understanding of how a broad variety of University offices are creating and maintaining born-digital records. It will allow archivists at UNC Charlotte to craft new policies and procedures for digital records created by the University that address the common concerns and record keeping practices of campus offices and departments. Howell will also utilize the survey during early conversations with departments preparing to transfer born-digital records in order to gain a better understanding of the scope, content, and technical specifications of the records. Overall, this survey was an important and necessary step to begin implementing a fully-functioning born-digital records management program at UNC Charlotte.

Erin Gallagher recently earned her MSIS, with a concentration in Archives and Records Management, from the University of North Carolina at Chapel Hill. Currently, she is acting as the Digital Research Librarian at the Environmental Protection Agency.

Katie Causier Howell is the University Archivist for UNC Charlotte. She has previously worked for Central Piedmont Community College and the Austin History Center. She

received her MSIS with a specialization in Archives and Records Enterprise from the University of Texas at Austin.

NOTES

1. As of January 2018, UNC Charlotte has adopted the revised Records Retention and Disposition Schedule: Institutions of the University of North Carolina System. "Records Retention and Disposition Schedule: Institutions of the University of North Carolina System," North Carolina Department of Natural and Cultural Resources, last modified January 2018. https://www.northcarolina.edu/sites/default/files/university_generalschedule_2018_0.pdf.

2. "Atkins Fellow Program," University of North Carolina at Charlotte. J. Murrey Atkins Library, accessed July 1, 2018. https://library.uncc.edu/atkins/atkinsfellows.

3. Digital Materials Donation or Transfer Form," University of North Carolina at Charlotte, accessed July 1, 2018. http://guides.library.uncc.edu/ld.php?content_id=34294718.

4. "University General Records Retention and Disposition Schedule," North Carolina Department of Cultural Resources, last modified April 2007. https://files.nc.gov/dncr-archives/documents/files/unc_system_general_schedule.pdf.

5. "Digital Preservation," Conservation and Preservation Services: MIT Libraries, accessed June 30, 2018. https://libraries.mit.edu/preserve/about/digital.

6. "Born Digital @ Yale: Digital Accessioning Service," Yale University Library, accessed June 30, 2018. https://guides.library.yale.edu/c.php?g=300384&p=3593184.

7. Erin Gallagher, "Born-Digital University Records," last modified November 13, 2017. http://guides.library.uncc.edu/c.php?g=700131&p=4966718.

Appendix A: Digital Materials Information Sheet

**Name/
Title**_____
_____

Date _____

Department_____
_____

**Email
Address**_____

Phone Number _____

Basic Information:
> Could you tell us about the role of this office/
> department within the University?

> Do you often receive files created by other offices?
> If so, how do you manage these files? (Separation,
> File Hierarchy)

> What is the content and context of the files? What
> categories do your records fall under?:
> (Administrative Records) (Personnel Records)
> (Development Records) (Financial Records) (IT
> Records) (Faculties Service Records) (Library
> Records) (Safety Records) (Student Academic
> Records) (Student Athletic Records) (Student-
> Financial Aid Records) (Student- Health Services
> Records) (Student Life Records) (University Police/
> Public Safety) Other (please specify)

> Do you manage any files that contain sensitive
> information? (Student Financial Aid Reports)
> (Financial Reports) (Employee Assistance

Programs) (Employee Medical Records) (Personnel Files) (Student Health Records) (Other)

What is the approximate date range of files? (YYYY to YYYY)

Volume:

Approximate total amount of data: _____ (megabytes, gigabytes, terabytes)

File Storage:

Do you have files that exist in both digital and paper formats? (y/n/not sure)

What file extensions do your records typically have? (.doc) (.docx) (.pdf) (.xls) (.ppt) (.xml) (.txt) (.mp3) (.wav) (.tar) (.zip) (.7z) (.csv) (.sql) (.exe) (.py) (.ai) (.gif) (.png) (.tiff) (.css) (.html) (.mp4) (.mpeg)

Do you have any other, atypical file extensions occurring? (E.g. .hki, .idw, .adp)

How are digital files organized? (E.g. filed in named folders, all files together in one folder, etc.)

Are any digital files destroyed in regular intervals?

What kinds of systems were these files created on? Mac or PC or Linux?

Do you have files saved on any external hardware? (Thumb drives, external hard drives, etc.) If so what kind and how many?

Do you have any files stored on any unusual or older storage medium? (E.g. floppy disk etc.)

Could you give us the approximate date that the files were transferred to the physical media?

Do you regularly use any cloud storage, and if so, which one? (Dropbox, Google Drive)

Backup:

Do you transfer files from your old computers to your new computers? If so, what types are transferred? Did you encounter any problems with transfer?

Have you ever experienced a serious hardware failure? If yes, were the files from the affected computer recovered?

Are you transferring information from external media to cloud or network storage?

Accessibility:
Do any files require passwords?

Are any of the files compressed?

Do you use any specialized or non-typical software to open or access your files? (Ex. Photoshop, Garage Band)

Do you or your office use any specific file naming schemes, or version control? (Ex. *17_agenda_gallagher.pdf*)

Other:
Are there any other special or unique circumstances that we should be aware of?

Appendix B: Proposed Workflow

Digital Records Workflow
Transfer of Digital Materials to University Archives

Pre-Transfer

Records Transfer Need Determined

Need Determined By:
- Prompting from SCUA
- Records Schedule
- Historically Relevant Records

Determine and Gather Additional Information Needed

- Needed Information can be found on Digital Transfer Form

Transfer

Transfer to University Archives

If Digital Records are on a physical drive
- Contact University Archives for Instruction for physical transfer
For Online Transfer
- See instructions via University Archives website

University Archives Audits Submission

- Verify records authenticity
- Ensure no student records are provided.
- Ensure all necessary information provided
- Transfer to Temporary storage

Processing

Provide Description and Metadata for records

- Incorporate Metadata provided from Digital Transfer form
- Prepare for Goldmine Repository Ingest

Accessibility

Make Records Digitally Accessible

- Ingest to Goldmine Repository
- Metadata and Description Provided
- Make available to public (Embargoes considered)
- Archivist checks website to ensure good transfer and storage
- Archive Space Finding Aid Created